

PR-199

ESTADOS UNIDOS MEXICANOS

SECRETARIA DE MARINA

DIRECCION GENERAL DE OCEANOGRAFIA NAVAL



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ALMANAQUE NAUTICO

**1989**

México, D. F.



## **NOTA**

**Se toman todos los cuidados necesarios en la producción de esta publicación. Como una precaución final se recomienda al recibirla, examinar la secuencia de las páginas. Si se encuentra algún faltante se debe regresar para su cambio.**

## **EDICION MEXICANA**

**Disponible para la venta en la  
SECRETARIA DE MARINA**

**Dirección General de Oceanografía Naval  
Calzada de la Salud No. 861, Edificio "B" Planta Baja  
Colonia Los Cipreces. Delegación Coyoacán  
C.P. 04830 México 21, D.F.**



TABLAS DE CORRECCION DE ALTURAS DE 0° - 10°, DEL SOL, ESTRELLAS Y PLANETAS A<sub>3</sub>

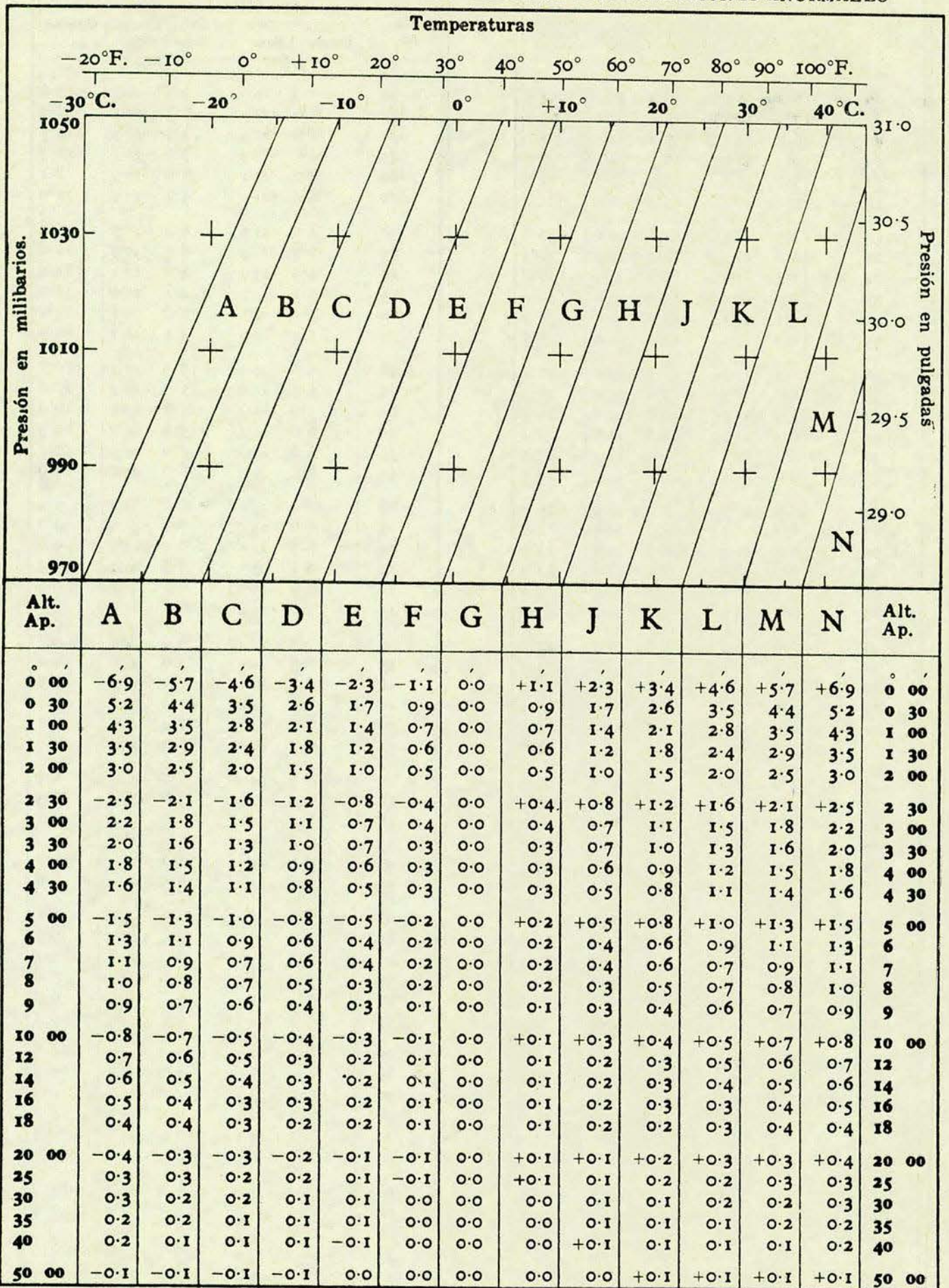
Alt. Ap.	OCT.—MAR. SOL ABR.—SEP.				ESTRELLAS PLANETAS.
	Limbo Inf.	Limbo Sup.	Limbo Inf.	Limbo Sup.	
0 00	-18.2	-50.5	-18.4	-50.2	-34.5
03	17.5	49.8	17.8	49.6	33.8
06	16.9	49.2	17.1	48.9	33.2
09	16.3	48.6	16.5	48.3	32.6
12	15.7	48.0	15.9	47.7	32.0
15	15.1	47.4	15.3	47.1	31.4
0 18	-14.5	-46.8	-14.8	-46.6	-30.8
21	14.0	46.3	14.2	46.0	30.3
24	13.5	45.8	13.7	45.5	29.8
27	12.9	45.2	13.2	45.0	29.2
30	12.4	44.7	12.7	44.5	28.7
33	11.9	44.2	12.2	44.0	28.2
0 36	-11.5	-43.8	-11.7	-43.5	-27.8
39	11.0	43.3	11.2	43.0	27.3
42	10.5	42.8	10.8	42.6	26.8
45	10.1	42.4	10.3	42.1	26.4
48	9.6	41.9	9.9	41.7	25.9
51	9.2	41.5	9.5	41.3	25.5
0 54	- 8.8	-41.1	- 9.1	-40.9	-25.1
0 57	8.4	40.7	8.7	40.5	24.7
I 00	8.0	40.3	8.3	40.1	24.3
03	7.7	40.0	7.9	39.7	24.0
06	7.3	39.6	7.5	39.3	23.6
09	6.9	39.2	7.2	39.0	23.2
I 12	- 6.6	-38.9	- 6.8	-38.6	-22.9
15	6.2	38.5	6.5	38.3	22.5
18	5.9	38.2	6.2	38.0	22.2
21	5.6	37.9	5.8	37.6	21.9
24	5.3	37.6	5.5	37.3	21.6
27	4.9	37.2	5.2	37.0	21.2
I 30	- 4.6	-36.9	- 4.9	-36.7	-20.9
35	4.2	36.5	4.4	36.2	20.5
40	3.7	36.0	4.0	35.8	20.0
45	3.2	35.5	3.5	35.3	19.5
50	2.8	35.1	3.1	34.9	19.1
I 55	2.4	34.7	2.6	34.4	18.7
2 00	- 2.0	-34.3	- 2.2	-34.0	-18.3
05	1.6	33.9	1.8	33.6	17.9
10	1.2	33.5	1.5	33.3	17.5
15	0.9	33.2	1.1	32.9	17.2
20	0.5	32.8	0.8	32.6	16.8
25	- 0.2	32.5	0.4	32.2	16.5
2 30	+ 0.2	-32.1	- 0.1	-31.9	-16.1
35	0.5	31.8	+ 0.2	31.6	15.8
40	0.8	31.5	0.5	31.3	15.5
45	1.1	31.2	0.8	31.0	15.2
50	1.4	30.9	1.1	30.7	14.9
2 55	1.6	30.7	1.4	30.4	14.7
3 00	+ 1.9	-30.4	+ 1.7	-30.1	-14.4
05	2.2	30.1	1.9	29.9	14.1
10	2.4	29.9	2.1	29.7	13.9
15	2.6	29.7	2.4	29.4	13.7
20	2.9	29.4	2.6	29.2	13.4
25	3.1	29.2	2.9	28.9	13.2
3 30	+ 3.3	-29.0	+ 3.1	-28.7	-13.0

Alt. Ap.	OCT.—MAR. SOL ABR. SEP.				ESTRELLAS PLANETAS.
	Limbo Inf.	Limbo Sup.	Limbo Inf.	Limbo Sup.	
3 30	+ 3.3	-29.0	+ 3.1	-28.7	-13.0
35	3.6	28.7	3.3	28.5	12.7
40	3.8	28.5	3.5	28.3	12.5
45	4.0	28.3	3.7	28.1	12.3
50	4.2	28.1	3.9	27.9	12.1
3 55	4.4	27.9	4.1	27.7	11.9
4 00	+ 4.5	-27.8	+ 4.3	-27.5	-11.8
05	4.7	27.6	4.5	27.3	11.6
10	4.9	27.4	4.6	27.2	11.4
15	5.1	27.2	4.8	27.0	11.2
20	5.2	27.1	5.0	26.8	11.1
25	5.4	26.9	5.1	26.7	10.9
4 30	+ 5.6	-26.7	+ 5.3	-26.5	-10.7
35	5.7	26.6	5.5	26.3	10.6
40	5.9	26.4	5.6	26.2	10.4
45	6.0	26.3	5.8	26.0	10.3
50	6.2	26.1	5.9	25.9	10.1
4 55	6.3	26.0	6.0	25.8	10.0
5 00	+ 6.4	-25.9	+ 6.2	-25.6	- 9.9
05	6.6	25.7	6.3	25.5	9.7
10	6.7	25.6	6.4	25.4	9.6
15	6.8	25.5	6.6	25.2	9.5
20	6.9	25.4	6.7	25.1	9.4
25	7.1	25.2	6.8	25.0	9.2
5 30	+ 7.2	-25.1	+ 6.9	-24.9	- 9.1
35	7.3	25.0	7.0	24.8	9.0
40	7.4	24.9	7.2	24.6	8.9
45	7.5	24.8	7.3	24.5	8.8
50	7.6	24.7	7.4	24.4	8.7
5 55	7.7	24.6	7.5	24.3	8.6
6 00	+ 7.8	-24.5	+ 7.6	-24.2	- 8.5
10	8.0	24.3	7.8	24.0	8.3
20	8.2	24.1	8.0	23.8	8.1
30	8.4	23.9	8.1	23.7	7.9
40	8.6	23.7	8.3	23.5	7.7
6 50	8.7	23.6	8.5	23.3	7.6
7 00	+ 8.9	-23.4	+ 8.6	-23.2	- 7.4
10	9.1	23.2	8.8	23.0	7.2
20	9.2	23.1	9.0	22.8	7.1
30	9.3	23.0	9.1	22.7	7.0
40	9.5	22.8	9.2	22.6	6.8
7 50	9.6	22.7	9.4	22.4	6.7
8 00	+ 9.7	-22.6	+ 9.5	-22.3	- 6.6
10	9.9	22.4	9.6	22.2	6.4
20	10.0	22.3	9.7	22.1	6.3
30	10.1	22.2	9.8	22.0	6.2
40	10.2	22.1	10.0	21.8	6.1
8 50	10.3	22.0	10.1	21.7	6.0
9 00	+ 10.4	-21.9	+ 10.2	-21.6	- 5.9
10	10.5	21.8	10.3	21.5	5.8
20	10.6	21.7	10.4	21.4	5.7
30	10.7	21.6	10.5	21.3	5.6
40	10.8	21.5	10.6	21.2	5.5
9 50	10.9	21.4	10.6	21.2	5.4
10 00	+ 11.0	-21.3	+ 10.7	-21.1	- 5.3

En la página siguiente se dan correcciones adicionales por temperatura y presión. Para el caso de observaciones con sextante de burbuja, ignórese la depresión y úsense las correcciones de estrellas para Sol, planetas y estrellas.



**A4 TABLAS DE CORRECCION DE ALTURAS — CORRECCIONES ADICIONALES**  
**CORRECCIONES ADICIONALES A LA REFRACCION PARA CONDICIONES ANORMALES**



Se entra a la gráfica con los argumentos temperatura y presión para encontrar la letra correspondiente a la zona; usando como argumentos esta letra de zona y la altura aparente (altura del sextante corregida por depresión), se toma la corrección de la tabla. Esta corrección se aplica a la lectura del sextante en adición a las correcciones para condiciones normales (para el Sol, estrellas y planetas de la página A<sub>2</sub> y de la Luna) de las páginas XXXIV y XXXV.



## P R E F A C I O

LA PRESENTE PUBLICACION DE LA SECRETARIA DE MARINA, CONSTITUYE LA VERSION MEXICANA DEL "THE NAUTICAL ALMANAC" BRITANICO Y AMERICANO. ES IDENTICA EN CONTENIDO NUMERICO A ESTOS; QUE SON PRODUCIDOS RESPECTIVAMENTE, POR EL OBSERVATORIO DE GREENWICH EN LA GRAN BRETAÑA, Y POR EL OBSERVATORIO NAVAL EN LOS E.U.A.

El C. Vicealmirante S.I.G.H.  
GILBERTO LOPEZ LIRA  
Director General

Año Nuevo. . . . .	Domingo	1º	de Enero
Promulgación de la Constitución de los Estados Unidos Mexicanos	Domingo	5	de Febrero
Día de la Bandera Nacional. . . . .	Viernes	24	de Febrero
Natalicio del Lic. Dn. Benito Juárez. . . . .	Martes	21	de Marzo
Defensa del Puerto de Veracruz. . . . .	Viernes	21	de Abril
Día del Trabajo. . . . .	Lunes	1º	de Mayo
Aniversario de la Batalla de Puebla. . . . .	Viernes	5	de Mayo
Día de la Marina Nacional. . . . .	Jueves	1º	de Junio
Muerte del Lic. Dn. Benito Juárez. . . . .	Martes	18	de Julio
Muerte de Dn. Miguel Hidalgo y Costilla. . . . .	Domingo	30	de Julio
Independencia Nacional. . . . .	Sábado	16	de Septiembre
Día de la Raza. . . . .	Jueves	12	de Octubre
Revolución Mexicana. . . . .	Lunes	20	de Noviembre
Muerte de Dn. José Ma. Morelos y Pavón. . . . .	Viernes	22	de Diciembre
Navidad. . . . .	Lunes	25	de Diciembre

## FASES DE LA LUNA

## LUNA NUEVA

	d	h	m
Ene.	7	19	22
Feb.	6	07	37
Mar.	7	18	19
Abr.	6	03	33
May.	5	11	46
Jun.	3	19	53
Jul.	3	04	59
Ago.	1	16	06
Ago.	31	05	44
Sep.	29	21	47
Oct.	29	15	27
Nov.	28	09	41
Dic.	28	03	20

## LUNA LLENA

	d	h	m
Ene.	21	21	33
Feb.	20	15	32
Mar.	22	09	58
Abr.	21	03	13
May.	20	18	16
Jun.	19	06	57
Jul.	18	17	42
Ago.	17	03	07
Sep.	15	11	51
Oct.	14	20	32
Nov.	13	05	51
Dic.	12	16	30

## CUARTO CRECIENTE

	d	h	m
Ene.	14	13	58
Feb.	12	23	15
Mar.	14	10	11
Abr.	12	23	13
May.	12	14	19
Jun.	11	06	59
Jul.	11	00	19
Ago.	9	17	28
Sep.	8	09	49
Oct.	8	00	52
Nov.	6	14	11
Dic.	6	01	26

## CUARTO MENGUANTE

	d	h	m
Ene.	30	02	02
Feb.	28	20	08
Mar.	30	10	21
Abr.	28	20	46
May.	28	04	01
Jun.	26	09	09
Jul.	25	13	31
Ago.	23	18	40
Sep.	22	02	10
Oct.	21	13	19
Nov.	20	04	44
Dic.	19	23	54

Tiempo del Meridiano de Greenwich; T.M.G. (T.U.)



DIAS DE LA SEMANA Y DIAS DEL AÑO

Día del Mes	ENE.		FEB.		MAR.		ABR.		MAY.		JUN.		JUL.		AGO.		SEP.		OCT.		NOV.		DIC.	
	Sem.	Año	Sem.	Año	Sem.	Año	Sem.	Año	Sem.	Año	Sem.	Año	Sem.	Año	Sem.	Año	Sem.	Año	Sem.	Año	Sem.	Año	Sem.	Año
1	D.	1	Mi.	32	Mi.	60	S.	91	L.	121	J.	152	S.	182	M.	213	V.	244	D.	274	Mi.	305	V.	335
2	L.	2	J.	33	J.	61	D.	92	M.	122	V.	153	D.	183	Mi.	214	S.	245	L.	275	J.	306	S.	336
3	M.	3	V.	34	V.	62	L.	93	Mi.	123	S.	154	L.	184	J.	215	D.	246	M.	276	V.	307	D.	337
4	Mi.	4	S.	35	S.	63	M.	94	J.	124	D.	155	M.	185	V.	216	L.	247	Mi.	277	S.	308	L.	338
5	J.	5	D.	36	D.	64	Mi.	95	V.	125	L.	156	Mi.	186	S.	217	M.	248	J.	278	D.	309	M.	339
6	V.	6	L.	37	L.	65	J.	96	S.	126	M.	157	J.	187	D.	218	Mi.	249	V.	279	L.	310	Mi.	340
7	S.	7	M.	38	M.	66	V.	97	D.	127	Mi.	158	V.	188	L.	219	J.	250	S.	280	M.	311	J.	341
8	D.	8	Mi.	39	Mi.	67	S.	98	L.	128	J.	159	S.	189	M.	220	V.	251	D.	281	Mi.	312	V.	342
9	L.	9	J.	40	J.	68	D.	99	M.	129	V.	160	D.	190	Mi.	221	S.	252	L.	282	J.	313	S.	343
10	M.	10	V.	41	V.	69	L.	100	Mi.	130	S.	161	L.	191	J.	222	D.	253	M.	283	V.	314	D.	344
11	Mi.	11	S.	42	S.	70	M.	101	J.	131	D.	162	M.	192	V.	223	L.	254	Mi.	284	S.	315	L.	345
12	J.	12	D.	43	D.	71	Mi.	102	V.	132	L.	163	Mi.	193	S.	224	M.	255	J.	285	D.	316	M.	346
13	V.	13	L.	44	L.	72	J.	103	S.	133	M.	164	J.	194	D.	225	Mi.	256	V.	286	L.	317	Mi.	347
14	S.	14	M.	45	M.	73	V.	104	D.	134	Mi.	165	V.	195	L.	226	J.	257	S.	287	M.	318	J.	348
15	D.	15	Mi.	46	Mi.	74	S.	105	L.	135	J.	166	S.	196	M.	227	V.	258	D.	288	Mi.	319	V.	349
16	L.	16	J.	47	J.	75	D.	106	M.	136	V.	167	D.	197	Mi.	228	S.	259	L.	289	J.	320	S.	350
17	M.	17	V.	48	V.	76	L.	107	Mi.	137	S.	168	L.	198	J.	229	D.	260	M.	290	V.	321	D.	351
18	Mi.	18	S.	49	S.	77	M.	108	J.	138	D.	169	M.	199	V.	230	L.	261	Mi.	291	S.	322	L.	352
19	J.	19	D.	50	D.	78	Mi.	109	V.	139	L.	170	Mi.	200	S.	231	M.	262	J.	292	D.	323	M.	353
20	V.	20	L.	51	L.	79	J.	110	S.	140	M.	171	J.	201	D.	232	Mi.	263	V.	293	L.	324	Mi.	354
21	S.	21	M.	52	M.	80	V.	111	D.	141	Mi.	172	V.	202	L.	233	J.	264	S.	294	M.	325	J.	355
22	D.	22	Mi.	53	Mi.	81	S.	112	L.	142	J.	173	S.	203	M.	234	V.	265	D.	295	Mi.	326	V.	356
23	L.	23	J.	54	J.	82	D.	113	M.	143	V.	174	D.	204	Mi.	235	S.	266	L.	296	J.	327	S.	357
24	M.	24	V.	55	V.	83	L.	114	Mi.	144	S.	175	L.	205	J.	236	D.	267	M.	297	V.	328	D.	358
25	Mi.	25	S.	56	S.	84	M.	115	J.	145	D.	176	M.	206	V.	237	L.	268	Mi.	298	S.	329	L.	359
26	J.	26	D.	57	D.	85	Mi.	116	V.	146	L.	177	Mi.	207	S.	238	M.	269	J.	299	D.	330	M.	360
27	V.	27	L.	58	L.	86	J.	117	S.	147	M.	178	J.	208	D.	239	Mi.	270	V.	300	L.	331	Mi.	361
28	S.	28	M.	59	M.	87	V.	118	D.	148	Mi.	179	V.	209	L.	240	J.	271	S.	301	M.	332	J.	362
29	D.	29			Mi.	88	S.	119	L.	149	J.	180	S.	210	M.	241	V.	272	D.	302	Mi.	333	V.	363
30	L.	30			J.	89	D.	120	M.	150	V.	181	D.	211	Mi.	242	S.	273	L.	303	J.	334	S.	364
31	M.	31			V.	90			Mi.	151			L.	212	J.	243			M.	304			D.	365

ECLIPSES

Hay cuatro eclipses, dos de Sol y dos de Luna.

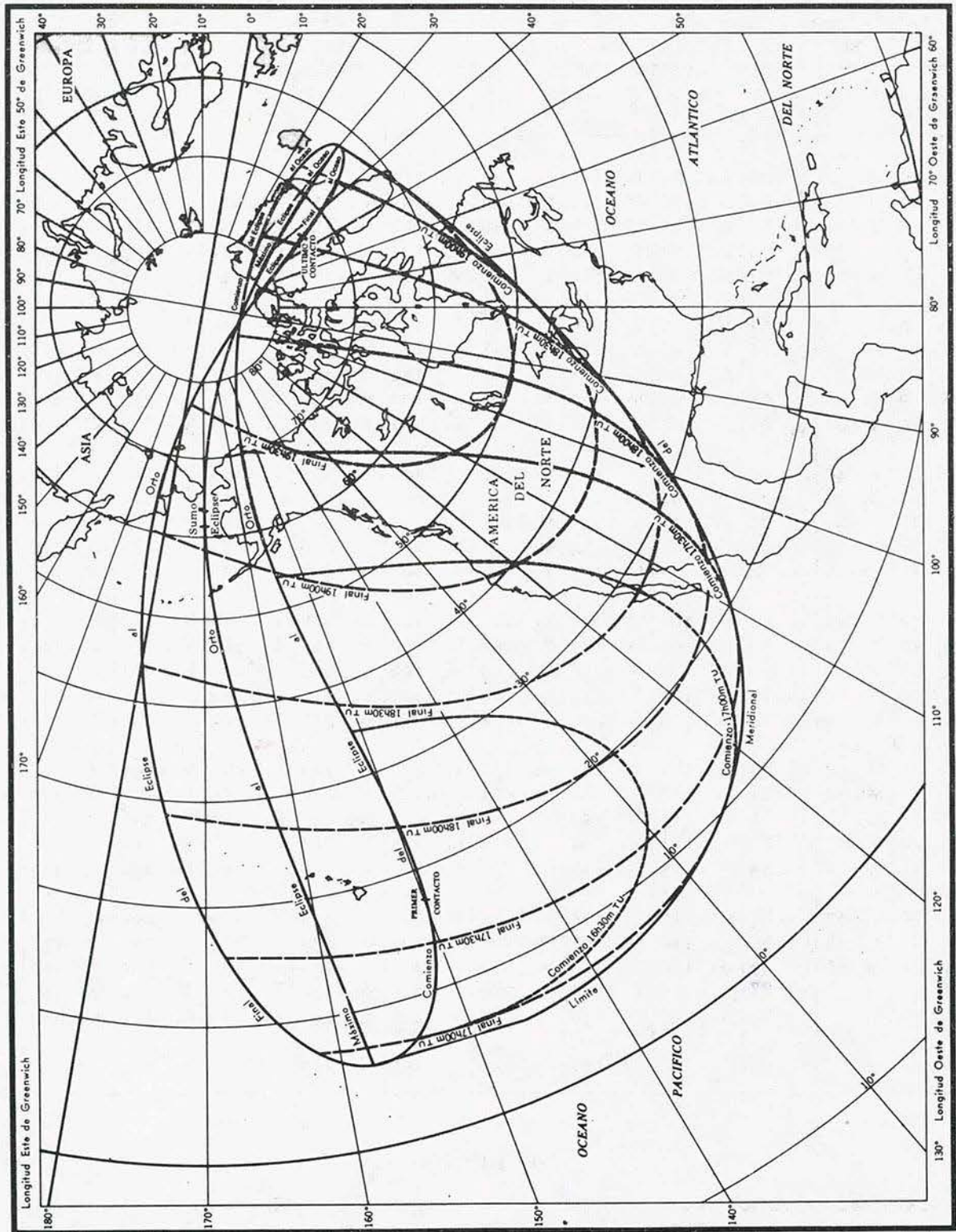
1.- *Eclipse Total de Luna, el 20 de febrero.* El eclipse principia a las 13<sup>h</sup> 45<sup>m</sup> y finaliza a las 17<sup>h</sup> 27<sup>m</sup>; la fase total inicia a las 14<sup>h</sup> 57<sup>m</sup> y termina a las 16<sup>h</sup> 15<sup>m</sup>. Es visible desde la parte nor-oeste de América del Norte, las regiones árticas, Australasia, Asia, la parte extrema este de Africa y la parte nor-este de Europa.

2.- *Eclipse Parcial de Sol, el 7 de marzo.* Ver el mapa de la página 6. El eclipse principia a las 16<sup>h</sup> 17<sup>m</sup> y finaliza a las 19<sup>h</sup> 58<sup>m</sup>; en el instante de máximo eclipse el obscurecimiento es de 0.83 del diámetro del Sol.

3.- *Eclipse Total de Luna, el 17 de agosto.* El eclipse principia a las 01<sup>h</sup> 21<sup>m</sup>. y finaliza a las 04<sup>h</sup> 55<sup>m</sup>; la fase total inicia a las 02<sup>h</sup> 20<sup>m</sup> y termina a las 03<sup>h</sup> 56<sup>m</sup>. Es visible desde la parte extrema oeste de Asia, Europa excepto la parte norte de Escandinavia, Africa, Islandia, Groelandia excepto la parte norte, las Americas excepto la parte nor-oeste de América del Norte, y la mayor parte de la Antártida.

4.- *Eclipse Parcial de Sol, el 31 de agosto.* Ver el mapa de la página 7. El eclipse principia a las 03<sup>h</sup> 34<sup>m</sup> y finaliza a las 07<sup>h</sup> 28<sup>m</sup>; en el instante de máximo eclipse el obscurecimiento es de 0.63 del diámetro del Sol.

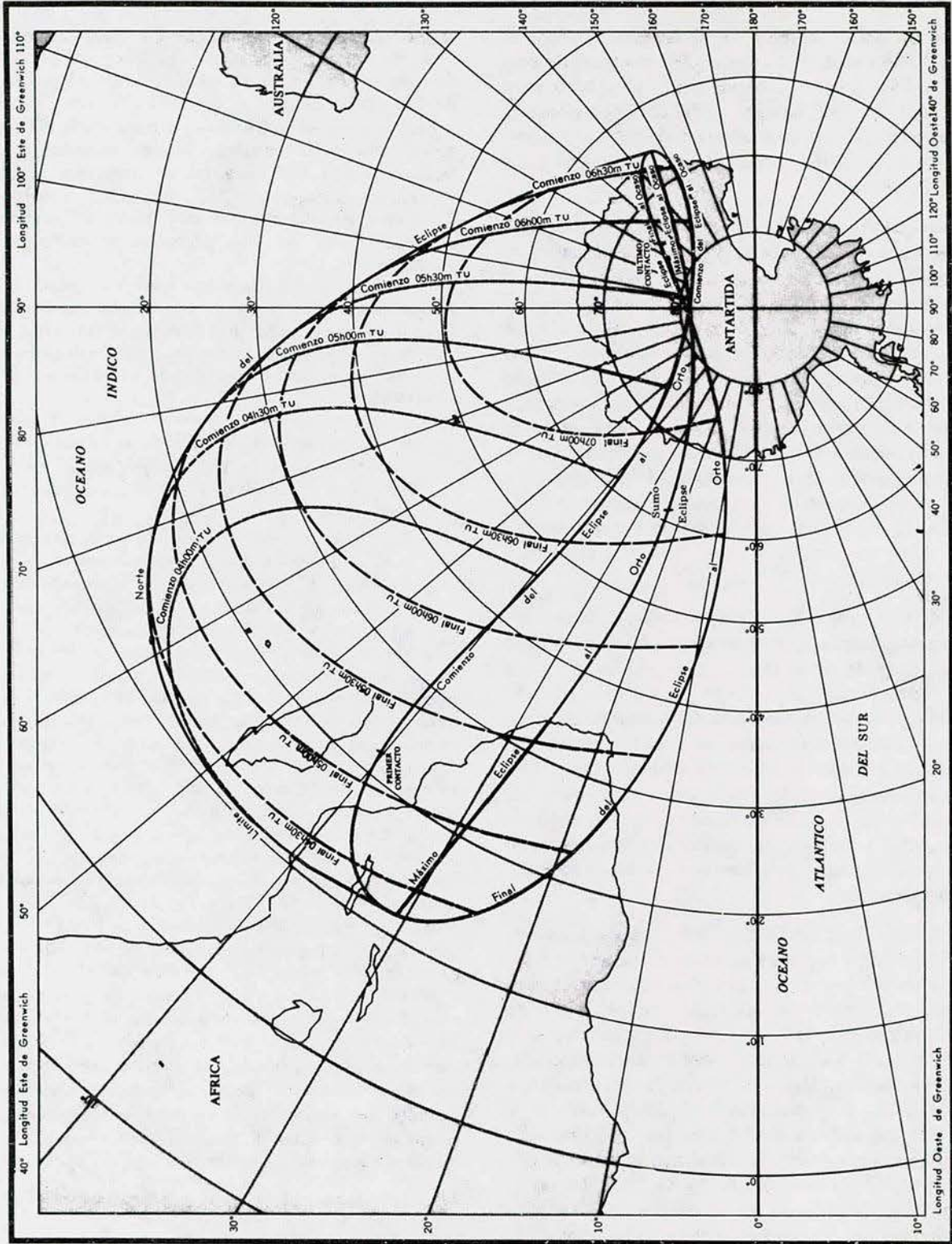




### DIAGRAMAS DEL ECLIPSE SOLAR

Las características principales mostradas en los diagramas son: sobre las trayectorias de eclipse total y anular, los límites hacia el norte y hacia el sur de eclipse parcial, las curvas de orto y ocaso, líneas límite las cuales muestran las horas de principio y término de eclipse parcial a intervalos de cada media hora.





DIAGRAMAS DEL ECLIPSE SOLAR

Detalles más amplios sobre las trayectorias y tiempos del eclipse central, son mostrados en el "Astronomical Almanac".



## VISIBILIDAD DE LOS PLANETAS.

**VENUS**, es un astro brillante en el amanecer, desde el principio del año hasta los finales de febrero, cuando está muy cerca del Sol para su observación, y en el atardecer, desde mediados de mayo, hasta el fin del año. Venus está en conjunción con Saturno el 16 de enero, y el 15 de noviembre, con Mercurio el 1 de febrero, con Júpiter el 23 de mayo, y con Marte el 12 de julio.

**MARTE**, está en Piscis al principio del año, y puede verse durante más de la media noche hasta cerca los mediados de enero, después de lo cual sólo se puede ver en el atardecer, a medida que se mueve a través de Aries, Taurus (pasando 7° N. de Aldebaran el 28 de marzo), Gemini (pasando 5° S. de Pollux el 7 de junio), Cáncer, y Leo (pasando 0° 7' N. de Regulus el 2 de agosto) hasta mediados de agosto, cuando está muy cerca del Sol para su observación. Reaparece en el amanecer cerca de la mitad de noviembre, moviéndose desde Virgo hacia el interior de Libra. Pocos días después de la mitad de diciembre se mueve hacia el interior de Scorpius, y a fines de diciembre, dentro de Ophiuchus (pasando 5° N. de Antares el 30 de diciembre). Marte está en conjunción con Júpiter el 12 de marzo, con Venus el 12 de julio y con Mercurio el 5 de agosto.

**JUPITER**, está en Taurus al principio del año, y puede verse durante más de la media noche hasta cerca de los mediados de febrero, después de lo cual sólo se puede ver en el atardecer, hasta finales de mayo (pasando 5° N. de Aldebaran el 4 de mayo), cuando está muy cerca del Sol para su observación. Reaparece a finales de junio en el amanecer, fijo en Taurus, y a fines de julio se mueve hacia el interior de Gemini, constelación en la cual permanece por el resto del año. Está en oposición el 27 de diciembre, y entonces se puede ver durante toda la noche. Júpiter está en conjunción con Marte el 12 de marzo, con Venus el 23 de mayo y con Mercurio el 2 de julio.

**SATURNO**, está muy cerca del Sol para su observación desde el principio del año hasta pocos días antes de los mediados de enero, cuando aparece en el amanecer, ascendiendo brevemente antes de la salida del sol dentro de Sagittarius, constelación en la cual permanece durante todo el año. Su elongación hacia el oeste incrementa gradualmente y al principio de abril llega a ser visible durante más de la media noche. Está en oposición el 2 de julio y entonces se puede ver durante toda la noche, después de lo cual su elongación hacia el este decrece gradualmente. Alrededor de los finales de septiembre sólo se puede ver en el atardecer, hasta pocos días después de los mediados de diciembre cuando vuelve a estar muy cerca del Sol para su observación. Saturno está en conjunción con Venus el 16 de enero y el 15 de noviembre, y con Mercurio el 16 de diciembre.

**MERCURIO**, sólo puede verse a poca altura al este antes del amanecer e igualmente al oeste después del ocaso (al principio y al término del crepúsculo civil). Es visible en el amanecer entre las siguientes fechas aproximadas: Del 31 de enero (+2.0) al 26 de marzo (-1.0); del 2 de junio (+3.0) al 11 de julio (-1.5); del 2 de octubre (+1.6) al 28 de octubre (-1.1) el planeta es más brillante al fin de cada período. Es visible en el atardecer entre las siguientes fechas aproximadas: Del 1 de enero (-0.7) al 19 de enero (+1.6); del 13 de abril (-1.5) al 14 de mayo (+2.8); del 27 de julio (-1.1) al 18 de septiembre (+2.3); del 28 noviembre (-0.7) al 31 de diciembre (+0.4); el planeta es más brillante al principio de cada período. Los números entre paréntesis son las magnitudes.

## DIAGRAMA DE LOS PLANETAS

**DESCRIPCION GENERAL.**- El diagrama en la página opuesta muestra, en forma gráfica para cualquier fecha durante el año, la hora media local del paso del Sol, y de los cinco planetas: Mercurio, Venus, Marte, Júpiter y Saturno por el meridiano, y para cada 30° de A.H.S.; si el usuario lo requiere, pueden trazarse líneas intermedias a las trazadas en el diagrama, para algunas estrellas en particular. El propósito principal de este diagrama, es suministrar una información general de la disponibilidad de los planetas y estrellas para su observación.

A cada lado de la línea que marca el paso del Sol para el meridiano, se muestra una banda sombreada de 45<sup>m</sup> de ancho, indicando que los planetas y estrellas que crucen el meridiano, a menos de 45<sup>m</sup> del cruce del Sol, estarán demasiado cercanos al mismo, para poder observarse.

**Método para su uso e interpretación.** Para cualquier fecha, el diagrama suministra inmediatamente las horas medias locales del paso por el meridiano: del Sol, planetas y estrellas y, en consecuencia, la siguiente información:

- Si un planeta o estrella está demasiado cerca del Sol para poder observarse.
- Una indicación de su posición en el cielo, especialmente durante el crepúsculo.
- Su proximidad a otros planetas.

Cuando el paso del meridiano de un planeta exterior, tiene lugar a medianoche, el cuerpo celeste está en oposición al Sol siendo visible toda la noche; un planeta puede observarse en los crepúsculos matutino y vespertino. A medida que la hora de paso por el meridiano decrece, el cuerpo celeste deja de ser observable en la mañana, pero su altura sobre el horizonte hacia el Este a la hora del crepúsculo aumenta gradualmente; esto continúa hasta que el astro se encuentra en el meridiano durante el crepúsculo. De ahí en adelante el cuerpo celeste es observable sobre el horizonte Oeste y su altura en el crepúsculo vespertino disminuye gradualmente, hasta que llega a situarse tan cercano al Sol que imposibilita su observación. Cuando el cuerpo celeste (en cuestión) vuelve a ser visible aparecerá como un astro matutino muy bajo en el Este; su altura durante el crepúsculo se irá incrementando hasta que su paso por el meridiano coincida con el crepúsculo matutino. Entonces a medida que la hora del paso del meridiano decrece hacia las 0<sup>h</sup>, el cuerpo celeste es observable en el Oeste en el crepúsculo matutino con alturas gradualmente decrecientes hasta entrar de nuevo en oposición.

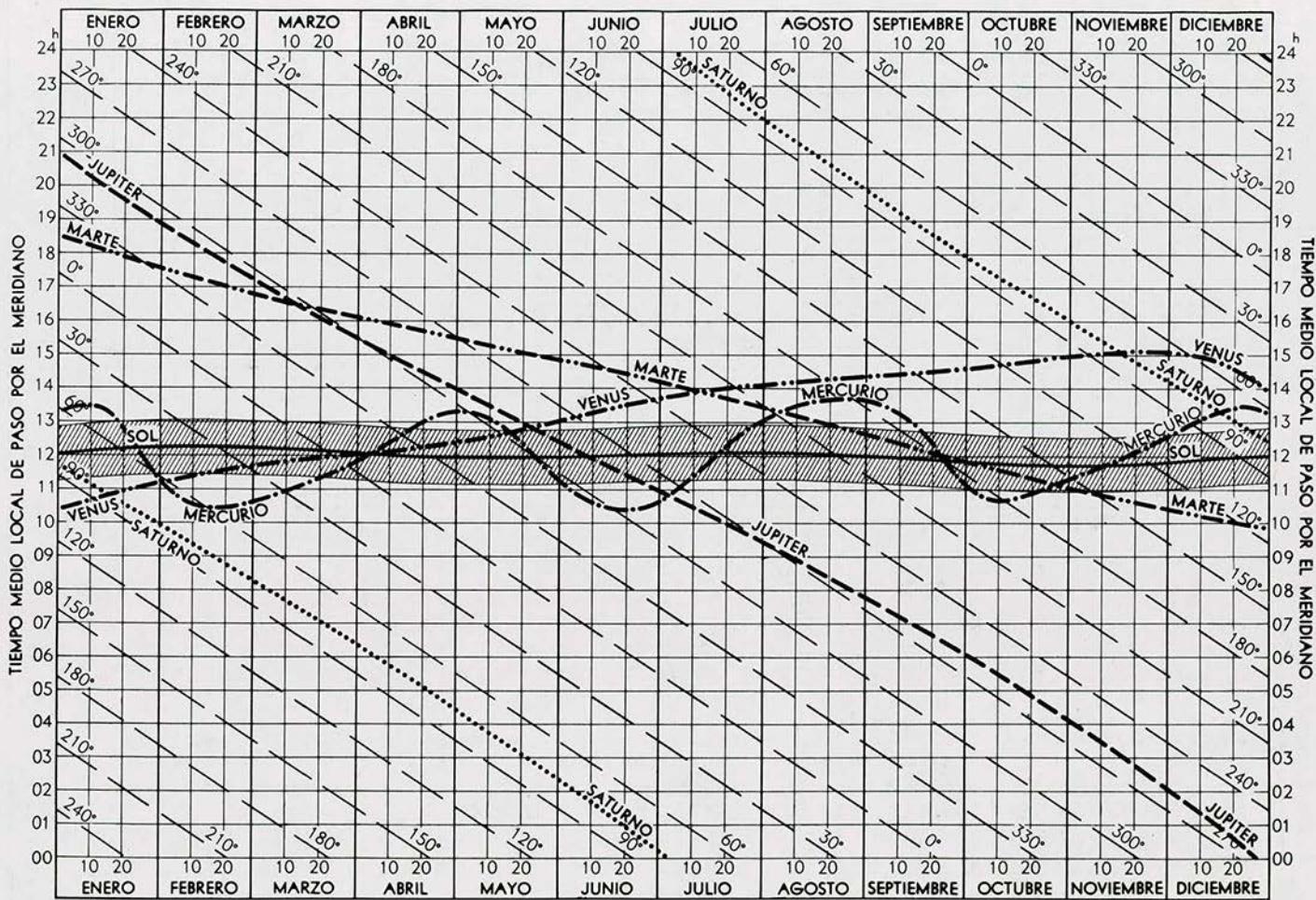
## NO CONFUNDIR

Venus con Saturno alrededor de los mediados de enero y de noviembre, con Mercurio desde los finales de enero hasta el principio de febrero y de nuevo en los mediados de mayo, con Júpiter en los finales de mayo y con Marte alrededor de los mediados de julio; en todas las ocasiones Venus es el astro más brillante.

Marte con Júpiter en marzo cuando Júpiter es el astro más brillante, y con Mercurio al principio de agosto en que Mercurio es el astro más brillante. El color rojizo de Marte debe ayudar en su identificación.

Mercurio con Júpiter desde los finales de junio hasta el principio de julio en que Júpiter es el astro más brillante, y con Saturno alrededor de los mediados de diciembre cuando Mercurio es el astro más brillante.







T. Mg. (TU)	ARIES			VENUS -3.9			MARTE +0.0			JUPITER -2.7			SATURNO +0.5			ESTRELLAS		
	d h	A.H.G.	Dec.	A.H.G.	Dec.	A.H.G.	Dec.	A.H.G.	Dec.	A.H.G.	Dec.	A.H.G.	Dec.	Nombre	A. H. S.	Dec.		
1 00	100	37.4	203 48.6 S22 04.0	82 10.6 N 8 24.1	45 58.7 N18 33.1	184 33.8 S22 36.5	Acomar	315 31.9 S40 21.0										
01	115	39.9	218 47.7 04.3	97 11.9 24.6	61 01.3 33.1	199 36.0 36.5	Achernar	335 40.0 S57 17.7										
02	130	42.4	233 46.8 04.7	112 13.2 25.2	76 04.0 33.1	214 38.1 36.5	Acrux	173 30.3 S63 02.1										
03	145	44.8	248 45.9 .. 05.1	127 14.5 .. 25.7	91 06.6 .. 33.0	229 40.3 .. 36.4	Adhara	255 26.6 S28 57.3										
04	160	47.3	263 45.0 05.5	142 15.8 26.2	106 09.2 33.0	244 42.4 36.4	Aldebaran	291 10.3 N16 29.4										
05	175	49.8	278 44.1 05.9	157 17.1 26.7	121 11.9 33.0	259 44.6 36.4												
06	190	52.2	293 43.2 S22 06.3	172 18.3 N 8 27.3	136 14.5 N18 32.9	274 46.7 S22 36.4	Alioth	166 36.5 N56 00.8										
07	205	54.7	308 42.4 06.6	187 19.6 27.8	151 17.1 32.9	289 48.8 36.4	Alkaid	153 13.3 N49 21.7										
08	220	57.2	323 41.5 07.0	202 20.9 28.3	166 19.8 32.9	304 51.0 36.4	Al Na'ir	28 06.9 S47 01.1										
09	235	59.6	338 40.6 .. 07.4	217 22.2 .. 28.9	181 22.4 .. 32.9	319 53.1 .. 36.4	Alnilam	276 04.7 S 1 12.4										
10	251	02.1	353 39.7 07.8	232 23.5 29.4	196 25.0 32.8	334 55.3 36.4	Alphard	218 13.9 S 8 36.6										
11	266	04.5	8 38.8 08.1	247 24.8 29.9	211 27.6 32.8	349 57.4 36.4												
12	281	07.0	23 37.9 S22 08.5	262 26.1 N 8 30.5	226 30.3 N18 32.8	4 59.6 S22 36.4	Alphecca	126 26.8 N26 44.8										
13	296	09.5	38 37.0 08.9	277 27.4 31.0	241 32.9 32.8	20 01.7 36.3	Alpheratz	358 02.8 N29 02.0										
14	311	11.9	53 36.1 09.2	292 28.7 31.5	256 35.5 32.7	35 03.9 36.3	Altair	62 26.5 N 8 50.2										
15	326	14.4	68 35.2 .. 09.6	307 30.0 .. 32.0	271 38.2 .. 32.7	50 06.0 .. 36.3	Ankaa	353 33.7 S42 22.1										
16	341	16.9	83 34.4 10.0	322 31.2 32.6	286 40.8 32.7	65 08.1 36.3	Antares	112 49.2 S26 24.6										
17	356	19.3	98 33.5 10.3	337 32.5 33.1	301 43.4 32.7	80 10.3 36.3												
18	11	21.8	113 32.6 S22 10.7	352 33.8 N 8 33.6	316 46.0 N18 32.6	95 12.4 S22 36.3	Arcturus	146 12.6 N19 14.1										
19	26	24.3	128 31.7 11.1	7 35.1 34.2	331 48.7 32.6	110 14.6 36.3	Atria	108 08.3 S69 00.5										
20	41	26.7	143 30.8 11.4	22 36.4 34.7	346 51.3 32.6	125 16.7 36.3	Avior	234 25.1 S59 28.2										
21	56	29.2	158 29.9 .. 11.8	37 37.7 .. 35.2	1 53.9 .. 32.6	140 18.9 .. 36.3	Bellatrix	278 51.5 N 6 20.5										
22	71	31.7	173 29.0 12.2	52 39.0 35.8	16 56.6 32.5	155 21.0 36.3	Betelgeuse	271 20.9 N 7 24.5										
23	86	34.1	188 28.1 12.5	67 40.3 36.3	31 59.2 32.5	170 23.2 36.2												
2 00	101	36.6	203 27.2 S22 12.9	82 41.5 N 8 36.8	47 01.8 N18 32.5	185 25.3 S22 36.2	Canopus	264 03.8 S52 41.3										
01	116	39.0	218 26.3 13.2	97 42.8 37.4	62 04.4 32.5	200 27.4 36.2	Capella	281 01.3 N45 59.5										
02	131	41.5	233 25.4 13.6	112 44.1 37.9	77 07.1 32.4	215 29.6 36.2	Deneb	49 44.6 N45 14.5										
03	146	44.0	248 24.6 .. 13.9	127 45.4 .. 38.4	92 09.7 .. 32.4	230 31.7 .. 36.2	Denebola	182 52.3 N14 37.9										
04	161	46.4	263 23.7 14.3	142 46.7 38.9	107 12.3 32.4	245 33.9 36.2	Diphda	349 14.3 S18 02.9										
05	176	48.9	278 22.8 14.7	157 48.0 39.5	122 14.9 32.4	260 36.0 36.2												
06	191	51.4	293 21.9 S22 15.0	172 49.2 N 8 40.0	137 17.6 N18 32.3	275 38.2 S22 36.2	Dubhe	194 13.5 N61 48.3										
07	206	53.8	308 21.0 15.4	187 50.5 40.5	152 20.2 32.3	290 40.3 36.2	Elnath	278 35.6 N28 36.1										
08	221	56.3	323 20.1 15.7	202 51.8 41.1	167 22.8 32.3	305 42.5 36.2	Eltanin	90 55.2 N51 29.2										
09	236	58.8	338 19.2 .. 16.1	217 53.1 .. 41.6	182 25.4 .. 32.3	320 44.6 .. 36.1	Enif	34 05.5 N 9 49.4										
10	252	01.2	353 18.3 16.4	232 54.4 42.1	197 28.0 32.2	335 46.8 36.1	Fomalhaut	15 44.3 S29 41.0										
11	267	03.7	8 17.4 16.7	247 55.7 42.7	212 30.7 32.2	350 48.9 36.1												
12	282	06.2	23 16.5 S22 17.1	262 56.9 N 8 43.2	227 33.3 N18 32.2	5 51.0 S22 36.1	Gacrux	172 21.8 S57 02.9										
13	297	08.6	38 15.6 17.4	277 58.2 43.7	242 35.9 32.2	20 53.2 36.1	Gienah	176 11.3 S17 28.8										
14	312	11.1	53 14.7 17.8	292 59.5 44.3	257 38.5 32.1	35 55.3 36.1	Hadar	149 14.7 S60 19.1										
15	327	13.5	68 13.8 .. 18.1	308 00.8 .. 44.8	272 41.2 .. 32.1	50 57.5 .. 36.1	Hamal	328 21.5 N23 24.9										
16	342	16.0	83 12.9 18.5	323 02.1 45.3	287 43.8 32.1	65 59.6 36.1	Kaus Aust.	84 08.6 S34 23.6										
17	357	18.5	98 12.0 18.8	338 03.3 45.8	302 46.4 32.1	81 01.8 36.1												
18	12	20.9	113 11.1 S22 19.1	353 04.6 N 8 46.4	317 49.0 N18 32.0	96 03.9 S22 36.1	Kochab	137 19.4 N74 11.6										
19	27	23.4	128 10.2 19.5	8 05.9 46.9	332 51.6 32.0	111 06.1 36.0	Markab	13 56.9 N15 08.8										
20	42	25.9	143 09.3 19.8	23 07.2 47.4	347 54.2 32.0	126 08.2 36.0	Menkar	314 34.2 N 4 02.9										
21	57	28.3	158 08.4 .. 20.1	38 08.5 .. 48.0	2 56.9 .. 32.0	141 10.3 .. 36.0	Menkent	148 29.6 S36 18.9										
22	72	30.8	173 07.5 20.5	53 09.7 48.5	17 59.5 31.9	156 12.5 36.0	Miaplacidus	221 43.2 S69 40.1										
23	87	33.3	188 06.6 20.8	68 11.0 49.0	33 02.1 31.9	171 14.6 36.0												
3 00	102	35.7	203 05.7 S22 21.1	83 12.3 N 8 49.6	48 04.7 N18 31.9	186 16.8 S22 36.0	Mirfak	309 06.6 N49 49.7										
01	117	38.2	218 04.8 21.5	98 13.6 50.1	63 07.3 31.9	201 18.9 36.0	Nunki	76 21.5 S26 18.8										
02	132	40.6	233 03.9 21.8	113 14.8 50.6	78 10.0 31.9	216 21.1 36.0	Peacock	53 48.5 S56 46.5										
03	147	43.1	248 03.0 .. 22.1	128 16.1 .. 51.2	93 12.6 .. 31.8	231 23.2 .. 36.0	Pollux	243 49.8 N28 03.2										
04	162	45.6	263 02.1 22.5	143 17.4 51.7	108 15.2 31.8	246 25.4 35.9	Procyon	245 18.6 N 5 15.3										
05	177	48.0	278 01.2 22.8	158 18.7 52.2	123 17.8 31.8	261 27.5 35.9												
06	192	50.5	293 00.3 S22 23.1	173 19.9 N 8 52.8	138 20.4 N18 31.8	276 29.7 S22 35.9	Rasalhague	96 23.9 N12 33.9										
07	207	53.0	307 59.4 23.4	188 21.2 53.3	153 23.0 31.7	291 31.8 35.9	Regulus	208 02.8 N12 01.2										
08	222	55.4	322 58.5 23.7	203 22.5 53.8	168 25.6 31.7	306 33.9 35.9	Rigel	281 29.4 S 8 12.7										
09	237	57.9	337 57.6 .. 24.1	218 23.8 .. 54.4	183 28.3 .. 31.7	321 36.1 .. 35.9	Rigil Kent.	140 17.5 S60 47.2										
10	253	00.4	352 56.7 24.4	233 25.0 54.9	198 30.9 31.7	336 38.2 35.9	Sabik	102 34.0 S15 42.8										
11	268	02.8	7 55.8 24.7	248 26.3 55.4	213 33.5 31.6	351 40.4 35.9												
12	283	05.3	22 54.9 S22 25.0	263 27.6 N 8 55.9	228 36.1 N18 31.6	6 42.5 S22 35.9	Schedar	350 01.9 N56 29.0										
13	298	07.8	37 54.0 25.3	278 28.8 56.5	243 38.7 31.6	21 44.7 35.9	Shaula	96 47.4 S37 05.9										
14	313	10.2	52 53.1 25.7	293 30.1 57.0	258 41.3 31.6	36 46.8 35.8	Sirius	258 49.6 S16 42.0										
15	328	12.7	67 52.2 .. 26.0	308 31.4 .. 57.5	273 43.9 .. 31.6	51 49.0 .. 35.8	Spica	158 50.8 S11 06.3										
16	343	15.1	82 51.3 26.3	323 32.7 58.1	288 46.6 31.5	66 51.1 35.8	Suhail	223 05.8 S43 23.1										
17	358	17.6	97 50.4 26.6	338 33.9 58.6	303 49.2 31.5	81 53.3 35.8												
18	13	20.1	112 49.5 S22 26.9	353 35.2 N 8 59.1	318 51.8 N18 31.5	96 55.4 S22 35.8	Vega	80 51.9 N38 46.2										
19	28	22.5	127 48.6 27.2	8 36.5 8 59.7	333 54.4 31.5	111 57.5 35.8	Zuben'ubi	137 26.1 S15 59.9										
20	43	25.0	142 47.7 27.5	23 37.7 9 00.2	348 57.0 31.4	126 59.7 35.8												
21	58	27.5	157 46.8 .. 27.8	38 39.0 .. 00.7	3 59.6 .. 31.4	142 01.8 .. 35.8												
22	73	29.9	172 45.9 28.1	53 40.3 01.3	19 02.2 31.4	157 04.0 35.8												
23	88	32.4	187 45.0 28.4	68 41.5 01.8	34 04.8 31.4	172 06.1 35.7												
Pas. Mer.																		
h m v -0.9 d 0.3 v 1.3 d 0.5 v 2.6 d 0.0 v 2.1 d 0.0																		
A. H. S. Pas. Mer.																		
o / h m																		
Venus 101 50.6 10 27																		
Marte 341 05.0 18 28																		
Júpiter 305 25.2 20 48																		
Saturno 83 48.7 11 37																		







T.M.G. (TU)	ARIES		VENUS -3.9		MARTE +0.0		JUPITER -2.7		SATURNO +0.5		ESTRELLAS		
	A.H.G.	Dec.	A.H.G.	Dec.	A.H.G.	Dec.	A.H.G.	Dec.	A.H.G.	Dec.	Nombre	A. H. S.	Dec.
4 00	103 34.9	S22 28.7	202 44.1	S22 28.7	83 42.8	N 9 02.3	49 07.4	N18 31.4	187 08.3	S22 35.7	Acamar	315 31.9	S40 21.0
01	118 37.3	29.0	217 43.1	29.0	98 44.1	02.9	64 10.0	31.3	202 10.4	35.7	Achernar	335 40.0	S57 17.7
02	133 39.8	29.3	232 42.2	29.3	113 45.3	03.4	79 12.7	31.3	217 12.6	35.7	Acruz	173 30.3	S63 02.1
03	148 42.3	29.6	247 41.3	29.6	128 46.6	03.9	94 15.3	31.3	232 14.7	35.7	Adhara	255 26.6	S28 57.3
04	163 44.7	29.9	262 40.4	29.9	143 47.9	04.5	109 17.9	31.3	247 16.9	35.7	Aldebaran	291 10.3	N16 29.4
05	178 47.2	30.2	277 39.5	30.2	158 49.1	05.0	124 20.5	31.3	262 19.0	35.7			
06	193 49.6	S22 30.5	292 38.6	S22 30.5	173 50.4	N 9 05.5	139 23.1	N18 31.2	277 21.2	S22 35.7	Alioth	166 36.5	N56 00.8
07	208 52.1	30.8	307 37.7	30.8	188 51.7	06.0	154 25.7	31.2	292 23.3	35.7	Alkaid	153 13.3	N49 21.7
08	223 54.6	31.1	322 36.8	31.1	203 52.9	06.6	169 28.3	31.2	307 25.4	35.6	Al Na'ir	28 06.9	S47 01.1
09	238 57.0	31.4	337 35.9	31.4	218 54.2	07.1	184 30.9	31.2	322 27.6	35.6	Alnilam	276 04.7	S 1 12.4
10	253 59.5	31.7	352 35.0	31.7	233 55.5	07.6	199 33.5	31.1	337 29.7	35.6	Alphard	218 13.9	S 8 36.6
11	269 02.0	32.0	7 34.1	32.0	248 56.7	08.2	214 36.1	31.1	352 31.9	35.6			
12	284 04.4	S22 32.3	22 33.2	S22 32.3	263 58.0	N 9 08.7	229 38.7	N18 31.1	7 34.0	S22 35.6	Alphecca	126 26.8	N26 44.8
13	299 06.9	32.6	37 32.3	32.6	278 59.2	09.2	244 41.3	31.1	22 36.2	35.6	Alpheratz	358 02.8	N29 02.0
14	314 09.4	32.9	52 31.3	32.9	294 00.5	09.8	259 43.9	31.1	37 38.3	35.6	Altair	62 26.5	N 8 50.2
15	329 11.8	33.1	67 30.4	33.1	309 01.8	10.3	274 46.5	31.0	52 40.5	35.6	Ankaa	353 33.7	S42 22.1
16	344 14.3	33.4	82 29.5	33.4	324 03.0	10.8	289 49.1	31.0	67 42.6	35.6	Antares	112 49.2	S26 24.6
17	359 16.7	33.7	97 28.6	33.7	339 04.3	11.4	304 51.7	31.0	82 44.8	35.6			
18	14 19.2	S22 34.0	112 27.7	S22 34.0	354 05.6	N 9 11.9	319 54.3	N18 31.0	97 46.9	S22 35.5	Arcturus	146 12.6	N19 14.1
19	29 21.7	34.3	127 26.8	34.3	9 06.8	12.4	334 56.9	31.0	112 49.0	35.5	Atria	108 08.3	S69 00.5
20	44 24.1	34.5	142 25.9	34.5	24 08.1	13.0	349 59.5	30.9	127 51.2	35.5	Avior	234 25.1	S59 28.3
21	59 26.6	34.8	157 25.0	34.8	39 09.3	13.5	5 02.2	30.9	142 53.3	35.5	Bellatrix	278 51.5	N 6 20.5
22	74 29.1	35.1	172 24.1	35.1	54 10.6	14.0	20 04.8	30.9	157 55.5	35.5	Betelgeuse	271 20.9	N 7 24.4
23	89 31.5	35.4	187 23.1	35.4	69 11.9	14.6	35 07.4	30.9	172 57.6	35.5			
5 00	104 34.0	S22 35.7	202 22.2	S22 35.7	84 13.1	N 9 15.1	50 10.0	N18 30.9	187 59.8	S22 35.5	Canopus	264 03.8	S52 41.3
01	119 36.5	35.9	217 21.3	35.9	99 14.4	15.6	65 12.6	30.8	203 01.9	35.5	Capella	281 01.3	N45 59.5
02	134 38.9	36.2	232 20.4	36.2	114 15.6	16.2	80 15.2	30.8	218 04.1	35.5	Deneb	49 44.6	N45 14.5
03	149 41.4	36.5	247 19.5	36.5	129 16.9	16.7	95 17.8	30.8	233 06.2	35.4	Denebola	182 52.3	N14 37.9
04	164 43.9	36.7	262 18.6	36.7	144 18.1	17.2	110 20.4	30.8	248 08.4	35.4	Diphda	349 14.3	S18 02.9
05	179 46.3	37.0	277 17.7	37.0	159 19.4	17.7	125 23.0	30.8	263 10.5	35.4			
06	194 48.8	S22 37.3	292 16.8	S22 37.3	174 20.7	N 9 18.3	140 25.6	N18 30.7	278 12.7	S22 35.4	Dubhe	194 13.4	N61 48.3
07	209 51.2	37.5	307 15.8	37.5	189 21.9	18.8	155 28.2	30.7	293 14.8	35.4	Elnath	278 35.6	N28 36.1
08	224 53.7	37.8	322 14.9	37.8	204 23.2	19.3	170 30.7	30.7	308 17.0	35.4	Eltanin	90 55.2	N51 29.2
09	239 56.2	38.1	337 14.0	38.1	219 24.4	19.9	185 33.3	30.7	323 19.1	35.4	Enif	34 05.5	N 9 49.4
10	254 58.6	38.3	352 13.1	38.3	234 25.7	20.4	200 35.9	30.7	338 21.2	35.4	Fomalhaut	15 44.3	S29 41.0
11	270 01.1	38.6	7 12.2	38.6	249 26.9	20.9	215 38.5	30.7	353 23.4	35.4			
12	285 03.6	S22 38.9	22 11.3	S22 38.9	264 28.2	N 9 21.5	230 41.1	N18 30.6	8 25.5	S22 35.3	Gacrux	172 21.7	S57 02.9
13	300 06.0	39.1	37 10.4	39.1	279 29.4	22.0	245 43.7	30.6	23 27.7	35.3	Gienah	176 11.3	S17 28.8
14	315 08.5	39.4	52 09.4	39.4	294 30.7	22.5	260 46.3	30.6	38 29.8	35.3	Hadar	149 14.6	S60 19.1
15	330 11.0	39.6	67 08.5	39.6	309 32.0	23.1	275 48.9	30.6	53 32.0	35.3	Hamal	328 21.5	N23 24.9
16	345 13.4	39.9	82 07.6	39.9	324 33.2	23.6	290 51.5	30.6	68 34.1	35.3	Kaus Aust.	84 08.6	S34 23.6
17	0 15.9	40.1	97 06.7	40.1	339 34.5	24.1	305 54.1	30.5	83 36.3	35.3			
18	15 18.4	S22 40.4	112 05.8	S22 40.4	354 35.7	N 9 24.7	320 56.7	N18 30.5	98 38.4	S22 35.3	Kochab	137 19.3	N74 11.6
19	30 20.8	40.7	127 04.9	40.7	9 37.0	25.2	335 59.3	30.5	113 40.6	35.3	Markab	13 56.9	N15 08.8
20	45 23.3	40.9	142 03.9	40.9	24 38.2	25.7	351 01.9	30.5	128 42.7	35.3	Menkar	314 34.2	N 4 02.9
21	60 25.7	41.2	157 03.0	41.2	39 39.5	26.3	6 04.5	30.5	143 44.9	35.2	Menkent	148 29.6	S36 18.9
22	75 28.2	41.4	172 02.1	41.4	54 40.7	26.8	21 07.1	30.5	158 47.0	35.2	Miaplacidus	221 43.1	S69 40.1
23	90 30.7	41.7	187 01.2	41.7	69 42.0	27.3	36 09.7	30.4	173 49.1	35.2			
6 00	105 33.1	S22 41.9	202 00.3	S22 41.9	84 43.2	N 9 27.9	51 12.3	N18 30.4	188 51.3	S22 35.2	Mirfak	309 06.6	N49 49.7
01	120 35.6	42.1	216 59.4	42.1	99 44.5	28.4	66 14.9	30.4	203 53.4	35.2	Nunki	76 21.5	S26 18.8
02	135 38.1	42.4	231 58.4	42.4	114 45.7	28.9	81 17.5	30.4	218 55.6	35.2	Peacock	53 48.5	S56 46.5
03	150 40.5	42.6	246 57.5	42.6	129 47.0	29.5	96 20.0	30.4	233 57.7	35.2	Pollux	243 49.8	N28 03.2
04	165 43.0	42.9	261 56.6	42.9	144 48.2	30.0	111 22.6	30.3	248 59.9	35.2	Procyon	245 18.6	N 5 15.3
05	180 45.5	43.1	276 55.7	43.1	159 49.5	30.5	126 25.2	30.3	264 02.0	35.1			
06	195 47.9	S22 43.4	291 54.8	S22 43.4	174 50.7	N 9 31.1	141 27.8	N18 30.3	279 04.2	S22 35.1	Rasalhague	96 23.9	N12 33.9
07	210 50.4	43.6	306 53.8	43.6	189 52.0	31.6	156 30.4	30.3	294 06.3	35.1	Regulus	208 02.8	N12 01.2
08	225 52.9	43.8	321 52.9	43.8	204 53.2	32.1	171 33.0	30.3	309 08.5	35.1	Rigel	281 29.4	S 8 12.7
09	240 55.3	44.1	336 52.0	44.1	219 54.5	32.6	186 35.6	30.3	324 10.6	35.1	Rigil Kent.	140 17.5	S60 47.2
10	255 57.8	44.3	351 51.1	44.3	234 55.7	33.2	201 38.2	30.2	339 12.8	35.1	Sabik	102 34.0	S15 42.8
11	271 00.2	44.5	6 50.2	44.5	249 56.9	33.7	216 40.8	30.2	354 14.9	35.1			
12	286 02.7	S22 44.8	21 49.2	S22 44.8	264 58.2	N 9 34.2	231 43.3	N18 30.2	9 17.1	S22 35.1	Schedar	350 01.9	N56 29.0
13	301 05.2	45.0	36 48.3	45.0	279 59.4	34.8	246 45.9	30.2	24 19.2	35.1	Shaula	96 47.3	S37 05.9
14	316 07.6	45.2	51 47.4	45.2	295 00.7	35.3	261 48.5	30.2	39 21.4	35.0	Sirius	258 49.6	S16 42.0
15	331 10.1	45.5	66 46.5	45.5	310 01.9	35.8	276 51.1	30.2	54 23.5	35.0	Spica	158 50.8	S11 06.3
16	346 12.6	45.7	81 45.6	45.7	325 03.2	36.4	291 53.7	30.1	69 25.6	35.0	Suhail	223 05.7	S43 23.1
17	1 15.0	45.9	96 44.6	45.9	340 04.4	36.9	306 56.3	30.1	84 27.8	35.0			
18	16 17.5	S22 46.1	111 43.7	S22 46.1	355 05.7	N 9 37.4	321 58.9	N18 30.1	99 29.9	S22 35.0	Vega	80 51.9	N38 46.2
19	31 20.0	46.4	126 42.8	46.4	10 06.9	38.0	337 01.5	30.1	114 32.1	35.0	Zuben'ubi	137 26.0	S15 59.9
20	46 22.4	46.6	141 41.9	46.6	25 08.1	38.5	352 04.0	30.1	129 34.2	35.0			
21	61 24.9	46.8	156 41.0	46.8	40 09.4	39.0	7 06.6	30.1	144 36.4	35.0			
22	76 27.3	47.0	171 40.0	47.0	55 10.6	39.6	22 09.2	30.0	159 38.5	35.0	Venus	97 48.2	10 31
23	91 29.8	47.2	186 39.1	47.2	70 11.9	40.1	37 11.8	30.0	174 40.7	34.9	Marte	339 39.1	18 22</







T.M.G. (TU)	ARIES	VENUS -3.9	MARTE +0.1	JUPITER -2.6	SATURNO +0.5	ESTRELLAS
d h	A.H.G.	A.H.G. Dec.	A.H.G. Dec.	A.H.G. Dec.	A.H.G. Dec.	Nombre A. H. S. Dec.
7 00	106 32.3	201 38.2 S22 47.5	85 13.1 N 9 40.6	52 14.4 N18 30.0	189 42.8 S22 34.9	Acamar 315 32.0 S40 21.0
01	121 34.7	216 37.3 47.7	100 14.4 41.2	67 17.0 30.0	204 45.0 34.9	Achernar 335 40.0 S57 17.7
02	136 37.2	231 36.3 47.9	115 15.6 41.7	82 19.5 30.0	219 47.1 34.9	Acrux 173 30.2 S63 02.1
03	151 39.7	246 35.4 .. 48.1	130 16.8 .. 42.2	97 22.1 .. 30.0	234 49.3 .. 34.9	Adhara 255 26.6 S28 57.3
04	166 42.1	261 34.5 48.3	145 18.1 42.8	112 24.7 30.0	249 51.4 34.9	Aldebaran 291 10.3 N16 29.4
05	181 44.6	276 33.6 48.5	160 19.3 43.3	127 27.3 29.9	264 53.6 34.9	
06	196 47.1	291 32.6 S22 48.7	175 20.6 N 9 43.8	142 29.9 N18 29.9	279 55.7 S22 34.9	Alioth 166 36.5 N56 00.8
07	211 49.5	306 31.7 48.9	190 21.8 44.4	157 32.5 29.9	294 57.9 34.9	Alkaid 153 13.2 N49 21.7
08	226 52.0	321 30.8 49.2	205 23.0 44.9	172 35.0 29.9	310 00.0 34.8	Al Na'ir 28 06.9 S47 01.1
09	241 54.5	336 29.9 .. 49.4	220 24.3 .. 45.4	187 37.6 .. 29.9	325 02.2 .. 34.8	Alnilam 276 04.7 S 1 12.4
A 10	256 56.9	351 29.0 49.6	235 25.5 46.0	202 40.2 29.9	340 04.3 34.8	Alphard 218 13.9 S 8 36.6
B 11	271 59.4	6 28.0 49.8	250 26.7 46.5	217 42.8 29.8	355 06.4 34.8	
A 12	287 01.8	21 27.1 S22 50.0	265 28.0 N 9 47.0	232 45.4 N18 29.8	10 08.6 S22 34.8	Alphecca 126 26.8 N26 44.8
13	302 04.3	36 26.2 50.2	280 29.2 47.5	247 47.9 29.8	25 10.7 34.8	Alpheratz 358 02.8 N29 02.0
14	317 06.8	51 25.3 50.4	295 30.5 48.1	262 50.5 29.8	40 12.9 34.8	Altair 62 26.5 N 8 50.2
15	332 09.2	66 24.3 .. 50.6	310 31.7 .. 48.6	277 53.1 .. 29.8	55 15.0 .. 34.8	Ankaa 353 33.7 S42 22.1
16	347 11.7	81 23.4 50.8	325 32.9 49.1	292 55.7 29.8	70 17.2 34.7	Antares 112 49.2 S26 24.6
17	2 14.2	96 22.5 51.0	340 34.2 49.7	307 58.2 29.8	85 19.3 34.7	
18	17 16.6	111 21.5 S22 51.2	355 35.4 N 9 50.2	323 00.8 N18 29.7	100 21.5 S22 34.7	Arcturus 146 12.6 N19 14.1
19	32 19.1	126 20.6 51.4	10 36.6 50.7	338 03.4 29.7	115 23.6 34.7	Atria 108 08.2 S69 00.5
20	47 21.6	141 19.7 51.6	25 37.9 51.3	353 06.0 29.7	130 25.8 34.7	Avior 234 25.1 S59 28.3
21	62 24.0	156 18.8 .. 51.8	40 39.1 .. 51.8	8 08.6 .. 29.7	145 27.9 .. 34.7	Bellatrix 278 51.4 N 6 20.5
22	77 26.5	171 17.8 51.9	55 40.3 52.3	23 11.1 29.7	160 30.1 34.7	Betelgeuse 271 20.9 N 7 24.4
23	92 29.0	186 16.9 52.1	70 41.6 52.9	38 13.7 29.7	175 32.2 34.7	
8 00	107 31.4	201 16.0 S22 52.3	85 42.8 N 9 53.4	53 16.3 N18 29.7	190 34.4 S22 34.7	Canopus 264 03.8 S52 41.3
01	122 33.9	216 15.1 52.5	100 44.0 53.9	68 18.9 29.6	205 36.5 34.6	Capella 281 01.3 N45 59.5
02	137 36.3	231 14.1 52.7	115 45.3 54.5	83 21.4 29.6	220 38.7 34.6	Deneb 49 44.6 N45 14.4
03	152 38.8	246 13.2 .. 52.9	130 46.5 .. 55.0	98 24.0 .. 29.6	235 40.8 .. 34.6	Denebola 182 52.2 N14 37.8
04	167 41.3	261 12.3 53.1	145 47.7 55.5	113 26.6 29.6	250 43.0 34.6	Diphda 349 14.3 S18 02.9
05	182 43.7	276 11.4 53.3	160 49.0 56.1	128 29.1 29.6	265 45.1 34.6	
06	197 46.2	291 10.4 S22 53.4	175 50.2 N 9 56.6	143 31.7 N18 29.6	280 47.3 S22 34.6	Dubhe 194 13.4 N61 48.3
07	212 48.7	306 09.5 53.6	190 51.4 57.1	158 34.3 29.6	295 49.4 34.6	Elnath 278 35.6 N28 36.1
08	227 51.1	321 08.6 53.8	205 52.7 57.7	173 36.9 29.6	310 51.6 34.6	Eltanin 90 55.2 N51 29.2
09	242 53.6	336 07.6 .. 54.0	220 53.9 .. 58.2	188 39.4 .. 29.5	325 53.7 .. 34.5	Enif 34 05.5 N 9 49.4
10	257 56.1	351 06.7 54.1	235 55.1 58.7	203 42.0 29.5	340 55.9 34.5	Fomalhaut 15 44.3 S29 41.0
11	272 58.5	6 05.8 54.3	250 56.3 59.3	218 44.6 29.5	355 58.0 34.5	
12	288 01.0	21 04.9 S22 54.5	265 57.6 N 9 59.8	233 47.2 N18 29.5	11 00.1 S22 34.5	Gacrux 172 21.7 S57 02.9
13	303 03.4	36 03.9 54.7	280 58.8 10 00.3	248 49.7 29.5	26 02.3 34.5	Giennah 176 11.2 S17 28.9
14	318 05.9	51 03.0 54.8	296 00.0 00.8	263 52.3 29.5	41 04.4 34.5	Hadar 149 14.6 S60 19.1
15	333 08.4	66 02.1 .. 55.0	311 01.3 .. 01.4	278 54.9 .. 29.5	56 06.6 .. 34.5	Hamal 328 21.5 N23 24.9
16	348 10.8	81 01.1 55.2	326 02.5 01.9	293 57.4 29.5	71 08.7 34.5	Kaus Aust. 84 08.6 S34 23.6
17	3 13.3	96 00.2 55.4	341 03.7 02.4	309 00.0 29.4	86 10.9 34.4	
18	18 15.8	110 59.3 S22 55.5	356 04.9 N10 03.0	324 02.6 N18 29.4	101 13.0 S22 34.4	Kochab 137 19.3 N74 11.6
19	33 18.2	125 58.3 55.7	11 06.2 03.5	339 05.1 29.4	116 15.2 34.4	Markab 13 56.9 N15 08.8
20	48 20.7	140 57.4 55.9	26 07.4 04.0	354 07.7 29.4	131 17.3 34.4	Menkar 314 34.2 N 4 02.9
21	63 23.2	155 56.5 .. 56.0	41 08.6 .. 04.6	9 10.3 .. 29.4	146 19.5 .. 34.4	Menkent 148 29.6 S36 18.9
22	78 25.6	170 55.6 56.2	56 09.8 05.1	24 12.8 29.4	161 21.6 34.4	Miaplacidus 221 43.1 S69 40.1
23	93 28.1	185 54.6 56.3	71 11.1 05.6	39 15.4 29.4	176 23.8 34.4	
9 00	108 30.6	200 53.7 S22 56.5	86 12.3 N10 06.2	54 18.0 N18 29.4	191 25.9 S22 34.4	Mirfak 309 06.6 N49 49.7
01	123 33.0	215 52.8 56.7	101 13.5 06.7	69 20.5 29.3	206 28.1 34.4	Nunki 76 21.5 S26 18.8
02	138 35.5	230 51.8 56.8	116 14.7 07.2	84 23.1 29.3	221 30.2 34.3	Peacock 53 48.5 S56 46.5
03	153 37.9	245 50.9 .. 57.0	131 16.0 .. 07.8	99 25.7 .. 29.3	236 32.4 .. 34.3	Pollux 243 49.8 N28 03.2
04	168 40.4	260 50.0 57.1	146 17.2 08.3	114 28.2 29.3	251 34.5 34.3	Procyon 245 18.6 N 5 15.3
05	183 42.9	275 49.0 57.3	161 18.4 08.8	129 30.8 29.3	266 36.7 34.3	
06	198 45.3	290 48.1 S22 57.4	176 19.6 N10 09.4	144 33.4 N18 29.3	281 38.8 S22 34.3	Rasalhague 96 23.8 N12 33.8
07	213 47.8	305 47.2 57.6	191 20.9 09.9	159 35.9 29.3	296 41.0 34.3	Regulus 208 02.8 N12 01.2
08	228 50.3	320 46.2 57.7	206 22.1 10.4	174 38.5 29.3	311 43.1 34.3	Rigel 281 29.4 S 8 12.8
09	243 52.7	335 45.3 .. 57.9	221 23.3 .. 11.0	189 41.1 .. 29.3	326 45.3 .. 34.3	Rigil Kent. 140 17.4 S60 47.2
10	258 55.2	350 44.4 58.0	236 24.5 11.5	204 43.6 29.2	341 47.4 34.2	Sabik 102 34.0 S15 42.9
11	273 57.7	5 43.4 58.2	251 25.7 12.0	219 46.2 29.2	356 49.6 34.2	
12	289 00.1	20 42.5 S22 58.3	266 27.0 N10 12.6	234 48.7 N18 29.2	11 51.7 S22 34.2	Schedar 350 02.0 N56 29.0
13	304 02.6	35 41.6 58.5	281 28.2 13.1	249 51.3 29.2	26 53.9 34.2	Shaula 96 47.3 S37 05.9
14	319 05.1	50 40.7 58.6	296 29.4 13.6	264 53.9 29.2	41 56.0 34.2	Sirius 258 49.6 S16 42.0
15	334 07.5	65 39.7 .. 58.8	311 30.6 .. 14.1	279 56.4 .. 29.2	56 58.2 .. 34.2	Spica 158 50.7 S11 06.3
16	349 10.0	80 38.8 58.9	326 31.8 14.7	294 59.0 29.2	72 00.3 34.2	Suhail 223 05.7 S43 23.1
17	4 12.4	95 37.9 59.0	341 33.1 15.2	310 01.5 29.2	87 02.5 34.2	
18	19 14.9	110 36.9 S22 59.2	356 34.3 N10 15.7	325 04.1 N18 29.2	102 04.6 S22 34.1	Vega 80 51.9 N38 46.2
19	34 17.4	125 36.0 59.3	11 35.5 16.3	340 06.7 29.1	117 06.8 34.1	Zuben'ubi 137 26.0 S15 59.9
20	49 19.8	140 35.1 59.4	26 36.7 16.8	355 09.2 29.1	132 08.9 34.1	
21	64 22.3	155 34.1 .. 59.6	41 37.9 .. 17.3	10 11.8 .. 29.1	147 11.1 .. 34.1	
22	79 24.8	170 33.2 59.7	56 39.2 17.9	25 14.3 29.1	162 13.2 34.1	
23	94 27.2	185 32.3 59.8	71 40.4 18.4	40 16.9 29.1	177 15.4 34.1	
Pas. Mer. 16 47.1		v -0.9 d 0.2	v 1.2 d 0.5	v 2.6 d 0.0	v 2.1 d 0.0	
						A. H. S. Pas. Mer. h m
						Venus 93 44.6 10 36
						Marte 338 11.4 18 16
						Júpiter 305 44.9 20 23
						Saturno 83 03.0 11 16











T.M.G. (TU)	SOL		LUNA				Lat.	Crepúsculo		Orto Sol	Orto Luna					
	A.H.G.	Dec.	A.H.G.	v	Dec.	d		P.H.	Naut.		Civil	10	11	12	13	
												h m	h m	h m	h m	
MARTES	10 00	178 08.8	S21 59.6	147 43.4	8.7	S16 35.4	14.3	59.8	N 72	08 09	10 08	■	11 51	10 59	10 21	09 44
	01	193 08.5	59.2	162 11.1	8.9	16 21.1	14.3	59.8	N 70	07 53	09 29	■	11 25	10 49	10 20	09 52
	02	208 08.3	58.8	176 39.0	8.9	16 06.8	14.5	59.8	68	07 40	09 02	10 53	11 05	10 40	10 18	09 58
	03	223 08.0	58.5	191 06.9	9.0	15 52.3	14.6	59.8	66	07 29	08 41	10 05	10 49	10 32	10 17	10 03
	04	238 07.8	58.1	205 34.9	9.1	15 37.7	14.6	59.8	64	07 20	08 25	09 34	10 36	10 26	10 17	10 08
	05	253 07.5	57.7	220 03.0	9.2	15 23.1	14.8	59.8	62	07 12	08 11	09 12	10 25	10 20	10 16	10 11
	06	268 07.3	S21 57.3	234 31.2	9.2	S15 08.3	14.8	59.8	60	07 05	07 59	08 53	10 15	10 16	10 15	10 15
	07	283 07.0	57.0	248 59.4	9.3	14 53.5	14.9	59.8	N 58	06 58	07 49	08 38	10 07	10 11	10 15	10 18
	08	298 06.8	56.6	263 27.7	9.4	14 38.6	15.0	59.8	56	06 52	07 40	08 25	09 59	10 07	10 14	10 21
	09	313 06.5	56.2	277 56.1	9.5	14 23.6	15.1	59.8	54	06 47	07 32	08 14	09 53	10 04	10 14	10 23
	10	328 06.2	55.8	292 24.6	9.5	14 08.5	15.2	59.8	52	06 42	07 25	08 04	09 47	10 01	10 13	10 25
	11	343 06.0	55.5	306 53.1	9.6	13 53.3	15.2	59.8	50	06 37	07 18	07 55	09 41	09 58	10 13	10 27
	12	358 05.7	S21 55.1	321 21.7	9.7	S13 38.1	15.4	59.8	45	06 27	07 04	07 37	09 29	09 52	10 12	10 32
	13	13 05.5	54.7	335 50.4	9.8	13 22.7	15.3	59.8	N 40	06 18	06 51	07 21	09 19	09 46	10 11	10 36
	14	28 05.2	54.3	350 19.2	9.8	13 07.4	15.5	59.8	35	06 09	06 41	07 08	09 11	09 42	10 11	10 39
	15	43 05.0	53.9	4 48.0	9.9	12 51.9	15.6	59.8	30	06 02	06 31	06 57	09 03	09 38	10 10	10 42
	16	58 04.7	53.6	19 16.9	9.9	12 36.3	15.6	59.8	20	05 47	06 14	06 38	08 50	09 31	10 09	10 47
	17	73 04.5	53.2	33 45.8	10.0	12 20.7	15.7	59.8	N 10	05 32	05 58	06 20	08 39	09 25	10 08	10 51
	18	88 04.2	S21 52.8	48 14.8	10.1	S12 05.0	15.7	59.8	0	05 16	05 42	06 04	08 28	09 19	10 08	10 56
	19	103 04.0	52.4	62 43.9	10.2	11 49.3	15.8	59.8	S 10	04 59	05 25	05 48	08 17	09 13	10 07	11 00
	20	118 03.7	52.0	77 13.1	10.2	11 33.5	15.9	59.8	20	04 38	05 06	05 31	08 05	09 07	10 06	11 05
	21	133 03.5	51.6	91 42.3	10.3	11 17.6	15.9	59.8	30	04 11	04 43	05 10	07 52	08 59	10 05	11 10
	22	148 03.2	51.3	106 11.6	10.3	11 01.7	16.0	59.8	35	03 53	04 29	04 58	07 44	08 55	10 05	11 13
23	163 03.0	50.9	120 40.9	10.4	10 45.7	16.1	59.8	40	03 32	04 12	04 44	07 35	08 51	10 04	11 17	
MIÉRCOLES	11 00	178 02.7	S21 50.5	135 10.3	10.5	S10 29.6	16.1	59.8	45	03 05	03 52	04 28	07 25	08 45	10 04	11 21
	01	193 02.5	50.1	149 39.8	10.5	10 13.5	16.2	59.8	S 50	02 25	03 25	04 08	07 12	08 39	10 03	11 26
	02	208 02.2	49.7	164 09.3	10.6	9 57.3	16.2	59.8	52	02 03	03 12	03 58	07 06	08 35	10 03	11 29
	03	223 02.0	49.3	178 38.9	10.7	9 41.1	16.2	59.8	54	01 33	02 56	03 47	06 59	08 32	10 02	11 31
	04	238 01.7	48.9	193 08.6	10.7	9 24.9	16.4	59.8	56	00 31	02 37	03 34	06 52	08 28	10 02	11 34
	05	253 01.5	48.5	207 38.3	10.7	9 08.5	16.3	59.8	58	///	02 13	03 20	06 44	08 24	10 01	11 37
	06	268 01.2	S21 48.2	222 08.0	10.8	S 8 52.2	16.4	59.8	S 60	///	01 41	03 02	06 34	08 19	10 01	11 41
	07	283 01.0	47.8	236 37.8	10.9	8 35.8	16.5	59.8	Lat.	Ocaso Sol	Crepúsculo		Ocaso Luna			
	08	298 00.8	47.4	251 07.7	10.9	8 19.3	16.5	59.8	Civil	Naut.	10	11	12	13		
	09	313 00.5	47.0	265 37.6	11.0	8 02.8	16.5	59.8	h m	h m	h m	h m	h m	h m	h m	h m
	10	328 00.3	46.6	280 07.6	11.0	7 46.3	16.6	59.8	N 72	■	14 09	16 07	17 59	20 39	23 03	25 31
	11	343 00.0	46.2	294 37.6	11.0	7 29.7	16.6	59.8	N 70	■	14 48	16 23	18 23	20 46	22 59	25 15
	12	357 59.8	S21 45.8	309 07.6	11.1	S 7 13.1	16.6	59.8	68	13 24	15 15	16 36	18 41	20 52	22 56	25 02
	13	12 59.5	45.4	323 37.7	11.2	6 56.5	16.7	59.8	66	14 12	15 35	16 47	18 55	20 57	22 54	24 51
	14	27 59.3	45.0	338 07.9	11.2	6 39.8	16.7	59.8	64	14 42	15 52	16 57	19 06	21 01	22 52	24 42
	15	42 59.0	44.6	352 38.1	11.2	6 23.1	16.7	59.8	62	15 05	16 05	17 05	19 16	21 05	22 50	24 35
	16	57 58.8	44.2	7 08.3	11.3	6 06.4	16.8	59.8	60	15 23	16 17	17 12	19 24	21 08	22 48	24 29
	17	72 58.5	43.8	21 38.6	11.3	5 49.6	16.8	59.8	N 58	15 38	16 27	17 18	19 32	21 11	22 47	24 23
	18	87 58.3	S21 43.4	36 08.9	11.4	S 5 32.8	16.8	59.8	56	15 51	16 36	17 24	19 38	21 13	22 46	24 18
	19	102 58.1	43.0	50 39.3	11.4	5 16.0	16.8	59.8	54	16 02	16 44	17 29	19 44	21 15	22 45	24 14
	20	117 57.8	42.6	65 09.7	11.4	4 59.2	16.9	59.8	52	16 12	16 52	17 34	19 49	21 17	22 44	24 10
	21	132 57.6	42.2	79 40.1	11.5	4 42.3	16.9	59.8	50	16 21	16 58	17 39	19 53	21 19	22 43	24 06
	22	147 57.3	41.8	94 10.6	11.5	4 25.4	16.9	59.8	45	16 40	17 13	17 49	20 03	21 23	22 41	23 58
23	162 57.1	41.4	108 41.1	11.5	4 08.5	16.9	59.8	N 40	16 55	17 25	17 58	20 11	21 26	22 39	23 52	
JUEVES	12 00	177 56.8	S21 41.0	123 11.6	11.5	S 3 51.6	16.9	59.8	35	17 08	17 36	18 07	20 18	21 29	22 38	23 46
	01	192 56.6	40.6	137 42.1	11.6	3 34.7	16.9	59.7	30	17 19	17 45	18 15	20 24	21 31	22 36	23 41
	02	207 56.4	40.2	152 12.7	11.7	3 17.8	17.0	59.7	20	17 39	18 02	18 29	20 35	21 35	22 34	23 33
	03	222 56.1	39.8	166 43.4	11.6	3 00.8	17.0	59.7	N 10	17 56	18 18	18 44	20 44	21 39	22 32	23 26
	04	237 55.9	39.4	181 14.0	11.7	2 43.8	16.9	59.7	0	18 12	18 34	19 00	20 52	21 42	22 30	23 19
	05	252 55.6	39.0	195 44.7	11.7	2 26.9	17.0	59.7	S 10	18 28	18 51	19 17	21 01	21 45	22 29	23 12
	06	267 55.4	S21 38.6	210 15.4	11.7	S 2 09.9	17.0	59.7	20	18 45	19 10	19 38	21 09	21 49	22 27	23 05
	07	282 55.1	38.1	224 46.1	11.7	1 52.9	17.0	59.7	30	19 06	19 32	20 05	21 19	21 53	22 24	22 56
	08	297 54.9	37.7	239 16.8	11.8	1 35.9	17.0	59.7	35	19 17	19 47	20 22	21 25	21 55	22 23	22 52
	09	312 54.7	37.3	253 47.6	11.8	1 18.9	16.9	59.7	40	19 31	20 03	20 43	21 31	21 57	22 22	22 46
	10	327 54.4	36.9	268 18.4	11.8	1 02.0	17.0	59.7	45	19 48	20 24	21 11	21 39	22 00	22 20	22 40
	11	342 54.2	36.5	282 49.2	11.8	0 45.0	17.0	59.7	S 50	20 08	20 50	21 49	21 48	22 04	22 18	22 33
	12	357 53.9	S21 36.1	297 20.0	11.8	S 0 28.0	17.0	59.7	52	20 18	21 03	22 11	21 52	22 05	22 17	22 30
	13	12 53.7	35.7	311 50.8	11.9	N 0 11.0	17.0	59.6	54	20 28	21 19	22 41	21 56	22 07	22 16	22 26
	14	27 53.5	35.3	326 21.7	11.8	0 22.9	17.0	59.6	56	20 41	21 37	23 35	22 01	22 09	22 15	22 22
	15	42 53.2	34.8	340 52.5	11.9	0 39.9	17.0	59.6	58	20 55	22 01	///	22 07	22 11	22 14	22 17
	16	57 53.0	34.4	355 23.4	11.9	0 56.9	16.9	59.6	S 60	21 13	22 32	///	22 13	22 13	22 12	22 12
	17	72 52.8	34.0	9 54.3	11.9	N 1 13.8	16.9	59.6	Día	SOL E.T. (-)		LUNA				
	18	87 52.5	S21 33.6	24 25.2	11.9	1 30.7	16.9	59.6	00 h	12 h	Pas. Mer.	Pas. Sup.	Mer. Inf.	Edad	Fase	
	19	102 52.3	33.2	38												



T.M.G. (TU)	ARIES			VENUS -3.9			MARTE +0.2			JUPITER -2.6			SATURNO +0.5			ESTRELLAS		
	d	h	A.H.G.	A.H.G.	Dec.	A.H.G.	Dec.	A.H.G.	Dec.	A.H.G.	Dec.	A.H.G.	Dec.	Nombre	A. H. S.	Dec.		
V I E R N E S	13	00	112 27.1	199 23.8 S23	06.2	88 08.3 N10	57.2	58 22.7 N18	28.6	194 52.4 S22	33.2	Acamar	315 32.0 S40	21.0				
	01	127 29.6	214 22.9	06.2	103 09.5	57.7	73 25.2	28.6	209 54.5	33.1	Achernar	335 40.1 S57	17.7					
	02	142 32.0	229 22.0	06.3	118 10.7	58.2	88 27.7	28.6	224 56.7	33.1	Acrux	173 30.1 S63	02.1					
	03	157 34.5	244 21.0	06.3	133 11.9	58.7	103 30.3	28.6	239 58.8	33.1	Adhara	255 26.6 S28	57.4					
	04	172 37.0	259 20.1	06.4	148 13.1	59.3	118 32.8	28.6	255 01.0	33.1	Aldebaran	291 10.3 N16	29.4					
	05	187 39.4	274 19.1	06.4	163 14.3	10 59.8	133 35.3	28.6	270 03.1	33.1								
	06	202 41.9	289 18.2 S23	06.4	178 15.5 N11	00.3	148 37.8 N18	28.6	285 05.3 S22	33.1	Alioth	166 36.4 N56	00.8					
	07	217 44.4	304 17.3	06.5	193 16.7	00.9	163 40.4	28.6	300 07.4	33.1	Alkaid	153 13.2 N49	21.7					
	08	232 46.8	319 16.3	06.5	208 17.9	01.4	178 42.9	28.6	315 09.6	33.1	Al Na'ir	28 06.9 S47	01.1					
	09	247 49.3	334 15.4	06.5	223 19.1	01.9	193 45.4	28.6	330 11.7	33.0	Alnilam	276 04.7 S 1	12.4					
	10	262 51.8	349 14.4	06.6	238 20.2	02.5	208 48.0	28.6	345 13.9	33.0	Alphard	218 13.9 S 8	36.6					
	11	277 54.2	4 13.5	06.6	253 21.4	03.0	223 50.5	28.6	0 16.0	33.0								
	12	292 56.7	19 12.6 S23	06.6	268 22.6 N11	03.5	238 53.0 N18	28.6	15 18.2 S22	33.0	Alphecca	126 26.7 N26	44.8					
	13	307 59.1	34 11.6	06.6	283 23.8	04.0	253 55.5	28.6	30 20.3	33.0	Alpheratz	358 02.8 N29	02.0					
	14	323 01.6	49 10.7	06.7	298 25.0	04.6	268 58.1	28.6	45 22.5	33.0	Altair	62 26.5 N 8	50.2					
	15	338 04.1	64 09.7	06.7	313 26.2	05.1	284 00.6	28.6	60 24.6	33.0	Ankaa	353 33.7 S42	22.1					
	16	353 06.5	79 08.8	06.7	328 27.4	05.6	299 03.1	28.5	75 26.8	32.9	Antares	112 49.1 S26	24.6					
	17	8 09.0	94 07.9	06.7	343 28.6	06.2	314 05.6	28.5	90 28.9	32.9								
	18	23 11.5	109 06.9 S23	06.8	358 29.8 N11	06.7	329 08.2 N18	28.5	105 31.1 S22	32.9	Arcturus	146 12.5 N19	14.1					
	19	38 13.9	124 06.0	06.8	13 30.9	07.2	344 10.7	28.5	120 33.3	32.9	Atria	108 08.1 S69	00.5					
	20	53 16.4	139 05.0	06.8	28 32.1	07.7	359 13.2	28.5	135 35.4	32.9	Avior	234 25.1 S59	28.3					
	21	68 18.9	154 04.1	06.8	43 33.3	08.3	14 15.7	28.5	150 37.6	32.9	Bellatrix	278 51.5 N 6	20.5					
	22	83 21.3	169 03.2	06.8	58 34.5	08.8	29 18.3	28.5	165 39.7	32.9	Betelgeuse	271 20.9 N 7	24.4					
23	98 23.8	184 02.2	06.8	73 35.7	09.3	44 20.8	28.5	180 41.9	32.9									
S A B A D O	14	00	113 26.3	199 01.3 S23	06.9	88 36.9 N11	09.9	59 23.3 N18	28.5	195 44.0 S22	32.8	Canopus	264 03.8 S52	41.3				
	01	128 28.7	214 00.3	06.9	103 38.1	10.4	74 25.8	28.5	210 46.2	32.8	Capella	281 01.3 N45	59.5					
	02	143 31.2	228 59.4	06.9	118 39.2	10.9	89 28.3	28.5	225 48.3	32.8	Deneb	49 44.6 N45	14.4					
	03	158 33.6	243 58.5	06.9	133 40.4	11.5	104 30.9	28.5	240 50.5	32.8	Denebola	182 52.2 N14	37.8					
	04	173 36.1	258 57.5	06.9	148 41.6	12.0	119 33.4	28.5	255 52.6	32.8	Diphda	349 14.3 S18	02.9					
	05	188 38.6	273 56.6	06.9	163 42.8	12.5	134 35.9	28.5	270 54.8	32.8								
	06	203 41.0	288 55.6 S23	06.9	178 44.0 N11	13.0	149 38.4 N18	28.5	285 56.9 S22	32.8	Dubhe	194 13.3 N61	48.3					
	07	218 43.5	303 54.7	06.9	193 45.2	13.6	164 41.0	28.5	300 59.1	32.7	Elnath	278 35.6 N28	36.1					
	08	233 46.0	318 53.8	06.9	208 46.4	14.1	179 43.5	28.5	316 01.2	32.7	Eltanin	90 55.2 N51	29.1					
	09	248 48.4	333 52.8	06.9	223 47.5	14.6	194 46.0	28.5	331 03.4	32.7	Enif	34 05.5 N 9	49.4					
	10	263 50.9	348 51.9	06.9	238 48.7	15.2	209 48.5	28.5	346 05.6	32.7	Fomalhaut	15 44.3 S29	41.0					
	11	278 53.4	3 50.9	06.9	253 49.9	15.7	224 51.0	28.5	1 07.7	32.7								
	12	293 55.8	18 50.0 S23	06.9	268 51.1 N11	16.2	239 53.5 N18	28.5	16 09.9 S22	32.7	Gacrux	172 21.6 S57	02.9					
	13	308 58.3	33 49.1	06.9	283 52.3	16.7	254 56.1	28.5	31 12.0	32.7	Gienah	176 11.2 S17	28.9					
	14	324 00.7	48 48.1	06.9	298 53.4	17.3	269 58.6	28.5	46 14.2	32.7	Hadar	149 14.5 S60	19.1					
	15	339 03.2	63 47.2	06.9	313 54.6	17.8	285 01.1	28.5	61 16.3	32.6	Hamal	328 21.6 N23	24.9					
	16	354 05.7	78 46.2	06.9	328 55.8	18.3	300 03.6	28.5	76 18.5	32.6	Kaus Aust.	84 08.6 S34	23.6					
	17	9 08.1	93 45.3	06.9	343 57.0	18.9	315 06.1	28.5	91 20.6	32.6								
	18	24 10.6	108 44.3 S23	06.9	358 58.2 N11	19.4	330 08.6 N18	28.5	106 22.8 S22	32.6	Kochab	137 19.1 N74	11.6					
	19	39 13.1	123 43.4	06.9	13 59.3	19.9	345 11.2	28.5	121 24.9	32.6	Markab	13 56.9 N15	08.8					
	20	54 15.5	138 42.5	06.9	29 00.5	20.4	0 13.7	28.5	136 27.1	32.6	Menkar	314 34.2 N 4	02.9					
	21	69 18.0	153 41.5	06.9	44 01.7	21.0	15 16.2	28.5	151 29.2	32.6	Menkent	148 29.5 S36	18.9					
	22	84 20.5	168 40.6	06.8	59 02.9	21.5	30 18.7	28.5	166 31.4	32.5	Miaplacidus	221 43.1 S69	40.1					
23	99 22.9	183 39.6	06.8	74 04.1	22.0	45 21.2	28.5	181 33.5	32.5									
D O M I N G O	15	00	114 25.4	198 38.7 S23	06.8	89 05.2 N11	22.6	60 23.7 N18	28.5	196 35.7 S22	32.5	Mirfak	309 06.7 N49	49.7				
	01	129 27.9	213 37.8	06.8	104 06.4	23.1	75 26.2	28.5	211 37.9	32.5	Nunki	76 21.4 S26	18.8					
	02	144 30.3	228 36.8	06.8	119 07.6	23.6	90 28.8	28.5	226 40.0	32.5	Peacock	53 48.5 S56	46.4					
	03	159 32.8	243 35.9	06.8	134 08.8	24.1	105 31.3	28.5	241 42.2	32.5	Pollux	243 49.8 N28	03.2					
	04	174 35.2	258 34.9	06.7	149 10.0	24.7	120 33.8	28.5	256 44.3	32.5	Procyon	245 18.6 N 5	15.3					
	05	189 37.7	273 34.0	06.7	164 11.1	25.2	135 36.3	28.5	271 46.5	32.5								
	06	204 40.2	288 33.1 S23	06.7	179 12.3 N11	25.7	150 38.8 N18	28.5	286 48.6 S22	32.4	Rasalhague	96 23.8 N12	33.8					
	07	219 42.6	303 32.1	06.7	194 13.5	26.3	165 41.3	28.5	301 50.8	32.4	Regulus	208 02.8 N12	01.2					
	08	234 45.1	318 31.2	06.6	209 14.7	26.8	180 43.8	28.5	316 52.9	32.4	Rigel	281 29.4 S 8	12.8					
	09	249 47.6	333 30.2	06.6	224 15.8	27.3	195 46.3	28.5	331 55.1	32.4	Rigel Kent.	140 17.3 S60	47.2					
	10	264 50.0	348 29.3	06.6	239 17.0	27.8	210 48.9	28.5	346 57.2	32.4	Sabik	102 33.9 S15	42.9					
	11	279 52.5	3 28.4	06.5	254 18.2	28.4	225 51.4	28.5	1 59.4	32.4								
	12	294 55.0	18 27.4 S23	06.5	269 19.4 N11	28.9	240 53.9 N18	28.5	17 01.6 S22	32.4	Schedar	350 02.0 N56	29.0					
	13	309 57.4	33 26.5	06.5	284 20.5	29.4	255 56.4	28.5	32 03.7	32.3	Shaula	96 47.3 S37	05.9					
	14	324 59.9	48 25.5	06.5	299 21.7	30.0	270 58.9	28.5	47 05.9	32.3	Sirius	258 49.6 S16	42.0					
	15	340 02.4	63 24.6	06.4	314 22.9	30.5	286 01.4	28.5	62 08.0	32.3	Spica	158 50.7 S11	06.3					
	16	355 04.8	78 23.7	06.4	329 24.1	31.0	301 03.9	28.5	77 10.2	32.3	Suhail	223 05.7 S43	23.2					
	17	10 07.3	93 22.7	06.3	344 25.2	31.5	316 06.4	28.5	92 12.3	32.3								
	18	25 09.7	108 21.8 S23	06.3	359 26.4 N11	32.1	331 08.9 N18	28.5	107 14.5 S22	32.3	Vega	80 51.9 N38	46.2					
	19	40 12.2	123 20.8	06.3	14 27.6	32.6	346 11.4	28.5	122 16.6	32.3	Zuben'ubi	137 26.0 S15	59.9					
	20	55 14.7	138 19.9	06.2	29 28.7	33.1	1 13.9	28.5	137 18.8	32.2								
	21	70 17.1	153 19.0	06.2	44 29.9	33.6	16 16.4	28.5	152 20.9	32.2								
	22	85 19.6	168 18.0	06.1	59 31.1	34.2	31 18.9	28.5	167 23.1	32.2								
23	100 22.1	183 17.1	06.1	74 32.3	34.7	46 21.5	28.5	182 25.3	32.2									
Pas. Mer. 16 23.6			v -0.9 d 0.0			v 1.2 d 0.5			v 2.5 d 0.0			v 2.2 d 0.0			A. H. S. Pas. Mer.			
												o / h m						
												Venus			85 35.0 10 45			
												Marte			335 10.6 18 04			
												Júpiter			305 57.1 19 59			
												Saturno			82 17.8 10 55			



T.M.G. (TU)	SOL		LUNA				Lat.	Crepúsculo		Orto Sol	Orto Luna					
	A.H.G.	Dec.	A.H.G.	v	Dec.	d		P.H.	Naut.		Civil	13	14	15	16	
																h
V I E R N E S	13 00	177 51.1	S21 31.1	111 30.6	11.9	N 2	55.1 16.8	59.5	N 72	08 03	09 56	09 44	09 01	07 39		
	01	192 50.9	30.7	126 01.5	11.9	3	11.9 16.8	59.5	N 70	07 48	09 21	09 52	09 20	08 31		
	02	207 50.6	30.2	140 32.4	11.9	3	28.7 16.8	59.5	68	07 36	08 56	10 38	09 58	09 35	09 04	07 35
	03	222 50.4	29.8	155 03.3	11.9	3	45.5 16.7	59.5	66	07 25	08 36	09 56	10 03	09 47	09 28	08 53
	04	237 50.2	29.4	169 34.2	11.9	4	02.2 16.7	59.5	64	07 17	08 21	09 28	10 08	09 58	09 47	09 31
	05	252 49.9	29.0	184 05.1	11.9	4	18.9 16.7	59.5	62	07 09	08 07	09 07	10 11	10 07	10 03	09 58
	06	267 49.7	S21 28.5	198 36.0	11.8	N 4	35.6 16.6	59.4	60	07 02	07 56	08 49	10 15	10 15	10 16	10 19
	07	282 49.5	28.1	213 06.8	11.9	4	52.2 16.6	59.4	N 58	06 56	07 46	08 35	10 18	10 22	10 27	10 36
	08	297 49.2	27.7	227 37.7	11.9	5	08.8 16.6	59.4	56	06 50	07 38	08 22	10 21	10 28	10 37	10 51
	09	312 49.0	27.3	242 08.6	11.8	5	25.4 16.6	59.4	54	06 45	07 30	08 12	10 23	10 33	10 46	11 04
	10	327 48.8	26.8	256 39.4	11.8	5	42.0 16.5	59.4	52	06 40	07 23	08 02	10 25	10 38	10 54	11 15
	11	342 48.5	26.4	271 10.2	11.8	5	58.5 16.4	59.4	50	06 36	07 16	07 54	10 27	10 43	11 01	11 25
	12	357 48.3	S21 26.0	285 41.0	11.8	N 6	14.9 16.5	59.4	45	06 26	07 03	07 35	10 32	10 53	11 17	11 46
	13	12 48.1	25.5	300 11.8	11.8	6	31.4 16.4	59.4	N 40	06 17	06 51	07 20	10 36	11 01	11 30	12 03
	14	27 47.8	25.1	314 42.6	11.7	6	47.8 16.3	59.3	35	06 09	06 40	07 08	10 39	11 08	11 40	12 17
	15	42 47.6	24.7	329 13.3	11.8	7	04.1 16.3	59.3	30	06 02	06 31	06 57	10 42	11 15	11 50	12 30
	16	57 47.4	24.2	343 44.1	11.7	7	20.4 16.3	59.3	20	05 47	06 14	06 38	10 47	11 26	12 07	12 52
	17	72 47.1	23.8	358 14.8	11.7	7	36.7 16.2	59.3	N 10	05 33	05 59	06 21	10 51	11 35	12 21	13 11
	18	87 46.9	S21 23.4	12 45.5	11.6	N 7	52.9 16.1	59.3	0	05 17	05 43	06 05	10 56	11 45	12 35	13 29
	19	102 46.7	22.9	27 16.1	11.7	8	09.0 16.1	59.3	S 10	05 00	05 27	05 50	11 00	11 54	12 49	13 47
	20	117 46.4	22.5	41 46.8	11.6	8	25.1 16.1	59.2	20	04 40	05 08	05 33	11 05	12 04	13 04	14 06
	21	132 46.2	22.1	56 17.4	11.5	8	41.2 16.0	59.2	30	04 14	04 46	05 13	11 10	12 16	13 22	14 28
	22	147 46.0	21.6	70 47.9	11.6	8	57.2 16.0	59.2	35	03 57	04 32	05 01	11 13	12 22	13 32	14 42
23	162 45.7	21.2	85 18.5	11.5	9	13.2 15.9	59.2	40	03 36	04 16	04 48	11 17	12 30	13 43	14 57	
14 00	177 45.5	S21 20.8	99 49.0	11.5	N 9	29.1 15.8	59.2	45	03 09	03 56	04 32	11 21	12 39	13 57	15 15	
01	192 45.3	20.3	114 19.5	11.5	9	44.9 15.8	59.2	S 50	02 32	03 30	04 12	11 26	12 50	14 14	15 38	
02	207 45.1	19.9	128 50.0	11.4	10	00.7 15.7	59.2	52	02 11	03 17	04 02	11 29	12 55	14 22	15 49	
03	222 44.8	19.4	143 20.4	11.4	10	16.4 15.7	59.1	54	01 43	03 02	03 52	11 31	13 01	14 31	16 02	
04	237 44.6	19.0	157 50.8	11.3	10	32.1 15.6	59.1	56	01 07	02 44	03 40	11 34	13 07	14 41	16 16	
05	252 44.4	18.5	172 21.1	11.3	10	47.7 15.5	59.1	58	///	02 22	03 26	11 37	13 14	14 53	16 33	
06	267 44.2	S21 18.1	186 51.4	11.3	N 11	03.2 15.5	59.1	S 60	///	01 52	03 09	11 41	13 22	15 07	16 54	
07	282 43.9	17.7	201 21.7	11.2	11	18.7 15.4	59.1									
08	297 43.7	17.2	215 51.9	11.2	11	34.1 15.3	59.1	Lat.	Ocaso Sol	Crepúsculo Civil	Naut.	Ocaso Luna				
09	312 43.5	16.8	230 22.1	11.2	11	49.4 15.3	59.0					13	14	15	16	
10	327 43.2	16.3	244 52.3	11.1	12	04.7 15.2	59.0									
11	342 43.0	15.9	259 22.4	11.1	12	19.9 15.1	59.0									
12	357 42.8	S21 15.4	273 52.5	11.0	N 12	35.0 15.0	59.0									
13	12 42.6	15.0	288 22.5	10.9	12	50.0 15.0	59.0									
14	27 42.3	14.5	302 52.4	11.0	13	05.0 14.9	59.0									
15	42 42.1	14.1	317 22.4	10.9	13	19.9 14.8	58.9									
16	57 41.9	13.6	331 52.3	10.8	13	34.7 14.7	58.9									
17	72 41.7	13.2	346 22.1	10.8	13	49.4 14.7	58.9									
18	87 41.4	S21 12.7	0 51.9	10.7	N 14	04.1 14.6	58.9									
19	102 41.2	12.3	15 21.6	10.7	14	18.7 14.5	58.9									
20	117 41.0	11.8	29 51.3	10.6	14	33.2 14.4	58.9									
21	132 40.8	11.4	44 20.9	10.6	14	47.6 14.3	58.8									
22	147 40.6	10.9	58 50.5	10.5	15	01.9 14.2	58.8									
23	162 40.3	10.5	73 20.0	10.4	15	16.1 14.2	58.8									
15 00	177 40.1	S21 10.0	87 49.4	10.5	N 15	30.3 14.1	58.8									
01	192 39.9	09.6	102 18.9	10.3	15	44.4 13.9	58.8									
02	207 39.7	09.1	116 48.2	10.3	15	58.3 13.9	58.7									
03	222 39.4	08.6	131 17.5	10.2	16	12.2 13.8	58.7									
04	237 39.2	08.2	145 46.7	10.2	16	26.0 13.7	58.7									
05	252 39.0	07.7	160 15.9	10.1	16	39.7 13.5	58.7									
06	267 38.8	S21 07.3	174 45.0	10.1	N 16	53.2 13.5	58.7									
07	282 38.6	06.8	189 14.1	10.0	17	06.7 13.4	58.7									
08	297 38.3	06.3	203 43.1	9.9	17	20.1 13.3	58.6									
09	312 38.1	05.9	218 12.0	9.9	17	33.4 13.2	58.6									
10	327 37.9	05.4	232 40.9	9.8	17	46.6 13.1	58.6									
11	342 37.7	05.0	247 09.7	9.7	17	59.7 13.0	58.6									
12	357 37.5	S21 04.5	261 38.4	9.7	N 18	12.7 12.8	58.6									
13	12 37.2	04.0	276 07.1	9.6	18	25.5 12.8	58.5									
14	27 37.0	03.6	290 35.7	9.6	18	38.3 12.6	58.5									
15	42 36.8	03.1	305 04.3	9.5	18	50.9 12.6	58.5									
16	57 36.6	02.6	319 32.8	9.4	19	03.5 12.4	58.5									
17	72 36.4	02.2	334 01.2	9.4	19	15.9 12.3	58.5									
18	87 36.2	S21 01.7	348 29.6	9.3	N 19	28.2 12.3	58.5									
19	102 35.9	01.2	2 57.9	9.2	19	40.5 12.0	58.4									
20	117 35.7	00.8	17 26.1	9.1	19	52.5 12.0	58.4									
21	132 35.5	00.3	31 54.2	9.1	20	04.5 11.9	58.4									
22	147 35.3	00.0	46 22.3	9.1	20	16.4 11.7	58.4									
23	162 35.1	00.0	60 50.4	8.9	20	28.1 11.6	58.4									
		S.D. 16.3	d 0.4	S.D.	16.2	16.1	16.0									

Día	SOL E.T. (-)		Pas. Mer.	LUNA			Fase
	00 h	12 h		Pas. Sup.	Mer. Inf.	Edad	
	m s	m s		h m	h m	d	
13	08 35	08 46	12 09	17 07	04 43	06	
14	08 57	09 08	12 09	17 56	05 32	07	
15	09 19	09 30	12 09	18 48	06 22	08	



T.M.G. (TU)		ARIES		VENUS -3.9		MARTE +0.3		JUPITER -2.6		SATURNO +0.5		ESTRELLAS			
d	h	A.H.G.	A.H.G.	Dec.	A.H.G.	Dec.	A.H.G.	Dec.	A.H.G.	Dec.	A.H.G.	Dec.	Nombre	A. H. S.	Dec.
L U N E S	16 00	115 24.5	198 16.1	S23 06.1	89 33.4	N11 35.2	61 24.0	N18 28.5	197 27.4	S22 32.2			Acamar	315 32.0	S40 21.0
	01	130 27.0	213 15.2	06.0	104 34.6	35.8	76 26.5	28.5	212 29.6	32.2			Achernar	335 40.1	S57 17.7
	02	145 29.5	228 14.3	06.0	119 35.8	36.3	91 29.0	28.5	227 31.7	32.2			Acrux	173 30.1	S63 02.1
	03	160 31.9	243 13.3	05.9	134 36.9	36.8	106 31.5	28.5	242 33.9	32.2			Adhara	255 26.6	S28 57.4
	04	175 34.4	258 12.4	05.9	149 38.1	37.3	121 34.0	28.5	257 36.0	32.1			Aldebaran	291 10.3	N16 29.4
	05	190 36.9	273 11.4	05.8	164 39.3	37.9	136 36.5	28.6	272 38.2	32.1					
	06	205 39.3	288 10.5	S23 05.7	179 40.4	N11 38.4	151 39.0	N18 28.6	287 40.3	S22 32.1			Alioth	166 36.3	N56 00.8
	07	220 41.8	303 09.6	05.7	194 41.6	38.9	166 41.5	28.6	302 42.5	32.1			Alkaid	153 13.1	N49 21.7
	08	235 44.2	318 08.6	05.6	209 42.8	39.4	181 44.0	28.6	317 44.7	32.1			Al Na'ir	28 06.9	S47 01.1
	09	250 46.7	333 07.7	05.6	224 44.0	40.0	196 46.5	28.6	332 46.8	32.1			Alnilam	276 04.7	S 1 12.4
	10	265 49.2	348 06.7	05.5	239 45.1	40.5	211 49.0	28.6	347 49.0	32.1			Alphard	218 13.9	S 8 36.6
	11	280 51.6	3 05.8	05.5	254 46.3	41.0	226 51.5	28.6	2 51.1	32.0					
	12	295 54.1	18 04.9	S23 05.4	269 47.5	N11 41.6	241 54.0	N18 28.6	17 53.3	S22 32.0			Alphecca	126 26.7	N26 44.7
	13	310 56.6	33 03.9	05.3	284 48.6	42.1	256 56.5	28.6	32 55.4	32.0			Alpheratz	358 02.8	N29 02.0
	14	325 59.0	48 03.0	05.3	299 49.8	42.6	271 59.0	28.6	47 57.6	32.0			Altair	62 26.5	N 8 50.2
	15	341 01.5	63 02.0	05.2	314 51.0	43.1	287 01.5	28.6	62 59.7	32.0			Ankaa	353 33.7	S42 22.1
	16	356 04.0	78 01.1	05.2	329 52.1	43.7	302 04.0	28.6	78 01.9	32.0			Antares	112 49.1	S26 24.6
	17	11 06.4	93 00.2	05.1	344 53.3	44.2	317 06.5	28.6	93 04.1	32.0					
	18	26 08.9	107 59.2	S23 05.0	359 54.5	N11 44.7	332 09.0	N18 28.6	108 06.2	S22 31.9			Arcturus	146 12.5	N19 14.1
	19	41 11.3	122 58.3	04.9	14 55.6	45.2	347 11.5	28.6	123 08.4	31.9			Atria	108 08.1	S69 00.5
	20	56 13.8	137 57.4	04.9	29 56.8	45.8	2 14.0	28.6	138 10.5	31.9			Avior	234 25.1	S59 28.3
	21	71 16.3	152 56.4	04.8	44 58.0	46.3	17 16.5	28.6	153 12.7	31.9			Bellatrix	278 51.5	N 6 20.5
	22	86 18.7	167 55.5	04.7	59 59.1	46.8	32 19.0	28.6	168 14.8	31.9			Betelgeuse	271 20.9	N 7 24.4
23	101 21.2	182 54.5	04.7	75 00.3	47.3	47 21.5	28.6	183 17.0	31.9						
M A R T E S	17 00	116 23.7	197 53.6	S23 04.6	90 01.4	N11 47.9	62 24.0	N18 28.6	198 19.1	S22 31.9			Canopus	264 03.8	S52 41.4
	01	131 26.1	212 52.7	04.5	105 02.6	48.4	77 26.5	28.6	213 21.3	31.8			Capella	281 01.3	N45 59.5
	02	146 28.6	227 51.7	04.4	120 03.8	48.9	92 29.0	28.6	228 23.5	31.8			Deneb	49 44.6	N45 14.4
	03	161 31.1	242 50.8	04.3	135 04.9	49.5	107 31.4	28.6	243 25.6	31.8			Denebola	182 52.2	N14 37.8
	04	176 33.5	257 49.8	04.3	150 06.1	50.0	122 33.9	28.6	258 27.8	31.8			Diphda	349 14.3	S18 02.9
	05	191 36.0	272 48.9	04.2	165 07.3	50.5	137 36.4	28.6	273 29.9	31.8					
	06	206 38.5	287 48.0	S23 04.1	180 08.4	N11 51.0	152 38.9	N18 28.6	288 32.1	S22 31.8			Dubhe	194 13.3	N61 48.3
	07	221 40.9	302 47.0	04.0	195 09.6	51.6	167 41.4	28.6	303 34.2	31.8			Elnath	278 35.6	N28 36.1
	08	236 43.4	317 46.1	03.9	210 10.7	52.1	182 43.9	28.7	318 36.4	31.7			Eltanin	90 55.2	N51 29.1
	09	251 45.8	332 45.2	03.8	225 11.9	52.6	197 46.4	28.7	333 38.6	31.7			Elfanor	34 05.5	N 9 49.4
	10	266 48.3	347 44.2	03.8	240 13.1	53.1	212 48.9	28.7	348 40.7	31.7			Fomalhaut	15 44.3	S29 41.0
	11	281 50.8	2 43.3	03.7	255 14.2	53.7	227 51.4	28.7	3 42.9	31.7					
	12	296 53.2	17 42.3	S23 03.6	270 15.4	N11 54.2	242 53.9	N18 28.7	18 45.0	S22 31.7			Gacrux	172 21.6	S57 02.9
	13	311 55.7	32 41.4	03.5	285 16.5	54.7	257 56.4	28.7	33 47.2	31.7			Gienah	176 11.2	S17 28.9
	14	326 58.2	47 40.5	03.4	300 17.7	55.2	272 58.9	28.7	48 49.3	31.7			Hadar	149 14.4	S60 19.1
	15	342 00.6	62 39.5	03.3	315 18.9	55.8	288 01.4	28.7	63 51.5	31.6			Hamal	328 21.6	N23 24.8
	16	357 03.1	77 38.6	03.2	330 20.0	56.3	303 03.9	28.7	78 53.7	31.6			Kaus Aust.	84 08.5	S34 23.6
	17	12 05.6	92 37.6	03.1	345 21.2	56.8	318 06.3	28.7	93 55.8	31.6					
	18	27 08.0	107 36.7	S23 03.0	0 22.3	N11 57.3	333 08.8	N18 28.7	108 58.0	S22 31.6			Kochab	137 19.1	N74 11.6
	19	42 10.5	122 35.8	02.9	15 23.5	57.9	348 11.3	28.7	124 00.1	31.6			Markab	13 56.9	N15 08.8
	20	57 13.0	137 34.8	02.8	30 24.7	58.4	3 13.8	28.7	139 02.3	31.6			Menkar	314 34.2	N 4 02.9
	21	72 15.4	152 33.9	02.7	45 25.8	58.9	18 16.3	28.7	154 04.4	31.6			Menkent	148 29.5	S36 19.0
	22	87 17.9	167 33.0	02.6	60 27.0	59.4	33 18.8	28.7	169 06.6	31.5			Miaplacidus	221 43.1	S69 40.2
23	102 20.3	182 32.0	02.5	75 28.1	60.0	48 21.3	28.7	184 08.8	31.5						
M I E R C O L E S	18 00	117 22.8	197 31.1	S23 02.4	90 29.3	N12 00.5	63 23.8	N18 28.7	199 10.9	S22 31.5			Mirfak	309 06.7	N49 49.7
	01	132 25.3	212 30.2	02.3	105 30.4	01.0	78 26.2	28.7	214 13.1	31.5			Nunki	76 21.4	S26 18.8
	02	147 27.7	227 29.2	02.2	120 31.6	01.5	93 28.7	28.8	229 15.2	31.5			Peacock	53 48.5	S56 46.4
	03	162 30.2	242 28.3	02.1	135 32.8	02.1	108 31.2	28.8	244 17.4	31.5			Pollux	243 49.7	N28 03.2
	04	177 32.7	257 27.3	02.0	150 33.9	02.6	123 33.7	28.8	259 19.5	31.5			Procyon	245 18.6	N 5 15.3
	05	192 35.1	272 26.4	01.9	165 35.1	03.1	138 36.2	28.8	274 21.7	31.5					
	06	207 37.6	287 25.5	S23 01.8	180 36.2	N12 03.6	153 38.7	N18 28.8	289 23.9	S22 31.4			Rasalhague	96 23.8	N12 33.8
	07	222 40.1	302 24.5	01.6	195 37.4	04.2	168 41.2	28.8	304 26.0	31.4			Regulus	208 02.7	N12 01.2
	08	237 42.5	317 23.6	01.5	210 38.5	04.7	183 43.6	28.8	319 28.2	31.4			Rigel	281 29.4	S 8 12.8
	09	252 45.0	332 22.7	01.4	225 39.7	05.2	198 46.1	28.8	334 30.3	31.4			Rigil Kent.	140 17.3	S60 47.2
	10	267 47.4	347 21.7	01.3	240 40.8	05.7	213 48.6	28.8	349 32.5	31.4			Sabik	102 33.9	S15 42.9
	11	282 49.9	2 20.8	01.2	255 42.0	06.3	228 51.1	28.8	4 34.6	31.4					
	12	297 52.4	17 19.9	S23 01.1	270 43.1	N12 06.8	243 53.6	N18 28.8	19 36.8	S22 31.4			Schedar	350 02.0	N56 29.0
	13	312 54.8	32 18.9	00.9	285 44.3	07.3	258 56.1	28.8	34 39.0	31.3			Shaula	96 47.3	S37 05.9
	14	327 57.3	47 18.0	00.8	300 45.5	07.8	273 58.5	28.8	49 41.1	31.3			Sirius	258 49.6	S16 42.0
	15	342 59.8	62 17.0	00.7	315 46.6	08.4	289 01.0	28.8	64 43.3	31.3			Spica	158 50.7	S11 06.4
	16	358 02.2	77 16.1	00.6	330 47.8	08.9	304 03.5	28.9	79 45.4	31.3			Suhail	223 05.7	S43 23.2
	17	13 04.7	92 15.2	00.4	345 48.9	09.4	319 06.0	28.9	94 47.6	31.3					
	18	28 07.2	107 14.2	S23 00.3	0 50.1	N12 09.9	334 08.5	N18 28.9	109 49.7	S22 31.3			Vega	80 51.8	N38 46.1
	19	43 09.6	122 13.3	00.2	15 51.2	10.5	349 10.9	28.9	124 51.9	31.3			Zuben'ubi	137 25.9	S15 59.9
	20	58 12.1	137 12.4	23 00.1	30 52.4	11.0	4 13.4	28.9	139 54.1	31.2					
	21	73 14.6	152 11.4	22 59.9	45 53.5	11.5	19 15.9	28.9	154 56.2	31.2					
	22	88 17.0	167 10.5	59.8	60 54.7	12.0	34 18.4	28.9	169 58.4	31.2					
23	103 19.5	182 09.6	59.7	75 55.8	12.6	49									



T.M.G. (TU)	SOL		LUNA					Lat.	Crepúsculo		Orto Sol	Orto Luna				
	A.H.G.	Dec.	A.H.G.	v	Dec.	d	P.H.		Náut.	Civil		16	17	18	19	
												h m	h m	h m	h m	
LUNES	16 00	177 34.9	S20 58.9	75 18.3	8.9	N20 39.7	11.5	58.3	N 72	07 56	09 43	h m	h m	h m	h m	
	01	192 34.7	58.4	89 46.2	8.9	20 51.2	11.4	58.3	N 70	07 42	09 12	h m	h m	h m	h m	
	02	207 34.4	57.9	104 14.1	8.7	21 02.6	11.3	58.3	68	07 30	08 49	h m	h m	h m	h m	
	03	222 34.2	57.4	118 41.8	8.7	21 13.9	11.1	58.3	66	07 21	08 30	h m	h m	h m	h m	
	04	237 34.0	57.0	133 09.5	8.6	21 25.0	11.0	58.3	64	07 12	08 16	h m	h m	h m	h m	
	05	252 33.8	56.5	147 37.1	8.6	21 36.0	10.9	58.3	62	07 05	08 03	h m	h m	h m	h m	
	06	267 33.6	S20 56.0	162 04.7	8.5	N21 46.9	10.7	58.2	60	06 59	07 52	h m	h m	h m	h m	
	07	282 33.4	55.5	176 32.2	8.4	21 57.6	10.6	58.2	N 58	06 53	07 43	h m	h m	h m	h m	
	08	297 33.2	55.1	190 59.6	8.4	22 08.2	10.5	58.2	56	06 48	07 35	h m	h m	h m	h m	
	09	312 32.9	54.6	205 27.0	8.3	22 18.7	10.3	58.2	54	06 43	07 27	h m	h m	h m	h m	
	10	327 32.7	54.1	219 54.3	8.2	22 29.0	10.3	58.2	52	06 38	07 21	h m	h m	h m	h m	
	11	342 32.5	53.6	234 21.5	8.1	22 39.3	10.0	58.1	50	06 34	07 14	h m	h m	h m	h m	
	12	357 32.3	S20 53.1	248 48.6	8.1	N22 49.3	10.0	58.1	45	06 25	07 01	h m	h m	h m	h m	
	13	12 32.1	52.7	263 15.7	8.1	22 59.3	9.8	58.1	N 40	06 16	06 50	h m	h m	h m	h m	
	14	27 31.9	52.2	277 42.8	7.9	23 09.1	9.7	58.1	35	06 09	06 40	h m	h m	h m	h m	
	15	42 31.7	51.7	292 09.7	7.9	23 18.8	9.5	58.1	30	06 01	06 31	h m	h m	h m	h m	
	16	57 31.5	51.2	306 36.6	7.9	23 28.3	9.4	58.0	20	05 47	06 14	h m	h m	h m	h m	
	17	72 31.3	50.7	321 03.5	7.7	23 37.7	9.2	58.0	N 10	05 33	05 59	h m	h m	h m	h m	
	18	87 31.1	S20 50.2	335 30.2	7.7	N23 46.9	9.1	58.0	0	05 19	05 44	h m	h m	h m	h m	
	19	102 30.8	49.8	349 56.9	7.7	23 56.0	9.0	58.0	S 10	05 02	05 29	h m	h m	h m	h m	
	20	117 30.6	49.3	4 23.6	7.6	24 05.0	8.8	58.0	20	04 42	05 11	h m	h m	h m	h m	
	21	132 30.4	48.8	18 50.2	7.5	24 13.8	8.7	57.9	30	04 16	04 49	h m	h m	h m	h m	
	22	147 30.2	48.3	33 16.7	7.5	24 22.5	8.5	57.9	35	04 00	04 35	h m	h m	h m	h m	
23	162 30.0	47.8	47 43.2	7.4	24 31.0	8.4	57.9	40	03 40	04 20	h m	h m	h m	h m		
								45	03 14	04 00	h m	h m	h m	h m		
MARTES	17 00	177 29.8	S20 47.3	62 09.6	7.3	N24 39.4	8.2	57.9	S 50	02 38	03 35	h m	h m	h m	h m	
	01	192 29.6	46.8	76 35.9	7.3	24 47.6	8.1	57.9	52	02 19	03 23	h m	h m	h m	h m	
	02	207 29.4	46.3	91 02.2	7.2	24 55.7	7.9	57.8	54	01 53	03 08	h m	h m	h m	h m	
	03	222 29.2	45.9	105 28.4	7.2	25 03.6	7.8	57.8	56	01 15	02 51	h m	h m	h m	h m	
	04	237 29.0	45.4	119 54.6	7.1	25 11.4	7.6	57.8	58	///	02 31	h m	h m	h m	h m	
	05	252 28.8	44.9	134 20.7	7.1	25 19.0	7.5	57.8	S 60	///	02 03	h m	h m	h m	h m	
	06	267 28.6	S20 44.4	148 46.8	7.0	N25 26.5	7.3	57.8				h m	h m	h m	h m	
	07	282 28.4	43.9	163 12.8	7.0	25 33.8	7.2	57.8	Lat.	Ocaso Sol	Crepúsculo Civil	Ocaso Luna	16	17	18	19
	08	297 28.2	43.4	177 38.8	6.9	25 41.0	7.0	57.7	N 72	h m	h m	h m	h m	h m	h m	h m
	09	312 28.0	42.9	192 04.7	6.9	25 48.0	6.8	57.7	N 70	12 39	15 09	h m	h m	h m	h m	h m
	10	327 27.7	42.4	206 30.6	6.8	25 54.8	6.7	57.7	68	13 57	15 33	h m	h m	h m	h m	h m
	11	342 27.5	41.9	220 56.4	6.7	26 01.5	6.5	57.7	66	14 34	15 51	h m	h m	h m	h m	h m
	12	357 27.3	S20 41.4	235 22.1	6.8	N26 08.0	6.4	57.7	64	15 00	16 05	h m	h m	h m	h m	h m
	13	12 27.1	40.9	249 47.9	6.6	26 14.4	6.2	57.6	62	15 20	16 18	h m	h m	h m	h m	h m
	14	27 26.9	40.4	264 13.5	6.7	26 20.6	6.1	57.6	60	15 36	16 29	h m	h m	h m	h m	h m
	15	42 26.7	39.9	278 39.2	6.6	26 26.7	5.8	57.6	N 58	15 50	16 38	h m	h m	h m	h m	h m
	16	57 26.5	39.4	293 04.8	6.5	26 32.5	5.8	57.6	56	16 02	16 46	h m	h m	h m	h m	h m
	17	72 26.3	38.9	307 30.3	6.5	26 38.3	5.5	57.6	54	16 12	16 53	h m	h m	h m	h m	h m
	18	87 26.1	S20 38.4	321 55.8	6.5	N26 43.8	5.4	57.5	52	16 21	17 00	h m	h m	h m	h m	h m
	19	102 25.9	37.9	336 21.3	6.5	26 49.2	5.3	57.5	50	16 30	17 06	h m	h m	h m	h m	h m
	20	117 25.7	37.4	350 46.8	6.4	26 54.5	5.1	57.5	45	16 47	17 20	h m	h m	h m	h m	h m
	21	132 25.5	36.9	5 12.2	6.4	26 59.6	4.9	57.5	N 40	17 01	17 31	h m	h m	h m	h m	h m
	22	147 25.3	36.4	19 37.6	6.3	27 04.5	4.7	57.5	35	17 14	17 41	h m	h m	h m	h m	h m
23	162 25.1	35.9	34 02.9	6.3	27 09.2	4.6	57.4	30	17 24	17 50	h m	h m	h m	h m	h m	
MIÉRCOLES	18 00	177 24.9	S20 35.4	48 28.2	6.3	N27 13.8	4.4	57.4	20	17 43	18 06	h m	h m	h m	h m	
	01	192 24.7	34.9	62 53.5	6.3	27 18.2	4.2	57.4	N 10	17 59	18 21	h m	h m	h m	h m	
	02	207 24.5	34.4	77 18.8	6.2	27 22.4	4.1	57.4	0	18 14	18 36	h m	h m	h m	h m	
	03	222 24.3	33.9	91 44.0	6.2	27 26.5	3.9	57.4	S 10	18 29	18 52	h m	h m	h m	h m	
	04	237 24.1	33.4	106 09.2	6.2	27 30.4	3.8	57.3	20	18 46	19 10	h m	h m	h m	h m	
	05	252 23.9	32.8	120 34.4	6.2	27 34.2	3.6	57.3	30	19 05	19 31	h m	h m	h m	h m	
	06	267 23.7	S20 32.3	134 59.6	6.1	N27 37.8	3.4	57.3	40	19 16	19 45	h m	h m	h m	h m	
	07	282 23.5	31.8	149 24.7	6.2	27 41.2	3.2	57.3	45	19 29	20 00	h m	h m	h m	h m	
	08	297 23.3	31.3	163 49.9	6.1	27 44.4	3.1	57.3	S 50	20 03	20 39	h m	h m	h m	h m	
	09	312 23.1	30.8	178 15.0	6.1	27 47.5	2.9	57.2	20	20 12	20 56	h m	h m	h m	h m	
	10	327 22.9	30.3	192 40.1	6.2	27 50.4	2.7	57.2	54	20 22	21 10	h m	h m	h m	h m	
	11	342 22.7	29.8	207 05.3	6.1	27 53.1	2.6	57.2	56	20 34	21 27	h m	h m	h m	h m	
	12	357 22.5	S20 29.3	221 30.4	6.0	N27 55.7	2.3	57.2	58	20 47	21 48	h m	h m	h m	h m	
	13	12 22.3	28.8	235 55.4	6.1	27 58.0	2.3	57.2	S 60	21 02	22 14	h m	h m	h m	h m	
	14	27 22.2	28.2	250 20.5	6.1	28 00.3	2.0	57.1				h m	h m	h m	h m	
	15	42 22.0	27.7	264 45.6	6.1	28 02.3	1.9	57.1	Día	SOL E.T. (-)	Pas. Mer.	Pas. Mer. Sup.	Mer. Inf.	Edad.	Fase	
	16	57 21.8	27.2	279 10.7	6.1	28 04.2	1.7	57.1	16	09 40	09 50	h m	h m	h m	h m	
	17	72 21.6	26.7	293 35.8	6.1	28 05.9	1.5	57.1	17	10 00	10 10	h m	h m	h m	h m	
	18	87 21.4	S20 26.2	308 00.9	6.1	N28 07.4	1.4	57.1	18	10 20	10 29	h m	h m	h m	h m	
	19	102 21.2	25.7	322 26.0	6.1	28 08.8	1.2	57.0				h m	h m	h m	h m	
	20	117 21.0	25.1	336 51.1	6.1	28 10.0	1.0	57.0				h m	h m	h m	h m	
	21	132 20.8	24.6	351 16.2	6.2	28 11.0	0.9	57.0				h m	h m	h m	h m	
	22	147 20.6	24.1	5 41.4	6.1	28 11.9	0.7	57.0				h m	h m	h m	h m	
23	162 20.4	23.6	20 06.5	6.2	28 12.6	0.5	57.0				h m	h m	h m	h m		
	S.D. 16.3	d 0.5	S.D. 15.8	15.7	15.6											





T.M.G. (TU)	ARIES			VENUS -3.9			MARTE +0.4			JUPITER -2.6			SATURNO +0.5			ESTRELLAS		
	A.H.G.	A.H.G.	Dec.	A.H.G.	Dec.	A.H.G.	Dec.	A.H.G.	Dec.	A.H.G.	Dec.	A.H.G.	Dec.	Nombre	A. H. S.	Dec.		
J U E V E S	19 00	118 21.9	197 08.6 S22	59.5	90 57.0 N12	13.1	64 23.3 N18	28.9	200 02.7 S22	31.2	Acomar	315 32.0 S40	21.0					
	01	133 24.4	212 07.7	59.4	105 58.1	13.6	79 25.8	28.9	215 04.9	31.2	Achernar	335 40.1 S57	17.7					
	02	148 26.9	227 06.8	59.3	120 59.3	14.1	94 28.3	28.9	230 07.0	31.1	Acrux	173 30.0 S63	02.1					
	03	163 29.3	242 05.8	59.1	136 00.4	14.7	109 30.8	28.9	245 09.2	31.1	Adhara	255 26.6 S28	57.4					
	04	178 31.8	257 04.9	59.0	151 01.6	15.2	124 33.3	28.9	260 11.3	31.1	Aldebaran	291 10.3 N16	29.4					
	05	193 34.3	272 04.0	58.8	166 02.7	15.7	139 35.7	29.0	275 13.5	31.1								
	06	208 36.7	287 03.0 S22	58.7	181 03.9 N12	16.2	154 38.2 N18	29.0	290 15.7 S22	31.1	Alioth	166 36.3 N56	00.8					
	07	223 39.2	302 02.1	58.5	196 05.0	16.7	169 40.7	29.0	305 17.8	31.1	Alkaid	153 13.1 N49	21.7					
	08	238 41.7	317 01.2	58.4	211 06.2	17.3	184 43.2	29.0	320 20.0	31.1	Al Na'ir	28 06.9 S47	01.1					
	09	253 44.1	332 00.2	58.3	226 07.3	17.8	199 45.6	29.0	335 22.1	31.0	Alnilam	276 04.7 S 1	12.4					
	10	268 46.6	346 59.3	58.1	241 08.4	18.3	214 48.1	29.0	350 24.3	31.0	Alphard	218 13.8 S 8	36.7					
	11	283 49.1	1 58.4	58.0	256 09.6	18.8	229 50.6	29.0	5 26.4	31.0								
	12	298 51.5	16 57.4 S22	57.8	271 10.7 N12	19.4	244 53.1 N18	29.0	20 28.6 S22	31.0	Alphecca	126 26.7 N26	44.7					
	13	313 54.0	31 56.5	57.7	286 11.9	19.9	259 55.5	29.0	35 30.8	31.0	Alpheratz	358 02.8 N29	01.9					
	14	328 56.4	46 55.6	57.5	301 13.0	20.4	274 58.0	29.0	50 32.9	31.0	Altair	62 26.5 N 8	50.2					
	15	343 58.9	61 54.6	57.4	316 14.2	20.9	290 00.5	29.0	65 35.1	31.0	Ankaa	353 33.8 S42	22.1					
	16	359 01.4	76 53.7	57.2	331 15.3	21.5	305 02.9	29.1	80 37.2	30.9	Antares	112 49.1 S26	24.6					
	17	14 03.8	91 52.8	57.1	346 16.5	22.0	320 05.4	29.1	95 39.4	30.9								
	18	29 06.3	106 51.8 S22	56.9	1 17.6 N12	22.5	335 07.9 N18	29.1	110 41.6 S22	30.9	Arcturus	146 12.5 N19	14.1					
	19	44 08.8	121 50.9	56.7	16 18.8	23.0	350 10.4	29.1	125 43.7	30.9	Atria	108 08.0 S69	00.5					
	20	59 11.2	136 50.0	56.6	31 19.9	23.5	5 12.8	29.1	140 45.9	30.9	Avior	234 25.1 S59	28.4					
	21	74 13.7	151 49.0	56.4	46 21.0	24.1	20 15.3	29.1	155 48.0	30.9	Bellatrix	278 51.5 N 6	20.5					
	22	89 16.2	166 48.1	56.3	61 22.2	24.6	35 17.8	29.1	170 50.2	30.9	Betelgeuse	271 20.9 N 7	24.4					
23	104 18.6	181 47.2	56.1	76 23.3	25.1	50 20.2	29.1	185 52.4	30.8									
V I E R N E S	20 00	119 21.1	196 46.2 S22	55.9	91 24.5 N12	25.6	65 22.7 N18	29.1	200 54.5 S22	30.8	Canopus	264 03.8 S52	41.4					
	01	134 23.6	211 45.3	55.8	106 25.6	26.2	80 25.2	29.1	215 56.7	30.8	Capella	281 01.3 N45	59.5					
	02	149 26.0	226 44.4	55.6	121 26.8	26.7	95 27.6	29.2	230 58.8	30.8	Deneb	49 44.6 N45	14.4					
	03	164 28.5	241 43.4	55.4	136 27.9	27.2	110 30.1	29.2	246 01.0	30.8	Denebola	182 52.1 N14	37.8					
	04	179 30.9	256 42.5	55.3	151 29.0	27.7	125 32.6	29.2	261 03.2	30.8	Diphda	349 14.3 S18	02.9					
	05	194 33.4	271 41.6	55.1	166 30.2	28.3	140 35.1	29.2	276 05.3	30.8								
	06	209 35.9	286 40.6 S22	54.9	181 31.3 N12	28.8	155 37.5 N18	29.2	291 07.5 S22	30.7	Dubhe	194 13.2 N61	48.3					
	07	224 38.3	301 39.7	54.8	196 32.5	29.3	170 40.0	29.2	306 09.6	30.7	Elnath	278 35.6 N28	36.1					
	08	239 40.8	316 38.8	54.6	211 33.6	29.8	185 42.5	29.2	321 11.8	30.7	Eltanin	90 55.1 N51	29.1					
	09	254 43.3	331 37.9	54.4	226 34.7	30.3	200 44.9	29.2	336 14.0	30.7	Enif	34 05.5 N 9	49.4					
	10	269 45.7	346 36.9	54.2	241 35.9	30.9	215 47.4	29.2	351 16.1	30.7	Fomalhaut	15 44.3 S29	41.0					
	11	284 48.2	1 36.0	54.1	256 37.0	31.4	230 49.9	29.3	6 18.3	30.7								
	12	299 50.7	16 35.1 S22	53.9	271 38.2 N12	31.9	245 52.3 N18	29.3	21 20.4 S22	30.7	Gacrux	172 21.5 S57	03.0					
	13	314 53.1	31 34.1	53.7	286 39.3	32.4	260 54.8	29.3	36 22.6	30.6	Gienah	176 11.1 S17	28.9					
	14	329 55.6	46 33.2	53.5	301 40.4	32.9	275 57.2	29.3	51 24.8	30.6	Hadar	149 14.4 S60	19.1					
	15	344 58.0	61 32.3	53.3	316 41.6	33.5	290 59.7	29.3	66 26.9	30.6	Hamal	328 21.6 N23	24.8					
	16	0 00.5	76 31.3	53.1	331 42.7	34.0	306 02.2	29.3	81 29.1	30.6	Kaus Aust.	84 08.5 S34	23.6					
	17	15 03.0	91 30.4	53.0	346 43.9	34.5	321 04.6	29.3	96 31.2	30.6								
	18	30 05.4	106 29.5 S22	52.8	1 45.0 N12	35.0	336 07.1 N18	29.3	111 33.4 S22	30.6	Kochab	137 19.0 N74	11.6					
	19	45 07.9	121 28.6	52.6	16 46.1	35.6	351 09.6	29.3	126 35.6	30.6	Markab	13 56.9 N15	08.8					
	20	60 10.4	136 27.6	52.4	31 47.3	36.1	6 12.0	29.4	141 37.7	30.5	Menkar	314 34.2 N 4	02.9					
	21	75 12.8	151 26.7	52.2	46 48.4	36.6	21 14.5	29.4	156 39.9	30.5	Menkent	148 29.4 S36	19.0					
	22	90 15.3	166 25.8	52.0	61 49.5	37.1	36 16.9	29.4	171 42.0	30.5	Miaplacidus	221 43.0 S69	40.2					
23	105 17.8	181 24.8	51.8	76 50.7	37.6	51 19.4	29.4	186 44.2	30.5									
S A B I D O	21 00	120 20.2	196 23.9 S22	51.6	91 51.8 N12	38.2	66 21.9 N18	29.4	201 46.4 S22	30.5	Mirfak	309 06.7 N49	49.7					
	01	135 22.7	211 23.0	51.4	106 53.0	38.7	81 24.3	29.4	216 48.5	30.5	Nunki	76 21.4 S26	18.8					
	02	150 25.2	226 22.1	51.3	121 54.1	39.2	96 26.8	29.4	231 50.7	30.4	Peacock	53 48.5 S56	46.4					
	03	165 27.6	241 21.1	51.1	136 55.2	39.7	111 29.2	29.4	246 52.9	30.4	Pollux	243 49.7 N28	03.2					
	04	180 30.1	256 20.2	50.9	151 56.4	40.2	126 31.7	29.5	261 55.0	30.4	Procyon	245 18.6 N 5	15.2					
	05	195 32.5	271 19.3	50.7	166 57.5	40.8	141 34.2	29.5	276 57.2	30.4								
	06	210 35.0	286 18.4 S22	50.5	181 58.6 N12	41.3	156 36.6 N18	29.5	291 59.3 S22	30.4	Rasalhague	96 23.8 N12	33.8					
	07	225 37.5	301 17.4	50.3	196 59.8	41.8	171 39.1	29.5	307 01.5	30.4	Regulus	208 02.7 N12	01.2					
	08	240 39.9	316 16.5	50.1	212 00.9	42.3	186 41.5	29.5	322 03.7	30.4	Rigel	281 29.4 S 8	12.8					
	09	255 42.4	331 15.6	49.8	227 02.0	42.8	201 44.0	29.5	337 05.8	30.3	Rigel Kent.	140 17.2 S60	47.2					
	10	270 44.9	346 14.6	49.6	242 03.2	43.4	216 46.5	29.5	352 08.0	30.3	Sabik	102 33.9 S15	42.9					
	11	285 47.3	1 13.7	49.4	257 04.3	43.9	231 48.9	29.5	7 10.1	30.3								
	12	300 49.8	16 12.8 S22	49.2	272 05.4 N12	44.4	246 51.4 N18	29.6	22 12.3 S22	30.3	Schedar	350 02.0 N56	29.0					
	13	315 52.3	31 11.9	49.0	287 06.6	44.9	261 53.8	29.6	37 14.5	30.3	Shaula	96 47.2 S37	05.9					
	14	330 54.7	46 10.9	48.8	302 07.7	45.4	276 56.3	29.6	52 16.6	30.3	Sirius	258 49.6 S16	42.0					
	15	345 57.2	61 10.0	48.6	317 08.8	46.0	291 58.7	29.6	67 18.8	30.3	Spica	158 50.6 S11	06.4					
	16	0 59.7	76 09.1	48.4	332 10.0	46.5	307 01.2	29.6	82 21.0	30.2	Suhail	223 05.7 S43	23.2					
	17	16 02.1	91 08.2	48.2	347 11.1	47.0	322 03.6	29.6	97 23.1	30.2								
	18	31 04.6	106 07.2 S22	48.0	2 12.2 N12	47.5	337 06.1 N18	29.6	112 25.3 S22	30.2	Vega	80 51.8 N38	46.1					
	19	46 07.0	121 06.3	47.7	17 13.4	48.0	352 08.6	29.7	127 27.4	30.2	Zuben'ubi	137 25.9 S15	59.9					
	20	61 09.5	136 05.4	47.5	32 14.5	48.6	7 11.0	29.7	142 29.6	30.2								



T.M.G. (TU)	SOL		LUNA				Lat.	Crepúsculo			Orto Luna							
	A.H.G.		v		d			Naut.	Civil	Sol	19		20		21		22	
	o	'	o	'	o	'					h	m	h	m	h	m	h	m
J U E V E S	19 00	177 20.2	S20 23.1	34 31.7	6.2	N28 13.1	0.4	56.9	N 72	07 48	09 31	h m	h m	h m	h m			
	01	192 20.0	22.5	48 56.9	6.2	28 13.5	0.1	56.9	N 70	07 35	09 02	11 05	□	□	□	13 23		
	02	207 19.8	22.0	63 22.1	6.2	28 13.6	0.1	56.9	68	07 24	08 41	10 10	□	□	□	14 43		
	03	222 19.6	21.5	77 47.3	6.3	28 13.7	0.2	56.9	66	07 16	08 24	09 37	□	□	12 29	15 20		
	04	237 19.5	21.0	92 12.6	6.2	28 13.5	0.3	56.9	64	07 08	08 10	09 13	□	□	13 44	15 46		
	05	252 19.3	20.4	106 37.8	6.3	28 13.2	0.5	56.8	62	07 01	07 58	08 55	□	12 24	14 20	16 06		
	06	267 19.1	S20 19.9	121 03.1	6.4	N28 12.7	0.7	56.8	60	06 55	07 48	08 39	11 41	13 07	14 46	16 22		
	07	282 18.9	19.4	135 28.5	6.3	28 12.0	0.8	56.8	N 58	06 50	07 39	08 26	12 18	13 36	15 06	16 36		
	08	297 18.7	18.9	149 53.8	6.4	28 11.2	1.0	56.8	56	06 45	07 31	08 15	12 44	13 58	15 23	16 48		
	09	312 18.5	18.3	164 19.2	6.5	28 10.2	1.1	56.8	54	06 40	07 24	08 05	13 05	14 16	15 37	16 58		
	10	327 18.3	17.8	178 44.7	6.4	28 09.1	1.3	56.7	52	06 36	07 18	07 56	13 22	14 32	15 49	17 07		
	11	342 18.1	17.3	193 10.1	6.5	28 07.8	1.5	56.7	50	06 32	07 12	07 48	13 37	14 45	16 00	17 15		
	12	357 17.9	S20 16.7	207 35.6	6.6	N28 06.3	1.7	56.7	45	06 23	06 59	07 32	14 07	15 12	16 22	17 33		
	13	12 17.7	16.2	222 01.2	6.6	28 04.6	1.8	56.7	N 40	06 15	06 48	07 18	14 30	15 34	16 40	17 47		
	14	27 17.6	15.7	236 26.8	6.6	28 02.8	2.0	56.7	35	06 08	06 39	07 06	14 49	15 52	16 56	17 58		
	15	42 17.4	15.2	250 52.4	6.7	28 00.8	2.1	56.6	30	06 01	06 30	06 56	15 06	16 07	17 09	18 09		
	16	57 17.2	14.6	265 18.1	6.8	27 58.7	2.3	56.6	20	05 48	06 14	06 38	15 34	16 33	17 31	18 26		
	17	72 17.0	14.1	279 43.9	6.7	27 56.4	2.5	56.6	N 10	05 34	06 00	06 22	15 58	16 55	17 50	18 42		
	18	87 16.8	S20 13.6	294 09.6	6.9	N27 53.9	2.6	56.6	0	05 20	05 45	06 07	16 20	17 16	18 08	18 56		
	19	102 16.6	13.0	308 35.5	6.9	27 51.3	2.8	56.6	S 10	05 04	05 30	05 53	16 42	17 36	18 26	19 10		
	20	117 16.4	12.5	323 01.4	6.9	27 48.5	2.9	56.5	20	04 44	05 13	05 37	17 06	17 58	18 45	19 25		
	21	132 16.3	12.0	337 27.3	7.0	27 45.6	3.1	56.5	30	04 20	04 51	05 18	17 34	18 24	19 06	19 42		
	22	147 16.1	11.4	351 53.3	7.1	27 42.5	3.2	56.5	35	04 04	04 39	05 07	17 51	18 39	19 19	19 52		
23	162 15.9	10.9	6 19.4	7.1	27 39.3	3.5	56.5	40	03 44	04 23	04 54	18 10	18 56	19 34	20 04			
V I E R N E S	20 00	177 15.7	S20 10.3	20 45.5	7.2	N27 35.8	3.5	56.5	45	03 20	04 05	04 40	18 33	19 17	19 51	20 17		
	01	192 15.5	09.8	35 11.7	7.3	27 32.3	3.7	56.4	S 50	02 45	03 41	04 21	19 03	19 43	20 12	20 33		
	02	207 15.3	09.3	49 38.0	7.3	27 28.6	3.9	56.4	52	02 27	03 29	04 12	19 18	19 56	20 22	20 41		
	03	222 15.1	08.7	64 04.3	7.4	27 24.7	4.0	56.4	54	02 03	03 15	04 03	19 35	20 11	20 34	20 49		
	04	237 15.0	08.2	78 30.7	7.4	27 20.7	4.2	56.4	56	01 31	02 59	03 52	19 55	20 27	20 47	20 59		
	05	252 14.8	07.6	92 57.1	7.5	27 16.5	4.3	56.4	58	///	02 39	03 39	20 21	20 48	21 02	21 09		
	06	267 14.6	S20 07.1	107 23.6	7.6	N27 12.2	4.5	56.3	S 60	///	02 14	03 24	20 56	21 13	21 19	21 21		
	07	282 14.4	06.6	121 50.2	7.7	27 07.7	4.6	56.3	Lat.	Ocaso Sol	Crepúsculo			Ocaso Luna				
	08	297 14.2	06.0	136 16.9	7.7	27 03.1	4.8	56.3		Sol	Civil	Naut.	19	20	21	22		
	09	312 14.1	05.5	150 43.6	7.8	26 58.3	4.9	56.3	N 72	h m	h m	h m	h m	h m	h m	h m		
	10	327 13.9	04.9	165 10.4	7.9	26 53.4	5.1	56.3	N 70	13 18	15 21	16 48	□	□	□	12 23		
	11	342 13.7	04.4	179 37.3	8.0	26 48.3	5.2	56.2	68	14 13	15 42	16 59	□	□	□	11 02		
	12	357 13.5	S20 03.8	194 04.3	8.0	N26 43.1	5.4	56.2	66	14 46	15 59	17 07	□	□	11 33	10 24		
	13	12 13.3	03.3	208 31.3	8.1	26 37.7	5.5	56.2	64	15 09	16 13	17 15	□	□	10 17	09 57		
	14	27 13.1	02.8	222 58.4	8.2	26 32.2	5.6	56.2	62	15 28	16 25	17 22	□	09 46	09 40	09 36		
	15	42 13.0	02.2	237 25.6	8.3	26 26.6	5.8	56.2	60	15 44	16 35	17 28	08 31	09 02	09 14	09 18		
	16	57 12.8	01.7	251 52.9	8.4	26 20.8	5.9	56.1	N 58	15 57	16 43	17 33	07 54	08 33	08 53	09 04		
	17	72 12.6	01.1	266 20.3	8.4	26 14.9	6.1	56.1	56	16 08	16 51	17 38	07 28	08 11	08 36	08 51		
	18	87 12.4	S20 00.6	280 47.7	8.6	N26 08.8	6.2	56.1	54	16 18	16 58	17 42	07 07	07 52	08 21	08 40		
	19	102 12.3	20 00.0	295 15.3	8.6	26 02.6	6.3	56.1	30	19 04	19 30	20 02	02 35	03 35	04 37	05 38		
	20	117 12.1	19 59.5	309 42.9	8.7	25 56.3	6.5	56.1	35	19 15	19 43	20 18	02 18	03 19	04 22	05 26		
	21	132 11.9	19 58.9	324 10.6	8.8	25 49.8	6.6	56.0	40	19 27	19 58	20 37	01 59	03 00	04 06	05 12		
	22	147 11.7	19 58.4	338 38.4	8.9	25 43.2	6.7	56.0	45	19 42	20 17	21 01	01 35	02 37	03 45	04 56		
23	162 11.5	19 57.8	353 06.3	9.0	25 36.5	6.9	56.0	S 50	20 00	20 41	21 35	01 04	02 08	03 20	04 36			
S A B A D O	21 00	177 11.4	S19 57.3	7 34.3	9.0	N25 29.6	7.0	56.0	52	20 09	20 52	21 53	00 49	01 53	03 08	04 26		
	01	192 11.2	56.7	22 02.3	9.2	25 22.6	7.1	56.0	54	20 18	21 06	22 16	00 31	01 36	02 54	04 16		
	02	207 11.0	56.1	36 30.5	9.2	25 15.5	7.2	55.9	56	20 29	21 21	22 48	00 10	01 16	02 37	04 03		
	03	222 10.8	55.6	50 58.7	9.3	25 08.3	7.4	55.9	58	20 42	21 41	23 58	24 51	00 51	02 17	03 49		
	04	237 10.7	55.0	65 27.0	9.5	25 00.9	7.5	55.9	S 60	20 57	22 05	///	24 16	00 16	01 53	03 32		
	05	252 10.5	54.5	79 55.5	9.5	*24 53.4	7.6	55.9										
	06	267 10.3	S19 53.9	94 24.0	9.6	N24 45.8	7.8	55.9										
	07	282 10.1	53.4	108 52.6	9.7	24 38.0	7.8	55.8										
	08	297 10.0	52.8	123 21.3	9.8	24 30.2	8.0	55.8										
	09	312 09.8	52.3	137 50.1	9.9	24 22.2	8.1	55.8										
10	327 09.6	51.7	152 19.0	10.0	24 14.1	8.2	55.8											
11	342 09.4	51.1	166 48.0	10.0	24 05.9	8.4	55.8											
12	357 09.3	S19 50.6	181 17.0	10.2	N23 57.5	8.4	55.7											
13	12 09.1	50.0	195 46.2	10.3	23 49.1	8.6	55.7											
14	27 08.9	49.4	210 15.5	10.4	23 40.5	8.7	55.7											
15	42 08.8	48.9	224 44.9	10.4	23 31.8	8.7	55.7											
16	57 08.6	48.3	239 14.3	10.6	23 23.1	8.9	55.7											
17	72 08.4	47.8	253 43.9	10.6	23 14.2	9.0	55.7											
18	87 08.2	S19 47.2	268 13.5	10.8	N23 05.2	9.1	55.6											
19	102 08.1	46.6	282 43.3	10.8	22 56.1	9.3	55.6											
20	117 07.9	46.1	297 13.1	11.0	22 46.8	9.3	55.6											
21	132 07.7	45.5	311 43.1															



T.M.G. (TU)	ARIES		VENUS -3.9		MARTE +0.4		JUPITER -2.5		SATURNO +0.5		ESTRELLAS				
	A.H.G.	A.H.G.	Dec.	A.H.G.	Dec.	A.H.G.	Dec.	A.H.G.	Dec.	A.H.G.	Dec.	Nombre	A. H. S.	Dec.	
DOMINGO	22 00	121 19.4	196 01.7	S22 46.6	92 19.0	N12 50.6	67 20.8	N18 29.7	202 38.3	S22 30.1		Acamar	315 32.0	S40 21.0	
	01	136 21.8	211 00.8	46.4	107 20.1	51.2	82 23.3	29.7	217 40.4	30.1		Achernar	335 40.1	S57 17.7	
	02	151 24.3	225 59.8	46.2	122 21.3	51.7	97 25.7	29.8	232 42.6	30.1		Acruz	173 30.0	S63 02.1	
	03	166 26.8	240 58.9	46.0	137 22.4	52.2	112 28.2	29.8	247 44.7	30.1		Adhara	255 26.6	S28 57.4	
	04	181 29.2	255 58.0	45.7	152 23.5	52.7	127 30.6	29.8	262 46.9	30.1		Aldebaran	291 10.3	N16 29.4	
	05	196 31.7	270 57.1	45.5	167 24.7	53.2	142 33.1	29.8	277 49.1	30.0					
	06	211 34.1	285 56.2	S22 45.3	182 25.8	N12 53.8	157 35.5	N18 29.8	292 51.2	S22 30.0		Alioth	166 36.3	N56 00.8	
	07	226 36.6	300 55.2	45.1	197 26.9	54.3	172 38.0	29.8	307 53.4	30.0		Alkaid	153 13.1	N49 21.6	
	08	241 39.1	315 54.3	44.8	212 28.0	54.8	187 40.4	29.8	322 55.6	30.0		Al Na'ir	28 06.9	S47 01.1	
	09	256 41.5	330 53.4	44.6	227 29.2	55.3	202 42.9	29.9	337 57.7	30.0		Alnilam	276 04.7	S 1 12.4	
	10	271 44.0	345 52.5	44.4	242 30.3	55.8	217 45.3	29.9	352 59.9	30.0		Alphard	218 13.8	S 8 36.7	
	11	286 46.5	0 51.5	44.1	257 31.4	56.4	232 47.8	29.9	8 02.0	30.0					
	12	301 48.9	15 50.6	S22 43.9	272 32.5	N12 56.9	247 50.2	N18 29.9	23 04.2	S22 29.9		Alphecca	126 26.6	N26 44.7	
	13	316 51.4	30 49.7	43.6	287 33.7	57.4	262 52.7	29.9	38 06.4	29.9		Alpheratz	358 02.8	N29 01.9	
	14	331 53.9	45 48.8	43.4	302 34.8	57.9	277 55.1	29.9	53 08.5	29.9		Altair	62 26.5	N 8 50.2	
	15	346 56.3	60 47.9	43.2	317 35.9	58.4	292 57.5	29.9	68 10.7	29.9		Ankaa	353 33.8	S42 22.1	
	16	1 58.8	75 46.9	42.9	332 37.0	58.9	308 00.0	30.0	83 12.9	29.9		Antares	112 49.1	S26 24.6	
	17	17 01.3	90 46.0	42.7	347 38.2	59.5	323 02.4	30.0	98 15.0	29.9					
	18	32 03.7	105 45.1	S22 42.4	2 39.3	N13 00.0	338 04.9	N18 30.0	113 17.2	S22 29.9		Arcturus	146 12.4	N19 14.0	
	19	47 06.2	120 44.2	42.2	17 40.4	00.5	353 07.3	30.0	128 19.4	29.8		Atria	108 07.9	S69 00.5	
	20	62 08.6	135 43.3	41.9	32 41.5	01.0	8 09.8	30.0	143 21.5	29.8		Avior	234 25.1	S59 28.4	
	21	77 11.1	150 42.3	41.7	47 42.7	01.5	23 12.2	30.0	158 23.7	29.8		Bellatrix	278 51.5	N 6 20.5	
	22	92 13.6	165 41.4	41.5	62 43.8	02.1	38 14.7	30.1	173 25.8	29.8		Betelgeuse	271 20.9	N 7 24.4	
23	107 16.0	180 40.5	41.2	77 44.9	02.6	53 17.1	30.1	188 28.0	29.8						
LUNES	23 00	122 18.5	195 39.6	S22 41.0	92 46.0	N13 03.1	68 19.5	N18 30.1	203 30.2	S22 29.8		Canopus	264 03.8	S52 41.4	
	01	137 21.0	210 38.7	40.7	107 47.2	03.6	83 22.0	30.1	218 32.3	29.7		Capella	281 01.3	N45 59.5	
	02	152 23.4	225 37.7	40.4	122 48.3	04.1	98 24.4	30.1	233 34.5	29.7		Deneb	49 44.6	N45 14.4	
	03	167 25.9	240 36.8	40.2	137 49.4	04.6	113 26.9	30.1	248 36.7	29.7		Denebola	182 52.1	N14 37.8	
	04	182 28.4	255 35.9	39.9	152 50.5	05.2	128 29.3	30.2	263 38.8	29.7		Diphda	349 14.3	S18 02.9	
	05	197 30.8	270 35.0	39.7	167 51.6	05.7	143 31.8	30.2	278 41.0	29.7					
	06	212 33.3	285 34.1	S22 39.4	182 52.8	N13 06.2	158 34.2	N18 30.2	293 43.2	S22 29.7		Dubhe	194 13.2	N61 48.3	
	07	227 35.8	300 33.1	39.2	197 53.9	06.7	173 36.6	30.2	308 45.3	29.7		Elnath	278 35.6	N28 36.1	
	08	242 38.2	315 32.2	38.9	212 55.0	07.2	188 39.1	30.2	323 47.5	29.6		Eltanin	90 55.1	N51 29.1	
	09	257 40.7	330 31.3	38.6	227 56.1	07.7	203 41.5	30.2	338 49.7	29.6		Enif	34 05.5	N 9 49.4	
	10	272 43.1	345 30.4	38.4	242 57.2	08.3	218 44.0	30.3	353 51.8	29.6		Fomalhaut	15 44.3	S29 41.0	
	11	287 45.6	0 29.5	38.1	257 58.4	08.8	233 46.4	30.3	8 54.0	29.6					
	12	302 48.1	15 28.6	S22 37.8	272 59.5	N13 09.3	248 48.8	N18 30.3	23 56.1	S22 29.6		Gacrux	172 21.5	S57 03.0	
	13	317 50.5	30 27.6	37.6	288 00.6	09.8	263 51.3	30.3	38 58.3	29.6		Gienah	176 11.1	S17 28.9	
	14	332 53.0	45 26.7	37.3	303 01.7	10.3	278 53.7	30.3	54 00.5	29.5		Hadar	149 14.3	S60 19.1	
	15	347 55.5	60 25.8	37.0	318 02.8	10.8	293 56.2	30.3	69 02.6	29.5		Hamal	328 21.6	N23 24.8	
	16	2 57.9	75 24.9	36.8	333 04.0	11.4	308 58.6	30.4	84 04.8	29.5		Kaus Aust.	84 08.5	S34 23.5	
	17	18 00.4	90 24.0	36.5	348 05.1	11.9	324 01.0	30.4	99 07.0	29.5					
	18	33 02.9	105 23.1	S22 36.2	3 06.2	N13 12.4	339 03.5	N18 30.4	114 09.1	S22 29.5		Kochab	137 19.0	N74 11.5	
	19	48 05.3	120 22.2	36.0	18 07.3	12.9	354 05.9	30.4	129 11.3	29.5		Markab	13 56.9	N15 08.8	
	20	63 07.8	135 21.2	35.7	33 08.4	13.4	9 08.3	30.4	144 13.5	29.5		Menkar	314 34.2	N 4 02.9	
	21	78 10.3	150 20.3	35.4	48 09.6	13.9	24 10.8	30.4	159 15.6	29.4		Menkent	148 29.4	S36 19.0	
	22	93 12.7	165 19.4	35.1	63 10.7	14.5	39 13.2	30.5	174 17.8	29.4		Miaplacidus	221 43.0	S69 40.2	
23	108 15.2	180 18.5	34.8	78 11.8	15.0	54 15.6	30.5	189 20.0	29.4						
MARTES	24 00	123 17.6	195 17.6	S22 34.6	93 12.9	N13 15.5	69 18.1	N18 30.5	204 22.1	S22 29.4		Mirfak	309 06.7	N49 49.7	
	01	138 20.1	210 16.7	34.3	108 14.0	16.0	84 20.5	30.5	219 24.3	29.4		Nunki	76 21.4	S26 18.8	
	02	153 22.6	225 15.8	34.0	123 15.1	16.5	99 22.9	30.5	234 26.5	29.4		Peacock	53 48.5	S56 46.4	
	03	168 25.0	240 14.8	33.7	138 16.3	17.0	114 25.4	30.6	249 28.6	29.3		Pollux	243 49.7	N28 03.2	
	04	183 27.5	255 13.9	33.4	153 17.4	17.6	129 27.8	30.6	264 30.8	29.3		Procyon	245 18.6	N 5 15.2	
	05	198 30.0	270 13.0	33.1	168 18.5	18.1	144 30.2	30.6	279 33.0	29.3					
	06	213 32.4	285 12.1	S22 32.9	183 19.6	N13 18.6	159 32.7	N18 30.6	294 35.1	S22 29.3		Rasalhague	96 23.8	N12 33.8	
	07	228 34.9	300 11.2	32.6	198 20.7	19.1	174 35.1	30.6	309 37.3	29.3		Regulus	208 02.7	N12 01.2	
	08	243 37.4	315 10.3	32.3	213 21.8	19.6	189 37.5	30.6	324 39.5	29.3		Rigel	281 29.5	S 8 12.8	
	09	258 39.8	330 09.4	32.0	228 22.9	20.1	204 40.0	30.7	339 41.6	29.3		Rigil Kent.	140 17.2	S60 47.3	
	10	273 42.3	345 08.5	31.7	243 24.1	20.7	219 42.4	30.7	354 43.8	29.2		Sabik	102 33.9	S15 42.9	
	11	288 44.7	0 07.5	31.4	258 25.2	21.2	234 44.8	30.7	9 46.0	29.2					
	12	303 47.2	15 06.6	S22 31.1	273 26.3	N13 21.7	249 47.3	N18 30.7	24 48.1	S22 29.2		Schedar	350 02.1	N56 28.9	
	13	318 49.7	30 05.7	30.8	288 27.4	22.2	264 49.7	30.7	39 50.3	29.2		Shaula	96 47.2	S37 05.9	
	14	333 52.1	45 04.8	30.5	303 28.5	22.7	279 52.1	30.8	54 52.5	29.2		Sirius	258 49.6	S16 42.0	
	15	348 54.6	60 03.9	30.2	318 29.6	23.2	294 54.5	30.8	69 54.6	29.2		Spica	158 50.6	S11 06.4	
	16	3 57.1	75 03.0	29.9	333 30.7	23.7	309 57.0	30.8	84 56.8	29.1		Suhail	223 05.7	S43 23.2	
	17	18 59.5	90 02.1	29.6	348 31.8	24.3	324 59.4	30.8	99 58.9	29.1					
	18	34 02.0	105 01.2	S22 29.3	3 33.0	N13 24.8	340 01.8	N18 30.8	115 01.1	S22 29.1		Vega	80 51.8	N38 46.1	
	19	49 04.5	120 00.3	29.0	18 34.1	25.3	355 04.3	30.9	130 03.3	29.1		Zuben'ubi	137 25.9	S15 59.9	
	20	64 06.9	134 59.3	28.7	33 35.2	25.8	10 06.7	30.9	145 05.4	29.1					
	21	79 09.4	149 58.4	28.4	48 36.3	26.3	25 09.1	30.9	160 07.6	29.1					
	22	94 11.9	164 57.5	28.1	63 37.4	26.8	40 11.5	30.9	175 09.8	29.1					
23	109 14.3	179 56.6	27.8	78 38.5	27.3	55 14.0	30.9	190 11.9	29.0						
Pas. Mer.		15 48.2	v -0.9	d 0.3	v 1.1	d 0.5	v 2.4	d 0.0	v 2.2	d 0.0					
												A. H. S.		Pas. Mer.	
												o / h m		o / h m	
												Venus		73 21.1 10 58	
												Marte		330 27.5 17 48	
												Júpiter		306 01.0 19 24	



T.M.G. (TU)	SOL		LUNA				Lat.	Crepúsculo		Orto Sol	Orto Luna					
	A.H.G.	Dec.	A.H.G.	v	Dec.	d		P.H.	Náut.		Civil	22	23	24	25	
												h m	h m	h m	h m	h m
DOMINGO	22 00	177 07.2	S19 43.8	355 13.5	11.3	N22 09.0	9.8	55.5	N 72	07 39	09 18	■	□	16 03	18 26	20 27
	01	192 07.1	43.2	9 43.8	11.4	21 59.2	9.8	55.5	N 70	07 28	08 52	10 41	13 23	16 35	18 40	20 31
	02	207 06.9	42.7	24 14.2	11.5	21 49.4	9.9	55.5	68	07 18	08 33	09 57	14 43	16 59	18 51	20 34
	03	222 06.7	42.1	38 44.7	11.7	21 39.5	10.0	55.5	66	07 10	08 17	09 27	15 20	17 17	19 00	20 37
	04	237 06.6	41.5	53 15.4	11.7	21 29.5	10.1	55.4	64	07 03	08 04	09 06	15 46	17 31	19 08	20 39
	05	252 06.4	40.9	67 46.1	11.8	21 19.4	10.2	55.4	62	06 57	07 53	08 48	16 06	17 43	19 14	20 41
	06	267 06.2	S19 40.4	82 16.9	11.9	N21 09.2	10.3	55.4	60	06 51	07 43	08 34	16 22	17 54	19 20	20 42
	07	282 06.1	39.8	96 47.8	11.9	20 58.9	10.4	55.4	N 58	06 46	07 35	08 21	16 36	18 03	19 25	20 44
	08	297 05.9	39.2	111 18.7	12.1	20 48.5	10.5	55.4	56	06 41	07 28	08 11	16 48	18 10	19 29	20 45
	09	312 05.7	38.7	125 49.8	12.2	20 38.0	10.5	55.4	54	06 37	07 21	08 01	16 58	18 17	19 33	20 46
	10	327 05.6	38.1	140 21.0	12.3	20 27.5	10.7	55.3	52	06 33	07 15	07 53	17 07	18 23	19 37	20 47
	11	342 05.4	37.5	154 52.3	12.3	20 16.8	10.7	55.3	50	06 30	07 09	07 45	17 15	18 29	19 40	20 48
	12	357 05.2	S19 36.9	169 23.6	12.5	N20 06.1	10.8	55.3	45	06 21	06 57	07 29	17 33	18 41	19 47	20 51
	13	12 05.1	36.3	183 55.1	12.5	19 55.3	10.9	55.3	N 40	06 14	06 47	07 16	17 47	18 51	19 52	20 52
	14	27 04.9	35.8	198 26.6	12.7	19 44.4	11.0	55.3	35	06 07	06 38	07 05	17 58	18 59	19 57	20 54
	15	42 04.7	35.2	212 58.3	12.7	19 33.4	11.0	55.2	30	06 00	06 29	06 55	18 09	19 06	20 02	20 55
	16	57 04.6	34.6	227 30.0	12.8	19 22.4	11.1	55.2	20	05 47	06 14	06 38	18 26	19 19	20 09	20 57
	17	72 04.4	34.0	242 01.8	12.9	19 11.3	11.2	55.2	N 10	05 35	06 00	06 23	18 42	19 30	20 16	21 00
	18	87 04.2	S19 33.5	256 33.7	13.0	N19 00.1	11.3	55.2	0	05 21	05 46	06 08	18 56	19 40	20 22	21 01
	19	102 04.1	32.9	271 05.7	13.1	18 48.8	11.4	55.2	S 10	05 05	05 32	05 54	19 10	19 51	20 28	21 03
	20	117 03.9	32.3	285 37.8	13.2	18 37.4	11.4	55.2	20	04 47	05 15	05 39	19 25	20 01	20 34	21 05
	21	132 03.8	31.7	300 10.0	13.3	18 26.0	11.5	55.1	30	04 23	04 54	05 21	19 42	20 14	20 42	21 08
	22	147 03.6	31.1	314 42.3	13.3	18 14.5	11.6	55.1	35	04 07	04 42	05 10	19 52	20 21	20 46	21 09
23	162 03.4	30.5	329 14.6	13.5	18 02.9	11.6	55.1	40	03 49	04 27	04 58	20 04	20 29	20 51	21 11	
LUNES	23 00	177 03.3	S19 30.0	343 47.1	13.5	N17 51.3	11.8	55.1	45	03 25	04 09	04 44	20 17	20 38	20 56	21 12
	01	192 03.1	29.4	358 19.6	13.6	17 39.5	11.7	55.1	S 50	02 52	03 46	04 26	20 33	20 49	21 03	21 14
	02	207 03.0	28.8	12 52.2	13.7	17 27.8	11.9	55.1	52	02 35	03 35	04 18	20 41	20 55	21 06	21 15
	03	222 02.8	28.2	27 24.9	13.8	17 15.9	11.9	55.0	54	02 14	03 22	04 08	20 49	21 00	21 09	21 16
	04	237 02.6	27.6	41 57.7	13.8	17 04.0	12.0	55.0	56	01 45	03 07	03 58	20 59	21 07	21 13	21 17
	05	252 02.5	27.0	56 30.5	14.0	16 52.0	12.0	55.0	58	00 55	02 49	03 46	21 09	21 14	21 17	21 19
	06	267 02.3	S19 26.5	71 03.5	14.0	N16 40.0	12.1	55.0	S 60	///	02 26	03 32	21 21	21 22	21 21	21 20
	07	282 02.2	25.9	85 36.5	14.1	16 27.9	12.2	55.0	Lat.	Ocaso Sol	Crepúsculo		Ocaso Luna			
	08	297 02.0	25.3	100 09.6	14.2	16 15.7	12.2	55.0	Civil	Náut.	22	23	24	25		
	09	312 01.8	24.7	114 42.8	14.2	16 03.5	12.3	54.9	N 72	h m	h m	h m	h m	h m	h m	h m
	10	327 01.7	24.1	129 16.0	14.4	15 51.2	12.3	54.9	N 70	13 44	15 33	16 57	12 23	10 45	10 08	09 41
	11	342 01.5	23.5	143 49.4	14.4	15 38.9	12.4	54.9	68	14 28	15 52	17 07	11 02	10 20	09 55	09 35
	12	357 01.4	S19 22.9	158 22.8	14.5	N15 26.5	12.5	54.9	66	14 57	16 08	17 15	10 24	10 00	09 44	09 30
13	12 01.2	22.3	172 56.3	14.5	15 14.0	12.5	54.9	64	15 19	16 21	17 22	09 57	09 44	09 35	09 26	
14	27 01.1	21.7	187 29.8	14.7	15 01.5	12.6	54.9	62	15 36	16 32	17 28	09 36	09 31	09 27	09 22	
15	42 00.9	21.1	202 03.5	14.7	14 48.9	12.6	54.8	60	15 51	16 41	17 34	09 18	09 20	09 20	09 19	
16	57 00.8	20.5	216 37.2	14.8	14 36.3	12.6	54.8	N 58	16 03	16 49	17 39	09 04	09 10	09 14	09 16	
17	72 00.6	20.0	231 11.0	14.8	14 23.7	12.7	54.8	56	16 14	16 57	17 43	08 51	09 01	09 08	09 14	
18	87 00.4	S19 19.4	245 44.8	15.0	N14 11.0	12.8	54.8	54	16 23	17 03	17 47	08 40	08 54	09 04	09 12	
19	102 00.3	18.8	260 18.8	15.0	13 58.2	12.8	54.8	52	16 32	17 10	17 51	08 31	08 47	08 59	09 09	
20	117 00.1	18.2	274 52.8	15.0	13 45.4	12.9	54.8	50	16 39	17 15	17 55	08 22	08 40	08 55	09 07	
21	132 00.0	17.6	289 26.8	15.2	13 32.5	12.9	54.7	45	16 55	17 27	18 03	08 03	08 27	08 46	09 03	
22	146 59.8	17.0	304 01.0	15.2	13 19.6	12.9	54.7	N 40	17 08	17 38	18 10	07 48	08 16	08 39	09 00	
23	161 59.7	16.4	318 35.2	15.3	13 06.7	13.0	54.7	35	17 20	17 47	18 17	07 35	08 06	08 33	08 57	
MARTES	24 00	176 59.5	S19 15.8	333 09.5	15.3	N12 53.7	13.0	54.7	30	17 29	17 55	18 24	07 24	07 58	08 27	08 54
	01	191 59.4	15.2	347 43.8	15.4	12 40.7	13.1	54.7	20	17 46	18 10	18 37	07 05	07 43	08 17	08 49
	02	206 59.2	14.6	2 18.2	15.5	12 27.6	13.1	54.7	N 10	18 01	18 24	18 49	06 47	07 30	08 09	08 45
	03	221 59.1	14.0	16 52.7	15.5	12 14.5	13.2	54.7	0	18 16	18 37	19 03	06 31	07 18	08 01	08 41
	04	236 58.9	13.4	31 27.2	15.6	12 01.3	13.1	54.6	S 10	18 30	18 52	19 18	06 15	07 05	07 52	08 37
	05	251 58.8	12.8	46 01.8	15.7	11 48.2	13.3	54.6	20	18 45	19 09	19 37	05 58	06 52	07 44	08 33
	06	266 58.6	S19 12.2	60 36.5	15.7	N11 34.9	13.2	54.6	30	19 03	19 29	20 01	05 38	06 37	07 33	08 28
	07	281 58.5	11.6	75 11.2	15.7	11 21.7	13.3	54.6	35	19 13	19 41	20 16	05 26	06 28	07 27	08 25
	08	296 58.3	11.0	89 45.9	15.9	11 08.4	13.4	54.6	40	19 25	19 56	20 34	05 12	06 18	07 21	08 22
	09	311 58.2	10.4	104 20.8	15.9	10 55.0	13.4	54.6	45	19 39	20 14	20 58	04 56	06 06	07 13	08 18
	10	326 58.0	09.8	118 55.7	15.9	10 41.6	13.4	54.6	S 50	19 57	20 36	21 30	04 36	05 51	07 03	08 13
	11	341 57.9	09.2	133 30.6	16.0	N10 14.8	13.5	54.5	52	20 05	20 48	21 47	04 26	05 44	06 59	08 11
	12	356 57.7	S19 08.5	148 05.6	16.0	10 01.3	13.5	54.5	54	20 14	21 00	22 08	04 16	05 36	06 54	08 09
13	11 57.6	07.9	162 40.6	16.2	9 47.8	13.5	54.5	56	20 25	21 15	22 35	04 03	05 28	06 49	08 06	
14	26 57.4	07.3	177 15.8	16.1	9 34.3	13.5	54.5	58	20 36	21 33	23 21	03 49	05 18	06 43	08 03	
15	41 57.3	06.7	191 50.9	16.2	9 20.8	13.6	54.5	S 60	20 50	21 55	///	03 32	05 07	06 36	08 00	
16	56 57.1	06.1	206 26.1	16.3	9 07.2	13.6	54.5	Día	SOL E.T. (-)		LUNA					
17	71 57.0	05.5	221 01.4	16.3	8 53.6	13.7	54.5	00 h	12 h	Pas. Mer.	Pas. Sup.	Mer. Inf.	Edad.	Fase		
18	86 56.8	S19 04.9	235 36.7	16.3	N 8 53.6	13.7	54.5	m s	m s	h m	h m	h m	d			



T.M.G. (TU)	ARIES		VENUS -3.9		MARTE +0.5		JUPITER -2.5		SATURNO +0.6		ESTRELLAS		
	A.H.G.	A.H.G. Dec.	A.H.G. Dec.	A.H.G. Dec.	A.H.G. Dec.	A.H.G. Dec.	A.H.G. Dec.	A.H.G. Dec.	Nombre	A. H. S.	Dec.		
M I E R C O L E S	25 00	124 16.8	194 55.7 S22 27.5	93 39.6 N13 27.9	70 16.4 N18 31.0	205 14.1 S22 29.0	Acamar	315 32.0 S40 21.0					
	01	139 19.2	209 54.8 27.2	108 40.7 28.4	85 18.8 31.0	220 16.3 29.0	Achernar	335 40.2 S57 17.7					
	02	154 21.7	224 53.9 26.9	123 41.8 28.9	100 21.2 31.0	235 18.5 29.0	Acrux	173 30.0 S63 02.2					
	03	169 24.2	239 53.0 26.6	138 42.9 29.4	115 23.7 31.0	250 20.6 29.0	Adhara	255 26.6 S28 57.4					
	04	184 26.6	254 52.1 26.2	153 44.1 29.9	130 26.1 31.0	265 22.8 29.0	Aldebaran	291 10.3 N16 29.4					
	05	199 29.1	269 51.2 25.9	168 45.2 30.4	145 28.5 31.1	280 25.0 28.9							
	06	214 31.6	284 50.3 S22 25.6	183 46.3 N13 30.9	160 30.9 N18 31.1	295 27.1 S22 28.9	Alioth	166 36.2 N56 00.8					
	07	229 34.0	299 49.4 25.3	198 47.4 31.5	175 33.4 31.1	310 29.3 28.9	Alkaid	153 13.0 N49 21.6					
	08	244 36.5	314 48.5 25.0	213 48.5 32.0	190 35.8 31.1	325 31.5 28.9	Al Na'ir	28 06.9 S47 01.0					
	09	259 39.0	329 47.6 24.7	228 49.6 32.5	205 38.2 31.1	340 33.6 28.9	Alnilam	276 04.7 S 1 12.4					
	10	274 41.4	344 46.6 24.3	243 50.7 33.0	220 40.6 31.2	355 35.8 28.9	Alphard	218 13.8 S 8 36.7					
	11	289 43.9	359 45.7 24.0	258 51.8 33.5	235 43.0 31.2	10 38.0 28.9							
	12	304 46.4	14 44.8 S22 23.7	273 52.9 N13 34.0	250 45.5 N18 31.2	25 40.1 S22 28.8	Alphecca	126 26.6 N26 44.7					
	13	319 48.8	29 43.9 23.4	288 54.0 34.5	265 47.9 31.2	40 42.3 28.8	Alpheratz	358 02.8 N29 01.9					
	14	334 51.3	44 43.0 23.0	303 55.1 35.0	280 50.3 31.3	55 44.5 28.8	Altair	62 26.5 N 8 50.2					
	15	349 53.7	59 42.1 22.7	318 56.2 35.6	295 52.7 31.3	70 46.6 28.8	Ankaa	353 33.8 S42 22.1					
	16	4 56.2	74 41.2 22.4	333 57.3 36.1	310 55.1 31.3	85 48.8 28.8	Antares	112 49.0 S26 24.6					
	17	19 58.7	89 40.3 22.1	348 58.4 36.6	325 57.6 31.3	100 51.0 28.8							
	18	35 01.1	104 39.4 S22 21.7	3 59.5 N13 37.1	341 00.0 N18 31.3	115 53.1 S22 28.7	Arcturus	146 12.4 N19 14.0					
	19	50 03.6	119 38.5 21.4	19 00.7 37.6	356 02.4 31.4	130 55.3 28.7	Atria	108 07.9 S69 00.5					
	20	65 06.1	134 37.6 21.1	34 01.8 38.1	11 04.8 31.4	145 57.5 28.7	Avior	234 25.1 S59 28.4					
	21	80 08.5	149 36.7 20.7	49 02.9 38.6	26 07.2 31.4	160 59.6 28.7	Bellatrix	278 51.5 N 6 20.5					
	22	95 11.0	164 35.8 20.4	64 04.0 39.1	41 09.7 31.4	176 01.8 28.7	Betelgeuse	271 20.9 N 7 24.4					
23	110 13.5	179 34.9 20.1	79 05.1 39.7	56 12.1 31.4	191 04.0 28.7								
J U E V E S	26 00	125 15.9	194 34.0 S22 19.7	94 06.2 N13 40.2	71 14.5 N18 31.5	206 06.1 S22 28.7	Canopus	264 03.8 S52 41.4					
	01	140 18.4	209 33.1 19.4	109 07.3 40.7	86 16.9 31.5	221 08.3 28.6	Capella	281 01.3 N45 59.5					
	02	155 20.8	224 32.2 19.0	124 08.4 41.2	101 19.3 31.5	236 10.5 28.6	Deneb	49 44.6 N45 14.4					
	03	170 23.3	239 31.3 18.7	139 09.5 41.7	116 21.7 31.5	251 12.7 28.6	Denebola	182 52.1 N14 37.8					
	04	185 25.8	254 30.4 18.4	154 10.6 42.2	131 24.2 31.6	266 14.8 28.6	Diphda	349 14.4 S18 02.9					
	05	200 28.2	269 29.5 18.0	169 11.7 42.7	146 26.6 31.6	281 17.0 28.6							
	06	215 30.7	284 28.6 S22 17.7	184 12.8 N13 43.2	161 29.0 N18 31.6	296 19.2 S22 28.6	Dubhe	194 13.2 N61 48.4					
	07	230 33.2	299 27.7 17.3	199 13.9 43.8	176 31.4 31.6	311 21.3 28.5	Elnath	278 35.6 N28 36.1					
	08	245 35.6	314 26.8 17.0	214 15.0 44.3	191 33.8 31.6	326 23.5 28.5	Eltanin	90 55.1 N51 29.1					
	09	260 38.1	329 25.9 16.6	229 16.1 44.8	206 36.2 31.7	341 25.7 28.5	Enif	34 05.5 N 9 49.4					
	10	275 40.6	344 25.0 16.3	244 17.2 45.3	221 38.6 31.7	356 27.8 28.5	Fomalhaut	15 44.4 S29 41.0					
	11	290 43.0	359 24.1 15.9	259 18.3 45.8	236 41.0 31.7	11 30.0 28.5							
	12	305 45.5	14 23.2 S22 15.6	274 19.4 N13 46.3	251 43.5 N18 31.7	26 32.2 S22 28.5	Gacrux	172 21.5 S57 03.0					
	13	320 48.0	29 22.3 15.2	289 20.5 46.8	266 45.9 31.8	41 34.3 28.4	Gienah	176 11.1 S17 28.9					
	14	335 50.4	44 21.4 14.9	304 21.6 47.3	281 48.3 31.8	56 36.5 28.4	Hadar	149 14.3 S60 19.1					
	15	350 52.9	59 20.5 14.5	319 22.7 47.8	296 50.7 31.8	71 38.7 28.4	Hamal	328 21.6 N23 24.8					
	16	5 55.3	74 19.6 14.2	334 23.8 48.3	311 53.1 31.8	86 40.8 28.4	Kaus Aust.	84 08.5 S34 23.5					
	17	20 57.8	89 18.7 13.8	349 24.9 48.9	326 55.5 31.9	101 43.0 28.4							
	18	36 00.3	104 17.8 S22 13.5	4 26.0 N13 49.4	341 57.9 N18 31.9	116 45.2 S22 28.4	Kochab	137 18.9 N74 11.5					
	19	51 02.7	119 16.9 13.1	19 27.1 49.9	357 00.3 31.9	131 47.4 28.4	Markab	13 56.9 N15 08.8					
	20	66 05.2	134 16.0 12.7	34 28.2 50.4	12 02.7 31.9	146 49.5 28.3	Menkar	314 34.2 N 4 02.9					
	21	81 07.7	149 15.1 12.4	49 29.3 50.9	27 05.2 32.0	161 51.7 28.3	Menkent	148 29.4 S36 19.0					
	22	96 10.1	164 14.2 12.0	64 30.4 51.4	42 07.6 32.0	176 53.9 28.3	Miaplacidus	221 43.0 S69 40.2					
23	111 12.6	179 13.3 11.7	79 31.5 51.9	57 10.0 32.0	191 56.0 28.3								
V I E R N E S	27 00	126 15.1	194 12.4 S22 11.3	94 32.6 N13 52.4	72 12.4 N18 32.0	206 58.2 S22 28.3	Mirfak	309 06.7 N49 49.7					
	01	141 17.5	209 11.5 10.9	109 33.7 52.9	87 14.8 32.0	222 00.4 28.3	Nunki	76 21.4 S26 18.8					
	02	156 20.0	224 10.6 10.6	124 34.8 53.5	102 17.2 32.1	237 02.6 28.2	Peacock	53 48.5 S56 46.4					
	03	171 22.5	239 09.7 10.2	139 35.9 54.0	117 19.6 32.1	252 04.7 28.2	Pollux	243 49.7 N28 03.2					
	04	186 24.9	254 08.9 09.8	154 37.0 54.5	132 22.0 32.1	267 06.9 28.2	Procyon	245 18.6 N 5 15.2					
	05	201 27.4	269 08.0 09.4	169 38.1 55.0	147 24.4 32.1	282 09.1 28.2							
	06	216 29.8	284 07.1 S22 09.1	184 39.2 N13 55.5	162 26.8 N18 32.2	297 11.2 S22 28.2	Rasalhague	96 23.7 N12 33.8					
	07	231 32.3	299 06.2 08.7	199 40.3 56.0	177 29.2 32.2	312 13.4 28.2	Regulus	208 02.7 N12 01.2					
	08	246 34.8	314 05.3 08.3	214 41.3 56.5	192 31.6 32.2	327 15.6 28.1	Rigel	281 29.5 S 8 12.8					
	09	261 37.2	329 04.4 07.9	229 42.4 57.0	207 34.0 32.2	342 17.7 28.1	Rigil Kent.	140 17.2 S60 47.3					
	10	276 39.7	344 03.5 07.6	244 43.5 57.5	222 36.4 32.3	357 19.9 28.1	Sabik	102 33.9 S15 42.9					
	11	291 42.2	359 02.6 07.2	259 44.6 58.0	237 38.8 32.3	12 22.1 28.1							
	12	306 44.6	14 01.7 S22 06.8	274 45.7 N13 58.5	252 41.2 N18 32.3	27 24.3 S22 28.1	Schedar	350 02.1 N56 28.9					
	13	321 47.1	29 00.8 06.4	289 46.8 59.1	267 43.7 32.3	42 26.4 28.1	Shaula	96 47.2 S37 05.9					
	14	336 49.6	43 59.9 06.0	304 47.9 59.6	282 46.1 32.4	57 28.6 28.1	Sirius	258 49.6 S16 42.1					
	15	351 52.0	58 59.0 05.7	319 49.0 60.1	297 48.5 32.4	72 30.8 28.0	Spica	158 50.6 S11 06.4					
	16	6 54.5	73 58.2 05.3	334 50.1 60.6	312 50.9 32.4	87 32.9 28.0	Suhail	223 05.6 S43 23.2					
	17	21 57.0	88 57.3 04.9	349 51.2 61.1	327 53.3 32.4	102 35.1 28.0							
	18	36 59.4	103 56.4 S22 04.5	4 52.3 N14 01.6	342 55.7 N18 32.5	117 37.3 S22 28.0	Vega	80 51.8 N38 46.1					
	19	52 01.9	118 55.5 04.1	19 53.4 02.1	357 58.1 32.5	132 39.5 28.0	Zuben'ubi	137 25.9 S15 59.9					
	20	67 04.3	133 54.6 03.7	34 54.5 02.6	13 00.5 32.5	147 41.6 28.0							
	21	82 06.8	148 53.7 03.3	49 55.6 03.1	28 02.9 32.5	162 43.8 27.9							
	22	97 09.3	163 52.8 03.0	64 56.6 03.6	43 05.3 32.6	177 46.0 27.9							
23	112 11.7	178 51.9 02.6	79 57.7 04.1	58 07.7 32.6	192 48.1 27.9								
Pas. Mer. 15 36.4		v -0.9 d 0.4	v 1.1 d 0.5	v 2.4 d 0.0	v 2.2 d 0.0								
									A. H. S.	Pas. Mer.			
									o / h m				
									Venus	69 18.1 11 02			
									Marte	328 50.3 17 42			
									Júpiter	305 58.6 19 12			
									Saturno	80 50.2 10 14			



T.M.G. (TU)	SOL		LUNA				Lat.	Crepúsculo		Orto Sol	Orto Luna					
	A.H.G.	Dec.	A.H.G.	v	Dec.	d		P.H.	Naut.		Civil	25	26	27	28	
												h m	h m	h m	h m	h m
M I E R C O L E S	25 00	176 56.0	S19 01.2	323 09.5	16.6	N 7 31.4	13.8	54.4	N 70	07 30	09 05	11 39	20 27	22 23	24 24	00 24
	01	191 55.8	00.6	337 45.1	16.7	7 17.6	13.8	54.4	68	07 11	08 24	09 43	20 34	22 14	23 56	25 48
	02	206 55.7	19 00.0	352 20.8	16.7	7 03.8	13.8	54.4	66	07 04	08 09	09 17	20 37	22 11	23 47	25 29
	03	221 55.5	18 59.4	6 56.5	16.7	6 50.0	13.8	54.4	64	06 57	07 57	08 57	20 39	22 08	23 38	25 13
	04	236 55.4	58.8	21 32.2	16.8	6 36.2	13.9	54.4	62	06 51	07 47	08 41	20 41	22 06	23 31	25 01
	05	251 55.2	58.2	36 08.0	16.8	6 22.3	13.8	54.3	60	06 46	07 38	08 27	20 42	22 04	23 25	24 50
	06	266 55.1	S18 57.5	50 43.8	16.8	N 6 08.5	13.9	54.3	N 58	06 42	07 30	08 16	20 44	22 02	23 20	24 41
	07	281 55.0	56.9	65 19.6	16.9	5 54.6	13.9	54.3	56	06 38	07 23	08 06	20 45	22 00	23 15	24 33
	08	296 54.8	56.3	79 55.5	16.9	5 40.7	13.9	54.3	54	06 34	07 17	07 57	20 46	21 59	23 11	24 26
	09	311 54.7	55.7	94 31.4	16.9	5 26.8	13.9	54.3	52	06 30	07 11	07 49	20 47	21 57	23 07	24 19
	10	326 54.5	55.1	109 07.3	17.0	5 12.9	14.0	54.3	50	06 27	07 06	07 42	20 48	21 56	23 04	24 14
	11	341 54.4	54.4	123 43.3	17.0	4 58.9	13.9	54.3	45	06 19	06 55	07 26	20 51	21 53	22 57	24 01
	12	356 54.3	S18 53.8	138 19.3	17.0	N 4 45.0	14.0	54.3	N 40	06 12	06 45	07 14	20 52	21 51	22 51	23 51
	13	11 54.1	53.2	152 55.3	17.1	4 31.0	14.0	54.3	35	06 05	06 36	07 03	20 54	21 49	22 45	23 43
	14	26 54.0	52.6	167 31.4	17.1	4 17.0	13.9	54.3	30	05 59	06 28	06 53	20 55	21 48	22 41	23 35
	15	41 53.8	52.0	182 07.5	17.1	4 03.1	14.0	54.3	20	05 47	06 14	06 37	20 57	21 45	22 33	23 22
	16	56 53.7	51.3	196 43.6	17.1	3 49.1	14.0	54.3	N 10	05 35	06 01	06 23	21 00	21 43	22 26	23 11
	17	71 53.6	50.7	211 19.7	17.2	3 35.1	14.0	54.2	0	05 22	05 47	06 09	21 01	21 40	22 20	23 00
	18	86 53.4	S18 50.1	225 55.9	17.2	N 3 21.1	14.1	54.2	S 10	05 07	05 33	05 55	21 03	21 38	22 13	22 50
	19	101 53.3	49.5	240 32.1	17.2	3 07.0	14.0	54.2	20	04 49	05 17	05 40	21 05	21 36	22 06	22 39
	20	116 53.1	48.8	255 08.3	17.2	2 53.0	14.0	54.2	30	04 26	04 57	05 23	21 08	21 33	21 59	22 26
	21	131 53.0	48.2	269 44.5	17.2	2 39.0	14.0	54.2	35	04 11	04 45	05 13	21 09	21 32	21 54	22 19
	22	146 52.9	47.6	284 20.7	17.3	2 25.0	14.1	54.2	40	03 53	04 31	05 02	21 11	21 30	21 50	22 11
23	161 52.7	47.0	298 57.0	17.2	2 10.9	14.0	54.2	45	03 30	04 14	04 48	21 12	21 28	21 44	22 02	
J U E V E S	26 00	176 52.6	S18 46.3	313 33.2	17.3	N 1 56.9	14.0	54.2	S 50	03 00	03 52	04 31	21 14	21 26	21 37	21 50
	01	191 52.5	45.7	328 09.5	17.3	1 42.9	14.1	54.2	52	02 43	03 41	04 23	21 15	21 24	21 34	21 45
	02	206 52.3	45.1	342 45.8	17.4	1 28.8	14.0	54.2	54	02 24	03 29	04 14	21 16	21 23	21 31	21 39
	03	221 52.2	44.5	357 22.2	17.3	1 14.8	14.1	54.2	56	01 58	03 15	04 04	21 17	21 22	21 27	21 33
	04	236 52.1	43.8	11 58.5	17.3	1 00.7	14.0	54.2	58	01 19	02 58	03 53	21 19	21 21	21 23	21 26
	05	251 51.9	43.2	26 34.8	17.4	0 46.7	14.1	54.2	S 60	///	02 37	03 40	21 20	21 19	21 18	21 18
	06	266 51.8	S18 42.6	41 11.2	17.3	N 0 32.6	14.0	54.2								
	07	281 51.6	41.9	55 47.5	17.4	0 18.6	14.0	54.2	Lat.	Ocaso Sol	Crepúsculo		Ocaso Luna			
	08	296 51.5	41.3	70 23.9	17.4	N 0 04.6	14.1	54.2			Civil	Naut.	25	26	27	28
	09	311 51.4	40.7	85 00.3	17.3	S 0 09.5	14.0	54.2					h m	h m	h m	h m
	10	326 51.2	40.0	99 36.6	17.4	0 23.5	14.0	54.2	N 70	12 48	15 21	16 57	09 48	09 17	08 45	08 08
	11	341 51.1	39.4	114 13.0	17.4	0 37.5	14.1	54.1	N 72	14 06	15 44	17 07	09 41	09 17	08 53	08 25
	12	356 51.0	S18 38.8	128 49.4	17.4	S 0 51.6	14.0	54.1	68	14 43	16 02	17 15	09 35	09 17	08 59	08 39
	13	11 50.9	38.1	143 25.8	17.4	1 05.6	14.0	54.1	66	15 09	16 17	17 23	09 30	09 18	09 05	08 51
	14	26 50.7	37.5	158 02.2	17.4	1 19.6	14.0	54.1	64	15 29	16 29	17 29	09 26	09 18	09 09	09 01
	15	41 50.6	36.9	172 38.6	17.4	1 33.6	14.0	54.1	62	15 45	16 39	17 35	09 22	09 18	09 14	09 09
	16	56 50.5	36.2	187 15.0	17.3	1 47.6	14.0	54.1	60	15 59	16 48	17 40	09 19	09 18	09 17	09 16
	17	71 50.3	35.6	201 51.3	17.4	2 01.6	14.0	54.1	N 58	16 10	16 56	17 44	09 16	09 18	09 20	09 23
	18	86 50.2	S18 34.9	216 27.7	17.4	S 2 15.6	13.9	54.1	56	16 20	17 02	17 48	09 14	09 18	09 23	09 28
	19	101 50.1	34.3	231 04.1	17.4	2 29.5	14.0	54.1	54	16 29	17 09	17 52	09 12	09 19	09 26	09 33
	20	116 49.9	33.7	245 40.5	17.3	2 43.5	13.9	54.1	52	16 37	17 14	17 56	09 09	09 19	09 28	09 38
	21	131 49.8	33.0	260 16.8	17.4	2 57.4	14.0	54.1	50	16 44	17 20	17 59	09 07	09 19	09 30	09 42
	22	146 49.7	32.4	274 53.2	17.3	3 11.4	13.9	54.1	45	16 59	17 31	18 07	09 03	09 19	09 35	09 51
23	161 49.6	31.7	289 29.5	17.4	3 25.3	13.9	54.1	N 40	17 12	17 41	18 14	09 00	09 19	09 39	09 59	
V I E R N E S	27 00	176 49.4	S18 31.1	304 05.9	17.3	S 3 39.2	13.9	54.1	35	17 23	17 50	18 20	08 57	09 19	09 42	10 06
	01	191 49.3	30.5	318 42.2	17.3	3 53.1	13.9	54.1	30	17 32	17 57	18 26	08 54	09 20	09 45	10 11
	02	206 49.2	29.8	333 18.5	17.3	4 07.0	13.8	54.1	20	17 48	18 12	18 38	08 49	09 20	09 50	10 22
	03	221 49.0	29.2	347 54.8	17.3	4 20.8	13.9	54.1	N 10	18 03	18 25	18 50	08 45	09 20	09 55	10 30
	04	236 48.9	28.5	2 31.1	17.3	4 34.7	13.8	54.1	0	18 16	18 38	19 03	08 41	09 20	09 59	10 39
	05	251 48.8	27.9	17 07.4	17.2	4 48.5	13.8	54.1	S 10	18 30	18 52	19 18	08 37	09 20	10 03	10 47
	06	266 48.7	S18 27.2	31 43.6	17.3	S 5 02.3	13.8	54.1	20	18 45	19 08	19 36	08 33	09 20	10 08	10 56
	07	281 48.5	26.6	46 19.9	17.2	5 16.1	13.8	54.1	30	19 02	19 28	19 59	08 28	09 21	10 13	11 07
	08	296 48.4	25.9	60 56.1	17.2	5 29.9	13.8	54.1	35	19 12	19 39	20 13	08 25	09 21	10 16	11 13
	09	311 48.3	25.3	75 32.3	17.1	5 43.7	13.7	54.1	40	19 23	19 53	20 31	08 22	09 21	10 20	11 20
	10	326 48.2	24.7	90 08.4	17.2	5 57.4	13.8	54.1	45	19 36	20 10	20 54	08 18	09 21	10 24	11 28
	11	341 48.0	24.0	104 44.6	17.1	6 11.2	13.7	54.1	S 50	19 53	20 32	21 24	08 13	09 21	10 29	11 37
	12	356 47.9	S18 23.4	119 20.7	17.1	S 6 24.9	13.6	54.1	52	20 01	20 43	21 40	08 11	09 21	10 31	11 42
	13	11 47.8	22.7	133 56.8	17.1	6 38.5	13.7	54.2	54	20 10	20 55	21 59	08 09	09 21	10 33	11 47
	14	26 47.7	22.1	148 32.9	17.1	6 52.2	13.6	54.2	56	20 19	21 09	22 24	08 06	09 21	10 36	11 52
	15	41 47.5	21.4	163 09.0	17.0	7 05.8	13.6	54.2	58	20 31	21 25	23 00	08 03	09 21	10 39	11 58
	16	56 47.4	20.8	177 45.0	17.0	7 19.4	13.6	54.2	S 60	20 44	21 46	///	08 00	09 22	10 43	12 06
	17	71 47.3	20.1	192 21.0	16.9	7 33.0	13.6	54.2								
	18	86 47.2	S18 19.5	206 56.9	17.0	S 7 46.6	13.5	54.2								
	19	101 47.1	18.8	221												



T.M.G. (TU)	ARIES			VENUS -3.9			MARTE +0.5			JUPITER -2.5			SATURNO +0.6			ESTRELLAS		
	A.H.G.	A.H.G.	Dec.	A.H.G.	Dec.	A.H.G.	Dec.	A.H.G.	Dec.	A.H.G.	Dec.	A.H.G.	Dec.	Nombre	A. H. S.	Dec.		
28 00	127 14.2	193 51.0	S22 02.2	94 58.8	N14 04.6	73 10.1	N18 32.6	207 50.3	S22 27.9	Acomar	315 32.1	S40 21.0	Achernar	335 40.2	S57 17.7			
01	142 16.7	208 50.2	01.8	109 59.9	05.2	88 12.5	32.7	222 52.5	27.9	Acrux	173 29.9	S63 02.2	Adhara	255 26.6	S28 57.4			
02	157 19.1	223 49.3	01.4	125 01.0	05.7	103 14.9	32.7	237 54.7	27.9	Aldebaran	291 10.3	N16 29.4	Alioth	166 36.2	N56 00.8			
03	172 21.6	238 48.4	01.0	140 02.1	06.2	118 17.3	32.7	252 56.8	27.8	Alkaid	153 13.0	N49 21.6	Al Na'ir	28 06.9	S47 01.0			
04	187 24.1	253 47.5	00.6	155 03.2	06.7	133 19.7	32.7	267 59.0	27.8	Alnilam	276 04.8	S 1 12.4	Alphard	218 13.8	S 8 36.7			
05	202 26.5	268 46.6	22 00.2	170 04.3	07.2	148 22.1	32.8	283 01.2	27.8	Alphecca	126 26.6	N26 44.7	Alphartaz	358 02.9	N29 01.9			
06	217 29.0	283 45.7	S21 59.8	185 05.4	N14 07.7	163 24.5	N18 32.8	298 03.3	S22 27.8	Altair	62 26.5	N 8 50.1	Ankaa	353 33.8	S42 22.1			
07	232 31.4	298 44.8	59.4	200 06.5	08.2	178 26.9	32.8	313 05.5	27.8	Antares	112 49.0	S26 24.6	Arcturus	146 12.4	N19 14.0			
08	247 33.9	313 44.0	59.0	215 07.5	08.7	193 29.2	32.8	328 07.7	27.8	Atria	108 07.8	S69 00.5	Avior	234 25.1	S59 28.4			
S 09	262 36.4	328 43.1	58.6	230 08.6	09.2	208 31.6	32.9	343 09.9	27.7	Avior	234 25.1	S59 28.4	Bellatrix	278 51.5	N 6 20.5			
A 10	277 38.8	343 42.2	58.2	245 09.7	09.7	223 34.0	32.9	358 12.0	27.7	Betelgeuse	271 20.9	N 7 24.4	Canopus	264 03.8	S52 41.4			
B 11	292 41.3	358 41.3	57.8	260 10.8	10.2	238 36.4	32.9	13 14.2	27.7	Capella	281 01.3	N45 59.5	Deneb	49 44.6	N45 14.3			
A 12	307 43.8	13 40.4	S21 57.4	275 11.9	N14 10.7	253 38.8	N18 32.9	28 16.4	S22 27.7	Denebola	182 52.1	N14 37.8	Diphda	349 14.4	S18 02.9			
D 13	322 46.2	28 39.5	57.0	290 13.0	11.2	268 41.2	33.0	43 18.6	27.7	Dubhe	194 13.1	N61 48.4	Elnath	278 35.6	N28 36.1			
O 14	337 48.7	43 38.6	56.5	305 14.1	11.7	283 43.6	33.0	58 20.7	27.7	Elnath	278 35.6	N28 36.1	Eltanin	90 55.1	N51 29.0			
15	352 51.2	58 37.8	56.1	320 15.2	12.3	298 46.0	33.0	73 22.9	27.7	Enif	34 05.5	N 9 49.4	Fomalhaut	15 44.4	S29 41.0			
16	7 53.6	73 36.9	55.7	335 16.2	12.8	313 48.4	33.1	88 25.1	27.6	Gacrux	172 21.4	S57 03.0	Gienah	176 11.1	S17 28.9			
17	22 56.1	88 36.0	55.3	350 17.3	13.3	328 50.8	33.1	103 27.2	27.6	Gienah	176 11.1	S17 28.9	Hadar	149 14.3	S60 19.1			
18	37 58.6	103 35.1	S21 54.9	5 18.4	N14 13.8	343 53.2	N18 33.1	118 29.4	S22 27.6	Hamal	328 21.6	N23 24.8	Kaus Aust.	84 08.5	S34 23.5			
19	53 01.0	118 34.2	54.5	20 19.5	14.3	358 55.6	33.1	133 31.6	27.6	Kochab	137 18.8	N74 11.5	Markab	13 56.9	N15 08.8			
20	68 03.5	133 33.4	54.1	35 20.6	14.8	13 58.0	33.2	148 33.8	27.6	Menkar	314 34.2	N 4 02.9	Menkent	148 29.4	S36 19.0			
21	83 05.9	148 32.5	53.6	50 21.7	15.3	29 00.4	33.2	163 35.9	27.6	Miaplacidus	221 43.0	S69 40.2	Mirfak	309 06.7	N49 49.7			
22	98 08.4	163 31.6	53.2	65 22.8	15.8	44 02.8	33.2	178 38.1	27.5	Nunki	76 21.4	S26 18.8	Nunki	76 21.4	S26 18.8			
23	113 10.9	178 30.7	52.8	80 23.8	16.3	59 05.2	33.2	193 40.3	27.5	Peacock	53 48.5	S56 46.4	Peacock	53 48.5	S56 46.4			
29 00	128 13.3	193 29.8	S21 52.4	95 24.9	N14 16.8	74 07.5	N18 33.3	208 42.5	S22 27.5	Pollux	243 49.7	N28 03.2	Procyon	245 18.6	N 5 15.2			
01	143 15.8	208 29.0	52.0	110 26.0	17.3	89 09.9	33.3	223 44.6	27.5	Rasalhague	96 23.7	N12 33.8	Regulus	208 02.7	N12 01.2			
02	158 18.3	223 28.1	51.5	125 27.1	17.8	104 12.3	33.3	238 46.8	27.5	Rigel	281 29.5	S 8 12.8	Rigel Kent.	140 17.1	S60 47.3			
03	173 20.7	238 27.2	51.1	140 28.2	18.3	119 14.7	33.4	253 49.0	27.5	Sabik	102 33.8	S15 42.9	Schedar	350 02.1	N56 28.9			
04	188 23.2	253 26.3	50.7	155 29.3	18.8	134 17.1	33.4	268 51.2	27.4	Shaula	96 47.2	S37 05.9	Shaula	96 47.2	S37 05.9			
05	203 25.7	268 25.4	50.3	170 30.4	19.3	149 19.5	33.4	283 53.3	27.4	Sirius	258 49.6	S16 42.1	Sirius	258 49.6	S16 42.1			
06	218 28.1	283 24.6	S21 49.8	185 31.4	N14 19.8	164 21.9	N18 33.4	298 55.5	S22 27.4	Spica	158 50.6	S11 06.4	Suhail	223 05.6	S43 23.3			
07	233 30.6	298 23.7	49.4	200 32.5	20.3	179 24.3	33.5	313 57.7	27.4	Vega	80 51.8	N38 46.1	Zuben'ubi	137 25.8	S15 59.9			
08	248 33.1	313 22.8	49.0	215 33.6	20.8	194 26.7	33.5	328 59.9	27.4	Venus	65 16.5	h 07	Marte	327 11.6	17 37			
09	263 35.5	328 21.9	48.5	230 34.7	21.3	209 29.0	33.5	344 02.0	27.4	Jupiter	305 54.2	19 00	Saturno	80 29.1	10 04			
10	278 38.0	343 21.1	48.1	245 35.8	21.9	224 31.4	33.6	359 04.2	27.3									
11	293 40.4	358 20.2	47.7	260 36.8	22.4	239 33.8	33.6	14 06.4	27.3									
12	308 42.9	13 19.3	S21 47.2	275 37.9	N14 22.9	254 36.2	N18 33.6	29 08.6	S22 27.3									
13	323 45.4	28 18.4	46.8	290 39.0	23.4	269 38.6	33.6	44 10.7	27.3									
14	338 47.8	43 17.5	46.4	305 40.1	23.9	284 41.0	33.7	59 12.9	27.3									
15	353 50.3	58 16.7	45.9	320 41.2	24.4	299 43.4	33.7	74 15.1	27.3									
16	8 52.8	73 15.8	45.5	335 42.3	24.9	314 45.7	33.7	89 17.2	27.2									
17	23 55.2	88 14.9	45.1	350 43.3	25.4	329 48.1	33.8	104 19.4	27.2									
18	38 57.7	103 14.1	S21 44.6	5 44.4	N14 25.9	344 50.5	N18 33.8	119 21.6	S22 27.2									
19	54 00.2	118 13.2	44.2	20 45.5	26.4	359 52.9	33.8	134 23.8	27.2									
20	69 02.6	133 12.3	43.7	35 46.6	26.9	14 55.3	33.8	149 25.9	27.2									
21	84 05.1	148 11.4	43.3	50 47.7	27.4	29 57.7	33.9	164 28.1	27.2									
22	99 07.5	163 10.6	42.8	65 48.7	27.9	45 00.0	33.9	179 30.3	27.2									
23	114 10.0	178 09.7	42.4	80 49.8	28.4	60 02.4	33.9	194 32.5	27.1									
30 00	129 12.5	193 08.8	S21 41.9	95 50.9	N14 28.9	75 04.8	N18 34.0	209 34.6	S22 27.1									
01	144 14.9	208 07.9	41.5	110 52.0	29.4	90 07.2	34.0	224 36.8	27.1									
02	159 17.4	223 07.1	41.0	125 53.0	29.9	105 09.6	34.0	239 39.0	27.1									
03	174 19.9	238 06.2	40.6	140 54.1	30.4	120 12.0	34.1	254 41.2	27.1									
04	189 22.3	253 05.3	40.1	155 55.2	30.9	135 14.3	34.1	269 43.4	27.1									
05	204 24.8	268 04.5	39.7	170 56.3	31.4	150 16.7	34.1	284 45.5	27.0									
06	219 27.3	283 03.6	S21 39.2	185 57.4	N14 31.9	165 19.1	N18 34.1	299 47.7	S22 27.0									
07	234 29.7	298 02.7	38.8	200 58.4	32.4	180 21.5	34.2	314 49.9	27.0									
08	249 32.2	313 01.9	38.3	215 59.5	32.9	195 23.9	34.2	329 52.1	27.0									
09	264 34.7	328 01.0	37.9	231 00.6	33.4	210 26.2	34.2	344 54.2	27.0									
10	279 37.1	343 00.1	37.4	246 01.7	33.9	225 28.6	34.3	359 56.4	27.0									
11	294 39.6	357 59.3	36.9	261 02.7	34.4	240 31.0	34.3	14 58.6	26.9									
12	309 42.0	12 58.4	S21 36.5	276 03.8	N14 34.9	255 33.4	N18 34.3	30 00.8	S22 26.9									
13	324 44.5	27 57.5	36.0	291 04.9	35.4	270 35.7	34.4	45 02.9	26.9									
14	339 47.0	42 56.7	35.5	306 06.0	35.9	285 38.1	34.4	60 05.1	26.9									
15	354 49.4	57 55.8	35.1	321 07.0	36.4	300 40.5	34.4	75 07.3	26.9									
16	9 51.9	72 54.9	34.6	336 08.1	36.9	315 42.9	34.5	90 09.5	26.9									
17	24 54.4	87 54.1	34.1	351 09.2	37.4	330 45.3	34.5	105 11.6	26.8									
18	39 56.8	102 53.2	S21 33.7	6 10.3	N14 37.9	345 47.6	N18 34.5	120 13.8	S22 26.8									
19	54 59.3	117 52.3	33.2	21 11.3	38.4	0 50.0	34.5	135 16.0	26.8									
20	70 01.8	132 51.5	32.7	36 12.4	38.9	15 52.4	34.6	150 18.2	26.8									
21	85 04.2	147 50.6	32.3	51 13.5	39.													



T.M.G. (TU)	SOL		LUNA				Lat.	Crepúsculo		Orto Sol	Orto Luna				
	A.H.G.	Dec.	A.H.G.	v	Dec.	d		P.H.	Náut.		Civil	28	29	30	31
												h m	h m	h m	h m
28 00	176 46.5	S18 15.5	294 32.0	16.8	S 9 07.4	13.3	54.2	N 72	07 20	08 52	10 55	00 24	02 48	■	■
01	191 46.3	14.9	309 07.8	16.6	9 20.7	13.4	54.2	N 70	07 11	08 31	10 02	00 08	02 12	■	■
02	206 46.2	14.2	323 43.4	16.7	9 34.1	13.3	54.2	68	07 03	08 15	09 30	25 48	01 48	04 05	■
03	221 46.1	13.6	338 19.1	16.6	9 47.4	13.3	54.2	66	06 57	08 02	09 07	25 29	01 29	03 25	■
04	236 46.0	12.9	352 54.7	16.6	10 00.7	13.2	54.2	64	06 51	07 50	08 49	25 13	01 13	02 57	05 00
05	251 45.9	12.2	7 30.3	16.5	10 13.9	13.2	54.2	62	06 46	07 41	08 33	25 01	01 01	02 37	04 22
06	266 45.7	S18 11.6	22 05.8	16.4	S10 27.1	13.2	54.3	60	06 41	07 33	08 21	24 50	00 50	02 20	03 55
07	281 45.6	10.9	36 41.2	16.5	10 40.3	13.1	54.3	N 58	06 37	07 25	08 10	24 41	00 41	02 06	03 35
08	296 45.5	10.3	51 16.7	16.3	10 53.4	13.1	54.3	56	06 33	07 19	08 01	24 33	00 33	01 54	03 18
S 09	311 45.4	09.6	65 52.0	16.4	11 06.5	13.1	54.3	54	06 30	07 13	07 52	24 26	00 26	01 43	03 03
A 10	326 45.3	08.9	80 27.4	16.3	11 19.6	13.0	54.3	52	06 27	07 08	07 45	24 19	00 19	01 34	02 51
B 11	341 45.2	08.3	95 02.7	16.2	11 32.6	13.0	54.3	50	06 24	07 03	07 38	24 14	00 14	01 26	02 40
A 12	356 45.0	S18 07.6	109 37.9	16.2	S11 45.6	12.9	54.3	45	06 16	06 52	07 23	24 01	00 01	01 08	02 17
D 13	11 44.9	07.0	124 13.1	16.1	11 58.5	12.9	54.3	N 40	06 10	06 43	07 11	23 51	24 54	00 54	01 59
O 14	26 44.8	06.3	138 48.2	16.1	12 11.4	12.9	54.3	35	06 04	06 34	07 01	23 43	24 42	00 42	01 43
15	41 44.7	05.6	153 23.3	16.0	12 24.3	12.8	54.3	30	05 58	06 27	06 52	23 35	24 31	00 31	01 30
16	56 44.6	05.0	167 58.3	15.9	12 37.1	12.8	54.3	20	05 47	06 13	06 36	23 22	24 14	00 14	01 08
17	71 44.5	04.3	182 33.2	15.9	12 49.9	12.7	54.4	N 10	05 35	06 01	06 23	23 11	23 58	24 49	00 49
18	86 44.4	S18 03.6	197 08.1	15.9	S13 02.6	12.7	54.4	0	05 23	05 48	06 10	23 00	23 44	24 31	00 31
19	101 44.2	03.0	211 43.0	15.8	13 15.3	12.7	54.4	S 10	05 08	05 34	05 56	22 50	23 29	24 13	00 13
20	116 44.1	02.3	226 17.8	15.7	13 28.0	12.6	54.4	20	04 51	05 19	05 42	22 39	23 14	23 54	24 40
21	131 44.0	01.6	240 52.5	15.7	13 40.6	12.6	54.4	30	04 29	05 00	05 26	22 26	22 57	23 32	24 14
22	146 43.9	01.0	255 27.2	15.6	13 53.2	12.5	54.4	35	04 15	04 49	05 16	22 19	22 47	23 20	23 59
23	161 43.8	18 00.3	270 01.8	15.5	14 05.7	12.4	54.4	40	03 58	04 35	05 05	22 11	22 36	23 05	23 42
29 00	176 43.7	S17 59.6	284 36.3	15.5	S14 18.1	12.4	54.4	45	03 36	04 19	04 52	22 02	22 22	22 48	23 21
01	191 43.6	59.0	299 10.8	15.4	14 30.5	12.4	54.5	S 50	03 07	03 58	04 36	21 50	22 06	22 27	22 55
02	206 43.5	58.3	313 45.2	15.4	14 42.9	12.3	54.5	52	02 52	03 48	04 29	21 45	21 59	22 17	22 43
03	221 43.4	57.6	328 19.6	15.2	14 55.2	12.3	54.5	54	02 34	03 36	04 21	21 39	21 50	22 06	22 29
04	236 43.2	56.9	342 53.8	15.2	15 07.5	12.2	54.5	56	02 10	03 23	04 11	21 33	21 41	21 53	22 12
05	251 43.1	56.3	357 28.0	15.2	15 19.7	12.2	54.5	58	01 38	03 07	04 00	21 26	21 30	21 38	21 52
06	266 43.0	S17 55.6	12 02.2	15.0	S15 31.9	12.1	54.5	S 60	00 19	02 48	03 48	21 18	21 18	21 21	21 27
07	281 42.9	54.9	26 36.2	15.0	15 44.0	12.0	54.5	Lat.	Ocaso Sol	Crepúsculo Civil	Náut.	Ocaso Luna			
08	296 42.8	54.3	41 10.2	15.0	15 56.0	12.0	54.6	h m	h m	h m	h m	h m	h m	h m	h m
09	311 42.7	53.6	55 44.2	14.8	16 08.0	12.0	54.6	N 72	13 32	15 36	17 08	08 08	07 10	■	■
10	326 42.6	52.9	70 18.0	14.8	16 20.0	11.9	54.6	N 70	14 25	15 56	17 17	08 25	07 47	■	■
11	341 42.5	52.2	84 51.8	14.7	16 31.9	11.8	54.6	68	14 57	16 13	17 24	08 39	08 14	07 28	■
12	356 42.4	S17 51.6	99 25.5	14.6	S16 43.7	11.7	54.6	66	15 20	16 26	17 31	08 51	08 34	08 09	■
13	11 42.3	50.9	113 59.1	14.5	16 55.4	11.8	54.6	64	15 39	16 37	17 36	09 01	08 50	08 37	08 14
14	26 42.2	50.2	128 32.6	14.5	17 07.2	11.6	54.7	62	15 54	16 46	17 41	09 09	09 04	08 59	08 53
15	41 42.1	49.5	143 06.1	14.4	17 18.8	11.6	54.7	60	16 06	16 55	17 46	09 16	09 16	09 17	09 20
16	56 41.9	48.8	157 39.5	14.3	17 30.4	11.5	54.7	N 58	16 17	17 02	17 50	09 23	09 26	09 31	09 41
17	71 41.8	48.2	172 12.8	14.2	17 41.9	11.4	54.7	56	16 26	17 08	17 54	09 28	09 35	09 44	09 59
18	86 41.7	S17 47.5	186 46.0	14.2	S17 53.3	11.4	54.7	54	16 35	17 14	17 57	09 33	09 43	09 55	10 14
19	101 41.6	46.8	201 19.2	14.0	18 04.7	11.4	54.8	52	16 42	17 19	18 00	09 38	09 50	10 05	10 27
20	116 41.5	46.1	215 52.2	14.0	18 16.1	11.2	54.8	50	16 49	17 24	18 03	09 42	09 56	10 14	10 38
21	131 41.4	45.5	230 25.2	13.9	18 27.3	11.2	54.8	45	17 03	17 35	18 10	09 51	10 10	10 33	11 02
22	146 41.3	44.8	244 58.1	13.8	18 38.5	11.1	54.8	N 40	17 15	17 44	18 17	09 59	10 22	10 48	11 21
23	161 41.2	44.1	259 30.9	13.7	18 49.6	11.1	54.8	35	17 26	17 52	18 23	10 06	10 32	11 01	11 37
30 00	176 41.1	S17 43.4	274 03.6	13.6	S19 00.7	10.9	54.9	30	17 35	18 00	18 29	10 11	10 40	11 13	11 51
01	191 41.0	42.7	288 36.2	13.5	19 11.6	11.0	54.9	20	17 50	18 13	18 40	10 22	10 55	11 33	12 15
02	206 40.9	42.0	303 08.7	13.5	19 22.6	10.8	54.9	N 10	18 04	18 26	18 51	10 30	11 08	11 50	12 36
03	221 40.8	41.4	317 41.2	13.3	19 33.4	10.7	54.9	0	18 17	18 38	19 04	10 39	11 21	12 06	12 55
04	236 40.7	40.7	332 13.5	13.3	19 44.1	10.7	54.9	S 10	18 30	18 52	19 18	10 47	11 33	12 22	13 14
05	251 40.6	40.0	346 45.8	13.2	19 54.8	10.6	55.0	20	18 44	19 07	19 35	10 56	11 47	12 39	13 35
06	266 40.5	S17 39.3	1 18.0	13.1	S20 05.4	10.6	55.0	30	19 00	19 26	19 57	11 07	12 02	12 59	13 59
07	281 40.4	38.6	15 50.1	12.9	20 16.0	10.4	55.0	35	19 10	19 37	20 11	11 13	12 11	13 11	14 14
08	296 40.3	37.9	30 22.0	12.9	20 26.4	10.4	55.0	40	19 20	19 51	20 28	11 20	12 21	13 25	14 30
09	311 40.2	37.2	44 53.9	12.8	20 36.8	10.3	55.1	45	19 33	20 07	20 49	11 28	12 33	13 41	14 50
10	326 40.1	36.6	59 25.7	12.7	20 47.1	10.2	55.1	S 50	19 49	20 27	21 18	11 37	12 48	14 01	15 15
11	341 40.0	35.9	73 57.4	12.6	20 57.3	10.1	55.1	52	19 56	20 37	21 33	11 42	12 55	14 10	15 27
12	356 39.9	S17 35.2	88 29.0	12.5	S21 07.4	10.0	55.1	54	20 05	20 49	21 50	11 47	13 02	14 21	15 41
13	11 39.8	34.5	103 00.5	12.4	21 17.4	10.0	55.2	56	20 14	21 02	22 13	11 52	13 11	14 33	15 57
14	26 39.7	33.8	117 31.9	12.3	21 27.4	9.8	55.2	58	20 24	21 17	22 43	11 58	13 21	14 47	16 17
15	41 39.6	33.1	132 03.2	12.2	21 37.2	9.8	55.2	S 60	20 37	21 36	00 08	12 06	13 32	15 04	16 41
16	56 39.5	32.4	146 34.4	12.2	21 47.0	9.7	55.2	Lat.	SOL E.T. (-)		LUNA				
17	71 39.4	31.7	161 05.6	12.0	21 56.7	9.6	55.3	h m	h m	Pas. Mer.	Pas. Mer.	Mer. Inf.	Edad.	Fase	
18	86 39.3	S17 31.0	175 36.6	11.9	S22 06.3	9.5	55.3	00 h	12 h	Mer.	Sup.	Inf.	d		
19															











T.M.G. (TU)	ARIES			VENUS -3.9			MARTE +0.6			JUPITER -2.4			SATURNO +0.6			ESTRELLAS		
	A.H.G.	A.H.G.	Dec.	A.H.G.	A.H.G.	Dec.	A.H.G.	A.H.G.	Dec.	A.H.G.	A.H.G.	Dec.	Nombre	A. H. S.	Dec.			
3 00	133 09.0	191 46.9	S20 53.7	97 33.2	N15 16.7		78 51.8	N18 37.2		213 03.9	S22 25.5		Acamar	315 32.1	S40 21.0			
01	148 11.5	206 46.1	53.1	112 34.3	17.2		93 54.2	37.2		228 06.0	25.5		Achernar	335 40.2	S57 17.7			
02	163 14.0	221 45.2	52.6	127 35.3	17.7		108 56.5	37.3		243 08.2	25.5		Acrux	173 29.8	S63 02.2			
03	178 16.4	236 44.4	52.0	142 36.4	18.2		123 58.9	37.3		258 10.4	25.5		Adhara	255 26.6	S28 57.4			
04	193 18.9	251 43.6	51.5	157 37.4	18.7		139 01.2	37.3		273 12.6	25.5		Aldebaran	291 10.3	N16 29.4			
05	208 21.4	266 42.7	50.9	172 38.5	19.2		154 03.6	37.4		288 14.8	25.5							
06	223 23.8	281 41.9	S20 50.3	187 39.5	N15 19.7		169 05.9	N18 37.4		303 17.0	S22 25.4		Alioth	166 36.1	N56 00.8			
07	238 26.3	296 41.1	49.8	202 40.6	20.2		184 08.3	37.5		318 19.1	25.4		Alkaid	153 12.9	N49 21.6			
08	253 28.7	311 40.2	49.2	217 41.6	20.7		199 10.6	37.5		333 21.3	25.4		Al Na'ir	28 06.9	S47 01.0			
09	268 31.2	326 39.4	48.6	232 42.7	21.1		214 13.0	37.5		348 23.5	25.4		Alnilam	276 04.8	S 1 12.5			
10	283 33.7	341 38.6	48.1	247 43.7	21.6		229 15.3	37.6		3 25.7	25.4		Alphard	218 13.8	S 8 36.7			
11	298 36.1	356 37.7	47.5	262 44.8	22.1		244 17.7	37.6		18 27.9	25.4							
12	313 38.6	11 36.9	S20 46.9	277 45.8	N15 22.6		259 20.0	N18 37.6		33 30.1	S22 25.3		Alphecca	126 26.5	N26 44.7			
13	328 41.1	26 36.1	46.4	292 46.9	23.1		274 22.3	37.7		48 32.2	25.3		Alpheratz	358 02.9	N29 01.9			
14	343 43.5	41 35.3	45.8	307 47.9	23.6		289 24.7	37.7		63 34.4	25.3		Altair	62 26.4	N 8 50.1			
15	358 46.0	56 34.4	45.2	322 49.0	24.1		304 27.0	37.8		78 36.6	25.3		Ankaa	353 33.8	S42 22.1			
16	13 48.5	71 33.6	44.7	337 50.0	24.6		319 29.4	37.8		93 38.8	25.3		Antares	112 49.0	S26 24.6			
17	28 50.9	86 32.8	44.1	352 51.1	25.1		334 31.7	37.8		108 41.0	25.3							
18	43 53.4	101 31.9	S20 43.5	7 52.1	N15 25.6		349 34.1	N18 37.9		123 43.2	S22 25.2		Arcturus	146 12.3	N19 14.0			
19	58 55.9	116 31.1	42.9	22 53.2	26.1		4 36.4	37.9		138 45.3	25.2		Atria	108 07.7	S69 00.4			
20	73 58.3	131 30.3	42.4	37 54.2	26.5		19 38.7	37.9		153 47.5	25.2		Avior	234 25.1	S59 28.5			
21	89 00.8	146 29.5	41.8	52 55.3	27.0		34 41.1	38.0		168 49.7	25.2		Bellatrix	278 51.5	N 6 20.5			
22	104 03.2	161 28.6	41.2	67 56.3	27.5		49 43.4	38.0		183 51.9	25.2		Betelgeuse	271 20.9	N 7 24.4			
23	119 05.7	176 27.8	40.6	82 57.4	28.0		64 45.8	38.1		198 54.1	25.2							
4 00	134 08.2	191 27.0	S20 40.0	97 58.4	N15 28.5		79 48.1	N18 38.1		213 56.3	S22 25.1		Canopus	264 03.9	S52 41.5			
01	149 10.6	206 26.2	39.5	112 59.5	29.0		94 50.4	38.1		228 58.5	25.1		Capella	281 01.3	N45 59.5			
02	164 13.1	221 25.3	38.9	128 00.5	29.5		109 52.8	38.2		244 00.6	25.1		Deneb	49 44.6	N45 14.3			
03	179 15.6	236 24.5	38.3	143 01.6	30.0		124 55.1	38.2		259 02.8	25.1		Denebola	182 52.0	N14 37.8			
04	194 18.0	251 23.7	37.7	158 02.6	30.5		139 57.5	38.3		274 05.0	25.1		Diphda	349 14.4	S18 02.9			
05	209 20.5	266 22.9	37.1	173 03.7	30.9		154 59.8	38.3		289 07.2	25.1							
06	224 23.0	281 22.1	S20 36.5	188 04.7	N15 31.4		170 02.1	N18 38.3		304 09.4	S22 25.0		Dubhe	194 13.1	N61 48.4			
07	239 25.4	296 21.2	36.0	203 05.8	31.9		185 04.5	38.4		319 11.6	25.0		Elnath	278 35.6	N28 36.1			
08	254 27.9	311 20.4	35.4	218 06.8	32.4		200 06.8	38.4		334 13.8	25.0		Eltanin	90 55.0	N51 29.0			
09	269 30.4	326 19.6	34.8	233 07.9	32.9		215 09.1	38.5		349 15.9	25.0		Enif	34 05.5	N 9 49.4			
10	284 32.8	341 18.8	34.2	248 08.9	33.4		230 11.5	38.5		4 18.1	25.0		Fomalhaut	15 44.4	S29 41.0			
11	299 35.3	356 18.0	33.6	263 10.0	33.9		245 13.8	38.5		19 20.3	25.0							
12	314 37.7	11 17.1	S20 33.0	278 11.0	N15 34.4		260 16.1	N18 38.6		34 22.5	S22 24.9		Gacrux	172 21.4	S57 03.0			
13	329 40.2	26 16.3	32.4	293 12.0	34.9		275 18.5	38.6		49 24.7	24.9		Gienah	176 11.0	S17 29.0			
14	344 42.7	41 15.5	31.8	308 13.1	35.3		290 20.8	38.7		64 26.9	24.9		Hadar	149 14.2	S60 19.1			
15	359 45.1	56 14.7	31.2	323 14.1	35.8		305 23.2	38.7		79 29.1	24.9		Hamal	328 21.6	N23 24.8			
16	14 47.6	71 13.9	30.6	338 15.2	36.3		320 25.5	38.7		94 31.2	24.9		Kaus Aust.	84 08.4	S34 23.5			
17	29 50.1	86 13.0	30.0	353 16.2	36.8		335 27.8	38.8		109 33.4	24.8							
18	44 52.5	101 12.2	S20 29.4	8 17.3	N15 37.3		350 30.2	N18 38.8		124 35.6	S22 24.8		Kochab	137 18.7	N74 11.5			
19	59 55.0	116 11.4	28.8	23 18.3	37.8		5 32.5	38.9		139 37.8	24.8		Markab	13 56.9	N15 08.8			
20	74 57.5	131 10.6	28.2	38 19.3	38.3		20 34.8	38.9		154 40.0	24.8		Menkar	314 34.2	N 4 02.9			
21	89 59.9	146 09.8	27.6	53 20.4	38.8		35 37.2	38.9		169 42.2	24.8		Menkent	148 29.3	S36 19.0			
22	105 02.4	161 09.0	27.0	68 21.4	39.2		50 39.5	39.0		184 44.4	24.8		Miaplacidus	221 43.0	S69 40.3			
23	120 04.8	176 08.2	26.4	83 22.5	39.7		65 41.8	39.0		199 46.6	24.7							
5 00	135 07.3	191 07.3	S20 25.8	98 23.5	N15 40.2		80 44.1	N18 39.1		214 48.7	S22 24.7		Mirfak	309 06.8	N49 49.7			
01	150 09.8	206 06.5	25.2	113 24.6	40.7		95 46.5	39.1		229 50.9	24.7		Nunki	76 21.3	S26 18.8			
02	165 12.2	221 05.7	24.6	128 25.6	41.2		110 48.8	39.1		244 53.1	24.7		Pelluc	53 48.4	S56 46.3			
03	180 14.7	236 04.9	24.0	143 26.6	41.7		125 51.1	39.2		259 55.3	24.7		Polaris	243 49.7	N28 03.2			
04	195 17.2	251 04.1	23.4	158 27.7	42.2		140 53.5	39.2		274 57.5	24.7		Procyon	245 18.6	N 5 15.2			
05	210 19.6	266 03.3	22.7	173 28.7	42.7		155 55.8	39.3		289 59.7	24.6							
06	225 22.1	281 02.5	S20 22.1	188 29.8	N15 43.1		170 58.1	N18 39.3		305 01.9	S22 24.6		Rasalhague	96 23.7	N12 33.8			
07	240 24.6	296 01.7	21.5	203 30.8	43.6		186 00.5	39.4		320 04.0	24.6		Regulus	208 02.6	N12 01.1			
08	255 27.0	311 00.9	20.9	218 31.8	44.1		201 02.8	39.4		335 06.2	24.6		Rigel	281 29.5	S 8 12.8			
09	270 29.5	326 00.0	20.3	233 32.9	44.6		216 05.1	39.4		350 08.4	24.6		Rigil Kent.	140 17.0	S60 47.3			
10	285 32.0	340 59.2	19.7	248 33.9	45.1		231 07.4	39.5		5 10.6	24.6		Sabik	102 33.8	S15 42.9			
11	300 34.4	355 58.4	19.1	263 35.0	45.6		246 09.8	39.5		20 12.8	24.5							
12	315 36.9	10 57.6	S20 18.4	278 36.0	N15 46.1		261 12.1	N18 39.6		35 15.0	S22 24.5		Schedar	350 02.1	N56 28.9			
13	330 39.3	25 56.8	17.8	293 37.0	46.5		276 14.4	39.6		50 17.2	24.5		Shaula	96 47.1	S37 05.9			
14	345 41.8	40 56.0	17.2	308 38.1	47.0		291 16.8	39.6		65 19.4	24.5		Sirius	258 49.6	S16 42.1			
15	0 44.3	55 55.2	16.6	323 39.1	47.5		306 19.1	39.7		80 21.6	24.5		Spica	158 50.5	S11 06.4			
16	15 46.7	70 54.4	16.0	338 40.2	48.0		321 21.4	39.7		95 23.7	24.5		Suhail	223 05.6	S43 23.3			
17	30 49.2	85 53.6	15.3	353 41.2	48.5		336 23.7	39.8		110 25.9	24.4							
18	45 51.7	100 52.8	S20 14.7	8 42.2	N15 49.0		351 26.1	N18 39.8		125 28.1	S22 24.4		Vega	80 51.7	N38 46.1			
19	60 54.1	115 52.0	14.1	23 43.3	49.4		6 28.4	39.9		140 30.3	24.4		Zuben'ubi	137 25.8	S16 00.0			
20	75 56.6	130 51.2	13.4	38 44.3	49.9		21 30.7	39.9		155 32.5	24.4							
21	90 59.1	145 50.4	12.8	53 45.3	50.4		36 33.0	39.9		170 34.7	24.							







T.M.G. (TU)	ARIES			VENUS -3.9			MARTE +0.7			JUPITER -2.4			SATURNO +0.6			ESTRELLAS		
	A.H.G.	A.H.G.	Dec.	A.H.G.	A.H.G.	Dec.	A.H.G.	A.H.G.	Dec.	A.H.G.	A.H.G.	Dec.	Nombre	A. H. S.	Dec.			
LUNES	6 00	136 06.5	190 48.0 S20	10.9	98 48.5 N15	51.9	81 40.0 N18	40.1	215 41.3 S22	24.3	215 41.3 S22	24.3	Acamar	315 32.1 S40	21.0			
	01	151 08.9	205 47.1	10.3	113 49.5	52.4	96 42.3	40.1	230 43.4	24.3	230 43.4	24.3	Achernar	335 40.3 S57	17.7			
	02	166 11.4	220 46.3	09.7	128 50.5	52.8	111 44.6	40.2	245 45.6	24.3	245 45.6	24.3	Acruz	173 29.8 S63	02.2			
	03	181 13.8	235 45.5	09.0	143 51.6	53.3	126 47.0	40.2	260 47.8	24.3	260 47.8	24.3	Adhara	255 26.6 S28	57.5			
	04	196 16.3	250 44.7	08.4	158 52.6	53.8	141 49.3	40.2	275 50.0	24.3	275 50.0	24.3	Aldebaran	291 10.3 N16	29.4			
	05	211 18.8	265 43.9	07.8	173 53.6	54.3	156 51.6	40.3	290 52.2	24.2	290 52.2	24.2						
	06	226 21.2	280 43.1 S20	07.1	188 54.7 N15	54.8	171 53.9 N18	40.3	305 54.4 S22	24.2	305 54.4 S22	24.2	Alioth	166 36.1 N56	00.8			
	07	241 23.7	295 42.3	06.5	203 55.7	55.3	186 56.3	40.4	320 56.6	24.2	320 56.6	24.2	Alkaid	153 12.9 N49	21.6			
	08	256 26.2	310 41.5	05.8	218 56.7	55.7	201 58.6	40.4	335 58.8	24.2	335 58.8	24.2	Al Na'ir	28 06.9 S47	01.0			
	09	271 28.6	325 40.7	05.2	233 57.8	56.2	217 00.9	40.5	351 01.0	24.2	351 01.0	24.2	Alnilam	276 04.8 S 1	12.5			
	10	286 31.1	340 39.9	04.6	248 58.8	56.7	232 03.2	40.5	6 03.2	24.2	6 03.2	24.2	Alphard	218 13.8 S 8	36.7			
	11	301 33.6	355 39.2	03.9	263 59.8	57.2	247 05.5	40.5	21 05.3	24.1	21 05.3	24.1						
	12	316 36.0	10 38.4 S20	03.3	279 00.9 N15	57.7	262 07.9 N18	40.6	36 07.5 S22	24.1	36 07.5 S22	24.1	Alphecca	126 26.5 N26	44.7			
	13	331 38.5	25 37.6	02.6	294 01.9	58.1	277 10.2	40.6	51 09.7	24.1	51 09.7	24.1	Alpheratz	358 02.9 N29	01.9			
	14	346 40.9	40 36.8	02.0	309 02.9	58.6	292 12.5	40.7	66 11.9	24.1	66 11.9	24.1	Altair	62 26.4 N 8	50.1			
	15	1 43.4	55 36.0	01.3	324 04.0	59.1	307 14.8	40.7	81 14.1	24.1	81 14.1	24.1	Ankaa	353 33.8 S42	22.1			
	16	16 45.9	70 35.2	00.7	339 05.0	59.6	322 17.1	40.8	96 16.3	24.1	96 16.3	24.1	Antares	112 48.9 S26	24.6			
	17	31 48.3	85 34.4	20 00.0	354 06.0	16 00.1	337 19.4	40.8	111 18.5	24.0	111 18.5	24.0						
	18	46 50.8	100 33.6 S19	59.4	9 07.1 N16	00.6	352 21.8 N18	40.8	126 20.7 S22	24.0	126 20.7 S22	24.0	Arcturus	146 12.3 N19	14.0			
	19	61 53.3	115 32.8	58.7	24 08.1	01.0	7 24.1	40.9	141 22.9	24.0	141 22.9	24.0	Atria	108 07.7 S69	00.4			
	20	76 55.7	130 32.0	58.1	39 09.1	01.5	22 26.4	40.9	156 25.1	24.0	156 25.1	24.0	Avior	234 25.1 S59	28.5			
	21	91 58.2	145 31.2	57.4	54 10.2	02.0	37 28.7	41.0	171 27.3	24.0	171 27.3	24.0	Bellatrix	278 51.5 N 6	20.5			
	22	107 00.7	160 30.4	56.8	69 11.2	02.5	52 31.0	41.0	186 29.4	24.0	186 29.4	24.0	Betelgeuse	271 20.9 N 7	24.4			
23	122 03.1	175 29.6	56.1	84 12.2	03.0	67 33.3	41.1	201 31.6	23.9	201 31.6	23.9							
MARTES	7 00	137 05.6	190 28.8 S19	55.5	99 13.2 N16	03.4	82 35.7 N18	41.1	216 33.8 S22	23.9	216 33.8 S22	23.9	Canopus	264 03.9 S52	41.5			
	01	152 08.1	205 28.0	54.8	114 14.3	03.9	97 38.0	41.2	231 36.0	23.9	231 36.0	23.9	Capella	281 01.3 N45	59.5			
	02	167 10.5	220 27.2	54.2	129 15.3	04.4	112 40.3	41.2	246 38.2	23.9	246 38.2	23.9	Deneb	49 44.6 N45	14.3			
	03	182 13.0	235 26.5	53.5	144 16.3	04.9	127 42.6	41.2	261 40.4	23.9	261 40.4	23.9	Denebola	182 52.0 N14	37.8			
	04	197 15.4	250 25.7	52.8	159 17.4	05.4	142 44.9	41.3	276 42.6	23.8	276 42.6	23.8	Diphda	349 14.4 S18	02.9			
	05	212 17.9	265 24.9	52.2	174 18.4	05.8	157 47.2	41.3	291 44.8	23.8	291 44.8	23.8						
	06	227 20.4	280 24.1 S19	51.5	189 19.4 N16	06.3	172 49.5 N18	41.4	306 47.0 S22	23.8	306 47.0 S22	23.8	Dubhe	194 13.0 N61	48.4			
	07	242 22.8	295 23.3	50.9	204 20.4	06.8	187 51.9	41.4	321 49.2	23.8	321 49.2	23.8	Elnath	278 35.6 N28	36.1			
	08	257 25.3	310 22.5	50.2	219 21.5	07.3	202 54.2	41.5	336 51.4	23.8	336 51.4	23.8	Eltanin	90 55.0 N51	29.0			
	09	272 27.8	325 21.7	49.5	234 22.5	07.8	217 56.5	41.5	351 53.6	23.8	351 53.6	23.8	Enif	34 05.5 N 9	49.4			
	10	287 30.2	340 20.9	48.9	249 23.5	08.2	232 58.8	41.6	6 55.7	23.7	6 55.7	23.7	Fomalhaut	15 44.4 S29	41.0			
	11	302 32.7	355 20.1	48.2	264 24.6	08.7	248 01.1	41.6	21 57.9	23.7	21 57.9	23.7						
	12	317 35.2	10 19.4 S19	47.5	279 25.6 N16	09.2	263 03.4 N18	41.6	37 00.1 S22	23.7	37 00.1 S22	23.7	Gacrux	172 21.3 S57	03.0			
	13	332 37.6	25 18.6	46.9	294 26.6	09.7	278 05.7	41.7	52 02.3	23.7	52 02.3	23.7	Gienah	176 11.0 S17	29.0			
	14	347 40.1	40 17.8	46.2	309 27.6	10.2	293 08.0	41.7	67 04.5	23.7	67 04.5	23.7	Hadar	149 14.1 S60	19.1			
	15	2 42.6	55 17.0	45.5	324 28.7	10.6	308 10.3	41.8	82 06.7	23.7	82 06.7	23.7	Hamal	328 21.6 N23	24.8			
	16	17 45.0	70 16.2	44.8	339 29.7	11.1	323 12.6	41.8	97 08.9	23.6	97 08.9	23.6	Kaus Aust.	84 08.4 S34	23.5			
	17	32 47.5	85 15.4	44.2	354 30.7	11.6	338 15.0	41.9	112 11.1	23.6	112 11.1	23.6						
	18	47 49.9	100 14.7 S19	43.5	9 31.7 N16	12.1	353 17.3 N18	41.9	127 13.3 S22	23.6	127 13.3 S22	23.6	Kochab	137 18.6 N74	11.5			
	19	62 52.4	115 13.9	42.8	24 32.8	12.6	8 19.6	42.0	142 15.5	23.6	142 15.5	23.6	Markab	13 56.9 N15	08.8			
	20	77 54.9	130 13.1	42.2	39 33.8	13.0	23 21.9	42.0	157 17.7	23.6	157 17.7	23.6	Menkar	314 34.2 N 4	02.9			
	21	92 57.3	145 12.3	41.5	54 34.8	13.5	38 24.2	42.1	172 19.9	23.6	172 19.9	23.6	Menkent	148 29.3 S36	19.0			
	22	107 59.8	160 11.5	40.8	69 35.8	14.0	53 26.5	42.1	187 22.1	23.5	187 22.1	23.5	Miaplacidus	221 43.0 S69	40.3			
23	123 02.3	175 10.7	40.1	84 36.9	14.5	68 28.8	42.1	202 24.3	23.5	202 24.3	23.5							
MIÉRCOLES	8 00	138 04.7	190 10.0 S19	39.4	99 37.9 N16	14.9	83 31.1 N18	42.2	217 26.4 S22	23.5	217 26.4 S22	23.5	Mirfak	309 06.8 N49	49.7			
	01	153 07.2	205 09.2	38.8	114 38.9	15.4	98 33.4	42.2	232 28.6	23.5	232 28.6	23.5	Nunki	76 21.3 S26	18.8			
	02	168 09.7	220 08.4	38.1	129 39.9	15.9	113 35.7	42.3	247 30.8	23.5	247 30.8	23.5	Peacock	53 48.4 S56	46.3			
	03	183 12.1	235 07.6	37.4	144 41.0	16.4	128 38.0	42.3	262 33.0	23.5	262 33.0	23.5	Pollux	243 49.7 N28	03.3			
	04	198 14.6	250 06.8	36.7	159 42.0	16.9	143 40.3	42.4	277 35.2	23.4	277 35.2	23.4	Procyon	245 18.6 N 5	15.2			
	05	213 17.1	265 06.1	36.0	174 43.0	17.3	158 42.6	42.4	292 37.4	23.4	292 37.4	23.4						
	06	228 19.5	280 05.3 S19	35.3	189 44.0 N16	17.8	173 44.9 N18	42.5	307 39.6 S22	23.4	307 39.6 S22	23.4	Rasalhague	96 23.7 N12	33.7			
	07	243 22.0	295 04.5	34.7	204 45.1	18.3	188 47.3	42.5	322 41.8	23.4	322 41.8	23.4	Regulus	208 02.6 N12	01.1			
	08	258 24.4	310 03.7	34.0	219 46.1	18.8	203 49.6	42.6	337 44.0	23.4	337 44.0	23.4	Rigel	281 29.5 S 8	12.8			
	09	273 26.9	325 03.0	33.3	234 47.1	19.2	218 51.9	42.6	352 46.2	23.4	352 46.2	23.4	Rigil Kent.	140 17.0 S60	47.3			
	10	288 29.4	340 02.2	32.6	249 48.1	19.7	233 54.2	42.7	7 48.4	23.3	7 48.4	23.3	Sabik	102 33.8 S15	42.9			
	11	303 31.8	355 01.4	31.9	264 49.1	20.2	248 56.5	42.7	22 50.6	23.3	22 50.6	23.3						
	12	318 34.3	10 00.6 S19	31.2	279 50.2 N16	20.7	263 58.8 N18	42.8	37 52.8 S22	23.3	37 52.8 S22	23.3	Schedar	350 02.2 N56	28.9			
	13	333 36.8	24 59.9	30.5	294 51.2	21.1	279 01.1	42.8	52 55.0	23.3	52 55.0	23.3	Shaula	96 47.1 S37	05.9			
	14	348 39.2	39 59.1	29.8	309 52.2	21.6	294 03.4	42.8	67 57.2	23.3	67 57.2	23.3	Sirius	258 49.6 S16	42.1			
	15	3 41.7	54 58.3	29.1	324 53.2	22.1	309 05.7	42.9	82 59.4	23.2	82 59.4	23.2	Spica	158 50.5 S11	06.4			
	16	18 44.2	69 57.5	28.4	339 54.3	22.6	324 08.0	42.9	98 01.6	23.2	98 01.6	23.2	Suhail	223 05.6 S43	23.3			
	17	33 46.6	84 56.8	27.7	354 55.3	23.0	339 10.3	43.0	113 03.8	23.2	113 03.8	23.2						



T.M.G. (TU)	SOL		LUNA					Lat.	Crepúsculo		Orto Sol	Orto Luna							
	A.H.G.	Dec.	A.H.G.	v	Dec.	d	P.H.		Naut.	Civil		6		7		8		9	
												h	m	h	m	h	m	h	m
L U N E S	6 00	176 28.7	S15 41.3	180 13.1	7.3	S18 51.9	13.6	60.2	N 72	06 47	08 11	09 43	10 46	09 31	08 48	08 10			
	01	191 28.7	40.6	194 39.4	7.4	18 38.3	13.7	60.3	N 70	06 42	07 57	09 14	10 03	09 15	08 43	08 14			
	02	206 28.7	39.8	209 05.8	7.4	18 24.6	13.7	60.3	68	06 37	07 45	08 52	09 34	09 02	08 38	08 17			
	03	221 28.6	39.0	223 32.2	7.5	18 10.9	14.0	60.3	66	06 33	07 35	08 35	09 12	08 51	08 35	08 20			
	04	236 28.6	38.3	237 58.7	7.6	17 56.9	14.0	60.3	64	06 30	07 27	08 21	08 54	08 42	08 32	08 22			
	05	251 28.5	37.5	252 25.3	7.7	17 42.9	14.1	60.3	62	06 27	07 20	08 09	08 39	08 34	08 29	08 25			
	06	266 28.5	S15 36.7	266 52.0	7.7	S17 28.8	14.3	60.4	60	06 24	07 14	07 59	08 27	08 27	08 27	08 26			
	07	281 28.4	36.0	281 18.7	7.8	17 14.5	14.4	60.4	N 58	06 21	07 08	07 51	08 16	08 21	08 25	08 28			
	08	296 28.4	35.2	295 45.5	7.9	17 00.1	14.5	60.4	56	06 19	07 03	07 43	08 06	08 16	08 23	08 30			
	09	311 28.4	34.4	310 12.4	7.9	16 45.6	14.6	60.4	54	06 16	06 58	07 36	07 58	08 11	08 21	08 31			
	10	326 28.3	33.6	324 39.3	8.1	16 31.0	14.7	60.4	52	06 14	06 54	07 30	07 50	08 06	08 20	08 32			
	11	341 28.3	32.9	339 06.4	8.0	16 16.3	14.8	60.5	50	06 12	06 50	07 25	07 43	08 02	08 18	08 33			
	12	356 28.2	S15 32.1	353 33.4	8.2	S16 01.5	14.9	60.5	45	06 07	06 42	07 13	07 29	07 53	08 15	08 36			
	13	11 28.2	31.3	8 00.6	8.2	15 46.6	15.1	60.5	N 40	06 02	06 34	07 03	07 16	07 46	08 13	08 38			
	14	26 28.2	30.5	22 27.8	8.3	15 31.5	15.1	60.5	35	05 58	06 28	06 54	07 06	07 40	08 10	08 40			
	15	41 28.1	29.8	36 55.1	8.3	15 16.4	15.2	60.5	30	05 53	06 22	06 46	06 57	07 34	08 08	08 41			
	16	56 28.1	29.0	51 22.4	8.5	15 01.2	15.3	60.5	20	05 44	06 11	06 33	06 41	07 24	08 05	08 44			
	17	71 28.0	28.2	65 49.9	8.5	14 45.9	15.4	60.5	N 10	05 35	06 00	06 22	06 27	07 16	08 02	08 47			
	18	86 28.0	S15 27.4	80 17.4	8.5	S14 30.5	15.5	60.6	0	05 24	05 49	06 11	06 14	07 08	07 59	08 49			
	19	101 28.0	26.7	94 44.9	8.6	14 15.0	15.6	60.6	S 10	05 12	05 38	06 00	06 01	06 59	07 56	08 52			
	20	116 27.9	25.9	109 12.5	8.7	13 59.4	15.7	60.6	20	04 57	05 25	05 48	05 46	06 51	07 53	08 54			
	21	131 27.9	25.1	123 40.2	8.8	13 43.7	15.8	60.6	30	04 38	05 08	05 34	05 30	06 41	07 50	08 58			
	22	146 27.9	24.3	138 08.0	8.8	13 27.9	15.9	60.6	35	04 26	04 59	05 26	05 20	06 35	07 48	08 59			
23	161 27.8	23.6	152 35.8	8.9	13 12.0	15.9	60.6	40	04 11	04 47	05 16	05 10	06 28	07 45	09 01				
M A R T E S	7 00	176 27.8	S15 22.8	167 03.7	8.9	S12 56.1	16.0	60.6	S 50	03 28	04 15	04 52	04 41	06 11	07 40	09 07			
	01	191 27.8	22.0	181 31.6	9.0	12 40.1	16.1	60.6	52	03 16	04 07	04 46	04 33	06 07	07 38	09 08			
	02	206 27.7	21.2	195 59.6	9.1	12 24.0	16.2	60.7	54	03 02	03 57	04 39	04 25	06 02	07 37	09 10			
	03	221 27.7	20.4	210 27.7	9.1	12 07.8	16.3	60.7	56	02 45	03 47	04 31	04 16	05 57	07 35	09 11			
	04	236 27.6	19.7	224 55.8	9.2	11 51.5	16.3	60.7	58	02 23	03 34	04 23	04 05	05 51	07 33	09 13			
	05	251 27.6	18.9	239 24.0	9.2	11 35.2	16.4	60.7	S 60	01 54	03 19	04 13	03 53	05 44	07 31	09 15			
	06	266 27.6	S15 18.1	253 52.2	9.3	S11 18.8	16.5	60.7											
	07	281 27.5	17.3	268 20.5	9.4	11 02.3	16.5	60.7	Lat.	Ocaso Sol	Crepúsculo Civil	Naut.	Ocaso Luna						
	08	296 27.5	16.5	282 48.9	9.4	10 45.8	16.6	60.7					6	7	8	9			
	09	311 27.5	15.7	297 17.3	9.4	10 29.2	16.7	60.7											
	10	326 27.4	15.0	311 45.7	9.6	10 12.5	16.7	60.7											
	11	341 27.4	14.2	326 14.3	9.5	9 55.8	16.8	60.7											
	12	356 27.4	S15 13.4	340 42.8	9.6	S 9 39.0	16.9	60.7	N 72	14 47	16 18	17 43	14 36	17 44	20 18	22 48			
	13	11 27.4	12.6	355 11.4	9.7	9 22.1	16.9	60.7	N 70	15 16	16 33	17 48	15 17	17 57	20 18	22 37			
	14	26 27.3	11.8	9 40.1	9.8	9 05.2	16.9	60.7	68	15 38	16 44	17 52	15 44	18 07	20 19	22 28			
	15	41 27.3	11.0	24 08.9	9.7	8 48.3	17.0	60.7	66	15 55	16 54	17 56	16 05	18 16	20 19	22 21			
	16	56 27.3	10.3	38 37.6	9.9	8 31.3	17.1	60.7	64	16 08	17 02	18 00	16 21	18 23	20 20	22 14			
	17	71 27.2	09.5	53 06.5	9.8	8 14.2	17.1	60.7	62	16 20	17 09	18 03	16 34	18 29	20 20	22 09			
	18	86 27.2	S15 08.7	67 35.3	9.9	S 7 57.1	17.1	60.7	60	16 30	17 16	18 05	16 45	18 35	20 20	22 04			
	19	101 27.2	07.9	82 04.2	10.0	7 40.0	17.2	60.7	N 58	16 39	17 21	18 08	16 55	18 39	20 20	22 00			
	20	116 27.1	07.1	96 33.2	10.0	7 22.8	17.2	60.8	56	16 46	17 26	18 11	17 04	18 43	20 21	21 57			
	21	131 27.1	06.3	111 02.2	10.1	7 05.6	17.3	60.8	54	16 53	17 31	18 13	17 11	18 47	20 21	21 53			
	22	146 27.1	05.5	125 31.3	10.1	6 48.3	17.3	60.8	52	16 59	17 35	18 15	17 18	18 50	20 21	21 50			
23	161 27.1	04.7	140 00.4	10.1	6 31.0	17.4	60.8	50	17 05	17 39	18 17	17 24	18 53	20 21	21 48				
M E R C U R I O S	8 00	176 27.0	S15 04.0	154 29.5	10.2	S 6 13.6	17.3	60.8	45	17 16	17 47	18 22	17 37	19 00	20 21	21 42			
	01	191 27.0	03.2	168 58.7	10.2	5 56.3	17.4	60.7	N 40	17 26	17 55	18 27	17 47	19 05	20 22	21 37			
	02	206 27.0	02.4	183 27.9	10.2	5 38.9	17.5	60.7	35	17 35	18 01	18 31	17 56	19 10	20 22	21 33			
	03	221 26.9	01.6	197 57.1	10.3	5 21.4	17.4	60.7	30	17 42	18 07	18 35	18 04	19 14	20 22	21 30			
	04	236 26.9	00.8	212 26.4	10.3	5 04.0	17.5	60.7	20	17 55	18 18	18 44	18 17	19 21	20 22	21 23			
	05	251 26.9	15 00.0	226 55.7	10.4	4 46.5	17.5	60.7	N 10	18 07	18 28	18 54	18 29	19 27	20 23	21 18			
	06	266 26.9	S14 59.2	241 25.1	10.4	S 4 29.0	17.6	60.7	0	18 18	18 39	19 04	18 40	19 32	20 23	21 13			
	07	281 26.8	58.4	255 54.5	10.4	4 11.4	17.5	60.7	S 10	18 29	18 50	19 16	18 50	19 38	20 23	21 08			
	08	296 26.8	57.6	270 23.9	10.4	3 53.9	17.6	60.7	20	18 40	19 04	19 31	19 02	19 43	20 23	21 02			
	09	311 26.8	56.8	284 53.3	10.5	3 36.3	17.6	60.7	30	18 54	19 19	19 50	19 14	19 50	20 23	20 56			
	10	326 26.8	56.0	299 22.8	10.5	3 18.7	17.6	60.7	35	19 02	19 29	20 02	19 22	19 54	20 23	20 53			
	11	341 26.7	55.2	313 52.3	10.6	3 01.1	17.6	60.7	40	19 11	19 41	20 16	19 30	19 58	20 24	20 49			
	12	356 26.7	S14 54.4	328 21.9	10.5	S 2 43.5	17.6	60.7	45	19 22	19 54	20 34	19 40	20 03	20 24	20 44			
	13	11 26.7	53.6	342 51.4	10.6	2 25.9	17.7	60.7	S 50	19 35	20 12	20 58	19 51	20 08	20 24	20 39			
	14	26 26.7	52.8	357 21.0	10.6	2 08.2	17.6	60.7	52	19 41	20 20	21 10	19 56	20 11	20 24	20 36			
	15	41 26.7	52.1	11 50.6	10.6	1 50.6	17.7	60.7	54	19 48	20 29	21 24	20 02	20 14	20 24	20 34			
	16	56 26.6	51.3	26 20.2	10.7	1 32.9	17.6	60.7	56	19 55	20 40	21 41	20 09	20 17	20 24	20 31			
	17	71 26.6	50.5	40 49.9	10.6														



T.M.G. (TU)		ARIES			VENUS -3.9			MARTE +0.7			JUPITER -2.4			SATURNO +0.6			ESTRELLAS									
d h		A.H.G.		A.H.G.		Dec.		A.H.G.		Dec.		A.H.G.		Dec.		A.H.G.		Dec.		Nombre	A. H. S.		Dec.			
J U E V E S	9	00	139	03.9	189	51.4	S19	22.8	100	02.4	N16	26.4	84	26.4	N18	43.3	218	19.1	S22	23.1	Acamar	315	32.1	S40	21.0	
	01	154	06.3	204	50.6		22.1	115	03.4		26.8	99	28.7		43.4	233	21.3		23.1	Achernar	335	40.3	S57	17.7		
	02	169	08.8	219	49.8		21.4	130	04.4		27.3	114	31.0		43.4	248	23.5		23.1	Acrux	173	29.8	S63	02.2		
	03	184	11.3	234	49.1	· ·	20.7	145	05.5	· ·	27.8	129	33.3	· ·	43.5	263	25.7	· ·	23.0	Adhara	255	26.6	S28	57.5		
	04	199	13.7	249	48.3		20.0	160	06.5		28.3	144	35.6		43.5	278	27.9		23.0	Aldebaran	291	10.3	N16	29.4		
	05	214	16.2	264	47.5		19.3	175	07.5		28.7	159	37.9		43.6	293	30.1		23.0							
	06	229	18.7	279	46.8	S19	18.6	190	08.5	N16	29.2	174	40.2	N18	43.6	308	32.3	S22	23.0	Alioth	166	36.1	N56	00.8		
	07	244	21.1	294	46.0		17.9	205	09.5		29.7	189	42.5		43.7	323	34.5		23.0	Alkaid	153	12.9	N49	21.6		
	08	259	23.6	309	45.2		17.2	220	10.6		30.2	204	44.8		43.7	338	36.7		23.0	Al Na'ir	28	06.9	S47	01.0		
	09	274	26.0	324	44.5	· ·	16.4	235	11.6	· ·	30.6	219	47.0	· ·	43.8	353	38.9	· ·	22.9	Alnilam	276	04.8	S	1	12.5	
	10	289	28.5	339	43.7		15.7	250	12.6		31.1	234	49.3		43.8	8	41.1		22.9	Alphard	218	13.8	S	8	36.7	
	11	304	31.0	354	43.0		15.0	265	13.6		31.6	249	51.6		43.9	23	43.3		22.9							
	12	319	33.4	9	42.2	S19	14.3	280	14.6	N16	32.0	264	53.9	N18	43.9	38	45.5	S22	22.9	Alphecca	126	26.5	N26	44.7		
	13	334	35.9	24	41.4		13.6	295	15.6		32.5	279	56.2		43.9	53	47.7		22.9	Alpheratz	358	02.9	N29	01.9		
	14	349	38.4	39	40.7		12.9	310	16.6		33.0	294	58.5		44.0	68	49.9		22.9	Altair	62	26.4	N	8	50.1	
	15	4	40.8	54	39.9	· ·	12.2	325	17.7	· ·	33.5	310	00.8	· ·	44.0	83	52.1	· ·	22.8	Ankaa	353	33.8	S42	22.1		
	16	19	43.3	69	39.1		11.4	340	18.7		33.9	325	03.1		44.1	98	54.3		22.8	Antares	112	48.9	S26	24.6		
	17	34	45.8	84	38.4		10.7	355	19.7		34.4	340	05.4		44.1	113	56.5		22.8							
	18	49	48.2	99	37.6	S19	10.0	10	20.7	N16	34.9	355	07.7	N18	44.2	128	58.7	S22	22.8	Arcturus	146	12.3	N19	14.0		
	19	64	50.7	114	36.9		09.3	25	21.7		35.3	10	10.0		44.2	144	00.9		22.8	Atria	108	07.6	S69	00.4		
	20	79	53.2	129	36.1		08.5	40	22.7		35.8	25	12.3		44.3	159	03.1		22.7	Avior	234	25.1	S59	28.5		
	21	94	55.6	144	35.4	· ·	07.8	55	23.7	· ·	36.3	40	14.6	· ·	44.3	174	05.3	· ·	22.7	Bellatrix	278	51.5	N	6	20.5	
	22	109	58.1	159	34.6		07.1	70	24.8		36.8	55	16.9		44.4	189	07.5		22.7	Betelgeuse	271	20.9	N	7	24.4	
23	125	00.5	174	33.8		06.4	85	25.8		37.2	70	19.2		44.4	204	09.7		22.7								
V I E R N E S	10	00	140	03.0	189	33.1	S19	05.6	100	26.8	N16	37.7	85	21.4	N18	44.5	219	11.9	S22	22.7	Canopus	264	03.9	S52	41.5	
	01	155	05.5	204	32.3		04.9	115	27.8		38.2	100	23.7		44.5	234	14.1		22.7	Capella	281	01.4	N45	59.6		
	02	170	07.9	219	31.6		04.2	130	28.8		38.6	115	26.0		44.6	249	16.3		22.6	Deneb	49	44.6	N45	14.3		
	03	185	10.4	234	30.8	· ·	03.5	145	29.8	· ·	39.1	130	28.3	· ·	44.6	264	18.5	· ·	22.6	Denebola	182	52.0	N14	37.8		
	04	200	12.9	249	30.1		02.7	160	30.8		39.6	145	30.6		44.7	279	20.7		22.6	Diphda	349	14.4	S18	02.9		
	05	215	15.3	264	29.3		02.0	175	31.9		40.1	160	32.9		44.7	294	22.9		22.6							
	06	230	17.8	279	28.5	S19	01.3	190	32.9	N16	40.5	175	35.2	N18	44.8	309	25.1	S22	22.6	Dubhe	194	13.0	N61	48.4		
	07	245	20.3	294	27.8	19	00.5	205	33.9		41.0	190	37.5		44.8	324	27.3		22.6	Elnath	278	35.6	N28	36.1		
	08	260	22.7	309	27.0	18	59.8	220	34.9		41.5	205	39.8		44.9	339	29.4		22.5	Eltanin	90	55.0	N51	29.0		
	09	275	25.2	324	26.3	· ·	59.1	235	35.9	· ·	41.9	220	42.0	· ·	44.9	354	31.6	· ·	22.5	Enif	34	05.5	N	9	49.4	
	10	290	27.6	339	25.5		58.3	250	36.9		42.4	235	44.3		45.0	9	33.8		22.5	Fomalhaut	15	44.4	S29	41.0		
	11	305	30.1	354	24.8		57.6	265	37.9		42.9	250	46.6		45.0	24	36.0		22.5							
	12	320	32.6	9	24.0	S18	56.8	280	38.9	N16	43.3	265	48.9	N18	45.1	39	38.2	S22	22.5	Gacrux	172	21.3	S57	03.1		
	13	335	35.0	24	23.3		56.1	295	39.9		43.8	280	51.2		45.1	54	40.4		22.5	Gienah	176	11.0	S17	29.0		
	14	350	37.5	39	22.5		55.4	310	40.9		44.3	295	53.5		45.2	69	42.6		22.4	Hadar	149	14.1	S60	19.2		
	15	5	40.0	54	21.8	· ·	54.6	325	42.0	· ·	44.7	310	55.8	· ·	45.2	84	44.8	· ·	22.4	Hamal	328	21.7	N23	24.8		
	16	20	42.4	69	21.0		53.9	340	43.0		45.2	325	58.0		45.3	99	47.0		22.4	Kaus Aust.	84	08.4	S34	23.5		
	17	35	44.9	84	20.3		53.1	355	44.0		45.7	341	00.3		45.3	114	49.2		22.4							
	18	50	47.4	99	19.5	S18	52.4	10	45.0	N16	46.2	356	02.6	N18	45.4	129	51.4	S22	22.4	Kochab	137	18.6	N74	11.5		
	19	65	49.8	114	18.8		51.7	25	46.0		46.6	11	04.9		45.4	144	53.6		22.4	Markab	13	56.9	N15	08.7		
	20	80	52.3	129	18.0		50.9	40	47.0		47.1	26	07.2		45.5	159	55.8		22.3	Menkar	314	34.3	N	4	02.9	
	21	95	54.8	144	17.3	· ·	50.2	55	48.0	· ·	47.6	41	09.5	· ·	45.5	174	58.0	· ·	22.3	Menkent	148	29.2	S36	19.0		
	22	110	57.2	159	16.6		49.4	70	49.0		48.0	56	11.8		45.6	190	00.2		22.3	Miaplacidus	221	43.0	S69	40.3		
23	125	59.7	174	15.8		48.7	85	50.0		48.5	71	14.0		45.6	205	02.4		22.3								
S A B A D O	11	00	141	02.1	189	15.1	S18	47.9	100	51.0	N16	49.0	86	16.3	N18	45.7	220	04.6	S22	22.3	Mirfak	309	06.8	N49	49.7	
	01	156	04.6	204	14.3		47.2	115	52.0		49.4	101	18.6		45.7	235	06.8		22.2	Nunki	76	21.3	S26	18.8		
	02	171	07.1	219	13.6		46.4	130	53.0		49.9	116	20.9		45.8	250	09.1		22.2	Peacock	53	48.4	S56	46.3		
	03	186	09.5	234	12.8	· ·	45.7	145	54.1	· ·	50.4	131	23.2	· ·	45.9	265	11.3	· ·	22.2	Pollux	243	49.7	N28	03.3		
	04	201	12.0	249	12.1		44.9	160	55.1		50.8	146	25.4		45.9	280	13.5		22.2	Procyon	245	18.6	N	5	15.2	
	05	216	14.5	264	11.3		44.1	175	56.1		51.3	161	27.7		46.0	295	15.7		22.2							
	06	231	16.9	279	10.6	S18	43.4	190	57.1	N16	51.8	176	30.0	N18	46.0	310	17.9	S22	22.							



T.M.G. (TU)	SOL		LUNA				Lat.	Crepúsculo		Orto Sol	Orto Luna						
	A.H.G.	Dec.	A.H.G.	v	Dec.	d		P.H.	Naut.		Civil	9	10	11	12		
																h	m
J U E V E S	9 00	176 26.5	S14 44.9	142 17.9	10.7	N 0	48.1	17.6	60.6	N 72	06 35	07 58	09 24	08 10	07 29	06 26	□
	01	191 26.5	44.1	156 47.6	10.8	1	05.7	17.6	60.6	N 70	06 31	07 45	08 58	08 14	07 43	07 01	□
	02	206 26.4	43.3	171 17.4	10.8	1	23.3	17.6	60.6	68	06 28	07 35	08 39	08 17	07 55	07 26	06 33
	03	221 26.4	42.5	185 47.2	10.8	1	40.9	17.5	60.6	66	06 25	07 26	08 24	08 20	08 05	07 46	07 18
	04	236 26.4	41.7	200 17.0	10.8	1	58.4	17.6	60.5	64	06 22	07 19	08 11	08 22	08 13	08 02	07 48
	05	251 26.4	40.9	214 46.8	10.8	2	16.0	17.5	60.5	62	06 20	07 12	08 01	08 25	08 20	08 15	08 10
	06	266 26.4	S14 40.1	229 16.6	10.8	N 2	33.5	17.5	60.5	60	06 17	07 07	07 52	08 26	08 26	08 27	08 29
	07	281 26.3	39.3	243 46.4	10.8	2	51.0	17.4	60.5	N 58	06 15	07 02	07 44	08 28	08 32	08 37	08 44
	08	296 26.3	38.5	258 16.2	10.8	3	08.4	17.5	60.5	56	06 13	06 57	07 37	08 30	08 37	08 45	08 58
	09	311 26.3	37.6	272 46.0	10.8	3	25.9	17.4	60.5	54	06 11	06 53	07 30	08 31	08 41	08 53	09 09
	10	326 26.3	36.8	287 15.8	10.8	3	43.3	17.4	60.5	52	06 09	06 49	07 25	08 32	08 45	09 00	09 19
	11	341 26.3	36.0	301 45.6	10.8	4	00.7	17.3	60.4	50	06 08	06 46	07 20	08 33	08 49	09 07	09 29
	12	356 26.3	S14 35.2	316 15.4	10.8	N 4	18.0	17.3	60.4	45	06 03	06 38	07 08	08 36	08 57	09 20	09 48
	13	11 26.2	34.4	330 45.2	10.7	4	35.3	17.3	60.4	N 40	05 59	06 31	06 59	08 38	09 04	09 32	10 04
	14	26 26.2	33.6	345 14.9	10.8	4	52.6	17.2	60.4	35	05 55	06 25	06 51	08 40	09 10	09 42	10 18
	15	41 26.2	32.8	359 44.7	10.8	5	09.8	17.2	60.4	30	05 51	06 20	06 44	08 41	09 15	09 50	10 29
	16	56 26.2	32.0	14 14.5	10.8	5	27.0	17.2	60.4	20	05 43	06 09	06 32	08 44	09 24	10 05	10 50
	17	71 26.2	31.2	28 44.3	10.7	5	44.2	17.1	60.3	N 10	05 34	05 59	06 21	08 47	09 32	10 18	11 08
	18	86 26.2	S14 30.4	43 14.0	10.7	N 6	01.3	17.1	60.3	0	05 25	05 49	06 11	08 49	09 39	10 31	11 24
	19	101 26.2	29.6	57 43.7	10.8	6	18.4	17.0	60.3	S 10	05 13	05 39	06 00	08 52	09 47	10 43	11 41
	20	116 26.2	28.8	72 13.5	10.7	6	35.4	17.0	60.3	20	04 59	05 26	05 49	08 54	09 55	10 57	11 59
	21	131 26.1	28.0	86 43.2	10.7	6	52.4	16.9	60.3	30	04 41	05 11	05 36	08 58	10 05	11 13	12 21
	22	146 26.1	27.2	101 12.9	10.7	7	09.3	16.9	60.2	35	04 30	05 02	05 29	08 59	10 11	11 22	12 33
23	161 26.1	26.3	115 42.6	10.6	7	26.2	16.8	60.2	40	04 16	04 51	05 20	09 01	10 17	11 32	12 47	
V I E R N E S	10 00	176 26.1	S14 25.5	130 12.2	10.7	N 7	43.0	16.8	60.2	45	03 58	04 38	05 10	09 04	10 24	11 45	13 05
	01	191 26.1	24.7	144 41.9	10.6	7	59.8	16.7	60.2	S 50	03 35	04 21	04 58	09 07	10 33	12 00	13 26
	02	206 26.1	23.9	159 11.5	10.6	8	16.5	16.6	60.2	52	03 24	04 13	04 52	09 08	10 37	12 07	13 36
	03	221 26.1	23.1	173 41.1	10.6	8	33.1	16.6	60.1	54	03 11	04 05	04 45	09 10	10 42	12 15	13 48
	04	236 26.1	22.3	188 10.7	10.5	8	49.7	16.6	60.1	56	02 55	03 54	04 38	09 11	10 47	12 24	14 01
	05	251 26.1	21.5	202 40.2	10.6	9	06.3	16.5	60.1	58	02 36	03 43	04 30	09 13	10 53	12 34	14 16
	06	266 26.0	S14 20.7	217 09.8	10.5	N 9	22.8	16.4	60.1	S 60	02 11	03 29	04 21	09 15	11 00	12 46	14 35
	07	281 26.0	19.9	231 39.3	10.4	9	39.2	16.3	60.1	Lat.	Ocaso Sol	Crepúsculo Civil	Naut.	Ocaso Luna			
	08	296 26.0	19.0	246 08.7	10.5	9	55.5	16.3	60.0	N 72	15 06	16 32	17 55	22 48	25 40	01 40	h m
	09	311 26.0	18.2	260 38.2	10.4	10	11.8	16.2	60.0	N 70	15 31	16 45	17 59	22 37	25 07	01 07	□
	10	326 26.0	17.4	275 07.6	10.4	10	28.0	16.1	60.0	68	15 51	16 55	18 02	22 28	24 44	00 44	03 29
	11	341 26.0	16.6	289 37.0	10.4	10	44.1	16.1	60.0	66	16 06	17 04	18 05	22 21	24 26	00 26	02 45
	12	356 26.0	S14 15.8	304 06.4	10.3	N 11	00.2	16.0	59.9	64	16 18	17 11	18 08	22 14	24 12	00 12	02 16
	13	11 26.0	15.0	318 35.7	10.3	11	16.2	15.9	59.9	62	16 29	17 17	18 10	22 09	24 00	00 00	01 54
	14	26 26.0	14.2	333 05.0	10.3	11	32.1	15.9	59.9	60	16 38	17 23	18 12	22 04	23 49	25 37	01 37
	15	41 26.0	13.3	347 34.3	10.2	11	48.0	15.7	59.9	N 58	16 46	17 28	18 14	22 00	23 41	25 22	01 22
	16	56 26.0	12.5	2 03.5	10.2	12	03.7	15.7	59.8	56	16 53	17 32	18 16	21 57	23 33	25 10	01 10
	17	71 26.0	11.7	16 32.7	10.2	12	19.4	15.6	59.8	54	16 59	17 36	18 18	21 53	23 26	24 59	00 59
	18	86 26.0	S14 10.9	31 01.9	10.1	N 12	35.0	15.6	59.8	52	17 05	17 40	18 20	21 50	23 20	24 49	00 49
	19	101 26.0	10.1	45 31.0	10.1	12	50.6	15.4	59.8	50	17 10	17 44	18 22	21 48	23 14	24 41	00 41
	20	116 26.0	09.2	60 00.1	10.0	13	06.0	15.3	59.7	45	17 21	17 51	18 26	21 42	23 03	24 23	00 23
	21	131 26.0	08.4	74 29.1	10.0	13	21.3	15.3	59.7	N 40	17 30	17 58	18 30	21 37	22 53	24 08	00 08
	22	146 26.0	07.6	88 58.1	10.0	13	36.6	15.2	59.7	35	17 38	18 04	18 34	21 33	22 44	23 56	25 07
23	161 25.9	06.8	103 27.1	9.9	13	51.8	15.1	59.7	30	17 45	18 09	18 38	21 30	22 37	23 45	24 53	
S A B A D O	11 00	176 25.9	S14 06.0	117 56.0	9.9	N 14	06.9	15.0	59.6	20	17 57	18 19	18 46	21 23	22 25	23 27	24 29
	01	191 25.9	05.1	132 24.9	9.8	14	21.9	14.9	59.6	N 10	18 08	18 29	18 54	21 18	22 14	23 11	24 09
	02	206 25.9	04.3	146 53.7	9.8	14	36.8	14.8	59.6	0	18 18	18 39	19 04	21 13	22 04	22 56	23 51
	03	221 25.9	03.5	161 22.5	9.7	14	51.6	14.7	59.6	S 10	18 28	18 50	19 15	21 08	21 53	22 41	23 32
	04	236 25.9	02.7	175 51.2	9.7	15	06.3	14.6	59.5	20	18 39	19 02	19 29	21 02	21 43	22 26	23 12
	05	251 25.9	01.9	190 19.9	9.7	15	20.9	14.5	59.5	30	18 52	19 17	19 47	20 56	21 31	22 08	22 49
	06	266 25.9	S14 01.0	204 48.6	9.6	N 15	35.4	14.4	59.5	35	18 59	19 26	19 58	20 53	21 23	21 57	22 36
	07	281 25.9	14 00.2	219 17.2	9.6	15	49.8	14.4	59.5	40	19 08	19 37	20 12	20 49	21 16	21 45	22 21
	08	296 25.9	13 59.4	233 45.8	9.5	16	04.2	14.2	59.4	45	19 18	19 50	20 29	20 44	21 06	21 32	22 02
	09	311 25.9	58.6	248 14.3	9.4	16	18.4	14.1	59.4	S 50	19 30	20 06	20 52	20 39	20 55	21 15	21 40
	10	326 25.9	57.7	262 42.7	9.5	16	32.5	14.0	59.4	52	19 36	20 14	21 03	20 36	20 50	21 07	21 29
	11	341 25.9	56.9	277 11.2	9.3	16	46.5	13.9	59.3	54	19 42	20 22	21 16	20 34	20 44	20 58	21 17
	12	356 25.9	S13 56.1	291 39.5	9.3	N 17	00.4	13.8	59.3	56	19 49	20 32	21 31	20 31	20 38	20 48	21 03
	13	11 25.9	55.3	306 07.8	9.3	17	14.2	13.6	59.3	58	19 57	20 44	21 50	20 27	20 31	20 37	20 47
	14	26 25.9	54.4	320 36.1	9.2	17	27.8	13.6	59.3	S 60	20 06	20 57	22 14	20 24	20 24	20 24	20 27
	15	41 25.9	53.6	335 04.3	9.2	17	41.4	13.5	59.2	Día	SOL E.T. (-)		LUNA				
	16	56 25.9	52.8	349 32.5	9.1	17											







T.M.G. (TU)	SOL		LUNA					Lat.	Crepúsculo		Orto Sol	Orto Luna				
	A.H.G.	Dec.	A.H.G.	v	Dec.	d	P.H.		Náut.	Civil		12	13	14	15	
	o / ' / "	o / ' / "	o / ' / "	' / "	o / ' / "	' / "	' / "		o	h m		h m	h m	h m	h m	h m
DOMINGO	12 00	176 26.0	S13 46.2	105 15.8	8.7	N19 38.3	12.4	59.0	N 72	06 23	07 44	09 06	□	□	□	□
	01	191 26.0	45.3	119 43.5	8.6	19 50.7	12.2	58.9	N 70	06 20	07 33	08 44	□	□	□	□
	02	206 26.0	44.5	134 11.1	8.6	20 02.9	12.2	58.9	68	06 18	07 24	08 27	06 33	□	□	□
	03	221 26.0	43.7	148 38.7	8.5	20 15.1	12.0	58.9	66	06 16	07 16	08 13	07 18	□	□	□
	04	236 26.0	42.8	163 06.2	8.5	20 27.1	11.8	58.9	64	06 14	07 10	08 02	07 48	07 20	□	□
	05	251 26.0	42.0	177 33.7	8.4	20 38.9	11.8	58.8	62	06 12	07 04	07 52	08 10	08 05	07 57	□
	06	266 26.0	S13 41.2	192 01.1	8.3	N20 50.7	11.6	58.8	60	06 10	06 59	07 44	08 29	08 35	08 50	09 31
	07	281 26.0	40.3	206 28.4	8.3	21 02.3	11.5	58.8	N 58	06 09	06 55	07 36	08 44	08 58	09 23	10 09
	08	296 26.0	39.5	220 55.7	8.3	21 13.8	11.3	58.7	56	06 07	06 51	07 30	08 58	09 16	09 47	10 36
	09	311 26.0	38.7	235 23.0	8.1	21 25.1	11.3	58.7	54	06 06	06 47	07 24	09 09	09 32	10 06	10 57
	10	326 26.0	37.8	249 50.1	8.2	21 36.4	11.0	58.7	52	06 04	06 44	07 19	09 19	09 46	10 23	11 14
	11	341 26.1	37.0	264 17.3	8.0	21 47.4	11.0	58.7	50	06 03	06 41	07 14	09 29	09 58	10 37	11 29
	12	356 26.1	S13 36.2	278 44.3	8.1	N21 58.4	10.8	58.6	45	05 59	06 34	07 04	09 48	10 23	11 06	12 00
	13	11 26.1	35.3	293 11.4	7.9	22 09.2	10.7	58.6	N 40	05 56	06 28	06 56	10 04	10 42	11 29	12 23
	14	26 26.1	34.5	307 38.3	7.9	22 19.9	10.5	58.6	35	05 53	06 22	06 48	10 18	10 59	11 48	12 43
	15	41 26.1	33.7	322 05.2	7.9	22 30.4	10.4	58.5	30	05 49	06 17	06 42	10 29	11 14	12 04	13 00
	16	56 26.1	32.8	336 32.1	7.8	22 40.8	10.2	58.5	20	05 42	06 08	06 30	10 50	11 38	12 31	13 28
	17	71 26.1	32.0	350 58.9	7.7	22 51.0	10.1	58.5	N 10	05 34	05 59	06 20	11 08	12 00	12 55	13 52
	18	86 26.1	S13 31.2	5 25.6	7.7	N23 01.1	10.0	58.5	0	05 25	05 50	06 11	11 24	12 20	13 17	14 15
	19	101 26.1	30.3	19 52.3	7.7	23 11.1	9.8	58.4	S 10	05 14	05 40	06 01	11 41	12 40	13 40	14 37
	20	116 26.1	29.5	34 19.0	7.6	23 20.9	9.7	58.4	20	05 01	05 28	05 51	11 59	13 02	14 04	15 02
	21	131 26.2	28.7	48 45.6	7.5	23 30.6	9.5	58.4	30	04 44	05 14	05 39	12 21	13 28	14 32	15 30
	22	146 26.2	27.8	63 12.1	7.5	23 40.1	9.3	58.3	35	04 33	05 05	05 32	12 33	13 43	14 48	15 47
23	161 26.2	27.0	77 38.6	7.5	23 49.4	9.3	58.3	40	04 20	04 55	05 24	12 47	14 00	15 08	16 06	
LUNES	13 00	176 26.2	S13 26.1	92 05.1	7.4	N23 58.7	9.0	58.3	45	04 03	04 43	05 14	13 05	14 21	15 31	16 30
	01	191 26.2	25.3	106 31.5	7.3	24 07.7	9.0	58.2	S 50	03 42	04 27	05 03	13 26	14 48	16 01	17 01
	02	206 26.2	24.5	120 57.8	7.3	24 16.7	8.7	58.2	52	03 32	04 20	04 58	13 36	15 01	16 16	17 16
	03	221 26.2	23.6	135 24.1	7.3	24 25.4	8.7	58.2	54	03 19	04 12	04 52	13 48	15 16	16 34	17 33
	04	236 26.3	22.8	149 50.4	7.2	24 34.1	8.4	58.2	56	03 05	04 02	04 45	14 01	15 34	16 55	17 55
	05	251 26.3	21.9	164 16.6	7.1	24 42.5	8.4	58.1	58	02 48	03 51	04 38	14 16	15 56	17 22	18 21
	06	266 26.3	S13 21.1	178 42.7	7.2	N24 50.9	8.1	58.1	S 60	02 26	03 39	04 29	14 35	16 24	18 00	19 00
	07	281 26.3	20.3	193 08.9	7.0	24 59.0	8.0	58.1	Lat.	Ocaso Sol	Crepúsculo Civil	Náut.	Ocaso Luna			
	08	296 26.3	19.4	207 34.9	7.1	25 07.0	7.9	58.0	12	13	14	15				
	09	311 26.3	18.6	222 01.0	6.9	25 14.9	7.7	58.0	N 72	15 25	16 46	18 07	□	□	□	□
	10	326 26.3	17.7	236 26.9	7.0	25 22.6	7.5	58.0	N 70	15 46	16 57	18 10	□	□	□	□
	11	341 26.4	16.9	250 52.9	6.9	25 30.1	7.4	58.0	68	16 03	17 06	18 12	03 29	□	□	□
	12	356 26.4	S13 16.0	265 18.8	6.9	N25 37.5	7.2	57.9	66	16 17	17 13	18 14	02 45	□	□	□
	13	11 26.4	15.2	279 44.7	6.8	25 44.7	7.0	57.9	64	16 28	17 20	18 16	02 16	04 39	□	□
	14	26 26.4	14.4	294 10.5	6.8	25 51.7	6.9	57.9	62	16 38	17 25	18 18	01 54	03 55	06 02	□
	15	41 26.4	13.5	308 36.3	6.8	25 58.6	6.8	57.8	60	16 46	17 30	18 19	01 37	03 26	05 09	06 29
	16	56 26.5	12.7	323 02.1	6.7	26 05.4	6.6	57.8	N 58	16 53	17 35	18 21	01 22	03 03	04 37	05 51
	17	71 26.5	11.8	337 27.8	6.7	26 12.0	6.4	57.8	56	16 59	17 38	18 22	01 10	02 45	04 13	05 24
	18	86 26.5	S13 11.0	351 53.5	6.7	N26 18.4	6.2	57.8	54	17 05	17 42	18 24	00 59	02 30	03 54	05 03
	19	101 26.5	10.1	6 19.2	6.6	26 24.6	6.1	57.7	52	17 10	17 45	18 25	00 49	02 17	03 38	04 46
	20	116 26.5	09.3	20 44.8	6.6	26 30.7	5.9	57.7	50	17 15	17 48	18 26	00 41	02 05	03 24	04 31
	21	131 26.6	08.4	35 10.4	6.6	26 36.6	5.8	57.7	45	17 25	17 55	18 30	00 23	01 41	02 55	04 00
	22	146 26.6	07.6	49 36.0	6.5	26 42.4	5.6	57.6	N 40	17 33	18 01	18 33	00 08	01 22	02 33	03 36
23	161 26.6	06.7	64 01.5	6.5	26 48.0	5.4	57.6	35	17 41	18 07	18 36	25 07	01 07	02 15	03 17	
MARTES	14 00	176 26.6	S13 05.9	78 27.0	6.5	N26 53.4	5.3	57.6	30	17 47	18 12	18 40	24 53	00 53	01 59	03 00
	01	191 26.6	05.0	92 52.5	6.5	26 58.7	5.1	57.6	20	17 58	18 21	18 47	24 29	00 29	01 32	02 32
	02	206 26.7	04.2	107 18.0	6.5	27 03.8	4.9	57.5	N 10	18 08	18 30	18 55	24 09	00 09	01 09	02 08
	03	221 26.7	03.3	121 43.5	6.4	27 08.7	4.8	57.5	0	18 18	18 39	19 04	23 51	24 47	00 47	01 45
	04	236 26.7	02.5	136 08.9	6.4	27 13.5	4.6	57.5	S 10	18 27	18 49	19 14	23 32	24 26	00 26	01 22
	05	251 26.7	01.6	150 34.3	6.4	27 18.1	4.4	57.4	20	18 37	19 00	19 27	23 12	24 03	00 03	00 58
	06	266 26.7	S13 00.8	164 59.7	6.4	N27 22.5	4.3	57.4	30	18 49	19 14	19 44	22 49	23 37	24 30	00 30
	07	281 26.8	12 59.9	179 25.1	6.4	27 26.8	4.1	57.4	35	18 56	19 23	19 55	22 36	23 21	24 13	00 13
	08	296 26.8	59.1	193 50.5	6.4	27 30.9	3.9	57.4	40	19 04	19 33	20 08	22 21	23 03	23 53	24 52
	09	311 26.8	58.2	208 15.9	6.3	27 34.8	3.8	57.3	45	19 13	19 45	20 24	22 02	22 41	23 30	24 28
	10	326 26.8	57.4	222 41.2	6.4	27 38.6	3.6	57.3	S 50	19 25	20 00	20 45	21 40	22 13	22 59	23 58
	11	341 26.9	56.5	237 06.6	6.3	27 42.2	3.4	57.3	52	19 30	20 07	20 55	21 29	22 00	22 44	23 43
	12	356 26.9	S12 55.7	251 31.9	6.4	N27 45.6	3.3	57.2	54	19 36	20 15	21 07	21 17	21 45	22 26	23 26
	13	11 26.9	54.8	265 57.3	6.3	27 48.9	3.1	57.2	56	19 42	20 25	21 21	21 03	21 26	22 05	23 05
	14	26 26.9	54.0	280 22.6	6.3	27 52.0	2.9	57.2	58	19 49	20 35	21 38	20 47	21 04	21 38	22 38
	15	41 27.0	53.1	294 47.9	6.4	27 54.9	2.7	57.2	S 60	19 57	20 47	21 59	20 27	20 36	21 00	22 00
	16	56 27.0	52.3	309 13.3	6.3	27 57.6	2.6	57.1	Día	SOL E.T. (-)			LUNA			
	17	71 27.0	51.4	323 38.6	6.3	28 00.2	2.4	57.1	00 h	12 h	Pas. Mer.	Pas. Sup.	Mer. Inf.	Asc.	Fase	
	18	86 27.1	S12 50.6	338 03.9	6.4	N28 02.6	2.3	57.1	m s	m s	h m	h m	h m	d		
	19	101 27.1	49.7	352 29.3	6.3	28 04.9	2.1	57.1	12	14 16	14 16	12 14	17 37	05 10	06	







T.M.G. (TU)	SOL		LUNA				Lat.	Crepúsculo		Orto Sol	Orto Luna					
	A.H.G.	Dec.	A.H.G.	v	Dec.	d		P.H.	Naut.		Civil	15	16	17	18	
												h m	h m	h m	h m	
M I E R C O L E S	15 00	176 27.2	S12 45.4	64 36.2	6.4	N28 13.6	1.2	56.9	N 72	06 10	07 30	08 48	□	□	□	□
	01	191 27.2	44.6	79 01.6	6.4	28 14.8	1.1	56.9	N 70	06 09	07 21	08 29	□	□	□	□
	02	206 27.3	43.7	93 27.0	6.5	28 15.9	0.9	56.9	68	06 08	07 13	08 14	□	□	□	11 46
	03	221 27.3	42.9	107 52.5	6.4	28 16.8	0.8	56.9	66	06 07	07 07	08 02	□	□	□	12 44
	04	236 27.3	42.0	122 17.9	6.5	28 17.6	0.5	56.8	64	06 06	07 01	07 52	□	□	11 05	13 18
	05	251 27.4	41.1	136 43.4	6.6	28 18.1	0.4	56.8	62	06 04	06 56	07 43	□	09 54	11 54	13 42
	06	266 27.4	S12 40.3	151 09.0	6.5	N28 18.5	0.3	56.8	60	06 03	06 52	07 36	09 31	10 48	12 24	14 01
	07	281 27.4	39.4	165 34.5	6.6	28 18.8	0.1	56.8	N 58	06 02	06 48	07 29	10 09	11 20	12 47	14 17
	08	296 27.5	38.6	180 00.1	6.6	28 18.9	0.1	56.7	56	06 01	06 45	07 23	10 36	11 44	13 06	14 30
	09	311 27.5	37.7	194 25.7	6.6	28 18.8	0.3	56.7	54	06 00	06 41	07 18	10 57	12 04	13 21	14 42
	10	326 27.5	36.8	208 51.3	6.7	28 18.5	0.4	56.7	52	05 59	06 38	07 13	11 14	12 20	13 35	14 52
	11	341 27.6	36.0	223 17.0	6.7	28 18.1	0.6	56.7	50	05 58	06 36	07 09	11 29	12 34	13 46	15 01
	12	356 27.6	S12 35.1	237 42.7	6.8	N28 17.5	0.7	56.6	45	05 55	06 30	07 00	12 00	13 03	14 11	15 20
	13	11 27.6	34.3	252 08.5	6.7	28 16.8	0.9	56.6	N 40	05 52	06 24	06 52	12 23	13 25	14 30	15 36
	14	26 27.7	33.4	266 34.2	6.9	28 15.9	1.1	56.6	35	05 50	06 19	06 45	12 43	13 43	14 46	15 49
	15	41 27.7	32.5	281 00.1	6.8	28 14.8	1.2	56.6	30	05 47	06 15	06 39	13 00	13 59	15 00	16 00
	16	56 27.7	31.7	295 25.9	6.9	28 13.6	1.4	56.5	20	05 40	06 06	06 29	13 28	14 26	15 24	16 19
	17	71 27.8	30.8	309 51.8	7.0	28 12.2	1.6	56.5	N 10	05 33	05 58	06 19	13 52	14 49	15 44	16 36
	18	86 27.8	S12 30.0	324 17.8	7.0	N28 10.6	1.7	56.5	0	05 25	05 50	06 11	14 15	15 10	16 03	16 52
	19	101 27.8	29.1	338 43.8	7.1	28 08.9	1.9	56.5	S 10	05 15	05 40	06 02	14 37	15 32	16 22	17 07
	20	116 27.9	28.2	353 09.9	7.1	28 07.0	2.0	56.4	20	05 03	05 30	05 52	15 02	15 55	16 42	17 24
	21	131 27.9	27.4	7 36.0	7.1	28 05.0	2.2	56.4	30	04 47	05 16	05 41	15 30	16 21	17 05	17 43
	22	146 27.9	26.5	22 02.1	7.2	28 02.8	2.3	56.4	35	04 37	05 08	05 35	15 47	16 37	17 19	17 54
23	161 28.0	25.6	36 28.3	7.3	28 00.5	2.6	56.4	40	04 24	04 59	05 27	16 06	16 55	17 35	18 06	
16 00	176 28.0	S12 24.8	50 54.6	7.3	N27 57.9	2.6	56.3	45	04 09	04 47	05 19	16 30	17 17	17 53	18 21	
01	191 28.0	23.9	65 20.9	7.4	27 55.3	2.8	56.3	S 50	03 49	04 33	05 08	17 01	17 45	18 16	18 39	
02	206 28.1	23.0	79 47.3	7.4	27 52.5	3.0	56.3	52	03 39	04 26	05 03	17 16	17 58	18 27	18 48	
03	221 28.1	22.2	94 13.7	7.5	27 49.5	3.1	56.3	54	03 28	04 18	04 58	17 33	18 14	18 40	18 57	
04	236 28.2	21.3	108 40.2	7.5	27 46.4	3.3	56.2	56	03 15	04 10	04 52	17 55	18 32	18 54	19 08	
05	251 28.2	20.4	123 06.7	7.6	27 43.1	3.4	56.2	58	02 59	04 00	04 45	18 21	18 54	19 11	19 20	
06	266 28.2	S12 19.6	137 33.3	7.7	N27 39.7	3.6	56.2	S 60	02 39	03 49	04 38	19 00	19 23	19 31	19 34	
07	281 28.3	18.7	152 00.0	7.8	27 36.1	3.7	56.2	Lat.	Ocaso Sol	Crepúsculo		Ocaso Luna				
08	296 28.3	17.8	166 26.8	7.8	27 32.4	3.9	56.2			Civil	Naut.	15	16	17	18	
09	311 28.4	17.0	180 53.6	7.8	27 28.5	4.0	56.1	N 72	15 42	17 00	18 20	h m	h m	h m	h m	
10	326 28.4	16.1	195 20.4	8.0	27 24.5	4.2	56.1	N 70	16 01	17 09	18 21	□	□	□	□	
11	341 28.4	15.2	209 47.4	8.0	27 20.3	4.3	56.1	68	16 16	17 17	18 22	□	□	□	□	
12	356 28.5	S12 14.4	224 14.4	8.1	N27 16.0	4.5	56.1	66	16 28	17 23	18 23	□	□	□	09 49	
13	11 28.5	13.5	238 41.5	8.2	27 11.5	4.6	56.0	64	16 38	17 28	18 24	□	□	□	08 50	
14	26 28.6	12.6	253 08.7	8.2	27 06.9	4.8	56.0	62	16 46	17 33	18 25	□	□	08 44	08 15	
15	41 28.6	11.8	267 35.9	8.3	27 02.1	4.9	56.0	60	16 54	17 37	18 26	06 29	07 09	07 24	07 30	
16	56 28.6	10.9	282 03.2	8.4	26 57.2	5.0	56.0	N 58	17 00	17 41	18 27	05 51	06 37	07 01	07 14	
17	71 28.7	10.0	296 30.6	8.5	26 52.2	5.2	56.0	56	17 06	17 45	18 28	05 24	06 13	06 42	07 00	
18	86 28.7	S12 09.1	310 58.1	8.5	N26 47.0	5.3	55.9	54	17 11	17 48	18 29	05 03	05 53	06 26	06 47	
19	101 28.8	08.3	325 25.6	8.6	26 41.7	5.4	55.9	52	17 16	17 51	18 30	04 46	05 37	06 12	06 37	
20	116 28.8	07.4	339 53.2	8.7	26 36.3	5.6	55.9	50	17 20	17 53	18 31	04 31	05 22	06 00	06 27	
21	131 28.8	06.5	354 20.9	8.8	26 30.7	5.8	55.9	45	17 29	17 59	18 34	04 00	04 53	05 35	06 07	
22	146 28.9	05.7	8 48.7	8.8	26 24.9	5.8	55.9	N 40	17 37	18 05	18 36	03 36	04 30	05 15	05 50	
23	161 28.9	04.8	23 16.5	9.0	26 19.1	6.0	55.8	35	17 44	18 09	18 39	03 17	04 12	04 58	05 36	
17 00	176 29.0	S12 03.9	37 44.5	9.0	N26 13.1	6.2	55.8	30	17 49	18 14	18 42	03 00	03 55	04 43	05 24	
01	191 29.0	03.0	52 12.5	9.1	26 06.9	6.2	55.8	20	18 00	18 22	18 48	02 32	03 28	04 18	05 03	
02	206 29.1	02.2	66 40.6	9.2	26 00.7	6.4	55.8	N 10	18 09	18 30	18 55	02 08	03 04	03 56	04 44	
03	221 29.1	01.3	81 08.8	9.3	25 54.3	6.6	55.7	0	18 17	18 39	19 03	01 45	02 42	03 36	04 27	
04	236 29.2	00.4	95 37.1	9.3	25 47.7	6.6	55.7	S 10	18 26	18 48	19 13	01 22	02 20	03 16	04 10	
05	251 29.2	11 59.5	110 05.4	9.5	25 41.1	6.8	55.7	20	18 36	18 58	19 25	00 58	01 56	02 54	03 51	
06	266 29.3	S11 58.7	124 33.9	9.5	N25 34.3	6.9	55.7	30	18 47	19 11	19 41	00 30	01 28	02 28	03 29	
07	281 29.3	57.8	139 02.4	9.6	25 27.4	7.0	55.7	35	18 53	19 19	19 51	00 13	01 11	02 13	03 16	
08	296 29.3	56.9	153 31.0	9.7	25 20.4	7.2	55.6	40	19 00	19 29	20 03	24 52	00 52	01 56	03 02	
09	311 29.4	56.0	167 59.7	9.8	25 13.2	7.3	55.6	45	19 09	19 40	20 18	24 28	00 28	01 35	02 44	
10	326 29.4	55.2	182 28.5	9.9	25 05.9	7.4	55.6	S 50	19 19	19 54	20 38	23 58	25 08	01 08	02 22	
11	341 29.5	54.3	196 57.4	10.0	24 58.5	7.5	55.6	52	19 24	20 01	20 47	23 43	24 54	00 54	02 11	
12	356 29.5	S11 53.4	211 26.4	10.0	N24 51.0	7.6	55.6	54	19 29	20 08	20 58	23 26	24 39	00 39	01 59	
13	11 29.6	52.5	225 55.4	10.2	24 43.4	7.8	55.6	56	19 35	20 17	21 11	23 05	24 21	00 21	01 46	
14	26 29.6	51.6	240 24.6	10.2	24 35.6	7.9	55.5	58	19 41	20 26	21 27	22 38	23 59	25 30	01 30	
15	41 29.7	50.8	254 53.8	10.3	24 27.7	8.0	55.5	S 60	19 49	20 37	21 45	22 00	23 31	25 10	01 10	
16	56 29.7	49.9	269 23.1	10.4	24 19.7	8.1	55.5	Día	SOL E.T. (-)		LUNA					
17	71 29.8	49.0	283 52.5	10.5	24 11.6	8.2	55.5		00 h	12 h	Pas. Mer.	Pas. Sup.	Mer. Inf.	Edad.	Fase	
18	86 29.8	S11 48.1	298 22.0	10.6	N24 03.4	8.4	55.5	15	m s	m s	h m	h m	h m	d		
19	101 29.9	47.3	312 51.6	10.7	23 55.0	8.4	55.4	16	14 11	14 10	12 14	20 28	08 00	09		
20	116 29.9	46.4	327 21.3													



T.M.G. (TU)		ARIES			VENUS -3.9			MARTE +0.9			JUPITER -2.3			SATURNO +0.6			ESTRELLAS									
d	h	A.H.G.		A.H.G.	Dec.		A.H.G.	Dec.	A.H.G.	Dec.	A.H.G.	Dec.	A.H.G.	Dec.	Nombre:	A. H. S.	Dec.									
18	00	147	56.1	187	17.1	S16	29.2	103	37.1	N18	05.3	92	35.2	N18	55.2	226	15.8	S22	19.3	Acamar	315	32.2	S40	21.0		
	01	162	58.6	202	16.5		28.3	118	38.0		05.7	107	37.4		55.3	241	18.1		19.3	Achernar	335	40.4	S57	17.7		
	02	178	01.0	217	15.8		27.4	133	39.0		06.1	122	39.7		55.3	256	20.3		19.3	Acruz	173	29.7	S63	02.3		
	03	193	03.5	232	15.2		26.5	148	40.0		06.6	137	41.9		55.4	271	22.5		19.3	Adhara	255	26.7	S28	57.5		
	04	208	06.0	247	14.5		25.6	163	41.0		07.0	152	44.1		55.5	286	24.7		19.3	Aldebaran	291	10.4	N16	29.4		
	05	223	08.4	262	13.8		24.7	178	41.9		07.5	167	46.4		55.5	301	26.9		19.3							
	06	238	10.9	277	13.2	S16	23.8	193	42.9	N18	07.9	182	48.6	N18	55.6	316	29.2	S22	19.2			Alioth	166	36.0	N56	00.8
	07	253	13.4	292	12.5		22.9	208	43.9		08.3	197	50.8		55.6	331	31.4		19.2			Alkaid	153	12.8	N49	21.6
	08	268	15.8	307	11.9		22.0	223	44.8		08.8	212	53.0		55.7	346	33.6		19.2			Al Na'ir	28	06.9	S47	01.0
	09	283	18.3	322	11.2		21.1	238	45.8		09.2	227	55.3		55.8	1	35.8		19.2			Alnilam	276	04.8	S 1	12.5
	10	298	20.8	337	10.6		20.2	253	46.8		09.7	242	57.5		55.8	16	38.0		19.2			Alphard	218	13.8	S 8	36.8
	11	313	23.2	352	09.9		19.3	268	47.7		10.1	257	59.7		55.9	31	40.3		19.2							
	12	328	25.7	7	09.3	S16	18.4	283	48.7	N18	10.5	273	01.9	N18	56.0	46	42.5	S22	19.1			Alphecca	126	26.4	N26	44.7
	13	343	28.2	22	08.6		17.5	298	49.7		11.0	288	04.2		56.0	61	44.7		19.1			Alpheratz	358	02.9	N29	01.9
	14	358	30.6	37	08.0		16.6	313	50.6		11.4	303	06.4		56.1	76	46.9		19.1			Altair	62	26.4	N 8	50.1
	15	13	33.1	52	07.3		15.7	328	51.6		11.9	318	08.6		56.1	91	49.1		19.1			Ankaa	353	33.8	S42	22.0
	16	28	35.5	67	06.7		14.7	343	52.6		12.3	333	10.8		56.2	106	51.4		19.1			Antares	112	48.8	S26	24.6
	17	43	38.0	82	06.0		13.8	358	53.5		12.7	348	13.1		56.3	121	53.6		19.1							
	18	58	40.5	97	05.4	S16	12.9	13	54.5	N18	13.2	3	15.3	N18	56.3	136	55.8	S22	19.0			Arcturus	146	12.2	N19	14.0
	19	73	42.9	112	04.7		12.0	28	55.5		13.6	18	17.5		56.4	151	58.0		19.0			Atria	108	07.4	S69	00.4
	20	88	45.4	127	04.1		11.1	43	56.4		14.0	33	19.7		56.5	167	00.2		19.0			Avior	234	25.1	S59	28.5
	21	103	47.9	142	03.4		10.2	58	57.4		14.5	48	21.9		56.5	182	02.5		19.0			Bellatrix	278	51.5	N 6	20.5
	22	118	50.3	157	02.8		09.3	73	58.4		14.9	63	24.2		56.6	197	04.7		19.0			Betelgeuse	271	20.9	N 7	24.4
23	133	52.8	172	02.1		08.4	88	59.3		15.3	78	26.4		56.6	212	06.9		18.9								
19	00	148	55.3	187	01.5	S16	07.4	104	00.3	N18	15.8	93	28.6	N18	56.7	227	09.1	S22	18.9			Canopus	264	04.0	S52	41.5
	01	163	57.7	202	00.8		06.5	119	01.3		16.2	108	30.8		56.8	242	11.4		18.9			Capella	281	01.4	N45	59.6
	02	179	00.2	217	00.2		05.6	134	02.2		16.7	123	33.1		56.8	257	13.6		18.9			Deneb	49	44.5	N45	14.2
	03	194	02.7	231	59.5		04.7	149	03.2		17.1	138	35.3		56.9	272	15.8		18.9			Denebola	182	51.9	N14	37.8
	04	209	05.1	246	58.9		03.8	164	04.2		17.5	153	37.5		57.0	287	18.0		18.9			Diphda	349	14.4	S18	02.9
	05	224	07.6	261	58.2		02.9	179	05.1		18.0	168	39.7		57.0	302	20.2		18.8							
	06	239	10.0	276	57.6	S16	01.9	194	06.1	N18	18.4	183	41.9	N18	57.1	317	22.5	S22	18.8			Dubhe	194	13.0	N61	48.4
	07	254	12.5	291	57.0		01.0	209	07.0		18.8	198	44.2		57.2	332	24.7		18.8			Elnath	278	35.6	N28	36.1
	08	269	15.0	306	56.3		00.1	224	08.0		19.3	213	46.4		57.2	347	26.9		18.8			Eltanin	90	54.9	N51	29.0
	09	284	17.4	321	55.7		15	239	09.0		19.7	228	48.6		57.3	2	29.1		18.8			Enif	34	05.4	N 9	49.3
	10	299	19.9	336	55.0		58.2	254	09.9		20.1	243	50.8		57.3	17	31.4		18.8			Fomalhaut	15	44.3	S29	40.9
	11	314	22.4	351	54.4		57.3	269	10.9		20.6	258	53.0		57.4	32	33.6		18.7							
	12	329	24.8	6	53.7	S15	56.4	284	11.9	N18	21.0	273	55.2	N18	57.5	47	35.8	S22	18.7			Gacrux	172	21.2	S57	03.1
	13	344	27.3	21	53.1		55.5	299	12.8		21.4	288	57.5		57.5	62	38.0		18.7			Gienah	176	10.9	S17	29.0
	14	359	29.8	36	52.5		54.5	314	13.8		21.9	303	59.7		57.6	77	40.2		18.7			Hadar	149	14.0	S60	19.2
	15	14	32.2	51	51.8		53.6	329	14.7		22.3	319	01.9		57.7	92	42.5		18.7			Hamal	328	21.7	N23	24.8
	16	29	34.7	66	51.2		52.7	344	15.7		22.7	334	04.1		57.7	107	44.7		18.7			Kaus Aust.	84	08.3	S34	23.5
	17	44	37.1	81	50.5		51.8	359	16.7		23.2	349	06.3		57.8	122	46.9		18.6							
	18	59	39.6	96	49.9	S15	50.8	14	17.6	N18	23.6	4	08.5	N18	57.9	137	49.1	S22	18.6			Kochab	137	18.4	N74	11.5
	19	74	42.1	111	49.3		49.9	29	18.6		24.0	19	10.8		57.9	152	51.4		18.6			Markab	13	56.9	N15	08.7
	20	89	44.5	126	48.6		49.0	44	19.6		24.5	34	13.0		58.0	167	53.6		18.6			Menkar	314	34.3	N 4	02.9
	21	104	47.0	141	48.0		48.0	59	20.5		24.9	49	15.2		58.0	182	55.8		18.6			Menkent	148	29.2	S36	19.1
	22	119	49.5	156	47.4		47.1	74	21.5		25.3	64	17.4		58.1	197	58.0		18.5			Miaplacidus	221	43.0	S69	40.4
23	134	51.9	171	46.7		46.2	89	22.4		25.8	79	19.6		58.2	213	00.3		18.5								
20	00	149	54.4	186	46.1	S15	45.2	104	23.4	N18	26.2	94	21.8	N18	58.2	228	02.5	S22	18.5			Mirfak	309	06.8	N49	49.7
	01	164	56.9	201	45.5		44.3	119	24.4		26.6	109	24.1		58.3	243	04.7		18.5			Nunki	76	21.2	S26	18.8
	02	179	59.3	216	44.8		43.4	134	25.3		27.1	124	26.3		58.4	258	06.9		18.5			Peacock	53	48.3	S56	46.3
	03	195	01.8	231	44.2		42.4	149	26.3		27.5	139	28.5		58.4	273	09.2		18.5			Pollux	243	49.7	N28	03.3
	04	210	04.3	246	43.6		41.5	164	27.2		27.9	154	30.7		58.5	288	11.4		18.4			Procyon	245	18.6	N 5	15.2
	05	225	06.7	261	42.9		40.6	179	28.2		28.4	169	32.9		58.6	303	13.6		18.4							
	06</																									



T.M.G. (TU)	SOL		LUNA				Lat.	Crepúsculo		Orto Sol	Orto Luna								
	A.H.G.	Dec.	A.H.G.	v	Dec.	d		P.H.	Naut.		Civil	18	19	20	21				
												h m	h m	h m	h m				
18 00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23	176	30.1	S11	42.9	25	21.0	11.1	N23	11.7	9.0	55.3	N 72	05 57	07 16	08 31	□	13 04	15 50	17 56
	191	30.2		42.0	39	51.1	11.2	23	02.7	9.1	55.3	N 70	05 57	07 08	08 15	□	13 55	16 09	18 03
	206	30.2		41.1	54	21.3	11.3	22	53.6	9.2	55.3	68	05 57	07 02	08 01	□	11 46	14 26	16 24
	221	30.3		40.2	68	51.6	11.4	22	44.4	9.2	55.3	66	05 57	06 57	07 51	□	12 44	14 49	16 36
	236	30.3		39.3	83	22.0	11.5	22	35.2	9.4	55.3	64	05 57	06 52	07 42	□	13 18	15 07	16 46
	251	30.4		38.4	97	52.5	11.6	22	25.8	9.5	55.3	62	05 56	06 48	07 34	□	13 42	15 21	16 54
	266	30.4	S11	37.6	112	23.1	11.7	N22	16.3	9.6	55.2	60	05 56	06 44	07 27	□	14 01	15 34	17 01
	281	30.5		36.7	126	53.8	11.8	22	06.7	9.7	55.2	N 58	05 55	06 41	07 21	□	14 17	15 44	17 07
	296	30.6		35.8	141	24.6	11.8	21	57.0	9.8	55.2	56	05 55	06 38	07 16	□	14 30	15 53	17 13
	311	30.6		34.9	155	55.4	12.0	21	47.2	9.9	55.2	54	05 54	06 35	07 11	□	14 42	16 01	17 18
	326	30.7		34.0	170	26.4	12.0	21	37.3	10.0	55.2	52	05 53	06 33	07 07	□	14 52	16 08	17 22
	341	30.7		33.1	184	57.4	12.2	21	27.3	10.0	55.2	50	05 53	06 30	07 03	□	15 01	16 15	17 26
	356	30.8	S11	32.3	199	28.6	12.2	N21	17.3	10.2	55.1	45	05 51	06 25	06 55	□	15 20	16 29	17 35
	11	30.8		31.4	213	59.8	12.3	21	07.1	10.2	55.1	N 40	05 49	06 20	06 48	□	15 36	16 40	17 42
	12	30.9		30.5	228	31.1	12.4	20	56.9	10.4	55.1	35	05 46	06 16	06 42	□	15 49	16 50	17 49
	13	30.9		29.6	243	02.5	12.4	20	46.5	10.4	55.1	30	05 44	06 12	06 36	□	16 00	16 58	17 54
	14	30.9		28.7	257	33.9	12.6	20	36.1	10.5	55.1	20	05 39	06 05	06 27	□	16 19	17 13	18 03
	15	31.0		27.8	272	05.5	12.7	20	25.6	10.6	55.1	N 10	05 32	05 57	06 18	□	16 36	17 25	18 12
	16	31.1	S11	26.9	286	37.2	12.7	N20	15.0	10.7	55.0	0	05 25	05 49	06 10	□	16 52	17 37	18 19
	17	31.2		26.1	301	08.9	12.8	20	04.3	10.7	55.0	S 10	05 16	05 41	06 02	□	17 07	17 49	18 27
	18	31.2		25.2	315	40.7	12.9	19	53.6	10.9	55.0	20	05 04	05 31	05 54	□	17 24	18 01	18 35
	19	31.2		24.3	330	12.6	13.0	19	42.7	10.9	55.0	30	04 49	05 19	05 43	□	17 43	18 15	18 44
	20	31.3		23.4	344	44.6	13.1	19	31.8	11.0	55.0	35	04 40	05 11	05 38	□	17 54	18 23	18 49
21	31.4		22.5	359	16.7	13.2	19	20.8	11.1	55.0	40	04 28	05 02	05 31	□	18 06	18 33	18 55	
22	31.4		21.6	13	48.9	13.2	N19	09.7	11.1	55.0	45	04 14	04 52	05 23	□	18 21	18 43	19 02	
19	31.5	S11	21.6	28	21.1	13.3	18	58.6	11.3	54.9	S 50	03 55	04 39	05 13	□	18 39	18 56	19 10	
01	31.5		20.7	42	53.4	13.4	18	47.3	11.3	54.9	52	03 46	04 32	05 09	□	18 48	19 02	19 14	
02	31.6		19.8	57	25.8	13.5	18	36.0	11.3	54.9	54	03 36	04 25	05 04	□	18 57	19 09	19 18	
03	31.6		19.0	71	58.3	13.6	18	24.7	11.5	54.9	56	03 24	04 17	04 59	□	19 08	19 16	19 23	
04	31.7		18.1	86	30.9	13.7	18	13.2	11.5	54.9	58	03 10	04 08	04 53	□	19 20	19 25	19 28	
05	31.8		17.2	101	03.6	13.7	N18	01.7	11.6	54.9	S 60	02 52	03 58	04 46	□	19 34	19 34	19 34	
06	31.8	S11	16.3	115	36.3	13.8	17	50.1	11.7	54.8	Lat.	Ocaso Sol	Crepúsculo Civil	Naut.	Ocaso Luna	18	19	20	21
07	31.9		15.4	130	09.1	13.9	17	38.4	11.7	54.8	N 72	15 58	17 14	18 33	□	10 09	08 53	08 12	
08	31.9		14.5	144	42.0	14.0	17	26.7	11.8	54.8	N 70	16 15	17 21	18 32	□	09 17	08 32	08 02	
09	32.0		13.6	159	15.0	14.0	17	14.9	11.9	54.8	68	16 28	17 27	18 32	□	09 49	08 44	08 15	
10	32.1		12.7	173	48.0	14.1	17	03.0	11.9	54.8	66	16 38	17 33	18 32	□	08 50	08 20	08 02	
11	32.1		11.8	188	21.1	14.2	N16	51.1	12.0	54.8	64	16 47	17 37	18 33	□	08 15	08 01	07 50	
12	32.2	S11	10.9	202	54.3	14.3	16	39.1	12.1	54.8	62	16 55	17 41	18 33	□	07 50	07 45	07 41	
13	32.2		10.0	217	27.6	14.4	16	27.0	12.1	54.7	60	17 02	17 45	18 33	□	07 30	07 32	07 32	
14	32.3		09.2	232	01.0	14.4	16	14.9	12.2	54.7	N 58	17 07	17 48	18 34	□	07 14	07 21	07 25	
15	32.4		08.3	246	34.4	14.5	16	02.7	12.2	54.7	56	17 12	17 51	18 34	□	07 00	07 11	07 18	
16	32.4		07.4	261	07.9	14.5	15	50.5	12.3	54.7	54	17 17	17 53	18 35	□	06 47	07 02	07 13	
17	32.5		06.5	275	41.4	14.7	N15	38.2	12.3	54.7	52	17 21	17 56	18 35	□	06 37	06 54	07 07	
18	32.6	S11	05.6	290	15.1	14.7	15	25.9	12.5	54.7	50	17 25	17 58	18 36	□	06 27	06 47	07 02	
19	32.6		04.7	304	48.8	14.7	15	13.4	12.4	54.7	45	17 33	18 03	18 38	□	06 07	06 32	06 52	
20	32.7		03.8	319	22.5	14.9	15	01.0	12.5	54.7	N 40	17 40	18 08	18 40	□	05 50	06 19	06 43	
21	32.8		02.9	333	56.4	14.9	14	48.5	12.6	54.6	35	17 46	18 12	18 42	□	05 36	06 08	06 36	
22	32.8		02.0	348	30.3	15.0	14	35.9	12.6	54.6	30	17 52	18 16	18 44	□	05 24	05 59	06 29	
23	32.9		01.1	176	32.9	15.0	N14	23.3	12.7	54.6	20	18 01	18 23	18 49	□	05 03	05 42	06 17	
00	33.0	S11	00.2	3	04.3	15.0	14	10.6	12.7	54.6	N 10	18 09	18 31	18 55	□	04 44	05 28	06 07	
01	33.0	10	59.3	17	38.3	15.1	14	10.6	12.7	54.6	0	18 17	18 38	19 03	□	04 27	05 14	05 58	
02	33.1		58.4	32	12.4	15.2	13	57.9	12.8	54.6	S 10	18 25	18 47	19 12	□	04 10	05 00	05 48	
03	33.1		57.5	46	46.6	15.3	13	45.1	12.8	54.6	20	18 34	18 56	19 23	□	03 51	04 45	05 37	
04	33.2		56.6	61	20.9	15.3	13	32.3	12.9	54.6	30	18 44	19 08	19 38	□	03 29	04 28	05 25	
05	33.3		55.7	75	55.2	15.3	13	19.4	12.9	54.6	35	18 50	19 16	19 47	□	03 16	04 18	05 18	
06	33.3	S10	54.8	90	29.5	15.4	N13	06.5	13.0	54.5	40	18 56	19 24	19 58	□	03 02	04 07	05 10	
07	33.4		53.9	105	03.9	15.5	12	53.5	13.0	54.5	45	19 04	19 35	20 13	□	02 44	03 53	05 01	
08	33.5		53.0	119	38.4	15.6	12	40.5	13.0	54.5	S 50	19 13	19 48	20 31	□	02 22	03 37	04 50	
09	33.6		52.1	134	13.0	15.6	12	27.5	13.1	54.5	52	19 18	19 54	20 40	□	02 11	03 29	04 44	
10	33.6		51.2	148	47.6	15.6	12	14.4	13.2	54.5	54	19 22	20 01	20 50	□	01 59	03 20	04 38	
11	33.7		50.3	163	22.2	15.8	12	01.2	13.1	54.5	56	19 28	20 09	21 02	□	01 46	03 10	04 32	
12	33.8	S10	49.4	177	57.0	15.7	N11	48.1	13.2	54.5	58	19 34	20 17	21 15	□	01 30	02 59	04 24	
13	33.8		48.5	192	31.7	15.9	11	34.9	13.3	54.5	S 60	19 40	20 28	21 32	□	01 10	02 46	04 16	
14	33.9		47.6	207	06.6	15.8	11	21.6	13.3	54.4	Día	SOL E.T. (-)	Pas. Mer.	Pas. Mer.	Mer. Sup.	Mer. Inf.	Edad.	Fase	
15	34.0		46.7	221	41.4	16.0	11	08.3	13.3	54.4	18	00 h	12 h	h m	h m	h m	d		
16	34.0		45.8	236	16.4	16.0	10	55.0	13.4	54.4	19	m s	m s	h m	h m	h m		○	
17	34.1		44.9	250	51.4	16.0	10	41.6	13.4	54.4	20	14 00	13 57	12 14	23 03	10 40	12		
18	34.2	S10	44.0	265	26.4	16.1	N10	28.2	13.4	54.4	19	13 54	13 51	12 14	23 47	11 26	13		
19	34.3		43.1	280	01.5	16.1	10	14.8	13.4	54.4	18	13 48	13 45	12 14	24 29	12 08	14		
20	34.3		42.2	294	36.6	16.2	10	01.4	13.5	54.4									
21	34.4		41.3	309	11.8														



T.M.G. (TU)	ARIES		VENUS -3.9		MARTE +0.9		JUPITER -2.3		SATURNO +0.6		ESTRELLAS		
	A.H.G.	A.H.G. Dec.	A.H.G. Dec.	A.H.G. Dec.	A.H.G. Dec.	A.H.G. Dec.	A.H.G. Dec.	A.H.G. Dec.	Nombre	A. H. S.	Dec.		
M A R T E S	21 00	150 53.5	186 31.0 S15 22.6	104 46.4 N18 36.5	95 14.9 N18 59.8	228 55.9 S22 18.1	Acamar	315 32.2 S40 21.0					
	01	165 56.0	201 30.4 21.6	119 47.3 36.9	110 17.1 59.9	243 58.1 18.1	Achernar	335 40.4 S57 17.7					
	02	180 58.5	216 29.8 20.7	134 48.3 37.4	125 19.3 18 59.9	259 00.3 18.1	Acrux	173 29.7 S63 02.3					
	03	196 00.9	231 29.1 .. 19.7	149 49.2 .. 37.8	140 21.5 19 00.0	274 02.6 .. 18.0	Adhara	255 26.7 S28 57.5					
	04	211 03.4	246 28.5 18.8	164 50.2 38.2	155 23.7 00.1	289 04.8 18.0	Aldebaran	291 10.4 N16 29.4					
	05	226 05.9	261 27.9 17.8	179 51.1 38.7	170 25.9 00.1	304 07.0 18.0							
	06	241 08.3	276 27.3 S15 16.9	194 52.1 N18 39.1	185 28.1 N19 00.2	319 09.3 S22 18.0	Alioth	166 35.9 N56 00.8					
	07	256 10.8	291 26.7 15.9	209 53.1 39.5	200 30.3 00.3	334 11.5 18.0	Alkaid	153 12.8 N49 21.6					
	08	271 13.3	306 26.0 14.9	224 54.0 39.9	215 32.5 00.3	349 13.7 18.0	Al Na'ir	28 06.9 S47 00.9					
	09	286 15.7	321 25.4 .. 14.0	239 55.0 .. 40.4	230 34.7 .. 00.4	4 15.9 .. 17.9	Anilam	276 04.8 S 1 12.5					
	10	301 18.2	336 24.8 13.0	254 55.9 40.8	245 36.9 00.5	19 18.2 17.9	Alphard	218 13.8 S 8 36.8					
	11	316 20.6	351 24.2 12.1	269 56.9 41.2	260 39.1 00.5	34 20.4 17.9							
	12	331 23.1	6 23.6 S15 11.1	284 57.8 N18 41.6	275 41.3 N19 00.6	49 22.6 S22 17.9	Alphecca	126 26.4 N26 44.6					
	13	346 25.6	21 23.0 10.1	299 58.8 42.1	290 43.5 00.7	64 24.9 17.9	Alpheratz	358 02.9 N29 01.9					
	14	1 28.0	36 22.3 09.2	314 59.7 42.5	305 45.7 00.7	79 27.1 17.9	Altair	62 26.4 N 8 50.1					
	15	16 30.5	51 21.7 .. 08.2	330 00.7 .. 42.9	320 48.0 .. 00.8	94 29.3 .. 17.8	Ankaa	353 33.9 S42 22.0					
	16	31 33.0	66 21.1 07.3	345 01.6 43.3	335 50.2 00.9	109 31.5 17.8	Antares	112 48.8 S26 24.6					
	17	46 35.4	81 20.5 06.3	0 02.6 43.8	350 52.4 00.9	124 33.8 17.8							
	18	61 37.9	96 19.9 S15 05.3	15 03.5 N18 44.2	5 54.6 N19 01.0	139 36.0 S22 17.8	Arcturus	146 12.2 N19 14.0					
	19	76 40.4	111 19.3 04.4	30 04.5 44.6	20 56.8 01.1	154 38.2 17.8	Atria	108 07.4 S69 00.4					
	20	91 42.8	126 18.7 03.4	45 05.4 45.0	35 59.0 01.1	169 40.5 17.8	Avior	234 25.1 S59 28.6					
	21	106 45.3	141 18.1 .. 02.4	60 06.4 .. 45.5	51 01.2 .. 01.2	184 42.7 .. 17.7	Bellatrix	278 51.5 N 6 20.5					
	22	121 47.7	156 17.4 01.5	75 07.3 45.9	66 03.4 01.3	199 44.9 17.7	Betelgeuse	271 21.0 N 7 24.4					
23	136 50.2	171 16.8 15 00.5	90 08.3 46.3	81 05.6 01.3	214 47.1 17.7								
M I E R C O L E S	22 00	151 52.7	186 16.2 S14 59.5	105 09.2 N18 46.7	96 07.8 N19 01.4	229 49.4 S22 17.7	Canopus	264 04.0 S52 41.5					
	01	166 55.1	201 15.6 58.5	120 10.2 47.2	111 10.0 01.5	244 51.6 17.7	Capella	281 01.4 N45 59.6					
	02	181 57.6	216 15.0 57.6	135 11.1 47.6	126 12.2 01.5	259 53.8 17.7	Deneb	49 44.5 N45 14.2					
	03	197 00.1	231 14.4 .. 56.6	150 12.1 .. 48.0	141 14.4 .. 01.6	274 56.1 .. 17.6	Denebola	182 51.9 N14 37.8					
	04	212 02.5	246 13.8 55.6	165 13.0 48.4	156 16.6 01.7	289 58.3 17.6	Diphda	349 14.4 S18 02.9					
	05	227 05.0	261 13.2 54.7	180 14.0 48.8	171 18.8 01.8	305 00.5 17.6							
	06	242 07.5	276 12.6 S14 53.7	195 14.9 N18 49.3	186 20.9 N19 01.8	320 02.8 S22 17.6	Dubhe	194 13.0 N61 48.4					
	07	257 09.9	291 12.0 52.7	210 15.9 49.7	201 23.1 01.9	335 05.0 17.6	Elnath	278 35.7 N28 36.1					
	08	272 12.4	306 11.4 51.7	225 16.8 50.1	216 25.3 02.0	350 07.2 17.5	Eltanin	90 54.9 N51 29.0					
	09	287 14.9	321 10.7 .. 50.8	240 17.8 .. 50.5	231 27.5 .. 02.0	5 09.5 .. 17.5	Enif	34 05.4 N 9 49.3					
	10	302 17.3	336 10.1 49.8	255 18.7 50.9	246 29.7 02.1	20 11.7 17.5	Fomalhaut	15 44.3 S29 40.9					
	11	317 19.8	351 09.5 48.8	270 19.7 51.4	261 31.9 02.2	35 13.9 17.5							
	12	332 22.2	6 08.9 S14 47.8	285 20.6 N18 51.8	276 34.1 N19 02.2	50 16.1 S22 17.5	Gacrux	172 21.2 S57 03.1					
	13	347 24.7	21 08.3 46.8	300 21.6 52.2	291 36.3 02.3	65 18.4 17.5	Giennah	176 10.9 S17 29.0					
	14	2 27.2	36 07.7 45.9	315 22.5 52.6	306 38.5 02.4	80 20.6 17.4	Hadar	149 13.9 S60 19.2					
	15	17 29.6	51 07.1 .. 44.9	330 23.5 .. 53.1	321 40.7 .. 02.4	95 22.8 .. 17.4	Hamal	328 21.7 N23 24.8					
	16	32 32.1	66 06.5 43.9	345 24.4 53.5	336 42.9 02.5	110 25.1 17.4	Kaus Aust.	84 08.3 S34 23.5					
	17	47 34.6	81 05.9 42.9	0 25.4 53.9	351 45.1 02.6	125 27.3 17.4							
	18	62 37.0	96 05.3 S14 41.9	15 26.3 N18 54.3	6 47.3 N19 02.6	140 29.5 S22 17.4	Kochab	137 18.3 N74 11.5					
	19	77 39.5	111 04.7 41.0	30 27.3 54.7	21 49.5 02.7	155 31.8 17.4	Markab	13 56.9 N15 08.7					
	20	92 42.0	126 04.1 40.0	45 28.2 55.2	36 51.7 02.8	170 34.0 17.3	Menkar	314 34.3 N 4 02.9					
	21	107 44.4	141 03.5 .. 39.0	60 29.2 .. 55.6	51 53.9 .. 02.8	185 36.2 .. 17.3	Menkent	148 29.1 S36 19.1					
	22	122 46.9	156 02.9 38.0	75 30.1 56.0	66 56.1 02.9	200 38.5 17.3	Miaplacidus	221 43.1 S69 40.4					
23	137 49.4	171 02.3 37.0	90 31.0 56.4	81 58.3 03.0	215 40.7 17.3								
J U E V E S	23 00	152 51.8	186 01.7 S14 36.0	105 32.0 N18 56.8	97 00.5 N19 03.0	230 42.9 S22 17.3	Mirfak	309 06.9 N49 49.7					
	01	167 54.3	201 01.1 35.0	120 32.9 57.2	112 02.7 03.1	245 45.2 17.3	Nunki	76 21.2 S26 18.8					
	02	182 56.7	216 00.5 34.1	135 33.9 57.7	127 04.8 03.2	260 47.4 17.2	Peacock	53 48.3 S56 46.3					
	03	197 59.2	230 59.9 .. 33.1	150 34.8 .. 58.1	142 07.0 .. 03.3	275 49.6 .. 17.2	Pollux	243 49.7 N28 03.3					
	04	213 01.7	245 59.3 32.1	165 35.8 58.5	157 09.2 03.3	290 51.9 17.2	Procyon	245 18.6 N 5 15.2					
	05	228 04.1	260 58.7 31.1	180 36.7 58.9	172 11.4 03.4	305 54.1 17.2							
	06	243 06.6	275 58.1 S14 30.1	195 37.7 N18 59.3	187 13.6 N19 03.5	320 56.3 S22 17.2	Rasalhague	96 23.6 N12 33.7					
	07	258 09.1	290 57.5 29.1	210 38.6 18 59.8	202 15.8 03.5	335 58.6 17.2	Regulus	208 02.6 N12 01.1					
	08	273 11.5	305 56.9 28.1	225 39.5 19 00.2	217 18.0 03.6	351 00.8 17.1	Rigel	281 29.5 S 8 12.8					
	09	288 14.0	320 56.3 .. 27.1	240 40.5 .. 00.6	232 20.2 .. 03.7	6 03.0 .. 17.1	Rigil Kent.	140 16.8 S60 47.3					
	10	303 16.5	335 55.7 26.1	255 41.4 01.0	247 22.4 03.7	21 05.3 17.1	Sabik	102 33.6 S15 42.9					
	11	318 18.9	350 55.2 25.1	270 42.4 01.4	262 24.6 03.8	36 07.5 17.1							
	12	333 21.4	5 54.6 S14 24.1	285 43.3 N19 01.8	277 26.7 N19 03.9	51 09.7 S22 17.1	Schedar	350 02.2 N56 28.9					
	13	348 23.8	20 54.0 23.1	300 44.3 02.3	292 28.9 03.9	66 12.0 17.0	Shaula	96 46.9 S37 05.9					
	14	3 26.3	35 53.4 22.1	315 45.2 02.7	307 31.1 04.0	81 14.2 17.0	Sirius	258 49.6 S16 42.1					
	15	18 28.8	50 52.8 .. 21.1	330 46.1 .. 03.1	322 33.3 .. 04.1	96 16.4 .. 17.0	Spica	158 50.4 S11 06.5					
	16	33 31.2	65 52.2 20.1	345 47.1 03.5	337 35.5 04.1	111 18.7 17.0	Suhail	223 05.6 S43 23.4					
	17	48 33.7	80 51.6 19.1	0 48.0 03.9	352 37.7 04.2	126 20.9 17.0							
	18	63 36.2	95 51.0 S14 18.1	15 49.0 N19 04.3	7 39.9 N19 04.3	141 23.1 S22 17.0	Vega	80 51.6 N38 46.0					
	19	78 38.6	110 50.4 17.1	30 49.9 04.8	22 42.1 04.4	156 25.4 16.9	Zuben'ubi	137 25.6 S16 00.0					
	20	93 41.1	125 49.8 16.1	45 50.9 05.2	37 44.3 04.4	171 27.6 16.9							
	21	108 43.6	140 49.2 .. 15.1	60 51.8 .. 05.6	52 46.4 .. 04.5	186 29.9 .. 16.9							
	22	123 46.0	155 48.7 14.1	75 52.7 06.0	67 48.6 04.6	201 32.1 16.9	Venus	34 23.5 h 11 35 m					
23	138 48.5	170 48.1 13.1	90 53.7 06.4	82 50.8 04.6	216 34.3 16.9	Marte	313 16.6 16 58						
						Júpiter	304 15.1 17 33						
						Saturno	77 56.7 8 39						
Pas. Mer. 13 50.2		v -0.6 d 1.0	v 0.9 d 0.4	v 2.2 d 0.1	v 2.2 d 0.0								



T.M.G. (TU)	SOL		LUNA				Lat.	Crepúsculo		Orto Sol	Orto Luna					
	A.H.G.	Dec.	A.H.G.	v	Dec.	d		P.H.	Náut.		Civil	21	22	23	24	
												h m	h m	h m	h m	h m
MARTES	00	176 34.6	S10 38.6	352 57.7	16.3	N 9 07.2	13.6	54.3	N 72	05 44	07 02	08 14	17 56	19 53	21 51	24 02
	01	191 34.7	37.7	7 33.0	16.5	8 53.6	13.7	54.3	N 70	05 45	06 56	08 00	18 03	19 51	21 40	23 37
	02	206 34.8	36.8	22 08.5	16.4	8 39.9	13.6	54.3	68	05 46	06 51	07 49	18 09	19 50	21 31	23 18
	03	221 34.8	35.9	36 43.9	16.5	8 26.3	13.7	54.3	66	05 47	06 46	07 40	18 14	19 49	21 24	23 03
	04	236 34.9	35.0	51 19.4	16.5	8 12.6	13.7	54.3	64	05 48	06 42	07 32	18 18	19 48	21 17	22 50
	05	251 35.0	34.1	65 54.9	16.6	7 58.9	13.8	54.3	62	05 48	06 39	07 25	18 22	19 47	21 12	22 40
	06	266 35.1	S10 33.2	80 30.5	16.6	N 7 45.1	13.7	54.3	60	05 48	06 36	07 19	18 25	19 46	21 08	22 31
	07	281 35.1	32.3	95 06.1	16.7	7 31.4	13.8	54.3	N 58	05 48	06 34	07 14	18 27	19 46	21 04	22 23
	08	296 35.2	31.4	109 41.8	16.7	7 17.6	13.8	54.3	56	05 48	06 31	07 09	18 30	19 45	21 00	22 17
	09	311 35.3	30.5	124 17.5	16.7	7 03.8	13.9	54.3	54	05 48	06 29	07 05	18 32	19 45	20 57	22 11
	10	326 35.4	29.6	138 53.2	16.8	6 49.9	13.8	54.3	52	05 48	06 27	07 01	18 34	19 44	20 54	22 05
	11	341 35.4	28.7	153 29.0	16.8	6 36.1	13.9	54.2	50	05 47	06 25	06 58	18 36	19 44	20 51	22 00
	12	356 35.5	S10 27.8	168 04.8	16.8	N 6 22.2	13.9	54.2	45	05 46	06 20	06 50	18 40	19 43	20 46	21 50
	13	11 35.6	26.9	182 40.6	16.9	6 08.3	13.9	54.2	N 40	05 45	06 16	06 44	18 43	19 42	20 41	21 41
	14	26 35.7	26.0	197 16.5	16.9	5 54.4	13.9	54.2	35	05 43	06 13	06 38	18 45	19 41	20 37	21 34
	15	41 35.7	25.1	211 52.4	16.9	5 40.5	13.9	54.2	30	05 41	06 09	06 33	18 48	19 41	20 34	21 27
	16	56 35.8	24.1	226 28.3	16.9	5 26.6	14.0	54.2	20	05 37	06 03	06 25	18 52	19 40	20 28	21 16
	17	71 35.9	23.2	241 04.2	17.0	5 12.6	13.9	54.2	N 10	05 31	05 56	06 17	18 56	19 39	20 22	21 06
	18	86 36.0	S10 22.3	255 40.2	17.0	N 4 58.7	14.0	54.2	0	05 25	05 49	06 10	18 59	19 38	20 17	20 57
	19	101 36.0	21.4	270 16.2	17.1	4 44.7	14.0	54.2	S 10	05 17	05 41	06 03	19 03	19 38	20 12	20 48
	20	116 36.1	20.5	284 52.3	17.0	4 30.7	14.0	54.2	20	05 06	05 32	05 55	19 06	19 37	20 07	20 39
	21	131 36.2	19.6	299 28.3	17.1	4 16.7	14.0	54.2	30	04 52	05 21	05 46	19 11	19 36	20 01	20 28
	22	146 36.3	18.7	314 04.4	17.1	4 02.7	14.0	54.2	35	04 43	05 14	05 40	19 13	19 35	19 58	20 22
23	161 36.4	17.8	328 40.5	17.1	3 48.7	14.1	54.2	40	04 32	05 06	05 34	19 16	19 35	19 54	20 15	
22	00	176 36.4	S10 16.9	343 16.6	17.2	N 3 34.6	14.0	54.1	45	04 19	04 56	05 27	19 19	19 34	19 50	20 07
01	191 36.5	16.0	357 52.8	17.1	3 20.6	14.1	54.1	S 50	04 02	04 44	05 19	19 22	19 34	19 45	19 57	
02	206 36.6	15.1	12 28.9	17.2	3 06.5	14.0	54.1	52	03 53	04 38	05 15	19 24	19 33	19 42	19 53	
03	221 36.7	14.1	27 05.1	17.2	2 52.5	14.1	54.1	54	03 44	04 32	05 10	19 26	19 33	19 40	19 48	
04	236 36.8	13.2	41 41.3	17.3	2 38.4	14.0	54.1	56	03 33	04 25	05 05	19 28	19 32	19 37	19 42	
05	251 36.8	12.3	56 17.6	17.2	2 24.4	14.1	54.1	58	03 20	04 16	05 00	19 30	19 32	19 34	19 36	
06	266 36.9	S10 11.4	70 53.8	17.3	N 2 10.3	14.1	54.1	S 60	03 04	04 07	04 54	19 33	19 32	19 30	19 30	
07	281 37.0	10.5	85 30.1	17.2	1 56.2	14.1	54.1	Lat.	Ocaso Sol	Crepúsculo		Ocaso Luna				
08	296 37.1	09.6	100 06.3	17.3	1 42.1	14.1	54.1	Civil	Náut.	21	22	23	24			
09	311 37.2	08.7	114 42.6	17.3	1 28.0	14.0	54.1	h m	h m	h m	h m	h m	h m	h m	h m	
10	326 37.2	07.8	129 18.9	17.3	1 14.0	14.1	54.1	N 72	16 14	17 27	18 46	08 12	07 40	07 09	06 34	
11	341 37.3	06.9	143 55.2	17.3	0 59.9	14.1	54.1	N 70	16 28	17 33	18 44	08 02	07 38	07 14	06 48	
12	356 37.4	S10 05.9	158 31.5	17.3	N 0 45.8	14.1	54.1	68	16 40	17 38	18 43	07 54	07 36	07 18	06 59	
13	11 37.5	05.0	173 07.8	17.4	0 31.7	14.1	54.1	66	16 49	17 42	18 42	07 47	07 34	07 22	07 08	
14	26 37.6	04.1	187 44.2	17.3	0 17.6	14.0	54.1	64	16 57	17 46	18 41	07 41	07 33	07 25	07 16	
15	41 37.7	03.2	202 20.5	17.3	N 0 03.6	14.1	54.1	62	17 03	17 49	18 41	07 36	07 32	07 27	07 23	
16	56 37.7	02.3	216 56.8	17.4	S 0 10.5	14.1	54.1	60	17 09	17 52	18 40	07 32	07 31	07 30	07 29	
17	71 37.8	01.4	231 33.2	17.3	0 24.6	14.1	54.1	N 58	17 14	17 55	18 40	07 28	07 30	07 32	07 34	
18	86 37.9	S10 00.5	246 09.5	17.4	S 0 38.7	14.0	54.1	56	17 19	17 57	18 40	07 24	07 29	07 33	07 38	
19	101 38.0	9 59.5	260 45.9	17.3	0 52.7	14.1	54.1	54	17 23	17 59	18 40	07 21	07 28	07 35	07 42	
20	116 38.1	58.6	275 22.2	17.4	1 06.8	14.0	54.0	52	17 27	18 01	18 40	07 18	07 28	07 37	07 46	
21	131 38.2	57.7	289 58.6	17.4	1 20.8	14.1	54.0	50	17 30	18 03	18 41	07 15	07 27	07 38	07 50	
22	146 38.2	56.8	304 35.0	17.3	1 34.9	14.0	54.0	45	17 38	18 07	18 42	07 10	07 26	07 41	07 57	
23	161 38.3	55.9	319 11.3	17.4	1 48.9	14.1	54.0	N 40	17 44	18 11	18 43	07 05	07 24	07 44	08 03	
23	00	176 38.4	S 9 55.0	333 47.7	17.3	S 2 03.0	14.0	54.0	35	17 49	18 15	18 44	07 00	07 23	07 46	08 09
01	191 38.5	54.1	348 24.0	17.4	2 17.0	14.0	54.0	30	17 54	18 18	18 46	06 57	07 22	07 48	08 14	
02	206 38.6	53.1	3 00.4	17.3	2 31.0	14.0	54.0	20	18 02	18 25	18 50	06 50	07 21	07 51	08 22	
03	221 38.7	52.2	17 36.7	17.3	2 45.0	14.0	54.0	N 10	18 10	18 31	18 56	06 44	07 19	07 54	08 29	
04	236 38.8	51.3	32 13.0	17.4	2 59.0	13.9	54.0	0	18 17	18 38	19 02	06 39	07 18	07 57	08 36	
05	251 38.8	50.4	46 49.4	17.3	3 12.9	14.0	54.0	S 10	18 24	18 45	19 10	06 33	07 17	08 00	08 43	
06	266 38.9	S 9 49.5	61 25.7	17.3	S 3 26.9	13.9	54.0	20	18 32	18 54	19 21	06 27	07 15	08 03	08 51	
07	281 39.0	48.6	76 02.0	17.3	3 40.8	14.0	54.0	30	18 41	19 05	19 34	06 20	07 14	08 06	08 59	
08	296 39.1	47.6	90 38.3	17.3	3 54.8	13.9	54.0	35	18 46	19 12	19 43	06 16	07 13	08 08	09 04	
09	311 39.2	46.7	105 14.6	17.3	4 08.7	13.9	54.0	40	18 52	19 20	19 54	06 12	07 11	08 11	09 10	
10	326 39.3	45.8	119 50.9	17.2	4 22.6	13.9	54.0	45	18 59	19 30	20 07	06 06	07 10	08 13	09 17	
11	341 39.4	44.9	134 27.1	17.3	4 36.5	13.8	54.0	S 50	19 07	19 42	20 24	06 00	07 09	08 16	09 24	
12	356 39.5	S 9 44.0	149 03.4	17.2	S 4 50.3	13.9	54.0	52	19 11	19 47	20 32	05 57	07 08	08 18	09 28	
13	11 39.6	43.0	163 39.6	17.2	5 04.2	13.8	54.0	54	19 16	19 53	20 41	05 54	07 07	08 19	09 32	
14	26 39.6	42.1	178 15.8	17.2	5 18.0	13.8	54.0	56	19 20	20 01	20 52	05 50	07 06	08 21	09 37	
15	41 39.7	41.2	192 52.0	17.2	5 31.8	13.8	54.0	58	19 26	20 09	21 05	05 46	07 05	08 23	09 42	
16	56 39.8	40.3	207 28.2	17.2	5 45.6	13.8	54.0	S 60	19 32	20 18	21 20	05 42	07 04	08 25	09 47	
17	71 39.9	39.4	222 04.4	17.1	5 59.4	13.7	54.0	Día	SOL E.T. (-)		LUNA					
18	86 40.0	S 9 38.4	236 40.5	17.1	S 6 13.1	13.7	54.0	00 h	12 h	Pas. Mer.	Pas. Mer. Sup.	Mer. Inf.	Edad.	Fase		



T.M.G. (TU)	ARIES	VENUS -3.9	MARTE +0.9	JUPITER -2.3	SATURNO +0.6	ESTRELLAS		
d h	A.H.G.	A.H.G. Dec.	A.H.G. Dec.	A.H.G. Dec.	A.H.G. Dec.	A.H.G. Dec.	Nombre	A. H. S. Dec.
24 00	153 51.0	185 47.5 S14 12.1	105 54.6 N19 06.8	97 53.0 N19 04.7	231 36.6 S22 16.9		Acamar	315 32.2 S40 21.0
01	168 53.4	200 46.9 11.1	120 55.6 07.2	112 55.2 04.8	246 38.8 16.8		Achernar	335 40.4 S57 17.7
02	183 55.9	215 46.3 10.1	135 56.5 07.7	127 57.4 04.8	261 41.0 16.8		Acruz	173 29.6 S63 02.3
03	198 58.3	230 45.7 09.1	150 57.4 08.1	142 59.6 04.9	276 43.3 16.8		Adhara	255 26.7 S28 57.5
04	214 00.8	245 45.1 08.1	165 58.4 08.5	158 01.7 05.0	291 45.5 16.8		Aldebaran	291 10.4 N16 29.4
05	229 03.3	260 44.6 07.1	180 59.3 08.9	173 03.9 05.1	306 47.7 16.8			
06	244 05.7	275 44.0 S14 06.1	196 00.3 N19 09.3	188 06.1 N19 05.1	321 50.0 S22 16.8		Alioth	166 35.9 N56 00.8
07	259 08.2	290 43.4 05.1	211 01.2 09.7	203 08.3 05.2	336 52.2 16.7		Alkaid	153 12.7 N49 21.6
08	274 10.7	305 42.8 04.1	226 02.1 10.1	218 10.5 05.3	351 54.5 16.7		Al Na'ir	28 06.9 S47 00.9
09	289 13.1	320 42.2 03.1	241 03.1 10.5	233 12.7 05.3	6 56.7 16.7		Alnilam	276 04.8 S 1 12.5
10	304 15.6	335 41.6 02.1	256 04.0 11.0	248 14.8 05.4	21 58.9 16.7		Alphard	218 13.8 S 8 36.8
11	319 18.1	350 41.1 01.1	271 05.0 11.4	263 17.0 05.5	37 01.2 16.7			
12	334 20.5	5 40.5 S14 00.0	286 05.9 N19 11.8	278 19.2 N19 05.6	52 03.4 S22 16.7		Alphecca	126 26.4 N26 44.6
13	349 23.0	20 39.9 13 59.0	301 06.8 12.2	293 21.4 05.6	67 05.6 16.6		Alpheratz	358 02.9 N29 01.9
14	4 25.5	35 39.3 58.0	316 07.8 12.6	308 23.6 05.7	82 07.9 16.6		Altair	62 26.3 N 8 50.1
15	19 27.9	50 38.7 57.0	331 08.7 13.0	323 25.7 05.8	97 10.1 16.6		Ankaa	353 33.9 S42 22.0
16	34 30.4	65 38.2 56.0	346 09.6 13.4	338 27.9 05.8	112 12.3 16.6		Antares	112 48.8 S26 24.6
17	49 32.8	80 37.6 55.0	1 10.6 13.8	353 30.1 05.9	127 14.6 16.6			
18	64 35.3	95 37.0 S13 54.0	16 11.5 N19 14.2	8 32.3 N19 06.0	142 16.8 S22 16.6		Arcturus	146 12.2 N19 14.0
19	79 37.8	110 36.4 53.0	31 12.5 14.7	23 34.5 06.0	157 19.1 16.5		Atria	108 07.3 S69 00.4
20	94 40.2	125 35.8 51.9	46 13.4 15.1	38 36.6 06.1	172 21.3 16.5		Avior	234 25.1 S59 28.6
21	109 42.7	140 35.3 50.9	61 14.3 15.5	53 38.8 06.2	187 23.5 16.5		Bellatrix	278 51.6 N 6 20.5
22	124 45.2	155 34.7 49.9	76 15.3 15.9	68 41.0 06.3	202 25.8 16.5		Betelgeuse	271 21.0 N 7 24.4
23	139 47.6	170 34.1 48.9	91 16.2 16.3	83 43.2 06.3	217 28.0 16.5			
25 00	154 50.1	185 33.5 S13 47.9	106 17.1 N19 16.7	98 45.4 N19 06.4	232 30.3 S22 16.5		Canopus	264 04.0 S52 41.5
01	169 52.6	200 33.0 46.8	121 18.1 17.1	113 47.5 06.5	247 32.5 16.4		Capella	281 01.4 N45 59.6
02	184 55.0	215 32.4 45.8	136 19.0 17.5	128 49.7 06.5	262 34.7 16.4		Deneb	49 44.5 N45 14.2
03	199 57.5	230 31.8 44.8	151 19.9 17.9	143 51.9 06.6	277 37.0 16.4		Denebola	182 51.9 N14 37.8
04	215 00.0	245 31.2 43.8	166 20.9 18.3	158 54.1 06.7	292 39.2 16.4		Diphda	349 14.4 S18 02.9
05	230 02.4	260 30.7 42.8	181 21.8 18.8	173 56.3 06.8	307 41.5 16.4			
06	245 04.9	275 30.1 S13 41.7	196 22.8 N19 19.2	188 58.4 N19 06.8	322 43.7 S22 16.3		Dubhe	194 12.9 N61 48.4
07	260 07.3	290 29.5 40.7	211 23.7 19.6	204 00.6 06.9	337 45.9 16.3		Elnath	278 35.7 N28 36.1
08	275 09.8	305 28.9 39.7	226 24.6 20.0	219 02.8 07.0	352 48.2 16.3		Eltanin	90 54.8 N51 28.9
09	290 12.3	320 28.4 38.7	241 25.6 20.4	234 05.0 07.0	7 50.4 16.3		Enif	34 05.4 N 9 49.3
10	305 14.7	335 27.8 37.6	256 26.5 20.8	249 07.1 07.1	22 52.7 16.3		Fomalhaut	15 44.3 S29 40.9
11	320 17.2	350 27.2 36.6	271 27.4 21.2	264 09.3 07.2	37 54.9 16.3			
12	335 19.7	5 26.7 S13 35.6	286 28.4 N19 21.6	279 11.5 N19 07.3	52 57.1 S22 16.2		Gacrux	172 21.2 S57 03.1
13	350 22.1	20 26.1 34.6	301 29.3 22.0	294 13.7 07.3	67 59.4 16.2		Gienah	176 10.9 S17 29.0
14	5 24.6	35 25.5 33.5	316 30.2 22.4	309 15.8 07.4	83 01.6 16.2		Hadar	149 13.9 S60 19.2
15	20 27.1	50 25.0 32.5	331 31.2 22.8	324 18.0 07.5	98 03.9 16.2		Hamal	328 21.7 N23 24.8
16	35 29.5	65 24.4 31.5	346 32.1 23.2	339 20.2 07.5	113 06.1 16.2		Kaus Aust.	84 08.2 S34 23.5
17	50 32.0	80 23.8 30.4	1 33.0 23.6	354 22.4 07.6	128 08.3 16.2			
18	65 34.4	95 23.3 S13 29.4	16 34.0 N19 24.0	9 24.5 N19 07.7	143 10.6 S22 16.1		Kochab	137 18.3 N74 11.5
19	80 36.9	110 22.7 28.4	31 34.9 24.4	24 26.7 07.8	158 12.8 16.1		Markab	13 56.9 N15 08.7
20	95 39.4	125 22.1 27.3	46 35.8 24.9	39 28.9 07.8	173 15.1 16.1		Menkar	314 34.3 N 4 02.9
21	110 41.8	140 21.6 26.3	61 36.8 25.3	54 31.0 07.9	188 17.3 16.1		Menkent	148 29.1 S36 19.1
22	125 44.3	155 21.0 25.3	76 37.7 25.7	69 33.2 08.0	203 19.5 16.1		Miaplacidus	221 43.1 S69 40.4
23	140 46.8	170 20.4 24.2	91 38.6 26.1	84 35.4 08.0	218 21.8 16.1			
26 00	155 49.2	185 19.9 S13 23.2	106 39.5 N19 26.5	99 37.6 N19 08.1	233 24.0 S22 16.0		Mirfak	309 06.9 N49 49.7
01	170 51.7	200 19.3 22.2	121 40.5 26.9	114 39.7 08.2	248 26.3 16.0		Nunki	76 21.2 S26 18.8
02	185 54.2	215 18.7 21.1	136 41.4 27.3	129 41.9 08.3	263 28.5 16.0		Peacock	53 48.3 S56 46.3
03	200 56.6	230 18.2 20.1	151 42.3 27.7	144 44.1 08.3	278 30.8 16.0		Pollux	243 49.7 N28 03.3
04	215 59.1	245 17.6 19.1	166 43.3 28.1	159 46.2 08.4	293 33.0 16.0		Procyon	245 18.6 N 5 15.2
05	231 01.6	260 17.0 18.0	181 44.2 28.5	174 48.4 08.5	308 35.2 16.0			
06	246 04.0	275 16.5 S13 17.0	196 45.1 N19 28.9	189 50.6 N19 08.6	323 37.5 S22 15.9		Rasalhague	96 23.5 N12 33.7
07	261 06.5	290 15.9 16.0	211 46.1 29.3	204 52.8 08.6	338 39.7 15.9		Regulus	208 02.6 N12 01.1
08	276 08.9	305 15.4 14.9	226 47.0 29.7	219 54.9 08.7	353 42.0 15.9		Rigel	281 29.6 S 8 12.8
09	291 11.4	320 14.8 13.9	241 47.9 30.1	234 57.1 08.8	8 44.2 15.9		Rigel Kent.	140 16.7 S60 47.3
10	306 13.9	335 14.2 12.8	256 48.8 30.5	249 59.3 08.8	23 46.5 15.9		Sabik	102 33.6 S15 42.9
11	321 16.3	350 13.7 11.8	271 49.8 30.9	265 01.4 08.9	38 48.7 15.9			
12	336 18.8	5 13.1 S13 10.7	286 50.7 N19 31.3	280 03.6 N19 09.0	53 50.9 S22 15.8		Schedar	350 02.2 N56 28.8
13	351 21.3	20 12.6 09.7	301 51.6 31.7	295 05.8 09.1	68 53.2 15.8		Shaula	96 46.9 S37 05.9
14	6 23.7	35 12.0 08.7	316 52.6 32.1	310 07.9 09.1	83 55.4 15.8		Sirius	258 49.7 S16 42.1
15	21 26.2	50 11.4 07.6	331 53.5 32.5	325 10.1 09.2	98 57.7 15.8		Spica	158 50.4 S11 06.5
16	36 28.7	65 10.9 06.6	346 54.4 32.9	340 12.3 09.3	113 59.9 15.8		Suhail	223 05.6 S43 23.4
17	51 31.1	80 10.3 05.5	1 55.3 33.3	355 14.4 09.4	129 02.2 15.8			
18	66 33.6	95 09.8 S13 04.5	16 56.3 N19 33.7	10 16.6 N19 09.4	144 04.4 S22 15.7		Vega	80 51.6 N38 46.0
19	81 36.1	110 09.2 03.4	31 57.2 34.1	25 18.8 09.5	159 06.6 15.7		Zuben'ubi	137 25.6 S16 00.0
20	96 38.5	125 08.7 02.4	46 58.1 34.5	40 20.9 09.6	174 08.9 15.7			
21	111 41.0	140 08.1 01.3	61 59.1 34.9	55 23.1 09.7	189 11.1 15.7			
22	126 43.4	155 07.6 13 00.3	77 00.0 35.3	70 25.3 09.7	204 13.4 15.7			
23	141 45.9	170 07.0 12 59.2	92 00.9 35.7	85 27.4 09.8	219 15.6 15.7			
Pas. Mer. 13	h m 38.4	v -0.6 d 1.0	v 0.9 d 0.4	v 2.2 d 0.1	v 2.2 d 0.0			
							Venus	A. H. S. Pas Mer. 30 43.4 11 38
							Marte	311 27.0 16 54
							Júpiter	303 55.3 17 22
							Saturno	77 40.2 8 29







T.M.G. (TU)	ARIES	VENUS -3.9	MARTE +1.0	JUPITER -2.3	SATURNO +0.6	ESTRELLAS		
d h	A.H.G.	A.H.G. Dec.	A.H.G. Dec.	A.H.G. Dec.	A.H.G. Dec.	Nombre	A. H. S.	Dec.
L U N E S	27 00	156 48.4	185 06.4 S12 58.2	107 01.8 N19 36.1	100 29.6 N19 09.9	234 17.9 S22 15.6	Acamar	315 32.2 S40 21.0
	01	171 50.8	200 05.9 57.1	122 02.8 36.5	115 31.8 09.9	249 20.1 15.6	Achernar	335 40.4 S57 17.7
	02	186 53.3	215 05.3 56.1	137 03.7 36.9	130 33.9 10.0	264 22.4 15.6	Acruz	173 29.6 S63 02.3
	03	201 55.8	230 04.8 .. 55.0	152 04.6 .. 37.3	145 36.1 .. 10.1	279 24.6 .. 15.6	Adhara	255 26.7 S28 57.5
	04	216 58.2	245 04.2 54.0	167 05.5 37.7	160 38.3 10.2	294 26.9 15.6	Aldebaran	291 10.4 N16 29.4
	05	232 00.7	260 03.7 52.9	182 06.5 38.1	175 40.4 10.2	309 29.1 15.6		
	06	247 03.2	275 03.1 S12 51.9	197 07.4 N19 38.5	190 42.6 N19 10.3	324 31.3 S22 15.5	Alioth	166 35.9 N56 00.8
	07	262 05.6	290 02.6 50.8	212 08.3 38.9	205 44.7 10.4	339 33.6 15.5	Alkaid	153 12.7 N49 21.7
	08	277 08.1	305 02.0 49.8	227 09.2 39.3	220 46.9 10.5	354 35.8 15.5	Al Na'ir	28 06.9 S47 00.9
	09	292 10.5	320 01.5 .. 48.7	242 10.2 .. 39.7	235 49.1 .. 10.5	9 38.1 .. 15.5	Alnilam	276 04.8 S 1 12.5
	10	307 13.0	335 00.9 47.7	257 11.1 40.1	250 51.2 10.6	24 40.3 15.5	Alphard	218 13.8 S 8 36.8
	11	322 15.5	350 00.4 46.6	272 12.0 40.5	265 53.4 10.7	39 42.6 15.5		
	12	337 17.9	4 59.8 S12 45.6	287 12.9 N19 40.9	280 55.6 N19 10.8	54 44.8 S22 15.4	Alphecca	126 26.3 N26 44.6
	13	352 20.4	19 59.3 44.5	302 13.9 41.3	295 57.7 10.8	69 47.1 15.4	Alpheratz	358 02.9 N29 01.8
	14	7 22.9	34 58.7 43.4	317 14.8 41.7	310 59.9 10.9	84 49.3 15.4	Altair	62 26.3 N 8 50.1
	15	22 25.3	49 58.2 .. 42.4	332 15.7 .. 42.1	326 02.0 .. 11.0	99 51.6 .. 15.4	Ankaa	353 33.9 S42 22.0
	16	37 27.8	64 57.7 41.3	347 16.6 42.5	341 04.2 11.1	114 53.8 15.4	Antares	112 48.8 S26 24.6
	17	52 30.3	79 57.1 40.3	2 17.6 42.9	356 06.4 11.1	129 56.1 15.4		
	18	67 32.7	94 56.6 S12 39.2	17 18.5 N19 43.3	11 08.5 N19 11.2	144 58.3 S22 15.3	Arcturus	146 12.2 N19 14.0
	19	82 35.2	109 56.0 38.1	32 19.4 43.7	26 10.7 11.3	160 00.6 15.3	Atria	108 07.3 S69 00.4
	20	97 37.7	124 55.5 37.1	47 20.3 44.1	41 12.8 11.4	175 02.8 15.3	Avior	234 25.2 S59 28.6
	21	112 40.1	139 54.9 .. 36.0	62 21.3 .. 44.5	56 15.0 .. 11.4	190 05.0 .. 15.3	Betatrix	278 51.6 N 6 20.5
	22	127 42.6	154 54.4 35.0	77 22.2 44.9	71 17.2 11.5	205 07.3 15.3	Betelgeuse	271 21.0 N 7 24.4
23	142 45.0	169 53.8 33.9	92 23.1 45.3	86 19.3 11.6	220 09.5 15.3			
M A R T E S	28 00	157 47.5	184 53.3 S12 32.8	107 24.0 N19 45.7	101 21.5 N19 11.6	235 11.8 S22 15.2	Canopus	264 04.0 S52 41.5
	01	172 50.0	199 52.8 31.8	122 24.9 46.1	116 23.6 11.7	250 14.0 15.2	Capella	281 01.5 N45 59.6
	02	187 52.4	214 52.2 30.7	137 25.9 46.5	131 25.8 11.8	265 16.3 15.2	Deneb	49 44.5 N45 14.2
	03	202 54.9	229 51.7 .. 29.6	152 26.8 .. 46.9	146 27.9 .. 11.9	280 18.5 .. 15.2	Denebola	182 51.9 N14 37.8
	04	217 57.4	244 51.1 28.6	167 27.7 47.2	161 30.1 11.9	295 20.8 15.2	Diphda	349 14.4 S18 02.9
	05	232 59.8	259 50.6 27.5	182 28.6 47.6	176 32.3 12.0	310 23.0 15.2		
	06	248 02.3	274 50.1 S12 26.4	197 29.6 N19 48.0	191 34.4 N19 12.1	325 25.3 S22 15.1	Dubhe	194 12.9 N61 48.5
	07	263 04.8	289 49.5 25.4	212 30.5 48.4	206 36.6 12.2	340 27.5 15.1	Elnath	278 35.7 N28 36.1
	08	278 07.2	304 49.0 24.3	227 31.4 48.8	221 38.7 12.2	355 29.8 15.1	Eltanin	90 54.8 N51 28.9
	09	293 09.7	319 48.4 .. 23.2	242 32.3 .. 49.2	236 40.9 .. 12.3	10 32.0 .. 15.1	Enif	34 05.4 N 9 49.3
	10	308 12.2	334 47.9 22.2	257 33.2 49.6	251 43.0 12.4	25 34.3 15.1	Fomalhaut	15 44.3 S29 40.9
	11	323 14.6	349 47.4 21.1	272 34.2 50.0	266 45.2 12.5	40 36.5 15.0		
	12	338 17.1	4 46.8 S12 20.0	287 35.1 N19 50.4	281 47.4 N19 12.5	55 38.8 S22 15.0	Gacrux	172 21.2 S57 03.2
	13	353 19.5	19 46.3 18.9	302 36.0 50.8	296 49.5 12.6	70 41.0 15.0	Gienah	176 10.9 S17 29.1
	14	8 22.0	34 45.7 17.9	317 36.9 51.2	311 51.7 12.7	85 43.3 15.0	Hadar	149 13.9 S60 19.2
	15	23 24.5	49 45.2 .. 16.8	332 37.8 .. 51.6	326 53.8 .. 12.8	100 45.5 .. 15.0	Hamal	328 21.7 N23 24.8
	16	38 26.9	64 44.7 15.7	347 38.7 52.0	341 56.0 12.9	115 47.8 15.0	Kaus Aust.	84 08.2 S34 23.5
	17	53 29.4	79 44.1 14.7	2 39.7 52.4	356 58.1 12.9	130 50.0 14.9		
	18	68 31.9	94 43.6 S12 13.6	17 40.6 N19 52.7	12 00.3 N19 13.0	145 52.3 S22 14.9	Kochab	137 18.2 N74 11.5
	19	83 34.3	109 43.1 12.5	32 41.5 53.1	27 02.4 13.1	160 54.5 14.9	Markab	13 56.9 N15 08.7
	20	98 36.8	124 42.5 11.4	47 42.4 53.5	42 04.6 13.2	175 56.8 14.9	Menkar	314 34.3 N 4 02.9
	21	113 39.3	139 42.0 .. 10.4	62 43.3 .. 53.9	57 06.7 .. 13.2	190 59.0 .. 14.9	Menkent	148 29.1 S36 19.1
	22	128 41.7	154 41.5 09.3	77 44.3 54.3	72 08.9 13.3	206 01.3 14.9	Miaplacidus	221 43.1 S69 40.4
23	143 44.2	169 40.9 08.2	92 45.2 54.7	87 11.0 13.4	221 03.5 14.8			
M I E R C O L E S	1 00	158 46.7	184 40.4 S12 07.1	107 46.1 N19 55.1	102 13.2 N19 13.5	236 05.8 S22 14.8	Mirfak	309 06.9 N49 49.7
	01	173 49.1	199 39.9 06.0	122 47.0 55.5	117 15.3 13.5	251 08.0 14.8	Nunki	76 21.1 S26 18.8
	02	188 51.6	214 39.3 05.0	137 47.9 55.9	132 17.5 13.6	266 10.3 14.8	Peacock	53 48.2 S56 46.2
	03	203 54.0	229 38.8 .. 03.9	152 48.8 .. 56.3	147 19.6 .. 13.7	281 12.5 .. 14.8	Pollux	243 49.7 N28 03.3
	04	218 56.5	244 38.3 02.8	167 49.8 56.6	162 21.8 13.8	296 14.8 14.8	Procyon	245 18.6 N 5 15.2
	05	233 59.0	259 37.8 01.7	182 50.7 57.0	177 23.9 13.8	311 17.0 14.8		
	06	249 01.4	274 37.2 S12 00.6	197 51.6 N19 57.4	192 26.1 N19 13.9	326 19.3 S22 14.7	Rasalhague	96 23.5 N12 33.7
	07	264 03.9	289 36.7 11 59.6	212 52.5 57.8	207 28.2 14.0	341 21.5 14.7	Regulus	208 02.6 N12 01.1
	08	279 06.4	304 36.2 58.5	227 53.4 58.2	222 30.4 14.1	356 23.8 14.7	Rigel	281 29.6 S 8 12.8
	09	294 08.8	319 35.6 .. 57.4	242 54.3 .. 58.6	237 32.5 .. 14.1	11 26.1 .. 14.7	Rigil Kent.	140 16.7 S60 47.4
	10	309 11.3	334 35.1 56.3	257 55.3 59.0	252 34.7 14.2	26 28.3 14.7	Sabik	102 33.6 S15 42.9
	11	324 13.8	349 34.6 55.2	272 56.2 59.4	267 36.8 14.3	41 30.6 14.7		
	12	339 16.2	4 34.1 S11 54.2	287 57.1 N19 59.8	282 39.0 N19 14.4	56 32.8 S22 14.6	Schedar	350 02.3 N56 28.8
	13	354 18.7	19 33.5 53.1	302 58.0 20 00.1	297 41.1 14.4	71 35.1 14.6	Shaula	96 46.9 S37 05.9
	14	9 21.1	34 33.0 52.0	317 58.9 00.5	312 43.3 14.5	86 37.3 14.6	Sirius	258 49.7 S16 42.1
	15	24 23.6	49 32.5 .. 50.9	332 59.8 .. 00.9	327 45.4 .. 14.6	101 39.6 .. 14.6	Spica	158 50.4 S11 06.5
	16	39 26.1	64 31.9 49.8	348 00.7 01.3	342 47.6 14.7	116 41.8 14.6	Suhail	223 05.6 S43 23.4
	17	54 28.5	79 31.4 48.7	3 01.7 01.7	357 49.7 14.7	131 44.1 14.6		
	18	69 31.0	94 30.9 S11 47.6	18 02.6 N20 02.1	12 51.9 N19 14.8	146 46.3 S22 14.5	Vega	80 51.6 N38 46.0
	19	84 33.5	109 30.4 46.5	33 03.5 02.5	27 54.0 14.9	161 48.6 14.5	Zuben'ubi	137 25.6 S16 00.0
	20	99 35.9	124 29.9 45.5	48 04.4 02.8	42 56.2 15.0	176 50.8 14.5		
	21	114 38.4	139 29.3 .. 44.4	63 05.3 .. 03.2	57 58.3 .. 15.1	191 53.1 .. 14.5		
	22	129 40.9	154 28.8 43.3	78 06.2 03.6	73 00.5 15.1	206 55.3 14.5		
23	144 43.3	169 28.3 42.2	93 07.1 04.0	88 02.6 15.2	221 57.6 14.5			
Pas. Mer. 13 26.6						A. H. S. Pas. Mer.		
v -0.5 d 1.1						o / h m		
v 0.9 d 0.4						Venus 27 05.8 11 41		
v 2.2 d 0.1						Marte 309 36.5 16 49		
v 2.2 d 0.0						Júpiter 303 34.0 17 12		
						Saturno 77 24.3 8 18		



T.M.G. (TU)	SOL		LUNA				Lat.	Crepúsculo		Orto Sol	Orto Luna					
	A.H.G.	Dec.	A.H.G.	v	Dec.	d		P.H.	Náut.		Civil	27	28	1	2	
	° ' "	° ' "	° ' "	' "	° ' "	' "		' "	h m	h m	h m	h m	h m	h m	h m	
LUNES	27 00	176 47.8	S 8 25.9	293 16.8	12.6	S21 54.4	9.5	54.8	N 72	05 15	06 33	07 42	■	■	■	■
	01	191 47.9	25.0	307 48.4	12.4	22 03.9	9.4	54.8	N 70	05 20	06 30	07 32	■	■	■	■
	02	206 48.0	24.0	322 19.8	12.4	22 13.3	9.3	54.8	68	05 23	06 27	07 24	■	■	■	■
	03	221 48.1	23.1	336 51.2	12.3	22 22.6	9.2	54.8	66	05 26	06 25	07 17	03 07	■	■	■
	04	236 48.3	22.2	351 22.5	12.2	22 31.8	9.1	54.8	64	05 28	06 23	07 11	02 22	05 06	■	■
	05	251 48.4	21.2	5 53.7	12.1	22 40.9	9.0	54.9	62	05 30	06 21	07 06	01 52	03 43	06 01	■
	06	266 48.5	S 8 20.3	20 24.8	12.0	S22 49.9	9.0	54.9	60	05 32	06 20	07 02	01 30	03 07	04 40	05 51
	07	281 48.6	19.3	34 55.8	11.9	22 58.9	8.8	54.9	N 58	05 33	06 18	06 58	01 12	02 41	04 05	05 11
	08	296 48.7	18.4	49 26.7	11.8	23 07.7	8.7	54.9	56	05 34	06 17	06 54	00 57	02 20	03 39	04 43
	09	311 48.8	17.5	63 57.5	11.7	23 16.4	8.7	55.0	54	05 35	06 16	06 51	00 44	02 03	03 18	04 22
	10	326 48.9	16.5	78 28.2	11.7	23 25.1	8.5	55.0	52	05 35	06 14	06 48	00 33	01 49	03 01	04 04
	11	341 49.0	15.6	92 58.9	11.5	23 33.6	8.4	55.0	50	05 36	06 13	06 46	00 23	01 36	02 46	03 48
	12	356 49.1	S 8 14.6	107 29.4	11.4	S23 42.0	8.4	55.0	45	05 36	06 10	06 40	00 02	01 11	02 17	03 18
	13	11 49.3	13.7	121 59.8	11.4	23 50.4	8.2	55.0	N 40	05 37	06 08	06 35	24 50	00 50	01 54	02 54
	14	26 49.4	12.7	136 30.2	11.3	23 58.6	8.1	55.1	35	05 36	06 05	06 31	24 33	00 33	01 35	02 34
	15	41 49.5	11.8	151 00.5	11.1	24 06.7	8.0	55.1	30	05 35	06 03	06 27	24 19	00 19	01 18	02 17
	16	56 49.6	10.9	165 30.6	11.1	24 14.7	7.9	55.1	20	05 33	05 59	06 21	23 54	24 51	00 51	01 49
	17	71 49.7	09.9	180 00.7	11.0	24 22.6	7.8	55.1	N 10	05 29	05 54	06 15	23 33	24 27	00 27	01 24
	18	86 49.8	S 8 09.0	194 30.7	10.9	S24 30.4	7.7	55.2	0	05 24	05 48	06 09	23 13	24 06	00 06	01 02
	19	101 49.9	08.0	209 00.6	10.7	24 38.1	7.6	55.2	S 10	05 18	05 42	06 04	22 53	23 44	24 39	00 39
	20	116 50.0	07.1	223 30.3	10.7	24 45.7	7.4	55.2	20	05 09	05 35	05 57	22 32	23 20	24 15	00 15
	21	131 50.2	06.1	238 00.0	10.6	24 53.1	7.4	55.2	30	04 57	05 26	05 50	22 08	22 53	23 46	24 47
	22	146 50.3	05.2	252 29.6	10.5	25 00.5	7.2	55.3	35	04 50	05 20	05 46	21 54	22 38	23 30	24 31
23	161 50.4	04.3	266 59.1	10.5	25 07.7	7.1	55.3	40	04 40	05 13	05 41	21 38	22 19	23 10	24 12	
28 00	176 50.5	S 8 03.3	281 28.6	10.3	S25 14.8	7.0	55.3	45	04 29	05 05	05 36	21 19	21 57	22 47	23 49	
01	191 50.6	02.4	295 57.9	10.2	25 21.8	6.9	55.3	S 50	04 14	04 55	05 29	20 54	21 29	22 16	23 20	
02	206 50.7	01.4	310 27.1	10.1	25 28.7	6.8	55.4	52	04 07	04 50	05 26	20 43	21 15	22 01	23 05	
03	221 50.9	8 00.5	324 56.2	10.1	25 35.5	6.6	55.4	54	03 59	04 45	05 22	20 30	20 59	21 44	22 49	
04	236 51.0	7 59.5	339 25.3	9.9	25 42.1	6.6	55.4	56	03 50	04 39	05 18	20 15	20 40	21 23	22 28	
05	251 51.1	58.6	353 54.2	9.8	25 48.7	6.4	55.4	58	03 39	04 32	05 14	19 57	20 17	20 56	22 03	
06	266 51.2	S 7 57.7	8 23.0	9.8	S25 55.1	6.2	55.5	S 60	03 26	04 25	05 09	19 35	19 47	20 18	21 29	
07	281 51.3	56.7	22 51.8	9.7	26 01.3	6.2	55.5	Lat.	Ocaso Sol	Crepúsculo		Ocaso Luna				
08	296 51.4	55.8	37 20.5	9.5	26 07.5	6.0	55.5		Sol	Civil	Náut.	27	28	1	2	
09	311 51.6	54.8	51 49.0	9.5	26 13.5	5.9	55.6	N 72	16 45	17 54	19 13	■	■	■	■	
10	326 51.7	53.9	66 17.5	9.4	26 19.4	5.8	55.6	N 70	16 55	17 57	19 08	■	■	■	■	
11	341 51.8	52.9	80 45.9	9.3	26 25.2	5.7	55.6	68	17 03	18 00	19 04	■	■	■	■	
12	356 51.9	S 7 52.0	95 14.2	9.2	S26 30.9	5.5	55.6	66	17 10	18 02	19 01	05 51	■	■	■	
13	11 52.0	51.0	109 42.4	9.1	26 36.4	5.4	55.7	64	17 15	18 04	18 58	06 37	05 35	■	■	
14	26 52.1	50.1	124 10.5	9.0	26 41.8	5.2	55.7	62	17 20	18 05	18 56	07 07	06 59	06 32	■	
15	41 52.3	49.1	138 38.5	9.0	26 47.0	5.1	55.7	60	17 25	18 07	18 55	07 30	07 36	07 53	08 42	
16	56 52.4	48.2	153 06.5	8.8	26 52.1	5.0	55.8	N 58	17 28	18 08	18 53	07 49	08 02	08 29	09 21	
17	71 52.5	47.2	167 34.3	8.8	26 57.1	4.9	55.8	56	17 32	18 09	18 52	08 04	08 23	08 55	09 49	
18	86 52.6	S 7 46.3	182 02.1	8.6	S27 02.0	4.7	55.8	54	17 35	18 11	18 52	08 18	08 40	09 16	10 10	
19	101 52.7	45.3	196 29.7	8.6	27 06.7	4.5	55.9	52	17 38	18 12	18 51	08 29	08 55	09 33	10 28	
20	116 52.9	44.4	210 57.3	8.5	27 11.2	4.5	55.9	50	17 40	18 13	18 50	08 40	09 08	09 48	10 44	
21	131 53.0	43.5	225 24.8	8.4	27 15.7	4.3	55.9	45	17 46	18 15	18 49	09 02	09 35	10 18	11 14	
22	146 53.1	42.5	239 52.2	8.4	27 20.0	4.1	55.9	N 40	17 51	18 18	18 49	09 19	09 56	10 42	11 38	
23	161 53.2	41.6	254 19.6	8.2	27 24.1	4.0	56.0	35	17 55	18 20	18 49	09 34	10 14	11 01	11 58	
1 00	176 53.3	S 7 40.6	268 46.8	8.2	S27 28.1	3.9	56.0	30	17 58	18 22	18 50	09 47	10 29	11 18	12 14	
01	191 53.5	39.7	283 14.0	8.1	27 32.0	3.7	56.0	20	18 05	18 27	18 53	10 10	10 55	11 46	12 43	
02	206 53.6	38.7	297 41.1	8.0	27 35.7	3.6	56.1	N 10	18 10	18 32	18 56	10 29	11 17	12 10	13 07	
03	221 53.7	37.8	312 08.1	7.9	27 39.3	3.4	56.1	0	18 16	18 37	19 01	10 47	11 38	12 32	13 29	
04	236 53.8	36.8	326 35.0	7.8	27 42.7	3.3	56.1	S 10	18 21	18 43	19 07	11 05	11 59	12 55	13 52	
05	251 53.9	35.9	341 01.8	7.8	27 46.0	3.1	56.2	20	18 27	18 50	19 16	11 25	12 21	13 19	14 16	
06	266 54.1	S 7 34.9	355 28.6	7.7	S27 49.1	3.0	56.2	30	18 34	18 59	19 27	11 48	12 47	13 47	14 44	
07	281 54.2	34.0	9 55.3	7.6	27 52.1	2.8	56.2	35	18 39	19 04	19 35	12 01	13 03	14 03	15 00	
08	296 54.3	33.0	24 21.9	7.5	27 54.9	2.7	56.3	40	18 43	19 11	19 44	12 17	13 21	14 23	15 20	
09	311 54.4	32.1	38 48.4	7.5	27 57.6	2.5	56.3	45	18 49	19 19	19 55	12 35	13 42	14 46	15 43	
10	326 54.5	31.1	53 14.9	7.4	28 00.1	2.4	56.3	S 50	18 55	19 29	20 09	12 58	14 10	15 17	16 13	
11	341 54.7	30.2	67 41.3	7.3	28 02.5	2.2	56.4	52	18 58	19 33	20 16	13 09	14 24	15 31	16 27	
12	356 54.8	S 7 29.2	82 07.6	7.3	S28 04.7	2.1	56.4	54	19 02	19 39	20 24	13 22	14 39	15 49	16 44	
13	11 54.9	28.3	96 33.9	7.2	28 06.8	1.9	56.4	56	19 05	19 44	20 33	13 37	14 58	16 10	17 04	
14	26 55.0	27.3	111 00.1	7.1	28 08.7	1.8	56.5	58	19 09	19 51	20 44	13 54	15 21	16 37	17 30	
15	41 55.2	26.4	125 26.2	7.0	28 10.5	1.6	56.5	S 60	19 14	19 59	20 56	14 15	15 50	17 14	18 04	
16	56 55.3	25.4	139 52.2	7.0	28 12.1	1.4	56.5	Die	SOL		LUNA					
17	71 55.4	24.4	154 18.2	6.9	28 13.5	1.3	56.6		E.T. (-)	Pas. Mer.	Pas. Sup.	Mer. Inf.	Edad.	Fase		
18	86 55.5	S 7 23.5	168 44.1	6.9	S28 14.8	1.1	56.6		00 h	12 h						
19	101 55.7	22.5	183 10.0	6.8	28 15.9	0.9	56.7		m s	m s	h m	h m	h m	d		
20	116 55.8	21.6	197 35.8	6.8	28 16.8											



T.M.G. (TU)	ARIES			VENUS -3.9			MARTE +1.0			JUPITER -2.3			SATURNO +0.6			ESTRELLAS		
	A.H.G.	A.H.G.	Dec.	A.H.G.	Dec.		A.H.G.	Dec.		A.H.G.	Dec.		A.H.G.	Dec.		Nombre	A. H. S.	Dec.
J U E V E S	200	159 45.8	184 27.8 S11	41.1	108 08.1 N20	04.4	103 04.7 N19	15.3	236 59.9 S22	14.4	Acamar	315 32.2 S40	21.0					
	01	174 48.3	199 27.2	40.0	123 09.0	04.8	118 06.9	15.4	252 02.1	14.4	Achernar	335 40.4 S57	17.6					
	02	189 50.7	214 26.7	38.9	138 09.9	05.2	133 09.0	15.4	267 04.4	14.4	Acrux	173 29.6 S63	02.4					
	03	204 53.2	229 26.2	37.8	153 10.8	05.5	148 11.2	15.5	282 06.6	14.4	Adhara	255 26.7 S28	57.5					
	04	219 55.6	244 25.7	36.7	168 11.7	05.9	163 13.3	15.6	297 08.9	14.4	Aldebaran	291 10.4 N16	29.4					
	05	234 58.1	259 25.2	35.6	183 12.6	06.3	178 15.5	15.7	312 11.1	14.4								
	06	250 00.6	274 24.6 S11	34.5	198 13.5 N20	06.7	193 17.6 N19	15.7	327 13.4 S22	14.3	Alioth	166 35.9 N56	00.8					
	07	265 03.0	289 24.1	33.4	213 14.4	07.1	208 19.8	15.8	342 15.6	14.3	Alkaid	153 12.7 N49	21.7					
	08	280 05.5	304 23.6	32.3	228 15.4	07.5	223 21.9	15.9	357 17.9	14.3	Al Na'ir	28 06.9 S47	00.9					
	09	295 08.0	319 23.1	31.3	243 16.3	07.8	238 24.0	16.0	12 20.2	14.3	Alnilam	276 04.9 S 1	12.5					
	10	310 10.4	334 22.6	30.2	258 17.2	08.2	253 26.2	16.1	27 22.4	14.3	Alphard	218 13.8 S 8	36.8					
	11	325 12.9	349 22.0	29.1	273 18.1	08.6	268 28.3	16.1	42 24.7	14.3								
	12	340 15.4	4 21.5 S11	28.0	288 19.0 N20	09.0	283 30.5 N19	16.2	57 26.9 S22	14.2	Alphecca	126 26.3 N26	44.6					
	13	355 17.8	19 21.0	26.9	303 19.9	09.4	298 32.6	16.3	72 29.2	14.2	Alpheratz	358 02.9 N29	01.8					
	14	10 20.3	34 20.5	25.8	318 20.8	09.8	313 34.7	16.4	87 31.4	14.2	Altair	62 26.3 N 8	50.1					
	15	25 22.8	49 20.0	24.7	333 21.7	10.1	328 36.9	16.4	102 33.7	14.2	Ankaa	353 33.9 S42	22.0					
	16	40 25.2	64 19.5	23.6	348 22.6	10.5	343 39.0	16.5	117 35.9	14.2	Antares	112 48.7 S26	24.6					
	17	55 27.7	79 19.0	22.5	3 23.5	10.9	358 41.2	16.6	132 38.2	14.2								
	18	70 30.1	94 18.4 S11	21.4	18 24.5 N20	11.3	13 43.3 N19	16.7	147 40.5 S22	14.1	Arcturus	146 12.1 N19	14.0					
	19	85 32.6	109 17.9	20.3	33 25.4	11.7	28 45.5	16.8	162 42.7	14.1	Atria	108 07.2 S69	00.4					
	20	100 35.1	124 17.4	19.2	48 26.3	12.0	43 47.6	16.8	177 45.0	14.1	Avior	234 25.2 S59	28.6					
	21	115 37.5	139 16.9	18.1	63 27.2	12.4	58 49.7	16.9	192 47.2	14.1	Bellatrix	278 51.6 N 6	20.5					
	22	130 40.0	154 16.4	17.0	78 28.1	12.8	73 51.9	17.0	207 49.5	14.1	Betelgeuse	271 21.0 N 7	24.4					
23	145 42.5	169 15.9	15.9	93 29.0	13.2	88 54.0	17.1	222 51.7	14.1									
V I E R N E S	300	160 44.9	184 15.4 S11	14.8	108 29.9 N20	13.6	103 56.1 N19	17.1	237 54.0 S22	14.0	Canopus	264 04.1 S52	41.5					
	01	175 47.4	199 14.8	13.6	123 30.8	13.9	118 58.3	17.2	252 56.3	14.0	Capella	281 01.5 N45	59.6					
	02	190 49.9	214 14.3	12.5	138 31.7	14.3	134 00.4	17.3	267 58.5	14.0	Deneb	49 44.5 N45	14.2					
	03	205 52.3	229 13.8	11.4	153 32.6	14.7	149 02.6	17.4	283 00.8	14.0	Denebola	182 51.9 N14	37.8					
	04	220 54.8	244 13.3	10.3	168 33.5	15.1	164 04.7	17.5	298 03.0	14.0	Diphda	349 14.4 S18	02.9					
	05	235 57.2	259 12.8	09.2	183 34.4	15.5	179 06.8	17.5	313 05.3	14.0								
	06	250 59.7	274 12.3 S11	08.1	198 35.4 N20	15.8	194 09.0 N19	17.6	328 07.6 S22	13.9	Dubhe	194 12.9 N61	48.5					
	07	266 02.2	289 11.8	07.0	213 36.3	16.2	209 11.1	17.7	343 09.8	13.9	Elnath	278 35.7 N28	36.1					
	08	281 04.6	304 11.3	05.9	228 37.2	16.6	224 13.2	17.8	358 12.1	13.9	Eltanin	90 54.8 N51	28.9					
	09	296 07.1	319 10.8	04.8	243 38.1	17.0	239 15.4	17.8	13 14.3	13.9	Enif	34 05.4 N 9	49.3					
	10	311 09.6	334 10.3	03.7	258 39.0	17.3	254 17.5	17.9	28 16.6	13.9	Fomalhaut	15 44.3 S29	40.9					
	11	326 12.0	349 09.8	02.6	273 39.9	17.7	269 19.7	18.0	43 18.9	13.9								
	12	341 14.5	4 09.2 S11	01.5	288 40.8 N20	18.1	284 21.8 N19	18.1	58 21.1 S22	13.8	Gacrux	172 21.2 S57	03.2					
	13	356 17.0	19 08.7	00.4	303 41.7	18.5	299 23.9	18.2	73 23.4	13.8	Gienah	176 10.9 S17	29.1					
	14	11 19.4	34 08.2	10 59.2	318 42.6	18.9	314 26.1	18.2	88 25.6	13.8	Hadar	149 13.8 S60	19.2					
	15	26 21.9	49 07.7	58.1	333 43.5	19.2	329 28.2	18.3	103 27.9	13.8	Hamal	328 21.7 N23	24.8					
	16	41 24.4	64 07.2	57.0	348 44.4	19.6	344 30.3	18.4	118 30.2	13.8	Kaus Aust.	84 08.2 S34	23.5					
	17	56 26.8	79 06.7	55.9	3 45.3	20.0	359 32.5	18.5	133 32.4	13.8								
	18	71 29.3	94 06.2 S10	54.8	18 46.2 N20	20.4	14 34.6 N19	18.5	148 34.7 S22	13.7	Kochab	137 18.1 N74	11.5					
	19	86 31.7	109 05.7	53.7	33 47.1	20.7	29 36.7	18.6	163 36.9	13.7	Markab	13 56.9 N15	08.7					
	20	101 34.2	124 05.2	52.6	48 48.0	21.1	44 38.9	18.7	178 39.2	13.7	Menkar	314 34.3 N 4	02.9					
	21	116 36.7	139 04.7	51.5	63 48.9	21.5	59 41.0	18.8	193 41.5	13.7	Menkent	148 29.1 S36	19.1					
	22	131 39.1	154 04.2	50.3	78 49.8	21.9	74 43.1	18.9	208 43.7	13.7	Miaplacidus	221 43.1 S69	40.5					
23	146 41.6	169 03.7	49.2	93 50.7	22.2	89 45.3	18.9	223 46.0	13.7									
S A B A D O	400	161 44.1	184 03.2 S10	48.1	108 51.6 N20	22.6	104 47.4 N19	19.0	238 48.2 S22	13.6	Mirfak	309 06.9 N49	49.7					
	01	176 46.5	199 02.7	47.0	123 52.5	23.0	119 49.5	19.1	253 50.5	13.6	Nunki	76 21.1 S26	18.8					
	02	191 49.0	214 02.2	45.9	138 53.5	23.4	134 51.7	19.2	268 52.8	13.6	Peacock	53 48.2 S56	46.2					
	03	206 51.5	229 01.7	44.8	153 54.4	23.7	149 53.8	19.3	283 55.0	13.6	Pollux	243 49.7 N28	03.3					
	04	221 53.9	244 01.2	43.6	168 55.3	24.1	164 55.9	19.3	298 57.3	13.6	Procyon	245 18.6 N 5	15.2					
	05	236 56.4	259 00.7	42.5	183 56.2	24.5	179 58.1	19.4	313 59.5	13.6								
	06	251 58.9	274 00.2 S10	41.4	198 57.1 N20	24.9	195 00.2 N19	19.5	329 01.8 S22	13.6	Rasalhague	96 23.5 N12	33.7					
	07	267 01.3	288 59.7	40.3	213 58.0	25.2	210 02.3	19.6	344 04.1	13.5	Regulus	208 02.6 N12	01.1					
	08	282 03.8	303 59.2	39.2	228 58.9	25.6	225 04.4	19.7	359 06.3	13.5	Rigel	281 29.6 S 8	12.8					
	09	297 06.2	318 58.7	38.0	243 59.8	26.0	240 06.6	19.7	14 08.6	13.5	Rigel Kent.	140 16.7 S60	47.4					
	10	312 08.7	333 58.2	36.9	259 00.7	26.3	255 08.7	19.8	29 10.9	13.5	Sabik	102 33.6 S15	42.9					
	11	327 11.2	348 57.7	35.8	274 01.6	26.7	270 10.8	19.9	44 13.1	13.5								
	12	342 13.6	3 57.2 S10	34.7	289 02.5 N20	27.1	285 13.0 N19	20.0	59 15.4 S22	13.5	Schedar	350 02.3 N56	28.8					
	13	357 16.1	18 56.7	33.6	304 03.4	27.5	300 15.1	20.0	74 17.6	13.4	Shaula	96 46.8 S37	05.9					
	14	12 18.6	33 56.2	32.4	319 04.3	27.8	315 17.2	20.1	89 19.9	13.4	Sirius	258 49.7 S16	42.1					
	15	27 21.0	48 55.7	31.3	334 05.2	28.2	330 19.3	20.2	104 22.2	13.4	Spica	158 50.3 S11	06.5					
	16	42 23.5	63 55.2	30.2	349 06.1	28.6	345 21.5	20.3	119 24.4	13.4	Suhail	223 05.6 S43	23.4					
	17	57 26.0	78 54.7	29.1	4 07.0	29.0	0 23.6	20.4	134 26.7	13.4								
	18	72 28.4	93 54.2 S10	27.9	19 07.9 N20	29.3	15 25.7 N19	20.4	149 29.0 S22	13.4	Vega	80 51.5 N38	46.0					
	19	87 30.9	108 53.7	26.8	34 08.8	29.7	30 27.9	20.5	164 31.2	13.3	Zuben'ubi	137 25.6 S16	00.0					
	20	102 33.3	123 53.2	25.7	49 09.7	30.1	45 30.0	20.6	179 33.5	13.3								
	21	117 35.8	138 52.7	24.6	64 10.6	30.4	60 32.1	20.7	194 35.8	13.3								
	22	132 38.3	153 52.2	23.4	79 11.5	30.8	75 34.2	20.8	209 38.0	13.3								
23	147 40.7	168 51.8	22.3	94 12.4	31.2	90 36.4	20.8	224 40.3	13.3									
Pas. Mer. 13 14.8		v -0.5 d 1.1			v 0.9 d 0.4			v 2.1 d 0.1			v 2.3 d 0.0			A. H. S. Pas. Mer.				
														o / h m				
														Venus 23 30.4 11 43				
														Marte 307 45.0 16 45				
														Júpiter 303 11.2 17 02				
														Saturno 77 09.1 8 07				



T.M.G. (TU)	SOL		LUNA				Lat.	Crepúsculo		Orto Sol	Orto Luna						
	A.H.G.	Dec.	A.H.G.	v	Dec.	d		P.H.	Náut.		Civil	2	3	4	5		
d h	o / ' / "	o / ' / "	o / ' / "	' / "	o / ' / "	' / "	' / "	h m	h m	h m	h m	h m	h m	h m			
JUEVES	2 00	176 56.3	S 7 17.8	255 18.5	6.5	S28 19.0	0.1	56.8	N 72	05 00	06 18	07 26	h m	h m	h m	h m	
	01	191 56.4	16.8	269 44.0	6.5	28 19.1	0.0	56.9	N 70	05 06	06 17	07 18	■	■	■	09 11	
	02	206 56.5	15.9	284 09.5	6.4	28 19.1	0.2	56.9	68	05 11	06 15	07 11	■	■	■	08 13	
	03	221 56.7	14.9	298 34.9	6.4	28 18.9	0.3	57.0	66	05 15	06 14	07 06	■	■	09 12	07 39	
	04	236 56.8	14.0	313 00.3	6.4	28 18.6	0.6	57.0	64	05 18	06 13	07 01	■	■	07 38	07 14	
	05	251 56.9	13.0	327 25.7	6.3	28 18.0	0.7	57.0	62	05 21	06 12	06 57	■	07 12	07 00	06 54	
	06	266 57.0	S 7 12.1	341 51.0	6.2	S28 17.3	0.9	57.1	60	05 23	06 11	06 53	05 51	06 22	06 33	06 37	
	07	281 57.2	11.1	356 16.2	6.2	28 16.4	1.0	57.1	N 58	05 25	06 10	06 50	05 11	05 51	06 12	06 24	
	08	296 57.3	10.1	10 41.4	6.2	28 15.4	1.2	57.1	56	05 27	06 09	06 47	04 43	05 28	05 55	06 12	
	09	311 57.4	09.2	25 06.6	6.1	28 14.2	1.4	57.2	54	05 28	06 09	06 44	04 22	05 08	05 40	06 01	
	10	326 57.5	08.2	39 31.7	6.1	28 12.8	1.5	57.2	52	05 29	06 08	06 42	04 04	04 52	05 27	05 52	
	11	341 57.7	07.3	53 56.8	6.1	28 11.3	1.8	57.3	50	05 30	06 07	06 39	03 48	04 38	05 16	05 43	
	12	356 57.8	S 7 06.3	68 21.9	6.0	S28 09.5	1.9	57.3	45	05 31	06 05	06 35	03 18	04 10	04 52	05 25	
	13	11 57.9	05.4	82 46.9	6.1	28 07.6	2.0	57.3	N 40	05 32	06 03	06 31	02 54	03 47	04 33	05 10	
	14	26 58.1	04.4	97 12.0	5.9	28 05.6	2.3	57.4	35	05 32	06 02	06 27	02 34	03 28	04 16	04 58	
	15	41 58.2	03.5	111 36.9	6.0	28 03.3	2.4	57.4	30	05 32	06 00	06 24	02 17	03 12	04 02	04 47	
	16	56 58.3	02.5	126 01.9	5.9	28 00.9	2.6	57.5	20	05 31	05 56	06 18	01 49	02 45	03 39	04 28	
	17	71 58.4	01.5	140 26.8	5.9	27 58.3	2.7	57.5	N 10	05 28	05 52	06 13	01 24	02 22	03 18	04 11	
	18	86 58.6	S 7 00.6	154 51.7	5.9	S27 55.6	3.0	57.5	0	05 24	05 48	06 09	01 02	02 00	02 58	03 56	
	19	101 58.7	6 59.6	169 16.6	5.9	27 52.6	3.1	57.6	S 10	05 18	05 43	06 04	00 39	01 38	02 39	03 40	
	20	116 58.8	58.7	183 41.5	5.8	27 49.5	3.2	57.6	20	05 10	05 36	05 58	00 15	01 14	02 18	03 23	
	21	131 59.0	57.7	198 06.3	5.9	27 46.3	3.5	57.6	30	05 00	05 28	05 52	24 47	00 47	01 54	03 04	
	22	146 59.1	56.8	212 31.2	5.8	27 42.8	3.6	57.7	35	04 53	05 23	05 49	24 31	00 31	01 39	02 52	
23	161 59.2	55.8	226 56.0	5.8	27 39.2	3.8	57.7	40	04 44	05 17	05 45	24 12	00 12	01 23	02 39		
								45	04 34	05 10	05 40	23 49	25 03	01 03	02 24		
VIERNES	3 00	176 59.3	S 6 54.9	241 20.8	5.8	S27 35.4	4.0	57.8	S 50	04 20	05 01	05 34	23 20	24 38	00 38	02 04	
	01	191 59.5	53.9	255 45.6	5.8	27 31.4	4.2	57.8	52	04 14	04 56	05 31	23 05	24 25	00 25	01 55	
	02	206 59.6	52.9	270 10.4	5.8	27 27.2	4.3	57.8	54	04 06	04 51	05 28	22 49	24 12	00 12	01 45	
	03	221 59.7	52.0	284 35.2	5.8	27 22.9	4.5	57.9	56	03 58	04 46	05 25	22 28	23 55	25 33	01 33	
	04	236 59.9	51.0	299 00.0	5.7	27 18.4	4.7	57.9	58	03 48	04 40	05 21	22 03	23 36	25 20	01 20	
	05	252 00.0	50.1	313 24.7	5.8	27 13.7	4.9	58.0	S 60	03 37	04 33	05 17	21 29	23 11	25 04	01 04	
	06	267 00.1	S 6 49.1	327 49.5	5.8	S27 08.8	5.0	58.0									
	07	282 00.3	48.1	342 14.3	5.8	27 03.8	5.2	58.0	Lat.	Ocaso Sol	Crepúsculo Civil	Náut.	Ocaso Luna				
	08	297 00.4	47.2	356 39.1	5.8	26 58.6	5.4	58.1	h m	h m	h m	h m	h m	h m	h m	h m	
	09	312 00.5	46.2	11 03.9	5.8	26 53.2	5.5	58.1	N 72	16 59	18 08	19 27	h m	h m	h m	h m	
	10	327 00.7	45.3	25 28.7	5.8	26 47.7	5.8	58.2	N 70	17 08	18 09	19 20	■	■	■	11 30	
	11	342 00.8	44.3	39 53.5	5.8	26 41.9	5.9	58.2	68	17 14	18 10	19 15	■	■	■	12 26	
	12	357 00.9	S 6 43.3	54 18.3	5.8	S26 36.0	6.0	58.3	66	17 20	18 11	19 11	■	■	09 29	12 59	
	13	12 01.1	42.4	68 43.1	5.8	26 30.0	6.3	58.3	64	17 25	18 12	19 07	■	■	11 00	13 23	
	14	27 01.2	41.4	83 07.9	5.8	26 23.7	6.4	58.3	62	17 29	18 13	19 05	■	09 23	11 37	13 41	
	15	42 01.3	40.5	97 32.7	5.9	26 17.3	6.6	58.4	60	17 32	18 14	19 02	08 42	10 12	12 03	13 57	
	16	57 01.5	39.5	111 57.6	5.9	26 10.7	6.8	58.4	N 58	17 35	18 15	19 00	09 21	10 43	12 23	14 10	
	17	72 01.6	38.5	126 22.5	5.9	26 03.9	6.9	58.5	56	17 38	18 16	18 59	09 49	11 06	12 40	14 21	
	18	87 01.7	S 6 37.6	140 47.4	5.9	S25 57.0	7.1	58.5	54	17 41	18 16	18 57	10 10	11 25	12 54	14 30	
	19	102 01.9	36.6	155 12.3	5.9	25 49.9	7.3	58.5	52	17 43	18 17	18 56	10 28	11 41	13 07	14 39	
	20	117 02.0	35.7	169 37.2	6.0	25 42.6	7.5	58.6	50	17 45	18 18	18 55	10 44	11 55	13 18	14 47	
	21	132 02.1	34.7	184 02.2	6.0	25 35.1	7.6	58.6	45	17 50	18 19	18 53	11 14	12 23	13 40	15 03	
	22	147 02.3	33.7	198 27.2	6.0	25 27.5	7.8	58.7	N 40	17 54	18 21	18 52	11 38	12 45	13 59	15 16	
23	162 02.4	32.8	212 52.2	6.0	25 19.7	8.0	58.7	35	17 57	18 23	18 52	11 58	13 03	14 14	15 28		
SABADO	4 00	177 02.5	S 6 31.8	227 17.2	6.1	S25 11.7	8.1	58.7	30	18 00	18 24	18 52	12 14	13 18	14 27	15 37	
	01	192 02.7	30.9	241 42.3	6.1	25 03.6	8.3	58.8	20	18 06	18 28	18 53	12 43	13 45	14 49	15 54	
	02	207 02.8	29.9	256 07.4	6.1	24 55.3	8.5	58.8	N 10	18 11	18 32	18 56	13 07	14 07	15 08	16 09	
	03	222 02.9	28.9	270 32.5	6.1	24 46.8	8.6	58.9	0	18 15	18 36	19 00	13 29	14 28	15 26	16 22	
	04	237 03.1	28.0	284 57.6	6.2	24 38.2	8.8	58.9	S 10	18 20	18 41	19 06	13 52	14 49	15 43	16 35	
	05	252 03.2	27.0	299 22.8	6.3	24 29.4	9.0	58.9	20	18 25	18 47	19 13	14 16	15 11	16 02	16 49	
	06	267 03.3	S 6 26.0	313 48.1	6.2	S24 20.4	9.1	59.0	30	18 31	18 55	19 24	14 44	15 37	16 24	17 05	
	07	282 03.5	25.1	328 13.3	6.3	24 11.3	9.3	59.0	35	18 35	19 00	19 31	15 00	15 52	16 36	17 15	
	08	297 03.6	24.1	342 38.6	6.4	24 02.0	9.5	59.1	40	18 39	19 06	19 39	15 20	16 09	16 50	17 25	
	09	312 03.7	23.2	357 04.0	6.3	23 52.5	9.6	59.1	45	18 43	19 13	19 49	15 43	16 30	17 07	17 37	
	10	327 03.9	22.2	11 29.3	6.4	23 42.9	9.7	59.1	S 50	18 49	19 22	20 02	16 13	16 56	17 28	17 52	
	11	342 04.0	21.2	25 54.7	6.5	23 33.2	10.0	59.2	52	18 52	19 26	20 09	16 27	17 08	17 38	17 59	
	12	357 04.2	S 6 20.3	40 20.2	6.5	S23 23.2	10.1	59.2	54	18 54	19 31	20 16	16 44	17 23	17 49	18 06	
	13	12 04.3	19.3	54 45.7	6.5	23 13.1	10.2	59.3	56	18 58	19 36	20 24	17 04	17 40	18 01	18 15	
	14	27 04.4	18.3	69 11.2	6.6	23 02.9	10.4	59.3	58	19 01	19 42	20 34	17 30	18 00	18 15	18 24	
	15	42 04.6	17.4	83 36.8	6.6	22 52.5	10.6	59.3	S 60	19 05	19 49	20 45	18 04	18 24	18 32	18 35	
	16	57 04.7	16.4	98 02.4	6.7	22 41.9	10.7	59.4									
	17	72 04.8	15.4	112 28.1	6.7	22 31.2	10.9	59.4	Día	SOL E.T. (-)		LUNA					
	18	87 05.0	S 6 14.5	126 53.8	6.8	S22 20.3	11.0	59.4	00 h	12 h	Pas. Mer.	Pas. Mer.		Edad.	Fase		
	19	102 05.1	13.5	141 19.6	6.8												



T.M.G. (TU)	ARIES	VENUS -3.9	MARTE +1.1	JUPITER -2.2	SATURNO +0.6	ESTRELLAS		
d h	A.H.G.	A.H.G. Dec.	A.H.G. Dec.	A.H.G. Dec.	A.H.G. Dec.	Nombre	A. H. S.	Dec.
DOMINGO	5 00	162 43.2	183 51.3 S10 21.2	109 13.3 N20 31.5	105 38.5 N19 20.9	239 42.5 S22 13.3	Acamar	315 32.3 S40 21.0
	01	177 45.7	198 50.8 20.0	124 14.2 31.9	120 40.6 21.0	254 44.8 13.2	Achernar	335 40.4 S57 17.6
	02	192 48.1	213 50.3 18.9	139 15.1 32.3	135 42.7 21.1	269 47.1 13.2	Acruz	173 29.6 S63 02.4
	03	207 50.6	228 49.8 17.8	154 16.0 32.6	150 44.9 21.2	284 49.3 13.2	Adhara	255 26.7 S28 57.5
	04	222 53.1	243 49.3 16.7	169 16.9 33.0	165 47.0 21.2	299 51.6 13.2	Aldebaran	291 10.4 N16 29.4
	05	237 55.5	258 48.8 15.5	184 17.8 33.4	180 49.1 21.3	314 53.9 13.2		
	06	252 58.0	273 48.3 S10 14.4	199 18.7 N20 33.8	195 51.2 N19 21.4	329 56.1 S22 13.2	Alioth	166 35.9 N56 00.8
	07	268 00.5	288 47.8 13.3	214 19.6 34.1	210 53.4 21.5	344 58.4 13.1	Alkaid	153 12.7 N49 21.7
	08	283 02.9	303 47.3 12.1	229 20.5 34.5	225 55.5 21.6	0 00.7 13.1	Al Na'ir	28 06.8 S47 00.9
	09	298 05.4	318 46.8 11.0	244 21.4 34.9	240 57.6 21.6	15 02.9 13.1	Alnilam	276 04.9 S 1 12.5
	10	313 07.8	333 46.4 09.9	259 22.3 35.2	255 59.7 21.7	30 05.2 13.1	Alphard	218 13.8 S 8 36.8
	11	328 10.3	348 45.9 08.7	274 23.2 35.6	271 01.9 21.8	45 07.5 13.1		
	12	343 12.8	3 45.4 S10 07.6	289 24.1 N20 36.0	286 04.0 N19 21.9	60 09.7 S22 13.1	Alphecca	126 26.3 N26 44.6
	13	358 15.2	18 44.9 06.5	304 24.9 36.3	301 06.1 22.0	75 12.0 13.1	Alpheratz	358 02.9 N29 01.8
	14	13 17.7	33 44.4 05.3	319 25.8 36.7	316 08.2 22.0	90 14.3 13.0	Altair	62 26.3 N 8 50.1
	15	28 20.2	48 43.9 04.2	334 26.7 37.1	331 10.3 22.1	105 16.5 13.0	Ankaa	353 33.9 S42 22.0
	16	43 22.6	63 43.4 03.1	349 27.6 37.4	346 12.5 22.2	120 18.8 13.0	Antares	112 48.7 S26 24.7
	17	58 25.1	78 42.9 01.9	4 28.5 37.8	1 14.6 22.3	135 21.1 13.0		
	18	73 27.6	93 42.5 S10 00.8	19 29.4 N20 38.2	16 16.7 N19 22.4	150 23.3 S22 13.0	Arcturus	146 12.1 N19 14.0
	19	88 30.0	108 42.0 9 59.7	34 30.3 38.5	31 18.8 22.4	165 25.6 13.0	Atria	108 07.1 S69 00.4
	20	103 32.5	123 41.5 58.5	49 31.2 38.9	46 21.0 22.5	180 27.9 12.9	Avior	234 25.2 S59 28.6
	21	118 35.0	138 41.0 57.4	64 32.1 39.2	61 23.1 22.6	195 30.1 12.9	Bellatrix	278 51.6 N 6 20.5
	22	133 37.4	153 40.5 56.2	79 33.0 39.6	76 25.2 22.7	210 32.4 12.9	Betelgeuse	271 21.0 N 7 24.4
23	148 39.9	168 40.0 55.1	94 33.9 40.0	91 27.3 22.8	225 34.7 12.9			
LUNES	6 00	163 42.3	183 39.5 S 9 54.0	109 34.8 N20 40.3	106 29.4 N19 22.9	240 36.9 S22 12.9	Canopus	264 04.1 S52 41.5
	01	178 44.8	198 39.1 52.8	124 35.7 40.7	121 31.5 22.9	255 39.2 12.9	Capella	281 01.5 N45 59.6
	02	193 47.3	213 38.6 51.7	139 36.6 41.1	136 33.7 23.0	270 41.5 12.8	Deneb	49 44.4 N45 14.2
	03	208 49.7	228 38.1 50.5	154 37.5 41.4	151 35.8 23.1	285 43.7 12.8	Denebola	182 51.9 N14 37.8
	04	223 52.2	243 37.6 49.4	169 38.4 41.8	166 37.9 23.2	300 46.0 12.8	Diphda	349 14.4 S18 02.8
	05	238 54.7	258 37.1 48.3	184 39.3 42.2	181 40.0 23.3	315 48.3 12.8		
	06	253 57.1	273 36.7 S 9 47.1	199 40.2 N20 42.5	196 42.1 N19 23.3	330 50.5 S22 12.8	Dubhe	194 12.9 N61 48.5
	07	268 59.6	288 36.2 46.0	214 41.1 42.9	211 44.3 23.4	345 52.8 12.8	Elnath	278 35.7 N28 36.1
	08	284 02.1	303 35.7 44.8	229 42.0 43.2	226 46.4 23.5	0 55.1 12.8	Eltanin	90 54.8 N51 28.9
	09	299 04.5	318 35.2 43.7	244 42.8 43.6	241 48.5 23.6	15 57.4 12.7	Enif	34 05.4 N 9 49.3
	10	314 07.0	333 34.7 42.5	259 43.7 44.0	256 50.6 23.7	30 59.6 12.7	Fomalhaut	15 44.3 S29 40.9
	11	329 09.5	348 34.3 41.4	274 44.6 44.3	271 52.7 23.7	46 01.9 12.7		
	12	344 11.9	3 33.8 S 9 40.3	289 45.5 N20 44.7	286 54.8 N19 23.8	61 04.2 S22 12.7	Gacrux	172 21.1 S57 03.2
	13	359 14.4	18 33.3 39.1	304 46.4 45.1	301 57.0 23.9	76 06.4 12.7	Gienah	176 10.9 S17 29.1
	14	14 16.8	33 32.8 38.0	319 47.3 45.4	316 59.1 24.0	91 08.7 12.7	Hadar	149 13.8 S60 19.3
	15	29 19.3	48 32.3 36.8	334 48.2 45.8	332 01.2 24.1	106 11.0 12.6	Hamal	328 21.7 N23 24.8
	16	44 21.8	63 31.9 35.7	349 49.1 46.1	347 03.3 24.1	121 13.2 12.6	Kaus Aust.	84 08.2 S34 23.5
	17	59 24.2	78 31.4 34.5	4 50.0 46.5	2 05.4 24.2	136 15.5 12.6		
	18	74 26.7	93 30.9 S 9 33.4	19 50.9 N20 46.9	17 07.5 N19 24.3	151 17.8 S22 12.6	Kochab	137 18.1 N74 11.5
	19	89 29.2	108 30.4 32.2	34 51.8 47.2	32 09.7 24.4	166 20.1 12.6	Markab	13 56.9 N15 08.7
	20	104 31.6	123 30.0 31.1	49 52.7 47.6	47 11.8 24.5	181 22.3 12.6	Menkar	314 34.3 N 4 02.9
	21	119 34.1	138 29.5 29.9	64 53.5 47.9	62 13.9 24.6	196 24.6 12.5	Menkent	148 29.0 S36 19.1
	22	134 36.6	153 29.0 28.8	79 54.4 48.3	77 16.0 24.6	211 26.9 12.5	Miaplacidus	221 43.1 S69 40.5
23	149 39.0	168 28.5 27.6	94 55.3 48.7	92 18.1 24.7	226 29.1 12.5			
MARTES	7 00	164 41.5	183 28.0 S 9 26.5	109 56.2 N20 49.0	107 20.2 N19 24.8	241 31.4 S22 12.5	Mirfak	309 06.9 N49 49.7
	01	179 43.9	198 27.6 25.3	124 57.1 49.4	122 22.3 24.9	256 33.7 12.5	Nunki	76 21.1 S26 18.8
	02	194 46.4	213 27.1 24.2	139 58.0 49.7	137 24.4 25.0	271 36.0 12.5	Pellcock	53 48.2 S56 46.2
	03	209 48.9	228 26.6 23.0	154 58.9 50.1	152 26.6 25.0	286 38.2 12.5	Pollux	243 49.8 N28 03.3
	04	224 51.3	243 26.2 21.9	169 59.8 50.4	167 28.7 25.1	301 40.5 12.4	Procyon	245 18.6 N 5 15.2
	05	239 53.8	258 25.7 20.7	185 00.7 50.8	182 30.8 25.2	316 42.8 12.4		
	06	254 56.3	273 25.2 S 9 19.6	200 01.6 N20 51.2	197 32.9 N19 25.3	331 45.0 S22 12.4	Rasalhague	96 23.5 N12 33.7
	07	269 58.7	288 24.7 18.4	215 02.4 51.5	212 35.0 25.4	346 47.3 12.4	Regulus	208 02.6 N12 01.1
	08	285 01.2	303 24.3 17.3	230 03.3 51.9	227 37.1 25.5	1 49.6 12.4	Rigel	281 29.6 S 8 12.8
	09	300 03.7	318 23.8 16.1	245 04.2 52.2	242 39.2 25.5	16 51.9 12.4	Rigel Kent.	140 16.6 S60 47.4
	10	315 06.1	333 23.3 15.0	260 05.1 52.6	257 41.3 25.6	31 54.1 12.3	Sabik	102 33.5 S15 42.9
	11	330 08.6	348 22.8 13.8	275 06.0 52.9	272 43.5 25.7	46 56.4 12.3		
	12	345 11.1	3 22.4 S 9 12.7	290 06.9 N20 53.3	287 45.6 N19 25.8	61 58.7 S22 12.3	Schedar	350 02.3 N56 28.8
	13	0 13.5	18 21.9 11.5	305 07.8 53.7	302 47.7 25.9	77 00.9 12.3	Shaula	96 46.8 S37 05.9
	14	15 16.0	33 21.4 10.3	320 08.7 54.0	317 49.8 25.9	92 03.2 12.3	Sirius	258 49.7 S16 42.1
	15	30 18.4	48 21.0 09.2	335 09.5 54.4	332 51.9 26.0	107 05.5 12.3	Spica	158 50.3 S11 06.5
	16	45 20.9	63 20.5 08.0	350 10.4 54.7	347 54.0 26.1	122 07.8 12.2	Suhail	223 05.7 S43 23.4
	17	60 23.4	78 20.0 06.9	5 11.3 55.1	2 56.1 26.2	137 10.0 12.2		
	18	75 25.8	93 19.6 S 9 05.7	20 12.2 N20 55.4	17 58.2 N19 26.3	152 12.3 S22 12.2	Vega	80 51.5 N38 46.0
	19	90 28.3	108 19.1 04.6	35 13.1 55.8	33 00.3 26.4	167 14.6 12.2	Zuben'ubi	137 25.5 S16 00.0
	20	105 30.8	123 18.6 03.4	50 14.0 56.1	48 02.4 26.4	182 16.9 12.2		
	21	120 33.2	138 18.2 02.2	65 14.9 56.5	63 04.5 26.5	197 19.1 12.2		
	22	135 35.7	153 17.7 9 01.1	80 15.8 56.8	78 06.7 26.6	212 21.4 12.2		
23	150 38.2	168 17.2 8 59.9	95 16.6 57.2	93 08.8 26.7	227 23.7 12.1			
Pas. Mer. 13 03.0						A. H. S. Pas. Mer.		
v -0.5 d 1.1						o / h m		
v 0.9 d 0.4						19 57.2 11 46		
v 2.1 d 0.1						305 52.5 16 41		
v 2.3 d 0.0						302 47.1 16 52		
						76 54.6 7 56		



T.M.G. (TU)	SOL		LUNA				Lat.	Crepúsculo		Orto Sol	Orto Luna							
	A.H.G.	Dec.	A.H.G.	v	Dec.	d		P.H.	Náut.		Civil	5	6	7	8			
																h	m	h
MOD OGN	5 00	177 05.8	S 6 08.7	213 29.1	7.1	S21 11.9	11.9	59.7	N 72	04 44	06 03	07 11	08 15	07 21	06 41			
	01	192 06.0	07.7	227 55.2	7.1	21 00.0	12.1	59.7	N 70	04 52	06 03	07 04	09 11	07 49	07 11			
	02	207 06.1	06.8	242 21.3	7.1	20 47.9	12.2	59.7	68	04 59	06 03	06 59	08 13	07 29	07 02			
	03	222 06.2	05.8	256 47.4	7.3	20 35.7	12.4	59.8	66	05 04	06 03	06 54	07 39	07 13	06 55			
	04	237 06.4	04.8	271 13.7	7.2	20 23.3	12.5	59.8	64	05 08	06 03	06 50	07 14	07 00	06 49			
	05	252 06.5	03.9	285 39.9	7.3	20 10.8	12.6	59.8	62	05 11	06 03	06 47	06 54	06 48	06 44			
	06	267 06.7	S 6 02.9	300 06.2	7.4	S19 58.2	12.7	59.9	60	05 14	06 03	06 44	06 37	06 39	06 39			
	07	282 06.8	01.9	314 32.6	7.4	19 45.5	12.9	59.9	N 58	05 17	06 02	06 41	06 24	06 30	06 35			
	08	297 06.9	01.0	328 59.0	7.5	19 32.6	13.1	60.0	56	05 19	06 02	06 39	06 12	06 23	06 31			
	09	312 07.1	6 00.0	343 25.5	7.5	19 19.5	13.2	60.0	54	05 21	06 02	06 37	06 01	06 16	06 28			
	10	327 07.2	5 59.0	357 52.0	7.6	19 06.3	13.3	60.0	52	05 22	06 01	06 35	05 52	06 10	06 25			
	11	342 07.4	58.1	12 18.6	7.6	18 53.0	13.4	60.1	50	05 24	06 01	06 33	05 43	06 04	06 22			
	12	357 07.5	S 5 57.1	26 45.2	7.7	S18 39.6	13.6	60.1	45	05 26	06 00	06 29	05 25	05 52	06 16			
	13	12 07.6	56.1	41 11.9	7.7	18 26.0	13.6	60.1	N 40	05 28	05 59	06 26	05 10	05 42	06 11			
	14	27 07.8	55.2	55 38.6	7.8	18 12.4	13.9	60.2	35	05 29	05 58	06 23	04 58	05 34	06 06			
	15	42 07.9	54.2	70 05.4	7.8	17 58.5	13.9	60.2	30	05 29	05 57	06 21	04 47	05 26	06 02			
	16	57 08.1	53.2	84 32.2	7.9	17 44.6	14.1	60.2	20	05 28	05 54	06 16	04 28	05 13	05 55			
	17	72 08.2	52.3	98 59.1	7.9	17 30.5	14.1	60.3	N 10	05 26	05 51	06 12	04 11	05 02	05 49			
	18	87 08.4	S 5 51.3	113 26.0	8.0	S17 16.4	14.3	60.3	0	05 23	05 47	06 08	03 56	04 51	05 44			
	19	102 08.5	50.3	127 53.0	8.1	17 02.1	14.5	60.3	S 10	05 18	05 43	06 04	03 40	04 40	05 38			
	20	117 08.6	49.4	142 20.1	8.1	16 47.6	14.5	60.3	20	05 11	05 37	05 59	03 23	04 28	05 32			
	21	132 08.8	48.4	156 47.2	8.1	16 33.1	14.6	60.4	30	05 02	05 30	05 54	03 04	04 15	05 25			
	22	147 08.9	47.4	171 14.3	8.2	16 18.5	14.8	60.4	35	04 56	05 26	05 51	02 52	04 07	05 21			
23	162 09.1	46.5	185 41.5	8.3	16 03.7	14.9	60.4	40	04 48	05 20	05 48	02 39	03 58	05 16				
LUNES	6 00	177 09.2	S 5 45.5	200 08.8	8.3	S15 48.8	15.0	60.5	45	04 38	05 14	05 44	02 24	03 47	05 11			
	01	192 09.4	44.5	214 36.1	8.3	15 33.8	15.1	60.5	S 50	04 26	05 06	05 39	02 04	03 34	05 04			
	02	207 09.5	43.5	229 03.4	8.4	15 18.7	15.2	60.5	52	04 20	05 02	05 37	01 55	03 28	05 01			
	03	222 09.6	42.6	243 30.8	8.5	15 03.5	15.3	60.6	54	04 13	04 58	05 34	01 45	03 22	04 58			
	04	237 09.8	41.6	257 58.3	8.5	14 48.2	15.4	60.6	56	04 06	04 53	05 31	01 33	03 14	04 55			
	05	252 09.9	40.6	272 25.8	8.5	14 32.8	15.5	60.6	58	03 57	04 48	05 28	01 20	03 06	04 50			
	06	267 10.1	S 5 39.7	286 53.3	8.6	S14 17.3	15.6	60.6	S 60	03 47	04 41	05 25	01 04	02 56	04 46			
	07	282 10.2	38.7	301 20.9	8.7	14 01.7	15.7	60.7	Lat.	Ocaso Sol	Crepúsculo		Ocaso Luna					
	08	297 10.4	37.7	315 48.6	8.7	13 46.0	15.8	60.7			Civil	Náut.	5	6	7	8		
	09	312 10.5	36.8	330 16.3	8.7	13 30.2	15.9	60.7	N 72	17 14	18 22	19 41	11 30	14 23	17 10	19 44		
	10	327 10.7	35.8	344 44.0	8.8	13 14.3	16.0	60.7	N 70	17 20	18 21	19 33	11 30	14 47	17 17	19 39		
	11	342 10.8	34.8	359 11.8	8.8	12 58.3	16.0	60.8	68	17 25	18 21	19 26	12 26	15 04	17 22	19 35		
	12	357 10.9	S 5 33.9	13 39.6	8.9	S12 42.3	16.2	60.8	66	17 30	18 21	19 21	12 59	15 18	17 27	19 32		
	13	12 11.1	32.9	28 07.5	8.9	12 26.1	16.2	60.8	64	17 34	18 21	19 16	13 23	15 30	17 31	19 29		
	14	27 11.2	31.9	42 35.4	9.0	12 09.9	16.4	60.8	62	17 37	18 21	19 13	13 41	15 40	17 34	19 26		
	15	42 11.4	30.9	57 03.4	9.0	11 53.5	16.4	60.9	60	17 40	18 21	19 10	13 57	15 48	17 37	19 24		
	16	57 11.5	30.0	71 31.4	9.0	11 37.1	16.5	60.9	N 58	17 42	18 22	19 07	14 10	15 55	17 39	19 22		
	17	72 11.7	29.0	85 59.4	9.1	11 20.6	16.6	60.9	56	17 45	18 22	19 05	14 21	16 02	17 42	19 21		
	18	87 11.8	S 5 28.0	100 27.5	9.1	S11 04.0	16.6	60.9	54	17 47	18 22	19 03	14 30	16 07	17 44	19 19		
	19	102 12.0	27.1	114 55.6	9.2	10 47.4	16.7	60.9	52	17 49	18 22	19 01	14 39	16 12	17 45	19 18		
	20	117 12.1	26.1	129 23.8	9.2	10 30.7	16.8	61.0	50	17 50	18 23	19 00	14 47	16 17	17 47	19 16		
	21	132 12.3	25.1	143 52.0	9.2	10 13.9	16.9	61.0	45	17 54	18 23	18 57	15 03	16 27	17 50	19 14		
	22	147 12.4	24.1	158 20.2	9.3	9 57.0	17.0	61.0	N 40	17 57	18 24	18 56	15 16	16 35	17 53	19 11		
23	162 12.6	23.2	172 48.5	9.3	9 40.0	17.0	61.0	35	18 00	18 25	18 55	15 28	16 42	17 56	19 10			
MARTES	7 00	177 12.7	S 5 22.2	187 16.8	9.3	S 9 23.0	17.0	61.0	30	18 02	18 26	18 54	15 37	16 48	17 58	19 08		
	01	192 12.9	21.2	201 45.1	9.4	9 06.0	17.2	61.1	N 20	18 07	18 29	18 54	15 54	16 58	18 02	19 05		
	02	207 13.0	20.3	216 13.5	9.4	8 48.8	17.2	61.1	0	18 11	18 32	18 56	16 09	17 08	18 05	19 02		
	03	222 13.2	19.3	230 41.9	9.5	8 31.6	17.2	61.1	S 10	18 15	18 35	18 59	16 22	17 16	18 08	19 00		
	04	237 13.3	18.3	245 10.4	9.4	8 14.4	17.3	61.1	20	18 18	18 40	19 04	16 35	17 24	18 11	18 57		
	05	252 13.4	17.3	259 38.8	9.5	7 57.1	17.4	61.1	30	18 23	18 45	19 11	16 49	17 33	18 14	18 55		
	06	267 13.6	S 5 16.4	274 07.3	9.6	S 7 39.7	17.4	61.1	40	18 28	18 52	19 20	17 05	17 43	18 18	18 52		
	07	282 13.7	15.4	288 35.9	9.5	7 22.3	17.5	61.2	50	18 31	18 56	19 26	17 15	17 49	18 20	18 50		
	08	297 13.9	14.4	303 04.4	9.6	7 04.8	17.5	61.2	60	18 34	19 01	19 34	17 25	17 55	18 22	18 48		
	09	312 14.0	13.4	317 33.0	9.6	6 47.3	17.6	61.2	Lat.	18 38	19 08	19 43	17 37	18 02	18 24	18 46		
	10	327 14.2	12.5	332 01.6	9.7	6 29.7	17.6	61.2	SOL	18 43	19 16	19 55	17 52	18 11	18 28	18 43		
	11	342 14.3	11.5	346 30.3	9.7	6 12.1	17.6	61.2	E.T. (-)	18 45	19 19	20 01	17 59	18 15	18 29	18 42		
	12	357 14.5	S 5 10.5	0 59.0	9.6	S 5 54.5	17.7	61.2	Pas. Mer.	18 47	19 23	20 08	18 06	18 20	18 30	18 40		
	13	12 14.6	09.5	15 27.6	9.7	5 36.8	17.7	61.2	Sup.	18 50	19 28	20 15	18 15	18 24	18 32	18 39		
	14	27 14.8	08.6	29 56.3	9.8	5 19.1	17.8	61.2	Inf.	18 53	19 33	20 24	18 24	18 30	18 34	18 37		
	15	42 14.9	07.6	44 25.1	9.7	5 01.3	17.8	61.2	Mer.	18 58	19 38	20 34	18 35	18 36	18 36	18 36		
	16	57 15.1	06.6	58 53.8	9.8	4 43.5	17.8	61.3	Sup.	18 56	19 39	20 34	18 35	18 36	18 36	18 36		
	17	72 15.2	05.7	73 22.6	9.8	S 4 25.7	17.9	61.3	Inf.									
	18	87 15.4	S 5 04.7						Fase									
	19	102 15.5	03.7	Un Eclipse Parcial														
	20	117 15.7	02.7	de Sol ocurre en														
	21	132 15.8	01.8	este día. Ver Página 5														
	22	147 16.0	5 00.8															







T.M.G. (TU)	SOL		LUNA				Lat.	Crepúsculo		Orto Sol	Orto Luna					
	A.H.G.	Dec.	A.H.G.	v	Dec.	d		P.H.	Náut.		Civil	8	9	10	11	
												h	m	h	m	h
M I E R C O L E S	8 00	177 16.3	S 4 58.8	174 44.4	9.9	S 2 20.1	18.0	61.3	N 72	04 28	05 48	06 55	06 41	06 02	05 12	□
	01	192 16.5	57.9	189 13.3	9.9	2 02.1	18.1	61.3	N 70	04 38	05 50	06 50	06 41	06 11	05 35	04 30
	02	207 16.6	56.9	203 42.2	9.9	1 44.0	18.0	61.3	68	04 46	05 51	06 46	06 40	06 18	05 53	05 14
	03	222 16.8	55.9	218 11.1	9.9	1 26.0	18.1	61.3	66	04 52	05 52	06 43	06 40	06 24	06 07	05 44
	04	237 16.9	54.9	232 40.0	9.9	1 07.9	18.0	61.3	64	04 57	05 53	06 40	06 39	06 30	06 19	06 07
	05	252 17.1	54.0	247 08.9	9.9	0 49.9	18.1	61.3	62	05 02	05 53	06 37	06 39	06 34	06 30	06 25
	06	267 17.2	S 4 53.0	261 37.8	9.9	S 0 31.8	18.1	61.3	60	05 05	05 54	06 35	06 39	06 38	06 39	06 40
	07	282 17.4	52.0	276 06.7	9.9	S 0 13.7	18.0	61.3	N 58	05 09	05 54	06 33	06 38	06 42	06 46	06 53
	08	297 17.5	51.0	290 35.6	9.9	N 0 04.3	18.1	61.3	56	05 11	05 54	06 31	06 38	06 45	06 53	07 04
	09	312 17.7	50.1	305 04.5	9.9	N 0 22.4	18.1	61.3	54	05 14	05 55	06 30	06 38	06 48	07 00	07 14
	10	327 17.8	49.1	319 33.4	9.9	0 40.5	18.1	61.3	52	05 16	05 55	06 28	06 38	06 51	07 05	07 23
	11	342 18.0	48.1	334 02.3	9.9	0 58.6	18.0	61.3	50	05 17	05 55	06 27	06 38	06 53	07 10	07 31
	12	357 18.1	S 4 47.1	348 31.2	9.9	N 1 16.6	18.1	61.3	45	05 21	05 55	06 24	06 37	06 59	07 22	07 48
	13	12 18.3	46.1	3 00.1	9.9	1 34.7	18.0	61.3	N 40	05 23	05 54	06 21	06 37	07 03	07 31	08 03
	14	27 18.4	45.2	17 29.0	9.9	1 52.7	18.0	61.3	35	05 25	05 54	06 19	06 37	07 07	07 39	08 15
	15	42 18.6	44.2	31 57.9	9.9	2 10.7	18.0	61.3	30	05 26	05 53	06 17	06 36	07 10	07 46	08 25
	16	57 18.8	43.2	46 26.8	9.9	2 28.7	18.0	61.3	20	05 26	05 52	06 14	06 36	07 17	07 59	08 43
	17	72 18.9	42.2	60 55.7	9.8	2 46.7	18.0	61.3	N 10	05 25	05 49	06 10	06 36	07 22	08 09	09 00
	18	87 19.1	S 4 41.3	75 24.5	9.9	N 3 04.7	17.9	61.3	0	05 22	05 47	06 07	06 35	07 27	08 20	09 15
	19	102 19.2	40.3	89 53.4	9.8	3 22.6	17.9	61.3	S 10	05 18	05 43	06 04	06 35	07 32	08 30	09 30
	20	117 19.4	39.3	104 22.2	9.8	3 40.5	17.9	61.3	20	05 13	05 38	06 00	06 35	07 38	08 42	09 46
	21	132 19.5	38.3	118 51.0	9.8	3 58.4	17.9	61.3	30	05 04	05 32	05 56	06 35	07 44	08 55	10 05
	22	147 19.7	37.4	133 19.8	9.8	4 16.3	17.9	61.3	35	04 58	05 28	05 54	06 35	07 48	09 02	10 17
23	162 19.8	36.4	147 48.6	9.8	4 34.2	17.8	61.3	40	04 51	05 24	05 51	06 34	07 52	09 11	10 29	
9 00	177 20.0	S 4 35.4	162 17.4	9.8	N 4 52.0	17.7	61.3	45	04 43	05 18	05 48	06 34	07 58	09 21	10 45	
01	192 20.2	34.4	176 46.2	9.7	5 09.7	17.8	61.2	S 50	04 32	05 11	05 44	06 34	08 04	09 34	11 04	
02	207 20.3	33.4	191 14.9	9.7	5 27.5	17.7	61.2	52	04 26	05 08	05 42	06 34	08 06	09 39	11 13	
03	222 20.5	32.5	205 43.6	9.7	5 45.2	17.6	61.2	54	04 20	05 04	05 40	06 34	08 09	09 46	11 23	
04	237 20.6	31.5	220 12.3	9.7	6 02.8	17.6	61.2	56	04 13	05 00	05 38	06 34	08 13	09 53	11 34	
05	252 20.8	30.5	234 41.0	9.6	6 20.4	17.6	61.2	58	04 05	04 55	05 35	06 34	08 17	10 01	11 48	
06	267 20.9	S 4 29.5	249 09.6	9.7	N 6 38.0	17.5	61.2	S 60	03 56	04 50	05 33	06 34	08 21	10 11	12 03	
07	282 21.1	28.6	263 38.3	9.6	6 55.5	17.5	61.2	Lat.	Ocaso Sol	Crepúsculo		Ocaso Luna				
08	297 21.2	27.6	278 06.9	9.5	7 13.0	17.4	61.2			Civil	Náut.	8	9	10	11	
09	312 21.4	26.6	292 35.4	9.6	7 30.4	17.4	61.1									
10	327 21.6	25.6	307 04.0	9.5	7 47.8	17.3	61.1									
11	342 21.7	24.6	321 32.5	9.5	8 05.1	17.3	61.1	N 70	17 28	18 35	19 56	19 44	22 27	□	□	
12	357 21.9	S 4 23.7	336 01.0	9.4	N 8 22.4	17.2	61.1	N 70	17 33	18 34	19 46	19 39	22 07	25 07	01 07	
13	12 22.0	22.7	350 29.4	9.5	8 39.6	17.2	61.1	68	17 37	18 32	19 38	19 35	22 07	24 24	00 24	
14	27 22.2	21.7	4 57.9	9.4	8 56.8	17.0	61.1	66	17 40	18 31	19 31	19 32	21 39	23 56	26 47	
15	42 22.3	20.7	19 26.3	9.3	9 13.8	17.1	61.1	64	17 43	18 30	19 26	19 29	21 29	23 34	25 52	
16	57 22.5	19.7	33 54.6	9.3	9 30.9	16.9	61.0	62	17 45	18 29	19 21	19 26	21 20	23 17	25 20	
17	72 22.7	18.8	48 22.9	9.3	9 47.8	16.9	61.0	60	17 47	18 29	19 17	19 24	21 12	23 03	24 56	
18	87 22.8	S 4 17.8	62 51.2	9.3	N 10 04.7	16.8	61.0	N 58	17 49	18 28	19 14	19 22	21 06	22 51	24 37	
19	102 23.0	16.8	77 19.5	9.2	10 21.5	16.8	61.0	56	17 51	18 28	19 11	19 21	21 00	22 41	24 21	
20	117 23.1	15.8	91 47.7	9.1	10 38.3	16.6	61.0	54	17 52	18 28	19 09	19 19	20 55	22 32	24 08	
21	132 23.3	14.9	106 15.8	9.2	10 54.9	16.6	60.9	52	17 54	18 28	19 07	19 18	20 50	22 24	23 56	
22	147 23.5	13.9	120 44.0	9.1	11 11.5	16.5	60.9	50	17 55	18 27	19 05	19 16	20 46	22 16	23 45	
23	162 23.6	12.9	135 12.1	9.0	11 28.0	16.5	60.9	45	17 58	18 27	19 01	19 14	20 37	22 01	23 24	
10 00	177 23.8	S 4 11.9	149 40.1	9.0	N 11 44.5	16.3	60.9	N 40	18 00	18 27	18 59	19 11	20 30	21 48	23 06	
01	192 23.9	10.9	164 08.1	9.0	12 00.8	16.3	60.9	35	18 03	18 28	18 57	19 10	20 23	21 38	22 52	
02	207 24.1	10.0	178 36.1	8.9	12 17.1	16.2	60.8	30	18 04	18 28	18 56	19 08	20 18	21 28	22 39	
03	222 24.3	09.0	193 04.0	8.9	12 33.3	16.1	60.8	20	18 08	18 30	18 55	19 05	20 08	21 12	22 17	
04	237 24.4	08.0	207 31.9	8.8	12 49.4	16.0	60.8	N 10	18 11	18 32	18 56	19 02	20 00	20 58	21 59	
05	252 24.6	07.0	221 59.7	8.8	13 05.4	15.9	60.8	0	18 14	18 35	18 59	19 00	19 52	20 46	21 42	
06	267 24.7	S 4 06.0	236 27.5	8.8	N 13 21.3	15.8	60.7	S 10	18 17	18 38	19 02	18 57	19 44	20 33	21 24	
07	282 24.9	05.1	250 55.3	8.7	13 37.1	15.8	60.7	20	18 20	18 42	19 08	18 55	19 36	20 19	21 06	
08	297 25.1	04.1	265 23.0	8.6	13 52.9	15.6	60.7	30	18 24	18 48	19 16	18 52	19 26	20 03	20 45	
09	312 25.2	03.1	279 50.6	8.6	14 08.5	15.6	60.7	35	18 27	18 52	19 22	18 50	19 21	19 54	20 32	
10	327 25.4	02.1	294 18.2	8.6	14 24.1	15.4	60.6	40	18 29	18 57	19 29	18 48	19 15	19 44	20 18	
11	342 25.5	01.1	308 45.8	8.5	14 39.5	15.3	60.6	45	18 32	19 02	19 37	18 46	19 08	19 32	20 02	
12	357 25.7	S 4 00.1	323 13.3	8.4	N 14 54.8	15.3	60.6	S 50	18 36	19 09	19 48	18 43	18 59	19 18	19 41	
13	12 25.9	3 59.2	337 40.7	8.4	15 10.1	15.1	60.6	52	18 38	19 12	19 53	18 42	18 55	19 11	19 32	
14	27 26.0	58.2	352 08.1	8.4	15 25.2	15.0	60.5	54	18 40	19 16	19 59	18 40	18 51	19 04	19 21	
15	42 26.2	57.2	6 35.5	8.3	15 40.2	14.9	60.5	56	18 42	19 20	20 06	18 39	18 46	18 56	19 09	
16	57 26.3	56.2	21 02.8	8.2	15 55.1	14.8	60.5	58	18 44	19 24	20 14	18 37	18 41	18 46	18 55	
17	72 26.5	55.2	35 30.0	8.2	16 09.9	14.7	60.5	S 60	18 47	19 30	20 23	18 36	18 35	18 36	18 38	
18	87 26.7	S 3 54.3	49 57.2	8.1	N 16 24.6	14.6	60.4	Día	SOL E.T. (-)		LUNA					
19	102 26.8	53.3	64 24.3	8.1	16 39.2	14.5	60.4									



T.M.G. (TU)	ARIES		VENUS -3.9		MARTE +1.1		JUPITER -2.2		SATURNO +0.6		ESTRELLAS		
	A.H.G.	Dec.	A.H.G.	Dec.	A.H.G.	Dec.	A.H.G.	Dec.	A.H.G.	Dec.	Nombre	A. H. S.	Dec.
11 00	168 38.0	182 44.0 S 7 34.2	111 20.8 N21 22.4	110 41.9 N19 32.8	245 10.1 S22 11.0	Acamar	315 32.3 S40 21.0						
01	183 40.5	197 43.6 33.0	126 21.7 22.7	125 44.0 32.9	260 12.4 11.0	Achernar	335 40.5 S57 17.6						
02	198 43.0	212 43.2 31.8	141 22.6 23.1	140 46.1 33.0	275 14.7 11.0	Acrux	173 29.5 S63 02.4						
03	213 45.4	227 42.7 .. 30.6	156 23.4 .. 23.4	155 48.2 .. 33.1	290 17.0 .. 11.0	Adhara	255 26.8 S28 57.5						
04	228 47.9	242 42.3 29.4	171 24.3 23.7	170 50.3 33.1	305 19.3 11.0	Aldebaran	291 10.5 N16 29.4						
05	243 50.4	257 41.8 28.3	186 25.2 24.1	185 52.4 33.2	320 21.6 10.9								
06	258 52.8	272 41.4 S 7 27.1	201 26.0 N21 24.4	200 54.5 N19 33.3	335 23.9 S22 10.9	Alioth	166 35.8 N56 00.8						
07	273 55.3	287 41.0 25.9	216 26.9 24.7	215 56.6 33.4	350 26.1 10.9	Alkaid	153 12.6 N49 21.7						
08	288 57.8	302 40.5 24.7	231 27.8 25.1	230 58.6 33.5	5 28.4 10.9	Al Na'ir	28 06.8 S47 00.9						
09	304 00.2	317 40.1 .. 23.5	246 28.7 .. 25.4	246 00.7 .. 33.6	20 30.7 .. 10.9	Alnilam	276 04.9 S 1 12.5						
10	319 02.7	332 39.6 22.3	261 29.5 25.7	261 02.8 33.7	35 33.0 10.9	Alphard	218 13.8 S 8 36.8						
11	334 05.1	347 39.2 21.1	276 30.4 26.1	276 04.9 33.7	50 35.3 10.9								
12	349 07.6	2 38.8 S 7 19.9	291 31.3 N21 26.4	291 07.0 N19 33.8	65 37.6 S22 10.8	Alphecca	126 26.2 N26 44.6						
13	4 10.1	17 38.3 18.7	306 32.1 26.7	306 09.1 33.9	80 39.9 10.8	Alpheratz	358 02.9 N29 01.8						
14	19 12.5	32 37.9 17.5	321 33.0 27.1	321 11.2 34.0	95 42.1 10.8	Altair	62 26.2 N 8 50.1						
15	34 15.0	47 37.4 .. 16.3	336 33.9 .. 27.4	336 13.3 .. 34.1	110 44.4 .. 10.8	Ankaa	353 33.9 S42 22.0						
16	49 17.5	62 37.0 15.1	351 34.8 27.7	351 15.3 34.2	125 46.7 10.8	Antares	112 48.7 S26 24.7						
17	64 19.9	77 36.6 14.0	6 35.6 28.1	6 17.4 34.3	140 49.0 10.8								
18	79 22.4	92 36.1 S 7 12.8	21 36.5 N21 23.4	21 19.5 N19 34.3	155 51.3 S22 10.8	Arcturus	146 12.1 N19 14.0						
19	94 24.9	107 35.7 11.6	36 37.4 28.7	36 21.6 34.4	170 53.6 10.7	Atria	108 07.0 S69 00.5						
20	109 27.3	122 35.3 10.4	51 38.2 29.1	51 23.7 34.5	185 55.9 10.7	Avior	234 25.3 S59 28.6						
21	124 29.8	137 34.8 .. 09.2	66 39.1 .. 29.4	66 25.8 .. 34.6	200 58.2 .. 10.7	Bellatrix	278 51.6 N 6 20.5						
22	139 32.3	152 34.4 08.0	81 40.0 29.7	81 27.8 34.7	216 00.5 10.7	Betelgeuse	271 21.0 N 7 24.4						
23	154 34.7	167 33.9 06.8	96 40.8 30.1	96 29.9 34.8	231 02.7 10.7								
12 00	169 37.2	182 33.5 S 7 05.6	111 41.7 N21 30.4	111 32.0 N19 34.9	246 05.0 S22 10.7	Canopus	264 04.1 S52 41.6						
01	184 39.6	197 33.1 04.4	126 42.6 30.7	126 34.1 34.9	261 07.3 10.7	Capella	281 01.5 N45 59.6						
02	199 42.1	212 32.6 03.2	141 43.4 31.0	141 36.2 35.0	276 09.6 10.6	Deneb	49 44.4 N45 14.2						
03	214 44.6	227 32.2 .. 02.0	156 44.3 .. 31.4	156 38.3 .. 35.1	291 11.9 .. 10.6	Denebola	182 51.9 N14 37.8						
04	229 47.0	242 31.8 7 00.8	171 45.2 31.7	171 40.3 35.2	306 14.2 10.6	Diphda	349 14.4 S18 02.8						
05	244 49.5	257 31.3 6 59.6	186 46.0 32.0	186 42.4 35.3	321 16.5 10.6								
06	259 52.0	272 30.9 S 6 58.4	201 46.9 N21 32.4	201 44.5 N19 35.4	336 18.8 S22 10.6	Dubhe	194 12.9 N61 48.5						
07	274 54.4	287 30.5 57.2	216 47.8 32.7	216 46.6 35.5	351 21.1 10.6	Elnath	278 35.7 N28 36.1						
08	289 56.9	302 30.0 56.0	231 48.6 33.0	231 48.7 35.5	6 23.4 10.6	Eltanin	90 54.7 N51 28.9						
09	304 59.4	317 29.6 .. 54.8	246 49.5 .. 33.3	246 50.8 .. 35.6	21 25.6 .. 10.5	Enif	34 05.4 N 9 49.3						
10	320 01.8	332 29.2 53.6	261 50.4 33.7	261 52.8 35.7	36 27.9 10.5	Fomalhaut	15 44.3 S29 40.9						
11	335 04.3	347 28.7 52.4	276 51.2 34.0	276 54.9 35.8	51 30.2 10.5								
12	350 06.7	2 28.3 S 6 51.2	291 52.1 N21 34.3	291 57.0 N19 35.9	66 32.5 S22 10.5	Gacrux	172 21.1 S57 03.2						
13	5 09.2	17 27.9 50.0	306 53.0 34.7	306 59.1 36.0	81 34.8 10.5	Gienah	176 10.9 S17 29.1						
14	20 11.7	32 27.4 48.8	321 53.8 35.0	322 01.2 36.1	96 37.1 10.5	Hadar	149 13.7 S60 19.3						
15	35 14.1	47 27.0 .. 47.6	336 54.7 .. 35.3	337 03.2 .. 36.1	111 39.4 .. 10.4	Hamal	328 21.7 N23 24.8						
16	50 16.6	62 26.6 46.4	351 55.6 35.6	352 05.3 36.2	126 41.7 10.4	Kaus Aust.	84 08.1 S34 23.5						
17	65 19.1	77 26.1 45.2	6 56.4 36.0	7 07.4 36.3	141 44.0 10.4								
18	80 21.5	92 25.7 S 6 44.0	21 57.3 N21 36.3	22 09.5 N19 36.4	156 46.3 S22 10.4	Kochab	137 18.0 N74 11.6						
19	95 24.0	107 25.3 42.8	36 58.2 36.6	37 11.6 36.5	171 48.6 10.4	Markab	13 56.9 N15 08.7						
20	110 26.5	122 24.9 41.6	51 59.0 36.9	52 13.6 36.6	186 50.8 10.4	Menkar	314 34.4 N 4 02.9						
21	125 28.9	137 24.4 .. 40.4	66 59.9 .. 37.3	67 15.7 .. 36.7	201 53.1 .. 10.4	Menkent	148 29.0 S36 19.1						
22	140 31.4	152 24.0 39.2	82 00.8 37.6	82 17.8 36.7	216 55.4 10.3	Miaplacidus	221 43.2 S69 40.5						
23	155 33.9	167 23.6 38.0	97 01.6 37.9	97 19.9 36.8	231 57.7 10.3								
13 00	170 36.3	182 23.1 S 6 36.8	112 02.5 N21 38.2	112 21.9 N19 36.9	247 00.0 S22 10.3	Mirfak	309 07.0 N49 49.7						
01	185 38.8	197 22.7 35.6	127 03.4 38.6	127 24.0 37.0	262 02.3 10.3	Nunki	76 21.0 S26 18.8						
02	200 41.2	212 22.3 34.4	142 04.2 38.9	142 26.1 37.1	277 04.6 10.3	Peacock	53 48.1 S56 46.2						
03	215 43.7	227 21.9 .. 33.2	157 05.1 .. 39.2	157 28.2 .. 37.2	292 06.9 .. 10.3	Pollux	243 49.8 N28 03.3						
04	230 46.2	242 21.4 32.0	172 06.0 39.5	172 30.3 37.3	307 09.2 10.3	Procyon	245 18.6 N 5 15.2						
05	245 48.6	257 21.0 30.8	187 06.8 39.9	187 32.3 37.4	322 11.5 10.2								
06	260 51.1	272 20.6 S 6 29.6	202 07.7 N21 40.2	202 34.4 N19 37.4	337 13.8 S22 10.2	Rasalhague	96 23.4 N12 33.7						
07	275 53.6	287 20.1 28.4	217 08.5 40.5	217 36.5 37.5	352 16.1 10.2	Regulus	208 02.6 N12 01.1						
08	290 56.0	302 19.7 27.2	232 09.4 40.8	232 38.6 37.6	7 18.4 10.2	Rigel	281 29.6 S 8 12.8						
09	305 58.5	317 19.3 .. 25.9	247 10.3 .. 41.2	247 40.6 .. 37.7	22 20.7 .. 10.2	Rigel Kent.	140 16.6 S60 47.4						
10	321 01.0	332 18.9 24.7	262 11.1 41.5	262 42.7 37.8	37 23.0 10.2	Sabik	102 33.5 S15 42.9						
11	336 03.4	347 18.4 23.5	277 12.0 41.8	277 44.8 37.9	52 25.2 10.2								
12	351 05.9	2 18.0 S 6 22.3	292 12.9 N21 42.1	292 46.9 N19 38.0	67 27.5 S22 10.1	Schedar	350 02.3 N56 28.8						
13	6 08.4	17 17.6 21.1	307 13.7 42.4	307 48.9 38.0	82 29.8 10.1	Shaula	96 46.8 S37 05.9						
14	21 10.8	32 17.2 19.9	322 14.6 42.8	322 51.0 38.1	97 32.1 10.1	Sirius	258 49.7 S16 42.2						
15	36 13.3	47 16.7 .. 18.7	337 15.4 .. 43.1	337 53.1 .. 38.2	112 34.4 .. 10.1	Spica	158 50.3 S11 06.5						
16	51 15.7	62 16.3 17.5	352 16.3 43.4	352 55.2 38.3	127 36.7 10.1	Suhail	223 05.7 S43 23.5						
17	66 18.2	77 15.9 16.3	7 17.2 43.7	7 57.2 38.4	142 39.0 10.1								
18	81 20.7	92 15.5 S 6 15.1	22 18.0 N21 44.1	22 59.3 N19 38.5	157 41.3 S22 10.1	Vega	80 51.5 N38 46.0						
19	96 23.1	107 15.0 13.9	37 18.9 44.4	38 01.4 38.6	172 43.6 10.0	Zuben'ubi	137 25.5 S16 00.0						
20	111 25.6	122 14.6 12.7	52 19.7 44.7	53 03.5 38.7	187 45.9 10.0								
21	126 28.1	137 14.2 .. 11.4	67 20.6 .. 45.0	68 05.5 .. 38.7	202 48.2 .. 10.0								
22	141 30.5	152 13.8 10.2	82 21.5 45.3	83 07.6 38.8	217 50.5 10.0								
23	156 33.0	167 13.3 09.0	97 22.3 45.7	98 09.7 38.9	232 52.8 10.0								
Pas. Mer. 12 39.4		v -0.4 d 1.2	v 0.9 d 0.3	v 2.1 d 0.1	v 2.3 d 0.0	A. H. S.		Pas. Mer.					
						Venus	12 56.3 h 11 50 m						
						Marte	302 04.5 h 16 32 m						
						Júpiter	301 54.8 h 16 32 m						







T.M.G. (TU)	ARIES	VENUS -3.9	MARTE +1.2	JUPITER -2.2	SATURNO +0.6	ESTRELLAS		
d h	A.H.G.	A.H.G. Dec.	A.H.G. Dec.	A.H.G. Dec.	A.H.G. Dec.	Nombre	A. H. S.	Dec.
14 00	171 35.5	182 12.9 S 6 07.8	112 23.2 N21 46.0	113 11.7 N19 39.0	247 55.1 S22 10.0	Acamar	315 32.3 S40 21.0	
01	186 37.9	197 12.5 06.6	127 24.1 46.3	128 13.8 39.1	262 57.4 10.0	Achernar	335 40.5 S57 17.6	
02	201 40.4	212 12.1 05.4	142 24.9 46.6	143 15.9 39.2	277 59.7 09.9	Acruz	173 29.5 S63 02.4	
03	216 42.9	227 11.7 04.2	157 25.8 46.9	158 18.0 39.3	293 02.0 09.9	Adhara	255 26.8 S28 57.6	
04	231 45.3	242 11.2 03.0	172 26.6 47.2	173 20.0 39.3	308 04.3 09.9	Aldebaran	291 10.5 N16 29.4	
05	246 47.8	257 10.8 01.8	187 27.5 47.6	188 22.1 39.4	323 06.6 09.9			
06	261 50.2	272 10.4 S 6 00.5	202 28.4 N21 47.9	203 24.2 N19 39.5	338 08.9 S22 09.9	Alioth	166 35.8 N56 00.9	
07	276 52.7	287 10.0 5 59.3	217 29.2 48.2	218 26.2 39.6	353 11.2 09.9	Alkaid	153 12.6 N49 21.7	
08	291 55.2	302 09.6 58.1	232 30.1 48.5	233 28.3 39.7	8 13.5 09.9	Al Na'ir	28 06.8 S47 00.8	
M 09	306 57.6	317 09.1 56.9	247 30.9 48.8	248 30.4 39.8	23 15.8 09.8	Alnilam	276 04.9 S 1 12.5	
10	322 00.1	332 08.7 55.7	262 31.8 49.1	263 32.4 39.9	38 18.1 09.8	Alphard	218 13.8 S 8 36.8	
11	337 02.6	347 08.3 54.5	277 32.6 49.5	278 34.5 40.0	53 20.4 09.8			
12	352 05.0	2 07.9 S 5 53.3	292 33.5 N21 49.8	293 36.6 N19 40.0	68 22.7 S22 09.8	Alphecca	126 26.2 N26 44.6	
13	7 07.5	17 07.5 52.1	307 34.4 50.1	308 38.7 40.1	83 25.0 09.8	Alpheratz	358 02.9 N29 01.8	
14	22 10.0	32 07.0 50.8	322 35.2 50.4	323 40.7 40.2	98 27.3 09.8	Altair	62 26.2 N 8 50.1	
15	37 12.4	47 06.6 49.6	337 36.1 50.7	338 42.8 40.3	113 29.6 09.8	Ankaa	353 33.9 S42 22.0	
16	52 14.9	62 06.2 48.4	352 36.9 51.0	353 44.9 40.4	128 31.9 09.7	Antares	112 48.6 S26 24.7	
17	67 17.3	77 05.8 47.2	7 37.8 51.4	8 46.9 40.5	143 34.2 09.7			
18	82 19.8	92 05.4 S 5 46.0	22 38.7 N21 51.7	23 49.0 N19 40.6	158 36.5 S22 09.7	Arcturus	146 12.1 N19 14.0	
19	97 22.3	107 04.9 44.8	37 39.5 52.0	38 51.1 40.7	173 38.8 09.7	Atria	108 06.9 S69 00.5	
20	112 24.7	122 04.5 43.5	52 40.4 52.3	53 53.1 40.7	188 41.1 09.7	Avior	234 25.3 S59 28.7	
21	127 27.2	137 04.1 42.3	67 41.2 52.6	68 55.2 40.8	203 43.3 09.7	Bellatrix	278 51.6 N 6 20.5	
22	142 29.7	152 03.7 41.1	82 42.1 52.9	83 57.3 40.9	218 45.6 09.7	Betelgeuse	271 21.0 N 7 24.4	
23	157 32.1	167 03.3 39.9	97 42.9 53.2	98 59.3 41.0	233 47.9 09.6			
15 00	172 34.6	182 02.9 S 5 38.7	112 43.8 N21 53.6	114 01.4 N19 41.1	248 50.3 S22 09.6	Canopus	264 04.2 S52 41.6	
01	187 37.1	197 02.4 37.5	127 44.7 53.9	129 03.5 41.2	263 52.6 09.6	Capella	281 01.5 N45 59.6	
02	202 39.5	212 02.0 36.2	142 45.5 54.2	144 05.5 41.3	278 54.9 09.6	Deneb	49 44.4 N45 14.2	
03	217 42.0	227 01.6 35.0	157 46.4 54.5	159 07.6 41.4	293 57.2 09.6	Denebola	182 51.9 N14 37.8	
04	232 44.5	242 01.2 33.8	172 47.2 54.8	174 09.7 41.4	308 59.5 09.6	Diphda	349 14.4 S18 02.8	
05	247 46.9	257 00.8 32.6	187 48.1 55.1	189 11.7 41.5	324 01.8 09.6			
06	262 49.4	272 00.4 S 5 31.4	202 48.9 N21 55.4	204 13.8 N19 41.6	339 04.1 S22 09.6	Dubhe	194 12.9 N61 48.5	
07	277 51.8	287 00.0 30.1	217 49.8 55.7	219 15.9 41.7	354 06.4 09.5	Elnath	278 35.7 N28 36.1	
08	292 54.3	301 59.5 28.9	232 50.6 56.1	234 17.9 41.8	9 08.7 09.5	Eltanin	90 54.7 N51 28.9	
09	307 56.8	316 59.1 27.7	247 51.5 56.4	249 20.0 41.9	24 11.0 09.5	Enif	34 05.4 N 9 49.3	
10	322 59.2	331 58.7 26.5	262 52.4 56.7	264 22.1 42.0	39 13.3 09.5	Fomalhaut	15 44.3 S29 40.9	
11	338 01.7	346 58.3 25.3	277 53.2 57.0	279 24.1 42.1	54 15.6 09.5			
12	353 04.2	1 57.9 S 5 24.1	292 54.1 N21 57.3	294 26.2 N19 42.2	69 17.9 S22 09.5	Gacrux	172 21.1 S57 03.3	
13	8 06.6	16 57.5 22.8	307 54.9 57.6	309 28.2 42.2	84 20.2 09.5	Gienah	176 10.9 S17 29.1	
14	23 09.1	31 57.1 21.6	322 55.8 57.9	324 30.1 42.3	99 22.5 09.4	Hadar	149 13.7 S60 19.3	
15	38 11.6	46 56.6 20.4	337 56.6 58.2	339 32.4 42.4	114 24.8 09.4	Hamal	328 21.7 N23 24.8	
16	53 14.0	61 56.2 19.2	352 57.5 58.5	354 34.4 42.5	129 27.1 09.4	Kaus Aust.	84 08.1 S34 23.5	
17	68 16.5	76 55.8 17.9	7 58.3 58.8	9 36.5 42.6	144 29.4 09.4			
18	83 19.0	91 55.4 S 5 16.7	22 59.2 N21 59.1	24 38.6 N19 42.7	159 31.7 S22 09.4	Kochab	137 17.9 N74 11.6	
19	98 21.4	106 55.0 15.5	38 00.0 59.5	39 40.6 42.8	174 34.0 09.4	Markab	13 56.9 N15 08.7	
20	113 23.9	121 54.6 14.3	53 00.9 21 59.8	54 42.7 42.9	189 36.3 09.4	Menkar	314 34.4 N 4 02.9	
21	128 26.3	136 54.2 13.1	68 01.8 22 00.1	69 44.7 42.9	204 38.6 09.3	Menkent	148 29.0 S36 19.2	
22	143 28.8	151 53.8 11.8	83 02.6 00.4	84 46.8 43.0	219 40.9 09.3	Miaplacidus	221 43.2 S69 40.5	
23	158 31.3	166 53.4 10.6	98 03.5 00.7	99 48.9 43.1	234 43.2 09.3			
16 00	173 33.7	181 52.9 S 5 09.4	113 04.3 N22 01.0	114 50.9 N19 43.2	249 45.5 S22 09.3	Mirfak	309 07.0 N49 49.7	
01	188 36.2	196 52.5 08.2	128 05.2 01.3	129 53.0 43.3	264 47.8 09.3	Nunki	76 21.0 S26 18.8	
02	203 38.7	211 52.1 06.9	143 06.0 01.6	144 55.1 43.4	279 50.1 09.3	Peacock	53 48.1 S56 46.2	
03	218 41.1	226 51.7 05.7	158 06.9 01.9	159 57.1 43.5	294 52.4 09.3	Pollux	243 49.8 N28 03.3	
04	233 43.6	241 51.3 04.5	173 07.7 02.2	174 59.2 43.6	309 54.7 09.2	Procyon	245 18.7 N 5 15.2	
05	248 46.1	256 50.9 03.3	188 08.6 02.5	190 01.2 43.7	324 57.0 09.2			
06	263 48.5	271 50.5 S 5 02.0	203 09.4 N22 02.8	205 03.3 N19 43.7	339 59.3 S22 09.2	Rasalhague	96 23.4 N12 33.7	
07	278 51.0	286 50.1 5 00.8	218 10.3 03.1	220 05.4 43.8	355 01.6 09.2	Regulus	208 02.6 N12 01.1	
08	293 53.4	301 49.7 4 59.6	233 11.1 03.4	235 07.4 43.9	10 03.9 09.2	Rigel	281 29.6 S 8 12.8	
J 09	308 55.9	316 49.3 58.4	248 12.0 03.7	250 09.5 44.0	25 06.2 09.2	Rigel Kent.	140 16.5 S60 47.4	
10	323 58.4	331 48.9 57.1	263 12.8 04.1	265 11.5 44.1	40 08.6 09.2	Sabik	102 33.5 S15 42.9	
11	339 00.8	346 48.4 55.9	278 13.7 04.4	280 13.6 44.2	55 10.9 09.2			
12	354 03.3	1 48.0 S 4 54.7	293 14.5 N22 04.7	295 15.6 N19 44.3	70 13.2 S22 09.1	Schedar	350 02.3 N56 28.8	
13	9 05.8	16 47.6 53.5	308 15.4 05.0	310 17.7 44.4	85 15.5 09.1	Shaula	96 46.7 S37 05.9	
14	24 08.2	31 47.2 52.2	323 16.2 05.3	325 19.8 44.5	100 17.8 09.1	Sirius	258 49.7 S16 42.2	
15	39 10.7	46 46.8 51.0	338 17.1 05.6	340 21.8 44.5	115 20.1 09.1	Spica	158 50.3 S11 06.5	
16	54 13.2	61 46.4 49.8	353 17.9 05.9	355 23.9 44.6	130 22.4 09.1	Suhail	223 05.7 S43 23.5	
17	69 15.6	76 46.0 48.6	8 18.8 06.2	10 25.9 44.7	145 24.7 09.1			
18	84 18.1	91 45.6 S 4 47.3	23 19.6 N22 06.5	25 28.0 N19 44.8	160 27.0 S22 09.1	Vega	80 51.4 N38 46.0	
19	99 20.6	106 45.2 46.1	38 20.5 06.8	40 30.0 44.9	175 29.3 09.0	Zuben'ubi	137 25.5 S16 00.0	
20	114 23.0	121 44.8 44.9	53 21.3 07.1	55 32.1 45.0	190 31.6 09.0			
21	129 25.5	136 44.4 43.6	68 22.2 07.4	70 34.2 45.1	205 33.9 09.0			
22	144 27.9	151 44.0 42.4	83 23.0 07.7	85 36.2 45.2	220 36.2 09.0			
23	159 30.4	166 43.6 41.2	98 23.9 08.0	100 38.3 45.3	235 38.5 09.0			
Pas. Mer.	h m 12 27.6	v -0.4 d 1.2	v 0.9 d 0.3	v 2.1 d 0.1	v 2.3 d 0.0			
							A. H. S.	Pas. Mer.
							o / h m	o / h m
							Venus	9 28.3 11 52
							Marte	300 29.2 16 28
							Júpiter	301 26.8 16 22
							Saturno	76 15.7 7 24



T.M.G. (TU)	SOL		LUNA				Lat.	Crepúsculo		Orto Sol	Orto Luna					
	A.H.G.	Dec.	A.H.G.	v	Dec.	d		P.H.	Naut.		Civil	14	15	16	17	
												h m	h m	h m	h m	h m
M A R T E S	14 00	177 39.7	S 2 37.5	94 59.4	5.6	N28 01.3	2.3	57.7	N 72	03 54	05 17	06 24	□	□	□	□
	01	192 39.9	36.5	109 24.0	5.7	28 03.6	2.1	57.7	68	04 08	05 22	06 23	□	□	□	□
	02	207 40.1	35.5	123 48.7	5.7	28 05.7	1.9	57.6	66	04 19	05 26	06 21	□	□	□	□
	03	222 40.2	34.5	138 13.4	5.7	28 07.6	1.8	57.6	64	04 28	05 29	06 20	□	□	□	10 09
	04	237 40.4	33.6	152 38.1	5.8	28 09.4	1.6	57.5	62	04 35	05 32	06 19	□	□	08 17	10 53
	05	252 40.6	32.6	167 02.9	5.8	28 11.0	1.4	57.5	60	04 42	05 34	06 18	□	07 26	09 31	11 22
	06	267 40.8	S 2 31.6	181 27.7	5.8	N28 12.4	1.3	57.5	N 58	04 47	05 36	06 17	07 27	08 34	10 07	11 44
	07	282 40.9	30.6	195 52.5	5.8	28 13.7	1.1	57.4	56	04 51	05 37	06 16	08 04	09 09	10 32	12 02
	08	297 41.1	29.6	210 17.3	5.9	28 14.8	0.9	57.4	54	04 55	05 39	06 16	08 30	09 34	10 53	12 17
	09	312 41.3	28.6	224 42.2	5.9	28 15.7	0.7	57.4	52	04 59	05 40	06 15	08 51	09 54	11 09	12 29
	10	327 41.5	27.6	239 07.1	5.9	28 16.4	0.6	57.3	50	05 02	05 41	06 14	09 09	10 11	11 24	12 41
	11	342 41.6	26.6	253 32.0	6.0	28 17.0	0.4	57.3	45	05 04	05 42	06 14	09 24	10 26	11 36	12 50
	12	357 41.8	S 2 25.7	267 57.0	6.1	N28 17.4	0.2	57.3	N 40	05 10	05 44	06 13	09 54	10 55	12 02	13 11
	13	12 42.0	24.7	282 22.1	6.0	28 17.6	0.1	57.2	35	05 13	05 45	06 12	10 18	11 18	12 22	13 28
	14	27 42.2	23.7	296 47.1	6.1	28 17.7	0.2	57.2	30	05 16	05 46	06 11	10 37	11 37	12 39	13 42
	15	42 42.3	22.7	311 12.2	6.2	28 17.5	0.2	57.2	20	05 19	05 46	06 10	10 54	11 53	12 54	13 54
	16	57 42.5	21.7	325 37.4	6.2	28 17.3	0.5	57.1	N 10	05 21	05 47	06 09	11 22	12 21	13 19	14 15
	17	72 42.7	20.7	340 02.6	6.3	28 16.8	0.6	57.1	0	05 22	05 46	06 07	11 46	12 44	13 40	14 33
	18	87 42.9	S 2 19.7	354 27.9	6.3	N28 16.2	0.8	57.1	S 10	05 21	05 45	06 06	12 09	13 06	14 00	14 50
	19	102 43.0	18.7	8 53.2	6.4	28 15.4	1.0	57.0	20	05 19	05 43	06 04	12 32	13 28	14 20	15 06
	20	117 43.2	17.8	23 18.6	6.4	28 14.4	1.1	57.0	30	05 15	05 40	06 02	12 56	13 52	14 41	15 24
	21	132 43.4	16.8	37 44.0	6.5	28 13.3	1.3	57.0	35	05 08	05 36	06 00	13 25	14 19	15 05	15 44
	22	147 43.6	15.8	52 09.5	6.5	28 12.0	1.4	56.9	40	05 04	05 34	05 59	13 41	14 35	15 19	15 56
23	162 43.7	14.8	66 35.0	6.6	28 10.6	1.6	56.9	45	04 58	05 30	05 57	14 01	14 54	15 36	16 10	
15 00	177 43.9	S 2 13.8	81 00.6	6.7	N28 09.0	1.8	56.9	S 50	04 52	05 26	05 56	14 25	15 16	15 56	16 26	
01	192 44.1	12.8	95 26.3	6.7	28 07.2	1.9	56.8	52	04 43	05 21	05 54	14 56	15 45	16 20	16 45	
02	207 44.3	11.8	109 52.0	6.8	28 05.3	2.1	56.8	54	04 38	05 19	05 53	15 11	15 59	16 32	16 54	
03	222 44.4	10.9	124 17.8	6.8	28 03.2	2.3	56.8	56	04 33	05 16	05 52	15 29	16 15	16 45	17 05	
04	237 44.6	09.9	138 43.6	7.0	28 00.9	2.4	56.7	58	04 28	05 13	05 50	15 51	16 35	17 01	17 16	
05	252 44.8	08.9	153 09.6	7.0	27 58.5	2.6	56.7	S 60	04 21	05 09	05 49	16 18	16 59	17 19	17 30	
06	267 45.0	S 2 07.9	167 35.6	7.0	N27 55.9	2.7	56.7	Lat.	04 14	05 05	05 48	16 58	17 30	17 42	17 45	
07	282 45.1	06.9	182 01.6	7.1	27 53.2	2.9	56.6	Ocaso Sol	17 56	19 03	20 28	□	□	□	□	
08	297 45.3	05.9	196 27.7	7.2	27 50.3	3.0	56.6	Crepúsculo Civil	17 57	18 58	20 13	□	□	□	□	
09	312 45.5	04.9	210 53.9	7.3	27 47.3	3.2	56.6	Naut.	17 59	18 54	20 02	□	□	□	□	
10	327 45.7	03.9	225 20.2	7.4	27 44.1	3.4	56.5	14	18 00	18 51	19 52	□	□	□	07 18	
11	342 45.8	03.0	239 46.6	7.4	27 40.7	3.5	56.5	15	18 01	18 48	19 45	□	□	07 24	06 34	
12	357 46.0	S 2 02.0	254 13.0	7.5	N27 37.2	3.6	56.5	16	18 01	18 46	19 38	□	06 20	06 10	06 04	
13	12 46.2	01.0	268 39.5	7.6	27 33.6	3.8	56.4	17	18 01	18 44	19 33	04 19	05 13	05 34	05 41	
14	27 46.4	2 00.0	283 06.1	7.6	27 29.8	4.0	56.4	18	18 02	18 44	19 33	04 19	05 13	05 34	05 41	
15	42 46.5	1 59.0	297 32.7	7.8	27 25.8	4.1	56.4	19	18 03	18 42	19 28	03 42	04 38	05 07	05 23	
16	57 46.7	58.0	311 59.5	7.8	27 21.7	4.2	56.4	20	18 03	18 40	19 24	03 16	04 12	04 47	05 07	
17	72 46.9	57.0	326 26.3	7.9	27 17.5	4.4	56.3	21	18 04	18 39	19 21	02 55	03 52	04 30	04 54	
18	87 47.1	S 1 56.0	340 53.2	8.0	N27 13.1	4.6	56.3	22	18 04	18 38	19 18	02 37	03 35	04 15	04 42	
19	102 47.3	55.1	355 20.2	8.1	27 08.5	4.6	56.3	23	18 04	18 38	19 18	02 37	03 35	04 15	04 42	
20	117 47.4	54.1	9 47.3	8.1	27 03.9	4.9	56.2	24	18 05	18 37	19 15	02 23	03 20	04 02	04 32	
21	132 47.6	53.1	24 14.4	8.3	26 59.0	4.9	56.2	25	18 05	18 37	19 15	02 23	03 20	04 02	04 32	
22	147 47.8	52.1	38 41.7	8.3	26 54.1	5.1	56.2	26	18 06	18 35	19 09	01 52	02 50	03 36	04 10	
23	162 48.0	51.1	53 09.0	8.4	26 49.0	5.3	56.2	27	18 07	18 34	19 05	01 29	02 27	03 14	03 52	
16 00	177 48.1	S 1 50.1	67 36.4	8.5	N26 43.7	5.3	56.1	N 40	18 07	18 34	19 05	01 29	02 27	03 14	03 52	
01	192 48.3	49.1	82 03.9	8.6	26 38.4	5.6	56.1	35	18 08	18 33	19 02	01 10	02 08	02 57	03 37	
02	207 48.5	48.1	96 31.5	8.7	26 32.8	5.6	56.1	30	18 08	18 32	19 00	00 53	01 51	02 42	03 24	
03	222 48.7	47.2	110 59.2	8.8	26 27.2	5.8	56.0	20	18 10	18 32	18 57	00 25	01 23	02 16	03 02	
04	237 48.9	46.2	125 27.0	8.8	26 21.4	5.9	56.0	N 10	18 11	18 32	18 56	00 01	00 59	01 53	02 43	
05	252 49.0	45.2	139 54.8	9.0	26 15.5	6.1	56.0	0	18 12	18 33	18 57	24 37	00 37	01 32	02 24	
06	267 49.2	S 1 44.2	154 22.8	9.0	N26 09.4	6.2	56.0	S 10	18 12	18 35	18 59	24 14	00 14	01 11	02 06	
07	282 49.4	43.2	168 50.8	9.2	26 03.2	6.3	55.9	20	18 15	18 37	19 03	23 50	24 49	00 49	01 46	
08	297 49.6	42.2	183 19.0	9.2	25 56.9	6.4	55.9	30	18 17	18 41	19 09	23 22	24 22	00 22	01 23	
09	312 49.7	41.2	197 47.2	9.3	25 50.5	6.6	55.9	35	18 18	18 44	19 13	23 05	24 07	00 07	01 10	
10	327 49.9	40.2	212 15.5	9.4	25 43.9	6.7	55.8	40	18 20	18 47	19 19	22 45	23 48	24 54	00 54	
11	342 50.1	39.2	226 43.9	9.5	25 37.2	6.8	55.8	45	18 21	18 51	19 25	22 22	23 26	24 35	00 35	
12	357 50.3	S 1 38.3	241 12.4	9.7	N25 30.4	6.9	55.8	S 50	18 21	18 51	19 25	22 22	23 26	24 35	00 35	
13	12 50.5	37.3	255 41.1	9.7	25 23.5	7.1	55.8	52	18 23	18 56	19 34	21 51	22 58	24 11	00 11	
14	27 50.6	36.3	270 09.8	9.8	25 16.4	7.2	55.7	54	18 24	18 58	19 38	21 36	22 44	24 00	00 00	
15	42 50.8	35.3	284 38.6	9.8	25 09.2	7.3	55.7	56	18 25	19 01	19 43	21 18	22 28	23 47	25 08	
16	57 51.0	34.3	299 07.4	10.0	25 01.9	7.4	55.7	58	18 26	19 04	19 49	20 56	22 09	23 32	24 57	
17	72 51.2	33.3	313 36.4	10.1	24 54.5	7.6	55.7	S 60	18 28	19 07	19 55	20 29	21 46	23 14	24 44	
18	87 51.4	S f 32.3	328 05.5	10.2	N24 46.9	7.7	55.6	Lat.	18 29	19 11	20 02	19 49	21 14	22 52	24 29	
19	102 51.5	31.3														



T.M.G. (TU)	ARIES		VENUS -3.9		MARTE +1.2		JUPITER -2.2		SATURNO +0.6		ESTRELLAS		
	A.H.G.	A.H.G. Dec.	A.H.G.	Dec.	A.H.G.	Dec.	A.H.G.	Dec.	A.H.G.	Dec.	Nombre	A. H. S.	Dec.
VIERNES	17 00	174 32.9	181 43.2 S 4 40.0	113 24.7 N22 08.3	115 40.3 N19 45.3	250 40.8 S22 09.0	Acamar	315 32.3 S40 21.0					
	01	189 35.3	196 42.8 38.7	128 25.6 08.6	130 42.4 45.4	265 43.2 09.0	Achernar	335 40.5 S57 17.6					
	02	204 37.8	211 42.4 37.5	143 26.4 08.9	145 44.4 45.5	280 45.5 09.0	Acrux	173 29.5 S63 02.5					
	03	219 40.3	226 41.9 .. 36.3	158 27.3 .. 09.2	160 46.5 .. 45.6	295 47.8 .. 08.9	Adhara	255 26.8 S28 57.6					
	04	234 42.7	241 41.5 35.0	173 28.1 09.5	175 48.5 45.7	310 50.1 08.9	Aldebaran	291 10.5 N16 29.4					
	05	249 45.2	256 41.1 33.8	188 29.0 09.8	190 50.6 45.8	325 52.4 08.9							
	06	264 47.7	271 40.7 S 4 32.6	203 29.8 N22 10.1	205 52.7 N19 45.9	340 54.7 S22 08.9	Alioth	166 35.8 N56 00.9					
	07	279 50.1	286 40.3 31.3	218 30.7 10.4	220 54.7 46.0	355 57.0 08.9	Alkaid	153 12.6 N49 21.7					
	08	294 52.6	301 39.9 30.1	233 31.5 10.7	235 56.8 46.1	10 59.3 08.9	Al Na'ir	28 06.8 S47 00.8					
	09	309 55.1	316 39.5 .. 28.9	248 32.4 .. 11.0	250 58.8 .. 46.1	26 01.6 .. 08.9	Alnilam	276 04.9 S 1 12.5					
	10	324 57.5	331 39.1 27.7	263 33.2 11.3	266 00.9 46.2	41 03.9 08.8	Alphard	218 13.8 S 8 36.8					
	11	340 00.0	346 38.7 26.4	278 34.1 11.6	281 02.9 46.3	56 06.2 08.8							
	12	355 02.4	1 38.3 S 4 25.2	293 34.9 N22 11.9	296 05.0 N19 46.4	71 08.6 S22 08.8	Alphecca	126 26.2 N26 44.6					
	13	10 04.9	16 37.9 24.0	308 35.8 12.2	311 07.0 46.5	86 10.9 08.8	Alpheratz	358 02.9 N29 01.8					
	14	25 07.4	31 37.5 22.7	323 36.6 12.5	326 09.1 46.6	101 13.2 08.8	Altair	62 26.2 N 8 50.1					
	15	40 09.8	46 37.1 .. 21.5	338 37.5 .. 12.8	341 11.1 .. 46.7	116 15.5 .. 08.8	Ankaa	353 33.9 S42 21.9					
	16	55 12.3	61 36.7 20.3	353 38.3 13.1	356 13.2 46.8	131 17.8 08.8	Antares	112 48.6 S26 24.7					
	17	70 14.8	76 36.3 19.0	8 39.2 13.4	11 15.2 46.9	146 20.1 08.8							
	18	85 17.2	91 35.9 S 4 17.8	23 40.0 N22 13.7	26 17.3 N19 46.9	161 22.4 S22 08.7	Arcturus	146 12.0 N19 14.0					
	19	100 19.7	106 35.5 16.6	38 40.9 14.0	41 19.3 47.0	176 24.7 08.7	Atria	108 06.9 S69 00.5					
	20	115 22.2	121 35.1 15.3	53 41.7 14.3	56 21.4 47.1	191 27.0 08.7	Avior	234 25.3 S59 28.7					
	21	130 24.6	136 34.7 .. 14.1	68 42.5 .. 14.6	71 23.4 .. 47.2	206 29.3 .. 08.7	Bellatrix	278 51.6 N 6 20.5					
	22	145 27.1	151 34.3 12.9	83 43.4 14.8	86 25.5 47.3	221 31.7 08.7	Betelgeuse	271 21.0 N 7 24.4					
23	160 29.5	166 33.9 11.6	98 44.2 15.1	101 27.5 47.4	236 34.0 08.7								
SABADO	18 00	175 32.0	181 33.5 S 4 10.4	113 45.1 N22 15.4	116 29.6 N19 47.5	251 36.3 S22 08.7	Canopus	264 04.2 S52 41.6					
	01	190 34.5	196 33.1 09.2	128 45.9 15.7	131 31.6 47.6	266 38.6 08.6	Capella	281 01.6 N45 59.6					
	02	205 36.9	211 32.7 07.9	143 46.8 16.0	146 33.7 47.7	281 40.9 08.6	Deneb	49 44.4 N45 14.2					
	03	220 39.4	226 32.3 .. 06.7	158 47.6 .. 16.3	161 35.7 .. 47.8	296 43.2 .. 08.6	Denebola	182 51.9 N14 37.8					
	04	235 41.9	241 31.9 05.5	173 48.5 16.6	176 37.8 47.8	311 45.5 08.6	Diphda	349 14.4 S18 02.8					
	05	250 44.3	256 31.5 04.2	188 49.3 16.9	191 39.8 47.9	326 47.8 08.6							
	06	265 46.8	271 31.1 S 4 03.0	203 50.2 N22 17.2	206 41.9 N19 48.0	341 50.2 S22 08.6	Dubhe	194 12.9 N61 48.5					
	07	280 49.3	286 30.7 01.8	218 51.0 17.5	221 43.9 48.1	356 52.5 08.6	Elnath	278 35.8 N28 36.1					
	08	295 51.7	301 30.3 4 00.5	233 51.8 17.8	236 46.0 48.2	11 54.8 08.6	Eltanin	90 54.6 N51 28.9					
	09	310 54.2	316 29.9 3 59.3	248 52.7 .. 18.1	251 48.0 .. 48.3	26 57.1 .. 08.5	Enif	34 05.3 N 9 49.3					
	10	325 56.7	331 29.5 58.0	263 53.5 18.4	266 50.1 48.4	41 59.4 08.5	Fomalhaut	15 44.3 S29 40.8					
	11	340 59.1	346 29.1 56.8	278 54.4 18.7	281 52.1 48.5	57 01.7 08.5							
	12	356 01.6	1 28.7 S 3 55.6	293 55.2 N22 19.0	296 54.2 N19 48.6	72 04.0 S22 08.5	Gacrux	172 21.1 S57 03.3					
	13	11 04.0	16 28.3 54.3	308 56.1 19.3	311 56.2 48.6	87 06.3 08.5	Gienah	176 10.8 S17 29.1					
	14	26 06.5	31 27.9 53.1	323 56.9 19.5	326 58.3 48.7	102 08.7 08.5	Hadar	149 13.7 S60 19.3					
	15	41 09.0	46 27.5 .. 51.9	338 57.8 .. 19.8	342 00.3 .. 48.8	117 11.0 .. 08.5	Hamal	328 21.8 N23 24.8					
	16	56 11.4	61 27.1 50.6	353 58.6 20.1	357 02.4 48.9	132 13.3 08.5	Kaus Aust.	84 08.0 S34 23.5					
	17	71 13.9	76 26.7 49.4	8 59.4 20.4	12 04.4 49.0	147 15.6 08.4							
	18	86 16.4	91 26.3 S 3 48.2	24 00.3 N22 20.7	27 06.5 N19 49.1	162 17.9 S22 08.4	Kochab	137 17.9 N74 11.6					
	19	101 18.8	106 25.9 46.9	39 01.1 21.0	42 08.5 49.2	177 20.2 08.4	Markab	13 56.9 N15 08.7					
	20	116 21.3	121 25.5 45.7	54 02.0 21.3	57 10.6 49.3	192 22.5 08.4	Menkar	314 34.4 N 4 02.9					
	21	131 23.8	136 25.1 .. 44.4	69 02.8 .. 21.6	72 12.6 .. 49.4	207 24.9 .. 08.4	Menkent	148 29.0 S36 19.2					
	22	146 26.2	151 24.7 43.2	84 03.7 21.9	87 14.6 49.5	222 27.2 08.4	Miaplacidus	221 43.2 S69 40.5					
23	161 28.7	166 24.3 42.0	99 04.5 22.2	102 16.7 49.5	237 29.5 08.4								
DOMINGO	19 00	176 31.2	181 24.0 S 3 40.7	114 05.4 N22 22.4	117 18.7 N19 49.6	252 31.8 S22 08.3	Mirfak	309 07.0 N49 49.7					
	01	191 33.6	196 23.6 39.5	129 06.2 22.7	132 20.8 49.7	267 34.1 08.3	Nunki	76 21.0 S26 18.8					
	02	206 36.1	211 23.2 38.2	144 07.0 23.0	147 22.8 49.8	282 36.4 08.3	Peacock	53 48.0 S56 46.2					
	03	221 38.5	226 22.8 .. 37.0	159 07.9 .. 23.3	162 24.9 .. 49.9	297 38.8 .. 08.3	Pollux	243 49.8 N28 03.3					
	04	236 41.0	241 22.4 35.8	174 08.7 23.6	177 26.9 50.0	312 41.1 08.3	Procyon	245 18.7 N 5 15.2					
	05	251 43.5	256 22.0 34.5	189 09.6 23.9	192 29.0 50.1	327 43.4 08.3							
	06	266 45.9	271 21.6 S 3 33.3	204 10.4 N22 24.2	207 31.0 N19 50.2	342 45.7 S22 08.3	Rasalhague	96 23.4 N12 33.7					
	07	281 48.4	286 21.2 32.0	219 11.2 24.5	222 33.0 50.3	357 48.0 08.3	Regulus	208 02.6 N12 01.1					
	08	296 50.9	301 20.8 30.8	234 12.1 24.7	237 35.1 50.4	12 50.3 08.2	Rigel	281 29.6 S 8 12.8					
	09	311 53.3	316 20.4 .. 29.6	249 12.9 .. 25.0	252 37.1 .. 50.4	27 52.7 .. 08.2	Rigil Kent.	140 16.5 S60 47.4					
	10	326 55.8	331 20.0 28.3	264 13.8 25.3	267 39.2 50.5	42 55.0 08.2	Sabik	102 33.4 S15 42.9					
	11	341 58.3	346 19.6 27.1	279 14.6 25.6	282 41.2 50.6	57 57.3 08.2							
	12	357 00.7	1 19.2 S 3 25.8	294 15.5 N22 25.9	297 43.3 N19 50.7	72 59.6 S22 08.2	Schedar	350 02.3 N56 28.8					
	13	12 03.2	16 18.8 24.6	309 16.3 26.2	312 45.3 50.8	88 01.9 08.2	Shaula	96 46.7 S37 05.9					
	14	27 05.7	31 18.4 23.4	324 17.1 26.5	327 47.3 50.9	103 04.2 08.2	Sirius	258 49.7 S16 42.2					
	15	42 08.1	46 18.0 .. 22.1	339 18.0 .. 26.7	342 49.4 .. 51.0	118 06.6 .. 08.2	Spica	158 50.3 S11 06.5					
	16	57 10.6	61 17.6 20.9	354 18.8 27.0	357 51.4 51.1	133 08.9 08.1	Suhail	223 05.7 S43 23.5					
	17	72 13.0	76 17.3 19.6	9 19.7 27.3	12 53.5 51.2	148 11.2 08.1							
	18	87 15.5	91 16.9 S 3 18.4	24 20.5 N22 27.6	27 55.5 N19 51.3	163 13.5 S22 08.1	Vega	80 51.4 N38 46.0					
	19	102 18.0	106 16.5 17.2	39 21.3 27.9	42 57.5 51.4	178 15.8 08.1	Zuben'ubi	137 25.5 S16 00.1					
	20	117 20.4	121 16.1 15.9	54 22.2 28.2	57 59.6 51.4	193 18.2 08.1							
	21	132 22.9	136 15.7 .. 14.7	69 23.0 .. 28.4	73 01.6 .. 51.5	208 20.5 .. 08.1							
	22	147 25.4	151 15.3 13.4	84 23.9 28.7	88 03.7 51.6	223 22.8 08.1							
23	162 27.8	166 14.9 12.2	99 24.7 29.0	103 05.7 51.7	238 25.1 08.1								
Pas. Mer. 12 15.9		v -0.4 d 1.2	v 0.8 d 0.3	v 2.0 d 0.1	v 2.3 d 0.0								
							A. H. S.	Pas. Mer.					
							o / h m	o / h m					
							Venus	6 01.5 11 54					
							Marte	298 13.1 16 24					
							Júpiter	300 57.6 16 12					
							Saturno	76 04.3 7 12					



T.M.G. (TU)	SOL		LUNA				Lat.	Crepúsculo		Orto Sol	Ocaso Luna					
	A.H.G.	Dec.	A.H.G.	v	Dec.	d		P.H.	Naut.		Civil	17	18	19	20	
												h m	h m	h m	h m	
V I E R N E S	17 00	177 52.4	S 1 26.4	55 02.0	10.8	N23 59.2	8.3	55.5	N 72	03 35	05 02	06 09	□	□	13 16	15 28
	01	192 52.6	25.4	69 31.8	10.8	23 50.9	8.5	55.5	N 70	03 52	05 08	06 09	□	□	11 13	13 41
	02	207 52.8	24.4	84 01.6	11.0	23 42.4	8.5	55.4	68	04 05	05 13	06 09	□	□	11 56	14 00
	03	222 53.0	23.4	98 31.6	11.0	23 33.9	8.7	55.4	66	04 15	05 17	06 08	10 09	12 25	14 15	15 54
	04	237 53.2	22.5	113 01.6	11.1	23 25.2	8.7	55.4	64	04 24	05 21	06 08	10 53	12 46	14 27	16 00
	05	252 53.3	21.5	127 31.7	11.3	23 16.5	8.9	55.4	62	04 31	05 24	06 08	11 22	13 03	14 37	16 05
	06	267 53.5	S 1 20.5	142 02.0	11.3	N23 07.6	9.0	55.4	60	04 37	05 27	06 08	11 44	13 17	14 46	16 10
	07	282 53.7	19.5	156 32.3	11.4	22 58.6	9.0	55.3	N 58	04 42	05 29	06 08	12 02	13 29	14 53	16 13
	08	297 53.9	18.5	171 02.7	11.5	22 49.6	9.2	55.3	56	04 47	05 31	06 08	12 17	13 40	15 00	16 17
	09	312 54.1	17.5	185 33.2	11.6	22 40.4	9.3	55.3	54	04 51	05 32	06 08	12 29	13 49	15 06	16 20
	10	327 54.2	16.5	200 03.8	11.7	22 31.1	9.3	55.3	52	04 54	05 34	06 08	12 41	13 57	15 11	16 23
	11	342 54.4	15.5	214 34.5	11.8	22 21.8	9.5	55.2	50	04 57	05 35	06 07	12 50	14 04	15 16	16 25
	12	357 54.6	S 1 14.5	229 05.3	11.9	N22 12.3	9.6	55.2	45	05 04	05 38	06 07	13 11	14 20	15 26	16 31
	13	12 54.8	13.6	243 36.2	12.0	22 02.7	9.6	55.2	N 40	05 08	05 40	06 07	13 28	14 32	15 35	16 35
	14	27 55.0	12.6	258 07.2	12.1	21 53.1	9.8	55.2	35	05 12	05 42	06 07	13 42	14 43	15 42	16 39
	15	42 55.2	11.6	272 38.3	12.1	21 43.3	9.8	55.2	30	05 15	05 43	06 06	13 54	14 52	15 48	16 43
	16	57 55.3	10.6	287 09.4	12.3	21 33.5	9.9	55.1	20	05 18	05 44	06 06	14 15	15 08	16 00	16 49
	17	72 55.5	09.6	301 40.7	12.3	21 23.6	10.0	55.1	N 10	05 20	05 44	06 05	14 33	15 22	16 09	16 54
	18	87 55.7	S 1 08.6	316 12.0	12.5	N21 13.6	10.1	55.1	0	05 20	05 44	06 05	14 50	15 35	16 18	16 59
	19	102 55.9	07.6	330 43.5	12.5	21 03.5	10.2	55.1	S 10	05 19	05 43	06 04	15 06	15 48	16 27	17 03
	20	117 56.1	06.6	345 15.0	12.6	20 53.3	10.3	55.1	20	05 16	05 41	06 03	15 24	16 02	16 37	17 09
	21	132 56.2	05.7	359 46.6	12.7	20 43.0	10.4	55.0	30	05 10	05 38	06 02	15 44	16 18	16 47	17 14
	22	147 56.4	04.7	14 18.3	12.8	20 32.6	10.4	55.0	35	05 07	05 36	06 01	15 56	16 27	16 54	17 18
23	162 56.6	03.7	28 50.1	12.9	20 22.2	10.5	55.0	40	05 02	05 34	06 01	16 10	16 37	17 01	17 21	
18 00	177 56.8	S 1 02.7	43 22.0	13.0	N20 11.7	10.7	55.0	45	04 56	05 30	06 00	16 26	16 49	17 09	17 26	
01	192 57.0	01.7	57 54.0	13.0	20 01.0	10.6	55.0	S 50	04 48	05 26	05 58	16 45	17 04	17 19	17 31	
02	207 57.2	1 00.7	72 26.0	13.2	19 50.4	10.8	54.9	52	04 44	05 24	05 58	16 54	17 11	17 23	17 33	
03	222 57.3	0 59.7	86 58.2	13.2	19 39.6	10.9	54.9	54	04 40	05 22	05 57	17 05	17 18	17 28	17 36	
04	237 57.5	58.7	101 30.4	13.3	19 28.7	10.9	54.9	56	04 35	05 19	05 57	17 16	17 26	17 33	17 39	
05	252 57.7	57.7	116 02.7	13.4	19 17.8	11.0	54.9	58	04 29	05 16	05 56	17 30	17 36	17 40	17 42	
06	267 57.9	S 0 56.8	130 35.1	13.5	N19 06.8	11.1	54.9	S 60	04 22	05 13	05 55	17 45	17 47	17 46	17 46	
07	282 58.1	55.8	145 07.6	13.6	18 55.7	11.1	54.9	Lat.	Ocaso Sol	Crepúsculo Civil	Naut.	Ocaso Luna				
08	297 58.2	54.8	159 40.2	13.6	18 44.6	11.2	54.8	h m	h m	h m	h m	h m	h m	h m	h m	
09	312 58.4	53.8	174 12.8	13.7	18 33.4	11.3	54.8	N 70	18 10	19 18	20 46	□	□	07 23	06 37	
10	327 58.6	52.8	188 45.5	13.9	18 22.1	11.4	54.8	N 70	18 10	19 11	20 28	□	□	07 54	06 56	
11	342 58.8	51.8	203 18.4	13.8	18 10.7	11.4	54.8	68	18 10	19 05	20 14	□	□	07 09	06 36	
12	357 59.0	S 0 50.8	217 51.2	14.0	N17 59.3	11.5	54.8	66	18 09	19 01	20 04	07 18	06 40	06 19	06 04	
13	12 59.2	49.8	232 24.2	14.1	17 47.8	11.6	54.8	64	18 09	18 57	19 55	06 34	06 17	06 06	05 57	
14	27 59.3	48.9	246 57.3	14.1	17 36.2	11.6	54.7	62	18 09	18 54	19 47	06 04	05 59	05 55	05 50	
15	42 59.5	47.9	261 30.4	14.2	17 24.6	11.7	54.7	60	18 09	18 51	19 41	05 41	05 44	05 45	05 45	
16	57 59.7	46.9	276 03.6	14.3	17 12.9	11.8	54.7	N 58	18 10	18 49	19 35	05 23	05 31	05 36	05 39	
17	72 59.9	45.9	290 36.9	14.3	17 01.1	11.8	54.7	56	18 10	18 47	19 31	05 07	05 20	05 29	05 35	
18	88 00.1	S 0 44.9	305 10.2	14.4	N16 49.3	11.9	54.7	54	18 10	18 45	19 27	04 54	05 10	05 22	05 31	
19	103 00.3	43.9	319 43.6	14.5	16 37.4	12.0	54.7	52	18 10	18 43	19 23	04 42	05 02	05 16	05 27	
20	118 00.5	42.9	334 17.1	14.6	16 25.4	12.0	54.6	50	18 10	18 42	19 20	04 32	04 54	05 10	05 24	
21	133 00.6	41.9	348 50.7	14.7	16 13.4	12.0	54.6	45	18 10	18 39	19 13	04 10	04 37	04 58	05 16	
22	148 00.8	41.0	3 24.4	14.7	16 01.4	12.2	54.6	N 40	18 10	18 37	19 08	03 52	04 23	04 48	05 10	
23	163 01.0	40.0	17 58.1	14.8	15 49.2	12.2	54.6	35	18 10	18 35	19 05	03 37	04 11	04 40	05 05	
19 00	178 01.2	S 0 39.0	32 31.9	14.8	N15 37.0	12.2	54.6	30	18 10	18 34	19 02	03 24	04 01	04 32	05 00	
01	193 01.4	38.0	47 05.7	14.9	15 24.8	12.3	54.6	20	18 10	18 32	18 58	03 02	03 43	04 19	04 52	
02	208 01.6	37.0	61 39.6	15.0	15 12.5	12.3	54.6	N 10	18 11	18 32	18 56	02 43	03 27	04 07	04 45	
03	223 01.7	36.0	76 13.6	15.1	15 00.2	12.5	54.5	0	18 11	18 32	18 56	02 24	03 12	03 56	04 38	
04	238 01.9	35.0	90 47.7	15.1	14 47.7	12.4	54.5	S 10	18 12	18 33	18 57	02 06	02 57	03 45	04 31	
05	253 02.1	34.0	105 21.8	15.2	14 35.3	12.5	54.5	20	18 13	18 35	19 00	01 46	02 41	03 33	04 23	
06	268 02.3	S 0 33.0	119 56.0	15.3	N14 22.8	12.6	54.5	30	18 14	18 37	19 05	01 23	02 23	03 20	04 15	
07	283 02.5	32.1	134 30.3	15.3	14 10.2	12.6	54.5	35	18 14	18 39	19 09	01 10	02 12	03 12	04 10	
08	298 02.7	31.1	149 04.6	15.4	13 57.6	12.7	54.5	40	18 15	18 42	19 14	00 54	01 59	03 03	04 04	
09	313 02.8	30.1	163 39.0	15.4	13 44.9	12.7	54.5	45	18 16	18 45	19 19	00 35	01 44	02 52	03 58	
10	328 03.0	29.1	178 13.4	15.5	13 32.2	12.7	54.5	S 50	18 17	18 49	19 27	00 11	01 26	02 39	03 50	
11	343 03.2	28.1	192 47.9	15.6	13 19.5	12.8	54.4	52	18 17	18 51	19 31	00 00	01 17	02 33	03 46	
12	358 03.4	S 0 27.1	207 22.5	15.6	N13 06.7	12.9	54.4	54	18 18	18 53	19 35	25 08	01 08	02 26	03 42	
13	13 03.6	26.1	221 57.1	15.7	12 53.8	12.8	54.4	56	18 18	18 56	19 40	24 57	00 57	02 18	03 37	
14	28 03.8	25.1	236 31.8	15.7	12 41.0	13.0	54.4	58	18 19	18 58	19 45	24 44	00 44	02 10	03 32	
15	43 04.0	24.2	251 06.5	15.8	12 28.0	13.0	54.4	S 60	18 20	19 01	19 52	24 29	00 29	02 00	03 26	
16	58 04.1	23.2	265 41.3	15.8	12 15.0	13.0	54.4	Día	SOL E.T. (-)		LUNA					
17	73 04.3	22.2	280 16.1	15.9	12 02.0	13.0	54.4	00 h	12 h	Pas. Mer.	Pas. Sup.	Mer. Inf.	Edad.	Fase		
18	88 04.5	S 0 21.2	294 51.0	16.0	N11 49.0	13.1	54.4	m s	m s	h m	h m	h m	d			
19	103 04.7															







T.M.G. (TU)	SOL		LUNA				Lat.	Crepúsculo		Orto Sol	Orto Luna						
	A.H.G.	Dec.	A.H.G.	v	Dec.	d		P.H.	Náut.		Civil	20	21	22	23		
	° / ' / "	° / ' / "	° / ' / "	° / ' / "	° / ' / "	° / ' / "		° / ' / "	h m	h m	h m	h m	h m	h m	h m		
LUNES	20 00	178 05.6	S 0 15.3	22 21.5	16.3	N 10 29.8	13.3	54.3	N 72	03 15	04 45	05 54	15 28	17 26	19 22	21 27	
	01	193 05.8	14.3	36 56.8	16.3	10 16.5	13.3	54.3	N 70	03 35	04 54	05 55	15 39	17 27	19 15	21 08	
	02	208 06.0	13.3	51 32.1	16.3	10 03.2	13.4	54.3	68	03 50	05 00	05 56	15 47	17 28	19 09	20 53	
	03	223 06.2	12.3	66 07.4	16.4	9 49.8	13.4	54.3	66	04 02	05 06	05 57	15 54	17 29	19 04	20 41	
	04	238 06.4	11.3	80 42.8	16.4	9 36.4	13.5	54.3	64	04 12	05 10	05 58	16 00	17 30	18 59	20 31	
	05	253 06.6	10.3	95 18.2	16.5	9 22.9	13.5	54.2	62	04 20	05 14	05 58	16 05	17 31	18 56	20 22	
	06	268 06.7	S 0 09.3	109 53.7	16.5	N 9 09.4	13.5	54.2	60	04 27	05 17	05 59	16 10	17 31	18 52	20 15	
	07	283 06.9	08.4	124 29.2	16.6	8 55.9	13.5	54.2	N 58	04 33	05 20	05 59	16 13	17 32	18 50	20 09	
	08	298 07.1	07.4	139 04.8	16.6	8 42.4	13.6	54.2	56	04 39	05 23	06 00	16 17	17 32	18 47	20 03	
	09	313 07.3	06.4	153 40.4	16.6	8 28.8	13.5	54.2	54	04 43	05 25	06 00	16 20	17 33	18 45	19 58	
	10	328 07.5	05.4	168 16.0	16.7	8 15.3	13.7	54.2	52	04 47	05 27	06 01	16 23	17 33	18 43	19 53	
	11	343 07.7	04.4	182 51.7	16.7	8 01.6	13.6	54.2	50	04 51	05 29	06 01	16 25	17 33	18 41	19 49	
	12	358 07.9	S 0 03.4	197 27.4	16.7	N 7 48.0	13.7	54.2	45	04 58	05 32	06 02	16 31	17 34	18 37	19 40	
	13	13 08.1	02.4	212 03.1	16.8	7 34.3	13.7	54.2	N 40	05 03	05 35	06 02	16 35	17 35	18 34	19 33	
	14	28 08.2	01.4	226 38.9	16.8	7 20.6	13.7	54.2	35	05 08	05 37	06 03	16 39	17 35	18 31	19 27	
	15	43 08.4	S 0 00.5	241 14.7	16.8	7 06.9	13.7	54.2	30	05 11	05 39	06 03	16 43	17 36	18 28	19 22	
	16	58 08.6	N 0 00.5	255 50.5	16.9	6 53.2	13.7	54.2	20	05 16	05 41	06 03	16 49	17 36	18 24	19 12	
	17	73 08.8	01.5	270 26.4	16.9	6 39.5	13.8	54.1	N 10	05 18	05 43	06 04	16 54	17 37	18 20	19 04	
	18	88 09.0	N 0 02.5	285 02.3	16.9	N 6 25.7	13.8	54.1	0	05 19	05 43	06 04	16 59	17 38	18 17	18 56	
	19	103 09.2	03.5	299 38.2	17.0	6 11.9	13.8	54.1	S 10	05 19	05 43	06 04	17 03	17 38	18 13	18 49	
	20	118 09.4	04.5	314 14.2	17.0	5 58.1	13.9	54.1	20	05 16	05 42	06 04	17 09	17 39	18 09	18 41	
	21	133 09.5	05.5	328 50.2	17.0	5 44.2	13.8	54.1	30	05 12	05 40	06 04	17 14	17 40	18 05	18 32	
	22	148 09.7	06.4	343 26.2	17.1	5 30.4	13.9	54.1	35	05 09	05 39	06 04	17 18	17 40	18 03	18 26	
23	163 09.9	07.4	358 02.3	17.0	5 16.5	13.9	54.1	40	05 05	05 37	06 04	17 21	17 41	18 00	18 21		
MARTES	21 00	178 10.1	N 0 08.4	12 38.3	17.1	N 5 02.6	13.8	54.1	45	05 00	05 34	06 04	17 26	17 42	17 57	18 14	
	01	193 10.3	09.4	27 14.4	17.1	4 48.8	14.0	54.1	S 50	04 53	05 31	06 03	17 31	17 42	17 54	18 06	
	02	208 10.5	10.4	41 50.5	17.2	4 34.8	13.9	54.1	52	04 50	05 29	06 03	17 33	17 43	17 52	18 02	
	03	223 10.7	11.4	56 26.7	17.1	4 20.9	13.9	54.1	54	04 46	05 28	06 03	17 36	17 43	17 50	17 58	
	04	238 10.9	12.4	71 02.8	17.2	4 07.0	14.0	54.1	56	04 41	05 26	06 03	17 39	17 44	17 48	17 53	
	05	253 11.0	13.4	85 39.0	17.2	3 53.0	13.9	54.1	58	04 36	05 23	06 03	17 42	17 44	17 46	17 48	
	06	268 11.2	N 0 14.3	100 15.2	17.2	N 3 39.1	14.0	54.1	S 60	04 31	05 21	06 02	17 46	17 45	17 44	17 43	
	07	283 11.4	15.3	114 51.4	17.2	3 25.1	14.0	54.1	Lat.	Ocaso Sol	Crepúsculo Civil	Náut.	Ocaso Luna	20	21	22	23
	08	298 11.6	16.3	129 27.6	17.3	3 11.1	14.0	54.0	N 72	18 23	19 32	21 04	06 37	06 03	05 32	05 00	
	09	313 11.8	17.3	144 03.9	17.2	2 57.1	13.9	54.0	N 70	18 22	19 24	20 44	06 24	05 58	05 35	05 10	
	10	328 12.0	18.3	158 40.1	17.3	2 43.2	14.1	54.0	68	18 20	19 17	20 28	06 13	05 54	05 37	05 19	
	11	343 12.2	19.3	173 16.4	17.3	2 29.1	14.0	54.0	66	18 19	19 11	20 15	06 04	05 51	05 39	05 26	
	12	358 12.4	N 0 20.3	187 52.7	17.3	2 15.1	14.0	54.0	64	18 18	19 06	20 05	05 57	05 48	05 40	05 32	
	13	13 12.5	21.3	202 29.0	17.3	2 01.1	14.0	54.0	62	18 18	19 02	19 56	05 50	05 46	05 41	05 37	
	14	28 12.7	22.2	217 05.3	17.3	1 47.1	14.0	54.0	60	18 17	18 59	19 49	05 45	05 44	05 43	05 42	
	15	43 12.9	23.2	231 41.6	17.4	1 33.1	14.0	54.0	N 58	18 16	18 56	19 43	05 39	05 42	05 44	05 46	
	16	58 13.1	24.2	246 18.0	17.3	1 19.1	14.1	54.0	56	18 16	18 53	19 37	05 35	05 40	05 45	05 49	
	17	73 13.3	25.2	260 54.3	17.3	1 05.0	14.0	54.0	54	18 15	18 51	19 33	05 31	05 38	05 45	05 53	
	18	88 13.5	N 0 26.2	275 30.6	17.4	N 0 51.0	14.0	54.0	52	18 15	18 49	19 29	05 27	05 37	05 46	05 56	
	19	103 13.7	27.2	290 07.0	17.3	0 37.0	14.1	54.0	50	18 14	18 47	19 25	05 24	05 36	05 47	05 58	
	20	118 13.9	28.2	304 43.3	17.4	0 22.9	14.0	54.0	45	18 14	18 43	19 17	05 16	05 33	05 48	06 04	
	21	133 14.0	29.1	319 19.7	17.4	N 0 08.9	14.0	54.0	N 40	18 13	18 40	19 12	05 10	05 30	05 50	06 09	
	22	148 14.2	30.1	333 56.1	17.3	S 0 05.1	14.1	54.0	35	18 12	18 38	19 07	05 05	05 28	05 51	06 14	
23	163 14.4	31.1	348 32.4	17.4	0 19.2	14.0	54.0	30	18 12	18 36	19 04	05 00	05 26	05 52	06 17		
MIÉRCOLES	22 00	178 14.6	N 0 32.1	3 08.8	17.4	S 0 33.2	14.0	54.0	20	18 11	18 33	18 59	04 52	05 23	05 54	06 24	
	01	193 14.8	33.1	17 45.2	17.3	0 47.2	14.0	54.0	N 10	18 11	18 32	18 56	04 45	05 20	05 55	06 30	
	02	208 15.0	34.1	32 21.5	17.4	1 01.2	14.0	54.0	0	18 10	18 31	18 55	04 38	05 18	05 56	06 36	
	03	223 15.2	35.1	46 57.9	17.3	1 15.2	14.1	54.0	S 10	18 10	18 31	18 56	04 31	05 15	05 58	06 41	
	04	238 15.4	36.0	61 34.2	17.4	1 29.3	14.0	54.0	20	18 10	18 32	18 58	04 23	05 12	05 59	06 47	
	05	253 15.6	37.0	76 10.6	17.3	1 43.3	14.0	54.0	30	18 10	18 34	19 02	04 15	05 08	06 01	06 54	
	06	268 15.7	N 0 38.0	90 46.9	17.4	S 1 57.3	13.9	54.0	35	18 10	18 35	19 05	04 10	05 06	06 02	06 58	
	07	283 15.9	39.0	105 23.3	17.3	2 11.2	14.0	54.0	40	18 10	18 37	19 09	04 04	05 04	06 03	07 02	
	08	298 16.1	40.0	119 59.6	17.4	2 25.2	14.0	54.0	45	18 10	18 39	19 14	03 58	05 01	06 04	07 08	
	09	313 16.3	41.0	134 36.0	17.3	2 39.2	14.0	54.0	S 50	18 10	18 42	19 20	03 50	04 58	06 06	07 14	
	10	328 16.5	42.0	149 12.3	17.3	2 53.2	13.9	54.0	52	18 10	18 44	19 24	03 46	04 57	06 07	07 17	
	11	343 16.7	42.9	163 48.6	17.3	3 07.1	13.9	54.0	54	18 10	18 46	19 27	03 42	04 55	06 07	07 20	
	12	358 16.9	N 0 43.9	178 24.9	17.3	S 3 21.0	14.0	54.0	56	18 10	18 47	19 31	03 37	04 53	06 08	07 23	
	13	13 17.1	44.9	193 01.2	17.3	3 35.0	13.9	54.0	58	18 11	18 50	19 36	03 32	04 51	06 09	07 27	
	14	28 17.3	45.9	207 37.5	17.2	3 48.9	13.9	54.0	S 60	18 11	18 52	19 42	03 26	04 49	06 10	07 32	
	15	43 17.4	46.9	222 13.7	17.3	4 02.8	13.9	54.0	Día	SOL E.T. (-)	Pas. Mer.	LUNA					
	16	58 17.6	47.9	236 50.0	17.2	4 16.7	13.8	54.0	00 h	07 38	07 29	h m	h m	h m	h m		
	17	73 17.8	48.9	251 26.2	17.2	4 30.5	13.9	54.0	12 h	07 20	07 11	h m	h m	h m	h m		
	18	88 18.0	N 0														



T.M.G. (TU)	ARIES			VENUS -3.9			MARTE +1.3			JUPITER -2.1			SATURNO +0.6			ESTRELLAS		
	A.H.G.	A.H.G.	Dec.	A.H.G.	A.H.G.	Dec.	A.H.G.	A.H.G.	Dec.	A.H.G.	A.H.G.	Dec.	A.H.G.	A.H.G.	Dec.	Nombre	A. H. S.	Dec.
23 00	180 27.7	180 46.7	S 1 41.1	115 25.6	N22 48.9		120 34.1	N19 58.4		256 14.9	S22 07.2		256 14.9	S22 07.2	Acamar	315 32.3	S40 21.0	
01	195 30.2	195 46.3	39.9	130 26.5	49.2		135 36.1	58.5		271 17.2	07.2		271 17.2	07.2	Achernar	335 40.5	S57 17.5	
02	210 32.6	210 45.9	38.6	145 27.3	49.5		150 38.1	58.6		286 19.5	07.2		286 19.5	07.2	Acrux	173 29.5	S63 02.5	
03	225 35.1	225 45.5	37.4	160 28.1	49.7		165 40.2	58.7		301 21.9	07.1		301 21.9	07.1	Adhara	255 26.8	S28 57.6	
04	240 37.6	240 45.1	36.1	175 29.0	50.0		180 42.2	58.7		316 24.2	07.1		316 24.2	07.1	Aldebaran	291 10.5	N16 29.4	
05	255 40.0	255 44.8	34.9	190 29.8	50.2		195 44.2	58.8		331 26.5	07.1		331 26.5	07.1				
06	270 42.5	270 44.4	S 1 33.6	205 30.6	N22 50.5		210 46.2	N19 58.9		346 28.9	S22 07.1		346 28.9	S22 07.1	Alioth	166 35.8	N56 00.9	
07	285 45.0	285 44.0	32.4	220 31.4	50.8		225 48.3	59.0		1 31.2	07.1		1 31.2	07.1	Alkaid	153 12.6	N49 21.7	
08	300 47.4	300 43.6	31.1	235 32.3	51.0		240 50.3	59.1		16 33.5	07.1		16 33.5	07.1	Al Na'ir	28 06.7	S47 00.8	
09	315 49.9	315 43.2	29.9	250 33.1	51.3		255 52.3	59.2		31 35.9	07.1		31 35.9	07.1	Alnilam	276 04.9	S 1 12.5	
10	330 52.4	330 42.8	28.6	265 33.9	51.5		270 54.3	59.3		46 38.2	07.1		46 38.2	07.1	Alphard	218 13.8	S 8 36.8	
11	345 54.8	345 42.5	27.4	280 34.8	51.8		285 56.4	59.4		61 40.5	07.1		61 40.5	07.1				
12	0 57.3	0 42.1	S 1 26.1	295 35.6	N22 52.1		300 58.4	N19 59.5		76 42.9	S22 07.0		76 42.9	S22 07.0	Alphecca	126 26.2	N26 44.7	
13	15 59.7	15 41.7	24.9	310 36.4	52.3		316 00.4	59.6		91 45.2	07.0		91 45.2	07.0	Alpheratz	358 02.9	N29 01.8	
14	31 02.2	30 41.3	23.6	325 37.2	52.6		331 02.4	59.7		106 47.5	07.0		106 47.5	07.0	Altair	62 26.2	N 8 50.1	
15	46 04.7	45 40.9	22.4	340 38.1	52.8		346 04.4	59.8		121 49.9	07.0		121 49.9	07.0	Ankaa	353 33.9	S42 21.9	
16	61 07.1	60 40.5	21.1	355 38.9	53.1		1 06.5	59.8		136 52.2	07.0		136 52.2	07.0	Antares	112 48.6	S26 24.7	
17	76 09.6	75 40.2	19.9	10 39.7	53.4		16 08.5	19 59.9		151 54.5	07.0		151 54.5	07.0				
18	91 12.1	90 39.8	S 1 18.6	25 40.5	N22 53.6		31 10.5	N20 00.0		166 56.9	S22 07.0		166 56.9	S22 07.0	Arcturus	146 12.0	N19 14.0	
19	106 14.5	105 39.4	17.4	40 41.4	53.9		46 12.5	00.1		181 59.2	07.0		181 59.2	07.0	Atria	108 06.8	S69 00.5	
20	121 17.0	120 39.0	16.1	55 42.2	54.1		61 14.6	00.2		197 01.5	07.0		197 01.5	07.0	Avior	234 25.4	S59 28.7	
21	136 19.5	135 38.6	14.8	70 43.0	54.4		76 16.6	00.3		212 03.9	06.9		212 03.9	06.9	Bellatrix	278 51.7	N 6 20.5	
22	151 21.9	150 38.3	13.6	85 43.8	54.7		91 18.6	00.4		227 06.2	06.9		227 06.2	06.9	Betelgeuse	271 21.1	N 7 24.4	
23	166 24.4	165 37.9	12.3	100 44.7	54.9		106 20.6	00.5		242 08.5	06.9		242 08.5	06.9				
24 00	181 26.8	180 37.5	S 1 11.1	115 45.5	N22 55.2		121 22.6	N20 00.6		257 10.9	S22 06.9		257 10.9	S22 06.9	Canopus	264 04.2	S52 41.6	
01	196 29.3	195 37.1	09.8	130 46.3	55.4		136 24.7	00.7		272 13.2	06.9		272 13.2	06.9	Capella	281 01.6	N45 59.6	
02	211 31.8	210 36.7	08.6	145 47.2	55.7		151 26.7	00.8		287 15.5	06.9		287 15.5	06.9	Deneb	49 44.3	N45 14.1	
03	226 34.2	225 36.4	07.3	160 48.0	55.9		166 28.7	00.9		302 17.9	06.9		302 17.9	06.9	Denebola	182 51.9	N14 37.8	
04	241 36.7	240 36.0	06.1	175 48.8	56.2		181 30.7	01.0		317 20.2	06.9		317 20.2	06.9	Diphda	349 14.4	S18 02.8	
05	256 39.2	255 35.6	04.8	190 49.6	56.4		196 32.7	01.0		332 22.5	06.9		332 22.5	06.9				
06	271 41.6	270 35.2	S 1 03.6	205 50.5	N22 56.7		211 34.8	N20 01.1		347 24.9	S22 06.8		347 24.9	S22 06.8	Dubhe	194 12.9	N61 48.6	
07	286 44.1	285 34.8	02.3	220 51.3	57.0		226 36.8	01.2		2 27.2	06.8		2 27.2	06.8	Elnath	278 35.8	N28 36.1	
08	301 46.6	300 34.4	1 01.1	235 52.1	57.2		241 38.8	01.3		17 29.6	06.8		17 29.6	06.8	Eltanin	90 54.6	N51 28.9	
09	316 49.0	315 34.1	0 59.8	250 52.9	57.5		256 40.8	01.4		32 31.9	06.8		32 31.9	06.8	Enif	34 05.3	N 9 49.3	
10	331 51.5	330 33.7	58.6	265 53.7	57.7		271 42.8	01.5		47 34.2	06.8		47 34.2	06.8	Fomalhaut	15 44.3	S29 40.8	
11	346 54.0	345 33.3	57.3	280 54.6	58.0		286 44.9	01.6		62 36.6	06.8		62 36.6	06.8				
12	1 56.4	0 32.9	S 0 56.1	295 55.4	N22 58.2		301 46.9	N20 01.7		77 38.9	S22 06.8		77 38.9	S22 06.8	Gacrux	172 21.1	S57 03.3	
13	16 58.9	15 32.5	54.8	310 56.2	58.5		316 48.9	01.8		92 41.2	06.8		92 41.2	06.8	Gienah	176 10.8	S17 29.1	
14	32 01.3	30 32.2	53.5	325 57.0	58.7		331 50.9	01.9		107 43.6	06.8		107 43.6	06.8	Hadar	149 13.6	S60 19.3	
15	47 03.8	45 31.8	52.3	340 57.9	59.0		346 52.9	02.0		122 45.9	06.7		122 45.9	06.7	Hamal	328 21.8	N23 24.8	
16	62 06.3	60 31.4	51.0	355 58.7	59.2		1 54.9	02.1		137 48.3	06.7		137 48.3	06.7	Kaus Aust.	84 08.0	S34 23.5	
17	77 08.7	75 31.0	49.8	10 59.5	59.5		16 57.0	02.2		152 50.6	06.7		152 50.6	06.7				
18	92 11.2	90 30.6	S 0 48.5	26 00.3	N22 59.7		31 59.0	N20 02.3		167 52.9	S22 06.7		167 52.9	S22 06.7	Kochab	137 17.8	N74 11.6	
19	107 13.7	105 30.3	47.3	41 01.2	23 00.0		47 01.0	02.3		182 55.3	06.7		182 55.3	06.7	Markab	13 56.9	N15 08.7	
20	122 16.1	120 29.9	46.0	56 02.0	00.2		62 03.0	02.4		197 57.6	06.7		197 57.6	06.7	Menkar	314 34.4	N 4 02.9	
21	137 18.6	135 29.5	44.8	71 02.8	00.5		77 05.0	02.5		212 59.9	06.7		212 59.9	06.7	Menkent	148 28.9	S36 19.2	
22	152 21.1	150 29.1	43.5	86 03.6	00.7		92 07.1	02.6		228 02.3	06.7		228 02.3	06.7	Miaplacidus	221 43.3	S69 40.6	
23	167 23.5	165 28.7	42.3	101 04.4	01.0		107 09.1	02.7		243 04.6	06.7		243 04.6	06.7				
25 00	182 26.0	180 28.4	S 0 41.0	116 05.3	N23 01.3		122 11.1	N20 02.8		258 07.0	S22 06.6		258 07.0	S22 06.6	Mirfak	309 07.0	N49 49.6	
01	197 28.5	195 28.0	39.7	131 06.1	01.5		137 13.1	02.9		273 09.3	06.6		273 09.3	06.6	Nunki	76 20.9	S26 18.8	
02	212 30.9	210 27.6	38.5	146 06.9	01.7		152 15.1	03.0		288 11.6	06.6		288 11.6	06.6	Peacock	53 48.0	S56 46.2	
03	227 33.4	225 27.2	37.2	161 07.8	02.0		167 17.1	03.1		303 14.0	06.6		303 14.0	06.6	Pollux	243 49.8	N28 03.3	
04	242 35.8	240 26.9	36.0	176 08.6	02.2		182 19.1	03.2		318 16.3	06.6		318 16.3	06.6	Procyon	245 18.7	N 5 15.2	
05	257 38.3	255 26.5	34.7	191 09.4	02.5		197 21.1	03.3		333 18.7	06.6		333 18.7	06.6				
06	272 40.8	270 26.1	S 0 33.4	206 10.2	N23 02.7		212 23.2	N20 03.4		348 21.0	S22 06.6		348 21.0	S22 06.6	Rasalhague	96 23.3	N12 33.7	
07	287 43.2	285 25.7	32.2	221 11.0	03.0		227 25.2	03.4		3 23.3	06.6		3 23.3	06.6	Regulus	208 02.6	N12 01.1	
08	302 45.7	300 25.4	30.9	236 11.9	03.2		242 27.2	03.5		18 25.7	06.6		18 25.7	06.6	Rigel	281 29.7	S 8 12.8	
09	317 48.2	315 25.0	29.7	251 12.7	03.5		257 29.2	03.6		33 28.0	06.5		33 28.0	06.5	Rigil Kent.	140 16.4	S60 47.5	
10	332 50.6	330 24.6	28.4	266 13.5	03.7		272 31.2	03.7		48 30.4	06.5		48 30.4	06.5	Sabik	102 33.4	S15 42.9	
11	347 53.1	345 24.2	27.2	281 14.3	04.0		287 33.2	03.8		63 32.7	06.5		63 32.7	06.5				
12	2 55.6	0 23.8	S 0 25.9	296 15.1	N23 04.2		302 35.2	N20 03.9		78 35.0	S22 06.5		78 35.0	S22 06.5	Schedar	350 02.3</		



T.M.G. (TU)	SOL		LUNA				Lat.	Crepúsculo		Orto Sol	Orto Luna								
	A.H.G.	Dec.	A.H.G.	v	Dec.	d		P.H.	Náut.		23		24		25		26		
									h		m	h	m	h	m	h	m	h	m
J U E V E S	23 00	178 19.1	N 0 55.8	353 39.4	17.0	S 6 07.1	13.7	54.0	N 72	02 53	04 29	05 38	21 27	24 10	00 10	■	■		
	01	193 19.3		8 15.4	17.1	6 20.8	13.7	54.0	68	03 35	04 47	05 43	20 53	22 48	25 23	01 23	■		
	02	208 19.5		22 51.5	17.0	6 34.5	13.7	54.0	66	03 49	04 54	05 45	20 41	22 25	24 27	00 27	■		
	03	223 19.7	..	58.7	37 27.5	17.0	6 48.2	13.6	54.0	64	04 00	04 59	05 47	20 31	22 07	23 54	26 01	■	
	04	238 19.9	0	59.7	52 03.5	17.0	7 01.8	13.7	54.0	62	04 09	05 04	05 49	20 22	21 53	23 30	25 15	■	
	05	253 20.1	1	00.7	66 39.5	16.9	7 15.5	13.6	54.0	60	04 17	05 08	05 50	20 15	21 41	23 11	24 45	■	
	06	268 20.3	N 1	01.7	81 15.4	17.0	S 7 29.1	13.5	54.0	N 58	04 24	05 12	05 51	20 09	21 30	22 55	24 22	■	
	07	283 20.5		02.7	95 51.4	16.9	7 42.6	13.6	54.0	56	04 30	05 15	05 52	20 03	21 21	22 42	24 04	■	
	08	298 20.7		03.6	110 27.3	16.8	7 56.2	13.5	54.0	54	04 35	05 17	05 53	19 58	21 13	22 30	23 49	■	
	09	313 20.8	..	04.6	125 03.1	16.8	8 09.7	13.5	54.0	52	04 40	05 20	05 54	19 53	21 06	22 20	23 35	■	
	10	328 21.0		05.6	139 38.9	16.8	8 23.2	13.5	54.0	50	04 44	05 22	05 54	19 49	20 59	22 11	23 24	■	
	11	343 21.2		06.6	154 14.7	16.8	8 36.7	13.4	54.0	45	04 52	05 27	05 56	19 40	20 45	21 52	23 00	■	
	12	358 21.4	N 1	07.6	168 50.5	16.7	S 8 50.1	13.4	54.0	N 40	04 58	05 30	05 57	19 33	20 34	21 37	22 40	■	
	13	13 21.6		08.6	183 26.2	16.7	9 03.5	13.4	54.0	35	05 03	05 33	05 58	19 27	20 25	21 24	22 25	■	
	14	28 21.8		09.6	198 01.9	16.7	9 16.9	13.3	54.0	30	05 07	05 35	05 59	19 22	20 16	21 13	22 11	■	
	15	43 22.0	..	10.5	212 37.6	16.6	9 30.2	13.3	54.0	20	05 13	05 39	06 01	19 12	20 02	20 53	21 47	■	
	16	58 22.2		11.5	227 13.2	16.6	9 43.5	13.3	54.0	N 10	05 17	05 41	06 02	19 04	19 49	20 37	21 27	■	
	17	73 22.4		12.5	241 48.8	16.5	-9 56.8	13.2	54.0	0	05 18	05 42	06 03	18 56	19 38	20 21	21 09	■	
	18	88 22.5	N 1	13.5	256 24.3	16.5	S 10 10.0	13.2	54.0	S 10	05 19	05 43	06 04	18 49	19 26	20 06	20 50	■	
	19	103 22.7		14.5	270 59.8	16.5	10 23.2	13.2	54.0	20	05 17	05 43	06 05	18 41	19 14	19 50	20 30	■	
	20	118 22.9		15.5	285 35.3	16.4	10 36.4	13.1	54.0	30	05 14	05 42	06 06	18 32	19 00	19 31	20 08	■	
	21	133 23.1	..	16.4	300 10.7	16.4	10 49.5	13.1	54.0	35	05 12	05 41	06 06	18 26	18 52	19 21	19 54	■	
	22	148 23.3		17.4	314 46.1	16.3	11 02.6	13.0	54.0	40	05 08	05 40	06 07	18 21	18 43	19 08	19 39	■	
23	163 23.5		18.4	329 21.4	16.3	11 15.6	13.0	54.0	45	05 04	05 38	06 07	18 14	18 32	18 54	19 21	■		
V I E R N E S	24 00	178 23.7	N 1 19.4	343 56.7	16.3	S 11 28.6	13.0	54.0	S 50	04 58	05 36	06 08	18 06	18 19	18 36	18 58	■		
	01	193 23.9		358 32.0	16.2	11 41.6	12.9	54.0	52	04 55	05 35	06 08	18 02	18 14	18 28	18 48	■		
	02	208 24.1		13 07.2	16.1	11 54.5	12.9	54.0	54	04 52	05 33	06 09	17 58	18 07	18 19	18 36	■		
	03	223 24.3	..	22.4	27 42.3	16.1	12 07.4	12.8	54.0	56	04 48	05 32	06 09	17 53	18 00	18 09	18 22	■	
	04	238 24.4		23.3	42 17.4	16.1	12 20.2	12.8	54.0	58	04 44	05 30	06 09	17 48	17 52	17 57	18 06	■	
	05	253 24.6		24.3	56 52.5	16.0	12 33.0	12.8	54.1	S 60	04 39	05 28	06 10	17 43	17 43	17 44	17 47	■	
	06	268 24.8	N 1	25.3	71 27.5	16.0	S 12 45.8	12.7	54.1									■	
	07	283 25.0		26.3	86 02.5	15.9	12 58.5	12.6	54.1									■	
	08	298 25.2		27.3	100 37.4	15.8	13 11.1	12.6	54.1									■	
	09	313 25.4	..	28.3	115 12.2	15.8	13 23.7	12.6	54.1									■	
	10	328 25.6		29.3	129 47.0	15.8	13 36.3	12.5	54.1									■	
	11	343 25.8		30.2	144 21.8	15.7	13 48.8	12.5	54.1									■	
	12	358 26.0	N 1	31.2	158 56.5	15.6	S 14 01.3	12.4	54.1									■	
	13	13 26.2		32.2	173 31.1	15.6	14 13.7	12.4	54.1									■	
	14	28 26.3		33.2	188 05.7	15.5	14 26.1	12.3	54.1									■	
	15	43 26.5	..	34.2	202 40.2	15.5	14 38.4	12.2	54.1									■	
	16	58 26.7		35.2	217 14.7	15.4	14 50.6	12.2	54.1									■	
	17	73 26.9		36.1	231 49.1	15.4	15 02.8	12.2	54.1									■	
	18	88 27.1	N 1	37.1	246 23.5	15.2	S 15 15.0	12.1	54.1	N 58	18 23	19 02	19 50	05 46	05 48	05 52	05 59	■	
	19	103 27.3		38.1	260 57.7	15.3	15 27.1	12.0	54.1	56	18 22	18 59	19 44	05 49	05 55	06 02	06 13	■	
	20	118 27.5		39.1	275 32.0	15.1	15 39.1	12.0	54.2	54	18 21	18 56	19 39	05 53	06 01	06 11	06 25	■	
	21	133 27.7	..	40.1	290 06.1	15.2	15 51.1	11.9	54.2	52	18 20	18 54	19 34	05 56	06 06	06 19	06 36	■	
	22	148 27.9		41.1	304 40.3	15.0	16 03.0	11.8	54.2	50	18 19	18 52	19 30	05 58	06 11	06 26	06 45	■	
23	163 28.1		42.0	319 14.3	15.0	16 14.8	11.8	54.2	45	18 17	18 47	19 22	06 04	06 22	06 41	07 05	■		
S A B A D O	25 00	178 28.3	N 1 43.0	333 48.3	14.9	S 16 26.6	11.8	54.2	N 40	18 16	18 43	19 15	06 09	06 30	06 54	07 22	■		
	01	193 28.5		348 22.2	14.8	16 38.4	11.6	54.2	35	18 15	18 40	19 10	06 14	06 38	07 05	07 36	■		
	02	208 28.6		44.0	2 56.0	14.8	16 50.0	11.7	54.2	30	18 14	18 38	19 06	06 17	06 45	07 14	07 48	■	
	03	223 28.8	..	46.0	17 29.8	14.7	17 01.7	11.5	54.2	20	18 12	18 34	19 00	06 24	06 56	07 31	08 09	■	
	04	238 29.0		47.0	32 03.5	14.7	17 13.2	11.5	54.2	N 10	18 11	18 32	18 56	06 30	07 06	07 45	08 27	■	
	05	253 29.2		47.9	46 37.2	14.6	17 24.7	11.4	54.2	0	18 10	18 30	18 54	06 36	07 16	07 58	08 44	■	
	06	268 29.4	N 1	48.9	61 10.8	14.5	S 17 36.1	11.3	54.2	S 10	18 08	18 29	18 54	06 41	07 26	08 12	09 01	■	
	07	283 29.6		49.9	75 44.3	14.4	17 47.4	11.3	54.3	20	18 07	18 29	18 55	06 47	07 36	08 26	09 19	■	
	08	298 29.8		50.9	90 17.7	14.4	17 58.7	11.2	54.3	30	18 06	18 30	18 58	06 54	07 48	08 43	09 40	■	
	09	313 30.0	..	51.9	104 51.1	14.3	18 09.9	11.2	54.3	35	18 06	18 31	19 00	06 58	07 55	08 53	09 53	■	
	10	328 30.2		52.8	119 24.4	14.2	18 21.1	11.0	54.3	40	18 05	18 32	19 04	07 02	08 02	09 04	10 07	■	
	11	343 30.3		53.8	133 57.6	14.2	18 32.1	11.0	54.3	45	18 04	18 34	19 08	07 08	08 12	09 17	10 25	■	
	12	358 30.5	N 1	54.8	148 30.8	14.1	S 18 43.1	10.9	54.3	S 50	18 04	18 36	19 13	07 14	08 23	09 34	10 46	■	
	13	13 30.7		55.8	163 03.9	14.0	18 54.0	10.9	54.3	52	18 03	18 37	19 16	07 17	08 28	09 41	10 56	■	
	14	28 30.9		56.8	177 36.9	13.9	19 04.9	10.8	54.3	54	18 03	18 38	19 19	07 20	08 34	09 50	11 08	■	
	15	43 31.1	..	57.8	192 09.8	13.9	19 15.7	10.7	54.3	56	18 03	18 39	19 23	07 23	08 40	09 59	11 21	■	
	16	58 31.3		58.7	206 42.7	13.8	19												



T.M.G. (TU)	ARIES		VENUS -3.9		MARTE +1.3		JUPITER -2.1		SATURNO +0.6		ESTRELLAS		
	A.H.G.	A.H.G. Dec.	A.H.G. Dec.	A.H.G. Dec.	A.H.G. Dec.	A.H.G. Dec.	A.H.G. Dec.	A.H.G. Dec.	Nombre	A. H. S.	Dec.		
DOMINGO	26 00	183 25.1	180 19.3 S 0 10.9	116 25.0 N23 07.2	122 59.4 N20 05.0	259 03.2 S22 06.4	Acamar	315 32.4 S40 20.9					
	01	198 27.6	195 18.9 09.6	131 25.8 07.4	138 01.4 05.1	274 05.5 06.4	Achernar	335 40.5 S57 17.5					
	02	213 30.1	210 18.5 08.3	146 26.6 07.7	153 03.4 05.2	289 07.8 06.4	Acruz	173 29.5 S63 02.5					
	03	228 32.5	225 18.2 .. 07.1	161 27.4 .. 07.9	168 05.4 .. 05.3	304 10.2 .. 06.3	Adhara	255 26.8 S28 57.6					
	04	243 35.0	240 17.8 05.8	176 28.3 08.1	183 07.4 05.4	319 12.5 06.3	Aldebaran	291 10.5 N16 29.4					
	05	258 37.4	255 17.4 04.6	191 29.1 08.4	198 09.4 05.5	334 14.9 06.3							
	06	273 39.9	270 17.0 S 0 03.3	206 29.9 N23 08.6	213 11.4 N20 05.6	349 17.2 S22 06.3	Alioth	166 35.8 N56 00.9					
	07	288 42.4	285 16.6 02.1	221 30.7 08.9	228 13.5 05.7	4 19.6 06.3	Alkaid	153 12.6 N49 21.7					
	08	303 44.8	300 16.3 S 0 00.8	236 31.5 09.1	243 15.5 05.8	19 21.9 06.3	Al Na'ir	28 06.7 S47 00.8					
	09	318 47.3	315 15.9 N 0 00.5	251 32.4 .. 09.4	258 17.5 .. 05.9	34 24.2 .. 06.3	Alnilam	276 05.0 S 1 12.5					
	10	333 49.8	330 15.5 01.7	266 33.2 09.6	273 19.5 06.0	49 26.6 06.3	Alphard	218 13.8 S 8 36.8					
	11	348 52.2	345 15.1 03.0	281 34.0 09.8	288 21.5 06.0	64 28.9 06.3							
	12	3 54.7	0 14.8 N 0 04.2	296 34.8 N23 10.1	303 23.5 N20 06.1	79 31.3 S22 06.3	Alphecca	126 26.1 N26 44.7					
	13	18 57.2	15 14.4 05.5	311 35.6 10.3	318 25.5 06.2	94 33.6 06.2	Alpheratz	358 02.9 N29 01.8					
	14	33 59.6	30 14.0 06.7	326 36.5 10.6	333 27.5 06.3	109 36.0 06.2	Altair	62 26.1 N 8 50.1					
	15	49 02.1	45 13.6 .. 08.0	341 37.3 .. 10.8	348 29.5 .. 06.4	124 38.3 .. 06.2	Ankaa	353 33.9 S42 21.9					
	16	64 04.6	60 13.3 09.2	356 38.1 11.0	3 31.5 06.5	139 40.7 06.2	Antares	112 48.5 S26 24.7					
	17	79 07.0	75 12.9 10.5	11 38.9 11.3	18 33.5 06.6	154 43.0 06.2							
	18	94 09.5	90 12.5 N 0 11.8	26 39.7 N23 11.5	33 35.6 N20 06.7	169 45.4 S22 06.2	Arcturus	146 12.0 N19 14.0					
	19	109 11.9	105 12.1 13.0	41 40.5 11.7	48 37.6 06.8	184 47.7 06.2	Atria	108 06.7 S69 00.5					
	20	124 14.4	120 11.7 14.3	56 41.4 12.0	63 39.6 06.9	199 50.0 06.2	Avior	234 25.4 S59 28.7					
	21	139 16.9	135 11.4 .. 15.5	71 42.2 .. 12.2	78 41.6 .. 07.0	214 52.4 .. 06.2	Bellatrix	278 51.7 N 6 20.5					
	22	154 19.3	150 11.0 16.8	86 43.0 12.5	93 43.6 07.1	229 54.7 06.1	Betelgeuse	271 21.1 N 7 24.4					
23	169 21.8	165 10.6 18.0	101 43.8 12.7	108 45.6 07.2	244 57.1 06.1								
LUNES	27 00	184 24.3	180 10.2 N 0 19.3	116 44.6 N23 12.9	123 47.6 N20 07.3	259 59.4 S22 06.1	Canopus	264 04.3 S52 41.6					
	01	199 26.7	195 09.9 20.6	131 45.4 13.2	138 49.6 07.4	275 01.8 06.1	Capella	281 01.6 N45 59.5					
	02	214 29.2	210 09.5 21.8	146 46.3 13.4	153 51.6 07.4	290 04.1 06.1	Deneb	49 44.3 N45 14.1					
	03	229 31.7	225 09.1 .. 23.1	161 47.1 .. 13.6	168 53.6 .. 07.5	305 06.5 .. 06.1	Denebola	182 51.9 N14 37.8					
	04	244 34.1	240 08.7 24.3	176 47.9 13.9	183 55.6 07.6	320 08.8 06.1	Diphda	349 14.4 S18 02.8					
	05	259 36.6	255 08.4 25.6	191 48.7 14.1	198 57.6 07.7	335 11.2 06.1							
	06	274 39.0	270 08.0 N 0 26.8	206 49.5 N23 14.4	213 59.6 N20 07.8	350 13.5 S22 06.1	Dubhe	194 12.9 N61 48.6					
	07	289 41.5	285 07.6 28.1	221 50.3 14.6	229 01.6 07.9	5 15.9 06.0	Elnath	278 35.8 N28 36.1					
	08	304 44.0	300 07.2 29.3	236 51.2 14.8	244 03.6 08.0	20 18.2 06.0	Eltanin	90 54.5 N51 28.9					
	09	319 46.4	315 06.8 .. 30.6	251 52.0 .. 15.1	259 05.6 .. 08.1	35 20.6 .. 06.0	Enif	34 05.3 N 9 49.3					
	10	334 48.9	330 06.5 31.9	266 52.8 15.3	274 07.6 08.2	50 22.9 06.0	Fomalhaut	15 44.3 S29 40.8					
	11	349 51.4	345 06.1 33.1	281 53.6 15.5	289 09.6 08.3	65 25.3 06.0							
	12	4 53.8	0 05.7 N 0 34.4	296 54.4 N23 15.8	304 11.7 N20 08.4	80 27.6 S22 06.0	Gacrux	172 21.1 S57 03.3					
	13	19 56.3	15 05.3 35.6	311 55.2 16.0	319 13.7 08.5	95 30.0 06.0	Gienah	176 10.8 S17 29.1					
	14	34 58.8	30 05.0 36.9	326 56.1 16.2	334 15.7 08.6	110 32.3 06.0	Hadar	149 13.6 S60 19.4					
	15	50 01.2	45 04.6 .. 38.1	341 56.9 .. 16.5	349 17.7 .. 08.7	125 34.7 .. 06.0	Hamal	328 21.8 N23 24.8					
	16	65 03.7	60 04.2 39.4	356 57.7 16.7	4 19.7 08.8	140 37.0 06.0	Kaus Aust.	84 08.0 S34 23.5					
	17	80 06.2	75 03.8 40.7	11 58.5 16.9	19 21.7 08.8	155 39.4 05.9							
	18	95 08.6	90 03.5 N 0 41.9	26 59.3 N23 17.2	34 23.7 N20 08.9	170 41.7 S22 05.9	Kochab	137 17.8 N74 11.6					
	19	110 11.1	105 03.1 43.2	42 00.1 17.4	49 25.7 09.0	185 44.1 05.9	Markab	13 56.9 N15 08.7					
	20	125 13.5	120 02.7 44.4	57 00.9 17.6	64 27.7 09.1	200 46.4 05.9	Menkar	314 34.4 N 4 02.9					
	21	140 16.0	135 02.3 .. 45.7	72 01.8 .. 17.8	79 29.7 .. 09.2	215 48.8 .. 05.9	Menkent	148 28.9 S36 19.2					
	22	155 18.5	150 02.0 46.9	87 02.6 18.1	94 31.7 09.3	230 51.1 05.9	Miaplacidus	221 43.3 S69 40.6					
23	170 20.9	165 01.6 48.2	102 03.4 18.3	109 33.7 09.4	245 53.5 05.9								
MARTES	28 00	185 23.4	180 01.2 N 0 49.5	117 04.2 N23 18.5	124 35.7 N20 09.5	260 55.8 S22 05.9	Mirfak	309 07.1 N49 49.6					
	01	200 25.9	195 00.8 50.7	132 05.0 18.8	139 37.7 09.6	275 58.2 05.9	Nunki	76 20.9 S26 18.8					
	02	215 28.3	210 00.5 52.0	147 05.8 19.0	154 39.7 09.7	291 00.5 05.9	Peacock	53 48.0 S56 46.2					
	03	230 30.8	225 00.1 .. 53.2	162 06.6 .. 19.2	169 41.7 .. 09.8	306 02.9 .. 05.8	Pollux	243 49.8 N28 03.3					
	04	245 33.3	239 59.7 54.5	177 07.5 19.5	184 43.7 09.9	321 05.2 05.8	Procyon	245 18.7 N 5 15.2					
	05	260 35.7	254 59.3 55.7	192 08.3 19.7	199 45.7 10.0	336 07.6 05.8							
	06	275 38.2	269 58.9 N 0 57.0	207 09.1 N23 19.9	214 47.7 N20 10.1	351 09.9 S22 05.8	Rasalhague	96 23.3 N12 33.7					
	07	290 40.7	284 58.6 58.3	222 09.9 20.1	229 49.7 10.2	6 12.3 05.8	Regulus	208 02.6 N12 01.1					
	08	305 43.1	299 58.2 0 59.5	237 10.7 20.4	244 51.7 10.2	21 14.6 05.8	Rigel	281 29.7 S 8 12.8					
	09	320 45.6	314 57.8 1 00.8	252 11.5 .. 20.6	259 53.7 .. 10.3	36 17.0 .. 05.8	Rigil Kent.	140 16.4 S60 47.5					
	10	335 48.0	329 57.4 02.0	267 12.3 20.8	274 55.7 10.4	51 19.3 05.8	Sabik	102 33.4 S15 42.9					
	11	350 50.5	344 57.1 03.3	282 13.2 21.1	289 57.7 10.5	66 21.7 05.8							
	12	5 53.0	359 56.7 N 1 04.5	297 14.0 N23 21.3	304 59.7 N20 10.6	81 24.1 S22 05.8	Schedar	350 02.3 N56 28.7					
	13	20 55.4	14 56.3 05.8	312 14.8 21.5	320 01.7 10.7	96 26.4 05.7	Shaula	96 46.6 S37 05.9					
	14	35 57.9	29 55.9 07.1	327 15.6 21.7	335 03.7 10.8	111 28.8 05.7	Sirius	258 49.8 S16 42.2					
	15	51 00.4	44 55.6 .. 08.3	342 16.4 .. 22.0	350 05.7 .. 10.9	126 31.1 .. 05.7	Spica	158 50.2 S11 06.5					
	16	66 02.8	59 55.2 09.6	357 17.2 22.2	5 07.7 11.0	141 33.5 05.7	Suhail	223 05.7 S43 23.5					
	17	81 05.3	74 54.8 10.8	12 18.0 22.4	20 09.7 11.1	156 35.8 05.7							
	18	96 07.8	89 54.4 N 1 12.1	27 18.8 N23 22.6	35 11.7 N20 11.2	171 38.2 S22 05.7	Vega	80 51.4 N38 46.0					
	19	111 10.2	104 54.1 13.3	42 19.7 22.9	50 13.7 11.3	186 40.5 05.7	Zuben'ubi	137 25.4 S16 00.1					
	20	126 12.7	119 53.7 14.6	57 20.5 23.1	65 15.7 11.4	201 42.9 05.7							
	21	141 15.2	134 53.3 .. 15.9	72 21.3 .. 23.3	80 17.7 .. 11.5	216 45.2 .. 05.7							
	22	156 17.6	149 52.9 17.1	87 22.1 23.5	95 19.7 11.6	231 47.6 05.7	Venus	355 46.0 12 00					
23	171 20.1	164 52.5 18.4	102 22.9 23.8	110 21.7 11.6	246 49.9 05.6	Marte	292 20.4 16 12						
						Júpiter	299 23.3 15 43						
						Saturno	75 35.2 6 39						

Pas. Mer.	11 40.5	v -0.4 d 1.3	v 0.8 d 0.2	v 2.0 d 0.1	v 2.3 d 0.0
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T.M.G. (TU)	SOL		LUNA				Lat.	Crepúsculo		Orto Sol	Orto Luna							
	A.H.G.	Dec.	A.H.G.	v	Dec.	d		P.H.	Náut.		Civil	26	27	28	29			
												h m	h m	h m	h m			
DOMINGO	00	178 32.8	N 2 06.6	323 02.8	13.2	S20 49.1	10.0	54.4	N 72	02 29	04 12	05 23	h m	h m	h m	h m		
	01	193 33.0	07.6	337 35.0	13.1	20 59.1	9.9	54.5	N 70	02 58	04 24	05 27	h m	h m	h m	h m		
	02	208 33.2	08.5	352 07.1	13.0	21 09.0	9.8	54.5	68	03 18	04 33	05 31	01 23	h m	h m	h m	h m	
	03	223 33.4	09.5	6 39.1	12.9	21 18.8	9.7	54.5	66	03 35	04 41	05 34	00 27	h m	h m	h m	h m	
	04	238 33.6	10.5	21 11.0	12.9	21 28.5	9.6	54.5	64	03 47	04 48	05 36	26 01	02 01	h m	h m	h m	
	05	253 33.7	11.5	35 42.9	12.7	21 38.1	9.5	54.5	62	03 58	04 54	05 39	25 15	01 15	03 12	h m	h m	
	06	268 33.9	N 2 12.5	50 14.6	12.7	S21 47.6	9.5	54.5	60	04 07	04 59	05 41	24 45	00 45	02 19	03 39	h m	h m
	07	283 34.1	13.4	64 46.3	12.6	21 57.1	9.3	54.5	N 58	04 15	05 03	05 42	24 22	00 22	01 47	03 00	h m	h m
	08	298 34.3	14.4	79 17.9	12.5	22 06.4	9.3	54.6	56	04 21	05 07	05 44	24 04	00 04	01 23	02 32	h m	h m
	09	313 34.5	15.4	93 49.4	12.5	22 15.7	9.1	54.6	54	04 27	05 10	05 45	23 49	25 04	01 04	02 11	h m	h m
	10	328 34.7	16.4	108 20.9	12.3	22 24.8	9.1	54.6	52	04 32	05 13	05 47	23 35	24 48	00 48	01 53	h m	h m
	11	343 34.9	17.4	122 52.2	12.3	22 33.9	9.0	54.6	50	04 37	05 15	05 48	23 24	24 34	00 34	01 38	h m	h m
	12	358 35.1	N 2 18.3	137 23.5	12.2	S22 42.9	8.9	54.6	45	04 46	05 21	05 50	23 00	24 06	00 06	01 08	h m	h m
	13	13 35.3	19.3	151 54.7	12.1	22 51.8	8.7	54.6	N 40	04 53	05 25	05 52	22 40	23 44	24 44	00 44	h m	h m
	14	28 35.5	20.3	166 25.8	12.0	23 00.5	8.7	54.6	35	04 59	05 29	05 54	22 25	23 25	24 25	00 25	h m	h m
	15	43 35.6	21.3	180 56.8	12.0	23 09.2	8.6	54.7	30	05 04	05 32	05 56	22 11	23 10	24 08	00 08	h m	h m
	16	58 35.8	22.3	195 27.8	11.8	23 17.8	8.5	54.7	20	05 10	05 36	05 58	21 47	22 43	23 40	24 35	h m	h m
	17	73 36.0	23.2	209 58.6	11.8	23 26.3	8.4	54.7	N 10	05 15	05 39	06 00	21 27	22 20	23 16	24 11	h m	h m
	18	88 36.2	N 2 24.2	224 29.4	11.7	S23 34.7	8.2	54.7	0	05 17	05 41	06 02	21 09	21 59	22 53	23 49	h m	h m
	19	103 36.4	25.2	239 00.1	11.6	23 42.9	8.2	54.7	S 10	05 19	05 43	06 04	20 50	21 38	22 31	23 27	h m	h m
	20	118 36.6	26.2	253 30.7	11.5	23 51.1	8.1	54.7	20	05 18	05 44	06 06	20 30	21 16	22 07	23 03	h m	h m
	21	133 36.8	27.2	268 01.2	11.5	23 59.2	7.9	54.8	30	05 16	05 44	06 08	20 08	20 50	21 39	22 35	h m	h m
	22	148 37.0	28.1	282 31.7	11.3	24 07.1	7.9	54.8	35	05 14	05 43	06 09	19 54	20 34	21 22	22 19	h m	h m
23	163 37.2	29.1	297 02.0	11.3	24 15.0	7.7	54.8	40	05 11	05 43	06 10	19 39	20 17	21 03	21 59	h m	h m	
LUNES	00	178 37.4	N 2 30.1	311 32.3	11.2	S24 22.7	7.6	54.8	45	05 08	05 42	06 11	19 21	19 55	20 40	21 36	h m	h m
	01	193 37.6	31.1	326 02.5	11.1	24 30.3	7.6	54.8	S 50	05 03	05 40	06 13	18 58	19 29	20 10	21 06	h m	h m
	02	208 37.7	32.0	340 32.6	11.0	24 37.9	7.4	54.9	52	05 00	05 40	06 13	18 48	19 16	19 56	20 51	h m	h m
	03	223 37.9	33.0	355 02.6	11.0	24 45.3	7.3	54.9	54	04 58	05 39	06 14	18 36	19 01	19 38	20 34	h m	h m
	04	238 38.1	34.0	9 32.6	10.8	24 52.6	7.2	54.9	56	04 54	05 38	06 15	18 22	18 43	19 18	20 13	h m	h m
	05	253 38.3	35.0	24 02.4	10.8	24 59.8	7.0	54.9	58	04 51	05 37	06 16	18 06	18 22	18 53	19 47	h m	h m
	06	268 38.5	N 2 36.0	38 32.2	10.7	S25 06.8	7.0	54.9	S 60	04 46	05 35	06 17	17 47	17 55	18 18	19 11	h m	h m
	07	283 38.7	36.9	53 01.9	10.6	25 13.8	6.8	55.0	Lat.	Ocaso Sol	Crepúsculo Civil	Ocaso Luna	26	27	28	29	h m	h m
	08	298 38.9	37.9	67 31.5	10.5	25 20.6	6.7	55.0	N 72	h m	h m	h m	h m	h m	h m	h m	h m	h m
	09	313 39.1	38.9	82 01.0	10.4	25 27.3	6.6	55.0	N 70	18 51	20 03	21 49	h m	h m	h m	h m	h m	h m
	10	328 39.3	39.9	96 30.4	10.4	25 33.9	6.5	55.0	68	18 46	19 50	21 18	h m	h m	h m	h m	h m	h m
	11	343 39.5	40.9	110 59.8	10.3	25 40.4	6.4	55.0	66	18 42	19 40	20 56	03 27	h m	h m	h m	h m	h m
	12	358 39.6	N 2 41.8	125 29.1	10.2	S25 46.8	6.2	55.1	64	18 39	19 32	20 39	04 24	h m	h m	h m	h m	h m
	13	13 39.8	42.8	139 58.3	10.1	25 53.0	6.1	55.1	62	18 36	19 25	20 26	04 58	04 30	h m	h m	h m	h m
	14	28 40.0	43.8	154 27.4	10.0	25 59.1	6.0	55.1	60	18 34	19 19	20 15	05 23	05 17	05 07	h m	h m	h m
	15	43 40.2	44.8	168 56.4	10.0	26 05.1	5.9	55.1	N 58	18 31	19 14	20 06	05 43	05 47	06 00	06 34	h m	h m
	16	58 40.4	45.7	183 25.4	9.9	26 11.0	5.7	55.1	56	18 30	19 09	19 58	05 59	06 10	06 32	07 13	h m	h m
	17	73 40.6	46.7	197 54.3	9.8	26 16.7	5.6	55.2	54	18 28	19 06	19 51	06 13	06 29	06 56	07 40	h m	h m
	18	88 40.8	N 2 47.7	212 23.1	9.7	S26 22.3	5.5	55.2	52	18 26	19 02	19 45	06 25	06 45	07 15	08 01	h m	h m
	19	103 41.0	48.7	226 51.8	9.6	26 27.8	5.4	55.2	50	18 25	18 59	19 40	06 36	06 59	07 32	08 19	h m	h m
	20	118 41.2	49.7	241 20.4	9.6	26 33.2	5.2	55.2	45	18 24	18 56	19 35	06 45	07 11	07 46	08 34	h m	h m
	21	133 41.4	50.6	255 49.0	9.5	26 38.4	5.1	55.2	N 40	18 21	18 51	19 26	07 05	07 36	08 15	09 05	h m	h m
	22	148 41.6	51.6	270 17.5	9.4	26 43.5	5.0	55.3	35	18 19	18 46	19 18	07 22	07 55	08 37	09 28	h m	h m
23	163 41.7	52.6	284 45.9	9.3	26 48.5	4.8	55.3	30	18 17	18 43	19 12	07 36	08 12	08 56	09 48	h m	h m	
MARTES	00	178 41.9	N 2 53.6	299 14.2	9.3	S26 53.3	4.7	55.3	20	18 16	18 40	19 08	07 48	08 27	09 16	10 05	h m	h m
	01	193 42.1	54.5	313 42.5	9.2	26 58.0	4.6	55.3	N 10	18 13	18 35	19 01	08 09	08 51	09 39	10 33	h m	h m
	02	208 42.3	55.5	328 10.7	9.1	27 02.6	4.4	55.4	0	18 11	18 32	18 56	08 27	09 13	10 03	10 57	h m	h m
	03	223 42.5	56.5	342 38.8	9.0	27 07.0	4.3	55.4	S 10	18 09	18 29	18 53	08 44	09 33	10 25	11 20	h m	h m
	04	238 42.7	57.5	357 06.8	9.0	27 11.3	4.2	55.4	20	18 07	18 28	18 52	09 01	09 53	10 47	11 42	h m	h m
	05	253 42.9	58.4	11 34.8	8.9	27 15.5	4.0	55.4	30	18 05	18 27	18 52	09 19	10 14	11 10	12 07	h m	h m
	06	268 43.1	N 2 59.4	26 02.7	8.8	S27 19.5	3.9	55.5	40	18 03	18 27	18 54	09 40	10 39	11 38	12 35	h m	h m
	07	283 43.3	3 00.4	40 30.5	8.8	27 23.4	3.7	55.5	50	18 02	18 27	18 56	09 53	10 54	11 54	12 51	h m	h m
	08	298 43.5	01.4	54 58.3	8.7	27 27.1	3.6	55.5	60	18 00	18 27	18 59	10 07	11 11	12 13	13 11	h m	h m
	09	313 43.6	02.4	69 26.0	8.6	27 30.7	3.5	55.5	S 50	17 59	18 28	19 02	10 25	11 32	12 36	13 34	h m	h m
	10	328 43.8	03.3	83 53.6	8.6	27 34.2	3.3	55.6	52	17 57	18 29	19 07	10 46	11 58	13 05	14 04	h m	h m
	11	343 44.0	04.3	98 21.2	8.5	27 37.5	3.2	55.6	54	17 56	18 30	19 09	10 56	12 10	13 20	14 19	h m	h m
	12	358 44.2	N 3 05.3	112 48.7	8.4	S27 40.7	3.0	55.6	56	17 55	18 31	19 12	11 08	12 25	13 37	14 36	h m	h m
	13	13 44.4	06.3	127 16.1	8.4	27 43.7	2.9	55.6	58	17 54	18 32	19 15	11 21	12 42	13 57	14 57	h m	



T.M.G. (TU)	ARIES	VENUS -3.9	MARTE +1.3	JUPITER -2.1	SATURNO +0.5	ESTRELLAS		
d h	A.H.G.	A.H.G. Dec.	A.H.G. Dec.	A.H.G. Dec.	A.H.G. Dec.	Nombre	A. H. S.	Dec.
29 00	186 22.5	179 52.2 N 1 19.6	117 23.7 N23 24.0	125 23.7 N20 11.7	261 52.3 S22 05.6	Acamar	315 32.4 S40	20.9
01	201 25.0	194 51.8 20.9	132 24.5 24.2	140 25.7 11.8	276 54.7 05.6	Achernar	335 40.5 S57	17.5
02	216 27.5	209 51.4 22.1	147 25.3 24.4	155 27.7 11.9	291 57.0 05.6	Acruz	173 29.5 S63	02.5
03	231 29.9	224 51.0 23.4	162 26.1 24.7	170 29.7 12.0	306 59.4 05.6	Adhara	255 26.9 S28	57.6
04	246 32.4	239 50.7 24.7	177 27.0 24.9	185 31.7 12.1	322 01.7 05.6	Aldebaran	291 10.5 N16	29.4
05	261 34.9	254 50.3 25.9	192 27.8 25.1	200 33.6 12.2	337 04.1 05.6			
06	276 37.3	269 49.9 N 1 27.2	207 28.6 N23 25.3	215 35.6 N20 12.3	352 06.4 S22 05.6	Alioth	166 35.8 N56	00.9
07	291 39.8	284 49.5 28.4	222 29.4 25.5	230 37.6 12.4	7 08.8 05.6	Alkaid	153 12.5 N49	21.7
08	306 42.3	299 49.2 29.7	237 30.2 25.8	245 39.6 12.5	22 11.2 05.6	Al Na'ir	28 06.7 S47	00.8
09	321 44.7	314 48.8 30.9	252 31.0 26.0	260 41.6 12.6	37 13.5 05.5	Alnilam	276 05.0 S 1	12.5
10	336 47.2	329 48.4 32.2	267 31.8 26.2	275 43.6 12.7	52 15.9 05.5	Alphard	218 13.8 S 8	36.8
11	351 49.6	344 48.0 33.4	282 32.6 26.4	290 45.6 12.8	67 18.2 05.5			
12	6 52.1	359 47.7 N 1 34.7	297 33.4 N23 26.7	305 47.6 N20 12.9	82 20.6 S22 05.5	Alphecca	126 26.1 N26	44.7
13	21 54.6	14 47.3 36.0	312 34.3 26.9	320 49.6 13.0	97 22.9 05.5	Alpheratz	358 02.9 N29	01.8
14	36 57.0	29 46.9 37.2	327 35.1 27.1	335 51.6 13.1	112 25.3 05.5	Altair	62 26.1 N 8	50.1
15	51 59.5	44 46.5 38.5	342 35.9 27.3	350 53.6 13.1	127 27.7 05.5	Ankaa	353 33.9 S42	21.9
16	67 02.0	59 46.1 39.7	357 36.7 27.5	5 55.6 13.2	142 30.0 05.5	Antares	112 48.5 S26	24.7
17	82 04.4	74 45.8 41.0	12 37.5 27.8	20 57.6 13.3	157 32.4 05.5			
18	97 06.9	89 45.4 N 1 42.2	27 38.3 N23 28.0	35 59.6 N20 13.4	172 34.7 S22 05.5	Arcturus	146 12.0 N19	14.0
19	112 09.4	104 45.0 43.5	42 39.1 28.2	51 01.6 13.5	187 37.1 05.4	Atria	108 06.7 S69	00.5
20	127 11.8	119 44.6 44.8	57 39.9 28.4	66 03.6 13.6	202 39.5 05.4	Avior	234 25.4 S59	28.7
21	142 14.3	134 44.3 46.0	72 40.7 28.6	81 05.6 13.7	217 41.8 05.4	Bellatrix	278 51.7 N 6	20.5
22	157 16.8	149 43.9 47.3	87 41.5 28.8	96 07.6 13.8	232 44.2 05.4	Betelgeuse	271 21.1 N 7	24.4
23	172 19.2	164 43.5 48.5	102 42.3 29.1	111 09.5 13.9	247 46.5 05.4			
30 00	187 21.7	179 43.1 N 1 49.8	117 43.2 N23 29.3	126 11.5 N20 14.0	262 48.9 S22 05.4	Canopus	264 04.3 S52	41.6
01	202 24.1	194 42.8 51.0	132 44.0 29.5	141 13.5 14.1	277 51.3 05.4	Capella	281 01.6 N45	59.5
02	217 26.6	209 42.4 52.3	147 44.8 29.7	156 15.5 14.2	292 53.6 05.4	Deneb	49 44.3 N45	14.1
03	232 29.1	224 42.0 53.5	162 45.6 29.9	171 17.5 14.3	307 56.0 05.4	Denebola	182 51.9 N14	37.8
04	247 31.5	239 41.6 54.8	177 46.4 30.1	186 19.5 14.4	322 58.3 05.4	Diphda	349 14.4 S18	02.8
05	262 34.0	254 41.3 56.1	192 47.2 30.4	201 21.5 14.5	338 00.7 05.4			
06	277 36.5	269 40.9 N 1 57.3	207 48.0 N23 30.6	216 23.5 N20 14.6	353 03.1 S22 05.3	Dubhe	194 12.9 N61	48.6
07	292 38.9	284 40.5 58.6	222 48.8 30.8	231 25.5 14.6	8 05.4 05.3	Elnath	278 35.8 N28	36.1
08	307 41.4	299 40.1 59.8	237 49.6 31.0	246 27.5 14.7	23 07.8 05.3	Eltanin	90 54.5 N51	28.9
09	322 43.9	314 39.7 2 01.1	252 50.4 31.2	261 29.5 14.8	38 10.1 05.3	Enif	34 05.3 N 9	49.3
10	337 46.3	329 39.4 02.3	267 51.2 31.4	276 31.5 14.9	53 12.5 05.3	Fomalhaut	15 44.2 S29	40.8
11	352 48.8	344 39.0 03.6	282 52.0 31.6	291 33.4 15.0	68 14.9 05.3			
12	7 51.3	359 38.6 N 2 04.8	297 52.9 N23 31.9	306 35.4 N20 15.1	83 17.2 S22 05.3	Gacrux	172 21.0 S57	03.3
13	22 53.7	14 38.2 06.1	312 53.7 32.1	321 37.4 15.2	98 19.6 05.3	Gienah	176 10.8 S17	29.1
14	37 56.2	29 37.9 07.4	327 54.5 32.3	336 39.4 15.3	113 21.9 05.3	Hadar	149 13.6 S60	19.4
15	52 58.6	44 37.5 08.6	342 55.3 32.5	351 41.4 15.4	128 24.3 05.3	Hamal	328 21.8 N23	24.8
16	68 01.1	59 37.1 09.9	357 56.1 32.7	6 43.4 15.5	143 26.7 05.2	Kaus Aust.	84 07.9 S34	23.5
17	83 03.6	74 36.7 11.1	12 56.9 32.9	21 45.4 15.6	158 29.0 05.2			
18	98 06.0	89 36.3 N 2 12.4	27 57.7 N23 33.1	36 47.4 N20 15.7	173 31.4 S22 05.2	Kochab	137 17.7 N74	11.6
19	113 08.5	104 36.0 13.6	42 58.5 33.3	51 49.4 15.8	188 33.8 05.2	Markab	13 56.9 N15	08.7
20	128 11.0	119 35.6 14.9	57 59.3 33.6	66 51.3 15.9	203 36.1 05.2	Menkar	314 34.4 N 4	02.9
21	143 13.4	134 35.2 16.1	73 00.1 33.8	81 53.3 16.0	218 38.5 05.2	Menkent	148 28.9 S36	19.2
22	158 15.9	149 34.8 17.4	88 00.9 34.0	96 55.3 16.1	233 40.8 05.2	Miaplacidus	221 43.4 S69	40.6
23	173 18.4	164 34.5 18.6	103 01.7 34.2	111 57.3 16.2	248 43.2 05.2			
31 00	188 20.8	179 34.1 N 2 19.9	118 02.5 N23 34.4	126 59.3 N20 16.2	263 45.6 S22 05.2	Mirfak	309 07.1 N49	49.6
01	203 23.3	194 33.7 21.2	133 03.3 34.6	142 01.3 16.3	278 47.9 05.2	Nunki	76 20.9 S26	18.8
02	218 25.7	209 33.3 22.4	148 04.1 34.8	157 03.3 16.4	293 50.3 05.2	Pecock	53 47.9 S56	46.1
03	233 28.2	224 32.9 23.7	163 04.9 35.0	172 05.3 16.5	308 52.7 05.1	Pollux	243 49.9 N28	03.3
04	248 30.7	239 32.6 24.9	178 05.8 35.2	187 07.3 16.6	323 55.0 05.1	Procyon	245 18.7 N 5	15.2
05	263 33.1	254 32.2 26.2	193 06.6 35.4	202 09.2 16.7	338 57.4 05.1			
06	278 35.6	269 31.8 N 2 27.4	208 07.4 N23 35.7	217 11.2 N20 16.8	353 59.8 S22 05.1	Rasalhague	96 23.3 N12	33.7
07	293 38.1	284 31.4 28.7	223 08.2 35.9	232 13.2 16.9	9 02.1 05.1	Regulus	208 02.6 N12	01.1
08	308 40.5	299 31.1 29.9	238 09.0 36.1	247 15.2 17.0	24 04.5 05.1	Rigel	281 29.7 S 8	12.8
09	323 43.0	314 30.7 31.2	253 09.8 36.3	262 17.2 17.1	39 06.9 05.1	Rigil Kent.	140 16.4 S60	47.5
10	338 45.5	329 30.3 32.4	268 10.6 36.5	277 19.2 17.2	54 09.2 05.1	Sabik	102 33.4 S15	42.9
11	353 47.9	344 29.9 33.7	283 11.4 36.7	292 21.2 17.3	69 11.6 05.1			
12	8 50.4	359 29.5 N 2 34.9	298 12.2 N23 36.9	307 23.1 N20 17.4	84 14.0 S22 05.1	Schedar	350 02.3 N56	28.7
13	23 52.9	14 29.2 36.2	313 13.0 37.1	322 25.1 17.5	99 16.3 05.1	Shaula	96 46.6 S37	05.9
14	38 55.3	29 28.8 37.5	328 13.8 37.3	337 27.1 17.6	114 18.7 05.1	Sirius	258 49.8 S16	42.2
15	53 57.8	44 28.4 38.7	343 14.6 37.5	352 29.1 17.7	129 21.1 05.0	Spica	158 50.2 S11	06.5
16	69 00.2	59 28.0 40.0	358 15.4 37.7	7 31.1 17.8	144 23.4 05.0	Suhail	223 05.8 S43	23.5
17	84 02.7	74 27.6 41.2	13 16.2 37.9	22 33.1 17.8	159 25.8 05.0			
18	99 05.2	89 27.3 N 2 42.5	28 17.0 N23 38.1	37 35.1 N20 17.9	174 28.2 S22 05.0	Vega	80 51.3 N38	46.0
19	114 07.6	104 26.9 43.7	43 17.8 38.3	52 37.0 18.0	189 30.5 05.0	Zuben'ubi	137 25.4 S16	00.1
20	129 10.1	119 26.5 45.0	58 18.6 38.5	67 39.0 18.1	204 32.9 05.0			
21	144 12.6	134 26.1 46.2	73 19.4 38.8	82 41.0 18.2	219 35.3 05.0			
22	159 15.0	149 25.7 47.5	88 20.2 39.0	97 43.0 18.3	234 37.6 05.0	Venus	352 21.5 12	01
23	174 17.5	164 25.4 48.7	103 21.0 39.2	112 45.0 18.4	249 40.0 05.0	Marte	290 21.5 16	08
						Júpiter	298 49.9 15	33
						Saturno	75 27.2 6	28

Pas. Mer. 11 28.7

v -0.4 d 1.3

v 0.8 d 0.2

v 2.0 d 0.1

v 2.4 d 0.0

A. H. S. Pas. Mer. h m



T.M.G. (TU)	SOL				LUNA				Lat.	Crepúsculo			Orto Sol	Orto Luna						
	A.H.G.		Dec.	v	A.H.G.		Dec.	d		P.H.	Náut.	Civil		29	30	31	1			
	o	'			o	'												o	'	h
M I E R C O L E S	29 00	178	46.5	N 3	17.0	286	14.1	7.8	S28	07.3	1.3	55.9	N 72	02 01	03 54	05 07	h m	h m	h m	h m
	01	193	46.7		18.0	300	40.9	7.7	28	08.6	1.1	56.0	N 70	02 37	04 08	05 13	■	■	■	■
	02	208	46.9		18.9	315	07.6	7.6	28	09.7	0.9	56.0	68	03 01	04 20	05 18	■	■	■	07 12
	03	223	47.1	..	19.9	329	34.2	7.7	28	10.6	0.8	56.0	66	03 20	04 29	05 22	■	■	■	06 08
	04	238	47.3		20.9	344	00.9	7.5	28	11.4	0.6	56.0	64	03 34	04 37	05 26	■	■	06 11	05 33
	05	253	47.4		21.9	358	27.4	7.6	28	12.0	0.5	56.1	62	03 47	04 43	05 29	■	05 28	05 14	05 07
	06	268	47.6	N 3	22.8	12	54.0	7.5	S28	12.5	0.3	56.1	60	03 57	04 49	05 32	03 39	04 23	04 40	04 47
	07	283	47.8		23.8	27	20.5	7.4	28	12.8	0.2	56.1	N 58	04 05	04 54	05 34	03 00	03 48	04 15	04 30
	08	298	48.0		24.8	41	46.9	7.5	28	13.0	0.0	56.2	56	04 13	04 58	05 36	02 32	03 23	03 56	04 16
	09	313	48.2	..	25.8	56	13.4	7.3	28	13.0	0.2	56.2	54	04 19	05 02	05 38	02 11	03 03	03 39	04 03
	10	328	48.4		26.7	70	39.7	7.4	28	12.8	0.3	56.2	52	04 25	05 06	05 40	01 53	02 46	03 25	03 52
	11	343	48.6		27.7	85	06.1	7.3	28	12.5	0.5	56.3	50	04 30	05 09	05 41	01 38	02 31	03 12	03 43
	12	358	48.8	N 3	28.7	99	32.4	7.3	S28	12.0	0.6	56.3	45	04 40	05 15	05 45	01 08	02 02	02 46	03 22
	13	13	49.0		29.7	113	58.7	7.2	28	11.4	0.8	56.3	N 40	04 48	05 20	05 47	00 44	01 39	02 26	03 05
	14	28	49.1		30.6	128	24.9	7.3	28	10.6	1.0	56.4	35	04 55	05 24	05 50	00 25	01 19	02 08	02 51
	15	43	49.3	..	31.6	142	51.2	7.2	28	09.6	1.1	56.4	30	05 00	05 28	05 52	00 08	01 03	01 53	02 39
	16	58	49.5		32.6	157	17.4	7.1	28	08.5	1.2	56.4	20	05 08	05 33	05 55	24 35	00 35	01 28	02 17
	17	73	49.7		33.5	171	43.5	7.2	28	07.3	1.5	56.4	N 10	05 13	05 37	05 58	24 11	00 11	01 06	01 59
	18	88	49.9	N 3	34.5	186	09.7	7.1	S28	05.8	1.6	56.5	0	05 16	05 40	06 01	23 49	24 46	00 46	01 41
	19	103	50.1		35.5	200	35.8	7.1	28	04.2	1.7	56.5	S 10	05 18	05 43	06 04	23 27	24 25	00 25	01 24
	20	118	50.3		36.5	215	01.9	7.1	28	02.5	1.9	56.5	20	05 19	05 44	06 06	23 03	24 03	00 03	01 05
	21	133	50.5	..	37.4	229	28.0	7.0	28	00.6	2.1	56.6	30	05 18	05 45	06 09	22 35	23 37	24 44	00 44
	22	148	50.7		38.4	243	54.0	7.1	27	58.5	2.3	56.6	35	05 16	05 46	06 11	22 19	23 22	24 31	00 31
23	163	50.9		39.4	258	20.1	7.0	27	56.2	2.4	56.6	40	05 14	05 46	06 13	21 59	23 04	24 16	00 16	
30 00	178	51.0	N 3	40.4	272	46.1	7.0	S27	53.8	2.5	56.7	45	05 12	05 46	06 15	21 36	22 43	23 58	25 18	
01	193	51.2		41.3	287	12.1	7.0	27	51.3	2.8	56.7	S 50	05 08	05 45	06 17	21 06	22 16	23 37	25 02	
02	208	51.4		42.3	301	38.1	7.0	27	48.5	2.9	56.7	52	05 06	05 45	06 18	20 51	22 03	23 26	24 55	
03	223	51.6	..	43.3	316	04.1	6.9	27	45.6	3.0	56.8	54	05 03	05 44	06 20	20 34	21 48	23 14	24 46	
04	238	51.8		44.2	330	30.0	7.0	27	42.6	3.2	56.8	56	05 01	05 44	06 21	20 13	21 30	23 00	24 37	
05	253	52.0		45.2	344	56.0	7.0	27	39.4	3.4	56.8	58	04 58	05 43	06 22	19 47	21 08	22 44	24 26	
06	268	52.2	N 3	46.2	359	22.0	6.9	S27	36.0	3.6	56.9	S 60	04 54	05 43	06 24	19 11	20 40	22 25	24 14	
07	283	52.4		47.2	13	47.9	7.0	27	32.4	3.7	56.9									
08	298	52.6		48.1	28	13.9	6.9	27	28.7	3.9	56.9	Lat.	Ocaso Sol	Crepúsculo		Ocaso Luna				
09	313	52.7	..	49.1	42	39.8	7.0	27	24.8	4.0	57.0			Civil	Náut.	29	30	31	1	
10	328	52.9		50.1	57	05.8	6.9	27	20.8	4.2	57.0					h m	h m	h m	h m	
11	343	53.1		51.0	71	31.7	7.0	27	16.6	4.3	57.1	N 72	19 05	20 19	22 17	h m	h m	h m	h m	
12	358	53.3	N 3	52.0	85	57.7	6.9	S27	12.3	4.6	57.1	N 70	18 58	20 04	21 38	■	■	■	■	
13	13	53.5		53.0	100	23.6	7.0	27	07.7	4.7	57.1	68	18 53	19 52	21 12	■	■	■	08 54	
14	28	53.7		54.0	114	49.6	7.0	27	03.0	4.8	57.2	66	18 49	19 42	20 53	■	■	■	09 57	
15	43	53.9	..	54.9	129	15.6	6.9	26	58.2	5.0	57.2	64	18 45	19 34	20 37	■	■	07 57	10 32	
16	58	54.1		55.9	143	41.5	7.0	26	53.2	5.2	57.2	62	18 42	19 27	20 25	■	06 42	08 54	10 56	
17	73	54.2		56.9	158	07.5	7.0	26	48.0	5.3	57.3	60	18 39	19 21	20 15	06 34	07 47	09 27	11 16	
18	88	54.4	N 3	57.8	172	33.5	7.0	S26	42.7	5.5	57.3	N 58	18 36	19 16	20 06	07 13	08 21	09 51	11 32	
19	103	54.6		58.8	186	59.5	7.0	26	37.2	5.7	57.3	56	18 34	19 12	19 58	07 40	08 46	10 11	11 45	
20	118	54.8	3	59.8	201	25.5	7.1	26	31.5	5.8	57.4	54	18 32	19 08	19 52	08 01	09 06	10 27	11 57	
21	133	55.0	4	00.7	215	51.6	7.0	26	25.7	6.0	57.4	52	18 30	19 04	19 46	08 19	09 23	10 41	12 07	
22	148	55.2		01.7	230	17.6	7.1	26	19.7	6.2	57.4	50	18 29	19 01	19 41	08 34	09 37	10 53	12 17	
23	163	55.4		02.7	244	43.7	7.1	26	13.5	6.3	57.5	45	18 25	18 55	19 30	09 05	10 06	11 18	12 36	
31 00	178	55.6	N 4	03.7	259	09.8	7.1	S26	07.2	6.5	57.5	N 40	18 22	18 49	19 22	09 28	10 29	11 38	12 51	
01	193	55.8		04.6	273	35.9	7.1	26	00.7	6.6	57.6	35	18 20	18 45	19 15	09 48	10 48	11 54	13 05	
02	208	55.9		05.6	288	02.0	7.1	25	54.1	6.8	57.6	30	18 17	18 41	19 10	10 05	11 04	12 09	13 16	
03	223	56.1	..	06.6	302	28.1	7.2	25	47.3	6.9	57.6	20	18 14	18 36	19 02	10 33	11 31	12 33	13 35	
04	238	56.3		07.5	316	54.3	7.2	25	40.4	7.1	57.7	N 10	18 11	18 32	18 56	10 57	11 55	12 53	13 52	
05	253	56.5		08.5	331	20.5	7.2	25	33.3	7.3	57.7	0	18 08	18 28	18 52	11 20	12 16	13 12	14 07	
06	268	56.7	N 4	09.5	345	46.7	7.2	S25	26.0	7.4	57.7	S 10	18 05	18 26	18 50	11 42	12 38	13 32	14 23	
07	283	56.9		10.4	0	12.9	7.3	25	18.6	7.6	57.8	20	18 02	18 24	18 50	12 07	13 01	13 52	14 39	
08	298	57.1		11.4	14	39.2	7.3	25	11.0	7.7	57.8	30	17 59	18 23	18 51	12 35	13 27	14 15	14 58	
09	313	57.3	..	12.4	29	05.5	7.3	25	03.3	7.9	57.9	35	17 57	18 23	18 52	12 51	13 43	14 29	15 09	
10	328	57.4		13.3	43	31.8	7.4	24	55.4	8.1	57.9	40	17 55	18 22	18 54	13 11	14 01	14 45	15 21	
11	343	57.6		14.3	57	58.2	7.3	24	47.3	8.2	57.9	45	17 53	18 22	18 56	13 34	14 23	15 03	15 35	
12	358	57.8	N 4	15.3	72	24.5	7.5	S24	39.1	8.3	58.0	S 50	17 51	18 23	19 00	14 04	14 51	1		



T.M.G. (TU)	ARIES			VENUS -3.9			MARTE +1.4			JUPITER -2.1			SATURNO +0.5			ESTRELLAS		
	A.H.G.	A.H.G.	Dec.	A.H.G.	Dec.	A.H.G.	Dec.	A.H.G.	Dec.	A.H.G.	Dec.	A.H.G.	Dec.	Nombre	A. H. S.	Dec.		
1 00	189 20.0	179 25.0 N 2	50.0	118 21.8 N23	39.4	127 47.0 N20	18.5	264 42.4 S22	05.0				Acamar	315 32.4 S40	20.9			
01	204 22.4	194 24.6	51.2	133 22.6	39.6	142 48.9	18.6	279 44.7	05.0				Achernar	335 40.5 S57	17.5			
02	219 24.9	209 24.2	52.5	148 23.4	39.8	157 50.9	18.7	294 47.1	04.9				Acrux	173 29.5 S63	02.5			
03	234 27.4	224 23.9	53.7	163 24.2	40.0	172 52.9	18.8	309 49.5	04.9				Adhara	255 26.9 S28	57.6			
04	249 29.8	239 23.5	55.0	178 25.0	40.2	187 54.9	18.9	324 51.8	04.9				Aldebaran	291 10.5 N16	29.4			
05	264 32.3	254 23.1	56.2	193 25.8	40.4	202 56.9	19.0	339 54.2	04.9									
06	279 34.7	269 22.7 N 2	57.5	208 26.7 N23	40.6	217 58.9 N20	19.1	354 56.6 S22	04.9				Alioth	166 35.8 N56	00.9			
07	294 37.2	284 22.3	2 58.7	223 27.5	40.8	233 00.8	19.2	9 58.9	04.9				Alkaid	153 12.5 N49	21.8			
08	309 39.7	299 22.0	3 00.0	238 28.3	41.0	248 02.8	19.3	25 01.3	04.9				Al Na'ir	28 06.7 S47	00.8			
S 09	324 42.1	314 21.6	01.3	253 29.1	41.2	263 04.8	19.4	40 03.7	04.9				Alnilam	276 05.0 S 1	12.5			
A 10	339 44.6	329 21.2	02.5	268 29.9	41.4	278 06.8	19.4	55 06.1	04.9				Alphard	218 13.8 S 8	36.8			
B 11	354 47.1	344 20.8	03.8	283 30.7	41.6	293 08.8	19.5	70 08.4	04.9									
A 12	9 49.5	359 20.4 N 3	05.0	298 31.5 N23	41.8	308 10.8 N20	19.6	85 10.8 S22	04.9				Alphecca	126 26.1 N26	44.7			
D 13	24 52.0	14 20.1	06.3	313 32.3	42.0	323 12.7	19.7	100 13.2	04.9				Alpheratz	358 02.9 N29	01.8			
O 14	39 54.5	29 19.7	07.5	328 33.1	42.2	338 14.7	19.8	115 15.5	04.8				Altair	62 26.1 N 8	50.1			
15	54 56.9	44 19.3	08.8	343 33.9	42.4	353 16.7	19.9	130 17.9	04.8				Ankaa	353 33.9 S42	21.9			
16	69 59.4	59 18.9	10.0	358 34.7	42.6	8 18.7	20.0	145 20.3	04.8				Antares	112 48.5 S26	24.7			
17	85 01.8	74 18.5	11.3	13 35.5	42.8	23 20.7	20.1	160 22.7	04.8									
18	100 04.3	89 18.1 N 3	12.5	28 36.3 N23	43.0	38 22.6 N20	20.2	175 25.0 S22	04.8				Arcturus	146 12.0 N19	14.0			
19	115 06.8	104 17.8	13.8	43 37.1	43.2	53 24.6	20.3	190 27.4	04.8				Atria	108 06.6 S69	00.5			
20	130 09.2	119 17.4	15.0	58 37.9	43.4	68 26.6	20.4	205 29.8	04.8				Avior	234 25.4 S59	28.7			
21	145 11.7	134 17.0	16.3	73 38.7	43.6	83 28.6	20.5	220 32.1	04.8				Bellatrix	278 51.7 N 6	20.5			
22	160 14.2	149 16.6	17.5	88 39.5	43.8	98 30.6	20.6	235 34.5	04.8				Betelgeuse	271 21.1 N 7	24.4			
23	175 16.6	164 16.2	18.8	103 40.3	44.0	113 32.5	20.7	250 36.9	04.8									
2 00	190 19.1	179 15.9 N 3	20.0	118 41.1 N23	44.2	128 34.5 N20	20.8	265 39.3 S22	04.8				Canopus	264 04.3 S52	41.6			
01	205 21.6	194 15.5	21.3	133 41.9	44.4	143 36.5	20.9	280 41.6	04.8				Capella	281 01.6 N45	59.5			
02	220 24.0	209 15.1	22.5	148 42.7	44.6	158 38.5	21.0	295 44.0	04.7				Deneb	49 44.2 N45	14.1			
03	235 26.5	224 14.7	23.8	163 43.5	44.7	173 40.5	21.0	310 46.4	04.7				Denebola	182 51.9 N14	37.8			
04	250 29.0	239 14.3	25.0	178 44.3	44.9	188 42.4	21.1	325 48.7	04.7				Diphda	349 14.4 S18	02.8			
05	265 31.4	254 14.0	26.3	193 45.1	45.1	203 44.4	21.2	340 51.1	04.7									
06	280 33.9	269 13.6 N 3	27.5	208 45.9 N23	45.3	218 46.4 N20	21.3	355 53.5 S22	04.7				Dubhe	194 12.9 N61	48.6			
07	295 36.3	284 13.2	28.8	223 46.7	45.5	233 48.4	21.4	10 55.9	04.7				Elnath	278 35.8 N28	36.1			
D 08	310 38.8	299 12.8	30.0	238 47.5	45.7	248 50.3	21.5	25 58.2	04.7				Eltanin	90 54.5 N51	28.9			
O 09	325 41.3	314 12.4	31.3	253 48.3	45.9	263 52.3	21.6	41 00.6	04.7				Enif	34 05.3 N 9	49.3			
M 10	340 43.7	329 12.0	32.5	268 49.1	46.1	278 54.3	21.7	56 03.0	04.7				Fomalhaut	15 44.2 S29	40.8			
I 11	355 46.2	344 11.7	33.8	283 49.9	46.3	293 56.3	21.8	71 05.4	04.7									
N 12	10 48.7	359 11.3 N 3	35.0	298 50.7 N23	46.5	308 58.3 N20	21.9	86 07.7 S22	04.7				Gacrux	172 21.0 S57	03.4			
G 13	25 51.1	14 10.9	36.3	313 51.5	46.7	324 00.2	22.0	101 10.1	04.7				Gienah	176 10.8 S17	29.1			
O 14	40 53.6	29 10.5	37.5	328 52.3	46.9	339 02.2	22.1	116 12.5	04.6				Hadar	149 13.6 S60	19.4			
15	55 56.1	44 10.1	38.8	343 53.1	47.1	354 04.2	22.2	131 14.9	04.6				Hamal	328 21.8 N23	24.8			
16	70 58.5	59 09.7	40.0	358 53.9	47.3	9 06.2	22.3	146 17.2	04.6				Kaus Aust.	84 07.9 S34	23.5			
17	86 01.0	74 09.4	41.3	13 54.7	47.5	24 08.1	22.4	161 19.6	04.6									
18	101 03.5	89 09.0 N 3	42.5	28 55.5 N23	47.7	39 10.1 N20	22.5	176 22.0 S22	04.6				Kochab	137 17.7 N74	11.6			
19	116 05.9	104 08.6	43.7	43 56.3	47.8	54 12.1	22.6	191 24.4	04.6				Markab	13 56.8 N15	08.7			
20	131 08.4	119 08.2	45.0	58 57.1	48.0	69 14.1	22.7	206 26.7	04.6				Menkar	314 34.4 N 4	02.9			
21	146 10.8	134 07.8	46.2	73 57.8	48.2	84 16.0	22.7	221 29.1	04.6				Menkent	148 28.9 S36	19.2			
22	161 13.3	149 07.5	47.5	88 58.6	48.4	99 18.0	22.8	236 31.5	04.6				Miaplacidus	221 43.4 S69	40.6			
23	176 15.8	164 07.1	48.7	103 59.4	48.6	114 20.0	22.9	251 33.9	04.6									
3 00	191 18.2	179 06.7 N 3	50.0	119 00.2 N23	48.8	129 22.0 N20	23.0	266 36.2 S22	04.6				Mirfak	309 07.1 N49	49.6			
01	206 20.7	194 06.5	51.2	134 01.0	49.0	144 23.9	23.1	281 38.6	04.6				Nunki	76 20.9 S26	18.8			
02	221 23.2	209 05.9	52.5	149 01.8	49.2	159 25.9	23.2	296 41.0	04.5				Peacock	53 47.9 S56	46.1			
03	236 25.6	224 05.5	53.7	164 02.6	49.4	174 27.9	23.3	311 43.4	04.5				Pollux	243 49.9 N28	03.3			
04	251 28.1	239 05.1	55.0	179 03.4	49.5	189 29.9	23.4	326 45.8	04.5				Procyon	245 18.7 N 5	15.2			
05	266 30.6	254 04.8	56.2	194 04.2	49.7	204 31.8	23.5	341 48.1	04.5									
06	281 33.0	269 04.4 N 3	57.5	209 05.0 N23	49.9	219 33.8 N20	23.6	356 50.5 S22	04.5				Rasalhague	96 23.3 N12	33.7			
07	296 35.5	284 04.0	3 58.7	224 05.8	50.1	234 35.8	23.7	11 52.9	04.5				Regulus	208 02.6 N12	01.1			
08	311 38.0	299 03.6	4 00.0	239 06.6	50.3	249 37.8	23.8	26 55.3	04.5				Rigel	281 29.7 S 8	12.8			
L 09	326 40.4	314 03.2	01.2	254 07.4	50.5	264 39.7	23.9	41 57.6	04.5				Rigel Kent.	140 16.4 S60	47.5			
U 10	341 42.9	329 02.8	02.4	269 08.2	50.7	279 41.7	24.0	57 00.0	04.5				Sabik	102 33.3 S15	42.9			
N 11	356 45.3	344 02.5	03.7	284 09.0	50.9	294 43.7	24.1	72 02.4	04.5									
E 12	11 47.8	359 02.1 N 4	04.9	299 09.8 N23	51.0	309 45.7 N20	24.2	87 04.8 S22	04.5				Schedar	350 02.3 N56	28.7			
S 13	26 50.3	14 01.7	06.2	314 10.6	51.2	324 47.6	24.3	102 07.2	04.5				Shaula	96 46.6 S37	05.9			
14	41 52.7	29 01.3	07.4	329 11.4	51.4	339 49.6	24.4	117 09.5	04.5				Sirius	258 49.8 S16	42.2			
15	56 55.2	44 00.9	08.7	344 12.2	51.6	354 51.6	24.4	132 11.9	04.4				Spica	158 50.2 S11	06.5			
16	71 57.7	59 00.5	09.9	359 13.0	51.8	9 53.6	24.5	147 14.3	04.4				Suhail	223 05.8 S43	23.5			
17	87 00.1	74 00.1	11.2	14 13.8	52.0	24 55.5	24.6	162 16.7	04.4									
18	102 02.6	88 59.8 N 4	12.4	29 14.6 N23	52.2	39 57.5 N20	24.7	177 19.1 S22	04.4				Vega	80 51.3 N38	46.0			
19	117 05.1	103 59.4	13.7	44 15.4	52.3	54 59.5	24.8	192 21.4	04.4				Zuben'ubi	137 25.4 S16	00.1			
20	132 07.5	118 59.0	14.9	59 16.2	52.5	70 01.4	24.9	207 23.8	04.4									
21	147 10.0	133 58.6	16.1	74 17.0	52.7	85 03.4	25.0	222 26.2	04.4									
22	162 12.4	148 58.2	17.4	89 17.8	52.9	100 05.4	25.1	237 28.6	04.4									
23	177 14.9	163 57.8	18.6	104 18.5	53.1	115 07.4	25.2	252 31.0	04.4									
Pas. Mer. 11 16.9																		
v -0.4 d 1.2																		
v 0.8 d 0.2																		
v 2.0 d 0.1																		
v 2.4 d 0.0																		
A. H. S. Pos. Mer.																		
o / h m																		
Venus 348 56.8 12 03																		
Marte 288 22.0 16 04																		
Júpiter 298 15.4 15 24																		
Saturno 75 20.2 6 16																		



T.M.G. (TU)	SOL				LUNA				Lat.	Crepúsculo		Orto Sol	Orto Luna											
	A.H.G.		Dec.		A.H.G.		v Dec. d P.H.			Naut.	Civil		1	2	3	4								
	o	'	o	'	o	'	o	'									h	m	h	m	h	m	h	m
100	179	00.1	N 4	26.9	245	43.8	7.8	S22	48.8	10.1	58.4	N 72	01	26	03	35	04	51	07	12	05	57	05	13
01	194	00.2		27.8	260	10.6	7.9	22	38.7	10.3	58.5	N 70	02	13	03	52	04	59	06	27	05	40	05	08
02	209	00.4		28.8	274	37.5	7.9	22	28.4	10.5	58.5	68	02	43	04	06	05	05	07	12	05	57	05	26
03	224	00.6		29.8	289	04.4	8.0	22	17.9	10.6	58.5	66	03	04	04	17	05	11	06	08	05	35	05	15
04	239	00.8		30.7	303	31.4	8.0	22	07.3	10.7	58.6	64	03	21	04	26	05	15	05	33	05	17	05	05
05	254	01.0		31.7	317	58.4	8.1	21	56.6	10.9	58.6	62	03	35	04	33	05	19	05	07	05	02	04	57
06	269	01.2	N 4	32.6	332	25.5	8.0	S21	45.7	11.0	58.7	60	03	46	04	40	05	23	04	47	04	49	04	50
07	284	01.4		33.7	346	52.5	8.2	21	34.7	11.2	58.7	N 58	03	55	04	45	05	26	04	30	04	38	04	44
08	299	01.5		34.6	1	19.7	8.1	21	23.5	11.2	58.7	56	04	04	04	50	05	28	04	16	04	29	04	38
09	314	01.7		35.6	15	46.8	8.3	21	12.3	11.5	58.8	54	04	11	04	55	05	31	04	03	04	20	04	33
10	329	01.9		36.5	30	14.1	8.2	21	00.8	11.5	58.8	52	04	17	04	58	05	33	03	52	04	13	04	29
11	344	02.1		37.5	44	41.3	8.3	20	49.3	11.7	58.8	50	04	23	05	02	05	35	03	43	04	06	04	24
12	359	02.3	N 4	38.5	59	08.6	8.4	S20	37.6	11.9	58.9	45	04	34	05	09	05	39	03	22	03	51	04	15
13	14	02.5		39.4	73	36.0	8.4	20	25.7	11.9	58.9	N 40	04	43	05	15	05	43	03	05	03	39	04	08
14	29	02.7		40.4	88	03.4	8.4	20	13.8	12.1	59.0	35	04	50	05	20	05	46	02	51	03	28	04	01
15	44	02.8		41.4	102	30.8	8.5	20	01.7	12.3	59.0	30	04	56	05	24	05	48	02	39	03	19	03	55
16	59	03.0		42.3	116	58.3	8.5	19	49.4	12.3	59.0	20	05	05	05	31	05	53	02	17	03	03	03	45
17	74	03.2		43.3	131	25.8	8.5	19	37.1	12.5	59.1	N 10	05	11	05	36	05	57	01	59	02	49	03	36
18	89	03.4	N 4	44.2	145	53.3	8.6	S19	24.6	12.6	59.1	0	05	15	05	40	06	00	01	41	02	36	03	28
19	104	03.6		45.2	160	20.9	8.7	19	12.0	12.8	59.2	S 10	05	18	05	43	06	04	01	24	02	22	03	20
20	119	03.8		46.2	174	48.6	8.7	18	59.2	12.9	59.2	20	05	20	05	45	06	07	01	05	02	08	03	11
21	134	04.0		47.1	189	16.3	8.7	18	46.3	12.9	59.2	30	05	20	05	47	06	11	00	44	01	52	03	00
22	149	04.1		48.1	203	44.0	8.8	18	33.4	13.2	59.3	20	05	19	05	48	06	13	00	31	01	42	02	54
23	164	04.3		49.1	218	11.8	8.8	18	20.0	13.2	59.3	35	05	17	05	49	06	16	00	16	01	31	02	47
200	179	04.5	N 4	50.0	232	39.6	8.8	S18	07.0	13.4	59.3	40	05	15	05	49	06	19	25	18	01	18	02	39
01	194	04.7		51.0	247	07.4	8.9	17	53.6	13.4	59.4	S 50	05	12	05	50	06	22	25	02	01	02	02	30
02	209	04.9		51.9	261	35.3	9.0	17	40.2	13.6	59.4	52	05	11	05	50	06	24	24	55	00	55	02	25
03	224	05.1		52.9	276	03.3	8.9	17	26.6	13.7	59.5	54	05	09	05	50	06	25	24	46	00	46	02	20
04	239	05.3		53.9	290	31.2	9.1	17	12.9	13.9	59.5	56	05	07	05	50	06	27	24	37	00	37	02	15
05	254	05.4		54.8	304	59.3	9.0	16	59.0	13.9	59.5	58	05	04	05	50	06	29	24	26	00	26	02	08
06	269	05.6	N 4	55.8	319	27.3	9.1	S16	45.1	14.1	59.6	S 60	05	01	05	50	06	31	24	14	00	14	02	01
07	284	05.8		56.8	333	55.4	9.2	16	31.0	14.1	59.6	N 72	19	19	20	36	22	55	10	51	13	58	16	33
08	299	06.0		57.7	348	23.6	9.1	16	16.9	14.3	59.6	N 70	19	11	20	18	22	01	08	54	11	34	14	12
09	314	06.2		58.7	2	51.7	9.3	16	02.6	14.4	59.7	68	19	04	20	04	21	29	09	57	12	02	14	23
10	329	06.4	4	59.6	17	20.0	9.2	15	48.2	14.5	59.7	66	18	59	19	53	21	07	09	57	12	23	14	32
11	344	06.5	5	00.6	31	48.2	9.3	15	33.7	14.6	59.7	64	18	54	19	44	20	49	10	32	12	40	14	40
12	359	06.7	N 5	01.6	46	16.5	9.3	S15	19.1	14.7	59.8	62	18	50	19	36	20	35	10	56	12	53	14	46
13	14	06.9		02.5	60	44.8	9.4	15	04.4	14.8	59.8	60	18	46	19	29	20	24	11	16	13	05	14	52
14	29	07.1		03.5	75	13.2	9.4	14	49.6	14.9	59.8	N 58	18	43	19	23	20	14	11	32	13	14	14	56
15	44	07.3		04.4	89	41.6	9.5	14	34.7	15.0	59.9	56	18	40	19	18	20	05	11	45	13	23	15	01
16	59	07.5		05.4	104	10.1	9.4	14	19.7	15.1	59.9	54	18	38	19	14	19	58	11	57	13	31	15	05
17	74	07.6		06.4	118	38.5	9.5	14	04.6	15.2	59.9	52	18	35	19	10	19	52	12	07	13	37	15	08
18	89	07.8	N 5	07.3	133	07.0	9.6	S13	49.4	15.3	60.0	50	18	33	19	06	19	46	12	17	13	44	15	11
19	104	08.0		08.3	147	35.6	9.5	13	34.1	15.4	60.0	45	18	29	18	59	19	34	12	36	13	57	15	18
20	119	08.2		09.2	162	04.1	9.7	13	18.7	15.5	60.0	N 40	18	25	18	53	19	25	12	51	14	07	15	24
21	134	08.4		10.2	176	32.8	9.6	13	03.2	15.6	60.1	35	18	22	18	48	19	18	13	05	14	16	15	29
22	149	08.6		11.2	191	01.4	9.7	12	47.6	15.7	60.1	30	18	19	18	43	19	12	13	16	14	24	15	33
23	164	08.8		12.1	205	30.1	9.6	12	31.9	15.7	60.1	20	18	15	18	37	19	03	13	35	14	38	15	40
300	179	08.9	N 5	13.1	219	58.7	9.8	S12	16.2	15.9	60.2	N 10	18	11	18	32	18	56	13	52	14	50	15	46
01	194	09.1		14.0	234	27.5	9.7	12	00.3	15.9	60.2	0	18	07	18	28	18	52	14	07	15	52	15	52
02	209	09.3		15.0	248	56.2	9.8	11	44.4	16.0	60.2	S 10	18	03	18	24	18	49	14	23	15	11	15	58
03	224	09.5		16.0	263	25.0	9.8	11	28.4	16.1	60.3	20	18	15	18	37	19	03	13	35	14	38	15	40
04	239	09.7		16.9	277	53.8	9.8	11	12.3	16.2	60.3	30	18	19	18	43	19	12	13	16	14	24	15	33
05	254	09.9		17.9	292	22.6	9.9	10	56.1	16.2	60.3	N 10	18	11	18	32	18	56	13	52	14	50	15	46
06	269	10.0	N 5	18.8	306	51.5	9.9	S																



T.M.G. (TU)	ARIES		VENUS -3.9			MARTE +1.4		JUPITER -2.1		SATURNO +0.5		ESTRELLAS						
	A.H.G.		A.H.G.	Dec.		A.H.G.	Dec.	A.H.G.	Dec.	A.H.G.	Dec.	Nombre	A. H. S.	Dec.				
4 00	192 17.4		178 57.4	N 4	19.9	119 19.3	N23	53.3	130 09.3	N20	25.3	267 33.3	S22	04.4	Acamar	315 32.4	S40	20.9
01	207 19.8		193 57.1		21.1	134 20.1		53.4	145 11.3		25.4	282 35.7		04.4	Achernar	335 40.5	S57	17.5
02	222 22.3		208 56.7		22.4	149 20.9		53.6	160 13.3		25.5	297 38.1		04.4	Acruz	173 29.5	S63	02.6
03	237 24.8		223 56.3	..	23.6	164 21.7	..	53.8	175 15.2	..	25.6	312 40.5	..	04.4	Adhara	255 26.9	S28	57.6
04	252 27.2		238 55.9		24.8	179 22.5		54.0	190 17.2		25.7	327 42.9		04.3	Aldebaran	291 10.5	N16	29.4
05	267 29.7		253 55.5		26.1	194 23.3		54.2	205 19.2		25.8	342 45.3		04.3				
06	282 32.2		268 55.1	N 4	27.3	209 24.1	N23	54.4	220 21.2	N20	25.9	357 47.6	S22	04.3	Alioth	166 35.8	N56	00.9
07	297 34.6		283 54.7		28.6	224 24.9		54.5	235 23.1		26.0	12 50.0		04.3	Alkaid	153 12.5	N49	21.8
08	312 37.1		298 54.3		29.8	239 25.7		54.7	250 25.1		26.1	27 52.4		04.3	Al Na'ir	28 06.7	S47	00.8
M 09	327 39.6		313 54.0	..	31.1	254 26.5	..	54.9	265 27.1	..	26.1	42 54.8	..	04.3	Alnilam	276 05.0	S 1	12.5
A 10	342 42.0		328 53.6		32.3	269 27.3		55.1	280 29.0		26.2	57 57.2		04.3	Alphard	218 13.8	S 8	36.8
R 11	357 44.5		343 53.2		33.5	284 28.1		55.3	295 31.0		26.3	72 59.5		04.3				
T 12	12 46.9		358 52.8	N 4	34.8	299 28.9	N23	55.4	310 33.0	N20	26.4	88 01.9	S22	04.3	Alphecca	126 26.1	N26	44.7
E 13	27 49.4		13 52.4		36.0	314 29.7		55.6	325 34.9		26.5	103 04.3		04.3	Alpheratz	358 02.9	N29	01.8
S 14	42 51.9		28 52.0		37.3	329 30.5		55.8	340 36.9		26.6	118 06.7		04.3	Altair	62 26.1	N 8	50.1
15	57 54.3		43 51.6	..	38.5	344 31.3	..	56.0	355 38.9	..	26.7	133 09.1	..	04.3	Ankaa	353 33.9	S42	21.9
16	72 56.8		58 51.2		39.8	359 32.0		56.1	10 40.8		26.8	148 11.5		04.3	Antares	112 48.5	S26	24.7
17	87 59.3		73 50.9		41.0	14 32.8		56.3	25 42.8		26.9	163 13.8		04.3				
18	103 01.7		88 50.5	N 4	42.2	29 33.6	N23	56.5	40 44.8	N20	27.0	178 16.2	S22	04.2	Arcturus	146 12.0	N19	14.0
19	118 04.2		103 50.1		43.5	44 34.4		56.7	55 46.8		27.1	193 18.6		04.2	Atria	108 06.6	S69	00.5
20	133 06.7		118 49.7		44.7	59 35.2		56.9	70 48.7		27.2	208 21.0		04.2	Avior	234 25.5	S59	28.7
21	148 09.1		133 49.3	..	46.0	74 36.0	..	57.0	85 50.7	..	27.3	223 23.4	..	04.2	Bellatrix	278 51.7	N 6	20.5
22	163 11.6		148 48.9		47.2	89 36.8		57.2	100 52.7		27.4	238 25.8		04.2	Betelgeuse	271 21.1	N 7	24.4
23	178 14.1		163 48.5		48.4	104 37.6		57.4	115 54.6		27.5	253 28.2		04.2				
5 00	193 16.5		178 48.1	N 4	49.7	119 38.4	N23	57.6	130 56.6	N20	27.6	268 30.5	S22	04.2	Canopus	264 04.3	S52	41.6
01	208 19.0		193 47.7		50.9	134 39.2		57.7	145 58.6		27.7	283 32.9		04.2	Capella	281 01.7	N45	59.5
02	223 21.4		208 47.4		52.2	149 40.0		57.9	161 00.5		27.8	298 35.3		04.2	Deneb	49 44.2	N45	14.1
03	238 23.9		223 47.0	..	53.4	164 40.8	..	58.1	176 02.5	..	27.8	313 37.7	..	04.2	Denebola	182 51.9	N14	37.8
04	253 26.4		238 46.6		54.6	179 41.6		58.3	191 04.5		27.9	328 40.1		04.2	Diphda	349 14.4	S18	02.8
05	268 28.8		253 46.2		55.9	194 42.3		58.4	206 06.4		28.0	343 42.5		04.2				
06	283 31.3		268 45.8	N 4	57.1	209 43.1	N23	58.6	221 08.4	N20	28.1	358 44.9	S22	04.2	Dubhe	194 13.0	N61	48.6
07	298 33.8		283 45.4		58.3	224 43.9		58.8	236 10.4		28.2	13 47.2		04.2	Elnath	278 35.8	N28	36.1
08	313 36.2		298 45.0	4	59.6	239 44.7		59.0	251 12.3		28.3	28 49.6		04.1	Eltanin	90 54.5	N51	28.9
09	328 38.7		313 44.6	5	00.8	254 45.5	..	59.1	266 14.3	..	28.4	43 52.0	..	04.1	Enif	34 05.2	N 9	49.3
10	343 41.2		328 44.2		02.1	269 46.3		59.3	281 16.3		28.5	58 54.4		04.1	Fomalhaut	15 44.2	S29	40.8
11	358 43.6		343 43.8		03.3	284 47.1		59.5	296 18.2		28.6	73 56.8		04.1				
12	13 46.1		358 43.5	N 5	04.5	299 47.9	N23	59.6	311 20.2	N20	28.7	88 59.2	S22	04.1	Gacrux	172 21.0	S57	03.4
13	28 48.5		13 43.1		05.8	314 48.7	23	59.8	326 22.1		28.8	104 01.6		04.1	Gienah	176 10.8	S17	29.1
14	43 51.0		28 42.7		07.0	329 49.5	24	00.0	341 24.1		28.9	119 04.0		04.1	Hadar	149 13.6	S60	19.4
15	58 53.5		43 42.3	..	08.2	344 50.3	..	00.2	356 26.1	..	29.0	134 06.3	..	04.1	Hamal	328 21.8	N23	24.7
16	73 55.9		58 41.9		09.5	359 51.0		00.3	11 28.0		29.1	149 08.7		04.1	Kaus Aust.	84 07.9	S34	23.5
17	88 58.4		73 41.5		10.7	14 51.8		00.5	26 30.0		29.2	164 11.1		04.1				
18	104 00.9		88 41.1	N 5	12.0	29 52.6	N24	00.7	41 32.0	N20	29.3	179 13.5	S22	04.1	Kochab	137 17.7	N74	11.7
19	119 03.3		103 40.7		13.2	44 53.4		00.8	56 33.9		29.4	194 15.9		04.1	Markab	13 56.8	N15	08.7
20	134 05.8		118 40.3		14.4	59 54.2		01.0	71 35.9		29.5	209 18.3		04.1	Menkar	314 34.4	N 4	02.9
21	149 08.3		133 39.9	..	15.7	74 55.0	..	01.2	86 37.9	..	29.5	224 20.7	..	04.1	Menkent	148 28.9	S36	19.2
22	164 10.7		148 39.5		16.9	89 55.8		01.4	101 39.8		29.6	239 23.1		04.1	Miaplacidus	221 43.5	S69	40.6
23	179 13.2		163 39.1		18.1	104 56.6		01.5	116 41.8		29.7	254 25.5		04.0				
6 00	194 15.7		178 38.7	N 5	19.4	119 57.4	N24	01.7	131 43.8	N20	29.8	269 27.8	S22	04.0	Mirfak	309 07.1	N49	49.6
01	209 18.1		193 38.4		20.6	134 58.2		01.9	146 45.7		29.9	284 30.2		04.0	Nunki	76 20.8	S26	18.8
02	224 20.6		208 38.0		21.8	149 59.0		02.0	161 47.7		30.0	299 32.6		04.0	Peacock	53 47.8	S56	46.1
03	239 23.0		223 37.6	..	23.1	164 59.7	..	02.2	176 49.6	..	30.1	314 35.0	..	04.0	Pollux	243 49.9	N28	03.3
04	254 25.5		238 37.2		24.3	180 00.5		02.4	191 51.6		30.2	329 37.4		04.0	Procyon	245 18.7	N 5	15.2
05	269 28.0		253 36.8		25.5	195 01.3		02.5	206 53.6		30.3	344 39.8		04.0				
06	284 30.4		268 36.4	N 5	26.8	210 02.1	N24	02.7	221 55.5	N20	30.4	359 42.2	S22	04.0	Rasalhague	96 23.2	N12	33.7
07	299 32.9		283 36.0		28.0	225 02.9		02.9	236 57.5		30.5	14 44.6		04.0	Regulus	208 02.6	N12	01.1
08	314 35.4		298 35.6		29.2	240 03.7		03.0	251 59.5		30.6	29 47.0		04.0	Rigel	281 29.7	S 8	12.8
J 09	329 37.8		313 35.2	..	30.5	255 04.5	..	03.2	267 01.4	..	30.7	44 49.4	..	04.0	Rigel Kent.	140 16.3	S60	47.5
10	344 40.3		328 34.8		31.7	270 05.3		03.4	282 03.4		30.8	59 51.7		04.0	Sabik	102 33.3	S15	42.9
11	359 42.8		343 34.4		32.9	285 06.1		03.5	297 05.3		30.9	74 54.1		04.0				
12	14 45.2		358 34.0	N 5	34.2	300 06.8	N24	03.7	312 07.3	N20	31.0	89 56.5	S22	04.0	Schedar	350 02.3	N56	28.7
13	29 47.7		13 33.6		35.4	315 07.6		03.9	327 09.3		31.1	104 58.9		04.0	Shaula	96 46.5	S37	05.9
14	44 50.2		28 33.2		36.6	330 08.4		04.0	342 11.2		31.2	120 01.3		03.9	Sirius	258 49.8	S16	42.2
15	59 52.6		43 32.8	..	37.9	345 09.2	..	04.2	357 13.2</									







T.M.G. (TU)	ARIES		VENUS -3.9		MARTE +1.4		JUPITER -2.1		SATURNO +0.5		ESTRELLAS			
	A.H.G.	A.H.G.	Dec.	A.H.G.	Dec.	A.H.G.	Dec.	A.H.G.	Dec.	A.H.G.	Dec.	Nombre	A. H. S.	Dec.
d h														
7 00	195 14.8	178 29.3	N 5 49.0	120 16.3	N24 05.7	132 30.8	N20 32.1	270 25.2	S22 03.9			Acamar	315 32.4	S40 20.9
01	210 17.3	193 28.9	50.2	135 17.1	05.8	147 32.8	32.2	285 27.6	03.9			Achernar	335 40.5	S57 17.5
02	225 19.7	208 28.5	51.4	150 17.9	06.0	162 34.7	32.3	300 30.0	03.9			Acruz	173 29.5	S63 02.6
03	240 22.2	223 28.1	52.6	165 18.7	06.1	177 36.7	32.4	315 32.4	03.9			Adhara	255 26.9	S28 57.6
04	255 24.7	238 27.7	53.9	180 19.4	06.3	192 38.7	32.5	330 34.8	03.9			Aldebaran	291 10.6	N16 29.4
05	270 27.1	253 27.3	55.1	195 20.2	06.5	207 40.6	32.6	345 37.2	03.9					
06	285 29.6	268 26.9	N 5 56.3	210 21.0	N24 06.6	222 42.6	N20 32.7	0 39.6	S22 03.8			Alioth	166 35.8	N56 01.0
07	300 32.0	283 26.5	57.6	225 21.8	06.8	237 44.5	32.8	15 42.0	03.8			Alkaid	153 12.5	N49 21.8
08	315 34.5	298 26.1	5 58.8	240 22.6	06.9	252 46.5	32.9	30 44.4	03.8			Al Na'ir	28 06.6	S47 00.7
09	330 37.0	313 25.7	6 00.0	255 23.4	07.1	267 48.5	32.9	45 46.8	03.8			Alnilam	276 05.0	S 1 12.5
V 10	345 39.4	328 25.3	01.2	270 24.2	07.3	282 50.4	33.0	60 49.2	03.8			Alphard	218 13.8	S 8 36.8
I 11	0 41.9	343 24.9	02.5	285 25.0	07.4	297 52.4	33.1	75 51.6	03.8					
N 12	15 44.4	358 24.5	N 6 03.7	300 25.7	N24 07.6	312 54.3	N20 33.2	90 54.0	S22 03.8			Alphecca	126 26.1	N26 44.7
13	30 46.8	13 24.1	04.9	315 26.5	07.7	327 56.3	33.3	105 56.4	03.8			Alpheratz	358 02.8	N29 01.8
14	45 49.3	28 23.7	06.1	330 27.3	07.9	342 58.2	33.4	120 58.8	03.8			Altair	62 26.1	N 8 50.1
S 15	60 51.8	43 23.3	07.4	345 28.1	08.0	358 00.2	33.5	136 01.2	03.8			Ankaa	353 33.9	S42 21.8
16	75 54.2	58 22.9	08.6	0 28.9	08.2	13 02.2	33.6	151 03.6	03.8			Antares	112 48.4	S26 24.7
17	90 56.7	73 22.5	09.8	15 29.7	08.4	28 04.1	33.7	166 06.0	03.8					
18	105 59.1	88 22.1	N 6 11.1	30 30.5	N24 08.5	43 06.1	N20 33.8	181 08.4	S22 03.8			Arcturus	146 12.0	N19 14.0
19	121 01.6	103 21.7	12.3	45 31.2	08.7	58 08.0	33.9	196 10.8	03.8			Atria	108 06.5	S69 00.5
20	136 04.1	118 21.3	13.5	60 32.0	08.8	73 10.0	34.0	211 13.2	03.8			Avior	234 25.5	S59 28.7
21	151 06.5	133 20.9	14.7	75 32.8	09.0	88 11.9	34.1	226 15.6	03.8			Bellatrix	278 51.7	N 6 20.5
22	166 09.0	148 20.5	16.0	90 33.6	09.1	103 13.9	34.2	241 18.0	03.7			Betelgeuse	271 21.1	N 7 24.4
23	181 11.5	163 20.1	17.2	105 34.4	09.3	118 15.9	34.3	256 20.4	03.7					
8 00	196 13.9	178 19.7	N 6 18.4	120 35.2	N24 09.4	133 17.8	N20 34.4	271 22.8	S22 03.7			Canopus	264 04.4	S52 41.6
01	211 16.4	193 19.3	19.6	135 36.0	09.6	148 19.8	34.5	286 25.2	03.7			Capella	281 01.7	N45 59.5
02	226 18.9	208 18.9	20.9	150 36.7	09.8	163 21.7	34.5	301 27.6	03.7			Deneb	49 44.2	N45 14.1
03	241 21.3	223 18.5	22.1	165 37.5	09.9	178 23.7	34.6	316 30.0	03.7			Denebola	182 51.9	N14 37.8
04	256 23.8	238 18.1	23.3	180 38.3	10.1	193 25.6	34.7	331 32.4	03.7			Diphda	349 14.4	S18 02.8
05	271 26.3	253 17.7	24.5	195 39.1	10.2	208 27.3	34.8	346 34.7	03.7					
06	286 28.7	268 17.3	N 6 25.7	210 39.9	N24 10.4	223 29.5	N20 34.9	1 37.1	S22 03.7			Dubhe	194 13.0	N61 48.6
07	301 31.2	283 16.9	27.0	225 40.7	10.5	238 31.5	35.0	16 39.5	03.7			Elnath	278 35.9	N28 36.1
08	316 33.6	298 16.5	28.2	240 41.5	10.7	253 33.4	35.1	31 41.9	03.7			Eltanin	90 54.4	N51 28.9
S 09	331 36.1	313 16.1	29.4	255 42.2	10.8	268 35.4	35.2	46 44.3	03.7			Enif	34 05.2	N 9 49.3
A 10	346 38.6	328 15.7	30.6	270 43.0	11.0	283 37.4	35.3	61 46.7	03.7			Fomalhaut	15 44.2	S29 40.8
B 11	1 41.0	343 15.3	31.9	285 43.8	11.1	298 39.3	35.4	76 49.1	03.7					
A 12	16 43.5	358 14.9	N 6 33.1	300 44.6	N24 11.3	313 41.3	N20 35.5	91 51.5	S22 03.7			Gacrux	172 21.0	S57 03.4
D 13	31 46.0	13 14.5	34.3	315 45.4	11.4	328 43.2	35.6	106 53.9	03.7			Gienah	176 10.8	S17 29.1
O 14	46 48.4	28 14.1	35.5	330 46.2	11.6	343 45.2	35.7	121 56.4	03.7			Hadar	149 13.5	S60 19.4
15	61 50.9	43 13.7	36.7	345 46.9	11.7	358 47.1	35.8	136 58.8	03.7			Hamal	328 21.8	N23 24.7
16	76 53.4	58 13.3	38.0	0 47.7	11.9	13 49.1	35.9	152 01.2	03.6			Kaus Aust.	84 07.9	S34 23.5
17	91 55.8	73 12.9	39.2	15 48.5	12.0	28 51.0	36.0	167 03.6	03.6					
18	106 58.3	88 12.5	N 6 40.4	30 49.3	N24 12.2	43 53.0	N20 36.1	182 06.0	S22 03.6			Kochab	137 17.6	N74 11.7
19	122 00.8	103 12.1	41.6	45 50.1	12.3	58 54.9	36.2	197 08.4	03.6			Markab	13 56.8	N15 08.7
20	137 03.2	118 11.7	42.8	60 50.9	12.5	73 56.9	36.2	212 10.8	03.6			Menkar	314 34.4	N 4 02.9
21	152 05.7	133 11.2	44.1	75 51.7	12.6	88 58.8	36.3	227 13.2	03.6			Menkent	148 28.9	S36 19.2
22	167 08.1	148 10.8	45.3	90 52.4	12.8	104 00.8	36.4	242 15.6	03.6			Miaplacidus	221 43.5	S69 40.6
23	182 10.6	163 10.4	46.5	105 53.2	12.9	119 02.7	36.5	257 18.0	03.6					
9 00	197 13.1	178 10.0	N 6 47.7	120 54.0	N24 13.1	134 04.7	N20 36.6	272 20.4	S22 03.6			Mirfak	309 07.1	N49 49.6
01	212 15.5	193 09.6	48.9	135 54.8	13.2	149 06.6	36.7	287 22.8	03.6			Nunki	76 20.8	S26 18.7
02	227 18.0	208 09.2	50.2	150 55.6	13.4	164 08.6	36.8	302 25.2	03.6			Peacock	53 47.8	S56 46.1
03	242 20.5	223 08.8	51.4	165 56.4	13.5	179 10.6	36.9	317 27.6	03.6			Pollux	243 49.9	N28 03.3
04	257 22.9	238 08.4	52.6	180 57.1	13.7	194 12.5	37.0	332 30.0	03.6			Procyon	245 18.8	N 5 15.2
05	272 25.4	253 08.0	53.8	195 57.9	13.8	209 14.5	37.1	347 32.4	03.6					
06	287 27.9	268 07.6	N 6 55.0	210 58.7	N24 13.9	224 16.4	N20 37.2	2 34.8	S22 03.6			Rasalhague	96 23.2	N12 33.7
07	302 30.3	283 07.2	56.2	225 59.5	14.1	239 18.4	37.3	17 37.2	03.6			Regulus	208 02.6	N12 01.1
08	317 32.8	298 06.8	57.5	241 00.3	14.2	254 20.3	37.4	32 39.6	03.6			Rigel	281 29.7	S 8 12.8
09	332 35.2	313 06.4	58.7	256 01.0	14.4	269 22.3	37.5	47 42.0	03.6			Rigil Kent.	140 16.3	S60 47.5
10	347 37.7	328 06.0	6 59.9	271 01.8	14.5	284 24.2	37.6	62 44.4	03.5			Sabik	102 33.3	S15 42.9
I 11	2 40.2	343 05.6	7 01.1	286 02.6	14.7	299 26.2	37.7	77 46.8	03.5					
12	17 42.6	358 05.1	N 7 02.3	301 03.4	N24 14.8	314 28.1	N20 37.8	92 49.2	S22 03.5			Schedar	350 02.3	N56 28.7
13	32 45.1	13 04.7	03.5	316 04.2	15.0	329 30.1	37.9	107 51.6	03.5			Shaula	96 46.5	S37 05.9
14	47 47.6	28 04.3	04.8	331 05.0	15.1	344 32.0	37.9	122 54.0	03.5			Sirius	258 49.8	S16 42.2
15	62 50.0	43 03.9	06.0	346 05.7	15.2	359 34.0	38.0	137 56.4	03.5			Spica	158 50.2	S11 06.6
16	77 52.5	58 03.5	07.2	1 06.5	15.4	14 35.9	38.1	152 58.8	03.5			Suhail	223 05.8	S43 23.6
17	92 55.0	73 03.1	08.4	16 07.3	15.5	29 37.9	38.2	168 01.2	03.5					
18	107 57.4	88 02.7	N 7 09.6	31 08.1	N24 15.7	44 39.8	N20 38.3	183 03.6	S22 03.5			Vega	80 51.2	N38 46.0
19	122 59.9	103 02.3	10.8	46 08.9	15.8	59 41.8	38.4	198 06.1	03.5			Zuben'ubi	137 25.4	S16 00.1
20	138 02.4	118 01.9	12.0	61 09.7	16.0	74 43.7	38.5	213 08.5	03.5					
21	153 04.8	133 01.5	13.2	76 10.4	16.1	89 45.7	38.6	228 10.9	03.5					
22	168 07.3	148 01.1	14.5	91 11.2	16.2	104 47.6	38.7	243 13.3	03.5					
23	183 09.7	163 00.6	15.7	106 12.0	16.4	119 4								



T.M.G. (TU)	SOL		LUNA				Lat.	Crepúsculo		Orto Sol	Orto Luna					
	A.H.G.	Dec.	A.H.G.	v	Dec.	d		P.H.	Naut.		Civil	7	8	9	10	
												h	m	h	m	h
VIERNES	7 00	179 26.2	N 6 44.3	169 33.7	7.6	N15 10.7	15.4	61.2	N 72	02 55	04 19	02 48	□	□	□	
	01	194 26.4	45.3	184 00.3	7.5	15 26.1	15.3	61.1	N 70	01 10	03 19	04 30	03 24	□	□	
	02	209 26.5	46.2	198 26.8	7.5	15 41.4	15.1	61.1	68	02 00	03 37	04 40	03 50	02 49	□	
	03	224 26.7	47.1	212 53.3	7.3	15 56.5	15.0	61.1	66	02 31	03 51	04 47	04 10	03 40	□	
	04	239 26.9	48.1	227 19.6	7.3	16 11.5	15.0	61.1	64	02 53	04 02	04 54	04 26	04 12	03 40	
	05	254 27.1	49.0	241 45.9	7.3	16 26.5	14.8	61.1	62	03 10	04 12	05 00	04 40	04 36	04 32	04 27
	06	269 27.2	N 6 50.0	256 12.2	7.2	N16 41.3	14.7	61.0	60	03 24	04 20	05 05	04 52	04 55	05 04	05 26
	07	284 27.4	50.9	270 38.4	7.1	16 56.0	14.6	61.0	N 58	03 35	04 27	05 09	05 02	05 11	05 28	05 59
	08	299 27.6	51.9	285 04.5	7.0	17 10.6	14.4	61.0	56	03 45	04 34	05 13	05 11	05 25	05 47	06 24
	09	314 27.8	52.8	299 30.5	6.9	17 25.0	14.4	61.0	54	03 54	04 39	05 16	05 19	05 37	06 04	06 44
	10	329 27.9	53.7	313 56.4	6.9	17 39.4	14.2	61.0	52	04 02	04 44	05 19	05 26	05 47	06 18	07 01
	11	344 28.1	54.7	328 22.3	6.9	17 53.6	14.1	60.9	50	04 08	04 49	05 22	05 32	05 57	06 30	07 15
	12	359 28.3	N 6 55.6	342 48.2	6.7	N18 07.7	14.0	60.9	45	04 22	04 58	05 28	05 46	06 17	06 56	07 45
	13	14 28.5	56.5	357 13.9	6.7	18 21.7	13.8	60.9	N 40	04 33	05 06	05 33	05 58	06 33	07 16	08 08
	14	29 28.6	57.5	11 39.6	6.6	18 35.5	13.7	60.9	35	04 41	05 12	05 37	06 08	06 47	07 33	08 27
	15	44 28.8	58.4	26 05.2	6.6	18 49.2	13.6	60.9	30	04 49	05 17	05 41	06 17	06 59	07 48	08 43
	16	59 29.0	59.4	40 30.8	6.4	19 02.8	13.4	60.8	20	05 00	05 26	05 48	06 32	07 20	08 14	09 11
	17	74 29.2	7 00.3	54 56.2	6.4	19 16.2	13.3	60.8	N 10	05 08	05 32	05 53	06 45	07 39	08 36	09 35
	18	89 29.3	N 7 01.2	69 21.6	6.4	N19 29.5	13.2	60.8	0	05 14	05 38	05 59	06 58	07 56	08 56	09 57
	19	104 29.5	02.2	83 47.0	6.2	19 42.7	13.0	60.8	S 10	05 18	05 42	06 04	07 11	08 13	09 17	10 20
	20	119 29.7	03.1	98 12.2	6.3	19 55.7	12.9	60.7	20	05 21	05 47	06 09	07 25	08 32	09 39	10 44
	21	134 29.9	04.0	112 37.5	6.1	20 08.6	12.7	60.7	30	05 23	05 51	06 15	07 41	08 54	10 05	11 12
	22	149 30.0	05.0	127 02.6	6.1	20 21.3	12.6	60.7	35	05 23	05 53	06 18	07 50	09 06	10 21	11 29
23	164 30.2	05.9	141 27.7	6.0	20 33.9	12.5	60.6	40	05 23	05 55	06 22	08 01	09 21	10 38	11 48	
8 00	179 30.4	N 7 06.9	155 52.7	5.9	N20 46.4	12.3	60.6	45	05 23	05 57	06 26	08 14	09 39	11 00	12 12	
01	194 30.5	07.8	170 17.6	5.9	20 58.7	12.1	60.6	S 50	05 21	05 59	06 31	08 29	10 01	11 28	12 42	
02	209 30.7	08.7	184 42.5	5.8	21 10.8	12.0	60.6	52	05 21	06 00	06 34	08 36	10 12	11 41	12 57	
03	224 30.9	09.7	199 07.3	5.7	21 22.8	11.9	60.5	54	05 20	06 01	06 36	08 45	10 24	11 57	13 15	
04	239 31.1	10.6	213 32.0	5.7	21 34.7	11.7	60.5	56	05 19	06 02	06 39	08 54	10 38	12 15	13 36	
05	254 31.2	11.5	227 56.7	5.6	21 46.4	11.5	60.5	58	05 17	06 03	06 42	09 04	10 54	12 38	14 03	
06	269 31.4	N 7 12.5	242 21.3	5.6	N21 57.9	11.4	60.4	S 60	05 16	06 04	06 46	09 17	11 14	13 08	14 42	
07	284 31.6	13.4	256 45.9	5.4	22 09.3	11.2	60.4	Lat.	Ocaso Sol	Crepúsculo Civil	Naut.	7	8	9	10	
08	299 31.8	14.3	271 10.3	5.5	22 20.5	11.1	60.4	N 72	19 48	21 14	///	□	□	□	□	
09	314 31.9	15.3	285 34.8	5.4	22 31.6	10.9	60.4	N 70	19 36	20 49	23 09	□	□	□	□	
10	329 32.1	16.2	299 59.2	5.3	22 42.5	10.7	60.3	68	19 26	20 30	22 10	24 12	00 12	□	□	
11	344 32.3	17.1	314 23.5	5.2	22 53.2	10.6	60.3	66	19 18	20 16	21 38	23 23	□	□	□	
12	359 32.4	N 7 18.1	328 47.7	5.2	N23 03.8	10.4	60.3	64	19 12	20 04	21 15	22 52	25 29	01 29	□	
13	14 32.6	19.0	343 11.9	5.2	23 14.2	10.3	60.2	62	19 06	19 54	20 57	22 29	24 38	00 38	02 51	
14	29 32.8	19.9	357 36.1	5.1	23 24.5	10.0	60.2	60	19 01	19 45	20 43	22 11	24 07	00 07	01 53	
15	44 33.0	20.9	12 00.2	5.0	23 34.5	10.0	60.2	N 58	18 56	19 38	20 31	21 56	23 43	25 19	01 19	
16	59 33.1	21.8	26 24.2	5.0	23 44.5	9.7	60.1	56	18 52	19 31	20 20	21 43	23 24	24 55	00 55	
17	74 33.3	22.7	40 48.2	4.9	23 54.2	9.6	60.1	54	18 49	19 26	20 11	21 31	23 08	24 35	00 35	
18	89 33.5	N 7 23.7	55 12.1	4.9	N24 03.8	9.3	60.1	52	18 46	19 21	20 04	21 22	22 55	24 18	00 18	
19	104 33.7	24.6	69 36.0	4.9	24 13.1	9.3	60.0	50	18 43	19 16	19 57	21 13	22 43	24 04	00 04	
20	119 33.8	25.5	83 59.9	4.8	24 22.4	9.0	60.0	45	18 36	19 07	19 43	20 54	22 18	23 35	24 40	
21	134 34.0	26.5	98 23.7	4.7	24 31.4	8.9	60.0	N 40	18 31	18 59	19 32	20 39	21 58	23 12	24 17	
22	149 34.2	27.4	112 47.4	4.7	24 40.3	8.7	59.9	35	18 27	18 53	19 23	20 26	21 42	22 54	23 58	
23	164 34.3	28.3	127 11.1	4.7	24 49.0	8.5	59.9	30	18 23	18 47	19 16	20 15	21 28	22 38	23 41	
9 00	179 34.5	N 7 29.3	141 34.8	4.7	N24 57.5	8.3	59.8	20	18 16	18 38	19 05	19 57	21 04	22 10	23 13	
01	194 34.7	30.2	155 58.5	4.5	25 05.8	8.2	59.8	N 10	18 10	18 32	18 56	19 40	20 43	21 47	22 49	
02	209 34.9	31.1	170 22.0	4.6	25 14.0	7.9	59.8	0	18 05	18 26	18 50	19 25	20 24	21 25	22 26	
03	224 35.0	32.1	184 45.6	4.5	25 21.9	7.8	59.7	S 10	18 00	18 21	18 46	19 10	20 05	21 04	22 04	
04	239 35.2	33.0	199 09.1	4.5	25 29.7	7.6	59.7	20	17 55	18 17	18 42	18 54	19 45	20 40	21 39	
05	254 35.4	33.9	213 32.6	4.5	25 37.3	7.5	59.7	30	17 48	18 12	18 40	18 36	19 21	20 13	21 11	
06	269 35.5	N 7 34.9	227 56.1	4.4	N25 44.8	7.2	59.6	35	17 45	18 10	18 40	18 25	19 07	19 57	20 54	
07	284 35.7	35.8	242 19.5	4.4	25 52.0	7.1	59.6	40	17 41	18 08	18 40	18 13	18 52	19 39	20 35	
08	299 35.9	36.7	256 42.9	4.4	25 59.1	6.9	59.6	45	17 37	18 06	18 40	17 59	18 33	19 17	20 11	
09	314 36.0	37.6	271 06.3	4.4	26 06.0	6.7	59.5	S 50	17 32	18 04	18 41	17 41	18 09	18 48	19 41	
10	329 36.2	38.6	285 29.7	4.3	26 12.7	6.5	59.5	52	17 29	18 03	18 42	17 33	17 58	18 34	19 25	
11	344 36.4	39.5	299 53.0	4.3	26 19.2	6.3	59.4	54	17 26	18 02	18 43	17 24	17 46	18 18	19 08	
12	359 36.6	N 7 40.4	314 16.3	4.3	N26 25.5	6.1	59.4	56	17 24	18 01	18 44	17 14	17 31	18 00	18 46	
13	14 36.7	41.4	328 39.6	4.3	26 31.6	6.0	59.4	58	17 20	18 00	18 45	17 03	17 14	17 37	18 19	
14	29 36.9	42.3	343 02.9	4.3	26 37.6	5.7	59.3	S 60	17 17	17 59	18 47	16 49	16 54	17 06	17 41	
15	44 37.1	43.2	357 26.2	4.2	26 43.3	5.6	59.3	Día	SOL E.T. (-)		LUNA					
16	59 37.2	44.1	11 49.4	4.3	26 48.9	5.4	59.2	00 h	12 h	Pas. Mer.	Pas. Mer. Sup.	Mer. Inf.	Edad.	Fase		
17	74 37.4	45.1	26 12.7	4.2	26 54.3	5.2	59.2	m s	m s	h m	h m	h m	d	)		
18	89 37.6	N 7 46.0	40 35.9	4.2	N26 59.5	5.0	59.2	7	02 16	02 07	12 02	13 12	00 43	01		
19	104 37.7	46.9	54 59.1	4.3	27 04.5	4.8	59.1	8	01 59	01 51	12 02	14 10	01 40	02		
20	119 37															



T.M.G. (TU)	ARIES			VENUS -3.9			MARTE +1.4			JUPITER -2.0			SATURNO +0.5			ESTRELLAS		
	d	h		A.H.G.	A.H.G.	Dec.	A.H.G.	Dec.	A.H.G.	Dec.	A.H.G.	Dec.	A.H.G.	Dec.	Nombre	A. H. S.	Dec.	
L U N E S	10	00		198 12.2	178 00.2 N 7	16.9	121 12.8 N24	16.5	134 51.5 N20	38.9	273 18.1 S22	03.5	Acamar	315 32.4 S40	20.9			
	01			213 14.7	192 59.8	18.1	136 13.6	16.7	149 53.4	39.0	288 20.5	03.5	Achernar	335 40.5 S57	17.4			
	02			228 17.1	207 59.4	19.3	151 14.3	16.8	164 55.4	39.1	303 22.9	03.5	Acrux	173 29.5 S63	02.6			
	03			243 19.6	222 59.0	20.5	166 15.1	16.9	179 57.3	39.2	318 25.3	03.5	Adhara	255 26.9 S28	57.6			
	04			258 22.1	237 58.6	21.7	181 15.9	17.1	194 59.3	39.3	333 27.7	03.5	Aldebaran	291 10.6 N16	29.4			
	05			273 24.5	252 58.2	22.9	196 16.7	17.2	210 01.2	39.4	348 30.1	03.5						
	06			288 27.0	267 57.8 N 7	24.2	211 17.5 N24	17.4	225 03.2 N20	39.5	3 32.5 S22	03.4	Alioth	166 35.8 N56	01.0			
	07			303 29.5	282 57.4	25.4	226 18.2	17.5	240 05.1	39.5	18 34.9	03.4	Alkaid	153 12.5 N49	21.8			
	08			318 31.9	297 56.9	26.6	241 19.0	17.6	255 07.1	39.6	33 37.3	03.4	Al Na'ir	28 06.6 S47	00.7			
	09			333 34.4	312 56.5	27.8	256 19.8	17.8	270 09.0	39.7	48 39.8	03.4	Alnilam	276 05.0 S 1	12.5			
	10			348 36.9	327 56.1	29.0	271 20.6	17.9	285 11.0	39.8	63 42.2	03.4	Alphard	218 13.8 S 8	36.8			
	11			3 39.3	342 55.7	30.2	286 21.4	18.0	300 12.9	39.9	78 44.6	03.4						
	12			18 41.8	357 55.3 N 7	31.4	301 22.2 N24	18.2	315 14.9 N20	40.0	93 47.0 S22	03.4	Alphecca	126 26.1 N26	44.7			
	13			33 44.2	12 54.9	32.6	316 22.9	18.3	330 16.8	40.1	108 49.4	03.4	Alpheratz	358 02.8 N29	01.8			
	14			48 46.7	27 54.5	33.8	331 23.7	18.5	345 18.8	40.2	123 51.8	03.4	Altair	62 26.0 N 8	50.1			
	15			63 49.2	42 54.1	35.0	346 24.5	18.6	0 20.7	40.3	138 54.2	03.4	Ankaa	353 33.8 S42	21.8			
	16			78 51.6	57 53.6	36.2	1 25.3	18.7	15 22.6	40.4	153 56.6	03.4	Antares	112 48.4 S26	24.7			
	17			93 54.1	72 53.2	37.4	16 26.1	18.9	30 24.6	40.5	168 59.0	03.4						
	18			108 56.6	87 52.8 N 7	38.7	31 26.8 N24	19.0	45 26.5 N20	40.6	184 01.4 S22	03.4	Arcturus	146 11.9 N19	14.0			
	19			123 59.0	102 52.4	39.9	46 27.6	19.1	60 28.5	40.7	199 03.9	03.4	Atria	108 06.4 S69	00.5			
	20			139 01.5	117 52.0	41.1	61 28.4	19.3	75 30.4	40.8	214 06.3	03.4	Avior	234 25.5 S59	28.7			
	21			154 04.0	132 51.6	42.3	76 29.2	19.4	90 32.4	40.9	229 08.7	03.4	Bellatrix	278 51.7 N 6	20.5			
	22			169 06.4	147 51.2	43.5	91 30.0	19.5	105 34.3	41.0	244 11.1	03.4	Betelgeuse	271 21.1 N 7	24.4			
23			184 08.9	162 50.7	44.7	106 30.7	19.7	120 36.3	41.1	259 13.5	03.4							
M A R T E S	11	00		199 11.3	177 50.3 N 7	45.9	121 31.5 N24	19.8	135 38.2 N20	41.1	274 15.9 S22	03.4	Canopus	264 04.4 S52	41.6			
	01			214 13.8	192 49.9	47.1	136 32.3	19.9	150 40.2	41.2	289 18.3	03.4	Capella	281 01.7 N45	59.5			
	02			229 16.3	207 49.5	48.3	151 33.1	20.1	165 42.1	41.3	304 20.7	03.4	Deneb	49 44.2 N45	14.1			
	03			244 18.7	222 49.1	49.5	166 33.9	20.2	180 44.0	41.4	319 23.1	03.3	Denebola	182 51.9 N14	37.8			
	04			259 21.2	237 48.7	50.7	181 34.6	20.3	195 46.0	41.5	334 25.6	03.3	Diphda	349 14.4 S18	02.7			
	05			274 23.7	252 48.2	51.9	196 35.4	20.5	210 47.9	41.6	349 28.0	03.3						
	06			289 26.1	267 47.8 N 7	53.1	211 36.2 N24	20.6	225 49.9 N20	41.7	4 30.4 S22	03.3	Dubhe	194 13.0 N61	48.6			
	07			304 28.6	282 47.4	54.3	226 37.0	20.7	240 51.8	41.8	19 32.8	03.3	Elnath	278 35.9 N28	36.1			
	08			319 31.1	297 47.0	55.5	241 37.8	20.8	255 53.8	41.9	34 35.2	03.3	Eltanin	90 54.4 N51	28.9			
	09			334 33.5	312 46.6	56.7	256 38.5	21.0	270 55.7	42.0	49 37.6	03.3	Enif	34 05.2 N 9	49.3			
	10			349 36.0	327 46.2	57.9	271 39.3	21.1	285 57.6	42.1	64 40.0	03.3	Fomalhaut	15 44.2 S29	40.8			
	11			4 38.5	342 45.7	59.1	286 40.1	21.2	300 59.6	42.2	79 42.4	03.3						
	12			19 40.9	357 45.3 N 8	00.3	301 40.9 N24	21.4	316 01.5 N20	42.3	94 44.9 S22	03.3	Gacrux	172 21.0 S57	03.4			
	13			34 43.4	12 44.9	01.5	316 41.6	21.5	331 03.5	42.4	109 47.3	03.3	Gienah	176 10.8 S17	29.2			
	14			49 45.8	27 44.5	02.7	331 42.4	21.6	346 05.4	42.5	124 49.7	03.3	Hadar	149 13.5 S60	19.4			
	15			64 48.3	42 44.1	03.9	346 43.2	21.8	1 07.4	42.6	139 52.1	03.3	Hamal	328 21.8 N23	24.7			
	16			79 50.8	57 43.6	05.1	1 44.0	21.9	16 09.3	42.6	154 54.5	03.3	Kaus Aust.	84 07.8 S34	23.5			
	17			94 53.2	72 43.2	06.3	16 44.8	22.0	31 11.2	42.7	169 56.9	03.3						
	18			109 55.7	87 42.8 N 8	07.5	31 45.5 N24	22.1	46 13.2 N20	42.8	184 59.3 S22	03.3	Kochab	137 17.6 N74	11.7			
	19			124 58.2	102 42.4	08.7	46 46.3	22.3	61 15.1	42.9	200 01.8	03.3	Markab	13 56.8 N15	08.7			
	20			140 00.6	117 42.0	09.9	61 47.1	22.4	76 17.1	43.0	215 04.2	03.3	Menkar	314 34.4 N 4	02.9			
	21			155 03.1	132 41.5	11.1	76 47.9	22.5	91 19.0	43.1	230 06.6	03.3	Menkent	148 28.8 S36	19.2			
	22			170 05.6	147 41.1	12.3	91 48.7	22.6	106 21.0	43.2	245 09.0	03.3	Miaplacidus	221 43.5 S69	40.6			
23			185 08.0	162 40.7	13.5	106 49.4	22.8	121 22.9	43.3	260 11.4	03.3							
M I E R C U L O S	12	00		200 10.5	177 40.3 N 8	14.7	121 50.2 N24	22.9	136 24.8 N20	43.4	275 13.8 S22	03.3	Mirfak	309 07.1 N49	49.6			
	01			215 13.0	192 39.9	15.9	136 51.0	23.0	151 26.8	43.5	290 16.3	03.3	Nunki	76 20.8 S26	18.7			
	02			230 15.4	207 39.4	17.1	151 51.8	23.2	166 28.7	43.6	305 18.7	03.2	Peacock	53 47.8 S56	46.1			
	03			245 17.9	222 39.0	18.3	166 52.5	23.3	181 30.7	43.7	320 21.1	03.2	Pollux	243 49.9 N28	03.3			
	04			260 20.3	237 38.6	19.5	181 53.3	23.4	196 32.6	43.8	335 23.5	03.2	Procyon	245 18.8 N 5	15.2			
	05			275 22.8	252 38.2	20.7	196 54.1	23.5	211 34.5	43.9	350 25.9	03.2						
	06			290 25.3	267 37.7 N 8	21.9	211 54.9 N24	23.6	226 36.5 N20	44.0	5 28.3 S22	03.2	Rasalhague	96 23.2 N12	33.7			
	07			305 27.7	282 37.3	23.1	226 55.7	23.8	241 38.4	44.1	20 30.7	03.2	Regulus	208 02.6 N12	01.1			
	08			320 30.2	297 36.9	24.3	241 56.4	23.9	256 40.4	44.2	35 33.2	03.2	Rigel	281 29.7 S 8	12.8			
	09			335 32.7	312 36.5	25.5	256 57.2	24.0	271 42.3	44.2	50 35.6	03.2	Rigel Kent.	140 16.3 S60	47.5			
	10			350 35.1	327 36.0	26.7	271 58.0	24.1	286 44.2	44.3	65 38.0	03.2	Sabik	102 33.3 S15	42.9			
	11			5 37.6	342 35.6	27.9	286 58.8	24.3	301 46.2	44.4	80 40.4	03.2						
	12			20 40.1	357 35.2 N 8	29.1	301 59.5 N24	24.4	316 48.1 N20	44.5	95 42.8 S22	03.2	Schedar	350 02.2 N56	28.7			
	13			35 42.5	12 34.8	30.3	317 00.3	24.5	331 50.1	44.6	110 45.3	03.2	Shaula	96 46.5 S37	05.9			
	14			50 45.0	27 34.3	31.4	332 01.1	24.6	346 52.0	44.7	125 47.7	03.2	Sirius	258 49.8 S16	42.2			
	15			65 47.5	42 33.9	32.6	347 01.9	24.8	1 53.9	44.8	140 50.1	03.2	Spica	158 50.2 S11	06.6			
	16			80 49.9	57 33.5	33.8	2 02.7	24.9	16 55.9	44.9	155 52.5	03.2	Suhail	223 05.8 S43	23.6			
	17			95 52.4	72 33.1	35.0	17 03.4	25.0	31 57.8	45.0	170 54.9	03.2						
	18			110 54.8	87 32.6 N 8	36.2	32 04.2 N24	25.1	46 59.8 N20	45.1	185 57.3 S22	03.2	Vega	80 51.2 N38	46.0			
	19			125 57.3	102 32.2	37.4	47 05.0	25.2	62 01.7	45.2	200 59.8	03.2	Zuben'ubi	137 25.3 S16	00.1			
	20			140 59.8	117 31.8	38.6	62 05.8	25.4	77 03.6	45.3	216 02.2	03.2						
	21			156 02.2	132 31.4	39.8	77 06.5	25.5	92 05.6	45.4	231 04.6	03.2						
	22			171 04.7	147 30.9	41.0	92 07.3	25.6	107 07.5	45.5	246 07.0	03.2	Venus	338 39.0 h 09				
23			186 07.2	162 30.5	42.2	107 0												







T.M.G. (TU)	ARIES	VENUS -3.9	MARTE +1.5	JUPITER -2.0	SATURNO +0.5	ESTRELLAS		
d h	A.H.G.	A.H.G. Dec.	A.H.G. Dec.	A.H.G. Dec.	A.H.G. Dec.	Nombre	A. H. S.	Dec.
13 00	201 09.6	177 30.1 N 8 43.4	122 08.9 N24 25.8	137 11.4 N20 45.7	276 11.9 S22 03.2	Acamar	315 32.4 S40 20.9	
01	216 12.1	192 29.7 44.5	137 09.6 25.9	152 13.3 45.7	291 14.3 03.2	Achernar	335 40.5 S57 17.4	
02	231 14.6	207 29.2 45.7	152 10.4 26.1	167 15.3 45.8	306 16.7 03.2	Acrux	173 29.5 S63 02.6	
03	246 17.0	222 28.8 46.9	167 11.2 26.2	182 17.2 45.9	321 19.1 03.1	Adhara	255 26.9 S28 57.6	
04	261 19.5	237 28.4 48.1	182 12.0 26.3	197 19.1 46.0	336 21.5 03.1	Aldebaran	291 10.6 N16 29.4	
05	276 21.9	252 27.9 49.3	197 12.8 26.4	212 21.1 46.1	351 24.0 03.1			
06	291 24.4	267 27.5 N 8 50.5	212 13.5 N24 26.5	227 23.0 N20 46.2	6 26.4 S22 03.1	Alioth	166 35.7 N56 01.0	
07	306 26.9	282 27.1 51.7	227 14.3 26.7	242 24.9 46.3	21 28.8 03.1	Alkaid	153 12.5 N49 21.8	
08	321 29.3	297 26.7 52.9	242 15.1 26.8	257 26.9 46.4	36 31.2 03.1	Al Na'ir	28 06.6 S47 00.7	
J 09	336 31.8	312 26.2 54.0	257 15.9 26.9	272 28.8 46.5	51 33.7 03.1	Alnilam	276 05.0 S 1 12.5	
U 10	351 34.3	327 25.8 55.2	272 16.6 27.0	287 30.8 46.6	66 36.1 03.1	Alphard	218 13.9 S 8 36.8	
E 11	6 36.7	342 25.4 56.4	287 17.4 27.1	302 32.7 46.7	81 38.5 03.1			
V 12	21 39.2	357 24.9 N 8 57.6	302 18.2 N24 27.2	317 34.6 N20 46.8	96 40.9 S22 03.1	Alphecca	126 26.0 N26 44.7	
E 13	36 41.7	12 24.5 8 58.8	317 19.0 27.3	332 36.6 46.9	111 43.3 03.1	Alpheratz	358 02.8 N29 01.8	
S 14	51 44.1	27 24.1 9 00.0	332 19.7 27.5	347 38.5 47.0	126 45.8 03.1	Altair	62 26.0 N 8 50.1	
15	66 46.6	42 23.6 01.2	347 20.5 27.6	2 40.4 47.1	141 48.2 03.1	Ankaa	353 33.8 S42 21.8	
16	81 49.1	57 23.2 02.3	2 21.3 27.7	17 42.4 47.2	156 50.6 03.1	Antares	112 48.4 S26 24.7	
17	96 51.5	72 22.8 03.5	17 22.1 27.8	32 44.3 47.2	171 53.0 03.1			
18	111 54.0	87 22.3 N 9 04.7	32 22.8 N24 27.9	47 46.2 N20 47.3	186 55.5 S22 03.1	Arcturus	146 11.9 N19 14.0	
19	126 56.4	102 21.9 05.9	47 23.6 28.0	62 48.2 47.4	201 57.9 03.1	Atria	108 06.4 S69 00.5	
20	141 58.9	117 21.5 07.1	62 24.4 28.1	77 50.1 47.5	217 00.3 03.1	Avior	234 25.6 S59 28.7	
21	157 01.4	132 21.0 08.2	77 25.2 28.3	92 52.0 47.6	232 02.7 03.1	Bellatrix	278 51.7 N 6 20.5	
22	172 03.8	147 20.6 09.4	92 25.9 28.4	107 54.0 47.7	247 05.2 03.1	Betelgeuse	271 21.2 N 7 24.4	
23	187 06.3	162 20.2 10.6	107 26.7 28.5	122 55.9 47.8	262 07.6 03.1			
14 00	202 08.8	177 19.7 N 9 11.8	122 27.5 N24 28.6	137 57.8 N20 47.9	277 10.0 S22 03.1	Canopus	264 04.4 S52 41.6	
01	217 11.2	192 19.3 13.0	137 28.3 28.7	152 59.8 48.0	292 12.4 03.1	Capella	281 01.7 N45 59.5	
02	232 13.7	207 18.9 14.2	152 29.0 28.8	168 01.7 48.1	307 14.9 03.1	Deneb	49 44.1 N45 14.1	
03	247 16.2	222 18.4 15.3	167 29.8 28.9	183 03.6 48.2	322 17.3 03.1	Denebola	182 51.9 N14 37.8	
04	262 18.6	237 18.0 16.5	182 30.6 29.0	198 05.6 48.3	337 19.7 03.1	Diphda	349 14.4 S18 02.7	
05	277 21.1	252 17.6 17.7	197 31.4 29.1	213 07.5 48.4	352 22.1 03.1			
06	292 23.6	267 17.1 N 9 18.9	212 32.1 N24 29.2	228 09.4 N20 48.5	7 24.6 S22 03.1	Dubhe	194 13.0 N61 48.6	
07	307 26.0	282 16.7 20.0	227 32.9 29.4	243 11.4 48.6	22 27.0 03.1	Elnath	278 35.9 N28 36.1	
08	322 28.5	297 16.3 21.2	242 33.7 29.5	258 13.3 48.6	37 29.4 03.0	Eltanin	90 54.4 N51 29.0	
V 09	337 30.9	312 15.8 22.4	257 34.5 29.6	273 15.2 48.7	52 31.8 03.0	Enif	34 05.2 N 9 49.3	
I 10	352 33.4	327 15.4 23.6	272 35.2 29.7	288 17.2 48.8	67 34.3 03.0	Fomalhaut	15 44.2 S29 40.7	
E 11	7 35.9	342 14.9 24.8	287 36.0 29.8	303 19.1 48.9	82 36.7 03.0			
N 12	22 38.3	357 14.5 N 9 25.9	302 36.8 N24 29.9	318 21.0 N20 49.0	97 39.1 S22 03.0	Gacrux	172 21.0 S57 03.4	
S 13	37 40.8	12 14.1 27.1	317 37.6 30.0	333 23.0 49.1	112 41.5 03.0	Gienah	176 10.8 S17 29.2	
14	52 43.3	27 13.6 28.3	332 38.3 30.1	348 24.9 49.2	127 44.0 03.0	Hadar	149 13.5 S60 19.5	
15	67 45.7	42 13.2 29.5	347 39.1 30.2	3 26.8 49.3	142 46.4 03.0	Hamal	328 21.8 N23 24.7	
16	82 48.2	57 12.8 30.6	2 39.9 30.3	18 28.8 49.4	157 48.8 03.0	Kaus Aust.	84 07.8 S34 23.5	
17	97 50.7	72 12.3 31.8	17 40.7 30.4	33 30.7 49.5	172 51.2 03.0			
18	112 53.1	87 11.9 N 9 33.0	32 41.4 N24 30.5	48 32.6 N20 49.6	187 53.7 S22 03.0	Kochab	137 17.6 N74 11.7	
19	127 55.6	102 11.4 34.2	47 42.2 30.6	63 34.6 49.7	202 56.1 03.0	Markab	13 56.8 N15 08.7	
20	142 58.0	117 11.0 35.3	62 43.0 30.8	78 36.5 49.8	217 58.5 03.0	Menkar	314 34.4 N 4 02.9	
21	158 00.5	132 10.6 36.5	77 43.8 30.9	93 38.4 49.9	233 01.0 03.0	Menkent	148 28.8 S36 19.3	
22	173 03.0	147 10.1 37.7	92 44.5 31.0	108 40.4 50.0	248 03.4 03.0	Miaplacidus	221 43.6 S69 40.6	
23	188 05.4	162 09.7 38.8	107 45.3 31.1	123 42.3 50.0	263 05.8 03.0			
15 00	203 07.9	177 09.2 N 9 40.0	122 46.1 N24 31.2	138 44.2 N20 50.1	278 08.2 S22 03.0	Mirfak	309 07.1 N49 49.6	
01	218 10.4	192 08.8 41.2	137 46.8 31.3	153 46.2 50.2	293 10.7 03.0	Nunki	76 20.8 S26 18.7	
02	233 12.8	207 08.4 42.4	152 47.6 31.4	168 48.1 50.3	308 13.1 03.0	Peacock	53 47.7 S56 46.1	
03	248 15.3	222 07.9 43.5	167 48.4 31.5	183 50.0 50.4	323 15.5 03.0	Pollux	243 49.9 N28 03.3	
04	263 17.8	237 07.5 44.7	182 49.2 31.6	198 52.0 50.5	338 18.0 03.0	Procyon	245 18.8 N 5 15.2	
05	278 20.2	252 07.0 45.9	197 49.9 31.7	213 53.9 50.6	353 20.4 03.0			
06	293 22.7	267 06.6 N 9 47.0	212 50.7 N24 31.8	228 55.8 N20 50.7	8 22.8 S22 03.0	Rasalhague	96 23.2 N12 33.7	
07	308 25.2	282 06.1 48.2	227 51.5 31.9	243 57.7 50.8	23 25.3 03.0	Regulus	208 02.6 N12 01.1	
08	323 27.6	297 05.7 49.4	242 52.3 32.0	258 59.7 50.9	38 27.7 03.0	Rigel	281 29.7 S 8 12.8	
S 09	338 30.1	312 05.3 50.5	257 53.0 32.1	274 01.6 51.0	53 30.1 03.0	Rigel Kent.	140 16.3 S60 47.6	
A 10	353 32.5	327 04.8 51.7	272 53.8 32.2	289 03.5 51.1	68 32.5 03.0	Sabik	102 33.2 S15 42.9	
B 11	8 35.0	342 04.4 52.9	287 54.6 32.3	304 05.5 51.2	83 35.0 03.0			
A 12	23 37.5	357 03.9 N 9 54.1	302 55.4 N24 32.4	319 07.4 N20 51.3	98 37.4 S22 03.0	Schedar	350 02.2 N56 28.7	
D 13	38 39.9	12 03.5 55.2	317 56.1 32.5	334 09.3 51.4	113 39.8 03.0	Shaula	96 46.4 S37 05.9	
O 14	53 42.4	27 03.0 56.4	332 56.9 32.6	349 11.2 51.4	128 42.3 03.0	Sirius	258 49.9 S16 42.2	
15	68 44.9	42 02.6 57.6	347 57.7 32.7	4 13.2 51.5	143 44.7 03.0	Spica	158 50.2 S11 06.6	
16	83 47.3	57 02.1 58.7	2 58.4 32.8	19 15.1 51.6	158 47.1 03.0	Suhail	223 05.8 S43 23.6	
17	98 49.8	72 01.7 9 59.9	17 59.2 32.9	34 17.0 51.7	173 49.6 03.0			
18	113 52.3	87 01.2 N10 01.0	33 00.0 N24 33.0	49 19.0 N20 51.8	188 52.0 S22 03.0	Vega	80 51.2 N38 46.0	
19	128 54.7	102 00.8 02.2	48 00.8 33.1	64 20.9 51.9	203 54.4 02.9	Zuben'ubi	137 25.3 S16 00.1	
20	143 57.2	117 00.4 03.4	63 01.5 33.2	79 22.8 52.0	218 56.9 02.9			
21	158 59.7	131 59.9 04.5	78 02.3 33.3	94 24.7 52.1	233 59.3 02.9			
22	174 02.1	146 59.5 05.7	93 03.1 33.4	109 26.7 52.2	249 01.7 02.9			
23	189 04.6	161 59.0 06.9	108 03.9 33.5	124 28.6 52.3	264 04.2 02.9			
							A. H. S.	Pas. Mer.
							o / h m	
							Venus	335 11.0 12 11
							Marte	280 18.7 15 49
							Júpiter	295 49.1 14 46
							Saturno	75 01.2 5 30

Pas. Mer. 10 29.7      v -0.4 d 1.2      v 0.8 d 0.1      v 1.9 d 0.1      v 2.4 d 0.0



T.M.G. (TU)	SOL		LUNA				Lat.	Crepúsculo		Orto Sol	Orto Luna									
	A.H.G.	Dec.	A.H.G.	v	Dec.	d		P.H.	Náut.		Civil	13	14	15	16					
												h m	h m	h m	h m					
13 d h 00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 EYES	179	50.4	N 8	57.6	85	15.2	9.6	N24	41.7	7.7	56.2	N 72	///	02 08	03 45	h m	h m	h m	h m	
	194	50.6		58.5	99	43.8	9.7	24	34.0	7.9	56.2	N 70	///	02 42	04 01	h m	h m	h m	h m	
	209	50.8	8	59.4	114	12.5	9.8	24	26.1	7.9	56.1	68	00 57	03 05	04 14	h m	h m	h m	h m	
	224	50.9	9	00.3	128	41.3	9.9	24	18.2	8.1	56.1	66	01 50	03 24	04 24	07 19	09 59	11 54	13 36	
	239	51.1		01.2	143	10.2	10.1	24	10.1	8.1	56.1	64	02 21	03 38	04 33	08 25	10 25	12 09	13 44	
	254	51.2		02.1	157	39.3	10.1	24	02.0	8.3	56.0	62	02 43	03 51	04 40	09 00	10 45	12 21	13 50	
	269	51.4	N 9	03.0	172	08.4	10.3	N23	53.7	8.4	56.0	60	03 00	04 01	04 47	09 26	11 01	12 31	13 56	
	284	51.6		03.9	186	37.7	10.3		23	45.3	8.5	56.0	N 58	03 15	04 10	04 52	09 45	11 15	12 40	14 01
	299	51.7		04.8	201	07.0	10.5		23	36.8	8.6	55.9	56	03 27	04 17	04 57	10 02	11 26	12 47	14 05
	314	51.9		05.7	215	36.5	10.6		23	28.2	8.8	55.9	54	03 37	04 24	05 02	10 16	11 36	12 54	14 09
	329	52.0		06.6	230	06.1	10.7		23	19.4	8.8	55.9	52	03 46	04 30	05 06	10 28	11 45	13 00	14 13
	344	52.2		07.6	244	35.8	10.8		23	10.6	8.9	55.8	50	03 54	04 35	05 09	10 39	11 53	13 06	14 16
	359	52.3	N 9	08.5	259	05.6	10.9	N23	01.7	9.0	55.8	45	04 10	04 47	05 17	11 01	12 10	13 18	14 23	
	14	52.5		09.4	273	35.5	11.0		22	52.7	9.2	55.8	N 40	04 23	04 56	05 24	11 19	12 24	13 28	14 28
	29	52.7		10.3	288	05.5	11.1		22	43.5	9.2	55.8	35	04 33	05 04	05 30	11 34	12 36	13 36	14 33
	44	52.8		11.2	302	35.6	11.2		22	34.3	9.3	55.7	30	04 41	05 10	05 34	11 47	12 46	13 43	14 38
	59	53.0		12.1	317	05.8	11.3		22	25.0	9.4	55.7	20	04 54	05 20	05 43	12 09	13 04	13 56	14 45
	74	53.1		13.0	331	36.1	11.5		22	15.6	9.6	55.7	N 10	05 04	05 29	05 50	12 28	13 19	14 07	14 52
	89	53.3	N 9	13.9	346	06.6	11.5	N22	06.0	9.6	55.6	0	05 12	05 36	05 57	12 46	13 33	14 17	14 58	
	104	53.5		14.8	0	37.1	11.6		21	56.4	9.7	55.6	S 10	05 18	05 42	06 04	13 03	13 47	14 27	15 04
	119	53.6		15.7	15	07.7	11.8		21	46.7	9.8	55.6	20	05 23	05 48	06 11	13 22	14 02	14 38	15 11
	134	53.8		16.6	29	38.5	11.8		21	36.9	9.9	55.6	30	05 26	05 54	06 18	13 44	14 19	14 50	15 18
	149	53.9		17.5	44	09.3	12.0		21	27.0	9.9	55.5	35	05 28	05 57	06 23	13 56	14 29	14 57	15 22
164	54.1		18.4	58	40.3	12.0		21	17.1	10.1	55.5	40	05 29	06 01	06 28	14 11	14 41	15 05	15 27	
179	54.2	N 9	19.3	73	11.3	12.2	N21	07.0	10.1	55.5	45	05 30	06 04	06 34	14 28	14 54	15 15	15 33		
194	54.4		20.2	87	42.5	12.2		20	56.9	10.3	55.4	S 50	05 30	06 08	06 41	14 49	15 10	15 26	15 39	
209	54.6		21.1	102	13.7	12.4		20	46.6	10.3	55.4	52	05 30	06 10	06 44	14 59	15 17	15 31	15 42	
224	54.7		22.0	116	45.1	12.4		20	36.3	10.4	55.4	54	05 30	06 11	06 47	15 10	15 26	15 37	15 45	
239	54.9		22.9	131	16.5	12.5		20	25.9	10.5	55.4	56	05 30	06 13	06 51	15 23	15 35	15 43	15 49	
254	55.0		23.8	145	48.0	12.7		20	15.4	10.5	55.3	58	05 30	06 15	06 55	15 38	15 46	15 50	15 53	
269	55.2	N 9	24.7	160	19.7	12.7	N20	04.9	10.7	55.3	S 60	05 29	06 18	07 00	15 55	15 58	15 58	15 58		
284	55.3		25.6	174	51.4	12.9		19	54.2	10.7	55.3									
299	55.5		26.5	189	23.3	12.9		19	43.5	10.8	55.3									
314	55.7		27.4	203	55.2	13.0		19	32.7	10.9	55.2									
329	55.8		28.3	218	27.2	13.1		19	21.8	10.9	55.2									
344	56.0		29.2	232	59.3	13.2		19	10.9	11.1	55.2									
359	56.1	N 9	30.1	247	31.5	13.3	N18	59.8	11.1	55.2										
14	56.3		31.0	262	03.8	13.4		18	48.7	11.1	55.1	N 72	20 19	22 00	///	h m	h m	05 54	05 01	
29	56.4		31.9	276	36.2	13.5		18	37.6	11.3	55.1	N 70	20 03	21 24	///	h m	h m	06 49	05 20	
44	56.6		32.8	291	08.7	13.6		18	26.3	11.3	55.1	68	19 49	20 59	23 20	h m	h m	05 36	04 55	
59	56.7		33.7	305	41.3	13.6		18	15.0	11.3	55.1	66	19 39	20 40	22 17	05 59	04 59	04 36	04 20	
74	56.9		34.6	320	13.9	13.8		18	03.7	11.5	55.1	64	19 30	20 25	21 44	04 51	04 32	04 20	04 11	
89	57.0	N 9	35.5	334	46.7	13.8	N17	52.2	11.5	55.0	62	19 22	20 12	21 21	04 16	04 11	04 07	04 03		
104	57.2		36.4	349	19.5	13.9		17	40.7	11.6	55.0	60	19 16	20 02	21 03	03 50	03 54	03 56	03 56	
119	57.4		37.3	3	52.4	14.0		17	29.1	11.6	55.0	N 58	19 10	19 53	20 48	03 29	03 40	03 46	03 50	
134	57.5		38.2	18	25.4	14.1		17	17.5	11.7	55.0	56	19 05	19 45	20 36	03 12	03 28	03 38	03 45	
149	57.7		39.1	32	58.5	14.2		17	05.8	11.8	54.9	54	19 00	19 38	20 25	02 58	03 17	03 30	03 40	
164	57.8		40.0	47	31.7	14.2		16	54.0	11.8	54.9	52	18 56	19 32	20 16	02 45	03 07	03 23	03 36	
179	58.0	N 9	40.9	62	04.9	14.4	N16	42.2	11.9	54.9	50	18 52	19 26	20 08	02 34	02 59	03 17	03 32		
194	58.1		41.8	76	38.3	14.4		16	30.3	11.9	54.9	45	18 44	19 15	19 52	02 11	02 40	03 04	03 23	
209	58.3		42.6	91	11.7	14.5		16	18.4	12.0	54.9	N 40	18 37	19 05	19 39	01 52	02 25	02 52	03 15	
224	58.4		43.5	105	45.2	14.5		16	06.4	12.1	54.8	35	18 32	18 58	19 29	01 36	02 12	02 43	03 09	
239	58.6		44.4	120	18.7	14.7		15	54.3	12.1	54.8	30	18 27	18 51	19 20	01 22	02 01	02 34	03 04	
254	58.7		45.3	134	52.4	14.7		15	42.2	12.1	54.8	20	18 18	18 40	19 07	00 59	01 42	02 20	02 54	
269	58.9	N 9	46.2	149	26.1	14.8	N15	30.1	12.3	54.8	N 10	18 10	18 32	18 57	00 38	01 25	02 07	02 45		
284	59.0		47.1	163	59.9	14.8		15	17.8	12.2	54.8	0	18 04	18 25	18 49	00 19	01 09	01 55	02 37	
299	59.2		48.0	178	33.7	15.0		15	05.6	12.4	54.7	S 10	17 57	18 18	18 43	00 00	00 53	01 42	02 29	
314	59.3		48.9	193	07.7	15.0		14	53.2	12.3	54.7	20	17 50	18 12	18 38	24 36	00 36	01 29	02 20	
329	59.5		49.8	207	41.7	15.1		14	40.9	12.5	54.7	30	17 42	18 06	18 34	24 16	00 16	01 14	02 10	
344	59.7		50.7	222	15.8	15.1		14	28.4	12.4	54.7	35	17 37	18 03	18 32	24 04	00 04	01 05	02 04	
359	59.8	N 9	51.6	236	49.9	15.2	N14	16.0	12.6	54.7	40	17 32	17 59	18 31	23 51	24 55	00 55	01 57		
14	00.0		52.5	251	24.1	15.3		14	03.4	12.5	54.6	45	17 26	17 56	18 30	23 34	24 43	00 43	01 49	
30	00.1		53.4	265	58.4	15.4		13	50.9	12.6	54.6	S 50	17 19	17 52	18 29	23 15	24 29	00 29	01 40	
45	00.3		54.3	280	32.8	15.4		13	38.3	12.7	54.6	52	17 16	17 50	18 29	23 05	24 22	00 22	01 35	
60	00.4		55.1	295	07.2	15.5		13	25.6	12.7	54.6	54	17 12	17 48	18 29	22 54	24 14	00 14	01 30	
75	00.6		56.0	309	41.7	15.5		13	12.9	12.8	54.6	56	17 08	17 46	18 29	22 42	24 05	00 05	01 25	
90	00.7	N 9	56.9	324	16.2	15.7	N13	00.1	12.8	54.6	58	17 04	17 44	18 29	22 28	23 56	25 19	01 19		
105	00.9		57.8	338	50.9	15.6		12	47.3	12.8	54.5	S 60	16 59	17 42	18 30	22 11	23 45	25 12	01 12	
120	01.0		58.7	353	25.5	15.8		12	34.5	12.9										



T.M.G. (TU)	ARIES		VENUS -3.9		MARTE +1.5		JUPITER -2.0		SATURNO +0.5		ESTRELLAS								
	A.H.G.	A.H.G.	Dec.	A.H.G.	Dec.	A.H.G.	Dec.	A.H.G.	Dec.	A.H.G.	Dec.	Nombre	A. H. S.	Dec.					
DOMINGO	16 00	204	07.0	176	58.6	N10 08.0	123	04.6	N24 33.6	139	30.5	N20 52.4	279	06.6	S22 02.9	Acomar	315	32.4	S40 20.9
	01	219	09.5	191	58.1	09.2	138	05.4	33.7	154	32.5	52.5	294	09.0	02.9	Achernar	335	40.5	S57 17.4
	02	234	12.0	206	57.7	10.3	153	06.2	33.8	169	34.4	52.6	309	11.5	02.9	Acruz	173	29.5	S63 02.6
	03	249	14.4	221	57.2	11.5	168	06.9	33.9	184	36.3	52.7	324	13.9	02.9	Adhara	255	26.9	S28 57.6
	04	264	16.9	236	56.8	12.7	183	07.7	34.0	199	38.2	52.8	339	16.3	02.9	Aldebaran	291	10.6	N16 29.4
	05	279	19.4	251	56.3	13.8	198	08.5	34.1	214	40.2	52.8	354	18.8	02.9				
	06	294	21.8	266	55.9	N10 15.0	213	09.3	N24 34.1	229	42.1	N20 52.9	9	21.2	S22 02.9	Alioth	166	35.7	N56 01.0
	07	309	24.3	281	55.4	16.1	228	10.0	34.2	244	44.0	53.0	24	23.6	02.9	Alkaid	153	12.5	N49 21.8
	08	324	26.8	296	55.0	17.3	243	10.8	34.3	259	45.9	53.1	39	26.1	02.9	Al Na'ir	28	06.6	S47 00.7
	09	339	29.2	311	54.5	18.5	258	11.6	34.4	274	47.9	53.2	54	28.5	02.9	Alnilam	276	05.0	S 1 12.5
	10	354	31.7	326	54.1	19.6	273	12.3	34.5	289	49.8	53.3	69	30.9	02.9	Alphard	218	13.9	S 8 36.8
	11	9	34.1	341	53.6	20.8	288	13.1	34.6	304	51.7	53.4	84	33.4	02.9				
	12	24	36.6	356	53.2	N10 21.9	303	13.9	N24 34.7	319	53.7	N20 53.5	99	35.8	S22 02.9	Alphecca	126	26.0	N26 44.7
	13	39	39.1	11	52.7	23.1	318	14.7	34.8	334	55.6	53.6	114	38.2	02.9	Alpheratz	358	02.8	N29 01.8
	14	54	41.5	26	52.3	24.3	333	15.4	34.9	349	57.5	53.7	129	40.7	02.9	Altair	62	26.0	N 8 50.1
	15	69	44.0	41	51.8	25.4	348	16.2	35.0	4	59.4	53.8	144	43.1	02.9	Ankaa	353	33.8	S42 21.8
	16	84	46.5	56	51.3	26.6	3	17.0	35.1	20	01.4	53.9	159	45.6	02.9	Antares	112	48.4	S26 24.7
	17	99	48.9	71	50.9	27.7	18	17.8	35.2	35	03.3	54.0	174	48.0	02.9				
	18	114	51.4	86	50.4	N10 28.9	33	18.5	N24 35.3	50	05.2	N20 54.1	189	50.4	S22 02.9	Arcturus	146	11.9	N19 14.0
	19	129	53.9	101	50.0	30.0	48	19.3	35.4	65	07.1	54.1	204	52.9	02.9	Atria	108	06.3	S69 00.5
	20	144	56.3	116	49.5	31.2	63	20.1	35.4	80	09.1	54.2	219	55.3	02.9	Avior	234	25.6	S59 28.7
	21	159	58.8	131	49.1	32.3	78	20.8	35.5	95	11.0	54.3	234	57.7	02.9	Bellatrix	278	51.7	N 6 20.5
	22	175	01.3	146	48.6	33.5	93	21.6	35.6	110	12.9	54.4	250	00.2	02.9	Betelgeuse	271	21.2	N 7 24.4
23	190	03.7	161	48.2	34.6	108	22.4	35.7	125	14.8	54.5	265	02.6	02.9					
LUNES	17 00	205	06.2	176	47.7	N10 35.8	123	23.2	N24 35.8	140	16.8	N20 54.6	280	05.0	S22 02.9	Canopus	264	04.4	S52 41.5
	01	220	08.6	191	47.3	36.9	138	23.9	35.9	155	18.7	54.7	295	07.5	02.9	Capella	281	01.7	N45 59.5
	02	235	11.1	206	46.8	38.1	153	24.7	36.0	170	20.6	54.8	310	09.9	02.9	Deneb	49	44.1	N45 14.1
	03	250	13.6	221	46.3	39.2	168	25.5	36.1	185	22.5	54.9	325	12.4	02.9	Denebola	182	51.9	N14 37.8
	04	265	16.0	236	45.9	40.4	183	26.2	36.2	200	24.5	55.0	340	14.8	02.9	Diphda	349	14.4	S18 02.7
	05	280	18.5	251	45.4	41.5	198	27.0	36.2	215	26.4	55.1	355	17.2	02.9				
	06	295	21.0	266	45.0	N10 42.7	213	27.8	N24 36.3	230	28.3	N20 55.2	10	19.7	S22 02.9	Dubhe	194	13.0	N61 48.7
	07	310	23.4	281	44.5	43.8	228	28.5	36.4	245	30.2	55.3	25	22.1	02.9	Elnath	278	35.9	N28 36.1
	08	325	25.9	296	44.0	45.0	243	29.3	36.5	260	32.1	55.4	40	24.6	02.9	Eltanin	90	54.3	N51 29.0
	09	340	28.4	311	43.6	46.1	258	30.1	36.6	275	34.1	55.4	55	27.0	02.9	Enif	34	05.2	N 9 49.3
	10	355	30.8	326	43.1	47.3	273	30.9	36.7	290	36.0	55.5	70	29.4	02.9	Fomalhaut	15	44.1	S29 40.7
	11	10	33.3	341	42.7	48.4	288	31.6	36.8	305	37.9	55.6	85	31.9	02.9				
	12	25	35.8	356	42.2	N10 49.6	303	32.4	N24 36.9	320	39.8	N20 55.7	100	34.3	S22 02.9	Gacrux	172	21.0	S57 03.4
	13	40	38.2	11	41.7	50.7	318	33.2	36.9	335	41.8	55.8	115	36.8	02.9	Gienah	176	10.8	S17 29.2
	14	55	40.7	26	41.3	51.9	333	33.9	37.0	350	43.7	55.9	130	39.2	02.9	Hadar	149	13.5	S60 19.5
	15	70	43.1	41	40.8	53.0	348	34.7	37.1	5	45.6	56.0	145	41.6	02.9	Hamal	328	21.8	N23 24.7
	16	85	45.6	56	40.4	54.2	3	35.5	37.2	20	47.5	56.1	160	44.1	02.9	Kaus Aust.	84	07.8	S34 23.5
	17	100	48.1	71	39.9	55.3	18	36.3	37.3	35	49.5	56.2	175	46.5	02.9				
	18	115	50.5	86	39.4	N10 56.5	33	37.0	N24 37.4	50	51.4	N20 56.3	190	49.0	S22 02.8	Kochab	137	17.6	N74 11.7
	19	130	53.0	101	39.0	57.6	48	37.8	37.4	65	53.3	56.4	205	51.4	02.8	Markab	13	56.8	N15 08.7
	20	145	55.5	116	38.5	58.7	63	38.6	37.5	80	55.2	56.5	220	53.8	02.8	Menkar	314	34.4	N 4 02.9
	21	160	57.9	131	38.1	10 59.9	78	39.3	37.6	95	57.1	56.6	235	56.3	02.8	Menkent	148	28.8	S36 19.3
	22	176	00.4	146	37.6	11 01.0	93	40.1	37.7	110	59.1	56.6	250	58.7	02.8	Miaplacidus	221	43.6	S69 40.6
23	191	02.9	161	37.1	02.2	108	40.9	37.8	126	01.0	56.7	266	01.2	02.8					
MARTES	18 00	206	05.3	176	36.7	N11 03.3	123	41.6	N24 37.9	141	02.9	N20 56.8	281	03.6	S22 02.8	Mirfak	309	07.1	N49 49.6
	01	221	07.8	191	36.2	04.5	138	42.4	37.9	156	04.8	56.9	296	06.1	02.8	Nunki	76	20.7	S26 18.7
	02	236	10.3	206	35.7	05.6	153	43.2	38.0	171	06.7	57.0	311	08.5	02.8	Peacock	53	47.7	S56 46.1
	03	251	12.7	221	35.3	06.7	168	44.0	38.1	186	08.7	57.1	326	10.9	02.8	Pollux	243	49.9	N28 03.3
	04	266	15.2	236	34.8	07.9	183	44.7	38.2	201	10.6	57.2	341	13.4	02.8	Procyon	245	18.8	N 5 15.2
	05	281	17.6	251	34.3	09.0	198	45.5	38.3	216	12.5	57.3	356	15.8	02.8				
	06	296	20.1	266	33.9	N11 10.2	213	46.3	N24 38.3	231	14.4	N20 57.4	11	18.3	S22 02.8	Rasalhague	96	23.2	N12 33.7
	07	311	22.6	281	33.4	11.3	228	47.0	38.4	246	16.4	57.5	26	20.7	02.8	Regulus	208	02.6	N12 01.2
	08	326	25.0	296	32.9	12.4	243	47.8	38.5	261	18.3	57.6	41	23.2	02.8	Rigel	281	29.8	S 8 12.8
	09	341	27.5	311	32.5	13.6	258	48.6	38.6	276	20.2	57.7	56	25.6	02.8	Rigil Kent.	140	16.3	S60 47.6
	10	356	30.0	326	32.0	14.7	273	49.3	38.7	291	22.1	57.8	71	28.0	02.8	Sabik	102	33.2	S15 42.9
	11	11	32.4	341	31.5	15.8	288	50.1	38.7	306	24.0	57.8	86	30.5	02.8				
	12	26	34.9	356	31.1	N11 17.0	303	50.9	N24 38.8	321	26.0	N20 57.9	101	32.9	S22 02.8	Schedar	350	02.2	N56 28.6
	13	41	37.4	11	30.6	18.1	318	51.7	38.9	336	27.9	58.0	116	35.4	02.8	Shaula	96	46.4	S37 05.9
	14	56	39.8	26	30.1	19.2	333	52.4	39.0	351	29.8	58.1	131	37.8	02.8	Sirius	258	49.9	S16 42.2
	15	71	42.3	41	29.7	20.4	348	53.2	39.1	6	31.7	58.2	146	40.3	02.8				



T.M.G. (TU)	SOL				LUNA				Lat.	Crepúsculo		Orto Sol	Orto Luna								
	A.H.G.		Dec.		A.H.G.		Dec.			Náut.	Civil		16	17	18	19					
	o	'	o	'	o	'	o	'													
DOMINGO	16 00	180	01.6	N10	02.3	51	44.8	16.0	N11	42.8	13.1	54.5	N 72	///	01 38	03 28	13 01	15 01	16 57	18 57	
	01	195	01.8		03.1	66	19.8	16.0	11	29.7	13.0	54.5	N 70	///	02 21	03 46	13 16	15 05	16 52	18 42	
	02	210	01.9		04.0	80	54.8	16.0	11	16.7	13.1	54.4	68	///	02 49	04 01	13 27	15 09	16 48	18 30	
	03	225	02.1	..	04.9	95	29.8	16.2	11	03.6	13.2	54.4	66	01 24	03 10	04 12	13 36	15 11	16 45	18 21	
	04	240	02.2		05.8	110	05.0	16.1	10	50.4	13.1	54.4	64	02 03	03 26	04 22	13 44	15 14	16 42	18 13	
	05	255	02.4		06.7	124	40.1	16.3	10	37.3	13.2	54.4	62	02 28	03 40	04 31	13 50	15 16	16 40	18 06	
	06	270	02.5	N10	07.6	139	15.4	16.2	N10	24.1	13.3	54.4	60	02 48	03 51	04 38	13 56	15 18	16 38	18 00	
	07	285	02.7		08.5	153	50.6	16.4	10	10.8	13.3	54.4	N 58	03 04	04 01	04 44	14 01	15 19	16 37	17 55	
	08	300	02.8		09.4	168	26.0	16.3	9	57.5	13.3	54.4	56	03 17	04 09	04 50	14 05	15 20	16 35	17 50	
	09	315	03.0	..	10.2	183	01.3	16.5	9	44.2	13.3	54.3	54	03 28	04 17	04 55	14 09	15 22	16 34	17 46	
	10	330	03.1		11.1	197	36.8	16.4	9	30.9	13.4	54.3	52	03 38	04 23	04 59	14 13	15 23	16 32	17 42	
	11	345	03.3		12.0	212	12.2	16.5	9	17.5	13.3	54.3	50	03 47	04 29	05 03	14 16	15 24	16 31	17 39	
	12	0	03.4	N10	12.9	226	47.7	16.6	N	9	04.2	13.5	54.3	45	04 04	04 41	05 12	14 23	15 26	16 29	17 32
	13	15	03.6		13.8	241	23.3	16.6	8	50.7	13.4	54.3	N 40	04 18	04 51	05 19	14 28	15 28	16 27	17 26	
	14	30	03.7		14.7	255	58.9	16.6	8	37.3	13.5	54.3	35	04 28	05 00	05 26	14 33	15 29	16 25	17 21	
	15	45	03.8	..	15.5	270	34.5	16.7	8	23.8	13.5	54.3	30	04 37	05 07	05 31	14 38	15 31	16 23	17 16	
	16	60	04.0		16.4	285	10.2	16.7	8	10.3	13.5	54.3	20	04 52	05 18	05 41	14 45	15 33	16 21	17 09	
	17	75	04.1		17.3	299	45.9	16.7	7	56.8	13.5	54.3	N 10	05 02	05 27	05 49	14 52	15 35	16 18	17 02	
	18	90	04.3	N10	18.2	314	21.6	16.8	N	7	43.3	13.6	54.2	0	05 11	05 35	05 56	14 58	15 37	16 16	16 56
	19	105	04.4		19.1	328	57.4	16.8	7	29.7	13.6	54.2	S 10	05 18	05 42	06 04	15 04	15 39	16 14	16 49	
	20	120	04.6		20.0	343	33.2	16.9	7	16.1	13.6	54.2	20	05 23	05 49	06 11	15 11	15 42	16 12	16 43	
	21	135	04.7	..	20.8	358	09.1	16.9	7	02.5	13.7	54.2	30	05 28	05 56	06 20	15 18	15 44	16 09	16 35	
	22	150	04.9		21.7	12	45.0	16.9	6	48.8	13.6	54.2	35	05 30	06 00	06 25	15 22	15 45	16 08	16 31	
23	165	05.0		22.6	27	20.9	16.9	6	35.2	13.7	54.2	40	05 32	06 03	06 31	15 27	15 47	16 06	16 26		
												45	05 33	06 08	06 37	15 33	15 49	16 04	16 21		
LUNES	17 00	180	05.2	N10	23.5	41	56.8	17.0	N	6	21.5	13.7	54.2	S 50	05 35	06 12	06 45	15 39	15 51	16 02	16 14
	01	195	05.3		24.4	56	32.8	17.0	6	07.8	13.7	54.2	52	05 35	06 14	06 49	15 42	15 52	16 01	16 11	
	02	210	05.5		25.3	71	08.8	17.0	5	54.1	13.7	54.2	54	05 35	06 17	06 53	15 45	15 53	16 00	16 08	
	03	225	05.6	..	26.1	85	44.8	17.1	5	40.4	13.8	54.2	56	05 36	06 19	06 57	15 49	15 54	15 59	16 04	
	04	240	05.8		27.0	100	20.9	17.1	5	26.6	13.7	54.1	58	05 36	06 22	07 02	15 53	15 55	15 58	16 00	
	05	255	05.9		27.9	114	57.0	17.1	5	12.9	13.8	54.1	S 60	05 36	06 24	07 07	15 58	15 57	15 56	15 55	
	06	270	06.0	N10	28.8	129	33.1	17.1	N	4	59.1	13.8	54.1								
	07	285	06.2		29.7	144	09.2	17.2	4	45.3	13.8	54.1									
	08	300	06.3		30.5	158	45.4	17.2	4	31.5	13.8	54.1									
	09	315	06.5	..	31.4	173	21.6	17.2	4	17.7	13.8	54.1									
	10	330	06.6		32.3	187	57.8	17.2	4	03.9	13.9	54.1									
	11	345	06.8		33.2	202	34.0	17.2	3	50.0	13.8	54.1									
	12	0	06.9	N10	34.0	217	10.2	17.3	N	3	36.2	13.9	54.1	N 72	20 35	22 31	///	05 01	04 25	03 54	03 23
	13	15	07.1		34.9	231	46.5	17.3	3	22.3	13.9	54.1	N 70	20 16	21 44	///	04 44	04 18	03 54	03 31	
14	30	07.2		35.8	246	22.8	17.3	3	08.4	13.9	54.1	68	20 01	21 14	///	04 31	04 12	03 55	03 37		
15	45	07.3	..	36.7	260	59.1	17.3	2	54.5	13.8	54.1	66	19 49	20 53	22 44	04 20	04 07	03 55	03 42		
16	60	07.5		37.6	275	35.4	17.3	2	40.7	13.9	54.1	64	19 39	20 36	22 02	04 11	04 03	03 55	03 47		
17	75	07.6		38.4	290	11.7	17.3	2	26.8	13.9	54.1	62	19 30	20 22	21 34	04 03	03 59	03 55	03 51		
18	90	07.8	N10	39.3	304	48.0	17.3	N	2	12.9	14.0	54.1	60	19 23	20 10	21 14	03 56	03 56	03 55	03 54	
19	105	07.9		40.2	319	24.3	17.4	1	58.9	13.9	54.1	N 58	19 16	20 00	20 58	03 50	03 53	03 55	03 57		
20	120	08.1		41.1	334	00.7	17.3	1	45.0	13.9	54.0	56	19 11	19 52	20 44	03 45	03 50	03 55	04 00		
21	135	08.2	..	41.9	348	37.0	17.4	1	31.1	13.9	54.0	54	19 06	19 44	20 33	03 40	03 48	03 55	04 03		
22	150	08.4		42.8	3	13.4	17.4	1	17.2	13.9	54.0	52	19 01	19 37	20 23	03 36	03 46	03 55	04 05		
23	165	08.5		43.7	17	49.8	17.4	1	03.3	14.0	54.0	50	18 57	19 31	20 14	03 32	03 44	03 55	04 07		
												45	18 48	19 19	19 56	03 23	03 40	03 56	04 11		
MARTES	18 00	180	08.6	N10	44.6	32	26.2	17.3	N	0	49.3	13.9	54.0	N 40	18 40	19 09	19 42	03 15	03 36	03 56	04 15
	01	195	08.8		45.4	47	02.5	17.4	0	35.4	13.9	54.0	35	18 34	19 00	19 31	03 09	03 33	03 56	04 18	
	02	210	08.9		46.3	61	38.9	17.4	0	21.5	13.9	54.0	30	18 28	18 53	19 22	03 04	03 30	03 56	04 21	
	03	225	09.1	..	47.2	76	15.3	17.4	N	0	07.6	14.0	54.0	20	18 19	18 41	19 08	02 54	03 25	03 56	04 26
	04	240	09.2		48.0	90	51.7	17.4	S	0	06.4	13.9	54.0	N 10	18 11	18 32	18 57	02 45	03 21	03 56	04 31
	05	255	09.3		48.9	105	28.1	17.4	0	20.3	13.9	54.0	0	18 03	18 24	18 48	02 37	03 17	03 56	04 35	
	06	270	09.5	N10	49.8	120	04.5	17.4	S	0	34.2	14.0	54.0	S 10	17 55	18 17	18 41	02 29	03 13	03 56	04 39
	07	285	09.6		50.7	134	40.9	17.3	0	48.2	13.9	54.0	20	17 47	18 10	18 36	02 20	03 09	03 56	04 44	
	08	300	09.8		51.5	149	17.2	17.4	1	02.1	13.9	54.0	30	17 38	18 03	18 31	02 10	03 04	03 56	04 49	
	09	315	09.9	..	52.4	163	53.6	17.4	1	16.0	13.9	54.0	35	17 33	17 59	18 29	02 04	03 01	03 56	04 52	
	10	330	10.1		53.3	178	30.0	17.4	1	29.9	13.9	54.0	40	17 28	17 55	18 27	01 57	02 57	03 56	04 55	



T.M.G. (TU)	ARIES			VENUS -3.9			MARTE +1.5			JUPITER -2.0			SATURNO +0.5			ESTRELLAS					
	A.H.G.	A.H.G.	Dec.	A.H.G.	Dec.	A.H.G.	Dec.	A.H.G.	Dec.	A.H.G.	Dec.	A.H.G.	Dec.	Nombre	A. H. S.	Dec.					
M I E R C O L E S	19 00	207 04.5	176 25.4 N11	30.6	124 00.1 N24	39.7	141 49.0 N20	59.0	282 02.3 S22	02.8	Acomar	315 32.4 S40	20.8								
	01	222 06.9	191 25.0	31.7	139 00.9	39.8	156 50.9	59.1	297 04.7	02.8	Achernar	335 40.5 S57	17.4								
	02	237 09.4	206 24.5	32.8	154 01.7	39.9	171 52.8	59.2	312 07.2	02.8	Acrux	173 29.5 S63	02.6								
	03	252 11.9	221 24.0	34.0	169 02.4	40.0	186 54.7	59.3	327 09.6	02.8	Adhara	255 27.0 S28	57.6								
	04	267 14.3	236 23.5	35.1	184 03.2	40.0	201 56.7	59.4	342 12.1	02.8	Aldebaran	291 10.6 N16	29.4								
	05	282 16.8	251 23.1	36.2	199 04.0	40.1	216 58.6	59.5	357 14.5	02.8											
	06	297 19.2	266 22.6 N11	37.3	214 04.7 N24	40.2	232 00.5 N20	59.6	12 17.0 S22	02.8	Alioth	166 35.8 N56	01.0								
	07	312 21.7	281 22.1	38.5	229 05.5	40.3	247 02.4	59.7	27 19.4	02.8	Alkaid	153 12.5 N49	21.8								
	08	327 24.2	296 21.6	39.6	244 06.3	40.3	262 04.3	59.8	42 21.9	02.8	Al Na'ir	28 06.5 S47	00.7								
	09	342 26.6	311 21.2	40.7	259 07.0	40.4	277 06.2	59.9	57 24.3	02.8	Alnilam	276 05.0 S 1	12.5								
	10	357 29.1	326 20.7	41.9	274 07.8	40.5	292 08.2	00.0	72 26.8	02.8	Alphard	218 13.9 S 8	36.8								
	11	12 31.6	341 20.2	43.0	289 08.6	40.5	307 10.1	00.1	87 29.2	02.8											
	12	27 34.0	356 19.7 N11	44.1	304 09.3 N24	40.6	322 12.0 N21	00.2	102 31.6 S22	02.8	Alphecca	126 26.0 N26	44.7								
	13	42 36.5	11 19.3	45.2	319 10.1	40.7	337 13.9	00.2	117 34.1	02.8	Alpheratz	358 02.8 N29	01.8								
	14	57 39.0	26 18.8	46.4	334 10.9	40.7	352 15.8	00.3	132 36.5	02.8	Altair	62 26.0 N 8	50.1								
	15	72 41.4	41 18.3	47.5	349 11.6	40.8	7 17.7	00.4	147 39.0	02.8	Ankaa	353 33.8 S42	21.8								
	16	87 43.9	56 17.8	48.6	4 12.4	40.9	22 19.7	00.5	162 41.4	02.8	Antares	112 48.4 S26	24.7								
	17	102 46.4	71 17.3	49.7	19 13.2	41.0	37 21.6	00.6	177 43.9	02.8											
	18	117 48.8	86 16.9 N11	50.8	34 14.0 N24	41.0	52 23.5 N21	00.7	192 46.3 S22	02.8	Arcturus	146 11.9 N19	14.0								
	19	132 51.3	101 16.4	52.0	49 14.7	41.1	67 25.4	00.8	207 48.8	02.8	Atria	108 06.3 S69	00.5								
	20	147 53.7	116 15.9	53.1	64 15.5	41.2	82 27.3	00.9	222 51.2	02.8	Avior	234 25.6 S59	28.7								
	21	162 56.2	131 15.4	54.2	79 16.3	41.2	97 29.2	01.0	237 53.7	02.8	Bellatrix	278 51.8 N 6	20.5								
	22	177 58.7	146 14.9	55.3	94 17.0	41.3	112 31.2	01.1	252 56.1	02.8	Betelgeuse	271 21.2 N 7	24.4								
23	193 01.1	161 14.5	56.4	109 17.8	41.4	127 33.1	01.2	267 58.6	02.8												
J U E V E S	20 00	208 03.6	176 14.0 N11	57.6	124 18.6 N24	41.4	142 35.0 N21	01.3	283 01.0 S22	02.8	Canopus	264 04.5 S52	41.5								
	01	223 06.1	191 13.5	58.7	139 19.3	41.5	157 36.9	01.3	298 03.5	02.8	Capella	281 01.7 N45	59.5								
	02	238 08.5	206 13.0	59.8	154 20.1	41.6	172 38.8	01.4	313 05.9	02.8	Deneb	49 44.1 N45	14.1								
	03	253 11.0	221 12.5	00.9	169 20.9	41.6	187 40.7	01.5	328 08.4	02.8	Denebola	182 51.9 N14	37.8								
	04	268 13.5	236 12.1	02.0	184 21.6	41.7	202 42.6	01.6	343 10.9	02.8	Diphda	349 14.4 S18	02.7								
	05	283 15.9	251 11.6	03.2	199 22.4	41.8	217 44.6	01.7	358 13.3	02.8											
	06	298 18.4	266 11.1 N12	04.3	214 23.2 N24	41.8	232 46.5 N21	01.8	13 15.8 S22	02.8	Dubhe	194 13.0 N61	48.7								
	07	313 20.8	281 10.6	05.4	229 23.9	41.9	247 48.4	01.9	28 18.2	02.8	Elnath	278 35.9 N28	36.1								
	08	328 23.3	296 10.1	06.5	244 24.7	42.0	262 50.3	02.0	43 20.7	02.8	Eltanin	90 54.3 N51	29.0								
	09	343 25.8	311 09.6	07.6	259 25.5	42.0	277 52.2	02.1	58 23.1	02.8	Enif	34 05.1 N 9	49.3								
	10	358 28.2	326 09.2	08.7	274 26.2	42.1	292 54.1	02.2	73 25.6	02.8	Fomalhaut	15 44.1 S29	40.7								
	11	13 30.7	341 08.7	09.8	289 27.0	42.2	307 56.0	02.3	88 28.0	02.8											
	12	28 33.2	356 08.2 N12	11.0	304 27.8 N24	42.2	322 58.0 N21	02.4	103 30.5 S22	02.8	Gacrux	172 21.0 S57	03.4								
	13	43 35.6	11 07.7	12.1	319 28.5	42.3	337 59.9	02.4	118 32.9	02.8	Gienah	176 10.8 S17	29.2								
	14	58 38.1	26 07.2	13.2	334 29.3	42.3	353 01.8	02.5	133 35.4	02.8	Hadar	149 13.5 S60	19.5								
	15	73 40.6	41 06.7	14.3	349 30.1	42.4	8 03.7	02.6	148 37.8	02.8	Hamal	328 21.8 N23	24.7								
	16	88 43.0	56 06.2	15.4	4 30.8	42.5	23 05.6	02.7	163 40.3	02.8	Kaus Aust.	84 07.7 S34	23.5								
	17	103 45.5	71 05.7	16.5	19 31.6	42.5	38 07.5	02.8	178 42.7	02.8											
	18	118 48.0	86 05.3 N12	17.6	34 32.4 N24	42.6	53 09.4 N21	02.9	193 45.2 S22	02.8	Kochab	137 17.6 N74	11.7								
	19	133 50.4	101 04.8	18.7	49 33.1	42.7	68 11.4	03.0	208 47.6	02.8	Markab	13 56.8 N15	08.7								
	20	148 52.9	116 04.3	19.8	64 33.9	42.7	83 13.3	03.1	223 50.1	02.8	Menkar	314 34.4 N 4	02.9								
	21	163 55.3	131 03.8	20.9	79 34.7	42.8	98 15.2	03.2	238 52.6	02.8	Menkent	148 28.8 S36	19.3								
	22	178 57.8	146 03.3	22.1	94 35.4	42.8	113 17.1	03.3	253 55.0	02.8	Miaplacidus	221 43.7 S69	40.7								
23	194 00.3	161 02.8	23.2	109 36.2	42.9	128 19.0	03.4	268 57.5	02.8												
V I E R N E S	21 00	209 02.7	176 02.3 N12	24.3	124 37.0 N24	43.0	143 20.9 N21	03.5	283 59.9 S22	02.8	Mirfak	309 07.1 N49	49.6								
	01	224 05.2	191 01.8	25.4	139 37.7	43.0	158 22.8	03.5	299 02.4	02.8	Nunki	76 20.7 S26	18.7								
	02	239 07.7	206 01.3	26.5	154 38.5	43.1	173 24.7	03.6	314 04.8	02.8	Peacock	53 47.7 S56	46.1								
	03	254 10.1	221 00.9	27.6	169 39.3	43.1	188 26.6	03.7	329 07.3	02.8	Pollux	243 49.9 N28	03.3								
	04	269 12.6	236 00.4	28.7	184 40.0	43.2	203 28.6	03.8	344 09.7	02.8	Procyon	245 18.8 N 5	15.2								
	05	284 15.1	250 59.9	29.8	199 40.8	43.3	218 30.5	03.9	359 12.2	02.8											
	06	299 17.5	265 59.4 N12	30.9	214 41.6 N24	43.3	233 32.4 N21	04.0	14 14.7 S22	02.8	Rasalhague	96 23.1 N12	33.7								
	07	314 20.0	280 58.9	32.0	229 42.3	43.4	248 34.3	04.1	29 17.1	02.8	Regulus	208 02.7 N12	01.2								
	08	329 22.5	295 58.4	33.1	244 43.1	43.4	263 36.2	04.2	44 19.6	02.8	Rigel	281 29.8 S 8	12.8								
	09	344 24.9	310 57.9	34.2	259 43.9	43.5	278 38.1	04.3	59 22.0	02.8	Rigil Kent.	140 16.3 S60	47.6								
	10	359 27.4	325 57.4	35.3	274 44.6	43.5	293 40.0	04.4	74 24.5	02.8	Sabik	102 33.2 S15	42.9								
	11	14 29.8	340 56.9	36.4	289 45.4	43.6	308 41.9	04.5	89 26.9	02.8											
	12	29 32.3	355 56.4 N12	37.5	304 46.2 N24	43.7	323 43.9 N21	04.6	104 29.4 S22	02.8	Schedar	350 02.2 N56	28.6								
	13	44 34.8	10 55.9	38.6	319 46.9	43.7	338 45.8	04.6	119 31.9	02.8	Shaula	96 46.4 S37	05.9								
	14	59 37.2	25 55.4	39.7	334 47.7	43.8	353 47.7	04.7	134 34.3	02.8	Sirius	258 49.9 S16	42.1								
	15	74 39.7	40 54.9	40.8	349 48.5	43.8	8 49.6	04.8	149 36.8	02.8	Spica	158 50.2 S11	06.6								
	16	89 42.2	55 54.4	41.9	4 49.2	43.9	23 51.5	04.9	164 39.2	02.8	Suhail	223 05.9 S43	23.6								
	17	104 44.6	70 53.9	43.0	19 50.0	43.9	38 53.4	05.0	179 41.7	02.8											
	18	119 47.1	85 53.4 N12	44.1	34 50.8 N24	44.0	53 55.3 N21	05.1	194 44.2 S22	02.8	Vega	80 51.1 N38	46.0								
	19	134 49.6	100 52.9	45.2	49 51.5	44.0	68 57.2	05.2	209 46.6	02.8	Zuben'ubi	137 25.3 S16	00.1								
	20	149 52.0	115 52.4	46.3	64 52.3	44.1	83 59.1	05.3	224 49.1	02.8											
	21	164 54.5	130 51.9	47.4	79 53.1	44.1	99 01.0	05.4	239 51.5	02.8											
	22	179 56.9	145 51.4	48.5	94 53.8	44.2	114 03.0	05.5	254 54.0	02.8											
23	194 59.4	160 50.9	49.6	109 54.6	44.3	129 04.9	05.6	269 56.4	02.8												
Pas. Mer. 10 06.1																A. H. S.			Pas. Mer.		
v -0.5 d 1.1																o /			h m		
v 0.8 d 0.1																328 10.4			12 15		
v 1.9 d 0.1																276 15.0			15 42		
v 2.5 d 0.0																294 31.4			14 28		
																74 57.4			5 07		



T.M.G. (TU)	SOL		LUNA				Lat.	Crepúsculo		Orto Sol	Orto Luna						
	A.H.G.	Dec.	A.H.G.	v	Dec.	d		P.H.	Naut.		Civil	19	20	21	22		
																o	h
M I E R C O L O S	19 00	180 12.0	N11 05.4	22 58.2	17.2	S 4	43.8	13.7	54.0	N 72	///	00 57	03 10	18 57	21 19	h m	h m
	01	195 12.1	06.3	37 34.4	17.2	4	57.5	13.8	54.0	N 70	///	01 58	03 31	18 42	20 45	23 57	h m
	02	210 12.3	07.2	52 10.6	17.1	5	11.3	13.7	54.0	68	///	02 31	03 47	18 30	20 21	22 33	h m
	03	225 12.4	08.0	66 46.7	17.1	5	25.0	13.7	54.0	66	00 49	02 55	04 01	18 21	20 02	21 56	24 36
	04	240 12.6	08.9	81 22.8	17.1	5	38.7	13.7	54.0	64	01 43	03 14	04 12	18 13	19 47	21 30	23 27
	05	255 12.7	09.8	95 58.9	17.1	5	52.4	13.6	54.0	62	02 13	03 29	04 21	18 06	19 35	21 09	22 51
	06	270 12.8	N11 10.6	110 35.0	17.1	S 6	06.0	13.7	54.0	60	02 35	03 41	04 29	18 00	19 24	20 53	22 26
	07	285 13.0	11.5	125 11.1	17.0	6	19.7	13.6	54.0	N 58	02 53	03 52	04 36	17 55	19 15	20 39	22 06
	08	300 13.1	12.4	139 47.1	17.0	6	33.3	13.6	54.0	56	03 07	04 01	04 42	17 50	19 08	20 28	21 50
	09	315 13.2	13.2	154 23.1	16.9	6	46.9	13.6	54.0	54	03 20	04 09	04 48	17 46	19 01	20 17	21 36
	10	330 13.4	14.1	168 59.0	17.0	7	00.5	13.5	54.0	52	03 30	04 16	04 53	17 42	18 54	20 08	21 23
	11	345 13.5	15.0	183 35.0	16.9	7	14.0	13.6	54.0	50	03 39	04 23	04 57	17 39	18 49	20 00	21 13
	12	0 13.6	N11 15.8	198 10.9	16.8	S 7	27.6	13.5	54.0	45	03 58	04 36	05 07	17 32	18 36	19 43	20 50
	13	15 13.8	16.7	212 46.7	16.9	7	41.1	13.4	54.0	N 40	04 13	04 47	05 15	17 26	18 26	19 29	20 32
	14	30 13.9	17.5	227 22.6	16.8	7	54.5	13.5	54.0	35	04 24	04 56	05 22	17 21	18 18	19 17	20 18
	15	45 14.1	18.4	241 58.4	16.8	8	08.0	13.4	54.0	30	04 34	05 03	05 28	17 16	18 11	19 07	20 05
	16	60 14.2	19.3	256 34.2	16.7	8	21.4	13.4	54.0	20	04 49	05 16	05 38	17 09	17 58	18 49	19 43
	17	75 14.3	20.1	271 09.9	16.7	8	34.8	13.4	54.0	N 10	05 01	05 26	05 47	17 02	17 47	18 34	19 24
	18	90 14.5	N11 21.0	285 45.6	16.7	S 8	48.2	13.3	54.0	0	05 10	05 34	05 56	16 56	17 36	18 20	19 06
	19	105 14.6	21.8	300 21.3	16.6	9	01.5	13.3	54.0	S 10	05 18	05 42	06 04	16 49	17 26	18 06	18 48
	20	120 14.7	22.7	314 56.9	16.6	9	14.8	13.3	54.0	20	05 24	05 50	06 12	16 43	17 15	17 51	18 30
	21	135 14.9	23.6	329 32.5	16.5	9	28.1	13.3	54.0	30	05 30	05 58	06 22	16 35	17 03	17 34	18 08
	22	150 15.0	24.4	344 08.0	16.5	9	41.4	13.2	54.0	35	05 32	06 02	06 28	16 31	16 56	17 24	17 56
23	165 15.1	25.3	358 43.5	16.5	9	54.6	13.2	54.0	40	05 35	06 06	06 34	16 26	16 48	17 13	17 42	
20 00	180 15.3	N11 26.1	13 19.0	16.4	S10	07.8	13.1	54.0	45	05 37	06 11	06 41	16 21	16 39	16 59	17 25	
01	195 15.4	27.0	27 54.4	16.4	10	20.9	13.1	54.1	S 50	05 39	06 17	06 50	16 14	16 27	16 43	17 04	
02	210 15.5	27.9	42 29.8	16.3	10	34.0	13.1	54.1	52	05 40	06 19	06 54	16 11	16 22	16 36	16 54	
03	225 15.7	28.7	57 05.1	16.3	10	47.1	13.0	54.1	54	05 40	06 22	06 58	16 08	16 17	16 28	16 43	
04	240 15.8	29.6	71 40.4	16.3	11	00.1	13.0	54.1	56	05 41	06 25	07 03	16 04	16 10	16 19	16 31	
05	255 15.9	30.4	86 15.7	16.2	11	13.1	13.0	54.1	58	05 42	06 28	07 08	16 00	16 03	16 08	16 16	
06	270 16.1	N11 31.3	100 50.9	16.1	S11	26.1	12.9	54.1	S 60	05 43	06 31	07 15	15 55	15 55	15 56	15 59	
07	285 16.2	32.1	115 26.0	16.1	11	39.0	12.9	54.1	Lat.	Ocaso Sol	Crepúsculo Civil	Naut.	Ocaso Luna	19	20	21	22
08	300 16.3	33.0	130 01.1	16.1	11	51.9	12.8	54.1	N 72	h m	h m	h m	h m	h m	h m	h m	
09	315 16.5	33.9	144 36.2	16.0	12	04.7	12.8	54.1	N 70	20 52	23 21	///	03 23	02 47	01 52	h m	
10	330 16.6	34.7	159 11.2	15.9	12	17.5	12.8	54.1	68	20 30	22 07	///	03 31	03 04	02 27	00 47	
11	345 16.7	35.6	173 46.1	15.9	12	30.3	12.7	54.1	66	20 13	21 31	///	03 37	03 18	02 53	02 11	
12	0 16.9	N11 36.4	188 21.0	15.9	S12	43.0	12.7	54.1	66	19 59	21 06	23 27	03 42	03 29	03 13	02 50	
13	15 17.0	37.3	202 55.9	15.8	12	55.7	12.6	54.1	64	19 48	20 47	22 21	03 47	03 39	03 29	03 17	
14	30 17.1	38.1	217 30.7	15.7	13	08.3	12.6	54.1	62	19 39	20 31	21 49	03 51	03 47	03 42	03 38	
15	45 17.3	39.0	232 05.4	15.7	13	20.9	12.5	54.1	60	19 30	20 19	21 26	03 54	03 54	03 54	03 55	
16	60 17.4	39.8	246 40.1	15.6	13	33.4	12.5	54.1	N 58	19 23	20 08	21 07	03 57	04 00	04 04	04 10	
17	75 17.5	40.7	261 14.7	15.6	13	45.9	12.4	54.1	56	19 17	19 58	20 53	04 00	04 06	04 13	04 22	
18	90 17.6	N11 41.5	275 49.3	15.5	S13	58.3	12.4	54.2	54	19 11	19 50	20 40	04 03	04 11	04 20	04 33	
19	105 17.8	42.4	290 23.8	15.4	14	10.7	12.3	54.2	52	19 06	19 43	20 29	04 05	04 15	04 27	04 43	
20	120 17.9	43.3	304 58.2	15.4	14	23.0	12.3	54.2	50	19 01	19 36	20 20	04 07	04 19	04 34	04 52	
21	135 18.0	44.1	319 32.6	15.3	14	35.3	12.2	54.2	45	18 52	19 23	20 01	04 11	04 28	04 47	05 10	
22	150 18.2	45.0	334 06.9	15.3	14	47.5	12.2	54.2	N 40	18 43	19 12	19 46	04 15	04 36	04 59	05 25	
23	165 18.3	45.8	348 41.2	15.2	14	59.7	12.1	54.2	35	18 36	19 03	19 34	04 18	04 42	05 08	05 38	
21 00	180 18.4	N11 46.7	3 15.4	15.1	S15	11.8	12.1	54.2	30	18 30	18 55	19 24	04 21	04 48	05 17	05 49	
01	195 18.6	47.5	17 49.5	15.1	15	23.9	12.0	54.2	20	18 20	18 42	19 09	04 26	04 58	05 32	06 09	
02	210 18.7	48.4	32 23.6	15.0	15	35.9	11.9	54.2	N 10	18 11	18 32	18 57	04 31	05 07	05 45	06 26	
03	225 18.8	49.2	46 57.6	15.0	15	47.8	11.9	54.2	0	18 02	18 23	18 48	04 35	05 15	05 57	06 42	
04	240 18.9	50.1	61 31.6	14.9	15	59.7	11.8	54.2	S 10	17 54	18 15	18 40	04 39	05 23	06 09	06 58	
05	255 19.1	50.9	76 05.5	14.8	16	11.5	11.8	54.2	20	17 45	18 08	18 33	04 44	05 32	06 22	07 15	
06	270 19.2	N11 51.8	90 39.3	14.7	S16	23.3	11.7	54.2	30	17 35	18 00	18 28	04 49	05 42	06 37	07 34	
07	285 19.3	52.6	105 13.0	14.7	16	35.0	11.6	54.3	35	17 30	17 55	18 25	04 52	05 48	06 46	07 46	
08	300 19.5	53.5	119 46.7	14.6	16	46.6	11.6	54.3	40	17 23	17 51	18 23	04 55	05 55	06 56	07 59	
09	315 19.6	54.3	134 20.3	14.6	16	58.2	11.5	54.3	45	17 16	17 46	18 20	04 59	06 03	07 08	08 15	
10	330 19.7	55.2	148 53.9	14.5	17	09.7	11.5	54.3	S 50	17 07	17 40	18 18	05 04	06 12	07 23	08 35	
11	345 19.8	56.0	163 27.4	14.4	17	21.2	11.4	54.3	52	17 03	17 38	18 17	05 06	06 17	07 30	08 44	
12	0 20.0	N11 56.8	178 00.8	14.3	S17	32.6	11.3	54.3	54	16 59	17 35	18 16	05 08	06 22	07 37	08 55	
13	15 20.1	57.7	192 34.1	14.3	17	43.9	11.2	54.3	56	16 54	17 32	18 16	05 11	06 27	07 46	09 07	
14	30 20.2	58.5	207 07.4	14.2	17	55.1	11.2	54.3	58	16 48	17 29	18 15	05 14	06 33	07 55	09 20	
15	45 20.3	11 59.4	221 40.6	14.1	18	06.3	11.1	54.3	S 60	16 42	17 26	18 14	05 17	06 40	08 06	09 37	
16	60 20.5	12 00.2	236 13.7	14.0	18												



T.M.G. (TU)	ARIES	VENUS -3.9	MARTE +1.5	JUPITER -2.0	SATURNO +0.4	ESTRELLAS
d h	A.H.G.	A.H.G. Dec.	A.H.G. Dec.	A.H.G. Dec.	A.H.G. Dec.	Nombre A. H. S. Dec.
22 00	210 01.9	175 50.4 N12 50.7	124 55.4 N24 44.3	144 06.8 N21 05.6	284 58.9 S22 02.8	Acamar 315 32.4 S40 20.8
01	225 04.3	190 49.9 51.8	139 56.1 44.4	159 08.7 05.7	300 01.4 02.8	Achernar 335 40.5 S57 17.4
02	240 06.8	205 49.4 52.9	154 56.9 44.4	174 10.6 05.8	315 03.8 02.8	Acrux 173 29.5 S63 02.6
03	255 09.3	220 48.9 54.0	169 57.7 44.5	189 12.5 05.9	330 06.3 02.8	Adhara 255 27.0 S28 57.5
04	270 11.7	235 48.4 55.0	184 58.4 44.5	204 14.4 06.0	345 08.7 02.8	Aldebaran 291 10.6 N16 29.4
05	285 14.2	250 47.9 56.1	199 59.2 44.6	219 16.3 06.1	0 11.2 02.8	
06	300 16.7	265 47.4 N12 57.2	215 00.0 N24 44.6	234 18.2 N21 06.2	15 13.7 S22 02.8	Alioth 166 35.8 N56 01.0
07	315 19.1	280 46.9 58.3	230 00.7 44.7	249 20.1 06.3	30 16.1 02.8	Alkaid 153 12.5 N49 21.8
08	330 21.6	295 46.4 12 59.4	245 01.5 44.7	264 22.0 06.4	45 18.6 02.8	Al Na'ir 28 06.5 S47 00.7
09	345 24.1	310 45.9 13 00.5	260 02.3 44.8	279 24.0 06.5	60 21.1 02.8	Anilam 276 05.1 S 1 12.5
10	0 26.5	325 45.4 01.6	275 03.0 44.8	294 25.9 06.6	75 23.5 02.8	Alphard 218 13.9 S 8 36.8
11	15 29.0	340 44.9 02.7	290 03.8 44.9	309 27.8 06.6	90 26.0 02.8	
12	30 31.4	355 44.4 N13 03.8	305 04.6 N24 44.9	324 29.7 N21 06.7	105 28.4 S22 02.8	Alphecca 126 26.0 N26 44.7
13	45 33.9	10 43.9 04.8	320 05.3 45.0	339 31.6 06.8	120 30.9 02.8	Alpheratz 358 02.8 N29 01.8
14	60 36.4	25 43.4 05.9	335 06.1 45.0	354 33.5 06.9	135 33.4 02.8	Altair 62 25.9 N 8 50.1
15	75 38.8	40 42.9 07.0	350 06.9 45.1	9 35.4 07.0	150 35.8 02.8	Ankaa 353 33.8 S42 21.8
16	90 41.3	55 42.4 08.1	5 07.6 45.1	24 37.3 07.1	165 38.3 02.8	Antares 112 48.3 S26 24.7
17	105 43.8	70 41.9 09.2	20 08.4 45.1	39 39.2 07.2	180 40.7 02.8	
18	120 46.2	85 41.4 N13 10.3	35 09.2 N24 45.2	54 41.1 N21 07.3	195 43.2 S22 02.8	Arcturus 146 11.9 N19 14.0
19	135 48.7	100 40.9 11.4	50 09.9 45.2	69 43.0 07.4	210 45.7 02.8	Atria 108 06.3 S69 00.6
20	150 51.2	115 40.4 12.4	65 10.7 45.3	84 44.9 07.5	225 48.1 02.8	Avior 234 25.6 S59 28.7
21	165 53.6	130 39.9 13.5	80 11.5 45.3	99 46.8 07.6	240 50.6 02.8	Bellatrix 278 51.8 N 6 20.5
22	180 56.1	145 39.4 14.6	95 12.2 45.4	114 48.8 07.6	255 53.1 02.8	Betelgeuse 271 21.2 N 7 24.4
23	195 58.6	160 38.9 15.7	110 13.0 45.4	129 50.7 07.7	270 55.5 02.8	
23 00	211 01.0	175 38.3 N13 16.8	125 13.8 N24 45.5	144 52.6 N21 07.8	285 58.0 S22 02.8	Canopus 264 04.5 S52 41.5
01	226 03.5	190 37.8 17.9	140 14.5 45.5	159 54.5 07.9	301 00.5 02.8	Capella 281 01.7 N45 59.5
02	241 05.9	205 37.3 18.9	155 15.3 45.6	174 56.4 08.0	316 02.9 02.8	Deneb 49 44.1 N45 14.1
03	256 08.4	220 36.8 20.0	170 16.1 45.6	189 58.3 08.1	331 05.4 02.8	Denebola 182 51.9 N14 37.8
04	271 10.9	235 36.3 21.1	185 16.8 45.6	205 00.2 08.2	346 07.9 02.8	Diphda 349 14.4 S18 02.7
05	286 13.3	250 35.8 22.2	200 17.6 45.7	220 02.1 08.3	1 10.3 02.8	
06	301 15.8	265 35.3 N13 23.2	215 18.4 N24 45.7	235 04.0 N21 08.4	16 12.8 S22 02.8	Dubhe 194 13.1 N61 48.7
07	316 18.3	280 34.8 24.3	230 19.1 45.8	250 05.9 08.5	31 15.2 02.8	El Nath 278 35.9 N28 36.1
08	331 20.7	295 34.3 25.4	245 19.9 45.8	265 07.8 08.6	46 17.7 02.8	Eltanin 90 54.3 N51 29.0
09	346 23.2	310 33.7 26.5	260 20.6 45.9	280 09.7 08.6	61 20.2 02.8	Enif 34 05.1 N 9 49.3
10	1 25.7	325 33.2 27.6	275 21.4 45.9	295 11.6 08.7	76 22.6 02.8	Fomalhaut 15 44.1 S29 40.7
11	16 28.1	340 32.7 28.6	290 22.2 45.9	310 13.5 08.8	91 25.1 02.8	
12	31 30.6	355 32.2 N13 29.7	305 22.9 N24 46.0	325 15.4 N21 08.9	106 27.6 S22 02.8	Gacrux 172 21.0 S57 03.5
13	46 33.1	10 31.7 30.8	320 23.7 46.0	340 17.3 09.0	121 30.0 02.8	Gienah 176 10.8 S17 29.2
14	61 35.5	25 31.2 31.8	335 24.5 46.1	355 19.2 09.1	136 32.5 02.8	Hadar 149 13.5 S60 19.5
15	76 38.0	40 30.7 32.9	350 25.2 46.1	10 21.1 09.2	151 35.0 02.8	Hamal 328 21.8 N23 24.7
16	91 40.4	55 30.1 34.0	5 26.0 46.1	25 23.1 09.3	166 37.4 02.8	Kaus Aust. 84 07.7 S34 23.5
17	106 42.9	70 29.6 35.1	20 26.8 46.2	40 25.0 09.4	181 39.9 02.8	
18	121 45.4	85 29.1 N13 36.1	35 27.5 N24 46.2	55 26.9 N21 09.5	196 42.4 S22 02.8	Kochab 137 17.6 N74 11.8
19	136 47.8	100 28.6 37.2	50 28.3 46.3	70 28.8 09.5	211 44.8 02.8	Markab 13 56.7 N15 08.7
20	151 50.3	115 28.1 38.3	65 29.1 46.3	85 30.7 09.6	226 47.3 02.8	Menkar 314 34.4 N 4 02.9
21	166 52.8	130 27.6 39.3	80 29.8 46.3	100 32.6 09.7	241 49.8 02.8	Menkent 148 28.8 S36 19.3
22	181 55.2	145 27.0 40.4	95 30.6 46.4	115 34.5 09.8	256 52.3 02.8	Miaplacidus 221 43.7 S69 40.7
23	196 57.7	160 26.5 41.5	110 31.4 46.4	130 36.4 09.9	271 54.7 02.8	
24 00	212 00.2	175 26.0 N13 42.5	125 32.1 N24 46.5	145 38.3 N21 10.0	286 57.2 S22 02.8	Mirfak 309 07.1 N49 49.6
01	227 02.6	190 25.5 43.6	140 32.9 46.5	160 40.2 10.1	301 59.7 02.8	Nunki 76 20.7 S26 18.7
02	242 05.1	205 25.0 44.7	155 33.7 46.5	175 42.1 10.2	317 02.1 02.8	Peacock 53 47.6 S56 46.1
03	257 07.5	220 24.4 45.7	170 34.4 46.6	190 44.0 10.3	332 04.6 02.8	Pollux 243 50.0 N28 03.3
04	272 10.0	235 23.9 46.8	185 35.2 46.6	205 45.9 10.4	347 07.1 02.8	Procyon 245 18.8 N 5 15.2
05	287 12.5	250 23.4 47.9	200 35.9 46.6	220 47.8 10.4	2 09.5 02.8	
06	302 14.9	265 22.9 N13 48.9	215 36.7 N24 46.7	235 49.7 N21 10.5	17 12.0 S22 02.8	Rasalhague 96 23.1 N12 33.7
07	317 17.4	280 22.4 50.0	230 37.5 46.7	250 51.6 10.6	32 14.5 02.8	Regulus 208 02.7 N12 01.2
08	332 19.9	295 21.8 51.1	245 38.2 46.7	265 53.5 10.7	47 16.9 02.8	Rigel 281 29.8 S 8 12.8
09	347 22.3	310 21.3 52.1	260 39.0 46.8	280 55.4 10.8	62 19.4 02.8	Rigel Kent. 140 16.2 S60 47.6
10	2 24.8	325 20.8 53.2	275 39.8 46.8	295 57.3 10.9	77 21.9 02.8	Sabik 102 33.2 S15 42.9
11	17 27.3	340 20.3 54.2	290 40.5 46.9	310 59.2 11.0	92 24.4 02.8	
12	32 29.7	355 19.7 N13 55.3	305 41.3 N24 46.9	326 01.1 N21 11.1	107 26.8 S22 02.8	Schedar 350 02.2 N56 28.6
13	47 32.2	10 19.2 56.4	320 42.1 46.9	341 03.0 11.2	122 29.3 02.8	Shaula 96 46.4 S37 05.9
14	62 34.7	25 18.7 57.4	335 42.8 47.0	356 04.9 11.3	137 31.8 02.8	Sirius 258 49.9 S16 42.1
15	77 37.1	40 18.2 58.5	350 43.6 47.0	11 06.8 11.3	152 34.2 02.8	Spica 158 50.2 S11 06.6
16	92 39.6	55 17.6 13 59.5	5 44.4 47.0	26 08.7 11.4	167 36.7 02.8	Suhail 223 05.9 S43 23.6
17	107 42.0	70 17.1 14 00.6	20 45.1 47.0	41 10.6 11.5	182 39.2 02.8	
18	122 44.5	85 16.6 N14 01.7	35 45.9 N24 47.1	56 12.5 N21 11.6	197 41.7 S22 02.8	Vega 80 51.1 N38 46.0
19	137 47.0	100 16.1 02.7	50 46.6 47.1	71 14.4 11.7	212 44.1 02.8	Zuben'ubi 137 25.3 S16 00.1
20	152 49.4	115 15.5 03.8	65 47.4 47.1	86 16.3 11.8	227 46.6 02.8	
21	167 51.9	130 15.0 04.8	80 48.2 47.2	101 18.2 11.9	242 49.1 02.8	
22	182 54.4	145 14.5 05.9	95 48.9 47.2	116 20.1 12.0	257 51.5 02.8	
23	197 56.8	160 13.9 06.9	110 49.7 47.2	131 22.0 12.1	272 54.0 02.8	
Pas. Mer.	h m 9 54.3	v -0.5 d 1.1	v 0.8 d 0.0	v 1.9 d 0.1	v 2.5 d 0.0	
						A. H. S. Pas. Mer. h m
						Venus 324 37.3 12 18
						Marte 274 12.7 15 38
						Júpitar 293 51.5 14 19
						Saturno 74 57.0 4 55



T.M.G. (TU)	SOL				LUNA				Lat.	Crepúsculo		Orto Sol	Orto Luna			
	A.H.G.	Dec.	A.H.G.	Dec.	<i>v</i>	<i>d</i>	P.H.	Naut.		Civil	22		23	24	25	
S A B A D O	22 00	180 21.5	N12 07.0	352 36.0	13.4	S19 43.7	10.4	54.4	N 72	///	///	02 51	■	■	■	■
	01	195 21.6	07.8	7 08.4	13.4	19 54.1	10.3	54.4	N 70	///	01 30	03 15	■	■	■	■
	02	210 21.7	08.7	21 40.8	13.3	20 04.4	10.3	54.5	68	///	02 12	03 34	■	■	■	■
	03	225 21.8	09.5	36 13.1	13.2	20 14.7	10.2	54.5	66	///	02 40	03 49	24 36	00 36	■	■
	04	240 22.0	10.4	50 45.3	13.1	20 24.9	10.1	54.5	64	01 19	03 01	04 01	23 27	■	■	■
	05	255 22.1	11.2	65 17.4	13.1	20 35.0	10.0	54.5	62	01 57	03 18	04 12	22 51	24 42	00 42	02 53
	06	270 22.2	N12 12.0	79 49.5	12.9	S20 45.0	10.0	54.5	60	02 22	03 31	04 20	22 26	24 00	00 00	01 25
	07	285 22.3	12.9	94 21.4	12.9	20 55.0	9.8	54.5	N 58	02 42	03 43	04 28	22 06	23 32	24 49	00 49
	08	300 22.5	13.7	108 53.3	12.8	21 04.8	9.8	54.5	56	02 58	03 53	04 35	21 50	23 10	24 23	00 23
	09	315 22.6	14.6	123 25.1	12.8	21 14.6	9.6	54.5	54	03 11	04 02	04 41	21 36	22 53	24 02	00 02
	10	330 22.7	15.4	137 56.9	12.6	21 24.2	9.6	54.5	52	03 22	04 09	04 46	21 23	22 37	23 45	24 41
	11	345 22.8	16.2	152 28.5	12.6	21 33.8	9.5	54.6	50	03 32	04 16	04 51	21 13	22 24	23 31	24 27
	12	0 23.0	N12 17.1	167 00.1	12.5	S21 43.3	9.4	54.6	45	03 52	04 31	05 02	20 50	21 57	23 01	23 57
	13	15 23.1	17.9	181 31.6	12.4	21 52.7	9.3	54.6	N 40	04 08	04 42	05 11	20 32	21 36	22 38	23 34
	14	30 23.2	18.7	196 03.0	12.3	22 02.0	9.2	54.6	35	04 20	04 52	05 18	20 18	21 19	22 18	23 14
	15	45 23.3	19.6	210 34.3	12.3	22 11.2	9.1	54.6	30	04 30	05 00	05 25	20 05	21 04	22 02	22 58
	16	60 23.4	20.4	225 05.6	12.1	22 20.3	9.1	54.6	20	04 47	05 13	05 36	19 43	20 38	21 34	22 30
	17	75 23.6	21.3	239 36.7	12.1	22 29.4	8.9	54.6	N 10	04 59	05 24	05 46	19 24	20 16	21 11	22 06
	18	90 23.7	N12 22.1	254 07.8	12.0	S22 38.3	8.8	54.7	0	05 09	05 34	05 55	19 06	19 56	20 49	21 44
	19	105 23.8	22.9	268 38.8	11.9	22 47.1	8.7	54.7	S 10	05 18	05 42	06 04	18 48	19 36	20 27	21 21
	20	120 23.9	23.8	283 09.7	11.9	22 55.8	8.6	54.7	20	05 25	05 51	06 13	18 30	19 14	20 03	20 57
	21	135 24.0	24.6	297 40.6	11.7	23 04.4	8.6	54.7	30	05 31	05 59	06 24	18 08	18 49	19 36	20 30
	22	150 24.2	25.4	312 11.3	11.7	23 13.0	8.4	54.7	35	05 34	06 04	06 30	17 56	18 34	19 20	20 13
23	165 24.3	26.3	326 42.0	11.6	23 21.4	8.3	54.7	40	05 37	06 09	06 37	17 42	18 17	19 01	19 54	
23 00	180 24.4	N12 27.1	341 12.6	11.5	S23 29.7	8.2	54.7	45	05 40	06 15	06 45	17 25	17 57	18 38	19 31	
01	195 24.5	27.9	355 43.1	11.4	23 37.9	8.1	54.8	S 50	05 43	06 21	06 54	17 04	17 32	18 10	19 01	
02	210 24.6	28.8	10 13.5	11.4	23 46.0	8.0	54.8	52	05 44	06 24	06 59	16 54	17 20	17 56	18 46	
03	225 24.8	29.6	24 43.9	11.2	23 54.0	7.9	54.8	54	05 45	06 27	07 04	16 43	17 06	17 39	18 29	
04	240 24.9	30.4	39 14.1	11.2	24 01.9	7.8	54.8	56	05 47	06 30	07 09	16 31	16 50	17 20	18 08	
05	255 25.0	31.3	53 44.3	11.1	24 09.7	7.6	54.8	58	05 48	06 34	07 15	16 16	16 30	16 56	17 43	
06	270 25.1	N12 32.1	68 14.4	11.0	S24 17.3	7.6	54.8	S 60	05 49	06 38	07 22	15 59	16 07	16 24	17 07	
07	285 25.2	32.9	82 44.4	11.0	24 24.9	7.5	54.8	Lat.	Ocaso Sol	Crepúsculo Civil	Naut.	Ocaso Luna				
08	300 25.4	33.8	97 14.4	10.8	24 32.4	7.3	54.9	N 72	21 11	///	///	h m	h m	h m	h m	
09	315 25.5	34.6	111 44.2	10.8	24 39.7	7.2	54.9	N 70	20 45	22 36	///	00 47	■	■	■	
10	330 25.6	35.4	126 14.0	10.7	24 46.9	7.1	54.9	68	20 25	21 49	///	02 11	■	■	■	
11	345 25.7	36.3	140 43.7	10.6	24 54.0	7.0	54.9	66	20 10	21 20	///	02 50	01 47	■	■	
12	0 25.8	N12 37.1	155 13.3	10.6	S25 01.0	6.9	54.9	64	19 57	20 59	22 46	03 17	02 58	■	■	
13	15 26.0	37.9	169 42.9	10.4	25 07.9	6.7	54.9	62	19 47	20 41	22 05	03 38	03 33	03 28	03 08	
14	30 26.1	38.8	184 12.3	10.4	25 14.6	6.7	55.0	60	19 38	20 27	21 38	03 55	03 59	04 10	04 36	
15	45 26.2	39.6	198 41.7	10.3	25 21.3	6.5	55.0	N 58	19 30	20 16	21 18	04 10	04 20	04 38	05 13	
16	60 26.3	40.4	213 11.0	10.3	25 27.8	6.4	55.0	56	19 23	20 05	21 01	04 22	04 37	05 00	05 39	
17	75 26.4	41.2	227 40.3	10.1	25 34.2	6.2	55.0	54	19 17	19 56	20 48	04 33	04 51	05 19	05 59	
18	90 26.5	N12 42.1	242 09.4	10.1	S25 40.4	6.2	55.0	52	19 11	19 49	20 36	04 43	05 04	05 34	06 17	
19	105 26.6	42.9	256 38.5	10.0	25 46.6	6.0	55.0	50	19 06	19 42	20 26	04 52	05 15	05 47	06 32	
20	120 26.8	43.7	271 07.5	9.9	25 52.6	5.9	55.1	45	18 55	19 27	20 06	05 10	05 39	06 15	07 01	
21	135 26.9	44.5	285 36.4	9.9	25 58.5	5.8	55.1	N 40	18 46	19 15	19 50	05 25	05 57	06 37	07 25	
22	150 27.0	45.4	300 05.3	9.8	26 04.3	5.6	55.1	35	18 39	19 05	19 37	05 38	06 13	06 55	07 44	
23	165 27.1	46.2	314 34.1	9.7	26 09.9	5.5	55.1	30	18 32	18 57	19 27	05 49	06 27	07 10	08 01	
24 00	180 27.2	N12 47.0	329 02.8	9.6	S26 15.4	5.4	55.1	20	18 21	18 43	19 10	06 09	06 50	07 37	08 29	
01	195 27.3	47.9	343 31.4	9.6	26 20.8	5.3	55.1	N 10	18 11	18 32	18 58	06 26	07 11	08 00	08 53	
02	210 27.5	48.7	358 00.0	9.5	26 26.1	5.1	55.2	0	18 02	18 23	18 47	06 42	07 30	08 21	09 15	
03	225 27.6	49.5	12 28.5	9.4	26 31.2	5.0	55.2	S 10	17 53	18 14	18 39	06 58	07 49	08 42	09 37	
04	240 27.7	50.3	26 56.9	9.4	26 36.2	4.8	55.2	20	17 43	18 06	18 32	07 15	08 09	09 05	10 01	
05	255 27.8	51.2	41 25.3	9.2	26 41.0	4.8	55.2	30	17 32	17 57	18 25	07 34	08 33	09 32	10 29	
06	270 27.9	N12 52.0	55 53.5	9.3	S26 45.8	4.6	55.2	35	17 26	17 52	18 22	07 46	08 47	09 48	10 46	
07	285 28.0	52.8	70 21.8	9.1	26 50.4	4.4	55.2	40	17 19	17 47	18 19	07 59	09 03	10 06	11 05	
08	300 28.1	53.6	84 49.9	9.1	26 54.8	4.3	55.3	45	17 11	17 41	18 16	08 15	09 23	10 28	11 28	
09	315 28.3	54.4	99 18.0	9.0	26 59.1	4.2	55.3	S 50	17 01	17 35	18 13	08 35	09 47	10 56	11 58	
10	330 28.4	55.3	113 46.0	9.0	27 03.3	4.1	55.3	52	16 57	17 32	18 11	08 44	09 59	11 10	12 13	
11	345 28.5	56.1	128 14.0	8.9	27 07.4	3.9	55.3	54	16 52	17 29	18 10	08 55	10 13	11 26	12 30	
12	0 28.6	N12 56.9	142 41.9	8.8	S27 11.3	3.7	55.3	56	16 47	17 26	18 09	09 07	10 28	11 46	12 50	
13	15 28.7	57.7	157 09.7	8.8	27 15.0	3.7	55.4	58	16 41	17 22	18 08	09 20	10 47	12 09	13 16	
14	30 28.8	58.6	171 37.5	8.8	27 18.7	3.5	55.4	S 60	16 34	17 18	18 06	09 37	11 10	12 41	13 52	
15	45 28.9	59.4	186 05.3	8.6	27 22.2	3.3	55.4	Día	SOL E.T. (+)		LUNA					
16	60 29.0	13 00.2	200 32.9	8.6	27 25.5	3.2	55.4	00 h	12 h	Pas. Mer.	Pas. Mer. Sup.	Mer. Inf.	Edad	Fase		
17	75 29.1	01.0	215 00.5	8.6	27 28.7	3.1	55.4	m s	m s	h m	h m	h m	d			
18	90 29.3	N13 01.8	229 28.1	8.5	S27 31.8	2.9	55.5	22	01 26	01 32	11 58	00 31	12 54	16	○	
19	105 29.4	02.6	243 55.6	8.4	27 34.7	2.7	55.5	23	01 37	01 43	11 58	01 18	13 43	17		
20	120 29.5	03.5	258 23.0	8.4	27 37.4	2.7	55.5	24								



T.M.G. (TU)	ARIES	VENUS -3.9	MARTE +1.6	JUPITER -2.0	SATURNO +0.4	ESTRELLAS	
d h	A.H.G.	A.H.G. Dec.	A.H.G. Dec.	A.H.G. Dec.	A.H.G. Dec.	Nombre A. H. S. Dec.	
MARTES	25 00	212 59.3	175 13.4 N14 08.0	125 50.5 N24 47.3	146 23.9 N21 12.2	287 56.5 S22 02.8	Acamar 315 32.4 S40 20.8
	01	228 01.8	190 12.9 09.0	140 51.2 47.3	161 25.8 12.2	302 59.0 02.8	Achernar 335 40.5 S57 17.3
	02	243 04.2	205 12.4 10.1	155 52.0 47.3	176 27.7 12.3	318 01.4 02.8	Acruz 173 29.5 S63 02.7
	03	258 06.7	220 11.8 11.1	170 52.8 47.4	191 29.6 12.4	333 03.9 02.8	Adhara 255 27.0 S28 57.5
	04	273 09.2	235 11.3 12.2	185 53.5 47.4	206 31.6 12.5	348 06.4 02.8	Aldebaran 291 10.6 N16 29.4
	05	288 11.6	250 10.8 13.2	200 54.3 47.4	221 33.5 12.6	3 08.9 02.8	
	06	303 14.1	265 10.2 N14 14.3	215 55.0 N24 47.4	236 35.4 N21 12.7	18 11.3 S22 02.8	Alioth 166 35.8 N56 01.0
	07	318 16.5	280 09.7 15.3	230 55.8 47.5	251 37.3 12.8	33 13.8 02.8	Alkaid 153 12.5 N49 21.9
	08	333 19.0	295 09.2 16.4	245 56.6 47.5	266 39.2 12.9	48 16.3 02.8	Al Na'ir 28 06.5 S47 00.7
	09	348 21.5	310 08.6 17.4	260 57.3 47.5	281 41.1 13.0	63 18.8 02.8	Alnilam 276 05.1 S 1 12.5
	10	3 23.9	325 08.1 18.5	275 58.1 47.6	296 43.0 13.1	78 21.2 02.8	Alphard 218 13.9 S 8 36.8
	11	18 26.4	340 07.6 19.5	290 58.9 47.6	311 44.9 13.1	93 23.7 02.8	
	12	33 28.9	355 07.0 N14 20.6	305 59.6 N24 47.6	326 46.8 N21 13.2	108 26.2 S22 02.8	Alphecca 126 26.0 N26 44.7
	13	48 31.3	10 06.5 21.6	321 00.4 47.6	341 48.7 13.3	123 28.7 02.8	Alpheratz 358 02.8 N29 01.8
	14	63 33.8	25 06.0 22.7	336 01.2 47.7	356 50.6 13.4	138 31.1 02.9	Altair 62 25.9 N 8 50.1
	15	78 36.3	40 05.4 23.7	351 01.9 47.7	11 52.5 13.5	153 33.6 02.9	Ankaa 353 33.8 S42 21.7
	16	93 38.7	55 04.9 24.8	6 02.7 47.7	26 54.4 13.6	168 36.1 02.9	Antares 112 48.3 S26 24.7
	17	108 41.2	70 04.4 25.8	21 03.5 47.7	41 56.2 13.7	183 38.6 02.9	
	18	123 43.6	85 03.8 N14 26.8	36 04.2 N24 47.8	56 58.1 N21 13.8	198 41.0 S22 02.9	Arcturus 146 11.9 N19 14.1
	19	138 46.1	100 03.3 27.9	51 05.0 47.8	72 00.0 13.9	213 43.5 02.9	Atria 108 06.2 S69 00.6
	20	153 48.6	115 02.7 28.9	66 05.7 47.8	87 01.9 13.9	228 46.0 02.9	Avior 234 25.7 S59 28.7
	21	168 51.0	130 02.2 30.0	81 06.5 47.8	102 03.8 14.0	243 48.5 02.9	Bellatrix 278 51.8 N 6 20.5
	22	183 53.5	145 01.7 31.0	96 07.3 47.9	117 05.7 14.1	258 50.9 02.9	Betelgeuse 271 21.2 N 7 24.4
23	198 56.0	160 01.1 32.0	111 08.0 47.9	132 07.6 14.2	273 53.4 02.9		
MIÉRCOLES	26 00	213 58.4	175 00.6 N14 33.1	126 08.8 N24 47.9	147 09.5 N21 14.3	288 55.9 S22 02.9	Canopus 264 04.5 S52 41.5
	01	229 00.9	190 00.0 34.1	141 09.6 47.9	162 11.4 14.4	303 58.4 02.9	Capella 281 01.7 N45 59.5
	02	244 03.4	204 59.5 35.2	156 10.3 47.9	177 13.3 14.5	319 00.8 02.9	Deneb 49 44.0 N45 14.1
	03	259 05.8	219 59.0 36.2	171 11.1 48.0	192 15.2 14.6	334 03.3 02.9	Denebola 182 51.9 N14 37.8
	04	274 08.3	234 58.4 37.2	186 11.8 48.0	207 17.1 14.7	349 05.8 02.9	Diphda 349 14.3 S18 02.7
	05	289 10.8	249 57.9 38.3	201 12.6 48.0	222 19.0 14.8	4 08.3 02.9	
	06	304 13.2	264 57.3 N14 39.3	216 13.4 N24 48.0	237 20.9 N21 14.8	19 10.8 S22 02.9	Dubhe 194 13.1 N61 48.7
	07	319 15.7	279 56.8 40.3	231 14.1 48.0	252 22.8 14.9	34 13.2 02.9	Elnath 278 35.9 N28 36.1
	08	334 18.1	294 56.3 41.4	246 14.9 48.1	267 24.7 15.0	49 15.7 02.9	Eltanin 90 54.3 N51 29.0
	09	349 20.6	309 55.7 42.4	261 15.7 48.1	282 26.6 15.1	64 18.2 02.9	Enif 34 05.1 N 9 49.3
	10	4 23.1	324 55.2 43.4	276 16.4 48.1	297 28.5 15.2	79 20.7 02.9	Fomalhaut 15 44.1 S29 40.7
	11	19 25.5	339 54.6 44.5	291 17.2 48.1	312 30.4 15.3	94 23.2 02.9	
	12	34 28.0	354 54.1 N14 45.5	306 18.0 N24 48.1	327 32.3 N21 15.4	109 25.6 S22 02.9	Gacrux 172 21.0 S57 03.5
	13	49 30.5	9 53.5 46.5	321 18.7 48.2	342 34.2 15.5	124 28.1 02.9	Gienah 176 10.8 S17 29.2
	14	64 32.9	24 53.0 47.6	336 19.5 48.2	357 36.1 15.6	139 30.6 02.9	Hadar 149 13.5 S60 19.5
	15	79 35.4	39 52.4 48.6	351 20.2 48.2	12 38.0 15.6	154 33.1 02.9	Hamal 328 21.7 N23 24.7
	16	94 37.9	54 51.9 49.6	6 21.0 48.2	27 39.9 15.7	169 35.6 02.9	Kaus Aust. 84 07.7 S34 23.5
	17	109 40.3	69 51.3 50.6	21 21.8 48.2	42 41.8 15.8	184 38.0 02.9	
	18	124 42.8	84 50.8 N14 51.7	36 22.5 N24 48.3	57 43.7 N21 15.9	199 40.5 S22 02.9	Kochab 137 17.5 N74 11.8
	19	139 45.3	99 50.3 52.7	51 23.3 48.3	72 45.6 16.0	214 43.0 02.9	Markab 13 56.7 N15 08.7
	20	154 47.7	114 49.7 53.7	66 24.1 48.3	87 47.5 16.1	229 45.5 02.9	Menkar 314 34.4 N 4 02.9
	21	169 50.2	129 49.2 54.7	81 24.8 48.3	102 49.4 16.2	244 48.0 02.9	Menkent 148 28.8 S36 19.3
	22	184 52.6	144 48.6 55.8	96 25.6 48.3	117 51.3 16.3	259 50.4 02.9	Miaplacidus 221 43.8 S69 40.7
23	199 55.1	159 48.1 56.8	111 26.3 48.3	132 53.2 16.4	274 52.9 02.9		
JUEVES	27 00	214 57.6	174 47.5 N14 57.8	126 27.1 N24 48.3	147 55.1 N21 16.4	289 55.4 S22 02.9	Mirfak 309 07.1 N49 49.5
	01	230 00.0	189 47.0 58.8	141 27.9 48.4	162 57.0 16.5	304 57.9 02.9	Nunki 76 20.7 S26 18.7
	02	245 02.5	204 46.4 14 59.9	156 28.6 48.4	177 58.9 16.6	320 00.4 02.9	Pecock 53 47.6 S56 46.1
	03	260 05.0	219 45.9 15 00.9	171 29.4 48.4	193 00.8 16.7	335 02.8 02.9	Pollux 243 50.0 N28 03.3
	04	275 07.4	234 45.3 01.9	186 30.2 48.4	208 02.7 16.8	350 05.3 02.9	Procyon 245 18.8 N 5 15.2
	05	290 09.9	249 44.7 02.9	201 30.9 48.4	223 04.6 16.9	5 07.8 02.9	
	06	305 12.4	264 44.2 N15 03.9	216 31.7 N24 48.4	238 06.4 N21 17.0	20 10.3 S22 02.9	Rasalhague 96 23.1 N12 33.7
	07	320 14.8	279 43.6 05.0	231 32.5 48.4	253 08.3 17.1	35 12.8 02.9	Regulus 208 02.7 N12 01.2
	08	335 17.3	294 43.1 06.0	246 33.2 48.5	268 10.2 17.2	50 15.3 02.9	Rigel 281 29.8 S 8 12.8
	09	350 19.8	309 42.5 07.0	261 34.0 48.5	283 12.1 17.2	65 17.7 02.9	Rigil Kent. 140 16.2 S60 47.6
	10	5 22.2	324 42.0 08.0	276 34.7 48.5	298 14.0 17.3	80 20.2 02.9	Sabik 102 33.2 S15 42.9
	11	20 24.7	339 41.4 09.0	291 35.5 48.5	313 15.9 17.4	95 22.7 02.9	
	12	35 27.1	354 40.9 N15 10.0	306 36.3 N24 48.5	328 17.8 N21 17.5	110 25.2 S22 02.9	Schedar 350 02.2 N56 28.6
	13	50 29.6	9 40.3 11.1	321 37.0 48.5	343 19.7 17.6	125 27.7 03.0	Shaula 96 46.3 S37 05.9
	14	65 32.1	24 39.8 12.1	336 37.8 48.5	358 21.6 17.7	140 30.2 03.0	Sirius 258 49.9 S16 42.1
	15	80 34.5	39 39.2 13.1	351 38.6 48.5	13 23.5 17.8	155 32.6 03.0	Spica 158 50.2 S11 06.6
	16	95 37.0	54 38.6 14.1	6 39.3 48.5	28 25.4 17.9	170 35.1 03.0	Suhail 223 05.9 S43 23.6
	17	110 39.5	69 38.1 15.1	21 40.1 48.6	43 27.3 18.0	185 37.6 03.0	
	18	125 41.9	84 37.5 N15 16.1	36 40.8 N24 48.6	58 29.2 N21 18.0	200 40.1 S22 03.0	Vega 80 51.1 N38 46.0
	19	140 44.4	99 37.0 17.1	51 41.6 48.6	73 31.1 18.1	215 42.6 03.0	Zuben'ubi 137 25.3 S16 00.1
	20	155 46.9	114 36.4 18.1	66 42.4 48.6	88 33.0 18.2	230 45.1 03.0	
	21	170 49.3	129 35.8 19.2	81 43.1 48.6	103 34.9 18.3	245 47.6 03.0	
	22	185 51.8	144 35.3 20.2	96 43.9 48.6	118 36.8 18.4	260 50.0 03.0	
23	200 54.2	159 34.7 21.2	111 44.7 48.6	133 38.6 18.5	275 52.5 03.0		
Pas. Mer.	9 42.5	v -0.5 d 1.0	v 0.8 d 0.0	v 1.9 d 0.1	v 2.5 d 0.0		
						Venus 321 02.2 12 20	
						Marte 272 10.4 15 35	
						Júpiter 293 11.1 14 10	
						Saturno 74 57.5 4 43	



T.M.G. (TU)	SOL		LUNA				Lat.	Crepúsculo		Orto Sol	Orto Luna									
	A.H.G.	Dec.	A.H.G.	v	Dec.	d		P.H.	Náut.		25	26	27	28						
									h						m	h	m			
M A R T E S	180	29.9	N13	06.7	316	12.3	8.2	S27	47.1	2.0	55.6	N 72	///	///	02 31	■	■	■	■	
	01	195	30.0		07.6	330	39.5	8.2	27	49.1	1.9	55.6	N 70	///	00 53	02 59	■	■	■	■
	02	210	30.1		08.4	345	06.7	8.1	27	51.0	1.7	55.6	68	///	01 52	03 21	■	■	■	■
	03	225	30.3		09.2	359	33.8	8.0	27	52.7	1.6	55.6	66	///	02 24	03 37	■	■	■	04 38
	04	240	30.4		10.0	14	00.8	8.1	27	54.3	1.5	55.7	64	00 46	02 48	03 51	■	■	■	03 49
	05	255	30.5		10.8	28	27.9	8.0	27	55.8	1.3	55.7	62	01 38	03 07	04 02	02 53	03 36	03 24	03 18
	06	270	30.6	N13	11.6	42	54.9	7.9	S27	57.1	1.1	55.7	60	02 08	03 22	04 12	01 25	02 21	02 45	02 55
	07	285	30.7		12.4	57	21.8	7.9	27	58.2	1.0	55.7	N 58	02 30	03 34	04 20	00 49	01 45	02 18	02 36
	08	300	30.8		13.3	71	48.7	7.9	27	59.2	0.8	55.8	56	02 48	03 45	04 28	00 23	01 19	01 57	02 20
	09	315	30.9		14.1	86	15.6	7.8	28	00.0	0.7	55.8	54	03 02	03 54	04 34	00 02	00 59	01 39	02 06
	10	330	31.0		14.9	100	42.4	7.9	28	00.7	0.5	55.8	52	03 14	04 03	04 40	24 41	00 41	01 24	01 54
	11	345	31.1		15.7	115	09.3	7.7	28	01.2	0.4	55.8	50	03 25	04 10	04 46	24 27	00 27	01 11	01 44
	12	0	31.2	N13	16.5	129	36.0	7.8	S28	01.6	0.2	55.8	45	03 46	04 25	04 57	23 57	24 44	00 44	01 21
	13	15	31.3		17.3	144	02.8	7.7	28	01.8	0.1	55.9	N 40	04 03	04 38	05 07	23 34	24 22	00 22	01 03
	14	30	31.4		18.1	158	29.5	7.7	28	01.9	0.1	55.9	35	04 16	04 48	05 15	23 14	24 04	00 04	00 48
	15	45	31.5		18.9	172	56.2	7.7	28	01.8	0.2	55.9	30	04 27	04 57	05 22	22 58	23 49	24 35	00 35
	16	60	31.7		19.8	187	22.9	7.6	28	01.6	0.4	55.9	20	04 44	05 11	05 34	22 30	23 23	24 12	00 12
	17	75	31.8		20.6	201	49.5	7.7	28	01.2	0.6	56.0	N 10	04 58	05 23	05 45	22 06	23 00	23 53	24 42
	18	90	31.9	N13	21.4	216	16.2	7.6	S28	00.6	0.7	56.0	0	05 08	05 33	05 54	21 44	22 39	23 34	24 27
	19	105	32.0		22.2	230	42.8	7.6	27	59.9	0.9	56.0	S 10	05 18	05 42	06 04	21 21	22 18	23 16	24 12
	20	120	32.1		23.0	245	09.4	7.5	27	59.0	1.0	56.0	20	05 26	05 52	06 14	20 57	21 56	22 56	23 57
	21	135	32.2		23.8	259	35.9	7.6	27	58.0	1.2	56.1	30	05 33	06 01	06 26	20 30	21 29	22 33	23 38
	22	150	32.3		24.6	274	02.5	7.5	27	56.8	1.3	56.1	35	05 37	06 06	06 32	20 13	21 14	22 19	23 28
23	165	32.4		25.4	288	29.0	7.6	27	55.5	1.5	56.1	40	05 40	06 12	06 40	19 54	20 56	22 04	23 15	
26	00	180	32.5	N13	26.2	302	55.6	7.5	S27	54.0	1.6	56.1	45	05 44	06 18	06 48	19 31	20 34	21 45	23 01
01	195	32.6		27.0	317	22.1	7.5	27	52.4	1.8	56.1	S 50	05 47	06 25	06 59	19 01	20 06	21 21	22 43	
02	210	32.7		27.8	331	48.6	7.5	27	50.6	2.0	56.2	52	05 49	06 28	07 04	18 46	19 52	21 10	22 34	
03	225	32.8		28.7	346	15.1	7.5	27	48.6	2.1	56.2	54	05 50	06 32	07 09	18 29	19 36	20 57	22 25	
04	240	32.9		29.5	0	41.6	7.5	27	46.5	2.3	56.2	56	05 52	06 36	07 15	18 08	19 18	20 42	22 14	
05	255	33.0		30.3	15	08.1	7.5	27	44.2	2.4	56.2	58	05 53	06 40	07 21	17 43	18 55	20 24	22 01	
06	270	33.1	N13	31.1	29	34.6	7.4	S27	41.8	2.6	56.3	S 60	05 55	06 44	07 29	17 07	18 24	20 03	21 47	
07	285	33.2		31.9	44	01.0	7.5	27	39.2	2.7	56.3									
08	300	33.3		32.7	58	27.5	7.5	27	36.5	3.0	56.3	Lat.	Ocaso Sol	Crepúsculo Civil	Ocaso Luna	25	26	27	28	
09	315	33.4		33.5	72	54.0	7.5	27	33.5	3.0	56.3	N 72	o	h m	h m	h m	h m	h m	h m	
10	330	33.5		34.3	87	20.5	7.5	27	30.5	3.2	56.4	N 70	21 30	///	///	■	■	■	■	
11	345	33.6		35.1	101	47.0	7.5	27	27.3	3.4	56.4	68	21 00	23 21	///	■	■	■	■	
12	0	33.7	N13	35.9	116	13.5	7.5	S27	23.9	3.5	56.4	66	20 38	22 10	///	■	■	■	■	
13	15	33.8		36.7	130	40.0	7.5	27	20.4	3.7	56.5	64	20 21	21 35	///	■	■	■	07 11	
14	30	33.9		37.5	145	06.5	7.5	27	16.7	3.9	56.5	62	20 07	21 11	23 25	■	■	■	07 58	
15	45	34.0		38.3	159	33.0	7.5	27	12.8	4.0	56.5	60	19 55	20 52	22 23	03 08	04 21	06 30	08 28	
16	60	34.1		39.1	173	59.5	7.6	27	08.8	4.1	56.5	N 58	19 45	20 36	21 51	04 36	05 36	07 08	08 51	
17	75	34.2		39.9	188	26.1	7.5	27	04.7	4.3	56.6	56	19 37	20 23	21 28	05 13	06 12	07 35	09 10	
18	90	34.3	N13	40.7	202	52.6	7.6	S27	00.4	4.5	56.6	54	19 29	20 12	21 10	05 39	06 38	07 56	09 25	
19	105	34.4		41.5	217	19.2	7.6	26	55.9	4.6	56.6	52	19 22	20 03	20 55	05 59	06 58	08 13	09 38	
20	120	34.5		42.3	231	45.8	7.6	26	51.3	4.8	56.6	50	19 16	19 54	20 43	06 17	07 15	08 28	09 49	
21	135	34.6		43.1	246	12.4	7.6	26	46.5	5.0	56.7	50	19 11	19 47	20 32	06 32	07 30	08 40	09 59	
22	150	34.7		43.9	260	39.0	7.7	26	41.5	5.0	56.7	45	18 59	19 31	20 10	07 01	07 59	09 07	10 20	
23	165	34.8		44.7	275	05.7	7.7	26	36.5	5.3	56.7	N 40	18 49	19 18	19 53	07 25	08 22	09 27	10 37	
27	00	180	34.9	N13	45.5	289	32.4	7.6	S26	31.2	5.4	56.7	35	18 41	19 08	19 40	07 44	08 41	09 45	10 52
01	195	35.0		46.3	303	59.0	7.8	26	25.8	5.5	56.8	30	18 34	18 59	19 29	08 01	08 58	09 59	11 04	
02	210	35.1		47.1	318	25.8	7.7	26	20.3	5.7	56.8	20	18 22	18 45	19 11	08 29	09 25	10 24	11 25	
03	225	35.2		47.9	332	52.5	7.8	26	14.6	5.9	56.8	N 10	18 11	18 33	18 58	08 53	09 49	10 46	11 43	
04	240	35.3		48.7	347	19.3	7.8	26	08.7	6.0	56.9	0	18 01	18 22	18 47	09 15	10 10	11 06	12 00	
05	255	35.4		49.5	1	46.1	7.8	26	02.7	6.2	56.9	S 10	17 51	18 13	18 38	09 37	10 32	11 26	12 16	
06	270	35.5	N13	50.3	16	12.9	7.8	S25	56.5	6.3	56.9	20	17 41	18 04	18 30	10 01	10 56	11 47	12 34	
07	285	35.6		51.1	30	39.7	7.9	25	50.2	6.4	56.9	30	17 29	17 54	18 22	10 29	11 23	12 11	12 54	
08	300	35.7		51.9	45	06.6	7.9	25	43.8	6.7	57.0	35	17 23	17 49	18 19	10 46	11 39	12 26	13 06	
09	315	35.8		52.7	59	33.5	8.0	25	37.1	6.7	57.0	40	17 15	17 43	18 15	11 05	11 57	12 42	13 20	
10	330	35.9		53.5	74	00.5	7.9	25	30.4	6.9	57.0	45	17 06	17 37	18 11	11 28	12 20	13 02	13 35	
11	345	36.0		54.3	88	27.4	8.0	25	23.5	7.1	57.1	S 50	16 56	17 30	18 08	11 58	12 48	13 26	13 55	
12	0	36.1	N13	55.1	102	54.4	8.1	S25	16.4	7.2	57.1	52	16 51	17 26	18 06	12 13	13 02	13 38	14 04	
13	15	36.2		55.9	117	21.5	8.1	25	09.2	7.4	57.1	54	16 46	17 23	18 04	12 30	13 18	13 51	14 14	
14	30	36.3		56.6	131	48.6	8.1	25	01.8	7.5	57.1	56	16 40	17 19	18 03	12 50	13 37	14 07	14 26	
15	45	36.4		57.4	146	15.7	8.1	24	54.3	7.6	57.2	58	16 33	17 15	18 01	13 16	14 00	14 25	14 39	
16	60	36.5		58.2	160	42.8	8.2	24	46.7	7.8	57.2	S 60	16 26	17 10	17 59	13 52	14 31	14 47	14 54	
17	75	36.6		59.0	175	10.0	8.3	24	38.9	7.9	57.2									
18	90	36.7	N13	59.8	189	37.3	8.2	S24	31.0	8.1	57.3									
19	105	36.8	14	00.6	204	04.5	8.3	24	22.9	8.3	57.3	Día	SOL ET. (+)		LUNA					
20	120	36.9		01.4	218	31.8	8.4	24	14.6	8.3	57.3	00 h	12 h							



T.M.G. (TU)		ARIES			VENUS -3.9			MARTE +1.6			JUPITER -2.0			SATURNO +0.4			ESTRELLAS								
d	h	A.H.G.		A.H.G.	Dec.	A.H.G.		A.H.G.	Dec.	A.H.G.		A.H.G.	Dec.	A.H.G.		A.H.G.	Dec.	Nombre	A. H. S.	Dec.					
28	00	215	56.7	174	34.2	N15	22.2	126	45.4	N24	48.6	148	40.5	N21	18.6	290	55.0	S22	03.0	Acamar	315	32.4	S40	20.8	
	01	230	59.2	189	33.6		23.2	141	46.2		48.6	163	42.4		18.7	305	57.5		03.0	Achernar	335	40.5	S57	17.3	
	02	246	01.6	204	33.0		24.2	156	46.9		48.6	178	44.3		18.7	321	00.0		03.0	Acruz	173	29.5	S63	02.7	
	03	261	04.1	219	32.5		25.2	171	47.7		48.6	193	46.2		18.8	336	02.5		03.0	Adhara	255	27.0	S28	57.5	
	04	276	06.6	234	31.9		26.2	186	48.5		48.6	208	48.1		18.9	351	05.0		03.0	Aldebaran	291	10.6	N16	29.4	
	05	291	09.0	249	31.4		27.2	201	49.2		48.7	223	50.0		19.0	6	07.4		03.0						
	06	306	11.5	264	30.8	N15	28.2	216	50.0	N24	48.7	238	51.9	N21	19.1	21	09.9	S22	03.0	Alioth	166	35.8	N56	01.0	
	07	321	14.0	279	30.2		29.2	231	50.8		48.7	253	53.8		19.2	36	12.4		03.0	Alkaid	153	12.5	N49	21.9	
	08	336	16.4	294	29.7		30.2	246	51.5		48.7	268	55.7		19.3	51	14.9		03.0	Al Na'ir	28	06.4	S47	00.7	
	09	351	18.9	309	29.1		31.2	261	52.3		48.7	283	57.6		19.4	66	17.4		03.0	Alnilam	276	05.1	S	1	12.5
	10	6	21.4	324	28.5		32.2	276	53.0		48.7	298	59.5		19.5	81	19.9		03.0	Alphard	218	13.9	S	8	36.8
	11	21	23.8	339	28.0		33.2	291	53.8		48.7	314	01.4		19.5	96	22.4		03.0						
	12	36	26.3	354	27.4	N15	34.2	306	54.6	N24	48.7	329	03.3	N21	19.6	111	24.9	S22	03.0	Alphecca	126	26.0	N26	44.8	
	13	51	28.7	9	26.8		35.2	321	55.3		48.7	344	05.1		19.7	126	27.3		03.0	Alpheratz	358	02.7	N29	01.8	
	14	66	31.2	24	26.3		36.2	336	56.1		48.7	359	07.0		19.8	141	29.8		03.0	Altair	62	25.9	N	8	50.1
	15	81	33.7	39	25.7		37.2	351	56.9		48.7	14	08.9		19.9	156	32.3		03.0	Ankaa	353	33.8	S42	21.7	
	16	96	36.1	54	25.1		38.2	6	57.6		48.7	29	10.8		20.0	171	34.8		03.0	Antares	112	48.3	S26	24.7	
	17	111	38.6	69	24.6		39.2	21	58.4		48.7	44	12.7		20.1	186	37.3		03.0						
	18	126	41.1	84	24.0	N15	40.2	36	59.1	N24	48.7	59	14.6	N21	20.2	201	39.8	S22	03.0	Arcturus	146	11.9	N19	14.1	
	19	141	43.5	99	23.4		41.2	51	59.9		48.7	74	16.5		20.2	216	42.3		03.0	Atria	108	06.2	S69	00.6	
	20	156	46.0	114	22.8		42.2	67	00.7		48.7	89	18.4		20.3	231	44.8		03.0	Avior	234	25.7	S59	28.7	
	21	171	48.5	129	22.3		43.2	82	01.4		48.7	104	20.3		20.4	246	47.3		03.0	Bellatrix	278	51.8	N	6	20.5
	22	186	50.9	144	21.7		44.2	97	02.2		48.7	119	22.2		20.5	261	49.8		03.0	Betelgeuse	271	21.2	N	7	24.4
	23	201	53.4	159	21.1		45.2	112	03.0		48.7	134	24.1		20.6	276	52.2		03.1						
29	00	216	55.9	174	20.6	N15	46.2	127	03.7	N24	48.7	149	26.0	N21	20.7	291	54.7	S22	03.1	Canopus	264	04.5	S52	41.5	
	01	231	58.3	189	20.0		47.2	142	04.5		48.7	164	27.8		20.8	306	57.2		03.1	Capella	281	01.7	N45	59.5	
	02	247	00.8	204	19.4		48.1	157	05.2		48.7	179	29.7		20.9	321	59.7		03.1	Deneb	49	44.0	N45	14.1	
	03	262	03.2	219	18.8		49.1	172	06.0		48.7	194	31.6		20.9	337	02.2		03.1	Denebola	182	51.9	N14	37.8	
	04	277	05.7	234	18.3		50.1	187	06.8		48.7	209	33.5		21.0	352	04.7		03.1	Diphda	349	14.3	S18	02.7	
	05	292	08.2	249	17.7		51.1	202	07.5		48.7	224	35.4		21.1	7	07.2		03.1						
	06	307	10.6	264	17.1	N15	52.1	217	08.3	N24	48.7	239	37.3	N21	21.2	22	09.7	S22	03.1	Dubhe	194	13.1	N61	48.7	
	07	322	13.1	279	16.5		53.1	232	09.1		48.7	254	39.2		21.3	37	12.2		03.1	Elnath	278	35.9	N28	36.1	
	08	337	15.6	294	16.0		54.1	247	09.8		48.7	269	41.1		21.4	52	14.7		03.1	Eltanin	90	54.2	N51	29.0	
	09	352	18.0	309	15.4		55.1	262	10.6		48.7	284	43.0		21.5	67	17.2		03.1	Enif	34	05.1	N	9	49.4
	10	7	20.5	324	14.8		56.0	277	11.3		48.7	299	44.9		21.6	82	19.6		03.1	Fomalhaut	15	44.1	S29	40.7	
	11	22	23.0	339	14.2		57.0	292	12.1		48.7	314	46.7		21.6	97	22.1		03.1						
	12	37	25.4	354	13.7	N15	58.0	307	12.9	N24	48.7	329	48.6	N21	21.7	112	24.6	S22	03.1	Gacrux	172	21.1	S57	03.5	
	13	52	27.9	9	13.1	15	59.0	322	13.6		48.7	344	50.5		21.8	127	27.1		03.1	Gienah	176	10.8	S17	29.2	
	14	67	30.3	24	12.5	16	00.0	337	14.4		48.7	359	52.4		21.9	142	29.6		03.1	Hadar	149	13.4	S60	19.5	
	15	82	32.8	39	11.9		00.9	352	15.1		48.7	14	54.3		22.0	157	32.1		03.1	Hamal	328	21.7	N23	24.7	
	16	97	35.3	54	11.3		01.9	7	15.9		48.7	29	56.2		22.1	172	34.6		03.1	Kaus Aust.	84	07.7	S34	23.5	
	17	112	37.7	69	10.8		02.9	22	16.7		48.7	44	58.1		22.2	187	37.1		03.1						
	18	127	40.2	84	10.2	N16	03.9	37	17.4	N24	48.7	60	00.0	N21	22.3	202	39.6	S22	03.1	Kochab	137	17.5	N74	11.8	
	19	142	42.7	99	09.6		04.9	52	18.2		48.7	75	01.9		22.3	217	42.1		03.1	Markab	13	56.7	N15	08.7	
	20	157	45.1	114	09.0		05.8	67	19.0		48.7	90	03.8		22.4	232	44.6		03.1	Menkar	314	34.4	N	4	02.9
	21	172	47.6	129	08.4		06.8	82	19.7		48.6	105	05.6		22.5	247	47.1		03.1	Menkent	148	28.8	S36	19.3	
	22	187	50.1	144	07.9		07.8	97	20.5		48.6	120	07.5		22.6	262	49.6		03.1	Miaplacidus	221	43.8	S69	40.7	
	23	202	52.5	159	07.3		08.8	112	21.2		48.6	135	09.4		22.7	277	52.1		03.1						
30	00	217	55.0	174	06.7	N16	09.7	127	22.0	N24	48.6	150	11.3	N21	22.8	292	54.6	S22	03.1	Mirfak	309	07.1	N49	49.5	
	01	232	57.5	189	06.1		10.7	142	22.8		48.6	165	13.2		22.9	307	57.0		03.1	Nunki	76	20.6	S26	18.7	
	02	247	59.9	204	05.5		11.7	157	23.5		48.6	180	15.1		23.0	322	59.5		03.1	Peacock	53	47.5	S56	46.1	
	03	263	02.4	219	04.9		12.7	172	24.3		48.6	195	17.0		23.0	338	02.0		03.1	Pollux	243	50.0	N28	03.3	
	04	278	04.8	234	04.4		13.6	187	25.1		48.6	210	18.9		23.1	353	04.5		03.1	Procyon	245	18.8	N	5	15.2
	05	293	07.3	249	03.8		14.6	202	25.8		48.6	225	20.7		23.2	8	07.0		03.2						
	06	308	09.8	264	03.2	N16	15.6	217	26.6	N24	48.6	240	22.6	N21	23.3	23	09.5	S22	03.2	Rasalhague					



T.M.G. (TU)	SOL		LUNA				Lat.	Crepúsculo		Orto Sol	Orto Luna						
	A.H.G.	Dec.	A.H.G.	v	Dec.	d		P.H.	Naut.		Civil	28	29	30	1		
												h	m	h	m	h	m
V I E R N E S	28 00	180 37.3	N14 04.6	276 21.5	8.5	S23 40.3	8.9	57.4	N 72	///	///	02 09	■	■	04 30	03 41	
	01	195 37.3	05.3	290 49.0	8.6	23 31.4	9.1	57.5	N 70	///	///	02 43	■	05 06	04 06	03 31	
	02	210 37.4	06.1	305 16.6	8.6	23 22.3	9.2	57.5	68	///	///	03 07	■	04 23	03 47	03 23	
	03	225 37.5	06.9	319 44.2	8.7	23 13.1	9.4	57.5	66	///	02 08	03 26	04 38	03 54	03 32	03 16	
	04	240 37.6	07.7	334 11.9	8.7	23 03.7	9.4	57.6	64	///	02 35	03 41	03 49	03 32	03 20	03 10	
	05	255 37.7	08.5	348 39.6	8.7	22 54.3	9.7	57.6	60	///	01 17	02 55	03 53	03 18	03 14	03 09	03 05
	06	270 37.8	N14 09.3	3 07.3	8.8	S22 44.6	9.7	57.6	N 58	02 18	03 25	04 13	02 36	02 46	02 52	02 57	
	07	285 37.9	10.1	17 35.1	8.8	22 34.9	9.9	57.7	56	02 38	03 37	04 21	02 20	02 35	02 45	02 53	
	08	300 38.0	10.9	32 02.9	8.9	22 25.0	10.0	57.7	54	02 53	03 47	04 28	02 06	02 25	02 39	02 50	
	09	315 38.1	11.6	46 30.8	9.0	22 15.0	10.2	57.7	52	03 07	03 56	04 34	01 54	02 16	02 33	02 47	
	10	330 38.2	12.4	60 58.8	8.9	22 04.8	10.3	57.8	50	03 18	04 04	04 40	01 44	02 08	02 28	02 45	
	11	345 38.3	13.2	75 26.7	9.1	21 54.5	10.4	57.8	45	03 41	04 20	04 53	01 21	01 52	02 17	02 39	
	12	0 38.4	N14 14.0	89 54.8	9.0	S21 44.1	10.6	57.8	N 40	03 58	04 34	05 03	01 03	01 38	02 07	02 34	
	13	15 38.5	14.8	104 22.8	9.2	21 33.5	10.6	57.8	35	04 12	04 45	05 11	00 48	01 26	01 59	02 30	
	14	30 38.5	15.6	118 51.0	9.1	21 22.9	10.8	57.9	30	04 24	04 54	05 19	00 35	01 15	01 52	02 26	
	15	45 38.6	16.3	133 19.1	9.2	21 12.1	11.0	57.9	20	04 42	05 09	05 32	00 12	00 58	01 40	02 19	
	16	60 38.7	17.1	147 47.3	9.3	21 01.1	11.0	57.9	N 10	04 56	05 22	05 43	24 42	00 42	01 29	02 14	
	17	75 38.8	17.9	162 15.6	9.3	20 50.1	11.2	58.0	0	05 08	05 33	05 54	24 27	00 27	01 18	02 08	
	18	90 38.9	N14 18.7	176 43.9	9.3	S20 38.9	11.3	58.0	S 10	05 18	05 43	06 04	24 12	00 12	01 08	02 03	
	19	105 39.0	19.5	191 12.2	9.4	20 27.6	11.5	58.0	20	05 26	05 53	06 15	23 57	24 57	00 57	01 57	
	20	120 39.1	20.3	205 40.6	9.5	20 16.1	11.5	58.1	30	05 35	06 03	06 28	23 38	24 44	00 44	01 50	
	21	135 39.2	21.0	220 09.1	9.5	20 04.6	11.7	58.1	35	05 39	06 09	06 35	23 28	24 37	00 37	01 46	
	22	150 39.3	21.8	234 37.6	9.5	19 52.9	11.8	58.1	40	05 43	06 15	06 43	23 15	24 28	00 28	01 42	
23	165 39.4	22.6	249 06.1	9.6	19 41.1	11.9	58.2	45	05 47	06 22	06 52	23 01	24 18	00 18	01 37		
S A B A D O	29 00	180 39.4	N14 23.4	263 34.7	9.7	S19 29.2	12.0	58.2	S 50	05 51	06 29	07 03	22 43	24 06	00 06	01 31	
	01	195 39.5	24.2	278 03.4	9.6	19 17.2	12.2	58.2	52	05 53	06 33	07 09	22 34	24 01	00 01	01 28	
	02	210 39.6	24.9	292 32.0	9.8	19 05.0	12.2	58.3	54	05 55	06 37	07 14	22 25	23 55	25 25	01 25	
	03	225 39.7	25.7	307 00.8	9.7	18 52.8	12.4	58.3	56	05 57	06 41	07 21	22 14	23 48	25 21	01 21	
	04	240 39.8	26.5	321 29.5	9.8	18 40.4	12.5	58.3	58	05 59	06 46	07 28	22 01	23 40	25 17	01 17	
	05	255 39.9	27.3	335 58.3	9.9	18 27.9	12.6	58.4	S 60	06 01	06 51	07 36	21 47	23 31	25 13	01 13	
	06	270 40.0	N14 28.0	350 27.2	9.9	S18 15.3	12.7	58.4									
	07	285 40.1	28.8	4 56.1	10.0	18 02.6	12.9	58.4	Lat.	Ocaso Sol	Crepúsculo		Ocaso Luna				
	08	300 40.1	29.6	19 25.1	10.0	17 49.7	12.9	58.4			Civil	Naut.	28	29	30	1	
	09	315 40.2	30.4	33 54.1	10.0	17 36.8	13.0	58.5	N 72	h m	h m	h m	h m	h m	h m	h m	
	10	330 40.3	31.1	48 23.1	10.1	17 23.8	13.2	58.5	N 70	21 52	///	///	■	■	11 01	13 35	
	11	345 40.4	31.9	62 52.0	10.1	17 10.6	13.3	58.5	68	21 16	///	///	■	08 35	11 22	13 42	
	12	0 40.5	N14 32.7	77 21.3	10.2	S16 57.3	13.3	58.6	66	20 51	22 35	///	■	09 16	11 38	13 47	
	13	15 40.6	33.5	91 50.5	10.2	16 44.0	13.5	58.6	64	20 32	21 52	///	07 11	09 44	11 52	13 52	
	14	30 40.7	34.2	106 19.7	10.2	16 30.5	13.5	58.6	62	20 16	21 23	///	07 58	10 05	12 02	13 55	
	15	45 40.7	35.0	120 48.9	10.3	16 17.0	13.7	58.7	60	20 04	21 02	22 45	08 28	10 22	12 11	13 58	
	16	60 40.8	35.8	135 18.2	10.3	16 03.3	13.8	58.7	58	19 53	20 45	22 05	08 51	10 36	12 19	14 01	
	17	75 40.9	36.6	149 47.5	10.4	15 49.5	13.9	58.7	N 58	19 43	20 31	21 39	09 10	10 48	12 26	14 04	
	18	90 41.0	N14 37.3	164 16.9	10.4	S15 35.6	13.9	58.8	56	19 35	20 19	21 19	09 25	10 58	12 32	14 06	
	19	105 41.1	38.1	178 46.3	10.4	15 21.7	14.1	58.8	54	19 28	20 09	21 03	09 38	11 07	12 37	14 08	
	20	120 41.2	38.9	193 15.7	10.5	15 07.6	14.2	58.8	52	19 21	20 00	20 50	09 49	11 15	12 42	14 09	
	21	135 41.2	39.6	207 45.2	10.5	14 53.4	14.2	58.9	50	19 15	19 52	20 38	09 59	11 22	12 46	14 11	
	22	150 41.3	40.4	222 14.7	10.5	14 39.2	14.4	58.9	45	19 03	19 35	20 15	10 20	11 38	12 56	14 14	
23	165 41.4	41.2	236 44.2	10.6	14 24.8	14.4	58.9	N 40	18 53	19 22	19 57	10 37	11 50	13 03	14 17		
D O M I N G O	30 00	180 41.5	N14 42.0	251 13.8	10.6	S14 10.4	14.5	59.0	35	18 44	19 11	19 43	10 52	12 01	13 10	14 20	
	01	195 41.6	42.7	265 43.4	10.7	13 55.9	14.6	59.0	30	18 36	19 01	19 31	11 04	12 10	13 16	14 22	
	02	210 41.7	43.5	280 13.1	10.7	13 41.3	14.7	59.0	20	18 23	18 46	19 13	11 25	12 25	13 26	14 25	
	03	225 41.7	44.3	294 42.8	10.7	13 26.6	14.8	59.1	N 10	18 11	18 33	18 59	11 43	12 39	13 34	14 29	
	04	240 41.8	45.0	309 12.5	10.7	13 11.8	14.9	59.1	0	18 01	18 22	18 47	12 00	12 52	13 42	14 31	
	05	255 41.9	45.8	323 42.2	10.8	12 56.9	15.0	59.1	S 10	17 50	18 12	18 37	12 16	13 04	13 50	14 34	
	06	270 42.0	N14 46.6	338 12.0	10.8	S12 41.9	15.0	59.1	20	17 39	18 02	18 28	12 34	13 18	13 58	14 37	
	07	285 42.1	47.3	352 41.8	10.8	12 26.9	15.1	59.2	30	17 27	17 51	18 20	12 54	13 33	14 08	14 41	
	08	300 42.1	48.1	7 11.6	10.9	12 11.8	15.3	59.2	35	17 19	17 46	18 16	13 06	13 41	14 13	14 43	
	09	315 42.2	48.9	21 41.5	10.8	11 56.5	15.2	59.2	40	17 11	17 39	18 11	13 20	13 51	14 19	14 45	
	10	330 42.3	49.6	36 11.3	10.9	11 41.3	15.4	59.3	45	17 02	17 32	18 07	13 35	14 03	14 26	14 47	
	11	345 42.4	50.4	50 41.2	11.0	11 25.9	15.4	59.3	S 50	16 51	17 24	18 03	13 55	14 17	14 34	14 50	
	12	0 42.5	N14 51.2	65 11.2	10.9	S11 10.5	15.6	59.3	52	16 45	17 21	18 01	14 04	14 23	14 38	14 52	
	13	15 42.5	51.9	79 41.1	11.0	10 54.9	15.6	59.4	54	16 39	17 17	17 59	14 14	14 30	14 43	14 53	
	14	30 42.6	52.7	94 11.1	11.0	10 39.3	15.6	59.4	56	16 33	17 13	17 57	14 26	14 38	14 47	14 55	
	15	45 42.7	53.4	108 41.1	11.0	10 23.7	15.7	59.4	58	16 26	17 08	17 55	14 39	14 47	14 52	14 56	
	16	60 42.8	54.2	123 11.1	11.0	10 08.0	15.8	59.4	S 60	16 18	17 03	17 52	14 54	14 57	14 58	14 58	
	17	75 42.9	55.0	137 41.1	11.1	9 52.2	15.9	59.5									
	18	90 42.9	N14 55.7	152 11.2	11.0	S 9 36.3	16.0	59.5									
	19	105 43.0	56.5	166 41.2	11.1	9 20.3	16.0	59.5	Día	SOL E.T. (+)		LUNA</					



T.M.G. (TU)	ARIES		VENUS -3.9		MARTE +1.6		JUPITER -2.0		SATURNO +0.4		ESTRELLAS			
	A.H.G.	Dec.	A.H.G.	Dec.	A.H.G.	Dec.	A.H.G.	Dec.	A.H.G.	Dec.	Nombre	A. H. S.	Dec.	
L U N E S	1 00	218 54.1	173 52.5 N16	32.9	127 40.3 N24	48.4	150 56.6 N21	24.9	293 54.5 S22	03.2	Acamar	315 32.4 S40	20.8	
	01	233 56.6	188 52.0	33.9	142 41.1	48.3	165 58.5	25.0	308 57.0	03.2	Achernar	335 40.5 S57	17.3	
	02	248 59.1	203 51.4	34.8	157 41.8	48.3	181 00.4	25.0	323 59.5	03.2	Acruz	173 29.5 S63	02.7	
	03	264 01.5	218 50.8	35.8	172 42.6	48.3	196 02.3	25.1	339 02.0	03.2	Adhara	255 27.0 S28	57.5	
	04	279 04.0	233 50.2	36.7	187 43.3	48.3	211 04.1	25.2	354 04.5	03.2	Aldebaran	291 10.6 N16	29.4	
	05	294 06.4	248 49.6	37.7	202 44.1	48.3	226 06.0	25.3	9 07.0	03.2				
	06	309 08.9	263 49.0 N16	38.6	217 44.9 N24	48.3	241 07.9 N21	25.4	24 09.5 S22	03.3	Alioth	166 35.8 N56	01.1	
	07	324 11.4	278 48.4	39.6	232 45.6	48.3	256 09.8	25.5	39 12.0	03.3	Alkaid	153 12.5 N49	21.9	
	08	339 13.8	293 47.8	40.6	247 46.4	48.2	271 11.7	25.6	54 14.5	03.3	Al Na'ir	28 06.4 S47	00.6	
	09	354 16.3	308 47.2	41.5	262 47.1	48.2	286 13.6	25.7	69 17.0	03.3	Alnilam	276 05.1 S 1	12.5	
	10	9 18.8	323 46.6	42.5	277 47.9	48.2	301 15.5	25.7	84 19.5	03.3	Alphard	218 13.9 S 8	36.8	
	11	24 21.2	338 46.0	43.4	292 48.7	48.2	316 17.3	25.8	99 22.0	03.3				
	12	39 23.7	353 45.4 N16	44.4	307 49.4 N24	48.2	331 19.2 N21	25.9	114 24.5 S22	03.3	Alphecca	126 26.0 N26	44.8	
	13	54 26.2	8 44.8	45.3	322 50.2	48.1	346 21.1	26.0	129 27.0	03.3	Alpheratz	358 02.7 N29	01.8	
	14	69 28.6	23 44.2	46.2	337 51.0	48.1	1 23.0	26.1	144 29.5	03.3	Altair	62 25.9 N 8	50.1	
	15	84 31.1	38 43.6	47.2	352 51.7	48.1	16 24.9	26.2	159 32.0	03.3	Ankaa	353 33.7 S42	21.7	
	16	99 33.6	53 43.0	48.1	7 52.5	48.1	31 26.8	26.3	174 34.5	03.3	Antares	112 48.3 S26	24.7	
	17	114 36.0	68 42.4	49.1	22 53.2	48.1	46 28.7	26.3	189 37.0	03.3				
	18	129 38.5	83 41.8 N16	50.0	37 54.0 N24	48.0	61 30.5 N21	26.4	204 39.5 S22	03.3	Arcturus	146 11.9 N19	14.1	
	19	144 40.9	98 41.2	51.0	52 54.8	48.0	76 32.4	26.5	219 42.0	03.3	Atria	108 06.1 S69	00.6	
	20	159 43.4	113 40.6	51.9	67 55.5	48.0	91 34.3	26.6	234 44.5	03.3	Avior	234 25.7 S59	28.7	
	21	174 45.9	128 40.0	52.9	82 56.3	48.0	106 36.2	26.7	249 47.0	03.3	Bellatrix	278 51.8 N 6	20.5	
	22	189 48.3	143 39.3	53.8	97 57.0	48.0	121 38.1	26.8	264 49.5	03.3	Betelgeuse	271 21.2 N 7	24.4	
23	204 50.8	158 38.7	54.7	112 57.8	47.9	136 40.0	26.9	279 52.0	03.3					
M A R T E S	2 00	219 53.3	173 38.1 N16	55.7	127 58.6 N24	47.9	151 41.8 N21	26.9	294 54.5 S22	03.3	Canopus	264 04.6 S52	41.5	
	01	234 55.7	188 37.5	56.6	142 59.3	47.9	166 43.7	27.0	309 57.0	03.3	Capella	281 01.8 N45	59.5	
	02	249 58.2	203 36.9	57.6	158 00.1	47.9	181 45.6	27.1	324 59.5	03.3	Deneb	49 44.0 N45	14.1	
	03	265 00.7	218 36.3	58.5	173 00.9	47.9	196 47.5	27.2	340 02.0	03.3	Denebola	182 51.9 N14	37.8	
	04	280 03.1	233 35.7	59.4	188 01.6	47.8	211 49.4	27.3	355 04.5	03.3	Diphda	349 14.3 S18	02.7	
	05	295 05.6	248 35.1	60.4	203 02.4	47.8	226 51.3	27.4	10 07.0	03.4				
	06	310 08.1	263 34.5 N17	61.3	218 03.1 N24	47.8	241 53.1 N21	27.5	25 09.5 S22	03.4	Dubhe	194 13.1 N61	48.7	
	07	325 10.5	278 33.9	62.2	233 03.9	47.8	256 55.0	27.5	40 12.0	03.4	Elnath	278 35.9 N28	36.1	
	08	340 13.0	293 33.3	63.2	248 04.7	47.7	271 56.9	27.6	55 14.5	03.4	Eltanin	90 54.2 N51	29.0	
	09	355 15.4	308 32.7	64.1	263 05.4	47.7	286 58.8	27.7	70 17.0	03.4	Enif	34 05.1 N 9	49.4	
	10	10 17.9	323 32.0	65.0	278 06.2	47.7	302 00.7	27.8	85 19.6	03.4	Fomalhaut	15 44.0 S29	40.7	
	11	25 20.4	338 31.4	66.0	293 07.0	47.7	317 02.6	27.9	100 22.1	03.4				
	12	40 22.8	353 30.8 N17	66.9	308 07.7 N24	47.6	332 04.4 N21	28.0	115 24.6 S22	03.4	Gacrux	172 21.1 S57	03.5	
	13	55 25.3	8 30.2	67.8	323 08.5	47.6	347 06.3	28.1	130 27.1	03.4	Gienah	176 10.8 S17	29.2	
	14	70 27.8	23 29.6	68.7	338 09.2	47.6	2 08.2	28.1	145 29.6	03.4	Hadar	149 13.4 S60	19.5	
	15	85 30.2	38 29.0	69.7	353 10.0	47.6	17 10.1	28.2	160 32.1	03.4	Hamal	328 21.7 N23	24.7	
	16	100 32.7	53 28.4	70.6	8 10.8	47.5	32 12.0	28.3	175 34.6	03.4	Kaus Aust.	84 07.6 S34	23.5	
	17	115 35.2	68 27.8	71.5	23 11.5	47.5	47 13.9	28.4	190 37.1	03.4				
	18	130 37.6	83 27.1 N17	72.5	38 12.3 N24	47.5	62 15.7 N21	28.5	205 39.6 S22	03.4	Kochab	137 17.5 N74	11.8	
	19	145 40.1	98 26.5	73.4	53 13.0	47.4	77 17.6	28.6	220 42.1	03.4	Markab	13 56.7 N15	08.7	
	20	160 42.6	113 25.9	74.3	68 13.8	47.4	92 19.5	28.7	235 44.6	03.4	Menkar	314 34.4 N 4	02.9	
	21	175 45.0	128 25.3	75.2	83 14.6	47.4	107 21.4	28.7	250 47.1	03.4	Menkent	148 28.8 S36	19.3	
	22	190 47.5	143 24.7	76.2	98 15.3	47.4	122 23.3	28.8	265 49.6	03.4	Miaplacidus	221 43.8 S69	40.7	
23	205 49.9	158 24.1	77.1	113 16.1	47.3	137 25.1	28.9	280 52.1	03.4					
M I E R C O L E S	3 00	220 52.4	173 23.4 N17	18.0	128 16.9 N24	47.3	152 27.0 N21	29.0	295 54.6 S22	03.4	Mirfak	309 07.1 N49	49.5	
	01	235 54.9	188 22.8	18.9	143 17.6	47.3	167 28.9	29.1	310 57.1	03.4	Nunki	76 20.6 S26	18.7	
	02	250 57.3	203 22.2	19.8	158 18.4	47.2	182 30.8	29.2	325 59.7	03.5	Peacock	53 47.5 S56	46.1	
	03	265 59.8	218 21.6	20.8	173 19.1	47.2	197 32.7	29.3	341 02.2	03.5	Pollux	243 50.0 N28	03.3	
	04	281 02.3	233 21.0	21.7	188 19.9	47.2	212 34.6	29.3	356 04.7	03.5	Procyon	245 18.8 N 5	15.2	
	05	296 04.7	248 20.3	22.6	203 20.7	47.1	227 36.4	29.4	11 07.2	03.5				
	06	311 07.2	263 19.7 N17	23.5	218 21.4 N24	47.1	242 38.3 N21	29.5	26 09.7 S22	03.5	Rasalhague	96 23.1 N12	33.8	
	07	326 09.7	278 19.1	24.4	233 22.2	47.1	257 40.2	29.6	41 12.2	03.5	Regulus	208 02.7 N12	01.2	
	08	341 12.1	293 18.5	25.3	248 22.9	47.0	272 42.1	29.7	56 14.7	03.5	Rigel	281 29.8 S 8	12.8	
	09	356 14.6	308 17.9	26.3	263 23.7	47.0	287 44.0	29.8	71 17.2	03.5	Rigil Kent.	140 16.2 S60	47.6	
	10	11 17.0	323 17.2	27.2	278 24.5	47.0	302 45.8	29.9	86 19.7	03.5	Sabik	102 33.1 S15	42.9	
	11	26 19.5	338 16.6	28.1	293 25.2	47.0	317 47.7	29.9	101 22.2	03.5				
	12	41 22.0	353 16.0 N17	29.0	308 26.0 N24	46.9	332 49.6 N21	30.0	116 24.7 S22	03.5	Schedar	350 02.1 N56	28.6	
	13	56 24.4	8 15.4	29.9	323 26.8	46.9	347 51.5	30.1	131 27.3	03.5	Shaula	96 46.3 S37	05.9	
	14	71 26.9	23 14.7	30.8	338 27.5	46.8	2 53.4	30.2	146 29.8	03.5	Sirius	258 49.9 S16	42.1	
	15	86 29.4	38 14.1	31.7	353 28.3	46.8	17 55.2	30.3	161 32.3	03.5	Spica	158 50.2 S11	06.6	
	16	101 31.8	53 13.5	32.6	8 29.0	46.8	32 57.1	30.4	176 34.8	03.5	Suhail	223 05.9 S43	23.6	
	17	116 34.3	68 12.9	33.5	23 29.8	46.7	47 59.0	30.5	191 37.3	03.5				
	18	131 36.8	83 12.2 N17	34.4	38 30.6 N24	46.7	63 00.9 N21	30.5	206 39.8 S22	03.5	Vega	80 51.0 N38	46.0	
	19	146 39.2	98 11.6	35.3	53 31.3	46.7	78 02.8	30.6	221 42.3	03.5	Zuben'ubi	137 25.3 S16	00.1	
	20	161 41.7	113 11.0	36.3	68 32.1	46.6	93 04.6	30.7	236 44.8	03.5				
	21	176 44.2	128 10.4	37.2	83 32.9	46.6	108 06.5	30.8	251 47.3	03.5				
	22	191 46.6	143 09.7	38.1	98 33.6	46.6	123 08.4	30.9	266 49.8	03.6				
23	206 49.1	158 09.1	39.0	113 34.4	46.5	138 10.3	31.0	281 52.4	03.6					
Pas. Mer. 9 18.9		v -0.6 d 0.9		v 0.8 d 0.0		v 1.9 d 0.1		v 2.5 d 0.0						
										A. H. S. Pas. Mer.				
										o / h m				
										Venus 313 44.9 12 26				
										Marte 268 05.3 15 27				
										Júpiter 291 48.6 13 51				
										Saturno 75 01.2 4 20				



T.M.G. (TU)	SOL		LUNA				Lat.	Crepúsculo		Orto Sol	Orto Luna						
	A.H.G.	Dec.	A.H.G.	v	Dec.	d		P.H.	Naut.		Civil	1	2	3	4		
												h	m	h	m	h	m
LUNES	00	180 43.4	N15 00.3	239 11.8	11.1	S 7	59.7	16.3	59.7	N 72	///	///	01 44	03 41	03 04	02 27	01 39
	01	195 43.5	01.1	253 41.9	11.2	7	43.4	16.4	59.7	N 70	///	///	02 25	03 31	03 03	02 35	02 01
	02	210 43.6	01.8	268 12.1	11.1	7	27.0	16.4	59.7	68	///	00 56	02 53	03 23	03 03	02 42	02 18
	03	225 43.6	02.6	282 42.2	11.2	7	10.6	16.5	59.8	66	///	01 49	03 14	03 16	03 02	02 48	02 32
	04	240 43.7	03.3	297 12.4	11.1	6	54.1	16.5	59.8	64	///	02 21	03 30	03 10	03 02	02 53	02 44
	05	255 43.8	04.1	311 42.5	11.2	6	37.6	16.6	59.8	62	00 49	02 44	03 44	03 05	03 01	02 58	02 54
	06	270 43.9	N15 04.8	326 12.7	11.2	S 6	21.0	16.6	59.9	60	01 37	03 02	03 55	03 01	03 01	03 01	03 02
	07	285 43.9	05.6	340 42.9	11.2	6	04.4	16.7	59.9	N 58	02 06	03 17	04 05	02 57	03 01	03 05	03 10
	08	300 44.0	06.4	355 13.1	11.2	5	47.7	16.7	59.9	56	02 27	03 29	04 14	02 53	03 01	03 08	03 17
	09	315 44.1	07.1	9 43.3	11.1	5	31.0	16.7	59.9	54	02 45	03 40	04 22	02 50	03 00	03 11	03 23
	10	330 44.2	07.9	24 13.4	11.2	5	14.3	16.9	60.0	52	02 59	03 50	04 29	02 47	03 00	03 13	03 28
	11	345 44.2	08.6	38 43.6	11.2	4	57.4	16.8	60.0	50	03 11	03 58	04 35	02 45	03 00	03 16	03 33
	12	0 44.3	N15 09.4	53 13.8	11.2	S 4	40.6	16.9	60.0	45	03 35	04 16	04 48	02 39	03 00	03 21	03 44
	13	15 44.4	10.1	67 44.0	11.1	4	23.7	16.9	60.0	N 40	03 54	04 30	04 59	02 34	02 59	03 25	03 53
	14	30 44.5	10.9	82 14.1	11.2	4	06.8	17.0	60.1	35	04 09	04 41	05 08	02 30	02 59	03 29	04 01
	15	45 44.5	11.6	96 44.3	11.1	3	49.8	17.0	60.1	30	04 21	04 51	05 16	02 26	02 59	03 32	04 08
	16	60 44.6	12.4	111 14.4	11.2	3	32.8	17.0	60.1	20	04 40	05 07	05 30	02 19	02 58	03 38	04 20
	17	75 44.7	13.1	125 44.6	11.1	3	15.8	17.1	60.1	N 10	04 55	05 20	05 42	02 14	02 58	03 43	04 31
	18	90 44.8	N15 13.9	140 14.7	11.1	S 2	58.7	17.1	60.2	0	05 07	05 32	05 54	02 08	02 58	03 48	04 41
	19	105 44.8	14.6	154 44.8	11.1	2	41.6	17.1	60.2	S 10	05 18	05 43	06 05	02 03	02 57	03 53	04 51
	20	120 44.9	15.4	169 14.9	11.1	2	24.5	17.2	60.2	20	05 27	05 53	06 16	01 57	02 57	03 58	05 02
	21	135 45.0	16.1	183 45.0	11.1	2	07.3	17.2	60.2	30	05 36	06 05	06 29	01 50	02 57	04 05	05 15
	22	150 45.0	16.9	198 15.1	11.0	1	50.1	17.2	60.3	35	05 41	06 11	06 37	01 46	02 57	04 08	05 22
23	165 45.1	17.6	212 45.1	11.1	1	32.9	17.2	60.3	40	05 45	06 17	06 46	01 42	02 56	04 12	05 31	
200	180 45.2	N15 18.4	227 15.2	11.0	S 1	15.7	17.2	60.3	45	05 50	06 25	06 56	01 37	02 56	04 17	05 40	
001	195 45.3	19.1	241 45.2	11.0	0	58.5	17.3	60.3	S 50	05 55	06 34	07 08	01 31	02 56	04 23	05 53	
002	210 45.3	19.9	256 15.2	11.0	0	41.2	17.3	60.3	52	05 57	06 38	07 14	01 28	02 56	04 26	05 58	
003	225 45.4	20.6	270 45.2	10.9	0	23.9	17.3	60.4	54	06 00	06 42	07 20	01 25	02 56	04 29	06 05	
004	240 45.5	21.4	285 15.1	11.0	S 0	06.6	17.3	60.4	56	06 02	06 46	07 27	01 21	02 56	04 32	06 12	
005	255 45.5	22.1	299 45.1	10.9	N 0	10.7	17.3	60.4	58	06 05	06 52	07 34	01 17	02 55	04 35	06 19	
006	270 45.6	N15 22.9	314 15.0	10.8	N 0	28.0	17.4	60.4	S 60	06 07	06 57	07 43	01 13	02 55	04 40	06 29	
007	285 45.7	23.6	328 44.8	10.9	0	45.4	17.3	60.5	Lat.	Ocaso Sol	Crepúsculo Civil	Naut.	Ocaso Luna				
008	300 45.8	24.4	343 14.7	10.8	1	02.7	17.3	60.5	1	2	3	4	1	2	3	4	
009	315 45.8	25.1	357 44.5	10.8	1	20.0	17.4	60.5	N 72	h m	h m	h m	h m	h m	h m	h m	
010	330 45.9	25.8	12 14.3	10.7	1	37.4	17.4	60.5	N 70	22 17	///	///	13 35	16 03	18 42	□	
011	345 46.0	26.6	26 44.0	10.7	1	54.8	17.3	60.5	68	21 33	///	///	13 42	15 58	18 22	21 19	
012	0 46.0	N15 27.3	41 13.7	10.7	N 2	12.1	17.4	60.6	66	21 04	23 12	///	13 47	15 54	18 08	20 39	
013	15 46.1	28.1	55 43.4	10.7	2	29.5	17.3	60.6	64	20 43	22 10	///	13 52	15 51	17 56	20 12	
014	30 46.2	28.8	70 13.1	10.6	2	46.8	17.4	60.6	62	20 26	21 37	///	13 55	15 48	17 46	19 52	
015	45 46.2	29.6	84 42.7	10.6	3	04.2	17.3	60.6	60	20 12	21 13	23 17	13 58	15 46	17 37	19 35	
016	60 46.3	30.3	99 12.3	10.5	3	21.5	17.4	60.6	N 58	20 00	20 54	22 22	14 01	15 44	17 30	19 21	
017	75 46.4	31.0	113 41.8	10.5	3	38.9	17.3	60.6	56	19 50	20 39	21 51	14 04	15 42	17 24	19 10	
018	90 46.4	N15 31.8	128 11.3	10.4	N 3	56.2	17.3	60.7	54	19 41	20 26	21 29	14 06	15 41	17 18	19 00	
019	105 46.5	32.5	142 40.7	10.4	4	13.5	17.3	60.7	52	19 33	20 15	21 11	14 08	15 39	17 13	18 51	
020	120 46.6	33.3	157 10.1	10.4	4	30.8	17.3	60.7	50	19 26	20 06	20 57	14 09	15 38	17 09	18 43	
021	135 46.6	34.0	171 39.5	10.3	4	48.1	17.3	60.7	45	19 20	19 57	20 44	14 11	15 37	17 05	18 36	
022	150 46.7	34.7	186 08.8	10.2	5	05.4	17.2	60.7	N 40	19 07	19 39	20 20	14 14	15 34	16 56	18 21	
023	165 46.8	35.5	200 38.0	10.3	5	22.6	17.3	60.7	35	18 56	19 25	20 01	14 17	15 32	16 49	18 08	
000	180 46.8	N15 36.2	215 07.3	10.1	N 5	39.9	17.2	60.7	30	18 46	19 13	19 46	14 20	15 30	16 43	17 58	
001	195 46.9	37.0	229 36.4	10.1	5	57.1	17.2	60.8	20	18 38	19 03	19 34	14 22	15 29	16 38	17 49	
002	210 47.0	37.7	244 05.5	10.1	6	14.3	17.1	60.8	N 10	18 24	18 47	19 14	14 25	15 26	16 28	17 33	
003	225 47.0	38.4	258 34.6	10.0	6	31.4	17.1	60.8	0	18 12	18 34	18 59	14 29	15 24	16 20	17 20	
004	240 47.1	39.2	273 03.6	9.9	6	48.5	17.1	60.8	S 10	18 00	18 22	18 47	14 31	15 21	16 13	17 07	
005	255 47.2	39.9	287 32.5	9.9	7	05.6	17.1	60.8	20	17 49	18 11	18 36	14 34	15 19	16 05	16 54	
006	270 47.2	N15 40.6	302 01.4	9.9	N 7	22.7	17.0	60.8	30	17 37	18 00	18 26	14 37	15 16	15 57	16 41	
007	285 47.3	41.4	316 30.3	9.7	7	39.7	17.0	60.8	35	17 24	17 49	18 17	14 41	15 14	15 48	16 26	
008	300 47.3	42.1	330 59.0	9.8	7	56.7	17.0	60.8	40	17 16	17 43	18 13	14 43	15 12	15 43	16 17	
009	315 47.4	42.8	345 27.8	9.6	8	13.7	16.9	60.9	45	17 08	17 36	18 08	14 45	15 10	15 37	16 07	
010	330 47.5	43.6	359 56.4	9.6	8	30.6	16.9	60.9	S 50	16 58	17 28	18 03	14 47	15 08	15 30	15 55	
011	345 47.5	44.3	14 25.0	9.5	8	47.5	16.8	60.9	52	16 45	17 20	17 58	14 50	15 06	15 22	15 41	
012	0 47.6	N15 45.0	28 53.5	9.5	N 9	04.3	16.8	60.9	54	16 40	17 16	17 56	14 52	15 04	15 18	15 35	
013	15 47.7	45.8	43 22.0	9.4	9	21.1	16.7	60.9	56	16 33	17 11	17 53	14 53	15 03	15 14	15 27	
014	30 47.7	46.5	57 50.4	9.3	9	37.8	16.7	60.9	58	16 26	17 07	17 51	14 55	15 02	15 09	15 19	
015	45 47.8	47.2	72 18.7	9.3	9	54.5	16.6	60.9	S 60	16 19	17 01	17 48	14 56	15 00	15 04	15 10	
016	60 47.8	48.0	86 47.0	9.2	10	11.1	16.5	60.9	Día	SOL E.T. (+)		LUNA					
017	75 47.9	48.7	101 15.2	9.1	10	27.6	16.6	60.9	1	00 h	12 h	Pas. Mer.	Pas. Mer.	Mer. Sup.	Mer. Inf.	Edad.	Fase
018	90 48.0	N15 49.4	115 43.3	9.1	N10	44.2	16.4	60.9	2	m s	m s	h m	h m	h m	h m	d	
019	105 48.0	50.2	130 11.4	9.0	11	00.6	16.4	60.9	3	02 53	02 57	11 57	08 20	20 44	25		
020	120 48.1	50.9	144 39.4	8.9	11	17.0	16.3	60.9	1	03 01	03 04	11 57	09 09	21 35	26		
021	135 48.2	51.6	159 07.3	8.8	11	33.3	16.3	60.9	2	03 07	03 10	11 57	10 00	22 27	27		
022	150 48.2	52.3	173 35.1	8.8	11	49.6	16.2	60.9									
023	165 48.3	53.1	188 02.9	8.7	12	05.8	16.1	60.9									
	S.D.	15.9	d	0.7													



T.M.G. (TU)		ARIES			VENUS -3.9			MARTE +1.6			JUPITER -2.0			SATURNO +0.4			ESTRELLAS								
d	h	A.H.G.		A.H.G.	Dec.	A.H.G.	Dec.	A.H.G.	Dec.	A.H.G.	Dec.	A.H.G.	Dec.	Nombre	A. H. S.	Dec.									
4	00	221	51.5	173	08.5	N17	39.9	128	35.1	N24	46.5	153	12.2	N21	31.1	296	54.9	S22	03.6	Acamar	315	32.4	S40	20.8	
	01	236	54.0	188	07.8		40.8	143	35.9		46.5	168	14.0		31.1	311	57.4		03.6	Achernar	335	40.5	S57	17.3	
	02	251	56.5	203	07.2		41.7	158	36.7		46.4	183	15.9		31.2	326	59.9		03.6	Acrux	173	29.5	S63	02.7	
	03	266	58.9	218	06.6		42.6	173	37.4		46.4	198	17.8		31.3	342	02.4		03.6	Adhara	255	27.0	S28	57.5	
	04	282	01.4	233	06.0		43.5	188	38.2		46.3	213	19.7		31.4	357	04.9		03.6	Aldebaran	291	10.6	N16	29.4	
	05	297	03.9	248	05.3		44.4	203	38.9		46.3	228	21.6		31.5	12	07.4		03.6						
	06	312	06.3	263	04.7	N17	45.3	218	39.7	N24	46.3	243	23.4	N21	31.6	27	09.9	S22	03.6	Alioth	166	35.8	N56	01.1	
	07	327	08.8	278	04.1		46.2	233	40.5		46.2	258	25.3		31.6	42	12.5		03.6	Alkaid	153	12.5	N49	21.9	
	08	342	11.3	293	03.4		47.1	248	41.2		46.2	273	27.2		31.7	57	15.0		03.6	Al Na'ir	28	06.4	S47	00.6	
	09	357	13.7	308	02.8		48.0	263	42.0		46.1	288	29.1		31.8	72	17.5		03.6	Alnilam	276	05.1	S 1	12.5	
	10	12	16.2	323	02.2		48.8	278	42.8		46.1	303	30.9		31.9	87	20.0		03.6	Alphard	218	13.9	S 8	36.8	
	11	27	18.7	338	01.5		49.7	293	43.5		46.1	318	32.8		32.0	102	22.5		03.6						
	12	42	21.1	353	00.9	N17	50.6	308	44.3	N24	46.0	333	34.7	N21	32.1	117	25.0	S22	03.6	Alphecca	126	26.0	N26	44.8	
	13	57	23.6	8	00.3		51.5	323	45.0		46.0	348	36.6		32.2	132	27.5		03.6	Alpheratz	358	02.7	N29	01.8	
	14	72	26.0	22	59.6		52.4	338	45.8		45.9	3	38.5		32.2	147	30.1		03.6	Altair	62	25.9	N 8	50.1	
	15	87	28.5	37	59.0		53.3	353	46.6		45.9	18	40.3		32.3	162	32.6		03.6	Ankaa	353	33.7	S42	21.7	
	16	102	31.0	52	58.3		54.2	8	47.3		45.9	33	42.2		32.4	177	35.1		03.7	Antares	112	48.3	S26	24.7	
	17	117	33.4	67	57.7		55.1	23	48.1		45.8	48	44.1		32.5	192	37.6		03.7						
	18	132	35.9	82	57.1	N17	56.0	38	48.9	N24	45.8	63	46.0	N21	32.6	207	40.1	S22	03.7	Arcturus	146	11.9	N19	14.1	
	19	147	38.4	97	56.4		56.9	53	49.6		45.7	78	47.9		32.7	222	42.6		03.7	Atria	108	06.1	S69	00.6	
	20	162	40.8	112	55.8		57.7	68	50.4		45.7	93	49.7		32.7	237	45.1		03.7	Avior	234	25.8	S59	28.7	
	21	177	43.3	127	55.1		58.6	83	51.1		45.6	108	51.6		32.8	252	47.7		03.7	Bellatrix	278	51.8	N 6	20.5	
	22	192	45.8	142	54.5	17	59.5	98	51.9		45.6	123	53.5		32.9	267	50.2		03.7	Betelgeuse	271	21.2	N 7	24.4	
	23	207	48.2	157	53.9	18	00.4	113	52.7		45.6	138	55.4		33.0	282	52.7		03.7						
	5	00	222	50.7	172	53.2	N18	01.3	128	53.4	N24	45.5	153	57.2	N21	33.1	297	55.2	S22	03.7	Canopus	264	04.6	S52	41.5
	01	237	53.1	187	52.6		02.2	143	54.2		45.5	168	59.1		33.2	312	57.7		03.7	Capella	281	01.8	N45	59.5	
	02	252	55.6	202	51.9		03.0	158	54.9		45.4	184	01.0		33.2	328	00.2		03.7	Deneb	49	43.9	N45	14.1	
	03	267	58.1	217	51.3		03.9	173	55.7		45.4	199	02.9		33.3	343	02.8		03.7	Denebola	182	51.9	N14	37.8	
	04	283	00.5	232	50.7		04.8	188	56.5		45.3	214	04.7		33.4	358	05.3		03.7	Diphda	349	14.3	S18	02.7	
	05	298	03.0	247	50.0		05.7	203	57.2		45.3	229	06.6		33.5	13	07.8		03.7						
	06	313	05.5	262	49.4	N18	06.6	218	58.0	N24	45.2	244	08.5	N21	33.6	28	10.3	S22	03.7	Dubhe	194	13.2	N61	48.7	
	07	328	07.9	277	48.7		07.4	233	58.8		45.2	259	10.4		33.7	43	12.8		03.7	Elnath	278	35.9	N28	36.1	
	08	343	10.4	292	48.1		08.3	248	59.5		45.1	274	12.3		33.8	58	15.3		03.7	Eltanin	90	54.2	N51	29.0	
	09	358	12.9	307	47.4		09.2	264	00.3		45.1	289	14.1		33.8	73	17.9		03.8	Enif	34	05.0	N 9	49.4	
	10	13	15.3	322	46.8		10.1	279	01.0		45.1	304	16.0		33.9	88	20.4		03.8	Fomalhaut	15	44.0	S29	40.7	
	11	28	17.8	337	46.1		10.9	294	01.8		45.0	319	17.9		34.0	103	22.9		03.8						
	12	43	20.3	352	45.5	N18	11.8	309	02.6	N24	45.0	334	19.8	N21	34.1	118	25.4	S22	03.8	Gacrux	172	21.1	S57	03.5	
	13	58	22.7	7	44.9		12.7	324	03.3		44.9	349	21.6		34.2	133	27.9		03.8	Genah	176	10.8	S17	29.2	
	14	73	25.2	22	44.2		13.6	339	04.1		44.9	4	23.5		34.3	148	30.5		03.8	Hadar	149	13.4	S60	19.6	
	15	88	27.6	37	43.6		14.4	354	04.9		44.8	19	25.4		34.3	163	33.0		03.8	Hamal	328	21.7	N23	24.7	
	16	103	30.1	52	42.9		15.3	9	05.6		44.8	34	27.3		34.4	178	35.5		03.8	Kaus Aust.	84	07.6	S34	23.5	
	17	118	32.6	67	42.3		16.2	24	06.4		44.7	49	29.1		34.5	193	38.0		03.8						
	18	133	35.0	82	41.6	N18	17.0	39	07.1	N24	44.7	64	31.0	N21	34.6	208	40.5	S22	03.8	Kochab	137	17.5	N74	11.8	
	19	148	37.5	97	41.0		17.9	54	07.9		44.6	79	32.9		34.7	223	43.0		03.8	Markab	13	56.7	N15	08.7	
	20	163	40.0	112	40.3		18.8	69	08.7		44.6	94	34.8		34.8	238	45.6		03.8	Menkar	314	34.4	N 4	02.9	
	21	178	42.4	127	39.7		19.6	84	09.4		44.5	109	36.6		34.8	253	48.1		03.8	Menkent	148	28.8	S36	19.3	
	22	193	44.9	142	39.0		20.5	99	10.2		44.5	124	38.5		34.9	268	50.6		03.8	Miaplacidus	221	43.9	S69	40.7	
	23	208	47.4	157	38.4		21.4	114	11.0		44.4	139	40.4		35.0	283	53.1		03.8						
	6	00	223	49.8	172	37.7	N18	22.2	129	11.7	N24	44.4	154	42.3	N21	35.1	298	55.6	S22	03.8	Mirfak	309	07.1	N49	49.5
	01	238	52.3	187	37.0		23.1	144	12.5		44.3	169	44.1		35.2	313	58.2		03.8	Nunki	76	20.6	S26	18.7	
	02	253	54.8	202	36.4		24.0	159	13.2		44.2	184	46.0		35.3	329	00.7		03.9	Peacock	53	47.5	S56	46.1	
	03	268	57.2	217	35.7		24.8	174	14.0		44.2	199	47.9		35.3	344	03.2		03.9	Pollux	243	50.0	N28	03.3	
	04	283	59.7	232	35.1		25.7	189	14.8		44.1	214	49.8		35.4	359	05.7		03.9	Procyon	245	18.8	N 5	15.2	
	05	299	02.1	247	34.4		26.5	204	15.5		44.1	229	51.6		35.5	14	08.2		03.9						
	06	314	04.6	262	33.8	N18	27.4	219	16.3	N24	44.0	244	53.5	N21	35.6	29	10.8	S22	03.9	Rasalhague	96	23.0	N12	33.8	
	0																								



T.M.G. (TU)	SOL			LUNA				Lat.	Crepúsculo		Orto Sol	Orto Luna						
	A.H.G.	Dec.	A.H.G.	v	Dec.	d	P.H.		Naut.	Civil		4	5	6	7			
												h m	h m	h m	h m	h m	h m	h m
J U E V E S	4 00	180 48.3	N15 53.8	202 30.6	8.6	N12 21.9	16.0	60.9	N 72	///	///	01 14	01 39	□	□	□	□	
	01	195 48.4	54.5	216 58.2	8.5	12 37.9	16.0	60.9	N 70	///	///	02 07	02 01	□	□	□	□	
	02	210 48.5	55.3	231 25.7	8.5	12 53.9	15.9	60.9	68	///	///	02 39	02 18	□	□	□	□	
	03	225 48.5	56.0	245 53.2	8.4	13 09.8	15.8	60.9	66	///	01 29	03 02	02 32	02 11	□	□	□	□
	04	240 48.6	56.7	260 20.6	8.3	13 25.6	15.8	60.9	64	///	02 06	03 20	02 44	02 32	□	□	□	□
	05	255 48.6	57.4	274 47.9	8.2	13 41.4	15.6	60.9	62	///	02 32	03 35	02 54	02 50	□	□	□	□
	06	270 48.7	N15 58.2	289 15.1	8.2	N13 57.0	15.6	60.9	60	01 19	02 52	03 47	03 02	03 05	□	□	□	□
	07	285 48.7	58.9	303 42.3	8.0	14 12.6	15.5	60.9	N 58	01 53	03 08	03 58	03 10	03 18	□	□	□	□
	08	300 48.8	15 59.6	318 09.3	8.0	14 28.1	15.4	60.9	56	02 17	03 22	04 07	03 17	03 29	□	□	□	□
	09	315 48.9	16 00.3	332 36.3	7.9	14 43.5	15.3	60.9	54	02 36	03 33	04 16	03 23	03 39	□	□	□	□
	10	330 48.9	01.0	347 03.2	7.8	14 58.8	15.2	60.9	52	02 51	03 43	04 23	03 28	03 47	□	□	□	□
	11	345 49.0	01.8	1 30.0	7.8	15 14.0	15.1	60.9	50	03 04	03 52	04 30	03 33	03 55	□	□	□	□
	12	0 49.0	N16 02.5	15 56.8	7.6	N15 29.1	15.0	60.9	45	03 30	04 11	04 44	03 44	04 12	□	□	□	□
	13	15 49.1	03.2	30 23.4	7.6	15 44.1	14.9	60.9	N 40	03 49	04 26	04 55	03 53	04 26	□	□	□	□
	14	30 49.1	03.9	44 50.0	7.5	15 59.0	14.9	60.9	35	04 05	04 38	05 05	04 01	04 38	□	□	□	□
	15	45 49.2	04.7	59 16.5	7.4	16 13.9	14.7	60.9	30	04 18	04 48	05 14	04 08	04 48	□	□	□	□
	16	60 49.3	05.4	73 42.9	7.3	16 28.6	14.6	60.9	20	04 38	05 05	05 29	04 20	05 06	□	□	□	□
	17	75 49.3	06.1	88 09.2	7.2	16 43.2	14.5	60.9	N 10	04 54	05 19	05 41	04 31	05 22	□	□	□	□
	18	90 49.4	N16 06.8	102 35.4	7.1	N16 57.7	14.4	60.9	0	05 07	05 32	05 53	04 41	05 37	□	□	□	□
	19	105 49.4	07.5	117 01.5	7.1	17 12.1	14.2	60.9	S 10	05 18	05 43	06 05	04 51	05 52	□	□	□	□
	20	120 49.5	08.2	131 27.6	7.0	17 26.3	14.2	60.9	20	05 28	05 54	06 17	05 02	06 08	□	□	□	□
	21	135 49.5	09.0	145 53.6	6.8	17 40.5	14.1	60.9	30	05 38	06 06	06 31	05 15	06 27	□	□	□	□
	22	150 49.6	09.7	160 19.4	6.8	17 54.6	13.9	60.9	35	05 43	06 13	06 39	05 22	06 38	□	□	□	□
23	165 49.6	10.4	174 45.2	6.8	18 08.5	13.8	60.9	40	05 48	06 20	06 49	05 31	06 51	□	□	□	□	
V I E R N E S	5 00	180 49.7	N16 11.1	189 11.0	6.6	N18 22.3	13.7	60.8	S 50	05 59	06 38	07 12	05 53	07 25	□	□	□	□
	01	195 49.8	11.8	203 36.6	6.5	18 36.0	13.5	60.8	52	06 02	06 42	07 18	05 58	07 33	□	□	□	□
	02	210 49.8	12.5	218 02.1	6.5	18 49.5	13.5	60.8	54	06 04	06 47	07 25	06 05	07 43	□	□	□	□
	03	225 49.9	13.3	232 27.6	6.3	19 03.0	13.3	60.8	56	06 07	06 52	07 32	06 12	07 55	□	□	□	□
	04	240 49.9	14.0	246 52.9	6.3	19 16.3	13.1	60.8	58	06 10	06 57	07 41	06 19	08 08	□	□	□	□
	05	255 50.0	14.7	261 18.2	6.2	19 29.4	13.1	60.8	S 60	06 13	07 04	07 50	06 29	08 23	□	□	□	□
	06	270 50.0	N16 15.4	275 43.4	6.1	N19 42.5	12.9	60.8										
	07	285 50.1	16.1	290 08.5	6.0	19 55.4	12.8	60.8	Lat.	Ocaso Sol	Crepúsculo		Ocaso Luna					
	08	300 50.1	16.8	304 33.5	6.0	20 08.2	12.6	60.8			Civil	Naut.	4	5	6	7		
	09	315 50.2	17.5	318 58.5	5.8	20 20.8	12.5	60.7	N 72	h m	h m	h m	h m	h m	h m	h m	h m	
	10	330 50.2	18.3	333 23.3	5.8	20 33.3	12.3	60.7	N 70	22 50	///	///	21 19	□	□	□	□	
	11	345 50.3	19.0	347 48.1	5.7	20 45.6	12.2	60.7	68	21 52	///	///	20 39	□	□	□	□	
	12	0 50.3	N16 19.7	2 12.8	5.6	N20 57.8	12.1	60.7	66	21 18	///	///	20 12	23 03	□	□	□	
	13	15 50.4	20.4	16 37.4	5.5	21 09.9	11.9	60.7	64	20 54	22 31	///	19 52	22 12	□	□	□	
	14	30 50.4	21.1	31 01.9	5.4	21 21.8	11.8	60.7	62	20 36	21 51	///	19 35	21 41	□	□	□	
	15	45 50.5	21.8	45 26.3	5.4	21 33.6	11.6	60.6	60	20 20	21 24	///	19 21	21 17	□	□	□	
	16	60 50.5	22.5	59 50.7	5.3	21 45.2	11.4	60.6	N 58	20 08	21 04	22 40	19 10	20 59	□	□	□	
	17	75 50.6	23.2	74 15.0	5.2	21 56.6	11.4	60.6	56	19 57	20 47	22 04	19 00	20 43	□	□	□	
	18	90 50.6	N16 23.9	88 39.2	5.1	N22 08.0	11.1	60.6	54	19 47	20 33	21 39	18 51	20 30	□	□	□	
	19	105 50.7	24.6	103 03.3	5.1	22 19.1	11.0	60.6	52	19 39	20 22	21 20	18 43	20 18	□	□	□	
	20	120 50.7	25.3	117 27.4	4.9	22 30.1	10.8	60.6	50	19 31	20 11	21 04	18 36	20 08	□	□	□	
	21	135 50.8	26.0	131 51.3	4.9	22 40.9	10.7	60.5	45	19 25	20 02	20 51	18 21	19 46	□	□	□	
	22	150 50.8	26.8	146 15.2	4.9	22 51.6	10.5	60.5	N 40	19 10	19 43	20 24	18 08	19 29	□	□	□	
23	165 50.9	27.5	160 39.1	4.7	23 02.1	10.3	60.5	35	18 59	19 28	20 05	17 58	19 14	□	□	□		
S A B A D O	6 00	180 50.9	N16 28.2	175 02.8	4.7	N23 12.4	10.2	60.5	30	18 49	19 16	19 49	17 58	19 29	□	□	□	
	01	195 51.0	28.9	189 26.5	4.6	23 22.6	10.0	60.4	20	18 40	19 05	19 36	17 49	19 02	□	□	□	
	02	210 51.0	29.6	203 50.1	4.5	23 32.6	9.9	60.4	N 10	18 25	18 48	19 16	17 33	18 40	□	□	□	
	03	225 51.1	30.3	218 13.6	4.5	23 42.5	9.6	60.4	0	18 12	18 34	19 00	17 20	18 22	□	□	□	
	04	240 51.1	31.0	232 37.1	4.4	23 52.1	9.5	60.4	S 10	18 00	18 22	18 47	17 07	18 05	□	□	□	
	05	255 51.2	31.7	247 00.5	4.4	24 01.6	9.3	60.4	20	17 48	18 10	18 35	16 54	17 48	□	□	□	
	06	270 51.2	N16 32.4	261 23.9	4.3	N24 10.9	9.2	60.3	30	17 36	17 59	18 25	16 41	17 30	□	□	□	
	07	285 51.3	33.1	275 47.2	4.2	24 20.1	9.0	60.3	40	17 22	17 47	18 15	16 26	17 09	□	□	□	
	08	300 51.3	33.8	290 10.4	4.1	24 29.1	8.8	60.3	50	17 13	17 40	18 10	16 17	16 56	□	□	□	
	09	315 51.3	34.5	304 33.5	4.2	24 37.9	8.6	60.3	S 50	17 04	17 33	18 05	16 07	16 42	□	□	□	
	10	330 51.4	35.2	318 56.7	4.0	24 46.5	8.4	60.2	52	16 53	17 24	17 59	15 55	16 26	□	□	□	
	11	345 51.4	35.9	333 19.7	4.0	24 54.9	8.3	60.2	60	16 40	17 15	17 54	15 41	16 06	□	□	□	
	12	0 51.5	N16 36.6	347 42.7	3.9	N25 03.2	8.0	60.2	58	16 34	17 11	17 51	15 35	15 56	□	□	□	
	13	15 51.5	37.3	2 05.6	3.9	25 11.2	7.9	60.2	56	16 28	17 06	17 48	15 27	15 46	□	□	□	
	14	30 51.6	38.0	16 28.5	3.9	25 19.1	7.7	60.1	54	16 20	17 01	17 45	15 19	15 34	□	□	□	
	15	45 51.6	38.7	30 51.4	3.8	25 26.8	7.6	60.1	52	16 12	16 55	17 42	15 10	15 20	□	□	□	
	16	60 51.7	39.4	45 14.2	3.8	25 34.4	7.3	60.1	S 60	16 02	16 49	17 39	15 00	15 04	□	□	□	
	17	75 51.7	40.1	59 37.0	3.7	25 41.7	7.2	60.0										
	18	90 51.8	N16 40.8	73 59.7	3.6	N25 48.9	6.9	60.0										



T.M.G. (TU)	ARIES		VENUS -3.9		MARTE +1.6		JUPITER -2.0		SATURNO +0.4		ESTRELLAS		
	A.H.G.	A.H.G. Dec.	A.H.G. Dec.	A.H.G. Dec.	A.H.G. Dec.	A.H.G. Dec.	A.H.G. Dec.	A.H.G. Dec.	Nombre	A. H. S.	Dec.		
D O M I N G O	7 00	224 49.0	172 21.9 N18 42.7	129 30.0 N24 43.0	155 27.3 N21 37.1	299 56.2 S22 04.0	Acamar	315 32.4	S40	20.7			
	01	239 51.4	187 21.2 43.5	144 30.8 43.0	170 29.1 37.2	314 58.7 04.0	Achernar	335 40.5	S57	17.3			
	02	254 53.9	202 20.6 44.4	159 31.5 42.9	185 31.0 37.3	330 01.2 04.0	Acrux	173 29.5	S63	02.7			
	03	269 56.4	217 19.9 45.2	174 32.3 42.8	200 32.9 37.3	345 03.8 04.0	Adhara	255 27.0	S28	57.5			
	04	284 58.8	232 19.2 46.1	189 33.1 42.8	215 34.7 37.4	0 06.3 04.0	Aldebaran	291 10.6	N16	29.4			
	05	300 01.3	247 18.6 46.9	204 33.8 42.7	230 36.6 37.5	15 08.8 04.0							
	06	315 03.7	262 17.9 N18 47.7	219 34.6 N24 42.7	245 38.5 N21 37.6	30 11.3 S22 04.0	Alioth	166 35.8	N56	01.1			
	07	330 06.2	277 17.2 48.6	234 35.4 42.6	260 40.4 37.7	45 13.9 04.0	Alkaid	153 12.5	N49	21.9			
	08	345 08.7	292 16.6 49.4	249 36.1 42.5	275 42.2 37.8	60 16.4 04.0	Al Na'ir	28 06.4	S47	00.6			
	09	0 11.1	307 15.9 50.2	264 36.9 42.5	290 44.1 37.8	75 18.9 04.1	Alnilam	276 05.1	S 1	12.5			
	10	15 13.6	322 15.2 51.1	279 37.6 42.4	305 46.0 37.9	90 21.4 04.1	Alphard	218 13.9	S 8	36.8			
	11	30 16.1	337 14.6 51.9	294 38.4 42.3	320 47.9 38.0	105 24.0 04.1							
	12	45 18.5	352 13.9 N18 52.7	309 39.2 N24 42.3	335 49.7 N21 38.1	120 26.5 S22 04.1	Alphecca	126 26.0	N26	44.8			
	13	60 21.0	7 13.2 53.6	324 39.9 42.2	350 51.6 38.2	135 29.0 04.1	Alpheratz	358 02.7	N29	01.8			
	14	75 23.5	22 12.5 54.4	339 40.7 42.2	5 53.5 38.3	150 31.5 04.1	Altair	62 25.8	N 8	50.2			
	15	90 25.9	37 11.9 55.2	354 41.5 42.1	20 55.3 38.3	165 34.1 04.1	Ankaa	353 33.7	S42	21.7			
	16	105 28.4	52 11.2 56.1	9 42.2 42.0	35 57.2 38.4	180 36.6 04.1	Antares	112 48.2	S26	24.7			
	17	120 30.9	67 10.5 56.9	24 43.0 42.0	50 59.1 38.5	195 39.1 04.1							
	18	135 33.3	82 09.9 N18 57.7	39 43.7 N24 41.9	66 01.0 N21 38.6	210 41.6 S22 04.1	Arcturus	146 11.9	N19	14.1			
	19	150 35.8	97 09.2 58.5	54 44.5 41.8	81 02.8 38.7	225 44.2 04.1	Atria	108 06.1	S69	00.6			
	20	165 38.2	112 08.5 18 59.4	69 45.3 41.8	96 04.7 38.7	240 46.7 04.1	Avior	234 25.8	S59	28.7			
	21	180 40.7	127 07.8 19 00.2	84 46.0 41.7	111 06.6 38.8	255 49.2 04.1	Bellatrix	278 51.8	N 6	20.5			
	22	195 43.2	142 07.2 01.0	99 46.8 41.6	126 08.4 38.9	270 51.8 04.1	Betelgeuse	271 21.2	N 7	24.4			
23	210 45.6	157 06.5 01.8	114 47.6 41.6	141 10.3 39.0	285 54.3 04.1								
L U N E S	8 00	225 48.1	172 05.8 N19 02.7	129 48.3 N24 41.5	156 12.2 N21 39.1	300 56.8 S22 04.2	Canopus	264 04.6	S52	41.5			
	01	240 50.6	187 05.1 03.5	144 49.1 41.4	171 14.1 39.2	315 59.3 04.2	Capella	281 01.8	N45	59.5			
	02	255 53.0	202 04.5 04.3	159 49.9 41.4	186 15.9 39.2	331 01.9 04.2	Deneb	49 43.9	N45	14.2			
	03	270 55.5	217 03.8 05.1	174 50.6 41.3	201 17.8 39.3	346 04.4 04.2	Denebola	182 51.9	N14	37.8			
	04	285 58.0	232 03.1 05.9	189 51.4 41.2	216 19.7 39.4	1 06.9 04.2	Diphda	349 14.3	S18	02.7			
	05	301 00.4	247 02.4 06.8	204 52.1 41.2	231 21.5 39.5	16 09.5 04.2							
	06	316 02.9	262 01.7 N19 07.6	219 52.9 N24 41.1	246 23.4 N21 39.6	31 12.0 S22 04.2	Dubhe	194 13.2	N61	48.7			
	07	331 05.4	277 01.1 08.4	234 53.7 41.0	261 25.3 39.7	46 14.5 04.2	Elnath	278 35.9	N28	36.1			
	08	346 07.8	292 00.4 09.2	249 54.4 41.0	276 27.2 39.7	61 17.1 04.2	Eltanin	90 54.2	N51	29.0			
	09	1 10.3	306 59.7 10.0	264 55.2 40.9	291 29.0 39.8	76 19.6 04.2	Enif	34 05.0	N 9	49.4			
	10	16 12.7	321 59.0 10.8	279 56.0 40.8	306 30.9 39.9	91 22.1 04.2	Fomalhaut	15 44.0	S29	40.7			
	11	31 15.2	336 58.3 11.7	294 56.7 40.7	321 32.8 40.0	106 24.6 04.2							
	12	46 17.7	351 57.7 N19 12.5	309 57.5 N24 40.7	336 34.6 N21 40.1	121 27.2 S22 04.2	Gacrux	172 21.1	S57	03.5			
	13	61 20.1	6 57.0 13.3	324 58.3 40.6	351 36.5 40.1	136 29.7 04.2	Giennah	176 10.8	S17	29.2			
	14	76 22.6	21 56.3 14.1	339 59.0 40.5	6 38.4 40.2	151 32.2 04.3	Hadar	149 13.4	S60	19.6			
	15	91 25.1	36 55.6 14.9	354 59.8 40.5	21 40.3 40.3	166 34.8 04.3	Hamal	328 21.7	N23	24.7			
	16	106 27.5	51 54.9 15.7	10 00.5 40.4	36 42.1 40.4	181 37.3 04.3	Kaus Aust.	84 07.6	S34	23.5			
	17	121 30.0	66 54.2 16.5	25 01.3 40.3	51 44.0 40.5	196 39.8 04.3							
	18	136 32.5	81 53.6 N19 17.3	40 02.1 N24 40.2	66 45.9 N21 40.6	211 42.4 S22 04.3	Kochab	137 17.5	N74	11.8			
	19	151 34.9	96 52.9 18.1	55 02.8 40.2	81 47.7 40.6	226 44.9 04.3	Markab	13 56.6	N15	08.7			
	20	166 37.4	111 52.2 18.9	70 03.6 40.1	96 49.6 40.7	241 47.4 04.3	Menkar	314 34.4	N 4	02.9			
	21	181 39.8	126 51.5 19.7	85 04.4 40.0	111 51.5 40.8	256 50.0 04.3	Menkent	148 28.8	S36	19.3			
	22	196 42.3	141 50.8 20.5	100 05.1 40.0	126 53.3 40.9	271 52.5 04.3	Miaplacidus	221 43.9	S69	40.7			
23	211 44.8	156 50.1 21.3	115 05.9 39.9	141 55.2 41.0	286 55.0 04.3								
M A R T E S	9 00	226 47.2	171 49.8 N19 22.1	130 06.7 N24 39.8	156 57.1 N21 41.0	301 57.6 S22 04.3	Mirfak	309 07.1	N49	49.5			
	01	241 49.7	186 48.8 22.9	145 07.4 39.7	171 59.0 41.1	317 00.1 04.3	Nunki	76 20.6	S26	18.7			
	02	256 52.2	201 48.1 23.7	160 08.2 39.7	187 00.8 41.2	332 02.6 04.3	Peacock	53 47.4	S56	46.1			
	03	271 54.6	216 47.4 24.5	175 08.9 39.6	202 02.7 41.3	347 05.2 04.4	Pollux	243 50.0	N28	03.3			
	04	286 57.1	231 46.7 25.3	190 09.7 39.5	217 04.6 41.4	2 07.7 04.4	Procyon	245 18.9	N 5	15.2			
	05	301 59.6	246 46.0 26.1	205 10.5 39.4	232 06.4 41.4	17 10.2 04.4							
	06	317 02.0	261 45.3 N19 26.9	220 11.2 N24 39.4	247 08.3 N21 41.5	32 12.8 S22 04.4	Rasalhague	96 23.0	N12	33.8			
	07	332 04.5	276 44.6 27.7	235 12.0 39.3	262 10.2 41.6	47 15.3 04.4	Regulus	208 02.7	N12	01.2			
	08	347 07.0	291 43.9 28.5	250 12.8 39.2	277 12.0 41.7	62 17.8 04.4	Rigel	281 29.8	S 8	12.8			
	09	2 09.4	306 43.2 29.3	265 13.5 39.1	292 13.9 41.8	77 20.4 04.4	Rigil Kent.	140 16.2	S60	47.7			
	10	17 11.9	321 42.5 30.1	280 14.3 39.0	307 15.8 41.9	92 22.9 04.4	Sabik	102 33.1	S15	42.9			
	11	32 14.3	336 41.8 30.9	295 15.1 39.0	322 17.6 41.9	107 25.4 04.4							
	12	47 16.8	351 41.2 N19 31.7	310 15.8 N24 38.9	337 19.5 N21 42.0	122 28.0 S22 04.4	Schedar	350 02.1	N56	28.6			
	13	62 19.3	6 40.5 32.5	325 16.6 38.8	352 21.4 42.1	137 30.5 04.4	Shaula	96 46.3	S37	05.9			
	14	77 21.7	21 39.8 33.2	340 17.3 38.7	7 23.2 42.2	152 33.0 04.4	Sirius	258 49.9	S16	42.1			
	15	92 24.2	36 39.1 34.0	355 18.1 38.7	22 25.1 42.3	167 35.6 04.4	Spica	158 50.2	S11	06.6			
	16	107 26.7	51 38.4 34.8	10 18.9 38.6	37 27.0 42.3	182 38.1 04.4	Suhail	223 06.0	S43	23.6			
	17	122 29.1	66 37.7 35.6	25 19.6 38.5	52 28.9 42.4	197 40.6 04.5							
	18	137 31.6	81 37.0 N19 36.4	40 20.4 N24 38.4	67 30.7 N21 42.5	212 43.2 S22 04.5	Vega	80 51.0	N38	46.1			
	19	152 34.1	96 36.3 37.2	55 21.2 38.3	82 32.6 42.6	227 45.7 04.5	Zuben'ubi	137 25.3	S16	00.1			
	20	167 36.5	111 35.6 38.0	70 21.9 38.3	97 34.5 42.7	242 48.2 04.5							
	21	182 39.0	126 34.9 38.7	85 22.7 38.2	112 36.3 42.7	257 50.8 04.5							
	22	197 41.5	141 34.2 39.5	100 23.5 38.1	127 38.2 42.8	272 53.3 04.5							
23	212 43.9	156 33.5 40.3	115 24.2 38.0	142 40.1 42.9	287 55.8 04.5								
Pas. Mer. 8 55.3		v -0.7 d 0.8		v 0.8 d 0.1		v 1.9 d 0.1		v 2.5 d 0.0					
										A. H. S. Pas. Mer.			
										o / h m			
										Venus 306 17.7 12 32			
										Marte 264 00.2 15 20			
										Júpiter 290 24.1 13 33			
										Saturno 75 08.7 3 56			



T.M.G. (TU)	SOL				LUNA				Lat.	Crepúsculo		Orto Sol	Orto Luna							
	A.H.G.		Dec.		A.H.G.		Dec.			d	P.H.		Naut.	Civil	7	8	9	10		
	o	'	o	'	o	'	o	'												
DOMINICANA	7 00	180	52.0	N16	44.9	160	15.2	3.5	N26	27.8	5.8	59.8	N 72	///	///	00 26	h m	h m	h m	h m
	01	195	52.1		45.6	174	37.7	3.5	26	33.6	5.6	59.8	N 70	///	///	01 47	h m	h m	h m	h m
	02	210	52.1		46.3	189	00.2	3.4	26	39.2	5.5	59.8	68	///	///	02 24	h m	h m	h m	h m
	03	225	52.1	..	47.0	203	22.6	3.4	26	44.7	5.2	59.7	66	///	01 04	02 50	h m	h m	h m	h m
	04	240	52.2		47.7	217	45.0	3.5	26	49.9	5.1	59.7	64	///	01 51	03 10	h m	h m	h m	05 45
	05	255	52.2		48.4	232	07.5	3.4	26	55.0	4.8	59.7	62	///	02 20	03 26	02 45	02 57	04 32	06 31
	06	270	52.3	N16	49.1	246	29.9	3.3	N26	59.8	4.7	59.6	60	00 57	02 42	03 40	03 27	04 05	05 22	07 00
	07	285	52.3		49.8	260	52.2	3.4	27	04.5	4.4	59.6	N 58	01 39	03 00	03 51	03 55	04 40	05 53	07 23
	08	300	52.3		50.5	275	14.6	3.4	27	08.9	4.3	59.6	56	02 06	03 14	04 01	04 17	05 06	06 17	07 41
	09	315	52.4	..	51.2	289	37.0	3.4	27	13.2	4.1	59.5	54	02 27	03 27	04 10	04 35	05 26	06 36	07 56
	10	330	52.4		51.8	303	59.4	3.3	27	17.3	3.8	59.5	52	02 44	03 37	04 18	04 51	05 44	06 52	08 10
	11	345	52.5		52.5	318	21.7	3.4	27	21.1	3.7	59.5	50	02 57	03 47	04 25	05 04	05 58	07 06	08 21
	12	0	52.5	N16	53.2	332	44.1	3.4	N27	24.8	3.5	59.4	45	03 25	04 06	04 40	05 32	06 28	07 34	08 45
	13	15	52.5		53.9	347	06.5	3.4	27	28.3	3.3	59.4	N 40	03 45	04 22	04 52	05 54	06 51	07 56	09 04
	14	30	52.6		54.6	1	28.9	3.3	27	31.6	3.1	59.4	35	04 02	04 35	05 02	06 12	07 10	08 15	09 20
	15	45	52.6	..	55.3	15	51.2	3.5	27	34.7	2.9	59.3	30	04 15	04 46	05 11	06 27	07 27	08 30	09 34
	16	60	52.7		56.0	30	13.7	3.4	27	37.6	2.7	59.3	20	04 36	05 04	05 27	06 54	07 55	08 57	09 58
	17	75	52.7		56.7	44	36.1	3.4	27	40.3	2.5	59.3	N 10	04 53	05 18	05 40	07 17	08 19	09 20	10 18
	18	90	52.7	N16	57.3	58	58.5	3.5	N27	42.8	2.3	59.2	0	05 06	05 31	05 53	07 39	08 41	09 41	10 37
	19	105	52.8		58.0	73	21.0	3.5	27	45.1	2.1	59.2	S 10	05 18	05 43	06 05	08 01	09 04	10 03	10 56
	20	120	52.8		58.7	87	43.5	3.5	27	47.2	1.9	59.2	20	05 29	05 55	06 18	08 24	09 28	10 25	11 16
	21	135	52.8	16	59.4	102	06.0	3.5	27	49.1	1.8	59.1	30	05 40	06 08	06 33	08 51	09 56	10 52	11 39
	22	150	52.9	17	00.1	116	28.5	3.6	27	50.9	1.5	59.1	35	05 45	06 15	06 42	09 07	10 12	11 07	11 52
23	165	52.9		00.8	130	51.1	3.6	27	52.4	1.3	59.1	40	05 51	06 23	06 52	09 26	10 32	11 25	12 08	
8 00	180	53.0	N17	01.4	145	13.7	3.6	N27	53.7	1.2	59.0	45	05 56	06 32	07 03	09 49	10 55	11 47	12 26	
01	195	53.0		02.1	159	36.3	3.7	27	54.9	0.9	59.0	S 50	06 03	06 42	07 17	10 18	11 25	12 15	12 49	
02	210	53.0		02.8	173	59.0	3.7	27	55.8	0.8	59.0	52	06 06	06 46	07 23	10 33	11 40	12 28	13 00	
03	225	53.1	..	03.5	188	21.7	3.8	27	56.6	0.6	58.9	54	06 09	06 51	07 30	10 49	11 58	12 43	13 12	
04	240	53.1		04.2	202	44.5	3.8	27	57.2	0.3	58.9	56	06 12	06 57	07 38	11 09	12 18	13 01	13 26	
05	255	53.1		04.8	217	07.3	3.9	27	57.5	0.2	58.8	58	06 15	07 03	07 47	11 34	12 45	13 23	13 43	
06	270	53.2	N17	05.5	231	30.2	3.9	N27	57.7	0.0	58.8	S 60	06 19	07 10	07 57	12 09	13 21	13 52	14 03	
07	285	53.2		06.2	245	53.1	3.9	27	57.7	0.1	58.8	Lat.	Ocaso Sol	Crepúsculo Civil	Ocaso Luna					
08	300	53.2		06.9	260	16.0	4.1	27	57.6	0.4	58.7	h m	h m	h m	h m	h m	h m	h m	h m	
09	315	53.3	..	07.5	274	39.1	4.1	27	57.2	0.6	58.7	N 72	h m	h m	h m	h m	h m	h m	h m	
10	330	53.3		08.2	289	02.2	4.1	27	56.6	0.7	58.7	N 70	22 12	///	///	h m	h m	h m	h m	
11	345	53.3		08.9	303	25.3	4.2	27	55.9	1.0	58.6	68	21 33	///	///	h m	h m	h m	h m	
12	0	53.4	N17	09.6	317	48.5	4.3	N27	54.9	1.1	58.6	66	21 06	22 58	///	h m	h m	h m	h m	
13	15	53.4		10.2	332	11.8	4.3	27	53.8	1.3	58.5	64	20 45	22 07	///	h m	h m	h m	h m	
14	30	53.4		10.9	346	35.1	4.4	27	52.5	1.5	58.5	62	20 29	21 36	///	h m	h m	h m	h m	
15	45	53.5	..	11.6	0	58.5	4.5	27	51.0	1.6	58.5	60	20 15	21 13	23 04	25 53	01 53	02 25	02 25	
16	60	53.5		12.3	15	22.0	4.6	27	49.4	1.9	58.4	N 58	20 03	20 55	22 18	24 44	00 44	01 34	01 55	
17	75	53.5		12.9	29	45.6	4.6	27	47.5	2.0	58.4	56	19 53	20 40	21 49	24 09	00 09	01 03	01 31	
18	90	53.6	N17	13.6	44	09.2	4.8	N27	45.5	2.2	58.3	54	19 44	20 28	21 28	23 43	24 39	00 39	01 13	
19	105	53.6		14.3	58	33.0	4.8	27	43.3	2.4	58.3	52	19 36	20 17	21 11	23 06	24 04	00 04	00 43	
20	120	53.6		15.0	72	56.8	4.8	27	40.9	2.5	58.3	50	19 29	20 07	20 57	22 51	23 50	24 31	00 31	
21	135	53.7	..	15.6	87	20.6	5.0	27	38.4	2.7	58.2	45	19 14	19 47	20 29	22 21	23 21	24 06	00 06	
22	150	53.7		16.3	101	44.6	5.1	27	35.7	2.9	58.2	N 40	19 02	19 32	20 08	21 58	22 58	23 46	24 24	
23	165	53.7		17.0	116	08.7	5.1	27	32.8	3.1	58.2	35	18 51	19 19	19 52	21 39	22 40	23 29	24 10	
9 00	180	53.8	N17	17.6	130	32.8	5.2	N27	29.7	3.2	58.1	30	18 42	19 08	19 38	21 23	22 23	23 15	23 58	
01	195	53.8		18.3	144	57.0	5.4	27	26.5	3.4	58.1	20	18 26	18 49	19 17	20 55	21 56	22 50	23 37	
02	210	53.8		19.0	159	21.4	5.4	27	23.1	3.6	58.0	N 10	18 13	18 35	19 00	20 31	21 32	22 29	23 19	
03	225	53.9	..	19.6	173	45.8	5.5	27	19.5	3.8	58.0	0	18 00	18 22	18 47	20 09	21 10	22 08	23 02	
04	240	53.9		20.3	188	10.3	5.6	27	15.7	3.9	58.0	S 10	17 47	18 09	18 35	19 47	20 48	21 48	22 44	
05	255	53.9		21.0	202	34.9	5.7	27	11.8	4.0	57.9	20	17 34	17 57	18 24	19 23	20 25	21 26	22 26	
06	270	53.9	N17	21.7	216	59.6	5.8	N27	07.8	4.3	57.9	30	17 19	17 44	18 13	18 55	19 57	21 01	22 04	
07	285	54.0		22.3	231	24.4	5.9	27	03.5	4.4	57.8	35	17 11	17 37	18 08	18 38	19 40	20 46	21 52	
08	300	54.0		23.0	245	49.3	6.1	26	59.1	4.5	57.8	40	17 01	17 30	18 02	18 19	19 21	20 28	21 37	
09	315	54.0	..	23.6	260	14.4	6.1	26	54.6	4.7	57.8	45	16 49	17 21	17 56	17 56	18 58	20 07	21 20	
10	330	54.1		24.3	274	39.5	6.2	26	49.9	4.9	57.7	S 50	16 36	17 11	17 49	17 26	18 28	19 41	20 58	
11	345	54.1		25.0	289	04.7	6.3	26	45.0	5.0	57.7	52	16 29	17 06	17 47	17 12	18 13	19 28	20 47	
12	0	54.1	N17	25.6	303	30.0	6.5	N26	40.0	5.2	57.7	54	16 22	17 01	17 44	16 55	17 56	19 13	20 36	
13	15	54.1																		



T.M.G. (TU)	ARIES			VENUS -3.9			MARTE +1.7			JUPITER -2.0			SATURNO +0.3			ESTRELLAS		
	A.H.G.	A.H.G.	Dec.	A.H.G.	Dec.	A.H.G.	Dec.	A.H.G.	Dec.	A.H.G.	Dec.	A.H.G.	Dec.	Nombre	A. H. S.	Dec.		
M I E R C O L E S	10 00	227 46.4	171 32.8	N19 41.1	130 25.0	N24 37.9	157 41.9	N21 43.0	302 58.4	S22 04.5	Acamar	315 32.4	S40 20.7					
	01	242 48.8	186 32.1	41.9	145 25.8	37.9	172 43.8	43.1	318 00.9	04.5	Achernar	335 40.5	S57 17.3					
	02	257 51.3	201 31.4	42.6	160 26.5	37.8	187 45.7	43.2	333 03.5	04.5	Acrux	173 29.5	S63 02.7					
	03	272 53.8	216 30.7	43.4	175 27.3	37.7	202 47.5	43.2	348 06.0	04.5	Adhara	255 27.0	S28 57.5					
	04	287 56.2	231 30.0	44.2	190 28.0	37.6	217 49.4	43.3	3 08.5	04.5	Aldebaran	291 10.6	N16 29.4					
	05	302 58.7	246 29.3	45.0	205 28.8	37.5	232 51.3	43.4	18 11.1	04.5								
	06	318 01.2	261 28.6	N19 45.7	220 29.6	N24 37.4	247 53.1	N21 43.5	33 13.6	S22 04.6	Alioth	166 35.8	N56 01.1					
	07	333 03.6	276 27.9	46.5	235 30.3	37.4	262 55.0	43.6	48 16.1	04.6	Alkaid	153 12.5	N49 21.9					
	08	348 06.1	291 27.2	47.3	250 31.1	37.3	277 56.9	43.6	63 18.7	04.6	Al Na'ir	28 06.3	S47 00.6					
	09	3 08.6	306 26.5	48.1	265 31.9	37.2	292 58.7	43.7	78 21.2	04.6	Alnilam	276 05.1	S 1 12.4					
	10	18 11.0	321 25.8	48.8	280 32.6	37.1	308 00.6	43.8	93 23.8	04.6	Alphard	218 13.9	S 8 36.8					
	11	33 13.5	336 25.1	49.6	295 33.4	37.0	323 02.5	43.9	108 26.3	04.6								
	12	48 15.9	351 24.4	N19 50.4	310 34.2	N24 36.9	338 04.3	N21 44.0	123 28.8	S22 04.6	Alphecca	126 25.9	N26 44.8					
	13	63 18.4	6 23.7	51.1	325 34.9	36.8	353 06.2	44.0	138 31.4	04.6	Alpheratz	358 02.7	N29 01.8					
	14	78 20.9	21 23.0	51.9	340 35.7	36.8	8 08.1	44.1	153 33.9	04.6	Altair	62 25.8	N 8 50.2					
	15	93 23.3	36 22.3	52.7	355 36.5	36.7	23 09.9	44.2	168 36.5	04.6	Ankaa	353 33.7	S42 21.7					
	16	108 25.8	51 21.6	53.4	10 37.2	36.6	38 11.8	44.3	183 39.0	04.6	Antares	112 48.2	S26 24.7					
	17	123 28.3	66 20.8	54.2	25 38.0	36.5	53 13.7	44.4	198 41.5	04.6								
	18	138 30.7	81 20.1	N19 54.9	40 38.8	N24 36.4	68 15.5	N21 44.4	213 44.1	S22 04.7	Arcturus	146 11.9	N19 14.1					
	19	153 33.2	96 19.4	55.7	55 39.5	36.3	83 17.4	44.5	228 46.6	04.7	Atria	108 06.0	S69 00.6					
	20	168 35.7	111 18.7	56.5	70 40.3	36.2	98 19.3	44.6	243 49.2	04.7	Avior	234 25.8	S59 28.7					
	21	183 38.1	126 18.0	57.2	85 41.0	36.2	113 21.1	44.7	258 51.7	04.7	Bellatrix	278 51.8	N 6 20.5					
	22	198 40.6	141 17.3	58.0	100 41.8	36.1	128 23.0	44.8	273 54.2	04.7	Betelgeuse	271 21.2	N 7 24.4					
23	213 43.1	156 16.6	58.7	115 42.6	36.0	143 24.9	44.8	288 56.8	04.7									
J U E V E S	11 00	228 45.5	171 15.9	N19 59.5	130 43.3	N24 35.9	158 26.7	N21 44.9	303 59.3	S22 04.7	Canopus	264 04.6	S52 41.5					
	01	243 48.0	186 15.2	20 00.3	145 44.1	35.8	173 28.6	45.0	319 01.9	04.7	Capella	281 01.8	N45 59.5					
	02	258 50.4	201 14.5	01.0	160 44.9	35.7	188 30.5	45.1	334 04.4	04.7	Deneb	49 43.9	N45 14.2					
	03	273 52.9	216 13.7	01.8	175 45.6	35.6	203 32.3	45.2	349 06.9	04.7	Denebola	182 51.9	N14 37.8					
	04	288 55.4	231 13.0	02.5	190 46.4	35.5	218 34.2	45.2	4 09.5	04.7	Diphda	349 14.3	S18 02.6					
	05	303 57.8	246 12.3	03.3	205 47.2	35.4	233 36.1	45.3	19 12.0	04.7								
	06	319 00.3	261 11.6	N20 04.0	220 47.9	N24 35.3	248 37.9	N21 45.4	34 14.6	S22 04.8	Dubhe	194 13.2	N61 48.7					
	07	334 02.8	276 10.9	04.8	235 48.7	35.3	263 39.8	45.5	49 17.1	04.8	Elnath	278 35.9	N28 36.1					
	08	349 05.2	291 10.2	05.5	250 49.5	35.2	278 41.7	45.6	64 19.6	04.8	Eltanin	90 54.1	N51 29.1					
	09	4 07.7	306 09.5	06.3	265 50.2	35.1	293 43.5	45.6	79 22.2	04.8	Enif	34 05.0	N 9 49.4					
	10	19 10.2	321 08.8	07.0	280 51.0	35.0	308 45.4	45.7	94 24.7	04.8	Fomalhaut	15 44.0	S29 40.6					
	11	34 12.6	336 08.0	07.8	295 51.8	34.9	323 47.3	45.8	109 27.3	04.8								
	12	49 15.1	351 07.3	N20 08.5	310 52.5	N24 34.8	338 49.1	N21 45.9	124 29.8	S22 04.8	Gacrux	172 21.1	S57 03.5					
	13	64 17.6	6 06.6	09.3	325 53.3	34.7	353 51.0	46.0	139 32.4	04.8	Gienah	176 10.8	S17 29.2					
	14	79 20.0	21 05.9	10.0	340 54.1	34.6	8 52.8	46.0	154 34.9	04.8	Hadar	149 13.4	S60 19.6					
	15	94 22.5	36 05.2	10.7	355 54.8	34.5	23 54.7	46.1	169 37.4	04.8	Hamal	328 21.7	N23 24.7					
	16	109 24.9	51 04.5	11.5	10 55.6	34.4	38 56.6	46.2	184 40.0	04.8	Kaus Aust.	84 07.6	S34 23.5					
	17	124 27.4	66 03.7	12.2	25 56.4	34.3	53 58.4	46.3	199 42.5	04.8								
	18	139 29.9	81 03.0	N20 13.0	40 57.1	N24 34.2	69 00.3	N21 46.4	214 45.1	S22 04.9	Kochab	137 17.6	N74 11.8					
	19	154 32.3	96 02.3	13.7	55 57.9	34.1	84 02.2	46.4	229 47.6	04.9	Markab	13 56.6	N15 08.7					
	20	169 34.8	111 01.6	14.4	70 58.7	34.0	99 04.0	46.5	244 50.2	04.9	Menkar	314 34.4	N 4 02.9					
	21	184 37.3	126 00.9	15.2	85 59.4	33.9	114 05.9	46.6	259 52.7	04.9	Menkent	148 28.8	S36 19.3					
	22	199 39.7	141 00.1	15.9	101 00.2	33.9	129 07.8	46.7	274 55.3	04.9	Miaplacidus	221 44.0	S69 40.7					
23	214 42.2	155 59.4	16.6	116 01.0	33.8	144 09.6	46.8	289 57.8	04.9									
V I E R N E S	12 00	229 44.7	170 58.7	N20 17.4	131 01.7	N24 33.7	159 11.5	N21 46.8	305 00.3	S22 04.9	Mirfak	309 07.1	N49 49.5					
	01	244 47.1	185 58.0	18.1	146 02.5	33.6	174 13.4	46.9	320 02.9	04.9	Nunki	76 20.5	S26 18.7					
	02	259 49.6	200 57.2	18.8	161 03.3	33.5	189 15.2	47.0	335 05.4	04.9	Peacock	53 47.4	S56 46.1					
	03	274 52.0	215 56.5	19.6	176 04.0	33.4	204 17.1	47.1	350 08.0	04.9	Pollux	243 50.0	N28 03.3					
	04	289 54.5	230 55.8	20.3	191 04.8	33.3	219 19.0	47.2	5 10.5	04.9	Procyon	245 18.9	N 5 15.2					
	05	304 57.0	245 55.1	21.0	206 05.6	33.2	234 20.8	47.2	20 13.1	04.9								
	06	319 59.4	260 54.4	N20 21.8	221 06.3	N24 33.1	249 22.7	N21 47.3	35 15.6	S22 05.0	Rasalhague	96 23.0	N12 33.8					
	07	335 01.9	275 53.6	22.5	236 07.1	33.0	264 24.5	47.4	50 18.2	05.0	Regulus	208 02.7	N12 01.2					
	08	350 04.4	290 52.9	23.2	251 07.9	32.9	279 26.4	47.5	65 20.7	05.0	Rigel	281 29.8	S 8 12.8					
	09	5 06.8	305 52.2	23.9	266 08.6	32.8	294 28.3	47.5	80 23.3	05.0	Rigil Kent.	140 16.2	S60 47.7					
	10	20 09.3	320 51.4	24.7	281 09.4	32.7	309 30.1	47.6	95 25.8	05.0	Sabik	102 33.1	S15 42.9					
	11	35 11.8	335 50.7	25.4	296 10.1	32.6	324 32.0	47.7	110 28.3	05.0								
	12	50 14.2	350 50.0	N20 26.1	311 10.9	N24 32.5	339 33.9	N21 47.8	125 30.9	S22 05.0	Schedar	350 02.0	N56 28.6					
	13	65 16.7	5 49.3	26.8	326 11.7	32.4	354 35.7	47.9	140 33.4	05.0	Shaula	96 46.2	S37 05.9					
	14	80 19.2	20 48.5	27.6	341 12.4	32.3	9 37.6	47.9	155 36.0	05.0	Sirius	258 49.9	S16 42.1					
	15	95 21.6	35 47.8	28.3	356 13.2	32.2	24 39.5	48.0	170 38.5	05.0	Spica	158 50.2	S11 06.6					
	16	110 24.1	50 47.1	29.0	11 14.0	32.1	39 41.3	48.1	185 41.1	05.0	Suhail	223 06.0	S43 23.6					
	17	125 26.5	65 46.4	29.7	26 14.7	32.0	54 43.2	48.2	200 43.6	05.1								
	18	140 29.0	80 45.6	N20 30.4	41 15.5	N24 31.9	69 45.0	N21 48.3	215 46.2	S22 05.1	Vega	80 51.0	N38 46.1					
	19	155 31.5	95 44.9	31.1	56 16.3	31.8	84 46.9	48.3	230 48.7	05.1	Zuben'ubi	137 25.2	S16 00.1					
	20	170 33.9	110 44.2	31.9	71 17.0	31.7	99 48.8	48.4	245 51.3	05.1								
	21	185 36.4	125 43.4	32.6	86 17.8	31.6	114 50.6	48.5	260 53.8	05.1								
	22	200 38.9	140 42.7	33.3	101 18.6	31.5	129 52.5	48.6	275 56.4	05.1								
23	215 41.3	155 42.0	34.0	116 19.3	31.4	144 54.4	48.7	290 58.9	05.1									
Pas. Mer. 8 43.5		v -0.7 d 0.7			v 0.8 d 0.1			v 1.9 d 0.1			v 2.5 d 0.0			A. H. S. Pas. Mer.				
		o / h m									o / h m							
		Venus			Marte			Júpiter			Saturno							
		302 30.4 12 36			261 57.8 15 16			289 41.2 13 25			75 13.8 3 43							



T.M.G. (TU)	SOL		LUNA				Lat.	Crepúsculo		Orto Sol	Orto Luna								
	A.H.G.	Dec.	A.H.G.	v	Dec.	d		P.H.	Naut.		Civil	10	11	12	13				
	o	'	o	'	o	'	'	h	m	h	m	h	m	h	m	h	m	h	m
M I E R C O L E S	10 00	180 54.4	N17 33.6	116 42.6	7.8	N25 28.2	6.9	57.2	N 72	0	0	01 23	0	0	07 50	10 31			
	01	195 54.5	34.2	131 09.4	7.9	25 21.3	7.1	57.2	N 70	///	///	02 09	0	0	08 37	10 49			
	02	210 54.5	34.9	145 36.3	8.1	25 14.2	7.1	57.1	68	///	///	02 38	0	0	09 07	11 03			
	03	225 54.5	35.5	160 03.4	8.1	25 07.1	7.3	57.1	66	///	00 25	02 38	0	0	09 29	11 15			
	04	240 54.5	36.2	174 30.5	8.3	24 59.8	7.5	57.0	64	///	01 34	03 00	05 45	07 57	09 46	11 24			
	05	255 54.5	36.8	188 57.8	8.4	24 52.3	7.5	57.0	62	///	02 08	03 18	06 31	08 20	10 00	11 33			
	06	270 54.6	N17 37.5	203 25.2	8.5	N24 44.8	7.7	57.0	60	00 22	02 32	03 32	07 00	08 39	10 12	11 40			
	07	285 54.6	38.2	217 52.7	8.6	24 37.1	7.8	56.9	N 58	01 24	02 51	03 44	07 23	08 55	10 23	11 46			
	08	300 54.6	38.8	232 20.3	8.8	24 29.3	7.9	56.9	56	01 56	03 07	03 55	07 41	09 08	10 31	11 51			
	09	315 54.6	39.5	246 48.1	8.8	24 21.4	8.1	56.9	54	02 18	03 20	04 04	07 56	09 19	10 39	11 56			
	10	330 54.7	40.1	261 15.9	9.0	24 13.3	8.1	56.8	52	02 36	03 31	04 13	08 10	09 29	10 46	12 00			
	11	345 54.7	40.8	275 43.9	9.1	24 05.2	8.3	56.8	50	02 51	03 42	04 20	08 21	09 38	10 53	12 04			
	12	0 54.7	N17 41.4	290 12.0	9.2	N23 56.9	8.4	56.8	45	03 20	04 02	04 36	08 45	09 57	11 06	12 13			
	13	15 54.7	42.1	304 40.2	9.4	23 48.5	8.5	56.7	N 40	03 41	04 19	04 49	09 04	10 12	11 17	12 20			
	14	30 54.7	42.7	319 08.6	9.4	23 40.0	8.6	56.7	35	03 58	04 32	05 00	09 20	10 25	11 27	12 26			
	15	45 54.8	43.4	333 37.0	9.6	23 31.4	8.8	56.6	30	04 12	04 43	05 09	09 34	10 36	11 35	12 31			
	16	60 54.8	44.0	348 05.6	9.7	23 22.6	8.8	56.6	20	04 34	05 02	05 26	09 58	10 55	11 49	12 40			
	17	75 54.8	44.7	2 34.3	9.8	23 13.8	9.0	56.6	N 10	04 52	05 18	05 40	10 18	11 12	12 02	12 48			
	18	90 54.8	N17 45.3	17 03.1	10.0	N23 04.8	9.0	56.5	0	05 06	05 31	05 53	10 37	11 27	12 13	12 56			
	19	105 54.9	46.0	31 32.1	10.0	22 55.8	9.2	56.5	S 10	05 18	05 44	06 06	10 56	11 43	12 25	13 03			
	20	120 54.9	46.6	46 01.1	10.2	22 46.6	9.2	56.5	20	05 30	05 56	06 20	11 16	11 59	12 37	13 11			
	21	135 54.9	47.3	60 30.3	10.3	22 37.4	9.4	56.4	30	05 41	06 10	06 35	11 39	12 18	12 51	13 20			
	22	150 54.9	47.9	74 59.6	10.4	22 28.0	9.5	56.4	35	05 47	06 17	06 44	11 52	12 29	12 59	13 25			
23	165 54.9	48.5	89 29.0	10.5	22 18.5	9.6	56.4	40	05 53	06 26	06 54	12 08	12 41	13 08	13 31				
11 00	180 55.0	N17 49.2	103 58.5	10.7	N22 08.9	9.6	56.3	45	05 59	06 35	07 06	12 26	12 56	13 19	13 38				
01	195 55.0	49.8	118 28.2	10.7	21 59.3	9.8	56.3	S 50	06 07	06 46	07 21	12 49	13 13	13 31	13 46				
02	210 55.0	50.5	132 57.9	10.9	21 49.5	9.9	56.3	52	06 10	06 51	07 28	13 00	13 22	13 37	13 49				
03	225 55.0	51.1	147 27.8	11.0	21 39.6	9.9	56.2	54	06 13	06 56	07 35	13 12	13 31	13 44	13 53				
04	240 55.0	51.8	161 57.8	11.1	21 29.7	10.1	56.2	56	06 16	07 02	07 44	13 26	13 41	13 51	13 58				
05	255 55.0	52.4	176 27.9	11.2	21 19.6	10.1	56.2	58	06 20	07 08	07 53	13 43	13 53	13 59	14 03				
06	270 55.1	N17 53.1	190 58.1	11.3	N21 09.5	10.2	56.1	S 60	06 24	07 16	08 04	14 03	14 07	14 08	14 08				
07	285 55.1	53.7	205 28.4	11.5	20 59.3	10.3	56.1												
08	300 55.1	54.3	219 58.9	11.5	20 49.0	10.4	56.1	Lat.	Ocaso Sol	Crepúsculo Civil	Naut.	10	11	12	13				
09	315 55.1	55.0	234 29.4	11.7	20 38.6	10.5	56.0	N 72	o	h m	h m	h m	h m	h m	h m	h m	h m	h m	
10	330 55.1	55.6	249 00.1	11.7	20 28.1	10.6	56.0	N 70	22 37	///	///	0	0	04 35	03 25				
11	345 55.1	56.3	263 30.8	11.9	20 17.5	10.6	56.0	68	21 48	///	///	0	0	03 47	03 05				
12	0 55.2	N17 56.9	278 01.7	12.0	N20 06.9	10.8	55.9	66	21 18	///	///	04 14	03 16	02 49	02 35				
13	15 55.2	57.5	292 32.7	12.1	19 56.1	10.8	55.9	64	20 55	22 24	///	03 11	02 46	02 34	02 24				
14	30 55.2	58.2	307 03.8	12.2	19 45.3	10.9	55.9	62	20 37	21 48	///	02 25	02 22	02 19	02 15				
15	45 55.2	58.8	321 35.0	12.3	19 34.4	10.9	55.8	60	20 22	21 23	///	01 55	02 02	02 06	02 07				
16	60 55.2	17 59.4	336 06.3	12.4	19 23.5	11.1	55.8	N 58	20 10	21 03	22 33	01 31	01 46	01 55	02 00				
17	75 55.2	18 00.1	350 37.7	12.5	19 12.4	11.1	55.8	56	19 59	20 48	22 00	01 13	01 32	01 45	01 53				
18	90 55.3	N18 00.7	5 09.2	12.7	N19 01.3	11.2	55.8	54	19 50	20 34	21 37	00 57	01 20	01 36	01 47				
19	105 55.3	01.4	19 40.9	12.7	18 50.1	11.3	55.7	52	19 41	20 22	21 19	00 43	01 10	01 28	01 42				
20	120 55.3	02.0	34 12.6	12.8	18 38.8	11.3	55.7	50	19 34	20 12	21 03	00 31	01 00	01 21	01 38				
21	135 55.3	02.6	48 44.4	12.9	18 27.5	11.4	55.7	45	19 18	19 51	20 34	00 06	00 40	01 06	01 27				
22	150 55.3	03.3	63 16.3	13.1	18 16.1	11.5	55.6	N 40	19 04	19 35	20 12	24 24	00 24	00 54	01 19				
23	165 55.3	03.9	77 48.4	13.1	18 04.6	11.5	55.6	35	18 53	19 21	19 55	24 10	00 10	00 43	01 11				
12 00	180 55.3	N18 04.5	92 20.5	13.2	N17 53.1	11.6	55.6	30	18 44	19 10	19 41	23 58	24 34	00 34	01 05				
01	195 55.3	05.2	106 52.7	13.3	17 41.5	11.7	55.6	20	18 27	18 51	19 19	23 37	24 18	00 18	00 54				
02	210 55.4	05.8	121 25.0	13.4	17 29.8	11.7	55.5	N 10	18 13	18 35	19 01	23 19	24 03	00 03	00 43				
03	225 55.4	06.4	135 57.4	13.5	17 18.1	11.8	55.5	0	18 00	18 22	18 47	23 02	23 50	24 34	00 34				
04	240 55.4	07.0	150 29.9	13.6	17 06.3	11.9	55.5	S 10	17 47	18 09	18 34	22 44	23 36	24 24	00 24				
05	255 55.4	07.7	165 02.5	13.7	16 54.4	11.9	55.4	20	17 33	17 56	18 23	22 26	23 22	24 14	00 14				
06	270 55.4	N18 08.3	179 35.2	13.8	N16 42.5	12.0	55.4	30	17 17	17 42	18 11	22 04	23 05	24 02	00 02				
07	285 55.4	08.9	194 08.0	13.9	16 30.5	12.0	55.4	35	17 08	17 35	18 05	21 52	22 55	23 56	24 53				
08	300 55.4	09.6	208 40.9	14.0	16 18.5	12.1	55.4	40	16 58	17 27	17 59	21 37	22 44	23 48	24 49				
09	315 55.4	10.2	223 13.9	14.0	16 06.4	12.1	55.3	45	16 46	17 17	17 53	21 20	22 31	23 39	24 44				
10	330 55.5	10.8	237 46.9	14.1	15 54.3	12.2	55.3	S 50	16 31	17 06	17 45	20 58	22 14	23 27	24 38				
11	345 55.5	11.4	252 20.0	14.3	15 42.1	12.3	55.3	52	16 24	17 01	17 42	20 47	22 06	23 22	24 35				
12	0 55.5	N18 12.1	266 53.3	14.3	N15 29.8	12.3	55.3	54	16 17	16 56	17 39	20 36	21 58	23 17	24 32				
13	15 55.5	12.7	281 26.6	14.4	15 17.5	12.4	55.2	56	16 08	16 50	17 35	2							



T.M.G. (TU)		ARIES		VENUS -3.9		MARTE +1.7		JUPITER -2.0		SATURNO +0.3		ESTRELLAS				
d	h	A.H.G.	A.H.G.	Dec.	A.H.G.	Dec.	A.H.G.	Dec.	A.H.G.	Dec.	A.H.G.	Dec.	Nombre	A. H. S.	Dec.	
13	00	230 43.8	170 41.2	N20 34.7	131 20.1	N24 31.3	159 56.2	N21 48.7	306 01.5	S22 05.1	306 01.5	S22 05.1	Acamar	315 32.4	S40 20.7	
	01	245 46.3	185 40.5	35.4	146 20.9	31.2	174 58.1	48.8	321 04.0	05.1	321 04.0	05.1	Achernar	335 40.4	S57 17.2	
	02	260 48.7	200 39.8	36.1	161 21.7	31.1	189 59.9	48.9	336 06.6	05.1	336 06.6	05.1	Acruz	173 29.6	S63 02.7	
	03	275 51.2	215 39.0	36.8	176 22.4	30.9	205 01.8	49.0	351 09.1	05.1	351 09.1	05.1	Adhara	255 27.1	S28 57.5	
	04	290 53.7	230 38.3	37.5	191 23.2	30.8	220 03.7	49.0	6 11.7	05.1	6 11.7	05.1	Aldebaran	291 10.6	N16 29.4	
	05	305 56.1	245 37.6	38.2	206 24.0	30.7	235 05.5	49.1	21 14.2	05.2	21 14.2	05.2				
	06	320 58.6	260 36.8	N20 39.0	221 24.7	N24 30.6	250 07.4	N21 49.2	36 16.8	S22 05.2	36 16.8	S22 05.2	Alioth	166 35.8	N56 01.1	
	07	336 01.0	275 36.1	39.7	236 25.5	30.5	265 09.3	49.3	51 19.3	05.2	51 19.3	05.2	Alkaid	153 12.5	N49 21.9	
	08	351 03.5	290 35.4	40.4	251 26.3	30.4	280 11.1	49.4	66 21.9	05.2	66 21.9	05.2	Al Na'ir	28 06.3	S47 00.6	
	S	09	6 06.0	305 34.6	41.1	266 27.0	30.3	295 13.0	49.4	81 24.4	05.2	81 24.4	05.2	Alnilam	276 05.1	S 1 12.4
	A	10	21 08.4	320 33.9	41.8	281 27.8	30.2	310 14.8	49.5	96 27.0	05.2	96 27.0	05.2	Alphard	218 14.0	S 8 36.8
	B	11	36 10.9	335 33.1	42.5	296 28.6	30.1	325 16.7	49.6	111 29.5	05.2	111 29.5	05.2			
	A	12	51 13.4	350 32.4	N20 43.2	311 29.3	N24 30.0	340 18.6	N21 49.7	126 32.1	S22 05.2	126 32.1	S22 05.2	Alphecca	126 25.9	N26 44.8
	D	13	66 15.8	5 31.7	43.9	326 30.1	29.9	355 20.4	49.7	141 34.6	05.2	141 34.6	05.2	Alpheratz	358 02.6	N29 01.8
	O	14	81 18.3	20 30.9	44.6	341 30.9	29.8	10 22.3	49.8	156 37.2	05.2	156 37.2	05.2	Altair	62 25.8	N 8 50.2
		15	96 20.8	35 30.2	45.3	356 31.6	29.7	25 24.2	49.9	171 39.7	05.2	171 39.7	05.2	Ankaa	353 33.7	S42 21.7
		16	111 23.2	50 29.4	45.9	11 32.4	29.6	40 26.0	50.0	186 42.3	05.3	186 42.3	05.3	Antares	112 48.2	S26 24.7
		17	126 25.7	65 28.7	46.6	26 33.2	29.5	55 27.9	50.1	201 44.8	05.3	201 44.8	05.3			
		18	141 28.2	80 28.0	N20 47.3	41 33.9	N24 29.3	70 29.7	N21 50.1	216 47.4	S22 05.3	216 47.4	S22 05.3	Arcturus	146 11.9	N19 14.1
		19	156 30.6	95 27.2	48.0	56 34.7	29.2	85 31.6	50.2	231 49.9	05.3	231 49.9	05.3	Atria	108 06.0	S69 00.6
		20	171 33.1	110 26.5	48.7	71 35.5	29.1	100 33.5	50.3	246 52.5	05.3	246 52.5	05.3	Avior	234 25.8	S59 28.7
		21	186 35.5	125 25.7	49.4	86 36.2	29.0	115 35.3	50.4	261 55.0	05.3	261 55.0	05.3	Bellatrix	278 51.8	N 6 20.5
		22	201 38.0	140 25.0	50.1	101 37.0	28.9	130 37.2	50.5	276 57.6	05.3	276 57.6	05.3	Betelgeuse	271 21.2	N 7 24.4
	23	216 40.5	155 24.3	50.8	116 37.8	28.8	145 39.0	50.5	292 00.1	05.3	292 00.1	05.3				
14	00	231 42.9	170 23.5	N20 51.5	131 38.5	N24 28.7	160 40.9	N21 50.6	307 02.7	S22 05.3	307 02.7	S22 05.3	Canopus	264 04.6	S52 41.5	
	01	246 45.4	185 22.8	52.2	146 39.3	28.6	175 42.8	50.7	322 05.2	05.3	322 05.2	05.3	Capella	281 01.8	N45 59.5	
	02	261 47.9	200 22.0	52.8	161 40.1	28.5	190 44.6	50.8	337 07.8	05.4	337 07.8	05.4	Deneb	49 43.8	N45 14.2	
	03	276 50.3	215 21.3	53.5	176 40.8	28.3	205 46.5	50.8	352 10.3	05.4	352 10.3	05.4	Denebola	182 51.9	N14 37.8	
	04	291 52.8	230 20.5	54.2	191 41.6	28.2	220 48.3	50.9	7 12.9	05.4	7 12.9	05.4	Diphda	349 14.3	S18 02.6	
	05	306 55.3	245 19.8	54.9	206 42.4	28.1	235 50.2	51.0	22 15.5	05.4	22 15.5	05.4				
	06	321 57.7	260 19.0	N20 55.6	221 43.1	N24 28.0	250 52.1	N21 51.1	37 18.0	S22 05.4	37 18.0	S22 05.4	Dubhe	194 13.2	N61 48.7	
	07	337 00.2	275 18.3	56.3	236 43.9	27.9	265 53.9	51.2	52 20.6	05.4	52 20.6	05.4	Elnath	278 35.9	N28 36.1	
	D	08	352 02.6	290 17.5	56.9	251 44.7	27.8	280 55.8	51.2	67 23.1	05.4	67 23.1	05.4	Eltanin	90 54.1	N51 29.1
	O	09	7 05.1	305 16.8	57.6	266 45.5	27.7	295 57.6	51.3	82 25.7	05.4	82 25.7	05.4	Enif	34 05.0	N 9 49.4
	M	10	22 07.6	320 16.0	58.3	281 46.2	27.6	310 59.5	51.4	97 28.2	05.4	97 28.2	05.4	Fomalhaut	15 43.9	S29 40.6
	I	11	37 10.0	335 15.3	59.0	296 47.0	27.4	326 01.4	51.5	112 30.8	05.4	112 30.8	05.4			
	N	12	52 12.5	350 14.5	N20 59.6	311 47.8	N24 27.3	341 03.2	N21 51.5	127 33.3	S22 05.4	127 33.3	S22 05.4	Gacrux	172 21.1	S57 03.5
	G	13	67 15.0	5 13.8	21 00.3	326 48.5	27.2	356 05.1	51.6	142 35.9	05.5	142 35.9	05.5	Gienah	176 10.8	S17 29.2
	O	14	82 17.4	20 13.0	01.0	341 49.3	27.1	11 07.0	51.7	157 38.4	05.5	157 38.4	05.5	Hadar	149 13.4	S60 19.6
		15	97 19.9	35 12.3	01.7	356 50.1	27.0	26 08.8	51.8	172 41.0	05.5	172 41.0	05.5	Hamal	328 21.7	N23 24.7
		16	112 22.4	50 11.5	02.3	11 50.8	26.9	41 10.7	51.8	187 43.6	05.5	187 43.6	05.5	Kaus Aust.	84 07.5	S34 23.5
		17	127 24.8	65 10.8	03.0	26 51.6	26.8	56 12.5	51.9	202 46.1	05.5	202 46.1	05.5			
		18	142 27.3	80 10.0	N21 03.7	41 52.4	N24 26.6	71 14.4	N21 52.0	217 48.7	S22 05.5	217 48.7	S22 05.5	Kochab	137 17.6	N74 11.9
		19	157 29.8	95 09.3	04.3	56 53.1	26.5	86 16.3	52.1	232 51.2	05.5	232 51.2	05.5	Markab	13 56.6	N15 08.7
		20	172 32.2	110 08.5	05.0	71 53.9	26.4	101 18.1	52.2	247 53.8	05.5	247 53.8	05.5	Menkar	314 34.4	N 4 02.9
		21	187 34.7	125 07.8	05.7	86 54.7	26.3	116 20.0	52.2	262 56.3	05.5	262 56.3	05.5	Menkent	148 28.8	S36 19.3
		22	202 37.1	140 07.0	06.3	101 55.4	26.2	131 21.8	52.3	277 58.9	05.5	277 58.9	05.5	Miaplacidus	221 44.0	S69 40.7
	23	217 39.6	155 06.3	07.0	116 56.2	26.0	146 23.7	52.4	293 01.4	05.6	293 01.4	05.6				
15	00	232 42.1	170 05.5	N21 07.7	131 57.0	N24 25.9	161 25.5	N21 52.5	308 04.0	S22 05.6	308 04.0	S22 05.6	Mirfak	309 07.1	N49 49.5	
	01	247 44.5	185 04.8	08.3	146 57.8	25.8	176 27.4	52.5	323 06.6	05.6	323 06.6	05.6	Nunki	76 20.5	S26 18.7	
	02	262 47.0	200 04.0	09.0	161 58.5	25.7	191 29.3	52.6	338 09.1	05.6	338 09.1	05.6	Pecock	53 47.3	S56 46.1	
	03	277 49.5	215 03.3	09.7	176 59.3	25.6	206 31.1	52.7	353 11.7	05.6	353 11.7	05.6	Pollux	243 50.0	N28 03.3	
	04	292 51.9	230 02.5	10.3	192 00.1	25.5	221 33.0	52.8	8 14.2	05.6	8 14.2	05.6	Procyon	245 18.9	N 5 15.2	
	05	307 54.4	245 01.7	11.0	207 00.8	25.3	236 34.8	52.9	23 16.8	05.6	23 16.8	05.6				
	06	322 56.9	260 01.0	N21 11.6	222 01.6	N24 25.2	251 36.7	N21 52.9	38 19.3	S22 05.6	38 19.3	S22 05.6	Rasalhague	96 23.0	N12 33.8	
	07	337 59.3	275 00.2	12.3	237 02.4	25.1	266 38.6	53.0	53 21.9	05.6	53 21.9	05.6	Regulus	208 02.7	N12 01.2	
	08	353 01.8	289 59.5	12.9	252 03.1	25.0	281 40.4	53.1	68 24.5	05.6	68 24.5	05.6	Rigel	281 29.8	S 8 12.8	
	09	8 04.3	304 58.7	13.6	267 03.9	24.9	296 42.3	53.2	83 27.0	05.6	83 27.0	05.6	Rigil Kent.	140 16.2	S60 47.7	
	10	23 06.7	319 58.0	14.2	282 04.7	24.7	311 44.1	53.2	98 29.6	05.7	98 29.6	05.7	Sabik	102 33.1	S15 42.9	
	11	38 09.2	334 57.2	14.9	297 05.4	24.6	326 46.0	53.3	113 32.1	05.7	113 32.1	05.7				
	12	53 11.6	349 56.4	N21 15.5	312 06.2	N24 24.5	341 47.9	N21 53.4	128 34.7	S22 05.7	128 34.7	S22 05.7	Schedar	350 02.0	N56 28.6	
	13	68 14.1	4 55.7	16.2	327 07.0	24.4	356 49.7	53.5	143 37.2	05.7	143 37.2	05.7	Shaula	96 46.2	S37 05.9	
	14	83 16.6	19 54.9	16.8	342 07.8	24.2	11 51.6	53.5	158 39.8	05.7	158 39.8	05.7	Sirius	258 50.0	S16 42.1	
	15	98 19.0	34 54.2	17.5	357 08.5	24.1	26 53.4	53.6	173 42.4	05.7	173 42.4	05.7	Spica	158 50.2	S11 06.6	
	16	113 21.5	49 53.4	18.1	12 09.3	24.0	41 55.3	53.7	188 44.9	05.7	188 44.9	05.7	Suhail	223 06.0	S43 2	



T.M.G. (TU)	SOL		LUNA				Lat.	Crepúsculo		Orto Sol	Orto Luna					
	A.H.G.	Dec.	A.H.G.	v	Dec.	d		P.H.	Naut.		Civil	13	14	15	16	
												h m	h m	h m	h m	h m
13 00	180 55.6	N18 19.5	81 38.3	15.2	N12 58.9	12.8	55.0	N 72	□	□	□	10 31	12 35	14 30	16 27	
01	195 55.6	20.2	96 12.5	15.3	12 46.1	12.9	54.9	N 70	///	///	00 54	10 49	12 42	14 29	16 16	
02	210 55.6	20.8	110 46.8	15.4	12 33.2	13.0	54.9	68	///	///	01 53	11 03	12 48	14 27	16 08	
03	225 55.6	21.4	125 21.2	15.4	12 20.2	13.0	54.9	66	///	///	02 26	11 15	12 52	14 26	16 00	
04	240 55.6	22.0	139 55.6	15.5	12 07.2	13.0	54.9	64	///	01 15	02 50	11 24	12 56	14 25	15 54	
05	255 55.6	22.6	154 30.1	15.6	11 54.2	13.0	54.9	62	///	01 56	03 09	11 33	13 00	14 24	15 49	
06	270 55.6	N18 23.3	169 04.7	15.7	N11 41.2	13.1	54.8	60	///	02 23	03 25	11 40	13 03	14 23	15 44	
07	285 55.6	23.9	183 39.4	15.7	11 28.1	13.1	54.8	N 58	01 08	02 43	03 38	11 46	13 05	14 23	15 40	
08	300 55.6	24.5	198 14.1	15.7	11 15.0	13.2	54.8	56	01 44	03 00	03 49	11 51	13 07	14 22	15 37	
09	315 55.6	25.1	212 48.8	15.8	11 01.8	13.2	54.8	54	02 09	03 14	03 59	11 56	13 09	14 22	15 34	
10	330 55.6	25.7	227 23.6	15.9	10 48.6	13.2	54.8	52	02 29	03 26	04 08	12 00	13 11	14 21	15 31	
11	345 55.6	26.3	241 58.5	16.0	10 35.4	13.2	54.7	50	02 45	03 36	04 16	12 04	13 13	14 21	15 28	
12	0 55.6	N18 26.9	256 33.5	16.0	N10 22.2	13.3	54.7	45	03 15	03 58	04 32	12 13	13 17	14 20	15 22	
13	15 55.7	27.6	271 08.5	16.0	10 08.9	13.3	54.7	N 40	03 38	04 15	04 46	12 20	13 20	14 19	15 18	
14	30 55.7	28.2	285 43.5	16.1	9 55.6	13.3	54.7	35	03 55	04 29	04 57	12 26	13 23	14 18	15 14	
15	45 55.7	28.8	300 18.6	16.2	9 42.3	13.4	54.7	30	04 10	04 41	05 07	12 31	13 25	14 18	15 10	
16	60 55.7	29.4	314 53.8	16.2	9 28.9	13.4	54.7	20	04 33	05 01	05 24	12 40	13 29	14 17	15 04	
17	75 55.7	30.0	329 29.0	16.3	9 15.5	13.4	54.6	N 10	04 51	05 17	05 39	12 48	13 32	14 16	14 59	
18	90 55.7	N18 30.6	344 04.3	16.3	N 9 02.1	13.5	54.6	0	05 06	05 31	05 53	12 56	13 36	14 15	14 54	
19	105 55.7	31.2	358 39.6	16.3	8 48.6	13.4	54.6	S 10	05 19	05 44	06 06	13 03	13 39	14 14	14 49	
20	120 55.7	31.8	13 14.9	16.5	8 35.2	13.5	54.6	20	05 31	05 58	06 21	13 11	13 43	14 13	14 44	
21	135 55.7	32.4	27 50.4	16.4	8 21.7	13.5	54.6	30	05 43	06 12	06 37	13 20	13 47	14 12	14 38	
22	150 55.7	33.0	42 25.8	16.5	8 08.2	13.6	54.6	35	05 49	06 20	06 47	13 25	13 49	14 12	14 35	
23	165 55.7	33.7	57 01.3	16.6	7 54.6	13.5	54.5	40	05 55	06 28	06 57	13 31	13 52	14 11	14 31	
14 00	180 55.7	N18 34.3	71 36.9	16.5	N 7 41.1	13.6	54.5	45	06 02	06 38	07 10	13 38	13 55	14 11	14 27	
01	195 55.7	34.9	86 12.4	16.7	7 27.5	13.6	54.5	S 50	06 10	06 50	07 25	13 46	13 58	14 10	14 21	
02	210 55.7	35.5	100 48.1	16.6	7 13.9	13.6	54.5	52	06 14	06 55	07 32	13 49	14 00	14 09	14 19	
03	225 55.7	36.1	115 23.7	16.8	7 00.3	13.7	54.5	54	06 17	07 01	07 40	13 53	14 02	14 09	14 17	
04	240 55.7	36.7	129 59.5	16.7	6 46.6	13.6	54.5	56	06 21	07 07	07 49	13 58	14 04	14 09	14 14	
05	255 55.7	37.3	144 35.2	16.8	6 33.0	13.7	54.4	58	06 25	07 14	07 59	14 03	14 06	14 08	14 11	
06	270 55.7	N18 37.9	159 11.0	16.8	N 6 19.3	13.7	54.4	S 60	06 30	07 22	08 11	14 08	14 08	14 08	14 07	
07	285 55.7	38.5	173 46.8	16.9	6 05.6	13.7	54.4	Lat.	Ocaso Sol	Crepúsculo Civil	Naut.	Ocaso Luna	13	14	15	16
08	300 55.7	39.1	188 22.7	16.8	5 51.9	13.7	54.4	N 70	23 11	///	///	03 25	02 46	02 15	01 45	
09	315 55.7	39.7	202 58.5	17.0	4 57.0	13.8	54.4	N 72	22 04	///	///	03 05	02 37	02 13	01 50	
10	330 55.7	40.3	217 34.5	16.9	4 43.2	13.8	54.3	68	22 04	///	///	02 49	02 29	02 11	01 54	
11	345 55.7	40.9	232 10.4	17.0	4 29.4	13.8	54.3	66	21 29	///	///	02 35	02 22	02 10	01 58	
12	0 55.7	N18 41.5	246 46.4	17.0	4 15.6	13.8	54.3	64	21 05	22 43	///	02 24	02 16	02 08	02 01	
13	15 55.7	42.1	261 22.4	17.0	4 01.8	13.8	54.3	62	20 45	22 01	///	02 15	02 11	02 07	02 03	
14	30 55.7	42.7	275 58.4	17.1	3 48.0	13.8	54.3	60	20 29	21 33	///	02 07	02 07	02 06	02 06	
15	45 55.7	43.3	290 34.5	17.1	3 34.2	13.8	54.3	N 58	20 16	21 12	22 51	02 00	02 03	02 06	02 08	
16	60 55.7	43.9	305 10.6	17.1	3 20.4	13.9	54.3	56	20 05	20 55	22 11	01 53	01 59	02 05	02 10	
17	75 55.7	44.5	319 46.7	17.1	3 06.5	13.8	54.3	54	19 55	20 40	21 46	01 47	01 56	02 04	02 11	
18	90 55.7	N18 45.1	334 22.8	17.2	2 52.7	13.9	54.3	52	19 46	20 28	21 26	01 42	01 54	02 03	02 13	
19	105 55.7	45.7	348 59.0	17.1	2 38.8	13.8	54.3	50	19 38	20 17	21 10	01 38	01 51	02 03	02 14	
20	120 55.7	46.3	3 35.1	17.2	2 25.0	13.9	54.2	45	19 21	19 55	20 39	01 27	01 45	02 02	02 17	
21	135 55.7	46.9	18 11.3	17.2	N 2 11.1	13.8	54.2	N 40	19 07	19 38	20 16	01 19	01 40	02 00	02 20	
22	150 55.7	47.5	32 47.5	17.2	1 57.3	13.9	54.2	35	18 56	19 24	19 58	01 11	01 36	02 00	02 22	
23	165 55.6	48.1	47 23.7	17.3	1 43.4	13.9	54.2	30	18 46	19 12	19 43	01 05	01 33	01 59	02 24	
15 00	180 55.6	N18 48.7	62 00.0	17.2	1 29.5	13.8	54.2	20	18 28	18 52	19 20	00 54	01 26	01 57	02 28	
01	195 55.6	49.3	76 36.2	17.3	1 15.7	13.9	54.2	N 10	18 14	18 36	19 02	00 43	01 21	01 56	02 31	
02	210 55.6	49.8	91 12.5	17.3	1 01.8	13.9	54.2	0	18 00	18 22	18 47	00 34	01 15	01 55	02 34	
03	225 55.6	50.4	105 48.8	17.3	0 47.9	13.9	54.2	S 10	17 46	18 08	18 34	00 24	01 10	01 53	02 36	
04	240 55.6	51.0	120 25.1	17.3	0 34.0	13.8	54.2	20	17 32	17 55	18 22	00 14	01 04	01 52	02 40	
05	255 55.6	51.6	135 01.4	17.3	0 20.2	13.9	54.2	30	17 15	17 41	18 09	00 02	00 57	01 50	02 43	
06	270 55.6	N18 52.2	149 37.7	17.3	0 06.3	13.9	54.2	35	17 06	17 33	18 03	24 53	00 53	01 50	02 45	
07	285 55.6	52.8	164 14.0	17.3	S 0 07.6	13.8	54.2	40	16 55	17 24	17 57	24 49	00 49	01 48	02 47	
08	300 55.6	53.4	178 50.3	17.4	0 21.4	13.9	54.2	45	16 42	17 14	17 50	24 44	00 44	01 47	02 50	
09	315 55.6	54.0	193 26.7	17.3	S 0 35.3	13.9	54.1	S 50	16 27	17 02	17 42	24 38	00 38	01 46	02 53	
10	330 55.6	54.6	208 03.0	17.3	0 49.2	13.8	54.1	52	16 20	16 57	17 38	24 35	00 35	01 45	02 55	
11	345 55.6	55.2	222 39.3	17.4	1 03.0	13.9	54.1	54	16 12	16 51	17 35	24 32	00 32	01 44	02 56	
12	0 55.6	N18 55.7	237 15.7	17.3	1 16.9	13.8	54.1	56	16 03	16 45	17 31	24 28	00 28	01 43	02 58	
13	15 55.6	56.3	251 52.0	17.4	1 30.7	13.8	54.1	58	15 53	16 38	17 27	24 24	00 24	01 43	03 00	
14	30 55.6	56.9	266 28.4	17.3	1 44.5	13.9	54.1	S 60	15 41	16 30	17 22	24 20	00 20	01 42	03 02	
15	45 55.6	57.5	281 04.7	17.3	S 1 58.4	13.8	54.1	Día	SOL E.T. (+)	Pas. Mer.	LUNA Pas. Mer.	Edad	Fase			
16	60 55.5	58.1	295 41.0	17.4	2 12.2	13.8	54.1	13	00 h 12 h	h m	h m	h m	d			
17	75 55.5	58.7	310 17.4	17.3	2 26.0	13.8	54.1	14	m s	m s	h m	h m	h m			
18	90 55.5	N18 59.3	324 53.7	17.3	2 39.8	13.8	54.1	15	03 42	03 43	11 56	19 06	06 45	08		
19	105 55.5	18														







T.M.G. (TU)	SOL		LUNA				Lat.	Crepúsculo		Orto Sol	Orto Luna								
	A.H.G.	Dec.	A.H.G.	v	Dec.	d		P.H.	Náut.		Civil		16	17	18	19			
									h		m	h	m	h	m	h	m	h	m
M A R T E S	16 00	180 55.5	N19 02.7	52 31.5	17.3	S 3	21.2	13.7	54.1	N 72	00 00	00 00	00 00	16 27	18 38	00 00	00 00		
	01	195 55.5	03.3	67 07.8	17.2	3	34.9	13.8	54.1	N 70	00 00	00 00	00 00	16 16	18 13	20 39	00 00		
	02	210 55.4	03.9	81 44.0	17.3	3	48.7	13.7	54.1	68	///	///	///	01 36	16 08	17 54	19 56	00 00	
	03	225 55.4	04.5	96 20.3	17.2	4	02.4	13.7	54.1	66	///	///	///	02 14	16 00	17 39	19 27	21 39	
	04	240 55.4	05.1	110 56.5	17.2	4	16.1	13.7	54.1	64	///	00 53	02 41	15 54	17 27	19 06	20 57	00 00	
	05	255 55.4	05.6	125 32.7	17.2	4	29.8	13.7	54.1	62	///	01 43	03 01	15 49	17 16	18 49	20 28	00 00	
	06	270 55.4	N19 06.2	140 08.9	17.2	S 4	43.5	13.7	54.1	60	///	02 13	03 18	15 44	17 07	18 35	20 06	00 00	
	07	285 55.4	06.8	154 45.1	17.1	4	57.2	13.7	54.1	N 58	00 47	02 35	03 32	15 40	17 00	18 23	19 49	00 00	
	08	300 55.4	07.4	169 21.2	17.1	5	10.9	13.6	54.1	56	01 33	02 53	03 44	15 37	16 53	18 12	19 34	00 00	
	09	315 55.4	07.9	183 57.3	17.1	5	24.5	13.6	54.1	54	02 01	03 08	03 54	15 34	16 47	18 03	19 21	00 00	
	10	330 55.4	08.5	198 33.4	17.1	5	38.1	13.6	54.1	52	02 22	03 21	04 03	15 31	16 42	17 55	19 10	00 00	
	11	345 55.3	09.1	213 09.5	17.1	5	51.7	13.6	54.1	50	02 38	03 32	04 11	15 28	16 37	17 48	19 00	00 00	
	12	0 55.3	N19 09.7	227 45.6	17.0	S 6	05.3	13.6	54.1	45	03 11	03 54	04 29	15 22	16 26	17 32	18 40	00 00	
	13	15 55.3	10.2	242 21.6	17.0	6	18.9	13.5	54.1	N 40	03 34	04 12	04 43	15 18	16 18	17 20	18 23	00 00	
	14	30 55.3	10.8	256 57.6	17.0	6	32.4	13.5	54.1	35	03 53	04 27	04 55	15 14	16 10	17 09	18 09	00 00	
	15	45 55.3	11.4	271 33.6	16.9	6	45.9	13.5	54.1	30	04 08	04 39	05 05	15 10	16 04	16 59	17 57	00 00	
	16	60 55.3	12.0	286 09.5	17.0	6	59.4	13.5	54.1	20	04 31	04 59	05 23	15 04	15 53	16 43	17 37	00 00	
	17	75 55.3	12.5	300 45.5	16.9	7	12.9	13.5	54.1	N 10	04 50	05 16	05 39	14 59	15 43	16 30	17 19	00 00	
	18	90 55.2	N19 13.1	315 21.4	16.8	S 7	26.4	13.4	54.1	0	05 05	05 31	05 53	14 54	15 34	16 17	17 02	00 00	
	19	105 55.2	13.7	329 57.2	16.8	7	39.8	13.4	54.1	S 10	05 19	05 45	06 07	14 49	15 25	16 04	16 46	00 00	
	20	120 55.2	14.2	344 33.0	16.8	7	53.2	13.4	54.1	20	05 32	05 59	06 22	14 44	15 16	15 50	16 28	00 00	
	21	135 55.2	14.8	359 08.8	16.8	8	06.6	13.3	54.1	30	05 44	06 13	06 39	14 38	15 05	15 35	16 08	00 00	
	22	150 55.2	15.4	13 44.6	16.7	8	19.9	13.3	54.1	35	05 51	06 22	06 49	14 35	14 59	15 26	15 57	00 00	
23	165 55.2	15.9	28 20.3	16.7	8	33.2	13.3	54.1	40	05 58	06 31	07 00	14 31	14 52	15 16	15 44	00 00		
									45	06 05	06 41	07 13	14 27	14 44	15 04	15 28	00 00		
M I E R C O L E S	17 00	180 55.2	N19 16.5	42 56.0	16.6	S 8	46.5	13.3	54.1	S 50	06 14	06 53	07 29	14 21	14 34	14 50	15 09	00 00	
	01	195 55.1	17.1	57 31.6	16.7	8	59.8	13.2	54.1	52	06 17	06 59	07 37	14 19	14 30	14 43	15 00	00 00	
	02	210 55.1	17.6	72 07.3	16.5	9	13.0	13.2	54.1	54	06 21	07 05	07 45	14 17	14 25	14 36	14 50	00 00	
	03	225 55.1	18.2	86 42.8	16.6	9	26.2	13.2	54.1	56	06 25	07 12	07 54	14 14	14 20	14 28	14 39	00 00	
	04	240 55.1	18.8	101 18.4	16.4	9	39.4	13.2	54.1	58	06 30	07 19	08 05	14 11	14 14	14 18	14 26	00 00	
	05	255 55.1	19.3	115 53.8	16.5	9	52.6	13.1	54.1	S 60	06 35	07 27	08 17	14 07	14 07	14 08	14 10	00 00	
	06	270 55.1	N19 19.9	130 29.3	16.4	S10	05.7	13.0	54.1										
	07	285 55.0	20.5	145 04.7	16.3	10	18.7	13.1	54.1	Lat.	Ocaso Sol	Crepúsculo Civil		Ocaso Luna					
	08	300 55.0	21.0	159 40.0	16.4	10	31.8	13.0	54.2	16	17	18	19						
	09	315 55.0	21.6	174 15.4	16.2	10	44.8	12.9	54.2	N 72	00 00	00 00	00 00	01 45	01 12	00 26	00 00		
	10	330 55.0	22.1	188 50.6	16.2	10	57.7	13.0	54.2	N 70	00 00	00 00	00 00	01 50	01 25	{00 26 23 53}	00 00		
	11	345 55.0	22.7	203 25.8	16.2	11	10.7	12.9	54.2	68	22 22	///	///	01 54	01 36	01 14	00 42		
	12	0 54.9	N19 23.3	218 01.0	16.1	S11	23.6	12.8	54.2	66	21 42	///	///	01 58	01 45	01 31	01 11		
	13	15 54.9	23.8	232 36.1	16.1	11	36.4	12.8	54.2	64	21 14	23 09	///	02 01	01 53	01 44	01 34		
	14	30 54.9	24.4	247 11.2	16.0	11	49.2	12.8	54.2	62	20 53	22 14	///	02 03	02 00	01 56	01 52		
	15	45 54.9	24.9	261 46.2	16.0	12	02.0	12.8	54.2	60	20 36	21 43	///	02 06	02 05	02 06	02 07		
	16	60 54.9	25.5	276 21.2	15.9	12	14.8	12.6	54.2	N 58	20 22	21 20	23 14	02 08	02 11	02 14	02 20		
	17	75 54.9	26.1	290 56.1	15.8	12	27.4	12.7	54.2	56	20 10	21 01	22 23	02 10	02 15	02 22	02 31		
	18	90 54.8	N19 26.6	305 30.9	15.8	S12	40.1	12.6	54.2	54	20 00	20 46	21 55	02 11	02 19	02 29	02 41		
	19	105 54.8	27.2	320 05.7	15.8	12	52.7	12.6	54.2	52	19 50	20 33	21 33	02 13	02 23	02 35	02 49		
	20	120 54.8	27.7	334 40.5	15.7	13	05.3	12.5	54.2	50	19 42	20 22	21 16	02 14	02 27	02 40	02 57		
	21	135 54.8	28.3	349 15.2	15.6	13	17.8	12.5	54.2	45	19 24	19 59	20 43	02 17	02 34	02 52	03 14		
	22	150 54.7	28.8	3 49.8	15.6	13	30.3	12.4	54.2	N 40	19 10	19 41	20 19	02 20	02 40	03 02	03 28		
23	165 54.7	29.4	18 24.4	15.5	13	42.7	12.3	54.2	35	18 58	19 26	20 01	02 22	02 46	03 11	03 40			
J U E V E S	18 00	180 54.7	N19 29.9	32 58.9	15.4	S13	55.0	12.4	54.3	30	18 48	19 14	19 46	02 24	02 51	03 19	03 50		
	01	195 54.7	30.5	47 33.3	15.4	14	07.4	12.3	54.3	20	18 30	18 53	19 22	02 28	02 59	03 32	04 08		
	02	210 54.7	31.0	62 07.7	15.4	14	19.7	12.2	54.3	N 10	18 14	18 37	19 03	02 31	03 06	03 43	04 24		
	03	225 54.6	31.6	76 42.1	15.2	14	31.9	12.2	54.3	0	18 00	18 22	18 47	02 34	03 13	03 54	04 38		
	04	240 54.6	32.2	91 16.3	15.2	14	56.2	12.0	54.3	S 10	17 46	18 08	18 34	02 36	03 20	04 05	04 53		
	05	255 54.6	32.7	105 50.5	15.2	14	56.2	12.0	54.3	20	17 31	17 54	18 21	02 40	03 28	04 17	05 09		
	06	270 54.6	N19 33.3	120 24.7	15.0	S15	08.2	12.1	54.3	30	17 13	17 39	18 08	02 43	03 36	04 31	05 27		
	07	285 54.5	33.8	134 58.7	15.0	15	20.3	11.9	54.3	35	17 04	17 31	18 01	02 45	03 41	04 38	05 38		
	08	300 54.5	34.3	149 32.7	15.0	15	32.2	11.9	54.3	40	16 52	17 22	17 54	02 47	03 47	04 47	05 50		
	09	315 54.5	34.9	164 06.7	14.9	15	44.1	11.9	54.3	45	16 39	17 11	17 47	02 50	03 53	04 58	06 04		
	10	330 54.5	35.4	178 40.6	14.8	15	56.0	11.7	54.3	S 50	16 23	16 59	17 39	02 53	04 01	05 11	06 22		
	11	345 54.5	36.0	193 14.4	14.7	16	07.7	11.8	54.4	52	16 15	16 53	17 35	02 55	04 05	05 17	06 31		
	12	0 54.4	N19 36.5	207 48.1	14.6	S16	19.5	11.6	54.4	54	16 07	16 47	17 31	02 56	04 09	05 23	06 40		
	13	15 54.4	37.1	222 21.7	14.6	16													



T.M.G. (TU)	ARIES			VENUS -3.9			MARTE +1.7			JUPITER -2.0			SATURNO +0.3			ESTRELLAS																																																																																								
d h	A.H.G.	A.H.G.	Dec.	A.H.G.	Dec.	A.H.G.	Dec.	A.H.G.	Dec.	A.H.G.	Dec.	A.H.G.	Dec.	Nombre	A. H. S.	Dec.																																																																																								
19 00	236 38.6	168 51.1	N22 06.5	133 11.1	N24 13.2	164 23.8	N21 59.7	312 10.2	S22 06.6	Acamar	315 32.4	S40 20.7																																																																																												
01	251 41.1	183 50.3	07.1	148 11.8	13.0	179 25.6	59.8	327 12.7	06.6	Achernar	335 40.4	S57 17.2																																																																																												
02	266 43.6	198 49.5	07.6	163 12.6	12.9	194 27.5	59.9	342 15.3	06.6	Acrux	173 29.6	S63 02.8																																																																																												
03	281 46.0	213 48.7	08.2	178 13.4	12.7	209 29.4	21 59.9	357 17.9	06.6	Adhara	255 27.1	S28 57.5																																																																																												
04	296 48.5	228 47.9	08.8	193 14.1	12.6	224 31.2	22 00.0	12 20.5	06.6	Aldebaran	291 10.6	N16 29.4																																																																																												
05	311 51.0	243 47.1	09.3	208 14.9	12.4	239 33.1	00.1	27 23.0	06.6																																																																																															
06	326 53.4	258 46.3	N22 09.9	223 15.7	N24 12.3	254 34.9	N22 00.1	42 25.6	S22 06.6	Alioth	166 35.9	N56 01.1																																																																																												
07	341 55.9	273 45.5	10.4	238 16.5	12.1	269 36.8	00.2	57 28.2	06.6	Alkaid	153 12.5	N49 22.0																																																																																												
08	356 58.3	288 44.7	11.0	253 17.2	12.0	284 38.6	00.3	72 30.7	06.7	Al Na'ir	28 06.2	S47 00.6																																																																																												
09	12 00.8	303 43.9	11.5	268 18.0	11.8	299 40.5	00.4	87 33.3	06.7	Alnilam	276 05.1	S 1 12.4																																																																																												
10	27 03.3	318 43.1	12.1	283 18.8	11.7	314 42.3	00.4	102 35.9	06.7	Alphard	218 14.0	S 8 36.8																																																																																												
11	42 05.7	333 42.3	12.6	298 19.6	11.5	329 44.2	00.5	117 38.5	06.7																																																																																															
12	57 08.2	348 41.5	N22 13.2	313 20.3	N24 11.4	344 46.0	N22 00.6	132 41.0	S22 06.7	Alphecca	126 25.9	N26 44.8																																																																																												
13	72 10.7	3 40.7	13.7	328 21.1	11.2	359 47.9	00.7	147 43.6	06.7	Alpheratz	358 02.6	N29 01.8																																																																																												
14	87 13.1	18 39.9	14.3	343 21.9	11.1	14 49.7	00.7	162 46.2	06.7	Altair	62 25.7	N 8 50.2																																																																																												
15	102 15.6	33 39.1	14.8	358 22.7	10.9	29 51.6	00.8	177 48.8	06.7	Ankaa	353 33.6	S42 21.6																																																																																												
16	117 18.1	48 38.3	15.4	13 23.4	10.8	44 53.4	00.9	192 51.3	06.7	Antares	112 48.2	S26 24.7																																																																																												
17	132 20.5	63 37.5	15.9	28 24.2	10.6	59 55.3	01.0	207 53.9	06.8																																																																																															
18	147 23.0	78 36.7	N22 16.5	43 25.0	N24 10.5	74 57.2	N22 01.0	222 56.5	S22 06.8	Arcturus	146 11.9	N19 14.1																																																																																												
19	162 25.4	93 35.9	17.0	58 25.8	10.3	89 59.0	01.1	237 59.1	06.8	Atria	108 05.9	S69 00.7																																																																																												
20	177 27.9	108 35.1	17.5	73 26.5	10.2	105 00.9	01.2	253 01.6	06.8	Avior	234 25.9	S59 28.7																																																																																												
21	192 30.4	123 34.3	18.1	88 27.3	10.0	120 02.7	01.2	268 04.2	06.8	Bellatrix	278 51.8	N 6 20.5																																																																																												
22	207 32.8	138 33.5	18.6	103 28.1	09.9	135 04.6	01.3	283 06.8	06.8	Betelgeuse	271 21.2	N 7 24.4																																																																																												
23	222 35.3	153 32.7	19.2	118 28.9	09.7	150 06.4	01.4	298 09.4	06.8																																																																																															
20 00	237 37.8	168 31.9	N22 19.7	133 29.6	N24 09.5	165 08.3	N22 01.5	313 11.9	S22 06.8	Canopus	264 04.7	S52 41.4																																																																																												
01	252 40.2	183 31.1	20.2	148 30.4	09.4	180 10.1	01.5	328 14.5	06.8	Capella	281 01.8	N45 59.4																																																																																												
02	267 42.7	198 30.3	20.8	163 31.2	09.2	195 12.0	01.6	343 17.1	06.9	Deneb	49 43.8	N45 14.2																																																																																												
03	282 45.2	213 29.5	21.3	178 32.0	09.1	210 13.8	01.7	358 19.7	06.9	Denebola	182 51.9	N14 37.9																																																																																												
04	297 47.6	228 28.7	21.8	193 32.8	08.9	225 15.7	01.8	13 22.2	06.9	Diphda	349 14.2	S18 02.6																																																																																												
05	312 50.1	243 27.8	22.4	208 33.5	08.8	240 17.5	01.8	28 24.8	06.9																																																																																															
06	327 52.6	258 27.0	N22 22.9	223 34.3	N24 08.6	255 19.4	N22 01.9	43 27.4	S22 06.9	Dubhe	194 13.3	N61 48.7																																																																																												
07	342 55.0	273 26.2	23.4	238 35.1	08.5	270 21.2	02.0	58 30.0	06.9	Elmath	278 35.9	N28 36.1																																																																																												
08	357 57.5	288 25.4	24.0	253 35.9	08.3	285 23.1	02.0	73 32.5	06.9	Eltanin	90 54.1	N51 29.1																																																																																												
09	12 59.9	303 24.6	24.5	268 36.6	08.1	300 24.9	02.1	88 35.1	06.9	Enif	34 04.9	N 9 49.4																																																																																												
10	28 02.4	318 23.8	25.0	283 37.4	08.0	315 26.8	02.2	103 37.7	07.0	Fomalhaut	15 43.9	S29 40.6																																																																																												
11	43 04.9	333 23.0	25.5	298 38.2	07.8	330 28.6	02.3	118 40.3	07.0																																																																																															
12	58 07.3	348 22.2	N22 26.1	313 39.0	N24 07.7	345 30.5	N22 02.3	133 42.8	S22 07.0	Gacrux	172 21.1	S57 03.6																																																																																												
13	73 09.8	3 21.4	26.6	328 39.7	07.5	0 32.4	02.4	148 45.4	07.0	Gienah	176 10.9	S17 29.2																																																																																												
14	88 12.3	18 20.6	27.1	343 40.5	07.4	15 34.2	02.5	163 48.0	07.0	Hadar	149 13.4	S60 19.6																																																																																												
15	103 14.7	33 19.8	27.6	358 41.3	07.2	30 36.1	02.6	178 50.6	07.0	Hamal	328 21.6	N23 24.7																																																																																												
16	118 17.2	48 18.9	28.1	13 42.1	07.0	45 37.9	02.6	193 53.2	07.0	Kaus Aust.	84 07.5	S34 23.5																																																																																												
17	133 19.7	63 18.1	28.7	28 42.8	06.9	60 39.8	02.7	208 55.7	07.0																																																																																															
18	148 22.1	78 17.3	N22 29.2	43 43.6	N24 06.7	75 41.6	N22 02.8	223 58.3	S22 07.0	Kochab	137 17.6	N74 11.9																																																																																												
19	163 24.6	93 16.5	29.7	58 44.4	06.6	90 43.5	02.8	239 00.9	07.1	Markab	13 56.5	N15 08.7																																																																																												
20	178 27.1	108 15.7	30.2	73 45.2	06.4	105 45.3	02.9	254 03.5	07.1	Menkar	314 34.4	N 4 03.0																																																																																												
21	193 29.5	123 14.9	30.7	88 46.0	06.2	120 47.2	03.0	269 06.0	07.1	Menkent	148 28.8	S36 19.3																																																																																												
22	208 32.0	138 14.1	31.2	103 46.7	06.1	135 49.0	03.1	284 08.6	07.1	Miaplacidus	221 44.1	S69 40.7																																																																																												
23	223 34.4	153 13.3	31.7	118 47.5	05.9	150 50.9	03.1	299 11.2	07.1																																																																																															
21 00	238 36.9	168 12.4	N22 32.3	133 48.3	N24 05.8	165 52.7	N22 03.2	314 13.8	S22 07.1	Mirfak	309 07.0	N49 49.5																																																																																												
01	253 39.4	183 11.6	32.8	148 49.1	05.6	180 54.6	03.3	329 16.4	07.1	Nunki	76 20.5	S26 18.7																																																																																												
02	268 41.8	198 10.8	33.3	163 49.8	05.4	195 56.4	03.3	344 18.9	07.1	Peacock	53 47.3	S56 46.1																																																																																												
03	283 44.3	213 10.0	33.8	178 50.6	05.3	210 58.3	03.4	359 21.5	07.2	Pollux	243 50.0	N28 03.3																																																																																												
04	298 46.8	228 09.2	34.3	193 51.4	05.1	226 00.1	03.5	14 24.1	07.2	Procyon	245 18.9	N 5 15.2																																																																																												
05	313 49.2	243 08.4	34.8	208 52.2	04.9	241 02.0	03.6	29 26.7	07.2																																																																																															
06	328 51.7	258 07.6	N22 35.3	223 52.9	N24 04.8	256 03.8	N22 03.6	44 29.3	S22 07.2	Rasalhague	96 23.0	N12 33.8																																																																																												
07	343 54.2	273 06.7	35.8	238 53.7	04.6	271 05.7	03.7	59 31.8	07.2	Regulus	208 02.7	N12 01.2																																																																																												
08	358 56.6	288 05.9	36.3	253 54.5	04.4	286 07.5	03.8	74 34.4	07.2	Rigel	281 29.8	S 8 12.8																																																																																												
09	13 59.1	303 05.1	36.8	268 55.3	04.3	301 09.4	03.9	89 37.0	07.2	Rigel Kent.	140 16.2	S60 47.7																																																																																												
10	29 01.5	318 04.3	37.3	283 56.1	04.1	316 11.2	03.9	104 39.6	07.2	Sabik	102 33.0	S15 42.9																																																																																												
11	44 04.0	333 03.5	37.8	298 56.8	04.0	331 13.1	04.0	119 42.2	07.2																																																																																															
12	59 06.5	348 02.7	N22 38.3	313 57.6	N24 03.8	346 14.9	N22 04.1	134 44.7	S22 07.3	Schedar	350 01.9	N56 28.6																																																																																												
13	74 08.9	3 01.8	38.8	328 58.4	03.6	1 16.8	04.1	149 47.3	07.3	Shaula	96 46.2	S37 05.9																																																																																												
14	89 11.4	18 01.0	39.3	343 59.2	03.5	16 18.6	04.2	164 49.9	07.3	Sirius	258 50.0	S16 42.1																																																																																												
15	104 13.9	33 00.2	39.8	358 59.9	03.3	31 20.5	04.3	179 52.5	07.3	Spica	158 50.2	S11 06.6																																																																																												
16	119 16.3	47 59.4	40.3	14 00.7	03.1	46 22.3	04.4	194 55.1	07.3	Suhail	223 06.0	S43 23.6																																																																																												
17	134 18.8	62 58.6	40.8	29 01.5	03.0	61 24.2	04.4	209 57.6	07.3																																																																																															
18	149 21.3	77 57.7	N22 41.3	44 02.3	N24 02.8	76 26.0	N22 04.5	225 00.2	S22 07.3	Vega	80 50.9	N38 46.1																																																																																												
19	164 23.7	92 56.9	41.7	59 03.1	02.6	91 27.9	04.6	240 02.8	07.3	Zuben'ubi	137 25.2	S16 00.1																																																																																												
20	179 26.2	107 56.1	42.2	74 03.8	02.5	106 29.7	04.6	255 05.4	07.4																																																																																															
21	194 28.7	122 55.3	42.7	89 04.6	02.3	121 31.6	04.7	270 08.0	07.4																																																																																															
22	209 31.1	137 54.5	43.2	104 05.4	02.1	136 33.4	04.8	285 10.6	07.4																																																																																															
23	224 33.6	152 53.6	43.7	119 06.2	02.0	151 35.3	04.9	300 13.1	07.4																																																																																															
<table border="0" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:15%;"></td> <td style="width:15%; text-align: center;">h m</td> <td style="width:15%;"></td> <td style="width:15%;"></td> <td style="width:15%;"></td> <td style="width:15%;"></td> <td style="width:15%;"></td> <td style="width:15%;"></td> <td style="width:15%;"></td> <td style="width:15%;"></td> <td style="width:15%;"></td> <td style="width:15%;"></td> <td style="width:15%;"></td> <td style="width:15%;"></td> <td style="width:15%;"></td> </tr> <tr> <td>Pas. Mer.</td> <td>8 08.1</td> <td>v -0.8</td> <td>d 0.5</td> <td>v 0.8</td> <td>d 0.2</td> <td>v 1.9</td> <td>d 0.1</td> <td>v 2.6</td> <td>d 0.0</td> <td colspan="5"></td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td style="text-align: center;">A. H. S.</td> <td style="text-align: center;">Pas. Mer.</td> <td colspan="3"></td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td style="text-align: center;">o /</td> <td style="text-align: center;">h m</td> <td colspan="3"></td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>Venus</td> <td>290 54.1</td> <td>12 47</td> <td colspan="2"></td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>Marte</td> <td>255 51.9</td> <td>15 05</td> <td colspan="2"></td></tr></table>																h m														Pas. Mer.	8 08.1	v -0.8	d 0.5	v 0.8	d 0.2	v 1.9	d 0.1	v 2.6	d 0.0																A. H. S.	Pas. Mer.														o /	h m														Venus	290 54.1	12 47													Marte	255 51.9	15 05		
	h m																																																																																																							
Pas. Mer.	8 08.1	v -0.8	d 0.5	v 0.8	d 0.2	v 1.9	d 0.1	v 2.6	d 0.0																																																																																															
										A. H. S.	Pas. Mer.																																																																																													
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										Marte	255 51.9	15 05																																																																																												



T.M.G. (TU)	SOL		LUNA				Lat.	Crepúsculo		Orto Sol	Orto Luna					
	A.H.G. Dec.		A.H.G. v Dec.		d P.H.			Náut.	Civil		19	20	21	22		
	h	m	h	m	h	m		h	m		h	m	h	m	h	m
V I E R N E S	19 00	180 54.1	N19 43.0	22 27.2	13.8	S18 35.2	10.9	54.5	N 72	□	□	□	■	■	■	■
	01	195 54.1	43.6	37 00.0	13.6	18 46.1	10.8	54.5	N 70	□	□	□	■	■	■	■
	02	210 54.1	44.1	51 32.6	13.7	18 56.9	10.7	54.5	68	///	///	01 17	■	■	■	■
	03	225 54.0	44.7	66 05.3	13.5	19 07.6	10.7	54.5	66	///	///	02 02	21 39	■	■	■
	04	240 54.0	45.2	80 37.8	13.4	19 18.3	10.5	54.6	64	///	00 14	02 32	20 57	23 20	■	■
	05	255 54.0	45.7	95 10.2	13.4	19 28.8	10.5	54.6	62	///	01 29	02 54	20 28	22 15	24 10	00 10
	06	270 53.9	N19 46.3	109 42.6	13.3	S19 39.3	10.4	54.6	60	///	02 03	03 11	20 06	21 41	23 10	24 16
	07	285 53.9	46.8	124 14.9	13.2	19 49.7	10.4	54.6	N 58	00 12	02 27	03 26	19 49	21 16	22 37	23 40
	08	300 53.9	47.3	138 47.1	13.1	20 00.1	10.2	54.6	56	01 21	02 46	03 39	19 34	20 56	22 12	23 14
	09	315 53.9	47.9	153 19.2	13.1	20 10.3	10.2	54.6	54	01 52	03 02	03 49	19 21	20 39	21 53	22 54
	10	330 53.8	48.4	167 51.3	12.9	20 20.5	10.1	54.6	52	02 15	03 16	03 59	19 10	20 25	21 36	22 37
	11	345 53.8	48.9	182 23.2	12.9	20 30.6	10.0	54.6	50	02 33	03 27	04 08	19 00	20 13	21 22	22 22
	12	0 53.8	N19 49.5	196 55.1	12.8	S20 40.6	9.9	54.7	45	03 06	03 51	04 26	18 40	19 48	20 53	21 52
	13	15 53.7	50.0	211 26.9	12.7	20 50.5	9.8	54.7	N 40	03 31	04 09	04 41	18 23	19 27	20 30	21 29
	14	30 53.7	50.5	225 58.6	12.6	21 00.3	9.8	54.7	35	03 50	04 25	04 53	18 09	19 11	20 12	21 09
	15	45 53.7	51.1	240 30.2	12.5	21 10.1	9.6	54.7	30	04 06	04 37	05 04	17 57	18 56	19 56	20 53
	16	60 53.6	51.6	255 01.7	12.5	21 19.7	9.6	54.7	20	04 30	04 58	05 22	17 37	18 32	19 29	20 25
	17	75 53.6	52.1	269 33.2	12.4	21 29.3	9.4	54.7	N 10	04 49	05 16	05 38	17 19	18 11	19 05	20 01
	18	90 53.6	N19 52.7	284 04.6	12.2	S21 38.7	9.4	54.7	0	05 05	05 31	05 53	17 02	17 51	18 44	19 39
	19	105 53.6	53.2	298 35.8	12.2	21 48.1	9.3	54.8	S 10	05 19	05 45	06 08	16 46	17 32	18 22	19 17
	20	120 53.5	53.7	313 07.0	12.1	21 57.4	9.2	54.8	20	05 33	06 00	06 23	16 28	17 11	17 59	18 53
	21	135 53.5	54.2	327 38.1	12.1	22 06.6	9.1	54.8	30	05 46	06 15	06 41	16 08	16 47	17 33	18 25
	22	150 53.5	54.8	342 09.2	11.9	22 15.7	9.0	54.8	35	05 53	06 24	06 51	15 57	16 33	17 17	18 09
23	165 53.4	55.3	356 40.1	11.9	22 24.7	8.9	54.8	40	06 00	06 33	07 03	15 44	16 17	16 59	17 50	
20 00	180 53.4	N19 55.8	11 11.0	11.7	S22 33.6	8.8	54.8	45	06 08	06 44	07 16	15 28	15 58	16 37	17 27	
01	195 53.4	56.3	25 41.7	11.7	22 42.4	8.7	54.8	S 50	06 17	06 57	07 33	15 09	15 34	16 10	16 57	
02	210 53.3	56.9	40 12.4	11.6	22 51.1	8.6	54.9	52	06 21	07 03	07 41	15 00	15 23	15 56	16 43	
03	225 53.3	57.4	54 43.0	11.5	22 59.7	8.6	54.9	54	06 25	07 09	07 50	14 50	15 10	15 41	16 26	
04	240 53.3	57.9	69 13.5	11.4	23 08.3	8.4	54.9	56	06 29	07 16	08 00	14 39	14 55	15 22	16 05	
05	255 53.2	58.4	83 43.9	11.4	23 16.7	8.3	54.9	58	06 34	07 24	08 11	14 26	14 38	15 00	15 40	
06	270 53.2	N19 59.0	98 14.3	11.2	S23 25.0	8.1	54.9	S 60	06 40	07 33	08 24	14 10	14 17	14 31	15 06	
07	285 53.2	19 59.5	112 44.5	11.2	23 33.1	8.1	54.9									
08	300 53.1	20 00.0	127 14.7	11.1	23 41.2	8.0	55.0	Lat.	Ocaso Sol	Crepúsculo Civil		Ocaso Luna				
09	315 53.1	20 00.5	141 44.8	10.9	23 49.2	7.9	55.0					19	20	21	22	
10	330 53.0	01.0	156 14.7	11.0	23 57.1	7.7	55.0	N 70	□	□	□	■	■	■	■	
11	345 53.0	01.6	170 44.7	10.8	24 04.8	7.7	55.0	N 72	□	□	□	■	■	■	■	
12	0 53.0	N20 02.1	185 14.5	10.7	S24 12.5	7.5	55.0	68	22 43	///	///	00 42	■	■	■	
13	15 52.9	02.6	199 44.2	10.7	24 20.0	7.4	55.0	66	21 54	///	///	01 11	00 35	■	■	
14	30 52.9	03.1	214 13.9	10.5	24 27.4	7.4	55.1	64	21 24	///	///	01 34	01 19	00 39	■	
15	45 52.9	03.6	228 43.4	10.5	24 34.8	7.2	55.1	62	21 01	22 28	///	01 52	01 48	01 44	01 40	
16	60 52.8	04.1	243 12.9	10.4	24 42.0	7.0	55.1	60	20 43	21 52	///	02 07	02 10	02 19	02 40	
17	75 52.8	04.7	257 42.3	10.3	24 49.0	7.0	55.1	N 58	20 28	21 28	///	02 20	02 29	02 44	03 14	
18	90 52.8	N20 05.2	272 11.6	10.3	S24 56.0	6.8	55.1	56	20 16	21 08	22 36	02 31	02 44	03 05	03 39	
19	105 52.7	05.7	286 40.9	10.1	25 02.8	6.8	55.1	54	20 05	20 52	22 04	02 41	02 57	03 22	03 58	
20	120 52.7	06.2	301 10.0	10.1	25 09.6	6.6	55.2	52	19 55	20 38	21 40	02 49	03 09	03 36	04 15	
21	135 52.6	06.7	315 39.1	10.0	25 16.2	6.4	55.2	50	19 46	20 27	21 22	02 57	03 19	03 49	04 30	
22	150 52.6	07.2	330 08.1	9.9	25 22.6	6.4	55.2	45	19 28	20 03	20 48	03 14	03 41	04 15	04 59	
23	165 52.6	07.7	344 37.0	9.8	25 29.0	6.2	55.2	N 40	19 13	19 44	20 23	03 28	03 58	04 36	05 22	
21 00	180 52.5	N20 08.2	359 05.8	9.8	S25 35.2	6.1	55.2	35	19 00	19 29	20 04	03 40	04 13	04 53	05 41	
01	195 52.5	08.8	13 34.6	9.7	25 41.3	6.0	55.2	30	18 49	19 16	19 48	03 50	04 26	05 08	05 57	
02	210 52.5	09.3	28 03.3	9.6	25 47.3	5.9	55.3	20	18 31	18 55	19 23	04 08	04 48	05 34	06 24	
03	225 52.4	09.8	42 31.9	9.5	25 53.2	5.7	55.3	N 10	18 15	18 37	19 04	04 24	05 07	05 56	06 48	
04	240 52.4	10.3	57 00.4	9.4	25 58.9	5.6	55.3	0	18 00	18 22	18 48	04 38	05 25	06 16	07 10	
05	255 52.3	10.8	71 28.8	9.4	26 04.5	5.4	55.3	S 10	17 45	18 08	18 33	04 53	05 44	06 37	07 32	
06	270 52.3	N20 11.3	85 57.2	9.3	S26 09.9	5.4	55.3	20	17 30	17 53	18 20	05 09	06 03	06 59	07 56	
07	285 52.3	11.8	100 25.5	9.2	26 15.3	5.2	55.3	30	17 12	17 38	18 07	05 27	06 25	07 25	08 23	
08	300 52.2	12.3	114 53.7	9.2	26 20.5	5.1	55.4	35	17 02	17 29	18 00	05 38	06 39	07 40	08 40	
09	315 52.2	12.8	129 21.9	9.1	26 25.6	4.9	55.4	40	16 50	17 19	17 52	05 50	06 54	07 58	08 59	
10	330 52.1	13.3	143 50.0	9.0	26 30.5	4.8	55.4	45	16 36	17 08	17 44	06 04	07 12	08 19	09 22	
11	345 52.1	13.8	158 18.0	8.9	26 35.3	4.7	55.4	S 50	16 19	16 56	17 36	06 22	07 35	08 46	09 51	
12	0 52.1	N20 14.3	172 45.9	8.9	S26 40.0	4.5	55.4	52	16 11	16 50	17 32	06 31	07 46	09 00	10 06	
13	15 52.0	14.8	187 13.8	8.8	26 44.5	4.4	55.5	54	16 03	16 43	17 27	06 40	07 59	09 15	10 23	
14	30 52.0	15.3	201 41.6	8.7	26 48.9	4.2	55.5	56	15 53	16 36	17 23	06 51	08 13	09 33	10 43	
15	45 51.9	15.8	216 09.3	8.7	26 53.1	4.1	55.5	58	15 42	16 28	17 18	07 03	08 30	09 55	11 08	
16	60 51.9	16.3	230 37.0	8.6	26 57.2	4.0	55.5	S 60	15 29	16 20	17 13	07 18	08 51	10 23	11 42	
17	75 51.8	16.8	245 04.6	8.5	27 01.2	3.8	55.5									
18	90 51.8	N20 17.3	259 32.1	8.5	S27 05.0	3.7	55.5									
19	105 51.8	17.8	273 59.6	8.4	27 08.7	3.6	55.6	Día	SOL E.T. (+)		LUNA					
20	120 51.7	18.3	288 27.0	8.4	27 12.3	3.4	55.6		00 h	12 h	Pas. Mer.	Pas. Sup.	Mer. Inf.	Edad	Fase	
21	135															







T.M.G. (TU)	SOL		LUNA				Lat.	Crepúsculo		Orto Sol	Orto Luna					
	A.H.G.	Dec.	A.H.G.	v	Dec.	d		P.H.	Naut.		Civil	22	23	24	25	
												h m	h m	h m	h m	h m
L U N E S	00	180 51.5	N20 20.3	346 16.2	8.1	S27 25.0	2.8 55.7	N 72	□	□	□	■	■	■	■	
	01	195 51.5	20.8	0 43.3	8.1	27 27.8	2.7 55.7	N 70	□	□	□	■	■	■	■	
	02	210 51.4	21.3	15 10.4	8.0	27 30.5	2.5 55.7	68	///	///	00 54	■	■	■	■	
	03	225 51.4	21.8	29 37.4	8.0	27 33.0	2.4 55.7	66	///	///	01 50	■	■	■	03 19	
	04	240 51.4	22.3	44 04.4	7.9	27 35.4	2.2 55.7	64	///	///	02 23	■	■	■	02 05	
	05	255 51.3	22.8	58 31.3	7.9	27 37.6	2.1 55.8	62	///	01 15	02 46	00 10	01 35	01 32	01 28	
	06	270 51.3	N20 23.3	72 58.2	7.9	S27 39.7	1.9 55.8	60	///	01 54	03 05	24 16	00 16	00 49	01 02	
	07	285 51.2	23.8	87 25.1	7.8	27 41.6	1.8 55.8	N 58	///	02 20	03 21	23 40	24 20	00 20	00 41	
	08	300 51.2	24.3	101 51.9	7.8	27 43.4	1.6 55.8	56	01 07	02 40	03 34	23 14	23 57	24 24	00 24	
	09	315 51.1	24.8	116 18.7	7.7	27 45.0	1.5 55.8	54	01 43	02 57	03 45	22 54	23 39	24 10	00 10	
	10	330 51.1	25.3	130 45.4	7.7	27 46.5	1.3 55.9	52	02 08	03 11	03 55	22 37	23 23	23 57	24 21	
	11	345 51.0	25.7	145 12.1	7.6	27 47.8	1.2 55.9	50	02 27	03 23	04 04	22 22	23 10	23 46	24 12	
	12	0 51.0	N20 26.2	159 38.7	7.6	S27 49.0	1.0 55.9	45	03 02	03 48	04 23	21 52	22 42	23 22	23 54	
	13	15 50.9	26.7	174 05.3	7.6	27 50.0	0.8 55.9	N 40	03 28	04 07	04 38	21 29	22 20	23 03	23 39	
	14	30 50.9	27.2	188 31.9	7.5	27 50.8	0.7 55.9	35	03 48	04 23	04 51	21 09	22 02	22 47	23 26	
	15	45 50.8	27.7	202 58.4	7.5	27 51.5	0.6 56.0	30	04 04	04 36	05 02	20 53	21 46	22 34	23 15	
	16	60 50.8	28.2	217 24.9	7.5	27 52.1	0.4 56.0	20	04 29	04 57	05 21	20 25	21 19	22 10	22 56	
	17	75 50.8	28.7	231 51.4	7.5	27 52.5	0.2 56.0	N 10	04 49	05 15	05 38	20 01	20 56	21 49	22 39	
	18	90 50.7	N20 29.2	246 17.9	7.4	S27 52.7	0.1 56.0	0	05 05	05 31	05 53	19 39	20 35	21 30	22 24	
	19	105 50.7	29.6	260 44.3	7.4	27 52.8	0.1 56.0	S 10	05 20	05 46	06 08	19 17	20 14	21 11	22 08	
	20	120 50.6	30.1	275 10.7	7.4	27 52.7	0.2 56.1	20	05 34	06 01	06 24	18 53	19 51	20 50	21 51	
	21	135 50.6	30.6	289 37.1	7.4	27 52.5	0.4 56.1	30	05 48	06 17	06 43	18 25	19 24	20 27	21 31	
	22	150 50.5	31.1	304 03.5	7.3	27 52.1	0.6 56.1	35	05 55	06 26	06 53	18 09	19 08	20 12	21 20	
23	165 50.5	31.6	318 29.8	7.4	27 51.5	0.7 56.1	40	06 02	06 36	07 05	17 50	18 49	19 56	21 07		
M A R T E S	00	180 50.4	N20 32.1	332 56.2	7.3	S27 50.8	0.8 56.1	45	06 11	06 47	07 20	17 27	18 27	19 36	20 51	
	01	195 50.4	32.5	347 22.5	7.3	27 50.0	1.1 56.2	S 50	06 20	07 00	07 37	16 57	17 59	19 12	20 31	
	02	210 50.3	33.0	1 48.8	7.3	27 48.9	1.1 56.2	52	06 24	07 06	07 45	16 43	17 45	19 00	20 22	
	03	225 50.3	33.5	16 15.1	7.2	27 47.8	1.4 56.2	54	06 29	07 13	07 54	16 26	17 29	18 46	20 12	
	04	240 50.2	34.0	30 41.3	7.3	27 46.4	1.5 56.2	56	06 33	07 20	08 05	16 05	17 09	18 30	20 00	
	05	255 50.2	34.5	45 07.6	7.3	27 44.9	1.6 56.2	58	06 39	07 29	08 16	15 40	16 46	18 11	19 46	
	06	270 50.1	N20 34.9	59 33.9	7.2	S27 43.3	1.9 56.3	S 60	06 44	07 38	08 30	15 06	16 14	17 48	19 30	
	07	285 50.1	35.4	74 00.1	7.3	27 41.4	1.9 56.3									
	08	300 50.0	35.9	88 26.4	7.3	27 39.5	2.2 56.3	Lat.	Ocaso Sol	Crepúsculo Civil	Naut.	Ocaso Luna	22	23	24	25
	09	315 50.0	36.4	102 52.7	7.2	27 37.3	2.3 56.3	N 72	h m	h m	h m	h m	h m	h m	h m	h m
	10	330 49.9	36.8	117 18.9	7.3	27 35.0	2.4 56.3	N 70	□	□	□	■	■	■	■	
	11	345 49.9	37.3	131 45.2	7.2	27 32.6	2.6 56.4	68	23 08	///	///	■	■	■	■	
	12	0 49.8	N20 37.8	146 11.4	7.3	S27 30.0	2.8 56.4	66	22 07	///	///	■	■	■	04 21	
	13	15 49.7	38.3	160 37.7	7.3	27 27.2	2.9 56.4	64	21 33	///	///	■	■	■	05 34	
	14	30 49.7	38.7	175 04.0	7.2	27 24.3	3.1 56.4	62	21 09	22 43	///	01 40	02 11	04 11	06 10	
	15	45 49.6	39.2	189 30.2	7.3	27 21.2	3.2 56.4	60	20 50	22 02	///	02 40	03 30	04 54	06 35	
	16	60 49.6	39.7	203 56.5	7.3	27 18.0	3.4 56.5	N 58	20 34	21 35	///	03 14	04 06	05 23	06 55	
	17	75 49.5	40.2	218 22.8	7.4	27 14.6	3.6 56.5	56	20 21	21 15	22 50	03 39	04 32	05 45	07 12	
	18	90 49.5	N20 40.6	232 49.2	7.3	S27 11.0	3.7 56.5	54	20 09	20 58	22 13	03 58	04 52	06 03	07 26	
	19	105 49.4	41.1	247 15.5	7.3	27 07.3	3.9 56.5	52	19 59	20 43	21 47	04 15	05 09	06 19	07 38	
	20	120 49.4	41.6	261 41.8	7.4	27 03.4	4.0 56.6	50	19 50	20 31	21 28	04 30	05 24	06 32	07 49	
	21	135 49.3	42.0	276 08.2	7.4	26 59.4	4.2 56.6	45	19 31	20 06	20 52	04 59	05 54	06 59	08 11	
	22	150 49.3	42.5	290 34.6	7.4	26 55.2	4.3 56.6	N 40	19 16	19 47	20 26	05 22	06 17	07 20	08 29	
23	165 49.2	43.0	305 01.0	7.4	26 50.9	4.5 56.6	35	19 03	19 31	20 06	05 41	06 36	07 38	08 44		
M I E R C O L E S	00	180 49.2	N20 43.4	319 27.4	7.5	S26 46.4	4.7 56.6	30	18 51	19 18	19 50	05 57	06 53	07 53	08 57	
	01	195 49.1	43.9	333 53.9	7.4	26 41.7	4.8 56.7	20	18 32	18 56	19 25	06 24	07 20	08 19	09 19	
	02	210 49.0	44.4	348 20.3	7.5	26 36.9	4.9 56.7	N 10	18 16	18 38	19 05	06 48	07 44	08 41	09 38	
	03	225 49.0	44.8	2 46.8	7.6	26 32.0	5.1 56.7	0	18 00	18 22	18 48	07 10	08 06	09 02	09 56	
	04	240 48.9	45.3	17 13.4	7.5	26 26.9	5.3 56.7	S 10	17 45	18 07	18 33	07 32	08 28	09 22	10 14	
	05	255 48.9	45.8	31 39.9	7.6	26 21.6	5.4 56.7	20	17 29	17 52	18 19	07 56	08 52	09 44	10 32	
	06	270 48.8	N20 46.2	46 06.5	7.7	S26 16.2	5.6 56.8	30	17 11	17 36	18 06	08 23	09 19	10 09	10 54	
	07	285 48.8	46.7	60 33.2	7.6	26 10.6	5.7 56.8	35	17 00	17 27	17 58	08 40	09 35	10 24	11 06	
	08	300 48.7	47.2	74 59.8	7.7	26 04.9	5.9 56.8	40	16 48	17 17	17 51	08 59	09 54	10 41	11 20	
	09	315 48.6	47.6	89 26.5	7.7	25 59.0	6.0 56.8	45	16 33	17 06	17 42	09 22	10 16	11 01	11 37	
	10	330 48.6	48.1	103 53.2	7.8	25 53.0	6.2 56.9	S 50	16 16	16 53	17 33	09 51	10 45	11 27	11 58	
	11	345 48.5	48.5	118 20.0	7.8	25 46.8	6.3 56.9	52	16 08	16 47	17 29	10 06	10 59	11 39	12 08	
	12	0 48.5	N20 49.0	132 46.8	7.8	S25 40.5	6.5 56.9	54	15 59	16 40	17 24	10 23	11 16	11 53	12 19	
	13	15 48.4	49.5	147 13.6	7.9	25 34.0	6.6 56.9	56	15 48	16 32	17 19	10 43	11 35	12 09	12 31	
	14	30 48.4	49.9	161 40.5	7.9	25 27.4	6.8 56.9	58	15 37	16 24	17 14	11 08	11 59	12 29	12 45	
	15	45 48.3	50.4	176 07.4	8.0	25 20.6	6.9 57.0	S 60	15 23	16 15	17 08	11 42	12 31	12 53		
	16	60 48.2	50.8	190 34.4	8.0	25 13.7	7.1 57.0									
	17	75 48.2	51.3	205 01.4	8.1	25 06.6	7.2 57.0									
	18	90 48.1	N20 51.7	219 28.5	8.1	S24 59.4	7.4 57.0									
	19	105 48.1	52.2	233 55.6	8.1	24 52.0	7.5 57.0	Día	SOL E.T. (+)	Pas. Mer.	LUNA					
	20	120 48.0	52.7	248 22.7	8.2	24 44.5	7.6 57.1	00 h	12 h	Mer.	Pas. Sup.	Mer. Inf.	Edad.	Fase		
	21	135 47.9	53.1	262 49.9	8.2	24 36.9	7.8 57.1	m s	m s	h m	h m	h m	d			
	22	150 47.9	53.6	277 17.1	8.3	24 29.1	7.9 57.1	22	03 26	03 24	11 57	00 57	13 25	17	☾	
23	165 47.8	54.0	2													















T.M.G. (TU)	SOL		LUNA				Lat.	Crepúsculo		Orto Sol	Orto Luna										
	A.H.G.	Dec.	A.H.G.	v	Dec.	d		P.H.	Naut.		Civil	28	29	30	31						
												h m	h m	h m	h m	h m	h m	h m	h m		
DOMINGO	180	42.9	N21	25.4	269	19.3	11.9	S	9	27.8	15.5	58.8	N 72	02 05	01 27	00 52	{00 11}				
	01	195	42.8		25.8	283	50.2	11.8		9	12.3	15.5	58.8	N 70	01 51	01 23	00 56	{00 27}			
	02	210	42.7		26.2	298	21.0	11.9		8	56.8	15.6	58.8	68	01 40	01 20	01 01	00 39			
	03	225	42.6	..	26.6	312	51.9	11.9		8	41.2	15.7	58.9	66	///	///	01 25	01 31	01 17	01 04	00 50
	04	240	42.6		27.0	327	22.8	12.0		8	25.5	15.7	58.9	64	///	///	02 06	01 24	01 15	01 07	00 58
	05	255	42.5		27.4	341	53.8	11.9		8	09.8	15.8	58.9	62	///	00 39	02 33	01 17	01 13	01 10	01 06
	06	270	42.4	N21	27.8	356	24.7	12.0	S	7	54.0	15.8	58.9	60	///	01 35	02 54	01 11	01 11	01 12	01 13
	07	285	42.3		28.2	10	55.7	12.0		7	38.2	15.9	58.9	N 58	00 35	02 29	03 11	01 06	01 10	01 14	01 18
	08	300	42.2		28.6	25	26.7	12.0		7	22.3	15.9	59.0	56	01 27	02 48	03 25	01 01	01 09	01 16	01 24
	09	315	42.2	..	29.0	39	57.7	12.0		7	06.4	16.0	59.0	54	01 56	03 03	03 38	00 57	01 07	01 17	01 28
	10	330	42.1		29.4	54	28.7	12.0		6	50.4	16.0	59.0	52	02 17	03 16	03 49	00 53	01 06	01 19	01 33
	11	345	42.0		29.8	68	59.7	12.1		6	34.4	16.0	59.0	50	02 56	03 42	03 58	00 50	01 05	01 20	01 36
	12	0	41.9	N21	30.2	83	30.8	12.0	S	6	18.4	16.1	59.0	45	02 56	03 42	04 18	00 43	01 03	01 23	01 45
	13	15	41.9		30.6	98	01.8	12.1		6	02.3	16.1	59.1	N 40	03 23	04 03	04 35	00 36	01 01	01 26	01 52
	14	30	41.8		31.0	112	32.9	12.0		5	46.2	16.2	59.1	35	03 44	04 19	04 48	00 31	01 00	01 28	01 58
	15	45	41.7	..	31.4	127	03.9	12.1		5	30.0	16.2	59.1	30	04 01	04 33	05 00	00 26	00 58	01 30	02 04
	16	60	41.6		31.8	141	35.0	12.1		5	13.8	16.3	59.1	20	04 27	04 56	05 20	00 18	00 56	01 34	02 13
	17	75	41.5		32.2	156	06.1	12.0		4	57.5	16.3	59.2	N 10	05 06	05 15	05 38	00 10	00 53	01 37	02 22
	18	90	41.5	N21	32.6	170	37.1	12.1	S	4	41.2	16.3	59.2	0	05 06	05 31	05 54	00 03	00 51	01 40	02 30
	19	105	41.4		33.0	185	08.2	12.1		4	24.9	16.4	59.2	S 10	05 21	05 47	06 10	24 49	00 49	01 43	02 38
	20	120	41.3		33.4	199	39.3	12.1		4	08.5	16.4	59.2	20	05 36	06 03	06 27	24 47	00 47	01 46	02 46
	21	135	41.2	..	33.8	214	10.4	12.1		3	52.1	16.4	59.2	30	05 51	06 20	06 46	24 45	00 45	01 50	02 56
	22	150	41.1		34.2	228	41.5	12.0		3	35.7	16.4	59.3	35	05 58	06 30	06 57	24 43	00 43	01 52	03 02
23	165	41.1		34.6	243	12.5	12.1		3	19.3	16.5	59.3	40	06 07	06 40	07 10	24 42	00 42	01 54	03 09	
2900	180	41.0	N21	34.9	257	43.6	12.1	S	3	02.8	16.5	59.3	45	06 16	06 52	07 25	24 40	00 40	01 57	03 17	
01	195	40.9		35.3	272	14.7	12.0		2	46.3	16.5	59.3	S 50	06 26	07 07	07 44	24 38	00 38	02 01	03 26	
02	210	40.8		35.7	286	45.7	12.1		2	29.8	16.6	59.3	52	06 30	07 13	07 53	24 37	00 37	02 02	03 30	
03	225	40.7	..	36.1	301	16.8	12.0		2	13.2	16.6	59.3	54	06 35	07 20	08 02	24 35	00 35	02 04	03 35	
04	240	40.7		36.5	315	47.8	12.0		1	56.6	16.6	59.4	56	06 41	07 28	08 14	24 34	00 34	02 06	03 41	
05	255	40.6		36.9	330	18.8	12.1		1	40.0	16.6	59.4	58	06 46	07 37	08 26	24 33	00 33	02 08	03 47	
06	270	40.5	N21	37.3	344	49.9	12.0	S	1	23.4	16.6	59.4	S 60	06 53	07 47	08 41	24 31	00 31	02 11	03 54	
07	285	40.4		37.7	359	20.9	11.9		1	06.8	16.7	59.4	Lat.	Ocaso Sol	Crepúsculo Civil		Ocaso Luna				
08	300	40.3		38.1	13	51.8	12.0		0	50.1	16.6	59.4	28				28	29	30	31	
09	315	40.2	..	38.4	28	22.8	12.0		0	33.5	16.7	59.5	N 72	h m	h m	h m	h m	h m	h m	h m	h m
10	330	40.2		38.8	42	53.8	11.9		0	16.8	16.7	59.5	N 70	0	0	0	10 59	13 21	15 47	18 42	
11	345	40.1		39.2	57	24.7	11.9	S	0	00.1	16.7	59.5	68	0	0	0	11 09	13 20	15 35	18 06	
12	0	40.0	N21	39.6	71	55.6	11.9	N	0	16.6	16.7	59.5	66	22 33	///	///	11 17	13 20	15 25	17 41	
13	15	39.9		40.0	86	26.5	11.9		0	33.3	16.8	59.5	64	21 51	///	///	11 24	13 19	15 16	17 22	
14	30	39.8		40.4	100	57.4	11.8		0	50.1	16.7	59.6	62	21 23	23 24	///	11 30	13 19	15 10	17 07	
15	45	39.7	..	40.7	115	28.2	11.8		1	06.8	16.7	59.6	60	21 02	22 22	///	11 35	13 18	15 04	16 55	
16	60	39.7		41.1	129	59.0	11.8		1	23.5	16.7	59.6	N 58	20 45	21 50	///	11 39	13 18	14 59	16 44	
17	75	39.6		41.5	144	29.8	11.8		1	40.2	16.8	59.6	56	20 45	21 50	///	11 43	13 18	14 54	16 35	
18	90	39.5	N21	41.9	159	00.6	11.7	N	1	57.0	16.7	59.6	54	20 30	21 27	23 27	11 46	13 17	14 50	16 27	
19	105	39.4		42.3	173	31.3	11.7		2	13.7	16.8	59.6	52	20 18	21 08	22 31	11 49	13 17	14 47	16 20	
20	120	39.3		42.6	188	02.0	11.7		2	30.5	16.7	59.7	50	20 07	20 53	22 01	11 52	13 17	14 44	16 13	
21	135	39.2	..	43.0	202	32.7	11.6		2	47.2	16.7	59.7	50	19 57	20 39	21 39	11 54	13 17	14 41	16 08	
22	150	39.2		43.4	217	03.3	11.6		3	03.9	16.7	59.7	45	19 37	20 13	21 00	12 00	13 16	14 35	15 55	
23	165	39.1		43.8	231	33.9	11.6		3	20.6	16.8	59.7	N 40	19 20	19 52	20 32	12 04	13 16	14 29	15 45	
3000	180	39.0	N21	44.1	246	04.5	11.5	N	3	37.4	16.7	59.7	35	19 07	19 36	20 11	12 08	13 16	14 25	15 36	
01	195	38.9		44.5	260	35.0	11.5		3	54.1	16.7	59.7	30	18 55	19 22	19 54	12 11	13 15	14 21	15 29	
02	210	38.8		44.9	275	05.5	11.4		4	10.8	16.6	59.8	N 20	18 35	18 59	19 27	12 17	13 15	14 14	15 16	
03	225	38.7	..	45.3	289	35.9	11.4		4	27.4	16.7	59.8	0	18 17	18 40	19 07	12 22	13 15	14 08	15 05	
04	240	38.6		45.6	304	06.3	11.4		4	44.1	16.7	59.8	S 10	18 01	18 23	18 49	12 26	13 14	14 03	14 54	
05	255	38.6		46.0	318	36.7	11.3		5	00.8	16.6	59.8	20	17 45	18 07	18 34	12 31	13 14	13 57	14 44	
06	270	38.5	N21	46.4	333	07.0	11.2	N	5	17.4	16.6	59.8	30	17 28	17 52	18 19	12 35	13 13	13 52	14 33	
07	285	38.4		46.7	347	37.2	11.3		5	34.0	16.6	59.8	40	17 08	17 34	18 04	12 41	13 13	13 45	14 20	
08	300	38.3		47.1	2	07.5	11.1		5	50.6	16.6	59.8	50	16 57	17 25	17 56	12 44	13 12	13 41	14 13	
09	315	38.2	..	47.5	16	37.6	11.1		6	07.2	16.5	59.9	58	16 44	17 14	17 48	12 47	13 12	13 37	14 04	
10	330	38.1		47.9	31	07.7	11.1		6	23.7	16.5	59.9	S 50	16 29	17 02	17 39	12 51	13 11	13 32	13 55	
11	345	38.0		48.2	45	37.8	11.0		6	40.2	16.5	59.9	52	16 10	16 48	17 28	12 56	13 11	13 26	13 43	
12	0	37.9	N21	48.6	60	07.8	11.0	N	6	56.7	16.5	59.9	54	16 02	16 41	17 24	12 58	13 10	13 23	13 38	
13	15	37.9		49.0	74	37.8	10.9		7	13.2	16.4	59.9	54	15 52	16 34	17 19	13 00	13 10	13 20	13 32	
14	30	37.8		49.3	89	07.7	10.8		7	29.6	16.5	59.9	56	15 41	16 26	17 14	13 03	13 10	13 17	13 26	
15	45	37.7	..	49.7	103	37.5	10.8		8	02.4	16.4	59.9	58	15 28	16 17	17 08	13 06	13 10	13 13	13 19	
16	60	37.6		50.1	118	07.3	10.8		8	18.8	16.3	60.0	S 60	15 13	16 07	17 01	13 09	13 09	13 09	13 10	
17	75	37.5		50.4	132	37.1	10.6		8	18.8	16.3	60.0	Día	SOL							



T.M.G. (TU)	ARIES	VENUS -3.9	MARTE +1.8	JUPITER -1.9	SATURNO +0.2	ESTRELLAS		
d h	A.H.G.	A.H.G. Dec.	A.H.G. Dec.	A.H.G. Dec.	A.H.G. Dec.	Nombre	A. H. S.	Dec.
M I E R C O L E S	31 00	248 28.3	164 48.1 N24 01.4	136 56.9 N23 18.5	173 15.9 N22 19.4	324 36.8 S22 10.3	Acamar	315 32.3 S40 20.6
	01	263 30.8	179 47.2 01.6	151 57.6 18.2	188 17.7 19.5	339 39.4 10.4	Achernar	335 40.3 S57 17.1
	02	278 33.2	194 46.3 01.9	166 58.4 18.0	203 19.6 19.5	354 42.0 10.4	Acruz	173 29.7 S63 02.8
	03	293 35.7	209 45.5 .. 02.1	181 59.2 .. 17.8	218 21.4 .. 19.6	9 44.6 .. 10.4	Adhara	255 27.1 S28 57.5
	04	308 38.2	224 44.6 02.3	197 00.0 17.5	233 23.3 19.7	24 47.2 10.4	Aldebaran	291 10.5 N16 29.4
	05	323 40.6	239 43.7 02.5	212 00.8 17.3	248 25.1 19.7	39 49.9 10.4		
	06	338 43.1	254 42.8 N24 02.8	227 01.6 N23 17.1	263 27.0 N22 19.8	54 52.5 S22 10.4	Alioth	166 35.9 N56 01.2
	07	353 45.5	269 41.9 03.0	242 02.4 16.8	278 28.8 19.9	69 55.1 10.5	Alkaid	153 12.6 N49 22.0
	08	8 48.0	284 41.0 03.2	257 03.2 16.6	293 30.6 19.9	84 57.7 10.5	Al Na'ir	28 06.1 S47 00.6
	09	23 50.5	299 40.2 .. 03.4	272 04.0 .. 16.4	308 32.5 .. 20.0	100 00.3 .. 10.5	Alnilam	276 05.1 S 1 12.4
	10	38 52.9	314 39.3 03.6	287 04.8 16.1	323 34.3 20.0	115 02.9 10.5	Alphard	218 14.0 S 8 36.8
	11	53 55.4	329 38.4 03.9	302 05.6 15.9	338 36.2 20.1	130 05.5 10.5		
	12	68 57.9	344 37.5 N24 04.1	317 06.4 N23 15.7	353 38.0 N22 20.2	145 08.1 S22 10.5	Alphecca	126 25.9 N26 44.9
	13	84 00.3	359 36.6 04.3	332 07.2 15.4	8 39.9 20.2	160 10.8 10.5	Alpheratz	358 02.5 N29 01.8
	14	99 02.8	14 35.8 04.5	347 08.0 15.2	23 41.7 20.3	175 13.4 10.6	Altair	62 25.7 N 8 50.2
	15	114 05.3	29 34.9 .. 04.7	2 08.8 .. 15.0	38 43.5 .. 20.4	190 16.0 .. 10.6	Ankaa	353 33.5 S42 21.6
	16	129 07.7	44 34.0 04.9	17 09.6 14.7	53 45.4 20.4	205 18.6 10.6	Antares	112 48.2 S26 24.7
	17	144 10.2	59 33.1 05.1	32 10.4 14.5	68 47.2 20.5	220 21.2 10.6		
	18	159 12.7	74 32.2 N24 05.3	47 11.2 N23 14.3	83 49.1 N22 20.5	235 23.8 S22 10.6	Arcturus	146 11.9 N19 14.2
	19	174 15.1	89 31.3 05.5	62 12.0 14.0	98 50.9 20.6	250 26.4 10.6	Atria	108 05.8 S69 00.7
	20	189 17.6	104 30.5 05.7	77 12.8 13.8	113 52.8 20.7	265 29.1 10.6	Avior	234 26.0 S59 28.7
	21	204 20.0	119 29.6 .. 06.0	92 13.6 .. 13.5	128 54.6 .. 20.7	280 31.7 .. 10.7	Bellatrix	278 51.8 N 6 20.5
	22	219 22.5	134 28.7 06.2	107 14.4 13.3	143 56.4 20.8	295 34.3 10.7	Betelgeuse	271 21.2 N 7 24.4
23	234 25.0	149 27.8 06.4	122 15.2 13.1	158 58.3 20.9	310 36.9 10.7			
J U E V E S	1 00	249 27.4	164 26.9 N24 06.6	137 16.0 N23 12.8	174 00.1 N22 20.9	325 39.5 S22 10.7	Canopus	264 04.7 S52 41.4
	01	264 29.9	179 26.0 06.8	152 16.8 12.6	189 02.0 21.0	340 42.1 10.7	Capella	281 01.7 N45 59.4
	02	279 32.4	194 25.1 07.0	167 17.6 12.4	204 03.8 21.0	355 44.7 10.7	Deneb	49 43.7 N45 14.2
	03	294 34.8	209 24.3 .. 07.1	182 18.3 .. 12.1	219 05.6 .. 21.1	10 47.4 .. 10.8	Denebola	182 52.0 N14 37.9
	04	309 37.3	224 23.4 07.3	197 19.1 11.9	234 07.5 21.2	25 50.0 10.8	Diphda	349 14.1 S18 02.6
	05	324 39.8	239 22.5 07.5	212 19.9 11.6	249 09.3 21.2	40 52.6 10.8		
	06	339 42.2	254 21.6 N24 07.7	227 20.7 N23 11.4	264 11.2 N22 21.3	55 55.2 S22 10.8	Dubhe	194 13.4 N61 48.7
	07	354 44.7	269 20.7 07.9	242 21.5 11.2	279 13.0 21.3	70 57.8 10.8	Elnath	278 35.9 N28 36.1
	08	9 47.1	284 19.8 08.1	257 22.3 10.9	294 14.9 21.4	86 00.4 10.8	Eltanin	90 54.0 N51 29.2
	09	24 49.6	299 18.9 .. 08.3	272 23.1 .. 10.7	309 16.7 .. 21.5	101 03.1 .. 10.8	Enif	34 04.8 N 9 49.4
	10	39 52.1	314 18.1 08.5	287 23.9 10.4	324 18.5 21.5	116 05.7 10.9	Fomalhaut	15 43.8 S29 40.6
	11	54 54.5	329 17.2 08.7	302 24.7 10.2	339 20.4 21.6	131 08.3 10.9		
	12	69 57.0	344 16.3 N24 08.9	317 25.5 N23 09.9	354 22.2 N22 21.7	146 10.9 S22 10.9	Gacrux	172 21.2 S57 03.6
	13	84 59.5	359 15.4 09.0	332 26.3 09.7	9 24.1 21.7	161 13.5 10.9	Gienah	176 10.9 S17 29.2
	14	100 01.9	14 14.5 09.2	347 27.1 09.5	24 25.9 21.8	176 16.1 10.9	Hadar	149 13.5 S60 19.7
	15	115 04.4	29 13.6 .. 09.4	2 27.9 .. 09.2	39 27.7 .. 21.8	191 18.7 .. 10.9	Hamal	328 21.6 N23 24.7
	16	130 06.9	44 12.7 09.6	17 28.7 09.0	54 29.6 21.9	206 21.4 11.0	Kaus Aust.	84 07.4 S34 23.5
	17	145 09.3	59 11.9 09.8	32 29.5 08.7	69 31.4 22.0	221 24.0 11.0		
	18	160 11.8	74 11.0 N24 09.9	47 30.3 N23 08.5	84 33.3 N22 22.0	236 26.6 S22 11.0	Kochab	137 17.7 N74 12.0
	19	175 14.3	89 10.1 10.1	62 31.1 08.2	99 35.1 22.1	251 29.2 11.0	Markab	13 56.4 N15 08.8
	20	190 16.7	104 09.2 10.3	77 31.9 08.0	114 37.0 22.1	266 31.8 11.0	Menkar	314 34.3 N 4 03.0
	21	205 19.2	119 08.3 .. 10.5	92 32.7 .. 07.8	129 38.8 .. 22.2	281 34.5 .. 11.0	Menkent	148 28.8 S36 19.4
	22	220 21.6	134 07.4 10.6	107 33.5 07.5	144 40.6 22.3	296 37.1 11.0	Miaplacidus	221 44.3 S69 40.7
23	235 24.1	149 06.5 10.8	122 34.3 07.3	159 42.5 22.3	311 39.7 11.1			
V I E R N E S	2 00	250 26.6	164 05.6 N24 11.0	137 35.1 N23 07.0	174 44.3 N22 22.4	326 42.3 S22 11.1	Mirfak	309 07.0 N49 49.5
	01	265 29.0	179 04.8 11.2	152 35.9 06.8	189 46.2 22.4	341 44.9 11.1	Nunki	76 20.4 S26 18.7
	02	280 31.5	194 03.9 11.3	167 36.7 06.5	204 48.0 22.5	356 47.5 11.1	Peacock	53 47.1 S56 46.1
	03	295 34.0	209 03.0 .. 11.5	182 37.5 .. 06.3	219 49.8 .. 22.6	11 50.2 .. 11.1	Pollux	243 50.1 N28 03.3
	04	310 36.4	224 02.1 11.7	197 38.3 06.0	234 51.7 22.6	26 52.8 11.1	Procyon	245 18.9 N 5 15.2
	05	325 38.9	239 01.2 11.8	212 39.1 05.8	249 53.5 22.7	41 55.4 11.2		
	06	340 41.4	254 00.3 N24 12.0	227 39.9 N23 05.5	264 55.4 N22 22.8	56 58.0 S22 11.2	Rasalhague	96 22.9 N12 33.8
	07	355 43.8	268 59.4 12.1	242 40.7 05.3	279 57.2 22.8	72 00.6 11.2	Regulus	208 02.8 N12 01.2
	08	10 46.3	283 58.5 12.3	257 41.5 05.1	294 59.1 22.9	87 03.2 11.2	Rigel	281 29.8 S 8 12.7
	09	25 48.8	298 57.6 .. 12.5	272 42.3 .. 04.8	310 00.9 .. 22.9	102 05.9 .. 11.2	Rigil Kent.	140 16.2 S60 47.8
	10	40 51.2	313 56.8 12.6	287 43.1 04.6	325 02.7 23.0	117 08.5 11.2	Sabik	102 33.0 S15 42.9
	11	55 53.7	328 55.9 12.8	302 43.9 04.3	340 04.6 23.1	132 11.1 11.2		
	12	70 56.1	343 55.0 N24 12.9	317 44.7 N23 04.1	355 06.4 N22 23.1	147 13.7 S22 11.3	Schedar	350 01.8 N56 28.6
	13	85 58.6	358 54.1 13.1	332 45.5 03.8	10 08.3 23.2	162 16.3 11.3	Shaula	96 46.1 S37 05.9
	14	101 01.1	13 53.2 13.2	347 46.3 03.6	25 10.1 23.2	177 19.0 11.3	Sirius	258 50.0 S16 42.1
	15	116 03.5	28 52.3 .. 13.4	2 47.1 .. 03.3	40 11.9 .. 23.3	192 21.6 .. 11.3	Spica	158 50.2 S11 06.6
	16	131 06.0	43 51.4 13.5	17 47.9 03.1	55 13.8 23.4	207 24.2 11.3	Suhail	223 06.1 S43 23.6
	17	146 08.5	58 50.5 13.7	32 48.7 02.8	70 15.6 23.4	222 26.8 11.3		
	18	161 10.9	73 49.6 N24 13.8	47 49.5 N23 02.6	85 17.5 N22 23.5	237 29.4 S22 11.4	Vega	80 50.9 N38 46.2
	19	176 13.4	88 48.8 14.0	62 50.3 02.3	100 19.3 23.5	252 32.1 11.4	Zuben'ubi	137 25.2 S16 00.1
	20	191 15.9	103 47.9 14.1	77 51.1 02.1	115 21.1 23.6	267 34.7 11.4		
	21	206 18.3	118 47.0 .. 14.3	92 51.9 .. 01.8	130 23.0 .. 23.7	282 37.3 .. 11.4		
	22	221 20.8	133 46.1 14.4	107 52.7 01.6	145 24.8 23.7	297 39.9 11.4	Venus	274 59.5 13 03
23	236 23.2	148 45.2 14.6	122 53.5 01.3	160 26.7 23.8	312 42.5 11.4	Marte	247 48.5 14 50	
						Júpiter	284 32.7 12 22	
						Saturno	76 12.1 2 17	

Pas. Mer. 7 21.0 v -0.9 d 0.2 v 0.8 d 0.2 v 1.8 d 0.1 v 2.6 d 0.0



T.M.G. (TU)	SOL		LUNA				Lat.	Crepúsculo		Orto Sol	Orto Luna					
	A.H.G.	Dec.	A.H.G.	v	Dec.	d		P.H.	Naut.		Civil	31	1	2	3	
												h	m	h	m	h
M I E R C O L E S	00	180 36.9	N21 53.0	234 03.4	10.2	N10 12.0	15.9	60.0	N 72	□	□	□	{00 23 11}	□	□	□
	01	195 36.8	53.3	248 32.6	10.2	10 27.9	16.0	60.0	N 70	□	□	□	{00 23 27}	□	□	□
	02	210 36.7	53.7	263 01.8	10.0	10 43.9	15.9	60.0	68	□	□	□	{00 23 45}	□	□	□
	03	225 36.6	54.0	277 30.8	10.0	10 59.8	15.8	60.1	66	///	///	01 12	00 50	00 32	00 04	□
	04	240 36.5	54.4	291 59.8	10.0	11 15.6	15.7	60.1	64	///	///	01 58	00 58	00 49	00 36	00 09
	05	255 36.4	54.7	306 28.8	9.8	11 31.3	15.8	60.1	62	///	///	02 27	01 06	01 03	01 00	00 58
	06	270 36.3	N21 55.1	320 57.6	9.8	N11 47.1	15.6	60.1	60	///	01 26	02 49	01 13	01 15	01 19	01 29
	07	285 36.2	55.5	335 26.4	9.7	12 02.7	15.6	60.1	N 58	///	02 00	03 07	01 18	01 25	01 35	01 53
	08	300 36.2	55.8	349 55.1	9.6	12 18.3	15.5	60.1	56	///	02 25	03 22	01 24	01 34	01 49	02 12
	09	315 36.1	56.2	4 23.7	9.6	12 33.8	15.5	60.1	54	01 18	02 44	03 35	01 28	01 42	02 01	02 29
	10	330 36.0	56.5	18 52.3	9.4	12 49.3	15.3	60.1	52	01 50	03 00	03 46	01 33	01 49	02 11	02 43
	11	345 35.9	56.9	33 20.7	9.4	13 04.6	15.4	60.1	50	02 13	03 13	03 56	01 36	01 56	02 21	02 55
	12	0 35.8	N21 57.2	47 49.1	9.3	N13 20.0	15.2	60.1	45	02 53	03 40	04 17	01 45	02 10	02 41	03 20
	13	15 35.7	57.6	62 17.4	9.3	13 35.2	15.2	60.1	N 40	03 21	04 01	04 33	01 52	02 22	02 57	03 41
	14	30 35.6	57.9	76 45.7	9.1	13 50.4	15.1	60.1	35	03 42	04 18	04 47	01 58	02 32	03 11	03 58
	15	45 35.5	58.3	91 13.8	9.1	14 05.5	15.0	60.1	30	04 00	04 32	04 59	02 04	02 41	03 23	04 12
	16	60 35.4	58.6	105 41.9	8.9	14 20.5	14.9	60.1	20	04 27	04 56	05 20	02 13	02 56	03 44	04 38
	17	75 35.3	59.0	120 09.8	8.9	14 35.4	14.9	60.1	N 10	04 48	05 15	05 38	02 22	03 10	04 02	04 59
	18	90 35.2	N21 59.3	134 37.7	8.8	N14 50.3	14.7	60.2	0	05 06	05 32	05 54	02 30	03 23	04 19	05 20
	19	105 35.1	21 59.7	149 05.5	8.7	15 05.0	14.7	60.2	S 10	05 22	05 48	06 10	02 38	03 35	04 37	05 40
	20	120 35.0	22 00.0	163 33.2	8.7	15 19.7	14.6	60.2	20	05 37	06 04	06 28	02 46	03 49	04 55	06 03
	21	135 34.9	00.4	178 00.9	8.5	15 34.3	14.5	60.2	30	05 52	06 22	06 48	02 56	04 06	05 17	06 28
	22	150 34.9	00.7	192 28.4	8.4	15 48.8	14.5	60.2	35	06 00	06 31	06 59	03 02	04 15	05 30	06 44
23	165 34.8	01.0	206 55.8	8.4	16 03.3	14.3	60.2	40	06 09	06 42	07 12	03 09	04 26	05 44	07 02	
00	180 34.7	N22 01.4	221 23.2	8.3	N16 17.6	14.2	60.2	45	06 18	06 55	07 28	03 17	04 39	06 02	07 23	
01	195 34.6	01.7	235 50.5	8.1	16 31.8	14.1	60.2	S 50	06 29	07 09	07 47	03 26	04 54	06 24	07 50	
02	210 34.5	02.1	250 17.6	8.1	16 45.9	14.1	60.2	52	06 33	07 16	07 56	03 30	05 02	06 35	08 04	
03	225 34.4	02.4	264 44.7	8.0	17 00.0	13.9	60.2	54	06 38	07 24	08 06	03 35	05 10	06 47	08 19	
04	240 34.3	02.8	279 11.7	7.9	17 13.9	13.8	60.2	56	06 44	07 32	08 18	03 41	05 19	07 00	08 37	
05	255 34.2	03.1	293 38.6	7.8	17 27.7	13.7	60.2	58	06 50	07 41	08 31	03 47	05 30	07 16	09 00	
06	270 34.1	N22 03.4	308 05.4	7.8	N17 41.4	13.7	60.2	S 60	06 56	07 52	08 46	03 54	05 42	07 36	09 29	
07	285 34.0	03.8	322 32.2	7.6	17 55.1	13.5	60.2	Lat.	Ocaso Sol	Crepúsculo		Ocaso Luna				
08	300 33.9	04.1	336 58.8	7.5	18 08.6	13.4	60.2			Civil	Naut.	31	1	2	3	
09	315 33.8	04.5	351 25.3	7.5	18 22.0	13.2	60.2	N 72	h m	h m	h m	h m	h m	h m	h m	
10	330 33.7	04.8	5 51.8	7.3	18 35.2	13.2	60.2	N 70	□	□	□	18 42	□	□	□	
11	345 33.6	05.1	20 18.1	7.3	18 48.4	13.1	60.2	68	□	□	□	18 06	□	□	□	
12	0 33.5	N22 05.5	34 44.4	7.1	N19 01.5	12.9	60.2	66	22 47	///	///	17 41	20 36	□	□	
13	15 33.4	05.8	49 10.5	7.1	19 14.4	12.8	60.2	64	22 00	///	///	17 22	19 47	□	□	
14	30 33.3	06.1	63 36.6	6.9	19 27.2	12.7	60.2	62	21 30	///	///	17 07	19 16	21 48	□	
15	45 33.2	06.5	78 02.5	6.9	19 39.9	12.6	60.2	60	21 07	22 32	///	16 55	18 53	20 59	23 06	
16	60 33.1	06.8	92 28.4	6.8	19 52.5	12.4	60.2	N 58	20 49	21 57	///	16 44	18 35	20 28	22 13	
17	75 33.0	07.1	106 54.2	6.7	20 04.9	12.3	60.2	56	20 34	21 32	///	16 35	18 19	20 05	21 41	
18	90 32.9	N22 07.5	121 19.9	6.6	N20 17.2	12.2	60.1	54	20 21	21 13	22 40	16 27	18 07	19 46	21 17	
19	105 32.8	07.8	135 45.5	6.5	20 29.4	12.1	60.1	52	20 10	20 57	22 07	16 20	17 55	19 31	20 57	
20	120 32.7	08.1	150 11.0	6.4	20 41.5	11.9	60.1	50	20 00	20 43	21 44	16 13	17 45	19 17	20 41	
21	135 32.6	08.5	164 36.4	6.3	20 53.4	11.8	60.1	45	20 00	20 43	21 44	16 08	17 37	19 05	20 27	
22	150 32.5	08.8	179 01.7	6.2	21 05.2	11.6	60.1	S 10	19 39	20 16	21 03	15 55	17 18	18 41	19 58	
23	165 32.4	09.1	193 26.9	6.2	21 16.8	11.5	60.1	N 40	19 23	19 55	20 35	15 45	17 03	18 21	19 36	
00	180 32.3	N22 09.4	207 52.1	6.0	N21 28.3	11.4	60.1	35	19 09	19 38	20 14	15 36	16 50	18 05	19 17	
01	195 32.2	09.8	222 17.1	6.0	21 39.7	11.2	60.1	30	18 56	19 23	19 56	15 29	16 39	17 51	19 01	
02	210 32.1	10.1	236 42.1	5.8	21 50.9	11.1	60.1	20	18 36	19 00	19 29	15 16	16 20	17 27	18 34	
03	225 32.0	10.4	251 06.9	5.8	22 02.0	10.9	60.1	N 10	18 18	18 41	19 08	15 05	16 04	17 07	18 11	
04	240 31.9	10.7	265 31.7	5.7	22 12.9	10.8	60.1	0	18 01	18 24	18 50	14 54	15 49	16 48	17 50	
05	255 31.8	11.1	279 56.4	5.6	22 23.7	10.6	60.1	S 10	17 45	18 08	18 34	14 44	15 34	16 29	17 28	
06	270 31.7	N22 11.4	294 21.0	5.5	N22 34.3	10.5	60.1	20	17 28	17 51	18 19	14 33	15 18	16 08	17 05	
07	285 31.6	11.7	308 45.5	5.4	22 44.8	10.3	60.1	30	17 08	17 34	18 03	14 20	14 59	15 45	16 38	
08	300 31.6	12.0	323 09.9	5.3	22 55.1	10.2	60.0	35	16 56	17 24	17 55	14 13	14 49	15 31	16 22	
09	315 31.4	12.4	337 34.2	5.3	23 05.3	10.0	60.0	40	16 43	17 13	17 47	14 04	14 37	15 16	16 04	
10	330 31.3	12.7	351 58.5	5.2	23 15.3	9.9	60.0	45	16 27	17 01	17 37	13 55	14 22	14 57	15 42	
11	345 31.2	13.0	6 22.7	5.1	23 25.2	9.7	60.0	S 50	16 08	16 46	17 27	13 43	14 05	14 34	15 14	
12	0 31.1	N22 13.3	20 46.8	5.0	N23 34.9	9.5	60.0	52	15 59	16 39	17 22	13 38	13 57	14 23	15 00	
13	15 31.0	13.6	35 10.8	4.9	23 44.4	9.4	60.0	54	15 49	16 32	17 17	13 32	13 48	14 10	14 44	
14	30 30.9	14.0	49 34.7	4.8	23 53.8	9.2	60.0	56	15 38	16 23	17 11	13 26	13 38	13 56	14 26	
15	45 30.8	14.3	63 58.5	4.8	24 03.0	9.1	60.0	58	15 24	16 14	17 05	13 19	13 26	13 39	14 03	
16	60 30.7	14.6	78 22.3	4.7	24 12.1	8.9	59.9	S 60	15 09	16 04	16 59	13 10	13 13	13 19	13 34	
17	75 30.6	14.9	92 46.0	4.6	24 21.0	8.7	59.9	Día	SOL		LUNA					
18	90 30.5	N22 15.2	107 09.6	4.6	N24 29.7	8.5	59.9		E.T. (+)	Pas. Mer.	Pas. Sup.	Mer. Inf.	Edad.	Fase		
19	105 30.4	15.5	121 33.2	4.5	24 38.2	8.4	59.9	31	00 h	12 h						
20	120 30.3	15.9	135 56.7	4.4	24 46.6	8.2	59.9	1	m s							



T.M.G. (TU)	ARIES			VENUS -3.9		MARTE +1.8		JUPITER -1.9		SATURNO +0.2		ESTRELLAS														
	d	h	A.H.G.	A.H.G.	Dec.	A.H.G.	Dec.	A.H.G.	Dec.	A.H.G.	Dec.	Nombre	A. H. S.	Dec.												
3	00	251	25.7	163	44.3	N24	14.7	137	54.3	N23	01.1	175	28.5	N22	23.8	327	45.2	S22	11.4	Acamar	315	32.3	S40	20.6		
	01	266	28.2	178	43.4		14.9	152	55.1		00.8	190	30.4		23.9	342	47.8		11.5	Achernar	335	40.3	S57	17.1		
	02	281	30.6	193	42.5		15.0	167	55.9		00.6	205	32.2		24.0	357	50.4		11.5	Acrux	173	29.7	S63	02.8		
	03	296	33.1	208	41.6		15.1	182	56.7		00.3	220	34.0		24.0	12	53.0		11.5	Adhara	255	27.1	S28	57.4		
	04	311	35.6	223	40.7		15.3	197	57.5	23	00.0	235	35.9		24.1	27	55.6		11.5	Aldebaran	291	10.5	N16	29.4		
	05	326	38.0	238	39.8		15.4	212	58.3	22	59.8	250	37.7		24.1	42	58.3		11.5							
	06	341	40.5	253	39.0	N24	15.5	227	59.1	N22	59.5	265	39.6	N22	24.2	58	00.9	S22	11.5	Alioth	166	35.9	N56	01.2		
	07	356	43.0	268	38.1		15.7	242	59.9		59.3	280	41.4		24.3	73	03.5		11.6	Alkaid	153	12.6	N49	22.0		
	08	11	45.4	283	37.2		15.8	258	00.7		59.0	295	43.2		24.3	88	06.1		11.6	Al Na'ir	28	06.1	S47	00.6		
	S	09	26	47.9	298	36.3		15.9	273	01.5		58.8	310	45.1		24.4	103	08.7		11.6	Alnilam	276	05.1	S	1	12.4
		10	41	50.4	313	35.4		16.1	288	02.3		58.5	325	46.9		24.4	118	11.4		11.6	Alphard	218	14.0	S	8	36.8
	A	11	56	52.8	328	34.5		16.2	303	03.1		58.3	340	48.8		24.5	133	14.0		11.6						
		12	71	55.3	343	33.6	N24	16.3	318	03.9	N22	58.0	355	50.6	N22	24.6	148	16.6	S22	11.6	Alphecca	126	25.9	N26	44.9	
	D	13	86	57.7	358	32.7		16.4	333	04.7		57.8	10	52.4		24.6	163	19.2		11.7	Alpheratz	358	02.5	N29	01.8	
		14	102	00.2	13	31.8		16.6	348	05.5		57.5	25	54.3		24.7	178	21.9		11.7	Altair	62	25.6	N	8	50.2
	O	15	117	02.7	28	30.9		16.7	3	06.3		57.2	40	56.1		24.7	193	24.5		11.7	Ankaa	353	33.5	S42	21.6	
		16	132	05.1	43	30.0		16.8	18	07.2		57.0	55	58.0		24.8	208	27.1		11.7	Antares	112	48.1	S26	24.7	
	17	147	07.6	58	29.2		16.9	33	08.0		56.7	70	59.8		24.9	223	29.7		11.7							
	18	162	10.1	73	28.3	N24	17.0	48	08.8	N22	56.5	86	01.6	N22	24.9	238	32.3	S22	11.7	Arcturus	146	11.9	N19	14.2		
	19	177	12.5	88	27.4		17.2	63	09.6		56.2	101	03.5		25.0	253	35.0		11.7	Atria	108	05.8	S69	00.7		
	20	192	15.0	103	26.5		17.3	78	10.4		56.0	116	05.3		25.0	268	37.6		11.8	Avior	234	26.0	S59	28.7		
	21	207	17.5	118	25.6		17.4	93	11.2		55.7	131	07.2		25.1	283	40.2		11.8	Bellatrix	278	51.8	N	6	20.5	
	22	222	19.9	133	24.7		17.5	108	12.0		55.4	146	09.0		25.1	298	42.8		11.8	Betelgeuse	271	21.2	N	7	24.4	
23	237	22.4	148	23.8		17.6	123	12.8		55.2	161	10.8		25.2	313	45.5		11.8								
4	00	252	24.9	163	22.9	N24	17.7	138	13.6	N22	54.9	176	12.7	N22	25.3	328	48.1	S22	11.8	Canopus	264	04.7	S52	41.4		
	01	267	27.3	178	22.0		17.8	153	14.4		54.7	191	14.5		25.3	343	50.7		11.8	Capella	281	01.7	N45	59.4		
	02	282	29.8	193	21.1		17.9	168	15.2		54.4	206	16.4		25.4	358	53.3		11.9	Deneb	49	43.7	N45	14.3		
	03	297	32.2	208	20.2		18.0	183	16.0		54.1	221	18.2		25.4	13	55.9		11.9	Denebola	182	52.0	N14	37.9		
	04	312	34.7	223	19.3		18.2	198	16.8		53.9	236	20.0		25.5	28	58.6		11.9	Diphda	349	14.1	S18	02.5		
	05	327	37.2	238	18.4		18.3	213	17.6		53.6	251	21.9		25.6	44	01.2		11.9							
	06	342	39.6	253	17.6	N24	18.4	228	18.4	N22	53.4	266	23.7	N22	25.6	59	03.8	S22	11.9	Dubhe	194	13.4	N61	48.7		
	07	357	42.1	268	16.7		18.5	243	19.2		53.1	281	25.6		25.7	74	06.4		11.9	Elnath	278	35.9	N28	36.1		
	D	08	12	44.6	283	15.8		18.6	258	20.0		52.8	296	27.4		25.7	89	09.1		12.0	Eltanin	90	54.0	N51	29.2	
		09	27	47.0	298	14.9		18.7	273	20.8		52.6	311	29.3		25.8	104	11.7		12.0	Enif	34	04.8	N	9	49.5
	O	10	42	49.5	313	14.0		18.8	288	21.6		52.3	326	31.1		25.9	119	14.3		12.0	Fomalhaut	15	43.8	S29	40.6	
		11	57	52.0	328	13.1		18.9	303	22.4		52.1	341	32.9		25.9	134	16.9		12.0						
	N	12	72	54.4	343	12.2	N24	19.0	318	23.2	N22	51.8	356	34.8	N22	26.0	149	19.6	S22	12.0	Gacrux	172	21.2	S57	03.6	
		13	87	56.9	358	11.3		19.1	333	24.0		51.5	11	36.6		26.0	164	22.2		12.0	Gienah	176	10.9	S17	29.2	
	G	14	102	59.4	13	10.4		19.1	348	24.8		51.3	26	38.5		26.1	179	24.8		12.1	Hadar	149	13.5	S60	19.7	
		15	118	01.8	28	09.5		19.2	3	25.6		51.0	41	40.3		26.1	194	27.4		12.1	Hamal	328	21.5	N23	24.7	
	16	133	04.3	43	08.6		19.3	18	26.4		50.8	56	42.1		26.2	209	30.1		12.1	Kaus Aust.	84	07.4	S34	23.5		
	17	148	06.7	58	07.7		19.4	33	27.2		50.5	71	44.0		26.3	224	32.7		12.1							
	18	163	09.2	73	06.8	N24	19.5	48	28.1	N22	50.2	86	45.8	N22	26.3	239	35.3	S22	12.1	Kochab	137	17.7	N74	12.0		
	19	178	11.7	88	05.9		19.6	63	28.9		50.0	101	47.7		26.4	254	37.9		12.1	Markab	13	56.4	N15	08.8		
	20	193	14.1	103	05.0		19.7	78	29.7		49.7	116	49.5		26.4	269	40.6		12.1	Menkar	314	34.3	N	4	03.0	
	21	208	16.6	118	04.2		19.8	93	30.5		49.4	131	51.3		26.5	284	43.2		12.2	Menkent	148	28.8	S36	19.4		
	22	223	19.1	133	03.3		19.9	108	31.3		49.2	146	53.2		26.6	299	45.8		12.2	Miaplacidus	221	44.3	S69	40.7		
23	238	21.5	148	02.4		19.9	123	32.1		48.9	161	55.0		26.6	314	48.4		12.2								
5	00	253	24.0	163	01.5	N24	20.0	138	32.9	N22	48.6	176	56.9	N22	26.7	329	51.1	S22	12.2	Mirfak	309	06.9	N49	49.5		
	01	268	26.5	178	00.6		20.1	153	33.7		48.4	191	58.7		26.7	344	53.7		12.2	Nunki	76	20.4	S26	18.7		
	02	283	28.9	192	59.7		20.2	168	34.5		48.1	207	00.5		26.8	359	56.3		12.2	Peacock	53	47.1	S56	46.1		
	03	298	31.4	207	58.8		20.3	183	35.3		47.8	222	02.4		26.8	14	58.9		12.3	Pollux	243	50.1	N28	03.3		
	04	313	33.8	222	57.9		20.3	198	36.1		47.6	237	04.2		26.9	30	01.6		12.3	Procyon	245	18.9	N	5	15.2	
	05	328	36.3	237	57.0		20.4	213	36.9		47.3	252	06.1		27.0	45	04.2		12.3							
	06	343	38.8	252	56.1	N24	20.5	228	37.7	N22	47.0	267	07.9	N22	27.0	60	06.8	S22	12.3	Rasalhague	96	22.9	N12	33.9		
	07	358	41.2	267	55.2		20.6	243	38.5		46.8															







T.M.G. (TU)	ARIES	VENUS -3.9	MARTE +1.8	JUPITER -1.9	SATURNO +0.2	ESTRELLAS		
d h	A.H.G.	A.H.G. Dec.	A.H.G. Dec.	A.H.G. Dec.	A.H.G. Dec.	Nombre	A. H. S.	Dec.
6 00	254 23.1	162 40.0 N24 21.6	138 52.3 N22 42.2	177 41.0 N22 28.0	330 54.1 S22 12.6	Acamar	315 32.3 S40 20.6	
01	269 25.6	177 39.1 21.6	153 53.1 41.9	192 42.9 28.1	345 56.7 12.6	Achernar	335 40.3 S57 17.1	
02	284 28.1	192 38.2 21.7	168 53.9 41.6	207 44.7 28.2	0 59.4 12.6	Acrux	173 29.7 S63 02.8	
03	299 30.5	207 37.3 21.7	183 54.7 41.4	222 46.5 28.2	16 02.0 12.7	Adhara	255 27.1 S28 57.4	
04	314 33.0	222 36.4 21.8	198 55.5 41.1	237 48.4 28.3	31 04.6 12.7	Aldebaran	291 10.5 N16 29.4	
05	329 35.5	237 35.5 21.8	213 56.3 40.8	252 50.2 28.3	46 07.2 12.7			
06	344 37.9	252 34.7 N24 21.9	228 57.1 N22 40.6	267 52.1 N22 28.4	61 09.9 S22 12.7	Alioth	166 36.0 N56 01.2	
07	359 40.4	267 33.8 21.9	243 57.9 40.3	282 53.9 28.4	76 12.5 12.7	Alkaid	153 12.6 N49 22.0	
08	14 42.8	282 32.9 22.0	258 58.7 40.0	297 55.7 28.5	91 15.1 12.7	Al Na'ir	28 06.0 S47 00.5	
09	29 45.3	297 32.0 22.0	273 59.5 39.7	312 57.6 28.6	106 17.8 12.7	Alnilam	276 05.1 S 1 12.4	
10	44 47.8	312 31.1 22.0	289 00.3 39.5	327 59.4 28.6	121 20.4 12.8	Alphard	218 14.0 S 8 36.8	
11	59 50.2	327 30.2 22.1	304 01.1 39.2	343 01.3 28.7	136 23.0 12.8			
12	74 52.7	342 29.3 N24 22.1	319 02.0 N22 38.9	358 03.1 N22 28.7	151 25.7 S22 12.8	Alphecca	126 25.9 N26 44.9	
13	89 55.2	357 28.4 22.2	334 02.8 38.6	13 04.9 28.8	166 28.3 12.8	Alpheratz	358 02.4 N29 01.8	
14	104 57.6	12 27.5 22.2	349 03.6 38.4	28 06.8 28.8	181 30.9 12.8	Altair	62 25.6 N 8 50.3	
15	120 00.1	27 26.6 22.2	4 04.4 38.1	43 08.6 28.9	196 33.5 12.8	Ankaa	353 33.5 S42 21.5	
16	135 02.6	42 25.7 22.3	19 05.2 37.8	58 10.4 29.0	211 36.2 12.9	Antares	112 48.1 S26 24.7	
17	150 05.0	57 24.8 22.3	34 06.0 37.5	73 12.3 29.0	226 38.8 12.9			
18	165 07.5	72 23.9 N24 22.3	49 06.8 N22 37.3	88 14.1 N22 29.1	241 41.4 S22 12.9	Arcturus	146 11.9 N19 14.2	
19	180 09.9	87 23.0 22.3	64 07.6 37.0	103 16.0 29.1	256 44.1 12.9	Atria	108 05.8 S69 00.7	
20	195 12.4	102 22.1 22.4	79 08.4 36.7	118 17.8 29.2	271 46.7 12.9	Avior	234 26.0 S59 28.7	
21	210 14.9	117 21.2 22.4	94 09.2 36.4	133 19.6 29.2	286 49.3 12.9	Bellatrix	278 51.8 N 6 20.5	
22	225 17.3	132 20.3 22.4	109 10.1 36.1	148 21.5 29.3	301 52.0 13.0	Betelgeuse	271 21.2 N 7 24.4	
23	240 19.8	147 19.4 22.4	124 10.9 35.9	163 23.3 29.3	316 54.6 13.0			
7 00	255 22.3	162 18.6 N24 22.5	139 11.7 N22 35.6	178 25.2 N22 29.4	331 57.2 S22 13.0	Canopus	264 04.7 S52 41.4	
01	270 24.7	177 17.7 22.5	154 12.5 35.3	193 27.0 29.5	346 59.8 13.0	Capella	281 01.7 N45 59.4	
02	285 27.2	192 16.8 22.5	169 13.3 35.0	208 28.8 29.5	2 02.5 13.0	Deneb	49 43.6 N45 14.3	
03	300 29.7	207 15.9 22.5	184 14.1 34.7	223 30.7 29.6	17 05.1 13.0	Denebola	182 52.0 N14 37.9	
04	315 32.1	222 15.0 22.5	199 14.9 34.5	238 32.5 29.6	32 07.7 13.1	Diphda	349 14.1 S18 02.5	
05	330 34.6	237 14.1 22.5	214 15.7 34.2	253 34.4 29.7	47 10.4 13.1			
06	345 37.1	252 13.2 N24 22.6	229 16.5 N22 33.9	268 36.2 N22 29.7	62 13.0 S22 13.1	Dubhe	194 13.4 N61 48.7	
07	0 39.5	267 12.3 22.6	244 17.4 33.6	283 38.0 29.8	77 15.6 13.1	Elnath	278 35.9 N28 36.1	
08	15 42.0	282 11.4 22.6	259 18.2 33.3	298 39.9 29.8	92 18.3 13.1	Eltanin	90 54.0 N51 29.2	
09	30 44.4	297 10.5 22.6	274 19.0 33.1	313 41.7 29.9	107 20.9 13.1	Enif	34 04.8 N 9 49.5	
10	45 46.9	312 09.6 22.6	289 19.8 32.8	328 43.6 30.0	122 23.5 13.2	Fomalhaut	15 43.7 S29 40.5	
11	60 49.4	327 08.7 22.6	304 20.6 32.5	343 45.4 30.0	137 26.2 13.2			
12	75 51.8	342 07.8 N24 22.6	319 21.4 N22 32.2	358 47.2 N22 30.1	152 28.8 S22 13.2	Gacrux	172 21.2 S57 03.6	
13	90 54.3	357 06.9 22.6	334 22.2 31.9	13 49.1 30.1	167 31.4 13.2	Giengah	176 10.9 S17 29.2	
14	105 56.8	12 06.0 22.6	349 23.0 31.7	28 50.9 30.2	182 34.1 13.2	Hadar	149 13.5 S60 19.7	
15	120 59.2	27 05.1 22.6	4 23.8 31.4	43 52.8 30.2	197 36.7 13.2	Hamal	328 21.5 N23 24.8	
16	136 01.7	42 04.2 22.6	19 24.7 31.1	58 54.6 30.3	212 39.3 13.3	Kaus Aust.	84 07.4 S34 23.5	
17	151 04.2	57 03.4 22.6	34 25.5 30.8	73 56.4 30.3	227 41.9 13.3			
18	166 06.6	72 02.5 N24 22.6	49 26.3 N22 30.5	88 58.3 N22 30.4	242 44.6 S22 13.3	Kochab	137 17.8 N74 12.0	
19	181 09.1	87 01.6 22.6	64 27.1 30.2	104 00.1 30.5	257 47.2 13.3	Markab	13 56.4 N15 08.8	
20	196 11.6	102 00.7 22.6	79 27.9 30.0	119 02.0 30.5	272 49.8 13.3	Menkar	314 34.3 N 4 03.0	
21	211 14.0	116 59.8 22.6	94 28.7 29.7	134 03.8 30.6	287 52.5 13.3	Menkent	148 28.8 S36 19.4	
22	226 16.5	131 58.9 22.6	109 29.5 29.4	149 05.6 30.6	302 55.1 13.4	Miaplacidus	221 44.3 S69 40.7	
23	241 18.9	146 58.0 22.6	124 30.3 29.1	164 07.5 30.7	317 57.7 13.4			
8 00	256 21.4	161 57.1 N24 22.6	139 31.2 N22 28.8	179 09.3 N22 30.7	333 00.4 S22 13.4	Mirfak	309 06.9 N49 49.4	
01	271 23.9	176 56.2 22.6	154 32.0 28.5	194 11.2 30.8	348 03.0 13.4	Nunki	76 20.3 S26 18.7	
02	286 26.3	191 55.3 22.6	169 32.8 28.3	209 13.0 30.8	3 05.6 13.4	Peacock	53 47.0 S56 46.1	
03	301 28.8	206 54.4 22.6	184 33.6 28.0	224 14.8 30.9	18 08.3 13.4	Pollux	243 50.1 N28 03.3	
04	316 31.3	221 53.5 22.6	199 34.4 27.7	239 16.7 31.0	33 10.9 13.5	Procyon	245 18.9 N 5 15.2	
05	331 33.7	236 52.6 22.5	214 35.2 27.4	254 18.5 31.0	48 13.5 13.5			
06	346 36.2	251 51.7 N24 22.5	229 36.0 N22 27.1	269 20.3 N22 31.1	63 16.2 S22 13.5	Rasalhague	96 22.9 N12 33.9	
07	1 38.7	266 50.8 22.5	244 36.8 26.8	284 22.2 31.1	78 18.8 13.5	Regulus	208 02.8 N12 01.2	
08	16 41.1	281 50.0 22.5	259 37.7 26.5	299 24.0 31.2	93 21.4 13.5	Rigel	281 29.8 S 8 12.7	
09	31 43.6	296 49.1 22.5	274 38.5 26.2	314 25.9 31.2	108 24.1 13.5	Rigil Kent.	140 16.2 S60 47.8	
10	46 46.0	311 48.2 22.4	289 39.3 26.0	329 27.7 31.3	123 26.7 13.6	Sabik	102 32.9 S15 42.9	
11	61 48.5	326 47.3 22.4	304 40.1 25.7	344 29.5 31.3	138 29.3 13.6			
12	76 51.0	341 46.4 N24 22.4	319 40.9 N22 25.4	359 31.4 N22 31.4	153 32.0 S22 13.6	Schedar	350 01.7 N56 28.6	
13	91 53.4	356 45.5 22.4	334 41.7 25.1	14 33.2 31.4	168 34.6 13.6	Shaula	96 46.1 S37 05.9	
14	106 55.9	11 44.6 22.4	349 42.5 24.8	29 35.1 31.5	183 37.2 13.6	Sirius	258 50.0 S16 42.0	
15	121 58.4	26 43.7 22.3	4 43.4 24.5	44 36.9 31.6	198 39.9 13.6	Spica	158 50.2 S11 06.6	
16	137 00.8	41 42.8 22.3	19 44.2 24.2	59 38.7 31.6	213 42.5 13.7	Suhail	223 06.1 S43 23.6	
17	152 03.3	56 41.9 22.3	34 45.0 23.9	74 40.6 31.7	228 45.2 13.7			
18	167 05.8	71 41.0 N24 22.2	49 45.8 N22 23.6	89 42.4 N22 31.7	243 47.8 S22 13.7	Vega	80 50.8 N38 46.2	
19	182 08.2	86 40.1 22.2	64 46.6 23.4	104 44.3 31.8	258 50.4 13.7	Zuben'ubi	137 25.2 S16 00.1	
20	197 10.7	101 39.2 22.2	79 47.4 23.1	119 46.1 31.8	273 53.1 13.7			
21	212 13.2	116 38.3 22.1	94 48.2 22.8	134 47.9 31.9	288 55.7 13.7			
22	227 15.6	131 37.5 22.1	109 49.1 22.5	149 49.8 31.9	303 58.3 13.8			
23	242 18.1	146 36.6 22.1	124 49.9 22.2	164 51.6 32.0	319 01.0 13.8			
						A. H. S. Pas. Mer.		
						o / h m		
Pas. Mer. 6 57.4						v -0.9 d 0.0		
						v 0.8 d 0.3		
						v 1.8 d 0.1		
						v 2.6 d 0.0		
						Venus 266 56.3 13 12		
						Marte 243 49.4 14 42		
						Júpiter 283 02.9 12 05		
						Saturno 76 34.9 1 52		







T.M.G. (TU)		ARIES		VENUS -3.9		MARTE +1.8		JUPITER -1.9		SATURNO +0.2		ESTRELLAS																					
d h		A.H.G.		A.H.G. Dec.		A.H.G. Dec.		A.H.G. Dec.		A.H.G. Dec.		Nombre	A. H. S. Dec.																				
V I E R N E S	9 00	257	20.5	161	35.7 N24 22.0	139	50.7 N22 21.9	179	53.5 N22 32.0	334	03.6 S22 13.8	Acamar	315	32.3 S40 20.6																			
	01	272	23.0	176	34.8 22.0	154	51.5 21.6	194	55.3 32.1	349	06.2 13.8	Achernar	335	40.2 S57 17.1																			
	02	287	25.5	191	33.9 21.9	169	52.3 21.3	209	57.1 32.1	4	08.9 13.8	Acrux	173	29.7 S63 02.8																			
	03	302	27.9	206	33.0 21.9	184	53.1 21.0	224	59.0 32.2	19	11.5 13.9	Adhara	255	27.1 S28 57.4																			
	04	317	30.4	221	32.1 21.9	199	54.0 20.7	240	00.8 32.3	34	14.1 13.9	Aldebaran	291	10.5 N16 29.4																			
	05	332	32.9	236	31.2 21.8	214	54.8 20.4	255	02.7 32.3	49	16.8 13.9																						
	06	347	35.3	251	30.3 N24 21.8	229	55.6 N22 20.2	270	04.5 N22 32.4	64	19.4 S22 13.9	Alioth	166	36.0 N56 01.2																			
	07	2	37.8	266	29.4 21.7	244	56.4 19.9	285	06.3 32.4	79	22.0 13.9	Alkaid	153	12.6 N49 22.0																			
	08	17	40.3	281	28.5 21.7	259	57.2 19.6	300	08.2 32.5	94	24.7 13.9	Al Na'ir	28	06.0 S47 00.5																			
	09	32	42.7	296	27.6 21.6	274	58.0 19.3	315	10.0 32.5	109	27.3 14.0	Alnilam	276	05.1 S 1 12.4																			
	10	47	45.2	311	26.8 21.6	289	58.8 19.0	330	11.8 32.6	124	30.0 14.0	Alphard	218	14.0 S 8 36.8																			
	11	62	47.7	326	25.9 21.5	304	59.7 18.7	345	13.7 32.6	139	32.6 14.0																						
	12	77	50.1	341	25.0 N24 21.5	320	00.5 N22 18.4	0	15.5 N22 32.7	154	35.2 S22 14.0	Alphecca	126	25.9 N26 44.9																			
	13	92	52.6	356	24.1 21.4	335	01.3 18.1	15	17.4 32.7	169	37.9 14.0	Alpheratz	358	02.4 N29 01.8																			
	14	107	55.0	11	23.2 21.4	350	02.1 17.8	30	19.2 32.8	184	40.5 14.0	Altair	62	25.6 N 8 50.3																			
	15	122	57.5	26	22.3 21.3	5	02.9 17.5	45	21.0 32.8	199	43.1 14.1	Ankaa	353	33.4 S42 21.5																			
	16	138	00.0	41	21.4 21.2	20	03.7 17.2	60	22.9 32.9	214	45.8 14.1	Antares	112	48.1 S26 24.7																			
	17	153	02.4	56	20.5 21.2	35	04.6 16.9	75	24.7 33.0	229	48.4 14.1																						
	18	168	04.9	71	19.6 N24 21.1	50	05.4 N22 16.6	90	26.6 N22 33.0	244	51.0 S22 14.1	Arcturus	146	11.9 N19 14.2																			
	19	183	07.4	86	18.7 21.1	65	06.2 16.3	105	28.4 33.1	259	53.7 14.1	Atria	108	05.8 S69 00.8																			
	20	198	09.8	101	17.8 21.0	80	07.0 16.0	120	30.2 33.1	274	56.3 14.1	Avior	234	26.1 S59 28.7																			
	21	213	12.3	116	17.0 20.9	95	07.8 15.7	135	32.1 33.2	289	59.0 14.2	Bellatrix	278	51.7 N 6 20.5																			
	22	228	14.8	131	16.1 20.9	110	08.6 15.4	150	33.9 33.2	305	01.6 14.2	Betelgeuse	271	21.2 N 7 24.5																			
23	243	17.2	146	15.2 20.8	125	09.5 15.1	165	35.8 33.3	320	04.2 14.2																							
S A B A D O	10 00	258	19.7	161	14.3 N24 20.7	140	10.3 N22 14.8	180	37.6 N22 33.3	335	06.9 S22 14.2	Canopus	264	04.7 S52 41.3																			
	01	273	22.2	176	13.4 20.7	155	11.1 14.5	195	39.4 33.4	350	09.5 14.2	Capella	281	01.7 N45 59.4																			
	02	288	24.6	191	12.5 20.6	170	11.9 14.2	210	41.3 33.4	5	12.1 14.2	Deneb	49	43.6 N45 14.3																			
	03	303	27.1	206	11.6 20.5	185	12.7 13.9	225	43.1 33.5	20	14.8 14.3	Denebola	182	52.0 N14 37.9																			
	04	318	29.5	221	10.7 20.4	200	13.6 13.6	240	45.0 33.5	35	17.4 14.3	Diphda	349	14.1 S18 02.5																			
	05	333	32.0	236	09.8 20.4	215	14.4 13.3	255	46.8 33.6	50	20.1 14.3																						
	06	348	34.5	251	08.9 N24 20.3	230	15.2 N22 13.0	270	48.6 N22 33.6	65	22.7 S22 14.3	Dubhe	194	13.4 N61 48.7																			
	07	3	36.9	266	08.1 20.2	245	16.0 12.7	285	50.5 33.7	80	25.3 14.3	Elnath	278	35.9 N28 36.1																			
	08	18	39.4	281	07.2 20.1	260	16.8 12.4	300	52.3 33.7	95	28.0 14.3	Eltanin	90	54.0 N51 29.2																			
	09	33	41.9	296	06.3 20.1	275	17.6 12.1	315	54.1 33.8	110	30.6 14.4	Enif	34	04.7 N 9 49.5																			
	10	48	44.3	311	05.4 20.0	290	18.5 11.8	330	56.0 33.8	125	33.3 14.4	Fomalhaut	15	43.7 S29 40.5																			
	11	63	46.8	326	04.5 19.9	305	19.3 11.5	345	57.8 33.9	140	35.9 14.4																						
	12	78	49.3	341	03.6 N24 19.8	320	20.1 N22 11.2	0	59.7 N22 34.0	155	38.5 S22 14.4	Gacrux	172	21.2 S57 03.6																			
	13	93	51.7	356	02.7 19.7	335	20.9 10.9	16	01.5 34.0	170	41.2 14.4	Gienah	176	10.9 S17 29.2																			
	14	108	54.2	11	01.8 19.6	350	21.7 10.6	31	03.3 34.1	185	43.8 14.4	Hadar	149	13.5 S60 19.7																			
	15	123	56.6	26	00.9 19.6	5	22.6 10.3	46	05.2 34.1	200	46.4 14.5	Hamal	328	21.5 N23 24.8																			
	16	138	59.1	41	00.1 19.5	20	23.4 10.0	61	07.0 34.2	215	49.1 14.5	Kaus Aust.	84	07.4 S34 23.5																			
	17	154	01.6	55	59.2 19.4	35	24.2 09.7	76	08.9 34.2	230	51.7 14.5																						
	18	169	04.0	70	58.3 N24 19.3	50	25.0 N22 09.4	91	10.7 N22 34.3	245	54.4 S22 14.5	Kochab	137	17.8 N74 12.0																			
	19	184	06.5	85	57.4 19.2	65	25.8 09.1	106	12.5 34.3	260	57.0 14.5	Markab	13	56.4 N15 08.8																			
	20	199	09.0	100	56.5 19.1	80	26.7 08.8	121	14.4 34.4	275	59.6 14.6	Menkar	314	34.3 N 4 03.0																			
	21	214	11.4	115	55.6 19.0	95	27.5 08.5	136	16.2 34.4	291	02.3 14.6	Menkent	148	28.8 S36 19.4																			
	22	229	13.9	130	54.7 18.9	110	28.3 08.2	151	18.1 34.5	306	04.9 14.6	Migplacidus	221	44.4 S69 40.7																			
23	244	16.4	145	53.8 18.8	125	29.1 07.9	166	19.9 34.5	321	07.6 14.6																							
D O M I N G O	11 00	259	18.8	160	52.9 N24 18.7	140	29.9 N22 07.6	181	21.7 N22 34.6	336	10.2 S22 14.6	Mirfak	309	06.9 N49 49.4																			
	01	274	21.3	175	52.1 18.6	155	30.8 07.3	196	23.6 34.6	351	12.8 14.6	Nunki	76	20.3 S26 18.7																			
	02	289	23.8	190	51.2 18.5	170	31.6 07.0	211	25.4 34.7	6	15.5 14.7	Peacock	53	47.0 S56 46.1																			
	03	304	26.2	205	50.3 18.4	185	32.4 06.7	226	27.2 34.7	21	18.1 14.7	Pollux	243	50.1 N28 03.3																			
	04	319	28.7	220	49.4 18.3	200	33.2 06.4	241	29.1 34.8	36	20.8 14.7	Procyon	245	18.9 N 5 15.2																			
	05	334	31.1	235	48.5 18.2	215	34.0 06.1	256	30.9 34.8	51	23.4 14.7																						
	06	349	33.6	250	47.6 N24 18.1	230	34.9 N22 05.8	271	32.8 N22 34.9	66	26.0 S22 14.7	Rasalhague	96	22.9 N12 33.9																			
	07	4	36.1	265	46.7 18.0	245	35.7 05.5	286	34.6 34.9	81	28.7 14.7	Regulus	208	02.8 N12 01.2																			
	08	19	38.5	280	45.9 17.9	260	36.5 05.2	301	36.4 35.0	96	31.3 14.8	Rigel	281	29.8 S 8 12.7																			
	09	34	41.0	295	45.0 17.8	275	37.3 04.9	316	38.3 35.0	111	34.0 14.8	Rigil Kent.	140	16.2 S60 47.8																			
	10	49	43.5	310	44.1 17.7	290	38.1 04.5	331	40.1 35.1	126	36.6 14.8	Sabik	102	32.9 S15 42.9																			
	11	64	45.9	325	43.2 17.6	305	39.0 04.2	346	42.0 35.1	141	39.2 14.8																						
	12	79	48.4	340	42.3 N24 17.4	320	39.8 N22 03.9	1	43.8 N22 35.2	156	41.9 S22 14.8	Schedar	350	01.7 N56 28.6																			
	13	94	50.9	355	41.4 17.3	335	40.6 03.6	16	45.6 35.3	171	44.5 14.8	Shaula	96	46.1 S37 05.9																			
	14	109	53.3	10	40.5 17.2	350	41.4 03.3	31	47.5 35.3	186	47.2 14.9	Sirius	258	50.0 S16 42.0																			
	15	124	55.8	25	39.7 17.1	5	42.3 03.0	46	49.3 35.4	201	49.8 14.9	Spica	158	50.2 S11 06.6																			
	16	139	58.3	40	38.8 17.0	20	43.1 02.7	61	51.2 35.4	216	52.4 14.9	Suhail	223	06.1 S43 23.5																			
	17	155	00.7	55	37.9 16.9	35	43.9 02.4	76	53.0 35.5	231	55.1 14.9																						
	18	170	03.2	70	37.0 N24 16.7	50	44.7 N22 02.1	91	54.8 N22 35.5	246	57.7 S22 14.9	Vega	80	50.8 N38 46.2																			
	19	185	05.6	85	36.1 16.6	65	45.5 01.8	106	56.7 35.6	262	00.4 14.9	Zuben'ubi	137	25.2 S16 00.1																			
	20	200	08.1	100	35.2 16.5	80	46.4 01.5	121	58.5 35.6	277	03.0 15.0																						
	21	215	10.6	115	34.3 16.4	95	47.2 01.2	137	00.4 35.7	292	05.6 15.0																						
	22	230	13.0	130	33.5 16.2	110	48.0 00.8	152	02.2 35.7	307	08.3 15.0																						
23	245	15.5	145	32.6 16.1	125	48.8 00.5	167	04.0 35.8	322	10.9 15.0																							
Pas. Mer. 6 45.6		v -0.9 d 0.1		v 0.8 d 0.3		v 1.8 d 0.1		v 2.6 d 0.0				<table border="0"> <tr> <td></td> <td>A. H. S.</td> <td>Pas.</td> <td>Mer.</td> </tr> <tr> <td>Venus</td> <td>262 54.6</td> <td>13</td> <td>16</td> </tr> <tr> <td>Marte</td> <td>241 50.6</td> <td>14</td> <td>39</td> </tr> <tr> <td>Júpiter</td> <td>282 17.9</td> <td>11</td> <td>56</td> </tr> <tr> <td>Saturno</td> <td>76 47.2</td> <td>1</td></tr></table>				A. H. S.	Pas.	Mer.	Venus	262 54.6	13	16	Marte	241 50.6	14	39	Júpiter	282 17.9	11	56	Saturno	76 47.2	1
	A. H. S.	Pas.	Mer.																														
Venus	262 54.6	13	16																														
Marte	241 50.6	14	39																														
Júpiter	282 17.9	11	56																														
Saturno	76 47.2	1																															



T.M.G. (TU)	SOL				LUNA				Lat.	Crepúsculo		Orto Sol	Orto Luna													
	A.H.G.		Dec.		A.H.G.		Dec.			P.H.	Náut.		Civil	9	10	11	12									
	o	'	o	'	o	'	o	'																		
V I E R N E S	9 00	180	13.6	N22	54.8	112	15.4	14.1	N14	28.9	12.7	55.6	N 72	□	□	□	h m	07 49	h m	10 03	h m	12 01	h m	13 57		
	01	195	13.5		55.0	126	48.5	14.2	14	16.2	12.8	55.6	N 70	□	□	□	h m	08 14	h m	10 13	h m	12 02	h m	13 49		
	02	210	13.4		55.3	141	21.7	14.3	14	03.4	12.8	55.6	68	□	□	□	h m	08 33	h m	10 22	h m	12 03	h m	13 43		
	03	225	13.3	..	55.5	155	55.0	14.4	13	50.6	12.9	55.5	66	///	///	00 28	h m	08 47	h m	10 29	h m	12 04	h m	13 38		
	04	240	13.1		55.7	170	28.4	14.5	13	37.7	12.9	55.5	64	///	///	01 39	h m	08 59	h m	10 34	h m	12 05	h m	13 34		
	05	255	13.0		55.9	185	01.9	14.5	13	24.8	13.0	55.5	62	///	///	02 14	h m	09 10	h m	10 39	h m	12 05	h m	13 30		
	06	270	12.9	N22	56.1	199	35.4	14.6	N13	11.8	13.0	55.4	60	///	01 02	h m	02 39	h m	09 18	h m	10 44	h m	12 06	h m	13 27	
	07	285	12.8		56.3	214	09.0	14.8	12	58.8	13.0	55.4	N 58	///	01 46	h m	02 59	h m	09 26	h m	10 48	h m	12 06	h m	13 24	
	08	300	12.7		56.5	228	42.8	14.7	12	45.8	13.1	55.4	56	///	02 14	h m	03 15	h m	09 32	h m	10 51	h m	12 07	h m	13 21	
	09	315	12.5	..	56.7	243	16.5	14.9	12	32.7	13.1	55.4	54	00 57	02 35	h m	03 29	h m	09 38	h m	10 54	h m	12 07	h m	13 19	
	10	330	12.4		56.9	257	50.4	14.9	12	19.6	13.2	55.3	52	01 37	02 52	h m	03 41	h m	09 44	h m	10 57	h m	12 07	h m	13 17	
	11	345	12.3		57.1	272	24.3	15.0	12	06.4	13.2	55.3	50	02 03	03 07	h m	03 51	h m	09 48	h m	10 59	h m	12 08	h m	13 15	
	12	0	12.2	N22	57.3	286	58.3	15.1	N11	53.2	13.2	55.3	45	02 47	03 36	h m	04 13	h m	09 59	h m	11 05	h m	12 08	h m	13 11	
	13	15	12.0		57.5	301	32.4	15.2	11	40.0	13.3	55.3	N 40	03 17	03 58	h m	04 31	h m	10 07	h m	11 09	h m	12 09	h m	13 08	
	14	30	11.9		57.7	316	06.6	15.2	11	26.7	13.3	55.2	35	03 39	04 16	h m	04 45	h m	10 15	h m	11 13	h m	12 09	h m	13 05	
	15	45	11.8	..	57.9	330	40.8	15.3	11	13.4	13.3	55.2	30	03 58	04 31	h m	04 58	h m	10 21	h m	11 16	h m	12 10	h m	13 03	
	16	60	11.7		58.1	345	15.1	15.3	11	00.1	13.3	55.2	20	04 26	04 55	h m	05 20	h m	10 32	h m	11 22	h m	12 10	h m	12 58	
	17	75	11.5		58.3	359	49.4	15.4	10	46.8	13.4	55.2	N 10	04 48	05 15	h m	05 38	h m	10 42	h m	11 27	h m	12 11	h m	12 54	
	18	90	11.4	N22	58.5	14	23.8	15.5	N10	33.4	13.4	55.2	0	05 07	05 33	h m	05 56	h m	10 51	h m	11 32	h m	12 12	h m	12 51	
	19	105	11.3		58.7	28	58.3	15.6	10	20.0	13.5	55.1	S 10	05 24	05 50	h m	06 13	h m	10 59	h m	11 37	h m	12 12	h m	12 47	
	20	120	11.2		58.9	43	32.9	15.6	10	06.5	13.5	55.1	20	05 40	06 07	h m	06 31	h m	11 09	h m	11 42	h m	12 13	h m	12 44	
	21	135	11.1	..	59.1	58	07.5	15.7	9	53.0	13.5	55.1	30	05 56	06 26	h m	06 52	h m	11 20	h m	11 48	h m	12 14	h m	12 40	
	22	150	10.9		59.3	72	42.2	15.7	9	39.5	13.5	55.1	35	06 04	06 36	h m	07 04	h m	11 26	h m	11 51	h m	12 14	h m	12 37	
23	165	10.8		59.5	87	16.9	15.8	9	26.0	13.5	55.0	40	06 13	06 47	h m	07 18	h m	11 33	h m	11 55	h m	12 15	h m	12 35		
												45	06 24	07 01	h m	07 34	h m	11 41	h m	11 59	h m	12 15	h m	12 32		
S A B A D O	10 00	180	10.7	N22	59.7	101	51.7	15.9	N 9	12.5	13.6	55.0	S 50	06 35	07 16	h m	07 55	h m	11 51	h m	12 04	h m	12 16	h m	12 28	
	01	195	10.6	22	59.9	116	26.6	15.9	8	58.9	13.6	55.0	52	06 40	07 24	h m	08 04	h m	11 55	h m	12 07	h m	12 16	h m	12 26	
	02	210	10.4	23	00.1	131	01.5	16.0	8	45.3	13.6	55.0	54	06 46	07 32	h m	08 15	h m	12 00	h m	12 09	h m	12 17	h m	12 24	
	03	225	10.3	..	00.3	145	36.5	16.0	8	31.7	13.7	55.0	56	06 52	07 40	h m	08 27	h m	12 06	h m	12 12	h m	12 17	h m	12 22	
	04	240	10.2		00.5	160	11.5	16.1	8	18.0	13.6	54.9	58	06 58	07 50	h m	08 42	h m	12 12	h m	12 15	h m	12 18	h m	12 20	
	05	255	10.1		00.7	174	46.6	16.1	8	04.4	13.7	54.9	S 60	07 05	08 02	h m	08 59	h m	12 19	h m	12 19	h m	12 18	h m	12 18	
	06	270	09.9	N23	00.9	189	21.7	16.2	N 7	50.7	13.7	54.9														
	07	285	09.8		01.1	203	56.9	16.2	7	37.0	13.7	54.9														
	08	300	09.7		01.3	218	32.1	16.3	7	23.3	13.8	54.9														
	09	315	09.6	..	01.4	233	07.4	16.3	7	09.5	13.7	54.8														
	10	330	09.4		01.6	247	42.7	16.4	6	55.8	13.8	54.8														
	11	345	09.3		01.8	262	18.1	16.4	6	42.0	13.8	54.8														
	12	0	09.2	N23	02.0	276	53.5	16.4	N 6	28.2	13.8	54.8														
	13	15	09.1		02.2	291	28.9	16.5	6	14.4	13.8	54.8														
	14	30	08.9		02.4	306	04.4	16.6	6	00.6	13.8	54.7														
	15	45	08.8	..	02.6	320	40.0	16.6	5	46.8	13.8	54.7														
	16	60	08.7		02.8	335	15.6	16.6	5	33.0	13.9	54.7														
	17	75	08.5		02.9	349	51.2	16.6	5	19.1	13.9	54.7														
	18	90	08.4	N23	03.1	4	26.8	16.7	N 5	05.2	13.8	54.7														
	19	105	08.3		03.3	19	02.5	16.8	4	51.4	13.9	54.7														
	20	120	08.2		03.5	33	38.3	16.7	4	37.5	13.9	54.6														
	21	135	08.0	..	03.7	48	14.0	16.8	4	23.6	13.9	54.6														
	22	150	07.9		03.8	62	49.8	16.8	4	09.7	13.9	54.6														
23	165	07.8		04.0	77	25.6	16.9	3	55.8	13.9	54.6															
D O M I N G O	11 00	180	07.7	N23	04.2	92	01.5	16.9	N 3	41.9	13.9	54.6	N 40	19 28	20 01	h m	20 42	h m	23 43	h m	24 04	h m	00 04	h m	00 24	
	01	195	07.5		04.4	106	37.4	16.9	3	28.0	13.9	54.6	35	19 13	19 43	h m	20 20	h m	23 38	h m	24 02	h m	00 02	h m	00 25	
	02	210	07.4		04.6	121	13.3	16.9	3	14.1	13.9	54.6	30	19 01	19 28	h m	20 01	h m	23 33	h m	24 00	h m	00 00	h m	00 26	
	03	225	07.3	..	04.7	135	49.2	17.0	3	00.2	14.0	54.5	20	18 39	19 03	h m	19 33	h m	23 25	h m	23 57	h m	24 28	h m	00 28	
	04	240	07.2		04.9	150	25.2	16.9	2	46.2	13.9	54.5	N 10	18 20	18 43	h m	19 10	h m	23 18	h m	23 54	h m	24 29	h m	00 29	
	05	2																								











T.M.G. (TU)	ARIES		VENUS -3.9		MARTE +1.8		JUPITER -1.9		SATURNO +0.1		ESTRELLAS			
	A.H.G.	A.H.G.	Dec.	A.H.G.	Dec.	A.H.G.	Dec.	A.H.G.	Dec.	Nombre	A. H. S.	Dec.		
J U E V E S	15 00	263 15.4	159 28.5	N24 03.5	141 49.2	N21 37.2	184 18.3	N22 39.4	340 24.0	S22 16.3	Acamar	315 32.2	S40 20.5	
	01	278 17.8	174 27.6	03.3	156 50.0	36.9	199 20.1	39.4	355 26.6	16.3	Achernar	335 40.2	S57 17.1	
	02	293 20.3	189 26.8	03.1	171 50.9	36.5	214 22.0	39.5	10 29.3	16.3	Acruz	173 29.8	S63 02.8	
	03	308 22.8	204 25.9	02.9	186 51.7	36.2	229 23.8	39.5	25 31.9	16.4	Adhara	255 27.1	S28 57.4	
	04	323 25.2	219 25.0	02.6	201 52.5	35.9	244 25.6	39.6	40 34.6	16.4	Aldebaran	291 10.5	N16 29.4	
	05	338 27.7	234 24.2	02.4	216 53.3	35.5	259 27.5	39.6	55 37.2	16.4				
	06	353 30.2	249 23.3	N24 02.2	231 54.2	N21 35.2	274 29.3	N22 39.7	70 39.9	S22 16.4	Alioth	166 36.0	N56 01.2	
	07	8 32.6	264 22.4	02.0	246 55.0	34.9	289 31.2	39.7	85 42.5	16.4	Alkaid	153 12.6	N49 22.1	
	08	23 35.1	279 21.6	01.7	261 55.8	34.5	304 33.0	39.7	100 45.2	16.4	Al Na'ir	28 05.9	S47 00.5	
	09	38 37.6	294 20.7	01.5	276 56.7	34.2	319 34.8	39.8	115 47.8	16.5	Alnilam	276 05.0	S 1 12.4	
	10	53 40.0	309 19.8	01.3	291 57.5	33.9	334 36.7	39.8	130 50.5	16.5	Alphard	218 14.0	S 8 36.8	
	11	68 42.5	324 19.0	01.0	306 58.3	33.5	349 38.5	39.9	145 53.1	16.5				
	12	83 45.0	339 18.1	N24 00.8	321 59.2	N21 33.2	4 40.4	N22 39.9	160 55.8	S22 16.5	Alphecca	126 25.9	N26 44.9	
	13	98 47.4	354 17.2	00.6	337 00.0	32.9	19 42.2	40.0	175 58.4	16.5	Alpheratz	358 02.4	N29 01.8	
	14	113 49.9	9 16.4	00.3	352 00.8	32.5	34 44.0	40.0	191 01.1	16.6	Altair	62 25.6	N 8 50.3	
	15	128 52.3	24 15.5	24 00.1	7 01.7	32.2	49 45.9	40.1	206 03.7	16.6	Ankaa	353 33.4	S42 21.5	
	16	143 54.8	39 14.6	23 59.9	22 02.5	31.9	64 47.7	40.1	221 06.3	16.6	Antares	112 48.1	S26 24.7	
	17	158 57.3	54 13.8	59.6	37 03.3	31.5	79 49.6	40.2	236 09.0	16.6				
	18	173 59.7	69 12.9	N23 59.4	52 04.2	N21 31.2	94 51.4	N22 40.2	251 11.6	S22 16.6	Arcturus	146 11.9	N19 14.2	
	19	189 02.2	84 12.0	59.2	67 05.0	30.9	109 53.2	40.3	266 14.3	16.6	Atria	108 05.8	S69 00.8	
	20	204 04.7	99 11.2	58.9	82 05.8	30.5	124 55.1	40.3	281 16.9	16.7	Avior	234 26.1	S59 28.6	
	21	219 07.1	114 10.3	58.7	97 06.7	30.2	139 56.9	40.4	296 19.6	16.7	Bellatrix	278 51.7	N 6 20.6	
	22	234 09.6	129 09.4	58.4	112 07.5	29.9	154 58.8	40.4	311 22.2	16.7	Betelgeuse	271 21.2	N 7 24.5	
23	249 12.1	144 08.6	58.2	127 08.3	29.5	170 00.6	40.5	326 24.9	16.7					
V I E R N E S	16 00	264 14.5	159 07.7	N23 57.9	142 09.2	N21 29.2	185 02.4	N22 40.5	341 27.5	S22 16.7	Canopus	264 04.7	S52 41.3	
	01	279 17.0	174 06.8	57.7	157 10.0	28.9	200 04.3	40.5	356 30.2	16.8	Capella	281 01.7	N45 59.4	
	02	294 19.4	189 06.0	57.4	172 10.8	28.5	215 06.1	40.6	11 32.8	16.8	Deneb	49 43.6	N45 14.3	
	03	309 21.9	204 05.1	57.2	187 11.7	28.2	230 08.0	40.6	26 35.5	16.8	Denebola	182 52.0	N14 37.9	
	04	324 24.4	219 04.2	56.9	202 12.5	27.9	245 09.8	40.7	41 38.1	16.8	Diphda	349 14.0	S18 02.5	
	05	339 26.8	234 03.4	56.7	217 13.3	27.5	260 11.6	40.7	56 40.8	16.8				
	06	354 29.3	249 02.5	N23 56.4	232 14.2	N21 27.2	275 13.5	N22 40.8	71 43.4	S22 16.8	Dubhe	194 13.5	N61 48.7	
	07	9 31.8	264 01.7	56.2	247 15.0	26.9	290 15.3	40.8	86 46.1	16.9	Elnath	278 35.9	N28 36.1	
	08	24 34.2	279 00.8	55.9	262 15.8	26.5	305 17.2	40.9	101 48.7	16.9	Eltanin	90 54.0	N51 29.2	
	09	39 36.7	293 59.9	55.7	277 16.7	26.2	320 19.0	40.9	116 51.4	16.9	Enif	34 04.7	N 9 49.5	
	10	54 39.2	308 59.1	55.4	292 17.5	25.8	335 20.8	41.0	131 54.0	16.9	Fomalhaut	15 43.7	S29 40.5	
	11	69 41.6	323 58.2	55.2	307 18.3	25.5	350 22.7	41.0	146 56.7	16.9				
	12	84 44.1	338 57.3	N23 54.9	322 19.2	N21 25.2	5 24.5	N22 41.1	161 59.3	S22 16.9	Gacrux	172 21.3	S57 03.6	
	13	99 46.6	353 56.5	54.6	337 20.0	24.8	20 26.4	41.1	177 02.0	17.0	Gienah	176 10.9	S17 29.2	
	14	114 49.0	8 55.6	54.4	352 20.9	24.5	35 28.2	41.1	192 04.6	17.0	Hadar	149 13.5	S60 19.7	
	15	129 51.5	23 54.8	54.1	7 21.7	24.1	50 30.0	41.2	207 07.3	17.0	Hamal	328 21.5	N23 24.8	
	16	144 53.9	38 53.9	53.8	22 22.5	23.8	65 31.9	41.2	222 09.9	17.0	Kaus Aust.	84 07.3	S34 23.5	
	17	159 56.4	53 53.0	53.6	37 23.4	23.5	80 33.7	41.3	237 12.6	17.0				
	18	174 58.9	68 52.2	N23 53.3	52 24.2	N21 23.1	95 35.6	N22 41.3	252 15.2	S22 17.1	Kochab	137 17.9	N74 12.0	
	19	190 01.3	83 51.3	53.0	67 25.0	22.8	110 37.4	41.4	267 17.9	17.1	Markab	13 56.3	N15 08.8	
	20	205 03.8	98 50.5	52.8	82 25.9	22.4	125 39.2	41.4	282 20.5	17.1	Menkar	314 34.2	N 4 03.0	
	21	220 06.3	113 49.6	52.5	97 26.7	22.1	140 41.1	41.5	297 23.2	17.1	Menkent	148 28.8	S36 19.4	
	22	235 08.7	128 48.8	52.2	112 27.5	21.8	155 42.9	41.5	312 25.8	17.1	Miaplacidus	221 44.4	S69 40.6	
23	250 11.2	143 47.9	51.9	127 28.4	21.4	170 44.8	41.6	327 28.5	17.1					
S A B A D O	17 00	265 13.7	158 47.0	N23 51.7	142 29.2	N21 21.1	185 46.6	N22 41.6	342 31.1	S22 17.2	Mirfak	309 06.9	N49 49.4	
	01	280 16.1	173 46.2	51.4	157 30.0	20.7	200 48.4	41.7	357 33.8	17.2	Nunki	76 20.3	S26 18.7	
	02	295 18.6	188 45.3	51.1	172 30.9	20.4	215 50.3	41.7	12 36.4	17.2	Peacock	53 46.9	S56 46.1	
	03	310 21.1	203 44.5	50.8	187 31.7	20.1	230 52.1	41.7	27 39.1	17.2	Pollux	243 50.1	N28 03.3	
	04	325 23.5	218 43.6	50.6	202 32.6	19.7	245 54.0	41.8	42 41.7	17.2	Procyon	245 18.9	N 5 15.2	
	05	340 26.0	233 42.7	50.3	217 33.4	19.4	260 55.8	41.8	57 44.4	17.3				
	06	355 28.4	248 41.9	N23 50.0	232 34.2	N21 19.0	275 57.6	N22 41.9	72 47.0	S22 17.3	Rasalhague	96 22.9	N12 33.9	
	07	10 30.9	263 41.0	49.7	247 35.1	18.7	290 59.5	41.9	87 49.7	17.3	Regulus	208 02.8	N12 01.2	
	08	25 33.4	278 40.2	49.4	262 35.9	18.3	306 01.3	42.0	102 52.3	17.3	Rigel	281 29.8	S 8 12.7	
	09	40 35.8	293 39.3	49.1	277 36.7	18.0	321 03.2	42.0	117 55.0	17.3	Rigel Kent.	140 16.2	S60 47.8	
	10	55 38.3	308 38.5	48.8	292 37.6	17.7	336 05.0	42.1	132 57.6	17.3	Sabik	102 32.9	S15 42.9	
	11	70 40.8	323 37.6	48.6	307 38.4	17.3	351 06.8	42.1	148 00.3	17.4				
	12	85 43.2	338 36.8	N23 48.3	322 39.3	N21 17.0	6 08.7	N22 42.2	163 02.9	S22 17.4	Schedar	350 01.6	N56 28.6	
	13	100 45.7	353 35.9	48.0	337 40.1	16.6	21 10.5	42.2	178 05.6	17.4	Shaula	96 46.0	S37 06.0	
	14	115 48.2	8 35.1	47.7	352 40.9	16.3	36 12.4	42.2	193 08.2	17.4	Sirius	258 50.0	S16 42.0	
	15	130 50.6	23 34.2	47.4	7 41.8	15.9	51 14.2	42.3	208 10.9	17.4	Spica	158 50.2	S11 06.6	
	16	145 53.1	38 33.3	47.1	22 42.6	15.6	66 16.0	42.3	223 13.6	17.5	Suhail	223 06.2	S43 23.5	
	17	160 55.5	53 32.5	46.8	37 43.4	15.2	81 17.9	42.4	238 16.2	17.5				
	18	175 58.0	68 31.6	N23 46.5	52 44.3	N21 14.9	96 19.7	N22 42.4	253 18.9	S22 17.5	Vega	80 50.8	N38 46.2	
	19	191 00.5	83 30.8	46.2	67 45.1	14.5	111 21.6	42.5	268 21.5	17.5	Zuben'ubi	137 25.2	S16 00.1	
	20	206 02.9	98 29.9	45.9	82 46.0	14.2	126 23.4	42.5	283 24.2	17.5				
	21	221 05.4	113 29.1	45.6	97 46.8	13.9	141 25.2	42.6	298 26.8	17.5				
	22	236 07.9	128 28.2	45.3	112 47.6	13.5	156 27.1	42.6	313 29.5	17.6				
23	251 10.3	143 27.4	45.0	127 48.5	13.2	171 28.9	42.6	328 32.1	17.6					
Pas. Mer. 6 22.0											A. H. S.		Pas. Mer.	
v -0.9 d 0.3											o /		h m	
v 0.8 d 0.3											254 53.2		13 24	
v 1.8 d 0.0											237 54.6		14 31	
v 2.6 d 0.0											280 47.9		11 38	
											77 13.0		1 14	



T.M.G. (TU)	SOL		LUNA				Lat.	Crepúsculo		Orto Sol	Orto Luna					
	A.H.G.	Dec.	A.H.G.	v	Dec.	d		P.H.	Naut.		Civil	15	16	17	18	
												h m	h m	h m	h m	h m
J U E V E S	15 00	179 55.2	N23 18.1	52 44.7	14.3	S17 21.0	11.3	54.5	N 72	□	□	□	■	■	■	■
	01	194 55.1	18.2	67 18.0	14.3	17 32.3	11.2	54.5	N 70	□	□	□	■	■	■	■
	02	209 54.9	18.3	81 51.3	14.1	17 43.5	11.2	54.5	68	□	□	□	19 51	■	■	■
	03	224 54.8	18.4	96 24.4	14.1	17 54.7	11.1	54.5	66	□	□	□	18 58	■	■	■
	04	239 54.7	18.5	110 57.5	14.0	18 05.8	11.0	54.5	64	///	///	01 32	18 26	20 31	■	■
	05	254 54.5	18.6	125 30.5	14.0	18 16.8	10.9	54.6	62	///	///	02 10	18 03	19 47	21 39	23 29
	06	269 54.4	N23 18.7	140 03.5	13.8	S18 27.7	10.9	54.6	60	///	00 52	02 36	17 44	19 18	20 51	22 08
	07	284 54.3	18.8	154 36.3	13.8	18 38.6	10.8	54.6	N 58	///	01 41	02 56	17 29	18 56	20 21	21 32
	08	299 54.1	18.9	169 09.1	13.7	18 49.4	10.7	54.6	56	///	02 11	03 13	17 15	18 38	19 57	21 06
	09	314 54.0	19.0	183 41.8	13.6	19 00.1	10.6	54.6	54	00 47	02 33	03 27	17 04	18 23	19 39	20 45
	10	329 53.9	19.1	198 14.4	13.5	19 10.7	10.6	54.6	52	01 33	02 51	03 39	16 54	18 10	19 23	20 28
	11	344 53.7	19.2	212 46.9	13.5	19 21.3	10.5	54.6	50	02 00	03 06	03 50	16 45	17 58	19 09	20 13
	12	359 53.6	N23 19.3	227 19.4	13.3	S19 31.8	10.5	54.6	45	02 46	03 35	04 13	16 26	17 34	18 41	19 44
	13	14 53.5	19.4	241 51.7	13.3	19 42.3	10.3	54.7	N 40	03 16	03 58	04 31	16 11	17 15	18 19	19 20
	14	29 53.3	19.5	256 24.0	13.2	19 52.6	10.3	54.7	35	03 39	04 16	04 46	15 58	17 00	18 01	19 01
	15	44 53.2	19.6	270 56.2	13.1	20 02.9	10.2	54.7	30	03 58	04 31	04 59	15 47	16 46	17 46	18 45
	16	59 53.1	19.7	285 28.3	13.0	20 13.1	10.1	54.7	20	04 27	04 56	05 20	15 28	16 23	17 20	18 17
	17	74 52.9	19.8	300 00.3	13.0	20 23.2	10.0	54.7	N 10	04 49	05 16	05 39	15 12	16 03	16 57	17 53
	18	89 52.8	N23 19.9	314 32.3	12.8	S20 33.2	9.9	54.7	0	05 08	05 34	05 57	14 57	15 44	16 36	17 31
	19	104 52.7	20.0	329 04.1	12.8	20 43.1	9.9	54.8	S 10	05 25	05 52	06 14	14 41	15 26	16 15	17 09
	20	119 52.5	20.1	343 35.9	12.7	20 53.0	9.8	54.8	20	05 41	06 09	06 33	14 25	15 06	15 53	16 45
	21	134 52.4	20.2	358 07.6	12.6	21 02.8	9.6	54.8	30	05 58	06 28	06 54	14 07	14 44	15 27	16 18
	22	149 52.3	20.3	372 39.2	12.5	21 12.4	9.6	54.8	35	06 07	06 38	07 06	13 56	14 31	15 12	16 01
23	164 52.1	20.4	387 10.7	12.4	21 22.0	9.5	54.8	40	06 16	06 50	07 20	13 44	14 16	14 54	15 43	
16 00	179 52.0	N23 20.5	41 42.1	12.3	S21 31.5	9.5	54.8	45	06 26	07 03	07 37	13 30	13 58	14 33	15 20	
01	194 51.9	20.6	56 13.4	12.2	21 41.0	9.3	54.8	S 50	06 38	07 19	07 58	13 12	13 35	14 07	14 51	
02	209 51.7	20.7	70 44.6	12.2	21 50.3	9.2	54.9	52	06 43	07 27	08 08	13 04	13 25	13 54	14 36	
03	224 51.6	20.8	85 15.8	12.0	21 59.5	9.2	54.9	54	06 49	07 35	08 19	12 55	13 13	13 40	14 20	
04	239 51.5	20.9	99 46.8	12.0	22 08.7	9.0	54.9	56	06 55	07 44	08 31	12 45	13 00	13 22	14 00	
05	254 51.3	21.0	114 17.8	11.9	22 17.7	9.0	54.9	58	07 02	07 54	08 46	12 33	12 44	13 02	13 35	
06	269 51.2	N23 21.1	128 48.7	11.8	S22 26.7	8.8	54.9	S 60	07 09	08 06	09 04	12 20	12 25	12 36	13 02	
07	284 51.1	21.1	143 19.5	11.7	22 35.5	8.8	55.0	Lat.	Ocaso Sol	Crepúsculo Civil	Naut.	15	16	17	18	
08	299 50.9	21.2	157 50.2	11.6	22 44.3	8.7	55.0	N 72	□	□	□	■	■	■	■	
09	314 50.8	21.3	172 20.8	11.5	22 53.0	8.5	55.0	N 70	□	□	□	■	■	■	■	
10	329 50.7	21.4	186 51.3	11.4	23 01.5	8.5	55.0	68	□	□	□	22 09	■	■	■	
11	344 50.5	21.5	201 21.7	11.3	23 10.0	8.3	55.0	66	□	□	□	23 03	■	■	■	
12	359 50.4	N23 21.6	215 52.0	11.3	S23 18.3	8.3	55.0	64	22 30	///	///	23 36	23 12	■	■	
13	14 50.3	21.7	230 22.3	11.1	23 26.6	8.1	55.1	62	21 52	///	///	00 04	{00 00}	23 54	23 59	
14	29 50.1	21.7	244 52.4	11.1	23 34.7	8.1	55.1	60	21 26	23 11	///	00 17	00 20	00 26	00 42	
15	44 50.0	21.8	259 22.5	11.0	23 42.8	7.9	55.1	N 58	21 05	22 21	///	00 28	00 36	00 49	01 13	
16	59 49.9	21.9	273 52.5	10.8	23 50.7	7.8	55.1	56	20 49	21 51	///	00 38	00 50	01 07	01 36	
17	74 49.7	22.0	288 22.3	10.8	23 58.5	7.7	55.1	54	20 34	21 29	23 15	00 47	01 02	01 23	01 55	
18	89 49.6	N23 22.1	302 52.1	10.7	S24 06.2	7.7	55.2	52	20 22	21 11	22 29	00 55	01 12	01 36	02 11	
19	104 49.4	22.1	317 21.8	10.6	24 13.9	7.4	55.2	50	20 11	20 56	22 01	01 02	01 22	01 48	02 25	
20	119 49.3	22.2	331 51.4	10.5	24 21.3	7.4	55.2	45	19 49	20 26	21 16	01 17	01 42	02 13	02 53	
21	134 49.2	22.3	346 20.9	10.5	24 28.7	7.3	55.2	N 40	19 31	20 04	20 45	01 29	01 58	02 33	03 16	
22	149 49.0	22.4	360 50.4	10.3	24 36.0	7.1	55.2	35	19 16	19 46	20 22	01 40	02 12	02 49	03 34	
23	164 48.9	22.5	375 19.7	10.3	24 43.1	7.1	55.3	30	19 03	19 30	20 04	01 49	02 24	03 03	03 50	
17 00	179 48.8	N23 22.5	29 49.0	10.1	S24 50.2	6.9	55.3	20	18 41	19 05	19 35	02 06	02 44	03 28	04 17	
01	194 48.6	22.6	44 18.1	10.1	24 57.1	6.8	55.3	N 10	18 22	18 45	19 12	02 20	03 02	03 49	04 40	
02	209 48.5	22.7	58 47.2	10.0	25 03.9	6.7	55.3	0	18 04	18 27	18 53	02 33	03 19	04 09	05 02	
03	224 48.4	22.8	73 16.2	9.9	25 10.6	6.5	55.3	S 10	17 47	18 10	18 36	02 47	03 36	04 29	05 24	
04	239 48.2	22.8	87 45.1	9.8	25 17.1	6.5	55.4	20	17 28	17 52	18 20	03 01	03 54	04 50	05 47	
05	254 48.1	22.9	102 13.9	9.7	25 23.6	6.3	55.4	30	17 07	17 34	18 03	03 18	04 15	05 15	06 14	
06	269 48.0	N23 23.0	116 42.6	9.6	S25 29.9	6.2	55.4	35	16 55	17 23	17 55	03 27	04 28	05 29	06 30	
07	284 47.8	23.1	131 11.2	9.6	25 36.1	6.1	55.4	40	16 41	17 11	17 45	03 38	04 42	05 46	06 49	
08	299 47.7	23.1	145 39.8	9.4	25 42.2	5.9	55.4	45	16 24	16 58	17 35	03 51	04 59	06 07	07 12	
09	314 47.6	23.2	160 08.2	9.4	25 48.1	5.8	55.5	S 50	16 03	16 42	17 23	04 08	05 20	06 32	07 40	
10	329 47.4	23.3	174 36.6	9.3	25 53.9	5.7	55.5	52	15 53	16 34	17 18	04 15	05 30	06 45	07 55	
11	344 47.3	23.3	189 04.9	9.2	25 59.6	5.5	55.5	54	15 42	16 26	17 12	04 24	05 42	06 59	08 11	
12	359 47.2	N23 23.4	203 33.1	9.2	S26 05.1	5.5	55.5	56	15 30	16 17	17 06	04 33	05 55	07 16	08 31	
13	14 47.0	23.5	218 01.3	9.0	26 10.6	5.2	55.5	58	15 15	16 07	16 59	04 44	06 10	07 36	08 55	
14	29 46.9	23.5	232 29.3	9.0	26 15.8	5.2	55.6	S 60	14 58	15 55	16 52	04 56	06 28	08 02	09 28	
15	44 46.8	23.6	246 57.3	8.9	26 21.0	5.0	55.6	Día	SOL E.T. (-)	Pas. Mer.	LUNA		Fase			
16	59 46.6	23.7	261 25.2	8.8	26 26.0	4.9	55.6	00 h	12 h	Sup.	Mer. Inf.	Edad.				
17	74 46.5	23.7	275 53.0	8.7	26 30.9	4.8	55.6	m s	m s	h m	h m	h m	d			
18	89 46.4	N23 23.8	290 20.7	8.7	S26 35.7	4.6	55.7	15	00 19	00 25	12 00	21 08	08 45	12		
19	104 46.2	23.9	304 48.4	8.6	26 40.3	4.4	55.7	16	00 32	00 38	12 01	21 57	09 32	13		
20	119 46.1	23.9	319 16.0	8.5	26 44.7	4.4	55.7	17								



T.M.G. (TU)	ARIES	VENUS -3.9	MARTE +1.8	JUPITER -1.9	SATURNO +0.1	ESTRELLAS		
d h	A.H.G.	A.H.G. Dec.	A.H.G. Dec.	A.H.G. Dec.	A.H.G. Dec.	Nombre	A. H. S.	Dec.
18 00	266 12.8	158 26.5 N23 44.7	142 49.3 N21 12.8	186 30.8 N22 42.7	343 34.8 S22 17.6	Acamar	315 32.2 S40	20.5
01	281 15.3	173 25.7 44.4	157 50.2 12.5	201 32.6 42.7	358 37.4 17.6	Achernar	335 40.1 S57	17.0
02	296 17.7	188 24.8 44.1	172 51.0 12.1	216 34.4 42.8	13 40.1 17.6	Acrux	173 29.8 S63	02.8
03	311 20.2	203 24.0 43.8	187 51.8 11.8	231 36.3 42.8	28 42.7 17.7	Adhara	255 27.1 S28	57.4
04	326 22.7	218 23.1 43.5	202 52.7 11.4	246 38.1 42.9	43 45.4 17.7	Aldebaran	291 10.5 N16	29.4
05	341 25.1	233 22.3 43.2	217 53.5 11.1	261 40.0 42.9	58 48.0 17.7			
06	356 27.6	248 21.4 N23 42.8	232 54.4 N21 10.7	276 41.8 N22 43.0	73 50.7 S22 17.7	Alioth	166 36.0 N56	01.2
07	11 30.0	263 20.6 42.5	247 55.2 10.4	291 43.6 43.0	88 53.3 17.7	Alkaid	153 12.6 N49	22.1
08	26 32.5	278 19.7 42.2	262 56.0 10.0	306 45.5 43.0	103 56.0 17.7	Al Na'ir	28 05.9 S47	00.5
09	41 35.0	293 18.9 41.9	277 56.9 09.7	321 47.3 43.1	118 58.6 17.8	Alnilam	276 05.0 S 1	12.4
10	56 37.4	308 18.0 41.6	292 57.7 09.3	336 49.2 43.1	134 01.3 17.8	Alphard	218 14.0 S 8	36.8
11	71 39.9	323 17.2 41.3	307 58.6 09.0	351 51.0 43.2	149 03.9 17.8			
12	86 42.4	338 16.3 N23 40.9	322 59.4 N21 08.6	6 52.8 N22 43.2	164 06.6 S22 17.8	Alphecca	126 25.9 N26	44.9
13	101 44.8	353 15.5 40.6	338 00.2 08.3	21 54.7 43.3	179 09.2 17.8	Alpheratz	358 02.3 N29	01.8
14	116 47.3	8 14.7 40.3	353 01.1 07.9	36 56.5 43.3	194 11.9 17.8	Altair	62 25.5 N 8	50.3
15	131 49.8	23 13.8 40.0	8 01.9 07.6	51 58.4 43.4	209 14.6 17.9	Ankaa	353 33.3 S42	21.5
16	146 52.2	38 13.0 39.7	23 02.8 07.2	67 00.2 43.4	224 17.2 17.9	Antares	112 48.1 S26	24.7
17	161 54.7	53 12.1 39.3	38 03.6 06.9	82 02.0 43.4	239 19.9 17.9			
18	176 57.2	68 11.3 N23 39.0	53 04.4 N21 06.5	97 03.9 N22 43.5	254 22.5 S22 17.9	Arcturus	146 11.9 N19	14.2
19	191 59.6	83 10.4 38.7	68 05.3 06.2	112 05.7 43.5	269 25.2 17.9	Atria	108 05.8 S69	00.8
20	207 02.1	98 09.6 38.3	83 06.1 05.8	127 07.6 43.6	284 27.8 18.0	Avior	234 26.1 S59	28.6
21	222 04.5	113 08.7 38.0	98 07.0 05.5	142 09.4 43.6	299 30.5 18.0	Bellatrix	278 51.7 N 6	20.6
22	237 07.0	128 07.9 37.7	113 07.8 05.1	157 11.3 43.7	314 33.1 18.0	Betelgeuse	271 21.2 N 7	24.5
23	252 09.5	143 07.0 37.4	128 08.7 04.8	172 13.1 43.7	329 35.8 18.0			
19 00	267 11.9	158 06.2 N23 37.0	143 09.5 N21 04.4	187 14.9 N22 43.7	344 38.4 S22 18.0	Canopus	264 04.7 S52	41.3
01	282 14.4	173 05.4 36.7	158 10.3 04.0	202 16.8 43.8	359 41.1 18.0	Capella	281 01.7 N45	59.4
02	297 16.9	188 04.5 36.4	173 11.2 03.7	217 18.6 43.8	14 43.7 18.1	Deneb	49 43.5 N45	14.3
03	312 19.3	203 03.7 36.0	188 12.0 03.3	232 20.5 43.9	29 46.4 18.1	Denebola	182 52.0 N14	37.9
04	327 21.8	218 02.8 35.7	203 12.9 03.0	247 22.3 43.9	44 49.0 18.1	Diphda	349 14.0 S18	02.5
05	342 24.3	233 02.0 35.3	218 13.7 02.6	262 24.1 44.0	59 51.7 18.1			
06	357 26.7	248 01.2 N23 35.0	233 14.5 N21 02.3	277 26.0 N22 44.0	74 54.4 S22 18.1	Dubhe	194 13.5 N61	48.7
07	12 29.2	263 00.3 34.7	248 15.4 01.9	292 27.8 44.1	89 57.0 18.2	Elnath	278 35.8 N28	36.1
08	27 31.6	277 59.5 34.3	263 16.2 01.6	307 29.7 44.1	104 59.7 18.2	Eltanin	90 54.0 N51	29.3
09	42 34.1	292 58.6 34.0	278 17.1 01.2	322 31.5 44.1	120 02.3 18.2	Enif	34 04.7 N 9	49.5
10	57 36.6	307 57.8 33.6	293 17.9 00.9	337 33.3 44.2	135 05.0 18.2	Fomalhaut	15 43.6 S29	40.5
11	72 39.0	322 57.0 33.3	308 18.8 00.5	352 35.2 44.2	150 07.6 18.2			
12	87 41.5	337 56.1 N23 32.9	323 19.6 N21 00.1	7 37.0 N22 44.3	165 10.3 S22 18.2	Gacrux	172 21.3 S57	03.6
13	102 44.0	352 55.3 32.6	338 20.5 20 59.8	22 38.9 44.3	180 12.9 18.3	Gienah	176 10.9 S17	29.2
14	117 46.4	7 54.4 32.2	353 21.3 59.4	37 40.7 44.4	195 15.6 18.3	Hadar	149 13.5 S60	19.7
15	132 48.9	22 53.6 31.9	8 22.1 59.1	52 42.5 44.4	210 18.2 18.3	Hamal	328 21.4 N23	24.8
16	147 51.4	37 52.8 31.5	23 23.0 58.7	67 44.4 44.4	225 20.9 18.3	Kaus Aust.	84 07.3 S34	23.5
17	162 53.8	52 51.9 31.2	38 23.8 58.4	82 46.2 44.5	240 23.5 18.3			
18	177 56.3	67 51.1 N23 30.8	53 24.7 N20 58.0	97 48.1 N22 44.5	255 26.2 S22 18.4	Kochab	137 17.9 N74	12.0
19	192 58.8	82 50.2 30.5	68 25.5 57.6	112 49.9 44.6	270 28.9 18.4	Markab	13 56.3 N15	08.8
20	208 01.2	97 49.4 30.1	83 26.4 57.3	127 51.8 44.6	285 31.5 18.4	Menkar	314 34.2 N 4	03.0
21	223 03.7	112 48.6 29.8	98 27.2 56.9	142 53.6 44.7	300 34.2 18.4	Menkent	148 28.8 S36	19.4
22	238 06.1	127 47.7 29.4	113 28.0 56.6	157 55.4 44.7	315 36.8 18.4	Miaplacidus	221 44.5 S69	40.6
23	253 08.6	142 46.9 29.0	128 28.9 56.2	172 57.3 44.7	330 39.5 18.4			
20 00	268 11.1	157 46.1 N23 28.7	143 29.7 N20 55.8	187 59.1 N22 44.8	345 42.1 S22 18.5	Mirfak	309 06.8 N49	49.4
01	283 13.5	172 45.2 28.3	158 30.6 55.5	203 01.0 44.8	0 44.8 18.5	Nunki	76 20.3 S26	18.7
02	298 16.0	187 44.4 27.9	173 31.4 55.1	218 02.8 44.9	15 47.4 18.5	Peacock	53 46.9 S56	46.1
03	313 18.5	202 43.6 27.6	188 32.3 54.8	233 04.6 44.9	30 50.1 18.5	Pollux	243 50.1 N28	03.3
04	328 20.9	217 42.7 27.2	203 33.1 54.4	248 06.5 45.0	45 52.8 18.5	Procyon	245 18.9 N 5	15.2
05	343 23.4	232 41.9 26.8	218 34.0 54.0	263 08.3 45.0	60 55.4 18.6			
06	358 25.9	247 41.1 N23 26.5	233 34.8 N20 53.7	278 10.2 N22 45.0	75 58.1 S22 18.6	Rasalhague	96 22.9 N12	33.9
07	13 28.3	262 40.2 26.1	248 35.7 53.3	293 12.0 45.1	91 00.7 18.6	Regulus	208 02.8 N12	01.2
08	28 30.8	277 39.4 25.7	263 36.5 53.0	308 13.8 45.1	106 03.4 18.6	Rigel	281 29.7 S 8	12.7
09	43 33.3	292 38.6 25.4	278 37.3 52.6	323 15.7 45.2	121 06.0 18.6	Rigel Kent.	140 16.2 S60	47.8
10	58 35.7	307 37.7 25.0	293 38.2 52.2	338 17.5 45.2	136 08.7 18.6	Sabik	102 32.9 S15	42.9
11	73 38.2	322 36.9 24.6	308 39.0 51.9	353 19.4 45.2	151 11.3 18.7			
12	88 40.6	337 36.1 N23 24.2	323 39.9 N20 51.5	8 21.2 N22 45.3	166 14.0 S22 18.7	Schedar	350 01.6 N56	28.6
13	103 43.1	352 35.2 23.9	338 40.7 51.1	23 23.1 45.3	181 16.6 18.7	Shaula	96 46.0 S37	06.0
14	118 45.6	7 34.4 23.5	353 41.6 50.8	38 24.9 45.4	196 19.3 18.7	Sirius	258 50.0 S16	42.0
15	133 48.0	22 33.6 23.1	8 42.4 50.4	53 26.7 45.4	211 22.0 18.7	Spica	158 50.2 S11	06.6
16	148 50.5	37 32.8 22.7	23 43.3 50.1	68 28.6 45.5	226 24.6 18.8	Suhail	223 06.2 S43	23.5
17	163 53.0	52 31.9 22.3	38 44.1 49.7	83 30.4 45.5	241 27.3 18.8			
18	178 55.4	67 31.1 N23 22.0	53 45.0 N20 49.3	98 32.3 N22 45.5	256 29.9 S22 18.8	Vega	80 50.8 N38	46.3
19	193 57.9	82 30.3 21.6	68 45.8 49.0	113 34.1 45.6	271 32.6 18.8	Zuben'ubi	137 25.2 S16	00.1
20	209 00.4	97 29.4 21.2	83 46.7 48.6	128 35.9 45.6	286 35.2 18.8			
21	224 02.8	112 28.6 20.8	98 47.5 48.2	143 37.8 45.7	301 37.9 18.8			
22	239 05.3	127 27.8 20.4	113 48.4 47.9	158 39.6 45.7	316 40.6 18.9			
23	254 07.7	142 27.0 20.0	128 49.2 47.5	173 41.5 45.8	331 43.2 18.9			
Pas. Mer.	h m 6 10.2	v -0.8 d 0.3	v 0.8 d 0.4	v 1.8 d 0.0	v 2.7 d 0.0		A. H. S.	Pas. Mer.
						Venus	250 54.3 h	13 28 m
						Marte	235 57.6 h	14 27 m
						Júpiter	280 03.0 h	11 30 m
						Saturno	77 26.5 h	1 01 m



T.M.G. (TU)	SOL		LUNA				Lat.	Crepúsculo		Orto Sol	Orto Luna					
	A.H.G.	Dec.	A.H.G.	v	Dec.	d		P.H.	Naut.		Civil	18	19	20	21	
												h m	h m	h m	h m	h m
DOMINGO	18 00	179 45.6	N23 24.2	17 05.6	8.2	S27 01.2	3.8	55.8	N 72	□	□	□	■	■	■	■
	01	194 45.4	24.2	31 32.8	8.2	27 05.0	3.6	55.8	N 70	□	□	□	■	■	■	■
	02	209 45.3	24.3	46 00.0	8.1	27 08.6	3.5	55.8	68	□	□	□	■	■	■	■
	03	224 45.1	24.3	60 27.1	8.0	27 12.1	3.3	55.9	66	□	□	□	■	■	■	■
	04	239 45.0	24.4	74 54.1	8.0	27 15.4	3.2	55.9	64	///	///	01 31	■	■	■	00 26
	05	254 44.9	24.4	89 21.1	7.9	27 18.6	3.1	55.9	62	///	///	02 09	23 29	23 43	23 40	23 36
	06	269 44.7	N23 24.5	103 48.0	7.8	S27 21.7	2.9	55.9	60	///	00 49	02 35	22 08	22 51	23 09	23 17
	07	284 44.6	24.5	118 14.8	7.8	27 24.6	2.7	55.9	N 58	///	01 40	02 56	21 32	22 20	22 46	23 01
	08	299 44.5	24.6	132 41.6	7.7	27 27.3	2.6	56.0	56	///	02 10	03 13	21 06	21 56	22 28	22 48
	09	314 44.3	24.7	147 08.3	7.6	27 29.9	2.4	56.0	54	00 45	02 32	03 27	20 45	21 37	22 12	22 36
	10	329 44.2	24.7	161 34.9	7.6	27 32.3	2.3	56.0	52	01 32	02 50	03 39	20 28	21 20	21 58	22 25
	11	344 44.1	24.8	176 01.5	7.6	27 34.6	2.2	56.0	50	02 00	03 06	03 50	20 13	21 06	21 46	22 16
	12	359 43.9	N23 24.8	190 28.1	7.5	S27 36.8	2.0	56.1	45	02 46	03 35	04 13	19 44	20 37	21 21	21 56
	13	14 43.8	24.9	204 54.6	7.4	27 38.8	1.8	56.1	N 40	03 16	03 58	04 31	19 20	20 15	21 01	21 40
	14	29 43.7	24.9	219 21.0	7.4	27 40.6	1.7	56.1	35	03 39	04 16	04 46	19 01	19 56	20 45	21 26
	15	44 43.5	25.0	233 47.4	7.4	27 42.3	1.5	56.1	30	03 58	04 31	04 59	18 45	19 40	20 30	21 15
	16	59 43.4	25.0	248 13.8	7.3	27 43.8	1.4	56.1	20	04 27	04 56	05 21	18 17	19 13	20 06	20 54
	17	74 43.3	25.0	262 40.1	7.2	27 45.2	1.2	56.2	N 10	04 50	05 17	05 40	17 53	18 50	19 44	20 36
	18	89 43.1	N23 25.1	277 06.3	7.2	S27 46.4	1.0	56.2	0	05 09	05 35	05 58	17 31	18 28	19 24	20 19
	19	104 43.0	25.1	291 32.5	7.2	27 47.4	0.9	56.2	S 10	05 26	05 52	06 15	17 09	18 06	19 04	20 02
	20	119 42.9	25.2	305 58.7	7.2	27 48.3	0.8	56.2	20	05 42	06 10	06 34	16 45	17 42	18 43	19 44
	21	134 42.7	25.2	320 24.9	7.1	27 49.1	0.5	56.3	30	05 59	06 28	06 55	16 18	17 15	18 18	19 23
	22	149 42.6	25.3	334 51.0	7.0	27 49.6	0.5	56.3	35	06 07	06 39	07 07	16 01	16 59	18 03	19 11
23	164 42.4	25.3	349 17.0	7.0	27 50.1	0.2	56.3	40	06 17	06 51	07 21	15 43	16 40	17 46	18 57	
LUNES	19 00	179 42.3	N23 25.4	3 43.0	7.0	S27 50.3	0.1	56.3	45	06 27	07 04	07 38	15 20	16 17	17 25	18 40
	01	194 42.2	25.4	18 09.0	7.0	27 50.4	0.0	56.4	S 50	06 39	07 21	07 59	14 51	15 48	17 00	18 19
	02	209 42.0	25.4	32 35.0	6.9	27 50.4	0.3	56.4	52	06 44	07 28	08 09	14 36	15 34	16 47	18 09
	03	224 41.9	25.5	47 00.9	7.0	27 50.1	0.3	56.4	54	06 50	07 36	08 20	14 20	15 18	16 32	17 58
	04	239 41.8	25.5	61 26.9	6.8	27 49.8	0.6	56.4	56	06 56	07 45	08 33	14 00	14 58	16 15	17 45
	05	254 41.6	25.6	75 52.7	6.9	27 49.2	0.7	56.4	58	07 03	07 56	08 48	13 35	14 33	15 55	17 30
	06	269 41.5	N23 25.6	90 18.6	6.8	S27 48.5	0.9	56.5	S 60	07 10	08 07	09 05	13 02	14 00	15 29	17 11
	07	284 41.4	25.6	104 44.4	6.9	27 47.6	1.0	56.5	Lat.	Ocaso Sol	Crepúsculo Civil	Ocaso Luna				
	08	299 41.2	25.7	119 10.3	6.8	27 46.6	1.2	56.5	Naut.			18	19	20	21	
	09	314 41.1	25.7	133 36.1	6.8	27 45.4	1.3	56.5	h m	h m	h m	h m	h m	h m	h m	
	10	329 41.0	25.7	148 01.9	6.7	27 44.1	1.5	56.6	N 72	□	□	□	■	■	■	■
	11	344 40.8	25.8	162 27.6	6.8	27 42.6	1.7	56.6	N 70	□	□	□	■	■	■	■
	12	359 40.7	N23 25.8	176 53.4	6.8	S27 40.9	1.9	56.6	68	□	□	□	■	■	■	■
	13	14 40.6	25.8	191 19.2	6.7	27 39.0	2.0	56.6	66	□	□	□	■	■	■	■
	14	29 40.4	25.9	205 44.9	6.7	27 37.0	2.1	56.6	64	22 32	///	///	■	■	■	03 01
	15	44 40.3	25.9	220 10.6	6.8	27 34.9	2.4	56.7	62	21 54	///	///	23 59	25 45	01 45	03 46
	16	59 40.2	25.9	234 36.4	6.7	27 32.5	2.5	56.7	60	21 27	23 14	///	00 42	01 21	02 36	04 16
	17	74 40.0	26.0	249 02.1	6.7	27 30.0	2.6	56.7	N 58	21 07	22 23	///	01 13	01 57	03 08	04 38
	18	89 39.9	N23 26.0	263 27.8	6.8	S27 27.4	2.8	56.7	56	20 50	21 53	///	01 36	02 23	03 31	04 56
	19	104 39.7	26.0	277 53.6	6.7	27 24.6	3.0	56.8	54	20 36	21 30	23 18	01 55	02 44	03 50	05 12
	20	119 39.6	26.0	292 19.3	6.8	27 21.6	3.2	56.8	52	20 23	21 12	22 31	02 11	03 01	04 06	05 25
	21	134 39.5	26.1	306 45.1	6.7	27 18.4	3.3	56.8	50	20 12	20 57	22 03	02 25	03 15	04 20	05 36
	22	149 39.3	26.1	321 10.8	6.8	27 15.1	3.4	56.8	45	19 50	20 27	21 17	02 53	03 45	04 48	06 00
23	164 39.2	26.1	335 36.6	6.8	27 11.7	3.7	56.9	N 40	19 32	20 05	20 46	03 16	04 09	05 11	06 19	
MARTES	20 00	179 39.1	N23 26.1	350 02.4	6.7	S27 08.0	3.8	56.9	35	19 17	19 46	20 23	03 34	04 28	05 29	06 35
	01	194 38.9	26.2	4 28.1	6.8	27 04.2	3.9	56.9	30	19 04	19 31	20 05	03 50	04 44	05 45	06 49
	02	209 38.8	26.2	18 53.9	6.9	27 00.3	4.1	56.9	20	18 42	19 06	19 35	04 17	05 12	06 11	07 12
	03	224 38.7	26.2	33 19.8	6.8	26 56.2	4.3	56.9	N 10	18 23	18 46	19 13	04 40	05 36	06 34	07 32
	04	239 38.5	26.2	47 45.6	6.8	26 51.9	4.5	57.0	0	18 05	18 28	18 54	05 02	05 58	06 55	07 51
	05	254 38.4	26.3	62 11.4	6.9	26 47.4	4.6	57.0	S 10	17 47	18 10	18 37	05 24	06 20	07 16	08 09
	06	269 38.3	N23 26.3	76 37.3	6.9	S26 42.8	4.7	57.0	20	17 29	17 53	18 20	05 47	06 44	07 39	08 29
	07	284 38.1	26.3	91 03.2	6.9	26 38.1	5.0	57.0	30	17 08	17 34	18 04	06 14	07 12	08 05	08 52
	08	299 38.0	26.3	105 29.1	7.0	26 33.1	5.0	57.1	35	16 55	17 23	17 55	06 30	07 28	08 20	09 05
	09	314 37.9	26.3	119 55.1	6.9	26 28.1	5.3	57.1	40	16 41	17 12	17 46	06 49	07 47	08 38	09 20
	10	329 37.7	26.4	134 21.0	7.0	26 22.8	5.4	57.1	45	16 24	16 58	17 35	07 12	08 10	08 59	09 38
	11	344 37.6	26.4	148 47.0	7.1	26 17.4	5.5	57.1	S 50	16 03	16 42	17 24	07 40	08 39	09 26	10 00
	12	359 37.5	N23 26.4	163 13.1	7.0	S26 11.9	5.7	57.1	52	15 54	16 35	17 18	07 55	08 54	09 38	10 11
	13	14 37.3	26.4	177 39.1	7.1	26 06.2	5.9	57.2	54	15 42	16 26	17 13	08 11	09 10	09 53	10 23
	14	29 37.2	26.4	192 05.2	7.2	26 00.3	6.0	57.2	56	15 30	16 17	17 06	08 31	09 30	10 11	10 36
	15	44 37.0	26.4	206 31.4	7.1	25 54.3	6.2	57.2	58	15 15	16 07	17 00	08 55	09 55	10 32	10 52
	16	59 36.9	26.4	220 57.5	7.2	25 48.1	6.4	57.2	S 60	14 57	15 55	16 52	09 28	10 29	10 58	11 11
	17	74 36.8	26.5	235 23.7	7.3	25 41.7	6.4	57.3	Día	SOL E.T. (-)		LUNA				
	18	89 36.6	N23 26.5	249 50.0	7.3	S25 35.3	6.7	57.3	00 h	12 h	Pas. Mer.	Pas. Sup.	Mer. Inf.	edad	Fase	
	19	104 36.5	26.5	264 16.3	7.3	25 28.6	6.8	57.3	m s	m s	h m	h m	h m	d		
	20	119 36.4	26.5	278 42.6	7.4	25 21.8	6.9	57.3	00 58	01 04	12 01	12 01	11 17	15	○	
	21	134 36.2	26.5	293 09.0	7.4	25 14.9	7.1</									



T.M.G. (TU)	ARIES	VENUS -3.9	MARTE +1.8	JUPITER -1.9	SATURNO +0.1	ESTRELLAS		
d h	A.H.G.	A.H.G. Dec.	A.H.G. Dec.	A.H.G. Dec.	A.H.G. Dec.	Nombre	A. H. S.	Dec.
21 00	269 10.2	157 26.1 N23 19.6	143 50.0 N20 47.1	188 43.3 N22 45.8	346 45.9 S22 18.9	Acamar	315 32.2 S40	20.5
01	284 12.7	172 25.3 19.2	158 50.9 46.8	203 45.2 45.8	1 48.5 18.9	Achernar	335 40.1 S57	17.0
02	299 15.1	187 24.5 18.9	173 51.7 46.4	218 47.0 45.9	16 51.2 18.9	Acrux	173 29.8 S63	02.8
03	314 17.6	202 23.6 18.5	188 52.6 46.0	233 48.8 45.9	31 53.8 19.0	Adhara	255 27.1 S28	57.4
04	329 20.1	217 22.8 18.1	203 53.4 45.7	248 50.7 46.0	46 56.5 19.0	Aldebaran	291 10.4 N16	29.4
05	344 22.5	232 22.0 17.7	218 54.3 45.3	263 52.5 46.0	61 59.1 19.0			
06	359 25.0	247 21.2 N23 17.3	233 55.1 N20 44.9	278 54.4 N22 46.0	77 01.8 S22 19.0	Alioth	166 36.1 N56	01.2
07	14 27.5	262 20.4 16.9	248 56.0 44.6	293 56.2 46.1	92 04.5 19.0	Alkaid	153 12.6 N49	22.1
08	29 29.9	277 19.5 16.5	263 56.8 44.2	308 58.0 46.1	107 07.1 19.1	Al Na'ir	28 05.9 S47	00.5
09	44 32.4	292 18.7 16.1	278 57.7 43.8	323 59.9 46.2	122 09.8 19.1	Alnilam	276 05.0 S 1	12.4
10	59 34.9	307 17.9 15.7	293 58.5 43.5	339 01.7 46.2	137 12.4 19.1	Alphard	218 14.0 S 8	36.8
11	74 37.3	322 17.1 15.3	308 59.4 43.1	354 03.6 46.2	152 15.1 19.1			
12	89 39.8	337 16.2 N23 14.9	324 00.2 N20 42.7	9 05.4 N22 46.3	167 17.7 S22 19.1	Alphecca	126 25.9 N26	44.9
13	104 42.2	352 15.4 14.5	339 01.1 42.4	24 07.3 46.3	182 20.4 19.1	Alpheratz	358 02.3 N29	01.8
14	119 44.7	7 14.6 14.1	354 01.9 42.0	39 09.1 46.4	197 23.1 19.2	Altair	62 25.5 N 8	50.3
15	134 47.2	22 13.8 13.6	9 02.8 41.6	54 10.9 46.4	212 25.7 19.2	Ankaa	353 33.3 S42	21.5
16	149 49.6	37 12.9 13.2	24 03.6 41.3	69 12.8 46.4	227 28.4 19.2	Antares	112 48.1 S26	24.8
17	164 52.1	52 12.1 12.8	39 04.5 40.9	84 14.6 46.5	242 31.0 19.2			
18	179 54.6	67 11.3 N23 12.4	54 05.3 N20 40.5	99 16.5 N22 46.5	257 33.7 S22 19.2	Arcturus	146 11.9 N19	14.2
19	194 57.0	82 10.5 12.0	69 06.2 40.2	114 18.3 46.6	272 36.3 19.3	Atria	108 05.7 S69	00.8
20	209 59.5	97 09.7 11.6	84 07.0 39.8	129 20.1 46.6	287 39.0 19.3	Avior	234 26.1 S59	28.6
21	225 02.0	112 08.9 11.2	99 07.9 39.4	144 22.0 46.7	302 41.6 19.3	Bellatrix	278 51.7 N 6	20.6
22	240 04.4	127 08.0 10.8	114 08.7 39.0	159 23.8 46.7	317 44.3 19.3	Betelgeuse	271 21.2 N 7	24.5
23	255 06.9	142 07.2 10.3	129 09.6 38.7	174 25.7 46.7	332 47.0 19.3			
22 00	270 09.4	157 06.4 N23 09.9	144 10.4 N20 38.3	189 27.5 N22 46.8	347 49.6 S22 19.3	Canopus	264 04.7 S52	41.3
01	285 11.8	172 05.6 09.5	159 11.3 37.9	204 29.4 46.8	2 52.3 19.4	Capella	281 01.6 N45	59.4
02	300 14.3	187 04.8 09.1	174 12.1 37.6	219 31.2 46.9	17 54.9 19.4	Deneb	49 43.5 N45	14.3
03	315 16.7	202 03.9 08.7	189 13.0 37.2	234 33.0 46.9	32 57.6 19.4	Denebola	182 52.0 N14	37.9
04	330 19.2	217 03.1 08.2	204 13.8 36.8	249 34.9 46.9	48 00.2 19.4	Diphda	349 14.0 S18	02.5
05	345 21.7	232 02.3 07.8	219 14.7 36.4	264 36.7 47.0	63 02.9 19.4			
06	0 24.1	247 01.5 N23 07.4	234 15.5 N20 36.1	279 38.6 N22 47.0	78 05.6 S22 19.5	Dubhe	194 13.5 N61	48.7
07	15 26.6	262 00.7 07.0	249 16.4 35.7	294 40.4 47.1	93 08.2 19.5	Elnath	278 35.8 N28	36.1
08	30 29.1	276 59.9 06.5	264 17.2 35.3	309 42.3 47.1	108 10.9 19.5	Eltanin	90 54.0 N51	29.3
09	45 31.5	291 59.1 06.1	279 18.1 35.0	324 44.1 47.1	123 13.5 19.5	Enif	34 04.7 N 9	49.5
10	60 34.0	306 58.2 05.7	294 18.9 34.6	339 45.9 47.2	138 16.2 19.5	Fomalhaut	15 43.6 S29	40.5
11	75 36.5	321 57.4 05.2	309 19.8 34.2	354 47.8 47.2	153 18.9 19.5			
12	90 38.9	336 56.6 N23 04.8	324 20.6 N20 33.8	9 49.6 N22 47.3	168 21.5 S22 19.6	Gacrux	172 21.3 S57	03.6
13	105 41.4	351 55.8 04.4	339 21.5 33.5	24 51.5 47.3	183 24.2 19.6	Gienah	176 10.9 S17	29.2
14	120 43.9	6 55.0 03.9	354 22.3 33.1	39 53.3 47.3	198 26.8 19.6	Hadar	149 13.5 S60	19.7
15	135 46.3	21 54.2 03.5	9 23.2 32.7	54 55.2 47.4	213 29.5 19.6	Hamal	328 21.4 N23	24.8
16	150 48.8	36 53.4 03.1	24 24.1 32.3	69 57.0 47.4	228 32.1 19.6	Kaus Aust.	84 07.3 S34	23.5
17	165 51.2	51 52.6 02.6	39 24.9 32.0	84 58.8 47.5	243 34.8 19.7			
18	180 53.7	66 51.7 N23 02.2	54 25.8 N20 31.6	100 00.7 N22 47.5	258 37.5 S22 19.7	Kochab	137 17.9 N74	12.0
19	195 56.2	81 50.9 01.8	69 26.6 31.2	115 02.5 47.5	273 40.1 19.7	Markab	13 56.3 N15	08.9
20	210 58.6	96 50.1 01.3	84 27.5 30.8	130 04.4 47.6	288 42.8 19.7	Menkar	314 34.2 N 4	03.0
21	226 01.1	111 49.3 00.9	99 28.3 30.5	145 06.2 47.6	303 45.4 19.7	Menkent	148 28.8 S36	19.4
22	241 03.6	126 48.5 00.4	114 29.2 30.1	160 08.1 47.7	318 48.1 19.7	Miaplacidus	221 44.5 S69	40.6
23	256 06.0	141 47.7 23 00.0	129 30.0 29.7	175 09.9 47.7	333 50.7 19.8			
23 00	271 08.5	156 46.9 N22 59.5	144 30.9 N20 29.3	190 11.7 N22 47.7	348 53.4 S22 19.8	Mirfak	309 06.8 N49	49.4
01	286 11.0	171 46.1 59.1	159 31.7 29.0	205 13.6 47.8	3 56.1 19.8	Nunki	76 20.3 S26	18.7
02	301 13.4	186 45.3 58.6	174 32.6 28.6	220 15.4 47.8	18 58.7 19.8	Peacock	53 46.9 S56	46.1
03	316 15.9	201 44.5 58.2	189 33.4 28.2	235 17.3 47.9	34 01.4 19.8	Pollux	243 50.1 N28	03.3
04	331 18.3	216 43.7 57.7	204 34.3 27.8	250 19.1 47.9	49 04.0 19.9	Procyon	245 18.9 N 5	15.3
05	346 20.8	231 42.9 57.3	219 35.1 27.4	265 21.0 47.9	64 06.7 19.9			
06	1 23.3	246 42.0 N22 56.8	234 36.0 N20 27.1	280 22.8 N22 48.0	79 09.4 S22 19.9	Rasalhague	96 22.8 N12	33.9
07	16 25.7	261 41.2 56.4	249 36.8 26.7	295 24.6 48.0	94 12.0 19.9	Regulus	208 02.8 N12	01.2
08	31 28.2	276 40.4 55.9	264 37.7 26.3	310 26.5 48.0	109 14.7 19.9	Rigel	281 29.7 S 8	12.7
09	46 30.7	291 39.6 55.5	279 38.6 25.9	325 28.3 48.1	124 17.3 19.9	Rigil Kent.	140 16.2 S60	47.8
10	61 33.1	306 38.8 55.0	294 39.4 25.5	340 30.2 48.1	139 20.0 20.0	Sabik	102 32.9 S15	42.9
11	76 35.6	321 38.0 54.6	309 40.3 25.2	355 32.0 48.2	154 22.6 20.0			
12	91 38.1	336 37.2 N22 54.1	324 41.1 N20 24.8	10 33.9 N22 48.2	169 25.3 S22 20.0	Schedar	350 01.5 N56	28.6
13	106 40.5	351 36.4 53.6	339 42.0 24.4	25 35.7 48.2	184 28.0 20.0	Shaula	96 46.0 S37	06.0
14	121 43.0	6 35.6 53.2	354 42.8 24.0	40 37.5 48.3	199 30.6 20.0	Sirius	258 50.0 S16	42.0
15	136 45.5	21 34.8 52.7	9 43.7 23.6	55 39.4 48.3	214 33.3 20.1	Spica	158 50.2 S11	06.6
16	151 47.9	36 34.0 52.3	24 44.5 23.3	70 41.2 48.4	229 35.9 20.1	Suhail	223 06.2 S43	23.5
17	166 50.4	51 33.2 51.8	39 45.4 22.9	85 43.1 48.4	244 38.6 20.1			
18	181 52.8	66 32.4 N22 51.3	54 46.3 N20 22.5	100 44.9 N22 48.4	259 41.3 S22 20.1	Vega	80 50.8 N38	46.3
19	196 55.3	81 31.6 50.9	69 47.1 22.1	115 46.8 48.5	274 43.9 20.1	Zuben'ubi	137 25.2 S16	00.1
20	211 57.8	96 30.8 50.4	84 48.0 21.7	130 48.6 48.5	289 46.6 20.1			
21	227 00.2	111 30.0 49.9	99 48.8 21.4	145 50.4 48.6	304 49.2 20.2			
22	242 02.7	126 29.2 49.4	114 49.7 21.0	160 52.3 48.6	319 51.9 20.2			
23	257 05.2	141 28.4 49.0	129 50.5 20.6	175 54.1 48.6	334 54.6 20.2			
Pas. Mer.	h m 5 58.4	v -0.8 d 0.4	v 0.9 d 0.4	v 1.8 d 0.0	v 2.7 d 0.0			
							A. H. S.	Pos. Mer.
							o / h m	
							Venus	246 57.0 13 32
							Marte	234 01.1 14 22
							Júpiter	279 18.2 11 21
							Saturno	77 40.3 0 49



T.M.G. (TU)	SOL		LUNA				Lat.	Crepúsculo		Orto Sol	Orto Luna						
	A.H.G.	Dec.	A.H.G.	v	Dec.	d		P.H.	Náut.		Civil	21	22	23	24		
												h	m	h	m	h	m
M I E R C O L E S	21 00	179 35.8	N23 26.5	336 28.4	7.5	S24 53.1	7.5	57.4	N 72	□	□	□	■	■	01 32	{00 25 27}	
	01	194 35.7	26.5	350 54.9	7.6	24 45.6	7.7	57.4	N 70	□	□	□	■	■	00 53	{00 23 41}	
	02	209 35.6	26.5	5 21.5	7.7	24 37.9	7.9	57.4	68	□	□	□	■	■	01 21	{00 23 36}	
	03	224 35.4	26.5	19 48.2	7.7	24 30.0	8.0	57.5	66	□	□	□	■	■	00 31	{00 23 37}	
	04	239 35.3	26.5	34 14.9	7.8	24 22.0	8.1	57.5	64	///	///	01 31	00 26	{00 23 37}	23 32		
	05	254 35.2	26.6	48 41.7	7.8	24 13.9	8.3	57.5	62	///	///	02 09	23 36	{00 23 37}	23 28		
	06	269 35.0	N23 26.6	63 08.5	7.9	S24 05.6	8.4	57.5	60	///	00 49	02 36	23 17	23 20	23 22	23 22	
	07	284 34.9	26.6	77 35.4	7.9	23 57.2	8.6	57.5	N 58	///	01 40	02 56	23 01	23 10	23 16	23 20	
	08	299 34.8	26.6	92 02.3	8.0	23 48.6	8.7	57.6	56	///	02 10	03 13	22 48	23 01	23 10	23 18	
	09	314 34.6	26.6	106 29.3	8.0	23 39.9	8.8	57.6	54	00 45	02 33	03 27	22 36	22 53	23 05	23 16	
	10	329 34.5	26.6	120 56.3	8.1	23 31.1	9.0	57.6	52	01 32	02 51	03 40	22 25	22 45	23 01	23 14	
	11	344 34.3	26.6	135 23.4	8.1	23 22.1	9.1	57.6	50	02 00	03 06	03 51	22 16	22 39	22 56	23 12	
	12	359 34.2	N23 26.6	149 50.5	8.2	S23 13.0	9.3	57.6	45	02 46	03 36	04 13	21 56	22 24	22 48	23 08	
	13	14 34.1	26.6	164 17.7	8.3	23 03.7	9.4	57.7	N 40	03 17	03 59	04 31	21 40	22 12	22 40	23 05	
	14	29 33.9	26.6	178 45.0	8.3	22 54.3	9.5	57.7	35	03 40	04 17	04 47	21 26	22 02	22 34	23 03	
	15	44 33.8	26.6	193 12.3	8.4	22 44.8	9.7	57.7	30	03 59	04 32	05 00	21 15	21 53	22 28	23 00	
	16	59 33.7	26.5	207 39.7	8.5	22 35.1	9.8	57.7	N 20	04 28	04 57	05 22	20 54	21 38	22 18	22 56	
	17	74 33.5	26.5	222 07.2	8.5	22 25.3	9.9	57.7	0	04 50	05 18	05 41	20 36	21 24	22 09	22 53	
	18	89 33.4	N23 26.5	236 34.7	8.6	S22 15.4	10.1	57.8	S 10	05 27	05 53	06 16	20 02	20 59	21 53	22 46	
	19	104 33.3	26.5	251 02.3	8.6	22 05.3	10.2	57.8	20	05 43	06 10	06 34	19 44	20 45	21 44	22 42	
	20	119 33.1	26.5	265 29.9	8.7	21 55.1	10.3	57.8	30	05 59	06 29	06 56	19 23	20 29	21 34	22 38	
	21	134 33.0	26.5	279 57.6	8.8	21 44.8	10.5	57.8	35	06 08	06 40	07 08	19 11	20 20	21 28	22 36	
	22	149 32.9	26.5	294 25.4	8.8	21 34.3	10.6	57.8	40	06 17	06 52	07 22	18 57	20 09	21 22	22 33	
23	164 32.7	26.5	308 53.2	8.9	21 23.7	10.7	57.9	45	06 28	07 05	07 39	18 40	19 57	21 14	22 30		
J U E V E S	22 00	179 32.6	N23 26.5	323 21.1	8.9	S21 13.0	10.8	57.9	S 50	06 40	07 21	08 00	18 19	19 42	21 04	22 26	
	01	194 32.5	26.5	337 49.0	9.0	21 02.2	10.9	57.9	52	06 45	07 29	08 10	18 09	19 34	21 00	22 24	
	02	209 32.3	26.5	352 17.0	9.1	20 51.3	11.1	57.9	54	06 51	07 37	08 21	17 58	19 26	20 55	22 23	
	03	224 32.2	26.5	6 45.1	9.2	20 40.2	11.2	57.9	56	06 57	07 46	08 34	17 45	19 18	20 50	22 20	
	04	239 32.1	26.4	21 13.3	9.2	20 29.0	11.3	58.0	58	07 04	07 56	08 48	17 30	19 07	20 44	22 18	
	05	254 31.9	26.4	35 41.5	9.2	20 17.7	11.4	58.0	S 60	07 11	08 08	09 06	17 11	18 56	20 37	22 15	
	06	269 31.8	N23 26.4	50 09.7	9.4	S20 06.3	11.6	58.0									
	07	284 31.7	26.4	64 38.1	9.4	19 54.7	11.6	58.0	Lat.	Ocaso Sol	Crepúsculo		Ocaso Luna				
	08	299 31.5	26.4	79 06.5	9.4	19 43.1	11.8	58.0			Civil	Náut.	21	22	23	24	
	09	314 31.4	26.4	93 34.9	9.6	19 31.3	11.9	58.0	N 72	h m	h m	h m	h m	h m	h m	h m	
	10	329 31.3	26.4	108 03.5	9.6	19 19.4	12.0	58.1	N 70	□	□	□	■	■	05 41	08 30	
	11	344 31.1	26.3	122 32.1	9.6	19 07.4	12.1	58.1	68	□	□	□	■	■	06 19	08 44	
	12	359 31.0	N23 26.3	137 00.7	9.7	S18 55.3	12.2	58.1	66	□	□	□	■	■	04 01	06 44	
	13	14 30.8	26.3	151 29.4	9.8	18 43.1	12.3	58.1	64	□	□	□	■	■	04 49	07 04	
	14	29 30.7	26.3	165 58.2	9.9	18 30.8	12.4	58.1	62	22 33	///	///	03 01	05 20	07 20	09 12	
	15	44 30.6	26.3	180 27.1	9.9	18 18.4	12.5	58.2	60	21 54	///	///	03 46	05 42	07 33	09 18	
	16	59 30.4	26.2	194 56.0	10.0	18 05.9	12.7	58.2	58	21 28	23 15	///	04 16	06 00	07 44	09 24	
	17	74 30.3	26.2	209 25.0	10.0	17 53.2	12.7	58.2	N 58	21 07	22 23	///	04 38	06 16	07 53	09 29	
	18	89 30.2	N23 26.2	223 54.0	10.1	S17 40.5	12.9	58.2	56	20 51	21 53	///	04 56	06 28	08 01	09 33	
	19	104 30.0	26.2	238 23.1	10.1	17 27.6	12.9	58.2	54	20 36	21 31	23 19	05 12	06 39	08 09	09 37	
	20	119 29.9	26.1	252 52.2	10.3	17 14.7	13.0	58.2	52	20 24	21 13	22 31	05 25	06 49	08 15	09 40	
	21	134 29.8	26.1	267 21.5	10.2	17 01.7	13.2	58.3	50	20 13	20 58	22 03	05 36	06 58	08 21	09 43	
	22	149 29.6	26.1	281 50.7	10.4	16 48.5	13.2	58.3	45	19 50	20 28	21 18	06 00	07 16	08 34	09 50	
23	164 29.5	26.1	296 20.1	10.4	16 35.3	13.3	58.3	N 40	19 32	20 05	20 47	06 19	07 31	08 44	09 56		
V I E R N E S	23 00	179 29.4	N23 26.0	310 49.5	10.5	S16 22.0	13.4	58.3	35	19 17	19 47	20 24	06 35	07 44	08 53	10 01	
	01	194 29.2	26.0	325 19.0	10.5	16 08.6	13.5	58.3	30	19 04	19 32	20 05	06 49	07 55	09 00	10 05	
	02	209 29.1	26.0	339 48.5	10.6	15 55.1	13.6	58.3	20	18 42	19 07	19 36	07 12	08 14	09 13	10 12	
	03	224 29.0	26.0	354 18.1	10.6	15 41.5	13.7	58.4	N 10	18 23	18 46	19 13	07 32	08 30	09 25	10 18	
	04	239 28.8	25.9	8 47.7	10.7	15 27.8	13.8	58.4	0	18 06	18 28	18 54	07 51	08 45	09 35	10 24	
	05	254 28.7	25.9	23 17.4	10.7	15 14.0	13.8	58.4	S 10	17 48	18 11	18 37	08 09	08 59	09 46	10 30	
	06	269 28.6	N23 25.9	37 47.1	10.8	S15 00.2	14.0	58.4	20	17 30	17 54	18 21	08 29	09 15	09 57	10 36	
	07	284 28.4	25.8	52 16.9	10.9	14 46.2	14.0	58.4	30	17 08	17 35	18 05	08 52	09 33	10 10	10 43	
	08	299 28.3	25.8	66 46.8	10.9	14 32.2	14.1	58.4	35	16 56	17 24	17 56	09 05	09 43	10 17	10 47	
	09	314 28.2	25.8	81 16.7	11.0	14 18.1	14.2	58.5	40	16 42	17 12	17 46	09 20	09 55	10 25	10 51	
	10	329 28.0	25.7	95 46.7	11.0	14 03.9	14.2	58.5	45	16 25	16 59	17 36	09 38	10 09	10 35	10 57	
	11	344 27.9	25.7	110 16.7	11.1	13 49.7	14.4	58.5	S 50	16 04	16 43	17 24	10 00	10 26	10 46	11 03	
	12	359 27.8	N23 25.7	124 46.8	11.1	S13 35.3	14.4	58.5	52	15 54	16 35	17 19	10 11	10 34	10 51	11 05	
	13	14 27.6	25.6	139 16.9	11.2	13 20.9	14.5	58.5	54	15 43	16 27	17 13	10 23	10 43	10 57	11 08	
	14	29 27.5	25.6	153 47.1	11.2	13 06.4	14.6	58.5	56	15 30	16 18	17 07	10 36	10 52	11 03	11 12	
	15	44 27.4	25.5	168 17.3	11.2	12 51.8	14.6	58.5	58	15 16	16 08	17 00	10 52	11 03	11 11	11 15	
	16	59 27.2	25.5	182 47.5	11.4	12 37.2	14.7	58.6	S 60	14 58	15 56	16 53	11 11	11 16	11 19	11 20	
	17	74 27.1	25.5	197 17.9	11.3	12 22.5	14.8	58.6									
	18	89 27.0	N23 25.4	211 48.2	11.4	S12 07.7	14.8	58.6									
	19	104 26.8	25.4	226 18.6	11.5	11 52.9	14.9	58.6									
	20	119 26.7	25.3	240 49.1	11.5	11 38											



T.M.G. (TU)	ARIES			VENUS -3.9			MARTE +1.8			JUPITER -1.9			SATURNO +0.1			ESTRELLAS		
	A.H.G.	A.H.G.	Dec.	A.H.G.	Dec.	A.H.G.	Dec.	A.H.G.	Dec.	A.H.G.	Dec.	A.H.G.	Dec.	Nombre	A. H. S.	Dec.		
24 00	272 07.6	156 27.6	N22 48.5	144 51.4	N20 20.2	190 56.0	N22 48.7	349 57.2	S22 20.2	Acomar	315 32.2	S40 20.5						
01	287 10.1	171 26.8	48.0	159 52.2	19.8	205 57.8	48.7	4 59.9	20.2	Achernar	335 40.1	S57 17.0						
02	302 12.6	186 26.0	47.6	174 53.1	19.4	220 59.7	48.7	20 02.5	20.3	Acrux	173 29.9	S63 02.8						
03	317 15.0	201 25.2	47.1	189 54.0	19.1	236 01.5	48.8	35 05.2	20.3	Adhara	255 27.1	S28 57.4						
04	332 17.5	216 24.4	46.6	204 54.8	18.7	251 03.3	48.8	50 07.8	20.3	Aldebaran	291 10.4	N16 29.4						
05	347 20.0	231 23.6	46.1	219 55.7	18.3	266 05.2	48.9	65 10.5	20.3									
06	2 22.4	246 22.8	N22 45.6	234 56.5	N20 17.9	281 07.0	N22 48.9	80 13.2	S22 20.3	Alioth	166 36.1	N56 01.2						
07	17 24.9	261 22.0	45.2	249 57.4	17.5	296 08.9	48.9	95 15.8	20.3	Alkaid	153 12.7	N49 22.1						
08	32 27.3	276 21.2	44.7	264 58.2	17.1	311 10.7	49.0	110 18.5	20.4	Al Na'ir	28 05.8	S47 00.5						
S 09	47 29.8	291 20.4	44.2	279 59.1	16.8	326 12.6	49.0	125 21.1	20.4	Alnilam	276 05.0	S 1 12.3						
A 10	62 32.3	306 19.6	43.7	295 00.0	16.4	341 14.4	49.0	140 23.8	20.4	Alphard	218 14.1	S 8 36.8						
B 11	77 34.7	321 18.9	43.2	310 00.8	16.0	356 16.3	49.1	155 26.5	20.4									
A 12	92 37.2	336 18.1	N22 42.7	325 01.7	N20 15.6	11 18.1	N22 49.1	170 29.1	S22 20.4	Alphecca	126 25.9	N26 45.0						
D 13	107 39.7	351 17.3	42.2	340 02.5	15.2	26 19.9	49.2	185 31.8	20.5	Alpheratz	358 02.3	N29 01.9						
O 14	122 42.1	6 16.5	41.8	355 03.4	14.8	41 21.8	49.2	200 34.4	20.5	Altair	62 25.5	N 8 50.3						
15	137 44.6	21 15.7	41.3	10 04.2	14.4	56 23.6	49.2	215 37.1	20.5	Ankaa	353 33.3	S42 21.5						
16	152 47.1	36 14.9	40.8	25 05.1	14.1	71 25.5	49.3	230 39.8	20.5	Antares	112 48.1	S26 24.8						
17	167 49.5	51 14.1	40.3	40 06.0	13.7	86 27.3	49.3	245 42.4	20.5									
18	182 52.0	66 13.3	N22 39.8	55 06.8	N20 13.3	101 29.2	N22 49.3	260 45.1	S22 20.5	Arcturus	146 11.9	N19 14.2						
19	197 54.4	81 12.5	39.3	70 07.7	12.9	116 31.0	49.4	275 47.7	20.6	Atria	108 05.7	S69 00.8						
20	212 56.9	96 11.7	38.8	85 08.5	12.5	131 32.8	49.4	290 50.4	20.6	Avior	234 26.1	S59 28.6						
21	227 59.4	111 10.9	38.3	100 09.4	12.1	146 34.7	49.5	305 53.1	20.6	Bellatrix	278 51.7	N 6 20.6						
22	243 01.8	126 10.1	37.8	115 10.2	11.7	161 36.5	49.5	320 55.7	20.6	Betelgeuse	271 21.2	N 7 24.5						
23	258 04.3	141 09.4	37.3	130 11.1	11.4	176 38.4	49.5	335 58.4	20.6									
25 00	273 06.8	156 08.6	N22 36.8	145 12.0	N20 11.0	191 40.2	N22 49.6	351 01.0	S22 20.7	Canopus	264 04.7	S52 41.3						
01	288 09.2	171 07.8	36.3	160 12.8	10.6	206 42.1	49.6	6 03.7	20.7	Capella	281 01.6	N45 59.4						
02	303 11.7	186 07.0	35.8	175 13.7	10.2	221 43.9	49.6	21 06.4	20.7	Deneb	49 43.5	N45 14.4						
03	318 14.2	201 06.2	35.3	190 14.5	09.8	236 45.8	49.7	36 09.0	20.7	Denebola	182 52.0	N14 37.9						
04	333 16.6	216 05.4	34.8	205 15.4	09.4	251 47.6	49.7	51 11.7	20.7	Diphda	349 13.9	S18 02.5						
05	348 19.1	231 04.6	34.3	220 16.3	09.0	266 49.4	49.8	66 14.3	20.7									
06	3 21.6	246 03.8	N22 33.8	235 17.1	N20 08.6	281 51.3	N22 49.8	81 17.0	S22 20.8	Dubhe	194 13.6	N61 48.7						
07	18 24.0	261 03.1	33.3	250 18.0	08.2	296 53.1	49.8	96 19.7	20.8	Elnath	278 35.8	N28 36.1						
DOM 08	33 26.5	276 02.3	32.8	265 18.8	07.8	311 55.0	49.9	111 22.3	20.8	Eltanin	90 54.0	N51 29.3						
09	48 28.9	291 01.5	32.3	280 19.7	07.5	326 56.8	49.9	126 25.0	20.8	Enif	34 04.6	N 9 49.5						
10	63 31.4	306 00.7	31.7	295 20.6	07.1	341 58.7	49.9	141 27.6	20.8	Fomalhaut	15 43.6	S29 40.5						
11	78 33.9	320 59.9	31.2	310 21.4	06.7	357 00.5	50.0	156 30.3	20.9									
12	93 36.3	335 59.1	N22 30.7	325 22.3	N20 06.3	12 02.4	N22 50.0	171 33.0	S22 20.9	Gacrux	172 21.3	S57 03.6						
13	108 38.8	350 58.4	30.2	340 23.1	05.9	27 04.2	50.1	186 35.6	20.9	Gienah	176 10.9	S17 29.2						
O 14	123 41.3	5 57.6	29.7	355 24.0	05.5	42 06.0	50.1	201 38.3	20.9	Hadar	149 13.6	S60 19.7						
15	138 43.7	20 56.8	29.2	10 24.9	05.1	57 07.9	50.1	216 40.9	20.9	Hamal	328 21.4	N23 24.8						
16	153 46.2	35 56.0	28.7	25 25.7	04.7	72 09.7	50.2	231 43.6	21.0	Kaus Aust.	84 07.3	S34 23.5						
17	168 48.7	50 55.2	28.1	40 26.6	04.3	87 11.6	50.2	246 46.3	21.0									
18	183 51.1	65 54.5	N22 27.6	55 27.4	N20 03.9	102 13.4	N22 50.2	261 48.9	S22 21.0	Kochab	137 18.0	N74 12.0						
19	198 53.6	80 53.7	27.1	70 28.3	03.5	117 15.3	50.3	276 51.6	21.0	Markab	13 56.2	N15 08.9						
20	213 56.1	95 52.9	26.6	85 29.2	03.2	132 17.1	50.3	291 54.2	21.0	Menkar	314 34.2	N 4 03.1						
21	228 58.5	110 52.1	26.0	100 30.0	02.8	147 19.0	50.3	306 56.9	21.0	Menkent	148 28.8	S36 19.4						
22	244 01.0	125 51.3	25.5	115 30.9	02.4	162 20.8	50.4	321 59.6	21.1	Miaplacidus	221 44.5	S69 40.6						
23	259 03.4	140 50.6	25.0	130 31.7	02.0	177 22.7	50.4	337 02.2	21.1									
26 00	274 05.9	155 49.8	N22 24.5	145 32.6	N20 01.6	192 24.5	N22 50.5	352 04.9	S22 21.1	Mirfak	309 06.8	N49 49.4						
01	289 08.4	170 49.0	23.9	160 33.5	01.2	207 26.3	50.5	7 07.5	21.1	Nunki	76 20.2	S26 18.7						
02	304 10.8	185 48.2	23.4	175 34.3	00.8	222 28.2	50.5	22 10.2	21.1	Peacock	53 46.8	S56 46.1						
03	319 13.3	200 47.5	22.9	190 35.2	00.4	237 30.0	50.6	37 12.9	21.2	Pollux	243 50.1	N28 03.3						
04	334 15.8	215 46.7	22.3	205 36.1	00.0	252 31.9	50.6	52 15.5	21.2	Procyon	245 18.9	N 5 15.3						
05	349 18.2	230 45.9	21.8	220 36.9	19 59.6	267 33.7	50.6	67 18.2	21.2									
06	4 20.7	245 45.1	N22 21.3	235 37.8	N19 59.2	282 35.6	N22 50.7	82 20.9	S22 21.2	Rasalhague	96 22.8	N12 33.9						
07	19 23.2	260 44.3	20.7	250 38.6	58.8	297 37.4	50.7	97 23.5	21.2	Regulus	208 02.8	N12 01.2						
08	34 25.6	275 43.6	20.2	265 39.5	58.4	312 39.3	50.7	112 26.2	21.2	Rigel	281 29.7	S 8 12.6						
L 09	49 28.1	290 42.8	19.7	280 40.4	58.0	327 41.1	50.8	127 28.8	21.3	Rigel Kent.	140 16.3	S60 47.8						
10	64 30.5	305 42.0	19.1	295 41.2	57.6	342 42.9	50.8	142 31.5	21.3	Sabik	102 32.9	S15 42.9						
11	79 33.0	320 41.3	18.6	310 42.1	57.2	357 44.8	50.9	157 34.2	21.3									
12	94 35.5	335 40.5	N22 18.1	325 43.0	N19 56.8	12 46.6	N22 50.9	172 36.8	S22 21.3	Schedar	350 01.5	N56 28.6						
S 13	109 37.9	350 39.7	17.5	340 43.8	56.4	27 48.5	50.9	187 39.5	21.3	Shaula	96 46.0	S37 06.0						
14	124 40.4	5 38.9	17.0	355 44.7	56.0	42 50.3	51.0	202 42.1	21.4	Sirius	258 50.0	S16 42.0						
15	139 42.9	20 38.2	16.4	10 45.5	55.6	57 52.2	51.0	217 44.8	21.4	Spica	158 50.2	S11 06.6						
16	154 45.3	35 37.4	15.9	25 46.4	55.2	72 54.0	51.0	232 47.5	21.4	Suhail	223 06.2	S43 23.5						
17	169 47.8	50 36.6	15.3	40 47.3	54.8	87 55.9	51.1	247 50.1	21.4									
18	184 50.3	65 35.9	N22 14.8	55 48.1	N19 54.4	102 57.7	N22 51.1	262 52.8	S22 21.4	Vega	80 50.8	N38 46.3						
19	199 52.7	80 35.1	14.2	70 49.0	54.1	117 59.6	51.1											



T.M.G. (TU)	SOL		LUNA				Lat.	Crepúsculo		Orto Sol	Orto Luna						
	A.H.G.	Dec.	A.H.G.	v	Dec.	d		P.H.	Naut.		Civil	24	25	26	27		
												h	m	h	m	h	m
S A B A D O	00	179 26.2	N23 25.2	298 51.3	11.7	S10 37.7	15.3	58.7	N 72	□	□	□	{00 23 27}	23 12	22 35	21 44	
	01	194 26.0	25.1	313 22.0	11.7	10 22.4	15.2	58.7	N 70	□	□	□	{00 23 27}	23 15	22 47	22 11	
	02	209 25.9	25.1	327 52.7	11.8	10 07.2	15.4	58.7	68	□	□	□	{00 23 27}	23 17	22 57	22 32	
	03	224 25.8	..	25.0	342 23.5	11.7	9 51.8	15.4	58.7	66	□	□	□	23 32	23 18	23 05	22 49
	04	239 25.6	..	25.0	356 54.2	11.8	9 36.4	15.4	58.7	64	///	///	01 33	23 28	23 20	23 12	23 03
	05	254 25.5	..	24.9	11 25.0	11.9	9 21.0	15.5	58.7	62	///	///	02 11	23 25	23 21	23 18	23 14
	06	269 25.4	N23 24.9	25 55.9	11.9	S 9 05.5	15.6	58.8	60	///	00 51	02 37	23 22	23 22	23 23	23 24	
	07	284 25.2	..	24.8	40 26.8	11.9	8 49.9	15.6	58.8	N 58	///	01 42	02 58	23 20	23 23	23 28	23 33
	08	299 25.1	..	24.8	54 57.7	11.9	8 34.3	15.6	58.8	56	///	02 12	03 14	23 18	23 24	23 32	23 41
	09	314 25.0	..	24.7	69 28.6	12.0	8 18.7	15.7	58.8	54	00 47	02 34	03 29	23 16	23 25	23 36	23 48
	10	329 24.8	..	24.7	83 59.6	12.0	8 03.0	15.8	58.8	52	01 34	02 52	03 41	23 14	23 26	23 39	23 54
	11	344 24.7	..	24.6	98 30.6	12.0	7 47.2	15.8	58.8	50	02 02	03 07	03 52	23 12	23 27	23 42	24 00
	12	359 24.6	N23 24.6	113 01.6	12.1	S 7 31.4	15.8	58.8	45	02 47	03 37	04 14	23 08	23 28	23 49	24 12	
	13	14 24.4	..	24.5	127 32.7	12.1	7 15.6	15.9	58.8	N 40	03 18	03 59	04 32	23 05	23 30	23 55	24 22
	14	29 24.3	..	24.5	142 03.8	12.1	6 59.7	15.9	58.9	35	03 41	04 18	04 47	23 03	23 31	24 00	00 00
	15	44 24.2	..	24.4	156 34.9	12.1	6 43.8	16.0	58.9	30	03 59	04 33	05 00	23 00	23 32	24 04	00 04
	16	59 24.0	..	24.4	171 06.0	12.2	6 27.8	16.0	58.9	20	04 29	04 58	05 22	22 56	23 34	24 12	00 12
	17	74 23.9	..	24.3	185 37.2	12.2	6 11.8	16.0	58.9	N 10	04 51	05 18	05 41	22 53	23 35	24 19	00 19
	18	89 23.8	N23 24.3	200 08.4	12.1	S 5 55.8	16.1	58.9	0	05 10	05 36	05 59	22 49	23 37	24 25	00 25	
	19	104 23.6	..	24.2	214 39.5	12.3	5 39.7	16.1	58.9	S 10	05 27	05 53	06 16	22 46	23 38	24 32	00 32
	20	119 23.5	..	24.1	229 10.8	12.2	5 23.6	16.1	58.9	20	05 43	06 11	06 35	22 42	23 40	24 39	00 39
	21	134 23.4	..	24.1	243 42.0	12.2	5 07.5	16.2	58.9	30	06 00	06 30	06 56	22 38	23 42	24 47	00 47
	22	149 23.2	..	24.0	258 13.2	12.3	4 51.3	16.2	58.9	35	06 09	06 40	07 08	22 36	23 43	24 51	00 51
23	164 23.1	..	24.0	272 44.5	12.3	4 35.1	16.2	59.0	40	06 18	06 52	07 23	22 33	23 45	24 57	00 57	
24	179 23.0	N23 23.9	287 15.8	12.2	S 4 18.9	16.2	59.0	45	06 28	07 06	07 39	22 30	23 46	25 03	01 03		
25	194 22.8	..	23.8	301 47.0	12.3	4 02.7	16.3	59.0	S 50	06 40	07 22	08 00	22 26	23 48	25 11	01 11	
02	209 22.7	..	23.8	316 18.3	12.3	3 46.4	16.3	59.0	52	06 45	07 29	08 10	22 24	23 49	25 14	01 14	
03	224 22.6	..	23.7	330 49.6	12.4	3 30.1	16.3	59.0	54	06 51	07 37	08 21	22 23	23 50	25 18	01 18	
04	239 22.4	..	23.6	345 21.0	12.3	3 13.8	16.4	59.0	56	06 57	07 46	08 34	22 20	23 51	25 23	01 23	
05	254 22.3	..	23.6	359 52.3	12.3	2 57.4	16.3	59.0	58	07 04	07 57	08 48	22 18	23 52	25 27	01 27	
06	269 22.2	N23 23.5	14 23.6	12.3	S 2 41.1	16.4	59.0	S 60	07 11	08 08	09 06	22 15	23 53	25 33	01 33		
07	284 22.0	..	23.5	28 54.9	12.4	2 24.7	16.4	59.0									
08	299 21.9	..	23.4	43 26.3	12.3	2 08.3	16.4	59.1	Lat.	Ocaso Sol	Crepúsculo Civil	Naut.	Ocaso Luna	24	25	26	27
09	314 21.8	..	23.3	57 57.6	12.3	1 51.9	16.4	59.1	N 72	h m	h m	h m	h m	h m	h m	h m	h m
10	329 21.6	..	23.2	72 28.9	12.3	1 35.5	16.5	59.1	N 70	□	□	□	08 30	10 53	13 14	15 51	
11	344 21.5	..	23.2	87 00.2	12.4	1 19.0	16.4	59.1	68	□	□	□	08 44	10 55	13 05	15 26	
12	359 21.4	N23 23.1	101 31.6	12.3	S 1 02.6	16.5	59.1	66	□	□	□	08 55	10 57	12 58	15 07		
13	14 21.2	..	23.0	116 02.9	12.3	0 46.1	16.4	59.1	64	□	□	□	09 04	10 59	12 53	14 52	
14	29 21.1	..	23.0	130 34.2	12.3	0 29.7	16.5	59.1	62	22 32	///	///	09 12	11 00	12 48	14 40	
15	44 21.0	..	22.9	145 05.5	12.3	S 0 13.2	16.5	59.1	60	21 54	///	///	09 18	11 01	12 44	14 30	
16	59 20.8	..	22.8	159 36.8	12.3	N 0 03.3	16.5	59.1	58	21 28	23 13	///	09 24	11 02	12 40	14 21	
17	74 20.7	..	22.8	174 08.1	12.3	0 19.8	16.5	59.1	N 58	21 07	22 23	///	09 29	11 03	12 37	14 14	
18	89 20.6	N23 22.7	188 39.4	12.3	N 0 36.3	16.5	59.2	56	20 51	21 53	///	09 33	11 03	12 34	14 07		
19	104 20.4	..	22.6	203 10.7	12.2	0 52.8	16.5	59.2	54	20 36	21 31	23 17	09 37	11 04	12 31	14 01	
20	119 20.3	..	22.5	217 41.9	12.3	1 09.3	16.5	59.2	52	20 24	21 13	22 31	09 40	11 05	12 29	13 56	
21	134 20.2	..	22.4	232 13.2	12.2	1 25.8	16.4	59.2	50	20 13	20 58	22 03	09 43	11 05	12 27	13 51	
22	149 20.0	..	22.4	246 44.4	12.2	1 42.2	16.5	59.2	45	19 51	20 28	21 18	09 50	11 06	12 23	13 40	
23	164 19.9	..	22.3	261 15.6	12.2	1 58.7	16.5	59.2	N 40	19 33	20 06	20 47	09 56	11 07	12 19	13 32	
26	179 19.8	N23 22.2	275 46.8	12.2	N 2 15.2	16.5	59.2	35	19 18	19 47	20 24	10 01	11 08	12 16	13 25		
01	194 19.6	..	22.1	290 18.0	12.2	2 31.7	16.4	59.2	30	19 05	19 32	20 06	10 05	11 09	12 13	13 18	
02	209 19.5	..	22.1	304 49.2	12.1	2 48.1	16.5	59.2	20	18 43	19 07	19 37	10 12	11 10	12 08	13 07	
03	224 19.4	..	22.0	319 20.3	12.1	3 04.6	16.4	59.2	N 10	18 24	18 47	19 14	10 18	11 11	12 03	12 58	
04	239 19.2	..	21.9	333 51.4	12.1	3 21.0	16.5	59.2	0	18 06	18 29	18 55	10 24	11 12	11 59	12 49	
05	254 19.1	..	21.8	348 22.5	12.0	3 37.5	16.4	59.2	S 10	17 49	18 12	18 38	10 30	11 13	11 55	12 40	
06	269 19.0	N23 21.7	2 53.5	12.0	N 3 53.9	16.4	59.3	20	17 30	17 54	18 22	10 36	11 14	11 51	12 30		
07	284 18.9	..	21.6	17 24.5	12.0	4 10.3	16.4	59.3	30	17 09	17 35	18 05	10 43	11 15	11 46	12 19	
08	299 18.7	..	21.6	31 55.5	12.0	4 26.7	16.3	59.3	35	16 57	17 25	17 57	10 47	11 15	11 43	12 13	
09	314 18.6	..	21.5	46 26.5	11.9	4 43.0	16.4	59.3	40	16 43	17 13	17 47	10 51	11 16	11 40	12 06	
10	329 18.5	..	21.4	60 57.4	11.9	4 59.4	16.3	59.3	45	16 26	17 00	17 37	10 57	11 17	11 37	11 58	
11	344 18.3	..	21.3	75 28.3	11.9	5 15.7	16.3	59.3	S 50	16 05	16 44	17 25	11 03	11 18	11 32	11 48	
12	359 18.2	N23 21.2	89 59.2	11.8	N 5 32.0	16.3	59.3	52	15 55	16 36	17 20	11 05	11 18	11 30	11 44		
13	14 18.1	..	21.1	104 30.0	11.8	5 48.3	16.2	59.3	54	15 44	16 28	17 14	11 08	11 18	11 28	11 39	
14	29 17.9	..	21.0	119 00.8	11.8	6 04.5	16.3	59.3	56	15 31	16 19	17 08	11 12	11 19	11 26	11 34	
15	44 17.8	..	21.0	133 31.6	11.7	6 20.8	16.2	59.3	58	15 17	16 09	17 01	11 15	11 19	11 23	11 28	
16	59 17.7	..	20.9	148 02.3	11.7	6 37.0	16.1	59.3	S 60	14 59	15 57	16 54	11 20	11 20	11 20	11 21	
17	74 17.5	..	20.8	162 33.													



T.M.G. (TU)	ARIES			VENUS -3.9			MARTE +1.8			JUPITER -1.9			SATURNO +0.0			ESTRELLAS		
	A.H.G.	A.H.G.	Dec.	A.H.G.	Dec.	A.H.G.	Dec.	A.H.G.	Dec.	A.H.G.	Dec.	A.H.G.	Dec.	Nombre	A. H. S.	Dec.		
M A R T E S	27 00	275 05.0	155 31.2 N22	11.5	145 53.3 N19	52.1	193 08.8 N22	51.3	353 08.8 S22	21.5	Acamar	315 32.2 S40	20.5					
	01	290 07.5	170 30.5	10.9	160 54.2	51.7	208 10.6	51.3	8 11.4	21.6	Achernar	335 40.0 S57	17.0					
	02	305 10.0	185 29.7	10.4	175 55.0	51.3	223 12.5	51.4	23 14.1	21.6	Acrux	173 29.9 S63	02.8					
	03	320 12.4	200 29.0	09.8	190 55.9	50.9	238 14.3	51.4	38 16.7	21.6	Adhara	255 27.1 S28	57.3					
	04	335 14.9	215 28.2	09.3	205 56.8	50.5	253 16.2	51.5	53 19.4	21.6	Aldebaran	291 10.4 N16	29.4					
	05	350 17.4	230 27.4	08.7	220 57.6	50.1	268 18.0	51.5	68 22.1	21.6								
	06	5 19.8	245 26.7 N22	08.1	235 58.5 N19	49.7	283 19.9 N22	51.5	83 24.7 S22	21.6	Alioth	166 36.1 N56	01.2					
	07	20 22.3	260 25.9	07.6	250 59.4	49.3	298 21.7	51.6	98 27.4	21.7	Alkaid	153 12.7 N49	22.1					
	08	35 24.8	275 25.1	07.0	266 00.2	48.9	313 23.6	51.6	113 30.0	21.7	Al Na'ir	28 05.8 S47	00.5					
	09	50 27.2	290 24.4	06.5	281 01.1	48.5	328 25.4	51.6	128 32.7	21.7	Alnilam	276 05.0 S 1	12.3					
	10	65 29.7	305 23.6	05.9	296 02.0	48.1	343 27.2	51.7	143 35.4	21.7	Alphard	218 14.1 S 8	36.8					
	11	80 32.2	320 22.8	05.3	311 02.8	47.6	358 29.1	51.7	158 38.0	21.7								
	12	95 34.6	335 22.1 N22	04.8	326 03.7 N19	47.2	13 30.9 N22	51.7	173 40.7 S22	21.8	Alphecca	126 25.9 N26	45.0					
	13	110 37.1	350 21.3	04.2	341 04.6	46.8	28 32.8	51.8	188 43.4	21.8	Alpheratz	358 02.3 N29	01.9					
	14	125 39.5	5 20.6	03.6	356 05.4	46.4	43 34.6	51.8	203 46.0	21.8	Altair	62 25.5 N 8	50.3					
	15	140 42.0	20 19.8	03.1	11 06.3	46.0	58 36.5	51.8	218 48.7	21.8	Ankaa	353 33.3 S42	21.5					
	16	155 44.5	35 19.0	02.5	26 07.2	45.6	73 38.3	51.9	233 51.3	21.8	Antares	112 48.1 S26	24.8					
	17	170 46.9	50 18.3	01.9	41 08.0	45.2	88 40.2	51.9	248 54.0	21.8								
	18	185 49.4	65 17.5 N22	01.3	56 08.9 N19	44.8	103 42.0 N22	51.9	263 56.7 S22	21.9	Arcturus	146 11.9 N19	14.2					
	19	200 51.9	80 16.8	00.8	71 09.8	44.4	118 43.9	52.0	278 59.3	21.9	Atria	108 05.8 S69	00.8					
	20	215 54.3	95 16.0	00.2	86 10.6	44.0	133 45.7	52.0	294 02.0	21.9	Avior	234 26.1 S59	28.6					
	21	230 56.8	110 15.2	00.0	101 11.5	43.6	148 47.6	52.0	309 04.6	21.9	Bellatrix	278 51.7 N 6	20.6					
	22	245 59.3	125 14.5	00.0	116 12.4	43.2	163 49.4	52.1	324 07.3	21.9	Betelgeuse	271 21.2 N 7	24.5					
23	261 01.7	140 13.7	00.0	131 13.2	42.8	178 51.2	52.1	339 10.0	22.0									
M I E R C O L E S	28 00	276 04.2	155 13.0 N21	57.9	146 14.1 N19	42.4	193 53.1 N22	52.1	354 12.6 S22	22.0	Canopus	264 04.7 S52	41.3					
	01	291 06.7	170 12.2	57.3	161 15.0	42.0	208 54.9	52.2	9 15.3	22.0	Capella	281 01.6 N45	59.4					
	02	306 09.1	185 11.5	56.7	176 15.8	41.6	223 56.8	52.2	24 18.0	22.0	Deneb	49 43.5 N45	14.4					
	03	321 11.6	200 10.7	56.1	191 16.7	41.2	238 58.6	52.2	39 20.6	22.0	Denebola	182 52.0 N14	37.9					
	04	336 14.0	215 10.0	55.6	206 17.6	40.8	254 00.5	52.3	54 23.3	22.0	Diphda	349 13.9 S18	02.5					
	05	351 16.5	230 09.2	55.0	221 18.4	40.4	269 02.3	52.3	69 25.9	22.1								
	06	6 19.0	245 08.5 N21	54.4	236 19.3 N19	40.0	284 04.2 N22	52.3	84 28.6 S22	22.1	Dubhe	194 13.6 N61	48.7					
	07	21 21.4	260 07.7	53.8	251 20.2	39.6	299 06.0	52.4	99 31.3	22.1	Elnath	278 35.8 N28	36.1					
	08	36 23.9	275 07.0	53.2	266 21.0	39.2	314 07.9	52.4	114 33.9	22.1	Eltanin	90 54.0 N51	29.3					
	09	51 26.4	290 06.2	52.6	281 21.9	38.8	329 09.7	52.5	129 36.6	22.1	Enif	34 04.6 N 9	49.5					
	10	66 28.8	305 05.4	52.0	296 22.8	38.3	344 11.6	52.5	144 39.2	22.2	Fomalhaut	15 43.6 S29	40.5					
	11	81 31.3	320 04.7	51.4	311 23.6	37.9	359 13.4	52.5	159 41.9	22.2								
	12	96 33.8	335 03.9 N21	50.8	326 24.5 N19	37.5	14 15.3 N22	52.6	174 44.6 S22	22.2	Gacrux	172 21.3 S57	03.6					
	13	111 36.2	350 03.2	50.2	341 25.4	37.1	29 17.1	52.6	189 47.2	22.2	Gienah	176 10.9 S17	29.2					
	14	126 38.7	5 02.5	49.7	356 26.2	36.7	44 18.9	52.6	204 49.9	22.2	Hadar	149 13.6 S60	19.7					
	15	141 41.1	20 01.7	49.1	11 27.1	36.3	59 20.8	52.7	219 52.6	22.2	Hamal	328 21.4 N23	24.8					
	16	156 43.6	35 01.0	48.5	26 28.0	35.9	74 22.6	52.7	234 55.2	22.3	Kaus Aust.	84 07.3 S34	23.5					
	17	171 46.1	50 00.2	47.9	41 28.8	35.5	89 24.5	52.7	249 57.9	22.3								
	18	186 48.5	64 59.5 N21	47.3	56 29.7 N19	35.1	104 26.3 N22	52.8	265 00.5 S22	22.3	Kochab	137 18.0 N74	12.0					
	19	201 51.0	79 58.7	46.7	71 30.6	34.7	119 28.2	52.8	280 03.2	22.3	Markab	13 56.2 N15	08.9					
	20	216 53.5	94 58.0	46.1	86 31.4	34.3	134 30.0	52.8	295 05.9	22.3	Menkar	314 34.1 N 4	03.1					
	21	231 55.9	109 57.2	45.5	101 32.3	33.9	149 31.9	52.9	310 08.5	22.4	Merak	148 28.8 S36	19.4					
	22	246 58.4	124 56.5	44.9	116 33.2	33.4	164 33.7	52.9	325 11.2	22.4	Miaplacidus	221 44.6 S69	40.6					
23	262 00.9	139 55.7	44.3	131 34.1	33.0	179 35.6	52.9	340 13.9	22.4									
J U E V E S	29 00	277 03.3	154 55.0 N21	43.7	146 34.9 N19	32.6	194 37.4 N22	53.0	355 16.5 S22	22.4	Mirfak	309 06.7 N49	49.4					
	01	292 05.8	169 54.2	43.0	161 35.8	32.2	209 39.3	53.0	10 19.2	22.4	Nunki	76 20.2 S26	18.7					
	02	307 08.3	184 53.5	42.4	176 36.7	31.8	224 41.1	53.0	25 21.8	22.4	Peacock	53 46.8 S56	46.1					
	03	322 10.7	199 52.8	41.8	191 37.5	31.4	239 43.0	53.1	40 24.5	22.5	Pollux	243 50.1 N28	03.3					
	04	337 13.2	214 52.0	41.2	206 38.4	31.0	254 44.8	53.1	55 27.2	22.5	Procyon	245 18.9 N 5	15.3					
	05	352 15.6	229 51.3	40.6	221 39.3	30.6	269 46.7	53.1	70 29.8	22.5								
	06	7 18.1	244 50.5 N21	40.0	236 40.1 N19	30.2	284 48.5 N22	53.2	85 32.5 S22	22.5	Rasalhague	96 22.8 N12	33.9					
	07	22 20.6	259 49.8	39.4	251 41.0	29.7	299 50.4	53.2	100 35.2	22.5	Regulus	208 02.8 N12	01.2					
	08	37 23.0	274 49.1	38.8	266 41.9	29.3	314 52.2	53.2	115 37.8	22.5	Rigel	281 29.7 S 8	12.6					
	09	52 25.5	289 48.3	38.2	281 42.8	28.9	329 54.0	53.2	130 40.5	22.6	Rigil Kent.	140 16.3 S60	47.8					
	10	67 28.0	304 47.6	37.5	296 43.6	28.5	344 55.9	53.3	145 43.1	22.6	Sabik	102 32.9 S15	42.9					
	11	82 30.4	319 46.8	36.9	311 44.5	28.1	359 57.7	53.3	160 45.8	22.6								
	12	97 32.9	334 46.1 N21	36.3	326 45.4 N19	27.7	14 59.6 N22	53.3	175 48.5 S22	22.6	Schedar	350 01.5 N56	28.6					
	13	112 35.4	349 45.4	35.7	341 46.2	27.3	30 01.4	53.4	190 51.1	22.6	Shaula	96 46.0 S37	06.0					
	14	127 37.8	4 44.6	35.1	356 47.1	26.9	45 03.3	53.4	205 53.8	22.7	Sirius	258 50.0 S16	42.0					
	15	142 40.3	19 43.9	34.4	11 48.0	26.4	60 05.1	53.4	220 56.5	22.7	Spica	158 50.2 S11	06.5					
	16	157 42.8	34 43.1	33.8	26 48.9	26.0	75 07.0	53.5	235 59.1	22.7	Suhail	223 06.2 S43	23.5					
	17	172 45.2	49 42.4	33.2	41 49.7	25.6	90 08.8	53.5	251 01.8	22.7								
	18	187 47.7	64 41.7 N21	32.6	56 50.6 N19	25.2	105 10.7 N22	53.5	266 04.4 S22	22.7	Vega	80 50.8 N38	46.3					
	19	202 50.1	79 40.9	32.0	71 51.5	24.8	120 12.5	53.6	281 07.1	22.7	Zuben'ubi	137 25.2 S16	00.1					
	20	217 52.6	94 40.2	31.3	86 52.3	24.4	135 14.4	53.6	296 09.8	22.8								



T.M.G. (TU)	SOL		LUNA				Lat.	Crepúsculo		Orto Sol	Orto Luna									
	A.H.G.	Dec.	A.H.G.	v	Dec.	d		P.H.	Naut.		Civil	27	28	29	30					
												h m	h m	h m	h m	h m	h m	h m	h m	
MARTES	00	179 16.6	N23 20.1	264 06.4	11.3	N 8	45.3	15.9	59.4	N 72	0	0	0	21 44	0	0	0	0		
	01	194 16.5	20.0	278 36.7	11.2	9	01.2	15.8	59.4	N 70	0	0	0	22 11	0	0	0	0		
	02	209 16.4	19.9	293 06.9	11.2	9	17.0	15.8	59.4	68	0	0	0	22 32	0	0	0	0		
	03	224 16.2	..	19.8	307 37.1	11.1	9	32.8	15.7	59.4	66	0	0	0	22 49	0	0	0		
	04	239 16.1	19.7	322 07.2	11.1	9	48.5	15.7	59.4	64	///	///	01 36	23 03	22 51	22 33	0	0		
	05	254 16.0	19.6	336 37.3	11.0	10	04.2	15.6	59.4	62	///	///	02 13	23 14	23 11	23 09	23 09	0		
	06	269 15.8	N23 19.5	351 07.3	11.0	N10	19.8	15.6	59.4	60	///	00 56	02 39	23 24	23 27	23 35	23 52	0		
	07	284 15.7	19.4	5 37.3	10.9	10	35.4	15.6	59.4	N 58	///	01 45	02 59	23 33	23 41	23 55	24 21	0		
	08	299 15.6	19.3	20 07.2	10.8	10	51.0	15.4	59.4	56	///	02 14	03 16	23 41	23 53	24 12	00 12	0		
	09	314 15.4	..	19.2	34 37.0	10.8	11	06.4	15.4	59.4	54	00 52	02 36	03 30	23 48	24 04	00 04	00 27	0	
	10	329 15.3	19.1	49 06.8	10.7	11	21.8	15.4	59.4	52	01 36	02 54	03 42	23 54	24 13	00 13	00 40	0		
	11	344 15.2	19.0	63 36.5	10.6	11	37.2	15.3	59.4	50	02 04	03 09	03 53	24 00	00 00	00 22	00 51	0		
	12	359 15.1	N23 18.9	78 06.1	10.6	N11	52.5	15.2	59.4	45	02 49	03 38	04 15	24 12	00 12	00 39	01 14	0		
	13	14 14.9	18.8	92 35.7	10.5	12	07.7	15.2	59.4	N 40	03 19	04 01	04 33	24 22	00 22	00 54	01 33	0		
	14	29 14.8	18.7	107 05.2	10.5	12	22.9	15.1	59.4	35	03 42	04 19	04 48	00 00	00 31	01 07	01 49	0		
	15	44 14.7	..	18.6	121 34.7	10.4	12	38.0	15.1	59.4	30	04 01	04 34	05 01	00 04	00 39	01 18	02 03	0	
	16	59 14.5	18.5	136 04.1	10.3	12	53.1	15.0	59.4	20	04 29	04 59	05 23	00 12	00 52	01 37	02 27	0		
	17	74 14.4	18.4	150 33.4	10.2	13	08.1	14.9	59.4	N 10	04 52	05 19	05 42	00 19	01 04	01 54	02 47	0		
	18	89 14.3	N23 18.3	165 02.6	10.2	N13	23.0	14.8	59.4	0	05 11	05 37	06 00	00 25	01 15	02 09	03 07	0		
	19	104 14.2	18.2	179 31.8	10.0	13	37.8	14.8	59.4	S 10	05 28	05 54	06 17	00 32	01 27	02 25	03 26	0		
	20	119 14.0	18.1	194 00.8	10.1	13	52.6	14.7	59.4	20	05 44	06 11	06 35	00 39	01 39	02 42	03 47	0		
	21	134 13.9	..	17.9	208 29.9	9.9	14	07.3	14.6	59.4	30	06 00	06 30	06 56	00 47	01 53	03 02	04 12	0	
	22	149 13.8	17.8	222 58.8	9.9	14	21.9	14.5	59.4	35	06 09	06 41	07 09	00 51	02 02	03 14	04 26	0		
23	164 13.6	17.7	237 27.7	9.8	14	36.4	14.5	59.4	40	06 18	06 52	07 23	00 57	02 11	03 27	04 43	0			
28 00	179 13.5	N23 17.6	251 56.5	9.7	N14	50.9	14.3	59.4	45	06 28	07 06	07 39	01 03	02 22	03 43	05 03	0			
01	194 13.4	17.5	266 25.2	9.6	15	05.2	14.3	59.4	S 50	06 40	07 22	08 00	01 11	02 36	04 03	05 28	0			
02	209 13.2	17.4	280 53.8	9.6	15	19.5	14.2	59.4	52	06 45	07 29	08 10	01 14	02 42	04 12	05 41	0			
03	224 13.1	..	17.3	295 22.4	9.4	15	33.7	14.2	59.4	54	06 51	07 37	08 21	01 18	02 49	04 23	05 55	0		
04	239 13.0	17.2	309 50.8	9.4	15	47.9	14.0	59.4	56	06 57	07 46	08 33	01 23	02 57	04 35	06 12	0			
05	254 12.9	17.0	324 19.2	9.3	16	01.9	13.9	59.4	58	07 04	07 56	08 48	01 27	03 06	04 49	06 32	0			
06	269 12.7	N23 16.9	338 47.5	9.3	N16	15.8	13.9	59.4	S 60	07 11	08 08	09 05	01 33	03 16	05 05	06 57	0			
07	284 12.6	16.8	353 15.8	9.1	16	29.7	13.8	59.4	Lat.	Ocaso Sol	Crepúsculo Civil	Naut.	27	28	29	30	0			
08	299 12.5	16.7	7 43.9	9.1	16	43.5	13.6	59.4	N 70	h m	h m	h m	h m	h m	h m	h m	h m	0		
09	314 12.3	..	16.6	22 12.0	9.0	16	57.1	13.6	59.4	N 72	0	0	0	15 51	0	0	0	0		
10	329 12.2	16.4	36 40.0	8.8	17	10.7	13.5	59.4	N 70	0	0	0	15 26	18 32	0	0	0	0		
11	344 12.1	16.3	51 07.8	8.9	17	24.2	13.4	59.4	68	0	0	0	15 07	17 37	0	0	0	0		
12	359 12.0	N23 16.2	65 35.7	8.7	N17	37.6	13.2	59.4	66	0	0	0	14 52	17 05	20 04	0	0	0		
13	14 11.8	16.1	80 03.4	8.6	17	50.8	13.2	59.4	64	22 29	///	///	14 40	16 41	18 57	0	0	0		
14	29 11.7	16.0	94 31.0	8.6	18	04.0	13.1	59.4	62	21 53	///	///	14 30	16 22	18 22	20 27	0	0		
15	44 11.6	..	15.8	108 58.6	8.4	18	17.1	12.9	59.4	60	21 27	23 09	///	14 21	16 07	17 57	19 44	0		
16	59 11.4	15.7	123 26.0	8.4	18	30.0	12.9	59.4	N 58	21 07	22 21	///	14 14	15 54	17 37	19 16	0	0		
17	74 11.3	15.6	137 53.4	8.3	18	42.9	12.7	59.4	56	20 50	21 52	///	14 07	15 43	17 20	18 53	0	0		
18	89 11.2	N23 15.5	152 20.7	8.2	N18	55.6	12.7	59.4	54	20 36	21 30	23 13	14 01	15 33	17 06	18 35	0	0		
19	104 11.1	15.3	166 47.9	8.1	19	08.3	12.5	59.4	52	20 24	21 12	22 29	13 56	15 24	16 54	18 20	0	0		
20	119 10.9	15.2	181 15.0	8.0	19	20.8	12.4	59.4	50	20 13	20 57	22 02	13 51	15 17	16 43	18 06	0	0		
21	134 10.8	..	15.1	195 42.0	7.9	19	33.2	12.3	59.4	45	19 51	20 28	21 18	13 40	15 00	16 21	17 39	0		
22	149 10.7	15.0	210 08.9	7.9	19	45.5	12.1	59.4	N 40	19 33	20 06	20 47	13 32	14 47	16 03	17 18	0	0		
23	164 10.5	14.8	224 35.8	7.7	19	57.6	12.1	59.4	35	19 18	19 48	20 24	13 25	14 36	15 48	17 00	0	0		
29 00	179 10.4	N23 14.7	239 02.5	7.7	N20	09.7	11.9	59.4	30	19 05	19 32	20 06	13 18	14 26	15 35	16 44	0	0		
01	194 10.3	14.6	253 29.2	7.6	20	21.6	11.8	59.4	20	18 43	19 08	19 37	13 07	14 09	15 13	16 19	0	0		
02	209 10.2	14.4	267 55.8	7.5	20	33.4	11.7	59.4	N 10	18 24	18 47	19 14	12 58	13 54	14 54	15 56	0	0		
03	224 10.0	..	14.3	282 22.3	7.4	20	45.1	11.6	59.4	0	18 07	18 29	18 56	12 49	13 41	14 36	15 35	0		
04	239 09.9	14.2	296 48.7	7.3	20	56.7	11.4	59.4	S 10	17 50	18 12	18 39	12 40	13 27	14 19	15 15	0	0		
05	254 09.8	14.0	311 15.0	7.2	21	08.1	11.3	59.4	20	17 31	17 55	18 23	12 30	13 13	14 00	14 52	0	0		
06	269 09.7	N23 13.9	325 41.2	7.1	N21	19.4	11.2	59.4	30	17 10	17 36	18 06	12 19	12 56	13 38	14 27	0	0		
07	284 09.5	13.8	340 07.3	7.1	21	30.6	11.0	59.4	35	16 58	17 26	17 58	12 13	12 47	13 25	14 12	0	0		
08	299 09.4	13.6	354 33.4	6.9	21	41.6	10.9	59.4	40	16 44	17 14	17 48	12 06	12 36	13 11	13 54	0	0		
09	314 09.3	..	13.5	8 59.3	6.9	21	52.5	10.8	59.3	45	16 27	17 01	17 38	11 58	12 23	12 54	13 33	0	0	
10	329 09.1	13.4	23 25.2	6.8	22	03.3	10.6	59.3	S 50	16 06	16 45	17 26	11 48	12 08	12 33	13 07	0	0		
11	344 09.0	13.2	37 51.0	6.6	22	13.9	10.5	59.3	52	15 57	16 38	17 21	11 44	12 00	12 23	12 54	0	0		
12	359 08.9	N23 13.1	52 16.6	6.7	N22	24.4	10.3	59.3	54	15 46	16 29	17 16	11 39	11 53	12 11	12 40	0	0		
13	14 08.8	12.9	66 42.3	6.5	22	34.7	10.2	59.3	56	15 33	16 20	17 09	11 34	11 44	11 59	12 23	0	0		
14	29 08.6	12.8	81 07.8	6.4	22	44.9	10.1	59.3	58	15 19	16 10	17 03	11 28	11 34	11 44	12 02	0	0		
15	44 08.5	..	12.7	95 33.2	6.3	22	55.0	9.9	59.3	S 60	15 01	15 59	16 55	11 21	11 22	11 27	11 37	0	0	
16	59 08.4	12.5	109 58.5	6.3	23	04.9	9.8	59.3	Día	SOL E.T. (-)		LUNA								
17	74 08.3	12.4	124 23.8	6.2	23	14.7	9.6	59.3	00 h	12 h	Pas. Mer.	Pas. Sup.	Mer. Inf.	Edad	Fase					
18	89 08.1	N23 12.2	138 49.0	6.1	N23	24.3	9.5	59.3	27	02 53	03 00	12 03	06 37	19 02	24					
19	104 08.0	12.1	153 14.1	6.0	23	33.8	9.3	59.3	28	03 06	03 12	12 03	07 28	19 55	25					
20	119 07.9	12.0	167 39.1	5.9	23	43.1	9.1	59.3	29	03 18	0									



T.M.G. (TU)		ARIES		VENUS -3.9		MARTE +1.8		JUPITER -1.9		SATURNO +0.0		ESTRELLAS			
d	h	A.H.G.	A.H.G.	Dec.	A.H.G.	Dec.	A.H.G.	Dec.	A.H.G.	Dec.	A.H.G.	Dec.	Nombre	A. H. S.	Dec.
Y I E R R E S	30 00	278 02.5	154 37.3	N21 28.8	146 55.8	N19 22.7	195 21.8	N22 53.7	356 20.4	S22 22.8	Acamar	315 32.1	S40 20.5		
	01	293 04.9	169 36.5	28.2	161 56.7	22.3	210 23.6	53.8	11 23.1	22.9	Achernar	335 40.0	S57 17.0		
	02	308 07.4	184 35.8	27.5	176 57.6	21.9	225 25.5	53.8	26 25.7	22.9	Acrux	173 29.9	S63 02.8		
	03	323 09.9	199 35.1	26.9	191 58.4	21.5	240 27.3	53.8	41 28.4	22.9	Adhara	255 27.1	S28 57.3		
	04	338 12.3	214 34.4	26.3	206 59.3	21.0	255 29.2	53.9	56 31.1	22.9	Aldebaran	291 10.4	N16 29.4		
	05	353 14.8	229 33.6	25.6	222 00.2	20.6	270 31.0	53.9	71 33.7	22.9					
	06	8 17.2	244 32.9	N21 25.0	237 01.1	N19 20.2	285 32.9	N22 53.9	86 36.4	S22 22.9	Alioth	166 36.1	N56 01.2		
	07	23 19.7	259 32.2	24.4	252 01.9	19.8	300 34.7	54.0	101 39.1	23.0	Alkaid	153 12.7	N49 22.1		
	08	38 22.2	274 31.4	23.7	267 02.8	19.4	315 36.6	54.0	116 41.7	23.0	Al Na'ir	28 05.8	S47 00.5		
	09	53 24.6	289 30.7	23.1	282 03.7	19.0	330 38.4	54.0	131 44.4	23.0	Alnilam	276 05.0	S 1 12.3		
	10	68 27.1	304 30.0	22.5	297 04.6	18.5	345 40.3	54.1	146 47.0	23.0	Alphard	218 14.1	S 8 36.8		
	11	83 29.6	319 29.3	21.8	312 05.4	18.1	0 42.1	54.1	161 49.7	23.0					
	12	98 32.0	334 28.5	N21 21.2	327 06.3	N19 17.7	15 43.9	N22 54.1	176 52.4	S22 23.1	Alphecca	126 25.9	N26 45.0		
	13	113 34.5	349 27.8	20.5	342 07.2	17.3	30 45.8	54.1	191 55.0	23.1	Alpheratz	358 02.2	N29 01.9		
	14	128 37.0	4 27.1	19.9	357 08.0	16.9	45 47.6	54.2	206 57.7	23.1	Altair	62 25.5	N 8 50.3		
	15	143 39.4	19 26.4	19.2	12 08.9	16.4	60 49.5	54.2	222 00.4	23.1	Ankaa	353 33.2	S42 21.5		
	16	158 41.9	34 25.6	18.6	27 09.8	16.0	75 51.3	54.2	237 03.0	23.1	Antares	112 48.1	S26 24.8		
	17	173 44.4	49 24.9	17.9	42 10.7	15.6	90 53.2	54.3	252 05.7	23.1					
	18	188 46.8	64 24.2	N21 17.3	57 11.5	N19 15.2	105 55.0	N22 54.3	267 08.3	S22 23.2	Arcturus	146 12.0	N19 14.2		
	19	203 49.3	79 23.5	16.6	72 12.4	14.8	120 56.9	54.3	282 11.0	23.2	Atria	108 05.7	S69 00.8		
	20	218 51.7	94 22.7	16.0	87 13.3	14.4	135 58.7	54.4	297 13.7	23.2	Avior	234 26.2	S59 28.6		
	21	233 54.2	109 22.0	15.3	102 14.2	13.9	151 00.6	54.4	312 16.3	23.2	Bellatrix	278 51.7	N 6 20.6		
	22	248 56.7	124 21.3	14.7	117 15.0	13.5	166 02.4	54.4	327 19.0	23.2	Betelgeuse	271 21.1	N 7 24.5		
23	263 59.1	139 20.6	14.0	132 15.9	13.1	181 04.3	54.5	342 21.7	23.2						
S A B A D O	1 00	279 01.6	154 19.9	N21 13.4	147 16.8	N19 12.7	196 06.1	N22 54.5	357 24.3	S22 23.3	Canopus	264 04.7	S52 41.2		
	01	294 04.1	169 19.1	12.7	162 17.7	12.2	211 08.0	54.5	12 27.0	23.3	Capella	281 01.6	N45 59.4		
	02	309 06.5	184 18.4	12.1	177 18.5	11.8	226 09.8	54.6	27 29.6	23.3	Deneb	49 43.5	N45 14.4		
	03	324 09.0	199 17.7	11.4	192 19.4	11.4	241 11.7	54.6	42 32.3	23.3	Denebola	182 52.0	N14 37.9		
	04	339 11.5	214 17.0	10.7	207 20.3	11.0	256 13.5	54.6	57 35.0	23.3	Diphda	349 13.9	S18 02.4		
	05	354 13.9	229 16.3	10.1	222 21.2	10.6	271 15.4	54.6	72 37.6	23.4					
	06	9 16.4	244 15.6	N21 09.4	237 22.0	N19 10.1	286 17.2	N22 54.7	87 40.3	S22 23.4	Dubhe	194 13.6	N61 48.7		
	07	24 18.9	259 14.8	08.8	252 22.9	09.7	301 19.1	54.7	102 43.0	23.4	Elnath	278 35.8	N28 36.1		
	08	39 21.3	274 14.1	08.1	267 23.8	09.3	316 20.9	54.7	117 45.6	23.4	Eltanin	90 54.0	N51 29.3		
	09	54 23.8	289 13.4	07.4	282 24.7	08.9	331 22.8	54.8	132 48.3	23.4	Enif	34 04.6	N 9 49.6		
	10	69 26.2	304 12.7	06.8	297 25.5	08.4	346 24.6	54.8	147 51.0	23.4	Fomalhaut	15 43.5	S29 40.5		
	11	84 28.7	319 12.0	06.1	312 26.4	08.0	1 26.5	54.8	162 53.6	23.5					
	12	99 31.2	334 11.3	N21 05.4	327 27.3	N19 07.6	16 28.3	N22 54.9	177 56.3	S22 23.5	Gacrux	172 21.4	S57 03.6		
	13	114 33.6	349 10.6	04.8	342 28.2	07.2	31 30.2	54.9	192 58.9	23.5	Gienah	176 11.0	S17 29.2		
	14	129 36.1	4 09.8	04.1	357 29.1	06.8	46 32.0	54.9	208 01.6	23.5	Hadar	149 13.6	S60 19.7		
	15	144 38.6	19 09.1	03.4	12 29.9	06.3	61 33.9	55.0	223 04.3	23.5	Hamal	328 21.3	N23 24.8		
	16	159 41.0	34 08.4	02.7	27 30.8	05.9	76 35.7	55.0	238 06.9	23.6	Kaus Aust.	84 07.3	S34 23.5		
	17	174 43.5	49 07.7	02.1	42 31.7	05.5	91 37.6	55.0	253 09.6	23.6					
	18	189 46.0	64 07.0	N21 01.4	57 32.6	N19 05.1	106 39.4	N22 55.0	268 12.3	S22 23.6	Kochab	137 18.1	N74 12.1		
	19	204 48.4	79 06.3	00.7	72 33.4	04.6	121 41.3	55.1	283 14.9	23.6	Markab	13 56.2	N15 08.9		
	20	219 50.9	94 05.6	21 00.1	87 34.3	04.2	136 43.1	55.1	298 17.6	23.6	Menkar	314 34.1	N 4 03.1		
	21	234 53.3	109 04.9	20 59.4	102 35.2	03.8	151 45.0	55.1	313 20.2	23.6	Menkent	148 28.8	S36 19.4		
	22	249 55.8	124 04.2	58.7	117 36.1	03.4	166 46.8	55.2	328 22.9	23.7	Miaplacidus	221 44.6	S69 40.6		
23	264 58.3	139 03.5	58.0	132 36.9	02.9	181 48.7	55.2	343 25.6	23.7						
D O M I N G O	2 00	280 00.7	154 02.7	N20 57.3	147 37.8	N19 02.5	196 50.5	N22 55.2	358 28.2	S22 23.7	Mirfak	309 06.7	N49 49.4		
	01	295 03.2	169 02.0	56.7	162 38.7	02.1	211 52.4	55.3	13 30.9	23.7	Nunki	76 20.2	S26 18.7		
	02	310 05.7	184 01.3	56.0	177 39.6	01.6	226 54.2	55.3	28 33.6	23.7	Peacock	53 46.8	S56 46.1		
	03	325 08.1	199 00.6	55.3	192 40.5	01.2	241 56.1	55.3	43 36.2	23.7	Pollux	243 50.1	N28 03.3		
	04	340 10.6	213 59.9	54.6	207 41.3	00.8	256 57.9	55.3	58 38.9	23.8	Procyon	245 18.9	N 5 15.3		
	05	355 13.1	228 59.2	53.9	222 42.2	19 00.4	271 59.8	55.4	73 41.5	23.8					
	06	10 15.5	243 58.5	N20 53.2	237 43.1	N18 59.9	287 01.6	N22 55.4	88 44.2	S22 23.8	Rasalhague	96 22.8	N12 33.9		
	07	25 18.0	258 57.8	52.6	252 44.0	59.5	302 03.5	55.4	103 46.9	23.8	Regulus	208 02.8	N12 01.2		
	08	40 20.5	273 57.1	51.9	267 44.8	59.1	317 05.3	55.5	118 49.5	23.8	Rigel	281 29.7	S 8 12.6		
	09	55 22.9	288 56.4	51.2	282 45.7	58.7	332 07.2	55.5	133 52.2	23.9	Rigel Kent.	140 16.3	S60 47.9		
	10	70 25.4	303 55.7	50.5	297 46.6	58.2	347 09.0	55.5	148 54.9	23.9	Sabik	102 32.9	S15 42.9		
	11	85 27.8	318 55.0	49.8	312 47.5	57.8	2 10.9	55.6	163 57.5	23.9					
	12	100 30.3	333 54.3	N20 49.1	327 48.4	N18 57.4	17 12.7	N22 55.6	179 00.2	S22 23.9	Schedar	350 01.4	N56 28.6		
	13	115 32.8	348 53.6	48.4	342 49.2	56.9	32 14.6	55.6	194 02.9	23.9	Shaula	96 46.0	S37 06.0		
	14	130 35.2	3 52.9	47.7	357 50.1	56.5	47 16.4	55.6	209 05.5	23.9	Sirius	258 50.0	S16 42.0		
	15	145 37.7	18 52.2	47.0	12 51.0	56.1	62 18.3	55.7	224 08.2	24.0	Spica	158 50.2	S11 06.5		
	16	160 40.2	33 51.5	46.3	27 51.9	55.7	77 20.1	55.7	239 10.8	24.0	Suhail	223 06.2	S43 23.5		
	17	175 42.6	48 50.8	45.6	42 52.8	55.2	92 22.0	55.7	254 13.5	24.0					
	18	190 45.1	63 50.1	N20 44.9	57 53.6	N18 54.8	107 23.8	N22 55.8	269 16.2	S22 24.0	Vega	80 50.7	N38 46.3		
	19	205 47.6	78 49.4	44.2	72 54.5	54.4	122 25.7	55.8	284 18.8	24.0	Zuben'ubi	137 25.2	S16 00.1		
	20	220 50.0	93 48.7	43.5	87 55.4	53.9	137 27.5	55.8	299 21.5	24.1					
	21	235 52.5	108 48.0	42.8	102 56.3	53.5	152 29.4	55.8	314 24.2	24.1					
	22	250 55.0	123 47.3	42.1	117 57.2	53.1	167 31.2	55.9	329 26.8	24.1					
23	265 57.4	138 46.6	41.4	132 58.0	52.6										



T.M.G. (TU)	SOL		LUNA				Lat.	Crepúsculo		Orto Sol	Orto Luna						
	A.H.G.	Dec.	A.H.G.	v	Dec.	d		P.H.	Naut.		Civil	30	1	2	3		
												h	m	h	m	h	m
V I E R N E S	30 00	179 07.4	N23 11.4	225 18.4	5.6	N24 18.8	8.6	59.2	N 72	□	□	□	□	□	□	□	□
	01	194 07.3	11.2	239 43.0	5.5	24 27.4	8.3	59.2	N 70	□	□	□	□	□	□	□	□
	02	209 07.1	11.1	254 07.5	5.5	24 35.7	8.3	59.2	68	□	□	□	□	□	□	□	□
	03	224 07.0	10.9	268 32.0	5.4	24 44.0	8.0	59.2	66	///	///	00 18	□	□	□	□	□
	04	239 06.9	10.8	282 56.4	5.3	24 52.0	7.9	59.2	64	///	///	01 41	□	□	□	□	□
	05	254 06.8	10.6	297 20.7	5.3	24 59.9	7.7	59.2	62	///	///	02 17	23 09	23 30	25 10	01 10	01 56
	06	269 06.6	N23 10.5	311 45.0	5.2	N25 07.6	7.6	59.2	60	///	01 03	02 42	23 52	24 35	00 35	01 56	01 56
	07	284 06.5	10.3	326 09.2	5.1	25 15.2	7.4	59.2	N 58	///	01 48	03 02	24 21	00 21	01 10	02 25	02 25
	08	299 06.4	10.2	340 33.3	5.1	25 22.6	7.2	59.2	56	///	02 17	03 18	00 12	00 44	01 35	02 48	02 48
	09	314 06.3	10.0	354 57.4	5.0	25 29.8	7.1	59.1	54	00 58	02 38	03 32	00 27	01 02	01 55	03 07	03 07
	10	329 06.1	09.9	9 21.4	4.9	25 36.9	6.9	59.1	52	01 40	02 56	03 44	00 40	01 18	02 12	03 22	03 22
	11	344 06.0	09.7	23 45.3	4.8	25 43.8	6.7	59.1	50	02 06	03 11	03 55	00 51	01 32	02 27	03 36	03 36
	12	359 05.9	N23 09.6	38 09.1	4.9	N25 50.5	6.5	59.1	45	02 51	03 40	04 17	01 14	01 59	02 56	04 04	04 04
	13	14 05.8	09.4	52 33.0	4.7	25 57.0	6.4	59.1	N 40	03 21	04 02	04 35	01 33	02 21	03 19	04 25	04 25
	14	29 05.6	09.2	66 56.7	4.7	26 03.4	6.2	59.1	35	03 43	04 20	04 50	01 49	02 40	03 39	04 43	04 43
	15	44 05.5	09.1	81 20.4	4.6	26 09.6	6.0	59.1	30	04 02	04 35	05 02	02 03	02 56	03 55	04 59	04 59
	16	59 05.4	08.9	95 44.0	4.6	26 15.6	5.9	59.1	20	04 30	05 00	05 24	02 27	03 22	04 23	05 25	05 25
	17	74 05.3	08.8	110 07.6	4.6	26 21.5	5.6	59.0	N 10	04 53	05 20	05 43	02 47	03 46	04 47	05 48	05 48
	18	89 05.1	N23 08.6	124 31.2	4.5	N26 27.1	5.5	59.0	0	05 11	05 38	06 00	03 07	04 07	05 09	06 09	06 09
	19	104 05.0	08.5	138 54.7	4.4	26 32.6	5.3	59.0	S 10	05 28	05 55	06 17	03 26	04 29	05 31	06 30	06 30
	20	119 04.9	08.3	153 18.1	4.4	26 37.9	5.2	59.0	20	05 44	06 12	06 36	03 47	04 53	05 55	06 52	06 52
	21	134 04.8	08.1	167 41.5	4.4	26 43.1	4.9	59.0	30	06 00	06 30	06 56	04 12	05 20	06 23	07 18	07 18
	22	149 04.7	08.0	182 04.9	4.3	26 48.0	4.8	59.0	35	06 09	06 41	07 09	04 26	05 36	06 39	07 34	07 34
23	164 04.5	07.8	196 28.2	4.3	26 52.8	4.6	59.0	40	06 18	06 52	07 23	04 43	05 55	06 59	07 51	07 51	
								45	06 28	07 05	07 39	05 03	06 18	07 22	08 13	08 13	
S A B A D O	1 00	179 04.4	N23 07.6	210 51.5	4.2	N26 57.4	4.4	58.9	S 50	06 40	07 21	08 00	05 28	06 47	07 52	08 39	08 39
	01	194 04.3	07.5	225 14.7	4.3	27 01.8	4.2	58.9	52	06 45	07 29	08 09	05 41	07 02	08 06	08 52	08 52
	02	209 04.2	07.3	239 38.0	4.2	27 06.0	4.0	58.9	54	06 51	07 37	08 20	05 55	07 18	08 23	09 07	09 07
	03	224 04.0	07.1	254 01.2	4.1	27 10.0	3.8	58.9	56	06 57	07 45	08 32	06 12	07 39	08 44	09 25	09 25
	04	239 03.9	07.0	268 24.3	4.2	27 13.8	3.7	58.9	58	07 03	07 55	08 47	06 32	08 04	09 09	09 46	09 46
	05	254 03.8	06.8	282 47.5	4.1	27 17.5	3.5	58.9	S 60	07 10	08 07	09 04	06 57	08 38	09 45	10 13	10 13
	06	269 03.7	N23 06.6	297 10.6	4.1	N27 21.0	3.3	58.9									
	07	284 03.5	06.5	311 33.7	4.0	27 24.3	3.1	58.8	Lat.	Ocaso Sol	Crepúsculo Civil	Naut.	Ocaso Luna	1	2	3	
	08	299 03.4	06.3	325 56.7	4.1	27 27.4	2.9	58.8									
	09	314 03.3	06.1	340 19.8	4.0	27 30.3	2.7	58.8									
	10	329 03.2	06.0	354 42.8	4.1	27 33.0	2.6	58.8									
	11	344 03.1	05.8	9 05.9	4.0	27 35.6	2.3	58.8									
	12	359 02.9	N23 05.6	23 28.9	4.0	N27 37.9	2.2	58.8									
	13	14 02.8	05.4	37 51.9	4.0	27 40.1	2.0	58.7									
	14	29 02.7	05.3	52 14.9	4.0	27 42.1	1.8	58.7									
	15	44 02.6	05.1	66 37.9	4.1	27 43.9	1.6	58.7									
	16	59 02.5	04.9	81 01.0	4.0	27 45.5	1.4	58.7									
	17	74 02.3	04.8	95 24.0	4.0	27 46.9	1.2	58.7									
	18	89 02.2	N23 04.6	109 47.0	4.0	N27 48.1	1.1	58.6									
	19	104 02.1	04.4	124 10.0	4.1	27 49.2	0.9	58.6									
	20	119 02.0	04.2	138 33.1	4.1	27 50.1	0.6	58.6									
	21	134 01.9	04.0	152 56.2	4.0	27 50.7	0.5	58.6									
	22	149 01.7	03.9	167 19.2	4.1	27 51.2	0.3	58.6									
23	164 01.6	03.7	181 42.3	4.2	27 51.5	0.1	58.5										
D O M I N G O	2 00	179 01.5	N23 03.5	196 05.5	4.1	N27 51.6	0.1	58.5	N 40	19 33	20 05	20 47	17 18	18 26	19 25	20 12	20 12
	01	194 01.4	03.3	210 28.6	4.2	27 51.5	0.2	58.5	35	19 18	19 47	20 24	17 00	18 07	19 06	19 55	19 55
	02	209 01.3	03.1	224 51.8	4.2	27 51.3	0.5	58.5	30	19 05	19 32	20 06	16 44	17 51	18 50	19 41	19 41
	03	224 01.1	03.0	239 15.0	4.3	27 50.8	0.6	58.5	20	18 43	19 08	19 37	16 19	17 23	18 23	19 17	19 17
	04	239 01.0	02.8	253 38.3	4.2	27 50.2	0.8	58.4	N 10	18 25	18 48	19 15	15 56	16 59	18 00	18 56	18 56
	05	254 00.9	02.6	268 01.5	4.4	27 49.4	1.0	58.4	0	18 07	18 30	18 56	15 35	16 37	17 38	18 36	18 36
	06	269 00.8	N23 02.4	282 24.9	4.3	N27 48.4	1.2	58.4									
	07	284 00.7	02.2	296 48.2	4.4	27 47.2	1.4	58.4	S 10	17 50	18 13	18 39	15 15	16 15	17 16	18 16	18 16
	08	299 00.5	02.0	311 11.6	4.5	27 45.8	1.5	58.4	20	17 32	17 56	18 23	14 52	15 51	16 53	17 55	17 55
	09	314 00.4	01.8	325 35.1	4.4	27 44.3	1.8	58.3	30	17 11	17 37	18 07	14 27	15 23	16 25	17 30	17 30
	10	329 00.3	01.7	339 58.5	4.6	27 42.5	1.9	58.3	35	16 59	17 27	17 59	14 12	15 06	16 09	17 15	17 15
	11	344 00.2	01.5	354 22.1	4.6	27 40.6	2.1	58.3	40	16 45	17 16	17 50	13 54	14 47	15 50	16 58	16 58
	12	359 00.1	N23 01.3	8 45.7	4.6	N27 38.5	2.2	58.3	45	16 29	17 02	17 39	13 33	14 24	15 27	16 38	16 38
	13	14 00.0	01.1	23 09.3	4.7	27 36.3	2.5	58.3	S 50	16 08	16 47	17 28	13 07	13 55	14 57	16 12	16 12
	14	28 59.8	00.9	37 33.0	4.8	27 33.8	2.6	58.2	52	15 59	16 39	17 23	12 54	13 40	14 43	15 59	15 59
	15	43 59.7	00.7	51 56.8	4.8	27 31.2	2.8	58.2	54	15 48	16 31	17 17	12 40	13 23	14 26	15 44	15 44
	16	58 59.6	00.5	66 20.6	4.9	27 28.4	3.0	58.2	56	15 35	16 22	17 11	12 23	13 03	14 05	15 27	15 27
	17	73 59.5	00.3	80 44.5	5.0	27 25.4	3.1	58.2	58	15 21	16 12	17 05	12 02	12 37	13 40	15 07	15 07
	18	88 59.4	N23 00.1	95 08.5	5.0	N27 22.3	3.4	58.1	S 60	15 04	16 01	16 57	11 37	12 03	13 05	14 40	14 40
	19	103 59.3	22 59.9	109 32.5	5.1	27 18.9	3.5	58.1									



T.M.G. (TU)	ARIES	VENUS -3.9	MARTE +1.8	JUPITER -1.9	SATURNO +0.0	ESTRELLAS		
d h	A.H.G.	A.H.G. Dec.	A.H.G. Dec.	A.H.G. Dec.	A.H.G. Dec.	A.H.G. Dec.	Nombre	A. H. S. Dec.
3 00	280 59.9	153 45.9 N20 40.7	147 58.9 N18 52.2	197 35.0 N22 55.9	359 32.1 S22 24.1		Acamar	315 32.1 S40 20.5
01	296 02.3	168 45.2 40.0	162 59.8 51.8	212 36.8 55.9	14 34.8 24.1		Achernar	335 40.0 S57 17.0
02	311 04.8	183 44.6 39.3	178 00.7 51.3	227 38.7 56.0	29 37.5 24.2		Acrux	173 29.9 S63 02.8
03	326 07.3	198 43.9 38.6	193 01.6 50.9	242 40.5 56.0	44 40.1 24.2		Adhara	255 27.1 S28 57.3
04	341 09.7	213 43.2 37.9	208 02.4 50.5	257 42.4 56.0	59 42.8 24.2		Aldebaran	291 10.4 N16 29.4
05	356 12.2	228 42.5 37.2	223 03.3 50.0	272 44.2 56.1	74 45.5 24.2			
06	11 14.7	243 41.8 N20 36.5	238 04.2 N18 49.6	287 46.1 N22 56.1	89 48.1 S22 24.2		Alioth	166 36.1 N56 01.2
07	26 17.1	258 41.1 35.8	253 05.1 49.2	302 47.9 56.1	104 50.8 24.3		Alkaid	153 12.7 N49 22.1
08	41 19.6	273 40.4 35.0	268 06.0 48.7	317 49.8 56.1	119 53.5 24.3		Al Na'ir	28 05.8 S47 00.5
09	56 22.1	288 39.7 34.3	283 06.8 48.3	332 51.6 56.2	134 56.1 24.3		Alnilam	276 05.0 S 1 12.3
10	71 24.5	303 39.0 33.6	298 07.7 47.9	347 53.5 56.2	149 58.8 24.3		Alphard	218 14.1 S 8 36.8
11	86 27.0	318 38.3 32.9	313 08.6 47.4	2 55.3 56.2	165 01.4 24.3			
12	101 29.5	333 37.6 N20 32.2	328 09.5 N18 47.0	17 57.2 N22 56.3	180 04.1 S22 24.3		Alphecca	126 25.9 N26 45.0
13	116 31.9	348 37.0 31.5	343 10.4 46.6	32 59.0 56.3	195 06.8 24.4		Alpheratz	358 02.2 N29 01.9
14	131 34.4	3 36.3 30.8	358 11.3 46.1	48 00.9 56.3	210 09.4 24.4		Altair	62 25.5 N 8 50.3
15	146 36.8	18 35.6 30.0	13 12.1 45.7	63 02.7 56.3	225 12.1 24.4		Ankaa	353 33.2 S42 21.5
16	161 39.3	33 34.9 29.3	28 13.0 45.3	78 04.6 56.4	240 14.8 24.4		Antares	112 48.1 S26 24.8
17	176 41.8	48 34.2 28.6	43 13.9 44.8	93 06.4 56.4	255 17.4 24.4			
18	191 44.2	63 33.5 N20 27.9	58 14.8 N18 44.4	108 08.3 N22 56.4	270 20.1 S22 24.5		Arcturus	146 12.0 N19 14.2
19	206 46.7	78 32.8 27.2	73 15.7 44.0	123 10.1 56.5	285 22.7 24.5		Atria	108 05.7 S69 00.9
20	221 49.2	93 32.2 26.4	88 16.6 43.5	138 12.0 56.5	300 25.4 24.5		Avior	234 26.2 S59 28.6
21	236 51.6	108 31.5 25.7	103 17.4 43.1	153 13.8 56.5	315 28.1 24.5		Bellatrix	278 51.6 N 6 20.6
22	251 54.1	123 30.8 25.0	118 18.3 42.6	168 15.7 56.5	330 30.7 24.5		Betelgeuse	271 21.1 N 7 24.5
23	266 56.6	138 30.1 24.3	133 19.2 42.2	183 17.5 56.6	345 33.4 24.6			
4 00	281 59.0	153 29.4 N20 23.5	148 20.1 N18 41.8	198 19.4 N22 56.6	0 36.1 S22 24.6		Canopus	264 04.7 S52 41.2
01	297 01.5	168 28.7 22.8	163 21.0 41.3	213 21.3 56.6	15 38.7 24.6		Capella	281 01.6 N45 59.4
02	312 03.9	183 28.1 22.1	178 21.9 40.9	228 23.1 56.7	30 41.4 24.6		Deneb	49 43.4 N45 14.4
03	327 06.4	198 27.4 21.3	193 22.7 40.5	243 25.0 56.7	45 44.1 24.6		Denebola	182 52.0 N14 37.9
04	342 08.9	213 26.7 20.6	208 23.6 40.0	258 26.8 56.7	60 46.7 24.6		Diphda	349 13.9 S18 02.4
05	357 11.3	228 26.0 19.9	223 24.5 39.6	273 28.7 56.7	75 49.4 24.7			
06	12 13.8	243 25.4 N20 19.1	238 25.4 N18 39.1	288 30.5 N22 56.8	90 52.0 S22 24.7		Dubhe	194 13.6 N61 48.7
07	27 16.3	258 24.7 18.4	253 26.3 38.7	303 32.4 56.8	105 54.7 24.7		Elnath	278 35.8 N28 36.1
08	42 18.7	273 24.0 17.7	268 27.2 38.3	318 34.2 56.8	120 57.4 24.7		Eltanin	90 54.0 N51 29.3
09	57 21.2	288 23.3 16.9	283 28.0 37.8	333 36.1 56.9	136 00.0 24.7		Enif	34 04.6 N 9 49.6
10	72 23.7	303 22.6 16.2	298 28.9 37.4	348 37.9 56.9	151 02.7 24.8		Fomalhaut	15 43.5 S29 40.5
11	87 26.1	318 22.0 15.5	313 29.8 37.0	3 39.8 56.9	166 05.4 24.8			
12	102 28.6	333 21.3 N20 14.7	328 30.7 N18 36.5	18 41.6 N22 56.9	181 08.0 S22 24.8		Gacrux	172 21.4 S57 03.6
13	117 31.1	348 20.6 14.0	343 31.6 36.1	33 43.5 57.0	196 10.7 24.8		Gienah	176 11.0 S17 29.2
14	132 33.5	3 19.9 13.2	358 32.5 35.6	48 45.3 57.0	211 13.3 24.8		Hadar	149 13.6 S60 19.7
15	147 36.0	18 19.3 12.5	13 33.4 35.2	63 47.2 57.0	226 16.0 24.8		Hamal	328 21.3 N23 24.8
16	162 38.4	33 18.6 11.8	28 34.2 34.8	78 49.1 57.1	241 18.7 24.9		Kaus Aust.	84 07.2 S34 23.5
17	177 40.9	48 17.9 11.0	43 35.1 34.3	93 50.9 57.1	256 21.3 24.9			
18	192 43.4	63 17.3 N20 10.3	58 36.0 N18 33.9	108 52.8 N22 57.1	271 24.0 S22 24.9		Kochab	137 18.1 N74 12.1
19	207 45.8	78 16.6 09.5	73 36.9 33.4	123 54.6 57.1	286 26.7 24.9		Markab	13 56.2 N15 08.9
20	222 48.3	93 15.9 08.8	88 37.8 33.0	138 56.5 57.2	301 29.3 24.9		Menkar	314 34.1 N 4 03.1
21	237 50.8	108 15.2 08.0	103 38.7 32.5	153 58.3 57.2	316 32.0 25.0		Menkent	148 28.8 S36 19.4
22	252 53.2	123 14.6 07.3	118 39.6 32.1	169 00.2 57.2	331 34.6 25.0		Miaplacidus	221 44.6 S69 40.6
23	267 55.7	138 13.9 06.5	133 40.4 31.7	184 02.0 57.2	346 37.3 25.0			
5 00	282 58.2	153 13.2 N20 05.8	148 41.3 N18 31.2	199 03.9 N22 57.3	1 40.0 S22 25.0		Mirfak	309 06.7 N49 49.4
01	298 00.6	168 12.6 05.0	163 42.2 30.8	214 05.7 57.3	16 42.6 25.0		Nunki	76 20.2 S26 18.7
02	313 03.1	183 11.9 04.3	178 43.1 30.3	229 07.6 57.3	31 45.3 25.0		Peacock	53 46.8 S56 46.1
03	328 05.6	198 11.2 03.5	193 44.0 29.9	244 09.4 57.4	46 48.0 25.1		Pollux	243 50.0 N28 03.3
04	343 08.0	213 10.6 02.8	208 44.9 29.5	259 11.3 57.4	61 50.6 25.1		Procyon	245 18.9 N 5 15.3
05	358 10.5	228 09.9 02.0	223 45.8 29.0	274 13.2 57.4	76 53.3 25.1			
06	13 12.9	243 09.2 N20 01.2	238 46.6 N18 28.6	289 15.0 N22 57.4	91 55.9 S22 25.1		Rasalhague	96 22.8 N12 34.0
07	28 15.4	258 08.6 20 00.5	253 47.5 28.1	304 16.9 57.5	106 58.6 25.1		Regulus	208 02.8 N12 01.2
08	43 17.9	273 07.9 19 59.7	268 48.4 27.7	319 18.7 57.5	122 01.3 25.2		Rigel	281 29.7 S 8 12.6
09	58 20.3	288 07.3 19 59.0	283 49.3 27.2	334 20.6 57.5	137 03.9 25.2		Rigil Kent.	140 16.3 S60 47.9
10	73 22.8	303 06.6 19 58.2	298 50.2 26.8	349 22.4 57.5	152 06.6 25.2		Sabik	102 32.9 S15 42.9
11	88 25.3	318 05.9 19 57.5	313 51.1 26.3	4 24.3 57.6	167 09.3 25.2			
12	103 27.7	333 05.3 N19 56.7	328 52.0 N18 25.9	19 26.1 N22 57.6	182 11.9 S22 25.2		Schedar	350 01.4 N56 28.6
13	118 30.2	348 04.6 19 55.9	343 52.9 25.5	34 28.0 57.6	197 14.6 25.2		Shaula	96 46.0 S37 06.0
14	133 32.7	3 03.9 19 55.2	358 53.7 25.0	49 29.8 57.6	212 17.3 25.3		Sirius	258 49.9 S16 42.0
15	148 35.1	18 03.3 19 54.4	13 54.6 24.6	64 31.7 57.7	227 19.9 25.3		Spica	158 50.2 S11 06.5
16	163 37.6	33 02.6 19 53.6	28 55.5 24.1	79 33.6 57.7	242 22.6 25.3		Suhail	223 06.2 S43 23.5
17	178 40.0	48 02.0 19 52.9	43 56.4 23.7	94 35.4 57.7	257 25.2 25.3			
18	193 42.5	63 01.3 N19 52.1	58 57.3 N18 23.2	109 37.3 N22 57.8	272 27.9 S22 25.3		Vega	80 50.7 N38 46.3
19	208 45.0	78 00.7 19 51.3	73 58.2 22.8	124 39.1 57.8	287 30.6 25.4		Zuben'ubi	137 25.2 S16 00.1
20	223 47.4	93 00.0 19 50.6	88 59.1 22.3	139 41.0 57.8	302 33.2 25.4			
21	238 49.9	107 59.3 19 49.8	104 00.0 21.9	154 42.8 57.8	317 35.9 25.4			
22	253 52.4	122 58.7 19 49.0	119 00.8 21.4	169 44.7 57.9	332 38.6 25.4			
23	268 54.8	137 58.0 19 48.2	134 01.7 21.0	184 46.5 57.9	347 41.2 25.4			
						A. H. S. Pas. Mer.		
						o / h m		
Pas. Mer. 5 11.2						v -0.7 d 0.7		
						v 0.9 d 0.4		
						v 1.9 d 0.0		
						v 2.7 d 0.0		
						Venus 231 30.4 13 47		
						Marte 226 21.1 14 06		
						Júpiter 276 20.4 10 45		
						Saturno 78 37.0 23 53		



T.M.G. (TU)	SOL		LUNA				Lat.	Crepúsculo		Orto Sol	Orto Luna				
	A.H.G.	Dec.	A.H.G.	v	Dec.	d		P.H.	Naut.		Civil	3	4	5	6
												h	m	h	m
LUNES	00	178 58.6	N22 58.9	181 33.7	5.5	N26 59.7	4.3 58.0	N 72	□	□	□	□	□	□	04 53
	01	193 58.5	58.7	195 58.2	5.5	26 55.4	4.5 58.0	N 70	□	□	□	□	□	□	05 29
	02	208 58.4	58.6	210 22.7	5.7	26 50.9	4.7 57.9	68	□	□	□	□	□	03 28	05 54
	03	223 58.3	58.4	224 47.4	5.7	26 46.2	4.8 57.9	66	///	///	00 41	□	□	04 10	06 13
	04	238 58.2	58.2	239 12.1	5.8	26 41.4	5.0 57.9	64	///	///	01 47	□	□	04 38	06 29
	05	253 58.1	58.0	253 36.9	5.9	26 36.4	5.2 57.9	62	///	///	02 21	01 10	02 29	04 38	06 41
	06	268 58.0	N22 57.8	268 01.8	6.0	N26 31.2	5.3 57.8	60	///	01 11	02 45	01 56	03 36	05 17	06 52
	07	283 57.8	57.6	282 26.8	6.1	26 25.9	5.5 57.8	N 58	///	01 53	03 05	02 25	03 57	05 31	07 01
	08	298 57.7	57.4	296 51.9	6.1	26 20.4	5.6 57.8	56	///	02 20	03 21	02 48	04 15	05 44	07 10
	09	313 57.6	57.2	311 17.0	6.3	26 14.8	5.8 57.8	54	01 05	02 41	03 35	03 07	04 29	05 54	07 17
	10	328 57.5	56.9	325 42.3	6.4	26 09.0	6.0 57.7	52	01 44	02 59	03 46	03 22	04 42	06 04	07 23
	11	343 57.4	56.7	340 07.7	6.4	26 03.0	6.1 57.7	50	02 10	03 13	03 57	03 36	04 53	06 12	07 29
	12	358 57.3	N22 56.5	354 33.1	6.6	N25 56.9	6.2 57.7	45	02 53	03 42	04 19	04 04	05 17	06 30	07 41
	13	13 57.1	56.3	8 58.7	6.6	25 50.7	6.4 57.7	N 40	03 22	04 04	04 36	04 25	05 35	06 45	07 52
	14	28 57.0	56.1	23 24.3	6.8	25 44.3	6.6 57.6	35	03 45	04 21	04 51	04 43	05 51	06 57	08 00
	15	43 56.9	55.9	37 50.1	6.9	25 37.7	6.6 57.6	30	04 03	04 36	05 04	04 59	06 04	07 08	08 08
	16	58 56.8	55.7	52 16.0	6.9	25 31.1	6.9 57.6	20	04 32	05 01	05 25	05 25	06 27	07 26	08 21
	17	73 56.7	55.5	66 41.9	7.1	25 24.2	7.0 57.6	N 10	04 54	05 21	05 44	05 48	06 47	07 42	08 33
	18	88 56.6	N22 55.3	81 08.0	7.2	N25 17.2	7.1 57.5	0	05 12	05 38	06 01	06 09	07 05	07 56	08 43
	19	103 56.5	55.1	95 34.2	7.2	25 10.1	7.3 57.5	S 10	05 29	05 55	06 18	06 30	07 23	08 11	08 54
	20	118 56.3	54.9	110 00.4	7.4	25 02.8	7.4 57.5	20	05 44	06 12	06 36	06 52	07 43	08 27	09 05
	21	133 56.2	54.7	124 26.8	7.5	24 55.4	7.5 57.5	30	06 00	06 30	06 56	07 18	08 05	08 44	09 18
	22	148 56.1	54.5	138 53.3	7.6	24 47.9	7.7 57.4	35	06 09	06 40	07 08	07 34	08 18	08 55	09 25
23	163 56.0	54.2	153 19.9	7.7	24 40.2	7.8 57.4	40	06 18	06 52	07 22	07 51	08 33	09 07	09 34	
4 00	178 55.9	N22 54.0	167 46.6	7.8	N24 32.4	7.9 57.4	45	06 28	07 05	07 39	08 13	08 51	09 20	09 44	
01	193 55.8	53.8	182 13.4	7.9	24 24.5	8.1 57.3	S 50	06 39	07 20	07 59	08 39	09 13	09 37	09 55	
02	208 55.7	53.6	196 40.3	8.1	24 16.4	8.2 57.3	52	06 44	07 28	08 08	08 52	09 24	09 45	10 01	
03	223 55.6	53.4	211 07.4	8.1	24 08.2	8.3 57.3	54	06 50	07 36	08 19	09 07	09 35	09 54	10 07	
04	238 55.4	53.2	225 34.5	8.3	23 59.9	8.5 57.3	56	06 56	07 44	08 31	09 25	09 49	10 04	10 13	
05	253 55.3	52.9	240 01.8	8.3	23 51.4	8.6 57.2	58	07 02	07 54	08 45	09 46	10 05	10 15	10 21	
06	268 55.2	N22 52.7	254 29.1	8.5	N23 42.8	8.7 57.2	S 60	07 09	08 05	09 02	10 13	10 23	10 27	10 29	
07	283 55.1	52.5	268 56.6	8.6	23 34.1	8.8 57.2	Lat.	Ocaso Sol	Crepúsculo		Ocaso Luna				
08	298 55.0	52.3	283 24.2	8.7	23 25.3	9.0 57.2			Civil	Naut.	3	4	5	6	
09	313 54.9	52.1	297 51.9	8.8	23 16.3	9.0 57.1	N 70	h m	h m	h m	h m	h m	h m	h m	
10	328 54.8	51.9	312 19.7	9.0	23 07.3	9.2 57.1	N 72	□	□	□	□	□	□	{00 23 34}	
11	343 54.7	51.6	326 47.7	9.0	22 58.1	9.3 57.1	N 70	□	□	□	□	□	□	23 18	
12	358 54.5	N22 51.4	341 15.7	9.2	N22 48.8	9.4 57.0	68	□	□	□	□	□	□	23 04	
13	13 54.4	51.2	355 43.9	9.3	22 39.4	9.5 57.0	66	23 23	///	///	□	23 33	{00 23 34}	22 53	
14	28 54.3	51.0	10 12.2	9.3	22 29.9	9.7 57.0	64	22 20	///	///	23 24	23 03	22 52	22 43	
15	43 54.2	50.7	24 40.5	9.5	22 20.2	9.7 57.0	62	21 47	///	///	22 43	22 41	22 38	22 35	
16	58 54.1	50.5	39 09.0	9.7	22 10.5	9.9 56.9	60	21 22	22 56	///	22 15	22 23	22 26	22 27	
17	73 54.0	50.3	53 37.7	9.7	22 00.6	9.9 56.9	N 58	21 03	22 15	///	21 53	22 08	22 16	22 21	
18	88 53.9	N22 50.1	68 06.4	9.8	N21 50.7	10.1 56.9	56	20 47	21 47	///	21 36	21 55	22 07	22 15	
19	103 53.8	49.8	82 35.2	10.0	21 40.6	10.2 56.9	54	20 34	21 27	23 02	21 20	21 43	21 59	22 10	
20	118 53.6	49.6	97 04.2	10.0	21 30.4	10.2 56.8	52	20 22	21 10	22 24	21 07	21 33	21 52	22 06	
21	133 53.5	49.4	111 33.2	10.2	21 20.2	10.4 56.8	50	20 11	20 55	21 58	20 56	21 24	21 45	22 01	
22	148 53.4	49.2	126 02.4	10.3	21 09.8	10.4 56.8	45	19 50	20 27	21 15	20 31	21 05	21 31	21 52	
23	163 53.3	48.9	140 31.7	10.4	20 59.4	10.6 56.7	N 40	19 32	20 05	20 46	20 12	20 49	21 19	21 45	
5 00	178 53.2	N22 48.7	155 01.1	10.5	N20 48.8	10.6 56.7	35	19 18	19 47	20 23	19 55	20 36	21 09	21 38	
01	193 53.1	48.5	169 30.6	10.7	20 38.2	10.8 56.7	30	19 05	19 32	20 05	19 41	20 24	21 01	21 32	
02	208 53.0	48.2	184 00.3	10.7	20 27.4	10.8 56.7	20	18 44	19 08	19 37	19 17	20 04	20 45	21 22	
03	223 52.9	48.0	198 30.0	10.9	20 16.6	11.0 56.6	N 10	18 25	18 48	19 15	18 56	19 47	20 32	21 13	
04	238 52.8	47.8	212 59.9	10.9	20 05.6	11.0 56.6	0	18 08	18 30	18 57	18 36	19 30	20 19	21 04	
05	253 52.7	47.5	227 29.8	11.1	19 54.6	11.1 56.6	S 10	17 51	18 14	18 40	18 16	19 14	20 07	20 56	
06	268 52.5	N22 47.3	241 59.9	11.2	N19 43.5	11.2 56.5	20	17 33	17 57	18 24	17 55	18 56	19 53	20 47	
07	283 52.4	47.1	256 30.1	11.2	19 32.3	11.2 56.5	30	17 12	17 39	18 08	17 30	18 35	19 37	20 36	
08	298 52.3	46.8	271 00.3	11.4	19 21.1	11.4 56.5	35	17 00	17 28	18 00	17 15	18 23	19 28	20 30	
09	313 52.2	46.6	285 30.7	11.5	19 09.7	11.4 56.5	40	16 47	17 17	17 51	16 58	18 09	19 17	20 23	
10	328 52.1	46.3	300 01.2	11.6	18 58.3	11.5 56.4	45	16 30	17 04	17 41	16 38	17 52	19 05	20 14	
11	343 52.0	46.1	314 31.8	11.7	18 46.8	11.6 56.4	S 50	16 10	16 48	17 30	16 12	17 31	18 49	20 04	
12	358 51.9	N22 45.9	329 02.5	11.9	N18 35.2	11.7 56.4	52	16 01	16 41	17 25	15 59	17 21	18 42	20 00	
13	13 51.8	45.6	343 33.4	11.9	18 23.5	11.7 56.4	54	15 50	16 33	17 19	15 44	17 10	18 34	19 55	
14	28 51.7	45.4	358 04.3	12.0	18 11.8	11.8 56.3	56	15 38	16 25	17 13	15 27	16 57	18 25	19 49	
15	43 51.6	45.1	12 35.3	12.1	18 00.0	11.9 56.3	58	15 24	16 15	17 07	15 07	16 42	18 15	19 43	
16	58 51.5	44.9	27 06.4	12.3	17 48.1	12.0 56.3	S 60	15 07	16 04	17 00	14 40	16 24	18 03	19 35	
17	73 51.3	44.7	41 37.7	12.3	17 36.1	12.0 56.2	Día	SOL		LUNA					
18	88 51.2	N22 44.4	56 09.0	12.4	N17 24.1	12.1 56.2		E.T. (-)	Pas. Mer.	Pas. Mer.	Mer. Inf.	Edad.	Fase		
19	103 51.1	44.2	70 40.4	12.6	17 12.0	12.2 56.2	3	00 h	12 h	h m	h m	h m	d		
20	118 51.0	43.9	85 12.0	12.6	16 59.8	12.2 56.2	4	m s	m s	h m	h m	h m			
21	133 50.9	43.7	99 43.6	12.7	16 47.6	12.3 56.1	5	04 05	04 11	12 04	12 23	24 51	00		
22	148 50.8	43.4	114 15.3	12.9	16 35.3	12.3 56.1		04 16	04 22	12 04	13 18	00 51	01		
23	163 50.														



T.M.G. (TU)	ARIES			VENUS -3.9			MARTE +1.8			JUPITER -1.9			SATURNO +0.0			ESTRELLAS		
	A.H.G.	A.H.G.	Dec.	A.H.G.	Dec.	A.H.G.	Dec.	A.H.G.	Dec.	A.H.G.	Dec.	A.H.G.	Dec.	Nombre	A. H. S.	Dec.		
6 00	283 57.3	152 57.4 N19	47.5	149 02.6 N18	20.6	199 48.4 N22	57.9	2 43.9 S22	25.5					Acamar	315 32.1 S40	20.4		
01	298 59.8	167 56.7	46.7	164 03.5	20.1	214 50.3	57.9	17 46.5	25.5					Achernar	335 39.9 S57	17.0		
02	314 02.2	182 56.1	45.9	179 04.4	19.7	229 52.1	58.0	32 49.2	25.5					Acrux	173 30.0 S63	02.8		
03	329 04.7	197 55.4	45.1	194 05.3	19.2	244 54.0	58.0	47 51.9	25.5					Adhara	255 27.1 S28	57.3		
04	344 07.2	212 54.8	44.4	209 06.2	18.8	259 55.8	58.0	62 54.5	25.5					Aldebaran	291 10.4 N16	29.4		
05	359 09.6	227 54.1	43.6	224 07.1	18.3	274 57.7	58.0	77 57.2	25.5									
06	14 12.1	242 53.5 N19	42.8	239 08.0 N18	17.9	289 59.5 N22	58.1	92 59.9 S22	25.6					Alioth	166 36.2 N56	01.2		
07	29 14.5	257 52.8	42.0	254 08.8	17.4	305 01.4	58.1	108 02.5	25.6					Alkaid	153 12.7 N49	22.1		
08	44 17.0	272 52.2	41.2	269 09.7	17.0	320 03.2	58.1	123 05.2	25.6					Al Na'ir	28 05.7 S47	00.5		
09	59 19.5	287 51.5	40.5	284 10.6	16.5	335 05.1	58.1	138 07.8	25.6					Anilam	276 05.0 S 1	12.3		
10	74 21.9	302 50.9	39.7	299 11.5	16.1	350 07.0	58.2	153 10.5	25.6					Alphard	218 14.1 S 8	36.7		
11	89 24.4	317 50.2	38.9	314 12.4	15.6	5 08.8	58.2	168 13.2	25.7									
12	104 26.9	332 49.6 N19	38.1	329 13.3 N18	15.2	20 10.7 N22	58.2	183 15.8 S22	25.7					Alphecca	126 25.9 N26	45.0		
13	119 29.3	347 48.9	37.3	344 14.2	14.7	35 12.5	58.2	198 18.5	25.7					Alpheratz	358 02.2 N29	01.9		
14	134 31.8	2 48.3	36.5	359 15.1	14.3	50 14.4	58.3	213 21.2	25.7					Altair	62 25.5 N 8	50.4		
15	149 34.3	17 47.6	35.8	14 16.0	13.8	65 16.2	58.3	228 23.8	25.7					Ankaa	353 33.2 S42	21.4		
16	164 36.7	32 47.0	35.0	29 16.9	13.4	80 18.1	58.3	243 26.5	25.7					Antares	112 48.1 S26	24.8		
17	179 39.2	47 46.3	34.2	44 17.7	12.9	95 20.0	58.3	258 29.1	25.8									
18	194 41.7	62 45.7 N19	33.4	59 18.6 N18	12.5	110 21.8 N22	58.4	273 31.8 S22	25.8					Arcturus	146 12.0 N19	14.2		
19	209 44.1	77 45.0	32.6	74 19.5	12.0	125 23.7	58.4	288 34.5	25.8					Atria	108 05.8 S69	00.9		
20	224 46.6	92 44.4	31.8	89 20.4	11.6	140 25.5	58.4	303 37.1	25.8					Avior	234 26.2 S59	28.6		
21	239 49.0	107 43.8	31.0	104 21.3	11.1	155 27.4	58.4	318 39.8	25.8					Bellatrix	278 51.6 N 6	20.6		
22	254 51.5	122 43.1	30.2	119 22.2	10.7	170 29.2	58.5	333 42.4	25.8					Betelgeuse	271 21.1 N 7	24.5		
23	269 54.0	137 42.5	29.4	134 23.1	10.2	185 31.1	58.5	348 45.1	25.9									
7 00	284 56.4	152 41.8 N19	28.6	149 24.0 N18	09.8	200 32.9 N22	58.5	3 47.8 S22	25.9					Canopus	264 04.7 S52	41.2		
01	299 58.9	167 41.2	27.8	164 24.9	09.3	215 34.8	58.6	18 50.4	25.9					Capella	281 01.5 N45	59.3		
02	315 01.4	182 40.5	27.0	179 25.8	08.9	230 36.7	58.6	33 53.1	25.9					Deneb	49 43.4 N45	14.4		
03	330 03.8	197 39.9	26.2	194 26.7	08.4	245 38.5	58.6	48 55.8	25.9					Denebola	182 52.0 N14	37.9		
04	345 06.3	212 39.3	25.4	209 27.6	08.0	260 40.4	58.6	63 58.4	26.0					Diphda	349 13.8 S18	02.4		
05	0 08.8	227 38.6	24.6	224 28.4	07.5	275 42.2	58.6	79 01.1	26.0									
06	15 11.2	242 38.0 N19	23.8	239 29.3 N18	07.0	290 44.1 N22	58.7	94 03.7 S22	26.0					Dubhe	194 13.6 N61	48.7		
07	30 13.7	257 37.4	23.0	254 30.2	06.6	305 46.0	58.7	109 06.4	26.0					Elnath	278 35.8 N28	36.1		
08	45 16.1	272 36.7	22.2	269 31.1	06.1	320 47.8	58.7	124 09.1	26.0					Eltanin	90 54.0 N51	29.4		
09	60 18.6	287 36.1	21.4	284 32.0	05.7	335 49.7	58.7	139 11.7	26.0					Enif	34 04.6 N 9	49.6		
10	75 21.1	302 35.4	20.6	299 32.9	05.2	350 51.5	58.8	154 14.4	26.1					Fomalhaut	15 43.5 S29	40.5		
11	90 23.5	317 34.8	19.8	314 33.8	04.8	5 53.4	58.8	169 17.1	26.1									
12	105 26.0	332 34.2 N19	19.0	329 34.7 N18	04.3	20 55.2 N22	58.8	184 19.7 S22	26.1					Gacrux	172 21.4 S57	03.6		
13	120 28.5	347 33.5	18.2	344 35.6	03.9	35 57.1	58.8	199 22.4	26.1					Gienah	176 11.0 S17	29.2		
14	135 30.9	2 32.9	17.4	359 36.5	03.4	50 59.0	58.9	214 25.0	26.1					Hadar	149 13.6 S60	19.7		
15	150 33.4	17 32.3	16.6	14 37.4	03.0	66 00.8	58.9	229 27.7	26.2					Hamal	328 21.3 N23	24.8		
16	165 35.9	32 31.6	15.8	29 38.3	02.5	81 02.7	58.9	244 30.4	26.2					Kaus Aust.	84 07.2 S34	23.5		
17	180 38.3	47 31.0	15.0	44 39.2	02.0	96 04.5	58.9	259 33.0	26.2									
18	195 40.8	62 30.4 N19	14.1	59 40.0 N18	01.6	111 06.4 N22	59.0	274 35.7 S22	26.2					Kochab	137 18.2 N74	12.1		
19	210 43.3	77 29.8	13.3	74 40.9	01.1	126 08.2	59.0	289 38.4	26.2					Markab	13 56.2 N15	08.9		
20	225 45.7	92 29.1	12.5	89 41.8	00.7	141 10.1	59.0	304 41.0	26.2					Menkar	314 34.1 N 4	03.1		
21	240 48.2	107 28.5	11.7	104 42.7	00.2	156 12.0	59.0	319 43.7	26.3					Menkent	148 28.8 S36	19.4		
22	255 50.6	122 27.9	10.9	119 43.6	17 59.8	171 13.8	59.1	334 46.3	26.3					Miaplacidus	221 44.6 S69	40.6		
23	270 53.1	137 27.2	10.1	134 44.5	59.3	186 15.7	59.1	349 49.0	26.3									
8 00	285 55.6	152 26.6 N19	09.2	149 45.4 N17	58.9	201 17.5 N22	59.1	4 51.7 S22	26.3					Mirfak	309 06.6 N49	49.4		
01	300 58.0	167 26.0	08.4	164 46.3	58.4	216 19.4	59.1	19 54.3	26.3					Nunki	76 20.2 S26	18.7		
02	316 00.5	182 25.4	07.6	179 47.2	57.9	231 21.3	59.2	34 57.0	26.4					Peacock	53 46.7 S56	46.1		
03	331 03.0	197 24.7	06.8	194 48.1	57.5	246 23.1	59.2	49 59.6	26.4					Pollux	243 50.0 N28	03.3		
04	346 05.4	212 24.1	06.0	209 49.0	57.0	261 25.0	59.2	65 02.3	26.4					Procyon	245 18.9 N 5	15.3		
05	1 07.9	227 23.5	05.1	224 49.9	56.6	276 26.8	59.2	80 05.0	26.4									
06	16 10.4	242 22.9 N19	04.3	239 50.8 N17	56.1	291 28.7 N22	59.3	95 07.6 S22	26.4					Rasalhague	96 22.8 N12	34.0		
07	31 12.8	257 22.2	03.5	254 51.7	55.6	306 30.5	59.3	110 10.3	26.4					Regulus	208 02.8 N12	01.2		
08	46 15.3	272 21.6	02.7	269 52.6	55.2	321 32.4	59.3	125 13.0	26.5					Rigel	281 29.7 S 8	12.6		
09	61 17.8	287 21.0	01.8	284 53.5	54.7	336 34.3	59.3	140 15.6	26.5					Rigel Kent.	140 16.3 S60	47.9		
10	76 20.2	302 20.4	01.0	299 54.4	54.3	351 36.1	59.4	155 18.3	26.5					Sabik	102 32.9 S15	42.9		
11	91 22.7	317 19.7	19 00.2	314 55.3	53.8	6 38.0	59.4	170 20.9	26.5									
12	106 25.1	332 19.1 N18	59.4	329 56.2 N17	53.4	21 39.8 N22	59.4	185 23.6 S22	26.5					Schedar	350 01.4 N56	28.6		
13	121 27.6	347 18.5	58.5	344 57.0	52.9	36 41.7	59.4	200 26.3	26.6					Shaula	96 46.0 S37	06.0		
14	136 30.1	2 17.9	57.7	359 57.9	52.4	51 43.6	59.4	215 28.9	26.6					Sirius	258 49.9 S16	41.9		
15	151 32.5	17 17.3	56.9	14 58.8	52.0	66 45.4	59.5	230 31.6	26.6					Spica	158 50.2 S11	06.5		
16	166 35.0	32 16.6	56.0	29 59.7	51.5	81 47.3	59.5	245 34.2	26.6					Suhail	223 06.2 S43	23.5		
17	181 37.5	47 16.0	55.2	45 00.6	51.1	96 49.1	59.5	260 36.9	26.6									
18	196 39.9	62 15.4 N18	54.4	60 01.5 N17	50.6	111 51.0 N22	59.5	275 39.6 S22	26.6					Vega	80 50.7 N38	46.3		
19	211 42.4	77 14.8	53.5	75 02.4	50.1	126 52.9	59.6	290 42.2	26									




T.M.G. (TU)	SOL		LUNA				Lat.	Crepúsculo		Orto Sol	Orto Luna						
	A.H.G.	Dec.	A.H.G.	v	Dec.	d		P.H.	Náut.		Civil	6	7	8	9		
	o / ' / "	o / ' / "	o / ' / "	o / ' / "	o / ' / "	o / ' / "		h / m	h / m		h / m	h / m	h / m	h / m	h / m		
J U E V E S	6 00	178 50.6	N22 42.9	143 19.1	13.0	N16 10.6	12.5	56.1	N 72	□	□	□	04 53	07 23	09 27	11 24	
	01	193 50.5	42.7	157 51.1	13.1	15 58.1	12.6	56.0	N 70	□	□	□	05 29	07 38	09 32	11 20	
	02	208 50.4	42.5	172 23.2	13.2	15 45.5	12.5	56.0	68	□	□	□	05 54	07 50	09 35	11 16	
	03	223 50.3	42.2	186 55.4	13.3	15 33.0	12.7	56.0	66	///	///	00 57	06 13	08 00	09 38	11 13	
	04	238 50.2	42.0	201 27.7	13.4	15 20.3	12.7	55.9	64	///	///	01 54	06 29	08 08	09 41	11 11	
	05	253 50.1	41.7	216 00.1	13.5	15 07.6	12.7	55.9	62	///	///	02 26	06 41	08 15	09 43	11 09	
	06	268 50.0	N22 41.5	230 32.6	13.6	N14 54.9	12.8	55.9	60	///	01 19	02 50	06 52	08 21	09 45	11 07	
	07	283 49.9	41.2	245 05.2	13.6	14 42.1	12.9	55.9	N 58	///	01 58	03 08	07 01	08 26	09 47	11 05	
	08	298 49.7	40.9	259 37.8	13.8	14 29.2	12.9	55.8	56	///	02 25	03 24	07 10	08 31	09 48	11 04	
	09	313 49.6	40.7	274 10.6	13.8	14 16.3	13.0	55.8	54	01 13	02 45	03 37	07 17	08 35	09 50	11 03	
	10	328 49.5	40.4	288 43.4	13.9	14 03.3	13.0	55.8	52	01 49	03 02	03 49	07 23	08 39	09 51	11 02	
	11	343 49.4	40.2	303 16.3	14.0	13 50.3	13.0	55.8	50	02 13	03 16	03 59	07 29	08 42	09 52	11 01	
	12	358 49.3	N22 39.9	317 49.3	14.1	N13 37.3	13.1	55.7	45	02 56	03 44	04 21	07 41	08 49	09 55	10 58	
	13	13 49.2	39.7	332 22.4	14.2	13 24.2	13.2	55.7	N 40	03 25	04 06	04 38	07 52	08 55	09 57	10 56	
	14	28 49.1	39.4	346 55.6	14.2	13 11.0	13.1	55.7	35	03 47	04 23	04 52	08 00	09 01	09 58	10 55	
	15	43 49.0	39.2	1 28.8	14.4	12 57.9	13.3	55.7	30	04 05	04 38	05 05	08 08	09 05	10 00	10 53	
	16	58 48.9	38.9	16 02.2	14.4	12 44.6	13.2	55.6	20	04 33	05 02	05 26	08 21	09 13	10 03	10 51	
	17	73 48.8	38.6	30 35.6	14.5	12 31.4	13.3	55.6	N 10	04 55	05 21	05 44	08 33	09 20	10 05	10 49	
	18	88 48.7	N22 38.4	45 09.1	14.5	N12 18.1	13.4	55.6	0	05 13	05 39	06 01	08 43	09 27	10 07	10 47	
	19	103 48.6	38.1	59 42.6	14.7	12 04.7	13.3	55.6	S 10	05 29	05 55	06 18	08 54	09 33	10 10	10 45	
	20	118 48.5	37.9	74 16.3	14.7	11 51.4	13.4	55.5	20	05 45	06 12	06 36	09 05	09 40	10 12	10 43	
	21	133 48.4	37.6	88 50.0	14.8	11 38.0	13.5	55.5	30	06 00	06 30	06 56	09 18	09 48	10 15	10 41	
	22	148 48.3	37.3	103 23.8	14.8	11 24.5	13.5	55.5	35	06 09	06 40	07 08	09 25	09 52	10 16	10 39	
23	163 48.2	37.1	117 57.6	15.0	11 11.0	13.5	55.5	40	06 17	06 51	07 22	09 34	09 57	10 18	10 38		
V I E R N E S	7 00	178 48.1	N22 36.8	132 31.6	15.0	N10 57.5	13.5	55.4	45	06 27	07 04	07 38	09 44	10 03	10 20	10 36	
	01	193 48.0	36.5	147 05.6	15.0	10 44.0	13.6	55.4	S 50	06 38	07 19	07 57	09 55	10 10	10 22	10 34	
	02	208 47.9	36.3	161 39.6	15.2	10 30.4	13.6	55.4	52	06 43	07 26	08 07	10 01	10 13	10 23	10 33	
	03	223 47.8	36.0	176 13.8	15.2	10 16.8	13.6	55.4	54	06 49	07 34	08 17	10 07	10 16	10 25	10 32	
	04	238 47.7	35.7	190 48.0	15.3	10 03.2	13.7	55.4	56	06 54	07 43	08 29	10 13	10 20	10 26	10 31	
	05	253 47.6	35.5	205 22.3	15.3	9 49.5	13.7	55.3	58	07 01	07 52	08 43	10 21	10 24	10 27	10 30	
	06	268 47.5	N22 35.2	219 56.6	15.4	N 9 35.8	13.7	55.3	S 60	07 07	08 03	08 59	10 29	10 29	10 29	10 29	
	07	283 47.4	34.9	234 31.0	15.5	9 22.1	13.7	55.3	Lat.	Ocaso Sol	Crepúsculo		Ocaso Luna				
	08	298 47.3	34.7	249 05.5	15.5	9 08.4	13.8	55.3			Civil	Náut.	6	7	8	9	
	09	313 47.2	34.4	263 40.0	15.6	8 54.6	13.8	55.2	N 72	h m	h m	h m	{ <sup>00 34</sup> <sub>23 35</sub> }	h m	h m	h m	h m
	10	328 47.1	34.1	278 14.6	15.6	8 40.8	13.8	55.2	N 70	□	□	□	23 18	22 51	22 28	22 04	
	11	343 47.0	33.9	292 49.2	15.7	8 27.0	13.8	55.2	68	□	□	□	23 04	22 45	22 27	22 10	
	12	358 46.8	N22 33.6	307 23.9	15.7	N 8 13.2	13.9	55.2	66	23 08	///	///	22 53	22 39	22 27	22 15	
	13	13 46.7	33.3	321 58.6	15.8	7 59.3	13.8	55.2	64	22 14	///	///	22 43	22 35	22 27	22 20	
	14	28 46.6	33.0	336 33.4	15.9	7 45.5	13.9	55.1	62	22 14	///	///	22 43	22 35	22 27	22 20	
	15	43 46.5	32.8	351 08.3	15.9	7 31.6	13.9	55.1	60	21 19	22 48	///	22 35	22 31	22 27	22 24	
	16	58 46.4	32.5	5 43.2	16.0	7 17.7	14.0	55.1	N 58	21 00	22 10	///	22 27	22 27	22 27	22 27	
	17	73 46.3	32.2	20 18.2	16.0	7 03.7	13.9	55.1	56	20 45	21 44	///	22 21	22 24	22 27	22 30	
	18	88 46.2	N22 31.9	34 53.2	16.1	N 6 49.8	13.9	55.1	54	20 32	21 24	22 55	22 15	22 22	22 27	22 32	
	19	103 46.1	31.7	49 28.3	16.1	6 35.9	14.0	55.0	52	20 20	21 07	22 20	22 10	22 19	22 27	22 35	
	20	118 46.0	31.4	64 03.4	16.1	6 21.9	14.0	55.0	50	20 10	20 53	21 55	22 06	22 17	22 27	22 37	
	21	133 45.9	31.1	78 38.5	16.2	6 07.9	14.0	55.0	45	20 10	20 53	21 55	22 01	22 15	22 27	22 39	
	22	148 45.8	30.8	93 13.7	16.3	5 53.9	14.0	55.0	N 40	19 49	20 25	21 13	21 52	22 10	22 27	22 43	
23	163 45.7	30.6	107 49.0	16.3	5 39.9	14.0	55.0	35	19 31	20 04	20 45	21 45	22 07	22 27	22 47		
S A B A D O	8 00	178 45.7	N22 30.3	122 24.3	16.3	N 5 25.9	14.0	54.9	30	19 17	19 46	20 23	21 38	22 03	22 27	22 50	
	01	193 45.6	30.0	136 59.6	16.4	5 11.9	14.0	54.9	20	18 44	19 08	19 37	21 22	21 55	22 27	22 58	
	02	208 45.5	29.7	151 35.0	16.4	4 57.9	14.1	54.9	N 10	18 25	18 48	19 15	21 13	21 51	22 26	23 02	
	03	223 45.4	29.4	166 10.4	16.5	4 43.8	14.0	54.9	0	18 09	18 31	18 57	21 04	21 46	22 26	23 06	
	04	238 45.3	29.1	180 45.9	16.4	4 29.8	14.0	54.9	S 10	17 52	18 14	18 41	20 56	21 42	22 26	23 10	
	05	253 45.2	28.9	195 21.3	16.6	4 15.8	14.1	54.8	20	17 34	17 58	18 25	20 47	21 37	22 26	23 14	
	06	268 45.1	N22 28.6	209 56.9	16.5	N 4 01.7	14.1	54.8	30	17 14	17 40	18 10	20 36	21 32	22 26	23 19	
	07	283 45.0	28.3	224 32.4	16.6	3 47.6	14.0	54.8	35	17 02	17 30	18 01	20 30	21 29	22 26	23 22	
	08	298 44.9	28.0	239 08.0	16.6	3 33.6	14.1	54.8	40	16 48	17 19	17 52	20 23	21 25	22 26	23 25	
	09	313 44.8	27.7	253 43.6	16.7	3 19.5	14.1	54.8	45	16 32	17 06	17 43	20 14	21 21	22 25	23 29	
	10	328 44.7	27.4	268 19.3	16.7	3 05.4	14.0	54.8	S 50	16 13	16 51	17 32	20 04	21 16	22 25	23 33	
	11	343 44.6	27.2	282 55.0	16.7	2 51.4	14.1	54.7	52	16 03	16 44	17 27	20 00	21 14	22 25	23 35	
	12	358 44.5	N22 26.9	297 30.7	16.7	N 2 37.3	14.1	54.7	54	15 53	16 36	17 22	19 55	21 11	22 25	23 38	
	13	13 44.4	26.6	312 06.4	16.8	2 23.2	14.1	54.7	56	15 41	16 27	17 16	19 49	21 08	22 25	23 40	
	14	28 44.3	26.3	326 42.2	16.8	2 09.1	14.0	54.7	58	15 27	16 18	17 10	19 43	21 05	22 25	23 43	
	15	43 44.2	26.0	341 18.0	16.8	1 55.1	14.1	54.7	S 60	15 11	16 07	17 03	19 35	21 02	22 25	23 46	
	16	58 44.1	25.7	355 53.8	16.9	1 41.0	14.1	54.7	Día	SOL E.T. (-)		LUNA					
	17	73 44.0	25.4	10 29.7	16.8	1 26.9	14.0	54.6		00 h	12 h	Pas. Mer.	Pas. Sup.	Mer. Inf.	Edad.	Fase	
	18	88 43.9	N22 25.1	25 05.5	16.9	N 1 12.9	14.1	54.6	6	m s	m s	h m	h m	h m	d		
	19	103 43.8															



T.M.G. (TU)	ARIES	VENUS -3.9	MARTE +1.8	JUPITER -1.9	SATURNO +0.1	ESTRELLAS		
d h	A.H.G.	A.H.G. Dec.	A.H.G. Dec.	A.H.G. Dec.	A.H.G. Dec.	A.H.G. Dec.	Nombre	A. H. S. Dec.
D O O M I N G O	9 00	286 54.7	152 11.7 N18 49.4	150 06.9 N17 47.8	202 02.2 N22 59.7	5 55.5 S22 26.7	Acamar	315 32.1 S40 20.4
	01	301 57.2	167 11.1 48.5	165 07.8 47.4	217 04.0 59.7	20 58.2 26.8	Achernar	335 39.9 S57 17.0
	02	316 59.6	182 10.5 47.7	180 08.7 46.9	232 05.9 59.7	36 00.9 26.8	Acrux	173 30.0 S63 02.8
	03	332 02.1	197 09.9 46.8	195 09.6 46.4	247 07.7 59.7	51 03.5 26.8	Adhara	255 27.1 S28 57.3
	04	347 04.6	212 09.3 46.0	210 10.5 46.0	262 09.6 59.8	66 06.2 26.8	Aldebaran	291 10.3 N16 29.4
	05	2 07.0	227 08.7 45.2	225 11.4 45.5	277 11.5 59.8	81 08.8 26.8		
	06	17 09.5	242 08.0 N18 44.3	240 12.3 N17 45.0	292 13.3 N22 59.8	96 11.5 S22 26.9	Alioth	166 36.2 N56 01.2
	07	32 12.0	257 07.4 43.5	255 13.2 44.6	307 15.2 59.8	111 14.2 26.9	Alkaid	153 12.7 N49 22.1
	08	47 14.4	272 06.8 42.6	270 14.1 44.1	322 17.0 59.9	126 16.8 26.9	Al Na'ir	28 05.7 S47 00.5
	09	62 16.9	287 06.2 41.8	285 15.0 43.7	337 18.9 59.9	141 19.5 26.9	Alnilam	276 04.9 S 1 12.3
	10	77 19.4	302 05.6 40.9	300 15.9 43.2	352 20.8 59.9	156 22.1 26.9	Alphard	218 14.1 S 8 36.7
	11	92 21.8	317 05.0 40.1	315 16.8 42.7	7 22.6 22 59.9	171 24.8 26.9		
	12	107 24.3	332 04.4 N18 39.2	330 17.7 N17 42.3	22 24.5 N23 00.0	186 27.5 S22 27.0	Alphecca	126 26.0 N26 45.0
	13	122 26.7	347 03.8 38.4	345 18.6 41.8	37 26.3 00.0	201 30.1 27.0	Alpheratz	358 02.2 N29 01.9
	14	137 29.2	2 03.2 37.5	0 19.5 41.3	52 28.2 00.0	216 32.8 27.0	Altair	62 25.5 N 8 50.4
	15	152 31.7	17 02.6 36.7	15 20.4 40.9	67 30.1 00.0	231 35.4 27.0	Ankaa	353 33.1 S42 21.4
	16	167 34.1	32 02.0 35.8	30 21.3 40.4	82 31.9 00.0	246 38.1 27.0	Antares	112 48.1 S26 24.8
	17	182 36.6	47 01.4 35.0	45 22.2 39.9	97 33.8 00.1	261 40.8 27.1		
	18	197 39.1	62 00.8 N18 34.1	60 23.1 N17 39.5	112 35.7 N23 00.1	276 43.4 S22 27.1	Arcturus	146 12.0 N19 14.2
	19	212 41.5	77 00.2 33.3	75 24.0 39.0	127 37.5 00.1	291 46.1 27.1	Atria	108 05.8 S69 00.9
	20	227 44.0	91 59.6 32.4	90 24.9 38.5	142 39.4 00.1	306 48.7 27.1	Avior	234 26.2 S59 28.5
	21	242 46.5	106 59.0 31.5	105 25.8 38.1	157 41.2 00.2	321 51.4 27.1	Bellatrix	278 51.6 N 6 20.6
	22	257 48.9	121 58.4 30.7	120 26.7 37.6	172 43.1 00.2	336 54.1 27.1	Betelgeuse	271 21.1 N 7 24.5
23	272 51.4	136 57.8 29.8	135 27.6 37.1	187 45.0 00.2	351 56.7 27.2			
L U N E S	10 00	287 53.9	151 57.2 N18 29.0	150 28.5 N17 36.7	202 46.8 N23 00.2	6 59.4 S22 27.2	Canopus	264 04.7 S52 41.2
	01	302 56.3	166 56.6 28.1	165 29.4 36.2	217 48.7 00.2	22 02.0 27.2	Capella	281 01.5 N45 59.3
	02	317 58.8	181 56.0 27.2	180 30.3 35.7	232 50.5 00.3	37 04.7 27.2	Deneb	49 43.4 N45 14.4
	03	333 01.2	196 55.4 26.4	195 31.2 35.3	247 52.4 00.3	52 07.4 27.2	Denebola	182 52.0 N14 37.9
	04	348 03.7	211 54.8 25.5	210 32.1 34.8	262 54.3 00.3	67 10.0 27.2	Diphda	349 13.8 S18 02.4
	05	3 06.2	226 54.2 24.7	225 33.0 34.3	277 56.1 00.3	82 12.7 27.3		
	06	18 08.6	241 53.6 N18 23.8	240 33.9 N17 33.9	292 58.0 N23 00.3	97 15.4 S22 27.3	Dubhe	194 13.7 N61 48.7
	07	33 11.1	256 53.0 22.9	255 34.8 33.4	307 59.9 00.4	112 18.0 27.3	Elnath	278 35.7 N28 36.1
	08	48 13.6	271 52.4 22.1	270 35.7 32.9	323 01.7 00.4	127 20.7 27.3	Eltanin	90 54.0 N51 29.4
	09	63 16.0	286 51.8 21.2	285 36.6 32.5	338 03.6 00.4	142 23.3 27.3	Enif	34 04.5 N 9 49.6
	10	78 18.5	301 51.2 20.3	300 37.5 32.0	353 05.4 00.4	157 26.0 27.4	Fomalhaut	15 43.5 S29 40.5
	11	93 21.0	316 50.6 19.5	315 38.4 31.5	8 07.3 00.5	172 28.7 27.4		
	12	108 23.4	331 50.0 N18 18.6	330 39.3 N17 31.1	23 09.2 N23 00.5	187 31.3 S22 27.4	Gacrux	172 21.4 S57 03.6
	13	123 25.9	346 49.4 17.7	345 40.2 30.6	38 11.0 00.5	202 34.0 27.4	Giengah	176 11.0 S17 29.2
	14	138 28.4	1 48.8 16.8	0 41.1 30.1	53 12.9 00.5	217 36.6 27.4	Hadar	149 13.6 S60 19.8
	15	153 30.8	16 48.2 16.0	15 42.0 29.7	68 14.8 00.5	232 39.3 27.4	Hamal	328 21.3 N23 24.8
	16	168 33.3	31 47.6 15.1	30 42.9 29.2	83 16.6 00.6	247 42.0 27.5	Kaus Aust.	84 07.2 S34 23.5
	17	183 35.7	46 47.0 14.2	45 43.8 28.7	98 18.5 00.6	262 44.6 27.5		
	18	198 38.2	61 46.4 N18 13.3	60 44.7 N17 28.3	113 20.3 N23 00.6	277 47.3 S22 27.5	Kochab	137 18.2 N74 12.1
	19	213 40.7	76 45.9 12.5	75 45.6 27.8	128 22.2 00.6	292 49.9 27.5	Markab	13 56.1 N15 08.9
	20	228 43.1	91 45.3 11.6	90 46.5 27.3	143 24.1 00.6	307 52.6 27.5	Menkar	314 34.1 N 4 03.1
	21	243 45.6	106 44.7 10.7	105 47.4 26.8	158 25.9 00.7	322 55.3 27.5	Menkent	148 28.9 S36 19.4
	22	258 48.1	121 44.1 09.8	120 48.3 26.4	173 27.8 00.7	337 57.9 27.6	Miaplacidus	221 44.7 S69 40.6
23	273 50.5	136 43.5 09.0	135 49.2 25.9	188 29.7 00.7	353 00.6 27.6			
M A R T E S	11 00	288 53.0	151 42.9 N18 08.1	150 50.1 N17 25.4	203 31.5 N23 00.7	8 03.2 S22 27.6	Mirfak	309 06.6 N49 49.4
	01	303 55.5	166 42.3 07.2	165 51.0 25.0	218 33.4 00.8	23 05.9 27.6	Nunki	76 20.2 S26 18.7
	02	318 57.9	181 41.7 06.3	180 51.9 24.5	233 35.2 00.8	38 08.5 27.6	Peacock	53 46.7 S56 46.1
	03	334 00.4	196 41.2 05.4	195 52.8 24.0	248 37.1 00.8	53 11.2 27.7	Pollux	243 50.0 N28 03.3
	04	349 02.8	211 40.6 04.5	210 53.7 23.5	263 39.0 00.8	68 13.9 27.7	Procyon	245 18.9 N 5 15.3
	05	4 05.3	226 40.0 03.7	225 54.6 23.1	278 40.8 00.8	83 16.5 27.7		
	06	19 07.8	241 39.4 N18 02.8	240 55.5 N17 22.6	293 42.7 N23 00.9	98 19.2 S22 27.7	Rasalhague	96 22.8 N12 34.0
	07	34 10.2	256 38.8 01.9	255 56.4 22.1	308 44.6 00.9	113 21.8 27.7	Regulus	208 02.8 N12 01.2
	08	49 12.7	271 38.2 01.0	270 57.3 21.6	323 46.4 00.9	128 24.5 27.7	Rigel	281 29.6 S 8 12.6
	09	64 15.2	286 37.7 18 00.1	285 58.2 21.2	338 48.3 00.9	143 27.2 27.8	Rigil Kent.	140 19.3 S60 47.9
	10	79 17.6	301 37.1 17 59.2	300 59.1 20.7	353 50.2 00.9	158 29.8 27.8	Sabik	102 32.9 S15 42.9
	11	94 20.1	316 36.5 58.3	316 00.0 20.2	8 52.0 01.0	173 32.5 27.8		
	12	109 22.6	331 35.9 N17 57.5	331 00.9 N17 19.8	23 53.9 N23 01.0	188 35.1 S22 27.8	Schedar	350 01.3 N56 28.6
	13	124 25.0	346 35.3 56.6	346 01.9 19.3	38 55.7 01.0	203 37.8 27.8	Shaula	96 46.0 S37 06.0
	14	139 27.5	1 34.8 55.7	1 02.8 18.8	53 57.6 01.0	218 40.5 27.8	Sirius	258 49.9 S16 41.9
	15	154 30.0	16 34.2 54.8	16 03.7 18.3	68 59.5 01.0	233 43.1 27.9	Spica	158 50.2 S11 06.5
	16	169 32.4	31 33.6 53.9	31 04.6 17.9	84 01.3 01.1	248 45.8 27.9	Suhail	223 06.2 S43 23.4
	17	184 34.9	46 33.0 53.0	46 05.5 17.4	99 03.2 01.1	263 48.4 27.9		
	18	199 37.3	61 32.5 N17 52.1	61 06.4 N17 16.9	114 05.1 N23 01.1	278 51.1 S22 27.9	Vega	80 50.7 N38 46.4
	19	214 39.8	76 31.9 51.2	76 07.3 16.4	129 06.9 01.1	293 53.8 27.9	Zuben'ubi	137 25.3 S16 00.1
	20	229 42.3	91 31.3 50.3	91 08.2 16.0	144 08.8 01.1	308 56.4 27.9		
	21	244 44.7	106 30.7 49.4	106 09.1 15.5	159 10.7 01.2	323 59.1 28.0		
	22	259 47.2	121 30.2 48.5	121 10.0 15.0	174 12.5 01.2	339 01.7 28.0		
23	274 49.7	136 29.6 47.6	136 10.9 14.5	189 14.4 01.2	354 04.4 28.0			
Pas. Mer. 4 47.6						A. H. S. Pas. Mer.		
v -0.6 d 0.9						o / h m		
v 0.9 d 0.5						Venus 224 03.3 13 53		
v 1.9 d 0.0						Marte 222 34.6 13 57		
v 2.7 d 0.0						Júpiter 274 53.0 10 28		
						Saturno 79 05.5 23 28		



T.M.G. (TU)	SOL		LUNA				Lat.	Crepúsculo		Orto Sol	Orto Luna				
	A.H.G.	Dec.	A.H.G.	v	Dec.	d		P.H.	Naut.		Civil	9	10	11	12
DOMINICANOS	00	178 43.3	N22 23.4	112 41.1	17.0	S 0	11.4	14.1	54.6	N 72	11 24	13 24	15 42	18 02	
	01	193 43.2	23.1	127 17.1	17.0	0	25.5	14.0	54.5	N 70	11 20	13 09	15 10	18 02	
	02	208 43.1	22.8	141 53.1	17.0	0	39.5	14.0	54.5	68	11 16	12 58	14 47	16 56	
	03	223 43.0	22.5	156 29.1	17.0	0	53.5	14.0	54.5	66	01 12	11 13	12 49	14 29	
	04	238 43.0	22.2	171 05.1	17.0	1	07.5	14.0	54.5	64	02 01	11 11	12 41	14 15	
	05	253 42.9	21.9	185 41.1	17.0	1	21.5	13.9	54.5	62	02 32	11 09	12 34	14 03	
	06	268 42.8	N22 21.6	200 17.1	17.1	S 1	35.4	14.0	54.5	60	01 28	11 07	12 29	13 53	
	07	283 42.7	21.3	214 53.2	17.0	1	49.4	13.9	54.5	N 58	02 04	11 05	12 24	13 44	
	08	298 42.6	21.0	229 29.2	17.1	2	03.3	14.0	54.5	56	02 29	11 04	12 19	13 36	
	09	313 42.5	20.7	244 05.3	17.0	2	17.3	13.9	54.4	54	01 21	11 03	12 15	13 29	
	10	328 42.4	20.4	258 41.3	17.1	2	31.2	13.9	54.4	52	01 54	11 02	12 12	13 23	
	11	343 42.3	20.1	273 17.4	17.0	2	45.1	13.9	54.4	50	02 18	11 01	12 09	13 18	
	12	358 42.2	N22 19.8	287 53.4	17.1	S 2	59.0	13.9	54.4	45	02 59	10 58	12 02	13 06	
	13	13 42.1	19.4	302 29.5	17.0	3	12.9	13.8	54.4	N 40	03 27	10 56	11 56	12 56	
	14	28 42.0	19.1	317 05.5	17.1	3	26.7	13.9	54.4	35	03 49	10 55	11 51	12 48	
	15	43 41.9	18.8	331 41.6	17.0	3	40.6	13.8	54.4	30	04 06	10 53	11 47	12 40	
	16	58 41.8	18.5	346 17.6	17.0	3	54.4	13.8	54.4	20	04 34	10 51	11 39	12 28	
	17	73 41.8	18.2	0 53.6	17.1	4	08.2	13.8	54.4	N 10	04 55	10 49	11 32	12 17	
	18	88 41.7	N22 17.9	15 29.7	17.0	S 4	22.0	13.7	54.4	0	05 13	10 47	11 26	12 07	
	19	103 41.6	17.6	30 05.7	17.0	4	35.7	13.8	54.4	S 10	05 29	10 45	11 20	11 57	
	20	118 41.5	17.3	44 41.7	17.0	4	49.5	13.7	54.3	20	05 45	10 43	11 14	11 46	
	21	133 41.4	17.0	59 17.7	17.0	4	03.2	13.7	54.3	30	06 00	10 41	11 07	11 34	
	22	148 41.3	16.7	73 53.7	17.0	5	16.9	13.7	54.3	35	06 08	10 39	11 03	11 27	
23	163 41.2	16.4	88 29.7	17.0	5	30.6	13.6	54.3	40	06 17	10 38	11 05	11 20		
LUCERNES	00	178 41.1	N22 16.1	103 05.7	16.9	S 5	44.2	13.7	54.3	45	06 26	10 36	11 10	11 31	
	01	193 41.0	15.7	117 41.6	17.0	5	57.9	13.6	54.3	S 50	06 37	10 34	11 00	11 16	
	02	208 40.9	15.4	132 17.6	16.9	6	11.5	13.6	54.3	52	06 42	10 33	10 43	10 55	
	03	223 40.8	15.1	146 53.5	16.9	6	25.1	13.5	54.3	54	06 47	10 32	10 40	10 49	
	04	238 40.8	14.8	161 29.4	16.9	6	38.6	13.5	54.3	56	06 52	10 31	10 36	10 43	
	05	253 40.7	14.5	176 05.3	16.9	6	52.1	13.5	54.3	58	06 59	10 30	10 33	10 36	
	06	268 40.6	N22 14.2	190 41.2	16.8	S 7	05.6	13.5	54.3	S 60	07 05	10 29	10 28	10 30	
	07	283 40.5	13.8	205 17.0	16.8	7	19.1	13.5	54.3	Lat.	Ocaso Sol	Crepúsculo Luna			
	08	298 40.4	13.5	219 52.8	16.8	7	32.6	13.4	54.3	Civil	Naut.				
	09	313 40.3	13.2	234 28.6	16.8	7	46.0	13.4	54.3	Naut.	9	10	11	12	
	10	328 40.2	12.9	249 04.4	16.8	7	59.4	13.3	54.3	h m	h m	h m	h m	h m	
	11	343 40.1	12.6	263 40.2	16.7	8	12.7	13.4	54.3	N 72	21 57	21 22	20 29	19 42	
	12	358 40.1	N22 12.3	278 15.9	16.7	S 8	26.1	13.3	54.3	N 70	22 04	21 38	21 03	20 49	
	13	13 40.0	11.9	292 51.6	16.7	8	39.4	13.2	54.3	68	22 10	21 52	21 28	20 49	
	14	28 39.9	11.6	307 27.3	16.6	8	52.6	13.2	54.3	66	22 15	22 03	21 47	21 25	
	15	43 39.8	11.3	322 02.9	16.6	9	05.8	13.2	54.3	64	22 20	22 12	22 03	21 52	
	16	58 39.7	11.0	336 38.5	16.6	9	19.0	13.2	54.3	62	22 24	22 20	22 16	22 12	
	17	73 39.6	10.6	351 14.1	16.5	9	32.2	13.1	54.3	60	21 15	22 27	22 27	22 29	
	18	88 39.5	N22 10.3	5 49.6	16.5	S 9	45.3	13.1	54.3	N 58	20 57	22 05	22 37	22 43	
	19	103 39.4	10.0	20 25.1	16.5	9	58.4	13.1	54.3	56	20 42	22 32	22 38	22 45	
	20	118 39.4	09.7	35 00.6	16.4	10	11.5	13.0	54.3	54	20 29	22 35	22 43	22 53	
	21	133 39.3	09.3	49 36.0	16.4	10	24.5	13.0	54.3	52	20 18	22 37	22 47	23 00	
	22	148 39.2	09.0	64 11.4	16.4	10	37.5	12.9	54.3	50	20 08	22 39	22 51	23 06	
23	163 39.1	08.7	78 46.8	16.3	10	50.4	12.9	54.3	45	19 47	22 43	23 00	23 19		
MARTES	00	178 39.0	N22 08.4	93 22.1	16.3	S 11	03.3	12.9	54.3	N 40	19 30	20 02	20 43	23 08	
	01	193 38.9	08.0	107 57.4	16.2	11	16.2	12.8	54.3	35	19 16	19 45	20 21	23 08	
	02	208 38.9	07.7	122 32.6	16.2	11	29.0	12.8	54.3	30	19 04	19 31	20 04	23 14	
	03	223 38.8	07.4	137 07.8	16.2	11	41.8	12.7	54.3	20	18 43	19 08	19 36	23 19	
	04	238 38.7	07.0	151 43.0	16.1	11	54.5	12.7	54.3	N 10	18 26	18 48	19 15	23 29	
	05	253 38.6	06.7	166 18.1	16.1	12	07.2	12.7	54.3	0	18 09	18 31	18 57	23 38	
	06	268 38.5	N22 06.4	180 53.2	16.0	S 12	19.9	12.6	54.3	S 10	17 53	18 15	18 41	23 46	
	07	283 38.4	06.1	195 28.2	15.9	12	32.5	12.5	54.3	20	17 35	18 15	18 26	23 54	
	08	298 38.3	05.7	210 03.1	16.0	12	45.0	12.5	54.3	30	17 15	17 41	18 11	24 03	
	09	313 38.3	05.4	224 38.1	15.8	12	57.5	12.5	54.3	40	17 04	17 31	18 03	24 12	
	10	328 38.2	05.1	239 12.9	15.8	13	10.0	12.4	54.3	35	17 04	17 31	18 03	24 18	
	11	343 38.1	04.7	253 47.7	15.8	13	22.4	12.4	54.3	40	16 50	17 20	17 54	24 25	
	12	358 38.0	N22 04.4	268 22.5	15.7	S 13	34.8	12.3	54.3	45	16 35	17 08	17 45	24 32	
	13	13 37.9	04.0	282 57.2	15.7	13	47.1	12.3	54.3	S 50	16 15	16 53	17 34	24 42	
	14	28 37.9	03.7	297 31.9	15.6	13	59.4	12.2	54.3	52	16 06	16 46	17 29	24 51	
	15	43 37.8	03.4	312 06.5	15.5	14	11.6	12.2	54.3	54	15 56	16 39	17 24	25 01	
	16	58 37.7	03.0	326 41.0	15.5	14	23.8	12.1	54.3	56	15 45	16 30	17 19	25 06	
	17	73 37.6	02.7	341 15.5	15.4	14	35.9	12.1	54.3	58	15 31	16 21	17 12	25 12	
	18	88 37.5	N22 02.4	355 49.9	15.4	S 14	48.0	12.0	54.3	S 60	15 16	16 10	17 06	25 19	
	19	103 37.4	02.0	10 24.3	15.3	15	00.0	12.0	54.3	Lat.	SOL E.T. (-)				
	20	118 37.4	01.7	24 58.6	15.3	15	12.0	11.9	54.3	Pas. Mer.	LUNA				
	21	133 37.3	01.3	39 32.9	15.2	15	23.9	11.8	54.3	00 h	12 h	Pas. Mer. Sup.	Mer. Inf.	Edad.	Fase
	22	148 37.2	01.0	54 07.1	15.1	15	35.7	11.8	54.4	m s	m s	h m	h m	h m	d
23	163 37.1	00.6	68 41.2	15.0	15	47.5	11.8	54.4	9	05 06	05 11	12 05	16 56	04 37	06
									10	05 15	05 20	12 05	17 36	05 16	07
									11	05 24	05 28	12 05	18 17	05 56	08
	S.D.	15.8	d 0.3	S.D.	14.8	14.8	14.8								



T.M.G. (TU)	ARIES		VENUS -3.9		MARTE +1.8		JUPITER -2.0		SATURNO +0.1		ESTRELLAS																																																																								
	A.H.G.	A.H.G. Dec.	A.H.G. Dec.	A.H.G. Dec.	A.H.G. Dec.	A.H.G. Dec.	A.H.G. Dec.	A.H.G. Dec.	Nombre	A. H. S.	Dec.																																																																								
M I E R C O L E S	12 00	289 52.1	151 29.0 N17 46.7	151 11.8 N17 14.1	204 16.3 N23 01.2	9 07.0 S22 28.0	Acamar	315 32.0 S40 20.4																																																																											
	01	304 54.6	166 28.4 45.8	166 12.7 13.6	219 18.1 01.2	24 09.7 28.0	Achernar	335 39.9 S57 17.0																																																																											
	02	319 57.1	181 27.9 44.9	181 13.6 13.1	234 20.0 01.3	39 12.4 28.1	Acrux	173 30.0 S63 02.8																																																																											
	03	334 59.5	196 27.3 .. 44.0	196 14.5 .. 12.6	249 21.9 .. 01.3	54 15.0 .. 28.1	Adhara	255 27.1 S28 57.3																																																																											
	04	350 02.0	211 26.7 43.1	211 15.4 12.1	264 23.7 01.3	69 17.7 28.1	Aldebaran	291 10.3 N16 29.5																																																																											
	05	5 04.5	226 26.2 42.2	226 16.3 11.7	279 25.6 01.3	84 20.3 28.1																																																																													
	06	20 06.9	241 25.6 N17 41.3	241 17.2 N17 11.2	294 27.4 N23 01.3	99 23.0 S22 28.1	Alioth	166 36.2 N56 01.2																																																																											
	07	35 09.4	256 25.0 40.4	256 18.1 10.7	309 29.3 01.4	114 25.7 28.1	Alkaid	153 12.8 N49 22.1																																																																											
	08	50 11.8	271 24.5 39.5	271 19.1 10.2	324 31.2 01.4	129 28.3 28.2	Al Na'ir	28 05.7 S47 00.5																																																																											
	09	65 14.3	286 23.9 .. 38.6	286 20.0 .. 09.8	339 33.0 .. 01.4	144 31.0 .. 28.2	Alnilam	276 04.9 S 1 12.3																																																																											
	10	80 16.8	301 23.3 37.7	301 20.9 09.3	354 34.9 01.4	159 33.6 28.2	Alphard	218 14.1 S 8 36.7																																																																											
	11	95 19.2	316 22.8 36.8	316 21.8 08.8	9 36.8 01.4	174 36.3 28.2																																																																													
	12	110 21.7	331 22.2 N17 35.8	331 22.7 N17 08.3	24 38.6 N23 01.5	189 39.0 S22 28.2	Alphecca	126 26.0 N26 45.0																																																																											
	13	125 24.2	346 21.6 34.9	346 23.6 07.8	39 40.5 01.5	204 41.6 28.2	Alpheratz	358 02.1 N29 01.9																																																																											
	14	140 26.6	1 21.1 34.0	1 24.5 07.4	54 42.4 01.5	219 44.3 28.3	Altair	62 25.4 N 8 50.4																																																																											
	15	155 29.1	16 20.5 .. 33.1	16 25.4 .. 06.9	69 44.2 .. 01.5	234 46.9 .. 28.3	Ankaa	353 33.1 S42 21.4																																																																											
	16	170 31.6	31 19.9 32.2	31 26.3 06.4	84 46.1 01.5	240 49.6 28.3	Antares	112 48.1 S26 24.8																																																																											
	17	185 34.0	46 19.4 31.3	46 27.2 05.9	99 48.0 01.6	264 52.2 28.3																																																																													
	18	200 36.5	61 18.8 N17 30.4	61 28.1 N17 05.5	114 49.8 N23 01.6	279 54.9 S22 28.3	Arcturus	146 12.0 N19 14.2																																																																											
	19	215 38.9	76 18.2 29.5	76 29.0 05.0	129 51.7 01.6	294 57.6 28.3	Atria	108 05.8 S69 00.9																																																																											
	20	230 41.4	91 17.7 28.5	91 29.9 04.5	144 53.6 01.6	310 00.2 28.4	Avior	234 26.2 S59 28.5																																																																											
	21	245 43.9	106 17.1 .. 27.6	106 30.9 .. 04.0	159 55.4 .. 01.6	325 02.9 .. 28.4	Bellatrix	278 51.6 N 6 20.6																																																																											
	22	260 46.3	121 16.6 26.7	121 31.8 03.5	174 57.3 01.6	340 05.5 28.4	Betelgeuse	271 21.1 N 7 24.5																																																																											
23	275 48.8	136 16.0 25.8	136 32.7 03.1	189 59.2 01.7	355 08.2 28.4																																																																														
J U E V E S	13 00	290 51.3	151 15.4 N17 24.9	151 33.6 N17 02.6	205 01.0 N23 01.7	10 10.8 S22 28.4	Canopus	264 04.7 S52 41.2																																																																											
	01	305 53.7	166 14.9 24.0	166 34.5 02.1	220 02.9 01.7	25 13.5 28.5	Capella	281 01.5 N45 59.3																																																																											
	02	320 56.2	181 14.3 23.0	181 35.4 01.6	235 04.8 01.7	40 16.2 28.5	Deneb	49 43.4 N45 14.5																																																																											
	03	335 58.7	196 13.8 .. 22.1	196 36.3 .. 01.1	250 06.6 .. 01.7	55 18.8 .. 28.5	Denebola	182 52.1 N14 37.9																																																																											
	04	351 01.1	211 13.2 21.2	211 37.2 00.6	265 08.5 01.8	70 21.5 28.5	Diphda	349 13.8 S18 02.4																																																																											
	05	6 03.6	226 12.7 20.3	226 38.1 17 00.2	280 10.4 01.8	85 24.1 28.5																																																																													
	06	21 06.1	241 12.1 N17 19.3	241 39.0 N16 59.7	295 12.2 N23 01.8	100 26.8 S22 28.5	Dubhe	194 13.7 N61 48.7																																																																											
	07	36 08.5	256 11.5 18.4	256 39.9 59.2	310 14.1 01.8	115 29.4 28.6	Elnath	278 35.7 N28 36.1																																																																											
	08	51 11.0	271 1 0 17.5	271 40.8 58.7	325 16.0 01.8	130 32.1 28.6	Eltanin	90 54.0 N51 29.4																																																																											
	09	66 13.4	286 10.4 .. 16.6	286 41.8 .. 58.2	340 17.8 .. 01.9	145 34.8 .. 28.6	Enif	34 04.5 N 9 49.6																																																																											
	10	81 15.9	301 09.9 15.6	301 42.7 57.8	355 19.7 01.9	160 37.4 28.6	Fomalhaut	15 43.4 S29 40.5																																																																											
	11	96 18.4	316 09.3 14.7	316 43.6 57.3	10 21.6 01.9	175 40.1 28.6																																																																													
	12	111 20.8	331 08.8 N17 13.8	331 44.5 N16 56.8	25 23.4 N23 01.9	190 42.7 S22 28.6	Gacrux	172 21.4 S57 03.6																																																																											
	13	126 23.3	346 08.2 12.8	346 45.4 56.3	40 25.3 01.9	205 45.4 28.7	Gienah	176 11.0 S17 29.2																																																																											
	14	141 25.8	1 07.7 11.9	1 46.3 55.8	55 27.2 01.9	220 48.1 28.7	Hadar	149 13.7 S60 19.8																																																																											
	15	156 28.2	16 07.1 .. 11.0	16 47.2 .. 55.3	70 29.0 .. 02.0	235 50.7 .. 28.7	Hamal	328 21.2 N23 24.8																																																																											
	16	171 30.7	31 06.6 10.1	31 48.1 54.9	85 30.9 02.0	250 53.4 28.7	Kaus Aust.	84 07.2 S34 23.5																																																																											
	17	186 33.2	46 06.0 09.1	46 49.0 54.4	100 32.8 02.0	265 56.0 28.7																																																																													
	18	201 35.6	61 05.5 N17 08.2	61 49.9 N16 53.9	115 34.7 N23 02.0	280 58.7 S22 28.7	Kochab	137 18.3 N74 12.1																																																																											
	19	216 38.1	76 04.9 07.3	76 50.9 53.4	130 36.5 02.0	296 01.3 28.8	Markab	13 56.1 N15 08.9																																																																											
	20	231 40.6	91 04.4 06.3	91 51.8 52.9	145 38.4 02.1	311 04.0 28.8	Menkar	314 34.0 N 4 03.1																																																																											
	21	246 43.0	106 03.8 .. 05.4	106 52.7 .. 52.4	160 40.3 .. 02.1	326 06.6 .. 28.8	Menkent	148 28.9 S36 19.4																																																																											
	22	261 45.5	121 03.3 04.4	121 53.6 52.0	175 42.1 02.1	341 09.3 28.8	Miaplacidus	221 44.7 S69 40.5																																																																											
23	276 47.9	136 02.7 03.5	136 54.5 51.5	190 44.0 02.1	356 12.0 28.8																																																																														
V I E R N E S	14 00	291 50.4	151 02.2 N17 02.6	151 55.4 N16 51.0	205 45.9 N23 02.1	11 14.6 S22 28.8	Mirfak	309 06.6 N49 49.4																																																																											
	01	306 52.9	166 01.7 01.6	166 56.3 50.5	220 47.7 02.1	26 17.3 28.9	Nunki	76 20.2 S26 18.7																																																																											
	02	321 55.3	181 01.1 17 00.7	181 57.2 50.0	235 49.6 02.2	41 19.9 28.9	Peacock	53 46.7 S56 46.1																																																																											
	03	336 57.8	196 00.6 16 59.8	196 58.1 .. 49.5	250 51.5 .. 02.2	56 22.6 .. 28.9	Pollux	243 50.0 N28 03.3																																																																											
	04	352 00.3	211 00.0 58.8	211 59.1 49.0	265 53.3 02.2	71 25.2 28.9	Procyon	245 18.9 N 5 15.3																																																																											
	05	7 02.7	225 59.5 57.9	227 00.0 48.6	280 55.2 02.2	86 27.9 28.9																																																																													
	06	22 05.2	240 58.9 N16 56.9	242 00.9 N16 48.1	295 57.1 N23 02.2	101 30.6 S22 29.0	Rasalhague	96 22.8 N12 34.0																																																																											
	07	37 07.7	255 58.4 56.0	257 01.8 47.6	310 58.9 02.3	116 33.2 29.0	Regulus	208 02.8 N12 01.2																																																																											
	08	52 10.1	270 57.9 55.0	272 02.7 47.1	326 00.8 02.3	131 35.9 29.0	Rigel	281 29.6 S 8 12.6																																																																											
	09	67 12.6	285 57.3 .. 54.1	287 03.6 .. 46.6	341 02.7 .. 02.3	146 38.5 .. 29.0	Rigil Kent.	140 16.4 S60 47.9																																																																											
	10	82 15.1	300 56.8 53.2	302 04.5 46.1	356 04.5 02.3	161 41.2 29.0	Sabik	102 32.9 S15 42.9																																																																											
	11	97 17.5	315 56.2 52.2	317 05.4 45.6	11 06.4 02.3	176 43.8 29.0																																																																													
	12	112 20.0	330 55.7 N16 51.3	332 06.4 N16 45.1	26 08.3 N23 02.3	191 46.5 S22 29.1	Schedar	350 01.3 N56 28.6																																																																											
	13	127 22.4	345 55.2 50.3	347 07.3 44.7	41 10.2 02.4	206 49.2 29.1	Shaula	96 46.0 S37 06.0																																																																											
	14	142 24.9	0 54.6 49.4	2 08.2 44.2	56 12.0 02.4	221 51.8 29.1	Sirius	258 49.9 S16 41.9																																																																											
	15	157 27.4	15 54.1 .. 48.4	17 09.1 .. 43.7	71 13.9 .. 02.4	236 54.5 .. 29.1	Spica	158 50.3 S11 06.5																																																																											
	16	172 29.8	30 53.6 47.5	32 10.0 43.2	86 15.8 02.4	251 57.1 29.1	Suhail	223 06.2 S43 23.4																																																																											
	17	187 32.3	45 53.0 46.5	47 10.9 42.7	101 17.6 02.4	266 59.8 29.1																																																																													
	18	202 34.8	60 52.5 N16 45.6	62 11.8 N16 42.2	116 19.5 N23 02.4	282 02.4 S22 29.2	Vega	80 50.7 N38 46.4																																																																											
	19	217 37.2	75 52.0 44.6	77 12.7 41.7	131 21.4 02.5	297 05.1 29.2	Zuben'ubi	137 25.3 S16 00.1																																																																											
	20	232 39.7	90 51.4 43.7	92 13.7 41.2	146 23.2 02.5	312 07.7 29.2																																																																													
	21	247 42.2	105 50.9 .. 42.7	107 14.6 .. 40.7	161 25.1 .. 02.5	327 10.4 .. 29.2																																																																													
	22	262 44.6	120 50.4 41.7	122 15.5 40.3	176 27.0 02.5	342 13.1 29.2																																																																													
23	277 47.1	135 49.8 40.8	137 16.4 39.8	191 28.9 02.5	357 15.7 29.2																																																																														
<table border="0" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:10%;"></td> <td style="width:10%; text-align: center;">h</td> <td style="width:10%; text-align: center;">m</td> <td colspan="2"></td> <td style="width:10%; text-align: center;">Pas. Mer.</td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> </tr> <tr> <td></td> <td style="text-align: center;">4</td> <td style="text-align: center;">35.8</td> <td style="text-align: center;">v</td> <td style="text-align: center;">-0.6</td> <td style="text-align: center;">d</td> <td style="text-align: center;">0.9</td> <td style="text-align: center;">v</td> <td style="text-align: center;">0.9</td> <td style="text-align: center;">d</td> <td style="text-align: center;">0.5</td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> <td style="text-align: center;">v</td> <td style="text-align: center;">1.9</td> <td style="text-align: center;">d</td> <td style="text-align: center;">0.0</td> <td style="text-align: center;">v</td> <td style="text-align: center;">2.7</td> <td style="text-align: center;">d</td> <td style="text-align: center;">0.0</td> <td></td> </tr> </table>													h	m			Pas. Mer.								4	35.8	v	-0.6	d	0.9	v	0.9	d	0.5					v	1.9	d	0.0	v	2.7	d	0.0																																					
	h	m			Pas. Mer.																																																																														
	4	35.8	v	-0.6	d	0.9	v	0.9	d	0.5																																																																									
			v	1.9	d	0.0	v	2.7	d	0.0																																																																									
<table border="0" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> <td style="width:10%;"></td> </tr> <tr> <td></td> <td style="text-align: center;">A. H. S.</td> <td style="text-align: center;">Pas. Mer.</td> <td colspan="2"></td> <td style="text-align: center;">h</td> <td style="text-align: center;">m</td> <td colspan="2"></td> <td style="text-align: center;">h</td> <td style="text-align: center;">m</td> <td></td> </tr> <tr> <td></td> <td style="text-align: center;">Venus</td> <td style="text-align: center;">220 24.2</td> <td style="text-align: center;">13</td> <td style="text-align: center;">55</td> <td></td> <td></td> <td colspan="2"></td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td style="text-align: center;">Marte</td> <td style="text-align: center;">220 42.3</td> <td style="text-align: center;">13</td> <td style="text-align: center;">53</td> <td></td> <td></td> <td colspan="2"></td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td style="text-align: center;">Júpiter</td> <td style="text-align: center;">274 09.8</td> <td style="text-align: center;">10</td> <td style="text-align: center;">19</td> <td></td> <td></td> <td colspan="2"></td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td style="text-align: center;">Saturno</td> <td style="text-align: center;">79 19.6</td> <td style="text-align: center;">23</td> <td style="text-align: center;">15</td> <td></td> <td></td> <td colspan="2"></td> <td></td> <td></td> <td></td> </tr> </table>																									A. H. S.	Pas. Mer.			h	m			h	m			Venus	220 24.2	13	55									Marte	220 42.3	13	53									Júpiter	274 09.8	10	19									Saturno	79 19.6	23	15							
	A. H. S.	Pas. Mer.			h	m			h	m																																																																									
	Venus	220 24.2	13	55																																																																															
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	Saturno	79 19.6	23	15																																																																															



T.M.G. (TU)	SOL		LUNA				Lat.	Crepúsculo		Orto Sol	Orto Luna						
	A.H.G.	Dec.	A.H.G.	v	Dec.	d		P.H.	Náut.		Civil	12	13	14	15		
	° / ' / "	° / ' / "	° / ' / "	° / ' / "	° / ' / "	° / ' / "		° / ' / "	h m		h m	h m	h m	h m	h m	h m	
M I E R C O L E S	12 00	178 37.0	N22 00.3	83 15.2	15.0	S15 59.3	11.6	54.4	N 72	□	□	□	18 02	■	■	■	■
	01	193 37.0	22 00.0	97 49.2	15.0	16 10.9	11.7	54.4	N 70	□	□	□	16 56	■	■	■	■
	02	208 36.9	21 59.6	112 23.2	14.8	16 22.6	11.5	54.4	68	□	□	□	16 21	■	■	■	■
	03	223 36.8	.. 59.3	126 57.0	14.8	16 34.1	11.5	54.4	66	///	///	01 26	16 21	18 49	■	■	■
	04	238 36.7	58.9	141 30.8	14.7	16 45.6	11.4	54.4	64	///	///	02 09	15 56	17 50	■	■	■
	05	253 36.6	58.6	156 04.5	14.7	16 57.0	11.4	54.4	62	///	00 30	02 38	15 36	17 17	19 06	21 04	■
	06	268 36.6	N21 58.2	170 38.2	14.6	S17 08.4	11.3	54.4	60	///	01 38	03 00	15 20	16 52	18 27	19 53	■
	07	283 36.5	57.9	185 11.8	14.5	17 19.7	11.3	54.4	N 58	///	02 11	03 17	15 07	16 33	17 59	19 18	■
	08	298 36.4	57.5	199 45.3	14.4	17 31.0	11.2	54.4	56	00 28	02 35	03 32	14 55	16 17	17 38	18 52	■
	09	313 36.3	.. 57.2	214 18.7	14.4	17 42.2	11.1	54.5	54	01 30	02 54	03 44	14 45	16 03	17 20	18 32	■
	10	328 36.3	56.8	228 52.1	14.3	17 53.3	11.0	54.5	52	02 00	03 09	03 55	14 36	15 51	17 06	18 15	■
	11	343 36.2	56.5	243 25.4	14.2	18 04.3	11.0	54.5	50	02 23	03 23	04 05	14 28	15 41	16 53	18 00	■
	12	358 36.1	N21 56.1	257 58.6	14.2	S18 15.3	10.9	54.5	45	03 02	03 49	04 26	14 12	15 19	16 26	17 31	■
	13	13 36.0	55.8	272 31.8	14.1	18 26.2	10.8	54.5	N 40	03 30	04 10	04 42	13 58	15 01	16 05	17 08	■
	14	28 35.9	55.4	287 04.9	14.0	18 37.0	10.8	54.5	35	03 51	04 27	04 56	13 46	14 46	15 48	16 49	■
	15	43 35.9	.. 55.1	301 37.9	13.9	18 47.8	10.7	54.5	30	04 08	04 41	05 08	13 36	14 34	15 33	16 32	■
	16	58 35.8	54.7	316 10.8	13.8	18 58.5	10.6	54.5	20	04 35	05 04	05 28	13 19	14 12	15 08	16 05	■
	17	73 35.7	54.4	330 43.6	13.8	19 09.1	10.6	54.5	N 10	04 56	05 23	05 46	13 04	13 53	14 46	15 41	■
	18	88 35.6	N21 54.0	345 16.4	13.7	S19 19.7	10.4	54.6	0	05 14	05 40	06 02	12 50	13 36	14 26	15 19	■
	19	103 35.6	53.7	359 49.1	13.6	19 30.1	10.4	54.6	S 10	05 30	05 56	06 18	12 36	13 19	14 06	14 58	■
	20	118 35.5	53.3	14 21.7	13.5	19 40.5	10.4	54.6	20	05 44	06 12	06 35	12 21	13 00	13 44	14 34	■
	21	133 35.4	.. 52.9	28 54.2	13.4	19 50.9	10.2	54.6	30	05 59	06 29	06 55	12 05	12 39	13 20	14 07	■
	22	148 35.3	52.6	43 26.6	13.4	20 01.1	10.2	54.6	35	06 07	06 39	07 06	11 55	12 27	13 05	13 51	■
23	163 35.3	52.2	57 59.0	13.2	20 11.3	10.0	54.6	40	06 16	06 49	07 19	11 44	12 13	12 49	13 33	■	
13 00	178 35.2	N21 51.9	72 31.2	13.2	S20 21.3	10.0	54.6	45	06 25	07 02	07 35	11 31	11 56	12 29	13 10	■	
01	193 35.1	51.5	87 03.4	13.1	20 31.3	10.0	54.7	S 50	06 35	07 16	07 53	11 16	11 36	12 04	12 42	■	
02	208 35.0	51.2	101 35.5	13.0	20 41.3	9.8	54.7	52	06 40	07 23	08 02	11 08	11 26	11 52	12 28	■	
03	223 35.0	.. 50.8	116 07.5	13.0	20 51.1	9.8	54.7	54	06 45	07 30	08 12	11 00	11 16	11 38	12 12	■	
04	238 34.9	50.4	130 39.5	12.8	21 00.9	9.6	54.7	56	06 50	07 38	08 23	10 51	11 03	11 22	11 53	■	
05	253 34.8	50.1	145 11.3	12.8	21 10.5	9.6	54.7	58	06 56	07 47	08 36	10 41	10 49	11 04	11 29	■	
06	268 34.7	N21 49.7	159 43.1	12.7	S21 20.1	9.5	54.7	S 60	07 03	07 57	08 51	10 30	10 33	10 40	10 59	■	
07	283 34.7	49.3	174 14.8	12.5	21 29.6	9.4	54.8	Lat.	Ocaso Sol	Crepúsculo		Ocaso Luna					
08	298 34.6	49.0	188 46.3	12.5	21 39.0	9.3	54.8			Civil	Náut.	12	13	14	15		
09	313 34.5	.. 48.6	203 17.8	12.5	21 48.3	9.3	54.8	N 70	h m	h m	h m	h m	h m	h m	h m	h m	
10	328 34.4	48.2	217 49.3	12.3	21 57.6	9.1	54.8	N 70	□	□	□	19 42	■	■	■	■	
11	343 34.4	47.9	232 20.6	12.2	22 06.7	9.1	54.8	N 70	□	□	□	20 49	■	■	■	■	
12	358 34.3	N21 47.5	246 51.8	12.2	S22 15.8	8.9	54.8	68	□	□	□	20 25	■	■	■	■	
13	13 34.2	47.1	261 23.0	12.0	22 24.7	8.9	54.8	66	22 42	///	///	21 25	20 34	■	■	■	
14	28 34.2	46.8	275 54.0	12.0	22 33.6	8.7	54.9	64	22 00	///	///	21 52	21 34	■	■	■	
15	43 34.1	.. 46.4	290 25.0	11.8	22 42.3	8.7	54.9	62	22 00	23 32	///	22 12	22 08	22 04	21 59	■	
16	58 34.0	46.0	304 55.8	11.8	22 51.0	8.6	54.9	60	21 11	22 31	///	22 12	22 08	22 04	21 59	■	
17	73 33.9	45.7	319 26.6	11.7	22 59.6	8.4	54.9	N 58	20 53	21 59	///	22 29	22 33	22 44	23 11	■	
18	88 33.9	N21 45.3	333 57.3	11.6	S23 08.0	8.4	54.9	56	20 39	21 35	23 35	22 43	22 53	23 11	23 46	■	
19	103 33.8	44.9	348 27.9	11.5	23 16.4	8.3	55.0	54	20 26	21 17	22 39	22 55	23 10	23 33	24 12	■	
20	118 33.7	44.6	2 58.4	11.4	23 24.7	8.1	55.0	52	20 15	21 01	22 09	23 06	23 24	23 51	24 32	■	
21	133 33.7	.. 44.2	17 28.8	11.4	23 32.8	8.1	55.0	50	20 06	20 48	21 47	23 15	23 36	24 06	00 06	■	
22	148 33.6	43.8	31 59.2	11.2	23 40.9	8.0	55.0	45	19 45	20 21	21 08	23 24	23 47	24 19	00 19	■	
23	163 33.5	43.4	46 29.4	11.1	23 48.9	7.8	55.0	N 40	19 29	20 01	20 41	23 42	24 10	00 10	00 46	■	
14 00	178 33.4	N21 43.1	60 59.5	11.1	S23 56.7	7.7	55.1	35	19 15	19 44	20 20	23 57	24 29	00 29	01 08	■	
01	193 33.4	42.7	75 29.6	10.9	24 04.4	7.7	55.1	30	19 03	19 30	20 03	24 09	24 09	00 44	01 26	■	
02	208 33.3	42.3	89 59.5	10.9	24 12.1	7.5	55.1	20	18 43	19 07	19 36	24 20	00 20	00 58	01 41	■	
03	223 33.2	.. 41.9	104 29.4	10.8	24 19.6	7.4	55.1	N 10	18 26	18 48	19 15	00 03	00 39	01 21	02 07	■	
04	238 33.2	41.6	118 59.2	10.7	24 27.0	7.3	55.2	0	18 09	18 32	18 57	00 15	00 56	01 41	02 30	■	
05	253 33.1	41.2	133 28.9	10.5	24 34.3	7.2	55.2	S 10	18 09	18 32	18 57	00 27	01 12	02 00	02 51	■	
06	268 33.0	N21 40.8	147 58.4	10.5	S24 41.5	7.1	55.2	20	17 36	18 00	18 27	00 39	01 27	02 18	03 12	■	
07	283 33.0	40.4	162 27.9	10.5	24 48.6	7.0	55.2	30	17 17	17 43	18 12	00 52	01 44	02 39	03 35	■	
08	298 32.9	40.0	176 57.4	10.3	24 55.6	6.8	55.2	35	17 05	17 33	18 04	01 07	02 04	03 02	04 02	■	
09	313 32.8	.. 39.7	191 26.7	10.2	25 02.4	6.8	55.3	40	16 52	17 22	17 56	01 16	02 15	03 16	04 17	■	
10	328 32.8	39.3	205 55.9	10.1	25 09.2	6.6	55.3	45	16 37	17 10	17 47	01 26	02 28	03 32	04 35	■	
11	343 32.7	38.9	220 25.0	10.1	25 15.8	6.5	55.3	S 50	16 18	16 56	17 36	01 37	02 44	03 51	04 57	■	
12	358 32.6	N21 38.5	234 54.1	9.9	S25 22.3	6.3	55.3	52	16 10	16 49	17 32	01 51	03 03	04 15	05 25	■	
13	13 32.6	38.1	249 23.0	9.9	25 28.6	6.3	55.4	54	16 00	16 42	17 27	01 58	03 12	04 27	05 39	■	
14	28 32.5	37.8	263 51.9	9.8	25 34.9	6.1	55.4	56	15 48	16 34	17 22	02 05	03 22	04 40	05 55	■	
15	43 32.4	.. 37.4	278 20.7	9.7	25 41.0	6.0	55.4	58	15 35	16 25	17 16	02 14	03 34	04 55	06 14	■	
16	58 32.4	37.0	292 49.4	9.6	25 47.0	5.9	55.4	S 60	15 20	16 15	17 09	02 23	03 47	05 14	06 37</		



T.M.G. (TU)	ARIES			VENUS -3.9			MARTE +1.8			JUPITER -2.0			SATURNO +0.1			ESTRELLAS		
	A.H.G.	A.H.G.	Dec.	A.H.G.	Dec.		A.H.G.	Dec.		A.H.G.	Dec.		A.H.G.	Dec.		Nombre	A. H. S.	Dec.
15 00	292 49.5	150 49.3 N16	39.8	152 17.3 N16	39.3		206 30.7 N23	02.5		12 18.4 S22	29.3		Acamar	315 32.0 S40	20.4			
01	307 52.0	165 48.8	38.9	167 18.2	38.8		221 32.6	02.6		27 21.0	29.3		Achernar	335 39.8 S57	17.0			
02	322 54.5	180 48.2	37.9	182 19.1	38.3		236 34.5	02.6		42 23.7	29.3		Acrux	173 30.0 S63	02.8			
03	337 56.9	195 47.7	37.0	197 20.1	37.8		251 36.3	02.6		57 26.3	29.3		Adhara	255 27.1 S28	57.3			
04	352 59.4	210 47.2	36.0	212 21.0	37.3		266 38.2	02.6		72 29.0	29.3		Aldebaran	291 10.3 N16	29.5			
05	8 01.9	225 46.6	35.0	227 21.9	36.8		281 40.1	02.6		87 31.6	29.3							
06	23 04.3	240 46.1 N16	34.1	242 22.8 N16	36.3		296 41.9 N23	02.6		102 34.3 S22	29.4		Alioth	166 36.2 N56	01.2			
07	38 06.8	255 45.6	33.1	257 23.7	35.8		311 43.8	02.7		117 37.0	29.4		Alkaid	153 12.8 N49	22.1			
08	53 09.3	270 45.1	32.2	272 24.6	35.4		326 45.7	02.7		132 39.6	29.4		Al Na'ir	28 05.7 S47	00.5			
S 09	68 11.7	285 44.5	31.2	287 25.5	34.9		341 47.6	02.7		147 42.3	29.4		Alnilam	276 04.9 S 1	12.3			
A 10	83 14.2	300 44.0	30.2	302 26.5	34.4		356 49.4	02.7		162 44.9	29.4		Alphard	218 14.1 S 8	36.7			
B 11	98 16.7	315 43.5	29.3	317 27.4	33.9		11 51.3	02.7		177 47.6	29.4							
A 12	113 19.1	330 43.0 N16	28.3	332 28.3 N16	33.4		26 53.2 N23	02.7		192 50.2 S22	29.5		Alphecca	126 26.0 N26	45.0			
D 13	128 21.6	345 42.4	27.3	347 29.2	32.9		41 55.0	02.8		207 52.9	29.5		Alpheratz	358 02.1 N29	01.9			
O 14	143 24.0	0 41.9	26.4	2 30.1	32.4		56 56.9	02.8		222 55.5	29.5		Alnitak	62 25.4 N 8	50.4			
15	158 26.5	15 41.4	25.4	17 31.0	31.9		71 58.8	02.8		237 58.2	29.5		Ankaa	353 33.1 S42	21.4			
16	173 29.0	30 40.9	24.4	32 31.9	31.4		87 00.7	02.8		253 00.8	29.5		Antares	112 48.1 S26	24.8			
17	188 31.4	45 40.3	23.5	47 32.9	30.9		102 02.5	02.8		268 03.5	29.5							
18	203 33.9	60 39.8 N16	22.5	62 33.8 N16	30.4		117 04.4 N23	02.8		283 06.2 S22	29.6		Arcturus	146 12.0 N19	14.2			
19	218 36.4	75 39.3	21.5	77 34.7	29.9		132 06.3	02.9		298 08.8	29.6		Atria	108 05.8 S69	00.9			
20	233 38.8	90 38.8	20.5	92 35.6	29.4		147 08.1	02.9		313 11.5	29.6		Avior	234 26.2 S59	28.5			
21	248 41.3	105 38.3	19.6	107 36.5	29.0		162 10.0	02.9		328 14.1	29.6		Bellatrix	278 51.6 N 6	20.6			
22	263 43.8	120 37.7	18.6	122 37.4	28.5		177 11.9	02.9		343 16.8	29.6		Betelgeuse	271 21.1 N 7	24.5			
23	278 46.2	135 37.2	17.6	137 38.4	28.0		192 13.8	02.9		358 19.4	29.6							
16 00	293 48.7	150 36.7 N16	16.7	152 39.3 N16	27.5		207 15.6 N23	02.9		13 22.1 S22	29.7		Canopus	264 04.7 S52	41.2			
01	308 51.2	165 36.2	15.7	167 40.2	27.0		222 17.5	03.0		28 24.7	29.7		Capella	281 01.5 N45	59.3			
02	323 53.6	180 35.7	14.7	182 41.1	26.5		237 19.4	03.0		43 27.4	29.7		Deneb	49 43.4 N45	14.5			
03	338 56.1	195 35.2	13.7	197 42.0	26.0		252 21.3	03.0		58 30.0	29.7		Denebola	182 52.1 N14	37.9			
04	353 58.5	210 34.6	12.7	212 42.9	25.5		267 23.1	03.0		73 32.7	29.7		Diphda	349 13.8 S18	02.4			
05	9 01.0	225 34.1	11.8	227 43.9	25.0		282 25.0	03.0		88 35.4	29.7							
06	24 03.5	240 33.6 N16	10.8	242 44.8 N16	24.5		297 26.9 N23	03.0		103 38.0 S22	29.8		Dubhe	194 13.7 N61	48.7			
07	39 05.9	255 33.1	09.8	257 45.7	24.0		312 28.7	03.1		118 40.7	29.8		Elnath	278 35.7 N28	36.1			
08	54 08.4	270 32.6	08.8	272 46.6	23.5		327 30.6	03.1		133 43.3	29.8		Eltanin	90 54.0 N51	29.4			
DOM 09	69 10.9	285 32.1	07.9	287 47.5	23.0		342 32.5	03.1		148 46.0	29.8		Enif	34 04.5 N 9	49.6			
10	84 13.3	300 31.6	06.9	302 48.4	22.5		357 34.4	03.1		163 48.6	29.8		Fomalhaut	15 43.4 S29	40.5			
11	99 15.8	315 31.0	05.9	317 49.4	22.0		12 36.2	03.1		178 51.3	29.8							
12	114 18.3	330 30.5 N16	04.9	332 50.3 N16	21.5		27 38.1 N23	03.1		193 53.9 S22	29.9		Gacrux	172 21.5 S57	03.6			
13	129 20.7	345 30.0	03.9	347 51.2	21.0		42 40.0	03.1		208 56.6	29.9		Gienah	176 11.0 S17	29.2			
14	144 23.2	0 29.5	02.9	2 52.1	20.5		57 41.9	03.2		223 59.2	29.9		Hadar	149 13.7 S60	19.8			
15	159 25.6	15 29.0	02.0	17 53.0	20.0		72 43.7	03.2		239 01.9	29.9		Hamal	328 21.2 N23	24.8			
16	174 28.1	30 28.5	01.0	32 54.0	19.5		87 45.6	03.2		254 04.5	29.9		Kaus Aust.	84 07.2 S34	23.5			
17	189 30.6	45 28.0 16 00.0		47 54.9	19.0		102 47.5	03.2		269 07.2	29.9							
18	204 33.0	60 27.5 N15	59.0	62 55.8 N16	18.5		117 49.4 N23	03.2		284 09.8 S22	30.0		Kochab	137 18.3 N74	12.1			
19	219 35.5	75 27.0	58.0	77 56.7	18.0		132 51.2	03.2		299 12.5	30.0		Markab	13 56.1 N15	08.9			
20	234 38.0	90 26.5	57.0	92 57.6	17.5		147 53.1	03.3		314 15.2	30.0		Menkar	314 34.0 N 4	03.1			
21	249 40.4	105 26.0	56.0	107 58.5	17.0		162 55.0	03.3		329 17.8	30.0		Menkent	148 28.9 S36	19.4			
22	264 42.9	120 25.4	55.0	122 59.5	16.5		177 56.8	03.3		344 20.5	30.0		Miaplacidus	221 44.7 S69	40.5			
23	279 45.4	135 24.9	54.0	138 00.4	16.0		192 58.7	03.3		359 23.1	30.0							
17 00	294 47.8	150 24.4 N15	53.1	153 01.3 N16	15.6		208 00.6 N23	03.3		14 25.8 S22	30.1		Mirfak	309 06.5 N49	49.4			
01	309 50.3	165 23.9	52.1	168 02.2	15.1		223 02.5	03.3		29 28.4	30.1		Nunki	76 20.2 S26	18.7			
02	324 52.8	180 23.4	51.1	183 03.1	14.6		238 04.3	03.3		44 31.1	30.1		Peacock	53 46.7 S56	46.1			
03	339 55.2	195 22.9	50.1	198 04.1	14.1		253 06.2	03.4		59 33.7	30.1		Pollux	243 50.0 N28	03.3			
04	354 57.7	210 22.4	49.1	213 05.0	13.6		268 08.1	03.4		74 36.4	30.1		Procyon	245 18.8 N 5	15.3			
05	10 00.1	225 21.9	48.1	228 05.9	13.1		283 10.0	03.4		89 39.0	30.1							
06	25 02.6	240 21.4 N15	47.1	243 06.8 N16	12.6		298 11.8 N23	03.4		104 41.7 S22	30.2		Rasalhague	96 22.8 N12	34.0			
07	40 05.1	255 20.9	46.1	258 07.7	12.1		313 13.7	03.4		119 44.3	30.2		Regulus	208 02.8 N12	01.2			
08	55 07.5	270 20.4	45.1	273 08.7	11.6		328 15.6	03.4		134 47.0	30.2		Rigel	281 29.6 S 8	12.6			
L 09	70 10.0	285 19.9	44.1	288 09.6	11.1		343 17.5	03.4		149 49.6	30.2		Rigel Kent.	140 16.4 S60	47.9			
10	85 12.5	300 19.4	43.1	303 10.5	10.6		358 19.3	03.5		164 52.3	30.2		Sabik	102 32.9 S15	42.9			
11	100 14.9	315 18.9	42.1	318 11.4	10.1		13 21.2	03.5		179 54.9	30.2							
12	115 17.4	330 18.4 N15	41.1	333 12.3 N16	09.6		28 23.1 N23	03.5		194 57.6 S22	30.3		Schedar	350 01.2 N56	28.7			
13	130 19.9	345 17.9	40.1	348 13.3	09.1		43 25.0	03.5		210 00.2	30.3		Shaula	96 46.0 S37	06.0			
14	145 22.3	0 17.4	39.1	3 14.2	08.6		58 26.8	03.5		225 02.9	30.3		Sirius	258 49.9 S16	41.9			
15	160 24.8	15 16.9	38.1	18 15.1	08.0		73 28.7	03.5		240 05.6	30.3		Spica	158 50.3 S11				



T.M.G. (TU)	SOL		LUNA				Lat.	Crepúsculo		Orto Sol	Orto Luna									
	A.H.G.	Dec.	A.H.G.	v	Dec.	d		P.H.	Naut.		Civil	15	16	17	18					
												h m	h m	h m	h m	h m	h m	h m	h m	
15 00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23	178	31.8	N21	33.9	48	35.7	8.9	S26	30.5	4.9	55.6	N 72	□	□	□	■	■	■	■	
	193	31.8		33.5	63	03.6	8.9	26	35.4	4.7	55.6	N 70	□	□	□	■	■	■	■	
	208	31.7		33.1	77	31.5	8.7	26	40.1	4.5	55.7	68	□	□	□	■	■	■	■	
	223	31.6	..	32.7	91	59.2	8.7	26	44.6	4.5	55.7	66	///	///	01 39	■	■	■	23 03	
	238	31.6		32.3	106	26.9	8.6	26	49.1	4.3	55.7	64	///	///	02 18	■	■	23 27	22 19	
	253	31.5		31.9	120	54.5	8.5	26	53.4	4.1	55.7	62	///	00 56	02 45	21 04	21 58	21 53	21 49	
	268	31.5	N21	31.5	135	22.0	8.4	S26	57.5	4.0	55.8	60	///	01 48	03 05	19 53	20 50	21 16	21 27	
	283	31.4		31.1	149	49.4	8.4	27	01.5	3.9	55.8	N 58	///	02 18	03 22	19 18	20 15	20 50	21 08	
	298	31.3		30.7	164	16.8	8.2	27	05.4	3.8	55.8	56	00 51	02 40	03 36	18 52	19 50	20 29	20 53	
	313	31.3	..	30.4	178	44.0	8.3	27	09.2	3.6	55.9	54	01 39	02 58	03 48	18 32	19 30	20 11	20 39	
	328	31.2		30.0	193	11.3	8.1	27	12.8	3.4	55.9	52	02 07	03 14	03 59	18 15	19 13	19 56	20 28	
	343	31.1		29.6	207	38.4	8.0	27	16.2	3.3	55.9	50	02 28	03 26	04 08	18 00	18 58	19 43	20 17	
	358	31.1	N21	29.2	222	05.4	8.0	S27	19.5	3.2	55.9	45	03 06	03 52	04 28	17 31	18 28	19 17	19 56	
	13	13	31.0	28.8	236	32.4	8.0	27	22.7	3.0	56.0	N 40	03 33	04 13	04 44	17 08	18 05	18 56	19 38	
	14	28	31.0	28.4	250	59.4	7.8	27	25.7	2.8	56.0	35	03 53	04 29	04 58	16 49	17 46	18 38	19 23	
	15	43	30.9	28.0	265	26.2	7.8	27	28.5	2.8	56.0	30	04 10	04 43	05 10	16 32	17 30	18 23	19 10	
	16	58	30.8	27.6	279	53.0	7.7	27	31.3	2.5	56.0	20	04 37	05 05	05 29	16 05	17 02	17 57	18 48	
	17	73	30.8	27.2	294	19.7	7.7	27	33.8	2.4	56.1	N 10	04 57	05 24	05 47	15 41	16 38	17 34	18 28	
	18	88	30.7	N21	26.8	308	46.4	7.5	S27	36.2	2.3	56.1	0	05 14	05 40	06 02	15 19	16 16	17 13	18 10
	19	103	30.7		26.4	323	12.9	7.6	27	38.5	2.1	56.1	S 10	05 30	05 56	06 18	14 58	15 54	16 52	17 52
	20	118	30.6		26.0	337	39.5	7.4	27	40.6	2.0	56.1	20	05 44	06 11	06 35	14 34	15 30	16 30	17 32
	21	133	30.5	..	25.6	352	05.9	7.4	27	42.6	1.8	56.2	30	05 59	06 28	06 54	14 07	15 02	16 04	17 09
	22	148	30.5		25.2	6	32.3	7.4	27	44.4	1.6	56.2	35	06 06	06 37	07 05	13 51	14 46	15 48	16 56
23	163	30.4		24.8	20	58.7	7.3	27	46.0	1.5	56.2	40	06 14	06 48	07 18	13 33	14 27	15 30	16 41	
16	178	30.4	N21	24.3	35	25.0	7.2	S27	47.5	1.4	56.3	45	06 23	07 00	07 33	13 10	14 04	15 08	16 22	
01	193	30.3		23.9	49	51.2	7.2	27	48.9	1.2	56.3	S 50	06 33	07 14	07 51	12 42	13 34	14 41	15 59	
02	208	30.2	..	23.5	64	17.4	7.2	27	50.1	1.0	56.3	52	06 38	07 20	07 59	12 28	13 19	14 27	15 48	
03	223	30.2		23.1	78	43.6	7.0	27	51.1	0.8	56.3	54	06 42	07 27	08 09	12 12	13 02	14 12	15 35	
04	238	30.1		22.7	93	09.6	7.1	27	51.9	0.8	56.4	56	06 48	07 35	08 20	11 53	12 42	13 53	15 21	
05	253	30.1		22.3	107	35.7	7.0	27	52.7	0.5	56.4	58	06 53	07 44	08 32	11 29	12 17	13 31	15 03	
06	268	30.0	N21	21.9	122	01.7	6.9	S27	53.2	0.4	56.4	S 60	06 59	07 54	08 47	10 59	11 42	13 01	14 42	
07	283	29.9		21.5	136	27.6	6.9	27	53.6	0.2	56.5	Lat.	Ocaso Sol	Crepúsculo Civil	Naut.	15	16	17	18	
08	298	29.9		21.1	150	53.5	6.9	27	53.8	0.1	56.5	N 70	□	□	□	■	■	■	■	
09	313	29.8	..	20.7	165	19.4	6.8	27	53.9	0.1	56.5	N 72	□	□	□	■	■	■	■	
10	328	29.8		20.3	179	45.2	6.8	27	53.8	0.3	56.5	68	□	□	□	■	■	■	■	
11	343	29.7		19.9	194	11.0	6.8	27	53.5	0.4	56.6	66	22 29	///	///	■	■	■	■	
12	358	29.7	N21	19.4	208	36.8	6.7	S27	53.1	0.5	56.6	64	21 52	///	///	■	■	23 39	26 42	
13	13	29.6		19.0	223	02.5	6.7	27	52.6	0.8	56.6	62	21 26	23 10	///	21 59	23 04	25 09	01 09	
14	28	29.5		18.6	237	28.2	6.6	27	51.8	0.9	56.7	60	21 05	22 22	///	23 11	24 12	00 12	01 46	
15	43	29.5	..	18.2	251	53.8	6.6	27	50.9	1.1	56.7	N 58	20 49	21 52	///	23 46	24 46	00 46	02 12	
16	58	29.4		17.8	266	19.4	6.6	27	49.8	1.2	56.7	56	20 35	21 30	23 15	24 12	00 12	01 12	02 32	
17	73	29.4		17.4	280	45.0	6.6	27	48.6	1.4	56.7	54	20 23	21 12	22 31	24 32	00 32	01 32	02 49	
18	88	29.3	N21	17.0	295	10.6	6.6	S27	47.2	1.6	56.8	52	20 12	20 58	22 03	00 06	00 49	01 49	03 04	
19	103	29.3		16.5	309	36.2	6.5	27	45.6	1.7	56.8	50	20 03	20 45	21 43	00 19	01 04	02 03	03 17	
20	118	29.2		16.1	324	01.7	6.5	27	43.9	1.9	56.8	45	19 43	20 19	21 05	00 46	01 34	02 33	03 42	
21	133	29.2	..	15.7	338	27.2	6.5	27	42.0	2.1	56.9	N 40	19 27	19 59	20 39	01 08	01 57	02 56	04 03	
22	148	29.1		15.3	352	52.7	6.5	27	39.9	2.2	56.9	35	19 14	19 43	20 18	01 26	02 16	03 15	04 20	
23	163	29.1		14.9	7	18.2	6.5	27	37.7	2.4	56.9	30	19 02	19 29	20 01	01 41	02 32	03 31	04 35	
17	178	29.0	N21	14.4	21	43.7	6.4	S27	35.3	2.5	56.9	20	18 42	19 07	19 35	02 07	03 00	03 58	05 00	
01	193	28.9		14.0	36	09.1	6.5	27	32.8	2.8	57.0	N 10	18 25	18 48	19 15	02 30	03 24	04 22	05 21	
02	208	28.9		13.6	50	34.6	6.4	27	30.0	2.9	57.0	0	18 10	18 32	18 58	02 51	03 46	04 43	05 41	
03	223	28.8	..	13.2	65	00.0	6.4	27	27.1	3.0	57.0	S 10	17 54	18 16	18 42	03 12	04 09	05 05	06 00	
04	238	28.8		12.8	79	25.4	6.5	27	24.1	3.3	57.1	20	17 37	18 01	18 28	03 35	04 32	05 28	06 21	
05	253	28.7		12.3	93	50.9	6.4	27	20.8	3.3	57.1	30	17 18	17 44	18 14	04 02	05 00	05 55	06 45	
06	268	28.7	N21	11.9	108	16.3	6.4	S27	17.5	3.6	57.1	35	17 07	17 35	18 06	04 17	05 17	06 11	07 00	
07	283	28.6		11.5	122	41.7	6.5	27	13.9	3.7	57.1	40	16 55	17 24	17 58	04 35	05 36	06 30	07 16	
08	298	28.6		11.1	137	07.2	6.4	27	10.2	3.9	57.2	45	16 40	17 13	17 49	04 57	05 59	06 52	07 35	
09	313	28.5	..	10.6	151	32.6	6.4	27	06.3	4.1	57.2	S 50	16 22	16 59	17 39	05 25	06 28	07 20	07 59	
10	328	28.5		10.2	165	58.0	6.5	27	02.2	4.2	57.2	52	16 13	16 52	17 35	05 39	06 43	07 34	08 11	
11	343	28.4		09.8	180	23.5	6.4	26	58.0	4.4	57.3	54	16 03	16 45	17 30	05 55	07 00	07 50	08 24	
12	358	28.4	N21	09.4	194	48.9	6.5	S26	53.6	4.6	57.3	56	15 53	16 37	17 25	06 14	07 20	08 08	08 39	
13	13	28.3		08.9	209	14.4	6.5	26	49.0	4.7	57.3	58	15 40	16 29	17 19	06 37	07 46	08 31	08 57	
14	28	28.3		08.5	223	39.9	6.5	26	44.3	4.9	57.3	S 60	15 26	16 19	17 13	07 07	08 21	09 01	09 19	
15	43	28.2	..	08.1	238	05.4	6.5	26	39.4	5.0	57.4	Día	SOL E.T. (-)	Pas. Mer.	Pas. Mer. Sup.	Mer. Inf.	Edad.	Fase		
16	58	28.2		07.6	252	30.9	6.5	26	34.4	5.2	57.4	15	m s	m s	h m	h m	h m	d		
17	73	28.1		07.2	266	56.4	6.5	26	29.2	5.4	57.4	16	05 53	05 56	12 06	21 33	09 05	12		
18	88	28.1	N21	06.8	281	21.9	6.6	S26	23.8	5.6	57.5	17	05 58	06 01	12 06	22 30	10 01	13	○	
19	103	28.0		06.3	295	47.5	6.6	26	18.2	5.7	57.5		06 04	06 06	12 06	23 27	10 58	14		
20	118	28.0																		



T.M.G. (TU)	ARIES		VENUS -3.9		MARTE +1.8		JUPITER -2.0		SATURNO +0.1		ESTRELLAS																
	A.H.G.	A.H.G. Dec.	A.H.G. Dec.	A.H.G. Dec.	A.H.G. Dec.	A.H.G. Dec.	A.H.G. Dec.	A.H.G. Dec.	Nombre	A. H. S.	Dec.																
M A R T E S	1800	295 47.0	150 12.5 N15 29.0	153 23.4 N16 03.5	208 45.6 N23 03.7	15 29.4 S22 30.5	Acomar	315 32.0 S40 20.4																			
	01	310 49.4	165 12.0 28.0	168 24.3 03.0	223 47.5 03.7	30 32.1 30.5	Achernar	335 39.8 S57 17.0																			
	02	325 51.9	180 11.5 27.0	183 25.2 02.5	238 49.4 03.7	45 34.7 30.5	Acrux	173 30.1 S63 02.8																			
	03	340 54.4	195 11.0 26.0	198 26.2 02.0	253 51.2 03.7	60 37.4 30.5	Adhara	255 27.0 S28 57.3																			
	04	355 56.8	210 10.5 25.0	213 27.1 01.5	268 53.1 03.7	75 40.0 30.5	Aldebaran	291 10.3 N16 29.5																			
	05	10 59.3	225 10.0 24.0	228 28.0 01.0	283 55.0 03.7	90 42.7 30.5																					
	06	26 01.7	240 09.6 N15 23.0	243 28.9 N16 00.5	298 56.9 N23 03.7	105 45.3 S22 30.6	Alioth	166 36.2 N56 01.2																			
	07	41 04.2	255 09.1 22.0	258 29.9 16 00.0	313 58.7 03.8	120 48.0 30.6	Alkaid	153 12.8 N49 22.1																			
	08	56 06.7	270 08.6 20.9	273 30.8 15 59.5	329 00.6 03.8	135 50.6 30.6	Al Na'ir	28 05.6 S47 00.5																			
	09	71 09.1	285 08.1 19.9	288 31.7 59.0	344 02.5 03.8	150 53.3 30.6	Alnilam	276 04.9 S 1 12.3																			
	10	86 11.6	300 07.6 18.9	303 32.6 58.5	359 04.4 03.8	165 55.9 30.6	Alphard	218 14.1 S 8 36.7																			
	11	101 14.1	315 07.1 17.9	318 33.5 58.0	14 06.2 03.8	180 58.6 30.6																					
	12	116 16.5	330 06.6 N15 16.9	333 34.5 N15 57.5	29 08.1 N23 03.8	196 01.2 S22 30.7	Alphecca	126 26.0 N26 45.0																			
	13	131 19.0	345 06.2 15.9	348 35.4 57.0	44 10.0 03.8	211 03.9 30.7	Alpheratz	358 02.1 N29 01.9																			
	14	146 21.5	0 05.7 14.8	3 36.3 56.5	59 11.9 03.9	226 06.5 30.7	Altair	62 25.4 N 8 50.4																			
	15	161 23.9	15 05.2 13.8	18 37.2 56.0	74 13.8 03.9	241 09.2 30.7	Ankaa	353 33.1 S42 21.4																			
	16	176 26.4	30 04.7 12.8	33 38.2 55.5	89 15.6 03.9	256 11.8 30.7	Antares	112 48.1 S26 24.8																			
	17	191 28.9	45 04.2 11.8	48 39.1 55.0	104 17.5 03.9	271 14.5 30.7																					
	18	206 31.3	60 03.7 N15 10.8	63 40.0 N15 54.4	119 19.4 N23 03.9	286 17.1 S22 30.8	Arcturus	146 12.0 N19 14.2																			
	19	221 33.8	75 03.3 09.7	78 40.9 53.9	134 21.3 03.9	301 19.8 30.8	Atria	108 05.8 S69 00.9																			
	20	236 36.2	90 02.8 08.7	93 41.9 53.4	149 23.1 03.9	316 22.4 30.8	Avior	234 26.2 S59 28.5																			
	21	251 38.7	105 02.3 07.7	108 42.8 52.9	164 25.0 03.9	331 25.1 30.8	Bellatrix	278 51.6 N 6 20.6																			
	22	266 41.2	120 01.8 06.7	123 43.7 52.4	179 26.9 04.0	346 27.7 30.8	Betelgeuse	271 21.0 N 7 24.5																			
23	281 43.6	135 01.3 05.6	138 44.6 51.9	194 28.8 04.0	1 30.4 30.8																						
M I E R E S	1900	296 46.1	150 00.9 N15 04.6	153 45.5 N15 51.4	209 30.7 N23 04.0	16 33.0 S22 30.9	Canopus	264 04.7 S52 41.1																			
	01	311 48.6	165 00.4 03.6	168 46.5 50.9	224 32.5 04.0	31 35.7 30.9	Capella	281 01.4 N45 59.3																			
	02	326 51.0	179 59.9 02.6	183 47.4 50.4	239 34.4 04.0	46 38.3 30.9	Deneb	49 43.4 N45 14.5																			
	03	341 53.5	194 59.4 01.5	198 48.3 49.9	254 36.3 04.0	61 41.0 30.9	Denebola	182 52.1 N14 37.9																			
	04	356 56.0	209 59.0 15 00.5	213 49.2 49.4	269 38.2 04.0	76 43.6 30.9	Diphda	349 13.7 S18 02.4																			
	05	11 58.4	224 58.5 14 59.5	228 50.2 48.9	284 40.0 04.0	91 46.3 30.9																					
	06	27 00.9	239 58.0 N14 58.5	243 51.1 N15 48.4	299 41.9 N23 04.1	106 48.9 S22 31.0	Dubhe	194 13.7 N61 48.7																			
	07	42 03.4	254 57.5 57.4	258 52.0 47.8	314 43.8 04.1	121 51.6 31.0	Elnath	278 35.7 N28 36.1																			
	08	57 05.8	269 57.1 56.4	273 52.9 47.3	329 45.7 04.1	136 54.2 31.0	Eltanin	90 54.0 N51 29.4																			
	09	72 08.3	284 56.6 55.4	288 53.9 46.8	344 47.6 04.1	151 56.9 31.0	Enif	34 04.5 N 9 49.6																			
	10	87 10.7	299 56.1 54.3	303 54.8 46.3	359 49.4 04.1	166 59.5 31.0	Fomalhaut	15 43.4 S29 40.5																			
	11	102 13.2	314 55.6 53.3	318 55.7 45.8	14 51.3 04.1	182 02.2 31.0																					
	12	117 15.7	329 55.2 N14 52.3	333 56.6 N15 45.3	29 53.2 N23 04.1	197 04.8 S22 31.1	Gacrux	172 21.5 S57 03.6																			
	13	132 18.1	344 54.7 51.2	348 57.6 44.8	44 55.1 04.2	212 07.5 31.1	Giengah	176 11.0 S17 29.1																			
	14	147 20.6	359 54.2 50.2	3 58.5 44.3	59 57.0 04.2	227 10.1 31.1	Hadar	149 13.7 S60 19.8																			
	15	162 23.1	14 53.8 49.2	18 59.4 43.8	74 58.8 04.2	242 12.8 31.1	Hamal	328 21.2 N23 24.8																			
	16	177 25.5	29 53.3 48.1	34 00.3 43.3	90 00.7 04.2	257 15.4 31.1	Kaus Aust.	84 07.2 S34 23.5																			
	17	192 28.0	44 52.8 47.1	49 01.3 42.8	105 02.6 04.2	272 18.1 31.1																					
	18	207 30.5	59 52.4 N14 46.1	64 02.2 N15 42.2	120 04.5 N23 04.2	287 20.7 S22 31.2	Kochab	137 18.4 N74 12.1																			
	19	222 32.9	74 51.9 45.0	79 03.1 41.7	135 06.4 04.2	302 23.4 31.2	Markab	13 56.1 N15 09.0																			
	20	237 35.4	89 51.4 44.0	94 04.1 41.2	150 08.2 04.2	317 26.0 31.2	Menkar	314 34.0 N 4 03.1																			
	21	252 37.9	104 51.0 42.9	109 05.0 40.7	165 10.1 04.2	332 28.7 31.2	Menkent	148 28.9 S36 19.4																			
	22	267 40.3	119 50.5 41.9	124 05.9 40.2	180 12.0 04.3	347 31.3 31.2	Miaplacidus	221 44.7 S69 40.5																			
23	282 42.8	134 50.0 40.9	139 06.8 39.7	195 13.9 04.3	2 34.0 31.2																						
J U E V E S	2000	297 45.2	149 49.6 N14 39.8	154 07.8 N15 39.2	210 15.8 N23 04.3	17 36.6 S22 31.3	Mirfak	309 06.5 N49 49.4																			
	01	312 47.7	164 49.1 38.8	169 08.7 38.7	225 17.6 04.3	32 39.3 31.3	Nunki	76 20.2 S26 18.7																			
	02	327 50.2	179 48.6 37.7	184 09.6 38.2	240 19.5 04.3	47 41.9 31.3	Peacock	53 46.7 S56 46.1																			
	03	342 52.6	194 48.2 36.7	199 10.5 37.6	255 21.4 04.3	62 44.6 31.3	Pollux	243 50.0 N28 03.3																			
	04	357 55.1	209 47.7 35.7	214 11.5 37.1	270 23.3 04.3	77 47.2 31.3	Procyon	245 18.8 N 5 15.3																			
	05	12 57.6	224 47.2 34.6	229 12.4 36.6	285 25.2 04.3	92 49.9 31.3																					
	06	28 00.0	239 46.8 N14 33.6	244 13.3 N15 36.1	300 27.0 N23 04.4	107 52.5 S22 31.3	Rasalhague	96 22.8 N12 34.0																			
	07	43 02.5	254 46.3 32.5	259 14.2 35.6	315 28.9 04.4	122 55.1 31.4	Regulus	208 02.8 N12 01.2																			
	08	58 05.0	269 45.9 31.5	274 15.2 35.1	330 30.8 04.4	137 57.8 31.4	Rigel	281 29.6 S 8 12.6																			
	09	73 07.4	284 45.4 30.4	289 16.1 34.6	345 32.7 04.4	153 00.4 31.4	Rigel Kent.	140 16.4 S60 47.9																			
	10	88 09.9	299 44.9 29.4	304 17.0 34.1	0 34.6 04.4	168 03.1 31.4	Sabik	102 32.9 S15 42.9																			
	11	103 12.3	314 44.5 28.3	319 18.0 33.5	15 36.4 04.4	183 05.7 31.4																					
	12	118 14.8	329 44.0 N14 27.3	334 18.9 N15 33.0	30 38.3 N23 04.4	198 08.4 S22 31.4	Schedar	350 01.2 N56 28.7																			
	13	133 17.3	344 43.6 26.2	349 19.8 32.5	45 40.2 04.4	213 11.0 31.5	Shaula	96 46.0 S37 06.0																			
	14	148 19.7	359 43.1 25.2	4 20.7 32.0	60 42.1 04.5	228 13.7 31.5	Sirius	258 49.9 S16 41.9																			
	15	163 22.2	14 42.6 24.1	19 21.7 31.5	75 44.0 04.5	243 16.3 31.5	Spica	158 50.3 S11 06.5																			
	16	178 24.7	29 42.2 23.1	34 22.6 31.0	90 45.9 04.5	258 19.0 31.5	Suhail	223 06.2 S43 23.4																			
	17	193 27.1	44 41.7 22.0	49 23.5 30.5	105 47.7 04.5	273 21.6 31.5																					
	18	208 29.6	59 41.3 N14 21.0	64 24.5 N15 29.9	120 49.6 N23 04.5	288 24.3 S22 31.5	Vega	80 50.7 N38 46.4																			
	19	223 32.1	74 40.8 19.9	79 25.4 29.4	135 51.5 04.5	303 26.9 31.6	Zuben'ubi	137 25.3 S16 00.1																			
	20	238 34.5	89 40.4 18.9	94 26.3 28.9	150 53.4 04.5	318 29.6 31.6																					
	21	253 37.0	104 39.9 17.8	109 27.2 28.4	165 55.3 04.5	333 32.2 31.6																					
	22	268 39.5	119 39.5 16.8	124 28.2 27.9	180 57.1 04.5	348 34.9 31.6																					
23	283 41.9	134 39.0 15.7	139 29.1 27.4	195 59.0 04.6	3 37.5 31.6																						
Pas. Mer. 4 12.2		v -0.5 d 1.0		v 0.9 d 0.5		v 1.9 d 0.0		v 2.6 d 0.0		<table border="0"> <tr> <td></td> <td>A. H. S.</td> <td>Pas. Mer.</td> </tr> <tr> <td>Venus</td> <td>213 14.8 h</td> <td>14 00 m</td> </tr> <tr> <td>Marte</td> <td>216 59.4 h</td> <td>13 44 m</td> </tr> <tr> <td>Júpiter</td> <td>272 44.5 h</td> <td>10 01 m</td> </tr> <tr> <td>Saturno</td> <td>79 46.9 h</td> <td>22 50 m</td> </tr> </table>				A. H. S.	Pas. Mer.	Venus	213 14.8 h	14 00 m	Marte	216 59.4 h	13 44 m	Júpiter	272 44.5 h	10 01 m	Saturno	79 46.9 h	22 50 m
	A. H. S.	Pas. Mer.																									
Venus	213 14.8 h	14 00 m																									
Marte	216 59.4 h	13 44 m																									
Júpiter	272 44.5 h	10 01 m																									
Saturno	79 46.9 h	22 50 m																									



T.M.G. (TU)	SOL		LUNA				Lat.	Crepúsculo		Orto Sol	Orto Luna						
	A.H.G.	Dec.	A.H.G.	v	Dec.	d		P.H.	Náut.		Civil	18	19	20	21		
	o / ' / "	o / ' / "	o / ' / "	o / ' / "	o / ' / "	o / ' / "		o / ' / "	h m		h m	h m	h m	h m	h m	h m	
MARTES	18 00	178 27.8	N21 04.2	7 55.7	6.7	S25 48.1	6.5	57.6	N 72	□	□	□	■	■	■	■	22 10
	01	193 27.7	03.7	22 21.4	6.8	25 41.6	6.7	57.7	N 70	□	□	□	■	■	■	■	22 01
	02	208 27.7	03.3	36 47.2	6.8	25 34.9	6.8	57.7	68	///	///	00 45	■	■	■	■	22 54
	03	223 27.6	02.9	51 13.0	6.8	25 28.1	7.0	57.7	66	///	///	01 52	23 03	22 23	22 03	21 48	
	04	238 27.6	02.4	65 38.8	6.9	25 21.1	7.2	57.7	64	///	///	02 27	22 19	22 02	21 51	21 42	
	05	253 27.5	02.0	80 04.7	6.9	25 13.9	7.3	57.8	62	///	01 15	02 52	21 49	21 45	21 41	21 38	
	06	268 27.5	N21 01.6	94 30.6	6.9	S25 06.6	7.4	57.8	60	///	01 58	03 11	21 27	21 31	21 33	21 34	
	07	283 27.4	01.1	108 56.5	7.0	24 59.2	7.7	57.8	N 58	///	02 25	03 27	21 08	21 19	21 25	21 30	
	08	298 27.4	00.7	123 22.5	7.0	24 51.5	7.7	57.8	56	01 08	02 46	03 41	20 53	21 08	21 19	21 27	
	09	313 27.4	21 00.2	137 48.5	7.1	24 43.8	8.0	57.9	54	01 48	03 04	03 52	20 39	20 59	21 13	21 21	
	10	328 27.3	20 59.8	152 14.6	7.1	24 35.8	8.0	57.9	52	02 14	03 18	04 03	20 28	20 50	21 07	21 21	
	11	343 27.3	59.4	166 40.7	7.2	24 27.8	8.3	57.9	50	02 33	03 31	04 12	20 17	20 43	21 02	21 19	
	12	358 27.2	N20 58.9	181 06.9	7.2	S24 19.5	8.4	57.9	45	03 10	03 56	04 31	19 56	20 26	20 52	21 14	
	13	13 27.2	58.5	195 33.1	7.2	24 11.1	8.5	58.0	N 40	03 36	04 15	04 47	19 38	20 13	20 43	21 09	
	14	28 27.1	58.0	209 59.3	7.3	24 02.6	8.7	58.0	35	03 56	04 31	05 00	19 23	20 01	20 35	21 05	
	15	43 27.1	57.6	224 25.6	7.4	23 53.9	8.8	58.0	30	04 12	04 44	05 11	19 10	19 51	20 28	21 02	
	16	58 27.0	57.1	238 52.0	7.4	23 45.1	9.0	58.0	20	04 38	05 07	05 31	18 48	19 34	20 16	20 56	
	17	73 27.0	56.7	253 18.4	7.4	23 36.1	9.1	58.1	N 10	04 58	05 25	05 47	18 28	19 19	20 06	20 51	
	18	88 26.9	N20 56.2	267 44.8	7.5	S23 27.0	9.3	58.1	0	05 15	05 41	06 03	18 10	19 04	19 56	20 46	
	19	103 26.9	55.8	282 11.3	7.6	23 17.7	9.4	58.1	S 10	05 30	05 56	06 18	17 52	18 50	19 46	20 41	
	20	118 26.9	55.3	296 37.9	7.6	23 08.3	9.6	58.1	20	05 44	06 11	06 34	17 32	18 35	19 36	20 36	
	21	133 26.8	54.9	311 04.5	7.7	22 58.7	9.7	58.2	30	05 58	06 27	06 53	17 09	18 17	19 24	20 30	
	22	148 26.8	54.5	325 31.2	7.7	22 49.0	9.8	58.2	35	06 05	06 36	07 04	16 56	18 06	19 17	20 26	
23	163 26.7	54.0	339 57.9	7.8	22 39.2	10.0	58.2	40	06 13	06 46	07 16	16 41	17 54	19 09	20 22		
19 00	178 26.7	N20 53.6	354 24.7	7.8	S22 29.2	10.1	58.2	45	06 21	06 58	07 30	16 22	17 40	18 59	20 18		
01	193 26.6	53.1	8 51.5	7.9	22 19.1	10.3	58.3	S 50	06 31	07 11	07 48	15 59	17 23	18 48	20 12		
02	208 26.6	52.7	23 18.4	7.9	22 08.8	10.4	58.3	52	06 35	07 17	07 56	15 48	17 15	18 43	20 10		
03	223 26.6	52.2	37 45.3	8.0	21 58.4	10.5	58.3	54	06 40	07 24	08 06	15 35	17 06	18 37	20 07		
04	238 26.5	51.7	52 12.3	8.1	21 47.9	10.7	58.3	56	06 45	07 32	08 16	15 21	16 55	18 30	20 04		
05	253 26.5	51.3	66 39.4	8.1	21 37.2	10.8	58.4	58	06 50	07 40	08 28	15 03	16 43	18 23	20 00		
06	268 26.4	N20 50.8	81 06.5	8.2	S21 26.4	10.9	58.4	S 60	06 56	07 49	08 42	14 42	16 29	18 14	19 56		
07	283 26.4	50.4	95 33.7	8.3	21 15.5	11.1	58.4	Lat.	Ocaso Sol	Crepúsculo		Ocaso Luna					
08	298 26.4	49.9	110 01.0	8.3	21 04.4	11.2	58.4			Civil	Náut.	18	19	20	21		
09	313 26.3	49.5	124 28.3	8.4	20 53.2	11.3	58.5	N 70	o	h m	h m	h m	h m	h m	h m		
10	328 26.3	49.0	138 55.7	8.4	20 41.9	11.5	58.5	N 72	□	□	□	■	■	02 15	05 51		
11	343 26.2	48.6	153 23.1	8.5	20 30.4	11.6	58.5	N 70	□	□	□	■	■	03 28	06 11		
12	358 26.2	N20 48.1	167 50.6	8.6	S20 18.8	11.7	58.5	68	23 18	///	///	■	■	04 05	06 25		
13	13 26.2	47.7	182 18.2	8.6	20 07.1	11.8	58.5	66	22 17	///	///	■	■	04 30	06 37		
14	28 26.1	47.2	196 45.8	8.7	19 55.3	11.9	58.6	64	21 43	///	///	01 59	04 30	06 37			
15	43 26.1	46.7	211 13.5	8.7	19 43.4	12.1	58.6	62	21 19	22 53	///	26 42	02 42	04 50			
16	58 26.0	46.3	225 41.2	8.8	19 31.3	12.2	58.6	60	21 00	22 12	///	01 09	03 10	05 06			
17	73 26.0	45.8	240 09.0	8.9	19 19.1	12.3	58.6	N 58	20 44	21 45	///	01 46	03 32	05 19			
18	88 26.0	N20 45.4	254 36.9	9.0	S19 06.8	12.4	58.6	56	20 31	21 24	23 00	02 12	03 50	05 30			
19	103 25.9	44.9	269 04.9	9.0	18 54.4	12.5	58.7	54	20 19	21 08	22 22	02 32	04 05	05 40			
20	118 25.9	44.4	283 32.9	9.0	18 41.9	12.7	58.7	52	20 09	20 53	21 57	02 49	04 17	05 49			
21	133 25.8	44.0	298 00.9	9.1	18 29.2	12.7	58.7	50	20 00	20 41	21 38	03 04	04 29	05 56			
22	148 25.8	43.5	312 29.0	9.2	18 16.5	12.9	58.7	45	19 41	20 16	21 02	03 17	04 38	06 03			
23	163 25.8	43.0	326 57.2	9.3	18 03.6	13.0	58.7	S 50	16 25	17 02	17 42	03 42	04 59	06 18			
20 00	178 25.7	N20 42.6	341 25.5	9.3	S17 50.6	13.0	58.8	N 40	19 25	19 57	20 36	04 03	05 16	06 30			
01	193 25.7	42.1	355 53.8	9.4	17 37.6	13.2	58.8	35	19 12	19 41	20 16	04 20	05 30	06 40			
02	208 25.7	41.6	10 22.2	9.4	17 24.4	13.3	58.8	30	19 01	19 28	20 00	04 35	05 42	06 49			
03	223 25.6	41.2	24 50.6	9.5	17 11.1	13.4	58.8	20	18 42	19 06	19 34	05 00	06 02	07 04			
04	238 25.6	40.7	39 19.1	9.6	16 57.7	13.5	58.8	N 10	18 25	18 48	19 14	05 21	06 20	07 17			
05	253 25.5	40.2	53 47.7	9.6	16 44.2	13.6	58.9	0	18 10	18 32	18 58	05 41	06 36	07 29			
06	268 25.5	N20 39.8	68 16.3	9.7	S16 30.6	13.7	58.9	S 10	17 55	18 17	18 43	06 00	06 53	07 42			
07	283 25.5	39.3	82 45.0	9.7	16 16.9	13.8	58.9	20	17 38	18 02	18 29	06 21	07 10	07 54			
08	298 25.4	38.8	97 13.7	9.8	16 03.1	13.9	58.9	30	17 20	17 46	18 15	06 45	07 30	08 09			
09	313 25.4	38.4	111 42.5	9.9	15 49.2	14.0	58.9	35	17 09	17 37	18 08	07 00	07 41	08 17			
10	328 25.4	37.9	126 11.4	9.9	15 35.2	14.0	58.9	40	16 57	17 27	18 00	07 16	07 54	08 27			
11	343 25.3	37.4	140 40.3	10.0	15 21.2	14.2	59.0	45	16 43	17 15	17 51	07 35	08 10	08 38			
12	358 25.3	N20 37.0	155 09.3	10.1	S15 07.0	14.3	59.0	S 50	16 25	17 02	17 42	07 59	08 29	08 51			
13	13 25.3	36.5	169 38.4	10.0	14 52.7	14.3	59.0	52	16 17	16 56	17 38	08 11	08 38	08 57			
14	28 25.2	36.0	184 07.4	10.2	14 38.4	14.4	59.0	54	16 07	16 49	17 33	08 24	08 47	09 04			
15	43 25.2	35.5	198 36.6	10.2	14 24.0	14.5	59.0	56	15 57	16 41	17 28	08 39	08 59	09 11			
16	58 25.2	35.1	213 05.8	10.3	14 09.5	14.6	59.0	58	15 45	16 33	17 23	08 57	09 11	09 20			
17	73 25.1	34.6	227 35.1	10.3	13 54.9	14.7	59.1	S 60	15 31	16 24	17 17	09 19	09 26	09 29			
18	88 25.1	N20 34.1	242 04.4	10.4	S13 40.2	14.8	59.1	Día	SOL E.T. (-)		LUNA						
19	103 25.1	33.6	256 33.8	10.4	13 25.4	14.8	59.1		00 h	12 h	Pas. Mer.	Pas. Sup.	Mer. Inf.	Edad.	Fase		
20	118 25.0	33.2	271 03.2	10.5	13 10.6	14.9	59.1		m s	m s	h m	h m	h m	d			
21	133 25.0	32.7	285 32.7	10.5	12 55.7	15.0	59.1	18	06 09	06 11	12 06	2					



T.M.G. (TU)	ARIES			VENUS -3.9			MARTE +1.8			JUPITER -2.0			SATURNO +0.1			ESTRELLAS		
	A.H.G.	A.H.G.	Dec.	A. H. G.	Dec.		A.H.G.	Dec.		A.H.G.	Dec.		Nombre	A. H. S.	Dec.			
V I E R N E S	21 00	298 44.4	149 38.5 N14	14.6	154 30.0 N15	26.8	211 00.9 N23	04.6		18 40.1 S22	31.6		Acamar	315 32.0 S40	20.4			
	01	313 46.8	164 38.1	13.6	169 31.0	26.3	226 02.8	04.6		33 42.8	31.7		Achernar	335 39.8 S57	16.9			
	02	328 49.3	179 37.6	12.5	184 31.9	25.8	241 04.7	04.6		48 45.4	31.7		AcruX	173 30.1 S63	02.8			
	03	343 51.8	194 37.2	11.5	199 32.8	25.3	256 06.6	04.6		63 48.1	31.7		Adhara	255 27.0 S28	57.2			
	04	358 54.2	209 36.7	10.4	214 33.7	24.8	271 08.4	04.6		78 50.7	31.7		Aldebaran	291 10.3 N16	29.5			
	05	13 56.7	224 36.3	09.4	229 34.7	24.3	286 10.3	04.6		93 53.4	31.7							
	06	28 59.2	239 35.8 N14	08.3	244 35.6 N15	23.7	301 12.2 N23	04.6		108 56.0 S22	31.7		Alioth	166 36.3 N56	01.2			
	07	44 01.6	254 35.4	07.2	259 36.5	23.2	316 14.1	04.6		123 58.7	31.8		Alkaid	153 12.8 N49	22.1			
	08	59 04.1	269 34.9	06.2	274 37.5	22.7	331 16.0	04.7		139 01.3	31.8		Al Na'ir	28 05.6 S47	00.5			
	09	74 06.6	284 34.5	05.1	289 38.4	22.2	346 17.9	04.7		154 04.0	31.8		Alnilam	276 04.9 S 1	12.3			
	10	89 09.0	299 34.0	04.0	304 39.3	21.7	1 19.7	04.7		169 06.6	31.8		Alphard	218 14.1 S 8	36.7			
	11	104 11.5	314 33.6	03.0	319 40.2	21.2	16 21.6	04.7		184 09.3	31.8							
	12	119 14.0	329 33.2 N14	01.9	334 41.2 N15	20.6	31 23.5 N23	04.7		199 11.9 S22	31.8		Alphecca	126 26.0 N26	45.0			
	13	134 16.4	344 32.7	14 00.9	349 42.1	20.1	46 25.4	04.7		214 14.5	31.8		Alpheratz	358 02.1 N29	02.0			
	14	149 18.9	359 32.3	13 59.8	4 43.0	19.6	61 27.3	04.7		229 17.2	31.9		Altair	62 25.4 N 8	50.4			
	15	164 21.3	14 31.8	58.7	19 44.0	19.1	76 29.2	04.7		244 19.8	31.9		Ankaa	353 33.0 S42	21.4			
	16	179 23.8	29 31.4	57.7	34 44.9	18.6	91 31.0	04.7		259 22.5	31.9		Antares	112 48.1 S26	24.8			
	17	194 26.3	44 30.9	56.6	49 45.8	18.1	106 32.9	04.8		274 25.1	31.9							
	18	209 28.7	59 30.5 N13	55.5	64 46.8 N15	17.5	121 34.8 N23	04.8		289 27.8 S22	31.9		Arcturus	146 12.0 N19	14.2			
	19	224 31.2	74 30.0	54.5	79 47.7	17.0	136 36.7	04.8		304 30.4	31.9		Atria	108 05.8 S69	00.9			
	20	239 33.7	89 29.6	53.4	94 48.6	16.5	151 38.6	04.8		319 33.1	32.0		Avior	234 26.2 S59	28.5			
	21	254 36.1	104 29.2	52.3	109 49.6	16.0	166 40.5	04.8		334 35.7	32.0		Bellatrix	278 51.6 N 6	20.6			
	22	269 38.6	119 28.7	51.2	124 50.5	15.5	181 42.4	04.8		349 38.4	32.0		Betelgeuse	271 21.0 N 7	24.5			
23	284 41.1	134 28.3	50.2	139 51.4	14.9	196 44.2	04.8		4 41.0	32.0								
S A B A D O	22 00	299 43.5	149 27.8 N13	49.1	154 52.3 N15	14.4	211 46.1 N23	04.8		19 43.6 S22	32.0		Canopus	264 04.6 S52	41.1			
	01	314 46.0	164 27.4	48.0	169 53.3	13.9	226 48.0	04.8		34 46.3	32.0		Capella	281 01.4 N45	59.3			
	02	329 48.4	179 27.0	47.0	184 54.2	13.4	241 49.9	04.8		49 48.9	32.1		Deneb	49 43.4 N45	14.5			
	03	344 50.9	194 26.5	45.9	199 55.1	12.9	256 51.8	04.9		64 51.6	32.1		Denebola	182 52.1 N14	37.9			
	04	359 53.4	209 26.1	44.8	214 56.1	12.3	271 53.7	04.9		79 54.2	32.1		Diphda	349 13.7 S18	02.4			
	05	14 55.8	224 25.6	43.7	229 57.0	11.8	286 55.6	04.9		94 56.9	32.1							
	06	29 58.3	239 25.2 N13	42.7	244 57.9 N15	11.3	301 57.4 N23	04.9		109 59.5 S22	32.1		Dubhe	194 13.7 N61	48.7			
	07	45 00.8	254 24.8	41.6	259 58.9	10.8	316 59.3	04.9		125 02.2	32.1		Elnath	278 35.7 N28	36.1			
	08	60 03.2	269 24.3	40.5	274 59.8	10.3	332 01.2	04.9		140 04.8	32.2		Eltanin	90 54.0 N51	29.4			
	09	75 05.7	284 23.9	39.4	290 00.7	9.7	347 03.1	04.9		155 07.4	32.2		Enif	34 04.5 N 9	49.6			
	10	90 08.2	299 23.5	38.4	305 01.7	9.2	2 05.0	04.9		170 10.1	32.2		Fomalhaut	15 43.4 S29	40.5			
	11	105 10.6	314 23.0	37.3	320 02.6	8.7	17 06.9	04.9		185 12.7	32.2							
	12	120 13.1	329 22.6 N13	36.2	335 03.5 N15	8.2	32 08.8 N23	04.9		200 15.4 S22	32.2		Gacrux	172 21.5 S57	03.6			
	13	135 15.6	344 22.2	35.1	350 04.5	7.6	47 10.6	05.0		215 18.0	32.2		Gienah	176 11.0 S17	29.1			
	14	150 18.0	359 21.7	34.0	5 05.4	07.1	62 12.5	05.0		230 20.7	32.2		Hadar	149 13.7 S60	19.8			
	15	165 20.5	14 21.3	33.0	20 06.3	06.6	77 14.4	05.0		245 23.3	32.3		Hamal	328 21.2 N23	24.9			
	16	180 22.9	29 20.9	31.9	35 07.3	06.1	92 16.3	05.0		260 25.9	32.3		Kaus Aust.	84 07.2 S34	23.6			
	17	195 25.4	44 20.4	30.8	50 08.2	05.6	107 18.2	05.0		275 28.6	32.3							
	18	210 27.9	59 20.0 N13	29.7	65 09.1 N15	05.0	122 20.1 N23	05.0		290 31.2 S22	32.3		Kochab	137 18.5 N74	12.1			
	19	225 30.3	74 19.6	28.6	80 10.1	04.5	137 22.0	05.0		305 33.9	32.3		Markab	13 56.0 N15	09.0			
	20	240 32.8	89 19.1	27.5	95 11.0	04.0	152 23.8	05.0		320 36.5	32.3		Menkar	314 34.0 N 4	03.1			
	21	255 35.3	104 18.7	26.5	110 11.9	03.5	167 25.7	05.0		335 39.2	32.4		Menkent	148 28.9 S36	19.4			
	22	270 37.7	119 18.3	25.4	125 12.9	02.9	182 27.6	05.0		350 41.8	32.4		Miaplacidus	221 44.7 S69	40.5			
23	285 40.2	134 17.9	24.3	140 13.8	02.4	197 29.5	05.1		5 44.4	32.4								
D O M I N G O	23 00	300 42.7	149 17.4 N13	23.2	155 14.7 N15	01.9	212 31.4 N23	05.1		20 47.1 S22	32.4		Mirfak	309 06.5 N49	49.4			
	01	315 45.1	164 17.0	22.1	170 15.7	01.4	227 33.3	05.1		35 49.7	32.4		Nunki	76 20.2 S26	18.7			
	02	330 47.6	179 16.6	21.0	185 16.6	00.8	242 35.2	05.1		50 52.4	32.4		Peacock	53 46.6 S56	46.1			
	03	345 50.1	194 16.1	19.9	200 17.5	15 00.3	257 37.1	05.1		65 55.0	32.5		Pollux	243 50.0 N28	03.3			
	04	0 52.5	209 15.7	18.9	215 18.5	14 59.8	272 38.9	05.1		80 57.7	32.5		Procyon	245 18.8 N 5	15.3			
	05	15 55.0	224 15.3	17.8	230 19.4	59.3	287 40.8	05.1		96 00.3	32.5							
	06	30 57.4	239 14.9 N13	16.7	245 20.3 N14	58.7	302 42.7 N23	05.1		111 02.9 S22	32.5		Rasalhague	96 22.8 N12	34.0			
	07	45 59.9	254 14.4	15.6	260 21.3	58.2	317 44.6	05.1		126 05.6	32.5		Regulus	208 02.8 N12	01.2			
	08	61 02.4	269 14.0	14.5	275 22.2	57.7	332 46.5	05.1		141 08.2	32.5		Rigel	281 29.6 S 8	12.6			
	09	76 04.8	284 13.6	13.4	290 23.1	57.2	347 48.4	05.1		156 10.9	32.5		Rigel Kent.	140 16.4 S60	47.9			
	10	91 07.3	299 13.2	12.3	305 24.1	56.6	2 50.3	05.2		171 13.5	32.6		Sabik	102 32.9 S15	42.9			
	11	106 09.8	314 12.8	11.2	320 25.0	56.1	17 52.2	05.2		186 16.2	32.6							
	12	121 12.2	329 12.3 N13	10.1	335 25.9 N14	55.6	32 54.0 N23	05.2		201 18.8 S22	32.6		Schedar	350 01.2 N56	28.7			
	13	136 14.7	344 11.9	09.0	350 26.9	55.1	47 55.9	05.2		216 21.4	32.6		Shaula	96 46.0 S37	06.0			
	14	151 17.2	359 11.5	07.9	5 27.8	54.5	62 57.8	05.2		231 24.1	32.6		Sirius	258 49.9 S16	41.9			
	15	166 19.6	14 11.1	06.8	20 28.7	54.0	77 59.7	05.2		246 26.7	32.6		Spica	158 50.3 S11	06.5			
	16	181 22.1	29 10.6	05.8	35 29.7	53.5	93 01.6	05.2		261 29.4	32.7		Suhail	223 06.2 S43	23.4			
	17	196 24.5	44 10.2															







T.M.G. (TU)	ARIES			VENUS -3.9			MARTE +1.8			JUPITER -2.0			SATURNO +0.1			ESTRELLAS																								
	A.H.G.	A.H.G.	Dec.	A.H.G.	Dec.	A.H.G.	Dec.	A.H.G.	Dec.	A.H.G.	Dec.	A.H.G.	Dec.	Nombre	A. H. S.	Dec.																								
LUNES	24 00	301 41.8	149 07.3 N12	57.0	155 37.2 N14	49.3	213 16.7 N23	05.3	21 50.5 S22	32.8	Acamar	315 31.9 S40	20.4																											
	01	316 44.3	164 06.9	55.9	170 38.1	48.7	228 18.6	05.3	36 53.1	32.8	Achernar	335 39.7 S57	16.9																											
	02	331 46.7	179 06.5	54.8	185 39.0	48.2	243 20.5	05.3	51 55.8	32.8	Acruz	173 30.1 S63	02.8																											
	03	346 49.2	194 06.1	53.7	200 40.0	47.7	258 22.4	05.3	66 58.4	32.8	Adhara	255 27.0 S28	57.2																											
	04	1 51.7	209 05.6	52.6	215 40.9	47.2	273 24.3	05.3	82 01.1	32.8	Aldebaran	291 10.2 N16	29.5																											
	05	16 54.1	224 05.2	51.5	230 41.8	46.6	288 26.2	05.3	97 03.7	32.9																														
	06	31 56.6	239 04.8 N12	50.4	245 42.8 N14	46.1	303 28.1 N23	05.3	112 06.3 S22	32.9	Alioth	166 36.3 N56	01.2																											
	07	46 59.0	254 04.4	49.3	260 43.7	45.6	318 29.9	05.3	127 09.0	32.9	Alkaid	153 12.8 N49	22.1																											
	08	62 01.5	269 04.0	48.2	275 44.7	45.0	333 31.8	05.3	142 11.6	32.9	Al Na'ir	28 05.6 S47	00.5																											
	09	77 04.0	284 03.6	47.0	290 45.6	44.5	348 33.7	05.3	157 14.3	32.9	Alnilam	276 04.9 S 1	12.3																											
	10	92 06.4	299 03.2	45.9	305 46.5	44.0	3 35.6	05.4	172 16.9	32.9	Alphard	218 14.1 S 8	36.7																											
	11	107 08.9	314 02.8	44.8	320 47.5	43.4	18 37.5	05.4	187 19.5	33.0																														
	12	122 11.4	329 02.4 N12	43.7	335 48.4 N14	42.9	33 39.4 N23	05.4	202 22.2 S22	33.0	Alphecca	126 26.0 N26	45.0																											
	13	137 13.8	344 01.9	42.6	350 49.3	42.4	48 41.3	05.4	217 24.8	33.0	Alpheratz	358 02.0 N29	02.0																											
	14	152 16.3	359 01.5	41.5	5 50.3	41.9	63 43.2	05.4	232 27.5	33.0	Altair	62 25.4 N 8	50.4																											
	15	167 18.8	14 01.1	40.4	20 51.2	41.3	78 45.1	05.4	247 30.1	33.0	Ankaa	353 33.0 S42	21.4																											
	16	182 21.2	29 00.7	39.3	35 52.2	40.8	93 47.0	05.4	262 32.7	33.0	Antares	112 48.1 S26	24.8																											
	17	197 23.7	44 00.3	38.2	50 53.1	40.3	108 48.9	05.4	277 35.4	33.0																														
	18	212 26.2	58 59.9 N12	37.1	65 54.0 N14	39.7	123 50.7 N23	05.4	292 38.0 S22	33.1	Arcturus	146 12.0 N19	14.2																											
	19	227 28.6	73 59.5	36.0	80 55.0	39.2	138 52.6	05.4	307 40.6	33.1	Atria	108 05.8 S69	00.9																											
	20	242 31.1	88 59.1	34.9	95 55.9	38.7	153 54.5	05.4	322 43.3	33.1	Avior	234 26.2 S59	28.5																											
	21	257 33.5	103 58.7	33.7	110 56.8	38.1	168 56.4	05.4	337 45.9	33.1	Bellatrix	278 51.5 N 6	20.6																											
	22	272 36.0	118 58.3	32.6	125 57.8	37.6	183 58.3	05.5	352 48.6	33.1	Betelgeuse	271 21.0 N 7	24.5																											
23	287 38.5	133 57.9	31.5	140 58.7	37.1	199 00.2	05.5	7 51.2	33.1																															
MARTES	25 00	302 40.9	148 57.5 N12	30.4	155 59.7 N14	36.5	214 02.1 N23	05.5	22 53.8 S22	33.2	Canopus	264 04.6 S52	41.1																											
	01	317 43.4	163 57.1	29.3	171 00.6	36.0	229 04.0	05.5	37 56.5	33.2	Capella	281 01.4 N45	59.3																											
	02	332 45.9	178 56.7	28.2	186 01.5	35.5	244 05.9	05.5	52 59.1	33.2	Deneb	49 43.4 N45	14.5																											
	03	347 48.3	193 56.3	27.1	201 02.5	35.0	259 07.8	05.5	68 01.8	33.2	Denebola	182 52.1 N14	37.9																											
	04	2 50.8	208 55.9	25.9	216 03.4	34.4	274 09.7	05.5	83 04.4	33.2	Diphda	349 13.7 S18	02.4																											
	05	17 53.3	223 55.5	24.8	231 04.4	33.9	289 11.6	05.5	98 07.0	33.2																														
	06	32 55.7	238 55.1 N12	23.7	246 05.3 N14	33.4	304 13.4 N23	05.5	113 09.7 S22	33.2	Dubhe	194 13.7 N61	48.7																											
	07	47 58.2	253 54.7	22.6	261 06.2	32.8	319 15.3	05.5	128 12.3	33.3	Elnath	278 35.6 N28	36.1																											
	08	63 00.7	268 54.2	21.5	276 07.2	32.3	334 17.2	05.5	143 14.9	33.3	Eltanin	90 54.0 N51	29.4																											
	09	78 03.1	283 53.8	20.4	291 08.1	31.8	349 19.1	05.5	158 17.6	33.3	Enif	34 04.5 N 9	49.6																											
	10	93 05.6	298 53.5	19.2	306 09.0	31.2	4 21.0	05.5	173 20.2	33.3	Fomalhaut	15 43.3 S29	40.5																											
	11	108 08.0	313 53.1	18.1	321 10.0	30.7	19 22.9	05.5	188 22.9	33.3																														
	12	123 10.5	328 52.7 N12	17.0	336 10.9 N14	30.2	34 24.8 N23	05.6	203 25.5 S22	33.3	Gacrux	172 21.5 S57	03.6																											
	13	138 13.0	343 52.3	15.9	351 11.9	29.6	49 26.7	05.6	218 28.1	33.4	Gienah	176 11.0 S17	29.1																											
	14	153 15.4	358 51.9	14.8	6 12.8	29.1	64 28.6	05.6	233 30.8	33.4	Hadar	149 13.8 S60	19.8																											
	15	168 17.9	13 51.5	13.6	21 13.7	28.6	79 30.5	05.6	248 33.4	33.4	Hamal	328 21.1 N23	24.9																											
	16	183 20.4	28 51.1	12.5	36 14.7	28.0	94 32.4	05.6	263 36.0	33.4	Kaus Aust.	84 07.2 S34	23.6																											
	17	198 22.8	43 50.7	11.4	51 15.6	27.5	109 34.3	05.6	278 38.7	33.4																														
	18	213 25.3	58 50.3 N12	10.3	66 16.6 N14	26.9	124 36.2 N23	05.6	293 41.3 S22	33.4	Kochab	137 18.5 N74	12.1																											
	19	228 27.8	73 49.9	09.2	81 17.5	26.4	139 38.1	05.6	308 44.0	33.4	Markab	13 56.0 N15	09.0																											
	20	243 30.2	88 49.5	08.0	96 18.4	25.9	154 40.0	05.6	323 46.6	33.5	Menkar	314 33.9 N 4	03.1																											
	21	258 32.7	103 49.1	06.9	111 19.4	25.3	169 41.9	05.6	338 49.2	33.5	Menkent	148 28.9 S36	19.4																											
	22	273 35.1	118 48.7	05.8	126 20.3	24.8	184 43.7	05.6	353 51.9	33.5	Miaplacidus	221 44.7 S69	40.5																											
23	288 37.6	133 48.3	04.7	141 21.3	24.3	199 45.6	05.6	8 54.5	33.5																															
MIÉRCOLES	26 00	303 40.1	148 47.9 N12	03.5	156 22.2 N14	23.7	214 47.5 N23	05.6	23 57.1 S22	33.5	Mirfak	309 06.5 N49	49.4																											
	01	318 42.5	163 47.5	02.4	171 23.1	23.2	229 49.4	05.6	38 59.8	33.5	Nunki	76 20.2 S26	18.7																											
	02	333 45.0	178 47.1	01.3	186 24.1	22.7	244 51.3	05.7	54 02.4	33.5	Pollux	53 46.6 S56	46.1																											
	03	348 47.5	193 46.7	12 00.1	201 25.0	22.1	259 53.2	05.7	69 05.1	33.6	Pelluc	243 50.0 N28	03.3																											
	04	3 49.9	208 46.3	11 59.0	216 26.0	21.6	274 55.1	05.7	84 07.7	33.6	Procyon	245 18.8 N 5	15.3																											
	05	18 52.4	223 45.9	57.9	231 26.9	21.1	289 57.0	05.7	99 10.3	33.6																														
	06	33 54.9	238 45.6 N11	56.8	246 27.9 N14	20.5	304 58.9 N23	05.7	114 13.0 S22	33.6	Rasalhague	96 22.8 N12	34.0																											
	07	48 57.3	253 45.2	55.6	261 28.8	20.0	320 00.8	05.7	129 15.6	33.6	Regulus	208 02.8 N12	01.2																											
	08	63 59.8	268 44.8	54.5	276 29.7	19.4	335 02.7	05.7	144 18.2	33.6	Rigel	281 29.6 S 8	12.6																											
	09	79 02.3	283 44.4	53.4	291 30.7	18.9	350 04.6	05.7	159 20.9	33.7	Rigil Kent.	140 16.5 S60	47.9																											
	10	94 04.7	298 44.0	52.2	306 31.6	18.4	5 06.5	05.7	174 23.5	33.7	Sabik	102 32.9 S15	42.9																											
	11	109 07.2	313 43.6	51.1	321 32.6	17.8	20 08.4	05.7	189 26.1	33.7																														
	12	124 09.6	328 43.2 N11	50.0	336 33.5 N14	17.3	35 10.3 N23	05.7	204 28.8 S22	33.7	Schedar	350 01.1 N56	28.7																											
	13	139 12.1	343 42.8	48.8	351 34.4	16.8	50 12.2	05.7	219 31.4	33.7	Shaula	96 46.0 S37	06.0																											
	14	154 14.6	358 42.5	47.7	6 35.4	16.2	65 14.1	05.7	234 34.0	33.7	Sirius	258 49.9 S16	41.9																											
	15	169 17.0	13 42.1	46.6	21 36.3	15.7	80 16.0	05.7	249 36.7	33.7	Spica	158 50.3 S11	06.5																											
	16	184 19.5	28 41.7	45.4	36 37.3	15.1	95 17.9	05.7	264 39.3	33.8	Suhail	223 06.2 S43	23.4																											
	17	199 22.0	43 41.3	44.3	51 38.2	14.6	110 19.8	05.7	279 42.0	33.8																														
	18	214 24.4	58 40.9 N11	43.2	66 39.2 N14	14.1	125 21.7 N23	05.8	294 44.6 S22	33.8	Vega	80 50.7 N38	46.4																											
	19	229 26.9	73 40.5	42.0	81 40.1	13.5	140 23.6	05.8	309 47.2	33.8	Zuben'ubi	137 25.3 S16	00.1																											
	20	244 29.4	88 40.1	40.9	96 41.0	13.0	155 25.4	05.8	324 49.9	33.8																														
	21	259 31.8	103 39.8	39.8	111 42.0	12.4	170 27.3	05.8	339 52.5	33.8																														
	22	274 34.3	118 39.4	38.6	126 42.9	11.9	185 29.2	05.8	354 55.1	33.9																														
23	289 36.8	133 39.0	37.5	141 43.9	11.4	200 31.1	05.8	9 57.8	33.9																															
Pas. Mer. <sup>h m</sup> 3 48.6																																								
<table border="0" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:33%;"><i>v</i> -0.4 <i>d</i> 1.1</td> <td style="width:33%;"><i>v</i> 0.9 <i>d</i> 0.5</td> <td style="width:33%;"><i>v</i> 1.9 <i>d</i> 0.0</td> <td style="width:33%;"><i>v</i> 2.6 <i>d</i> 0.0</td> </tr> <tr> <td colspan="4" style="text-align: center;"> <table border="0" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:33%;"></td> <td style="width:33%; text-align: center;">A. H. S.</td> <td style="width:33%; text-align: center;">Pas. Mer.</td> </tr> <tr> <td style="width:33%;"></td> <td style="width:33%; text-align: center;">o / ' / "</td> <td style="width:33%; text-align: center;">h m</td> </tr> <tr> <td style="width:33%;">Venus</td> <td style="width:33%; text-align: center;">206 16.5</td> <td style="width:33%; text-align: center;">14 05</td> </tr> <tr> <td style="width:33%;">Marte</td> <td style="width:33%; text-align: center;">213 18.7</td> <td style="width:33%; text-align: center;">13 35</td> </tr> <tr> <td style="width:33%;">Júpiter</td> <td style="width:33%; text-align: center;">271 21.2</td> <td style="width:33%; text-align: center;">9 43</td> </tr> <tr> <td style="width:33%;">Saturno</td> <td style="width:33%; text-align: center;">80 12.9</td> <td style="width:33%; text-align: center;">22 24</td> </tr> </table> </td> </tr> </table>															<i>v</i> -0.4 <i>d</i> 1.1	<i>v</i> 0.9 <i>d</i> 0.5	<i>v</i> 1.9 <i>d</i> 0.0	<i>v</i> 2.6 <i>d</i> 0.0	<table border="0" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:33%;"></td> <td style="width:33%; text-align: center;">A. H. S.</td> <td style="width:33%; text-align: center;">Pas. Mer.</td> </tr> <tr> <td style="width:33%;"></td> <td style="width:33%; text-align: center;">o / ' / "</td> <td style="width:33%; text-align: center;">h m</td> </tr> <tr> <td style="width:33%;">Venus</td> <td style="width:33%; text-align: center;">206 16.5</td> <td style="width:33%; text-align: center;">14 05</td> </tr> <tr> <td style="width:33%;">Marte</td> <td style="width:33%; text-align: center;">213 18.7</td> <td style="width:33%; text-align: center;">13 35</td> </tr> <tr> <td style="width:33%;">Júpiter</td> <td style="width:33%; text-align: center;">271 21.2</td> <td style="width:33%; text-align: center;">9 43</td> </tr> <tr> <td style="width:33%;">Saturno</td> <td style="width:33%; text-align: center;">80 12.9</td> <td style="width:33%; text-align: center;">22 24</td> </tr> </table>					A. H. S.	Pas. Mer.		o / ' / "	h m	Venus	206 16.5	14 05	Marte	213 18.7	13 35	Júpiter	271 21.2	9 43	Saturno	80 12.9	22 24
<i>v</i> -0.4 <i>d</i> 1.1	<i>v</i> 0.9 <i>d</i> 0.5	<i>v</i> 1.9 <i>d</i> 0.0	<i>v</i> 2.6 <i>d</i> 0.0																																					
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T.M.G. (TU)	SOL				LUNA				Lat.	Crepúsculo			Orto Sol	Orto Luna								
	A.H.G.		Dec.	A.H.G.		v	Dec.			d	P.H.	Naut.		Civil	h m	24		25		26		27
	o	'		o	'		o	'								o	'	h m	h m	h m	h m	
LUNES	24 00	178	23.3	N19	55.2	293	40.3	11.3	N	7	27.3	16.2	59.5	N 72	□	□	□	20 12	18 25	□	□	
	01	193	23.3		54.7	308	10.6	11.4		7	43.5	16.1	59.5	N 70	□	□	□	20 34	19 39	□	□	
	02	208	23.2		54.2	322	41.0	11.3		7	59.6	16.1	59.5	68	////	////	01 34	20 51	20 18	□	□	
	03	223	23.2		53.6	337	11.3	11.2		8	15.7	16.0	59.5	66	////	////	02 17	21 05	20 45	20 06	□	
	04	238	23.2		53.1	351	41.5	11.2		8	31.7	16.1	59.5	64	////	00 43	02 46	21 17	21 06	20 50	19 53	
	05	253	23.2		52.6	6	11.7	11.2		8	47.8	15.9	59.5	62	////	01 45	03 07	21 26	21 23	21 20	21 18	
	06	268	23.2	N19	52.1	20	41.9	11.1	N	9	03.7	15.9	59.5	60	////	02 17	03 24	21 35	21 37	21 43	21 55	
	07	283	23.2		51.5	35	12.0	11.1		9	19.6	15.9	59.5	N 58	00 39	02 41	03 39	21 43	21 50	22 01	22 22	
	08	298	23.2		51.0	49	42.1	11.1		9	35.5	15.8	59.5	56	01 35	02 59	03 51	21 49	22 00	22 16	22 43	
	09	313	23.2		50.5	64	12.2	11.0		9	51.3	15.7	59.4	54	02 05	03 15	04 02	21 55	22 10	22 30	23 00	
	10	328	23.2		50.0	78	42.2	10.9		10	07.0	15.7	59.4	52	02 27	03 28	04 11	22 01	22 18	22 42	23 15	
	11	343	23.1		49.4	93	12.1	10.9		10	22.7	15.6	59.4	50	02 45	03 39	04 19	22 06	22 26	22 52	23 28	
	MARTES	12	358	23.1	N19	48.9	107	42.0	10.9	N10	38.3	15.6	59.4	45	03 18	04 03	04 37	22 16	22 42	23 14	23 55	
		13	13	23.1		48.4	122	11.9	10.8		10	53.9	15.5	59.4	N 40	03 42	04 21	04 52	22 25	22 56	23 32	24 16
		14	28	23.1		47.9	136	41.7	10.8		11	09.4	15.5	59.4	35	04 01	04 36	05 04	22 33	23 07	23 47	24 34
		15	43	23.1		47.3	151	11.5	10.7		11	24.9	15.4	59.4	30	04 17	04 48	05 15	22 40	23 17	24 00	00 00
		16	58	23.1		46.8	165	41.2	10.6		11	40.3	15.3	59.4	20	04 41	05 09	05 33	22 52	23 35	24 22	00 22
		17	73	23.1		46.3	180	10.8	10.6		11	55.6	15.2	59.4	N 10	05 00	05 26	05 48	23 03	23 50	24 42	00 42
		18	88	23.1	N19	45.7	194	40.4	10.6	N12	10.8	15.2	59.4	0	05 15	05 41	06 03	23 13	24 05	00 05	01 00	
		19	103	23.1		45.2	209	10.0	10.5		12	26.0	15.1	59.4	S 10	05 29	05 55	06 17	23 23	24 20	00 20	01 19
		20	118	23.0		44.7	223	39.5	10.4		12	41.1	15.1	59.4	20	05 42	06 09	06 33	23 33	24 35	00 35	01 39
		21	133	23.0		44.1	238	08.9	10.4		12	56.2	14.9	59.4	30	05 55	06 24	06 50	23 46	24 54	00 54	02 02
	22	148	23.0		43.6	252	38.3	10.3		13	11.1	14.9	59.4	35	06 02	06 33	07 00	23 53	25 04	01 04	02 16	
23	163	23.0		43.1	267	07.6	10.3		13	26.0	14.9	59.4	40	06 09	06 42	07 11	24 02	00 02	01 17	02 32		
MIÉRCOLES	25 00	178	23.0	N19	42.5	281	36.9	10.2	N13	40.9	14.7	59.4	45	06 17	06 53	07 25	24 11	00 11	01 31	02 51		
	01	193	23.0		42.0	296	06.1	10.1		13	55.6	14.7	59.3	S 50	06 25	07 05	07 41	24 23	00 23	01 49	03 14	
	02	208	23.0		41.5	310	35.2	10.1		14	10.3	14.5	59.3	52	06 29	07 11	07 49	24 29	00 29	01 58	03 26	
	03	223	23.0		40.9	325	04.3	10.0		14	24.8	14.5	59.3	54	06 33	07 17	07 57	24 35	00 35	02 07	03 39	
	04	238	23.0		40.4	339	33.3	9.9		14	39.3	14.5	59.3	56	06 37	07 24	08 07	24 42	00 42	02 18	03 54	
	05	253	23.0		39.8	354	02.2	9.9		14	53.8	14.3	59.3	58	06 42	07 31	08 18	24 50	00 50	02 31	04 13	
	06	268	23.0	N19	39.3	8	31.1	9.8	N15	08.1	14.2	59.3	S 60	06 47	07 40	08 30	24 59	00 59	02 45	04 35		
	07	283	23.0		38.8	22	59.9	9.8		15	22.3	14.2	59.3									
	08	298	23.0		38.2	37	28.7	9.7		15	36.5	14.0	59.3	Lat.	Ocaso Sol	Crepúsculo Civil	Naut.	Ocaso Luna				
	09	313	23.0		37.7	51	57.4	9.6		15	50.5	14.0	59.3					24	25	26	27	
10	328	22.9		37.1	66	26.0	9.5		16	04.5	13.9	59.3	N 72	h m	h m	h m	h m	h m	h m	h m		
11	343	22.9		36.6	80	54.5	9.5		16	18.4	13.8	59.3	N 70	□	□	□	13 16	16 52	□	□		
12	358	22.9	N19	36.1	95	23.0	9.4	N16	32.2	13.7	59.3	68	22 33	////	////	12 42	15 03	□	□			
13	13	22.9		35.5	109	51.4	9.3		16	45.9	13.6	59.2	66	21 52	////	////	12 30	14 37	17 10	□		
14	28	22.9		35.0	124	19.7	9.3		16	59.5	13.4	59.2	64	21 25	23 19	////	12 20	14 17	16 27	19 25		
15	43	22.9		34.4	138	48.0	9.2		17	12.9	13.4	59.2	62	21 04	22 24	////	12 11	14 01	15 58	18 00		
16	58	22.9		33.9	153	16.2	9.1		17	26.3	13.3	59.2	60	20 47	21 53	////	12 04	13 48	15 36	17 24		
17	73	22.9		33.3	167	44.3	9.1		17	39.6	13.2	59.2	N 58	20 33	21 30	23 24	11 58	13 37	15 18	16 58		
18	88	22.9	N19	32.8	182	12.4	8.9	N17	52.8	13.1	59.2	56	20 21	21 12	22 34	11 52	13 27	15 04	16 37			
19	103	22.9		32.2	196	40.3	8.9		18	05.9	13.0	59.2	54	20 10	20 57	22 05	11 47	13 18	14 51	16 20		
20	118	22.9		31.7	211	08.2	8.8		18	18.9	12.8	59.2	52	20 01	20 44	21 44	11 43	13 11	14 40	16 06		
21	133	22.9		31.2	225	36.0	8.8		18	31.7	12.8	59.2	50	19 53	20 33	21 26	11 39	13 04	14 30	15 53		
22	148	22.9		30.6	240	03.8	8.7		18	44.5	12.6	59.2	45	19 35	20 10	20 54	11 30	12 49	14 09	15 27		
23	163	22.9		30.1	254	31.5	8.6		18	57.1	12.6	59.1										
JUEVES	26 00	178	22.9	N19	29.5	268	59.1	8.5	N19	09.7	12.4	59.1	N 40	19 21	19 52	20 30	11 23	12 37	13 52	15 06		
	01	193	22.9		29.0	283	26.6	8.4		19	22.1	12.3	59.1	35	19 08	19 37	20 11	11 17	12 27	13 38	14 49	
	02	208	22.9		28.4	297	54.0	8.4		19	34.4	12.2	59.1	30	18 58	19 24	19 56	11 11	12 18	13 26	14 34	
	03	223	22.9		27.9	312	21.4	8.3		19	46.6	12.0	59.1	20	18 40	19 04	19 32	11 02	12 03	13 05	14 10	
	04	238	22.9		27.3	326	48.7	8.2		19	58.6	12.0	59.1	N 10	18 24	18 47	19 13	10 54	11 49	12 48	13 48	
	05	253	22.9		26.8	341	15.9	8.1		20	10.6	11.8	59.1	0	18 10	18 32	18 57	10 46	11 37	12 31	13 28	
	06	268	22.9	N19	26.2	355	43.0	8.1	N20	22.4	11.7	59.1	S 10	17 56	18 18	18 44	10 39	11 25	12 14	13 08		
	07	283	22.9		25.7	10	10.1	8.0		20	34.1	11.6	59.1	20	17 41	18 04	18 31	10 30	11 12	11 57	12 47	
	08	298	22.9		25.1	24	37.1	7.9		20	45.7	11.4	59.0	30	17 23	17 49	18 18	10 21	10 57	11 36	12 22	
	09	313	22.9		24.5	39	04.0	7.8		20	57.1	11.3	59.0	35	17 13	17 40	18 11	10 16	10 48	11 25	12 08	
10	328	22.9		24.0	53	30.8	7.8		21	08.4	11.2	59.0	40	17 02	17 31	18 04	10 10	10 38	11 11	11 51		
11	343	2																				



T.M.G. (TU)		ARIES			VENUS -3.9			MARTE +1.8			JUPITER -2.0			SATURNO +0.2			ESTRELLAS							
d	h	A.H.G.		A.H.G.	Dec.	A.H.G.		A.H.G.	Dec.	A.H.G.		A.H.G.	Dec.	A.H.G.		A.H.G.	Dec.	Nombre	A. H. S.	Dec.				
27	00	304	39.2	148	38.6	N11	36.3	156	44.8	N14	10.8	215	33.0	N23	05.8	25	00.4	S22	33.9	Acamar	315	31.9	S40	20.4
	01	319	41.7	163	38.2		35.2	171	45.7		10.3	230	34.9		05.8	40	03.0		33.9	Achernar	335	39.7	S57	16.9
	02	334	44.1	178	37.9		34.1	186	46.7		09.8	245	36.8		05.8	55	05.7		33.9	Acruz	173	30.1	S63	02.8
	03	349	46.6	193	37.5		32.9	201	47.6		09.2	260	38.7		05.8	70	08.3		33.9	Adhara	255	27.0	S28	57.2
	04	4	49.1	208	37.1		31.8	216	48.6		08.7	275	40.6		05.8	85	10.9		33.9	Aldebaran	291	10.2	N16	29.5
	05	19	51.5	223	36.7		30.6	231	49.5		08.1	290	42.5		05.8	100	13.6		34.0					
	06	34	54.0	238	36.3	N11	29.5	246	50.5	N14	07.6	305	44.4	N23	05.8	115	16.2	S22	34.0	Alioth	166	36.3	N56	01.2
	07	49	56.5	253	36.0		28.4	261	51.4		07.0	320	46.3		05.8	130	18.8		34.0	Alkaid	153	12.9	N49	22.1
	08	64	58.9	268	35.6		27.2	276	52.3		06.5	335	48.2		05.8	145	21.5		34.0	Al Na'ir	28	05.6	S47	00.5
J	09	80	01.4	283	35.2		26.1	291	53.3		06.0	350	50.1		05.8	160	24.1		34.0	Alnilam	276	04.8	S 1	12.3
U	10	95	03.9	298	34.8		24.9	306	54.2		05.4	5	52.0		05.8	175	26.7		34.0	Alphard	218	14.1	S 8	36.7
E	11	110	06.3	313	34.4		23.8	321	55.2		04.9	20	53.9		05.9	190	29.4		34.0					
V	12	125	08.8	328	34.1	N11	22.6	336	56.1	N14	04.3	35	55.8	N23	05.9	205	32.0	S22	34.1	Alphecca	126	26.0	N26	45.0
E	13	140	11.2	343	33.7		21.5	351	57.1		03.8	50	57.7		05.9	220	34.6		34.1	Alpheratz	358	02.0	N29	02.0
S	14	155	13.7	358	33.3		20.3	6	58.0		03.3	65	59.6		05.9	235	37.3		34.1	Altair	62	25.4	N 8	50.4
	15	170	16.2	13	32.9		19.2	21	59.0		02.7	81	01.5		05.9	250	39.9		34.1	Ankaa	353	33.0	S42	21.4
	16	185	18.6	28	32.6		18.1	36	59.9		02.2	96	03.4		05.9	265	42.5		34.1	Antares	112	48.1	S26	24.8
	17	200	21.1	43	32.2		16.9	52	00.8		01.6	111	05.3		05.9	280	45.2		34.1					
	18	215	23.6	58	31.8	N11	15.8	67	01.8	N14	01.1	126	07.2	N23	05.9	295	47.8	S22	34.2	Arcturus	146	12.0	N19	14.2
	19	230	26.0	73	31.4		14.6	82	02.7		00.5	141	09.1		05.9	310	50.4		34.2	Atria	108	05.9	S69	00.9
	20	245	28.5	88	31.1		13.5	97	03.7	14	00.0	156	11.0		05.9	325	53.1		34.2	Avior	234	26.2	S59	28.5
	21	260	31.0	103	30.7		12.3	112	04.6	13	59.5	171	12.9		05.9	340	55.7		34.2	Bellatrix	278	51.5	N 6	20.6
	22	275	33.4	118	30.3		11.2	127	05.6		58.9	186	14.8		05.9	355	58.3		34.2	Betelgeuse	271	21.0	N 7	24.5
	23	290	35.9	133	30.0		10.0	142	06.5		58.4	201	16.7		05.9	11	01.0		34.2					
28	00	305	38.4	148	29.6	N11	08.9	157	07.5	N13	57.8	216	18.6	N23	05.9	26	03.6	S22	34.2	Canopus	264	04.6	S52	41.1
	01	320	40.8	163	29.2		07.7	172	08.4		57.3	231	20.5		05.9	41	06.2		34.3	Capella	281	01.4	N45	59.3
	02	335	43.3	178	28.8		06.6	187	09.3		56.7	246	22.4		05.9	56	08.8		34.3	Deneb	49	43.4	N45	14.5
	03	350	45.7	193	28.5		05.4	202	10.3		56.2	261	24.3		05.9	71	11.5		34.3	Denebola	182	52.1	N14	37.9
	04	5	48.2	208	28.1		04.3	217	11.2		55.7	276	26.2		05.9	86	14.1		34.3	Diphda	349	13.7	S18	02.4
	05	20	50.7	223	27.7		03.1	232	12.2		55.1	291	28.1		05.9	101	16.7		34.3					
	06	35	53.1	238	27.4	N11	02.0	247	13.1	N13	54.6	306	30.0	N23	06.0	116	19.4	S22	34.3	Dubhe	194	13.7	N61	48.6
	07	50	55.6	253	27.0		11 00.8	262	14.1		54.0	321	31.9		06.0	131	22.0		34.3	Elnath	278	35.6	N28	36.1
	08	65	58.1	268	26.6	10	59.6	277	15.0		53.5	336	33.8		06.0	146	24.6		34.4	Eltanin	90	54.0	N51	29.5
	09	81	00.5	283	26.3		58.5	292	16.0		52.9	351	35.7		06.0	161	27.3		34.4	Enif	34	04.5	N 9	49.7
	10	96	03.0	298	25.9		57.3	307	16.9		52.4	6	37.6		06.0	176	29.9		34.4	Fomalhaut	15	43.3	S29	40.5
	11	111	05.5	313	25.5		56.2	322	17.9		51.8	21	39.5		06.0	191	32.5		34.4					
	12	126	07.9	328	25.2	N10	55.0	337	18.8	N13	51.3	36	41.4	N23	06.0	206	35.2	S22	34.4	Gacrux	172	21.5	S57	03.6
	13	141	10.4	343	24.8		53.9	352	19.7		50.8	51	43.3		06.0	221	37.8		34.4	Gienah	176	11.0	S17	29.1
	14	156	12.9	358	24.4		52.7	7	20.7		50.2	66	45.2		06.0	236	40.4		34.5	Hadar	149	13.8	S60	19.8
	15	171	15.3	13	24.1		51.5	22	21.6		49.7	81	47.1		06.0	251	43.1		34.5	Hamal	328	21.1	N23	24.9
	16	186	17.8	28	23.7		50.4	37	22.6		49.1	96	49.0		06.0	266	45.7		34.5	Kaus Aust.	84	07.2	S34	23.6
	17	201	20.2	43	23.3		49.2	52	23.5		48.6	111	50.9		06.0	281	48.3		34.5					
	18	216	22.7	58	23.0	N10	48.1	67	24.5	N13	48.0	126	52.8	N23	06.0	296	50.9	S22	34.5	Kochab	137	18.6	N74	12.1
	19	231	25.2	73	22.6		46.9	82	25.4		47.5	141	54.7		06.0	311	53.6		34.5	Markab	13	56.0	N15	09.0
	20	246	27.6	88	22.3		45.8	97	26.4		46.9	156	56.6		06.0	326	56.2		34.5	Menkar	314	33.9	N 4	03.1
	21	261	30.1	103	21.9		44.6	112	27.3		46.4	171	58.5		06.0	341	58.8		34.6	Menkent	148	28.9	S36	19.4
	22	276	32.6	118	21.5		43.4	127	28.3		45.8	187	00.4		06.0	357	01.5		34.6	Miaplacidus	221	44.8	S69	40.5
	23	291	35.0	133	21.2		42.3	142	29.2		45.3	202	02.3		06.0	12	04.1		34.6					
29	00	306	37.5	148	20.8	N10	41.1	157	30.2	N13	44.7	217	04.2	N23	06.0	27	06.7	S22	34.6	Mirfak	309	06.4	N49	49.4
	01	321	40.0	163	20.4		39.9	172	31.1		44.2	232	06.1		06.0	42	09.4		34.6	Nunki	76	20.2	S26	18.7
	02	336	42.4	178	20.1		38.8	187	32.1		43.7	247	08.0		06.0	57	12.0		34.6	Pellcock	53	46.6	S56	46.2
	03	351	44.9	193	19.7		37.6	202	33.0		43.1	262	09.9		06.0	72	14.6		34.6	Pollux	243	50.0	N28	03.2
	04	6	47.3	208	19.4		36.5	217	33.9		42.6	277	11.8		06.1	87	17.2		34.7	Procyon	245	18.8	N 5	15.3
	05	21	49.8	223	19.0		35.3	232	34.9		42.0	292	13.7		06.1	102	19.9		34.7					
	06	36	52.3	238	18.7	N10	34.1	247	35.8	N13	41.5	307	15.6	N23	06.1	117	22.5	S22	34.7	Rasalhague	96	22.8	N12	



T.M.G. (TU)	SOL		LUNA					Lat.	Crepúsculo		Orto Sol	Orto Luna			
	A.H.G.	Dec.	A.H.G.	v	Dec.	d	P.H.		Naut.	Civil		27	28	29	30
												h m	h m	h m	h m
J U E V E S	27 00	178 22.9	N19 16.2	255 38.4	6.7	N23 32.8	9.3	58.9	N 72	00 34	00 34	00 34	00 34		
	01	193 22.9	15.6	270 04.1	6.6	23 42.1	9.1	58.8	N 70	01 53	01 53	01 53	01 53		
	02	208 22.9	15.0	284 29.7	6.6	23 51.2	8.9	58.8	66	02 29	02 29	02 29	02 29		
	03	223 22.9	14.5	298 55.3	6.5	24 00.1	8.8	58.8	64	01 12	02 55	19 53	00 34		
	04	238 22.9	13.9	313 20.8	6.4	24 08.9	8.7	58.8	62	01 58	03 15	21 18	21 23		
	05	253 22.9	13.4	327 46.2	6.4	24 17.6	8.5	58.8	60	02 27	03 31	21 55	22 26		
	06	268 23.0	N19 12.8	342 11.6	6.3	N24 26.1	8.3	58.8	N 58	01 05	02 49	03 45	22 22		
	07	283 23.0	12.2	356 36.9	6.2	24 34.4	8.2	58.8	56	01 47	03 06	03 56	22 43		
	08	298 23.0	11.7	11 02.1	6.1	24 42.6	8.0	58.7	54	02 14	03 21	04 06	23 00		
	09	313 23.0	11.1	25 27.2	6.1	24 50.6	7.9	58.7	52	02 35	03 33	04 15	23 15		
	10	328 23.0	10.5	39 52.3	6.0	24 58.5	7.7	58.7	50	02 51	03 44	04 24	23 28		
	11	343 23.0	09.9	54 17.3	6.0	25 06.2	7.5	58.7	45	03 23	04 06	04 41	23 55		
	12	358 23.0	N19 09.4	68 42.3	5.9	N25 13.7	7.4	58.7	N 40	03 46	04 24	04 54	24 16		
	13	13 23.0	08.8	83 07.2	5.9	25 21.1	7.2	58.7	35	04 04	04 38	05 06	24 34		
	14	28 23.0	08.2	97 32.1	5.8	25 28.3	7.1	58.7	30	04 19	04 50	05 16	00 00		
	15	43 23.0	07.7	111 56.9	5.7	25 35.4	6.9	58.6	20	04 42	05 10	05 34	00 22		
	16	58 23.0	07.1	126 21.6	5.7	25 42.3	6.7	58.6	N 10	05 00	05 27	05 49	00 42		
	17	73 23.0	06.5	140 46.3	5.6	25 49.0	6.6	58.6	0	05 16	05 41	06 03	01 00		
	18	88 23.0	N19 06.0	155 10.9	5.6	N25 55.6	6.4	58.6	S 10	05 29	05 55	06 17	01 19		
	19	103 23.0	05.4	169 35.5	5.5	26 02.0	6.2	58.6	20	05 41	06 08	06 31	01 39		
	20	118 23.1	04.8	184 00.0	5.4	26 08.2	6.1	58.6	30	05 54	06 23	06 48	02 02		
	21	133 23.1	04.2	198 24.4	5.5	26 14.3	5.9	58.6	35	06 00	06 31	06 58	02 16		
	22	148 23.1	03.7	212 48.9	5.3	26 20.2	5.7	58.5	40	06 07	06 40	07 09	02 32		
23	163 23.1	03.1	227 13.2	5.4	26 25.9	5.5	58.5	45	06 14	06 50	07 22	02 51			
V I E R N E S	28 00	178 23.1	N19 02.5	241 37.6	5.3	N26 31.4	5.4	58.5	S 50	06 22	07 01	07 37	03 14		
	01	193 23.1	01.9	256 01.9	5.2	26 36.8	5.2	58.5	52	06 26	07 07	07 45	03 26		
	02	208 23.1	01.4	270 26.1	5.2	26 42.0	5.0	58.5	54	06 29	07 13	07 53	03 39		
	03	223 23.1	00.8	284 50.3	5.2	26 47.0	4.9	58.5	56	06 33	07 19	08 02	03 54		
	04	238 23.1	19 00.2	299 14.5	5.1	26 51.9	4.7	58.4	58	06 38	07 26	08 12	04 13		
	05	253 23.1	18 59.6	313 38.6	5.1	26 56.6	4.5	58.4	S 60	06 42	07 34	08 24	04 35		
	06	268 23.2	N18 59.0	328 02.7	5.1	N27 01.1	4.3	58.4	Lat.	Ocaso Sol	Crepúsculo		Ocaso Luna		
	07	283 23.2	58.5	342 26.8	5.1	27 05.4	4.2	58.4			Civil	Naut.	27	28	
	08	298 23.2	57.9	356 50.9	5.0	27 09.6	4.0	58.4					29	30	
	09	313 23.2	57.3	11 14.9	5.0	27 13.6	3.8	58.4	N 72	h m	h m	h m	h m	h m	
	10	328 23.2	56.7	25 38.9	4.9	27 17.4	3.6	58.3	N 70	23 22	///	///	00 34	00 34	
	11	343 23.2	56.1	40 02.8	5.0	27 21.0	3.4	58.3	68	22 15	///	///	00 34	00 34	
	12	358 23.2	N18 55.6	54 26.8	4.9	N27 24.4	3.3	58.3	66	21 40	///	///	00 34	00 34	
	13	13 23.2	55.0	68 50.7	4.9	27 27.7	3.1	58.3	64	21 15	22 54	///	19 25	00 34	
	14	28 23.3	54.4	83 14.6	4.9	27 30.8	2.9	58.3	62	20 56	22 11	///	18 00	20 01	
	15	43 23.3	53.8	97 38.5	4.8	27 33.7	2.7	58.3	60	20 40	21 43	///	17 24	18 58	
	16	58 23.3	53.2	112 02.3	4.9	27 36.4	2.6	58.2	N 58	20 27	21 22	23 01	16 58	18 24	
	17	73 23.3	52.6	126 26.2	4.9	27 39.0	2.4	58.2	56	20 15	21 05	22 22	16 37	17 59	
	18	88 23.3	N18 52.1	140 50.1	4.8	N27 41.4	2.2	58.2	54	20 05	20 51	21 56	16 20	17 39	
	19	103 23.3	51.5	155 13.9	4.9	27 43.6	2.0	58.2	52	19 56	20 39	21 36	16 06	17 22	
	20	118 23.4	50.9	169 37.8	4.8	27 45.6	1.8	58.2	50	19 49	20 28	21 20	15 53	17 08	
	21	133 23.4	50.3	184 01.6	4.8	27 47.4	1.7	58.2	45	19 32	20 06	20 49	15 27	16 39	
	22	148 23.4	49.7	198 25.4	4.9	27 49.1	1.4	58.1	N 40	19 18	19 48	20 26	15 06	16 16	
23	163 23.4	49.1	212 49.3	4.8	27 50.5	1.3	58.1	35	19 06	19 34	20 08	14 49	15 57		
S A B A D O	29 00	178 23.4	N18 48.5	227 13.1	4.9	N27 51.8	1.2	58.1	30	18 56	19 22	19 54	14 34		
	01	193 23.4	47.9	241 37.0	4.8	27 53.0	0.9	58.1	20	18 39	19 02	19 30	14 10		
	02	208 23.4	47.4	256 00.8	4.9	27 53.9	0.7	58.1	N 10	18 24	18 46	19 12	13 48		
	03	223 23.5	46.8	270 24.7	4.9	27 54.6	0.6	58.1	0	18 10	18 32	18 57	13 28		
	04	238 23.5	46.2	284 48.6	4.9	27 55.2	0.4	58.0	S 10	17 56	18 18	18 44	13 08		
	05	253 23.5	45.6	299 12.5	4.9	27 55.6	0.2	58.0	20	17 42	18 05	18 32	12 47		
	06	268 23.5	N18 45.0	313 36.4	5.0	N27 55.8	0.1	58.0	30	17 25	17 50	18 19	12 22		
	07	283 23.5	44.4	328 00.4	4.9	27 55.9	0.2	58.0	35	17 15	17 42	18 13	12 08		
	08	298 23.6	43.8	342 24.3	5.0	27 55.7	0.3	58.0	40	17 05	17 34	18 06	11 51		
	09	313 23.6	43.2	356 48.3	5.0	27 55.4	0.5	57.9	45	16 52	17 24	17 59	11 31		
	10	328 23.6	42.6	11 12.3	5.0	27 54.9	0.7	57.9	S 50	16 36	17 12	17 51	11 06		
	11	343 23.6	42.0	25 36.3	5.1	27 54.2	0.8	57.9	52	16 29	17 07	17 48	10 54		
	12	358 23.6	N18 41.4	40 00.4	5.1	N27 53.4	1.0	57.9	54	16 21	17 01	17 44	10 40		
	13	13 23.7	40.8	54 24.5	5.2	27 52.4	1.2	57.9	56	16 12	16 54	17 40	10 25		
	14	28 23.7	40.2	68 48.7	5.1	27 51.2	1.4	57.8	58	16 02	16 47	17 36	10 06		
	15	43 23.7	39.6	83 12.8	5.3	27 49.8	1.6	57.8	S 60	15 50	16 39	17 31	09 43		
	16	58 23.7	39.0	97 37.1	5.2	27 48.2	1.7	57.8							
	17	73 23.7	38.4	112 01.3	5.3	27 46.5	1.9	57.8							
	18	88 23.8	N18 37.9	126 25.6	5.4	N27 44.6	2.1	57.8							
	19	103 23.8	37.3	140 50.0	5.4	27 42.5	2.2	57.8							
	20	118 23.8	36.7	155 14.4	5.4	27 40.3	2.5	57.7							
	21	133 23.8	36.1	169 38.8	5.5	27 37.8	2.6	57.7							
	22	148 23.8	35.5	184 03.3	5.6	27 35.2	2.7	57.7							
23	163 23.9	34.9	198 27.9	5.6	27 32.5	3.0	57.7								
	S.D.	15.8	d 0.6	S.D.	16.0	15.9	15.8	Día	SOL - E.T. (-)		LUNA				
									00 h	12 h	Pas. Mer.	Pas. Sup.	Mer. Inf.	Edad.	Fase
								27	06 28	06 28	h m	h m	h m	d	
								28	06 28	06 27	12 06	07 14	19 43	24	(
								29	06 26	06 26	12 06	08 13	20 43	25	



T.M.G. (TU)	ARIES			VENUS -3.9			MARTE +1.8			JUPITER -2.0			SATURNO +0.2			ESTRELLAS		
	A.H.G.	A.H.G.	Dec.	A.H.G.	Dec.	A.H.G.	Dec.	A.H.G.	Dec.	A.H.G.	Dec.	A.H.G.	Dec.	Nombre	A. H. S.	Dec.		
DOMINGO	30 00	307 36.6	148 12.3 N10	13.1	157 52.9 N13	31.6	217 49.9 N23	06.1	28 09.8 S22	34.9	Acamar	315 31.9 S40	20.4					
	01	322 39.1	163 11.9	11.9	172 53.9	31.0	232 51.8	06.1	43 12.4	35.0	Achernar	335 39.7 S57	16.9					
	02	337 41.6	178 11.6	10.7	187 54.8	30.5	247 53.7	06.1	58 15.1	35.0	Acrux	173 30.2 S63	02.8					
	03	352 44.0	193 11.2	09.6	202 55.8	29.9	262 55.6	06.1	73 17.7	35.0	Adhara	255 27.0 S28	57.2					
	04	7 46.5	208 10.9	08.4	217 56.7	29.4	277 57.5	06.1	88 20.3	35.0	Aldebaran	291 10.2 N16	29.5					
	05	22 49.0	223 10.5	07.2	232 57.7	28.8	292 59.5	06.1	103 22.9	35.0								
	06	37 51.4	238 10.2 N10	06.0	247 58.6 N13	28.3	308 01.4 N23	06.1	118 25.6 S22	35.0	Alioth	166 36.3 N56	01.2					
	07	52 53.9	253 09.8	04.9	262 59.6	27.7	323 03.3	06.1	133 28.2	35.1	Alkaid	153 12.9 N49	22.1					
	08	67 56.3	268 09.5	03.7	278 00.5	27.2	338 05.2	06.2	148 30.8	35.1	Al Na'ir	28 05.5 S47	00.5					
	09	82 58.8	283 09.2	02.5	293 01.5	26.6	353 07.1	06.2	163 33.4	35.1	Alnilam	276 04.8 S 1	12.3					
	10	98 01.3	298 08.8	01.3	308 02.4	26.1	8 09.0	06.2	178 36.1	35.1	Alphard	218 14.0 S 8	36.7					
	11	113 03.7	313 08.5	10 00.1	323 03.4	25.5	23 10.9	06.2	193 38.7	35.1								
	12	128 06.2	328 08.1 N 9	59.0	338 04.3 N13	25.0	38 12.8 N23	06.2	208 41.3 S22	35.1	Alphecca	126 26.0 N26	45.0					
	13	143 08.7	343 07.8	57.8	353 05.3	24.4	53 14.7	06.2	223 43.9	35.1	Alpheratz	358 02.0 N29	02.0					
	14	158 11.1	358 07.4	56.6	8 06.2	23.8	68 16.6	06.2	238 46.6	35.2	Altair	62 25.4 N 8	50.4					
	15	173 13.6	13 07.1	55.4	23 07.2	23.3	83 18.5	06.2	253 49.2	35.2	Ankaa	353 32.9 S42	21.4					
	16	188 16.1	28 06.7	54.3	38 08.1	22.7	98 20.4	06.2	268 51.8	35.2	Antares	112 48.1 S26	24.8					
	17	203 18.5	43 06.4	53.1	53 09.1	22.2	113 22.3	06.2	283 54.4	35.2								
	18	218 21.0	58 06.1 N 9	51.9	68 10.0 N13	21.6	128 24.2 N23	06.2	298 57.1 S22	35.2	Arcturus	146 12.0 N19	14.2					
	19	233 23.5	73 05.7	50.7	83 11.0	21.1	143 26.1	06.2	313 59.7	35.2	Atria	108 05.9 S69	00.9					
	20	248 25.9	88 05.4	49.5	98 11.9	20.5	158 28.1	06.2	329 02.3	35.2	Avior	234 26.2 S59	28.4					
	21	263 28.4	103 05.0	48.3	113 12.9	20.0	173 30.0	06.2	344 04.9	35.3	Bellatrix	278 51.5 N 6	20.6					
	22	278 30.8	118 04.7	47.2	128 13.8	19.4	188 31.9	06.2	359 07.6	35.3	Betelgeuse	271 21.0 N 7	24.5					
23	293 33.3	133 04.3	46.0	143 14.8	18.9	203 33.8	06.2	14 10.2	35.3									
LUNES	31 00	308 35.8	148 04.0 N 9	44.8	158 15.7 N13	18.3	218 35.7 N23	06.2	29 12.8 S22	35.3	Canopus	264 04.6 S52	41.1					
	01	323 38.2	163 03.7	43.6	173 16.7	17.8	233 37.6	06.2	44 15.4	35.3	Capella	281 01.3 N45	59.3					
	02	338 40.7	178 03.3	42.4	188 17.6	17.2	248 39.5	06.2	59 18.1	35.3	Deneb	49 43.4 N45	14.6					
	03	353 43.2	193 03.0	41.2	203 18.6	16.6	263 41.4	06.2	74 20.7	35.3	Denebola	182 52.1 N14	37.9					
	04	8 45.6	208 02.6	40.1	218 19.5	16.1	278 43.3	06.2	89 23.3	35.4	Diphda	349 13.6 S18	02.4					
	05	23 48.1	223 02.3	38.9	233 20.5	15.5	293 45.2	06.2	104 25.9	35.4								
	06	38 50.6	238 02.0 N 9	37.7	248 21.4 N13	15.0	308 47.1 N23	06.2	119 28.6 S22	35.4	Dubhe	194 13.7 N61	48.6					
	07	53 53.0	253 01.6	36.5	263 22.4	14.4	323 49.0	06.2	134 31.2	35.4	Elnath	278 35.6 N28	36.1					
	08	68 55.5	268 01.3	35.3	278 23.3	13.9	338 51.0	06.2	149 33.8	35.4	Eltanin	90 54.0 N51	29.5					
	09	83 57.9	283 01.0	34.1	293 24.3	13.3	353 52.9	06.2	164 36.4	35.4	Enif	34 04.4 N 9	49.7					
	10	99 00.4	298 00.6	32.9	308 25.2	12.8	8 54.8	06.2	179 39.1	35.4	Fomalhaut	15 43.3 S29	40.5					
	11	114 02.9	313 00.3	31.8	323 26.2	12.2	23 56.7	06.2	194 41.7	35.5								
	12	129 05.3	327 59.9 N 9	30.6	338 27.1 N13	11.6	38 58.6 N23	06.2	209 44.3 S22	35.5	Gacrux	172 21.5 S57	03.6					
	13	144 07.8	342 59.6	29.4	353 28.1	11.1	54 00.5	06.2	224 46.9	35.5	Gienah	176 11.0 S17	29.1					
	14	159 10.3	357 59.3	28.2	8 29.0	10.5	69 02.4	06.2	239 49.5	35.5	Hadar	149 13.8 S60	19.8					
	15	174 12.7	12 58.9	27.0	23 30.0	10.0	84 04.3	06.2	254 52.2	35.5	Hamal	328 21.1 N23	24.9					
	16	189 15.2	27 58.6	25.8	38 30.9	09.4	99 06.2	06.2	269 54.8	35.5	Kaus Aust.	84 07.2 S34	23.6					
	17	204 17.7	42 58.3	24.6	53 31.9	08.9	114 08.1	06.2	284 57.4	35.5								
	18	219 20.1	57 57.9 N 9	23.4	68 32.9 N13	08.3	129 10.1 N23	06.2	300 00.0 S22	35.6	Kochab	137 18.6 N74	12.1					
	19	234 22.6	72 57.6	22.2	83 33.8	07.8	144 12.0	06.2	315 02.7	35.6	Markab	13 56.0 N15	09.0					
	20	249 25.1	87 57.3	21.0	98 34.8	07.2	159 13.9	06.2	330 05.3	35.6	Menkar	314 33.9 N 4	03.2					
	21	264 27.5	102 56.9	19.8	113 35.7	06.6	174 15.8	06.2	345 07.9	35.6	Menkent	148 28.9 S36	19.4					
	22	279 30.0	117 56.6	18.7	128 36.7	06.1	189 17.7	06.2	0 10.5	35.6	Miaplacidus	221 44.8 S69	40.5					
23	294 32.4	132 56.3	17.5	143 37.6	05.5	204 19.6	06.3	15 13.1	35.6									
MARTES	1 00	309 34.9	147 56.0 N 9	16.3	158 38.6 N13	05.0	219 21.5 N23	06.3	30 15.8 S22	35.6	Mirfak	309 06.4 N49	49.4					
	01	324 37.4	162 55.6	15.1	173 39.5	04.4	234 23.4	06.3	45 18.4	35.7	Nunki	76 20.2 S26	18.7					
	02	339 39.8	177 55.3	13.9	188 40.5	03.8	249 25.3	06.3	60 21.0	35.7	Peacock	53 46.6 S56	46.2					
	03	354 42.3	192 55.0	12.7	203 41.4	03.3	264 27.3	06.3	75 23.6	35.7	Pollux	243 49.9 N28	03.2					
	04	9 44.8	207 54.6	11.5	218 42.4	02.7	279 29.2	06.3	90 26.3	35.7	Procyon	245 18.8 N 5	15.3					
	05	24 47.2	222 54.3	10.3	233 43.3	02.2	294 31.1	06.3	105 28.9	35.7								
	06	39 49.7	237 54.0 N 9	09.1	248 44.3 N13	01.6	309 33.0 N23	06.3	120 31.5 S22	35.7	Rasalhague	96 22.8 N12	34.0					
	07	54 52.2	252 53.6	07.9	263 45.2	01.1	324 34.9	06.3	135 34.1	35.7	Regulus	208 02.8 N12	01.2					
	08	69 54.6	267 53.3	06.7	278 46.2	13 00.5	339 36.8	06.3	150 36.7	35.8	Rigel	281 29.5 S 8	12.5					
	09	84 57.1	282 53.0	05.5	293 47.2	12 59.9	354 38.7	06.3	165 39.4	35.8	Rigil Kent.	140 16.5 S60	47.9					
	10	99 59.6	297 52.7	04.3	308 48.1	59.4	9 40.6	06.3	180 42.0	35.8	Sabik	102 32.9 S15	42.9					
	11	115 02.0	312 52.3	03.1	323 49.1	58.8	24 42.5	06.3	195 44.6	35.8								
	12	130 04.5	327 52.0 N 9	01.9	338 50.0 N12	58.3	39 44.5 N23	06.3	210 47.2 S22	35.8	Schedar	350 01.1 N56	28.7					
	13	145 06.9	342 51.7	00.7	353 51.0	57.7	54 46.4	06.3	225 49.8	35.8	Shaula	96 46.0 S37	06.0					
	14	160 09.4	357 51.4	8 59.5	8 51.9	57.1	69 48.3	06.3	240 52.5	35.8	Sirius	258 49.8 S16	41.9					
	15	175 11.9	12 51.0	58.3	23 52.9	56.6	84 50.2	06.3	255 55.1	35.8	Spica	158 50.3 S11	06.5					
	16	190 14.3	27 50.7	57.1	38 53.8	56.0	99 52.1	06.3	270 57.7	35.9	Suhail	223 06.2 S43	23.4					
	17	205 16.8	42 50.4	55.9	53 54.8	55.5	114 54.0	06.3	286 00.3	35.9								
	18	220 19.3	57 50.1 N 8	54.7	68 55.7 N12	54.9	129 55.9 N23	06.3	301 02.9 S22	35.9	Vega	80 50.7 N38	46.5					
	19	235 21.7	72 49.7	53.5	83 56.7	54.3	144 57.9	06.3	316 05.6	35.9	Zuben'ubi	137 25.3 S16	00.1					
	20	250 24.2	87 49.4	52.3	98 57.7	53.8	159 59.8	06.3	331 08.2	35.9								
	21																	







T.M.G. (TU)	ARIES	VENUS -3.9	MARTE +1.8	JUPITER -2.0	SATURNO +0.2	ESTRELLAS		
d h	A.H.G.	A.H.G. Dec.	A.H.G. Dec.	A.H.G. Dec.	A.H.G. Dec.	Nombre	A. H. S.	Dec.
M I E R C O L E S	2 00	310 34.0	147 48.1 N 8 47.5	159 01.5 N12 51.5	220 07.4 N23 06.3	31 18.7 S22 36.0	Acomar	315 31.8 S40 20.3
	01	325 36.5	162 47.8 46.3	174 02.4 51.0	235 09.3 06.3	46 21.3 36.0	Achernar	335 39.6 S57 16.9
	02	340 39.0	177 47.5 45.1	189 03.4 50.4	250 11.2 06.3	61 23.9 36.0	Acrux	173 30.2 S63 02.8
	03	355 41.4	192 47.2 43.9	204 04.3 49.8	265 13.2 06.3	76 26.5 36.0	Adhara	255 27.0 S28 57.2
	04	10 43.9	207 46.8 42.7	219 05.3 49.3	280 15.1 06.3	91 29.1 36.0	Aldebaran	291 10.2 N16 29.5
	05	25 46.4	222 46.5 41.5	234 06.3 48.7	295 17.0 06.3	106 31.7 36.0		
	06	40 48.8	237 46.2 N 8 40.3	249 07.2 N12 48.2	310 18.9 N23 06.3	121 34.4 S22 36.1	Alioth	166 36.3 N56 01.2
	07	55 51.3	252 45.9 39.1	264 08.2 47.6	325 20.8 06.3	136 37.0 36.1	Alkaid	153 12.9 N49 22.1
	08	70 53.8	267 45.6 37.9	279 09.1 47.0	340 22.7 06.3	151 39.6 36.1	Al Na'ir	28 05.5 S47 00.6
	09	85 56.2	282 45.3 36.7	294 10.1 46.5	355 24.7 06.3	166 42.2 36.1	Alnilam	276 04.8 S 1 12.3
	10	100 58.7	297 44.9 35.5	309 11.0 45.9	10 26.6 06.3	181 44.8 36.1	Alphard	218 14.0 S 8 36.7
	11	116 01.2	312 44.6 34.3	324 12.0 45.3	25 28.5 06.3	196 47.5 36.1		
	12	131 03.6	327 44.3 N 8 33.0	339 12.9 N12 44.8	40 30.4 N23 06.3	211 50.1 S22 36.1	Alphecca	126 26.0 N26 45.0
	13	146 06.1	342 44.0 31.8	354 13.9 44.2	55 32.3 06.3	226 52.7 36.2	Alpheratz	358 02.0 N29 02.0
	14	161 08.5	357 43.7 30.6	9 14.9 43.7	70 34.2 06.3	241 55.3 36.2	Altair	62 25.4 N 8 50.4
	15	176 11.0	12 43.4 29.4	24 15.8 43.1	85 36.1 06.3	256 57.9 36.2	Ankaa	353 32.9 S42 21.4
	16	191 13.5	27 43.0 28.2	39 16.8 42.5	100 38.1 06.3	272 00.5 36.2	Antares	112 48.1 S26 24.8
	17	206 15.9	42 42.7 27.0	54 17.7 42.0	115 40.0 06.3	287 03.2 36.2		
	18	221 18.4	57 42.4 N 8 25.8	69 18.7 N12 41.4	130 41.9 N23 06.3	302 05.8 S22 36.2	Arcturus	146 12.1 N19 14.2
	19	236 20.9	72 42.1 24.6	84 19.6 40.8	145 43.8 06.3	317 08.4 36.2	Atria	108 05.9 S69 00.9
	20	251 23.3	87 41.8 23.4	99 20.6 40.3	160 45.7 06.3	332 11.0 36.3	Avior	234 26.2 S59 28.4
	21	266 25.8	102 41.5 22.2	114 21.6 39.7	175 47.6 06.3	347 13.6 36.3	Bellatrix	278 51.5 N 6 20.6
	22	281 28.3	117 41.2 20.9	129 22.5 39.1	190 49.6 06.3	2 16.2 36.3	Betelgeuse	271 21.0 N 7 24.5
23	296 30.7	132 40.8 19.7	144 23.5 38.6	205 51.5 06.3	17 18.9 36.3			
J U E V E S	3 00	311 33.2	147 40.5 N 8 18.5	159 24.4 N12 38.0	220 53.4 N23 06.3	32 21.5 S22 36.3	Canopus	264 04.6 S52 41.1
	01	326 35.7	162 40.2 17.3	174 25.4 37.5	235 55.3 06.3	47 24.1 36.3	Capella	281 01.3 N45 59.3
	02	341 38.1	177 39.9 16.1	189 26.3 36.9	250 57.2 06.3	62 26.7 36.3	Deneb	49 43.4 N45 14.6
	03	356 40.6	192 39.6 14.9	204 27.3 36.3	265 59.1 06.3	77 29.3 36.4	Denebola	182 52.1 N14 37.9
	04	11 43.0	207 39.3 13.7	219 28.3 35.8	281 01.1 06.3	92 31.9 36.4	Diphda	349 13.6 S18 02.4
	05	26 45.5	222 39.0 12.5	234 29.2 35.2	296 03.0 06.3	107 34.6 36.4		
	06	41 48.0	237 38.7 N 8 11.2	249 30.2 N12 34.6	311 04.9 N23 06.3	122 37.2 S22 36.4	Dubhe	194 13.7 N61 48.6
	07	56 50.4	252 38.3 10.0	264 31.1 34.1	326 06.8 06.3	137 39.8 36.4	Elnath	278 35.6 N28 36.1
	08	71 52.9	267 38.0 08.8	279 32.1 33.5	341 08.7 06.3	152 42.4 36.4	Eltanin	90 54.1 N51 29.5
	09	86 55.4	282 37.7 07.6	294 33.0 32.9	356 10.7 06.3	167 45.0 36.4	Enif	34 04.4 N 9 49.7
	10	101 57.8	297 37.4 06.4	309 34.0 32.4	11 12.6 06.3	182 47.6 36.4	Fomalhaut	15 43.3 S29 40.5
	11	117 00.3	312 37.1 05.2	324 35.0 31.8	26 14.5 06.3	197 50.2 36.5		
	12	132 02.8	327 36.8 N 8 04.0	339 35.9 N12 31.2	41 16.4 N23 06.3	212 52.9 S22 36.5	Gacrux	172 21.6 S57 03.6
	13	147 05.2	342 36.5 02.7	354 36.9 30.7	56 18.3 06.3	227 55.5 36.5	Gienah	176 11.0 S17 29.1
	14	162 07.7	357 36.2 01.5	9 37.8 30.1	71 20.2 06.3	242 58.1 36.5	Hadar	149 13.8 S60 19.8
	15	177 10.1	12 35.9 8 00.3	24 38.8 29.5	86 22.2 06.3	258 00.7 36.5	Hamal	328 21.1 N23 24.9
	16	192 12.6	27 35.6 7 59.1	39 39.8 29.0	101 24.1 06.3	273 03.3 36.5	Kaus Aust.	84 07.2 S34 23.6
	17	207 15.1	42 35.3 57.9	54 40.7 28.4	116 26.0 06.3	288 05.9 36.5		
	18	222 17.5	57 35.0 N 7 56.7	69 41.7 N12 27.8	131 27.9 N23 06.3	303 08.5 S22 36.6	Kochab	137 18.7 N74 12.1
	19	237 20.0	72 34.7 55.4	84 42.6 27.3	146 29.8 06.3	318 11.2 36.6	Markab	13 56.0 N15 09.0
	20	252 22.5	87 34.4 54.2	99 43.6 26.7	161 31.8 06.3	333 13.8 36.6	Menkar	314 33.9 N 4 03.2
	21	267 24.9	102 34.0 53.0	114 44.5 26.1	176 33.7 06.3	348 16.4 36.6	Menkent	148 28.9 S36 19.4
	22	282 27.4	117 33.7 51.8	129 45.5 25.6	191 35.6 06.3	3 19.0 36.6	Miaplacidus	221 44.8 S69 40.4
23	297 29.9	132 33.4 50.6	144 46.5 25.0	206 37.5 06.3	18 21.6 36.6			
V I E R N E S	4 00	312 32.3	147 33.1 N 7 49.3	159 47.4 N12 24.4	221 39.4 N23 06.3	33 24.2 S22 36.6	Mirfak	309 06.3 N49 49.4
	01	327 34.8	162 32.8 48.1	174 48.4 23.9	236 41.4 06.3	48 26.8 36.7	Nunki	76 20.2 S26 18.7
	02	342 37.3	177 32.5 46.9	189 49.3 23.3	251 43.3 06.3	63 29.5 36.7	Peacock	53 46.6 S56 46.2
	03	357 39.7	192 32.2 45.7	204 50.3 22.7	266 45.2 06.3	78 32.1 36.7	Pollux	243 49.9 N28 03.2
	04	12 42.2	207 31.9 44.5	219 51.3 22.1	281 47.1 06.3	93 34.7 36.7	Procyon	245 18.8 N 5 15.3
	05	27 44.6	222 31.6 43.2	234 52.2 21.6	296 49.0 06.3	108 37.3 36.7		
	06	42 47.1	237 31.3 N 7 42.0	249 53.2 N12 21.0	311 51.0 N23 06.3	123 39.9 S22 36.7	Rasalhague	96 22.8 N12 34.0
	07	57 49.6	252 31.0 40.8	264 54.1 20.4	326 52.9 06.3	138 42.5 36.7	Regulus	208 02.8 N12 01.2
	08	72 52.0	267 30.7 39.6	279 55.1 19.9	341 54.8 06.3	153 45.1 36.7	Rigel	281 29.5 S 8 12.5
	09	87 54.5	282 30.4 38.3	294 56.1 19.3	356 56.7 06.3	168 47.7 36.8	Rigil Kent.	140 16.5 S60 47.9
	10	102 57.0	297 30.1 37.1	309 57.0 18.7	11 58.7 06.3	183 50.4 36.8	Sabik	102 32.9 S15 42.9
	11	117 59.4	312 29.8 35.9	324 58.0 18.2	27 00.6 06.3	198 53.0 36.8		
	12	133 01.9	327 29.5 N 7 34.7	339 58.9 N12 17.6	42 02.5 N23 06.3	213 55.6 S22 36.8	Schedar	350 01.0 N56 28.7
	13	148 04.4	342 29.2 33.4	354 59.9 17.0	57 04.4 06.3	228 58.2 36.8	Shaula	96 46.0 S37 06.0
	14	163 06.8	357 28.9 32.2	10 00.9 16.5	72 06.3 06.3	244 00.8 36.8	Sirius	258 49.8 S16 41.9
	15	178 09.3	12 28.6 31.0	25 01.8 15.9	87 08.3 06.3	259 03.4 36.8	Spica	158 50.3 S11 06.5
	16	193 11.8	27 28.3 29.8	40 02.8 15.3	102 10.2 06.3	274 06.0 36.9	Suhail	223 06.2 S43 23.3
	17	208 14.2	42 28.0 28.5	55 03.7 14.7	117 12.1 06.3	289 08.6 36.9		
	18	223 16.7	57 27.7 N 7 27.3	70 04.7 N12 14.2	132 14.0 N23 06.3	304 11.2 S22 36.9	Vega	80 50.8 N38 46.5
	19	238 19.1	72 27.4 26.1	85 05.7 13.6	147 16.0 06.3	319 13.9 36.9	Zuben'ubi	137 25.3 S16 00.1
	20	253 21.6	87 27.1 24.9	100 06.6 13.0	162 17.9 06.3	334 16.5 36.9		
	21	268 24.1	102 26.8 23.6	115 07.6 12.5	177 19.8 06.3	349 19.1 36.9		
	22	283 26.5	117 26.5 22.4	130 08.5 11.9	192 21.7 06.3	4 21.7 36.9		
23	298 29.0	132 26.2 21.2	145 09.5 11.3	207 23.6 06.3	19 24.3 36.9			
Pas. Mer. 3 13.3						A. H. S. Pas. Mer.		
v -0.3 d 1.2						o / h m		
v 1.0 d 0.6						o / h m		
v 1.9 d 0.0						o / h m		
v 2.6 d 0.0						o / h m		
Venus						196 07.3 14 10		
Marte						207 51.2 13 22		
Júpiter						269 20.2 9 15		
Saturno						80 48.3 21 47		



T.M.G. (TU)	SOL				LUNA				Lat.	Crepúsculo		Orto Sol	Orto Luna					
	A.H.G.	Dec.	A.H.G.	Dec.	d	P.H.	Naut.	Civil		2	3		4	5				
M I E R O L D E S	2 00	178 26.2	N17 49.6	174 10.8	12.3	N17 48.9	12.0	56.1	N 72	h m	h m	h m	h m	h m	h m	h m	h m	h m
	01	193 26.2	49.0	188 42.1	12.4	17 36.9	12.0	56.1	N 70	h m	h m	h m	h m	h m	h m	h m	h m	h m
	02	208 26.3	48.3	203 13.5	12.6	17 24.9	12.1	56.1	68	h m	h m	h m	h m	h m	h m	h m	h m	h m
	03	223 26.3	47.7	217 45.1	12.6	17 12.8	12.1	56.0	66	h m	h m	h m	h m	h m	h m	h m	h m	h m
	04	238 26.4	47.0	232 16.7	12.7	17 00.7	12.3	56.0	64	h m	h m	h m	h m	h m	h m	h m	h m	h m
	05	253 26.4	46.4	246 48.4	12.8	16 48.4	12.3	56.0	62	h m	h m	h m	h m	h m	h m	h m	h m	h m
	06	268 26.5	N17 45.8	261 20.2	12.9	N16 36.1	12.4	56.0	60	h m	h m	h m	h m	h m	h m	h m	h m	h m
	07	283 26.5	45.1	275 52.1	13.0	16 23.7	12.4	55.9	N 58	h m	h m	h m	h m	h m	h m	h m	h m	h m
	08	298 26.5	44.5	290 24.1	13.0	16 11.3	12.5	55.9	56	h m	h m	h m	h m	h m	h m	h m	h m	h m
	09	313 26.6	43.8	304 56.1	13.2	15 58.8	12.5	55.9	54	h m	h m	h m	h m	h m	h m	h m	h m	h m
	10	328 26.6	43.2	319 28.3	13.2	15 46.3	12.6	55.9	52	h m	h m	h m	h m	h m	h m	h m	h m	h m
	11	343 26.7	42.5	334 00.5	13.4	15 33.7	12.7	55.9	50	h m	h m	h m	h m	h m	h m	h m	h m	h m
	12	358 26.7	N17 41.9	348 32.9	13.4	N15 21.0	12.7	55.8	45	h m	h m	h m	h m	h m	h m	h m	h m	h m
	13	13 26.8	41.2	3 05.3	13.5	15 08.3	12.8	55.8	N 40	h m	h m	h m	h m	h m	h m	h m	h m	h m
	14	28 26.8	40.6	17 37.8	13.6	14 55.5	12.9	55.8	35	h m	h m	h m	h m	h m	h m	h m	h m	h m
	15	43 26.9	40.0	32 10.4	13.7	14 42.6	12.8	55.8	30	h m	h m	h m	h m	h m	h m	h m	h m	h m
	16	58 26.9	39.3	46 43.1	13.7	14 29.8	13.0	55.8	20	h m	h m	h m	h m	h m	h m	h m	h m	h m
	17	73 26.9	38.7	61 15.8	13.8	14 16.8	13.0	55.7	N 10	h m	h m	h m	h m	h m	h m	h m	h m	h m
	18	88 27.0	N17 38.0	75 48.6	13.9	N14 03.8	13.0	55.7	0	h m	h m	h m	h m	h m	h m	h m	h m	h m
	19	103 27.0	37.4	90 21.5	14.0	13 50.8	13.1	55.7	S 10	h m	h m	h m	h m	h m	h m	h m	h m	h m
	20	118 27.1	36.7	104 54.5	14.1	13 37.7	13.2	55.7	20	h m	h m	h m	h m	h m	h m	h m	h m	h m
	21	133 27.1	36.1	119 27.6	14.2	13 24.5	13.1	55.6	30	h m	h m	h m	h m	h m	h m	h m	h m	h m
	22	148 27.2	35.4	134 00.8	14.2	13 11.4	13.3	55.6	35	h m	h m	h m	h m	h m	h m	h m	h m	h m
23	163 27.2	34.8	148 34.0	14.3	12 58.1	13.3	55.6	40	h m	h m	h m	h m	h m	h m	h m	h m	h m	
J U E V E S	3 00	178 27.3	N17 34.1	163 07.3	14.3	N12 44.8	13.3	55.6	S 50	h m	h m	h m	h m	h m	h m	h m	h m	h m
	01	193 27.3	33.5	177 40.6	14.5	12 31.5	13.3	55.6	52	h m	h m	h m	h m	h m	h m	h m	h m	h m
	02	208 27.4	32.8	192 14.1	14.5	12 18.2	13.4	55.5	54	h m	h m	h m	h m	h m	h m	h m	h m	h m
	03	223 27.4	32.2	206 47.6	14.6	12 04.8	13.5	55.5	56	h m	h m	h m	h m	h m	h m	h m	h m	h m
	04	238 27.5	31.5	221 21.2	14.7	11 51.3	13.4	55.5	58	h m	h m	h m	h m	h m	h m	h m	h m	h m
	05	253 27.5	30.9	235 54.9	14.7	11 37.9	13.6	55.5	S 60	h m	h m	h m	h m	h m	h m	h m	h m	h m
	06	268 27.6	N17 30.2	250 28.6	14.8	N11 24.3	13.5	55.5	0	h m	h m	h m	h m	h m	h m	h m	h m	h m
	07	283 27.6	29.6	265 02.4	14.8	11 10.8	13.6	55.4	Lat.	Ocaso Sol	Crepúsculo Civil	Naut.	Ocaso Luna					
	08	298 27.7	28.9	279 36.2	15.0	10 57.2	13.6	55.4	2	h m	h m	h m	h m	h m	h m	h m	h m	h m
	09	313 27.7	28.2	294 10.2	15.0	10 43.6	13.7	55.4	3	h m	h m	h m	h m	h m	h m	h m	h m	h m
	10	328 27.8	27.6	308 44.2	15.0	10 29.9	13.6	55.4	4	h m	h m	h m	h m	h m	h m	h m	h m	h m
11	343 27.8	26.9	323 18.2	15.2	10 16.3	13.7	55.4	5	h m	h m	h m	h m	h m	h m	h m	h m	h m	
V I E R N E S	12	358 27.9	N17 26.3	337 52.4	15.1	N10 02.6	13.8	55.3	N 72	h m	h m	h m	h m	h m	h m	h m	h m	h m
	13	13 27.9	25.6	352 26.5	15.3	9 48.8	13.8	55.3	N 70	h m	h m	h m	h m	h m	h m	h m	h m	h m
	14	28 28.0	25.0	7 00.8	15.3	9 35.0	13.7	55.3	68	h m	h m	h m	h m	h m	h m	h m	h m	h m
	15	43 28.0	24.3	21 35.1	15.4	9 21.3	13.9	55.3	66	h m	h m	h m	h m	h m	h m	h m	h m	h m
	16	58 28.1	23.6	36 09.5	15.4	9 07.4	13.8	55.3	64	h m	h m	h m	h m	h m	h m	h m	h m	h m
	17	73 28.1	23.0	50 43.9	15.5	8 53.6	13.9	55.2	62	h m	h m	h m	h m	h m	h m	h m	h m	h m
	18	88 28.2	N17 22.3	65 18.4	15.5	N 8 39.7	13.9	55.2	60	h m	h m	h m	h m	h m	h m	h m	h m	h m
	19	103 28.2	21.7	79 52.9	15.6	8 25.8	13.9	55.2	N 58	h m	h m	h m	h m	h m	h m	h m	h m	h m
	20	118 28.3	21.0	94 27.5	15.7	8 11.9	13.9	55.2	56	h m	h m	h m	h m	h m	h m	h m	h m	h m
	21	133 28.3	20.3	109 02.2	15.7	7 58.0	14.0	55.2	54	h m	h m	h m	h m	h m	h m	h m	h m	h m
	22	148 28.4	19.7	123 36.9	15.7	7 44.0	14.0	55.1	52	h m	h m	h m	h m	h m	h m	h m	h m	h m
	23	163 28.5	19.0	138 11.6	15.8	7 30.0	14.0	55.1	50	h m	h m	h m	h m	h m	h m	h m	h m	h m
	4 00	178 28.5	N17 18.4	152 46.4	15.9	N 7 16.0	14.0	55.1	45	h m	h m	h m	h m	h m	h m	h m	h m	h m
	01	193 28.6	17.7	167 21.3	15.8	7 02.0	14.0	55.1	N 40	h m	h m	h m	h m	h m	h m	h m	h m	h m
	02	208 28.6	17.0	181 56.1	16.0	6 48.0	14.1	55.1	35	h m	h m	h m	h m	h m	h m	h m	h m	h m
	03	223 28.7	16.4	196 31.1	16.0	6 33.9	14.0	55.0	30	h m	h m	h m	h m	h m	h m	h m	h m	h m
	04	238 28.7	15.7	211 06.1	16.0	6 19.9	14.1	55.0	20	h m	h m	h m	h m	h m	h m	h m	h m	h m
	05	253 28.8	15.0	225 41.1	16.1	6 05.8	14.1	55.0	N 10	h m	h m	h m	h m	h m	h m	h m	h m	h m
	06	268 28.8	N17 14.4	240 16.2	16.1	N 5 51.7	14.1	55.0	0	h m	h m	h m	h m	h m	h m	h m	h m	h m
	07	283 28.9	13.7	254 51.3	16.2	5 37.6	14.1	55.0	S 10	h m	h m	h m	h m	h m	h m	h m	h m	h m
	08	298 29.0	13.0	269 26.5	16.2	5 23.5	14.1	55.0	20	h m	h m	h m	h m	h m	h m	h m	h m	h m
	09	313 29.0	12.4	284 01.7	16.2	5 09.4	14.2	54.9	30	h m	h m	h m	h m	h m	h m	h m	h m	h m
	10	328 29.1	11.7	298 36.9	16.3	4 55.2	14.1	54.9	40	h m	h m	h m	h m	h m	h m	h m	h m	h m
11	343 29.1	11.0	313 12.2	16.4	4 41.1	14.2	54.9	50	h m	h m	h m	h m	h m	h m	h m	h m	h m	
12	358 29.2	N17 10.4	327 47.6	16.3	N 4 26.9	14.1	54.9	60	h m	h m	h m	h m	h m	h m	h m	h m	h m	
13	13 29.2	09.7	342 22.9	16.4	4 12.8	14.2	54.9	S 50	h m	h m	h m	h m	h m	h m	h m	h m	h m	
14	28 29.3	09.0	356 58.3	16.4	3 58.6	14.1	54.9	52	h m	h m	h m	h m	h m	h m	h m	h m	h m	
15	43 29.4	08.4	11 33.7	16.5	3 44.5	14.2	54.8	54	h m	h m	h m	h m	h m	h m	h m	h m	h m	
16	58 29.4	07.6	26 09.2	16.5	3 30.3	14.2	54.8	56	h m	h m	h m	h m	h m	h m	h m	h m	h m	
17	73 29.5	07.0	40 44.7	16.5	3 16.1	14.2	54.8	58	h m	h m	h m	h m	h m	h m	h m	h m	h m	
18	88 29.5	N17 06.4	55 20.2	16.6	N 3 01.9	14.1	54.8	S 60	h m	h m	h m	h m	h m	h m	h m	h m	h m	
19	103 29.6	05.7	69 55.8	16.5	2 47.8	14.2	54.8	16 03	h m	h m	h m	h m	h m	h m	h m	h m	h m	
20	118 29.6	05.0																



T.M.G. (TU)	ARIES	VENUS -3.9	MARTE +1.8	JUPITER -2.0	SATURNO +0.2	ESTRELLAS		
d h	A.H.G.	A.H.G. Dec.	A.H.G. Dec.	A.H.G. Dec.	A.H.G. Dec.	Nombre	A. H. S.	Dec.
5 00	313 31.5	147 25.9 N 7 19.9	160 10.5 N12 10.7	222 25.6 N23 06.3	34 26.9 S22 37.0	Acamar	315 31.8 S40 20.3	
01	328 33.9	162 25.7 18.7	175 11.4 10.2	237 27.5 06.3	49 29.5 37.0	Achernar	335 39.6 S57 16.9	
02	343 36.4	177 25.4 17.5	190 12.4 09.6	252 29.4 06.3	64 32.1 37.0	Acruz	173 30.2 S63 02.8	
03	358 38.9	192 25.1 .. 16.3	205 13.4 .. 09.0	267 31.3 .. 06.3	79 34.7 .. 37.0	Adhara	255 27.0 S28 57.2	
04	13 41.3	207 24.8 15.0	220 14.3 08.5	282 33.3 06.3	94 37.3 37.0	Aldebaran	291 10.1 N16 29.5	
05	28 43.8	222 24.5 13.8	235 15.3 07.9	297 35.2 06.3	109 40.0 37.0			
06	43 46.3	237 24.2 N 7 12.6	250 16.2 N12 07.3	312 37.1 N23 06.3	124 42.6 S22 37.0	Alioth	166 36.4 N56 01.2	
07	58 48.7	252 23.9 11.3	265 17.2 06.7	327 39.0 06.3	139 45.2 37.1	Alkaid	153 12.9 N49 22.1	
08	73 51.2	267 23.6 10.1	280 18.2 06.2	342 41.0 06.3	154 47.8 37.1	Al Na'ir	28 05.5 S47 00.6	
S 09	88 53.6	282 23.3 .. 08.9	295 19.1 .. 05.6	357 42.9 .. 06.3	169 50.4 .. 37.1	Alnilam	276 04.8 S 1 12.2	
A 10	103 56.1	297 23.0 07.6	310 20.1 05.0	12 44.8 06.3	184 53.0 37.1	Alphard	218 14.0 S 8 36.7	
B 11	118 58.6	312 22.7 06.4	325 21.0 04.5	27 46.7 06.3	199 55.6 37.1			
A 12	134 01.0	327 22.4 N 7 05.2	340 22.0 N12 03.9	42 48.7 N23 06.3	214 58.2 S22 37.1	Alphecca	126 26.0 N26 45.0	
D 13	149 03.5	342 22.1 04.0	355 23.0 03.3	57 50.6 06.3	230 00.8 37.1	Alpheratz	358 01.9 N29 02.0	
O 14	164 06.0	357 21.8 02.7	10 23.9 02.7	72 52.5 06.3	245 03.4 37.1	Altair	62 25.4 N 8 50.4	
15	179 08.4	12 21.6 .. 01.5	25 24.9 .. 02.2	87 54.4 .. 06.3	260 06.0 .. 37.2	Ankaa	353 32.9 S42 21.4	
16	194 10.9	27 21.3 7 00.3	40 25.9 01.6	102 56.4 06.3	275 08.7 37.2	Antares	112 48.2 S26 24.8	
17	209 13.4	42 21.0 6 59.0	55 26.8 01.0	117 58.3 06.3	290 11.3 37.2			
18	224 15.8	57 20.7 N 6 57.8	70 27.8 N12 00.4	133 00.2 N23 06.3	305 13.9 S22 37.2	Arcturus	146 12.1 N19 14.2	
19	239 18.3	72 20.4 56.6	85 28.7 11 59.9	148 02.1 06.3	320 16.5 37.2	Atria	108 05.9 S69 01.0	
20	254 20.7	87 20.1 55.3	100 29.7 59.3	163 04.1 06.3	335 19.1 37.2	Avior	234 26.2 S59 28.4	
21	269 23.2	102 19.8 .. 54.1	115 30.7 .. 58.7	178 06.0 .. 06.3	350 21.7 .. 37.2	Bellatrix	278 51.5 N 6 20.7	
22	284 25.7	117 19.5 52.8	130 31.6 58.1	193 07.9 06.2	5 24.3 37.3	Betelgeuse	271 20.9 N 7 24.5	
23	299 28.1	132 19.2 51.6	145 32.6 57.6	208 09.8 06.2	20 26.9 37.3			
6 00	314 30.6	147 19.0 N 6 50.4	160 33.6 N11 57.0	223 11.8 N23 06.2	35 29.5 S22 37.3	Canopus	264 04.6 S52 41.1	
01	329 33.1	162 18.7 49.1	175 34.5 56.4	238 13.7 06.2	50 32.1 37.3	Capella	281 01.3 N45 59.3	
02	344 35.5	177 18.4 47.9	190 35.5 55.8	253 15.6 06.2	65 34.7 37.3	Deneb	49 43.4 N45 14.6	
03	359 38.0	192 18.1 .. 46.7	205 36.5 .. 55.3	268 17.6 .. 06.2	80 37.3 .. 37.3	Denebola	182 52.1 N14 37.9	
04	14 40.5	207 17.8 45.4	220 37.4 54.7	283 19.5 06.2	95 39.9 37.3	Diphda	349 13.6 S18 02.3	
05	29 42.9	222 17.5 44.2	235 38.4 54.1	298 21.4 06.2	110 42.5 37.3			
06	44 45.4	237 17.2 N 6 43.0	250 39.3 N11 53.5	313 23.3 N23 06.2	125 45.2 S22 37.4	Dubhe	194 13.8 N61 48.6	
07	59 47.9	252 16.9 41.7	265 40.3 53.0	328 25.3 06.2	140 47.8 37.4	Elnath	278 35.5 N28 36.1	
08	74 50.3	267 16.7 40.5	280 41.3 52.4	343 27.2 06.2	155 50.4 37.4	Eltanin	90 54.1 N51 29.5	
09	89 52.8	282 16.4 .. 39.2	295 42.2 .. 51.8	358 29.1 .. 06.2	170 53.0 .. 37.4	Enif	34 04.4 N 9 49.7	
10	104 55.2	297 16.1 38.0	310 43.2 51.2	13 31.0 06.2	185 55.6 37.4	Fomalhaut	15 43.3 S29 40.5	
11	119 57.7	312 15.8 36.8	325 44.2 50.7	28 33.0 06.2	200 58.2 37.4			
12	135 00.2	327 15.5 N 6 35.5	340 45.1 N11 50.1	43 34.9 N23 06.2	216 00.8 S22 37.4	Gacrux	172 21.6 S57 03.6	
13	150 02.6	342 15.2 34.3	355 46.1 49.5	58 36.8 06.2	231 03.4 37.5	Gienah	176 11.0 S17 29.1	
14	165 05.1	357 15.0 33.0	10 47.1 48.9	73 38.8 06.2	246 06.0 37.5	Hadar	149 13.8 S60 19.7	
15	180 07.6	12 14.7 .. 31.8	25 48.0 .. 48.4	88 40.7 .. 06.2	261 08.6 .. 37.5	Hamal	328 21.0 N23 24.9	
16	195 10.0	27 14.4 30.6	40 49.0 47.8	103 42.6 06.2	276 11.2 37.5	Kaus Aust.	84 07.2 S34 23.6	
17	210 12.5	42 14.1 29.3	55 49.9 47.2	118 44.5 06.2	291 13.8 37.5			
18	225 15.0	57 13.8 N 6 28.1	70 50.9 N11 46.6	133 46.5 N23 06.2	306 16.4 S22 37.5	Kochab	137 18.7 N74 12.1	
19	240 17.4	72 13.5 26.8	85 51.9 46.1	148 48.4 06.2	321 19.0 37.5	Markab	13 56.0 N15 09.0	
20	255 19.9	87 13.3 25.6	100 52.8 45.5	163 50.3 06.2	336 21.6 37.5	Menkar	314 33.8 N 4 03.2	
21	270 22.4	102 13.0 .. 24.4	115 53.8 .. 44.9	178 52.3 .. 06.2	351 24.2 .. 37.6	Menkent	148 29.0 S36 19.4	
22	285 24.8	117 12.7 23.1	130 54.8 44.3	193 54.2 06.2	6 26.8 37.6	Miaplacidus	221 44.8 S69 40.4	
23	300 27.3	132 12.4 21.9	145 55.7 43.7	208 56.1 06.2	21 29.4 37.6			
7 00	315 29.7	147 12.1 N 6 20.6	160 56.7 N11 43.2	223 58.1 N23 06.2	36 32.1 S22 37.6	Mirfak	309 06.3 N49 49.4	
01	330 32.2	162 11.9 19.4	175 57.7 42.6	239 00.0 06.2	51 34.7 37.6	Nunki	76 20.2 S26 18.7	
02	345 34.7	177 11.6 18.1	190 58.6 42.0	254 01.9 06.2	66 37.3 37.6	Peacock	53 46.6 S56 46.2	
03	0 37.1	192 11.3 .. 16.9	205 59.6 .. 41.4	269 03.8 .. 06.2	81 39.9 .. 37.6	Pollux	243 49.9 N28 03.2	
04	15 39.6	207 11.0 15.7	221 00.6 40.9	284 05.8 06.2	96 42.5 37.6	Procyon	245 18.8 N 5 15.3	
05	30 42.1	222 10.8 14.4	236 01.5 40.3	299 07.7 06.2	111 45.1 37.7			
06	45 44.5	237 10.5 N 6 13.2	251 02.5 N11 39.7	314 09.6 N23 06.2	126 47.7 S22 37.7	Rasalhague	96 22.9 N12 34.0	
07	60 47.0	252 10.2 11.9	266 03.5 39.1	329 11.6 06.2	141 50.3 37.7	Regulus	208 02.8 N12 01.2	
08	75 49.5	267 09.9 10.7	281 04.4 38.5	344 13.5 06.2	156 52.9 37.7	Rigel	281 29.5 S 8 12.5	
09	90 51.9	282 09.6 .. 09.4	296 05.4 .. 38.0	359 15.4 .. 06.2	171 55.5 .. 37.7	Rigel Kent.	140 16.5 S60 47.9	
10	105 54.4	297 09.4 08.2	311 06.3 37.4	14 17.4 06.2	186 58.1 37.7	Sabik	102 32.9 S15 42.9	
11	120 56.8	312 09.1 06.9	326 07.3 36.8	29 19.3 06.2	202 00.7 37.7			
12	135 59.3	327 08.8 N 6 05.7	341 08.3 N11 36.2	44 21.2 N23 06.2	217 03.3 S22 37.8	Schedar	350 01.0 N56 28.7	
13	151 01.8	342 08.5 04.4	356 09.2 35.6	59 23.2 06.2	232 05.9 37.8	Shaula	96 46.0 S37 06.0	
14	166 04.2	357 08.3 03.2	11 10.2 35.1	74 25.1 06.2	247 08.5 37.8	Sirius	258 49.8 S16 41.9	
15	181 06.7	12 08.0 .. 02.0	26 11.2 .. 34.5	89 27.0 .. 06.1	262 11.1 .. 37.8	Spica	158 50.3 S11 06.5	
16	196 09.2	27 07.7 6 00.7	41 12.1 33.9	104 29.0 06.1	277 13.7 37.8	Suhail	223 06.2 S43 23.3	
17	211 11.6	42 07.4 5 59.5	56 13.1 33.3	119 30.9 06.1	292 16.3 37.8			
18	226 14.1	57 07.2 N 5 58.2	71 14.1 N11 32.7	134 32.8 N23 06.1	307 18.9 S22 37.8	Vega	80 50.8 N38 46.5	
19	241 16.6	72 06.9 57.0	86 15.0 32.2	149 34.7 06.1	322 21.5 37.8	Zuben'ubi	137 25.3 S16 00.1	
20	256 19.0	87 06.6 55.7	101 16.0 31.6	164 36.7 06.1	337 24.1 37.9			
21	271 21.5	102 06.3 .. 54.5	116 17.0 .. 31.0	179 38.6 .. 06.1	352 26.7 .. 37.9			
22	286 24.0	117 06.1 53.2	131 17.9 30.4	194 40.5 06.1	7 29.3 37.9	Venus	192 48.3 14 11	
23	301 26.4	132 05.8 52.0	146 18.9 29.8	209 42.5 06.1	22 31.9 37.9	Marte	206 03.0 13 17	
						Júpiter	268 41.2 9 06	
						Saturno	80 58.9 21 34	

Pas. Mer. 3 01.5

v -0.3 d 1.2

v 1.0 d 0.6

v 1.9 d 0.0

v 2.6 d 0.0

A. H. S. Pas. Mer.  
 o / h m  
 192 48.3 14 11  
 206 03.0 13 17  
 268 41.2 9 06  
 80 58.9 21 34



T.M.G. (TU)	SOL		LUNA				Lat.	Crepúsculo		Orto Sol	Orto Luna						
	A.H.G.	Dec.	A.H.G.	v	Dec.	d		P.H.	Naut.		Civil	5	6	7	8		
												h	m	h	m	h	m
S A B A D O	5 00	178 29.9	N17 02.3	142 53.9	16.7	N 1	36.9	14.2	54.7	N 72	///	///	00 56	08 50	10 48	12 56	16 14
	01	193 30.0	01.7	157 29.6	16.8	1	22.7	14.2	54.7	N 70	///	///	02 04	08 49	10 38	12 33	14 51
	02	208 30.0	01.0	172 05.4	16.7	1	08.5	14.1	54.7	68	///	///	02 39	08 48	10 30	12 15	14 13
	03	223 30.1	17 00.3	186 41.1	16.8	0	54.4	14.2	54.6	66	///	01 23	03 04	08 48	10 23	12 01	13 47
	04	238 30.1	16 59.6	201 16.9	16.8	0	40.2	14.1	54.6	64	///	02 06	03 23	08 47	10 17	11 49	13 27
	05	253 30.2	58.9	215 52.7	16.8	0	26.1	14.2	54.6	62	///	02 34	03 39	08 47	10 13	11 40	13 10
	06	268 30.3	N16 58.3	230 28.5	16.8	N 0	11.9	14.1	54.6	60	01 14	02 55	03 52	08 46	10 08	11 31	12 57
	07	283 30.3	57.6	245 04.3	16.9	S 0	02.2	14.1	54.6	N 58	01 54	03 12	04 03	08 46	10 05	11 24	12 46
	08	298 30.4	56.9	259 40.2	16.8	0	16.3	14.2	54.6	56	02 20	03 26	04 13	08 46	10 02	11 18	12 36
	09	313 30.4	.. 56.2	274 16.0	16.9	0	30.5	14.1	54.6	54	02 40	03 39	04 22	08 46	09 59	11 12	12 27
	10	328 30.5	55.6	288 51.9	16.9	0	44.6	14.1	54.6	52	02 56	03 49	04 29	08 45	09 56	11 07	12 19
	11	343 30.6	54.9	303 27.8	16.8	0	58.7	14.1	54.5	50	03 09	03 58	04 36	08 45	09 54	11 02	12 12
	12	358 30.6	N16 54.2	318 03.6	16.9	S 1	12.8	14.0	54.5	45	03 36	04 18	04 51	08 45	09 48	10 52	11 57
	13	13 30.7	53.5	332 39.5	17.0	1	26.8	14.1	54.5	N 40	03 56	04 33	05 03	08 45	09 44	10 44	11 45
	14	28 30.8	52.8	347 15.5	16.9	1	40.9	14.0	54.5	35	04 12	04 46	05 13	08 44	09 41	10 37	11 35
	15	43 30.8	.. 52.2	1 51.4	16.9	1	54.9	14.1	54.5	30	04 26	04 56	05 22	08 44	09 37	10 31	11 26
	16	58 30.9	51.5	16 27.3	16.9	2	09.0	14.0	54.5	20	04 46	05 14	05 37	08 44	09 32	10 20	11 10
	17	73 31.0	50.8	31 03.2	17.0	2	23.0	14.0	54.5	N 10	05 02	05 28	05 50	08 43	09 27	10 11	10 57
	18	88 31.0	N16 50.1	45 39.2	16.9	S 2	37.0	14.0	54.5	0	05 16	05 41	06 02	08 43	09 22	10 03	10 44
	19	103 31.1	49.4	60 15.1	16.9	2	51.0	14.0	54.4	S 10	05 27	05 53	06 14	08 43	09 18	09 54	10 32
	20	118 31.2	48.8	74 51.0	17.0	3	05.0	13.9	54.4	20	05 38	06 04	06 27	08 42	09 13	09 45	10 19
	21	133 31.2	.. 48.1	89 27.0	16.9	3	18.9	14.0	54.4	30	05 48	06 17	06 42	08 42	09 08	09 35	10 04
	22	148 31.3	47.4	104 02.9	17.0	3	32.9	13.9	54.4	35	05 53	06 23	06 50	08 42	09 05	09 29	09 55
23	163 31.4	46.7	118 38.9	16.9	3	46.8	13.9	54.4	40	05 59	06 31	06 59	08 41	09 01	09 22	09 45	
D O M I N O	6 00	178 31.4	N16 46.0	133 14.8	16.9	S 4	00.7	13.8	54.4	S 50	06 10	06 49	07 24	08 41	08 53	09 06	09 20
	01	193 31.5	45.3	147 50.7	17.0	4	14.5	13.9	54.4	52	06 13	06 54	07 30	08 41	08 51	09 01	09 14
	02	208 31.6	44.6	162 26.7	16.9	4	28.4	13.8	54.4	54	06 16	06 58	07 37	08 41	08 48	08 57	09 07
	03	223 31.6	.. 44.0	177 02.6	16.9	4	42.2	13.8	54.4	56	06 19	07 04	07 44	08 41	08 46	08 52	08 59
	04	238 31.7	43.3	191 38.5	16.9	4	56.0	13.8	54.3	58	06 22	07 09	07 53	08 40	08 43	08 46	08 50
	05	253 31.8	42.6	206 14.4	16.9	5	09.8	13.8	54.3	S 60	06 25	07 16	08 03	08 40	08 40	08 40	08 40
	06	268 31.8	N16 41.9	220 50.3	16.9	S 5	23.6	13.7	54.3								
	07	283 31.9	41.2	235 26.2	16.9	5	37.3	13.7	54.3	Lat.	Ocaso Sol	Crepúsculo		Ocaso Luna			
	08	298 32.0	40.5	250 02.1	16.9	5	51.0	13.7	54.3	Civil	Naut.	5	6	7	8		
	09	313 32.0	.. 39.8	264 38.0	16.9	6	04.7	13.7	54.3	h m	h m	h m	h m	h m	h m	h m	h m
	10	328 32.1	39.1	279 13.9	16.8	6	18.4	13.6	54.3	N 70	23 01	///	///	20 21	19 48	19 05	17 15
	11	343 32.2	38.4	293 49.7	16.8	6	32.0	13.6	54.3	N 72	22 03	///	///	20 25	20 00	19 30	18 39
	12	358 32.3	N16 37.8	308 25.5	16.9	S 6	45.6	13.5	54.3	68	21 29	///	///	20 29	20 11	19 49	19 19
	13	13 32.3	37.1	323 01.4	16.8	6	59.2	13.5	54.3	66	21 05	22 42	///	20 32	20 19	20 05	19 46
	14	28 32.4	36.4	337 37.2	16.8	7	12.7	13.6	54.3	64	20 46	22 02	///	20 34	20 26	20 18	20 08
	15	43 32.5	.. 35.7	352 13.0	16.7	7	26.3	13.4	54.3	62	20 31	21 35	///	20 36	20 33	20 29	20 25
	16	58 32.5	35.0	6 48.7	16.8	7	39.7	13.5	54.3	60	20 18	21 14	22 51	20 38	20 38	20 38	20 39
	17	73 32.6	34.3	21 24.5	16.7	7	53.2	13.4	54.3	N 58	20 07	20 57	22 14	20 40	20 43	20 46	20 51
	18	88 32.7	N16 33.6	36 00.2	16.7	S 8	06.6	13.4	54.2	56	19 57	20 43	21 49	20 42	20 47	20 54	21 02
	19	103 32.7	32.9	50 35.9	16.7	8	20.0	13.4	54.2	54	19 49	20 32	21 30	20 43	20 51	21 00	21 11
	20	118 32.8	32.2	65 11.6	16.6	8	33.4	13.3	54.2	52	19 41	20 21	21 14	20 44	20 55	21 06	21 20
	21	133 32.9	.. 31.5	79 47.2	16.7	8	46.7	13.3	54.2	50	19 35	20 12	21 01	20 46	20 58	21 11	21 27
	22	148 33.0	30.8	94 22.9	16.6	9	00.0	13.2	54.2	45	19 20	19 53	20 34	20 48	21 05	21 23	21 44
23	163 33.0	30.1	108 58.5	16.5	9	13.2	13.2	54.2	N 40	19 08	19 38	20 14	20 50	21 11	21 33	21 57	
L U N E S	7 00	178 33.1	N16 29.4	123 34.0	16.6	S 9	26.4	13.2	54.2	35	18 58	19 26	19 59	20 52	21 16	21 41	22 09
	01	193 33.2	28.7	138 09.6	16.5	9	39.6	13.2	54.2	30	18 49	19 15	19 46	20 54	21 20	21 48	22 19
	02	208 33.3	28.0	152 45.1	16.5	9	52.8	13.1	54.2	N 10	18 34	18 58	19 25	20 57	21 28	22 01	22 36
	03	223 33.3	.. 27.3	167 20.6	16.5	10	05.9	13.0	54.2	0	18 21	18 43	19 09	20 59	21 35	22 12	22 51
	04	238 33.4	26.6	181 56.1	16.4	10	18.9	13.0	54.2	S 10	18 09	18 31	18 56	21 02	21 42	22 22	23 05
	05	253 33.5	25.9	196 31.5	16.4	10	31.9	13.0	54.2	20	17 57	18 19	18 44	21 04	21 48	22 33	23 20
	06	268 33.6	N16 25.2	211 06.9	16.3	S10	44.9	13.0	54.2	20	17 45	18 08	18 34	21 07	21 55	22 44	23 35
	07	283 33.6	24.5	225 42.2	16.4	10	57.9	12.9	54.2	30	17 30	17 55	18 24	21 10	22 03	22 57	23 53
	08	298 33.7	23.8	240 17.6	16.2	11	10.8	12.8	54.2	35	17 22	17 49	18 19	21 11	22 08	23 05	24 03
	09	313 33.8	.. 23.1	254 52.8	16.3	11	23.6	12.8	54.2	40	17 13	17 41	18 14	21 13	22 13	23 13	24 15
	10	328 33.9	22.4	269 28.1	16.2	11	36.4	12.8	54.2	45	17 02	17 33	18 08	21 16	22 19	23 23	24 29
	11	343 33.9	21.7	284 03.3	16.2	11	49.2	12.7	54.2	S 50	16 48	17 23	18 02	21 18	22 27	23 36	24 46
	12	358 34.0	N16 21.0	298 38.5	16.1	S12	01.9	12.7	54.2	52	16 42	17 19	17 59	21 20	22 30	23 41	24 54
	13	13 34.1	20.3	313 13.6	16.1	12	14.6	12.6	54.2	54	16 36	17 14	17 57	21 21	22 34	23 48	25 03
	14	28 34.2	19.6	327 48.7	16.1	12	27.2	12.6	54.2	56	16 28	17 09	17 54	21 22	22 38	23 55	25 14
	15	43 34.2	.. 18.9	342 23.8	16.0	12	39.8	12.5	54.2	58	16 19	17 03	17 51	21 24	22 43	24 03	00 03
	16	58 34.3	18.2	356 58.8	15.9	12	52.3	12.5	54.2	S 60	16 10	16 57	17 47	21 26	22 48	24 12	00 12



T.M.G. (TU)	ARIES	VENUS -3.9	MARTE +1.8	JUPITER -2.0	SATURNO +0.2	ESTRELLAS		
d h	A.H.G.	A.H.G. Dec.	A.H.G. Dec.	A.H.G. Dec.	A.H.G. Dec.	Nombre	A. H. S.	Dec.
M A R T E S	8 00	316 28.9	147 05.5 N 5 50.7	161 19.9 N11 29.3	224 44.4 N23 06.1	37 34.5 S22 37.9	Acamar	315 31.8 S40 20.3
	01	331 31.3	162 05.2 49.5	176 20.8 28.7	239 46.3 06.1	52 37.1 37.9	Achernar	335 39.6 S57 16.9
	02	346 33.8	177 05.0 48.2	191 21.8 28.1	254 48.3 06.1	67 39.7 37.9	Acrux	173 30.2 S63 02.8
	03	1 36.3	192 04.7 ·· 47.0	206 22.8 ·· 27.5	269 50.2 ·· 06.1	82 42.3 ·· 37.9	Adhara	255 27.0 S28 57.2
	04	16 38.7	207 04.4 45.7	221 23.7 26.9	284 52.1 06.1	97 44.9 38.0	Aldebaran	291 10.1 N16 29.5
	05	31 41.2	222 04.2 44.5	236 24.7 26.4	299 54.1 06.1	112 47.5 38.0		
	06	46 43.7	237 03.9 N 5 43.2	251 25.7 N11 25.8	314 56.0 N23 06.1	127 50.1 S22 38.0	Alioth	166 36.4 N56 01.2
	07	61 46.1	252 03.6 42.0	266 26.6 25.2	329 58.0 06.1	142 52.7 38.0	Alkaid	153 12.9 N49 22.1
	08	76 48.6	267 03.3 40.7	281 27.6 24.6	344 59.9 06.1	157 55.3 38.0	Al Na'ir	28 05.5 S47 00.6
	09	91 51.1	282 03.1 ·· 39.5	296 28.6 ·· 24.0	0 01.8 ·· 06.1	172 57.9 ·· 38.0	Alnilam	276 04.8 S 1 12.2
	10	106 53.5	297 02.8 38.2	311 29.5 23.4	15 03.8 06.1	188 00.5 38.0	Alphard	218 14.0 S 8 36.7
	11	121 56.0	312 02.5 37.0	326 30.5 22.9	30 05.7 06.1	203 03.1 38.0		
	12	136 58.5	327 02.3 N 5 35.7	341 31.5 N11 22.3	45 07.6 N23 06.1	218 05.7 S22 38.1	Alphecca	126 26.1 N26 45.0
	13	152 00.9	342 02.0 34.5	356 32.4 21.7	60 09.6 06.1	233 08.3 38.1	Alpheratz	358 01.9 N29 02.0
	14	167 03.4	357 01.7 33.2	11 33.4 21.1	75 11.5 06.1	248 10.9 38.1	Altair	62 25.4 N 8 50.5
	15	182 05.8	12 01.5 ·· 31.9	26 34.4 ·· 20.5	90 13.4 ·· 06.1	263 13.5 ·· 38.1	Ankaa	353 32.9 S42 21.4
	16	197 08.3	27 01.2 30.7	41 35.4 19.9	105 15.4 06.1	278 16.1 38.1	Antares	112 48.2 S26 24.8
	17	212 10.8	42 00.9 29.4	56 36.3 19.4	120 17.3 06.1	293 18.7 38.1		
	18	227 13.2	57 00.7 N 5 28.2	71 37.3 N11 18.8	135 19.2 N23 06.1	308 21.3 S22 38.1	Arcturus	146 12.1 N19 14.2
	19	242 15.7	72 00.4 26.9	86 38.3 18.2	150 21.2 06.1	323 23.9 38.2	Atria	108 06.0 S69 01.0
	20	257 18.2	87 00.1 25.7	101 39.2 17.6	165 23.1 06.0	338 26.5 38.2	Avior	234 26.2 S59 28.4
	21	272 20.6	101 59.9 ·· 24.4	116 40.2 ·· 17.0	180 25.0 ·· 06.0	353 29.1 ·· 38.2	Bellatrix	278 51.4 N 6 20.7
	22	287 23.1	116 59.6 23.2	131 41.2 16.4	195 27.0 06.0	8 31.7 38.2	Betelgeuse	271 20.9 N 7 24.5
23	302 25.6	131 59.3 21.9	146 42.1 15.9	210 28.9 06.0	23 34.3 38.2			
M I E R C O L E S	9 00	317 28.0	146 59.1 N 5 20.7	161 43.1 N11 15.3	225 30.9 N23 06.0	38 36.9 S22 38.2	Canopus	264 04.5 S52 41.0
	01	332 30.5	161 58.8 19.4	176 44.1 14.7	240 32.8 06.0	53 39.5 38.2	Capella	281 01.3 N45 59.3
	02	347 33.0	176 58.5 18.1	191 45.0 14.1	255 34.7 06.0	68 42.1 38.2	Deneb	49 43.4 N45 14.6
	03	2 35.4	191 58.3 ·· 16.9	206 46.0 ·· 13.5	270 36.7 ·· 06.0	83 44.7 ·· 38.3	Denebola	182 52.1 N14 37.9
	04	17 37.9	206 58.0 15.6	221 47.0 12.9	285 38.6 06.0	98 47.3 38.3	Diphda	349 13.6 S18 02.3
	05	32 40.3	221 57.7 14.4	236 47.9 12.4	300 40.5 06.0	113 49.9 38.3		
	06	47 42.8	236 57.5 N 5 13.1	251 48.9 N11 11.8	315 42.5 N23 06.0	128 52.5 S22 38.3	Dubhe	194 13.8 N61 48.6
	07	62 45.3	251 57.2 11.9	266 49.9 11.2	330 44.4 06.0	143 55.1 38.3	Elnath	278 35.5 N28 36.1
	08	77 47.7	266 56.9 10.6	281 50.8 10.6	345 46.4 06.0	158 57.7 38.3	Eltanin	90 54.1 N51 29.5
	09	92 50.2	281 56.7 ·· 09.4	296 51.8 ·· 10.0	0 48.3 ·· 06.0	174 00.3 ·· 38.3	Enif	34 04.4 N 9 49.7
	10	107 52.7	296 56.4 08.1	311 52.8 09.4	15 50.2 06.0	189 02.9 38.3	Fomalhaut	15 43.3 S29 40.5
	11	122 55.1	311 56.2 06.8	326 53.8 08.8	30 52.2 06.0	204 05.5 38.4		
	12	137 57.6	326 55.9 N 5 05.6	341 54.7 N11 08.3	45 54.1 N23 06.0	219 08.1 S22 38.4	Gacrux	172 21.6 S57 03.6
	13	153 00.1	341 55.6 04.3	356 55.7 07.7	60 56.0 06.0	234 10.7 38.4	Gienah	176 11.0 S17 29.1
	14	168 02.5	356 55.4 03.1	11 56.7 07.1	75 58.0 06.0	249 13.2 38.4	Hadar	149 13.9 S60 19.7
	15	183 05.0	11 55.1 ·· 01.8	26 57.6 ·· 06.5	90 59.9 ·· 06.0	264 15.8 ·· 38.4	Hamal	328 21.0 N23 24.9
	16	198 07.4	26 54.8 5 00.5	41 58.6 05.9	106 01.9 06.0	279 18.4 38.4	Kaus Aust.	84 07.2 S34 23.6
	17	213 09.9	41 54.6 4 59.3	56 59.6 05.3	121 03.8 06.0	294 21.0 38.4		
	18	228 12.4	56 54.3 N 4 58.0	72 00.5 N11 04.7	136 05.7 N23 06.0	309 23.6 S22 38.4	Kochab	137 18.8 N74 12.1
	19	243 14.8	71 54.1 56.8	87 01.5 04.2	151 07.7 06.0	324 26.2 38.5	Markab	13 56.0 N15 09.0
	20	258 17.3	86 53.8 55.5	102 02.5 03.6	166 09.6 05.9	339 28.8 38.5	Menkar	314 33.8 N 4 03.2
	21	273 19.8	101 53.5 ·· 54.2	117 03.4 ·· 03.0	181 11.6 ·· 05.9	354 31.4 ·· 38.5	Menkent	148 29.0 S36 19.4
	22	288 22.2	116 53.3 53.0	132 04.4 02.4	196 13.5 05.9	9 34.0 38.5	Miaplacidus	221 44.8 S69 40.4
23	303 24.7	131 53.0 51.7	147 05.4 01.8	211 15.4 05.9	24 36.6 38.5			
J U E V E S	10 00	318 27.2	146 52.8 N 4 50.5	162 06.4 N11 01.2	226 17.4 N23 05.9	39 39.2 S22 38.5	Mirfak	309 06.3 N49 49.5
	01	333 29.6	161 52.5 49.2	177 07.3 00.6	241 19.3 05.9	54 41.8 38.5	Nunki	76 20.2 S26 18.7
	02	348 32.1	176 52.2 47.9	192 08.3 11 00.1	256 21.3 05.9	69 44.4 38.5	Peacock	53 46.6 S56 46.2
	03	3 34.6	191 52.0 ·· 46.7	207 09.3 10 59.5	271 23.2 ·· 05.9	84 47.0 ·· 38.6	Pollux	243 49.9 N28 03.2
	04	18 37.0	206 51.7 45.4	222 10.2 58.9	286 25.1 05.9	99 49.6 38.6	Procyon	245 18.8 N 5 15.3
	05	33 39.5	221 51.5 44.2	237 11.2 58.3	301 27.1 05.9	114 52.2 38.6		
	06	48 41.9	236 51.2 N 4 42.9	252 12.2 N10 57.7	316 29.0 N23 05.9	129 54.8 S22 38.6	Rasalhague	96 22.9 N12 34.0
	07	63 44.4	251 51.0 41.6	267 13.1 57.1	331 31.0 05.9	144 57.4 38.6	Regulus	208 02.8 N12 01.2
	08	78 46.9	266 50.7 40.4	282 14.1 56.5	346 32.9 05.9	159 59.9 38.6	Rigel	281 29.5 S 8 12.5
	09	93 49.3	281 50.4 ·· 39.1	297 15.1 ·· 55.9	1 34.9 ·· 05.9	175 02.5 ·· 38.6	Rigil Kent.	140 16.6 S60 47.9
	10	108 51.8	296 50.2 37.8	312 16.1 55.4	16 36.8 05.9	190 05.1 38.6	Sabik	102 32.9 S15 42.9
	11	123 54.3	311 49.9 36.6	327 17.0 54.8	31 38.7 05.9	205 07.7 38.7		
	12	138 56.7	326 49.7 N 4 35.3	342 18.0 N10 54.2	46 40.7 N23 05.9	220 10.3 S22 38.7	Schedar	350 01.0 N56 28.8
	13	153 59.2	341 49.4 34.1	357 19.0 53.6	61 42.6 05.9	235 12.9 38.7	Shaula	96 46.0 S37 06.0
	14	169 01.7	356 49.2 32.8	12 19.9 53.0	76 44.6 05.9	250 15.5 38.7	Sirius	258 49.8 S16 41.8
	15	184 04.1	11 48.9 ·· 31.5	27 20.9 ·· 52.4	91 46.5 ·· 05.9	265 18.1 ·· 38.7	Spica	158 50.3 S11 06.5
	16	199 06.6	26 48.6 30.3	42 21.9 51.8	106 48.5 05.9	280 20.7 38.7	Suhail	223 06.2 S43 23.3
	17	214 09.1	41 48.4 29.0	57 22.9 51.2	121 50.4 05.8	295 23.3 38.7		
	18	229 11.5	56 48.1 N 4 27.7	72 23.8 N10 50.6	136 52.3 N23 05.8	310 25.9 S22 38.7	Vega	80 50.8 N38 46.5
	19	244 14.0	71 47.9 26.5	87 24.8 50.1	151 54.3 05.8	325 28.5 38.7	Zuben'ubi	137 25.3 S16 00.1
	20	259 16.4	86 47.6 25.2	102 25.8 49.5	166 56.2 05.8	340 31.1 38.8		
	21	274 18.9	101 47.4 ·· 23.9	117 26.7 ·· 48.9	181 58.2 ·· 05.8	355 33.7 ·· 38.8		
	22	289 21.4	116 47.1 22.7	132 27.7 48.3	197 00.1 05.8	10 36.2 38.8	Venus	189 31.0 h 12
23	304 23.8	131 46.9 21.4	147 28.7 47.7	212 02.1 05.8	25 38.8 38.8	Marte	204 15.1 13 12	
						Júpiter	268 02.8 8 57	
						Saturno	81 08.9 21 22	

Pas. Mer. 2 49.7

v -0.3 d 1.3

v 1.0 d 0.6

v 1.9 d 0.0

v 2.6 d 0.0

A. H. S. Pas. Mer.  
o / h m  
Venus 189 31.0 14 12  
Marte 204 15.1 13 12  
Júpiter 268 02.8 8 57  
Saturno 81 08.9 21 22



T.M.G. (TU)	SOL			LUNA				Lat.	Crepúsculo		Orto Sol	Orto Luna									
	A.H.G.	Dec.	°	A.H.G.	v	Dec.	d		P.H.	Náut.		Civil	8		9		10		11		
													h	m	h	m	h	m	h	m	h
M A R T E S	8 00	178	35.0	N16	12.6	113	37.1	15.6	S14	30.8	12.1	54.2	N 72	///	///	01 34	16 14	■	■	■	
	01	193	35.0		11.9	128	11.7	15.5		14	42.9	12.0	54.2	N 70	///	///	02 22	14 51	■	■	■
	02	208	35.1		11.2	142	46.2	15.5		14	54.9	12.0	54.2	68	///	00 26	02 53	14 13	■	■	■
	03	223	35.2		10.5	157	20.7	15.4		15	06.9	11.9	54.2	66	///	01 45	03 15	13 47	15 52	■	■
	04	238	35.3		09.8	171	55.1	15.4		15	18.8	11.8	54.2	64	///	02 20	03 33	13 27	15 14	17 26	■
	05	253	35.4		09.0	186	29.5	15.3		15	30.6	11.8	54.2	62	00 23	02 45	03 47	13 10	14 47	16 32	18 26
	06	268	35.4	N16	08.3	201	03.8	15.2	S15	42.4	11.8	54.2	60	01 34	03 04	03 59	12 57	14 27	16 00	17 30	
	07	283	35.5		07.6	215	38.0	15.2		15	54.2	11.6	54.2	N 58	02 07	03 20	04 10	12 46	14 10	15 36	16 58
	08	298	35.6		06.9	230	12.2	15.1		16	05.8	11.7	54.2	56	02 30	03 33	04 19	12 36	13 56	15 17	16 34
	09	313	35.7		06.2	244	46.3	15.1		16	17.5	11.5	54.2	54	02 48	03 45	04 27	12 27	13 43	15 01	16 14
	10	328	35.8		05.5	259	20.4	15.0		16	29.0	11.5	54.2	52	03 03	03 55	04 34	12 19	13 33	14 47	15 58
	11	343	35.8		04.8	273	54.4	14.9		16	40.5	11.4	54.2	50	03 16	04 03	04 41	12 12	13 23	14 35	15 44
	12	358	35.9	N16	04.1	288	28.3	14.9	S16	51.9	11.4	54.2	45	03 41	04 22	04 54	11 57	13 03	14 10	15 15	
	13	13	36.0		03.4	303	02.2	14.8		17	03.3	11.3	54.2	N 40	04 00	04 36	05 06	11 45	12 47	13 50	14 53
	14	28	36.1		02.6	317	36.0	14.8		17	14.6	11.2	54.3	35	04 15	04 48	05 15	11 35	12 34	13 34	14 34
	15	43	36.2		01.9	332	09.8	14.7		17	25.8	11.2	54.3	30	04 28	04 58	05 24	11 26	12 22	13 20	14 19
	16	58	36.3		01.2	346	43.5	14.6		17	37.0	11.1	54.3	20	04 48	05 15	05 38	11 10	12 02	12 56	13 52
	17	73	36.3		00.5	1	17.1	14.5		17	48.1	11.0	54.3	N 10	05 03	05 29	05 51	10 57	11 45	12 35	13 29
	18	88	36.4	N15	59.8	15	50.6	14.5	S17	59.1	11.0	54.3	0	05 16	05 41	06 02	10 44	11 29	12 16	13 08	
	19	103	36.5		59.1	30	24.1	14.4		18	10.1	10.9	54.3	S 10	05 27	05 52	06 13	10 32	11 13	11 57	12 46
	20	118	36.6		58.4	44	57.5	14.4		18	21.0	10.8	54.3	20	05 36	06 03	06 26	10 19	10 56	11 37	12 23
	21	133	36.7		57.6	59	30.9	14.3		18	31.8	10.7	54.3	30	05 46	06 14	06 39	10 04	10 36	11 14	11 57
	22	148	36.8		56.9	74	04.2	14.2		18	42.5	10.7	54.3	35	05 51	06 21	06 47	09 55	10 25	11 00	11 42
23	163	36.9		56.2	88	37.4	14.1		18	53.2	10.6	54.3	40	05 55	06 28	06 56	09 45	10 12	10 44	11 24	
M I E R E S	9 00	178	36.9	N15	55.5	103	10.5	14.1	S19	03.8	10.6	54.3	45	06 01	06 35	07 06	09 34	09 57	10 26	11 02	
	01	193	37.0		54.8	117	43.6	14.0		19	14.4	10.4	54.3	S 50	06 06	06 44	07 19	09 20	09 38	10 02	10 35
	02	208	37.1		54.0	132	16.6	13.9		19	24.8	10.4	54.4	52	06 08	06 49	07 25	09 14	09 30	09 51	10 22
	03	223	37.2		53.3	146	49.5	13.8		19	35.2	10.3	54.4	54	06 11	06 53	07 31	09 07	09 20	09 39	10 07
	04	238	37.3		52.6	161	22.3	13.8		19	45.5	10.2	54.4	56	06 13	06 58	07 38	08 59	09 09	09 24	09 49
	05	253	37.4		51.9	175	55.1	13.7		19	55.7	10.2	54.4	58	06 16	07 03	07 46	08 50	08 57	09 08	09 27
	06	268	37.5	N15	51.2	190	27.8	13.6	S20	05.9	10.0	54.4	S 60	06 19	07 09	07 55	08 40	08 42	08 47	08 59	
	07	283	37.5		50.4	205	00.4	13.6		20	15.9	10.0	54.4	Lat.	Ocaso Sol	Crepúsculo		Ocaso Luna			
	08	298	37.6		49.7	219	33.0	13.4		20	25.9	9.9	54.4			Civil	Náut.	8	9	10	11
	09	313	37.7		49.0	234	05.4	13.4		20	35.8	9.9	54.4	N 72	22 28	///	///	17 15	■	■	■
	10	328	37.8		48.3	248	37.8	13.3		20	45.7	9.7	54.4	N 70	21 44	///	///	18 39	■	■	■
	11	343	37.9		47.6	263	10.1	13.3		20	55.4	9.7	54.5	68	21 15	23 23	///	19 19	■	■	■
	12	358	38.0	N15	46.8	277	42.4	13.1	S21	05.1	9.5	54.5	66	20 53	22 20	///	19 46	19 14	■	■	
	13	13	38.1		46.1	292	14.5	13.1		21	14.6	9.5	54.5	64	20 36	21 47	///	20 08	19 53	19 22	■
	14	28	38.2		45.4	306	46.6	13.0		21	24.1	9.4	54.5	62	20 22	21 23	23 28	20 25	20 21	20 16	20 11
	15	43	38.3		44.7	321	18.6	12.9		21	33.5	9.3	54.5	60	20 10	21 04	22 31	20 39	20 42	20 49	21 06
	16	58	38.3		43.9	335	50.5	12.8		21	42.8	9.3	54.5	N 58	20 00	20 49	22 01	20 51	20 59	21 13	21 39
	17	73	38.4		43.2	350	22.3	12.8		21	52.1	9.1	54.5	56	19 51	20 36	21 39	21 02	21 14	21 33	22 03
	18	88	38.5	N15	42.5	4	54.1	12.6	S22	01.2	9.1	54.6	54	19 43	20 25	21 21	21 11	21 27	21 49	22 23	
	19	103	38.6		41.8	19	25.7	12.6		22	10.3	8.9	54.6	52	19 36	20 15	21 06	21 20	21 38	22 03	22 39
	20	118	38.7		41.0	33	57.3	12.5		22	19.2	8.9	54.6	50	19 29	20 06	20 54	21 27	21 48	22 16	22 54
	21	133	38.8		40.3	48	28.8	12.4		22	28.1	8.7	54.6	45	19 16	19 48	20 29	21 44	22 09	22 41	23 23
	22	148	38.9		39.6	63	00.2	12.3		22	36.8	8.7	54.6	N 40	19 05	19 34	20 10	21 57	22 26	23 02	23 45
23	163	39.0		38.9	77	31.5	12.3		22	45.5	8.6	54.6	35	18 55	19 22	19 55	22 09	22 41	23 19	24 04	
J U E V E S	10 00	178	39.1	N15	38.1	92	02.8	12.1	S22	54.1	8.5	54.7	30	18 47	19 12	19 43	22 19	22 53	23 33	24 20	
	01	193	39.2		37.4	106	33.9	12.1		23	02.6	8.3	54.7	20	18 33	18 56	19 23	22 36	23 15	23 58	24 48
	02	208	39.3		36.7	121	05.0	12.0		23	10.9	8.3	54.7	N 10	18 20	18 42	19 08	22 51	23 34	24 20	00 20
	03	223	39.4		35.9	135	36.0	11.9		23	19.2	8.2	54.7	0	18 09	18 30	18 55	23 05	23 51	24 40	00 40
	04	238	39.4		35.2	150	06.9	11.8		23	27.4	8.1	54.7	S 10	17 58	18 19	18 45	23 20	24 09	00 09	01 01
	05	253	39.5		34.5	164	37.7	11.8		23	35.5	8.0	54.7	20	17 46	18 08	18 35	23 35	24 28	00 28	01 23
	06	268	39.6	N15	33.7	179	08.5	11.6	S23	43.5	7.8	54.8	30	17 32	17 57	18 25	23 53	24 50	00 50	01 48	
	07	283	39.7		33.0	193	39.1	11.6		23	51.3	7.8	54.8	35	17 24	17 51	18 21	24 03	00 03	01 03	02 03
	08	298	39.8		32.3	208	09.7	11.4		23	59.1	7.7	54.8	40	17 15	17 44	18 16	24 15	00 15	01 18	02 21
	09	313	39.9		31.6	222	40.1	11.4		24	06.8	7.6	54.8	45	17 05	17 36	18 11	24 29	00 29	01 35	02 42
	10	328	40.0		30.8	237	10.5	11.3		24	14.4	7.4	54.9	S 50	16 53	17 27	18 06	2			



T.M.G. (TU)	ARIES			VENUS -4.0			MARTE +1.8			JUPITER -2.0			SATURNO +0.2			ESTRELLAS		
	A.H.G.	A.H.G.	Dec.	A.H.G.	Dec.	A.H.G.	Dec.	A.H.G.	Dec.	A.H.G.	Dec.	A.H.G.	Dec.	Nombre	A. H. S.	Dec.		
11 00	319 26.3	146 46.6 N 4	20.1	162 29.7 N10	47.1	227 04.0 N23	05.8	40 41.4 S22	38.8	Acamar	315 31.8 S40	20.3						
01	334 28.8	161 46.4	18.9	177 30.6	46.5	242 05.9	05.8	55 44.0	38.8	Achernar	335 39.5 S57	16.9						
02	349 31.2	176 46.1	17.6	192 31.6	45.9	257 07.9	05.8	70 46.6	38.8	Acrux	173 30.2 S63	02.8						
03	4 33.7	191 45.9	16.3	207 32.6	45.3	272 09.8	05.8	85 49.2	38.8	Adhara	255 26.9 S28	57.2						
04	19 36.2	206 45.6	15.1	222 33.5	44.7	287 11.8	05.8	100 51.8	38.9	Aldebaran	291 10.1 N16	29.5						
05	34 38.6	221 45.4	13.8	237 34.5	44.2	302 13.7	05.8	115 54.4	38.9									
06	49 41.1	236 45.1 N 4	12.5	252 35.5 N10	43.6	317 15.7 N23	05.8	130 57.0 S22	38.9	Alioth	166 36.4 N56	01.1						
07	64 43.5	251 44.9	11.3	267 36.5	43.0	332 17.6	05.8	145 59.6	38.9	Alkaid	153 12.9 N49	22.1						
08	79 46.0	266 44.6	10.0	282 37.4	42.4	347 19.6	05.8	161 02.1	38.9	Al Na'ir	28 05.5 S47	00.6						
V 09	94 48.5	281 44.3	08.7	297 38.4	41.8	2 21.5	05.8	176 04.7	38.9	Alnilam	276 04.7 S 1	12.2						
I 10	109 50.9	296 44.1	07.5	312 39.4	41.2	17 23.4	05.8	191 07.3	38.9	Alphard	218 14.0 S 8	36.7						
E 11	124 53.4	311 43.8	06.2	327 40.4	40.6	32 25.4	05.8	206 09.9	38.9									
R 12	139 55.9	326 43.6 N 4	04.9	342 41.3 N10	40.0	47 27.3 N23	05.7	221 12.5 S22	39.0	Alphecca	126 26.1 N26	45.0						
N 13	154 58.3	341 43.3	03.7	357 42.3	39.4	62 29.3	05.7	236 15.1	39.0	Alpheratz	358 01.9 N29	02.0						
E 14	170 00.8	356 43.1	02.4	12 43.3	38.8	77 31.2	05.7	251 17.7	39.0	Altair	62 25.4 N 8	50.5						
S 15	185 03.3	11 42.8 4	01.1	27 44.2	38.2	92 33.2	05.7	266 20.3	39.0	Ankaa	353 32.9 S42	21.4						
16	200 05.7	26 42.6 3	59.9	42 45.2	37.7	107 35.1	05.7	281 22.9	39.0	Antares	112 48.2 S26	24.8						
17	215 08.2	41 42.3	58.6	57 46.2	37.1	122 37.1	05.7	296 25.5	39.0									
18	230 10.7	56 42.1 N 3	57.3	72 47.2 N10	36.5	137 39.0 N23	05.7	311 28.0 S22	39.0	Arcturus	146 12.1 N19	14.2						
19	245 13.1	71 41.9	56.0	87 48.1	35.9	152 41.0	05.7	326 30.6	39.0	Atria	108 06.0 S69	01.0						
20	260 15.6	86 41.6	54.8	102 49.1	35.3	167 42.9	05.7	341 33.2	39.1	Avior	234 26.1 S59	28.4						
21	275 18.0	101 41.4	53.5	117 50.1	34.7	182 44.9	05.7	356 35.8	39.1	Bellatrix	278 51.4 N 6	20.7						
22	290 20.5	116 41.1	52.2	132 51.1	34.1	197 46.8	05.7	11 38.4	39.1	Betelgeuse	271 20.9 N 7	24.5						
23	305 23.0	131 40.9	51.0	147 52.0	33.5	212 48.7	05.7	26 41.0	39.1									
12 00	320 25.4	146 40.6 N 3	49.7	162 53.0 N10	32.9	227 50.7 N23	05.7	41 43.6 S22	39.1	Canopus	264 04.5 S52	41.0						
01	335 27.9	161 40.4	48.4	177 54.0	32.3	242 52.6	05.7	56 46.2	39.1	Capella	281 01.2 N45	59.3						
02	350 30.4	176 40.1	47.2	192 54.9	31.7	257 54.6	05.7	71 48.7	39.1	Deneb	49 43.4 N45	14.6						
03	5 32.8	191 39.9	45.9	207 55.9	31.1	272 56.5	05.7	86 51.3	39.1	Denebola	182 52.1 N14	37.9						
04	20 35.3	206 39.6	44.6	222 56.9	30.5	287 58.5	05.7	101 53.9	39.1	Diphda	349 13.6 S18	02.3						
05	35 37.8	221 39.4	43.3	237 57.9	29.9	303 00.4	05.6	116 56.5	39.2									
06	50 40.2	236 39.1 N 3	42.1	252 58.8 N10	29.4	318 02.4 N23	05.6	131 59.1 S22	39.2	Dubhe	194 13.8 N61	48.6						
07	65 42.7	251 38.9	40.8	267 59.8	28.8	333 04.3	05.6	147 01.7	39.2	Elnath	278 35.5 N28	36.1						
08	80 45.2	266 38.6	39.5	283 00.8	28.2	348 06.3	05.6	162 04.3	39.2	Eltanin	90 54.1 N51	29.5						
S 09	95 47.6	281 38.4	38.3	298 01.8	27.6	3 08.2	05.6	177 06.8	39.2	Enif	34 04.4 N 9	49.7						
A 10	110 50.1	296 38.2	37.0	313 02.7	27.0	18 10.2	05.6	192 09.4	39.2	Fomalhaut	15 43.2 S29	40.5						
B 11	125 52.5	311 37.9	35.7	328 03.7	26.4	33 12.1	05.6	207 12.0	39.2									
A 12	140 55.0	326 37.7 N 3	34.4	343 04.7 N10	25.8	48 14.1 N23	05.6	222 14.6 S22	39.2	Gacrux	172 21.6 S57	03.5						
D 13	155 57.5	341 37.4	33.2	358 05.7	25.2	63 16.0	05.6	237 17.2	39.3	Gienah	176 11.1 S17	29.1						
O 14	170 59.9	356 37.2	31.9	13 06.6	24.6	78 18.0	05.6	252 19.8	39.3	Hadar	149 13.9 S60	19.7						
15	186 02.4	11 36.9	30.6	28 07.6	24.0	93 19.9	05.6	267 22.4	39.3	Hamal	328 21.0 N23	24.9						
16	201 04.9	26 36.7	29.3	43 08.6	23.4	108 21.9	05.6	282 24.9	39.3	Kaus Aust.	84 07.2 S34	23.6						
17	216 07.3	41 36.4	28.1	58 09.6	22.8	123 23.8	05.6	297 27.5	39.3									
18	231 09.8	56 36.2 N 3	26.8	73 10.5 N10	22.2	138 25.8 N23	05.6	312 30.1 S22	39.3	Kochab	137 18.9 N74	12.1						
19	246 12.3	71 36.0	25.5	88 11.5	21.6	153 27.7	05.6	327 32.7	39.3	Markab	13 55.9 N15	09.1						
20	261 14.7	86 35.7	24.2	103 12.5	21.0	168 29.7	05.6	342 35.3	39.3	Menkar	314 33.8 N 4	03.2						
21	276 17.2	101 35.5	23.0	118 13.4	20.4	183 31.6	05.5	357 37.9	39.4	Menkent	148 29.0 S36	19.4						
22	291 19.6	116 35.2	21.7	133 14.4	19.8	198 33.6	05.5	12 40.5	39.4	Miaplacidus	221 44.8 S69	40.4						
23	306 22.1	131 35.0	20.4	148 15.4	19.2	213 35.5	05.5	27 43.0	39.4									
13 00	321 24.6	146 34.7 N 3	19.1	163 16.4 N10	18.7	228 37.5 N23	05.5	42 45.6 S22	39.4	Mirfak	309 06.2 N49	49.5						
01	336 27.0	161 34.5	17.9	178 17.3	18.1	243 39.4	05.5	57 48.2	39.4	Nunki	76 20.2 S26	18.7						
02	351 29.5	176 34.3	16.6	193 18.3	17.5	258 41.4	05.5	72 50.8	39.4	Peacock	53 46.6 S56	46.2						
03	6 32.0	191 34.0	15.3	208 19.3	16.9	273 43.3	05.5	87 53.4	39.4	Pollux	243 49.9 N28	03.2						
04	21 34.4	206 33.8	14.0	223 20.3	16.3	288 45.3	05.5	102 56.0	39.4	Procyon	245 18.7 N 5	15.3						
05	36 36.9	221 33.5	12.8	238 21.2	15.7	303 47.2	05.5	117 58.5	39.4									
06	51 39.4	236 33.3 N 3	11.5	253 22.2 N10	15.1	318 49.2 N23	05.5	133 01.1 S22	39.5	Rasalhague	96 22.9 N12	34.0						
07	66 41.8	251 33.1	10.2	268 23.2	14.5	333 51.1	05.5	148 03.7	39.5	Regulus	208 02.8 N12	01.2						
08	81 44.3	266 32.8	08.9	283 24.2	13.9	348 53.1	05.5	163 06.3	39.5	Rigel	281 29.4 S 8	12.5						
09	96 46.8	281 32.6	07.7	298 25.1	13.3	3 55.1	05.5	178 08.9	39.5	Rigel Kent.	140 16.6 S60	47.9						
I 10	111 49.2	296 32.3	06.4	313 26.1	12.7	18 57.0	05.5	193 11.5	39.5	Sabik	102 32.9 S15	42.9						
M 11	126 51.7	311 32.1	05.1	328 27.1	12.1	33 59.0	05.5	208 14.0	39.5									
N 12	141 54.1	326 31.9 N 3	03.8	343 28.1 N10	11.5	49 00.9 N23	05.4	223 16.6 S22	39.5	Schedar	350 01.0 N56	28.8						
O 13	156 56.6	341 31.6	02.6	358 29.1	10.9	64 02.9	05.4	238 19.2	39.5	Shaula	96 46.0 S37	06.0						
14	171 59.1	356 31.4	01.3	13 30.0	10.3	79 04.8	05.4	253 21.8	39.6	Sirius	258 49.8 S16	41.8						
15	187 01.5	11 31.1 3	00.0	28 31.0	09.7	94 06.8	05.4	268 24.4	39.6	Spica	158 50.3 S11	06.5						
16	202 04.0	26 30.9 2	58.7	43 32.0	09.1	109 08.7	05.4	283 27.0	39.6	Suhail	223 06.2 S43	23.3						
17	217 06.5	41 30.7	57.5	58 33.0	08.5	124 10.7	05.4	298 29.5	39.6									
18	232 08.9	56 30.4 N 2	56.2	73 33.9 N10	07.9	139 12.6 N23	05.4	313 32.1 S22	39.6	Vega	80 50.8 N38	46.5						
19	247 11.4	71 30.2	54.9	88 34.9	07.3	154 14.6	05.4	328 34.7	39.6	Zuben'ubi	137 25.3 S16	00.1						
20	262 13.9	86 29.9	53.6	103 35.9	06.7	169 16.5	05.4	343 37.3	39.6									
21	277 16.3	101 29.7	52.3	118 36.9	06.1	184 18.5</												



T.M.G. (TU)	SOL		LUNA				Lat.	Crepúsculo		Orto Sol	Orto Luna				
	A.H.G.	Dec.	A.H.G.	v	Dec.	d		P.H.	Náut.		Civil	11	12	13	14
												h m	h m	h m	h m
V I E R N E S	11 00	178 41.4	N15 20.5	80 06.8	10.1	S25 48.5	5.9 55.1	N 72	///	///	02 01	■	■	■	■
	01	193 41.5	19.8	94 35.9	10.0	25 54.4	5.7 55.2	N 70	///	///	02 40	■	■	■	■
	02	208 41.6	19.0	109 04.9	9.9	26 00.1	5.6 55.2	68	///	01 15	03 06	■	■	■	■
	03	223 41.7	18.3	123 33.8	9.9	26 05.7	5.5 55.2	66	///	02 04	03 26	■	■	■	■
	04	238 41.8	17.6	138 02.7	9.7	26 11.2	5.4 55.2	64	///	02 34	03 42	■	■	■	20 45
	05	253 41.9	16.8	152 31.4	9.7	26 16.6	5.2 55.2	62	01 07	02 56	03 55	18 26	■	20 09	20 04
	06	268 42.0	N15 16.1	167 00.1	9.6	S26 21.8	5.1 55.3	60	01 51	03 13	04 07	17 30	18 42	19 20	19 35
	07	283 42.1	15.3	181 28.7	9.5	26 26.9	5.0 55.3	N 58	02 18	03 28	04 16	16 58	18 05	18 49	19 13
	08	298 42.2	14.6	195 57.2	9.4	26 31.9	4.8 55.3	56	02 39	03 40	04 25	16 34	17 39	18 25	18 55
	09	313 42.3	13.9	210 25.6	9.4	26 36.7	4.7 55.4	54	02 56	03 51	04 32	16 14	17 18	18 06	18 40
	10	328 42.4	13.1	224 54.0	9.2	26 41.4	4.6 55.4	52	03 10	04 00	04 39	15 58	17 01	17 50	18 27
	11	343 42.5	12.4	239 22.2	9.2	26 46.0	4.5 55.4	50	03 22	04 08	04 45	15 44	16 46	17 36	18 15
	12	358 42.6	N15 11.6	253 50.4	9.1	S26 50.5	4.3 55.4	45	03 45	04 26	04 58	15 15	16 16	17 08	17 51
	13	13 42.7	10.9	268 18.5	9.1	26 54.8	4.1 55.5	N 40	04 04	04 39	05 09	14 53	15 52	16 45	17 31
	14	28 42.8	10.1	282 46.6	8.9	26 58.9	4.1 55.5	35	04 18	04 51	05 18	14 34	15 33	16 27	17 15
	15	43 42.9	09.4	297 14.5	8.9	27 03.0	3.9 55.5	30	04 30	05 00	05 25	14 19	15 16	16 11	17 01
	16	58 43.0	08.6	311 42.4	8.8	27 06.9	3.8 55.5	20	04 49	05 16	05 39	13 52	14 48	15 44	16 36
	17	73 43.1	07.9	326 10.2	8.7	27 10.7	3.6 55.6	N 10	05 03	05 29	05 51	13 29	14 24	15 20	16 15
	18	88 43.2	N15 07.2	340 37.9	8.7	S27 14.3	3.5 55.6	0	05 15	05 40	06 02	13 08	14 02	14 59	15 56
	19	103 43.3	06.4	355 05.6	8.6	27 17.8	3.3 55.6	S 10	05 26	05 51	06 12	12 46	13 40	14 37	15 36
	20	118 43.4	05.7	9 33.2	8.5	27 21.1	3.3 55.6	20	05 35	06 01	06 24	12 23	13 16	14 13	15 15
	21	133 43.5	04.9	24 00.7	8.4	27 24.4	3.0 55.7	30	05 43	06 12	06 37	11 57	12 48	13 46	14 50
	22	148 43.6	04.2	38 28.1	8.4	27 27.4	2.9 55.7	35	05 48	06 18	06 44	11 42	12 32	13 30	14 36
23	163 43.7	03.4	52 55.5	8.3	27 30.3	2.8 55.7	40	05 52	06 24	06 52	11 24	12 13	13 11	14 19	
12 00	178 43.8	N15 02.7	67 22.8	8.2	S27 33.1	2.7 55.8	45	05 57	06 31	07 02	11 02	11 49	12 49	13 59	
01	193 43.9	01.9	81 50.0	8.2	27 35.8	2.5 55.8	S 50	06 01	06 40	07 14	10 35	11 20	12 20	13 33	
02	208 44.0	01.2	96 17.2	8.1	27 38.3	2.3 55.8	52	06 03	06 43	07 19	10 22	11 05	12 05	13 21	
03	223 44.1	15 00.4	110 44.3	8.0	27 40.6	2.2 55.8	54	06 05	06 47	07 25	10 07	10 49	11 49	13 07	
04	238 44.2	14 59.7	125 11.3	8.0	27 42.8	2.0 55.9	56	06 08	06 52	07 32	09 49	10 28	11 29	12 50	
05	253 44.3	58.9	139 38.3	7.9	27 44.8	1.9 55.9	58	06 10	06 57	07 39	09 27	10 03	11 04	12 30	
06	268 44.4	N14 58.2	154 05.2	7.8	S27 46.7	1.8 55.9	S 60	06 13	07 02	07 47	08 59	09 29	10 31	12 05	
07	283 44.5	57.4	168 32.0	7.8	27 48.5	1.6 56.0	Lat.	Ocaso Sol	Crepúsculo		Ocaso Luna				
08	298 44.6	56.7	182 58.8	7.8	27 50.1	1.4 56.0			Civil	Náut.	11	12	13	14	
09	313 44.7	55.9	197 25.6	7.6	27 51.5	1.3 56.0					h m	h m	h m	h m	
10	328 44.8	55.2	211 52.2	7.7	27 52.8	1.2 56.1	N 70	22 02	///	///	■	■	■	■	
11	343 45.0	54.4	226 18.9	7.5	27 54.0	1.0 56.1	N 72	21 26	///	///	■	■	■	■	
12	358 45.1	N14 53.7	240 45.4	7.5	S27 55.0	0.8 56.1	68	21 00	22 46	///	■	■	■	■	
13	13 45.2	52.9	255 11.9	7.5	27 55.8	0.7 56.2	66	20 41	22 01	///	■	■	■	■	
14	28 45.3	52.1	269 38.4	7.4	27 56.5	0.5 56.2	64	20 25	21 33	///	■	■	■	■	
15	43 45.4	51.4	284 04.8	7.4	27 57.0	0.4 56.2	62	20 13	21 11	22 55	20 11	■	22 22	23 45	
16	58 45.5	50.6	298 31.2	7.3	27 57.4	0.2 56.2	60	20 02	20 54	22 15	21 06	21 49	23 10	24 53	
17	73 45.6	49.9	312 57.5	7.3	27 57.6	0.0 56.3	N 58	19 52	20 40	21 48	21 39	22 26	23 41	25 15	
18	88 45.7	N14 49.1	327 23.8	7.2	S27 57.6	0.1 56.3	56	19 44	20 28	21 28	22 03	22 53	24 04	00 04	
19	103 45.8	48.4	341 50.0	7.2	27 57.5	0.2 56.3	54	19 37	20 18	21 12	22 23	23 14	24 23	00 23	
20	118 45.9	47.6	356 16.2	7.1	27 57.3	0.5 56.4	52	19 30	20 09	20 59	22 39	23 31	24 39	00 39	
21	133 46.0	46.9	10 42.3	7.1	27 56.8	0.5 56.4	50	19 24	20 00	20 47	22 54	23 46	24 53	00 53	
22	148 46.1	46.1	25 08.4	7.1	27 56.3	0.8 56.4	45	19 11	19 44	20 23	23 23	24 16	00 16	01 21	
23	163 46.3	45.3	39 34.5	7.0	27 55.5	0.9 56.5	N 40	19 01	19 30	20 06	23 45	24 39	00 39	01 42	
13 00	178 46.4	N14 44.6	54 00.5	7.0	S27 54.6	1.0 56.5	35	18 52	19 19	19 51	24 04	00 04	00 58	02 01	
01	193 46.5	43.8	68 26.5	7.0	27 53.6	1.3 56.5	30	18 44	19 09	19 39	24 20	00 20	01 15	02 16	
02	208 46.6	43.1	82 52.5	6.9	27 52.3	1.4 56.6	20	18 31	18 54	19 21	24 48	00 48	01 43	02 42	
03	223 46.7	42.3	97 18.4	7.0	27 50.9	1.5 56.6	N 10	18 19	18 41	19 06	00 20	01 11	02 07	03 05	
04	238 46.8	41.5	111 44.4	6.8	27 49.4	1.7 56.6	0	18 08	18 30	18 55	00 40	01 33	02 29	03 26	
05	253 46.9	40.8	126 10.2	6.9	27 47.7	1.9 56.7	S 10	17 58	18 19	18 45	01 01	01 55	02 51	03 47	
06	268 47.0	N14 40.0	140 36.1	6.8	S27 45.8	2.0 56.7	20	17 47	18 09	18 35	01 23	02 19	03 15	04 09	
07	283 47.1	39.3	155 01.9	6.8	27 43.8	2.2 56.7	30	17 34	17 59	18 27	01 48	02 46	03 43	04 35	
08	298 47.3	38.5	169 27.7	6.8	27 41.6	2.4 56.8	35	17 27	17 53	18 23	02 03	03 03	03 59	04 50	
09	313 47.4	37.7	183 53.5	6.8	27 39.2	2.5 56.8	40	17 18	17 46	18 18	02 21	03 22	04 18	05 08	
10	328 47.5	37.0	198 19.3	6.7	27 36.7	2.7 56.8	45	17 09	17 39	18 14	02 42	03 45	04 41	05 28	
11	343 47.6	36.2	212 45.0	6.7	27 34.0	2.9 56.9	S 50	16 57	17 31	18 09	03 08	04 14	05 10	05 55	
12	358 47.7	N14 35.4	227 10.7	6.8	S27 31.1	3.0 56.9	52	16 52	17 27	18 07	03 21	04 28	05 25	06 08	
13	13 47.8	34.7	241 36.5	6.7	27 28.1	3.2 56.9	54	16 46	17 23	18 05	03 36	04 45	05 41	06 22	
14	28 47.9	33.9	256 02.2	6.7	27 24.9	3.3 57.0	56	16 39	17 19	18 03	03 54	05 05	06 01	06 39	
15	43 48.0	33.1	270 27.9	6.6	27 21.6	3.6 57.0	58	16 32	17 14	18 01	04 15	05 30	06 26	06 59	
16	58 48.2	32.4	284 53.5	6.7	27 18.0	3.6 57.0	S 60	16 23	17 09	17 59	04 42	06 05	07 00	07 25	
17	73 48.3	31.6	299 19.2	6.7	27 14.4	3.9 57.1	Día	SOL E.T. (-)		LUNA					
18	88 48.4	N14 30.9	313 44.9	6.6	S27 10.5	4.0 57.1		00 h	Pas. Mer.	Pas. Sup.	Mer. Inf.	Edd.	Fase		
19	103 48.5	30.1	328 10.5	6.7	27 06.5	4.2 57.2	11	m s	m s	h m	h m	h m	d		
20	118 48.6	29.3	342 36.2	6.7	27 02.3	4.3 57.2	12	05 15	05 10	12 05	19 20	06 54	10	☉	
21	133 48.7	28.6	357 01.9	6.6	26 58.0	4.5 57.2	13	05 05	05 00	12 05	20 16	07 48	11		
22	148 48.8	27.8	11 27.5	6.7	26 53.5	4.7 57.3		04 55	04 49	12 05	21 12	08 44	12		







T.M.G. (TU)	SOL		LUNA				Lat.	Crepúsculo		Orto Sol	Orto Luna					
	A.H.G.	Dec.	A.H.G.	v	Dec.	d		P.H.	Náut.		Civil	14	15	16	17	
												h m	h m	h m	h m	h m
LUNES	14 00	178 49.1	N14 26.2	40 18.9	6.6	S26 43.9	5.0	57.3	N 72	///	///	02 24	■	■	21 38	20 39
	01	193 49.2	25.5	54 44.5	6.7	26 38.9	5.1	57.4	N 70	///	///	02 56	■	■	21 06	20 26
	02	208 49.3	24.7	69 10.2	6.7	26 33.8	5.4	57.4	68	///	01 43	03 19	■	21 30	20 42	20 15
	03	223 49.4	23.9	83 35.9	6.7	26 28.4	5.4	57.4	66	///	02 21	03 37	■	20 49	20 23	20 06
	04	238 49.5	23.2	98 01.6	6.7	26 23.0	5.7	57.5	64	///	02 46	03 51	20 45	20 21	20 08	19 58
	05	253 49.7	22.4	112 27.3	6.8	26 17.3	5.8	57.5	62	01 31	03 06	04 04	20 04	19 59	19 55	19 51
	06	268 49.8	N14 21.6	126 53.1	6.7	S26 11.5	6.0	57.5	60	02 06	03 22	04 14	19 35	19 42	19 44	19 45
	07	283 49.9	20.9	141 18.8	6.7	26 05.5	6.2	57.6	N 58	02 30	03 36	04 23	19 13	19 27	19 35	19 40
	08	298 50.0	20.1	155 44.5	6.8	25 59.3	6.3	57.6	56	02 48	03 47	04 31	18 55	19 14	19 26	19 36
	09	313 50.1	19.3	170 10.3	6.8	25 53.0	6.4	57.6	54	03 04	03 57	04 38	18 40	19 03	19 19	19 31
	10	328 50.2	18.5	184 36.1	6.8	25 46.6	6.7	57.7	52	03 16	04 06	04 44	18 27	18 53	19 12	19 28
	11	343 50.4	17.8	199 01.9	6.9	25 39.9	6.8	57.7	50	03 28	04 13	04 49	18 15	18 44	19 06	19 24
	12	358 50.5	N14 17.0	213 27.8	6.8	S25 33.1	6.9	57.7	45	03 50	04 29	05 01	17 51	18 25	18 53	19 17
	13	13 50.6	16.2	227 53.6	6.9	25 26.2	7.2	57.8	N 40	04 07	04 42	05 11	17 31	18 10	18 42	19 10
	14	28 50.7	15.5	242 19.5	6.9	25 19.0	7.2	57.8	35	04 21	04 53	05 20	17 15	17 56	18 33	19 05
	15	43 50.8	14.7	256 45.4	7.0	25 11.8	7.5	57.8	30	04 32	05 02	05 27	17 01	17 45	18 24	19 00
	16	58 51.0	13.9	271 11.4	6.9	25 04.3	7.6	57.9	20	04 50	05 17	05 40	16 36	17 25	18 10	18 51
	17	73 51.1	13.1	285 37.3	7.0	24 56.7	7.7	57.9	N 10	05 04	05 29	05 51	16 15	17 08	17 57	18 44
	18	88 51.2	N14 12.4	300 03.3	7.0	S24 49.0	7.9	58.0	0	05 15	05 40	06 01	15 56	16 52	17 45	18 37
	19	103 51.3	11.6	314 29.3	7.1	24 41.1	8.1	58.0	S 10	05 25	05 50	06 11	15 36	16 35	17 33	18 30
	20	118 51.4	10.8	328 55.4	7.1	24 33.0	8.2	58.0	20	05 33	05 59	06 22	15 15	16 18	17 21	18 22
	21	133 51.6	10.0	343 21.5	7.1	24 24.8	8.4	58.1	30	05 41	06 09	06 34	14 50	15 58	17 06	18 14
	22	148 51.7	09.2	357 47.6	7.2	24 16.4	8.5	58.1	35	05 45	06 14	06 41	14 36	15 46	16 57	18 09
23	163 51.8	08.5	12 13.8	7.2	24 07.9	8.7	58.1	40	05 48	06 20	06 48	14 19	15 32	16 47	18 03	
15 00	178 51.9	N14 07.7	26 40.0	7.2	S23 59.2	8.8	58.2	45	05 52	06 27	06 57	13 59	15 16	16 36	17 56	
01	193 52.0	06.9	41 06.2	7.3	23 50.4	9.0	58.2	S 50	05 56	06 34	07 08	13 33	14 56	16 22	17 48	
02	208 52.2	06.1	55 32.5	7.3	23 41.4	9.1	58.2	52	05 58	06 38	07 13	13 21	14 46	16 15	17 45	
03	223 52.3	05.4	69 58.8	7.4	23 32.3	9.3	58.3	54	06 00	06 42	07 19	13 07	14 35	16 08	17 41	
04	238 52.4	04.6	84 25.2	7.4	23 23.0	9.5	58.3	56	06 02	06 46	07 25	12 50	14 23	15 59	17 36	
05	253 52.5	03.8	98 51.6	7.4	23 13.5	9.6	58.3	58	06 04	06 50	07 32	12 30	14 08	15 50	17 31	
06	268 52.7	N14 03.0	113 18.0	7.5	S23 03.9	9.7	58.4	S 60	06 06	06 55	07 39	12 05	13 51	15 39	17 25	
07	283 52.8	02.2	127 44.5	7.5	22 54.2	9.9	58.4	Lat.	Ocaso Sol	Crepúsculo		Ocaso Luna				
08	298 52.9	01.5	142 11.0	7.6	22 44.3	10.0	58.4			Civil	Náut.	14	15	16	17	
09	313 53.0	14 00.7	156 37.6	7.6	22 34.3	10.2	58.5	N 72	h m	h m	h m	h m	h m	h m	h m	
10	328 53.2	13 59.9	171 04.2	7.6	22 24.1	10.3	58.5	N 70	21 40	///	///	■	■	■	02 46	
11	343 53.3	59.1	185 30.8	7.7	22 13.8	10.4	58.5	68	21 09	23 33	///	■	■	■	03 16	
12	358 53.4	N13 58.3	199 57.5	7.8	S22 03.4	10.6	58.6	66	20 47	22 19	///	■	■	00 58	03 38	
13	13 53.5	57.5	214 24.3	7.8	21 52.8	10.8	58.6	64	20 29	21 44	///	■	■	01 38	03 55	
14	28 53.6	56.8	228 51.1	7.9	21 42.0	10.9	58.6	62	20 15	21 19	23 37	23 45	26 05	02 05	04 08	
15	43 53.8	56.0	243 18.0	7.9	21 31.1	11.0	58.7	60	20 03	21 00	22 32	24 26	00 26	02 25	04 20	
16	58 53.9	55.2	257 44.9	7.9	21 20.1	11.1	58.7	N 58	19 53	20 44	21 59	24 53	00 53	02 42	04 30	
17	73 54.0	54.4	272 11.8	8.0	21 09.0	11.3	58.7	56	19 45	20 31	21 36	25 15	01 15	02 56	04 38	
18	88 54.2	N13 53.6	286 38.8	8.1	S20 57.7	11.4	58.7	54	19 37	20 20	21 18	00 04	01 32	03 08	04 45	
19	103 54.3	52.8	301 05.9	8.1	20 46.3	11.6	58.8	52	19 30	20 10	21 03	00 23	01 47	03 19	04 52	
20	118 54.4	52.1	315 33.0	8.1	20 34.7	11.7	58.8	50	19 24	20 02	20 51	00 39	02 00	03 28	04 58	
21	133 54.5	51.3	330 00.1	8.2	20 23.0	11.8	58.8	45	19 18	19 54	20 40	00 53	02 11	03 36	05 03	
22	148 54.7	50.5	344 27.3	8.3	20 11.2	12.0	58.9	N 40	19 07	19 39	20 18	01 21	02 35	03 54	05 14	
23	163 54.8	49.7	358 54.6	8.3	19 59.2	12.0	58.9	35	18 57	19 26	20 01	01 42	02 53	04 08	05 23	
16 00	178 54.9	N13 48.9	13 21.9	8.3	S19 47.2	12.2	58.9	30	18 49	19 15	19 47	02 01	03 09	04 20	05 31	
01	193 55.0	48.1	27 49.2	8.4	19 35.0	12.4	59.0	20	18 41	19 06	19 36	02 16	03 22	04 30	05 38	
02	208 55.2	47.3	42 16.6	8.5	19 22.6	12.4	59.0	N 10	18 29	18 52	19 19	02 42	03 45	04 48	05 50	
03	223 55.3	46.6	56 44.1	8.5	19 10.2	12.6	59.0	0	18 18	18 40	19 05	03 05	04 04	05 03	06 00	
04	238 55.4	45.8	71 11.6	8.6	18 57.6	12.7	59.1	S 10	18 08	18 29	18 54	03 26	04 23	05 17	06 10	
05	253 55.5	45.0	85 39.2	8.6	18 44.9	12.8	59.1	20	17 58	18 19	18 44	03 47	04 41	05 32	06 20	
06	268 55.7	N13 44.2	100 06.8	8.7	S18 32.1	13.0	59.1	30	17 47	18 10	18 36	04 09	05 00	05 46	06 30	
07	283 55.8	43.4	114 34.5	8.7	18 19.1	13.0	59.1	35	17 36	18 00	18 28	04 35	05 22	06 04	06 41	
08	298 55.9	42.6	129 02.2	8.8	18 06.1	13.2	59.2	40	17 29	17 55	18 25	04 50	05 35	06 13	06 47	
09	313 56.1	41.8	143 30.0	8.8	17 52.9	13.3	59.2	45	17 21	17 49	18 21	05 08	05 49	06 25	06 55	
10	328 56.2	41.0	157 57.8	8.9	17 39.6	13.4	59.2	S 50	17 12	17 43	18 17	05 28	06 07	06 38	07 03	
11	343 56.3	40.2	172 25.7	8.9	17 26.2	13.5	59.3	52	17 01	17 35	18 13	05 55	06 28	06 53	07 13	
12	358 56.5	N13 39.4	186 53.6	9.0	S17 12.7	13.7	59.3	54	16 56	17 32	18 12	06 08	06 38	07 01	07 18	
13	13 56.6	38.7	201 21.6	9.1	16 59.0	13.7	59.3	56	16 51	17 28	18 10	06 22	06 50	07 09	07 23	
14	28 56.7	37.9	215 49.7	9.1	16 45.3	13.8	59.3	58	16 45	17 24	18 08	06 39	07 03	07 18	07 29	
15	43 56.8	37.1	230 17.8	9.1	16 31.5	14.0	59.4	S 60	16 38	17 20	18 06	06 59	07 18	07 28	07 35	
16	58 57.0	36.3	244 45.9	9.2	16 17.5	14.0	59.4	Lat.	SOL	LUNA		Fase				
17	73 57.1	35.5	259 14.1	9.2	16 03.5	14.2	59.4		E.T. (-)	Pas. Mer.	Pas. Mer.	Mer. Inf.	Edad.			
18	88 57.2	N13 34.7	273 42.3	9.3	S15 49.3	14.3	59.4		00 h	12 h	h m	h m	d			
19	103 57.4	33.9	288 10.6	9.4	15 35.0	14.3	59.5		m s	m s	h m	h m				
20	118 57.5	33.1	302 3													



T.M.G. (TU)		ARIES		VENUS -4.0		MARTE +1.8		JUPITER -2.1		SATURNO +0.3		ESTRELLAS							
d h		A.H.G.		A.H.G. Dec.		A.H.G. Dec.		A.H.G. Dec.		A.H.G. Dec.		Nombre	A. H. S. Dec.						
J U E V E S	17 00	325	21.1	146	12.4 N 1	16.1	164	50.2 N 9	21.0	231	45.6 N23	04.8	46	53.0 S22	40.5	Acamar	315	31.7 S40	20.3
	01	340	23.6	161	12.2	14.9	179	51.2	20.3	246	47.5	04.8	61	55.6	40.5	Achernar	335	39.4 S57	16.9
	02	355	26.1	176	12.0	13.6	194	52.2	19.7	261	49.5	04.8	76	58.1	40.5	Acrux	173	30.3 S63	02.7
	03	10	28.5	191	11.7	12.3	209	53.2	19.1	276	51.5	04.8	92	00.7	40.5	Adhara	255	26.9 S28	57.1
	04	25	31.0	206	11.5	11.0	224	54.1	18.5	291	53.4	04.8	107	03.3	40.5	Aldebaran	291	10.0 N16	29.5
	05	40	33.5	221	11.3	09.7	239	55.1	17.9	306	55.4	04.7	122	05.9	40.5				
	06	55	35.9	236	11.1 N 1	08.4	254	56.1 N 9	17.3	321	57.4 N23	04.7	137	08.4 S22	40.5	Alioth	166	36.4 N56	01.1
	07	70	38.4	251	10.8	07.1	269	57.1	16.7	336	59.3	04.7	152	11.0	40.6	Alkaid	153	13.0 N49	22.1
	08	85	40.8	266	10.6	05.8	284	58.1	16.1	352	01.3	04.7	167	13.6	40.6	Al Na'ir	28	05.5 S47	00.6
	09	100	43.3	281	10.4	04.6	299	59.0	15.5	7	03.3	04.7	182	16.1	40.6	Alnilam	276	04.7 S 1	12.2
	10	115	45.8	296	10.2	03.3	315	00.0	14.9	22	05.2	04.7	197	18.7	40.6	Alphard	218	14.0 S 8	36.7
	11	130	48.2	311	09.9	02.0	330	01.0	14.3	37	07.2	04.7	212	21.3	40.6				
	12	145	50.7	326	09.7 N 1	00.7	345	02.0 N 9	13.7	52	09.2 N23	04.7	227	23.8 S22	40.6	Alphecca	126	26.1 N26	45.0
	13	160	53.2	341	09.5	0 59.4	0	03.0	13.1	67	11.1	04.7	242	26.4	40.6	Alpheratz	358	01.9 N29	02.1
	14	175	55.6	356	09.3	58.1	15	04.0	12.5	82	13.1	04.7	257	29.0	40.6	Altair	62	25.4 N 8	50.5
	15	190	58.1	11	09.1	56.8	30	04.9	11.8	97	15.1	04.7	272	31.5	40.6	Ankaa	353	32.8 S42	21.4
	16	206	00.6	26	08.8	55.5	45	05.9	11.2	112	17.1	04.6	287	34.1	40.7	Antares	112	48.2 S26	24.8
	17	221	03.0	41	08.6	54.3	60	06.9	10.6	127	19.0	04.6	302	36.7	40.7				
	18	236	05.5	56	08.4 N 0	53.0	75	07.9 N 9	10.0	142	21.0 N23	04.6	317	39.2 S22	40.7	Arcturus	146	12.1 N19	14.2
	19	251	08.0	71	08.2	51.7	90	08.9	09.4	157	23.0	04.6	332	41.8	40.7	Atria	108	06.1 S69	01.0
	20	266	10.4	86	07.9	50.4	105	09.8	08.8	172	24.9	04.6	347	44.4	40.7	Avior	234	26.1 S59	28.3
	21	281	12.9	101	07.7	49.1	120	10.8	08.2	187	26.9	04.6	2	46.9	40.7	Bellatrix	278	51.4 N 6	20.7
	22	296	15.3	116	07.5	47.8	135	11.8	07.6	202	28.9	04.6	17	49.5	40.7	Betelgeuse	271	20.9 N 7	24.6
23	311	17.8	131	07.3	46.5	150	12.8	07.0	217	30.8	04.6	32	52.1	40.7					
V I E R N E S	18 00	326	20.3	146	07.1 N 0	45.2	165	13.8 N 9	06.4	232	32.8 N23	04.6	47	54.6 S22	40.7	Canopus	264	04.5 S52	41.0
	01	341	22.7	161	06.8	43.9	180	14.7	05.8	247	34.8	04.6	62	57.2	40.8	Capella	281	01.2 N45	59.3
	02	356	25.2	176	06.6	42.7	195	15.7	05.2	262	36.8	04.6	77	59.8	40.8	Deneb	49	43.4 N45	14.7
	03	11	27.7	191	06.4	41.4	210	16.7	04.5	277	38.7	04.5	93	02.3	40.8	Denebola	182	52.1 N14	37.9
	04	26	30.1	206	06.2	40.1	225	17.7	03.9	292	40.7	04.5	108	04.9	40.8	Diphda	349	13.5 S18	02.3
	05	41	32.6	221	05.9	38.8	240	18.7	03.3	307	42.7	04.5	123	07.5	40.8				
	06	56	35.1	236	05.7 N 0	37.5	255	19.7 N 9	02.7	322	44.6 N23	04.5	138	10.0 S22	40.8	Dubhe	194	13.8 N61	48.5
	07	71	37.5	251	05.5	36.2	270	20.6	02.1	337	46.6	04.5	153	12.6	40.8	Elnath	278	35.4 N28	36.1
	08	86	40.0	266	05.3	34.9	285	21.6	01.5	352	48.6	04.5	168	15.2	40.8	Eltanin	90	54.2 N51	29.5
	09	101	42.4	281	05.1	33.6	300	22.6	00.9	7	50.6	04.5	183	17.7	40.8	Enif	34	04.4 N 9	49.7
	10	116	44.9	296	04.8	32.3	315	23.6	9 00.3	22	52.5	04.5	198	20.3	40.9	Fomalhaut	15	43.2 S29	40.5
	11	131	47.4	311	04.6	31.1	330	24.6	8 59.7	37	54.5	04.5	213	22.8	40.9				
	12	146	49.8	326	04.4 N 0	29.8	345	25.5 N 8	59.1	52	56.5 N23	04.5	228	25.4 S22	40.9	Gacrux	172	21.7 S57	03.5
	13	161	52.3	341	04.2	28.5	0	26.5	58.5	67	58.5	04.5	243	28.0	40.9	Gienah	176	11.1 S17	29.1
	14	176	54.8	356	04.0	27.2	15	27.5	57.8	83	00.4	04.4	258	30.5	40.9	Hadar	149	13.9 S60	19.7
	15	191	57.2	11	03.7	25.9	30	28.5	57.2	98	02.4	04.4	273	33.1	40.9	Hamal	328	20.9 N23	24.9
	16	206	59.7	26	03.5	24.6	45	29.5	56.6	113	04.4	04.4	288	35.7	40.9	Kaus Aust.	84	07.3 S34	23.6
	17	222	02.2	41	03.3	23.3	60	30.5	56.0	128	06.3	04.4	303	38.2	40.9				
	18	237	04.6	56	03.1 N 0	22.0	75	31.4 N 8	55.4	143	08.3 N23	04.4	318	40.8 S22	40.9	Kochab	137	19.0 N74	12.1
	19	252	07.1	71	02.9	20.7	90	32.4	54.8	158	10.3	04.4	333	43.4	40.9	Markab	13	55.9 N15	09.1
	20	267	09.6	86	02.7	19.5	105	33.4	54.2	173	12.3	04.4	348	45.9	41.0	Menkar	314	33.7 N 4	03.2
	21	282	12.0	101	02.4	18.2	120	34.4	53.6	188	14.2	04.4	3	48.5	41.0	Menkent	148	29.0 S36	19.4
	22	297	14.5	116	02.2	16.9	135	35.4	53.0	203	16.2	04.4	18	51.0	41.0	Miaplacidus	221	44.8 S69	40.4
23	312	16.9	131	02.0	15.6	150	36.3	52.3	218	18.2	04.4	33	53.6	41.0					
S A B A D O	19 00	327	19.4	146	01.8 N 0	14.3	165	37.3 N 8	51.7	233	20.2 N23	04.3	48	56.2 S22	41.0	Mirfak	309	06.2 N49	49.5
	01	342	21.9	161	01.6	13.0	180	38.3	51.1	248	22.1	04.3	63	58.7	41.0	Nunki	76	20.2 S26	18.7
	02	357	24.3	176	01.3	11.7	195	39.3	50.5	263	24.1	04.3	79	01.3	41.0	Peacock	53	46.6 S56	46.2
	03	12	26.8	191	01.1	10.4	210	40.3	49.9	278	26.1	04.3	94	03.9	41.0	Pollux	243	49.9 N28	03.2
	04	27	29.3	206	00.9	09.1	225	41.3	49.3	293	28.1	04.3	109	06.4	41.0	Procyon	245	18.7 N 5	15.3
	05	42	31.7	221	00.7	07.8	240	42.2	48.7	308	30.0	04.3	124	09.0	41.1				
	06	57	34.2	236	00.5 N 0	06.6	255	43.2 N 8	48.1	323	32.0 N23	04.3	139	11.5 S22	41.1	Rasalhague	96	22.9 N12	34.1
	07	72	36.7	251	00.3	05.3	270	44.2	47.5	338	34.0	04.3	154	14.1	41.1	Regulus	208	02.8 N12	01.2
	08	87	39.1	266	00.0	04.0	285	45.2	46.8	353	36.0	04.3	169	16.7	41.1	Rigel	281	29.4 S 8	12.5
	09	102	41.6	280	59.8	02.7	300	46.2	46.2	8	38.0	04.3	184	19.2	41.1	Rigel Kent.	140	16.6 S60	47.9
	10	117	44.1	295	59.6	01.4	315	47.2	45.6	23	39.9	04.2	199	21.8	41.1	Sabik	102	33.0 S15	42.9
	11	132	46.5	310	59.4 N 0	00.1	330	48.1	45.0	38	41.9	04.2	214	24.3	41.1				
	12	147	49.0	325	59.2 S 0	01.2	345	49.1 N 8	44.4	53	43.9 N23	04.2	229	26.9 S22	41.1	Schedar	350	00.9 N56	28.8
	13	162	51.4	340	58.9	02.5	0	50.1	43.8	68	45.9	04.2	244	29.5	41.1	Shaula	96	46.0 S37	06.0
	14	177	53.9	355	58.7	03.8	15	51.1	43.2	83	47.8	04.2	259	32.0	41.1	Sirius	258	49.7 S16	41.8
	15	192	56.4	10	58.5	05.1	30	52.1	42.6	98	49.8								



T.M.G. (TU)	SOL		LUNA				Lat.	Crepúsculo		Orto Sol	Orto Luna						
	A.H.G.		A.H.G.		v	Dec.		d	P.H.		Náut.	Civil	17	18	19	20	
	o	'	o	'									h	m	h	m	h
JUEVES	17 00	178 58.0	N13 29.9	0 32.9	9.6	S14 22.3	14.9	59.6	N 72	///	///	02 44	20 39	20 00	19 24	18 42	
	01	193 58.2	29.1	15 01.5	9.6	14 07.4	14.9	59.6	N 70	///	01 12	03 11	20 26	19 56	19 29	18 58	
	02	208 58.3	28.3	29 30.1	9.7	13 52.5	15.0	59.6	68	///	02 04	03 31	20 15	19 54	19 34	19 12	
	03	223 58.4	27.5	43 58.8	9.7	13 37.5	15.1	59.7	66	///	02 36	03 48	20 06	19 51	19 37	19 23	
	04	238 58.6	26.7	58 27.5	9.8	13 22.4	15.2	59.7	64	01 03	02 59	04 01	19 58	19 49	19 41	19 32	
	05	253 58.7	25.9	72 56.3	9.8	13 07.2	15.3	59.7	62	01 50	03 16	04 12	19 51	19 51	19 47	19 40	
	06	268 58.8	N13 25.1	87 25.1	9.9	S12 51.9	15.3	59.7	60	02 19	03 31	04 21	19 45	19 46	19 46	19 47	
	07	283 59.0	24.3	101 54.0	9.9	12 36.6	15.4	59.7	N 58	02 40	03 43	04 29	19 40	19 44	19 48	19 53	
	08	298 59.1	23.5	116 22.9	9.9	12 21.2	15.6	59.8	56	02 57	03 54	04 36	19 36	19 43	19 50	19 58	
	09	313 59.2	22.7	130 51.8	10.0	12 05.6	15.5	59.8	54	03 11	04 03	04 43	19 31	19 42	19 52	20 03	
	10	328 59.4	21.9	145 20.8	10.1	11 50.1	15.7	59.8	52	03 23	04 11	04 49	19 28	19 41	19 54	20 08	
	11	343 59.5	21.1	159 49.9	10.1	11 34.4	15.8	59.8	50	03 33	04 18	04 54	19 24	19 40	19 55	20 12	
	12	358 59.6	N13 20.3	174 19.0	10.1	S11 18.6	15.8	59.8	45	03 54	04 33	05 05	19 17	19 38	19 59	20 21	
	13	13 59.8	19.5	188 48.1	10.1	11 02.8	15.8	59.9	N 40	04 11	04 45	05 14	19 10	19 36	20 02	20 28	
	14	28 59.9	18.7	203 17.2	10.2	10 47.0	16.0	59.9	35	04 24	04 55	05 22	19 05	19 35	20 04	20 35	
	15	44 00.0	17.9	217 46.4	10.3	10 31.0	16.0	59.9	30	04 34	05 04	05 29	19 00	19 33	20 06	20 40	
	16	59 00.2	17.1	232 15.7	10.2	10 15.0	16.1	59.9	20	04 51	05 18	05 41	18 51	19 31	20 10	20 50	
	17	74 00.3	16.3	246 44.9	10.3	9 58.9	16.1	59.9	N 10	05 04	05 29	05 51	18 44	19 29	20 14	20 59	
	18	89 00.4	N13 15.5	261 14.2	10.4	S 9 42.8	16.3	59.9	0	05 15	05 39	06 00	18 37	19 27	20 17	21 08	
	19	104 00.6	14.7	275 43.6	10.4	9 26.5	16.2	60.0	S 10	05 23	05 48	06 10	18 30	19 25	20 20	21 16	
	20	119 00.7	13.9	290 13.0	10.4	9 10.3	16.4	60.0	20	05 31	05 57	06 20	18 22	19 23	20 24	21 25	
	21	134 00.9	13.1	304 42.4	10.4	8 53.9	16.3	60.0	30	05 38	06 06	06 31	18 14	19 21	20 28	21 36	
	22	149 01.0	12.3	319 11.8	10.5	8 37.6	16.5	60.0	35	05 41	06 11	06 37	18 09	19 20	20 31	21 42	
23	164 01.1	11.5	333 41.3	10.5	8 21.1	16.5	60.0	40	05 45	06 16	06 44	18 03	19 18	20 33	21 49		
VIERNES	18 00	179 01.3	N13 10.7	348 10.8	10.5	S 8 04.6	16.5	60.0	45	05 48	06 22	06 53	17 56	19 17	20 36	21 57	
	01	194 01.4	09.9	2 40.3	10.6	7 48.1	16.6	60.1	S 50	05 51	06 29	07 03	17 48	19 14	20 40	22 07	
	02	209 01.5	09.1	17 09.9	10.6	7 31.5	16.7	60.1	52	05 53	06 32	07 07	17 45	19 14	20 42	22 12	
	03	224 01.7	08.3	31 39.5	10.6	7 14.8	16.7	60.1	54	05 54	06 35	07 12	17 41	19 12	20 44	22 17	
	04	239 01.8	07.5	46 09.1	10.6	6 58.1	16.7	60.1	56	05 55	06 39	07 18	17 36	19 11	20 46	22 22	
	05	254 02.0	06.7	60 38.7	10.7	6 41.4	16.8	60.1	58	05 57	06 43	07 24	17 31	19 10	20 49	22 29	
	06	269 02.1	N13 05.9	75 08.4	10.7	S 6 24.6	16.8	60.1	S 60	05 58	06 47	07 31	17 25	19 09	20 52	22 36	
	07	284 02.2	05.1	89 38.1	10.7	6 07.8	16.8	60.1	Lat.	Ocaso Sol	Crepúsculo Civil	Ocaso Luna					
	08	299 02.4	04.3	104 07.8	10.7	5 51.0	16.9	60.1	Náut.	17	18	19	20				
	09	314 02.5	03.4	118 37.5	10.8	5 34.1	17.0	60.2	o	h	m	h	m	h	m	h	m
	10	329 02.7	02.6	133 07.3	10.8	5 17.1	16.9	60.2	N 72	21 19	///	///	02 46	05 34	08 02	10 33	
	11	344 02.8	01.8	147 37.1	10.8	5 00.2	17.0	60.2	N 70	20 53	22 45	///	03 16	05 44	08 01	10 19	
	12	359 02.9	N13 01.0	162 06.9	10.8	S 4 43.2	17.1	60.2	68	20 33	21 58	///	03 38	05 52	08 00	10 08	
	13	14 03.1	13 00.2	176 36.7	10.8	4 26.1	17.0	60.2	66	20 18	21 28	///	03 55	05 59	07 59	10 00	
	14	29 03.2	12 59.4	191 06.5	10.9	4 09.1	17.1	60.2	64	20 05	21 06	22 55	04 08	06 05	07 58	09 52	
	15	44 03.4	58.6	205 36.4	10.8	3 52.0	17.1	60.2	62	19 54	20 49	22 12	04 20	06 10	07 58	09 46	
	16	59 03.5	57.8	220 06.2	10.9	3 34.9	17.1	60.2	60	19 45	20 34	21 45	04 30	06 14	07 57	09 41	
	17	74 03.6	57.0	234 36.1	10.9	3 17.8	17.2	60.2	N 58	19 37	20 22	21 25	04 38	06 18	07 57	09 36	
	18	89 03.8	N12 56.2	249 06.0	10.9	S 3 00.6	17.2	60.2	56	19 30	20 12	21 08	04 45	06 21	07 56	09 32	
	19	104 03.9	55.3	263 35.9	10.9	2 43.4	17.1	60.3	54	19 24	20 03	20 54	04 52	06 24	07 56	09 28	
	20	119 04.1	54.5	278 05.8	10.9	2 26.3	17.2	60.3	52	19 18	19 55	20 43	04 58	06 27	07 56	09 24	
	21	134 04.2	53.7	292 35.7	10.9	2 09.1	17.3	60.3	50	19 13	19 48	20 33	05 03	06 29	07 55	09 21	
	22	149 04.4	52.9	307 05.6	10.9	1 51.8	17.2	60.3	45	19 02	19 33	20 12	05 14	06 35	07 55	09 15	
23	164 04.5	52.1	321 35.5	10.9	1 34.6	17.2	60.3	N 40	18 53	19 21	19 56	05 23	06 39	07 54	09 09		
SABADO	19 00	179 04.6	N12 51.3	336 05.4	11.0	S 1 17.4	17.3	60.3	35	18 45	19 12	19 43	05 31	06 43	07 53	09 04	
	01	194 04.8	50.5	350 35.4	10.9	1 00.1	17.2	60.3	30	18 38	19 03	19 33	05 38	06 46	07 53	09 00	
	02	209 04.9	49.7	5 05.3	10.9	0 42.9	17.3	60.3	20	18 27	18 49	19 16	05 50	06 51	07 52	08 53	
	03	224 05.1	48.8	19 35.2	11.0	0 25.6	17.3	60.3	N 10	18 17	18 38	19 03	06 00	06 56	07 51	08 47	
	04	239 05.2	48.0	34 05.2	10.9	S 0 08.3	17.2	60.3	0	18 07	18 28	18 53	06 10	07 01	07 51	08 41	
	05	254 05.4	47.2	48 35.1	11.0	N 0 08.9	17.3	60.3	S 10	17 58	18 19	18 44	06 20	07 05	07 50	08 35	
	06	269 05.5	N12 46.4	63 05.1	10.9	N 0 26.2	17.3	60.3	20	17 48	18 11	18 37	06 30	07 10	07 49	08 29	
	07	284 05.6	45.6	77 35.0	10.9	0 43.5	17.2	60.3	30	17 37	18 02	18 30	06 41	07 15	07 48	08 22	
	08	299 05.8	44.8	92 04.9	10.9	1 00.7	17.3	60.3	35	17 31	17 57	18 27	06 47	07 18	07 48	08 18	
	09	314 05.9	43.9	106 34.8	10.9	1 18.0	17.3	60.3	40	17 24	17 52	18 23	06 55	07 22	07 47	08 13	
	10	329 06.1	43.1	121 04.7	10.9	1 35.3	17.2	60.3	45	17 16	17 46	18 20	07 03	07 26	07 46	08 08	
	11	344 06.2	42.3	135 34.6	10.9	1 52.5	17.2	60.3	S 50	17 06	17 39	18 17	07 13	07 30	07 46	08 01	
	12	359 06.4	N12 41.5	150 04.5	10.9	N 2 09.7	17.2	60.3	52	17 01	17 36	18 16	07 18	07 32	07 45	07 58	
	13	14 06.5	40.7	164 34.4	10.9	2 26.9	17.2	60.3	54	16 56	17 33	18 14	07 23	07 35	07 45	07 55	
	14	29 06.7	39.9	179 04.3	10.9	2 44.1	17.2	60.3	56	16 50	17 30	18 13	07 29	07 37	07 44	07 52	
	15	44 06.8	39.0	193 34.2	10.8	3 01.3	17.2	60.3	58	16 44	17 26	18 12	07 35	07 40	07 44	07 48	
	16	59 06.9	38.2	208 04.0	10.8	3 18.5	17.2	60.3	S 60	16 37	17 21	18 10	07 42	07 43	07 43	07 44	
	17	74 07.1	37.4	222 33.8	10.8	3 35.7	17.1	60.3	Día	SOL E.T. (-)		LUNA					
	18	89 07.2	N12 36.6	237 03.6	10.8	N 3 52.8	17.1	60.3	00 h	12 h	Pas. Mer.	Pas. Mer.		Edad.	Fase		



T.M.G. (TU)	ARIES		VENUS -4.0		MARTE +1.8		JUPITER -2.1		SATURNO +0.3		ESTRELLAS													
	A.H.G.	Dec.	A.H.G.	Dec.	A.H.G.	Dec.	A.H.G.	Dec.	A.H.G.	Dec.	Nombre	A. H. S.	Dec.											
2000	328	18.6	145	56.6	S 0	16.7	166	00.9	N 8	37.0	234	07.6	N23	04.1	49	57.6	S22	41.3	Acamar	315	31.7	S40	20.3	
	343	21.0	160	56.3		18.0	181	01.9		36.4	249	09.6		04.1	65	00.2		41.3	Achernar	335	39.4	S57	16.9	
	02	358	23.5	175	56.1		19.3	196	02.9		35.8	264	11.6		04.1	80	02.7		41.3	Acrux	173	30.3	S63	02.7
	03	13	25.9	190	55.9		20.5	211	03.9		35.2	279	13.6		04.1	95	05.3		41.3	Adhara	255	26.9	S28	57.1
	04	28	28.4	205	55.7		21.8	226	04.9		34.6	294	15.5		04.1	110	07.8		41.3	Aldebaran	291	10.0	N16	29.5
	05	43	30.9	220	55.5		23.1	241	05.8		34.0	309	17.5		04.1	125	10.4		41.3					
	06	58	33.3	235	55.3	S 0	24.4	256	06.8	N 8	33.4	324	19.5	N23	04.0	140	13.0	S22	41.3	Alioth	166	36.4	N56	01.1
	07	73	35.8	250	55.1		25.7	271	07.8		32.7	339	21.5		04.0	155	15.5		41.3	Alkaid	153	13.0	N49	22.1
	08	88	38.3	265	54.8		27.0	286	08.8		32.1	354	23.5		04.0	170	18.1		41.3	Al Na'ir	28	05.5	S47	00.6
	09	103	40.7	280	54.6		28.3	301	09.8		31.5	9	25.4		04.0	185	20.6		41.3	Alnilam	276	04.7	S 1	12.2
	10	118	43.2	295	54.4		29.6	316	10.8		30.9	24	27.4		04.0	200	23.2		41.4	Alphard	218	14.0	S 8	36.7
	11	133	45.7	310	54.2		30.9	331	11.7		30.3	39	29.4		04.0	215	25.7		41.4					
	12	148	48.1	325	54.0	S 0	32.2	346	12.7	N 8	29.7	54	31.4	N23	04.0	230	28.3	S22	41.4	Alphecca	126	26.1	N26	45.1
	13	163	50.6	340	53.8		33.5	1	13.7		29.0	69	33.4		04.0	245	30.9		41.4	Alpheratz	358	01.9	N29	02.1
	14	178	53.0	355	53.5		34.7	16	14.7		28.4	84	35.4		04.0	260	33.4		41.4	Altair	62	25.4	N 8	50.5
	15	193	55.5	10	53.3		36.0	31	15.7		27.8	99	37.3		03.9	275	36.0		41.4	Ankaa	353	32.8	S42	21.4
	16	208	58.0	25	53.1		37.3	46	16.7		27.2	114	39.3		03.9	290	38.5		41.4	Antares	112	48.2	S26	24.8
	17	224	00.4	40	52.9		38.6	61	17.7		26.6	129	41.3		03.9	305	41.1		41.4					
	18	239	02.9	55	52.7	S 0	39.9	76	18.6	N 8	26.0	144	43.3	N23	03.9	320	43.6	S22	41.4	Arcturus	146	12.1	N19	14.2
	19	254	05.4	70	52.5		41.2	91	19.6		25.4	159	45.3		03.9	335	46.2		41.4	Atria	108	06.1	S69	01.0
	20	269	07.8	85	52.3		42.5	106	20.6		24.7	174	47.3		03.9	350	48.7		41.5	Avior	234	26.1	S59	28.3
	21	284	10.3	100	52.0		43.8	121	21.6		24.1	189	49.2		03.9	5	51.3		41.5	Bellatrix	278	51.3	N 6	20.7
	22	299	12.8	115	51.8		45.1	136	22.6		23.5	204	51.2		03.9	20	53.9		41.5	Betelgeuse	271	20.8	N 7	24.6
23	314	15.2	130	51.6		46.4	151	23.6		22.9	219	53.2		03.9	35	56.4		41.5						
2100	329	17.7	145	51.4	S 0	47.7	166	24.5	N 8	22.3	234	55.2	N23	03.8	50	59.0	S22	41.5	Canopus	264	04.4	S52	41.0	
	344	20.2	160	51.2		48.9	181	25.5		21.7	249	57.2		03.8	66	01.5		41.5	Capella	281	01.1	N45	59.3	
	02	359	22.6	175	51.0		50.2	196	26.5		21.0	264	59.2		03.8	81	04.1		41.5	Deneb	49	43.4	N45	14.7
	03	14	25.1	190	50.8		51.5	211	27.5		20.4	280	01.1		03.8	96	06.6		41.5	Denebola	182	52.1	N14	37.9
	04	29	27.5	205	50.6		52.8	226	28.5		19.8	295	03.1		03.8	111	09.2		41.5	Diphda	349	13.5	S18	02.3
	05	44	30.0	220	50.3		54.1	241	29.5		19.2	310	05.1		03.8	126	11.7		41.5					
	06	59	32.5	235	50.1	S 0	55.4	256	30.5	N 8	18.6	325	07.1	N23	03.8	141	14.3	S22	41.6	Dubhe	194	13.8	N61	48.5
	07	74	34.9	250	49.9		56.7	271	31.4		18.0	340	09.1		03.8	156	16.8		41.6	Elnath	278	35.4	N28	36.1
	08	89	37.4	265	49.7		58.0	286	32.4		17.3	355	11.1		03.8	171	19.4		41.6	Eltanin	90	54.2	N51	29.5
	09	104	39.9	280	49.5	0	59.3	301	33.4		16.7	10	13.0		03.8	186	21.9		41.6	Enif	34	04.4	N 9	49.7
	10	119	42.3	295	49.3	1	00.6	316	34.4		16.1	25	15.0		03.7	201	24.5		41.6	Fomalhaut	15	43.2	S29	40.5
	11	134	44.8	310	49.1		01.9	331	35.4		15.5	40	17.0		03.7	216	27.0		41.6					
	12	149	47.3	325	48.8	S 1	03.1	346	36.4	N 8	14.9	55	19.0	N23	03.7	231	29.6	S22	41.6	Gacrux	172	21.7	S57	03.5
	13	164	49.7	340	48.6		04.4	1	37.4		14.3	70	21.0		03.7	246	32.2		41.6	Gienah	176	11.1	S17	29.1
	14	179	52.2	355	48.4		05.7	16	38.3		13.6	85	23.0		03.7	261	34.7		41.6	Hadar	149	14.0	S60	19.7
	15	194	54.7	10	48.2		07.0	31	39.3		13.0	100	25.0		03.7	276	37.3		41.6	Hamal	328	20.9	N23	24.9
	16	209	57.1	25	48.0		08.3	46	40.3		12.4	115	26.9		03.7	291	39.8		41.7	Kaus Aust.	84	07.3	S34	23.6
	17	224	59.6	40	47.8		09.6	61	41.3		11.8	130	28.9		03.7	306	42.4		41.7					
	18	240	02.0	55	47.6	S 1	10.9	76	42.3	N 8	11.2	145	30.9	N23	03.7	321	44.9	S22	41.7	Kochab	137	19.0	N74	12.1
	19	255	04.5	70	47.4		12.2	91	43.3		10.6	160	32.9		03.6	336	47.5		41.7	Markab	13	55.9	N15	09.1
	20	270	07.0	85	47.1		13.5	106	44.2		09.9	175	34.9		03.6	351	50.0		41.7	Menkar	314	33.7	N 4	03.2
	21	285	09.4	100	46.9		14.8	121	45.2		09.3	190	36.9		03.6	6	52.6		41.7	Menkent	148	29.0	S36	19.4
	22	300	11.9	115	46.7		16.1	136	46.2		08.7	205	38.9		03.6	21	55.1		41.7	Miaplacidus	221	44.8	S69	40.3
23	315	14.4	130	46.5		17.3	151	47.2		08.1	220	40.9		03.6	36	57.7		41.7						
2200	330	16.8	145	46.3	S 1	18.6	166	48.2	N 8	07.5	235	42.8	N23	03.6	52	00.2	S22	41.7	Mirfak	309	06.1	N49	49.5	
	345	19.3	160	46.1		19.9	181	49.2		06.9	250	44.8		03.6	67	02.8		41.7	Nunki	76	20.2	S26	18.7	
	02	0	21.8	175	45.9		21.2	196	50.2		06.2	265	46.8		03.6	82	05.3		41.8	Peacock	53	46.6	S56	46.2
	03	15	24.2	190	45.7		22.5	211	51.1		05.6	280	48.8		03.6	97	07.9		41.8	Pollux	243	49.8	N28	03.2
	04	30	26.7	205	45.4		23.8	226	52.1		05.0	295	50.8		03.5	112	10.4		41.8	Procyon	245	18.7	N 5	15.3
	05	45	29.1	220	45.2		25.1	241	53.1		04.4	310	52.8		03.5	127	13.0		41.8					
	06	60	31.6	235	45.0	S 1	26.4	256	54.1	N 8	03.8	325	54.8	N23	03.5	142	15.5	S22	41.8	Rasalhague	96	22.9	N12	34.1
	07	75	34.1	250	44.8		27.7	271	55.1		03.1	340	56.8		03.5	157	18.1		41.8	Regulus	208	02.8	N12	01.2
	08	90	36.5	265	44.6		29.0	286	56.1		02.5	355	58.8		03.5	172	20.6		41.8	Rigel	281	29.4	S 8	12.5
	09	105	39.0	280	44.4		30.3	301	57.1		01.9	11	00.7		03.5	187	23.2		41.8	Rigil Kent.	140	16.7	S60	47.9
	10	120	41.5	295	44.2		31.5	316	58.0		01.3	26	02.7		03.5	202	25.7		41.8	Sabik	102	33.0	S15	42.9
	11	135	43.9	310	44.0		32.8	331	59.0		00.7	41	04.7		03.5	217	28.3		41.8					
	12	150	46.4	325	43.7	S 1	34.1	347	00.0	N 8	00.0	56	06.7	N23	03.4	232	30.8	S22	41.9	Schedar	350	00.9	N56	28.8
	13	165	48.9	340	43.5		35.4	2	01.0	7	59.4	71	08.7		03.4	247	33.4		41.9	Shaula	96	46.1	S37	06.0
	14	180	51.3	355	43.3		36.7	17	02.0		58.8	86	10.7		03.4	262	35.9		41.9	Sirius	258	49.7	S16	41.8
	15	195	53.8	10	43.1		38.0	32	03.0															



T.M.G. (TU)	SOL		LUNA				Lat.	Crepúsculo		Orto Sol	Orto Luna							
	A.H.G.	Dec.	A.H.G.	v	Dec.	d		P.H.	Náut.		Civil	20		21		22		23
										h		m	h	m	h	m	h	m
DOMINGO	179	08.1	N12	31.7	324	02.1	10.7	N 5	35.0	16.9	60.3	03 02	18 42	17 33	□	□		
	194	08.3		30.8	338	31.8	10.6	5	51.9	16.9	60.3	01 44	18 58	18 14	□	□		
	209	08.4		30.0	353	01.4	10.6	6	08.8	16.9	60.3	02 23	19 12	18 43	17 39	□		
	224	08.6	..	29.2	7	31.0	10.6	6	25.7	16.8	60.3	02 50	19 23	19 04	18 34	□		
	239	08.7		28.4	22	00.6	10.6	6	42.5	16.8	60.3	01 31	19 32	19 22	19 08	18 39		
	254	08.9		27.5	36	30.2	10.5	6	59.3	16.7	60.3	02 07	19 40	19 36	19 33	19 30		
	269	09.0	N12	26.7	50	59.7	10.5	N 7	16.0	16.7	60.3	02 31	19 47	19 49	19 53	20 02		
	284	09.2		25.9	65	29.2	10.5	7	32.7	16.6	60.2	02 50	19 53	19 59	20 09	20 26		
	299	09.3		25.1	79	58.7	10.4	7	49.3	16.6	60.2	03 06	19 58	20 09	20 23	20 46		
	314	09.5	..	24.2	94	28.1	10.4	8	05.9	16.6	60.2	03 19	20 03	20 17	20 35	21 02		
	329	09.6		23.4	108	57.5	10.4	8	22.5	16.5	60.2	03 30	20 08	20 24	20 46	21 16		
	344	09.8		22.6	123	26.9	10.3	8	39.0	16.4	60.2	03 39	20 12	20 31	20 56	21 28		
	359	09.9	N12	21.8	137	56.2	10.3	N 8	55.4	16.4	60.2	03 59	20 21	20 46	21 16	21 54		
	14	10.1		20.9	152	25.5	10.2	9	11.8	16.3	60.2	04 14	20 28	20 58	21 32	22 14		
	29	10.2		20.1	166	54.7	10.2	9	28.1	16.3	60.2	04 26	20 35	21 08	21 47	22 31		
	44	10.4	..	19.3	181	23.9	10.2	9	44.4	16.2	60.2	04 36	20 40	21 17	21 59	22 46		
	59	10.5		18.5	195	53.1	10.1	10	00.6	16.1	60.2	04 52	20 50	21 33	22 20	23 11		
	74	10.7		17.6	210	22.2	10.1	10	16.7	16.1	60.2	05 04	20 59	21 47	22 38	23 33		
	89	10.8	N12	16.8	224	51.3	10.0	N10	32.8	16.0	60.2	05 14	21 08	22 00	22 56	23 54		
	104	11.0		16.0	239	20.3	10.0	10	48.8	16.0	60.1	05 22	21 16	22 14	23 13	24 14		
	119	11.1		15.1	253	49.3	9.9	11	04.8	15.9	60.1	05 29	21 25	22 28	23 32	24 37		
	134	11.3	..	14.3	268	18.2	9.9	11	20.7	15.8	60.1	05 35	21 36	22 45	23 54	25 02		
	149	11.4		13.5	282	47.1	9.9	11	36.5	15.7	60.1	05 38	21 42	22 54	24 07	00 07		
164	11.6		12.7	297	16.0	9.8	11	52.2	15.7	60.1	05 41	21 49	23 05	24 22	00 22			
179	11.7	N12	11.8	311	44.8	9.7	N12	07.9	15.6	60.1	05 43	21 57	23 18	24 40	00 40			
194	11.9		11.0	326	13.5	9.7	12	23.5	15.5	60.1	05 46	22 07	23 35	25 02	01 02			
209	12.0		10.2	340	42.2	9.7	12	39.0	15.4	60.1	05 47	22 12	23 42	25 12	01 12			
224	12.2	..	09.3	355	10.9	9.6	12	54.4	15.4	60.0	05 48	22 17	23 51	25 25	01 25			
239	12.3		08.5	9	39.5	9.5	13	09.8	15.3	60.0	05 49	22 22	24 00	00 00	01 39			
254	12.5		07.7	24	08.0	9.5	13	25.1	15.2	60.0	05 50	22 29	24 11	00 11	01 55			
269	12.7	N12	06.8	38	36.5	9.4	N13	40.3	15.1	60.0	05 51	22 36	24 24	00 24	02 15			
284	12.8		06.0	53	04.9	9.4	13	55.4	15.0	60.0	06 24	22 47	24 37	00 37	02 46			
299	13.0		05.2	67	33.3	9.3	14	10.4	14.9	60.0	06 26	22 52	24 48	00 48	03 01			
314	13.1	..	04.3	82	01.6	9.3	14	25.3	14.9	60.0	06 29	22 57	24 59	00 59	03 06			
329	13.3		03.5	96	29.9	9.2	14	40.2	14.7	59.9	06 32	23 02	25 10	01 10	03 11			
344	13.4		02.7	110	58.1	9.1	14	54.9	14.7	59.9	06 36	23 07	25 15	01 15	03 16			
359	13.6	N12	01.8	125	26.2	9.1	N15	09.6	14.5	59.9	06 39	23 12	25 20	01 20	03 21			
14	13.7		01.0	139	54.3	9.1	15	24.1	14.5	59.9	06 42	23 17	25 25	01 25	03 26			
29	13.9	12	00.2	154	22.4	8.9	15	38.6	14.4	59.9	06 46	23 22	25 30	01 30	03 31			
44	14.0	11	59.3	168	50.3	8.9	15	53.0	14.2	59.9	06 49	23 27	25 35	01 35	03 36			
59	14.2		58.5	183	18.2	8.9	16	07.2	14.2	59.8	06 52	23 32	25 40	01 40	03 41			
74	14.4		57.7	197	46.1	8.8	16	21.4	14.0	59.8	06 55	23 37	25 45	01 45	03 46			
89	14.5	N11	56.8	212	13.9	8.7	N16	35.4	14.0	59.8	06 58	23 42	25 50	01 50	03 51			
104	14.7		56.0	226	41.6	8.6	16	49.4	13.8	59.8	07 01	23 47	25 55	01 55	03 56			
119	14.8		55.2	241	09.2	8.6	17	03.2	13.8	59.8	07 04	23 52	26 00	02 00	04 01			
134	15.0	..	54.3	255	36.8	8.6	17	17.0	13.6	59.8	07 07	23 57	26 05	02 05	04 06			
149	15.1		53.5	270	04.4	8.4	17	30.6	13.5	59.7	07 10	24 02	26 10	02 10	04 11			
164	15.3		52.6	284	31.8	8.4	17	44.1	13.4	59.7	07 13	24 07	26 15	02 15	04 16			
179	15.5	N11	51.8	298	59.2	8.4	N17	57.5	13.3	59.7	07 16	24 12	26 20	02 20	04 21			
194	15.6		51.0	313	26.6	8.2	18	10.8	13.2	59.7	07 19	24 17	26 25	02 25	04 26			
209	15.8		50.1	327	53.8	8.2	18	24.0	13.1	59.7	07 22	24 22	26 30	02 30	04 31			
224	15.9	..	49.3	342	21.0	8.2	18	37.1	12.9	59.7	07 25	24 27	26 35	02 35	04 36			
239	16.1		48.4	356	48.2	8.1	18	50.0	12.9	59.6	07 28	24 32	26 40	02 40	04 41			
254	16.2		47.6	11	15.3	8.0	19	02.9	12.7	59.6	07 31	24 37	26 45	02 45	04 46			
269	16.4	N11	46.8	25	42.3	7.9	N19	15.6	12.5	59.6	07 34	24 42	26 50	02 50	04 51			
284	16.6		45.9	40	09.2	7.9	19	28.1	12.5	59.6	07 37	24 47	26 55	02 55	04 56			
299	16.7		45.1	54	36.1	7.8	19	40.6	12.3	59.6	07 40	24 52	27 00	03 00	05 01			
314	16.9	..	44.2	69	02.9	7.7	19	52.9	12.2	59.5	07 43	24 57	27 05	03 05	05 06			
329	17.0		43.4	83	29.6	7.7	20	05.1	12.1	59.5	07 46	25 02	27 10	03 10	05 11			
344	17.2		42.6	97	56.3	7.6	20	17.2	11.9	59.5	07 49	25 07	27 15	03 15	05 16			
359	17.4	N11	41.7	112	22.9	7.5	N20	29.1	11.8	59.5	07 52	25 12	27 20	03 20	05 21			
14	17.5		40.9	126	49.4	7.5	20	40.9	11.7	59.5	07 55	25 17	27 25	03 25	05 26			
29	17.7		40.0	141	15.9	7.4	20	52.6	11.6	59.4	07 58	25 22	27 30	03 30	05 31			
44	17.8	..	39.2	155	42.3	7.4	21	04.2	11.4	59.4	08 01	25 27	27 35	03 35	05 36			
59	18.0		38.4	170	08.7	7.2	21	15.6	11.3	59.4	08 04	25 32	27 40	03 40	05 41			
74	18.2		37.5	184	34.9	7.3	21	26.9	11.1	59.4	08 07	25 37	27 45	03 45	05 46			
89	18.3	N11	36.7	199	01.2	7.1	N21	38.0	11.0	59.4	08 10	25 42	27 50	03 50	05 51			
104	18.5		35.8	213	27.3	7.1	21	49.0	10.8	59.3	08 13	25 47	27 55	03 55	05 56			
119	18.6		35.0	227	53.4	7.0	21	59.8	10.7	59.3	08 16	25 52	28 00	04 00	06 01			
134	18.8	..	34.1	242	19.4	6.9	22	10.5	10.6	59.3	08 19	25 57	28 05	04 05	06 06			
149	19.0		33.3	256	45.3	6.9	22	21.1	10.4	59.3	08 22	26 02	28 10	04 10	06 11			
164	19.1		32.4	271	11.2	6.9	22	31.5	10.3	59.2	08 25	26 07	28 15	04 15	06 16			
S.D.	15.8	d	0.8	S.D.	16.4	16.3	16.2											
Día	SOL		LUNA				Crepúsculo		Ocaso Luna									
	E.T. (-)						Civil		Náut.		20		21		22		23	
	00 h	12 h					Pas. Mer.		Pas. Mer.		Pas. Mer.		Pas. Mer.		Pas. Mer.		Fase	
20	03 28	03 21					h m		h m		h m		h m		h m		d	
21	03 13	03 06					h m		h m		h m		h m		h m		19	
22	02 58	02 51					h m		h m		h m		h m		h m		20	





T.M.G. (TU)	ARIES			VENUS -4.0			MARTE +1.8			JUPITER -2.1			SATURNO +0.3			ESTRELLAS		
	d	h	A.H.G.	A.H.G.	Dec.	A.H.G.	Dec.	A.H.G.	Dec.	A.H.G.	Dec.	A.H.G.	Dec.	Nombre	A. H. S.	Dec.		
M I E R C O L E S	23	00	331 16.0	145 41.2	S 1 49.6	167 11.9	N 7 52.6	236 30.6	N23 03.3	53 01.4	S22 42.0	Acomar	315 31.7	S40 20.3				
	01	346 18.4	160 41.0	50.9	182 12.8	52.0	251 32.6	03.3	68 03.9	42.0	Achernar	335 39.4	S57 16.9					
	02	1 20.9	175 40.8	52.2	197 13.8	51.4	266 34.6	03.3	83 06.5	42.0	Acrux	173 30.3	S63 02.7					
	03	16 23.4	190 40.6	53.5	212 14.8	50.7	281 36.6	03.3	98 09.0	42.0	Adhara	255 26.9	S28 57.1					
	04	31 25.8	205 40.4	54.8	227 15.8	50.1	296 38.6	03.3	113 11.6	42.0	Aldebaran	291 10.0	N16 29.5					
	05	46 28.3	220 40.2	56.1	242 16.8	49.5	311 40.6	03.3	128 14.1	42.0								
	06	61 30.8	235 39.9	S 1 57.4	257 17.8	N 7 48.9	326 42.6	N23 03.2	143 16.7	S22 42.0	Alioth	166 36.5	N56 01.1					
	07	76 33.2	250 39.7	58.7	272 18.8	48.3	341 44.6	03.2	158 19.2	42.0	Alkaid	153 13.0	N49 22.0					
	08	91 35.7	265 39.5	1 59.9	287 19.8	47.6	356 46.6	03.2	173 21.7	42.1	Al Na'ir	28 05.5	S47 00.6					
	09	106 38.1	280 39.3	2 01.2	302 20.7	47.0	11 48.6	03.2	188 24.3	42.1	Alnilam	276 04.7	S 1 12.2					
	10	121 40.6	295 39.1	02.5	317 21.7	46.4	26 50.6	03.2	203 26.8	42.1	Alphard	218 14.0	S 8 36.7					
	11	136 43.1	310 38.9	03.8	332 22.7	45.8	41 52.5	03.2	218 29.4	42.1								
	12	151 45.5	325 38.7	S 2 05.1	347 23.7	N 7 45.2	56 54.5	N23 03.2	233 31.9	S22 42.1	Alphecca	126 26.1	N26 45.1					
	13	166 48.0	340 38.5	06.4	2 24.7	44.5	71 56.5	03.2	248 34.5	42.1	Alpheratz	358 01.8	N29 02.1					
	14	181 50.5	355 38.3	07.7	17 25.7	43.9	86 58.5	03.1	263 37.0	42.1	Altair	62 25.4	N 8 50.5					
	15	196 52.9	10 38.0	09.0	32 26.7	43.3	102 00.5	03.1	278 39.6	42.1	Ankaa	353 32.8	S42 21.4					
	16	211 55.4	25 37.8	10.3	47 27.6	42.7	117 02.5	03.1	293 42.1	42.1	Antares	112 48.2	S26 24.8					
	17	226 57.9	40 37.6	11.6	62 28.6	42.0	132 04.5	03.1	308 44.6	42.1								
	18	242 00.3	55 37.4	S 2 12.8	77 29.6	N 7 41.4	147 06.5	N23 03.1	323 47.2	S22 42.1	Arcturus	146 12.1	N19 14.2					
	19	257 02.8	70 37.2	14.1	92 30.6	40.8	162 08.5	03.1	338 49.7	42.2	Atria	108 06.1	S69 01.0					
	20	272 05.2	85 37.0	15.4	107 31.6	40.2	177 10.5	03.1	353 52.3	42.2	Avior	234 26.1	S59 28.3					
	21	287 07.7	100 36.8	16.7	122 32.6	39.6	192 12.5	03.1	8 54.8	42.2	Bellatrix	278 51.3	N 6 20.7					
	22	302 10.2	115 36.6	18.0	137 33.6	38.9	207 14.5	03.0	23 57.4	42.2	Betelgeuse	271 20.8	N 7 24.6					
23	317 12.6	130 36.4	19.3	152 34.6	38.3	222 16.5	03.0	38 59.9	42.2									
J U E V E S	24	00	332 15.1	145 36.1	S 2 20.6	167 35.5	N 7 37.7	237 18.5	N23 03.0	54 02.4	S22 42.2	Canopus	264 04.4	S52 41.0				
	01	347 17.6	160 35.9	21.9	182 36.5	37.1	252 20.5	03.0	69 05.0	42.2	Capella	281 01.1	N45 59.3					
	02	2 20.0	175 35.7	23.2	197 37.5	36.4	267 22.5	03.0	84 07.5	42.2	Deneb	49 43.4	N45 14.7					
	03	17 22.5	190 35.5	24.5	212 38.5	35.8	282 24.5	03.0	99 10.1	42.2	Denebola	182 52.1	N14 37.9					
	04	32 25.0	205 35.3	25.7	227 39.5	35.2	297 26.5	03.0	114 12.6	42.2	Diphda	349 13.5	S18 02.3					
	05	47 27.4	220 35.1	27.0	242 40.5	34.6	312 28.5	03.0	129 15.1	42.3								
	06	62 29.9	235 34.9	S 2 28.3	257 41.5	N 7 34.0	327 30.5	N23 02.9	144 17.7	S22 42.3	Dubhe	194 13.8	N61 48.5					
	07	77 32.4	250 34.7	29.6	272 42.5	33.3	342 32.5	02.9	159 20.2	42.3	Elnath	278 35.4	N28 36.1					
	08	92 34.8	265 34.5	30.9	287 43.4	32.7	357 34.5	02.9	174 22.8	42.3	Eltanin	90 54.2	N51 29.6					
	09	107 37.3	280 34.3	32.2	302 44.4	32.1	12 36.5	02.9	189 25.3	42.3	Enif	34 04.4	N 9 49.7					
	10	122 39.7	295 34.0	33.5	317 45.4	31.5	27 38.5	02.9	204 27.9	42.3	Fomalhaut	15 43.2	S29 40.5					
	11	137 42.2	310 33.8	34.8	332 46.4	30.8	42 40.5	02.9	219 30.4	42.3								
	12	152 44.7	325 33.6	S 2 36.1	347 47.4	N 7 30.2	57 42.5	N23 02.9	234 32.9	S22 42.3	Gacrux	172 21.7	S57 03.5					
	13	167 47.1	340 33.4	37.3	2 48.4	29.6	72 44.5	02.9	249 35.5	42.3	Gienah	176 11.1	S17 29.1					
	14	182 49.6	355 33.2	38.6	17 49.4	29.0	87 46.5	02.9	264 38.0	42.3	Hadar	149 14.0	S60 19.7					
	15	197 52.1	10 33.0	39.9	32 50.4	28.3	102 48.5	02.8	279 40.6	42.3	Hamal	328 20.9	N23 25.0					
	16	212 54.5	25 32.8	41.2	47 51.3	27.7	117 50.5	02.8	294 43.1	42.4	Kaus Aust.	84 07.3	S34 23.6					
	17	227 57.0	40 32.6	42.5	62 52.3	27.1	132 52.5	02.8	309 45.6	42.4								
	18	242 59.5	55 32.4	S 2 43.8	77 53.3	N 7 26.5	147 54.5	N23 02.8	324 48.2	S22 42.4	Kochab	137 19.1	N74 12.1					
	19	258 01.9	70 32.2	45.1	92 54.3	25.8	162 56.5	02.8	339 50.7	42.4	Markab	13 55.9	N15 09.1					
	20	273 04.4	85 31.9	46.4	107 55.3	25.2	177 58.5	02.8	354 53.3	42.4	Menkar	314 33.7	N 4 03.2					
	21	288 06.9	100 31.7	47.7	122 56.3	24.6	193 00.5	02.8	9 55.8	42.4	Menkent	148 29.0	S36 19.4					
	22	303 09.3	115 31.5	48.9	137 57.3	24.0	208 02.5	02.8	24 58.3	42.4	Miaplacidus	221 44.7	S69 40.3					
23	318 11.8	130 31.3	50.2	152 58.3	23.3	223 04.5	02.7	40 00.9	42.4									
V I E R N E S	25	00	333 14.2	145 31.1	S 2 51.5	167 59.3	N 7 22.7	238 06.5	N23 02.7	55 03.4	S22 42.4	Mirfak	309 06.1	N49 49.5				
	01	348 16.7	160 30.9	52.8	183 00.2	22.1	253 08.5	02.7	70 05.9	42.4	Nunki	76 20.2	S26 18.7					
	02	3 19.2	175 30.7	54.1	198 01.2	21.5	268 10.5	02.7	85 08.5	42.4	Pellcock	53 46.6	S56 46.2					
	03	18 21.6	190 30.5	55.4	213 02.2	20.8	283 12.5	02.7	100 11.0	42.5	Peacock	243 49.8	N28 03.2					
	04	33 24.1	205 30.3	56.7	228 03.2	20.2	298 14.5	02.7	115 13.6	42.5	Procyon	245 18.7	N 5 15.3					
	05	48 26.6	220 30.1	58.0	243 04.2	19.6	313 16.5	02.7	130 16.1	42.5								
	06	63 29.0	235 29.8	S 2 59.2	258 05.2	N 7 19.0	328 18.5	N23 02.7	145 18.6	S22 42.5	Rasalhague	96 22.9	N12 34.1					
	07	78 31.5	250 29.6	3 00.5	273 06.2	18.3	343 20.5	02.6	160 21.2	42.5	Regulus	208 02.8	N12 01.2					
	08	93 34.0	265 29.4	01.8	288 07.2	17.7	358 22.5	02.6	175 23.7	42.5	Rigel	281 29.4	S 8 12.5					
	09	108 36.4	280 29.2	03.1	303 08.1	17.1	13 24.5	02.6	190 26.2	42.5	Rigil Kent.	140 16.7	S60 47.9					
	10	123 38.9	295 29.0	04.4	318 09.1	16.5	28 26.5	02.6	205 28.8	42.5	Sabik	102 33.0	S15 42.9					
	11	138 41.4	310 28.8	05.7	333 10.1	15.8	43 28.5	02.6	220 31.3	42.5								
	12	153 43.8	325 28.6	S 3 07.0	348 11.1	N 7 15.2	58 30.5	N23 02.6	235 33.9	S22 42.5	Schedar	350 00.8	N56 28.8					
	13	168 46.3	340 28.4	08.3	3 12.1	14.6	73 32.5	02.6	250 36.4	42.5	Shaula	96 46.1	S37 06.0					
	14	183 48.7	355 28.2	09.5	18 13.1	14.0	88 34.5	02.5	265 38.9	42.6	Sirius	258 49.7	S16 41.8					
	15	198 51.2	10 28.0	10.8	33 14.1	13.3	103 36.5	02.5	280 41.5	42.6	Spica	158 50.4	S11 06.5					
	16	213 53.7	25 27.7	12.1	48 15.1	12.7	118 38.5	02.5	295 44.0	42.6	Suhail	223 06.2	S43 23.3					
	17	228 56.1	40 27.5	13.4	63 16.1	12.1	133 40.5	02.5	310 46.5	42.6								
	18	243 58.6	55 27.3	S 3 14.7	78 17.0	N 7 11.5	148 42.5	N23 02.5	325 49.1	S22 42.6	Vega	80 50.8	N38 46.5					
	19	259 01.1	70 27.1	16.0	93 18.0	10.8	163 44.5	02.5	340 51.6	42.6	Zuben'ubi	137 25.4	S16 00.1					
	20	274 03.5	85 26.9	17.3	108 19.0	10.2	178 46.6	02.5	355 54.1	42.6								
	21	289 06.0	100 26.7	18.6	123 20.0	09.6	193 48.6	02.5	10 56.7	42.6								
	22	304 08.5	115 26.5	19.8	138 21.0	09.0	208 50.6	02.4	25 59.2	42.6								
23	319 10.9	130 26.3	21.1	153 22.0	08.3	223 52.6	02.4	41 01.7	42.6									
Pas. Mer. 1 50.7			v -0.2 d 1.3			v 1.0 d 0.6			v 2.0 d 0.0			v 2.5 d 0.0			A. H. S. Pas. Mer.			
												o / h m						
												Venus			173 21.0 14 18			
												Marte			195 20.4 12 49			
												Júpiter			265 03.4 8 10			
												Saturno			81 47.3 20 20			



T.M.G. (TU)	SOL		LUNA				Lat.	Crepúsculo		Orto Sol	Orto Luna					
	A.H.G.	Dec.	A.H.G.	v	Dec.	d		P.H.	Naut.		Civil	23	24	25	26	
												h m	h m	h m	h m	
M I E R C O L E S	23 00	179 19.3	N11 31.6	285 37.1	6.7	N22 41.8	10.1	59.2	N 72	///	01 13	03 19	□	□	□	□
	01	194 19.5		300 02.8	6.7	22 51.9	10.0	59.2	N 70	///	02 08	03 39	□	□	□	□
	02	209 19.6		314 28.5	6.6	23 01.9	9.9	59.2	68	///	02 40	03 55	□	□	□	□
	03	224 19.8	..	328 54.1	6.6	23 11.8	9.6	59.2	66	01 04	03 03	04 08	□	□	□	□
	04	239 19.9		343 19.7	6.5	23 21.4	9.6	59.1	64	01 52	03 21	04 19	18 39	□	□	□
	05	254 20.1		357 45.2	6.5	23 31.0	9.4	59.1	62	02 21	03 36	04 28	19 30	19 31	20 13	22 07
	06	269 20.3	N11 26.5	12 10.7	6.4	N23 40.4	9.2	59.1	60	02 43	03 48	04 36	20 02	20 25	21 20	22 47
	07	284 20.4		26 36.1	6.3	23 49.6	9.0	59.1	N 58	03 00	03 58	04 42	20 26	20 58	21 54	23 14
	08	299 20.6		41 01.4	6.3	23 58.6	9.0	59.0	56	03 14	04 07	04 48	20 46	21 22	22 20	23 36
	09	314 20.8	..	55 26.7	6.2	24 07.6	8.7	59.0	54	03 26	04 15	04 54	21 02	21 42	22 40	23 53
	10	329 20.9		69 51.9	6.2	24 16.3	8.6	59.0	52	03 36	04 22	04 58	21 16	21 59	22 57	24 08
	11	344 21.1		84 17.1	6.1	24 24.9	8.4	59.0	50	03 45	04 28	05 03	21 28	22 13	23 11	24 21
	12	359 21.2	N11 21.4	98 42.2	6.1	N24 33.3	8.3	59.0	45	04 03	04 41	05 12	21 54	22 42	23 41	24 48
	13	14 21.4		113 07.3	6.0	24 41.6	8.1	58.9	N 40	04 18	04 52	05 20	22 14	23 05	24 04	00 04
	14	29 21.6		127 32.3	5.9	24 49.7	8.0	58.9	35	04 29	05 00	05 27	22 31	23 24	24 23	00 23
	15	44 21.7	..	141 57.2	5.9	24 57.7	7.8	58.9	30	04 38	05 08	05 32	22 46	23 40	24 39	00 39
	16	59 21.9		156 22.1	5.9	25 05.5	7.6	58.9	20	04 53	05 20	05 42	23 11	24 07	00 07	01 07
	17	74 22.1		170 47.0	5.8	25 13.1	7.5	58.8	N 10	05 05	05 30	05 51	23 33	24 31	00 31	01 30
	18	89 22.2	N11 16.3	185 11.8	5.8	N25 20.6	7.3	58.8	0	05 13	05 38	05 59	23 54	24 53	00 53	01 53
	19	104 22.4		199 36.6	5.7	25 27.9	7.1	58.8	S 10	05 21	05 46	06 07	24 14	00 14	01 16	02 15
	20	119 22.6		214 01.3	5.7	25 35.0	7.0	58.8	20	05 27	05 53	06 15	24 37	00 37	01 39	02 38
	21	134 22.7	..	228 26.0	5.6	25 42.0	6.8	58.7	30	05 32	06 00	06 24	25 02	01 02	02 07	03 06
	22	149 22.9		242 50.6	5.6	25 48.8	6.6	58.7	35	05 35	06 04	06 30	00 07	01 18	02 24	03 22
23	164 23.1		257 15.2	5.5	25 55.4	6.4	58.7	40	05 37	06 08	06 36	00 22	01 36	02 43	03 41	
								45	05 39	06 13	06 43	00 40	01 57	03 07	04 04	
J U E V E S	24 00	179 23.2	N11 11.2	271 39.7	5.6	N26 01.8	6.3	58.7	S 50	05 40	06 18	06 51	01 02	02 24	03 37	04 33
	01	194 23.4		286 04.3	5.4	26 08.1	6.1	58.6	52	05 41	06 20	06 55	01 12	02 38	03 51	04 48
	02	209 23.6		300 28.7	5.5	26 14.2	6.0	58.6	54	05 42	06 23	06 59	01 25	02 53	04 09	05 04
	03	224 23.7	..	314 53.2	5.4	26 20.2	5.8	58.6	56	05 42	06 25	07 04	01 39	03 12	04 30	05 24
	04	239 23.9		329 17.6	5.4	26 26.0	5.6	58.6	58	05 43	06 28	07 09	01 55	03 34	04 56	05 49
	05	254 24.1		343 42.0	5.3	26 31.6	5.4	58.6	S 60	05 43	06 31	07 15	02 15	04 03	05 33	06 22
	06	269 24.2	N11 06.1	358 06.3	5.3	N26 37.0	5.2	58.5								
	07	284 24.4		12 30.6	5.3	26 42.2	5.1	58.5	Lat.	Ocaso Sol	Crepúsculo Civil		Ocaso Luna			
	08	299 24.6		26 54.9	5.3	26 47.3	4.9	58.5					23	24	25	26
	09	314 24.7	..	41 19.2	5.2	26 52.2	4.7	58.5								
	10	329 24.9		55 43.4	5.2	26 56.9	4.6	58.4								
	11	344 25.1		70 07.6	5.2	27 01.5	4.4	58.4								
	12	359 25.2	N11 00.9	84 31.8	5.2	N27 05.9	4.2	58.4	N 72	20 41	22 39	///	□	□	□	□
	13	14 25.4	11 00.1	98 56.0	5.2	27 10.1	4.0	58.4	N 70	20 22	21 50	///	□	□	□	□
	14	29 25.6	10 59.2	113 20.2	5.2	27 14.1	3.8	58.3	68	20 07	21 20	///	□	□	□	□
	15	44 25.7	..	127 44.4	5.1	27 17.9	3.7	58.3	66	19 54	20 58	22 50	□	□	□	□
	16	59 25.9		142 08.5	5.1	27 21.6	3.5	58.3	64	19 44	20 41	22 07	16 27	□	□	□
	17	74 26.1		156 32.6	5.1	27 25.1	3.3	58.3	62	19 35	20 26	21 40	15 37	17 40	19 03	19 10
	18	89 26.3	N10 55.8	170 56.7	5.2	N27 28.4	3.2	58.2	60	19 27	20 15	21 19	15 05	16 46	17 57	18 30
	19	104 26.4		185 20.9	5.1	27 31.6	2.9	58.2	N 58	19 21	20 05	21 02	14 42	16 14	17 22	18 02
	20	119 26.6		199 45.0	5.1	27 34.5	2.8	58.2	56	19 15	19 56	20 49	14 23	15 50	16 56	17 40
	21	134 26.8	..	214 09.1	5.1	27 37.3	2.6	58.2	54	19 10	19 48	20 37	14 07	15 30	16 36	17 22
	22	149 26.9		228 33.2	5.1	27 39.9	2.4	58.1	52	19 05	19 41	20 27	13 53	15 14	16 19	17 07
23	164 27.1		242 57.3	5.1	27 42.3	2.3	58.1	50	19 01	19 35	20 18	13 41	15 00	16 04	16 54	
								45	18 52	19 23	20 00	13 17	14 31	15 35	16 26	
V I E R N E S	25 00	179 27.3	N10 50.6	257 21.4	5.1	N27 44.6	2.0	58.1	N 40	18 44	19 12	19 46	12 57	14 08	15 12	16 05
	01	194 27.4		271 45.5	5.1	27 46.6	1.9	58.1	35	18 37	19 04	19 35	12 41	13 50	14 52	15 47
	02	209 27.6		286 09.6	5.2	27 48.5	1.8	58.0	30	18 32	18 56	19 26	12 27	13 34	14 36	15 31
	03	224 27.8	..	300 33.8	5.1	27 50.3	1.5	58.0	20	18 22	18 45	19 11	12 03	13 07	14 08	15 05
	04	239 28.0		314 57.9	5.2	27 51.8	1.3	58.0	N 10	18 14	18 35	19 00	11 42	12 44	13 44	14 42
	05	254 28.1		329 22.1	5.1	27 53.1	1.2	58.0	0	18 06	18 27	18 51	11 23	12 22	13 22	14 20
	06	269 28.3	N10 45.5	343 46.2	5.2	N27 54.3	1.0	57.9	S 10	17 58	18 19	18 44	11 04	12 01	12 59	13 59
	07	284 28.5		358 10.4	5.2	27 55.3	0.9	57.9	20	17 50	18 12	18 38	10 44	11 37	12 35	13 36
	08	299 28.6		12 34.6	5.3	27 56.2	0.6	57.9	30	17 41	18 05	18 33	10 20	11 11	12 07	13 09
	09	314 28.8	..	26 58.9	5.2	27 56.8	0.5	57.9	35	17 35	18 01	18 31	10 06	10 55	11 51	12 53
	10	329 29.0		41 23.1	5.3	27 57.3	0.3	57.8	40	17 29	17 57	18 29	09 50	10 36	11 31	12 34
	11	344 29.2		55 47.4	5.3	27 57.6	0.1	57.8	45	17 23	17 52	18 27	09 32	10 14	11 08	12 12
	12	359 29.3	N10 40.3	70 11.7	5.3	N27 57.7	0.0	57.8	S 50	17 14	17 47	18 25	09 08	09 46	10 38	11 43
	13	14 29.5		84 36.0	5.4	27 57.7	0.3	57.8	52	17 11	17 45	18 24	08 57	09 33	10 23	11 29
	14	29 29.7		99 00.4	5.4	27 57.4	0.4	57.8	54	17 07	17 43	18 24	08 44	09 17	10 05	11 12
	15	44 29.9	..	113 24.8	5.4	27 57.0	0.5	57.7	56	17 02	17 40	18 23	08 30	08 58	09 45	10 52
	16	59 30.0		127 49.2	5.5	27 56.5	0.8	57.7	58	16 57	17 37	18 23	08 13	08 35	09 18	10 28
	17	74 30.2		142 13.7	5.5	27 55.7	0.9	57.7	S 60	16 51	17 34	18 23	07 52	08 06	08 41	09 55
	18	89 30.4	N10 35.1	156 38.2	5.6	N27 54.8	1.1	57.7								
	19	104 30.5		171 02.8	5.6	27 53.7	1.3	57.6								
	20	119 30.7		185 27.4	5.6	27 52.4	1.4	57.6								
	21	134 30.9	..	199 52.0	5.7											



T.M.G. (TU)	ARIES			VENUS -4.0			MARTE +1.8			JUPITER -2.1			SATURNO +0.3			ESTRELLAS		
	A.H.G.	A.H.G.	Dec.	A.H.G.	Dec.		A.H.G.	Dec.		A.H.G.	Dec.		A.H.G.	Dec.		Nombre	A. M. S.	Dec.
26 00	334 13.4	145 26.1	S 3 22.4	168 23.0	N 7 07.7		238 54.6	N23 02.4		56 04.3	S22 42.6		Acamar	315 31.6	S40 20.3			
01	349 15.8	160 25.8	23.7	183 24.0	07.1		253 56.6	02.4		71 06.8	42.7		Achernar	335 39.4	S57 17.0			
02	4 18.3	175 25.6	25.0	198 25.0	06.5		268 58.6	02.4		86 09.3	42.7		Acrux	173 30.3	S63 02.7			
03	19 20.8	190 25.4	26.3	213 25.9	05.8		284 00.6	02.4		101 11.9	42.7		Adhara	255 26.8	S28 57.1			
04	34 23.2	205 25.2	27.6	228 26.9	05.2		299 02.6	02.4		116 14.4	42.7		Aldebaran	291 10.0	N16 29.5			
05	49 25.7	220 25.0	28.8	243 27.9	04.6		314 04.6	02.4		131 16.9	42.7							
06	64 28.2	235 24.8	S 3 30.1	258 28.9	N 7 03.9		329 06.6	N23 02.3		146 19.5	S22 42.7		Alioth	166 36.5	N56 01.1			
07	79 30.6	250 24.6	31.4	273 29.9	03.3		344 08.6	02.3		161 22.0	42.7		Alkaid	153 13.0	N49 22.0			
08	94 33.1	265 24.4	32.7	288 30.9	02.7		359 10.6	02.3		176 24.5	42.7		Al Na'ir	28 05.4	S47 00.6			
S 09	109 35.6	280 24.2	34.0	303 31.9	02.1		14 12.6	02.3		191 27.1	42.7		Alnilam	276 04.6	S 1 12.2			
A 10	124 38.0	295 24.0	35.3	318 32.9	01.4		29 14.6	02.3		206 29.6	42.7		Alphard	218 14.0	S 8 36.7			
B 11	139 40.5	310 23.7	36.6	333 33.9	00.8		44 16.7	02.3		221 32.1	42.7							
A 12	154 43.0	325 23.5	S 3 37.8	348 34.8	N 7 00.2		59 18.7	N23 02.3		236 34.7	S22 42.8		Alphecca	126 26.1	N26 45.1			
D 13	169 45.4	340 23.3	39.1	3 35.8	6 59.6		74 20.7	02.3		251 37.2	42.8		Alpheratz	358 01.8	N29 02.1			
O 14	184 47.9	355 23.1	40.4	18 36.8	58.9		89 22.7	02.2		266 39.7	42.8		Altair	62 25.4	N 8 50.5			
15	199 50.3	10 22.9	41.7	33 37.8	58.3		104 24.7	02.2		281 42.3	42.8		Ankaa	353 32.7	S42 21.4			
16	214 52.8	25 22.7	43.0	48 38.8	57.7		119 26.7	02.2		296 44.8	42.8		Antares	112 48.2	S26 24.8			
17	229 55.3	40 22.5	44.3	63 39.8	57.0		134 28.7	02.2		311 47.3	42.8							
18	244 57.7	55 22.3	S 3 45.5	78 40.8	N 6 56.4		149 30.7	N23 02.2		326 49.9	S22 42.8		Arcturus	146 12.1	N19 14.2			
19	260 00.2	70 22.1	46.8	93 41.8	55.8		164 32.7	02.2		341 52.4	42.8		Atria	108 06.2	S69 01.0			
20	275 02.7	85 21.9	48.1	108 42.8	55.2		179 34.7	02.2		356 54.9	42.8		Avior	234 26.1	S59 28.3			
21	290 05.1	100 21.6	49.4	123 43.7	54.5		194 36.8	02.1		11 57.5	42.8		Bellatrix	278 51.3	N 6 20.7			
22	305 07.6	115 21.4	50.7	138 44.7	53.9		209 38.8	02.1		27 00.0	42.8		Betelgeuse	271 20.8	N 7 24.6			
23	320 10.1	130 21.2	52.0	153 45.7	53.3		224 40.8	02.1		42 02.5	42.9							
27 00	335 12.5	145 21.0	S 3 53.3	168 46.7	N 6 52.6		239 42.8	N23 02.1		57 05.0	S22 42.9		Canopus	264 04.4	S52 41.0			
01	350 15.0	160 20.8	54.5	183 47.7	52.0		254 44.8	02.1		72 07.6	42.9		Capella	281 01.1	N45 59.3			
02	5 17.5	175 20.6	55.8	198 48.7	51.4		269 46.8	02.1		87 10.1	42.9		Deneb	49 43.4	N45 14.7			
03	20 19.9	190 20.4	57.1	213 49.7	50.8		284 48.8	02.1		102 12.6	42.9		Denebola	182 52.1	N14 37.9			
04	35 22.4	205 20.2	58.4	228 50.7	50.1		299 50.8	02.1		117 15.2	42.9		Diphda	349 13.5	S18 02.3			
05	50 24.8	220 20.0	S 3 59.7	243 51.7	49.5		314 52.8	02.0		132 17.7	42.9							
06	65 27.3	235 19.7	S 4 01.0	258 52.7	N 6 48.9		329 54.9	N23 02.0		147 20.2	S22 42.9		Dubhe	194 13.8	N61 48.5			
07	80 29.8	250 19.5	02.2	273 53.6	48.2		344 56.9	02.0		162 22.8	42.9		Elnath	278 35.4	N28 36.1			
08	95 32.2	265 19.3	03.5	288 54.6	47.6		359 58.9	02.0		177 25.3	42.9		Eltanin	90 54.2	N51 29.6			
09	110 34.7	280 19.1	04.8	303 55.6	47.0		15 00.9	02.0		192 27.8	42.9		Enif	34 04.4	N 9 49.7			
10	125 37.2	295 18.9	06.1	318 56.6	46.3		30 02.9	02.0		207 30.3	43.0		Fomalhaut	15 43.2	S29 40.5			
11	140 39.6	310 18.7	07.4	333 57.6	45.7		45 04.9	02.0		222 32.9	43.0							
12	155 42.1	325 18.5	S 4 08.7	348 58.6	N 6 45.1		60 06.9	N23 01.9		237 35.4	S22 43.0		Gacrux	172 21.7	S57 03.5			
13	170 44.6	340 18.3	09.9	3 59.6	44.5		75 08.9	01.9		252 37.9	43.0		Gienah	176 11.1	S17 29.1			
14	185 47.0	355 18.1	11.2	19 00.6	43.8		90 11.0	01.9		267 40.4	43.0		Hadar	149 14.0	S60 19.7			
15	200 49.5	10 17.8	12.5	34 01.6	43.2		105 13.0	01.9		282 43.0	43.0		Hamal	328 20.9	N23 25.0			
16	215 51.9	25 17.6	13.8	49 02.6	42.6		120 15.0	01.9		297 45.5	43.0		Kaus Aust.	84 07.3	S34 23.6			
17	230 54.4	40 17.4	15.1	64 03.5	41.9		135 17.0	01.9		312 48.0	43.0							
18	245 56.9	55 17.2	S 4 16.3	79 04.5	N 6 41.3		150 19.0	N23 01.9		327 50.6	S22 43.0		Kochab	137 19.2	N74 12.0			
19	260 59.3	70 17.0	17.6	94 05.5	40.7		165 21.0	01.9		342 53.1	43.0		Markab	13 55.9	N15 09.1			
20	276 01.8	85 16.8	18.9	109 06.5	40.1		180 23.0	01.8		357 55.6	43.0		Menkar	314 33.7	N 4 03.2			
21	291 04.3	100 16.6	20.2	124 07.5	39.4		195 25.1	01.8		12 58.1	43.0		Menkent	148 29.0	S36 19.4			
22	306 06.7	115 16.4	21.5	139 08.5	38.8		210 27.1	01.8		28 00.7	43.1		Miaplacidus	221 44.7	S69 40.3			
23	321 09.2	130 16.2	22.8	154 09.5	38.2		225 29.1	01.8		43 03.2	43.1							
28 00	336 11.7	145 15.9	S 4 24.0	169 10.5	N 6 37.5		240 31.1	N23 01.8		58 05.7	S22 43.1		Mirfak	309 06.1	N49 49.5			
01	351 14.1	160 15.7	25.3	184 11.5	36.9		255 33.1	01.8		73 08.2	43.1		Nunki	76 20.2	S26 18.7			
02	6 16.6	175 15.5	26.6	199 12.5	36.3		270 35.1	01.8		88 10.8	43.1		Peacock	53 46.6	S56 46.3			
03	21 19.1	190 15.3	27.9	214 13.4	35.6		285 37.2	01.7		103 13.3	43.1		Pollux	243 49.8	N28 03.2			
04	36 21.5	205 15.1	29.2	229 14.4	35.0		300 39.2	01.7		118 15.8	43.1		Procyon	245 18.7	N 5 15.3			
05	51 24.0	220 14.9	30.4	244 15.4	34.4		315 41.2	01.7		133 18.3	43.1							
06	66 26.4	235 14.7	S 4 31.7	259 16.4	N 6 33.7		330 43.2	N23 01.7		148 20.9	S22 43.1		Rasalhague	96 22.9	N12 34.1			
07	81 28.9	250 14.5	33.0	274 17.4	33.1		345 45.2	01.7		163 23.4	43.1		Regulus	208 02.8	N12 01.2			
08	96 31.4	265 14.2	34.3	289 18.4	32.5		0 47.2	01.7		178 25.9	43.1		Rigel	281 29.3	S 8 12.5			
09	111 33.8	280 14.0	35.6	304 19.4	31.9		15 49.3	01.7		193 28.4	43.1		Rigil Kent.	140 16.7	S60 47.9			
L 10	126 36.3	295 13.8	36.8	319 20.4	31.2		30 51.3	01.6		208 31.0	43.2		Sabik	102 33.0	S15 42.9			
U 11	141 38.8	310 13.6	38.1	334 21.4	30.6		45 53.3	01.6		223 33.5	43.2							
E 12	156 41.2	325 13.4	S 4 39.4	349 22.4	N 6 30.0		60 55.3	N23 01.6		238 36.0	S22 43.2		Schedar	350 00.8	N56 28.8			
S 13	171 43.7	340 13.2	40.7	4 23.3	29.3		75 57.3	01.6		253 38.5	43.2		Shaula	96 46.1	S37 06.0			
14	186 46.2	355 13.0	42.0	19 24.3	28.7		90 59.4	01.6		268 41.1	43.2		Sirius	258 49.7	S16 41.8			
15	201 48.6	10 12.8	43.2	34 25.3	28.1		106 01.4	01.6		283 43.6	43.2		Spica	158 50.4				



T.M.G. (TU)	SOL		LUNA				Lat.	Crepúsculo		Orto Sol	Orto Luna				
	A.H.G.	Dec.	A.H.G.	v	Dec.	d		P.H.	Naut.		Civil	26	27	28	29
												h m	h m	h m	h m
26 S A B A D O	00	179 31.4 N10 29.9	243 06.2 5.8	N27 45.7	2.2	57.5	N 72	///	01 49	03 35	□	□	□	□	
	01	194 31.6 29.0	257 31.0 5.9	27 43.5	2.2	57.5	N 70	///	02 29	03 53	□	□	23 33	26 24	
	02	209 31.8 28.1	271 55.9 6.0	27 41.3	2.5	57.5	68	///	02 56	04 07	□	□	□	00 31	
	03	224 31.9 27.3	286 20.9 6.0	27 38.8	2.6	57.4	66	01 34	03 16	04 18	□	22 30	25 05	01 05	
	04	239 32.1 26.4	300 45.9 6.0	27 36.2	2.8	57.4	64	02 10	03 32	04 28	□	23 28	25 29	01 29	
	05	254 32.3 25.5	315 10.9 6.2	27 33.4	2.9	57.4	62	02 35	03 45	04 36	22 07	24 02	00 02	01 48	
	06	269 32.5 N10 24.7	329 36.1 6.1	N27 30.5	3.1	57.4	N 58	03 09	04 05	04 49	22 47	24 26	00 26	02 04	
	07	284 32.6 23.8	344 01.2 6.3	27 27.4	3.3	57.3	56	03 22	04 14	04 54	23 14	24 45	00 45	02 17	
	08	299 32.8 22.9	358 26.5 6.3	27 24.1	3.5	57.3	54	03 33	04 21	04 59	23 36	25 01	01 01	02 28	
	09	314 33.0 22.1	12 51.8 6.4	27 20.6	3.5	57.3	52	03 42	04 27	05 03	23 53	25 15	01 15	02 38	
	10	329 33.2 21.2	27 17.2 6.4	27 17.1	3.8	57.3	50	03 51	04 33	05 07	24 08	00 08	01 27	02 47	
	11	344 33.4 20.3	41 42.6 6.6	27 13.3	3.9	57.3	45	04 08	04 45	05 16	24 21	00 21	01 37	02 54	
	12	359 33.5 N10 19.5	56 08.2 6.6	N27 09.4	4.1	57.2	N 40	04 21	04 55	05 23	24 48	00 48	01 59	03 11	
	13	14 33.7 18.6	70 33.8 6.6	27 05.3	4.2	57.2	35	04 32	05 03	05 29	00 04	01 09	02 17	03 25	
	14	29 33.9 17.7	84 59.4 6.8	27 01.1	4.4	57.2	30	04 40	05 10	05 34	00 23	01 27	02 32	03 36	
	15	44 34.1 16.8	99 25.2 6.8	26 56.7	4.5	57.2	20	04 54	05 21	05 43	00 39	01 42	02 45	03 46	
	16	59 34.2 16.0	113 51.0 6.9	26 52.2	4.7	57.1	N 10	05 05	05 30	05 51	01 07	02 07	03 06	04 03	
	17	74 34.4 15.1	128 16.9 6.9	26 47.5	4.9	57.1	0	05 13	05 37	05 58	01 30	02 29	03 25	04 18	
	18	89 34.6 N10 14.2	142 42.8 7.1	N26 42.6	5.0	57.1	S 10	05 19	05 44	06 05	01 53	02 49	03 43	04 32	
	19	104 34.8 13.3	157 08.9 7.1	26 37.6	5.1	57.1	20	05 25	05 50	06 13	02 15	03 10	04 00	04 46	
	20	119 34.9 12.5	171 35.0 7.2	26 32.5	5.3	57.0	30	05 29	05 57	06 21	02 38	03 32	04 19	05 00	
	21	134 35.1 11.6	186 01.2 7.3	26 27.2	5.5	57.0	35	05 31	06 00	06 26	03 06	03 57	04 40	05 17	
	22	149 35.3 10.7	200 27.5 7.4	26 21.7	5.6	57.0	40	05 32	06 04	06 31	03 22	04 12	04 52	05 27	
23	164 35.5 09.8	214 53.9 7.4	26 16.1	5.7	57.0	45	05 34	06 08	06 38	03 41	04 29	05 07	05 38		
27 D O M I N G O	00	179 35.7 N10 09.0	229 20.3 7.6	N26 10.4	5.9	57.0	S 50	05 35	06 12	06 45	04 33	05 15	05 44	06 06	
	01	194 35.8 08.1	243 46.9 7.6	26 04.5	6.0	56.9	52	05 35	06 14	06 48	04 48	05 27	05 54	06 13	
	02	209 36.0 07.2	258 13.5 7.7	25 58.5	6.2	56.9	54	05 35	06 16	06 52	05 04	05 41	06 05	06 21	
	03	224 36.2 06.3	272 40.2 7.9	25 52.3	6.3	56.9	56	05 35	06 18	06 56	05 24	05 58	06 18	06 30	
	04	239 36.4 05.5	287 07.1 7.8	25 46.0	6.4	56.9	58	05 35	06 21	07 01	05 49	06 17	06 32	06 41	
	05	254 36.6 04.6	301 33.9 8.0	25 39.6	6.6	56.8	S 60	05 35	06 23	07 06	06 22	06 42	06 49	06 52	
	06	269 36.7 N10 03.7	316 00.9 8.1	N25 33.0	6.7	56.8									
	07	284 36.9 02.8	330 28.0 8.2	25 26.3	6.9	56.8									
	08	299 37.1 02.0	344 55.2 8.2	25 19.4	7.0	56.8									
	09	314 37.3 01.1	359 22.4 8.4	25 12.4	7.1	56.8									
	10	329 37.5 10 00.2	13 49.8 8.5	25 05.3	7.3	56.7									
	11	344 37.6 9 59.3	28 17.3 8.5	24 58.0	7.4	56.7									
	12	359 37.8 N 9 58.5	42 44.8 8.6	N24 50.6	7.5	56.7	N 72	20 24	22 06	///	□	□	□	20 41	
	13	14 38.0 57.6	57 12.4 8.8	24 43.1	7.7	56.7	N 70	20 07	21 29	///	□	□	21 25	20 10	
	14	29 38.2 56.7	71 40.2 8.8	24 35.4	7.7	56.6	68	19 53	21 03	23 31	□	□	20 25	19 47	
	15	44 38.4 55.8	86 08.0 8.9	24 27.7	7.9	56.6	66	19 42	20 44	22 22	□	20 41	19 50	19 29	
	16	59 38.5 54.9	100 35.9 9.0	24 19.8	8.1	56.6	64	19 33	20 28	21 49	□	19 42	19 25	19 14	
	17	74 38.7 54.1	115 03.9 9.1	24 11.7	8.1	56.6	62	19 25	20 16	21 25	19 10	19 08	19 05	19 02	
	18	89 38.9 N 9 53.2	129 32.0 9.3	N24 03.6	8.3	56.6	N 58	19 19	20 05	21 06	18 30	18 43	18 49	18 51	
	19	104 39.1 52.3	144 00.3 9.3	23 55.3	8.4	56.5	56	19 13	19 56	20 51	18 02	18 23	18 35	18 42	
	20	119 39.3 51.4	158 28.6 9.4	23 46.9	8.5	56.5	54	19 07	19 48	20 39	17 40	18 07	18 23	18 33	
	21	134 39.4 50.5	172 57.0 9.5	23 38.4	8.6	56.5	52	19 03	19 41	20 28	17 22	17 52	18 12	18 26	
	22	149 39.6 49.7	187 25.5 9.6	23 29.8	8.8	56.5	50	18 59	19 34	20 19	17 07	17 40	18 03	18 19	
23	164 39.8 48.8	201 54.1 9.7	23 21.0	8.8	56.4	45	18 55	19 29	20 11	16 54	17 29	17 54	18 13		
28 L U N E S	00	179 40.0 N 9 47.9	216 22.8 9.8	N23 12.2	9.0	56.4	N 40	18 39	19 08	19 41	16 05	16 47	17 22	17 50	
	01	194 40.2 47.0	230 51.6 9.9	23 03.2	9.1	56.4	35	18 34	19 00	19 31	15 47	16 32	17 09	17 40	
	02	209 40.4 46.1	245 20.5 10.0	22 54.1	9.2	56.4	30	18 28	18 53	19 22	15 31	16 18	16 58	17 32	
	03	224 40.5 45.3	259 49.5 10.1	22 44.9	9.3	56.4	20	18 20	18 42	19 08	15 05	15 55	16 39	17 18	
	04	239 40.7 44.4	274 18.6 10.2	22 35.6	9.4	56.3	N 10	18 12	18 33	18 58	14 42	15 35	16 22	17 06	
	05	254 40.9 43.5	288 47.8 10.3	22 26.2	9.5	56.3	0	18 05	18 26	18 50	14 20	15 15	16 07	16 54	
	06	269 41.1 N 9 42.6	303 17.1 10.3	N22 16.7	9.6	56.3	S 10	17 58	18 19	18 44	13 59	14 56	15 51	16 42	
	07	284 41.3 41.7	317 46.4 10.5	22 07.1	9.8	56.3	20	17 50	18 13	18 39	13 36	14 36	15 34	16 29	
	08	299 41.5 40.8	332 15.9 10.6	21 57.3	9.8	56.3	30	17 42	18 06	18 34	13 09	14 12	15 14	16 15	
	09	314 41.6 40.0	346 45.5 10.7	21 47.5	9.9	56.2	35	17 38	18 03	18 33	12 53	13 58	15 03	16 06	
	10	329 41.8 39.1	1 15.2 10.8	21 37.6	10.1	56.2	40	17 32	18 00	18 31	12 34	13 41	14 50	15 56	
	11	344 42.0 38.2	15 45.0 10.8	21 27.5	10.1	56.2	45	17 26	17 56	18 30	12 12	13 22	14 34	15 45	
	12	359 42.2 N 9 37.3	30 14.8 11.0	N21 17.4	10.2	56.2	S 50	17 19	17 52	18 29	11 43	12 57	14 14	15 31	
	13	14 42.4 36.4	44 44.8 11.1	21 07.2	10.4	56.1	52	17 15	17 50	18 29	11 29	12 45	14 05	15 24	
	14	29 42.6 35.5	59 14.9 11.2	20 56.8	10.4	56.1	54	17 12	17 48	18 29	11 12	12 31	13 55	15 17	
	15	44 42.7 34.7	73 45.1 11.2	20 46.4	10.5	56.1	56	17 08	17 46	18 29	10 52	12 15	13 43	15 08	
	16	59 42.9 33.8	88 15.3 11.4	20 35.9	10.6	56.1	58	17 03	17 43	18 29	10 28	11 56	13 29	14 59	
	17	74 43.1 32.9	102 45.7 11.4	20 25.3	10.7	56.1	S 60	16 58	17 41	18 29	09 55	11 32	13 13	14 48	
	18	89 43.3 N 9 32.0	117 16.1 11.6	N20 14.6	10.8	56.0									
	19	104 43.5 31.1	131 46.7 11.6	20 03.8	10.9	56.0									
	20	119 43.7 30.2	146 17.3 11.7	19 52.9	10.9	56.0									
	21	134 43.9 29.3	160 48.0 11.9	19 42.0	11.1	56.0									
	22	149 44.0 28.4	175 18.9 11.9	19 30.9	11.1	56.0									
23	164 44.2 27.6	189 49.8 12.0	19 19.8	11.2	55.9										
	S.D. 15.9	d 0.9	S.D. 15.6	15.4	15.3										
						Día	SOL E.T. (-)		Pas. Mer.	LUNA					
							00 h	12 h		Pas. Sup.	Mer. Inf.	Edad.	Fase		



T.M.G. (TU)	ARIES			VENUS -4.0			MARTE +1.8			JUPITER -2.1			SATURNO +0.4			ESTRELLAS			
	A.H.G.	A.H.G.	Dec.	A.H.G.	Dec.		A.H.G.	Dec.		A.H.G.	Dec.		A.H.G.	Dec.		Nombre	A. H. S.	Dec.	
M A R T E S	29 00	337 10.8	145 10.9	S 4 54.7	169 34.2	N 6 22.4	241 19.6	N23 01.5	59 06.3	S22 43.3			Acomar	315 31.6	S40 20.3				
	01	352 13.3	160 10.6	56.0	184 35.2	21.7	256 21.6	01.4	74 08.8	43.3			Achernar	335 39.3	S57 17.0				
	02	7 15.7	175 10.4	57.3	199 36.2	21.1	271 23.6	01.4	89 11.3	43.3			Acru	173 30.3	S63 02.7				
	03	22 18.2	190 10.2	58.6	214 37.2	20.5	286 25.6	01.4	104 13.9	43.3			Adhara	255 26.8	S28 57.1				
	04	37 20.7	205 10.0	59.9	229 38.2	19.8	301 27.6	01.4	119 16.4	43.3			Aldebaran	291 09.9	N16 29.5				
	05	52 23.1	220 09.8	01.1	244 39.2	19.2	316 29.7	01.4	134 18.9	43.3									
	06	67 25.6	235 09.6	S 5 02.4	259 40.2	N 6 18.6	331 31.7	N23 01.4	149 21.4	S22 43.3			Alioth	166 36.5	N56 01.1				
	07	82 28.1	250 09.4	03.7	274 41.2	17.9	346 33.7	01.4	164 23.9	43.3			Alkaid	153 13.0	N49 22.0				
	08	97 30.5	265 09.1	05.0	289 42.2	17.3	1 35.7	01.3	179 26.5	43.3			Al Na'ir	28 05.4	S47 00.6				
	09	112 33.0	280 08.9	06.2	304 43.2	16.7	16 37.7	01.3	194 29.0	43.3			Alnilam	276 04.6	S 1 12.2				
	10	127 35.4	295 08.7	07.5	319 44.1	16.0	31 39.8	01.3	209 31.5	43.4			Alphard	218 14.0	S 8 36.7				
	11	142 37.9	310 08.5	08.8	334 45.1	15.4	46 41.8	01.3	224 34.0	43.4									
	12	157 40.4	325 08.3	S 5 10.1	349 46.1	N 6 14.8	61 43.8	N23 01.3	239 36.5	S22 43.4			Alphecca	126 26.2	N26 45.0				
	13	172 42.8	340 08.1	11.3	4 47.1	14.1	76 45.8	01.3	254 39.1	43.4			Alpheratz	358 01.8	N29 02.1				
	14	187 45.3	355 07.9	12.6	19 48.1	13.5	91 47.9	01.3	269 41.6	43.4			Altair	62 25.4	N 8 50.5				
	15	202 47.8	10 07.7	13.9	34 49.1	12.9	106 49.9	01.2	284 44.1	43.4			Ankaa	353 32.7	S42 21.4				
	16	217 50.2	25 07.4	15.2	49 50.1	12.2	121 51.9	01.2	299 46.6	43.4			Antares	112 48.2	S26 24.8				
	17	232 52.7	40 07.2	16.4	64 51.1	11.6	136 53.9	01.2	314 49.1	43.4									
	18	247 55.2	55 07.0	S 5 17.7	79 52.1	N 6 11.0	151 56.0	N23 01.2	329 51.7	S22 43.4			Arcturus	146 12.1	N19 14.2				
	19	262 57.6	70 06.8	19.0	94 53.1	10.3	166 58.0	01.2	344 54.2	43.4			Atria	108 06.2	S69 01.0				
	20	278 00.1	85 06.6	20.3	109 54.1	09.7	182 00.0	01.2	359 56.7	43.4			Avior	234 26.1	S59 28.3				
	21	293 02.5	100 06.4	21.5	124 55.0	09.1	197 02.0	01.2	14 59.2	43.4			Bellatrix	278 51.3	N 6 20.7				
	22	308 05.0	115 06.2	22.8	139 56.0	08.4	212 04.1	01.1	30 01.7	43.5			Betelgeuse	271 20.8	N 7 24.6				
23	323 07.5	130 05.9	24.1	154 57.0	07.8	227 06.1	01.1	45 04.2	43.5										
M I E R C O L E S	30 00	338 09.9	145 05.7	S 5 25.4	169 58.0	N 6 07.2	242 08.1	N23 01.1	60 06.8	S22 43.5			Canopus	264 04.4	S52 41.0				
	01	353 12.4	160 05.5	26.6	184 59.0	06.5	257 10.1	01.1	75 09.3	43.5			Capella	281 01.0	N45 59.3				
	02	8 14.9	175 05.3	27.9	200 00.0	05.9	272 12.2	01.1	90 11.8	43.5			Deneb	49 43.4	N45 14.7				
	03	23 17.3	190 05.1	29.2	215 01.0	05.3	287 14.2	01.1	105 14.3	43.5			Denebola	182 52.1	N14 37.9				
	04	38 19.8	205 04.9	30.5	230 02.0	04.6	302 16.2	01.1	120 16.8	43.5			Diphda	349 13.5	S18 02.3				
	05	53 22.3	220 04.7	31.7	245 03.0	04.0	317 18.2	01.0	135 19.3	43.5									
	06	68 24.7	235 04.4	S 5 33.0	260 04.0	N 6 03.4	332 20.3	N23 01.0	150 21.9	S22 43.5			Dubhe	194 13.8	N61 48.5				
	07	83 27.2	250 04.2	34.3	275 05.0	02.7	347 22.3	01.0	165 24.4	43.5			Elnath	278 35.3	N28 36.1				
	08	98 29.7	265 04.0	35.6	290 06.0	02.1	2 24.3	01.0	180 26.9	43.5			Eltanin	90 54.2	N51 29.6				
	09	113 32.1	280 03.8	36.8	305 06.9	01.5	17 26.4	01.0	195 29.4	43.5			Enif	34 04.4	N 9 49.8				
	10	128 34.6	295 03.6	38.1	320 07.9	00.8	32 28.4	01.0	210 31.9	43.6			Fomalhaut	15 43.2	S29 40.5				
	11	143 37.0	310 03.4	39.4	335 08.9	6 00.2	47 30.4	01.0	225 34.4	43.6									
	12	158 39.5	325 03.1	S 5 40.6	350 09.9	N 5 59.6	62 32.4	N23 00.9	240 37.0	S22 43.6			Gacrux	172 21.7	S57 03.5				
	13	173 42.0	340 02.9	41.9	5 10.9	58.9	77 34.5	00.9	255 39.5	43.6			Gienah	176 11.1	S17 29.1				
	14	188 44.4	355 02.7	43.2	20 11.9	58.3	92 36.5	00.9	270 42.0	43.6			Hadar	149 14.0	S60 19.7				
	15	203 46.9	10 02.5	44.5	35 12.9	57.7	107 38.5	00.9	285 44.5	43.6			Hamal	328 20.8	N23 25.0				
	16	218 49.4	25 02.3	45.7	50 13.9	57.0	122 40.6	00.9	300 47.0	43.6			Kaus Aust.	84 07.3	S34 23.6				
	17	233 51.8	40 02.1	47.0	65 14.9	56.4	137 42.6	00.9	315 49.5	43.6									
	18	248 54.3	55 01.9	S 5 48.3	80 15.9	N 5 55.7	152 44.6	N23 00.9	330 52.0	S22 43.6			Kochab	137 19.2	N74 12.0				
	19	263 56.8	70 01.6	49.5	95 16.9	55.1	167 46.6	00.8	345 54.6	43.6			Markab	13 55.9	N15 09.1				
	20	278 59.2	85 01.4	50.8	110 17.8	54.5	182 48.7	00.8	0 57.1	43.6			Menkar	314 33.7	N 4 03.2				
	21	294 01.7	100 01.2	52.1	125 18.8	53.8	197 50.7	00.8	15 59.6	43.6			Menkent	148 29.0	S36 19.4				
	22	309 04.2	115 01.0	53.4	140 19.8	53.2	212 52.7	00.8	31 02.1	43.6			Miaplacidus	221 44.7	S69 40.3				
23	324 06.6	130 00.8	54.6	155 20.8	52.6	227 54.8	00.8	46 04.6	43.7										
J U E V E S	31 00	339 09.1	145 00.6	S 5 55.9	170 21.8	N 5 51.9	242 56.8	N23 00.8	61 07.1	S22 43.7			Mirfak	309 06.0	N49 49.5				
	01	354 11.5	160 00.3	57.2	185 22.8	51.3	257 58.8	00.7	76 09.6	43.7			Nunki	76 20.2	S26 18.7				
	02	9 14.0	175 00.1	58.4	200 23.8	50.7	273 00.9	00.7	91 12.2	43.7			Peacock	53 46.6	S56 46.3				
	03	24 16.5	189 59.9	5 59.7	215 24.8	50.0	288 02.9	00.7	106 14.7	43.7			Pollux	243 49.8	N28 03.2				
	04	39 18.9	204 59.7	6 01.0	230 25.8	49.4	303 04.9	00.7	121 17.2	43.7			Procyon	245 18.6	N 5 15.3				
	05	54 21.4	219 59.5	02.2	245 26.8	48.7	318 07.0	00.7	136 19.7	43.7									
	06	69 23.9	234 59.3	S 6 03.5	260 27.8	N 5 48.1	333 09.0	N23 00.7	151 22.2	S22 43.7			Rasalhague	96 22.9	N12 34.1				
	07	84 26.3	249 59.0	04.8	275 28.8	47.5	348 11.0	00.7	166 24.7	43.7			Regulus	208 02.8	N12 01.2				
	08	99 28.8	264 58.8	06.1	290 29.7	46.8	3 13.0	00.6	181 27.2	43.7			Rigel	281 29.3	S 8 12.5				
	09	114 31.3	279 58.6	07.3	305 30.7	46.2	18 15.1	00.6	196 29.7	43.7			Rigel Kent.	140 16.7	S60 47.8				
	10	129 33.7	294 58.4	08.6	320 31.7	45.6	33 17.1	00.6	211 32.3	43.7			Sabik	102 33.0	S15 42.9				
	11	144 36.2	309 58.2	09.9	335 32.7	44.9	48 19.1	00.6	226 34.8	43.8									
	12	159 38.6	324 58.0	S 6 11.1	350 33.7	N 5 44.3	63 21.2	N23 00.6	241 37.3	S22 43.8			Schedar	350 00.8	N56 28.9				
	13	174 41.1	339 57.7	12.4	5 34.7	43.7	78 23.2	00.6	256 39.8	43.8			Shaula	96 46.1	S37 06.0				
	14	189 43.6	354 57.5	13.7	20 35.7	43.0	93 25.2	00.6	271 42.3	43.8			Sirius	258 49.7	S16 41.8				
	15	204 46.0	9 57.3	14.9	35 36.7	42.4	108 27.3	00.5	286 44.8	43.8			Spica	158 50.4	S11 06.5				
	16	219 48.5	24 57.1	16.2	50 37.7	41.7	123 29.3	00.5	301 47.3	43.8			Suhail	223 06.1	S43 23.2				



T.M.G. (TU)	SOL		LUNA				Lat.	Crepúsculo		Orto Sol	Orto Luna				
	A.H.G.	Dec.	A.H.G.	v	Dec.	d		P.H.	Naut.		Civil	29	30	31	1
												h m	h m	h m	h m
MARTES	29 00	179 44.4 N 9 26.7	204 20.8 12.1	N19 08.6	11.3	55.9	N 72	///	02 15	03 51	□	01 55	04 16	06 17	
	01	194 44.6 25.8	218 51.9 12.2	18 57.3	11.4	55.9	N 70	///	02 47	04 06	26 24	02 24	04 28	06 20	
	02	209 44.8 24.9	233 23.1 12.3	18 45.9	11.4	55.9	68	01 08	03 10	04 18	00 31	02 45	04 38	06 22	
	03	224 45.0 24.0	247 54.4 12.4	18 34.5	11.6	55.9	66	01 56	03 28	04 28	01 05	03 02	04 46	06 24	
	04	239 45.2 23.1	262 25.8 12.4	18 22.9	11.6	55.8	64	02 26	03 42	04 37	01 29	03 15	04 53	06 25	
	05	254 45.3 22.2	276 57.2 12.6	18 11.3	11.7	55.8	62	02 47	03 54	04 44	01 48	03 27	04 59	06 26	
	06	269 45.5 N 9 21.3	291 28.8 12.7	N17 59.6	11.7	55.8	60	03 04	04 04	04 50	02 04	03 36	05 04	06 27	
	07	284 45.7 20.5	306 00.5 12.7	17 47.9	11.8	55.8	N 58	03 18	04 13	04 55	02 17	03 44	05 08	06 28	
	08	299 45.9 19.6	320 32.2 12.8	17 36.1	11.9	55.8	56	03 30	04 20	05 00	02 28	03 52	05 12	06 29	
	09	314 46.1 18.7	335 04.0 12.9	17 24.2	12.0	55.7	54	03 40	04 27	05 04	02 38	03 58	05 15	06 30	
	10	329 46.3 17.8	349 35.9 13.0	17 12.2	12.1	55.7	52	03 48	04 33	05 08	02 47	04 04	05 19	06 31	
	11	344 46.5 16.9	4 07.9 13.1	17 00.1	12.1	55.7	50	03 56	04 38	05 12	02 54	04 09	05 22	06 31	
	12	359 46.7 N 9 16.0	18 40.0 13.1	N16 48.0	12.1	55.7	45	04 12	04 49	05 19	03 11	04 21	05 28	06 33	
	13	14 46.8 15.1	33 12.1 13.3	16 35.9	12.3	55.7	N 40	04 24	04 58	05 26	03 25	04 30	05 33	06 34	
	14	29 47.0 14.2	47 44.4 13.3	16 23.6	12.3	55.6	35	04 34	05 05	05 31	03 36	04 38	05 37	06 35	
	15	44 47.2 13.3	62 16.7 13.4	16 11.3	12.3	55.6	30	04 42	05 11	05 36	03 46	04 45	05 41	06 36	
	16	59 47.4 12.4	76 49.1 13.5	15 59.0	12.5	55.6	20	04 55	05 21	05 44	04 03	04 57	05 48	06 37	
	17	74 47.6 11.5	91 21.6 13.6	15 46.5	12.4	55.6	N 10	05 05	05 30	05 51	04 18	05 07	05 54	06 39	
	18	89 47.8 N 9 10.7	105 54.2 13.6	N15 34.1	12.6	55.6	0	05 12	05 36	05 57	04 32	05 17	06 00	06 40	
	19	104 48.0 09.8	120 26.8 13.8	15 21.5	12.6	55.6	S 10	05 18	05 42	06 04	04 46	05 27	06 05	06 41	
	20	119 48.2 08.9	134 59.6 13.8	15 08.9	12.7	55.5	20	05 22	05 48	06 10	05 00	05 37	06 11	06 43	
	21	134 48.4 08.0	149 32.4 13.8	14 56.2	12.7	55.5	30	05 26	05 54	06 18	05 17	05 49	06 18	06 44	
	22	149 48.5 07.1	164 05.2 14.0	14 43.5	12.7	55.5	35	05 27	05 56	06 22	05 27	05 56	06 21	06 45	
23	164 48.7 06.2	178 38.2 14.0	14 30.8	12.9	55.5	40	05 28	05 59	06 27	05 38	06 03	06 26	06 46		
MIÉRCOLES	30 00	179 48.9 N 9 05.3	193 11.2 14.1	N14 17.9	12.8	55.5	45	05 29	06 03	06 32	05 50	06 12	06 31	06 47	
	01	194 49.1 04.4	207 44.3 14.2	14 05.1	13.0	55.4	S 50	05 29	06 06	06 39	06 06	06 23	06 37	06 49	
	02	209 49.3 03.5	222 17.5 14.3	13 52.1	12.9	55.4	52	05 29	06 08	06 42	06 13	06 28	06 39	06 49	
	03	224 49.5 02.6	236 50.8 14.3	13 39.2	13.1	55.4	54	05 28	06 09	06 45	06 21	06 33	06 42	06 50	
	04	239 49.7 01.7	251 24.1 14.4	13 26.1	13.0	55.4	56	05 28	06 11	06 49	06 30	06 39	06 46	06 51	
	05	254 49.9 00.8	265 57.5 14.5	13 13.1	13.1	55.4	58	05 28	06 13	06 53	06 41	06 46	06 49	06 52	
	06	269 50.1 N 8 59.9	280 31.0 14.5	N13 00.0	13.2	55.4	S 60	05 27	06 15	06 57	06 52	06 53	06 53	06 53	
	07	284 50.3 59.0	295 04.5 14.6	12 46.8	13.2	55.3	Lat.	Ocaso Sol	Crepúsculo Civil	Naut.	Ocaso Luna	29	30	31	1
	08	299 50.4 58.1	309 38.1 14.7	12 33.6	13.3	55.3	N 70	20 07	21 40	///	h m	h m	h m	h m	h m
	09	314 50.6 57.2	324 11.8 14.7	12 20.3	13.2	55.3	N 72	19 52	21 09	///	20 41	19 50	19 15	18 45	
	10	329 50.8 56.3	338 45.5 14.8	12 07.1	13.4	55.3	N 70	19 52	21 09	///	20 10	19 36	19 10	18 46	
	11	344 51.0 55.4	353 19.3 14.9	11 53.7	13.4	55.3	68	19 40	20 47	22 42	19 47	19 24	19 05	18 48	
	12	359 51.2 N 8 54.5	7 53.2 14.9	N11 40.3	13.4	55.2	66	19 31	20 30	21 59	19 29	19 14	19 01	18 49	
	13	14 51.4 53.6	22 27.1 15.0	11 26.9	13.4	55.2	64	19 23	20 16	21 31	19 14	19 05	18 57	18 50	
	14	29 51.6 52.8	37 01.1 15.1	11 13.5	13.5	55.2	62	19 16	20 05	21 11	19 02	18 58	18 54	18 50	
	15	44 51.8 51.9	51 35.2 15.1	11 00.0	13.5	55.2	60	19 10	19 55	20 54	18 51	18 52	18 51	18 51	
	16	59 52.0 51.0	66 09.3 15.2	10 46.5	13.6	55.2	N 58	19 04	19 47	20 41	18 42	18 46	18 49	18 52	
	17	74 52.2 50.1	80 43.5 15.2	10 32.9	13.6	55.2	56	19 00	19 39	20 29	18 33	18 41	18 47	18 52	
	18	89 52.4 N 8 49.2	95 17.7 15.3	N10 19.3	13.6	55.1	54	18 56	19 33	20 20	18 26	18 36	18 45	18 53	
	19	104 52.6 48.3	109 52.0 15.4	10 05.7	13.6	55.1	52	18 52	19 27	20 11	18 19	18 32	18 43	18 53	
	20	119 52.7 47.4	124 26.4 15.4	9 52.1	13.7	55.1	50	18 48	19 22	20 04	18 13	18 29	18 42	18 54	
	21	134 52.9 46.5	139 00.8 15.4	9 38.4	13.7	55.1	45	18 41	19 11	19 48	18 00	18 20	18 38	18 54	
	22	149 53.1 45.6	153 35.2 15.5	9 24.7	13.8	55.1	N 40	18 35	19 03	19 36	17 50	18 14	18 35	18 55	
23	164 53.3 44.7	168 09.7 15.6	9 10.9	13.7	55.1	35	18 30	18 55	19 26	17 40	18 08	18 32	18 56		
JUEVES	31 00	179 53.5 N 8 43.8	182 44.3 15.6	N 8 57.2	13.8	55.0	30	18 25	18 49	19 18	17 32	18 03	18 30	18 56	
	01	194 53.7 42.9	197 18.9 15.7	8 43.4	13.9	55.0	20	18 17	18 39	19 06	17 18	17 53	18 26	18 57	
	02	209 53.9 42.0	211 53.6 15.7	8 29.5	13.8	55.0	N 10	18 10	18 31	18 56	17 06	17 45	18 23	18 58	
	03	224 54.1 41.1	226 28.3 15.8	8 15.7	13.9	55.0	0	18 04	18 25	18 49	16 54	17 38	18 19	18 59	
	04	239 54.3 40.2	241 03.1 15.8	8 01.8	13.9	55.0	S 10	17 58	18 19	18 43	16 42	17 30	18 16	19 00	
	05	254 54.5 39.3	255 37.9 15.8	N 7 47.9	13.9	55.0	20	17 51	18 13	18 39	16 29	17 22	18 12	19 01	
	06	269 54.7 N 8 38.4	Un Eclipse Parcial de Sol ocurre en este día. Ver Página 5				30	17 44	18 08	18 36	16 15	17 12	18 08	19 02	
	07	284 54.9 37.5					35	17 40	18 05	18 35	16 06	17 07	18 05	19 02	
	08	299 55.1 36.6					40	17 35	18 02	18 34	15 56	17 01	18 03	19 03	
	09	314 55.3 35.7					45	17 30	17 59	18 33	15 45	16 53	17 59	19 04	
	10	329 55.5 34.8					S 50	17 23	17 56	18 33	15 31	16 44	17 55	19 05	
	11	344 55.6 33.9					52	17 20	17 54	18 33	15 24	16 40	17 54	19 05	
	12	359 55.8 N 8 32.9	357 42.8 16.2	N 6 10.2	14.1	54.8	54	17 17	17 53	18 34	15 17	16 36	17 52	19 05	
	13	14 56.0 32.0	12 18.0 16.2	5 56.1	14.0	54.8	56	17 13	17 51	18 34	15 08	16 31	17 49	19 06	
	14	29 56.2 31.1	26 53.2 16.2	5 42.1	14.1	54.8	58	17 09	17 49	18 35	14 59	16 25	17 47	19 06	
	15	44 56.4 30.2	41 28.4 16.3	5 28.0	14.1	54.8	S 60	17 05	17 47	18 36	14 48	16 19	17 44	19 07	
	16	59 56.6 29.3	56 03.7 16.3	5 13.9	14.1	54.8	Día	SOL E.T. (-)	Pas. Mer.	LUNA	Pas. Sup.	Mer. Inf.	Eclí.	Fase	
	17	74 56.8 28.4	70 39.0 16.3	4 59.8	14.1	54.8	29	m s	m s	h m	h m	h m	d		
	18	89 57.0 N 8 27.5	85 14.3 16.4	N 4 45.7	14.1	54.8	30	01 03	00 54	12 01	10 43	23 06	28		
	19	104 57.2 26.6	99 49.7 16.4	4 31.6	14.1	54.7	31	00 45	00 36	12 01	11 28	23 49	29		
	20	119 57.4 25.7	114 25.1 16.5	4 17.5	14.1	54.7		00 26	00 17	12 00	12 09	24 30	00		
	21	134 57.6 24.8	129 00.6 16.4	4 03.4	14.2	54.7									
	22	149 57.8 23.9	143 36.0 16.5	3 49.2	14.1	54.7									
23	164 58.0 23.0	158 11.5 16.6	3 35.1	14.1	54.7										
	S.D. 15.9	d 0.9	S.D. 15.2	15.1	14.9										



T.M.G. (TU)	ARIES			VENUS -4.0			MARTE +1.8			JUPITER -2.1			SATURNO +0.4			ESTRELLAS			
d h	A.H.G.		Dec.	A.H.G.		Dec.	A.H.G.		Dec.	A.H.G.		Dec.	A.H.G.		Dec.	Nombre	A. H. S.	Dec.	
VIERNES	00	340 08.2	144 55.3 S 6 26.3	170 45.6 N 5 36.6	243 45.6 N23 00.4	62 07.4 S22 43.9	Acamar	315 31.6 S40 20.3											
	01	355 10.7	159 55.1 27.6	185 46.6 36.0	258 47.6 00.4	77 09.9 43.9	Achernar	335 39.3 S57 17.0											
	02	10 13.1	174 54.9 28.9	200 47.6 35.4	273 49.7 00.4	92 12.4 43.9	Acrux	173 30.4 S63 02.7											
	03	25 15.6	189 54.7 30.1	215 48.6 34.7	288 51.7 00.4	107 14.9 43.9	Adhara	255 26.8 S28 57.1											
	04	40 18.1	204 54.5 31.4	230 49.6 34.1	303 53.7 00.4	122 17.4 43.9	Aldebaran	291 09.9 N16 29.5											
	05	55 20.5	219 54.2 32.6	245 50.6 33.5	318 55.8 00.3	137 19.9 43.9													
	06	70 23.0	234 54.0 S 6 33.9	260 51.6 N 5 32.8	333 57.8 N23 00.3	152 22.4 S22 43.9	Alioth	166 36.5 N56 01.1											
	07	85 25.5	249 53.8 35.2	275 52.6 32.2	348 59.9 00.3	167 25.0 43.9	Alkaid	153 13.0 N49 22.0											
	08	100 27.9	264 53.6 36.4	290 53.6 31.5	4 01.9 00.3	182 27.5 43.9	Al Na'ir	28 05.4 S47 00.6											
	09	115 30.4	279 53.4 37.7	305 54.5 30.9	19 03.9 00.3	197 30.0 43.9	Alnilam	276 04.6 S 1 12.2											
	10	130 32.9	294 53.1 39.0	320 55.5 30.3	34 06.0 00.3	212 32.5 43.9	Alphard	218 14.0 S 8 36.6											
	11	145 35.3	309 52.9 40.2	335 56.5 29.6	49 08.0 00.2	227 35.0 43.9													
	12	160 37.8	324 52.7 S 6 41.5	350 57.5 N 5 29.0	64 10.0 N23 00.2	242 37.5 S22 43.9	Alphecca	126 26.2 N26 45.0											
	13	175 40.3	339 52.5 42.8	5 58.5 28.4	79 12.1 00.2	257 40.0 44.0	Alpheratz	358 01.8 N29 02.1											
	14	190 42.7	354 52.3 44.0	20 59.5 27.7	94 14.1 00.2	272 42.5 44.0	Altair	62 25.4 N 8 50.5											
	15	205 45.2	9 52.0 45.3	36 00.5 27.1	109 16.2 00.2	287 45.0 44.0	Ankaa	353 32.7 S42 21.4											
	16	220 47.6	24 51.8 46.5	51 01.5 26.4	124 18.2 00.2	302 47.5 44.0	Antares	112 48.3 S26 24.8											
	17	235 50.1	39 51.6 47.8	66 02.5 25.8	139 20.2 00.2	317 50.0 44.0													
	18	250 52.6	54 51.4 S 6 49.1	81 03.5 N 5 25.2	154 22.3 N23 00.1	332 52.5 S22 44.0	Arcturus	146 12.2 N19 14.2											
	19	265 55.0	69 51.2 50.3	96 04.5 24.5	169 24.3 00.1	347 55.0 44.0	Atria	108 06.2 S69 01.0											
	20	280 57.5	84 50.9 51.6	111 05.5 23.9	184 26.4 00.1	2 57.5 44.0	Avior	234 26.0 S59 28.3											
	21	296 00.0	99 50.7 52.8	126 06.5 23.2	199 28.4 00.1	18 00.0 44.0	Bellatrix	278 51.3 N 6 20.7											
	22	311 02.4	114 50.5 54.1	141 07.4 22.6	214 30.4 00.1	33 02.5 44.0	Betelgeuse	271 20.8 N 7 24.6											
23	326 04.9	129 50.3 55.4	156 08.4 22.0	229 32.5 00.1	48 05.1 44.0														
SABADO	00	341 07.4	144 50.1 S 6 56.6	171 09.4 N 5 21.3	244 34.5 N23 00.1	63 07.6 S22 44.0	Canopus	264 04.3 S52 41.0											
	01	356 09.8	159 49.8 57.9	186 10.4 20.7	259 36.6 00.0	78 10.1 44.0	Capella	281 01.0 N45 59.3											
	02	11 12.3	174 49.6 6 59.2	201 11.4 20.0	274 38.6 00.0	93 12.6 44.0	Deneb	49 43.4 N45 14.7											
	03	26 14.7	189 49.4 7 00.4	216 12.4 19.4	289 40.6 00.0	108 15.1 44.1	Denebola	182 52.1 N14 37.9											
	04	41 17.2	204 49.2 01.7	231 13.4 18.8	304 42.7 00.0	123 17.6 44.1	Diphda	349 13.4 S18 02.3											
	05	56 19.7	219 48.9 02.9	246 14.4 18.1	319 44.7 00.0	138 20.1 44.1													
	06	71 22.1	234 48.7 S 7 04.2	261 15.4 N 5 17.5	334 46.8 N23 00.0	153 22.6 S22 44.1	Dubhe	194 13.8 N61 48.5											
	07	86 24.6	249 48.5 05.4	276 16.4 16.8	349 48.8 22 59.9	168 25.1 44.1	Elnath	278 35.3 N28 36.1											
	08	101 27.1	264 48.3 06.7	291 17.4 16.2	4 50.9 59.9	183 27.6 44.1	Eltanin	90 54.3 N51 29.6											
	09	116 29.5	279 48.1 08.0	306 18.4 15.6	19 52.9 59.9	198 30.1 44.1	Enif	34 04.4 N 9 49.8											
	10	131 32.0	294 47.8 09.2	321 19.4 14.9	34 54.9 59.9	213 32.6 44.1	Fomalhaut	15 43.2 S29 40.5											
	11	146 34.5	309 47.6 10.5	336 20.3 14.3	49 57.0 59.9	228 35.1 44.1													
	12	161 36.9	324 47.4 S 7 11.7	351 21.3 N 5 13.6	64 59.0 N22 59.9	243 37.6 S22 44.1	Gacrux	172 21.7 S57 03.5											
	13	176 39.4	339 47.2 13.0	6 22.3 13.0	80 01.1 59.9	258 40.1 44.1	Gienah	176 11.1 S17 29.1											
	14	191 41.9	354 46.9 14.3	21 23.3 12.4	95 03.1 59.8	273 42.6 44.1	Hadar	149 14.0 S60 19.7											
	15	206 44.3	9 46.7 15.5	36 24.3 11.7	110 05.2 59.8	288 45.1 44.1	Hamal	328 20.8 N23 25.0											
	16	221 46.8	24 46.5 16.8	51 25.3 11.1	125 07.2 59.8	303 47.6 44.2	Kaus Aust.	84 07.3 S34 23.6											
	17	236 49.2	39 46.3 18.0	66 26.3 10.4	140 09.3 59.8	318 50.1 44.2													
	18	251 51.7	54 46.0 S 7 19.3	81 27.3 N 5 09.8	155 11.3 N22 59.8	333 52.6 S22 44.2	Kochab	137 19.3 N74 12.0											
	19	266 54.2	69 45.8 20.5	96 28.3 09.2	170 13.3 59.8	348 55.1 44.2	Markab	13 55.9 N15 09.1											
	20	281 56.6	84 45.6 21.8	111 29.3 08.5	185 15.4 59.7	3 57.6 44.2	Menkar	314 33.6 N 4 03.2											
	21	296 59.1	99 45.4 23.0	126 30.3 07.9	200 17.4 59.7	19 00.1 44.2	Menkent	148 29.1 S36 19.3											
	22	312 01.6	114 45.1 24.3	141 31.3 07.2	215 19.5 59.7	34 02.6 44.2	Miaplacidus	221 44.7 S69 40.3											
23	327 04.0	129 44.9 25.6	156 32.3 06.6	230 21.5 59.7	49 05.1 44.2														
DOMINGO	00	342 06.5	144 44.7 S 7 26.8	171 33.2 N 5 06.0	245 23.6 N22 59.7	64 07.6 S22 44.2	Mirfak	309 06.0 N49 49.5											
	01	357 09.0	159 44.5 28.1	186 34.2 05.3	260 25.6 59.7	79 10.1 44.2	Nunki	76 20.2 S26 18.7											
	02	12 11.4	174 44.3 29.3	201 35.2 04.7	275 27.7 59.7	94 12.6 44.2	Peacock	53 46.6 S56 46.3											
	03	27 13.9	189 44.0 30.6	216 36.2 04.0	290 29.7 59.6	109 15.1 44.2	Pollux	243 49.8 N28 03.2											
	04	42 16.4	204 43.8 31.8	231 37.2 03.4	305 31.8 59.6	124 17.6 44.2	Procyon	245 18.6 N 5 15.3											
	05	57 18.8	219 43.6 33.1	246 38.2 02.8	320 33.8 59.6	139 20.1 44.2													
	06	72 21.3	234 43.3 S 7 34.3	261 39.2 N 5 02.1	335 35.9 N22 59.6	154 22.6 S22 44.3	Rasalhague	96 23.0 N12 34.1											
	07	87 23.7	249 43.1 35.6	276 40.2 01.5	350 37.9 59.6	169 25.1 44.3	Regulus	208 02.8 N12 01.2											
	08	102 26.2	264 42.9 36.8	291 41.2 00.8	5 40.0 59.6	184 27.6 44.3	Rigel	281 29.3 S 8 12.5											
	09	117 28.7	279 42.7 38.1	306 42.2 5 00.2	20 42.0 59.5	199 30.1 44.3	Rigil Kent.	140 16.8 S60 47.8											
	10	132 31.1	294 42.4 39.3	321 43.2 4 59.6	35 44.1 59.5	214 32.6 44.3	Sabik	102 33.0 S15 42.9											
	11	147 33.6	309 42.2 40.6	336 44.2 58.9	50 46.1 59.5	229 35.1 44.3													
	12	162 36.1	324 42.0 S 7 41.8	351 45.2 N 4 58.3	65 48.2 N22 59.5	244 37.6 S22 44.3	Schedar	350 00.8 N56 28.9											
	13	177 38.5	339 41.8 43.1	6 46.2 57.6	80 50.2 59.5	259 40.1 44.3	Shaula	96 46.1 S37 06.0											
	14	192 41.0	354 41.5 44.3	21 47.1 57.0	95 52.2 59.5	274 42.6 44.3	Sirius	258 49.6 S16 41.8											
	15	207 43.5	9 41.3 45.6	36 48.1 56.3	110 54.3 59.5	289 45.1 44.3	Spica	158 50.4 S11 06.5											
	16	222 45.9	24 41.1 46.8	51 49.1 55.7	125 56.3 59.4	304 47.6 44.3	Suhail	223 06.1 S43 23.2											
	17	237 48.4	39 40.9 48.1	66 50.1 55.1	140 58.4 59.4	319 50													



T.M.G. (TU)	SOL				LUNA				Lat.	Crepúsculo		Orto Sol	Orto Luna							
	A.H.G.		Dec.		A.H.G.		Dec.			N	h		m	h	m	1	2	3	4	
	o	'	o	'	o	'	o	'												d
V I E R N E S	1 00	179	58.2	N 8	22.1	172	47.1	16.5	N 3	21.0	14.2	54.7	N 72	///	02 38	04 06	06 17	08 15	10 17	12 46
	01	194	58.4		21.2	187	22.6	16.6	3	06.8	14.1	54.7	N 70	///	03 04	04 19	06 20	08 08	10 00	12 05
	02	209	58.6		20.3	201	58.2	16.6	2	52.7	14.2	54.6	68	01 39	03 24	04 29	06 22	08 03	09 46	11 38
	03	224	58.8	..	19.4	216	33.8	16.6	2	38.5	14.2	54.6	66	02 15	03 40	04 38	06 24	07 59	09 35	11 17
	04	239	59.0		18.5	231	09.4	16.7	2	24.3	14.1	54.6	64	02 40	03 53	04 45	06 25	07 55	09 26	11 01
	05	254	59.2		17.6	245	45.1	16.7	2	10.2	14.2	54.6	62	02 59	04 03	04 52	06 26	07 52	09 19	10 48
	06	269	59.4	N 8	16.7	260	20.8	16.7	N 1	56.0	14.1	54.6	60	03 14	04 12	04 57	06 27	07 50	09 12	10 36
	07	284	59.6		15.8	274	56.5	16.7	1	41.9	14.2	54.6	N 58	03 27	04 20	05 02	06 28	07 47	09 06	10 27
	08	299	59.8		14.8	289	32.2	16.7	1	27.7	14.2	54.6	56	03 37	04 27	05 06	06 29	07 45	09 01	10 18
	09	315	00.0	..	13.9	304	07.9	16.8	1	13.5	14.1	54.5	54	03 46	04 33	05 10	06 30	07 43	08 56	10 11
	10	330	00.2		13.0	318	43.7	16.7	0	59.4	14.2	54.5	52	03 55	04 38	05 13	06 31	07 42	08 52	10 04
	11	345	00.3		12.1	333	19.4	16.8	0	45.2	14.1	54.5	50	04 02	04 43	05 16	06 31	07 40	08 48	09 58
	12	0	00.5	N 8	11.2	347	55.2	16.8	N 0	31.1	14.1	54.5	45	04 16	04 53	05 23	06 33	07 37	08 40	09 45
	13	15	00.7		10.3	2	31.0	16.9	0	17.0	14.2	54.5	N 40	04 28	05 01	05 28	06 34	07 34	08 34	09 34
	14	30	00.9		09.4	17	06.9	16.8	N 0	02.8	14.1	54.5	35	04 37	05 07	05 33	06 35	07 32	08 28	09 25
	15	45	01.1	..	08.5	31	42.7	16.8	S 0	11.3	14.1	54.5	30	04 44	05 13	05 37	06 36	07 29	08 23	09 17
	16	60	01.3		07.6	46	18.5	16.9	0	25.4	14.1	54.5	20	04 56	05 22	05 45	06 37	07 26	08 14	09 03
	17	75	01.5		06.7	60	54.4	16.9	0	39.5	14.1	54.5	N 10	05 05	05 29	05 51	06 39	07 23	08 07	08 52
	18	90	01.7	N 8	05.8	75	30.3	16.8	S 0	53.6	14.1	54.4	0	05 11	05 36	05 56	06 40	07 20	08 00	08 41
	19	105	01.9		04.9	90	06.1	16.9	1	07.7	14.1	54.4	S 10	05 16	05 41	06 02	06 41	07 17	07 53	08 30
	20	120	02.1		03.9	104	42.0	16.9	1	21.8	14.1	54.4	20	05 20	05 46	06 08	06 43	07 14	07 45	08 18
	21	135	02.3	..	03.0	119	17.9	16.9	1	35.9	14.0	54.4	30	05 22	05 50	06 14	06 44	07 10	07 37	08 05
	22	150	02.5		02.1	133	53.8	16.9	1	49.9	14.1	54.4	35	05 23	05 53	06 18	06 45	07 08	07 32	07 57
23	165	02.7		01.2	148	29.7	16.9	2	04.0	14.0	54.4	40	05 24	05 55	06 22	06 46	07 06	07 27	07 49	
24												45	05 23	05 57	06 27	06 47	07 04	07 20	07 39	
S A B A D O	2 00	180	02.9	N 8	00.3	163	05.6	16.9	S 2	18.0	14.0	54.4	S 50	05 23	06 00	06 33	06 49	07 01	07 13	07 27
	01	195	03.1	7	59.4	177	41.5	16.9	2	32.0	14.0	54.4	52	05 22	06 01	06 35	06 49	06 59	07 10	07 21
	02	210	03.3		58.5	192	17.4	17.0	2	46.0	14.0	54.3	54	05 22	06 02	06 38	06 50	06 58	07 06	07 15
	03	225	03.5	..	57.6	206	53.4	16.9	3	00.0	14.0	54.3	56	05 21	06 04	06 41	06 51	06 56	07 02	07 08
	04	240	03.7		56.7	221	29.3	16.9	3	14.0	13.9	54.3	58	05 20	06 05	06 45	06 52	06 54	06 57	07 01
	05	255	03.9		55.7	236	05.2	16.9	3	27.9	14.0	54.3	S 60	05 19	06 07	06 48	06 52	06 52	06 52	06 52
	06	270	04.1	N 7	54.8	250	41.1	16.9	S 3	41.9	13.9	54.3								
	07	285	04.3		53.9	265	17.0	16.9	3	55.8	13.9	54.3								
	08	300	04.5		53.0	279	52.9	16.9	4	09.7	13.8	54.3								
	09	315	04.7	..	52.1	294	28.8	16.9	4	23.5	13.9	54.3								
	10	330	04.9		51.2	309	04.7	16.9	4	37.4	13.8	54.3								
11	345	05.1		50.3	323	40.6	16.9	4	51.2	13.8	54.3									
12	0	05.3	N 7	49.4	338	16.5	16.9	S 5	05.0	13.8	54.3									
13	15	05.5		48.4	352	52.4	16.8	5	18.8	13.8	54.2									
14	30	05.7		47.5	7	28.2	16.9	5	32.6	13.7	54.2									
15	45	05.9	..	46.6	22	04.1	16.8	5	46.3	13.7	54.2									
16	60	06.1		45.7	36	39.9	16.8	6	00.0	13.7	54.2									
17	75	06.3		44.8	51	15.7	16.9	6	13.7	13.6	54.2									
18	90	06.5	N 7	43.9	65	51.6	16.8	S 6	27.3	13.6	54.2									
19	105	06.7		43.0	80	27.4	16.7	6	40.9	13.6	54.2	N 58	18 56	19 38	20 30	18 52	18 54	18 57	19 02	
20	120	06.9		42.0	95	03.1	16.8	6	54.5	13.6	54.2	56	18 52	19 31	20 20	18 52	18 57	19 03	19 11	
21	135	07.1	..	41.1	109	38.9	16.8	7	08.1	13.5	54.2	54	18 48	19 25	20 11	18 53	19 00	19 09	19 19	
22	150	07.3		40.2	124	14.7	16.7	7	21.6	13.5	54.2	52	18 45	19 20	20 03	18 53	19 03	19 14	19 27	
23	165	07.5		39.3	138	50.4	16.7	7	35.1	13.5	54.2	50	18 42	19 16	19 56	18 54	19 06	19 18	19 33	
												45	18 36	19 06	19 42	18 54	19 11	19 28	19 48	
D O M I N G O	3 00	180	07.7	N 7	38.4	153	26.1	16.7	S 7	48.6	13.4	54.2	N 40	18 30	18 58	19 31	18 55	19 15	19 36	20 00
	01	195	07.9		37.5	168	01.8	16.7	8	02.0	13.4	54.2	35	18 25	18 51	19 22	18 56	19 19	19 44	20 10
	02	210	08.1		36.5	182	37.5	16.6	8	15.4	13.4	54.1	30	18 21	18 46	19 14	18 56	19 23	19 50	20 19
	03	225	08.4	..	35.6	197	13.1	16.7	8	28.8	13.4	54.1	20	18 14	18 37	19 03	18 57	19 29	20 01	20 35
	04	240	08.6		34.7	211	48.8	16.6	8	42.2	13.3	54.1	N 10	18 08	18 30	18 54	18 58	19 34	20 10	20 48
	05	255	08.8		33.8	226	24.4	16.6	8	55.5	13.2	54.1	0	18 03	18 24	18 48	18 59	19 39	20 19	21 01
	06	270	09.0	N 7	32.9	241	00.0	16.5	S 9	08.7	13.2	54.1	S 10	17 58	18 19	18 43	19 00	19 44	20 28	21 14
	07	285	09.2		32.0	255	35.5	16.5	9	21.9	13.2	54.1	20	17 52	18 14	18 40	19 01	19 49	20 38	21 28
	08	300	09.4		31.0	270	11.0	16.5	9	35.1	13.2	54.1	30	17 45	18 10	18 37	19 02	19 55	20 49	21 44
	09	315	09.6	..	30.1	284	46.5	16.5	9	48.3	13.1	54.1	35	17 42	18 07	18 37	19 02	19 59	20 55	21 53
	10	330	09.8		29.2	299	22.0	16.5	10	01.4	13.1	54.1	40	17 38	18 05	18 36	19 03	20 03	21 03	22 04
11	345	10.0		28.3	313	57.5	16.4	10	14.5	13.0	54.1	45	17 33	18 03	18 37	19 04	20 07	21 11	22 16	
12	0	10.2	N																	



T.M.G. (TU)		ARIES			VENUS -4.0			MARTE +1.8			JUPITER -2.1			SATURNO +0.4			ESTRELLAS		
d	h	A.H.G.		Dec.	A.H.G.		Dec.	A.H.G.		Dec.	A.H.G.		Dec.	A.H.G.		Dec.	Nombre	A. H. S.	Dec.
4	00	343	05.6	144 39.3 S 7	56.8	171 57.1 N 4	50.6	246 12.8 N22	59.3	65 07.6 S22	44.4	Acamar	315 31.6 S40	20.3					
01	01	358	08.1	159 39.0	58.1	186 58.1	49.9	261 14.8	59.3	80 10.1	44.4	Achernar	335 39.3 S57	17.0					
02	02	13	10.6	174 38.8	7 59.3	201 59.1	49.3	276 16.9	59.3	95 12.6	44.4	Acrux	173 30.4 S63	02.7					
03	03	28	13.0	189 38.6	8 00.6	217 00.0	48.6	291 18.9	59.3	110 15.1	44.4	Adhara	255 26.8 S28	57.1					
04	04	43	15.5	204 38.4	01.8	232 01.0	48.0	306 21.0	59.3	125 17.6	44.4	Aldebaran	291 09.9 N16	29.5					
05	05	58	18.0	219 38.1	03.1	247 02.0	47.4	321 23.0	59.2	140 20.1	44.4								
06	06	73	20.4	234 37.9 S 8	04.3	262 03.0 N 4	46.7	336 25.1 N22	59.2	155 22.5 S22	44.4	Alioth	166 36.5 N56	01.1					
07	07	88	22.9	249 37.7	05.6	277 04.0	46.1	351 27.1	59.2	170 25.0	44.4	Alkaid	153 13.1 N49	22.0					
08	08	103	25.3	264 37.4	06.8	292 05.0	45.4	6 29.2	59.2	185 27.5	44.4	Al Na'ir	28 05.4 S47	00.6					
09	09	118	27.8	279 37.2	08.1	307 06.0	44.8	21 31.2	59.2	200 30.0	44.4	Alnilam	276 04.6 S 1	12.2					
10	10	133	30.3	294 37.0	09.3	322 07.0	44.1	36 33.3	59.2	215 32.5	44.4	Alphard	218 14.0 S 8	36.6					
11	11	148	32.7	309 36.8	10.6	337 08.0	43.5	51 35.3	59.1	230 35.0	44.5								
12	12	163	35.2	324 36.5 S 8	11.8	352 09.0 N 4	42.9	66 37.4 N22	59.1	245 37.5 S22	44.5	Alphecca	126 26.2 N26	45.0					
13	13	178	37.7	339 36.3	13.1	7 10.0	42.2	81 39.5	59.1	260 40.0	44.5	Alpheratz	358 01.8 N29	02.1					
14	14	193	40.1	354 36.1	14.3	22 11.0	41.6	96 41.5	59.1	275 42.5	44.5	Altair	62 25.4 N 8	50.5					
15	15	208	42.6	9 35.8	15.5	37 12.0	40.9	111 43.6	59.1	290 45.0	44.5	Ankaa	353 32.7 S42	21.5					
16	16	223	45.1	24 35.6	16.8	52 13.0	40.3	126 45.6	59.1	305 47.5	44.5	Antares	112 48.3 S26	24.8					
17	17	238	47.5	39 35.4	18.0	67 13.9	39.6	141 47.7	59.0	320 50.0	44.5								
18	18	253	50.0	54 35.1 S 8	19.3	82 14.9 N 4	39.0	156 49.7 N22	59.0	335 52.5 S22	44.5	Arcturus	146 12.2 N19	14.2					
19	19	268	52.5	69 34.9	20.5	97 15.9	38.4	171 51.8	59.0	350 55.0	44.5	Atria	108 06.3 S69	01.0					
20	20	283	54.9	84 34.7	21.8	112 16.9	37.7	186 53.8	59.0	5 57.5	44.5	Avior	234 26.0 S59	28.3					
21	21	298	57.4	99 34.5	23.0	127 17.9	37.1	201 55.9	59.0	21 00.0	44.5	Bellatrix	278 51.2 N 6	20.7					
22	22	313	59.8	114 34.2	24.2	142 18.9	36.4	216 58.0	59.0	36 02.4	44.5	Betelgeuse	271 20.7 N 7	24.6					
23	23	329	02.3	129 34.0	25.5	157 19.9	35.8	232 00.0	59.0	51 04.9	44.5								
5	00	344	04.8	144 33.8 S 8	26.7	172 20.9 N 4	35.1	247 02.1 N22	58.9	66 07.4 S22	44.5	Canopus	264 04.3 S52	41.0					
01	01	359	07.2	159 33.5	28.0	187 21.9	34.5	262 04.1	58.9	81 09.9	44.6	Capella	281 01.0 N45	59.3					
02	02	14	09.7	174 33.3	29.2	202 22.9	33.8	277 06.2	58.9	96 12.4	44.6	Deneb	49 43.4 N45	14.7					
03	03	29	12.2	189 33.1	30.5	217 23.9	33.2	292 08.2	58.9	111 14.9	44.6	Denebola	182 52.1 N14	37.9					
04	04	44	14.6	204 32.8	31.7	232 24.9	32.6	307 10.3	58.9	126 17.4	44.6	Diphda	349 13.4 S18	02.3					
05	05	59	17.1	219 32.6	32.9	247 25.9	31.9	322 12.4	58.9	141 19.9	44.6								
06	06	74	19.6	234 32.4 S 8	34.2	262 26.9 N 4	31.3	337 14.4 N22	58.8	156 22.4 S22	44.6	Dubhe	194 13.8 N61	48.5					
07	07	89	22.0	249 32.1	35.4	277 27.8	30.6	352 16.5	58.8	171 24.9	44.6	Elnath	278 35.3 N28	36.1					
08	08	104	24.5	264 31.9	36.7	292 28.8	30.0	7 18.5	58.8	186 27.4	44.6	Eltanin	90 54.3 N51	29.6					
09	09	119	27.0	279 31.7	37.9	307 29.8	29.3	22 20.6	58.8	201 29.8	44.6	Enif	34 04.4 N 9	49.8					
10	10	134	29.4	294 31.4	39.1	322 30.8	28.7	37 22.7	58.8	216 32.3	44.6	Fomalhaut	15 43.2 S29	40.5					
11	11	149	31.9	309 31.2	40.4	337 31.8	28.1	52 24.7	58.8	231 34.8	44.6								
12	12	164	34.3	324 31.0 S 8	41.6	352 32.8 N 4	27.4	67 26.8 N22	58.7	246 37.3 S22	44.6	Gacrux	172 21.7 S57	03.5					
13	13	179	36.8	339 30.7	42.9	7 33.8	26.8	82 28.8	58.7	261 39.8	44.6	Gienah	176 11.1 S17	29.1					
14	14	194	39.3	354 30.5	44.1	22 34.8	26.1	97 30.9	58.7	276 42.3	44.6	Hadar	149 14.1 S60	19.7					
15	15	209	41.7	9 30.3	45.3	37 35.8	25.5	112 33.0	58.7	291 44.8	44.6	Hamal	328 20.8 N23	25.0					
16	16	224	44.2	24 30.0	46.6	52 36.8	24.8	127 35.0	58.7	306 47.3	44.7	Kaus Aust.	84 07.3 S34	23.6					
17	17	239	46.7	39 29.8	47.8	67 37.8	24.2	142 37.1	58.7	321 49.8	44.7								
18	18	254	49.1	54 29.6 S 8	49.0	82 38.8 N 4	23.5	157 39.1 N22	58.7	336 52.2 S22	44.7	Kochab	137 19.3 N74	12.0					
19	19	269	51.6	69 29.3	50.3	97 39.8	22.9	172 41.2	58.6	351 54.7	44.7	Markab	13 55.9 N15	09.1					
20	20	284	54.1	84 29.1	51.5	112 40.8	22.3	187 43.3	58.6	6 57.2	44.7	Menkar	314 33.6 N 4	03.2					
21	21	299	56.5	99 28.9	52.7	127 41.7	21.6	202 45.3	58.6	21 59.7	44.7	Menkent	148 29.1 S36	19.3					
22	22	314	59.0	114 28.6	54.0	142 42.7	21.0	217 47.4	58.6	37 02.2	44.7	Miaplacidus	221 44.7 S69	40.3					
23	23	330	01.4	129 28.4	55.2	157 43.7	20.3	232 49.4	58.6	52 04.7	44.7								
6	00	345	03.9	144 28.2 S 8	56.5	172 44.7 N 4	19.7	247 51.5 N22	58.6	67 07.2 S22	44.7	Mirfak	309 06.0 N49	49.5					
01	01	0 06.4	159 27.9	57.7	187 45.7	19.0	262 53.6	58.5	82 09.7	44.7	Nunki	76 20.2 S26	18.7						
02	02	15	08.8	174 27.7	8 58.9	202 46.7	18.4	277 55.6	58.5	97 12.1	44.7	Peacock	53 46.6 S56	46.3					
03	03	30	11.3	189 27.4	9 00.2	217 47.7	17.7	292 57.7	58.5	112 14.6	44.7	Pollux	243 49.7 N28	03.2					
04	04	45	13.8	204 27.2	01.4	232 48.7	17.1	307 59.8	58.5	127 17.1	44.7	Procyon	245 18.6 N 5	15.3					
05	05	60	16.2	219 27.0	02.6	247 49.7	16.4	323 01.8	58.5	142 19.6	44.7								
06	06	75	18.7	234 26.7 S 9	03.9	262 50.7 N 4	15.8	338 03.9 N22	58.5	157 22.1 S22	44.7	Rasalhague	96 23.0 N12	34.1					
07	07	90	21.2	249 26.5	05.1	277 51.7	15.2	353 06.0	58.4	172 24.6	44.7	Regulus	208 02.8 N12	01.2					
08	08	105	23.6	264 26.3	06.3	292 52.7	14.5	8 08.0	58.4	187 27.1	44.8	Rigel	281 29.3 S 8	12.5					
09	09	120	26.1	279 26.0	07.6	307 53.7	13.9	23 10.1	58.4	202 29.6	44.8	Rigil Kent.	140 16.8 S60	47.8					
10	10	135	28.6	294 25.8	08.8	322 54.7	13.2	38 12.2	58.4	217 32.0	44.8	Sabik	102 33.0 S15	42.9					
11	11	150	31.0	309 25.5	10.0	337 55.6	12.6	53 14.2	58.4	232 34.5	44.8								
12	12	165	33.5	324 25.3 S 9	11.3	352 56.6 N 4	11.9	68 16.3 N22	58.4	247 37.0 S22	44.8	Schedar	350 00.8 N56	28.9					
13	13	180	35.9	339 25.1	12.5	7 57.6	11.3	83 18.3	58.3	262 39.5	44.8	Shaula	96 46.1 S37	06.0					
14	14	195	38.4	354 24.8	13.7	22 58.6	10.6	98 20.4	58.3	277 42.0	44.8	Sirius	258 49.6 S16	41.8					
15	15	210	40.9	9 24.6	14.9	37 59.6	10.0	113 22.5	58.3	292 44.5	44.8	Spica	158 50.4 S11	06.5					
16	16	225	43.3	24 24.4	16.2	53 00.6	09.3	128 24.5	58.3	307 46.9	44.8	Suhail	223 06.1 S43	23.2					
17	17	240	45.8	39 24.1	17.4	68 01.6	08.7	143 26.6	58.3	322 49.4	44.8								
18	18	255	48.3	54 23.9 S 9	18.6	83 02.6 N 4	08.1	158 28.7 N22	58.3	337 51.9 S22	44.8	Vega	80 50.9 N38	46.6					
19	19	270	50.7	69 23.6	19.9	98 03.6	07.4	173 30.7	58.3	352 54.4	44.8	Zuben'ubi	137 25.4 S16	00.0					
20	20	285	53.2	84 23.4	21.1	113 04.6	06.8	188 32.8	58.2	7 56.9	44.8								
21	21	300	55.7	99 23.2	22.3	128 05.6	06.1	203 34.9	58.2	22 59.4	44.8								
22	22	315	58.1	114 22.9	23.5	143 06.6	05.5	218 37.0	58.2										







T.M.G. (TU)		ARIES			VENUS -4.0			MARTE +1.8			JUPITER -2.1			SATURNO +0.4			ESTRELLAS		
d	h	A.H.G.		Dec.	A.H.G.		Dec.	A.H.G.		Dec.	A.H.G.		Dec.	A.H.G.		Dec.	Nombre	A. H. S.	Dec.
7	00	346	03.1	144 22.4 S 9 26.0	173 08.6 N 4 04.2	248 41.1 N22 58.2	68 06.8 S22 44.9	Acamar	315 31.5 S40 20.3										
	01	1	05.5	159 22.2 27.2	188 09.6 03.5	263 43.2 58.2	83 09.3 44.9	Achernar	335 39.3 S57 17.0										
	02	16	08.0	174 22.0 28.5	203 10.5 02.9	278 45.2 58.1	98 11.8 44.9	Acrux	173 30.4 S63 02.6										
	03	31	10.4	189 21.7 29.7	218 11.5 02.2	293 47.3 58.1	113 14.3 44.9	Adhara	255 26.8 S28 57.1										
	04	46	12.9	204 21.5 30.9	233 12.5 01.6	308 49.4 58.1	128 16.7 44.9	Aldebaran	291 09.9 N16 29.5										
	05	61	15.4	219 21.2 32.1	248 13.5 00.9	323 51.4 58.1	143 19.2 44.9												
	06	76	17.8	234 21.0 S 9 33.4	263 14.5 N 4 00.3	338 53.5 N22 58.1	158 21.7 S22 44.9	Alioth	166 36.5 N56 01.0										
	07	91	20.3	249 20.8 34.6	278 15.5 3 59.6	353 55.6 58.1	173 24.2 44.9	Alkaid	153 13.1 N49 22.0										
	08	106	22.8	264 20.5 35.8	293 16.5 59.0	8 57.6 58.0	188 26.7 44.9	Al Na'ir	28 05.4 S47 00.6										
J	09	121	25.2	279 20.3 37.0	308 17.5 58.4	23 59.7 58.0	203 29.2 44.9	Alnilam	276 04.5 S 1 12.2										
U	10	136	27.7	294 20.0 38.3	323 18.5 57.7	39 01.8 58.0	218 31.6 44.9	Alphard	218 13.9 S 8 36.6										
E	11	151	30.2	309 19.8 39.5	338 19.5 57.1	54 03.9 58.0	233 34.1 44.9												
V	12	166	32.6	324 19.6 S 9 40.7	353 20.5 N 3 56.4	69 05.9 N22 58.0	248 36.6 S22 44.9	Alphecca	126 26.2 N26 45.0										
E	13	181	35.1	339 19.3 41.9	8 21.5 55.8	84 08.0 58.0	263 39.1 44.9	Alpheratz	358 01.8 N29 02.2										
S	14	196	37.5	354 19.1 43.2	23 22.5 55.1	99 10.1 57.9	278 41.6 44.9	Altair	62 25.4 N 8 50.5										
	15	211	40.0	9 18.8 44.4	38 23.5 54.5	114 12.1 57.9	293 44.0 45.0	Ankaa	353 32.7 S42 21.5										
	16	226	42.5	24 18.6 45.6	53 24.4 53.8	129 14.2 57.9	308 46.5 45.0	Antares	112 48.3 S26 24.8										
	17	241	44.9	39 18.3 46.8	68 25.4 53.2	144 16.3 57.9	323 49.0 45.0												
	18	256	47.4	54 18.1 S 9 48.0	83 26.4 N 3 52.5	159 18.4 N22 57.9	338 51.5 S22 45.0	Arcturus	146 12.2 N19 14.2										
	19	271	49.9	69 17.9 49.3	98 27.4 51.9	174 20.4 57.9	353 54.0 45.0	Atria	108 06.3 S69 01.0										
	20	286	52.3	84 17.6 50.5	113 28.4 51.2	189 22.5 57.8	8 56.4 45.0	Avior	234 26.0 S59 28.3										
	21	301	54.8	99 17.4 51.7	128 29.4 50.6	204 24.6 57.8	23 58.9 45.0	Bellatrix	278 51.2 N 6 20.7										
	22	316	57.3	114 17.1 52.9	143 30.4 49.9	219 26.7 57.8	39 01.4 45.0	Betelgeuse	271 20.7 N 7 24.6										
	23	331	59.7	129 16.9 54.1	158 31.4 49.3	234 28.7 57.8	54 03.9 45.0												
8	00	347	02.2	144 16.6 S 9 55.4	173 32.4 N 3 48.6	249 30.8 N22 57.8	69 06.4 S22 45.0	Canopus	264 04.3 S52 41.0										
	01	2	04.7	159 16.4 56.6	188 33.4 48.0	264 32.9 57.8	84 08.8 45.0	Capella	281 00.9 N45 59.3										
	02	17	07.1	174 16.1 57.8	203 34.4 47.4	279 34.9 57.8	99 11.3 45.0	Deneb	49 43.4 N45 14.8										
	03	32	09.6	189 15.9 9 59.0	218 35.4 46.7	294 37.0 57.7	114 13.8 45.0	Denebola	182 52.1 N14 37.9										
	04	47	12.0	204 15.7 10 00.2	233 36.4 46.1	309 39.1 57.7	129 16.3 45.0	Diphda	349 13.4 S18 02.3										
	05	62	14.5	219 15.4 01.5	248 37.4 45.4	324 41.2 57.7	144 18.7 45.0												
	06	77	17.0	234 15.2 S10 02.7	263 38.3 N 3 44.8	339 43.2 N22 57.7	159 21.2 S22 45.0	Dubhe	194 13.8 N61 48.4										
	07	92	19.4	249 14.9 03.9	278 39.3 44.1	354 45.3 57.7	174 23.7 45.0	Elnath	278 35.3 N28 36.1										
	08	107	21.9	264 14.7 05.1	293 40.3 43.5	9 47.4 57.7	189 26.2 45.1	Eltanin	90 54.3 N51 29.6										
	09	122	24.4	279 14.4 06.3	308 41.3 42.8	24 49.5 57.6	204 28.7 45.1	Enif	34 04.4 N 9 49.8										
	10	137	26.8	294 14.2 07.5	323 42.3 42.2	39 51.6 57.6	219 31.1 45.1	Fomalhaut	15 43.2 S29 40.5										
	11	152	29.3	309 13.9 08.8	338 43.3 41.5	54 53.6 57.6	234 33.6 45.1												
	12	167	31.8	324 13.7 S10 10.0	353 44.3 N 3 40.9	69 55.7 N22 57.6	249 36.1 S22 45.1	Gacrux	172 21.7 S57 03.4										
	13	182	34.2	339 13.4 11.2	8 45.3 40.2	84 57.8 57.6	264 38.6 45.1	Gienah	176 11.1 S17 29.1										
	14	197	36.7	354 13.2 12.4	23 46.3 39.6	99 59.9 57.6	279 41.0 45.1	Hadar	149 14.1 S60 19.7										
	15	212	39.2	9 12.9 13.6	38 47.3 38.9	115 01.9 57.5	294 43.5 45.1	Hamal	328 20.8 N23 25.0										
	16	227	41.6	24 12.7 14.8	53 48.3 38.3	130 04.0 57.5	309 46.0 45.1	Kaus Aust.	84 07.3 S34 23.6										
	17	242	44.1	39 12.4 16.0	68 49.3 37.6	145 06.1 57.5	324 48.5 45.1												
	18	257	46.5	54 12.2 S10 17.3	83 50.3 N 3 37.0	160 08.2 N22 57.5	339 50.9 S22 45.1	Kochab	137 19.4 N74 12.0										
	19	272	49.0	69 12.0 18.5	98 51.3 36.3	175 10.3 57.5	354 53.4 45.1	Markab	13 55.9 N15 09.1										
	20	287	51.5	84 11.7 19.7	113 52.2 35.7	190 12.3 57.5	9 55.9 45.1	Menkar	314 33.6 N 4 03.2										
	21	302	53.9	99 11.5 20.9	128 53.2 35.0	205 14.4 57.4	24 58.4 45.1	Menkent	148 29.1 S36 19.3										
	22	317	56.4	114 11.2 22.1	143 54.2 34.4	220 16.5 57.4	40 00.8 45.1	Miaplacidus	221 44.6 S69 40.3										
	23	332	58.9	129 11.0 23.3	158 55.2 33.7	235 18.6 57.4	55 03.3 45.1												
9	00	348	01.3	144 10.7 S10 24.5	173 56.2 N 3 33.1	250 20.6 N22 57.4	70 05.8 S22 45.1	Mirfak	309 05.9 N49 49.5										
	01	3	03.8	159 10.5 25.7	188 57.2 32.4	265 22.7 57.4	85 08.3 45.2	Nunki	76 20.2 S26 18.7										
	02	18	06.3	174 10.2 27.0	203 58.2 31.8	280 24.8 57.4	100 10.7 45.2	Peacock	53 46.6 S56 46.3										
	03	33	08.7	189 10.0 28.2	218 59.2 31.1	295 26.9 57.3	115 13.2 45.2	Pollux	243 49.7 N28 03.2										
	04	48	11.2	204 09.7 29.4	234 00.2 30.5	310 29.0 57.3	130 15.7 45.2	Procyon	245 18.6 N 5 15.3										
	05	63	13.7	219 09.5 30.6	249 01.2 29.8	325 31.1 57.3	145 18.2 45.2												
	06	78	16.1	234 09.2 S10 31.8	264 02.2 N 3 29.2	340 33.1 N22 57.3	160 20.6 S22 45.2	Rasalhague	96 23.0 N12 34.1										
	07	93	18.6	249 09.0 33.0	279 03.2 28.5	355 35.2 57.3	175 23.1 45.2	Regulus	208 02.8 N12 01.2										
	08	108	21.0	264 08.7 34.2	294 04.2 27.9	10 37.3 57.3	190 25.6 45.2	Rigel	281 29.2 S 8 12.5										
S	09	123	23.5	279 08.5 35.4	309 05.2 27.2	25 39.4 57.2	205 28.0 45.2	Rigil Kent.	140 16.8 S60 47.8										
A	10	138	26.0	294 08.2 36.6	324 06.1 26.6	40 41.5 57.2	220 30.5 45.2	Sabik	102 33.0 S15 42.9										
B	11	153	28.4	309 08.0 37.8	339 07.1 26.0	55 43.5 57.2	235 33.0 45.2												
A	12	168	30.9	324 07.7 S10 39.0	354 08.1 N 3 25.3	70 45.6 N22 57.2	250 35.5 S22 45.2	Schedar	350 00.7 N56 28.9										
D	13	183	33.4	339 07.4 40.2	9 09.1 24.7	85 47.7 57.2	265 37.9 45.2	Shaula	96 46.1 S37 06.0										
O	14	198	35.8																



T.M.G. (TU)	SOL		LUNA				Lat.	Crepúsculo		Orto Sol	Orto Luna					
	A.H.G.	Dec.	A.H.G.	v	Dec.	d		P.H.	Náut.		7	8	9	10		
									h						m	h
J U E V E S	7 00	180 27.6	N 6 09.5	110 59.4	11.2	S24 57.4	6.6	54.6	N 72	00 34	03 16	04 35	15 49	17 46	18 22	18 17
	01	195 27.9	08.6	125 29.6	11.1	25 04.0	6.6	54.6	N 70	01 47	03 35	04 44	15 06	16 26	17 18	17 41
	02	210 28.1	07.6	139 59.7	11.1	25 10.6	6.4	54.6	68	02 23	03 50	04 51	14 37	15 50	16 44	17 15
	03	225 28.3	06.7	154 29.8	11.0	25 17.0	6.3	54.6	66	02 47	04 02	04 57	14 15	15 25	16 18	16 54
	04	240 28.5	05.7	168 59.8	10.9	25 23.3	6.3	54.6	64	03 06	04 12	05 03	13 57	15 04	15 58	16 37
	05	255 28.7	04.8	183 29.7	10.9	25 29.6	6.0	54.7	62	03 20	04 20	05 07	13 42	14 47	15 41	16 23
	06	270 28.9	N 6 03.9	197 59.6	10.7	S25 35.6	6.0	54.7	60	03 33	04 28	05 11	13 28	14 32	15 27	16 10
	07	285 29.1	02.9	212 29.3	10.7	25 41.6	5.9	54.7	N 58	03 43	04 34	05 15	13 01	14 03	14 57	15 43
	08	300 29.3	02.0	226 59.0	10.7	25 47.5	5.7	54.7	56	03 52	04 39	05 18	12 40	13 39	14 34	15 22
	09	315 29.6	01.1	241 28.7	10.5	25 53.2	5.6	54.7	54	04 00	04 44	05 20	12 22	13 20	14 15	15 05
	10	330 29.8	6 00.1	255 58.2	10.5	25 58.8	5.5	54.7	52	04 06	04 48	05 23	12 07	13 04	13 59	14 50
	11	345 30.0	5 59.2	270 27.7	10.4	26 04.3	5.4	54.8	50	04 12	04 52	05 25	11 41	12 36	13 31	14 24
	12	0 30.2	N 5 58.3	284 57.1	10.3	S26 09.7	5.2	54.8	45	04 25	05 00	05 30	11 19	12 13	13 07	14 02
	13	15 30.4	57.3	299 26.4	10.2	26 14.9	5.2	54.8	N 40	04 34	05 07	05 34	10 59	11 51	12 45	13 41
	14	30 30.6	56.4	313 55.6	10.2	26 20.1	5.0	54.8	35	04 42	05 12	05 38	10 38	11 05	11 59	12 58
	15	45 30.8	55.4	328 24.8	10.1	26 25.1	4.8	54.8	30	04 48	05 17	05 41	10 16	11 05	11 59	12 58
	16	60 31.0	54.5	342 53.9	10.0	26 29.9	4.8	54.9	20	04 58	05 24	05 46	09 51	10 38	11 32	12 32
	17	75 31.3	53.6	357 22.9	10.0	26 34.7	4.6	54.9	N 10	05 05	05 29	05 50	09 36	10 22	11 15	12 16
	18	90 31.5	N 5 52.6	11 51.9	9.9	S26 39.3	4.5	54.9	0	05 10	05 34	05 54	09 19	10 03	10 56	11 58
	19	105 31.7	51.7	26 20.8	9.8	26 43.8	4.4	54.9	S 10	05 13	05 37	05 58	08 59	09 40	10 33	11 37
	20	120 31.9	50.8	40 49.6	9.8	26 48.2	4.2	55.0	20	05 15	05 40	06 02	08 33	09 12	10 04	11 10
	21	135 32.1	49.8	55 18.4	9.6	26 52.4	4.1	55.0	30	05 15	05 43	06 07	08 21	08 58	09 49	10 56
	22	150 32.3	48.9	69 47.0	9.6	26 56.5	4.0	55.0	35	05 15	05 44	06 10	08 06	08 41	09 32	10 41
23	165 32.5	47.9	84 15.6	9.6	27 00.5	3.9	55.0	40	05 14	05 45	06 13	07 50	08 22	09 12	10 22	
V I E R N E S	8 00	180 32.8	N 5 47.0	98 44.2	9.5	S27 04.4	3.7	55.1	58	05 04	05 49	06 28	07 30	07 58	08 46	10 00
	01	195 33.0	46.1	113 12.7	9.4	27 08.1	3.6	55.1	S 50	05 09	05 48	06 20	07 06	07 26	08 11	09 31
	02	210 33.2	45.1	127 41.1	9.3	27 11.7	3.4	55.1	52	05 07	05 48	06 23	06 31	06 51	07 30	08 09
	03	225 33.4	44.2	142 09.4	9.3	27 15.1	3.3	55.1	54	05 06	05 49	06 26	06 21	06 41	07 20	07 59
	04	240 33.6	43.2	156 37.7	9.2	27 18.4	3.2	55.1	56	05 06	05 49	06 26	06 06	06 26	07 05	07 44
	05	255 33.8	42.3	171 05.9	9.2	27 21.6	3.0	55.2	58	05 04	05 49	06 28	05 51	06 11	06 34	07 07
	06	270 34.0	N 5 41.4	185 34.1	9.1	S27 24.6	2.9	55.2	S 60	05 01	05 49	06 31	05 30	05 50	06 30	07 10
	07	285 34.3	40.4	200 02.2	9.0	27 27.5	2.8	55.2	Lat.	Ocaso Sol	Crepúsculo		Ocaso Luna			
	08	300 34.5	39.5	214 30.2	9.0	27 30.3	2.6	55.2			Civil	Náut.	7	8	9	10
	09	315 34.7	38.5	228 58.2	8.9	27 32.9	2.5	55.3	N 72	19 18	20 35	22 59	18 27	18 19	19 38	21 40
	10	330 34.9	37.6	243 26.1	8.8	27 35.4	2.4	55.3	N 70	19 09	20 17	22 00	19 10	19 39	20 42	22 15
	11	345 35.1	36.7	257 53.9	8.8	27 37.8	2.2	55.3	68	19 02	20 02	21 28	19 02	19 31	20 34	22 09
	12	0 35.3	N 5 35.7	272 21.7	8.8	S27 40.0	2.0	55.4	66	18 56	19 51	21 04	18 43	18 54	19 57	21 10
	13	15 35.5	34.8	286 49.5	8.6	27 42.0	1.9	55.4	64	18 51	19 41	20 47	18 30	18 41	19 44	21 07
	14	30 35.8	33.8	301 17.1	8.7	27 43.9	1.8	55.4	62	18 46	19 33	20 32	18 19	18 30	19 33	20 40
	15	45 36.0	32.9	315 44.8	8.5	27 45.7	1.6	55.4	60	18 43	19 26	20 20	18 10	18 21	19 24	20 31
	16	60 36.2	32.0	330 12.3	8.6	27 47.3	1.5	55.5	N 58	18 39	19 20	20 10	18 00	18 11	19 14	20 21
	17	75 36.4	31.0	344 39.9	8.4	27 48.8	1.4	55.5	56	18 36	19 15	20 02	17 50	18 01	19 04	20 11
	18	90 36.6	N 5 30.1	359 07.3	8.4	S27 50.2	1.2	55.5	54	18 34	19 10	19 54	17 40	17 51	18 54	20 01
	19	105 36.8	29.1	13 34.7	8.4	27 51.4	1.0	55.5	52	18 31	19 06	19 48	17 30	17 41	18 44	19 51
	20	120 37.1	28.2	28 02.1	8.3	27 52.4	0.9	55.6	50	18 29	19 02	19 42	17 20	17 31	18 34	19 41
	21	135 37.3	27.2	42 29.4	8.3	27 53.3	0.8	55.6	45	18 24	18 54	19 30	17 10	17 21	18 24	19 31
	22	150 37.5	26.3	56 56.7	8.3	27 54.1	0.6	55.6	N 40	18 20	18 48	19 20	17 00	17 11	18 14	19 21
23	165 37.7	25.4	71 24.0	8.1	27 54.7	0.4	55.7	35	18 17	18 43	19 13	16 50	17 01	18 04	19 11	
S A B A D O	9 00	180 37.9	N 5 24.4	85 51.1	8.2	S27 55.1	0.3	55.7	30	18 14	18 38	19 07	16 40	16 51	17 54	19 01
	01	195 38.1	23.5	100 18.3	8.1	27 55.4	0.2	55.7	20	18 09	18 31	18 57	16 30	16 41	17 44	18 51
	02	210 38.4	22.5	114 45.4	8.1	27 55.6	0.0	55.8	N 10	18 05	18 26	18 51	16 20	16 31	17 34	18 41
	03	225 38.6	21.6	129 12.5	8.0	27 55.6	0.2	55.8	0	18 01	18 22	18 46	16 10	16 21	17 24	18 31
	04	240 38.8	20.6	143 39.5	8.0	27 55.4	0.3	55.8	S 10	17 57	18 18	18 43	16 00	16 11	17 14	18 21
	05	255 39.0	19.7	158 06.5	7.9	27 55.1	0.4	55.9	20	17 53	18 15	18 41	15 50	16 01	17 04	18 11
	06	270 39.2	N 5 18.8	172 33.4	7.9	S27 54.7	0.6	55.9	30	17 49	18 13	18 40	15 40	15 51	16 54	18 01
	07	285 39.4	17.8	187 00.3	7.9	27 54.1	0.8	55.9	40	17 46	18 12	18 41	15 30	15 41	16 44	17 51
	08	300 39.7	16.9	201 27.2	7.9	27 53.3	0.9	55.9	45	17 40	18 10	18 44	15 20	15 31	16 34	17 41
	09	315 39.9	15.9	215 54.1	7.8	27 52.4	1.0	56.0	S 50	17 36	18 09	18 46	15 10	15 21	16 24	17 31
	10	330 40.1	15.0	230 20.9	7.8	27 51.4	1.3	56.0	52	17 35	18 08	18 48	15 00	15 11	16 14	17 21
	11	345 40.3	14.0	244 47.7	7.7	27 50.1	1.3	56.0	54	17 33	18 08	18 48	14 50	15 01	16 04	17 11
	12	0 40.5	N 5 13.1	259 14.4	7.7	S27 48.8	1.5	56.1	56	17 31	18 08	18 51	14 40	14 51	15 54	17 01
	13	15 40.7	12.1	273 41.1	7.7	27 47.3	1.7	56.1	58	17 28	18 08	18 53	14 30	14 41	15 44	16 51
	14	30 41.0	11.2	288 07.8	7.7	27 45.6	1.9	56.1	S 60	17 26	18 07	18 56	14 20	14 31	15 34	16 41
	15	45 41.2	10.3	302 34.5	7.7	27 43.7	2.0	56.2	Lat.	SOL		LUNA				
	16	60 41.4	9.3	317 01.2	7.6	27 41.7	2.1	56.2		E.T. (+)	Pas. Mer.	Pas. Sup.	Mer. Inf.	Edad	Fase	
	17	75 41.6	8.4	331 27.8	7.6	27 39.6	2.3	56.2	7	01 50	02 00	11 58	17 11	04 46	07	
	18	90 41.8	N 5 07.4	345 54.4	7.6	S27 37.3	2.5	56.3	8	02 11	02 21	11 58	18 04	05 37	08	
	19	105 42.0</														



T.M.G. (TU)	ARIES			VENUS - 4.0			MARTE + 1.7			JUPITER - 2.2			SATURNO + 0.4			ESTRELLAS		
	A.H.G.	A.H.G.	Dec.	A.H.G.	Dec.		A.H.G.	Dec.		A.H.G.	Dec.		A.H.G.	Dec.		Nombre	A. H. S.	Dec.
D O M I N G O	10 00	349 00.5	144 04.7	S10 53.5	174 20.0	N 3 17.5	251 10.6	N22 57.0		71 05.1	S22 45.3		Acamar	315 31.5	S40 20.3			
	01	4 02.9	159 04.4	54.7	189 21.0	16.9	266 12.7	57.0		86 07.6	45.3		Achernar	335 39.2	S57 17.0			
	02	19 05.4	174 04.2	55.9	204 22.0	16.2	281 14.8	57.0		101 10.1	45.3		Acrux	173 30.4	S63 02.6			
	03	34 07.9	189 03.9	57.1	219 23.0	15.6	296 16.9	56.9		116 12.5	45.3		Adhara	255 26.7	S28 57.1			
	04	49 10.3	204 03.6	58.3	234 24.0	14.9	311 19.0	56.9		131 15.0	45.3		Aldebaran	291 09.9	N16 29.5			
	05	64 12.8	219 03.4	10 59.5	249 25.0	14.3	326 21.1	56.9		146 17.5	45.3							
	06	79 15.3	234 03.1	S11 00.7	264 26.0	N 3 13.6	341 23.2	N22 56.9		161 19.9	S22 45.3		Alioth	166 36.5	N56 01.0			
	07	94 17.7	249 02.9	01.9	279 27.0	13.0	356 25.2	56.9		176 22.4	45.3		Alkaid	153 13.1	N49 22.0			
	08	109 20.2	264 02.6	03.1	294 28.0	12.3	11 27.3	56.9		191 24.9	45.3		Al Na'ir	28 05.4	S47 00.7			
	09	124 22.6	279 02.4	04.3	309 29.0	11.7	26 29.4	56.9		206 27.3	45.3		Alnilam	276 04.5	S 1 12.2			
	10	139 25.1	294 02.1	05.5	324 30.0	11.0	41 31.5	56.8		221 29.8	45.3		Alphard	218 13.9	S 8 36.6			
	11	154 27.6	309 01.8	06.7	339 31.0	10.4	56 33.6	56.8		236 32.3	45.3							
	12	169 30.0	324 01.6	S11 07.9	354 32.0	N 3 09.7	71 35.7	N22 56.8		251 34.7	S22 45.4		Alphecca	126 26.2	N26 45.0			
	13	184 32.5	339 01.3	09.1	9 32.9	09.1	86 37.8	56.8		266 37.2	45.4		Alpheratz	358 01.8	N29 02.2			
	14	199 35.0	354 01.1	10.3	24 33.9	08.4	101 39.9	56.8		281 39.7	45.4		Altair	62 25.5	N 8 50.5			
	15	214 37.4	9 00.8	11.5	39 34.9	07.8	116 42.0	56.8		296 42.1	45.4		Ankaa	353 32.7	S42 21.5			
	16	229 39.9	24 00.6	12.7	54 35.9	07.1	131 44.0	56.7		311 44.6	45.4		Antares	112 48.3	S26 24.8			
	17	244 42.4	39 00.3	13.9	69 36.9	06.5	146 46.1	56.7		326 47.1	45.4							
	18	259 44.8	54 00.0	S11 15.1	84 37.9	N 3 05.8	161 48.2	N22 56.7		341 49.5	S22 45.4		Arcturus	146 12.2	N19 14.2			
	19	274 47.3	68 59.8	16.3	99 38.9	05.1	176 50.3	56.7		356 52.0	45.4		Atria	108 06.3	S69 01.0			
	20	289 49.8	83 59.5	17.5	114 39.9	04.5	191 52.4	56.7		11 54.5	45.4		Avior	234 26.0	S59 28.3			
	21	304 52.2	98 59.3	18.7	129 40.9	03.8	206 54.5	56.7		26 56.9	45.4		Bellatrix	278 51.2	N 6 20.7			
	22	319 54.7	113 59.0	19.8	144 41.9	03.2	221 56.6	56.6		41 59.4	45.4		Betelgeuse	271 20.7	N 7 24.6			
23	334 57.1	128 58.7	21.0	159 42.9	02.5	236 58.7	56.6		57 01.9	45.4								
L U N E S	11 00	349 59.6	143 58.5	S11 22.2	174 43.9	N 3 01.9	252 00.8	N22 56.6		72 04.3	S22 45.4		Canopus	264 04.2	S52 40.9			
	01	5 02.1	158 58.2	23.4	189 44.9	01.2	267 02.9	56.6		87 06.8	45.4		Capella	281 00.9	N45 59.3			
	02	20 04.5	173 58.0	24.6	204 45.9	3 00.6	282 05.0	56.6		102 09.3	45.4		Deneb	49 43.4	N45 14.8			
	03	35 07.0	188 57.7	25.8	219 46.8	2 59.9	297 07.0	56.6		117 11.7	45.4		Denebola	182 52.1	N14 37.9			
	04	50 09.5	203 57.4	27.0	234 47.8	59.3	312 09.1	56.5		132 14.2	45.4		Diphda	349 13.4	S18 02.3			
	05	65 11.9	218 57.2	28.2	249 48.8	58.6	327 11.2	56.5		147 16.7	45.4							
	06	80 14.4	233 56.9	S11 29.4	264 49.8	N 2 58.0	342 13.3	N22 56.5		162 19.1	S22 45.4		Dubhe	194 13.8	N61 48.4			
	07	95 16.9	248 56.7	30.6	279 50.8	57.3	357 15.4	56.5		177 21.6	45.5		Elnath	278 35.2	N28 36.1			
	08	110 19.3	263 56.4	31.8	294 51.8	56.7	12 17.5	56.5		192 24.0	45.5		Eltanin	90 54.3	N51 29.6			
	09	125 21.8	278 56.1	32.9	309 52.8	56.0	27 19.6	56.5		207 26.5	45.5		Enif	34 04.4	N 9 49.8			
	10	140 24.2	293 55.9	34.1	324 53.8	55.4	42 21.7	56.4		222 29.0	45.5		Fomalhaut	15 43.1	S29 40.5			
	11	155 26.7	308 55.6	35.3	339 54.8	54.7	57 23.8	56.4		237 31.4	45.5							
	12	170 29.2	323 55.4	S11 36.5	354 55.8	N 2 54.1	72 25.9	N22 56.4		252 33.9	S22 45.5		Gacrux	172 21.7	S57 03.4			
	13	185 31.6	338 55.1	37.7	9 56.8	53.4	87 28.0	56.4		267 36.4	45.5		Gienah	176 11.1	S17 29.1			
	14	200 34.1	353 54.8	38.9	24 57.8	52.8	102 30.1	56.4		282 38.8	45.5		Hadar	149 14.1	S60 19.7			
	15	215 36.6	8 54.6	40.1	39 58.8	52.1	117 32.2	56.4		297 41.3	45.5		Hamal	328 20.8	N23 25.0			
	16	230 39.0	23 54.3	41.3	54 59.7	51.5	132 34.3	56.3		312 43.8	45.5		Kaus Aust.	84 07.3	S34 23.6			
	17	245 41.5	38 54.0	42.4	70 00.7	50.8	147 36.4	56.3		327 46.2	45.5							
	18	260 44.0	53 53.8	S11 43.6	85 01.7	N 2 50.2	162 38.5	N22 56.3		342 48.7	S22 45.5		Kochab	137 19.4	N74 12.0			
	19	275 46.4	68 53.5	44.8	100 02.7	49.5	177 40.6	56.3		357 51.1	45.5		Markab	13 55.9	N15 09.1			
	20	290 48.9	83 53.2	46.0	115 03.7	48.9	192 42.7	56.3		12 53.6	45.5		Menkar	314 33.6	N 4 03.2			
	21	305 51.4	98 53.0	47.2	130 04.7	48.2	207 44.8	56.3		27 56.1	45.5		Menkent	148 29.1	S36 19.3			
	22	320 53.8	113 52.7	48.4	145 05.7	47.6	222 46.8	56.2		42 58.5	45.5		Miaplacidus	221 44.6	S69 40.3			
23	335 56.3	128 52.4	49.6	160 06.7	46.9	237 48.9	56.2		58 01.0	45.5								
M A R T E S	12 00	350 58.7	143 52.2	S11 50.7	175 07.7	N 2 46.3	252 51.0	N22 56.2		73 03.4	S22 45.5		Mirfak	309 05.9	N49 49.5			
	01	6 01.2	158 51.9	51.9	190 08.7	45.6	267 53.1	56.2		88 05.9	45.5		Nunki	76 20.2	S26 18.7			
	02	21 03.7	173 51.6	53.1	205 09.7	45.0	282 55.2	56.2		103 08.4	45.6		Peacock	53 46.6	S56 46.3			
	03	36 06.1	188 51.4	54.3	220 10.7	44.3	297 57.3	56.2		118 10.8	45.6		Pollux	243 49.7	N28 03.2			
	04	51 08.6	203 51.1	55.5	235 11.7	43.7	312 59.4	56.1		133 13.3	45.6		Procyon	245 18.6	N 5 15.3			
	05	66 11.1	218 50.8	56.6	250 12.6	43.0	328 01.5	56.1		148 15.7	45.6							
	06	81 13.5	233 50.6	S11 57.8	265 13.6	N 2 42.3	343 03.6	N22 56.1		163 18.2	S22 45.6		Rasalhague	96 23.0	N12 34.1			
	07	96 16.0	248 50.3	11 59.0	280 14.6	41.7	358 05.7	56.1		178 20.7	45.6		Regulus	208 02.8	N12 01.2			
	08	111 18.5	263 50.0	12 00.2	295 15.6	41.0	13 07.8	56.1		193 23.1	45.6		Rigel	281 29.2	S 8 12.5			
	09	126 20.9	278 49.8	01.4	310 16.6	40.4	28 09.9	56.1		208 25.6	45.6		Rigil Kent.	140 16.8	S60 47.8			
	10	141 23.4	293 49.5	02.5	325 17.6	39.7	43 12.0	56.0		223 28.0	45.6		Sabik	102 33.0	S15 42.9			
	11	156 25.9	308 49.2	03.7	340 18.6	39.1	58 14.1	56.0		238 30.5	45.6							
	12	171 28.3	323 49.0	S12 04.9	355 19.6	N 2 38.4	73 16.2	N22 56.0		253 33.0	S22 45.6		Schedar	350 00.7	N56 28.9			
	13	186 30.8	338 48.7	06.1	10 20.6	37.8	88 18.3	56.0		268 35.4	45.6		Shaula	96 46.1	S37 06.0			
	14	201 33.2	353 48.4	07.3	25 21.6	37.1	103 20.4	56.0		283 37.9	45.6		Sirius	258 49.6	S16 41.8			
	15	216 35.7	8 48.2	08.4	40 22.6	36.5	118 22.5	56.0		298 40.3	45.6		Spica	158 50.4	S11 06.5			
	16	231 38.2	23 47.9	09.6	55 23.6	35.8	133 24.6	55.9		313 42.8	45.6		Suhail	223 06.1	S43 23.2			
	17	246 40.6</																



T.M.G. (TU)	SOL		LUNA				Lat.	Crepúsculo		Orto Sol	Orto Luna					
	A.H.G.	Dec.	A.H.G.	<i>v</i>	Dec.	<i>d</i>		P.H.	Náut.		Civil	10	11	12	13	
	° / ' / "	° / ' / "	° / ' / "	' / "	° / ' / "	' / "		' / "	h m	h m	h m	h m	h m	h m	h m	
DOMINGO	10 00	180 43.1 N 5	01.7	72 33.8	7.5	S27 20.2	3.4	56.5	N 72	01 27	03 33	04 48	■	■	20 55	19 16
	01	195 43.3	5 00.8	87 00.3	7.5	27 16.8	3.6	56.5	N 70	02 12	03 49	04 56	■	■	19 49	18 56
	02	210 43.6	4 59.9	101 26.8	7.5	27 13.2	3.7	56.6	68	02 40	04 02	05 02	■	■	19 12	18 39
	03	225 43.8	.. 58.9	115 53.3	7.5	27 09.5	3.9	56.6	66	03 01	04 13	05 07	■	■	18 46	18 26
	04	240 44.0	.. 58.0	130 19.8	7.4	27 05.6	4.0	56.6	64	03 17	04 22	05 11	19 30	18 42	18 26	18 15
	05	255 44.2	.. 57.0	144 46.2	7.5	27 01.6	4.2	56.7	62	03 31	04 29	05 15	18 17	18 13	18 09	18 05
	06	270 44.4	N 4 56.1	159 12.7	7.5	S26 57.4	4.4	56.7	60	03 42	04 35	05 18	17 41	17 51	17 55	17 57
	07	285 44.7	.. 55.1	173 39.2	7.5	26 53.0	4.5	56.7	N 58	03 51	04 41	05 21	17 15	17 33	17 43	17 50
	08	300 44.9	.. 54.2	188 05.7	7.4	26 48.5	4.7	56.8	56	03 59	04 45	05 23	16 54	17 17	17 32	17 43
	09	315 45.1	.. 53.2	202 32.1	7.5	26 43.8	4.8	56.8	54	04 06	04 50	05 26	16 37	17 04	17 23	17 37
	10	330 45.3	.. 52.3	216 58.6	7.5	26 39.0	5.0	56.8	52	04 12	04 53	05 28	16 23	16 53	17 15	17 32
	11	345 45.5	.. 51.3	231 25.1	7.5	26 34.0	5.1	56.9	50	04 17	04 57	05 30	16 10	16 42	17 07	17 27
	12	0 45.7	N 4 50.4	245 51.6	7.4	S26 28.9	5.3	56.9	45	04 29	05 04	05 34	15 43	16 21	16 51	17 17
	13	15 46.0	.. 49.4	260 18.0	7.5	26 23.6	5.5	57.0	N 40	04 37	05 10	05 37	15 22	16 03	16 38	17 08
	14	30 46.2	.. 48.5	274 44.5	7.5	26 18.1	5.6	57.0	35	04 44	05 14	05 40	15 05	15 48	16 27	17 01
	15	45 46.4	.. 47.5	289 11.0	7.5	26 12.5	5.7	57.0	30	04 50	05 18	05 42	14 50	15 36	16 17	16 54
	16	60 46.6	.. 46.6	303 37.5	7.6	26 06.8	6.0	57.1	20	04 59	05 24	05 46	14 24	15 13	16 00	16 42
	17	75 46.8	.. 45.6	318 04.1	7.5	26 00.8	6.0	57.1	N 10	05 04	05 29	05 50	14 02	14 54	15 44	16 32
	18	90 47.1	N 4 44.7	332 30.6	7.5	S25 54.8	6.3	57.1	0	05 09	05 33	05 53	13 41	14 36	15 30	16 23
	19	105 47.3	.. 43.7	346 57.1	7.6	25 48.5	6.4	57.2	S 10	05 11	05 35	05 57	13 20	14 18	15 16	16 13
	20	120 47.5	.. 42.8	1 23.7	7.6	25 42.1	6.5	57.2	20	05 12	05 38	06 00	12 58	13 59	15 01	16 03
	21	135 47.7	.. 41.8	15 50.3	7.5	25 35.6	6.7	57.3	30	05 12	05 39	06 03	12 32	13 36	14 43	15 51
	22	150 47.9	.. 40.9	30 16.8	7.6	25 28.9	6.9	57.3	35	05 11	05 40	06 05	12 16	13 23	14 33	15 44
23	165 48.2	.. 39.9	44 43.4	7.7	25 22.0	7.0	57.3	40	05 09	05 41	06 08	11 58	13 08	14 21	15 37	
LUNES	11 00	180 48.4 N 4	39.0	59 10.1	7.6	S25 15.0	7.2	57.4	45	05 07	05 41	06 10	11 37	12 49	14 07	15 27
	01	195 48.6	.. 38.0	73 36.7	7.7	25 07.8	7.3	57.4	S 50	05 04	05 41	06 13	11 10	12 27	13 50	15 16
	02	210 48.8	.. 37.1	88 03.4	7.6	25 00.5	7.5	57.5	52	05 02	05 41	06 15	10 56	12 16	13 42	15 11
	03	225 49.0	.. 36.1	102 30.0	7.7	24 53.0	7.6	57.5	54	05 00	05 41	06 16	10 41	12 03	13 33	15 05
	04	240 49.2	.. 35.2	116 56.7	7.8	24 45.4	7.8	57.5	56	04 58	05 41	06 18	10 22	11 49	13 23	14 59
	05	255 49.5	.. 34.2	131 23.5	7.7	24 37.6	7.9	57.6	58	04 55	05 41	06 20	10 00	11 32	13 11	14 52
	06	270 49.7	N 4 33.3	145 50.2	7.8	S24 29.7	8.1	57.6	S 60	04 52	05 40	06 22	09 31	11 11	12 57	14 44
	07	285 49.9	.. 32.3	160 17.0	7.8	24 21.6	8.2	57.7	Lat.	Ocaso Sol	Crepúsculo Civil	Náut.	10	11	12	13
	08	300 50.1	.. 31.4	174 43.8	7.8	24 13.4	8.4	57.7	N 72	19 02	20 16	22 16	■	■	22 56	26 25
	09	315 50.3	.. 30.4	189 10.6	7.9	24 05.0	8.5	57.7	N 70	18 55	20 00	21 35	■	■	■	00 00
	10	330 50.6	.. 29.5	203 37.5	7.8	23 56.5	8.7	57.8	68	18 49	19 48	21 09	■	■	■	00 35
	11	345 50.8	.. 28.5	218 04.3	7.9	23 47.8	8.9	57.8	66	18 44	19 38	20 49	■	■	■	01 00
	12	0 51.0	N 4 27.6	232 31.2	8.0	S23 38.9	8.9	57.8	64	18 40	19 30	20 33	20 27	23 11	25 19	01 19
	13	15 51.2	.. 26.6	246 58.2	7.9	23 30.0	9.2	57.9	62	18 37	19 22	20 20	21 40	23 39	25 34	01 34
	14	30 51.4	.. 25.7	261 25.1	8.0	23 20.8	9.2	57.9	60	18 34	19 16	20 09	22 15	24 00	00 00	01 47
	15	45 51.7	.. 24.7	275 52.1	8.1	23 11.6	9.5	58.0	N 58	18 31	19 11	20 00	22 41	24 18	00 18	01 58
	16	60 51.9	.. 23.8	290 19.2	8.0	23 02.1	9.5	58.0	56	18 28	19 06	19 53	23 01	24 32	00 32	02 08
	17	75 52.1	.. 22.8	304 46.2	8.1	22 52.6	9.7	58.0	54	18 26	19 02	19 46	23 18	24 45	00 45	02 17
	18	90 52.3	N 4 21.9	319 13.3	8.2	S22 42.9	9.9	58.1	52	18 24	18 59	19 40	23 32	24 56	00 56	02 24
	19	105 52.5	.. 20.9	333 40.5	8.1	22 33.0	10.0	58.1	50	18 23	18 55	19 35	23 45	25 06	01 06	02 31
	20	120 52.8	.. 20.0	348 07.6	8.2	22 23.0	10.1	58.2	45	18 19	18 48	19 24	24 10	00 10	01 26	02 45
	21	135 53.0	.. 19.0	2 34.8	8.3	22 12.9	10.3	58.2	N 40	18 16	18 43	19 15	24 31	00 31	01 42	02 57
	22	150 53.2	.. 18.1	17 02.1	8.2	22 02.6	10.4	58.2	35	18 13	18 38	19 08	24 48	00 48	01 56	03 07
23	165 53.4	.. 17.1	31 29.3	8.3	21 52.2	10.5	58.3	30	18 10	18 35	19 03	00 00	01 02	02 08	03 16	
MARTES	12 00	180 53.7 N 4	16.2	45 56.6	8.4	S21 41.7	10.7	58.3	20	18 06	18 29	18 54	00 27	01 27	02 28	03 31
	01	195 53.9	.. 15.2	60 24.0	8.3	21 31.0	10.9	58.4	N 10	18 03	18 24	18 49	00 50	01 48	02 46	03 43
	02	210 54.1	.. 14.3	74 51.3	8.5	21 20.1	10.9	58.4	0	18 00	18 21	18 45	01 12	02 07	03 02	03 55
	03	225 54.3	.. 13.3	89 18.8	8.4	21 09.2	11.1	58.4	S 10	17 57	18 18	18 42	01 34	02 27	03 18	04 07
	04	240 54.5	.. 12.3	103 46.2	8.5	20 58.1	11.3	58.5	20	17 54	18 16	18 41	01 57	02 48	03 36	04 20
	05	255 54.8	.. 11.4	118 13.7	8.5	20 46.8	11.3	58.5	30	17 50	18 14	18 42	02 23	03 12	03 55	04 34
	06	270 55.0	N 4 10.4	132 41.2	8.6	S20 35.5	11.6	58.6	35	17 48	18 14	18 43	02 39	03 26	04 07	04 42
	07	285 55.2	.. 09.5	147 08.8	8.6	20 23.9	11.6	58.6	40	17 46	18 13	18 45	02 58	03 42	04 20	04 52
	08	300 55.4	.. 08.5	161 36.4	8.6	20 12.3	11.8	58.6	45	17 44	18 13	18 47	03 20	04 01	04 35	05 03
	09	315 55.6	.. 07.6	176 04.0	8.7	20 00.5	11.9	58.7	S 50	17 41	18 13	18 51	03 48	04 25	04 53	05 16
	10	330 55.9	.. 06.6	190 31.7	8.7	19 48.6	12.0	58.7	52	17 40	18 13	18 52	04 01	04 37	05 02	05 22
	11	345 56.1	.. 05.7	204 59.4	8.8	19 36.6	12.1	58.8	54	17 38	18 13	18 54	04 17	04 49	05 12	05 28
	12	0 56.3	N 4 04.7	219 27.2	8.8	S19 24.5	12.3	58.8	56	17 37	18 14	18 57	04 35	05 04	05 23	05 36
	13	15 56.5	.. 03.8	233 55.0	8.8	19 12.2	12.4	58.8	58	17 35	18 14	19 00	04 58	05 22	05 35	05 44
	14	30 56.7	.. 02.8	248 22.8	8.9	18 59.8	12.5	58.9	S 60	17 33	18 14	19 03	05 27	05 43	05 50	05 53
	15	45 57.0	.. 01.8	262 50.7	8.9	18 47.3	12.7	58.9	Día	SOL E.T. (+)	Pas. Mer.	LUNA		Fase		
	16	60 57.2	.. 00.9	277 18.6	9.0	18 34.6	12.8	58.9	00 h	12 h	Sup.	Inf.	Edad			
	17	75 57.4	.. 59.9	291 46.6	8.9	18 21.8	12.9	59.0	m s	m s	h m	h m	h m	d		
	18	90 57.6	N 3 59.0	306 14.5	9.1	S18 08.9	13.0	59.0	02 52	03 03	11 57					



T.M.G. (TU)	ARIES			VENUS -4.1			MARTE +1.7			JUPITER -2.2			SATURNO +0.4			ESTRELLAS		
	A.H.G.	A.H.G.	Dec.	A.H.G.	A.H.G.	Dec.	A.H.G.	A.H.G.	Dec.	A.H.G.	A.H.G.	Dec.	Nombre	A. H. S.	Dec.			
M I E R C U R O S	13 00	351 57.9	143 45.7	S12 19.0	175 31.5	N 2 30.6	253 41.5	N22 55.8	74 02.5	S22 45.7	Acomar	315 31.5	S40 20.3					
	01	7 00.4	158 45.5	20.2	190 32.5	29.9	268 43.6	55.8	89 04.9	45.7	Achernar	335 39.2	S57 17.0					
	02	22 02.8	173 45.2	21.3	205 33.5	29.3	283 45.7	55.8	104 07.4	45.7	Acrux	173 30.4	S63 02.6					
	03	37 05.3	188 44.9	22.5	220 34.5	28.6	298 47.8	55.8	119 09.8	45.7	Adhara	255 26.7	S28 57.1					
	04	52 07.7	203 44.6	23.7	235 35.5	28.0	313 49.9	55.7	134 12.3	45.7	Aldebaran	291 09.8	N16 29.5					
	05	67 10.2	218 44.4	24.9	250 36.4	27.3	328 52.0	55.7	149 14.7	45.7								
	06	82 12.7	233 44.1	S12 26.0	265 37.4	N 2 26.7	343 54.1	N22 55.7	164 17.2	S22 45.7	Alioth	166 36.5	N56 01.0					
	07	97 15.1	248 43.8	27.2	280 38.4	26.0	358 56.2	55.7	179 19.6	45.7	Alkaid	153 13.1	N49 22.0					
	08	112 17.6	263 43.5	28.4	295 39.4	25.4	13 58.3	55.7	194 22.1	45.7	Al Na'ir	28 05.4	S47 00.7					
	09	127 20.1	278 43.3	29.5	310 40.4	24.7	29 00.4	55.7	209 24.6	45.7	Alnilam	276 04.5	S 1 12.2					
	10	142 22.5	293 43.0	30.7	325 41.4	24.1	44 02.5	55.6	224 27.0	45.7	Alphard	218 13.9	S 8 36.6					
	11	157 25.0	308 42.7	31.9	340 42.4	23.4	59 04.6	55.6	239 29.5	45.7								
	12	172 27.5	323 42.5	S12 33.0	355 43.4	N 2 22.8	74 06.7	N22 55.6	254 31.9	S22 45.7	Alphecca	126 26.2	N26 45.0					
	13	187 29.9	338 42.2	34.2	10 44.4	22.1	89 08.8	55.6	269 34.4	45.7	Alpheratz	358 01.8	N29 02.2					
	14	202 32.4	353 41.9	35.4	25 45.4	21.5	104 10.9	55.6	284 36.8	45.7	Altair	62 25.5	N 8 50.5					
	15	217 34.8	8 41.6	36.5	40 46.4	20.8	119 13.0	55.6	299 39.3	45.7	Ankaa	353 32.7	S42 21.5					
	16	232 37.3	23 41.4	37.7	55 47.4	20.2	134 15.2	55.5	314 41.7	45.7	Antares	112 48.3	S26 24.8					
	17	247 39.8	38 41.1	38.9	70 48.3	19.5	149 17.3	55.5	329 44.2	45.7								
	18	262 42.2	53 40.8	S12 40.0	85 49.3	N 2 18.8	164 19.4	N22 55.5	344 46.6	S22 45.7	Arcturus	146 12.2	N19 14.2					
	19	277 44.7	68 40.5	41.2	100 50.3	18.2	179 21.5	55.5	359 49.1	45.8	Atria	108 06.4	S69 01.0					
	20	292 47.2	83 40.2	42.4	115 51.3	17.5	194 23.6	55.5	14 51.5	45.8	Avior	234 25.9	S59 28.2					
	21	307 49.6	98 40.0	43.5	130 52.3	16.9	209 25.7	55.5	29 54.0	45.8	Bellatrix	278 51.2	N 6 20.7					
	22	322 52.1	113 39.7	44.7	145 53.3	16.2	224 27.8	55.4	44 56.4	45.8	Betelgeuse	271 20.7	N 7 24.6					
23	337 54.6	128 39.4	45.8	160 54.3	15.6	239 29.9	55.4	59 58.9	45.8									
J U E V E S	14 00	352 57.0	143 39.1	S12 47.0	175 55.3	N 2 14.9	254 32.0	N22 55.4	75 01.4	S22 45.8	Canopus	264 04.2	S52 40.9					
	01	7 59.5	158 38.9	48.2	190 56.3	14.3	269 34.1	55.4	90 03.8	45.8	Capella	281 00.9	N45 59.3					
	02	23 02.0	173 38.6	49.3	205 57.3	13.6	284 36.2	55.4	105 06.3	45.8	Deneb	49 43.4	N45 14.8					
	03	38 04.4	188 38.3	50.5	220 58.3	13.0	299 38.4	55.4	120 08.7	45.8	Denebola	182 52.1	N14 37.9					
	04	53 06.9	203 38.0	51.7	235 59.3	12.3	314 40.5	55.3	135 11.2	45.8	Diphda	349 13.4	S18 02.3					
	05	68 09.3	218 37.7	52.8	251 00.2	11.7	329 42.6	55.3	150 13.6	45.8								
	06	83 11.8	233 37.5	S12 54.0	266 01.2	N 2 11.0	344 44.7	N22 55.3	165 16.1	S22 45.8	Dubhe	194 13.7	N61 48.4					
	07	98 14.3	248 37.2	55.1	281 02.2	10.3	359 46.8	55.3	180 18.5	45.8	Elnath	278 35.2	N28 36.1					
	08	113 16.7	263 36.9	56.3	296 03.2	09.7	14 48.9	55.3	195 21.0	45.8	Eltanin	90 54.4	N51 29.6					
	09	128 19.2	278 36.6	57.4	311 04.2	09.0	29 51.0	55.3	210 23.4	45.8	Enif	34 04.4	N 9 49.8					
	10	143 21.7	293 36.3	58.6	326 05.2	08.4	44 53.1	55.2	225 25.9	45.8	Fomalhaut	15 43.1	S29 40.5					
	11	158 24.1	308 36.1	12 59.8	341 06.2	07.7	59 55.3	55.2	240 28.3	45.8								
	12	173 26.6	323 35.8	S13 00.9	356 07.2	N 2 07.1	74 57.4	N22 55.2	255 30.8	S22 45.8	Gacrux	172 21.7	S57 03.4					
	13	188 29.1	338 35.5	02.1	11 08.2	06.4	89 59.5	55.2	270 33.2	45.8	Gienah	176 11.1	S17 29.1					
	14	203 31.5	353 35.2	03.2	26 09.2	05.8	105 01.6	55.2	285 35.7	45.8	Hadar	149 14.1	S60 19.7					
	15	218 34.0	8 34.9	04.4	41 10.2	05.1	120 03.7	55.2	300 38.1	45.8	Hamal	328 20.7	N23 25.0					
	16	233 36.5	23 34.7	05.5	56 11.1	04.5	135 05.8	55.1	315 40.6	45.8	Kaus Aust.	84 07.4	S34 23.6					
	17	248 38.9	38 34.4	06.7	71 12.1	03.8	150 07.9	55.1	330 43.0	45.9								
	18	263 41.4	53 34.1	S13 07.8	86 13.1	N 2 03.2	165 10.0	N22 55.1	345 45.5	S22 45.9	Kochab	137 19.5	N74 12.0					
	19	278 43.8	68 33.8	09.0	101 14.1	02.5	180 12.2	55.1	0 47.9	45.9	Markab	13 55.8	N15 09.2					
	20	293 46.3	83 33.5	10.1	116 15.1	01.8	195 14.3	55.1	15 50.4	45.9	Menkar	314 33.6	N 4 03.2					
	21	308 48.8	98 33.2	11.3	131 16.1	01.2	210 16.4	55.1	30 52.8	45.9	Menkent	148 29.1	S36 19.3					
	22	323 51.2	113 33.0	12.5	146 17.1	2 00.5	225 18.5	55.0	45 55.3	45.9	Miaplacidus	221 44.6	S69 40.2					
23	338 53.7	128 32.7	13.6	161 18.1	1 59.9	240 20.6	55.0	60 57.7	45.9									
V I E R N E S	15 00	353 56.2	143 32.4	S13 14.8	176 19.1	N 1 59.2	255 22.7	N22 55.0	76 00.1	S22 45.9	Mirfak	309 05.9	N49 49.5					
	01	8 58.6	158 32.1	15.9	191 20.1	58.6	270 24.9	55.0	91 02.6	45.9	Nunki	76 20.3	S26 18.7					
	02	24 01.1	173 31.8	17.1	206 21.1	57.9	285 27.0	55.0	106 05.0	45.9	Peacock	53 46.7	S56 46.3					
	03	39 03.6	188 31.5	18.2	221 22.0	57.3	300 29.1	55.0	121 07.5	45.9	Pollux	243 49.7	N28 03.2					
	04	54 06.0	203 31.3	19.4	236 23.0	56.6	315 31.2	54.9	136 09.9	45.9	Procyon	245 18.5	N 5 15.3					
	05	69 08.5	218 31.0	20.5	251 24.0	56.0	330 33.3	54.9	151 12.4	45.9								
	06	84 10.9	233 30.7	S13 21.6	266 25.0	N 1 55.3	345 35.4	N22 54.9	166 14.8	S22 45.9	Rasalhague	96 23.0	N12 34.1					
	07	99 13.4	248 30.4	22.8	281 26.0	54.6	0 37.6	54.9	181 17.3	45.9	Regulus	208 02.7	N12 01.2					
	08	114 15.9	263 30.1	23.9	296 27.0	54.0	15 39.7	54.9	196 19.7	45.9	Rigel	281 29.2	S 8 12.5					
	09	129 18.3	278 29.8	25.1	311 28.0	53.3	30 41.8	54.9	211 22.2	45.9	Rigel Kent.	140 16.9	S60 47.8					
	10	144 20.8	293 29.5	26.2	326 29.0	52.7	45 43.9	54.8	226 24.6	45.9	Sabik	102 33.1	S15 42.9					
	11	159 23.3	308 29.2	27.4	341 30.0	52.0	60 46.0	54.8	241 27.1	45.9								
	12	174 25.7	323 29.0	S13 28.5	356 31.0	N 1 51.4	75 48.2	N22 54.8	256 29.5	S22 45.9	Schedar	350 00.7	N56 28.9					
	13	189 28.2	338 28.7	29.7	11 32.0	50.7	90 50.3	54.8	271 32.0	45.9	Shaula	96 46.2	S37 06.0					
	14	204 30.7	353 28.4	30.8	26 32.9	50.1	105 52.4	54.8	286 34.4	45.9	Sirius	258 49.6	S16 41.8					
	15	219 33.1	8 28.1	32.0	41 33.9	49.4	120 54.5	54.8	301 36.8	45.9	Spica	158 50.4	S11 06.5					
	16	234 35.6	23 27.8	33.1	56 34.9	48.7	135 56.6	54.7	316 39.3	46.0	Suhail	223 06.1	S43 23.2					
	17	249 38.1	38 27.5	34.2	71 35.9	48.1	150 58.8	54.7	331 41.7	46.0								
	18	264 40.5	53 27.2	S13 35.4	86 36.9	N 1 47.4	166 00.9	N22 54.7	346 44.2	S22 46.0	Vega	80 50.9	N38 46.6					
	19	279 43.0	68 26.9	36.5	101 37.9	46.8	181 03.0	54.7	1 46.6	46.0	Zuben'ubi	137 25.5	S16 00.0					
	20	294 45.4	83 26.6	37.7	116 38.9	46.1	196 05.1	54.7	16 49.1	46.0								
	21	309 47.9	98 26.4	38.8	131 39.9	45.5	211 07.2	54.7	31 51.5	46.0								
	22	324 50.4	113 26.1	39.9	146 40.9	44.8	226 09.4	54.6	46 53.9	46.0								
23	339 52.8	128 25.8	41.1	161 41.9	44.2	241 11.5	54.6	61 56.4	46.0									
Pas. Mer.		h m	v -0.3	d 1.2	v 1.0	d 0.7	v 2.1	d 0.0	v 2.4	d 0.0	A. H. S.		Pas. Mer.					
												h m	h m					
												Venus	150 42.1 14 26					
												Marte	182 58.3 12 16					
												Júpiter	261 35.0 7 01					
												Saturno	82 04.3 18 57					



T.M.G. (TU)	SOL				LUNA				Lat.	Crepúsculo		Orto Sol	Orto Luna														
	A.H.G.		Dec.	A.H.G.		v	Dec.	d		P.H.	Náut.		Civil	13	14	15	16										
	o	'		o	'													o	'								
M I E R C O L E S	13 00	180	59.0	N 3	53.2	33	03.3	9.2	S16	49.1	13.7	59.2	N 72	01	58	03	49	05	02	19	16	18	31	17	53	17	15
	01	195	59.2		52.3	47	31.5	9.3	16	35.4	13.8	59.3	N 70	02	32	04	03	05	08	18	56	18	23	17	55	17	26
	02	210	59.4		51.3	61	59.8	9.4	16	21.6	13.9	59.3	68	02	56	04	14	05	13	18	39	18	16	17	56	17	35
	03	225	59.6		50.4	76	28.2	9.3	16	07.7	14.1	59.4	66	03	14	04	23	05	16	18	26	18	10	17	56	17	42
	04	240	59.8		49.4	90	56.5	9.4	15	53.6	14.1	59.4	64	03	29	04	31	05	20	18	15	18	06	17	57	17	48
	05	256	00.1		48.5	105	24.9	9.5	15	39.5	14.3	59.4	62	03	40	04	37	05	23	18	05	18	05	17	58	17	54
	06	271	00.3	N 3	47.5	119	53.4	9.4	S15	25.2	14.3	59.5	60	03	50	04	43	05	25	17	57	17	58	17	58	17	59
	07	286	00.5		46.6	134	21.8	9.6	15	10.9	14.5	59.5	N 58	03	58	04	47	05	27	17	50	17	54	17	59	18	03
	08	301	00.7		45.6	148	50.4	9.5	14	56.4	14.5	59.5	56	04	06	04	52	05	29	17	43	17	51	17	59	18	07
	09	316	01.0		44.6	163	18.9	9.6	14	41.9	14.7	59.6	54	04	12	04	55	05	31	17	37	17	49	17	59	18	10
	10	331	01.2		43.7	177	47.5	9.6	14	27.2	14.7	59.6	52	04	18	04	59	05	33	17	32	17	46	18	00	18	14
	11	346	01.4		42.7	192	16.1	9.6	14	12.5	14.9	59.6	50	04	22	05	01	05	34	17	27	17	44	18	00	18	17
	12	1	01.6	N 3	41.8	206	44.7	9.7	S13	57.6	14.9	59.7	45	04	33	05	08	05	37	17	17	17	39	18	01	18	23
	13	16	01.8		40.8	221	13.4	9.7	13	42.7	15.1	59.7	N 40	04	40	05	13	05	40	17	08	17	35	18	01	18	28
	14	31	02.1		39.9	235	42.1	9.8	13	27.6	15.1	59.7	35	04	47	05	17	05	42	17	01	17	32	18	02	18	33
	15	46	02.3		38.9	250	10.9	9.7	13	12.5	15.2	59.8	30	04	52	05	20	05	44	16	54	17	29	18	02	18	37
	16	61	02.5		37.9	264	39.6	9.8	12	57.3	15.3	59.8	20	04	59	05	25	05	47	16	42	17	23	18	03	18	44
	17	76	02.7		37.0	279	08.4	9.8	12	42.0	15.4	59.8	N 10	05	04	05	29	05	50	16	32	17	19	18	04	18	51
	18	91	03.0	N 3	36.0	293	37.2	9.9	S12	26.6	15.5	59.9	0	05	08	05	32	05	52	16	23	17	14	18	05	18	57
	19	106	03.2		35.1	308	06.1	9.9	12	11.1	15.6	59.9	S 10	05	09	05	34	05	55	16	13	17	10	18	06	19	03
	20	121	03.4		34.1	322	35.0	9.9	11	55.5	15.6	59.9	20	05	10	05	35	05	57	16	03	17	05	18	07	19	09
	21	136	03.6		33.1	337	03.9	9.9	11	39.9	15.8	60.0	30	05	08	05	36	06	00	15	51	16	59	18	08	19	17
	22	151	03.8		32.2	351	32.8	10.0	11	24.1	15.8	60.0	35	05	07	05	36	06	01	15	44	16	56	18	08	19	21
23	166	04.1		31.2	6	01.8	10.0	11	08.3	15.9	60.0	40	05	04	05	36	06	03	15	37	16	52	18	09	19	26	
												45	05	01	05	35	06	05	15	27	16	48	18	10	19	32	
J U E V E S	14 00	181	04.3	N 3	30.3	20	30.8	10.0	S10	52.4	15.9	60.1	S 50	04	57	05	35	06	07	15	16	16	43	18	11	19	40
	01	196	04.5		29.3	34	59.8	10.0	10	36.5	16.1	60.1	52	04	55	05	34	06	08	15	11	16	41	18	11	19	43
	02	211	04.7		28.4	49	28.8	10.1	10	20.4	16.1	60.1	54	04	53	05	34	06	09	15	05	16	38	18	12	19	46
	03	226	05.0		27.4	63	57.9	10.1	10	04.3	16.2	60.1	56	04	50	05	33	06	10	14	59	16	36	18	12	19	51
	04	241	05.2		26.4	78	27.0	10.1	9	48.1	16.3	60.2	58	04	46	05	32	06	11	14	52	16	32	18	13	19	55
	05	256	05.4		25.5	92	56.1	10.1	9	31.8	16.3	60.2	S 60	04	43	05	31	06	13	14	44	16	29	18	14	20	00
	06	271	05.6	N 3	24.5	107	25.2	10.2	S 9	15.5	16.4	60.2															
	07	286	05.8		23.6	121	54.4	10.1	8	59.1	16.5	60.3	Lat.	Ocaso Sol	Crepúsculo		Ocaso Luna										
	08	301	06.1		22.6	136	23.5	10.2	8	42.6	16.5	60.3			Civil	Náut.	13	14	15	16							
	09	316	06.3		21.6	150	52.7	10.2	8	26.1	16.6	60.3															
	10	331	06.5		20.7	165	21.9	10.2	8	09.5	16.6	60.3															
	11	346	06.7		19.7	179	51.1	10.2	7	52.9	16.7	60.4															
	12	1	07.0	N 3	18.8	194	20.3	10.3	S 7	36.2	16.8	60.4	N 72	18	46	19	58	21	45	26	25	02	25	05	01	07	32
	13	16	07.2		17.8	208	49.6	10.2	7	19.4	16.8	60.4	N 70	18	41	19	45	21	14	00	00	02	44	05	06	07	25
	14	31	07.4		16.8	223	18.8	10.3	7	02.6	16.9	60.4	68	18	36	19	34	20	51	00	35	02	58	05	09	07	19
	15	46	07.6		15.9	237	48.1	10.3	6	45.7	16.9	60.5	66	18	33	19	25	20	34	01	00	03	09	05	12	07	14
	16	61	07.9		14.9	252	17.4	10.2	6	28.8	17.0	60.5	64	18	30	19	18	20	20	01	19	03	18	05	14	07	10
	17	76	08.1		14.0	266	46.6	10.3	6	11.8	17.0	60.5	62	18	27	19	12	20	08	01	34	03	26	05	16	07	07
	18	91	08.3	N 3	13.0	281	15.9	10.3	S 5	54.8	17.1	60.5	60	18	24	19	07	19	59	01	47	03	33	05	18	07	04
	19	106	08.5		12.0	295	45.2	10.4	5	37.7	17.1	60.6	N 58	18	22	19	02	19	51	01	58	03	39	05	20	07	01
	20	121	08.7		11.1	310	14.6	10.3	5	20.6	17.1	60.6	56	18	21	18	58	19	44	02	08	03	45	05	21	06	59
	21	136	09.0		10.1	324	43.9	10.3	5	03.5	17.2	60.6	54	18	19	18	55	19	38	02	17	03	49	05	22	06	56
	22	151	09.2		09.2	339	13.2	10.3	4	46.3	17.3	60.6	52	18	17	18	51	19	32	02	24	03	54	05	24	06	54
23	166	09.4		08.2	353	42.5	10.3	4	29.0	17.2	60.6	50	18	16	18	49	19	27	02	31	03	57	05	25	06	53	
												45	18	13	18	43	19	17	02	45	04	06	05	27	06	49	
V I E R N E S	15 00	181	09.6	N 3	07.2	8	11.8	10.4	S 4	11.8	17.3	60.7	N 40	18	11	18	38	19	10	02	57	04	13	05	29	06	46
	01	196	09.9		06.3	22	41.2	10.3	3	54.5	17.4	60.7	35	18	09	18	34	19	04	03	07	04	18	05	30	06	43



T.M.G. (TU)		ARIES			VENUS -4.1			MARTE +1.7			JUPITER -2.2			SATURNO +0.4			ESTRELLAS								
d	h	A.H.G.		A.H.G.	Dec.	A.H.G.		A.H.G.	Dec.	A.H.G.		A.H.G.	Dec.	A.H.G.		A.H.G.	Dec.	Nombre	A. H. S.	Dec.					
16	00	354	55.3	143	25.5	S13	42.2	176	42.8	N 1	43.5	256	13.6	N22	54.6	76	58.8	S22	46.0	Acamar	315	31.5	S40	20.3	
	01	9	57.8	158	25.2		43.4	191	43.8		42.8	271	15.7		54.6	92	01.3		46.0	Achernar	335	39.2	S57	17.0	
	02	25	00.2	173	24.9		44.5	206	44.8		42.2	286	17.9		54.6	107	03.7		46.0	Acruz	173	30.4	S63	02.6	
	03	40	02.7	188	24.6	..	45.6	221	45.8	..	41.5	301	20.0	..	54.6	122	06.2	..	46.0	Adhara	255	26.7	S28	57.1	
	04	55	05.2	203	24.3		46.8	236	46.8		40.9	316	22.1		54.5	137	08.6		46.0	Aldebaran	291	09.8	N16	29.5	
	05	70	07.6	218	24.0		47.9	251	47.8		40.2	331	24.2		54.5	152	11.0		46.0						
	06	85	10.1	233	23.7	S13	49.0	266	48.8	N 1	39.6	346	26.3	N22	54.5	167	13.5	S22	46.0	Alioth	166	36.5	N56	01.0	
	07	100	12.6	248	23.4		50.2	281	49.8		38.9	1	28.5		54.5	182	15.9		46.0	Alkaid	153	13.1	N49	22.0	
	08	115	15.0	263	23.1		51.3	296	50.8		38.3	16	30.6		54.5	197	18.4		46.0	Al Na'ir	28	05.4	S47	00.7	
	S	09	130	17.5	278	22.9	..	52.4	311	51.8	..	37.6	31	32.7	..	54.5	212	20.8	..	46.0	Alnilam	276	04.5	S 1	12.2
		10	145	19.9	293	22.6		53.6	326	52.7		37.0	46	34.8		54.4	227	23.3		46.0	Alphard	218	13.9	S 8	36.6
	A	11	160	22.4	308	22.3		54.7	341	53.7		36.3	61	37.0		54.4	242	25.7		46.0					
		12	175	24.9	323	22.0	S13	55.8	356	54.7	N 1	35.6	76	39.1	N22	54.4	257	28.1	S22	46.0	Alphecca	126	26.2	N26	45.0
	D	13	190	27.3	338	21.7		57.0	11	55.7		35.0	91	41.2		54.4	272	30.6		46.0	Alpheratz	358	01.8	N29	02.2
		14	205	29.8	353	21.4		58.1	26	56.7		34.3	106	43.4		54.4	287	33.0		46.0	Altair	62	25.5	N 8	50.5
	O	15	220	32.3	8	21.1	S 13	59.2	41	57.7	..	33.7	121	45.5	..	54.4	302	35.5	..	46.0	Ankaa	353	32.7	S42	21.5
		16	235	34.7	23	20.8	S 14	00.4	56	58.7		33.0	136	47.6		54.3	317	37.9		46.1	Antares	112	48.3	S26	24.7
	17	250	37.2	38	20.5		01.5	71	59.7		32.4	151	49.7		54.3	332	40.3		46.1						
	18	265	39.7	53	20.2	S14	02.6	87	00.7	N 1	31.7	166	51.9	N22	54.3	347	42.8	S22	46.1	Arcturus	146	12.2	N19	14.2	
	19	280	42.1	68	19.9		03.8	102	01.7		31.0	181	54.0		54.3	2	45.2		46.1	Atria	108	06.4	S69	01.0	
	20	295	44.6	83	19.6		04.9	117	02.6		30.4	196	56.1		54.3	17	47.7		46.1	Avior	234	25.9	S59	28.2	
	21	310	47.0	98	19.3	..	06.0	132	03.6	..	29.7	211	58.2	..	54.3	32	50.1	..	46.1	Bellatrix	278	51.1	N 6	20.7	
	22	325	49.5	113	19.0		07.1	147	04.6		29.1	227	00.4		54.3	47	52.5		46.1	Betelgeuse	271	20.6	N 7	24.6	
23	340	52.0	128	18.7		08.3	162	05.6		28.4	242	02.5		54.2	62	55.0		46.1							
17	00	355	54.4	143	18.4	S14	09.4	177	06.6	N 1	27.8	257	04.6	N22	54.2	77	57.4	S22	46.1	Canopus	264	04.2	S52	40.9	
	01	10	56.9	158	18.1		10.5	192	07.6		27.1	272	06.8		54.2	92	59.9		46.1	Capella	281	00.8	N45	59.3	
	02	25	59.4	173	17.8		11.6	207	08.6		26.5	287	08.9		54.2	108	02.3		46.1	Deneb	49	43.5	N45	14.8	
	03	41	01.8	188	17.5	..	12.8	222	09.6	..	25.8	302	11.0	..	54.2	123	04.7	..	46.1	Denebola	182	52.1	N14	37.9	
	04	56	04.3	203	17.2		13.9	237	10.6		25.1	317	13.1		54.2	138	07.2		46.1	Diphda	349	13.4	S18	02.3	
	05	71	06.8	218	16.9		15.0	252	11.6		24.5	332	15.3		54.1	153	09.6		46.1						
	06	86	09.2	233	16.6	S14	16.1	267	12.5	N 1	23.8	347	17.4	N22	54.1	168	12.0	S22	46.1	Dubhe	194	13.7	N61	48.4	
	07	101	11.7	248	16.3		17.3	282	13.5		23.2	2	19.5		54.1	183	14.5		46.1	Elnath	278	35.2	N28	36.1	
	08	116	14.2	263	16.0		18.4	297	14.5		22.5	17	21.7		54.1	198	16.9		46.1	Eltanin	90	54.4	N51	29.6	
	09	131	16.6	278	15.7	..	19.5	312	15.5	..	21.9	32	23.8	..	54.1	213	19.4	..	46.1	Enif	34	04.4	N 9	49.8	
	10	146	19.1	293	15.4		20.6	327	16.5		21.2	47	25.9		54.1	228	21.8		46.1	Fomalhaut	15	43.1	S29	40.5	
	11	161	21.5	308	15.1		21.8	342	17.5		20.6	62	28.1		54.0	243	24.2		46.1						
	D	12	176	24.0	323	14.8	S14	22.9	357	18.5	N 1	19.9	77	30.2	N22	54.0	258	26.7	S22	46.1	Gacrux	172	21.7	S57	03.4
		13	191	26.5	338	14.5		24.0	12	19.5		19.2	92	32.3		54.0	273	29.1		46.1	Gienah	176	11.1	S17	29.1
	14	206	28.9	353	14.2		25.1	27	20.5		18.6	107	34.5		54.0	288	31.5		46.1	Hadar	149	14.1	S60	19.6	
	15	221	31.4	8	13.9	..	26.2	42	21.4	..	17.9	122	36.6	..	54.0	303	34.0	..	46.1	Hamal	328	20.7	N23	25.0	
	16	236	33.9	23	13.6		27.4	57	22.4		17.3	137	38.7		54.0	318	36.4		46.1	Kaus Aust.	84	07.4	S34	23.6	
	17	251	36.3	38	13.3		28.5	72	23.4		16.6	152	40.9		53.9	333	38.8		46.1						
	18	266	38.8	53	13.0	S14	29.6	87	24.4	N 1	16.0	167	43.0	N22	53.9	348	41.3	S22	46.2	Kochab	137	19.5	N74	12.0	
	19	281	41.3	68	12.7		30.7	102	25.4		15.3	182	45.1		53.9	3	43.7		46.2	Markab	13	55.9	N15	09.2	
	20	296	43.7	83	12.4		31.8	117	26.4		14.6	197	47.3		53.9	18	46.2		46.2	Menkar	314	33.5	N 4	03.2	
	21	311	46.2	98	12.1	..	32.9	132	27.4	..	14.0	212	49.4	..	53.9	33	48.6	..	46.2	Menkent	148	29.1	S36	19.3	
	22	326	48.7	113	11.8		34.0	147	28.4		13.3	227	51.5		53.9	48	51.0		46.2	Miaplacidus	221	44.6	S69	40.2	
23	341	51.1	128	11.5		35.2	162	29.4		12.7	242	53.7		53.8	63	53.5		46.2							
18	00	356	53.6	143	11.2	S14	36.3	177	30.3	N 1	12.0	257	55.8	N22	53.8	78	55.9	S22	46.2	Mirfak	309	05.9	N49	49.5	
	01	11	56.0	158	10.9		37.4	192	31.3		11.4	272	57.9		53.8	93	58.3		46.2	Nunki	76	20.3	S26	18.7	
	02	26	58.5	173	10.6		38.5	207	32.3		10.7	288	00.1		53.8	109	00.8		46.2	Peacock	53	46.7	S56	46.3	
	03	42	01.0	188	10.3	..	39.6	222	33.3	..	10.0	303	02.2	..	53.8	124	03.2	..	46.2	Pollux	243	49.7	N28	03.2	
	04	57	03.4	203	10.0		40.7	237	34.3		09.4	318	04.3		53.8	139	05.6		46.2	Procyon	245	18.5	N 5	15.3	
	05	72	05.9	218	09.6		41.8	252	35.3		08.7	333	06.5		53.7	154	08.1		46.2						
	06	87	08.4	233	09.3	S14	42.9	267	36.3	N 1	08.1	348	08.6	N22	53.7	169	10.5	S22	46.2	Rasalhague	96	23.0	N12	34.1	
	07	102	10.8	248	09.0		44.1	282	37.3		07.4	3	10												







T.M.G. (TU)	ARIES			VENUS -4.1			MARTE +1.7			JUPITER -2.2			SATURNO +0.5			ESTRELLAS		
	d	h	A.H.G.	A.H.G.	Dec.	A.H.G.	Dec.	A.H.G.	Dec.	A.H.G.	Dec.	A.H.G.	Dec.	Nombre	A.	H.	S.	Dec.
M A R T E S	19	00	357 52.7	143 03.8	S15 02.8	177 54.1	N 0 56.3	258 47.1	N22 53.4	79 54.3	S22 46.3	Acamar	315 31.5	S40 20.3				
	01	12 55.2	158 03.5	03.9	192 55.1	55.6	273 49.3	53.4	94 56.7	46.3	Achernar	335 39.2	S57 17.0					
	02	27 57.6	173 03.1	05.0	207 56.0	54.9	288 51.4	53.4	109 59.1	46.3	Acrux	173 30.4	S63 02.6					
	03	43 00.1	188 02.8	06.1	222 57.0	54.3	303 53.6	53.4	125 01.5	46.3	Adhara	255 26.7	S28 57.1					
	04	58 02.6	203 02.5	07.2	237 58.0	53.6	318 55.7	53.4	140 04.0	46.3	Aldebaran	291 09.8	N16 29.5					
	05	73 05.0	218 02.2	08.3	252 59.0	53.0	333 57.8	53.3	155 06.4	46.3								
	06	88 07.5	233 01.9	S15 09.4	268 00.0	N 0 52.3	349 00.0	N22 53.3	170 08.8	S22 46.3	Alioth	166 36.5	N56 01.0					
	07	103 10.0	248 01.6	10.5	283 01.0	51.7	4 02.1	53.3	185 11.3	46.3	Alkaid	153 13.1	N49 22.0					
	08	118 12.4	263 01.3	11.6	298 02.0	51.0	19 04.3	53.3	200 13.7	46.3	Al Na'ir	28 05.4	S47 00.7					
	09	133 14.9	278 00.9	12.7	313 03.0	50.3	34 06.4	53.3	215 16.1	46.3	Alnilam	276 04.5	S 1 12.2					
	10	148 17.4	293 00.6	13.8	328 03.9	49.7	49 08.6	53.3	230 18.5	46.3	Alphard	218 13.9	S 8 36.6					
	11	163 19.8	308 00.3	14.9	343 04.9	49.0	64 10.7	53.3	245 21.0	46.3								
	12	178 22.3	323 00.0	S15 16.0	358 05.9	N 0 48.4	79 12.9	N22 53.2	260 23.4	S22 46.3	Alphecca	126 26.2	N26 45.0					
	13	193 24.8	337 59.7	17.1	13 06.9	47.7	94 15.0	53.2	275 25.8	46.3	Alpheratz	358 01.7	N29 02.2					
	14	208 27.2	352 59.4	18.2	28 07.9	47.1	109 17.1	53.2	290 28.3	46.3	Altair	62 25.5	N 8 50.5					
	15	223 29.7	7 59.0	19.3	43 08.9	46.4	124 19.3	53.2	305 30.7	46.3	Ankaa	353 32.6	S42 21.5					
	16	238 32.1	22 58.7	20.4	58 09.9	45.7	139 21.4	53.2	320 33.1	46.3	Antares	112 48.3	S26 24.7					
	17	253 34.6	37 58.4	21.5	73 10.9	45.1	154 23.6	53.2	335 35.5	46.3								
	18	268 37.1	52 58.1	S15 22.6	88 11.8	N 0 44.4	169 25.7	N22 53.1	350 38.0	S22 46.3	Arcturus	146 12.2	N19 14.2					
	19	283 39.5	67 57.8	23.6	103 12.8	43.8	184 27.9	53.1	5 40.4	46.3	Atria	108 06.5	S69 01.0					
	20	298 42.0	82 57.5	24.7	118 13.8	43.1	199 30.0	53.1	20 42.8	46.3	Avior	234 25.9	S59 28.2					
	21	313 44.5	97 57.1	25.8	133 14.8	42.4	214 32.2	53.1	35 45.2	46.3	Bellatrix	278 51.1	N 6 20.7					
	22	328 46.9	112 56.8	26.9	148 15.8	41.8	229 34.3	53.1	50 47.7	46.3	Betelgeuse	271 20.6	N 7 24.6					
23	343 49.4	127 56.5	28.0	163 16.8	41.1	244 36.5	53.1	65 50.1	46.3									
M I E R C O L E S	20	00	358 51.9	142 56.2	S15 29.1	178 17.8	N 0 40.5	259 38.6	N22 53.0	80 52.5	S22 46.3	Canopus	264 04.2	S52 40.9				
	01	13 54.3	157 55.9	30.2	193 18.8	39.8	274 40.8	53.0	95 54.9	46.3	Capella	281 00.8	N45 59.3					
	02	28 56.8	172 55.5	31.3	208 19.7	39.2	289 42.9	53.0	110 57.4	46.3	Deneb	49 43.5	N45 14.8					
	03	43 59.3	187 55.2	32.3	223 20.7	38.5	304 45.1	53.0	125 59.8	46.3	Denebola	182 52.1	N14 37.8					
	04	59 01.7	202 54.9	33.4	238 21.7	37.8	319 47.2	53.0	141 02.2	46.3	Diphda	349 13.4	S18 02.3					
	05	74 04.2	217 54.6	34.5	253 22.7	37.2	334 49.4	53.0	156 04.6	46.4								
	06	89 06.6	232 54.2	S15 35.6	268 23.7	N 0 36.5	349 51.5	N22 52.9	171 07.1	S22 46.4	Dubhe	194 13.7	N61 48.4					
	07	104 09.1	247 53.9	36.7	283 24.7	35.9	4 53.7	52.9	186 09.5	46.4	Elnath	278 35.2	N28 36.1					
	08	119 11.6	262 53.6	37.8	298 25.7	35.2	19 55.8	52.9	201 11.9	46.4	Eltanin	90 54.4	N51 29.6					
	09	134 14.0	277 53.3	38.8	313 26.7	34.6	34 58.0	52.9	216 14.3	46.4	Enif	34 04.4	N 9 49.8					
	10	149 16.5	292 53.0	39.9	328 27.6	33.9	50 00.1	52.9	231 16.8	46.4	Fomalhaut	15 43.1	S29 40.5					
	11	164 19.0	307 52.6	41.0	343 28.6	33.2	65 02.3	52.9	246 19.2	46.4								
	12	179 21.4	322 52.3	S15 42.1	358 29.6	N 0 32.6	80 04.4	N22 52.8	261 21.6	S22 46.4	Gacrux	172 21.7	S57 03.4					
	13	194 23.9	337 52.0	43.2	13 30.6	31.9	95 06.6	52.8	276 24.0	46.4	Gienah	176 11.1	S17 29.0					
	14	209 26.4	352 51.7	44.2	28 31.6	31.3	110 08.7	52.8	291 26.5	46.4	Hadar	149 14.1	S60 19.6					
	15	224 28.8	7 51.3	45.3	43 32.6	30.6	125 10.9	52.8	306 28.9	46.4	Hamal	328 20.7	N23 25.0					
	16	239 31.3	22 51.0	46.4	58 33.6	30.0	140 13.0	52.8	321 31.3	46.4	Kaus Aust.	84 07.4	S34 23.6					
	17	254 33.7	37 50.7	47.5	73 34.5	29.3	155 15.2	52.8	336 33.7	46.4								
	18	269 36.2	52 50.4	S15 48.6	88 35.5	N 0 28.6	170 17.3	N22 52.8	351 36.1	S22 46.4	Kochab	137 19.6	N74 12.0					
	19	284 38.7	67 50.0	49.6	103 36.5	28.0	185 19.5	52.7	6 38.6	46.4	Markab	13 55.8	N15 09.2					
	20	299 41.1	82 49.7	50.7	118 37.5	27.3	200 21.7	52.7	21 41.0	46.4	Menkar	314 33.5	N 4 03.2					
	21	314 43.6	97 49.4	51.8	133 38.5	26.7	215 23.8	52.7	36 43.4	46.4	Menkent	148 29.1	S36 19.3					
	22	329 46.1	112 49.1	52.8	148 39.5	26.0	230 26.0	52.7	51 45.8	46.4	Miaplacidus	221 44.5	S69 40.2					
23	344 48.5	127 48.7	53.9	163 40.5	25.3	245 28.1	52.7	66 48.3	46.4									
J U E V E S	21	00	359 51.0	142 48.4	S15 55.0	178 41.5	N 0 24.7	260 30.3	N22 52.7	81 50.7	S22 46.4	Mirfak	309 05.8	N49 49.6				
	01	14 53.5	157 48.1	56.1	193 42.4	24.0	275 32.4	52.6	96 53.1	46.4	Nunki	76 20.3	S26 18.7					
	02	29 55.9	172 47.7	57.1	208 43.4	23.4	290 34.6	52.6	111 55.5	46.4	Peacock	53 46.7	S56 46.3					
	03	44 58.4	187 47.4	58.2	223 44.4	22.7	305 36.7	52.6	126 57.9	46.4	Pollux	243 49.6	N28 03.2					
	04	60 00.9	202 47.1	15 59.3	238 45.4	22.1	320 38.9	52.6	142 00.4	46.4	Procyon	245 18.5	N 5 15.3					
	05	75 03.3	217 46.8	16 00.4	253 46.4	21.4	335 41.1	52.6	157 02.8	46.4								
	06	90 05.8	232 46.4	S16 01.4	268 47.4	N 0 20.7	350 43.2	N22 52.6	172 05.2	S22 46.4	Rasalhague	96 23.0	N12 34.1					
	07	105 08.2	247 46.1	02.5	283 48.4	20.1	5 45.4	52.5	187 07.6	46.4	Regulus	208 02.7	N12 01.2					
	08	120 10.7	262 45.8	03.6	298 49.3	19.4	20 47.5	52.5	202 10.0	46.4	Rigel	281 29.2	S 8 12.5					
	09	135 13.2	277 45.4	04.6	313 50.3	18.8	35 49.7	52.5	217 12.5	46.4	Rigil Kent.	140 16.9	S60 47.8					
	10	150 15.6	292 45.1	05.7	328 51.3	18.1	50 51.8	52.5	232 14.9	46.4	Sabik	102 33.1	S15 42.9					
	11	165 18.1	307 44.8	06.8	343 52.3	17.4	65 54.0	52.5	247 17.3	46.4								
	12	180 20.6	322 44.4	S16 07.8	358 53.3	N 0 16.8	80 56.2	N22 52.5	262 19.7	S22 46.4	Schedar	350 00.7	N56 29.0					
	13	195 23.0	337 44.1	08.9	13 54.3	16.1	95 58.3	52.4	277 22.1	46.4	Shaula	96 46.2	S37 06.0					
	14	210 25.5	352 43.8	10.0	28 55.3	15.5	111 00.5	52.4	292 24.6	46.5	Sirius	258 49.5	S16 41.8					
	15	225 28.0	7 43.4	11.0	43 56.2	14.8	126 02.6	52.4	307 27.0	46.5	Spica	158 50.4	S11 06.5					
	16	240 30.4	22 43.1	12.1	58 57.2	14.2	141 04.8	52.4	322 29.4	46.5	Suhail	223 06.0	S43 23.2					
	17	255 32.9	37 42.8	13.1	73 58.2	13.5	156 07.0	52.4	337 31.8	46.5								
	18	270 35.4	52 42.4	S16 14.2	88 59.2	N 0 12.8	171 09.1	N22 52.4	352 34.2	S22 46.5	Vega	80 51.0	N38 46.6					
	19	285 37.8	67 42.1	15.3	104 00.2	12.2	186 11.3	52.4	7 36.6	46.5	Zuben'ubi	137 25.5	S16 00.0					
	20	300 40.3	82 41.8	16.3	119 01.2	11.5	201 13.4	52.3	22 39.1	46.5								
	21	315 42.7	97 41.4	17.4	134 02.1	10.9	216 15.6	52.3	37 41.5	46.5								
	22	330 45.2	112 41.1	18.4	149 03.1	10.2	231 17.8	52.3	52 43.9	46.5								
23	345 47.7	127 40.8	19.5	164 04.1	09.5	246 19.9	52.3	67 46.3	46.5									
Pas. Mer. 0 04.5			v -0.3 d 1.1			v 1.0 d 0.7			v 2.2 d 0.0			v 2.4 d 0.0			A. H. S. Pas. Mer.			
												Venus 144 04.3 14 29						
												Marte 179 25.9 12 06						
												Júpiter 260 46.8 6 40						
												Saturno 82 00.7 18 33						



T.M.G. (TU)	SOL		LUNA				Lat.	Crepúsculo		Orto Sol	Orto Luna					
	A.H.G.	Dec.	A.H.G.	v	Dec.	d		P.H.	Náut.		Civil	19	20	21	22	
	° ' "	° ' "	° ' "	° ' "	° ' "	° ' "		° ' "	h m		h m	h m	h m	h m	h m	h m
M A R T E S	19 00	181 31.1	N 1 34.6	316 40.7	6.1	N21 18.8	11.5	60.3	N 72	02 45	04 20	05 29	□	□	□	□
	01	196 31.3	33.6	331 05.8	5.9	21 30.3	11.4	60.3	N 70	03 08	04 29	05 32	□	□	□	□
	02	211 31.5	32.6	345 30.7	6.0	21 41.7	11.2	60.2	68	03 25	04 37	05 34	□	□	□	□
	03	226 31.8	31.6	359 55.7	5.8	21 52.9	11.1	60.2	66	03 39	04 44	05 35	15 53	□	□	□
	04	241 32.0	30.7	14 20.5	5.8	22 04.0	10.9	60.2	64	03 50	04 49	05 37	17 08	□	□	□
	05	256 32.2	29.7	28 45.3	5.7	22 14.9	10.7	60.2	62	03 59	04 53	05 38	17 45	17 45	18 07	19 47
	06	271 32.4	N 1 28.7	43 10.0	5.7	N22 25.6	10.6	60.1	60	04 07	04 57	05 39	18 11	18 30	19 13	20 32
	07	286 32.7	27.8	57 34.7	5.6	22 36.2	10.5	60.1	N 58	04 13	05 01	05 40	18 32	18 59	19 48	21 02
	08	301 32.9	26.8	71 59.3	5.5	22 46.7	10.3	60.1	56	04 19	05 04	05 41	18 50	19 22	20 13	21 25
	09	316 33.1	25.8	86 23.8	5.5	22 57.0	10.1	60.1	54	04 24	05 06	05 42	19 04	19 40	20 33	21 43
	10	331 33.3	24.9	100 48.3	5.5	23 07.1	9.9	60.0	52	04 28	05 09	05 42	19 17	19 56	20 50	21 59
	11	346 33.6	23.9	115 12.8	5.4	23 17.0	9.8	60.0	50	04 32	05 11	05 43	19 29	20 10	21 05	22 12
	12	1 33.8	N 1 22.9	129 37.2	5.3	N23 26.8	9.7	60.0	45	04 40	05 15	05 44	19 52	20 38	21 34	22 40
	13	16 34.0	22.0	144 01.5	5.2	23 36.5	9.4	60.0	N 40	04 47	05 18	05 45	20 11	21 00	21 58	23 02
	14	31 34.2	21.0	158 25.7	5.3	23 45.9	9.3	59.9	35	04 51	05 21	05 46	20 27	21 19	22 17	23 20
	15	46 34.4	20.0	172 50.0	5.1	23 55.2	9.2	59.9	30	04 55	05 23	05 47	20 41	21 34	22 33	23 35
	16	61 34.7	19.0	187 14.1	5.1	24 04.4	9.0	59.9	20	05 01	05 26	05 48	21 05	22 01	23 01	24 02
	17	76 34.9	18.1	201 38.2	5.1	24 13.3	8.8	59.8	N 10	05 04	05 28	05 49	21 26	22 25	23 25	24 24
	18	91 35.1	N 1 17.1	216 02.3	5.0	N24 22.1	8.7	59.8	0	05 05	05 29	05 50	21 46	22 46	23 47	24 45
	19	106 35.3	16.1	230 26.3	5.0	24 30.8	8.4	59.8	S 10	05 06	05 30	05 51	22 05	23 08	24 09	00 09
	20	121 35.6	15.2	244 50.3	4.9	24 39.2	8.3	59.7	20	05 04	05 30	05 52	22 26	23 32	24 33	00 33
	21	136 35.8	14.2	259 14.2	4.9	24 47.5	8.1	59.7	30	05 01	05 28	05 52	22 51	23 59	25 01	01 01
	22	151 36.0	13.2	273 38.1	4.8	24 55.6	7.9	59.7	35	04 58	05 27	05 52	23 05	24 15	00 15	01 17
23	166 36.2	12.3	288 01.9	4.8	25 03.5	7.8	59.7	40	04 54	05 26	05 53	23 22	24 34	00 34	01 37	
M I E R C O L E S	20 00	181 36.4	N 1 11.3	302 25.7	4.8	N25 11.3	7.6	59.6	45	04 50	05 24	05 53	23 43	24 57	00 57	02 00
	01	196 36.7	10.3	316 49.5	4.7	25 18.9	7.4	59.6	S 50	04 44	05 21	05 54	24 08	00 08	01 27	02 30
	02	211 36.9	09.3	331 13.2	4.7	25 26.3	7.2	59.6	52	04 41	05 20	05 54	24 21	00 21	01 41	02 44
	03	226 37.1	08.4	345 36.9	4.7	25 33.5	7.0	59.5	54	04 37	05 19	05 54	24 35	00 35	01 58	03 01
	04	241 37.3	07.4	0 00.6	4.6	25 40.5	6.9	59.5	56	04 33	05 17	05 54	24 52	00 52	02 18	03 22
	05	256 37.6	06.4	14 24.2	4.6	25 47.4	6.7	59.5	58	04 29	05 15	05 54	25 12	01 12	02 44	03 47
	06	271 37.8	N 1 05.5	28 47.8	4.5	N25 54.1	6.5	59.4	S 60	04 24	05 13	05 54	25 38	01 38	03 18	04 22
	07	286 38.0	04.5	43 11.3	4.6	26 00.6	6.3	59.4								
	08	301 38.2	03.5	57 34.9	4.5	26 06.9	6.2	59.4	Lat.	Ocaso Sol	Crepúsculo Civil	Náut.	Ocaso Luna			
	09	316 38.5	02.5	71 58.4	4.5	26 13.1	5.9	59.3					19	20	21	22
	10	331 38.7	01.6	86 21.9	4.4	26 19.0	5.8	59.3	N 72	18 15	19 24	20 57	h m	h m	h m	h m
	11	346 38.9	00.6	100 45.3	4.5	26 24.8	5.6	59.3	N 70	18 13	19 15	20 35	□	□	□	□
	12	1 39.1	N 0 59.6	115 08.8	4.4	N26 30.4	5.4	59.2	68	18 11	19 07	20 19	□	□	□	□
	13	16 39.3	58.7	129 32.2	4.4	26 35.8	5.3	59.2	66	18 10	19 01	20 05	14 53	□	□	□
	14	31 39.6	57.7	143 55.6	4.4	26 41.1	5.0	59.2	64	18 08	18 56	19 55	13 39	□	□	□
	15	46 39.8	56.7	158 19.0	4.4	26 46.1	4.9	59.1	62	18 07	18 52	19 46	13 03	15 09	16 56	17 20
	16	61 40.0	55.7	172 42.4	4.4	26 51.0	4.7	59.1	60	18 06	18 48	19 38	12 37	14 25	15 49	16 34
	17	76 40.2	54.8	187 05.8	4.3	26 55.7	4.5	59.1	N 58	18 05	18 45	19 32	12 17	13 56	15 15	16 04
	18	91 40.5	N 0 53.8	201 29.1	4.4	N27 00.2	4.3	59.1	56	18 05	18 42	19 26	12 00	13 34	14 49	15 41
	19	106 40.7	52.8	215 52.5	4.3	27 04.5	4.1	59.0	54	18 04	18 39	19 21	11 46	13 15	14 29	15 22
	20	121 40.9	51.9	230 15.8	4.4	27 08.6	3.9	59.0	52	18 03	18 37	19 17	11 33	13 00	14 12	15 06
	21	136 41.1	50.9	244 39.2	4.3	27 12.5	3.8	59.0	50	18 03	18 35	19 13	11 23	12 46	13 58	14 52
	22	151 41.3	49.9	259 02.5	4.4	27 16.3	3.5	58.9	45	18 02	18 31	19 05	11 00	12 19	13 28	14 24
23	166 41.6	48.9	273 25.9	4.4	27 19.8	3.4	58.9	N 40	18 01	18 28	18 59	10 42	11 57	13 05	14 02	
J U E V E S	21 00	181 41.8	N 0 48.0	287 49.3	4.3	N27 23.2	3.2	58.9	35	18 00	18 25	18 55	10 27	11 39	12 46	13 43
	01	196 42.0	47.0	302 12.6	4.4	27 26.4	3.0	58.8	30	17 59	18 23	18 51	10 14	11 24	12 29	13 27
	02	211 42.2	46.0	316 36.0	4.4	27 29.4	2.9	58.8	20	17 58	18 20	18 46	09 51	10 58	12 02	13 00
	03	226 42.4	45.1	330 59.4	4.4	27 32.3	2.6	58.8	N 10	17 57	18 18	18 43	09 32	10 35	11 38	12 37
	04	241 42.7	44.1	345 22.8	4.4	27 34.9	2.5	58.7	0	17 57	18 17	18 41	09 14	10 14	11 16	12 15
	05	256 42.9	43.1	359 46.2	4.4	27 37.4	2.2	58.7	S 10	17 56	18 17	18 41	08 56	09 54	10 53	11 53
	06	271 43.1	N 0 42.1	14 09.6	4.5	N27 39.6	2.1	58.7	20	17 56	18 18	18 43	08 37	09 31	10 29	11 30
	07	286 43.3	41.2	28 33.1	4.5	27 41.7	1.9	58.6	30	17 55	18 19	18 47	08 16	09 05	10 02	11 03
	08	301 43.6	40.2	42 56.6	4.5	27 43.6	1.7	58.6	35	17 55	18 20	18 50	08 03	08 50	09 45	10 46
	09	316 43.8	39.2	57 20.1	4.5	27 45.3	1.6	58.6	40	17 55	18 22	18 53	07 48	08 33	09 26	10 27
	10	331 44.0	38.3	71 43.6	4.5	27 46.9	1.3	58.5	45	17 54	18 24	18 58	07 31	08 12	09 03	10 04
	11	346 44.2	37.3	86 07.1	4.6	27 48.2	1.2	58.5	S 50	17 54	18 26	19 04	07 10	07 45	08 33	09 35
	12	1 44.4	N 0 36.3	100 30.7	4.6	N27 49.4	1.0	58.5	52	17 54	18 28	19 07	07 00	07 32	08 18	09 20
	13	16 44.7	35.3	114 54.3	4.7	27 50.4	0.8	58.4	54	17 54	18 29	19 11	06 48	07 17	08 01	09 03
	14	31 44.9	34.4	129 18.0	4.7	27 51.2	0.6	58.4	56	17 54	18 31	19 15	06 35	07 00	07 41	08 43
	15	46 45.1	33.4	143 41.7	4.7	27 51.8	0.4	58.4	58	17 54	18 33	19 20	06 20	06 39	07 15	08 18
	16	61 45.3	32.4	158 05.4	4.7	27 52.2	0.3	58.3	S 60	17 54	18 35	19 25	06 03	06 13	06 41	07 43
	17	76 45.5	31.4	172 29.1	4.8	27 52.5	0.1	58.3								
	18	91 45.8	N 0 30.5	186 52.9	4.9	N27 52.6	0.2	58.3								
	19	106 46.0	29.5	201 16.8	4.9	27 52.4	0.2	58.2								
	20	121 46.2	28.5	215 40.7	4.9	27 52.										



T.M.G. (TU)	ARIES			VENUS -4.1			MARTE +1.7			JUPITER -2.2			SATURNO +0.5			ESTRELLAS		
	A.H.G.	A.H.G.	Dec.	A.H.G.	Dec.	A.H.G.	Dec.	A.H.G.	Dec.	A.H.G.	Dec.	A.H.G.	Dec.	Nombre	A. H. S.	Dec.		
22 00	0 50.1	142 40.4	S16 20.6	179 05.1	N 0 08.9	261 22.1	N22 52.3	82 48.7	S22 46.5	Acamar	315 31.4	S40 20.4						
01	15 52.6	157 40.1	21.6	194 06.1	08.2	276 24.2	52.3	97 51.1	46.5	Achernar	335 39.2	S57 17.0						
02	30 55.1	172 39.8	22.7	209 07.1	07.6	291 26.4	52.2	112 53.6	46.5	Acruz	173 30.4	S63 02.6						
03	45 57.5	187 39.4	23.7	224 08.1	06.9	306 28.6	52.2	127 56.0	46.5	Adhara	255 26.6	S28 57.1						
04	61 00.0	202 39.1	24.8	239 09.0	06.3	321 30.7	52.2	142 58.4	46.5	Aldebaran	291 09.8	N16 29.5						
05	76 02.5	217 38.7	25.8	254 10.0	05.6	336 32.9	52.2	158 00.8	46.5									
06	91 04.9	232 38.4	S16 26.9	269 11.0	N 0 04.9	351 35.1	N22 52.2	173 03.2	S22 46.5	Alioth	166 36.5	N56 01.0						
07	106 07.4	247 38.1	28.0	284 12.0	04.3	6 37.2	52.2	188 05.6	46.5	Alkaid	153 13.1	N49 21.9						
08	121 09.9	262 37.7	29.0	299 13.0	03.6	21 39.4	52.1	203 08.1	46.5	Al Na'ir	28 05.4	S47 00.7						
09	136 12.3	277 37.4	30.1	314 14.0	03.0	36 41.6	52.1	218 10.5	46.5	Alnilam	276 04.4	S 1 12.2						
10	151 14.8	292 37.1	31.1	329 15.0	02.3	51 43.7	52.1	233 12.9	46.5	Alphard	218 13.9	S 8 36.6						
11	166 17.2	307 36.7	32.2	344 15.9	01.6	66 45.9	52.1	248 15.3	46.5									
12	181 19.7	322 36.4	S16 33.2	359 16.9	N 0 01.0	81 48.1	N22 52.1	263 17.7	S22 46.5	Alphecca	126 26.3	N26 45.0						
13	196 22.2	337 36.0	34.3	14 17.9	N 0 00.3	96 50.2	52.1	278 20.1	46.5	Alpheratz	358 01.7	N29 02.2						
14	211 24.6	352 35.7	35.3	29 18.9	S 0 00.3	111 52.4	52.1	293 22.5	46.5	Altair	62 25.5	N 8 50.5						
15	226 27.1	7 35.4	36.4	44 19.9	01.0	126 54.6	52.0	308 25.0	46.5	Ankaa	353 32.6	S42 21.5						
16	241 29.6	22 35.0	37.4	59 20.9	01.6	141 56.7	52.0	323 27.4	46.5	Antares	112 48.3	S26 24.7						
17	256 32.0	37 34.7	38.5	74 21.8	02.3	156 58.9	52.0	338 29.8	46.5									
18	271 34.5	52 34.3	S16 39.5	89 22.8	S 0 03.0	172 01.1	N22 52.0	353 32.2	S22 46.5	Arcturus	146 12.2	N19 14.2						
19	286 37.0	67 34.0	40.5	104 23.8	03.6	187 03.2	52.0	8 34.6	46.5	Atria	108 06.5	S69 01.0						
20	301 39.4	82 33.6	41.6	119 24.8	04.3	202 05.4	52.0	23 37.0	46.5	Avior	234 25.8	S59 28.2						
21	316 41.9	97 33.3	42.6	134 25.8	04.9	217 07.6	51.9	38 39.4	46.5	Bellatrix	278 51.1	N 6 20.7						
22	331 44.3	112 33.0	43.7	149 26.8	05.6	232 09.7	51.9	53 41.8	46.5	Betelgeuse	271 20.6	N 7 24.6						
23	346 46.8	127 32.6	44.7	164 27.7	06.3	247 11.9	51.9	68 44.3	46.5									
23 00	1 49.3	142 32.3	S16 45.8	179 28.7	S 0 06.9	262 14.1	N22 51.9	83 46.7	S22 46.5	Canopus	264 04.1	S52 40.9						
01	16 51.7	157 31.9	46.8	194 29.7	07.6	277 16.2	51.9	98 49.1	46.5	Capella	281 00.8	N45 59.3						
02	31 54.2	172 31.6	47.9	209 30.7	08.2	292 18.4	51.9	113 51.5	46.5	Deneb	49 43.5	N45 14.8						
03	46 56.7	187 31.2	48.9	224 31.7	08.9	307 20.6	51.8	128 53.9	46.5	Denebola	182 52.1	N14 37.8						
04	61 59.1	202 30.9	49.9	239 32.7	09.6	322 22.7	51.8	143 56.3	46.5	Diphda	349 13.4	S18 02.3						
05	77 01.6	217 30.5	51.0	254 33.7	10.2	337 24.9	51.8	158 58.7	46.6									
06	92 04.1	232 30.2	S16 52.0	269 34.6	S 0 10.9	352 27.1	N22 51.8	174 01.1	S22 46.6	Dubhe	194 13.7	N61 48.3						
07	107 06.5	247 29.9	53.1	284 35.6	11.5	7 29.3	51.8	189 03.6	46.6	Elnath	278 35.1	N28 36.1						
08	122 09.0	262 29.5	54.1	299 36.6	12.2	22 31.4	51.8	204 06.0	46.6	Eltanin	90 54.4	N51 29.6						
09	137 11.5	277 29.2	55.1	314 37.6	12.8	37 33.6	51.8	219 08.4	46.6	Enif	34 04.4	N 9 49.8						
10	152 13.9	292 28.8	56.2	329 38.6	13.5	52 35.8	51.7	234 10.8	46.6	Fomalhaut	15 43.1	S29 40.5						
11	167 16.4	307 28.5	57.2	344 39.6	14.2	67 37.9	51.7	249 13.2	46.6									
12	182 18.8	322 28.1	S16 58.2	359 40.5	S 0 14.8	82 40.1	N22 51.7	264 15.6	S22 46.6	Gacrux	172 21.7	S57 03.4						
13	197 21.3	337 27.8	16 59.3	14 41.5	15.5	97 42.3	51.7	279 18.0	46.6	Gienah	176 11.1	S17 29.0						
14	212 23.8	352 27.4	17 00.3	29 42.5	16.1	112 44.5	51.7	294 20.4	46.6	Hadar	149 14.1	S60 19.6						
15	227 26.2	7 27.1	01.3	44 43.5	16.8	127 46.6	51.7	309 22.8	46.6	Hamal	328 20.7	N23 25.0						
16	242 28.7	22 26.7	02.4	59 44.5	17.5	142 48.8	51.6	324 25.2	46.6	Kaus Aust.	84 07.4	S34 23.6						
17	257 31.2	37 26.4	03.4	74 45.5	18.1	157 51.0	51.6	339 27.7	46.6									
18	272 33.6	52 26.0	S17 04.4	89 46.4	S 0 18.8	172 53.2	N22 51.6	354 30.1	S22 46.6	Kochab	137 19.6	N74 11.9						
19	287 36.1	67 25.7	05.5	104 47.4	19.4	187 55.3	51.6	9 32.5	46.6	Markab	13 55.8	N15 09.2						
20	302 38.6	82 25.3	06.5	119 48.4	20.1	202 57.5	51.6	24 34.9	46.6	Menkar	314 33.5	N 4 03.3						
21	317 41.0	97 25.0	07.5	134 49.4	20.8	217 59.7	51.6	39 37.3	46.6	Menkent	148 29.1	S36 19.3						
22	332 43.5	112 24.6	08.6	149 50.4	21.4	233 01.9	51.6	54 39.7	46.6	Miaplacidus	221 44.5	S69 40.2						
23	347 46.0	127 24.3	09.6	164 51.4	22.1	248 04.0	51.5	69 42.1	46.6									
24 00	2 48.4	142 23.9	S17 10.6	179 52.3	S 0 22.7	263 06.2	N22 51.5	84 44.5	S22 46.6	Mirfak	309 05.8	N49 49.6						
01	17 50.9	157 23.6	11.6	194 53.3	23.4	278 08.4	51.5	99 46.9	46.6	Nunki	76 20.3	S26 18.7						
02	32 53.3	172 23.2	12.7	209 54.3	24.0	293 10.6	51.5	114 49.3	46.6	Peacock	53 46.7	S56 46.3						
03	47 55.8	187 22.9	13.7	224 55.3	24.7	308 12.7	51.5	129 51.7	46.6	Pollux	243 49.6	N28 03.2						
04	62 58.3	202 22.5	14.7	239 56.3	25.4	323 14.9	51.5	144 54.1	46.6	Procyon	245 18.5	N 5 15.3						
05	78 00.7	217 22.2	15.7	254 57.2	26.0	338 17.1	51.4	159 56.5	46.6									
06	93 03.2	232 21.8	S17 16.8	269 58.2	S 0 26.7	353 19.3	N22 51.4	174 59.0	S22 46.6	Rasalhague	96 23.0	N12 34.1						
07	108 05.7	247 21.4	17.8	284 59.2	27.3	8 21.4	51.4	190 01.4	46.6	Regulus	208 02.7	N12 01.2						
08	123 08.1	262 21.1	18.8	300 00.2	28.0	23 23.6	51.4	205 03.8	46.6	Rigel	281 29.1	S 8 12.5						
09	138 10.6	277 20.7	19.8	315 01.2	28.7	38 25.8	51.4	220 06.2	46.6	Rigil Kent.	140 16.9	S60 47.8						
10	153 13.1	292 20.4	20.9	330 02.2	29.3	53 28.0	51.4	235 08.6	46.6	Sabik	102 33.1	S15 42.9						
11	168 15.5	307 20.0	21.9	345 03.1	30.0	68 30.2	51.4	250 11.0	46.6									
12	183 18.0	322 19.7	S17 22.9	0 04.1	S 0 30.6	83 32.3	N22 51.3	265 13.4	S22 46.6	Schedar	350 00.7	N56 29.0						
13	198 20.4	337 19.3	23.9	15 05.1	31.3	98 34.5	51.3	280 15.8	46.6	Shaula	96 46.2	S37 06.0						
14	213 22.9	352 19.0	24.9	30 06.1	32.0	113 36.7	51.3	295 18.2	46.6	Sirius	258 49.5	S16 41.8						
15	228 25.4	7 18.6	25.9	45 07.1	32.6	128 38.9	51.3	310 20.6	46.6	Spica	158 50.4	S11 06.5						
16	243 27.8	22 18.2	27.0	60 08.1	33.3	143 41.1	51.3	325 23.0	46.6	Suhail	223 06.0	S43 23.2						
17	258 30.3	37 17.9	28.0	75 09.0	33.9	158 43.2	51.3	340 25.4	46.6									
18	273 32.8	52 17.5	S17 29.0	90 10.0	S 0 34.6	173 45.4	N22 51.2	355 27.8	S22 46.6	Vega	80 51.0	N38 46.6						
19	288 35.2	67 17.2	30.0	105 11.0	35.2	188 47.6	51.2											



T.M.G. (TU)	SOL		LUNA				Lat.	Crepúsculo		Orto Sol	Orto Luna									
	A.H.G.	Dec.	A.H.G.	v	Dec.	d		P.H.	Náut.		Civil	22	23	24	25					
												h m	h m	h m	h m					
V I E R N E S	181	47.1	N 0	24.6	273	16.8	5.2	N27	49.3	1.2	58.1	N 72	03 04	04 34	05 43	□	□	□	23 12	
	01	196	47.3	23.7	287	41.0	5.2	27	48.1	1.3	58.0	N 70	03 23	04 42	05 43	□	□	□	23 52	
	02	211	47.5	22.7	302	05.2	5.3	27	46.8	1.5	58.0	68	03 38	04 48	05 44	□	□	21 53	24 19	
	03	226	47.8	21.7	316	29.5	5.3	27	45.3	1.7	58.0	66	03 50	04 53	05 45	□	□	22 38	24 39	
	04	241	48.0	20.8	330	53.8	5.4	27	43.6	1.9	57.9	64	04 00	04 58	05 45	□	21 01	23 07	24 56	
	05	256	48.2	19.8	345	18.2	5.5	27	41.7	2.0	57.9	62	04 08	05 01	05 46	19 47	21 41	23 29	25 09	
	06	271	48.4	N 0	18.8	359	42.7	5.5	N27	39.7	2.2	57.9	60	04 15	05 05	05 46	20 32	22 09	23 47	25 20
	07	286	48.6	17.8	14	07.2	5.6	27	37.5	2.4	57.8	N 58	04 20	05 07	05 47	21 02	22 31	24 02	00 02	
	08	301	48.9	16.9	28	31.8	5.7	27	35.1	2.5	57.8	56	04 25	05 10	05 47	21 25	22 48	24 14	00 14	
	09	316	49.1	15.9	42	56.5	5.7	27	32.6	2.7	57.8	54	04 30	05 12	05 47	21 43	23 03	24 25	00 25	
	10	331	49.3	14.9	57	21.2	5.9	27	29.9	2.9	57.7	52	04 34	05 14	05 47	21 59	23 16	24 35	00 35	
	11	346	49.5	13.9	71	46.1	5.9	27	27.0	3.0	57.7	50	04 37	05 15	05 48	22 12	23 27	24 44	00 44	
	12	1	49.7	N 0	13.0	86	11.0	5.9	N27	24.0	3.2	57.7	45	04 44	05 19	05 48	22 40	23 51	25 02	01 02
	13	16	50.0	12.0	100	35.9	6.1	27	20.8	3.4	57.6	N 40	04 50	05 21	05 48	23 02	24 09	00 09	01 17	
	14	31	50.2	11.0	115	01.0	6.1	27	17.4	3.5	57.6	35	04 54	05 23	05 49	23 20	24 25	00 25	01 29	
	15	46	50.4	10.0	129	26.1	6.2	27	13.9	3.7	57.6	30	04 57	05 25	05 49	23 35	24 38	00 38	01 40	
	16	61	50.6	09.1	143	51.3	6.3	27	10.2	3.8	57.5	20	05 01	05 27	05 49	24 02	00 02	01 01	01 58	
	17	76	50.8	08.1	158	16.6	6.4	27	06.4	4.0	57.5	N 10	05 04	05 28	05 49	24 24	00 24	01 21	02 15	
	18	91	51.1	N 0	07.1	172	42.0	6.5	N27	02.4	4.2	57.5	0	05 04	05 28	05 49	24 45	00 45	01 40	02 30
	19	106	51.3	06.2	187	07.5	6.5	26	58.2	4.3	57.4	S 10	05 04	05 28	05 49	00 09	01 06	01 58	02 44	
	20	121	51.5	05.2	201	33.0	6.7	26	53.9	4.5	57.4	20	05 01	05 27	05 49	00 33	01 29	02 17	03 00	
	21	136	51.7	04.2	215	58.7	6.7	26	49.4	4.6	57.4	30	04 57	05 25	05 48	01 01	01 55	02 40	03 18	
	22	151	51.9	03.2	230	24.4	6.8	26	44.8	4.7	57.3	35	04 53	05 23	05 48	01 17	02 10	02 53	03 29	
23	166	52.2	02.3	244	50.2	6.9	26	40.1	5.0	57.3	40	04 49	05 21	05 48	01 37	02 28	03 08	03 41		
23	00	181	52.4	N 0	01.3	259	16.1	7.0	N26	35.1	5.0	57.3	45	04 44	05 18	05 47	02 00	02 49	03 26	03 55
01	196	52.6	N 0	00.3	273	42.1	7.1	26	30.1	5.3	57.3	S 50	04 37	05 15	05 47	02 30	03 16	03 49	04 12	
02	211	52.8	S 0	00.7	288	08.2	7.2	26	24.8	5.3	57.2	52	04 33	05 13	05 47	02 44	03 29	03 59	04 20	
03	226	53.0	01.6	302	34.4	7.3	26	19.5	5.6	57.2	54	04 29	05 11	05 46	03 01	03 44	04 11	04 29		
04	241	53.3	02.6	317	00.7	7.3	26	13.9	5.6	57.2	56	04 25	05 09	05 46	03 22	04 01	04 25	04 39		
05	256	53.5	03.6	331	27.0	7.5	26	08.3	5.8	57.1	58	04 20	05 07	05 46	03 47	04 22	04 40	04 50		
06	271	53.7	S 0	04.6	345	53.5	7.6	N26	02.5	6.0	57.1	S 60	04 14	05 04	05 45	04 22	04 49	04 59	05 04	
07	286	53.9	05.5	0	20.1	7.6	25	56.5	6.1	57.1	Lat.	Ocaso Sol	Crepúsculo		Ocaso Luna					
08	301	54.1	06.5	14	46.7	7.8	25	50.4	6.2	57.0	Civil	Náut.	22	23	24	25				
09	316	54.3	07.5	29	13.5	7.9	25	44.2	6.3	57.0	h m	h m	h m	h m	h m	h m	h m	h m		
10	331	54.6	08.4	43	40.4	7.9	25	37.9	6.6	57.0	N 72	18 00	19 08	20 36	□	□	□	19 18		
11	346	54.8	09.4	58	07.3	8.1	25	31.3	6.6	56.9	N 70	17 59	19 00	20 18	□	□	□	18 37		
12	1	55.0	S 0	10.4	72	34.4	8.1	N25	24.7	6.8	56.9	68	17 58	18 54	20 03	□	□	18 57	18 08	
13	16	55.2	11.4	87	01.5	8.3	25	17.9	6.9	56.9	66	17 58	18 49	19 52	□	□	18 11	17 47		
14	31	55.4	12.3	101	28.8	8.4	25	11.0	7.0	56.9	64	17 58	18 45	19 43	□	18 01	17 41	17 29		
15	46	55.7	13.3	115	56.2	8.4	25	04.0	7.2	56.8	62	17 57	18 42	19 35	17 20	17 20	17 18	17 15		
16	61	55.9	14.3	130	23.6	8.6	24	56.8	7.3	56.8	60	17 57	18 39	19 28	16 34	16 52	16 59	17 02		
17	76	56.1	15.3	144	51.2	8.7	24	49.5	7.4	56.8	N 58	17 57	18 36	19 23	16 04	16 30	16 44	16 52		
18	91	56.3	S 0	16.2	159	18.9	8.7	N24	42.1	7.5	56.7	56	17 57	18 34	19 18	15 41	16 12	16 30	16 43	
19	106	56.5	17.2	173	46.6	8.9	24	34.6	7.7	56.7	54	17 56	18 32	19 13	15 22	15 56	16 19	16 34		
20	121	56.7	18.2	188	14.5	9.0	24	26.9	7.8	56.7	52	17 56	18 30	19 10	15 06	15 43	16 09	16 27		
21	136	57.0	19.2	202	42.5	9.1	24	19.1	7.9	56.7	50	17 56	18 28	19 06	14 52	15 31	15 59	16 20		
22	151	57.2	20.1	217	10.6	9.2	24	11.2	8.1	56.6	45	17 56	18 25	18 59	14 24	15 07	15 40	16 06		
23	166	57.4	21.1	231	38.8	9.3	24	03.1	8.1	56.6	N 40	17 56	18 23	18 54	14 02	14 48	15 24	15 54		
24	00	181	57.6	S 0	22.1	246	07.1	9.4	N23	55.0	8.3	56.6	35	17 56	18 21	18 50	13 43	14 31	15 11	15 43
01	196	57.8	23.1	260	35.5	9.5	23	46.7	8.4	56.5	30	17 55	18 19	18 47	13 27	14 17	14 59	15 34		
02	211	58.1	24.0	275	04.0	9.6	23	38.3	8.5	56.5	20	17 55	18 17	18 43	13 00	13 53	14 38	15 19		
03	226	58.3	25.0	289	32.6	9.7	23	29.8	8.6	56.5	N 10	17 55	18 16	18 41	12 37	13 32	14 21	15 05		
04	241	58.5	26.0	304	01.3	9.8	23	21.2	8.8	56.5	0	17 56	18 16	18 40	12 15	13 12	14 04	14 52		
05	256	58.7	27.0	318	30.1	9.9	23	12.4	8.8	56.4	S 10	17 56	18 17	18 41	11 53	12 52	13 47	14 39		
06	271	58.9	S 0	27.9	332	59.0	10.0	N23	03.6	9.0	56.4	20	17 56	18 18	18 44	11 30	12 31	13 29	14 25	
07	286	59.1	28.9	347	28.0	10.1	22	54.6	9.0	56.4	30	17 57	18 21	18 48	11 03	12 06	13 08	14 09		
08	301	59.4	29.9	1	57.1	10.3	22	45.6	9.2	56.4	35	17 57	18 22	18 52	10 46	11 51	12 56	13 59		
09	316	59.6	30.8	16	26.4	10.3	22	36.4	9.3	56.3	40	17 58	18 25	18 56	10 27	11 34	12 42	13 48		
10	331	59.8	31.8	30	55.7	10.4	22	27.1	9.3	56.3	45	17 58	18 27	19 02	10 04	11 13	12 25	13 36		
11	347	00.0	32.8	45	25.1	10.6	22	17.8	9.5	56.3	S 50	17 59	18 31	19 09	09 35	10 47	12 04	13 20		
12	2	00.2	S 0	33.8	59	54.7	10.6	N22	08.3	9.6	56.2	52	17 59	18 33	19 13	09 20	10 34	11 54	13 12	
13	17	00.4	34.7	74	24.3	10.7	21	58.7	9.7	56.2	54	17 59	18 35	19 17	09 03	10 20	11 42	13 04		
14	32	00.7	35.7	88	54.0	10.9	21	49.0	9.8	56.2	56	18 00	18 37	19 21	08 43	10 03	11 29	12 55		
15	47	00.9	36.7	103	23.9	10.9	21	39.2	9.8	56.2	58	18 00	18 40	19 27	08 18	09 42	11 14	12 44		
16	62	01.1	37.7	117	53.8	11.1	21	29.4	10.0	56.1	S 60	18 01	18 43	19 33	07 43	09 16	10 56	12 32		
17	77	01.3	38.6	132	23.9	11.1	21	19.4	10.1	56.1	Día	SOL E.T. (+)		LUNA						
18	92	01.5	S 0	39.6	146	54.0	11.3	N21	09.3	10.1	56.1	00 h	12 h	Pas. Mer.	Pas. Sup.	Mer. Inf.	Edad.	Fase		
19	107	01.7	40.6	161	24.3	11.3	20	59.2	10.3	56.1	22	07 08	07 19	11 53	06 01	18 30	22 23	(		
20	122	02.0	41.6	175	54.6	11.4	20	48.9	10.4	56.0	23	07 29	07 40	11 52	06					



T.M.G. (TU)		ARIES			VENUS -4.1			MARTE +1.7			JUPITER -2.3			SATURNO +0.5			ESTRELLAS		
d	h	A.H.G.	A.H.G.	Dec.	A.H.G.	A.H.G.	Dec.	A.H.G.	A.H.G.	Dec.	A.H.G.	A.H.G.	Dec.	Nombre	A. H. S.	Dec.			
LUNES	25 00	3 47.6	142 15.4	S17 35.1	180 15.9	S 0 38.5		263 58.5	N22 51.2		85 42.2	S22 46.6		Acamar	315 31.4	S40 20.4			
	01	18 50.0	157 15.0	36.1	195 16.9	39.2		279 00.7	51.1		100 44.6	46.6		Achernar	335 39.1	S57 17.0			
	02	33 52.5	172 14.6	37.1	210 17.9	39.9		294 02.9	51.1		115 47.0	46.6		Acruz	173 30.4	S63 02.6			
	03	48 54.9	187 14.3	38.1	225 18.8	40.5		309 05.1	51.1		130 49.5	46.7		Adhara	255 26.6	S28 57.1			
	04	63 57.4	202 13.9	39.1	240 19.8	41.2		324 07.3	51.1		145 51.9	46.7		Aldebaran	291 09.7	N16 29.6			
	05	78 59.9	217 13.6	40.1	255 20.8	41.8		339 09.4	51.1		160 54.3	46.7							
	06	94 02.3	232 13.2	S17 41.1	270 21.8	S 0 42.5		354 11.6	N22 51.1		175 56.7	S22 46.7		Alioth	166 36.5	N56 00.9			
	07	109 04.8	247 12.8	42.1	285 22.8	43.2		9 13.8	51.1		190 59.1	46.7		Alkaid	153 13.1	N49 21.9			
	08	124 07.3	262 12.5	43.1	300 23.8	43.8		24 16.0	51.0		206 01.5	46.7		Al Na'ir	28 05.4	S47 00.7			
	09	139 09.7	277 12.1	44.2	315 24.7	44.5		39 18.2	51.0		221 03.9	46.7		Alnilam	276 04.4	S 1 12.2			
	10	154 12.2	292 11.7	45.2	330 25.7	45.1		54 20.4	51.0		236 06.3	46.7		Alphard	218 13.9	S 8 36.6			
	11	169 14.7	307 11.4	46.2	345 26.7	45.8		69 22.6	51.0		251 08.7	46.7							
	12	184 17.1	322 11.0	S17 47.2	0 27.7	S 0 46.5		84 24.7	N22 51.0		266 11.1	S22 46.7		Alphecca	126 26.3	N26 45.0			
	13	199 19.6	337 10.6	48.2	15 28.7	47.1		99 26.9	51.0		281 13.5	46.7		Alpheratz	358 01.7	N29 02.2			
	14	214 22.1	352 10.3	49.2	30 29.6	47.8		114 29.1	50.9		296 15.9	46.7		Altair	62 25.5	N 8 50.5			
	15	229 24.5	7 09.9	50.2	45 30.6	48.4		129 31.3	50.9		311 18.3	46.7		Ankaa	353 32.6	S42 21.5			
	16	244 27.0	22 09.5	51.2	60 31.6	49.1		144 33.5	50.9		326 20.7	46.7		Antares	112 48.3	S26 24.7			
	17	259 29.4	37 09.2	52.2	75 32.6	49.8		159 35.7	50.9		341 23.1	46.7							
	18	274 31.9	52 08.8	S17 53.2	90 33.6	S 0 50.4		174 37.9	N22 50.9		356 25.5	S22 46.7		Arcturus	146 12.2	N19 14.2			
	19	289 34.4	67 08.4	54.2	105 34.5	51.1		189 40.1	50.9		11 27.9	46.7		Atria	108 06.5	S69 01.0			
	20	304 36.8	82 08.1	55.2	120 35.5	51.7		204 42.2	50.9		26 30.3	46.7		Avior	234 25.8	S59 28.2			
	21	319 39.3	97 07.7	56.2	135 36.5	52.4		219 44.4	50.8		41 32.7	46.7		Bellatrix	278 51.1	N 6 20.7			
	22	334 41.8	112 07.3	57.2	150 37.5	53.0		234 46.6	50.8		56 35.1	46.7		Betelgeuse	271 20.6	N 7 24.6			
23	349 44.2	127 07.0	58.2	165 38.5	53.7		249 48.8	50.8		71 37.5	46.7								
MARTES	26 00	4 46.7	142 06.6	S17 59.2	180 39.4	S 0 54.4		264 51.0	N22 50.8		86 39.9	S22 46.7		Canopus	264 04.1	S52 40.9			
	01	19 49.2	157 06.2	18 00.1	195 40.4	55.0		279 53.2	50.8		101 42.3	46.7		Capella	281 00.7	N45 59.3			
	02	34 51.6	172 05.9	01.1	210 41.4	55.7		294 55.4	50.8		116 44.7	46.7		Deneb	49 43.5	N45 14.8			
	03	49 54.1	187 05.5	02.1	225 42.4	56.3		309 57.6	50.8		131 47.1	46.7		Denebola	182 52.1	N14 37.8			
	04	64 56.5	202 05.1	03.1	240 43.4	57.0		324 59.8	50.7		146 49.5	46.7		Diphda	349 13.4	S18 02.3			
	05	79 59.0	217 04.8	04.1	255 44.3	57.7		340 02.0	50.7		161 51.9	46.7							
	06	95 01.5	232 04.4	S18 05.1	270 45.3	S 0 58.3		355 04.1	N22 50.7		176 54.3	S22 46.7		Dubhe	194 13.7	N61 48.3			
	07	110 03.9	247 04.0	06.1	285 46.3	59.0		10 06.3	50.7		191 56.7	46.7		Elnath	278 35.1	N28 36.1			
	08	125 06.4	262 03.6	07.1	300 47.3	0 59.6		25 08.5	50.7		206 59.1	46.7		Eltanin	90 54.5	N51 29.6			
	09	140 08.9	277 03.3	08.1	315 48.3	1 00.3		40 10.7	50.7		222 01.5	46.7		Enif	34 04.4	N 9 49.8			
	10	155 11.3	292 02.9	09.1	330 49.2	01.0		55 12.9	50.6		237 03.9	46.7		Formalhaut	15 43.1	S29 40.5			
	11	170 13.8	307 02.5	10.1	345 50.2	01.6		70 15.1	50.6		252 06.2	46.7							
	12	185 16.3	322 02.2	S18 11.0	0 51.2	S 1 02.3		85 17.3	N22 50.6		267 08.6	S22 46.7		Gacrux	172 21.7	S57 03.4			
	13	200 18.7	337 01.8	12.0	15 52.2	02.9		100 19.5	50.6		282 11.0	46.7		Gienah	176 11.1	S17 29.0			
	14	215 21.2	352 01.4	13.0	30 53.2	03.6		115 21.7	50.6		297 13.4	46.7		Hadar	149 14.2	S60 19.6			
	15	230 23.7	7 01.0	14.0	45 54.1	04.3		130 23.9	50.6		312 15.8	46.7		Hamal	328 20.7	N23 25.0			
	16	245 26.1	22 00.7	15.0	60 55.1	04.9		145 26.1	50.6		327 18.2	46.7		Kaus Aust.	84 07.4	S34 23.6			
	17	260 28.6	37 00.3	16.0	75 56.1	05.6		160 28.3	50.5		342 20.6	46.7							
	18	275 31.0	51 59.9	S18 16.9	90 57.1	S 1 06.2		175 30.5	N22 50.5		357 23.0	S22 46.7		Kochab	137 19.7	N74 11.9			
	19	290 33.5	66 59.5	17.9	105 58.1	06.9		190 32.7	50.5		12 25.4	46.7		Markab	13 55.8	N15 09.2			
	20	305 36.0	81 59.2	18.9	120 59.0	07.5		205 34.9	50.5		27 27.8	46.7		Menkar	314 33.5	N 4 03.3			
	21	320 38.4	96 58.8	19.9	136 00.0	08.2		220 37.1	50.5		42 30.2	46.7		Menkent	148 29.1	S36 19.3			
	22	335 40.9	111 58.4	20.9	151 01.0	08.9		235 39.3	50.5		57 32.6	46.7		Miaplacidus	221 44.5	S69 40.2			
23	350 43.4	126 58.0	21.8	166 02.0	09.5		250 41.5	50.5		72 35.0	46.7								
MIÉRCOLES	27 00	5 45.8	141 57.6	S18 22.8	181 02.9	S 1 10.2		265 43.7	N22 50.4		87 37.4	S22 46.7		Mirfak	309 05.8	N49 49.6			
	01	20 48.3	156 57.3	23.8	196 03.9	10.8		280 45.9	50.4		102 39.8	46.7		Nunki	76 20.3	S26 18.7			
	02	35 50.8	171 56.9	24.8	211 04.9	11.5		295 48.1	50.4		117 42.2	46.7		Peacock	53 46.7	S56 46.3			
	03	50 53.2	186 56.5	25.8	226 05.9	12.2		310 50.3	50.4		132 44.6	46.7		Pollux	243 49.6	N28 03.2			
	04	65 55.7	201 56.1	26.7	241 06.9	12.8		325 52.4	50.4		147 47.0	46.7		Procyon	245 18.5	N 5 15.3			
	05	80 58.2	216 55.8	27.7	256 07.8	13.5		340 54.6	50.4		162 49.4	46.7							
	06	96 00.6	231 55.4	S18 28.7	271 08.8	S 1 14.1		355 56.8	N22 50.4		177 51.8	S22 46.7		Rasalhague	96 23.1	N12 34.1			
	07	111 03.1	246 55.0	29.7	286 09.8	14.8		10 59.0	50.3		192 54.2	46.7		Regulus	208 02.7	N12 01.2			
	08	126 05.5	261 54.6	30.6	301 10.8	15.5		26 01.2	50.3		207 56.5	46.7		Rigel	281 29.1	S 8 12.5			
	09	141 08.0	276 54.2	31.6	316 11.8	16.1		41 03.4	50.3		222 58.9	46.7		Rigil Kent.	140 16.9	S60 47.8			
	10	156 10.5	291 53.9	32.6	331 12.7	16.8		56 05.6	50.3		238 01.3	46.7		Sabik	102 33.1	S15 42.9			
	11	171 12.9	306 53.5	33.5	346 13.7	17.4		71 07.8	50.3		253 03.7	46.7							
	12	186 15.4	321 53.1	S18 34.5	1 14.7	S 1 18.1		86 10.0	N22 50.3		268 06.1	S22 46.7		Schedar	350 00.7	N56 29.0			
	13	201 17.9	336 52.7	35.5	16 15.7	18.8		101 12.3	50.3		283 08.5	46.7		Shaula	96 46.2	S37 06.0			
	14	216 20.3	351 52.3	36.5	31 16.6	19.4		116 14.5	50.2		298 10.9	46.7		Sirius	258 49.5	S16 41.8			
	15	231 22.8	6 51.9	37.4	46 17.6	20.1		131 16.7	50.2		313 13.3	46.7		Spica	158 50.4	S11 06.5			
	16	246 25.3	21 51.6	38.4	61 18.6	20.7		146 18.9	50.2		328 15.7	46.8		Suhail	223 06.0	S43 23.2			
	17	261 27.7	36 51.2	39.4	76 19.6														



T.M.G. (TU)	SOL		LUNA				Lat.	Crepúsculo		Orto Sol	Orto Luna						
	A.H.G.	Dec.	A.H.G.	v	Dec.	d		P.H.	Náut.		Civil	25	26	27	28		
	o / ' / "	o / ' / "	o / ' / "	o / ' / "	o / ' / "	o / ' / "		o / ' / "	h m	h m	h m	h m	h m	h m	h m		
LUNES	25 00	182 02.8	S 0 45.5	233 57.0	11.8	N20 07.0	10.7	55.9	N 72	03 22	04 48	05 56	23 12	25 45	01 45	03 50	
	01	197 03.0		248 27.8	11.9	19 56.3	10.8	55.9	N 70	03 38	04 54	05 55	23 52	26 02	02 02	03 55	
	02	212 03.3		262 58.7	12.1	19 45.5	10.9	55.9	68	03 51	04 59	05 55	24 19	00 19	02 15	04 00	
	03	227 03.5	..	277 29.8	12.1	19 34.6	10.9	55.9	66	04 01	05 03	05 54	24 39	00 39	02 25	04 04	
	04	242 03.7		292 00.9	12.2	19 23.7	11.0	55.8	64	04 09	05 07	05 54	24 56	00 56	02 34	04 07	
	05	257 03.9		306 32.1	12.3	19 12.7	11.1	55.8	62	04 16	05 09	05 54	25 09	01 09	02 42	04 10	
	06	272 04.1	S 0	321 03.4	12.4	N19 01.6	11.2	55.8	60	04 22	05 12	05 53	25 20	01 20	02 48	04 12	
	07	287 04.3		335 34.8	12.5	18 50.4	11.3	55.8	N 58	04 27	05 14	05 53	00 02	01 30	02 54	04 14	
	08	302 04.6		350 06.3	12.6	18 39.1	11.3	55.8	56	04 32	05 16	05 53	00 14	01 38	02 59	04 16	
	09	317 04.8	..	4 37.9	12.7	18 27.8	11.4	55.7	54	04 36	05 17	05 53	00 25	01 46	03 03	04 18	
	10	332 05.0		19 09.6	12.7	18 16.4	11.5	55.7	52	04 39	05 19	05 52	00 35	01 52	03 07	04 19	
	11	347 05.2		33 41.3	12.9	18 04.9	11.6	55.7	50	04 42	05 20	05 52	00 44	01 59	03 11	04 21	
	12	2 05.4	S 0	48 13.2	12.9	N17 53.3	11.6	55.7	45	04 48	05 22	05 52	01 02	02 11	03 19	04 24	
	13	17 05.6		62 45.1	13.1	17 41.7	11.7	55.6	N 40	04 53	05 24	05 51	01 17	02 22	03 25	04 26	
	14	32 05.8	0	77 17.2	13.1	17 30.0	11.8	55.6	35	04 56	05 26	05 51	01 29	02 31	03 31	04 28	
	15	47 06.1	1	91 49.3	13.2	17 18.2	11.8	55.6	30	04 59	05 27	05 50	01 40	02 39	03 36	04 30	
	16	62 06.3		106 21.5	13.3	17 06.4	11.9	55.6	20	05 02	05 28	05 50	01 58	02 53	03 44	04 33	
	17	77 06.5		120 53.8	13.4	16 54.5	12.0	55.6	N 10	05 04	05 28	05 49	02 15	03 04	03 51	04 36	
	18	92 06.7	S 1	135 26.2	13.4	N16 42.5	12.0	55.5	0	05 03	05 27	05 48	02 30	03 15	03 58	04 39	
	19	107 06.9		149 58.6	13.6	16 30.5	12.1	55.5	S 10	05 02	05 26	05 47	02 44	03 26	04 05	04 42	
	20	122 07.1	04.9	164 31.2	13.6	16 18.4	12.1	55.5	20	04 58	05 24	05 46	03 00	03 38	04 13	04 45	
	21	137 07.3	..	179 03.8	13.7	16 06.3	12.3	55.5	30	04 53	05 21	05 45	03 18	03 51	04 21	04 48	
	22	152 07.6		193 36.5	13.8	15 54.0	12.2	55.4	35	04 49	05 19	05 44	03 29	03 59	04 26	04 50	
23	167 07.8	07.9	208 09.3	13.8	15 41.8	12.4	55.4	40	04 44	05 16	05 43	03 41	04 08	04 31	04 52		
MARTES	26 00	182 08.0	S 1 08.8	222 42.1	14.0	N15 29.4	12.3	55.4	45	04 38	05 12	05 42	03 55	04 18	04 37	04 54	
	01	197 08.2	09.8	237 15.1	14.0	15 17.1	12.5	55.4	S 50	04 30	05 08	05 40	04 12	04 30	04 45	04 57	
	02	212 08.4	10.8	251 48.1	14.1	15 04.6	12.5	55.4	52	04 26	05 06	05 40	04 20	04 36	04 48	04 59	
	03	227 08.6	..	266 21.2	14.2	14 52.1	12.5	55.3	54	04 21	05 04	05 39	04 29	04 42	04 52	05 00	
	04	242 08.8	12.7	280 54.4	14.2	14 39.6	12.6	55.3	56	04 16	05 01	05 38	04 39	04 49	04 56	05 02	
	05	257 09.1	13.7	295 27.6	14.3	14 27.0	12.7	55.3	58	04 10	04 58	05 37	04 50	04 56	05 00	05 03	
	06	272 09.3	S 1 14.7	310 00.9	14.4	N14 14.3	12.7	55.3	S 60	04 04	04 54	05 36	05 04	05 05	05 06	05 05	
	07	287 09.5	15.7	324 34.3	14.5	14 01.6	12.8	55.3	Lat.	Ocaso Sol	Crepúsculo		Ocaso Luna				
	08	302 09.7	16.6	339 07.8	14.5	13 48.8	12.8	55.2		Sol	Civil	Náut.	25	26	27	28	
	09	317 09.9	..	353 41.3	14.6	13 36.0	12.8	55.2									
	10	332 10.1	18.6	8 14.9	14.7	13 23.2	12.9	55.2									
	11	347 10.3	19.6	22 48.6	14.7	13 10.3	13.0	55.2	N 72	17 44	18 52	20 17	19 18	18 16	17 39	17 08	
	12	2 10.5	S 1 20.5	37 22.3	14.9	N12 57.3	12.9	55.2	N 70	17 45	18 46	20 01	18 37	17 57	17 30	17 07	
	13	17 10.8	21.5	51 56.2	14.8	12 44.4	13.1	55.2	68	17 46	18 41	19 49	18 08	17 43	17 23	17 06	
	14	32 11.0	22.5	66 30.0	15.0	12 31.3	13.1	55.1	66	17 47	18 37	19 39	17 47	17 30	17 17	17 05	
	15	47 11.2	..	81 04.0	15.0	12 18.2	13.1	55.1	64	17 47	18 34	19 31	17 29	17 20	17 12	17 05	
	16	62 11.4	24.4	95 38.0	15.0	12 05.1	13.1	55.1	62	17 48	18 32	19 24	17 15	17 11	17 08	17 04	
	17	77 11.6	25.4	110 12.0	15.2	11 52.0	13.2	55.1	60	17 48	18 29	19 19	17 02	17 04	17 04	17 04	
	18	92 11.8	S 1 26.4	124 46.2	15.2	N11 38.8	13.3	55.1	N 58	17 48	18 27	19 14	16 52	16 57	17 01	17 03	
	19	107 12.0	27.4	139 20.4	15.2	11 25.5	13.2	55.0	56	17 49	18 26	19 09	16 43	16 51	16 57	17 03	
	20	122 12.2	28.3	153 54.6	15.3	11 12.3	13.3	55.0	54	17 49	18 24	19 06	16 34	16 46	16 55	17 03	
	21	137 12.5	..	168 28.9	15.4	10 59.0	13.4	55.0	52	17 49	18 23	19 02	16 27	16 41	16 52	17 02	
	22	152 12.7	30.3	183 03.3	15.4	10 45.6	13.4	55.0	50	17 50	18 22	18 59	16 20	16 36	16 50	17 02	
23	167 12.9	31.2	197 37.7	15.5	10 32.2	13.4	55.0	45	17 50	18 19	18 54	16 06	16 27	16 45	17 01		
MIÉRCOLES	27 00	182 13.1	S 1 32.2	212 12.2	15.5	N10 18.8	13.4	55.0	N 40	17 51	18 18	18 49	15 54	16 19	16 41	17 01	
	01	197 13.3	33.2	226 46.7	15.6	10 05.4	13.5	54.9	35	17 51	18 16	18 46	15 43	16 12	16 37	17 01	
	02	212 13.5	34.2	241 21.3	15.6	9 51.9	13.5	54.9	30	17 52	18 16	18 43	15 34	16 05	16 34	17 00	
	03	227 13.7	..	255 55.9	15.7	9 38.4	13.5	54.9	20	17 53	18 15	18 40	15 19	15 55	16 28	16 59	
	04	242 13.9	36.1	270 30.6	15.8	9 24.9	13.6	54.9	N 10	17 54	18 15	18 39	15 05	15 45	16 23	16 59	
	05	257 14.2	37.1	285 05.4	15.8	9 11.3	13.6	54.9	0	17 55	18 15	18 39	14 52	15 36	16 18	16 58	
	06	272 14.4	S 1 38.1	299 40.2	15.8	N 8 57.7	13.6	54.9	S 10	17 56	18 17	18 41	14 39	15 27	16 13	16 58	
	07	287 14.6	39.0	314 15.0	15.9	8 44.1	13.6	54.8	20	17 57	18 19	18 45	14 25	15 18	16 08	16 57	
	08	302 14.8	40.0	328 49.9	15.9	8 30.5	13.7	54.8	30	17 58	18 22	18 50	14 09	15 07	16 02	16 56	
	09	317 15.0	..	343 24.8	16.0	8 16.8	13.7	54.8	35	17 59	18 25	18 54	13 59	15 00	15 59	16 56	
	10	332 15.2	42.0	357 59.8	16.0	8 03.1	13.7	54.8	40	18 00	18 28	18 59	13 48	14 53	15 55	16 55	
	11	347 15.4	42.9	12 34.8	16.1	7 49.4	13.8	54.8	45	18 02	18 31	19 06	13 36	14 44	15 50	16 54	
	12	2 15.6	S 1 43.9	27 09.9	16.1	N 7 35.6	13.7	54.8	S 50	18 03	18 36	19 14	13 20	14 34	15 45	16 54	
	13	17 15.8	44.9	41 45.0	16.2	7 21.9	13.8	54.7	52	18 04	18 38	19 18	13 12	14 29	15 42	16 53	
	14	32 16.1	45.9	56 20.2	16.2	7 08.1	13.8	54.7	54	18 05	18 40	19 23	13 04	14 23	15 39	16 53	
	15	47 16.3	..	70 55.4	16.2	6 54.3	13.8	54.7	56	18 06	18 43	19 28	12 55	14 17	15 36	16 52	
	16	62 16.5	47.8	85 30.6	16.3	6 40.5	13.9	54.7	58	18 07	18 46	19 34	12 44	14 10	15 33	16 52	
	17	77 16.7	48.8	100 05.9	16.3	6 26.6	13.8	54.7	S 60	18 08	18 50	19 41	12 32	14 03	15 29	16 51	
	18	92 16.9	S 1 49.8	114 41.2	16.3	N 6 12.8	13.9	54.7									
	19	107 17.1	50.7	129 16.5													



T.M.G. (TU)	ARIES			VENUS -4.1			MARTE +1.7			JUPITER -2.3			SATURNO +0.5			ESTRELLAS		
	A.H.G.	A.H.G.	Dec.	A.H.G.	Dec.	A.H.G.	Dec.	A.H.G.	Dec.	A.H.G.	Dec.	A.H.G.	Dec.	Nombre	A. H. S.	Dec.		
28 00	6 45.0	141 48.5	S18 46.1	181 26.4	S 1 26.0	266 36.5	N22 50.1	88 34.8	S22 46.8	Acomar	315 31.4	S40 20.4						
01	21 47.4	156 48.1	47.1	196 27.4	26.7	281 38.7	50.1	103 37.2	46.8	Achernar	335 39.1	S57 17.1						
02	36 49.9	171 47.7	48.0	211 28.4	27.3	296 40.9	50.1	118 39.6	46.8	Acrux	173 30.4	S63 02.6						
03	51 52.4	186 47.3	49.0	226 29.3	28.0	311 43.1	50.1	133 42.0	46.8	Adhara	255 26.6	S28 57.1						
04	66 54.8	201 46.9	49.9	241 30.3	28.6	326 45.3	50.0	148 44.4	46.8	Aldebaran	291 09.7	N16 29.6						
05	81 57.3	216 46.6	50.9	256 31.3	29.3	341 47.5	50.0	163 46.8	46.8									
06	96 59.8	231 46.2	S18 51.8	271 32.3	S 1 30.0	356 49.7	N22 50.0	178 49.1	S22 46.8	Alioth	166 36.5	N56 00.9						
07	112 02.2	246 45.8	52.8	286 33.3	30.6	11 51.9	50.0	193 51.5	46.8	Alkaid	153 13.1	N49 21.9						
08	127 04.7	261 45.4	53.8	301 34.2	31.3	26 54.1	50.0	208 53.9	46.8	Al Na'ir	28 05.5	S47 00.7						
09	142 07.1	276 45.0	54.7	316 35.2	31.9	41 56.3	50.0	223 56.3	46.8	Alnilam	276 04.4	S 1 12.2						
10	157 09.6	291 44.6	55.7	331 36.2	32.6	56 58.5	50.0	238 58.7	46.8	Alphard	218 13.8	S 8 36.6						
11	172 12.1	306 44.2	56.6	346 37.2	33.3	72 00.8	49.9	254 01.1	46.8									
12	187 14.5	321 43.8	S18 57.6	1 38.1	S 1 33.9	87 03.0	N22 49.9	269 03.5	S22 46.8	Alphecca	126 26.3	N26 45.0						
13	202 17.0	336 43.4	58.5	16 39.1	34.6	102 05.2	49.9	284 05.9	46.8	Alpheratz	358 01.7	N29 02.2						
14	217 19.5	351 43.1	18 59.5	31 40.1	35.2	117 07.4	49.9	299 08.3	46.8	Altair	62 25.5	N 8 50.5						
15	232 21.9	6 42.7	19 00.4	46 41.1	35.9	132 09.6	49.9	314 10.6	46.8	Ankaa	353 32.6	S42 21.5						
16	247 24.4	21 42.3	01.4	61 42.0	36.6	147 11.8	49.9	329 13.0	46.8	Antares	112 48.4	S26 24.7						
17	262 26.9	36 41.9	02.3	76 43.0	37.2	162 14.0	49.9	344 15.4	46.8									
18	277 29.3	51 41.5	S19 03.3	91 44.0	S 1 37.9	177 16.2	N22 49.8	359 17.8	S22 46.8	Arcturus	146 12.2	N19 14.2						
19	292 31.8	66 41.1	04.2	106 45.0	38.5	192 18.4	49.8	14 20.2	46.8	Atria	108 06.6	S69 01.0						
20	307 34.3	81 40.7	05.2	121 45.9	39.2	207 20.6	49.8	29 22.6	46.8	Avior	234 25.8	S59 28.2						
21	322 36.7	96 40.3	06.1	136 46.9	39.9	222 22.9	49.8	44 25.0	46.8	Bellatrix	278 51.1	N 6 20.7						
22	337 39.2	111 39.9	07.1	151 47.9	40.5	237 25.1	49.8	59 27.4	46.8	Betelgeuse	271 20.5	N 7 24.6						
23	352 41.6	126 39.5	08.0	166 48.9	41.2	252 27.3	49.8	74 29.7	46.8									
29 00	7 44.1	141 39.1	S19 08.9	181 49.9	S 1 41.8	267 29.5	N22 49.8	89 32.1	S22 46.8	Canopus	264 04.1	S52 40.9						
01	22 46.6	156 38.7	09.9	196 50.8	42.5	282 31.7	49.7	104 34.5	46.8	Capella	281 00.7	N45 59.3						
02	37 49.0	171 38.3	10.8	211 51.8	43.1	297 33.9	49.7	119 36.9	46.8	Deneb	49 43.5	N45 14.8						
03	52 51.5	186 37.9	11.8	226 52.8	43.8	312 36.1	49.7	134 39.3	46.8	Denebola	182 52.1	N14 37.8						
04	67 54.0	201 37.5	12.7	241 53.8	44.5	327 38.3	49.7	149 41.7	46.8	Diphda	349 13.4	S18 02.3						
05	82 56.4	216 37.1	13.6	256 54.7	45.1	342 40.6	49.7	164 44.1	46.8									
06	97 58.9	231 36.8	S19 14.6	271 55.7	S 1 45.8	357 42.8	N22 49.7	179 46.4	S22 46.8	Dubhe	194 13.7	N61 48.3						
07	113 01.4	246 36.4	15.5	286 56.7	46.4	12 45.0	49.7	194 48.8	46.8	Elnath	278 35.1	N28 36.1						
08	128 03.8	261 36.0	16.5	301 57.7	47.1	27 47.2	49.7	209 51.2	46.8	Eltanin	90 54.5	N51 29.6						
09	143 06.3	276 35.6	17.4	316 58.6	47.8	42 49.4	49.6	224 53.6	46.8	Enif	34 04.4	N 9 49.8						
10	158 08.8	291 35.2	18.3	331 59.6	48.4	57 51.6	49.6	239 56.0	46.8	Fomalhaut	15 43.1	S29 40.5						
11	173 11.2	306 34.8	19.3	347 00.6	49.1	72 53.8	49.6	254 58.4	46.8									
12	188 13.7	321 34.4	S19 20.2	2 01.6	S 1 49.7	87 56.1	N22 49.6	270 00.7	S22 46.8	Gacrux	172 21.7	S57 03.4						
13	203 16.1	336 34.0	21.1	17 02.5	50.4	102 58.3	49.6	285 03.1	46.8	Gienah	176 11.1	S17 29.0						
14	218 18.6	351 33.6	22.1	32 03.5	51.1	118 00.5	49.6	300 05.5	46.8	Hadar	149 14.2	S60 19.6						
15	233 21.1	6 33.2	23.0	47 04.5	51.7	133 02.7	49.6	315 07.9	46.8	Hamal	328 20.7	N23 25.1						
16	248 23.5	21 32.8	23.9	62 05.5	52.4	148 04.9	49.5	330 10.3	46.8	Kaus Aust.	84 07.4	S34 23.6						
17	263 26.0	36 32.4	24.9	77 06.4	53.0	163 07.1	49.5	345 12.7	46.8									
18	278 28.5	51 32.0	S19 25.8	92 07.4	S 1 53.7	178 09.4	N22 49.5	0 15.0	S22 46.8	Kochab	137 19.7	N74 11.9						
19	293 30.9	66 31.6	26.7	107 08.4	54.3	193 11.6	49.5	15 17.4	46.8	Markab	13 55.8	N15 09.2						
20	308 33.4	81 31.2	27.6	122 09.4	55.0	208 13.8	49.5	30 19.8	46.8	Menkar	314 33.5	N 4 03.3						
21	323 35.9	96 30.8	28.6	137 10.3	55.7	223 16.0	49.5	45 22.2	46.8	Menkent	148 29.1	S36 19.3						
22	338 38.3	111 30.4	29.5	152 11.3	56.3	238 18.2	49.5	60 24.6	46.8	Miaplacidus	221 44.4	S69 40.2						
23	353 40.8	126 30.0	30.4	167 12.3	57.0	253 20.5	49.4	75 27.0	46.8									
30 00	8 43.2	141 29.6	S19 31.4	182 13.2	S 1 57.6	268 22.7	N22 49.4	90 29.3	S22 46.8	Mirfak	309 05.7	N49 49.6						
01	23 45.7	156 29.2	32.3	197 14.2	58.3	283 24.9	49.4	105 31.7	46.8	Nunki	76 20.3	S26 18.7						
02	38 48.2	171 28.8	33.2	212 15.2	59.0	298 27.1	49.4	120 34.1	46.8	Peacock	53 46.8	S56 46.3						
03	53 50.6	186 28.4	34.1	227 16.2	59.6	313 29.3	49.4	135 36.5	46.8	Pollux	243 49.6	N28 03.2						
04	68 53.1	201 27.9	35.0	242 17.1	2 00.3	328 31.6	49.4	150 38.9	46.8	Procyon	245 18.4	N 5 15.3						
05	83 55.6	216 27.5	36.0	257 18.1	00.9	343 33.8	49.4	165 41.2	46.8									
06	98 58.0	231 27.1	S19 36.9	272 19.1	S 2 01.6	358 36.0	N22 49.4	180 43.6	S22 46.8	Rasalhague	96 23.1	N12 34.1						
07	114 00.5	246 26.7	37.8	287 20.1	02.3	13 38.2	49.3	195 46.0	46.8	Regulus	208 02.7	N12 01.2						
08	129 03.0	261 26.3	38.7	302 21.0	02.9	28 40.4	49.3	210 48.4	46.8	Rigel	281 29.1	S 8 12.5						
09	144 05.4	276 25.9	39.6	317 22.0	03.6	43 42.7	49.3	225 50.8	46.8	Rigel Kent.	140 16.9	S60 47.8						
10	159 07.9	291 25.5	40.6	332 23.0	04.2	58 44.9	49.3	240 53.1	46.8	Sabik	102 33.1	S15 42.9						
11	174 10.4	306 25.1	41.5	347 24.0	04.9	73 47.1	49.3	255 55.5	46.8									
12	189 12.8	321 24.7	S19 42.4	2 24.9	S 2 05.6	88 49.3	N22 49.3	270 57.9	S22 46.8	Schedar	350 00.7	N56 29.0						
13	204 15.3	336 24.3	43.3	17 25.9	06.2	103 51.6	49.3	286 00.3	46.8	Shaula	96 46.2	S37 06.0						
14	219 17.7	351 23.9	44.2	32 26.9	06.9	118 53.8	49.2	301 02.7	46.8	Sirius	258 49.4	S16 41.8						
15	234 20.2	6 23.5	45.1	47 27.8	07.5	133 56.0	49.2	316 05.0	46.8	Spica	158 50.4	S11 06.5						
16	249 22.7	21 23.1	46.1	62 28.8	08.2	148 58.2	49.2	331 07.4	46.8	Suhail	223 06.0	S43 23.1						
17	264 25.1	36 22.7	47.0	77 29.8	08.8	164 00.5	49.2	346 09.8	46.8									
18	279 27.6	51 22.3	S19 47.9	92 30.8	S 2 09.5	179 02.7	N22 49.2	1 12.2	S22 46.8	Vega	80 51.0	N38 46.6						
19	294 30.1	66 21.8	48.8	107 31.7	10.2	194 04.9	49.2	1										



T.M.G. (TU)	SOL		LUNA				Lat.	Crepúsculo		Orto Sol	Orto Luna					
	A.H.G.	Dec.	A.H.G.	v	Dec.	d		P.H.	Naut.		Civil	28	29	30	1	
												h m	h m	h m	h m	
J U E V E S	28 00	182 18.2	S 1 55.6	202 13.7	16.6	N 4 49.3	13.9	54.6	N 72	03 38	05 02	06 09	03 50	05 46	07 45	09 59
	01	197 18.4	56.6	216 49.3	16.5	4 35.4	14.0	54.6	N 70	03 52	05 06	06 07	03 55	05 43	07 32	09 31
	02	212 18.6	57.5	231 24.8	16.6	4 21.4	14.0	54.6	68	04 03	05 10	06 05	04 00	05 41	07 22	09 10
	03	227 18.8	58.5	246 00.4	16.7	4 07.4	13.9	54.5	66	04 12	05 13	06 04	04 04	05 39	07 14	08 53
	04	242 19.0	1 59.5	260 36.1	16.6	3 53.5	14.0	54.5	64	04 19	05 15	06 03	04 07	05 37	07 07	08 40
	05	257 19.2	2 00.5	275 11.7	16.7	3 39.5	14.0	54.5	62	04 25	05 17	06 01	04 10	05 35	07 01	08 28
	06	272 19.4	S 2 01.4	289 47.4	16.7	N 3 25.5	14.0	54.5	60	04 30	05 19	06 00	04 12	05 34	06 56	08 19
	07	287 19.6	02.4	304 23.1	16.7	3 11.5	14.0	54.5	N 58	04 34	05 20	06 00	04 14	05 33	06 51	08 11
	08	302 19.8	03.4	318 58.8	16.8	2 57.5	14.1	54.5	56	04 38	05 22	05 59	04 16	05 32	06 47	08 03
	09	317 20.0	04.4	333 34.6	16.7	2 43.4	14.0	54.5	54	04 41	05 23	05 58	04 18	05 31	06 43	07 57
	10	332 20.2	05.3	348 10.3	16.8	2 29.4	14.0	54.5	52	04 44	05 24	05 57	04 19	05 30	06 40	07 51
	11	347 20.4	06.3	2 46.1	16.8	2 15.4	14.0	54.4	50	04 47	05 24	05 57	04 21	05 29	06 37	07 46
	12	2 20.7	S 2 07.3	17 21.9	16.8	N 2 01.4	14.0	54.4	45	04 52	05 26	05 55	04 24	05 27	06 31	07 35
	13	17 20.9	08.3	31 57.7	16.9	1 47.4	14.1	54.4	N 40	04 56	05 27	05 54	04 26	05 26	06 25	07 25
	14	32 21.1	09.2	46 33.6	16.8	1 33.3	14.0	54.4	35	04 58	05 28	05 53	04 28	05 25	06 21	07 18
	15	47 21.3	10.2	61 09.4	16.9	1 19.3	14.0	54.4	30	05 00	05 28	05 52	04 30	05 24	06 17	07 11
	16	62 21.5	11.2	75 45.3	16.9	1 05.3	14.0	54.4	20	05 03	05 28	05 50	04 33	05 22	06 10	06 59
	17	77 21.7	12.1	90 21.2	16.9	0 51.3	14.1	54.4	N 10	05 03	05 28	05 49	04 36	05 20	06 04	06 48
	18	92 21.9	S 2 13.1	104 57.1	16.9	N 0 37.2	14.0	54.4	0	05 02	05 26	05 47	04 39	05 19	05 58	06 39
	19	107 22.1	14.1	119 33.0	16.9	0 23.2	14.0	54.4	S 10	05 00	05 24	05 45	04 42	05 17	05 53	06 29
	20	122 22.3	15.1	134 08.9	17.0	N 0 09.2	14.0	54.3	20	04 56	05 21	05 43	04 45	05 16	05 47	06 19
	21	137 22.5	16.0	148 44.9	16.9	S 0 04.8	14.0	54.3	30	04 49	05 17	05 41	04 48	05 14	05 40	06 08
	22	152 22.7	17.0	163 20.8	17.0	0 18.8	14.0	54.3	35	04 45	05 14	05 40	04 50	05 13	05 36	06 01
23	167 22.9	18.0	177 56.8	16.9	0 32.8	14.0	54.3	40	04 39	05 11	05 38	04 52	05 12	05 32	05 54	
V I E R N E S	29 00	182 23.1	S 2 19.0	192 32.7	17.0	S 0 46.8	14.0	54.3	45	04 32	05 07	05 36	04 54	05 11	05 27	05 45
	01	197 23.4	19.9	207 08.7	16.9	1 00.8	13.9	54.3	S 50	04 23	05 01	05 34	04 57	05 09	05 21	05 35
	02	212 23.6	20.9	221 44.6	17.0	1 14.7	14.0	54.3	52	04 18	04 59	05 33	04 59	05 09	05 19	05 30
	03	227 23.8	21.9	236 20.6	17.0	1 28.7	14.0	54.3	54	04 13	04 56	05 31	05 00	05 08	05 16	05 25
	04	242 24.0	22.8	250 56.6	17.0	1 42.7	13.9	54.3	56	04 08	04 53	05 30	05 02	05 07	05 12	05 19
	05	257 24.2	23.8	265 32.6	16.9	1 56.6	13.9	54.3	58	04 01	04 49	05 29	05 03	05 06	05 09	05 12
	06	272 24.4	S 2 24.8	280 08.5	17.0	S 2 10.5	13.9	54.2	S 60	03 54	04 45	05 27	05 05	05 05	05 05	05 05
	07	287 24.6	25.8	294 44.5	17.0	2 24.4	14.0	54.2	Lat.	Ocaso Sol	Crepúsculo		Ocaso Luna			
	08	302 24.8	26.7	309 20.5	17.0	2 38.4	13.8	54.2			Civil	Naut.	28	29	30	1
	09	317 25.0	27.7	323 56.5	16.9	2 52.2	13.9	54.2	N 70	17 29	18 36	19 59	17 08	16 38	16 03	15 15
	10	332 25.2	28.7	338 32.4	17.0	3 06.1	13.9	54.2	N 70	17 31	18 32	19 45	17 07	16 44	16 19	15 46
	11	347 25.4	29.7	353 08.4	17.0	3 20.0	13.8	54.2	68	17 33	18 28	19 35	17 06	16 49	16 31	16 09
	12	2 25.6	S 2 30.6	7 44.4	16.9	S 3 33.8	13.8	54.2	66	17 35	18 26	19 27	17 05	16 54	16 41	16 26
	13	17 25.8	31.6	22 20.3	17.0	3 47.6	13.9	54.2	64	17 36	18 24	19 20	17 05	16 57	16 50	16 41
	14	32 26.0	32.6	36 56.3	16.9	4 01.5	13.7	54.2	62	17 38	18 22	19 14	17 04	17 01	16 57	16 53
	15	47 26.2	33.5	51 32.2	17.0	4 15.2	13.8	54.2	60	17 39	18 20	19 09	17 04	17 03	17 03	17 04
	16	62 26.4	34.5	66 08.2	16.9	4 29.0	13.8	54.2	N 58	17 40	18 19	19 05	17 03	17 06	17 09	17 13
	17	77 26.6	35.5	80 44.1	16.9	4 42.8	13.7	54.1	56	17 41	18 18	19 01	17 03	17 08	17 14	17 21
	18	92 26.8	S 2 36.5	95 20.0	16.9	S 4 56.5	13.7	54.1	54	17 42	18 17	18 58	17 03	17 10	17 19	17 29
	19	107 27.1	37.4	109 55.9	16.9	5 10.2	13.7	54.1	52	17 42	18 16	18 55	17 02	17 12	17 23	17 35
	20	122 27.3	38.4	124 31.8	16.9	5 23.9	13.6	54.1	50	17 43	18 15	18 53	17 02	17 14	17 27	17 41
	21	137 27.5	39.4	139 07.7	16.9	5 37.5	13.7	54.1	45	17 45	18 14	18 48	17 01	17 18	17 35	17 54
	22	152 27.7	40.4	153 43.6	16.9	6 04.8	13.6	54.1	N 40	17 46	18 13	18 44	17 01	17 21	17 42	18 04
23	167 27.9	41.3	168 19.5	16.8	6 18.4	13.5	54.1	35	17 47	18 12	18 42	17 01	17 24	17 48	18 13	
S A B A D O	30 00	182 28.1	S 2 42.3	182 55.3	16.8	S 6 18.4	13.5	54.1	30	17 48	18 12	18 40	17 00	17 26	17 53	18 21
	01	197 28.3	43.3	197 31.1	16.8	6 31.9	13.6	54.1	20	17 50	18 12	18 37	16 59	17 30	18 02	18 35
	02	212 28.5	44.2	212 06.9	16.8	6 45.5	13.5	54.1	N 10	17 52	18 13	18 37	16 59	17 34	18 10	18 48
	03	227 28.7	45.2	226 42.7	16.8	6 59.0	13.5	54.1	0	17 54	18 14	18 38	16 58	17 38	18 18	18 59
	04	242 28.9	46.2	241 18.5	16.7	7 12.5	13.4	54.1	S 10	17 55	18 16	18 41	16 58	17 41	18 25	19 11
	05	257 29.1	47.2	255 54.2	16.8	7 25.9	13.4	54.1	20	17 58	18 20	18 45	16 57	17 45	18 33	19 23
	06	272 29.3	S 2 48.1	270 30.0	16.7	S 7 39.3	13.4	54.1	30	18 00	18 24	18 52	16 56	17 49	18 43	19 37
	07	287 29.5	49.1	285 05.7	16.7	7 52.7	13.4	54.1	35	18 02	18 27	18 57	16 56	17 52	18 48	19 45
	08	302 29.7	50.1	299 41.4	16.6	8 06.1	13.3	54.0	40	18 03	18 31	19 02	16 55	17 55	18 54	19 55
	09	317 29.9	51.0	314 17.0	16.7	8 19.4	13.3	54.0	45	18 05	18 35	19 10	16 54	17 58	19 02	20 06
	10	332 30.1	52.0	328 52.7	16.6	8 32.7	13.2	54.0	S 50	18 08	18 40	19 19	16 54	18 02	19 10	20 19
	11	347 30.3	53.0	343 28.3	16.5	8 45.9	13.2	54.0	52	18 09	18 43	19 24	16 53	18 04	19 14	20 26
	12	2 30.5	S 2 54.0	358 03.8	16.6	S 8 59.1	13.2	54.0	54	18 10	18 46	19 29	16 53	18 06	19 19	20 33
	13	17 30.7	54.9	12 39.4	16.5	9 12.3	13.2	54.0	56	18 12	18 49	19 35	16 52	18 08	19 24	20 41
	14	32 30.9	55.9	27 14.9	16.5	9 25.5	13.1	54.0	58	18 13	18 53	19 41	16 52	18 10	19 29	20 50
	15	47 31.1	56.9	41 50.4	16.5	9 38.6	13.1	54.0	S 60	18 15	18 57	19 49	16 51	18 13	19 35	21 00
	16	62 31.3	57.8	56 25.9	16.4	9 51.7	13.0	54.0	Día	SOL		LUNA				
	17	77 31.5	58.8	71 01.3	16.5	10 04.7	13.0	54.0		E.T. (+)	Pas. Mer.	Pas. Sup.	Mer. Inf.	Edad.	Fase	
	18	92 31.7	S 2 59.8	85 36.8	16.3	S10 17.7	12.9	54.0		00 h	12 h				</	



T.M.G. (TU)	ARIES			VENUS -4.1			MARTE +1.7			JUPITER -2.3			SATURNO +0.5			ESTRELLAS																																																																														
	A.H.G.	A.H.G.	Dec.	A.H.G.	Dec.	A.H.G.	Dec.	A.H.G.	Dec.	A.H.G.	Dec.	A.H.G.	Dec.	Nombre	A. H. S.	Dec.																																																																														
DOMINGO	1 00	9 42.4	141 19.8	S19 53.3	182 36.6	S 2 13.5	269 16.0	N22 49.1	91 26.4	S22 46.8	Acamar	315 31.4	S40 20.4																																																																																	
	01	24 44.9	156 19.4	54.2	197 37.6	14.1	284 18.3	49.1	106 28.8	46.8	Achernar	335 39.1	S57 17.1																																																																																	
	02	39 47.3	171 19.0	55.1	212 38.5	14.8	299 20.5	49.1	121 31.2	46.8	Acrux	173 30.4	S63 02.5																																																																																	
	03	54 49.8	186 18.6	56.0	227 39.5	15.4	314 22.7	49.1	136 33.6	46.8	Adhara	255 26.6	S28 57.1																																																																																	
	04	69 52.2	201 18.1	56.9	242 40.5	16.1	329 24.9	49.1	151 35.9	46.8	Aldebaran	291 09.7	N16 29.6																																																																																	
	05	84 54.7	216 17.7	57.8	257 41.5	16.7	344 27.2	49.0	166 38.3	46.8																																																																																				
	06	99 57.2	231 17.3	S19 58.7	272 42.4	S 2 17.4	359 29.4	N22 49.0	181 40.7	S22 46.8	Alioth	166 36.5	N56 00.9																																																																																	
	07	114 59.6	246 16.9	19 59.6	287 43.4	18.1	14 31.6	49.0	196 43.1	46.8	Alkaid	153 13.2	N49 21.9																																																																																	
	08	130 02.1	261 16.5	20 00.5	302 44.4	18.7	29 33.9	49.0	211 45.5	46.8	Al Na'ir	28 05.5	S47 00.7																																																																																	
	09	145 04.6	276 16.1	01.4	317 45.4	19.4	44 36.1	49.0	226 47.8	46.8	Alnilam	276 04.4	S 1 12.2																																																																																	
	10	160 07.0	291 15.7	02.3	332 46.3	20.0	59 38.3	49.0	241 50.2	46.8	Alphard	218 13.8	S 8 36.6																																																																																	
	11	175 09.5	306 15.3	03.2	347 47.3	20.7	74 40.6	49.0	256 52.6	46.8																																																																																				
	12	190 12.0	321 14.8	S20 04.1	2 48.3	S 2 21.4	89 42.8	N22 49.0	271 55.0	S22 46.8	Alphecca	126 26.3	N26 45.0																																																																																	
	13	205 14.4	336 14.4	05.0	17 49.2	22.0	104 45.0	48.9	286 57.3	46.8	Alpheratz	358 01.7	N29 02.2																																																																																	
	14	220 16.9	351 14.0	05.9	32 50.2	22.7	119 47.2	48.9	301 59.7	46.8	Altair	62 25.5	N 8 50.5																																																																																	
	15	235 19.4	6 13.6	06.8	47 51.2	23.3	134 49.5	48.9	317 02.1	46.8	Ankaa	353 32.6	S42 21.5																																																																																	
	16	250 21.8	21 13.2	07.7	62 52.2	24.0	149 51.7	48.9	332 04.5	46.8	Antares	112 48.4	S26 24.7																																																																																	
	17	265 24.3	36 12.8	08.6	77 53.1	24.7	164 53.9	48.9	347 06.8	46.8																																																																																				
	18	280 26.7	51 12.3	S20 09.5	92 54.1	S 2 25.3	179 56.2	N22 48.9	2 09.2	S22 46.8	Arcturus	146 12.2	N19 14.2																																																																																	
	19	295 29.2	66 11.9	10.4	107 55.1	26.0	194 58.4	48.9	17 11.6	46.8	Atria	108 06.6	S69 01.0																																																																																	
	20	310 31.7	81 11.5	11.3	122 56.0	26.6	210 00.6	48.9	32 13.9	46.8	Avior	234 25.8	S59 28.2																																																																																	
	21	325 34.1	96 11.1	12.2	137 57.0	27.3	225 02.9	48.8	47 16.3	46.8	Bellatrix	278 51.0	N 6 20.7																																																																																	
	22	340 36.6	111 10.7	13.1	152 58.0	27.9	240 05.1	48.8	62 18.7	46.8	Betelgeuse	271 20.5	N 7 24.6																																																																																	
23	355 39.1	126 10.3	14.0	167 58.9	28.6	255 07.3	48.8	77 21.1	46.8																																																																																					
LUNES	2 00	10 41.5	141 09.8	S20 14.8	182 59.9	S 2 29.3	270 09.6	N22 48.8	92 23.4	S22 46.8	Canopus	264 04.0	S52 40.9																																																																																	
	01	25 44.0	156 09.4	15.7	198 00.9	29.9	285 11.8	48.8	107 25.8	46.8	Capella	281 00.7	N45 59.3																																																																																	
	02	40 46.5	171 09.0	16.6	213 01.9	30.6	300 14.0	48.8	122 28.2	46.8	Deneb	49 43.5	N45 14.8																																																																																	
	03	55 48.9	186 08.6	17.5	228 02.8	31.2	315 16.3	48.8	137 30.6	46.8	Denebola	182 52.1	N14 37.8																																																																																	
	04	70 51.4	201 08.2	18.4	243 03.8	31.9	330 18.5	48.8	152 32.9	46.8	Diphda	349 13.4	S18 02.4																																																																																	
	05	85 53.8	216 07.7	19.3	258 04.8	32.6	345 20.8	48.7	167 35.3	46.8																																																																																				
	06	100 56.3	231 07.3	S20 20.2	273 05.7	S 2 33.2	0 23.0	N22 48.7	182 37.7	S22 46.8	Dubhe	194 13.7	N61 48.3																																																																																	
	07	115 58.8	246 06.9	21.0	288 06.7	33.9	15 25.2	48.7	197 40.0	46.8	Elnath	278 35.1	N28 36.1																																																																																	
	08	131 01.2	261 06.5	21.9	303 07.7	34.5	30 27.5	48.7	212 42.4	46.8	Eltanin	90 54.5	N51 29.6																																																																																	
	09	146 03.7	276 06.1	22.8	318 08.7	35.2	45 29.7	48.7	227 44.8	46.8	Enif	34 04.4	N 9 49.8																																																																																	
	10	161 06.2	291 05.6	23.7	333 09.6	35.8	60 31.9	48.7	242 47.2	46.8	Fomalhaut	15 43.2	S29 40.5																																																																																	
	11	176 08.6	306 05.2	24.6	348 10.6	36.5	75 34.2	48.7	257 49.5	46.8																																																																																				
	12	191 11.1	321 04.8	S20 25.4	3 11.6	S 2 37.2	90 36.4	N22 48.7	272 51.9	S22 46.8	Gacrux	172 21.7	S57 03.3																																																																																	
	13	206 13.6	336 04.4	26.3	18 12.5	37.8	105 38.7	48.6	287 54.3	46.8	Gienah	176 11.1	S17 29.0																																																																																	
	14	221 16.0	351 03.9	27.2	33 13.5	38.5	120 40.9	48.6	302 56.6	46.8	Hadar	149 14.2	S60 19.6																																																																																	
	15	236 18.5	6 03.5	28.1	48 14.5	39.1	135 43.1	48.6	317 59.0	46.8	Hamal	328 20.7	N23 25.1																																																																																	
	16	251 21.0	21 03.1	28.9	63 15.4	39.8	150 45.4	48.6	333 01.4	46.8	Kaus Aust.	84 07.5	S34 23.6																																																																																	
	17	266 23.4	36 02.7	29.8	78 16.4	40.5	165 47.6	48.6	348 03.8	46.8																																																																																				
	18	281 25.9	51 02.2	S20 30.7	93 17.4	S 2 41.1	180 49.9	N22 48.6	3 06.1	S22 46.8	Kochab	137 19.7	N74 11.9																																																																																	
	19	296 28.3	66 01.8	31.6	108 18.3	41.8	195 52.1	48.6	18 08.5	46.8	Markab	13 55.9	N15 09.2																																																																																	
	20	311 30.8	81 01.4	32.4	123 19.3	42.4	210 54.3	48.6	33 10.9	46.8	Menkar	314 33.5	N 4 03.3																																																																																	
	21	326 33.3	96 01.0	33.3	138 20.3	43.1	225 56.6	48.5	48 13.2	46.8	Menkent	148 29.1	S36 19.3																																																																																	
	22	341 35.7	111 00.5	34.2	153 21.3	43.7	240 58.8	48.5	63 15.6	46.8	Miaplacidus	221 44.4	S69 40.2																																																																																	
23	356 38.2	126 00.1	35.0	168 22.2	44.4	256 01.1	48.5	78 18.0	46.8																																																																																					
MARTES	3 00	11 40.7	140 59.7	S20 35.9	183 23.2	S 2 45.1	271 03.3	N22 48.5	93 20.3	S22 46.8	Mirfak	309 05.7	N49 49.6																																																																																	
	01	26 43.1	155 59.3	36.8	198 24.2	45.7	286 05.5	48.5	108 22.7	46.8	Nunki	76 20.3	S26 18.7																																																																																	
	02	41 45.6	170 58.8	37.6	213 25.1	46.4	301 07.8	48.5	123 25.1	46.8	Peacock	53 46.8	S56 46.4																																																																																	
	03	56 48.1	185 58.4	38.5	228 26.1	47.0	316 10.0	48.5	138 27.4	46.8	Pollux	243 49.5	N28 03.2																																																																																	
	04	71 50.5	200 58.0	39.4	243 27.1	47.7	331 12.3	48.5	153 29.8	46.8	Procyon	245 18.4	N 5 15.3																																																																																	
	05	86 53.0	215 57.5	40.2	258 28.0	48.3	346 14.5	48.4	168 32.2	46.8																																																																																				
	06	101 55.5	230 57.1	S20 41.1	273 29.0	S 2 49.0	1 16.8	N22 48.4	183 34.6	S22 46.8	Rasalhague	96 23.1	N12 34.1																																																																																	
	07	116 57.9	245 56.7	42.0	288 30.0	49.7	16 19.0	48.4	198 36.9	46.8	Regulus	208 02.7	N12 01.2																																																																																	
	08	132 00.4	260 56.3	42.8	303 30.9	50.3	31 21.3	48.4	213 39.3	46.8	Rigel	281 29.1	S 8 12.5																																																																																	
	09	147 02.8	275 55.8	43.7	318 31.9	51.0	46 23.5	48.4	228 41.7	46.8	Rigel Kent.	140 16.9	S60 47.7																																																																																	
	10	162 05.3	290 55.4	44.5	333 32.9	51.6	61 25.7	48.4	243 44.0	46.8	Sabik	102 33.1	S15 42.9																																																																																	
	11	177 07.8	305 55.0	45.4	348 33.8	52.3	76 28.0	48.4	258 46.4	46.8																																																																																				
	12	192 10.2	320 54.5	S20 46.3	3 34.8	S 2 53.0	91 30.2	N22 48.4	273 48.8	S22 46.8	Schedar	350 00.7	N56 29.0																																																																																	
	13	207 12.7	335 54.1	47.1	18 35.8	53.6	106 32.5	48.3	288 51.1	46.8	Shaula	96 46.3	S37 06.0																																																																																	
	14	222 15.2	350 53.7	48.0	33 36.7	54.3	121 34.7	48.3	303 53.5	46.8	Sirius	258 49.4	S16 41.8																																																																																	
	15	237 17.6	5 53.2	48.8	48 37.7	54.9	136 37.0	48.3	318 55.9	46.8	Spica	158 50.4	S11 06.5																																																																																	
	16	252 20.1	20 52.8	49.7	63 38.7	55.6	151 39.2	48.3	333 58.2	46.8	Suhail	223 06.0	S43 23.1																																																																																	
	17	267 22.6	35 52.4	50.5	78 39.7	56.2	166 41.5	48.3	349 00.6	46.8																																																																																				
	18	282 25.0	50 51.9	S20 51.4	93 40.6	S 2 56.9	181 43.7	N22 48.3	4 03.0	S22 46.8	Vega	80 51.1	N38 46.6																																																																																	
	19	297 27.5	65 51.5	52.2	108 41.6	57.6	196 46.0	48.3	19 05.3	46.8	Zuben'ubi	137 25.5	S16 00.0																																																																																	
	20	312 29.9	80 51.1	53.1	123 42.6	58.2	211 48.2	48.3	34 07.7	46.8																																																																																				
	21	327 32.4	95 50.6	53.9	138 43.5	58.9	226 50.5	48.2	49 10.0	46.8																																																																																				
	22	342 34.9	110 50.2	54.8	153 44.5	59.5	241 52.7	48.2	64 12.4	46.8																																																																																				
23	357 37.3	125 49.8	55.6	168 45.5	3 00.2	256 55.0	48.2	79 14.8	46.8																																																																																					
<table border="0" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:15%;"></td> <td style="width:15%; text-align: center;">h m</td> <td style="width:15%;"></td> <td style="width:15%;"></td> <td style="width:15%;"></td> <td style="width:15%;"></td> <td style="width:15%;"></td> <td style="width:15%;"></td> <td style="width:15%;"></td> <td style="width:15%;"></td> <td style="width:15%;"></td> <td style="width:15%;"></td> <td style="width:15%;"></td> <td style="width:15%;"></td> <td style="width:15%;"></td> </tr> <tr> <td>Pas. Mer.</td> <td>23 13.4</td> <td>v -0.4</td> <td>d 0.9</td> <td>v 1.0</td> <td>d 0.7</td> <td>v 2.2</td> <td>d 0.0</td> <td>v 2.4</td> <td>d 0.0</td> <td colspan="5"></td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td style="text-align: center;">A. H. S.</td> <td style="text-align: center;">Pas. Mer.</td> <td style="text-align: center;">h m</td> <td style="text-align: center;">h m</td> <td style="text-align: center;">h m</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>Venus</td> <td>130 28.3</td> <td>14 36</td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>Marte</td> <td>172 18.4</td> <td>11 47</td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> </tr></table>																h m														Pas. Mer.	23 13.4	v -0.4	d 0.9	v 1.0	d 0.7	v 2.2	d 0.0	v 2.4	d 0.0																A. H. S.	Pas. Mer.	h m	h m	h m											Venus	130 28.3	14 36													Marte	172 18.4	11 47							
	h m																																																																																													
Pas. Mer.	23 13.4	v -0.4	d 0.9	v 1.0	d 0.7	v 2.2	d 0.0	v 2.4	d 0.0																																																																																					
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										Marte	172 18.4	11 47																																																																																		



T.M.G. (TU)	SOL		LUNA				Lat.	Crepúsculo		Orto Sol	Orto Luna									
	A.H.G.	Dec.	A.H.G.	v	Dec.	d		P.H.	Naut.		Civil	1	2	3	4					
	°	'	°	'	°	'		'	h	m	h	m	h	m	h	m	h	m		
DOMINGO	182	32.9	S 3	05.6	173	08.5	16.2	S11	34.8	12.7	54.0	N 72	03 54	05 16	06 23	09 59	■	■	■	
	01	197	33.1		06.6	187	43.7	16.1	11	47.5	12.6	54.0	N 70	04 05	05 18	06 19	09 31	12 03	■	
	02	212	33.3		07.5	202	18.8	16.1	12	00.1	12.6	54.0	68	04 14	05 21	06 16	09 10	11 13	■	
	03	227	33.5		08.5	216	53.9	16.0	12	12.7	12.6	54.0	66	04 22	05 22	06 13	08 53	10 41	12 54	■
	04	242	33.7		09.5	231	28.9	16.0	12	25.3	12.5	54.0	64	04 28	05 24	06 11	08 40	10 18	12 07	14 29
	05	257	33.9		10.5	246	03.9	16.0	12	37.8	12.5	54.0	62	04 33	05 25	06 09	08 28	10 00	11 37	13 20
	06	272	34.1	S 3	11.4	260	38.9	15.9	S12	50.3	12.4	54.0	60	04 37	05 26	06 08	08 19	09 45	11 14	12 45
	07	287	34.3		12.4	275	13.8	15.9	13	02.7	12.3	54.0	N 58	04 41	05 27	06 06	08 11	09 32	10 56	12 19
	08	302	34.5		13.4	289	48.7	15.9	13	15.0	12.3	54.0	56	04 44	05 28	06 05	08 03	09 21	10 41	11 59
	09	317	34.7		14.3	304	23.6	15.8	13	27.3	12.3	53.9	54	04 47	05 28	06 03	07 57	09 12	10 28	11 43
	10	332	34.9		15.3	318	58.4	15.7	13	39.6	12.2	53.9	52	04 49	05 29	06 02	07 51	09 03	10 16	11 28
	11	347	35.1		16.3	333	33.1	15.7	13	51.8	12.2	53.9	50	04 52	05 29	06 01	07 46	08 56	10 06	11 16
	12	2	35.3	S 3	17.3	348	07.8	15.7	S14	04.0	12.1	53.9	45	04 56	05 30	05 59	07 35	08 40	09 45	10 50
	13	17	35.5		18.2	2	42.5	15.6	14	16.1	12.0	53.9	N 40	04 59	05 30	05 57	07 25	08 26	09 28	10 30
	14	32	35.7		19.2	17	17.1	15.5	14	28.1	12.0	53.9	35	05 01	05 30	05 55	07 18	08 15	09 14	10 13
	15	47	35.9		20.2	31	51.6	15.6	14	40.1	11.9	53.9	30	05 02	05 30	05 54	07 11	08 06	09 02	09 59
	16	62	36.1		21.1	46	26.2	15.4	14	52.0	11.9	53.9	20	05 04	05 29	05 51	06 59	07 49	08 41	09 34
	17	77	36.3		22.1	61	00.6	15.4	15	03.9	11.8	53.9	N 10	05 03	05 28	05 49	06 48	07 35	08 23	09 13
	18	92	36.5	S 3	23.1	75	35.0	15.4	S15	15.7	11.8	53.9	0	05 01	05 25	05 46	06 39	07 21	08 06	08 54
	19	107	36.7		24.0	90	09.4	15.3	15	27.5	11.6	53.9	S 10	04 58	05 22	05 43	06 29	07 08	07 49	08 34
	20	122	36.9		25.0	104	43.7	15.3	15	39.1	11.7	53.9	20	04 53	05 19	05 41	06 19	06 54	07 31	08 13
	21	137	37.1		26.0	119	18.0	15.2	15	50.8	11.5	53.9	30	04 45	05 13	05 37	06 08	06 38	07 11	07 49
	22	152	37.3		26.9	133	52.2	15.2	16	02.3	11.6	53.9	35	04 40	05 10	05 35	06 01	06 28	06 59	07 35
23	167	37.5		27.9	148	26.4	15.1	16	13.9	11.4	53.9	40	04 34	05 06	05 33	05 54	06 18	06 46	07 19	
LUNES	200	182	37.7	S 3	28.9	163	00.5	15.0	S16	25.3	11.4	53.9	45	04 26	05 01	05 30	05 45	06 05	06 30	07 00
	01	197	37.9		29.9	177	34.5	15.0	16	36.7	11.3	53.9	S 50	04 16	04 55	05 27	05 35	05 50	06 10	06 36
	02	212	38.1		30.8	192	08.5	14.9	16	48.0	11.2	53.9	52	04 11	04 52	05 26	05 30	05 43	06 01	06 24
	03	227	38.3		31.8	206	42.4	14.9	16	59.2	11.2	53.9	54	04 05	04 48	05 24	05 25	05 36	05 50	06 11
	04	242	38.5		32.8	221	16.3	14.8	17	10.4	11.1	53.9	56	03 59	04 45	05 22	05 19	05 27	05 39	05 56
	05	257	38.7		33.7	235	50.1	14.8	17	21.5	11.1	53.9	58	03 51	04 40	05 20	05 12	05 17	05 25	05 38
	06	272	38.9	S 3	34.7	250	23.9	14.7	S17	32.6	11.0	53.9	S 60	03 43	04 35	05 18	05 05	05 06	05 10	05 16
	07	287	39.1		35.7	264	57.6	14.7	17	43.6	10.9	53.9	Lat.	Ocaso Sol	Crepúsculo Civil	Naut.	Ocaso Luna			
	08	302	39.3		36.6	279	31.3	14.6	17	54.5	10.8	54.0	1	1	2	3	4			
	09	317	39.5		37.6	294	04.9	14.5	18	05.3	10.8	54.0	N 72	17 14	18 20	19 41	15 15	■	■	■
	10	332	39.7		38.6	308	38.4	14.5	18	16.1	10.7	54.0	N 70	17 18	18 18	19 30	15 46	14 42	■	■
	11	347	39.9		39.5	323	11.9	14.4	18	26.8	10.6	54.0	68	17 21	18 16	19 22	16 09	15 34	■	■
	12	2	40.1	S 3	40.5	337	45.3	14.3	S18	37.4	10.5	54.0	66	17 24	18 14	19 14	16 26	16 07	15 28	■
	13	17	40.3		41.5	352	18.6	14.3	18	47.9	10.5	54.0	64	17 26	18 13	19 09	16 41	16 31	16 16	15 34
	14	32	40.5		42.4	6	51.9	14.2	18	58.4	10.4	54.0	62	17 28	18 12	19 04	16 53	16 50	16 47	16 44
	15	47	40.7		43.4	21	25.1	14.2	19	08.8	10.3	54.0	60	17 30	18 11	19 00	17 04	17 06	17 10	17 19
	16	62	40.9		44.4	35	58.3	14.1	19	19.1	10.2	54.0	N 58	17 31	18 10	18 56	17 13	17 19	17 29	17 45
	17	77	41.1		45.4	50	31.4	14.0	19	29.3	10.2	54.0	56	17 33	18 10	18 53	17 21	17 31	17 44	18 06
	18	92	41.3	S 3	46.3	65	04.4	14.0	S19	39.5	10.1	54.0	54	17 34	18 09	18 50	17 29	17 41	17 58	18 23
	19	107	41.5		47.3	79	37.4	13.9	19	49.6	10.0	54.0	52	17 35	18 09	18 48	17 35	17 50	18 10	18 37
	20	122	41.7		48.3	94	10.3	13.8	19	59.6	9.9	54.0	50	17 36	18 09	18 46	17 41	17 58	18 20	18 50
	21	137	41.9		49.2	108	43.1	13.8	20	09.5	9.8	54.0	45	17 39	18 08	18 42	17 54	18 16	18 42	19 16
	22	152	42.1		50.2	123	15.9	13.7	20	19.3	9.8	54.0	N 40	17 41	18 08	18 39	18 04	18 30	19 00	19 37
23	167	42.3		51.2	137	48.6	13.7	20	29.1	9.6	54.0	35	17 43	18 08	18 37	18 13	18 42	19 15	19 54	
MARTES	300	182	42.5	S 3	52.1	152	21.3	13.5	S20	38.7	9.6	54.0	30	17 44	18 08	18 36	18 21	18 53	19 28	20 09
	01	197	42.7		53.1	166	53.8	13.5	20	48.3	9.5	54.0	20	17 47	18 09	18 35	18 35	19 11	19 51	20 35
	02	212	42.8		54.1	181	26.3	13.5	20	57.8	9.4	54.0	N 10	17 50	18 11	18 35	18 48	19 27	20 10	20 57
	03	227	43.0		55.0	195	58.8	13.4	21	07.2	9.3	54.0	0	17 53	18 13	18 37	18 59	19 42	20 29	21 18
	04	242	43.2		56.0	210	31.2	13.3	21	16.5	9.3	54.0	S 10	17 55	18 16	18 41	19 11	19 58	20 47	21 38
	05	257	43.4		57.0	225	03.5	13.2	21	25.8	9.1	54.0	20	17 58	18 20	18 46	19 23	20 14	21 06	22 00
	06	272	43.6	S 3	57.9	239	35.7	13.2	S21	34.9	9.1	54.0	30	18 02	18 26	18 54	19 37	20 33	21 29	22 26
	07	287	43.8		58.9	254	07.9	13.1	21	44.0	8.9	54.1	35	18 04	18 29	18 59	19 45	20 44	21 43	22 41
	08	302	44.0		59.9	268	40.0	13.0	21	52.9	8.9	54.1	40	18 06	18 34	19 06	19 55	20 56	21 58	22 59
	09	317	44.2		00.8	283	12.0	13.0	22	01.8	8.8	54.1	45	18 09	18 39	19 14	20 06	21 11	22 17	23 21
	10	332	44.4		01.8	297	44.0	12.9	22	10.6	8.7	54.1	S 50	18 13	18 45	19 24	20 19	21 30	22 40	23 48
	11	347	44.6		02.8	312	15.9	12.8	22	19.3	8.6	54.1	52	18 14	18 48	19 29	20 26	21 38	22 51	24 01
	12	2	44.8	S 4	03.7	326	47.7	12.8	S22	27.9	8.5	54.1	54	18 16	18 52	19 35	20 33	21 48	23 04	24 16
	13	17	45.0		04.7	341	19.5	12.7	22	36.4	8.4	54.1	56	18 18	18 56	19 42	20 41	21 59	23 18	24 34
	14	32	45.2		05.7	355	51.2	12.6	22	44.8	8.3	54.1	58	18 20	19 00	19 49	20 50	22 12	23 36	24 56
	15	47	45.4		06.6	10	22.8	12.5	22	53.1	8.2	54.1	S 60	18 22	19 05	19 58	21 00	22 27	23 57	25 25
	16	62	45.6		07.6	24	54.3	12.5	23	01.3	8.1	54.1	Día	SOL E.T. (+)		LUNA				
	17	77	45.8		08.6	39	25.8	12.4	23	09.4	8.0	54.1	00 h	12 h	Pas. Mer.	Pas. Sup.	Mer. Inf.	Edad.	Fase	
	18	92	46.0	S 4	09.5	53	57.2	12.4	S23	17.4	7.9	54.1	m s	m s	h m	h m	h m			



T.M.G. (TU)		ARIES		VENUS -4.2		MARTE +1.7		JUPITER -2.3		SATURNO +0.5		ESTRELLAS				
d	h	A.H.G.	A.H.G.	Dec.	A.H.G.	Dec.	A.H.G.	Dec.	A.H.G.	Dec.	A.H.G.	Dec.	Nombre	A. H. S.	Dec.	
4	00	12 39.8	140 49.3	S20 56.5	183 46.4	S 3 00.8	271 57.2	N22 48.2	94 17.1	S22 46.8	Acamar	315 31.4	S40 20.4			
	01	27 42.3	155 48.9	57.3	198 47.4	01.5	286 59.5	48.2	109 19.5	46.8	Achernar	335 39.1	S57 17.1			
	02	42 44.7	170 48.5	58.2	213 48.4	02.2	302 01.7	48.2	124 21.9	46.8	Acrux	173 30.4	S63 02.5			
	03	57 47.2	185 48.0	59.0	228 49.3	02.8	317 04.0	48.2	139 24.2	46.8	Adhara	255 26.6	S28 57.1			
	04	72 49.7	200 47.6	20 59.9	243 50.3	03.5	332 06.2	48.2	154 26.6	46.8	Aldebaran	291 09.7	N16 29.6			
	05	87 52.1	215 47.2	21 00.7	258 51.3	04.1	347 08.5	48.2	169 29.0	46.8						
	06	102 54.6	230 46.7	S21 01.6	273 52.2	S 3 04.8	2 10.7	N22 48.1	184 31.3	S22 46.8	Alioth	166 36.5	N56 00.9			
	07	117 57.1	245 46.3	02.4	288 53.2	05.4	17 13.0	48.1	199 33.7	46.8	Alkaid	153 13.2	N49 21.9			
	08	132 59.5	260 45.9	03.2	303 54.2	06.1	32 15.2	48.1	214 36.0	46.8	Al Na'ir	28 05.5	S47 00.7			
	09	148 02.0	275 45.4	04.1	318 55.1	06.8	47 17.5	48.1	229 38.4	46.8	Alnilam	276 04.3	S 1 12.2			
	10	163 04.4	290 45.0	04.9	333 56.1	07.4	62 19.7	48.1	244 40.8	46.8	Alphard	218 13.8	S 8 36.6			
	11	178 06.9	305 44.5	05.8	348 57.1	08.1	77 22.0	48.1	259 43.1	46.8						
	12	193 09.4	320 44.1	S21 06.6	3 58.0	S 3 08.7	92 24.2	N22 48.1	274 45.5	S22 46.8	Alphecca	126 26.3	N26 45.0			
	13	208 11.8	335 43.7	07.4	18 59.0	09.4	107 26.5	48.1	289 47.9	46.8	Alpheratz	358 01.7	N29 02.3			
	14	223 14.3	350 43.2	08.3	34 00.0	10.0	122 28.8	48.1	304 50.2	46.8	Altair	62 25.5	N 8 50.5			
	15	238 16.8	5 42.8	09.1	49 00.9	10.7	137 31.0	48.0	319 52.6	46.8	Ankaa	353 32.6	S42 21.5			
	16	253 19.2	20 42.4	09.9	64 01.9	11.4	152 33.3	48.0	334 54.9	46.8	Antares	112 48.4	S26 24.7			
	17	268 21.7	35 41.9	10.8	79 02.9	12.0	167 35.5	48.0	349 57.3	46.8						
	18	283 24.2	50 41.5	S21 11.6	94 03.8	S 3 12.7	182 37.8	N22 48.0	4 59.7	S22 46.8	Arcturus	146 12.2	N19 14.2			
	19	298 26.6	65 41.0	12.4	109 04.8	13.3	197 40.0	48.0	20 02.0	46.8	Atria	108 06.6	S69 00.9			
	20	313 29.1	80 40.6	13.3	124 05.7	14.0	212 42.3	48.0	35 04.4	46.8	Avior	234 25.7	S59 28.2			
	21	328 31.6	95 40.2	14.1	139 06.7	14.6	227 44.5	48.0	50 06.8	46.8	Bellatrix	278 51.0	N 6 20.7			
	22	343 34.0	110 39.7	14.9	154 07.7	15.3	242 46.8	48.0	65 09.1	46.8	Betelgeuse	271 20.5	N 7 24.6			
	23	358 36.5	125 39.3	15.8	169 08.6	16.0	257 49.1	47.9	80 11.5	46.8						
	5	00	13 38.9	140 38.8	S21 16.6	184 09.6	S 3 16.6	272 51.3	N22 47.9	95 13.8	S22 46.8	Canopus	264 04.0	S52 40.9		
	01	28 41.4	155 38.4	17.4	199 10.6	17.3	287 53.6	47.9	110 16.2	46.8	Capella	281 00.7	N45 59.3			
	02	43 43.9	170 37.9	18.2	214 11.5	17.9	302 55.8	47.9	125 18.6	46.8	Deneb	49 43.6	N45 14.8			
	03	58 46.3	185 37.5	19.1	229 12.5	18.6	317 58.1	47.9	140 20.9	46.8	Denebola	182 52.1	N14 37.8			
	04	73 48.8	200 37.1	19.9	244 13.5	19.2	333 00.4	47.9	155 23.3	46.8	Diphda	349 13.4	S18 02.4			
	05	88 51.3	215 36.6	20.7	259 14.4	19.9	348 02.6	47.9	170 25.6	46.8						
	06	103 53.7	230 36.2	S21 21.5	274 15.4	S 3 20.6	3 04.9	N22 47.9	185 28.0	S22 46.8	Dubhe	194 13.6	N61 48.3			
	07	118 56.2	245 35.7	22.3	289 16.4	21.2	18 07.1	47.9	200 30.4	46.8	Elnath	278 35.0	N28 36.1			
	08	133 58.7	260 35.3	23.2	304 17.3	21.9	33 09.4	47.8	215 32.7	46.8	Eltanin	90 54.5	N51 29.6			
	09	149 01.1	275 34.8	24.0	319 18.3	22.5	48 11.7	47.8	230 35.1	46.8	Enif	34 04.4	N 9 49.8			
	10	164 03.6	290 34.4	24.8	334 19.3	23.2	63 13.9	47.8	245 37.4	46.8	Fomalhaut	15 43.2	S29 40.5			
	11	179 06.1	305 33.9	25.6	349 20.2	23.8	78 16.2	47.8	260 39.8	46.8						
	12	194 08.5	320 33.5	S21 26.4	4 21.2	S 3 24.5	93 18.4	N22 47.8	275 42.1	S22 46.8	Gacrux	172 21.7	S57 03.3			
	13	209 11.0	335 33.1	27.3	19 22.1	25.2	108 20.7	47.8	290 44.5	46.8	Gienah	176 11.0	S17 29.0			
	14	224 13.4	350 32.6	28.1	34 23.1	25.8	123 23.0	47.8	305 46.9	46.8	Hadar	149 14.2	S60 19.6			
	15	239 15.9	5 32.2	28.9	49 24.1	26.5	138 25.2	47.8	320 49.2	46.8	Hamal	328 20.6	N23 25.1			
	16	254 18.4	20 31.7	29.7	64 25.0	27.1	153 27.5	47.8	335 51.6	46.8	Kaus Aust.	84 07.5	S34 23.6			
	17	269 20.8	35 31.3	30.5	79 26.0	27.8	168 29.8	47.7	350 53.9	46.8						
	18	284 23.3	50 30.8	S21 31.3	94 27.0	S 3 28.4	183 32.0	N22 47.7	5 56.3	S22 46.8	Kochab	137 19.8	N74 11.9			
	19	299 25.8	65 30.4	32.1	109 27.9	29.1	198 34.3	47.7	20 58.6	46.8	Markab	13 55.9	N15 09.2			
	20	314 28.2	80 29.9	32.9	124 28.9	29.8	213 36.6	47.7	36 01.0	46.8	Menkar	314 33.4	N 4 03.3			
	21	329 30.7	95 29.5	33.8	139 29.9	30.4	228 38.8	47.7	51 03.4	46.8	Menkent	148 29.1	S36 19.3			
	22	344 33.2	110 29.0	34.6	154 30.8	31.1	243 41.1	47.7	66 05.7	46.8	Miaplacidus	221 44.3	S69 40.2			
	23	359 35.6	125 28.6	35.4	169 31.8	31.7	258 43.3	47.7	81 08.1	46.8						
	6	00	14 38.1	140 28.1	S21 36.2	184 32.8	S 3 32.4	273 45.6	N22 47.7	96 10.4	S22 46.8	Mirfak	309 05.7	N49 49.6		
	01	29 40.5	155 27.7	37.0	199 33.7	33.0	288 47.9	47.7	111 12.8	46.8	Nunki	76 20.4	S26 18.7			
	02	44 43.0	170 27.2	37.8	214 34.7	33.7	303 50.1	47.7	126 15.1	46.8	Peacock	53 46.8	S56 46.4			
	03	59 45.5	185 26.8	38.6	229 35.6	34.4	318 52.4	47.6	141 17.5	46.8	Pollux	243 49.5	N28 03.2			
	04	74 47.9	200 26.3	39.4	244 36.6	35.0	333 54.7	47.6	156 19.9	46.8	Procyon	245 18.4	N 5 15.3			
	05	89 50.4	215 25.9	40.2	259 37.6	35.7	348 56.9	47.6	171 22.2	46.8						
	06	104 52.9	230 25.4	S21 41.0	274 38.5	S 3 36.3	3 59.2	N22 47.6	186 24.6	S22 46.8	Rasalhague	96 23.1	N12 34.1			
	07	119 55.3	245 25.0	41.8	289 39.5	37.0	19 01.5	47.6	201 26.9	46.8	Regulus	208 02.7	N12 01.1			
	08	134 57.8	260 24.5	42.6	304 40.5	37.6	34 03.8	47.6	216 29.3	46.8	Rigel	281 29.0	S 8 12.5			
	09	150 00.3	275 24.1	43.4	319 41.4	38.3	49 06.0	47.6	231 31.6	46.8	Rigel Kent.	140 17.0	S60 47.7			
	10	165 02.7	290 23.6	44.2	334 42.4	38.9	64 08.3	47.6	246 34.0	46.8	Sabik	102 33.1	S15 42.9			
	11	180 05.2	305 23.2	45.0	349 43.3	39.6	79 10.6	47.6	261 36.3	46.8						
	12	195 07.7	320 22.7	S21 45.8	4 44.3	S 3 40.3	94 12.8	N22 47.5	276 38.7	S22 46.8	Schedar	350 00.6	N56 29.1			
	13	210 10.1	335 22.3	46.6	19 45.3	40.9	109 15.1	47.5	291 41.0	46.8	Shaula	96 46.3	S37 06.0			
	14	225 12.6	350 21.8	47.4	34 46.2	41.6	124 17.4	47.5	306 43.4	46.8	Sirius	258 49.4	S16 41.8			
	15	240 15.0	5 21.4	48.2	49 47.2	42.2	139 19.6	47.5	321 45.7	46.8	Spica	158 50.4	S11 06.5			
	16	255 17.5	20 20.9	49.0	64 48.2	42.9	154 21.9	47.5	336 48.1	46.8	Suhail	223 05.9	S43 23.1			
	17	270 20.0	35 20.5	49.8	79 49.1	43.5	169 24.2	47.5	351 50.5	46.8						
	18	285 22.4	50 20.0	S21 50.5	94 50.1	S 3 44.2	184 26.5	N22 47.5	6 52.8	S22 46.8	Vega	80 51.1	N38 46.6			
	19	300 24.9	65 19.6	51.3	109 51.0	44.9	199 28.7	47.5	21 55.2	46.8	Zuben'ubi	137 25.5	S16 00.0			
	20	315 27.4	80 19.1	52.1	124 52.0	45.5	214 31.0	47.5	36 57.5	46.8						
	21	330 29.8	95 18.6	52.9	139 53.0	46.2	229 33.3	47.5	51 59.9</							



T.M.G. (TU)	SOL		LUNA				Lat.	Crepúsculo		Orto Sol	Orto Luna						
	A.H.G.	Dec.	A.H.G.	v	Dec.	d		P.H.	Náut.		Civil	4	5	6	7		
												h m	h m	h m	h m		
M I E R C O L E S	4 00	182 47.1	S 4 15.3	141 04.2	12.0	S24 03.3	7.3	54.2	N 72	04 09	05 29	06 37	h m	h m	h m	h m	
	01	197 47.3	16.3	155 35.2	11.8	24 10.6	7.2	54.2	N 70	04 18	05 30	06 31	h m	h m	h m	h m	
	02	212 47.5	17.3	170 06.0	11.8	24 17.8	7.1	54.2	68	04 26	05 31	06 27	h m	h m	h m	h m	
	03	227 47.7	18.2	184 36.8	11.7	24 24.9	6.9	54.2	66	04 32	05 32	06 23	h m	h m	h m	h m	
	04	242 47.9	19.2	199 07.5	11.7	24 31.8	6.9	54.2	64	04 37	05 33	06 20	14 29	h m	h m	h m	h m
	05	257 48.1	20.1	213 38.2	11.6	24 38.7	6.7	54.2	62	04 41	05 33	06 17	13 20	15 06	16 20	16 26	
	06	272 48.3	S 4 21.1	228 08.8	11.5	S24 45.4	6.7	54.3	60	04 45	05 33	06 15	12 45	14 09	15 11	15 43	
	07	287 48.4	22.1	242 39.3	11.4	24 52.1	6.5	54.3	N 58	04 48	05 33	06 13	12 19	13 36	14 36	15 14	
	08	302 48.6	23.0	257 09.7	11.4	24 58.6	6.4	54.3	56	04 50	05 34	06 11	11 59	13 11	14 10	14 52	
	09	317 48.8	24.0	271 40.1	11.3	25 05.0	6.3	54.3	54	04 53	05 34	06 09	11 43	12 52	13 50	14 34	
	10	332 49.0	25.0	286 10.4	11.2	25 11.3	6.2	54.3	52	04 55	05 34	06 07	11 28	12 35	13 33	14 18	
	11	347 49.2	25.9	300 40.6	11.2	25 17.5	6.1	54.3	50	04 56	05 34	06 06	11 16	12 21	13 18	14 05	
	12	2 49.4	S 4 26.9	315 10.8	11.1	S25 23.6	5.9	54.3	45	04 59	05 33	06 03	10 50	11 52	12 49	13 37	
	13	17 49.6	27.9	329 40.9	11.1	25 29.5	5.9	54.3	N 40	05 02	05 33	06 00	10 30	11 30	12 26	13 15	
	14	32 49.8	28.8	344 11.0	10.9	25 35.4	5.7	54.4	35	05 03	05 32	05 58	10 13	11 11	12 07	12 57	
	15	47 50.0	29.8	358 40.9	10.9	25 41.1	5.6	54.4	30	05 04	05 32	05 56	09 59	10 55	11 50	12 41	
	16	62 50.2	30.8	373 10.8	10.9	25 46.7	5.5	54.4	20	05 04	05 30	05 52	09 34	10 29	11 23	12 15	
	17	77 50.3	31.7	387 40.7	10.8	25 52.2	5.4	54.4	N 10	05 03	05 27	05 48	09 13	10 05	10 59	11 52	
	18	92 50.5	S 4 32.7	402 10.5	10.7	S25 57.6	5.2	54.4	0	05 00	05 24	05 45	08 54	09 44	10 37	11 31	
	19	107 50.7	33.6	416 40.2	10.6	26 02.8	5.1	54.4	S 10	04 56	05 21	05 42	08 34	09 23	10 15	11 09	
	20	122 50.9	34.6	430 09.8	10.6	26 07.9	5.0	54.4	20	04 50	05 16	05 38	08 13	09 00	09 51	10 46	
	21	137 51.1	35.6	444 39.4	10.6	26 12.9	4.9	54.5	30	04 41	05 10	05 34	07 49	08 33	09 23	10 20	
	22	152 51.3	36.5	458 09.0	10.4	26 17.8	4.8	54.5	35	04 36	05 06	05 31	07 35	08 17	09 07	10 04	
23	167 51.5	37.5	472 38.4	10.4	26 22.6	4.6	54.5	40	04 29	05 01	05 28	07 19	07 59	08 48	09 45		
5 00	182 51.7	S 4 38.5	486 07.8	10.4	S26 27.2	4.5	54.5	45	04 20	04 55	05 25	07 00	07 38	08 25	09 23		
01	197 51.9	39.4	500 37.2	10.3	26 31.7	4.4	54.5	S 50	04 08	04 48	05 21	06 36	07 10	07 56	08 55		
02	212 52.1	40.4	514 06.5	10.2	26 36.1	4.2	54.5	52	04 03	04 44	05 19	06 24	06 56	07 42	08 41		
03	227 52.2	41.4	528 35.7	10.1	26 40.3	4.2	54.6	54	03 57	04 41	05 17	06 11	06 41	07 25	08 25		
04	242 52.4	42.3	542 04.8	10.2	26 44.5	4.0	54.6	56	03 50	04 36	05 14	05 56	06 23	07 05	08 06		
05	257 52.6	43.3	556 34.0	10.0	26 48.5	3.8	54.6	58	03 42	04 31	05 12	05 38	06 00	06 40	07 42		
06	272 52.8	S 4 44.2	570 03.0	10.0	S26 52.3	3.8	54.6	S 60	03 32	04 26	05 09	05 16	05 32	06 06	07 11		
07	287 53.0	45.2	584 32.0	9.9	26 56.1	3.6	54.6										
08	302 53.2	46.2	598 00.9	9.9	26 59.7	3.5	54.6	Lat.	Ocaso Sol	Crepúsculo		Ocaso Luna					
09	317 53.4	47.1	612 29.8	9.9	27 03.2	3.3	54.7			Civil	Náut.	4	5	6	7		
10	332 53.6	48.1	626 58.7	9.7	27 06.5	3.3	54.7					h m	h m	h m	h m		
11	347 53.7	49.0	640 27.4	9.8	27 09.8	3.0	54.7	N 72	16 58	18 05	19 25	h m	h m	h m	h m		
12	2 53.9	S 4 50.0	654 56.2	9.6	S27 12.8	3.0	54.7	N 70	17 04	18 04	19 16	h m	h m	h m	h m		
13	17 54.1	51.0	668 24.8	9.7	27 15.8	2.8	54.7	68	17 08	18 04	19 09	h m	h m	h m	h m		
14	32 54.3	51.9	682 53.5	9.5	27 18.6	2.7	54.8	66	17 12	18 03	19 03	h m	h m	h m	h m		
15	47 54.5	52.9	696 22.0	9.6	27 21.3	2.6	54.8	64	17 15	18 03	18 58	15 34	h m	h m	h m		
16	62 54.7	53.9	710 50.6	9.4	27 23.9	2.4	54.8	62	17 18	18 02	18 54	16 44	16 44	17 20	19 07		
17	77 54.9	54.8	724 19.0	9.5	27 26.3	2.3	54.8	60	17 21	18 02	18 50	17 19	17 41	18 30	19 50		
18	92 55.0	S 4 55.8	738 47.5	9.3	S27 28.6	2.1	54.8	N 58	17 23	18 02	18 48	17 45	18 14	19 05	20 18		
19	107 55.2	56.7	752 15.8	9.4	27 30.7	2.0	54.9	56	17 25	18 02	18 45	18 06	18 39	19 30	20 40		
20	122 55.4	57.7	766 44.2	9.3	27 32.7	1.9	54.9	54	17 27	18 02	18 43	18 23	18 59	19 50	20 58		
21	137 55.6	58.7	780 12.5	9.2	27 34.6	1.7	54.9	52	17 28	18 02	18 41	18 37	19 15	20 07	21 14		
22	152 55.8	59.6	794 40.7	9.2	27 36.3	1.6	54.9	50	17 30	18 02	18 40	18 50	19 29	20 22	21 27		
23	167 56.0	60.6	808 08.9	9.2	27 37.9	1.4	54.9	45	17 33	18 03	18 37	19 16	19 59	20 51	21 54		
6 00	182 56.2	S 5 01.5	822 37.1	9.1	S27 39.3	1.3	55.0	N 40	17 36	18 03	18 34	19 37	20 21	21 14	22 15		
01	197 56.3	02.5	836 05.2	9.1	27 40.6	1.2	55.0	35	17 39	18 04	18 33	19 54	20 40	21 33	22 33		
02	212 56.5	03.5	849 33.3	9.1	27 41.8	1.0	55.0	30	17 41	18 05	18 32	20 09	20 56	21 50	22 48		
03	227 56.7	04.4	863 01.4	9.0	27 42.8	0.9	55.0	20	17 45	18 07	18 32	20 35	21 24	22 17	23 14		
04	242 56.9	05.4	876 29.4	9.0	27 43.7	0.8	55.1	N 10	17 48	18 09	18 34	20 57	21 47	22 41	23 36		
05	257 57.1	06.3	889 57.4	8.9	27 44.5	0.6	55.1	0	17 52	18 12	18 37	21 18	22 09	23 03	23 56		
06	272 57.3	S 5 07.3	903 25.3	8.9	S27 45.1	0.4	55.1	S 10	17 55	18 16	18 41	21 38	22 31	23 24	24 17		
07	287 57.4	08.3	916 53.2	8.9	27 45.5	0.4	55.1	20	17 59	18 21	18 47	22 00	22 55	23 48	24 39		
08	302 57.6	09.2	930 21.1	8.9	27 45.9	0.1	55.2	30	18 04	18 28	18 56	22 26	23 22	24 15	00 15		
09	317 57.8	10.2	943 49.0	8.8	27 46.0	0.1	55.2	35	18 06	18 32	19 02	22 41	23 38	24 31	00 31		
10	332 58.0	11.1	957 16.8	8.8	27 46.1	0.1	55.2	40	18 09	18 37	19 09	22 59	23 57	24 50	00 50		
11	347 58.2	12.1	970 44.6	8.7	27 46.0	0.3	55.2	45	18 13	18 43	19 18	23 21	24 20	00 20	01 12		
12	2 58.4	S 5 13.1	984 12.3	8.8	S27 45.7	0.4	55.3	S 50	18 17	18 50	19 30	23 48	24 49	00 49	01 41		
13	17 58.5	14.0	997 40.1	8.7	27 45.3	0.6	55.3	52	18 19	18 54	19 35	24 01	00 01	01 03	01 55		
14	32 58.7	15.0	1011 07.8	8.7	27 44.7	0.7	55.3	54	18 21	18 58	19 42	24 16	00 16	01 20	02 11		
15	47 58.9	15.9	1024 35.5	8.6	27 44.0	0.8	55.3	56	18 24	19 02	19 49	24 34	00 34	01 40	02 30		
16	62 59.1	16.9	1038 03.1	8.7	27 43.2	1.0	55.4	58	18 27	19 07	19 57	24 56	00 56	02 05	02 54		
17	77 59.3	17.9	1051 30.8	8.6	27 42.2	1.1	55.4	S 60	18 30	19 13	20 07	25 25	01 25	02 39	03 26		
18	92 59.5	S 5 18.8	1065 58.4	8.6	S27 41.1	1.3	55.4										
19	107 59.6	19.8	1079 26.0	8.6	27 39.8	1.4	55.4										
20	122 59.8	20.7	1093 53														



T.M.G. (TU)	ARIES	VENUS -4.2	MARTE +1.7	JUPITER -2.3	SATURNO +0.5	ESTRELLAS
d h	A.H.G.	A.H.G. Dec.	A.H.G. Dec.	A.H.G. Dec.	A.H.G. Dec.	Nombre A. H. S. Dec.
7 00	15 37.2	140 17.3 S21 55.3	184 55.8 S 3 48.1	274 40.1 N22 47.4	97 06.9 S22 46.8	Acamar 315 31.3 S40 20.4
01	30 39.7	155 16.8 56.1	199 56.8 48.8	289 42.4 47.4	112 09.3 46.8	Achernar 335 39.1 S57 17.1
02	45 42.2	170 16.4 56.8	214 57.8 49.4	304 44.6 47.4	127 11.6 46.8	Acrux 173 30.4 S63 02.5
03	60 44.6	185 15.9 .. 57.6	229 58.7 .. 50.1	319 46.9 .. 47.4	142 14.0 .. 46.8	Adhara 255 26.5 S28 57.1
04	75 47.1	200 15.4 58.4	244 59.7 50.8	334 49.2 47.4	157 16.3 46.8	Aldebaran 291 09.7 N16 29.6
05	90 49.5	215 15.0 21 59.2	260 00.6 51.4	349 51.5 47.4	172 18.7 46.8	
06	105 52.0	230 14.5 S22 00.0	275 01.6 S 3 52.1	4 53.7 N22 47.4	187 21.0 S22 46.8	Alioth 166 36.5 N56 00.9
07	120 54.5	245 14.1 00.7	290 02.6 52.7	19 56.0 47.4	202 23.4 46.8	Alkaid 153 13.2 N49 21.9
08	135 56.9	260 13.6 01.5	305 03.5 53.4	34 58.3 47.3	217 25.7 46.8	Al Na'ir 28 05.5 S47 00.7
S 09	150 59.4	275 13.2 .. 02.3	320 04.5 .. 54.0	50 00.6 .. 47.3	232 28.1 .. 46.8	Alnilam 276 04.3 S 1 12.2
A 10	166 01.9	290 12.7 03.1	335 05.5 54.7	65 02.9 47.3	247 30.4 46.8	Alphard 218 13.8 S 8 36.6
B 11	181 04.3	305 12.2 03.9	350 06.4 55.3	80 05.1 47.3	262 32.8 46.8	
A 12	196 06.8	320 11.8 S22 04.6	5 07.4 S 3 56.0	95 07.4 N22 47.3	277 35.1 S22 46.8	Alphecca 126 26.3 N26 45.0
D 13	211 09.3	335 11.3 05.4	20 08.3 56.7	110 09.7 47.3	292 37.5 46.8	Alpheratz 358 01.7 N29 02.3
O 14	226 11.7	350 10.9 06.2	35 09.3 57.3	125 12.0 47.3	307 39.8 46.8	Altair 62 25.6 N 8 50.5
15	241 14.2	5 10.4 .. 06.9	50 10.3 .. 58.0	140 14.2 .. 47.3	322 42.2 .. 46.8	Ankaa 353 32.6 S42 21.6
16	256 16.6	20 09.9 07.7	65 11.2 58.6	155 16.5 47.3	337 44.5 46.8	Antares 112 48.4 S26 24.7
17	271 19.1	35 09.5 08.5	80 12.2 59.3	170 18.8 47.3	352 46.9 46.8	
18	286 21.6	50 09.0 S22 09.3	95 13.1 S 3 59.9	185 21.1 N22 47.2	7 49.2 S22 46.8	Arcturus 146 12.2 N19 14.2
19	301 24.0	65 08.6 10.0	110 14.1 4 00.6	200 23.4 47.2	22 51.6 46.8	Atria 108 06.7 S69 00.9
20	316 26.5	80 08.1 10.8	125 15.1 01.2	215 25.6 47.2	37 53.9 46.8	Avior 234 25.7 S59 28.2
21	331 29.0	95 07.6 .. 11.6	140 16.0 .. 01.9	230 27.9 .. 47.2	52 56.3 .. 46.8	Bellatrix 278 51.0 N 6 20.7
22	346 31.4	110 07.2 12.3	155 17.0 02.6	245 30.2 47.2	67 58.6 46.8	Betelgeuse 271 20.5 N 7 24.6
23	1 33.9	125 06.7 13.1	170 17.9 03.2	260 32.5 47.2	83 01.0 46.8	
8 00	16 36.4	140 06.3 S22 13.8	185 18.9 S 4 03.9	275 34.8 N22 47.2	98 03.3 S22 46.8	Canopus 264 04.0 S52 40.9
01	31 38.8	155 05.8 14.6	200 19.8 04.5	290 37.1 47.2	113 05.7 46.8	Capella 281 00.6 N45 59.3
02	46 41.3	170 05.3 15.4	215 20.8 05.2	305 39.3 47.2	128 08.0 46.8	Deneb 49 43.6 N45 14.9
03	61 43.8	185 04.9 .. 16.1	230 21.8 .. 05.8	320 41.6 .. 47.2	143 10.4 .. 46.8	Denebola 182 52.1 N14 37.8
04	76 46.2	200 04.4 16.9	245 22.7 06.5	335 43.9 47.1	158 12.7 46.8	Diphda 349 13.3 S18 02.4
05	91 48.7	215 03.9 17.7	260 23.7 07.1	350 46.2 47.1	173 15.0 46.8	
06	106 51.1	230 03.5 S22 18.4	275 24.6 S 4 07.8	5 48.5 N22 47.1	188 17.4 S22 46.8	Dubhe 194 13.6 N61 48.3
07	121 53.6	245 03.0 19.2	290 25.6 08.4	20 50.8 47.1	203 19.7 46.8	Elnath 278 35.0 N28 36.1
08	136 56.1	260 02.5 19.9	305 26.6 09.1	35 53.0 47.1	218 22.1 46.8	Eltanin 90 54.6 N51 29.6
09	151 58.5	275 02.1 .. 20.7	320 27.5 .. 09.8	50 55.3 .. 47.1	233 24.4 .. 46.8	Enif 34 04.4 N 9 49.8
10	167 01.0	290 01.6 21.4	335 28.5 10.4	65 57.6 47.1	248 26.8 46.8	Fomalhaut 15 43.2 S29 40.5
11	182 03.5	305 01.1 22.2	350 29.4 11.1	80 59.9 47.1	263 29.1 46.7	
12	197 05.9	320 00.7 S22 22.9	5 30.4 S 4 11.7	96 02.2 N22 47.1	278 31.5 S22 46.7	Gacrux 172 21.7 S57 03.3
13	212 08.4	335 00.2 23.7	20 31.4 12.4	111 04.5 47.1	293 33.8 46.7	Giennah 176 11.0 S17 29.0
14	227 10.9	349 59.8 24.4	35 32.3 13.0	126 06.8 47.1	308 36.2 46.7	Hadar 149 14.2 S60 19.6
15	242 13.3	4 59.3 .. 25.2	50 33.3 .. 13.7	141 09.0 .. 47.0	323 38.5 .. 46.7	Hamal 328 20.6 N23 25.1
16	257 15.8	19 58.8 25.9	65 34.2 14.3	156 11.3 47.0	338 40.9 46.7	Kaus Aust. 84 07.5 S34 23.6
17	272 18.3	34 58.4 26.7	80 35.2 15.0	171 13.6 47.0	353 43.2 46.7	
18	287 20.7	49 57.9 S22 27.4	95 36.1 S 4 15.6	186 15.9 N22 47.0	8 45.5 S22 46.7	Kochab 137 19.8 N74 11.9
19	302 23.2	64 57.4 28.2	110 37.1 16.3	201 18.2 47.0	23 47.9 46.7	Markab 13 55.9 N15 09.2
20	317 25.6	79 56.9 28.9	125 38.1 17.0	216 20.5 47.0	38 50.2 46.7	Menkar 314 33.4 N 4 03.3
21	332 28.1	94 56.5 .. 29.7	140 39.0 .. 17.6	231 22.8 .. 47.0	53 52.6 .. 46.7	Menkent 148 29.1 S36 19.3
22	347 30.6	109 56.0 30.4	155 40.0 18.3	246 25.1 47.0	68 54.9 46.7	Miaplacidus 221 44.3 S69 40.2
23	2 33.0	124 55.5 31.2	170 40.9 18.9	261 27.4 47.0	83 57.3 46.7	
9 00	17 35.5	139 55.1 S22 31.9	185 41.9 S 4 19.6	276 29.6 N22 47.0	98 59.6 S22 46.7	Mirfak 309 05.7 N49 49.6
01	32 38.0	154 54.6 32.6	200 42.8 20.2	291 31.9 47.0	114 01.9 46.7	Nunki 76 20.4 S26 18.7
02	47 40.4	169 54.1 33.4	215 43.8 20.9	306 34.2 46.9	129 04.3 46.7	Peacock 53 46.8 S56 46.4
03	62 42.9	184 53.7 .. 34.1	230 44.8 .. 21.5	321 36.5 .. 46.9	144 06.6 .. 46.7	Pollux 243 49.5 N28 03.1
04	77 45.4	199 53.2 34.8	245 45.7 22.2	336 38.8 46.9	159 09.0 46.7	Procyon 245 18.4 N 5 15.3
05	92 47.8	214 52.7 35.6	260 46.7 22.8	351 41.1 46.9	174 11.3 46.7	
06	107 50.3	229 52.3 S22 36.3	275 47.6 S 4 23.5	6 43.4 N22 46.9	189 13.7 S22 46.7	Rasalhague 96 23.1 N12 34.1
07	122 52.7	244 51.8 37.1	290 48.6 24.2	21 45.7 46.9	204 16.0 46.7	Regulus 208 02.6 N12 01.1
08	137 55.2	259 51.3 37.8	305 49.5 24.8	36 48.0 46.9	219 18.3 46.7	Rigel 281 29.0 S 8 12.5
09	152 57.7	274 50.8 .. 38.5	320 50.5 .. 25.5	51 50.3 .. 46.9	234 20.7 .. 46.7	Rigil Kent. 140 17.0 S60 47.7
10	168 00.1	289 50.4 39.3	335 51.5 26.1	66 52.6 46.9	249 23.0 46.7	Sabik 102 33.1 S15 42.9
11	183 02.6	304 49.9 40.0	350 52.4 26.8	81 54.9 46.9	264 25.4 46.7	
12	198 05.1	319 49.4 S22 40.7	5 53.4 S 4 27.4	96 57.2 N22 46.9	279 27.7 S22 46.7	Schedar 350 00.6 N56 29.1
13	213 07.5	334 49.0 41.4	20 54.3 28.1	111 59.4 46.8	294 30.1 46.7	Shaula 96 46.3 S37 06.0
14	228 10.0	349 48.5 42.2	35 55.3 28.7	127 01.7 46.8	309 32.4 46.7	Sirius 258 49.4 S16 41.8
15	243 12.5	4 48.0 .. 42.9	50 56.2 .. 29.4	142 04.0 .. 46.8	324 34.7 .. 46.7	Spica 158 50.4 S11 06.5
16	258 14.9	19 47.5 43.6	65 57.2 30.0	157 06.3 46.8	339 37.1 46.7	Suhail 223 05.9 S43 23.1
17	273 17.4	34 47.1 44.3	80 58.1 30.7	172 08.6 46.8	354 39.4 46.7	
18	288 19.9	49 46.6 S22 45.1	95 59.1 S 4 31.3	187 10.9 N22 46.8	9 41.8 S22 46.7	Vega 80 51.1 N38 46.6
19	303 22.3	64 46.1 45.8	111 00.1 32.0	202 13.2 46.8	24 44.1 46.7	Zuben'ubi 137 25.5 S16 00.0
20	318 24.8	79 45.6 46.5	126 01.0 32.7	217 15.5 46.8	39 46.4 46.7	
21	333 27.2	94 45.2 .. 47.2	141 02.0 .. 33.3	232 17.8 .. 46.8	54 48.8 .. 46.7	
22	348 29.7	109 44.7 48.0	156 02.9 34.0	247 20.1 46.8	69 51.1 46.7	Venus 123 29.9 h 40
23	3 32.2	124 44.2 48.7	171 03.9 34.6	262 22.4 46.8	84 53.5 46.7	Marte 168 42.5 11 38
						Júpiter 258 58.4 5 37
						Saturno 81 27.0 17 25
Pas. Mer. 22 49.8	v -0.5 d 0.8		v 1.0 d 0.7	v 2.3 d 0.0	v 2.3 d 0.0	



T.M.G. (TU)	SOL		LUNA				Lat.	Crepúsculo		Orto Sol	Orto Luna				
	A.H.G.	Dec.	A.H.G.	v	Dec.	d		P.H.	Náut.		Civil	7	8	9	10
												h m	h m	h m	h m
7 00	183 00.6	S 5 24.6	103 43.8	8.5	S27 31.2	2.1	55.6	N 72	04 23	05 42	06 50	■	■	■	17 59
01	198 00.7	25.5	118 11.3	8.5	27 29.1	2.4	55.6	N 70	04 31	05 42	06 43	■	■	19 04	17 27
02	213 00.9	26.5	132 38.8	8.5	27 26.7	2.4	55.6	68	04 37	05 42	06 38	■	■	17 47	17 04
03	228 01.1	27.4	147 06.3	8.4	27 24.3	2.6	55.7	66	04 42	05 41	06 33	■	18 23	17 09	16 45
04	243 01.3	28.4	161 33.7	8.5	27 21.7	2.8	55.7	64	04 46	05 41	06 29	■	17 01	16 42	16 30
05	258 01.5	29.3	176 01.2	8.5	27 18.9	2.9	55.7	62	04 49	05 41	06 25	16 26	16 24	16 21	16 18
06	273 01.6	S 5 30.3	190 28.7	8.5	S27 16.0	3.0	55.7	60	04 52	05 40	06 22	15 43	15 57	16 04	16 07
07	288 01.8	31.3	204 56.2	8.4	27 13.0	3.2	55.8	N 58	04 54	05 40	06 19	15 14	15 36	15 49	15 57
08	303 02.0	32.2	219 23.6	8.5	27 09.8	3.4	55.8	56	04 56	05 40	06 17	14 52	15 19	15 37	15 49
09	318 02.2	33.2	233 51.1	8.4	27 06.4	3.5	55.8	54	04 58	05 39	06 15	14 34	15 04	15 26	15 42
S 10	333 02.4	34.1	248 18.5	8.5	27 02.9	3.6	55.9	52	05 00	05 39	06 12	14 18	14 52	15 16	15 35
A 11	348 02.5	35.1	262 46.0	8.4	26 59.3	3.8	55.9	50	05 01	05 38	06 11	14 05	14 40	15 07	15 29
A 12	3 02.7	S 5 36.0	277 13.4	8.5	S26 55.5	3.9	55.9	45	05 03	05 37	06 07	13 37	14 17	14 49	15 16
D 13	18 02.9	37.0	291 40.9	8.5	26 51.6	4.1	56.0	N 40	05 05	05 36	06 03	13 15	13 58	14 34	15 05
O 14	33 03.1	38.0	306 08.4	8.4	26 47.5	4.3	56.0	35	05 05	05 35	06 00	12 57	13 42	14 21	14 56
15	48 03.2	38.9	320 35.8	8.5	26 43.2	4.4	56.0	30	05 06	05 33	05 57	12 41	13 28	14 10	14 47
16	63 03.4	39.9	335 03.3	8.5	26 38.8	4.5	56.1	20	05 05	05 31	05 53	12 15	13 04	13 50	14 33
17	78 03.6	40.8	349 30.8	8.5	26 34.3	4.7	56.1	N 10	05 03	05 27	05 48	11 52	12 44	13 33	14 21
18	93 03.8	S 5 41.8	3 58.3	8.4	S26 29.6	4.8	56.1	0	04 59	05 23	05 44	11 31	12 24	13 17	14 09
19	108 04.0	42.7	18 25.7	8.5	26 24.8	5.0	56.2	S 10	04 54	05 19	05 40	11 09	12 05	13 01	13 57
20	123 04.1	43.7	32 53.2	8.6	26 19.8	5.1	56.2	20	04 47	05 13	05 35	10 46	11 44	12 44	13 44
21	138 04.3	44.6	47 20.8	8.5	26 14.7	5.3	56.2	30	04 38	05 06	05 30	10 20	11 20	12 24	13 30
22	153 04.5	45.6	61 48.3	8.5	26 09.4	5.4	56.3	35	04 31	05 01	05 27	10 04	11 06	12 13	13 21
23	168 04.7	46.5	76 15.8	8.6	26 04.0	5.5	56.3	40	04 23	04 56	05 23	09 45	10 50	11 59	13 12
8 00	183 04.9	S 5 47.5	90 43.4	8.5	S25 58.5	5.7	56.3	45	04 14	04 49	05 19	09 23	10 30	11 43	13 00
01	198 05.0	48.5	105 10.9	8.6	25 52.8	5.9	56.4	S 50	04 01	04 41	05 14	08 55	10 06	11 24	12 46
02	213 05.2	49.4	119 38.5	8.6	25 46.9	6.0	56.4	52	03 55	04 37	05 12	08 41	09 54	11 14	12 40
03	228 05.4	50.4	134 06.1	8.6	25 40.9	6.1	56.4	54	03 49	04 33	05 09	08 25	09 40	11 04	12 32
04	243 05.6	51.3	148 33.7	8.6	25 34.8	6.3	56.5	56	03 41	04 28	05 06	08 06	09 24	10 52	12 24
05	258 05.7	52.3	163 01.3	8.7	25 28.5	6.5	56.5	58	03 32	04 23	05 03	07 42	09 05	10 38	12 15
06	273 05.9	S 5 53.2	177 29.0	8.6	S25 22.0	6.5	56.5	S 60	03 22	04 16	05 00	07 11	08 41	10 22	12 04
07	288 06.1	54.2	191 56.6	8.7	25 15.5	6.8	56.6	Lat.	Ocaso Sol	Crepúsculo		Ocaso Luna			
08	303 06.3	55.1	206 24.3	8.7	25 08.7	6.8	56.6			Civil	Náut.	7	8	9	10
09	318 06.4	56.1	220 52.0	8.7	25 01.9	7.1	56.6					h m	h m	h m	h m
10	333 06.6	57.0	235 19.7	8.8	24 54.8	7.1	56.7	N 72	16 43	17 50	19 09	■	■	■	23 11
11	348 06.8	58.0	249 47.5	8.8	24 47.7	7.3	56.7	N 70	16 50	17 51	19 02	■	■	20 15	23 40
12	3 07.0	S 5 58.9	264 15.3	8.7	S24 40.4	7.4	56.7	68	16 56	17 51	18 56	■	■	21 31	24 02
13	18 07.1	5 59.9	278 43.0	8.9	24 33.0	7.6	56.8	66	17 01	17 52	18 51	■	19 03	22 08	24 18
14	33 07.3	6 00.9	293 10.9	8.8	24 25.4	7.8	56.8	64	17 05	17 52	18 47	■	20 25	22 34	24 32
15	48 07.5	01.8	307 38.7	8.9	24 17.6	7.8	56.8	62	17 09	17 53	18 44	19 07	21 01	22 54	24 43
16	63 07.7	02.8	322 06.6	8.9	24 09.8	8.0	56.9	60	17 12	17 53	18 41	19 50	21 27	23 10	24 53
17	78 07.8	03.7	336 34.5	8.9	24 01.8	8.2	56.9	N 58	17 15	17 54	18 39	20 18	21 48	23 23	25 01
18	93 08.0	S 6 04.7	351 02.4	8.9	S23 53.6	8.2	57.0	56	17 17	17 54	18 37	20 40	22 04	23 35	25 08
19	108 08.2	05.6	5 30.3	9.0	23 45.4	8.5	57.0	54	17 20	17 55	18 36	20 58	22 19	23 45	25 15
20	123 08.4	06.6	19 58.3	9.0	23 36.9	8.5	57.0	52	17 22	17 55	18 34	21 14	22 31	23 54	25 21
21	138 08.5	07.5	34 26.3	9.0	23 28.4	8.7	57.1	50	17 24	17 56	18 33	21 27	22 42	24 03	00 03
22	153 08.7	08.5	48 54.3	9.1	23 19.7	8.9	57.1	45	17 28	17 57	18 31	21 54	23 04	24 20	00 20
23	168 08.9	09.4	63 22.4	9.1	23 10.8	8.9	57.1	N 40	17 31	17 58	18 30	22 15	23 23	24 34	00 34
9 00	183 09.0	S 6 10.4	77 50.5	9.1	S23 01.9	9.1	57.2	35	17 34	18 00	18 29	22 33	23 38	24 45	00 45
01	198 09.2	11.3	92 18.6	9.2	22 52.8	9.3	57.2	30	17 37	18 01	18 29	22 48	23 51	24 55	00 55
02	213 09.4	12.3	106 46.8	9.1	22 43.5	9.4	57.3	20	17 42	18 04	18 30	23 14	24 13	00 13	01 13
03	228 09.6	13.2	121 14.9	9.3	22 34.1	9.5	57.3	N 10	17 47	18 08	18 32	23 36	24 32	00 32	01 28
04	243 09.7	14.2	135 43.2	9.2	22 24.6	9.6	57.3	0	17 51	18 12	18 36	23 56	24 50	00 50	01 42
05	258 09.9	15.1	150 11.4	9.3	22 15.0	9.8	57.4	S 10	17 55	18 16	18 41	24 17	00 17	01 08	01 56
06	273 10.1	S 6 16.1	164 39.7	9.3	S22 05.2	9.9	57.4	20	18 00	18 22	18 48	24 39	00 39	01 26	02 11
07	288 10.2	17.0	179 08.0	9.3	21 55.3	10.0	57.5	30	18 05	18 30	18 58	00 15	01 04	01 48	02 27
08	303 10.4	18.0	193 36.3	9.4	21 45.3	10.2	57.5	35	18 09	18 34	19 05	00 31	01 19	02 00	02 37
09	318 10.6	18.9	208 04.7	9.4	21 35.1	10.3	57.5	40	18 12	18 40	19 12	00 50	01 36	02 15	02 48
S 10	333 10.8	19.9	222 33.1	9.4	21 24.8	10.5	57.6	45	18 17	18 47	19 22	01 12	01 56	02 32	03 01
A 11	348 10.9	20.8	237 01.5	9.5	21 14.3	10.5	57.6	S 50	18 22	18 55	19 35	01 41	02 22	02 53	03 17
D 12	3 11.1	S 6 21.8	251 30.0	9.5	S21 03.8	10.7	57.7	52	18 24	18 59	19 41	01 55	02 34	03 03	03 24
O 13	18 11.3	22.7	265 58.5	9.5	20 53.1	10.8	57.7	54	18 27	19 04	19 48	02 11	02 48	03 14	03 32
14	33 11.4	23.7	280 27.0	9.6	20 42.3	10.9	57.7	56	18 30	19 09	19 56	02 30	03 04	03 26	03 41
15	48 11.6	24.6	294 55.6	9.6	20 31.4	11.1	57.8	58	18 33	19 14	20 05	02 54	03 24	03 41	03 51
16	63 11.8	25.6	309 24.2	9.6	20 20.3	11.2	57.8	S 60	18 37	19 21	20 16	03 26	03 48	03 58	04 03
17	78 11.9	26.5	323 52.8	9.7	20 09.1	11.3	57.9	Día	SOL E.T. (+)		LUNA				
18	93 12.1	S 6 27.5	338 21.5	9.7	S19 57.8	11.5	57.9		00 h	12 h	Pas. Mer.	Pas. Sup.	Mer. Inf.	Edad.	Fase
19	108 12.3	28.4	352 50.2	9.7	19 46.3	11.5	57.9	7	12 02	12 10	11 48	17 44	05 17	08	



T.M.G. (TU)		ARIES			VENUS -4.2			MARTE +1.7			JUPITER -2.4			SATURNO +0.5			ESTRELLAS																									
d	h	A.H.G.	A.H.G.	Dec.	A.H.G.	Dec.	A.H.G.	Dec.	A.H.G.	Dec.	A.H.G.	Dec.	A.H.G.	Dec.	Nombre	A. H. S.	Dec.																									
10	00	18 34.6	139 43.7	S22 49.4	186 04.8	S 4 35.3	277 24.7	N22 46.8	99 55.8	S22 46.7	Acamar	315 31.3	S40 20.4																													
	01	33 37.1	154 43.3	50.1	201 05.8	35.9	292 27.0	46.7	114 58.1	46.7	Achernar	335 39.1	S57 17.1																													
	02	48 39.6	169 42.8	50.8	216 06.7	36.6	307 29.3	46.7	130 00.5	46.7	Acruz	173 30.3	S63 02.5																													
	03	63 42.0	184 42.3	51.5	231 07.7	37.2	322 31.6	46.7	145 02.8	46.7	Adhara	255 26.5	S28 57.1																													
	04	78 44.5	199 41.8	52.3	246 08.6	37.9	337 33.9	46.7	160 05.2	46.7	Aldebaran	291 09.6	N16 29.6																													
	05	93 47.0	214 41.4	53.0	261 09.6	38.5	352 36.2	46.7	175 07.5	46.7																																
	06	108 49.4	229 40.9	S22 53.7	276 10.6	S 4 39.2	7 38.5	N22 46.7	190 09.8	S22 46.7	Alioth	166 36.5	N56 00.9																													
	07	123 51.9	244 40.4	54.4	291 11.5	39.8	22 40.8	46.7	205 12.2	46.7	Alkaid	153 13.2	N49 21.8																													
	08	138 54.4	259 39.9	55.1	306 12.5	40.5	37 43.1	46.7	220 14.5	46.7	Al Na'ir	28 05.5	S47 00.7																													
	09	153 56.8	274 39.5	55.8	321 13.4	41.1	52 45.4	46.7	235 16.8	46.7	Alnilam	276 04.3	S 1 12.2																													
	10	168 59.3	289 39.0	56.5	336 14.4	41.8	67 47.7	46.7	250 19.2	46.7	Alphard	218 13.8	S 8 36.6																													
	11	184 01.7	304 38.5	57.2	351 15.3	42.5	82 50.0	46.7	265 21.5	46.7																																
	12	199 04.2	319 38.0	S22 57.9	6 16.3	S 4 43.1	97 52.3	N22 46.7	280 23.9	S22 46.7	Alphecca	126 26.3	N26 45.0																													
	13	214 06.7	334 37.5	58.6	21 17.2	43.8	112 54.6	46.6	295 26.2	46.7	Alpheratz	358 01.7	N29 02.3																													
	14	229 09.1	349 37.1	22 59.3	36 18.2	44.4	127 56.9	46.6	310 28.5	46.7	Altair	62 25.6	N 8 50.5																													
	15	244 11.6	4 36.6	23 00.0	51 19.1	45.1	142 59.2	46.6	325 30.9	46.7	Ankaa	353 32.6	S42 21.6																													
	16	259 14.1	19 36.1	00.8	66 20.1	45.7	158 01.5	46.6	340 33.2	46.7	Antares	112 48.4	S26 24.7																													
	17	274 16.5	34 35.6	01.5	81 21.0	46.4	173 03.8	46.6	355 35.5	46.7																																
	18	289 19.0	49 35.2	S23 02.2	96 22.0	S 4 47.0	188 06.1	N22 46.6	10 37.9	S22 46.7	Arcturus	146 12.2	N19 14.1																													
	19	304 21.5	64 34.7	02.9	111 23.0	47.7	203 08.5	46.6	25 40.2	46.7	Atria	108 06.7	S69 00.9																													
	20	319 23.9	79 34.2	03.6	126 23.9	48.3	218 10.8	46.6	40 42.5	46.7	Avior	234 25.7	S59 28.2																													
	21	334 26.4	94 33.7	04.3	141 24.9	49.0	233 13.1	46.6	55 44.9	46.7	Bellatrix	278 51.0	N 6 20.7																													
	22	349 28.9	109 33.2	04.9	156 25.8	49.6	248 15.4	46.6	70 47.2	46.7	Betelgeuse	271 20.5	N 7 24.6																													
23	4 31.3	124 32.8	05.6	171 26.8	50.3	263 17.7	46.6	85 49.6	46.7																																	
11	00	19 33.8	139 32.3	S23 06.3	186 27.7	S 4 50.9	278 20.0	N22 46.5	100 51.9	S22 46.6	Canopus	264 03.9	S52 40.9																													
	01	34 36.2	154 31.8	07.0	201 28.7	51.6	293 22.3	46.5	115 54.2	46.6	Capella	281 00.6	N45 59.3																													
	02	49 38.7	169 31.3	07.7	216 29.6	52.2	308 24.6	46.5	130 56.6	46.6	Deneb	49 43.6	N45 14.9																													
	03	64 41.2	184 30.8	08.4	231 30.6	52.9	323 26.9	46.5	145 58.9	46.6	Denebola	182 52.0	N14 37.8																													
	04	79 43.6	199 30.4	09.1	246 31.5	53.5	338 29.2	46.5	161 01.2	46.6	Diphda	349 13.3	S18 02.4																													
	05	94 46.1	214 29.9	09.8	261 32.5	54.2	353 31.5	46.5	176 03.6	46.6																																
	06	109 48.6	229 29.4	S23 10.5	276 33.4	S 4 54.8	8 33.8	N22 46.5	191 05.9	S22 46.6	Dubhe	194 13.6	N61 48.2																													
	07	124 51.0	244 28.9	11.2	291 34.4	55.5	23 36.1	46.5	206 08.2	46.6	Elnath	278 35.0	N28 36.1																													
	08	139 53.5	259 28.4	11.9	306 35.3	56.1	38 38.4	46.5	221 10.6	46.6	Eltanin	90 54.6	N51 29.6																													
	09	154 56.0	274 27.9	12.6	321 36.3	56.8	53 40.7	46.4	236 12.9	46.6	Enif	34 04.4	N 9 49.8																													
	10	169 58.4	289 27.5	13.3	336 37.2	57.5	68 43.1	46.4	251 15.2	46.6	Fomalhaut	15 43.2	S29 40.6																													
	11	185 00.9	304 27.0	13.9	351 38.2	58.1	83 45.4	46.4	266 17.6	46.6																																
	12	200 03.3	319 26.5	S23 14.6	6 39.1	S 4 58.8	98 47.7	N22 46.4	281 19.9	S22 46.6	Gacrux	172 21.7	S57 03.3																													
	13	215 05.8	334 26.0	15.3	21 40.1	4 59.4	113 50.0	46.4	296 22.2	46.6	Gienah	176 11.0	S17 29.0																													
	14	230 08.3	349 25.5	16.0	36 41.0	5 00.1	128 52.3	46.4	311 24.6	46.6	Hadar	149 14.2	S60 19.6																													
	15	245 10.7	4 25.1	16.7	51 42.0	00.7	143 54.6	46.4	326 26.9	46.6	Hamal	328 20.6	N23 25.1																													
	16	260 13.2	19 24.6	17.4	66 42.9	01.4	158 56.9	46.4	341 29.2	46.6	Kaus Aust.	84 07.5	S34 23.6																													
	17	275 15.7	34 24.1	18.0	81 43.9	02.0	173 59.2	46.4	356 31.6	46.6																																
	18	290 18.1	49 23.6	S23 18.7	96 44.8	S 5 02.7	189 01.6	N22 46.4	11 33.9	S22 46.6	Kochab	137 19.8	N74 11.9																													
	19	305 20.6	64 23.1	19.4	111 45.8	03.3	204 03.9	46.4	26 36.2	46.6	Markab	13 55.9	N15 09.2																													
	20	320 23.1	79 22.6	20.1	126 46.7	04.0	219 06.2	46.4	41 38.6	46.6	Menkar	314 33.4	N 4 03.3																													
	21	335 25.5	94 22.2	20.8	141 47.7	04.6	234 08.5	46.4	56 40.9	46.6	Menkent	148 29.1	S36 19.3																													
	22	350 28.0	109 21.7	21.4	156 48.6	05.3	249 10.8	46.3	71 43.2	46.6	Miaplacidus	221 44.2	S69 40.2																													
23	5 30.5	124 21.2	22.1	171 49.6	05.9	264 13.1	46.3	86 45.6	46.6																																	
12	00	20 32.9	139 20.7	S23 22.8	186 50.5	S 5 06.6	279 15.4	N22 46.3	101 47.9	S22 46.6	Mirfak	309 05.6	N49 49.6																													
	01	35 35.4	154 20.2	23.4	201 51.5	07.2	294 17.8	46.3	116 50.2	46.6	Nunki	76 20.4	S26 18.7																													
	02	50 37.8	169 19.7	24.1	216 52.4	07.9	309 20.1	46.3	131 52.6	46.6	Peacock	53 46.8	S56 46.4																													
	03	65 40.3	184 19.2	24.8	231 53.4	08.5	324 22.4	46.3	146 54.9	46.6	Pollux	243 49.5	N28 03.1																													
	04	80 42.8	199 18.8	25.5	246 54.3	09.2	339 24.7	46.3	161 57.2	46.6	Procyon	245 18.4	N 5 15.3																													
	05	95 45.2	214 18.3	26.1	261 55.3	09.8	354 27.0	46.3	176 59.5	46.6																																
	06	110 47.7	229 17.8	S23 26.8	276 56.2	S 5 10.5	9 29.3	N22 46.3	192 01.9	S22 46.6	Rasalhague	96 23.1	N12 34.1																													
	07	125 50.2	244 17.3	27.5	291 57.2	11.1	24 31.7	46.3	207 04.2	46.6	Regulus	208 02.6	N12 01.1																													
	08	140 52.6	259 16.8	28.1	306 58.1	11.8	39 34.0	46.3	222 06.5	46.6	Rigel	281 29.0	S 8 12.5																													
	09	155 55.1	274 16.3	28.8	321 59.1	12.4	54 36.3	46.3	237 08.9	46.6	Rigel Kent.	140 17.0	S60 47.7																													
	10	170 57.6	289 15.8	29.5	337 00.0	13.1	69 38.6	46.3	252 11.2	46.6	Sabik	102 33.2	S15 42.9																													
	11	186 00.0	304 15.4	30.1	352 01.0	13.7	84 40.9	46.3	267 13.5	46.6																																
	12	201 02.5	319 14.9	S23 30.8	7 01.9	S 5 14.4	99 43.3	N22 46.2	282 15.9	S22 46.5	Schedar	350 00.6	N56 29.1																													
	13	216 05.0	334 14.4	31.4	22 02.9	15.0	114 45.6	46.2	297 18.2	46.5	Shaula	96 46.3	S37 06.0																													
	14	231 07.4	349 13.9	32.1	37 03.8	15.7	129 47.9	46.2	312 20.5	46.5	Sirius	258 49.4	S16 41.8																													
	15	246 09.9	4 13.4	32.8	52 04.8	16.3	144 50.2	46.2	327 22.8	46.5	Spica	158 50.4	S11 06.5																													
	16	261 12.3	19 12.9	33.4	67 05.7	17.0	159 52.5	46.2	342 25.2	46.5	Suhail	223 05.9	S43 23.1																													
	17	276 14.8	34 12.4	34.1	82 06.7	17.6	174 54.9	46.2	357 27.5	46.5																																
	18	291 17.3	49 11.9	S23 34.7	97 07.6	S 5 18.3	189 57.2	N22 46.2	12 29.8	S22 46.5	Vega	80 51.1	N38 46.6																													
	19	306 19.7	64 11.4	35.4	112 08.6	18.9	204 59.5	46.2	27 32.2	46.5	Zuben'ubi	137 25.5	S16 00.0																													
	20	321 22.2	79 11.0	36.0	127 09.5	19.6	220 01.8	46.2	42 34.5	46.5																																
	21	336 24.7	94 10.5	36.7	142 10.5	20.2	235 04.1	46.2	57 36.8	46.5																																
	22	351 27.1	109 10.0	37.3	157 11.4	20.9	250 06.5	46.2	72 39.1	46.5																																
23	6 29.6	124 09.5	38.0	172 12.4	21.5	265 08.8	46.2	87 41.5	46.5																																	
Pas. Mer.		h m	v -0.5	d 0.7	v 1.0	d 0.7	v 2.3	d 0.0	v 2.3	d 0.0	<table border="0"> <tr> <td></td> <td></td> <td>A. H. S.</td> <td></td> <td>Pas. Mer.</td> </tr> <tr> <td>Venus</td> <td>119</td> <td>58.5</td> <td>14</td> <td>42</td> </tr> <tr> <td>Marte</td> <td>166</td> <td>53.9</td> <td>11</td> <td>33</td> </tr> <tr> <td>Júpiter</td> <td>258</td> <td>46.2</td> <td>5</td> <td>26</td> </tr> <tr> <td>Saturno</td> <td>81</td> <td>18.1</td> <td>17</td> <td>14</td> </tr> </table>									A. H. S.		Pas. Mer.	Venus	119	58.5	14	42	Marte	166	53.9	11	33	Júpiter	258	46.2	5	26	Saturno	81	18.1	17	14
		A. H. S.		Pas. Mer.																																						
Venus	119	58.5	14	42																																						
Marte	166	53.9	11	33																																						
Júpiter	258	46.2	5	26																																						
Saturno	81	18.1	17	14																																						



T.M.G. (TU)	SOL		LUNA				Lat.	Crepúsculo		Orto Sol	Orto Luna					
	A.H.G.	Dec.	A.H.G.	v	Dec.	d		P.H.	Naut.		Civil	10	11	12	13	
												h m	h m	h m	h m	h m
MARTES	10 00	183 13.1	S 6 33.2	65 14.1	9.9	S18 47.4	12.2	58.1	N 72	04 37	05 56	07 05	17 59	17 03	16 24	15 48
	01	198 13.3	34.1	79 43.0	9.9	18 35.2	12.3	58.2	N 70	04 43	05 54	06 56	17 27	16 49	16 20	15 53
	02	213 13.4	35.0	94 11.9	10.0	18 22.9	12.4	58.2	68	04 48	05 52	06 49	17 04	16 38	16 17	15 58
	03	228 13.6	36.0	108 40.9	9.9	18 10.5	12.5	58.3	66	04 52	05 51	06 43	16 45	16 29	16 15	16 02
	04	243 13.8	36.9	123 09.8	10.1	17 58.0	12.6	58.3	64	04 55	05 50	06 38	16 30	16 21	16 13	16 05
	05	258 13.9	37.9	137 38.9	10.0	17 45.4	12.7	58.3	62	04 57	05 48	06 33	16 18	16 14	16 11	16 08
	06	273 14.1	S 6 38.8	152 07.9	10.1	S17 32.7	12.8	58.4	60	04 59	05 47	06 29	16 07	16 08	16 09	16 10
	07	288 14.3	39.8	166 37.0	10.1	17 19.9	13.0	58.4	N 58	05 01	05 46	06 26	15 57	16 03	16 08	16 12
	08	303 14.4	40.7	181 06.1	10.1	17 06.9	13.1	58.5	56	05 02	05 45	06 23	15 49	15 58	16 06	16 14
	09	318 14.6	41.7	195 35.2	10.2	16 53.8	13.1	58.5	54	05 04	05 45	06 20	15 42	15 54	16 05	16 16
	10	333 14.8	42.6	210 04.4	10.1	16 40.7	13.3	58.5	52	05 05	05 44	06 18	15 35	15 50	16 04	16 18
	11	348 14.9	43.6	224 33.5	10.3	16 27.4	13.4	58.6	50	05 05	05 43	06 15	15 29	15 47	16 03	16 19
	12	3 15.1	S 6 44.5	239 02.8	10.2	S16 14.0	13.5	58.6	45	05 07	05 41	06 10	15 16	15 39	16 01	16 23
	13	18 15.3	45.5	253 32.0	10.3	16 00.5	13.6	58.7	N 40	05 08	05 39	06 06	15 05	15 33	15 59	16 25
	14	33 15.4	46.4	268 01.3	10.3	15 46.9	13.7	58.7	35	05 08	05 37	06 02	14 56	15 27	15 57	16 28
	15	48 15.6	47.4	282 30.6	10.3	15 33.2	13.8	58.7	30	05 07	05 35	05 59	14 47	15 22	15 56	16 30
	16	63 15.8	48.3	296 59.9	10.3	15 19.4	13.9	58.8	20	05 06	05 31	05 54	14 33	15 14	15 54	16 34
	17	78 15.9	49.2	311 29.2	10.4	15 05.5	14.0	58.8	N 10	05 03	05 27	05 48	14 21	15 06	15 51	16 37
	18	93 16.1	S 6 50.2	325 58.6	10.4	S14 51.5	14.1	58.9	0	04 58	05 23	05 43	14 09	14 59	15 49	16 40
	19	108 16.2	51.1	340 28.0	10.4	14 37.4	14.2	58.9	S 10	04 53	05 17	05 38	13 57	14 52	15 47	16 44
	20	123 16.4	52.1	354 57.4	10.4	14 23.2	14.3	58.9	20	04 45	05 11	05 33	13 44	14 45	15 45	16 47
	21	138 16.6	53.0	9 26.8	10.5	14 08.9	14.3	59.0	30	04 34	05 02	05 27	13 30	14 36	15 43	16 51
	22	153 16.7	54.0	23 56.3	10.5	13 54.6	14.5	59.0	35	04 27	04 57	05 23	13 21	14 31	15 42	16 54
23	168 16.9	54.9	38 25.8	10.5	13 40.1	14.6	59.1	40	04 18	04 51	05 19	13 12	14 25	15 40	16 57	
MIÉRCOLES	11 00	183 17.1	S 6 55.9	52 55.3	10.5	S13 25.5	14.7	59.1	45	04 08	04 44	05 14	13 00	14 18	15 38	17 00
	01	198 17.2	56.8	67 24.8	10.6	13 10.8	14.7	59.1	S 50	03 54	04 35	05 08	12 46	14 10	15 36	17 04
	02	213 17.4	57.8	81 54.4	10.5	12 56.1	14.9	59.2	52	03 48	04 30	05 05	12 40	14 07	15 35	17 05
	03	228 17.6	58.7	96 23.9	10.6	12 41.2	14.9	59.2	54	03 40	04 25	05 02	12 32	14 02	15 34	17 07
	04	243 17.7	6 59.6	110 53.5	10.6	12 26.3	15.0	59.3	56	03 32	04 20	04 59	12 24	13 58	15 33	17 10
	05	258 17.9	7 00.6	125 23.1	10.6	12 11.3	15.2	59.3	58	03 22	04 14	04 55	12 15	13 53	15 31	17 12
	06	273 18.0	S 7 01.5	139 52.7	10.6	S11 56.1	15.1	59.3	S 60	03 10	04 07	04 51	12 04	13 47	15 30	17 15
	07	288 18.2	02.5	154 22.3	10.7	11 41.0	15.3	59.4	Lat.	Ocaso Sol	Crepúsculo		Ocaso Luna			
	08	303 18.4	03.4	168 52.0	10.6	11 25.7	15.4	59.4			Civil	Naut.	10	11	12	13
	09	318 18.5	04.3	183 21.6	10.7	11 10.3	15.4	59.5	N 72	16 27	17 36	18 54	23 11	25 54	01 54	04 23
	10	333 18.7	05.3	197 51.3	10.7	10 54.9	15.5	59.5	N 70	16 36	17 38	18 48	23 40	26 05	02 05	04 22
	11	348 18.9	06.2	212 21.0	10.7	10 39.4	15.6	59.5	68	16 43	17 39	18 44	24 02	00 02	02 13	04 21
	12	3 19.0	S 7 07.2	226 50.7	10.7	S10 23.8	15.7	59.6	66	16 49	17 41	18 40	24 18	00 18	02 20	04 21
	13	18 19.2	08.1	241 20.4	10.7	10 08.1	15.8	59.6	64	16 55	17 42	18 37	24 32	00 32	02 26	04 20
	14	33 19.3	09.1	255 50.1	10.7	9 52.3	15.8	59.6	62	16 59	17 44	18 35	24 43	00 43	02 31	04 19
	15	48 19.5	10.0	270 19.8	10.7	9 36.5	15.9	59.7	60	17 03	17 45	18 33	24 53	00 53	02 35	04 19
	16	63 19.7	10.9	284 49.5	10.8	9 20.6	15.9	59.7	N 58	17 06	17 46	18 31	25 01	01 01	02 39	04 18
	17	78 19.8	11.9	299 19.3	10.7	9 04.7	16.1	59.8	56	17 10	17 47	18 30	25 08	01 08	02 43	04 18
	18	93 20.0	S 7 12.8	313 49.0	10.8	S 8 48.6	16.1	59.8	54	17 12	17 48	18 29	25 15	01 15	02 46	04 18
	19	108 20.1	13.8	328 18.8	10.7	8 32.5	16.1	59.8	52	17 15	17 49	18 28	25 21	01 21	02 48	04 18
	20	123 20.3	14.7	342 48.5	10.8	8 16.4	16.3	59.9	50	17 17	17 50	18 27	00 03	01 26	02 51	04 17
	21	138 20.5	15.6	357 18.3	10.7	8 00.1	16.3	59.9	45	17 22	17 52	18 26	00 20	01 37	02 56	04 17
	22	153 20.6	16.6	11 48.0	10.8	7 43.8	16.3	59.9	N 40	17 27	17 54	18 25	00 34	01 46	03 01	04 16
23	168 20.8	17.5	26 17.8	10.7	7 27.5	16.4	60.0	35	17 30	17 56	18 25	00 45	01 54	03 04	04 16	
JUEVES	12 00	183 20.9	S 7 18.4	40 47.5	10.8	S 7 11.1	16.5	60.0	30	17 34	17 58	18 26	00 55	02 01	03 08	04 15
	01	198 21.1	19.4	55 17.3	10.7	6 54.6	16.6	60.1	20	17 40	18 02	18 27	01 13	02 13	03 13	04 15
	02	213 21.2	20.3	69 47.0	10.7	6 38.0	16.5	60.1	N 10	17 45	18 06	18 31	01 28	02 23	03 18	04 14
	03	228 21.4	21.3	84 16.7	10.8	6 21.5	16.7	60.1	0	17 50	18 11	18 35	01 42	02 33	03 23	04 13
	04	243 21.6	22.2	98 46.5	10.7	6 04.8	16.7	60.2	S 10	17 55	18 16	18 41	01 56	02 42	03 28	04 13
	05	258 21.7	23.1	113 16.2	10.7	5 48.1	16.7	60.2	20	18 01	18 23	18 49	02 11	02 52	03 32	04 12
	06	273 21.9	S 7 24.1	127 45.9	10.8	S 5 31.4	16.8	60.2	30	18 07	18 32	19 00	02 27	03 04	03 38	04 11
	07	288 22.0	25.0	142 15.7	10.7	5 14.6	16.9	60.3	35	18 11	18 37	19 07	02 37	03 10	03 41	04 11
	08	303 22.2	26.0	156 45.4	10.7	4 57.7	16.9	60.3	40	18 15	18 43	19 16	02 48	03 17	03 44	04 10
	09	318 22.3	26.9	171 15.1	10.7	4 40.8	16.9	60.3	45	18 21	18 51	19 27	03 01	03 26	03 48	04 10
	10	333 22.5	27.8	185 44.8	10.6	4 23.9	17.0	60.4	S 50	18 27	19 00	19 41	03 17	03 36	03 53	04 09
	11	348 22.7	28.8	200 14.4	10.7	4 06.9	17.0	60.4	52	18 30	19 05	19 47	03 24	03 41	03 55	04 09
	12	3 22.8	S 7 29.7	214 44.1	10.6	S 3 49.9	17.1	60.4	54	18 33	19 10	19 55	03 32	03 46	03 57	04 08
	13	18 23.0	30.6	229 13.7	10.7	3 32.8	17.1	60.5	56	18 36	19 15	20 04	03 41	03 52	04 00	04 08
	14	33 23.1	31.6	243 43.4	10.6	3 15.7	17.1	60.5	58	18 40	19 21	20 14	03 51	03 58	04 03	04 07
	15	48 23.3	32.5	258 13.0	10.6	2 58.6	17.2	60.5	S 60	18 44	19 29	20 26	04 03	04 05	04 06	04 07
	16	63 23.4	33.5	272 42.6	10.5	2 41.4	17.2	60.5	Día	SOL E.T. (+)		LUNA				
	17	78 23.6	34.4	287 12.1	10.6	2 24.2	17.2	60.6		00 h	12 h	Pas. Mer.	Pas. Sup.	Mer. Inf.	Edad.	Fase
	18	93 23.7	S 7 35.3	301 41.7	10.5	S 2 07.0	17.3	60.6		m s						



T.M.G. (TU)		ARIES			VENUS -4.2			MARTE +1.7			JUPITER -2.4			SATURNO +0.5			ESTRELLAS		
d	h	A.H.G.		Dec.	A.H.G.		Dec.	A.H.G.		Dec.	A.H.G.		Dec.	A.H.G.		Dec.	Nombre	A. H. S.	Dec.
13	00	21	32.1	139 09.0	S23 38.6	187 13.3	S 5 22.2	280 11.1	N22 46.2	102 43.8	S22 46.5	Acamar	315 31.3	S40 20.4					
	01	36	34.5	154 08.5	39.3	202 14.3	22.8	295 13.4	46.2	117 46.1	46.5	Achernar	335 39.1	S57 17.1					
	02	51	37.0	169 08.0	39.9	217 15.2	23.5	310 15.8	46.1	132 48.5	46.5	Acrux	173 30.3	S63 02.5					
	03	66	39.4	184 07.5	40.6	232 16.2	24.1	325 18.1	46.1	147 50.8	46.5	Adhara	255 26.5	S28 57.1					
	04	81	41.9	199 07.0	41.2	247 17.1	24.8	340 20.4	46.1	162 53.1	46.5	Aldebaran	291 09.6	N16 29.6					
	05	96	44.4	214 06.6	41.9	262 18.1	25.4	355 22.7	46.1	177 55.4	46.5								
	06	111	46.8	229 06.1	S23 42.5	277 19.0	S 5 26.1	10 25.1	N22 46.1	192 57.8	S22 46.5	Alioth	166 36.5	N56 00.8					
	07	126	49.3	244 05.6	43.1	292 19.9	26.7	25 27.4	46.1	208 00.1	46.5	Alkaid	153 13.2	N49 21.8					
	08	141	51.8	259 05.1	43.8	307 20.9	27.4	40 29.7	46.1	223 02.4	46.5	Al Na'ir	28 05.5	S47 00.8					
V	09	156	54.2	274 04.6	44.4	322 21.8	28.0	55 32.0	46.1	238 04.7	46.5	Alnilam	276 04.3	S 1 12.2					
I	10	171	56.7	289 04.1	45.1	337 22.8	28.7	70 34.4	46.1	253 07.1	46.5	Alphard	218 13.8	S 8 36.6					
E	11	186	59.2	304 03.6	45.7	352 23.7	29.3	85 36.7	46.1	268 09.4	46.5								
R	12	202	01.6	319 03.1	S23 46.3	7 24.7	S 5 30.0	100 39.0	N22 46.1	283 11.7	S22 46.5	Alphecca	126 26.3	N26 45.0					
N	13	217	04.1	334 02.6	47.0	22 25.6	30.6	115 41.3	46.1	298 14.0	46.5	Alpheratz	358 01.7	N29 02.3					
E	14	232	06.6	349 02.1	47.6	37 26.6	31.3	130 43.7	46.1	313 16.4	46.5	Altair	62 25.6	N 8 50.5					
S	15	247	09.0	4 01.6	48.2	52 27.5	31.9	145 46.0	46.1	328 18.7	46.5	Ankaa	353 32.6	S42 21.6					
	16	262	11.5	19 01.1	48.9	67 28.5	32.6	160 48.3	46.1	343 21.0	46.5	Antares	112 48.4	S26 24.7					
	17	277	13.9	34 00.7	49.5	82 29.4	33.2	175 50.7	46.0	358 23.3	46.5								
	18	292	16.4	49 00.2	S23 50.1	97 30.4	S 5 33.9	190 53.0	N22 46.0	13 25.7	S22 46.5	Arcturus	146 12.2	N19 14.1					
	19	307	18.9	63 59.7	50.8	112 31.3	34.5	205 55.3	46.0	28 28.0	46.5	Atria	108 06.7	S69 00.9					
	20	322	21.3	78 59.2	51.4	127 32.3	35.2	220 57.6	46.0	43 30.3	46.5	Avior	234 25.6	S59 28.2					
	21	337	23.8	93 58.7	52.0	142 33.2	35.8	236 00.0	46.0	58 32.6	46.4	Bellatrix	278 50.9	N 6 20.7					
	22	352	26.3	108 58.2	52.7	157 34.1	36.5	251 02.3	46.0	73 35.0	46.4	Betelgeuse	271 20.4	N 7 24.6					
	23	7	28.7	123 57.7	53.3	172 35.1	37.1	266 04.6	46.0	88 37.3	46.4								
14	00	22	31.2	138 57.2	S23 53.9	187 36.0	S 5 37.8	281 07.0	N22 46.0	103 39.6	S22 46.4	Canopus	264 03.9	S52 40.9					
	01	37	33.7	153 56.7	54.5	202 37.0	38.4	296 09.3	46.0	118 41.9	46.4	Capella	281 00.6	N45 59.3					
	02	52	36.1	168 56.2	55.2	217 37.9	39.1	311 11.6	46.0	133 44.3	46.4	Deneb	49 43.6	N45 14.9					
	03	67	38.6	183 55.7	55.8	232 38.9	39.7	326 14.0	46.0	148 46.6	46.4	Denebola	182 52.0	N14 37.8					
	04	82	41.1	198 55.2	56.4	247 39.8	40.4	341 16.3	46.0	163 48.9	46.4	Diphda	349 13.3	S18 02.4					
	05	97	43.5	213 54.7	57.0	262 40.8	41.0	356 18.6	46.0	178 51.2	46.4								
	06	112	46.0	228 54.2	S23 57.6	277 41.7	S 5 41.7	11 21.0	N22 46.0	193 53.6	S22 46.4	Dubhe	194 13.6	N61 48.2					
	07	127	48.4	243 53.7	58.3	292 42.7	42.3	26 23.3	46.0	208 55.9	46.4	Elnath	278 35.0	N28 36.1					
	08	142	50.9	258 53.2	58.9	307 43.6	43.0	41 25.6	45.9	223 58.2	46.4	Eltanin	90 54.6	N51 29.6					
S	09	157	53.4	273 52.7	23 59.5	322 44.5	43.6	56 28.0	45.9	239 00.5	46.4	Enif	34 04.4	N 9 49.8					
A	10	172	55.8	288 52.3	24 00.1	337 45.5	44.3	71 30.3	45.9	254 02.8	46.4	Fomalhaut	15 43.2	S29 40.6					
B	11	187	58.3	303 51.8	00.7	352 46.4	44.9	86 32.6	45.9	269 05.2	46.4								
A	12	203	00.8	318 51.3	S24 01.3	7 47.4	S 5 45.6	101 35.0	N22 45.9	284 07.5	S22 46.4	Gacrux	172 21.7	S57 03.3					
D	13	218	03.2	333 50.8	01.9	22 48.3	46.2	116 37.3	45.9	299 09.8	46.4	Gienah	176 11.0	S17 29.0					
O	14	233	05.7	348 50.3	02.5	37 49.3	46.9	131 39.6	45.9	314 12.1	46.4	Hadar	149 14.2	S60 19.5					
	15	248	08.2	3 49.8	03.2	52 50.2	47.5	146 42.0	45.9	329 14.4	46.4	Hamal	328 20.6	N23 25.1					
	16	263	10.6	18 49.3	03.8	67 51.1	48.2	161 44.3	45.9	344 16.8	46.4	Kaus Aust.	84 07.5	S34 23.6					
	17	278	13.1	33 48.8	04.4	82 52.1	48.8	176 46.7	45.9	359 19.1	46.4								
	18	293	15.6	48 48.3	S24 05.0	97 53.0	S 5 49.4	191 49.0	N22 45.9	14 21.4	S22 46.4	Kochab	137 19.9	N74 11.8					
	19	308	18.0	63 47.8	05.6	112 54.0	50.1	206 51.3	45.9	29 23.7	46.4	Markab	13 55.9	N15 09.2					
	20	323	20.5	78 47.3	06.2	127 54.9	50.7	221 53.7	45.9	44 26.1	46.4	Menkar	314 33.4	N 4 03.3					
	21	338	22.9	93 46.8	06.8	142 55.9	51.4	236 56.0	45.9	59 28.4	46.4	Menkent	148 29.1	S36 19.3					
	22	353	25.4	108 46.3	07.4	157 56.8	52.0	251 58.4	45.9	74 30.7	46.4	Miaplacidus	221 44.2	S69 40.1					
	23	8	27.9	123 45.8	08.0	172 57.8	52.7	267 00.7	45.9	89 33.0	46.4								
15	00	23	30.3	138 45.3	S24 08.6	187 58.7	S 5 53.3	282 03.0	N22 45.9	104 35.3	S22 46.4	Mirfak	309 05.6	N49 49.6					
	01	38	32.8	153 44.8	09.2	202 59.6	54.0	297 05.4	45.8	119 37.6	46.4	Nunki	76 20.4	S26 18.7					
	02	53	35.3	168 44.3	09.8	218 00.6	54.6	312 07.7	45.8	134 40.0	46.3	Peacock	53 46.9	S56 46.4					
	03	68	37.7	183 43.8	10.4	233 01.5	55.3	327 10.1	45.8	149 42.3	46.3	Pollux	243 49.4	N28 03.1					
	04	83	40.2	198 43.3	11.0	248 02.5	55.9	342 12.4	45.8	164 44.6	46.3	Procyon	245 18.3	N 5 15.3					
	05	98	42.7	213 42.8	11.6	263 03.4	56.6	357 14.7	45.8	179 46.9	46.3								
	06	113	45.1	228 42.3	S24 12.2	278 04.4	S 5 57.2	12 17.1	N22 45.8	194 49.2	S22 46.3	Rasalhague	96 23.1	N12 34.1					
	07	128	47.6	243 41.8	12.8	293 05.3	57.9	27 19.4	45.8	209 51.6	46.3	Regulus	208 02.6	N12 01.1					
	08	143	50.0	258 41.3	13.4	308 06.2	58.5	42 21.8	45.8	224 53.9	46.3	Rigel	281 29.0	S 8 12.5					
D	09	158	52.5	273 40.8	14.0	323 07.2	59.2	57 24.1	45.8	239 56.2	46.3	Rigil Kent.	140 17.0	S60 47.7					
O	10	173	55.0	288 40.3	14.6	338 08.1	59.8	72 26.4	45.8	254 58.5	46.3	Sabik	102 33.2	S15 42.9					
M	11	188	57.4	303 39.8	15.1	353 09.1	60.5	87 28.8	45.8	270 00.8	46.3								
N	12	203	59.9	318 39.3	S24 15.7	8 10.0	S 6 01.1	102 31.1	N22 45.8	285 03.2	S22 46.3	Schedar	350 00.6	N56 29.1					
G	13	219	02.4	333 38.8	16.3	23 10.9	01.8	117 33.5	45.8	300 05.5	46.3	Shaula	96 46.3	S37 06.0					
O	14	234	04.8	348 38.3	16.9	38 11.9	02.4	132 35.8	45.8	315 07.8	46.3	Sirius	258 49.3	S16 41.8					
	15	249	07.3	3 37.8	17.5	53 12.8	03.0	147 38.2	45.8	330 10.1	46.3	Spica	158 50.4	S11 06.5					
	16	264	09.8	18 37.3	18.1	68 13.8	03.7	162 40.5	45.8	345 12.4	46.3	Suhail	223 05.9	S43 23.1					
	17	279	12.2	33 36.8	18.7	83 14.7	04.3	177 42.9	45.8	0 14.7	46.3								
	18	294	14.7	48 36.3	S24 19.2	98 15.7	S 6 05.0	192 45.2	N22 45.7	15 17.1	S22 46.3	Vega	80 51.1	N38 46.6					
	19	309	17.2	63 35.8	19.8	113 16.6	05.6	207 47.6	45.7	30 19.4	46.3	Zuben'ubi	137 25.5	S16 00.0					
	20	324	19.6	78 35.3	20.4	128 17.5	06.3	222 49.9	45.7	45 21.7	46.3								
	21	339	22.1	93 34.8	21.0	143 18.5	06.9	237 52.2	45.7	60 24.0	46.3								
	22	354	24.5	108 34.3	21.6	158 19.4	07.6	252 54.6	45.7	75 26.3	46.3								
	23	9	27.0	123 33.8	22.1	173 20.4	08.2	267 56.9	45.7	90 28.6	46.3								



T.M.G. (TU)	SOL		LUNA				Lat.	Crepúsculo		Orto Sol	Orto Luna					
	A.H.G.	Dec.	A.H.G.	v	Dec.	d		P.H.	Náut.		Civil	13	14	15	16	
	o / ' / "	o / ' / "	o / ' / "	o / ' / "	o / ' / "	o / ' / "		o / ' / "	h m		h m	h m	h m	h m	h m	h m
V I E R N E S	13 00	183 24.7	S 7 40.9	28 38.5	10.4	S 0 23.0	17.4	60.8	N 72	04 51	06 09	07 19	15 48	15 06	13 52	□
	01	198 24.8	41.9	43 07.9	10.3	S 0 05.6	17.4	60.8	N 70	04 55	06 06	07 08	15 53	15 22	14 36	□
	02	213 25.0	42.8	57 37.2	10.3	N 0 11.8	17.4	60.8	68	04 58	06 03	07 00	15 58	15 36	15 06	13 48
	03	228 25.1	43.7	72 06.5	10.3	0 29.2	17.4	60.9	66	05 01	06 00	06 53	16 02	15 47	15 29	14 57
	04	243 25.3	44.7	86 35.8	10.3	0 46.6	17.5	60.9	64	05 03	05 58	06 46	16 05	15 56	15 47	15 34
	05	258 25.4	45.6	101 05.1	10.2	1 04.1	17.5	60.9	62	05 05	05 56	06 41	16 08	16 04	16 02	16 00
	06	273 25.6	S 7 46.5	115 34.3	10.1	N 1 21.6	17.4	60.9	60	05 06	05 54	06 37	16 10	16 12	16 14	16 21
	07	288 25.7	47.5	130 03.4	10.2	1 39.0	17.5	61.0	N 58	05 07	05 53	06 33	16 12	16 18	16 25	16 38
	08	303 25.9	48.4	144 32.6	10.1	1 56.5	17.5	61.0	56	05 08	05 51	06 29	16 14	16 23	16 35	16 52
	09	318 26.0	49.3	159 01.7	10.0	2 14.0	17.5	61.0	54	05 09	05 50	06 26	16 16	16 28	16 44	17 05
	10	333 26.2	50.3	173 30.7	10.1	2 31.5	17.4	61.0	52	05 10	05 49	06 23	16 18	16 33	16 51	17 16
	11	348 26.3	51.2	187 59.8	9.9	2 48.9	17.5	61.0	50	05 10	05 48	06 20	16 19	16 37	16 58	17 26
	12	3 26.5	S 7 52.1	202 28.7	10.0	N 3 06.4	17.5	61.1	45	05 11	05 45	06 14	16 23	16 46	17 13	17 47
	13	18 26.6	53.1	216 57.7	9.9	3 23.9	17.4	61.1	N 40	05 11	05 42	06 09	16 25	16 54	17 26	18 04
	14	33 26.8	54.0	231 26.6	9.8	3 41.3	17.5	61.1	35	05 10	05 39	06 05	16 28	17 00	17 36	18 18
	15	48 26.9	54.9	245 55.4	9.8	3 58.8	17.4	61.1	30	05 09	05 37	06 01	16 30	17 06	17 46	18 31
	16	63 27.1	55.9	260 24.2	9.7	4 16.2	17.5	61.1	20	05 07	05 32	05 54	16 34	17 16	18 02	18 53
	17	78 27.2	56.8	274 52.9	9.7	4 33.7	17.4	61.2	N 10	05 03	05 27	05 48	16 37	17 25	18 16	19 12
	18	93 27.4	S 7 57.7	289 21.6	9.7	N 4 51.1	17.4	61.2	0	04 58	05 22	05 43	16 40	17 34	18 30	19 30
	19	108 27.5	58.7	303 50.3	9.6	5 08.5	17.3	61.2	S 10	04 51	05 16	05 37	16 44	17 42	18 43	19 48
	20	123 27.7	59.6	318 18.9	9.5	5 25.8	17.4	61.2	20	04 42	05 08	05 31	16 47	17 51	18 58	20 07
	21	138 27.8	8 00.5	332 47.4	9.5	5 43.2	17.3	61.2	30	04 30	04 59	05 23	16 51	18 02	19 15	20 29
	22	153 28.0	01.5	347 15.9	9.4	6 00.5	17.3	61.2	35	04 23	04 53	05 19	16 54	18 08	19 25	20 43
23	168 28.1	02.4	1 44.3	9.4	6 17.8	17.3	61.3	40	04 13	04 46	05 14	16 57	18 15	19 37	20 58	
14 00	183 28.3	S 8 03.3	16 12.7	9.3	N 6 35.1	17.2	61.3	45	04 02	04 38	05 08	17 00	18 24	19 50	21 16	
01	198 28.4	04.3	30 41.0	9.3	6 52.3	17.3	61.3	S 50	03 47	04 28	05 02	17 04	18 34	20 07	21 39	
02	213 28.6	05.2	45 09.3	9.2	7 09.6	17.1	61.3	52	03 40	04 23	04 58	17 05	18 39	20 15	21 50	
03	228 28.7	06.1	59 37.5	9.1	7 26.7	17.2	61.3	54	03 32	04 18	04 55	17 07	18 44	20 23	22 03	
04	243 28.9	07.1	74 05.6	9.1	7 43.9	17.1	61.3	56	03 22	04 12	04 51	17 10	18 50	20 33	22 18	
05	258 29.0	08.0	88 33.7	9.0	8 01.0	17.1	61.3	58	03 12	04 05	04 47	17 12	18 56	20 45	22 35	
06	273 29.1	S 8 08.9	103 01.7	9.0	N 8 18.1	17.0	61.4	S 60	02 59	03 57	04 42	17 15	19 04	20 58	22 56	
07	288 29.3	09.8	117 29.7	8.9	8 35.1	17.0	61.4	Lat.	Ocaso Sol	Crepúsculo		Ocaso Luna				
08	303 29.4	10.8	131 57.6	8.8	8 52.1	16.9	61.4	Civil	Náut.	13	14	15	16			
09	318 29.6	11.7	146 25.4	8.8	9 09.0	16.9	61.4	N 70	16 11	17 21	18 39	04 23	06 58	10 09	□	
10	333 29.7	12.6	160 53.2	8.6	9 25.9	16.8	61.4	N 72	16 22	17 25	18 35	04 22	06 44	09 27	□	
11	348 29.9	13.6	175 20.8	8.7	9 42.7	16.8	61.4	68	16 31	17 28	18 32	04 21	06 33	08 59	12 21	
12	3 30.0	S 8 14.5	189 48.5	8.5	N 9 59.5	16.7	61.4	66	16 38	17 30	18 29	04 21	06 25	08 59	11 13	
13	18 30.2	15.4	204 16.0	8.5	10 16.2	16.6	61.4	64	16 44	17 32	18 27	04 20	06 17	08 22	10 38	
14	33 30.3	16.3	218 43.5	8.4	10 32.8	16.6	61.4	62	16 50	17 34	18 26	04 19	06 11	08 08	10 12	
15	48 30.4	17.3	233 10.9	8.3	10 49.4	16.6	61.4	60	16 54	17 36	18 24	04 19	06 05	07 56	09 52	
16	63 30.6	18.2	247 38.2	8.3	11 06.0	16.4	61.4	N 58	16 58	17 38	18 23	04 18	06 01	07 47	09 36	
17	78 30.7	19.1	262 05.5	8.2	11 22.4	16.4	61.5	56	17 02	17 40	18 22	04 18	05 56	07 38	09 22	
18	93 30.9	S 8 20.1	276 32.7	8.1	N 11 38.8	16.4	61.5	54	17 05	17 41	18 22	04 18	05 53	07 30	09 10	
19	108 31.0	21.0	290 59.8	8.0	11 55.2	16.2	61.5	52	17 08	17 42	18 21	04 18	05 49	07 24	09 00	
20	123 31.2	21.9	305 26.8	8.0	12 11.4	16.2	61.5	50	17 11	17 44	18 21	04 17	05 46	07 18	08 51	
21	138 31.3	22.8	319 53.8	7.9	12 27.6	16.1	61.5	45	17 17	17 47	18 21	04 17	05 39	07 04	08 31	
22	153 31.4	23.8	334 20.7	7.8	12 43.7	16.1	61.5	N 40	17 22	17 49	18 21	04 16	05 34	06 54	08 15	
23	168 31.6	24.7	348 47.5	7.7	12 59.8	15.9	61.5	35	17 27	17 52	18 21	04 16	05 29	06 45	08 02	
15 00	183 31.7	S 8 25.6	3 14.2	7.7	N 13 15.7	15.9	61.5	30	17 30	17 55	18 22	04 15	05 25	06 37	07 50	
01	198 31.9	26.5	17 40.9	7.6	13 31.6	15.7	61.5	20	17 37	18 00	18 25	04 15	05 17	06 23	07 31	
02	213 32.0	27.5	32 07.5	7.5	13 47.3	15.7	61.5	N 10	17 43	18 05	18 29	04 14	05 11	06 11	07 14	
03	228 32.2	28.4	46 34.0	7.4	14 03.0	15.6	61.5	0	17 49	18 10	18 34	04 13	05 05	06 00	06 58	
04	243 32.3	29.3	61 00.4	7.3	14 18.6	15.6	61.5	S 10	17 55	18 17	18 41	04 13	04 59	05 49	06 42	
05	258 32.4	30.2	75 26.7	7.2	14 34.2	15.4	61.5	20	18 02	18 24	18 50	04 12	04 53	05 37	06 25	
06	273 32.6	S 8 31.2	89 52.9	7.2	N 14 49.6	15.3	61.5	30	18 09	18 34	19 02	04 11	04 46	05 23	06 06	
07	288 32.7	32.1	104 19.1	7.1	15 04.9	15.2	61.5	35	18 14	18 40	19 10	04 11	04 42	05 16	05 55	
08	303 32.9	33.0	118 45.2	7.0	15 20.1	15.1	61.5	40	18 19	18 46	19 20	04 10	04 37	05 07	05 42	
09	318 33.0	33.9	133 11.2	6.9	15 35.2	15.1	61.5	45	18 24	18 55	19 31	04 10	04 32	04 57	05 27	
10	333 33.1	34.9	147 37.1	6.8	15 50.3	14.9	61.4	S 50	18 32	19 05	19 46	04 09	04 26	04 45	05 08	
11	348 33.3	35.8	162 02.9	6.8	16 05.2	14.8	61.4	52	18 35	19 10	19 54	04 09	04 23	04 39	05 00	
12	3 33.4	S 8 36.7	176 28.7	6.7	N 16 20.0	14.7	61.4	54	18 38	19 16	20 02	04 08	04 19	04 33	04 50	
13	18 33.6	37.6	190 54.4	6.5	16 34.7	14.6	61.4	56	18 42	19 22	20 12	04 08	04 16	04 26	04 40	
14	33 33.7	38.6	205 19.9	6.5	16 49.3	14.4	61.4	58	18 47	19 29	20 23	04 07	04 12	04 18	04 27	
15	48 33.8	39.5	219 45.4	6.5	17 03.7	14.4	61.4	S 60	18 52	19 37	20 36	04 07	04 08	04 09	04 13	
16	63 34.0	40.4	234 10.9	6.3	17 18.1	14.2	61.4	Día	SOL E.T. (+)		LUNA					
17	78 34.1	41.3	248 36.2	6.2	17 32.3	14.1	61.4	00 h	12 h	Pas. Mer.	Pas. Sup.	Mer. Inf.	Edad.	Fase		
18	93 34.2	S 8 42.2	263 01.4	6.2	N 17 46.4	14.0	61.4	m s	m s	h m	h m	h m	d			
19	108 34.4	43.2	27													



T.M.G. (TU)	ARIES	VENUS -4.2	MARTE +1.7	JUPITER -2.4	SATURNO +0.5	ESTRELLAS		
d h	A.H.G.	A.H.G. Dec.	A.H.G. Dec.	A.H.G. Dec.	A.H.G. Dec.	A.H.G. Dec.	Nombre	A. H. S. Dec.
LUNES	16 00	24 29.5	138 33.3 S24 22.7	188 21.3 S 6 08.9	282 59.3 N22 45.7	105 31.0 S22 46.3	Acamar	315 31.3 S40 20.4
	01	39 31.9	153 32.8 23.3	203 22.2 09.5	298 01.6 45.7	120 33.3 46.3	Achernar	335 39.1 S57 17.1
	02	54 34.4	168 32.3 23.9	218 23.2 10.2	313 04.0 45.7	135 35.6 46.3	AcruX	173 30.3 S63 02.5
	03	69 36.9	183 31.8 .. 24.4	233 24.1 .. 10.8	328 06.3 .. 45.7	150 37.9 .. 46.3	Adhara	255 26.5 S28 57.1
	04	84 39.3	198 31.3 25.0	248 25.1 11.5	343 08.7 45.7	165 40.2 46.3	Aldebaran	291 09.6 N16 29.6
	05	99 41.8	213 30.8 25.6	263 26.0 12.1	358 11.0 45.7	180 42.5 46.2		
	06	114 44.3	228 30.3 S24 26.2	278 26.9 S 6 12.7	13 13.4 N22 45.7	195 44.8 S22 46.2	Alioth	166 36.5 N56 00.8
	07	129 46.7	243 29.8 26.7	293 27.9 13.4	28 15.7 45.7	210 47.2 46.2	Alkaid	153 13.2 N49 21.8
	08	144 49.2	258 29.3 27.3	308 28.8 14.0	43 18.1 45.7	225 49.5 46.2	Al Na'ir	28 05.5 S47 00.8
	09	159 51.7	273 28.8 .. 27.9	323 29.8 .. 14.7	58 20.4 .. 45.7	240 51.8 .. 46.2	Alnilam	276 04.3 S 1 12.2
	10	174 54.1	288 28.3 28.4	338 30.7 15.3	73 22.8 45.7	255 54.1 46.2	Alphard	218 13.7 S 8 36.6
	11	189 56.6	303 27.8 29.0	353 31.6 16.0	88 25.1 45.7	270 56.4 46.2		
	12	204 59.0	318 27.3 S24 29.6	8 32.6 S 6 16.6	103 27.5 N22 45.7	285 58.7 S22 46.2	Alphecca	126 26.3 N26 45.0
	13	220 01.5	333 26.8 30.1	23 33.5 17.3	118 29.8 45.6	301 01.0 46.2	Alpheratz	358 01.7 N29 02.3
	14	235 04.0	348 26.3 30.7	38 34.4 17.9	133 32.2 45.6	316 03.4 46.2	Altair	62 25.6 N 8 50.5
	15	250 06.4	3 25.8 .. 31.2	53 35.4 .. 18.6	148 34.6 .. 45.6	331 05.7 .. 46.2	Ankaa	353 32.6 S42 21.6
	16	265 08.9	18 25.3 31.8	68 36.3 19.2	163 36.9 45.6	346 08.0 46.2	Antares	112 48.4 S26 24.7
	17	280 11.4	33 24.8 32.4	83 37.3 19.9	178 39.3 45.6	1 10.3 46.2		
	18	295 13.8	48 24.3 S24 32.9	98 38.2 S 6 20.5	193 41.6 N22 45.6	16 12.6 S22 46.2	Arcturus	146 12.2 N19 14.1
	19	310 16.3	63 23.8 33.5	113 39.1 21.1	208 44.0 45.6	31 14.9 46.2	Atria	108 06.8 S69 00.9
	20	325 18.8	78 23.3 34.0	128 40.1 21.8	223 46.3 45.6	46 17.2 46.2	Avior	234 25.6 S59 28.2
	21	340 21.2	93 22.8 .. 34.6	143 41.0 .. 22.4	238 48.7 .. 45.6	61 19.5 .. 46.2	Bellatrix	278 50.9 N 6 20.7
	22	355 23.7	108 22.3 35.1	158 41.9 23.1	253 51.0 45.6	76 21.9 46.2	Betelgeuse	271 20.4 N 7 24.6
23	10 26.1	123 21.8 35.7	173 42.9 23.7	268 53.4 45.6	91 24.2 46.2			
MARTES	17 00	25 28.6	138 21.3 S24 36.2	188 43.8 S 6 24.4	283 55.8 N22 45.6	106 26.5 S22 46.2	Canopus	264 03.9 S52 41.0
	01	40 31.1	153 20.8 36.8	203 44.8 25.0	298 58.1 45.6	121 28.8 46.2	Capella	281 00.5 N45 59.3
	02	55 33.5	168 20.3 37.3	218 45.7 25.7	314 00.5 45.6	136 31.1 46.2	Deneb	49 43.6 N45 14.9
	03	70 36.0	183 19.8 .. 37.9	233 46.6 .. 26.3	329 02.8 .. 45.6	151 33.4 .. 46.2	Denebola	182 52.0 N14 37.8
	04	85 38.5	198 19.3 38.4	248 47.6 26.9	344 05.2 45.6	166 35.7 46.2	Diphda	349 13.3 S18 02.4
	05	100 40.9	213 18.8 39.0	263 48.5 27.6	359 07.5 45.6	181 38.0 46.2		
	06	115 43.4	228 18.2 S24 39.5	278 49.4 S 6 28.2	14 09.9 N22 45.6	196 40.3 S22 46.1	Dubhe	194 13.6 N61 48.2
	07	130 45.9	243 17.7 40.1	293 50.4 28.9	29 12.3 45.6	211 42.7 46.1	Elnath	278 34.9 N28 36.1
	08	145 48.3	258 17.2 40.6	308 51.3 29.5	44 14.6 45.6	226 45.0 46.1	Eltanin	90 54.6 N51 29.6
	09	160 50.8	273 16.7 .. 41.2	323 52.3 .. 30.2	59 17.0 .. 45.6	241 47.3 .. 46.1	Enif	34 04.5 N 9 49.8
	10	175 53.3	288 16.2 41.7	338 53.2 30.8	74 19.3 45.5	256 49.6 46.1	Fomalhaut	15 43.2 S29 40.6
	11	190 55.7	303 15.7 42.2	353 54.1 31.5	89 21.7 45.5	271 51.9 46.1		
	12	205 58.2	318 15.2 S24 42.8	8 55.1 S 6 32.1	104 24.1 N22 45.5	286 54.2 S22 46.1	Gacrux	172 21.7 S57 03.3
	13	221 00.6	333 14.7 43.3	23 56.0 32.7	119 26.4 45.5	301 56.5 46.1	Gienah	176 11.0 S17 29.0
	14	236 03.1	348 14.2 43.9	38 56.9 33.4	134 28.8 45.5	316 58.8 46.1	Hadar	149 14.2 S60 19.5
	15	251 05.6	3 13.7 .. 44.4	53 57.9 .. 34.0	149 31.1 .. 45.5	332 01.1 .. 46.1	Hamal	328 20.6 N23 25.1
	16	266 08.0	18 13.2 44.9	68 58.8 34.7	164 33.5 45.5	347 03.4 46.1	Kaus Aust.	84 07.5 S34 23.6
	17	281 10.5	33 12.7 45.5	83 59.7 .. 35.3	179 35.9 45.5	2 05.8 46.1		
	18	296 13.0	48 12.2 S24 46.0	99 00.7 S 6 36.0	194 38.2 N22 45.5	17 08.1 S22 46.1	Kochab	137 19.9 N74 11.8
	19	311 15.4	63 11.7 46.5	114 01.6 36.6	209 40.6 45.5	32 10.4 46.1	Markab	13 55.9 N15 09.2
	20	326 17.9	78 11.2 47.1	129 02.5 37.3	224 43.0 45.5	47 12.7 46.1	Menkar	314 33.4 N 4 03.3
	21	341 20.4	93 10.7 .. 47.6	144 03.5 .. 37.9	239 45.3 .. 45.5	62 15.0 .. 46.1	Menkent	148 29.1 S36 19.2
	22	356 22.8	108 10.2 48.1	159 04.4 38.5	254 47.7 45.5	77 17.3 46.1	Miaplacidus	221 44.2 S69 40.1
23	11 25.3	123 09.7 48.6	174 05.3 39.2	269 50.1 45.5	92 19.6 46.1			
MIÉRCOLES	18 00	26 27.8	138 09.2 S24 49.2	189 06.3 S 6 39.8	284 52.4 N22 45.5	107 21.9 S22 46.1	Mirfak	309 05.6 N49 49.6
	01	41 30.2	153 08.7 49.7	204 07.2 40.5	299 54.8 45.5	122 24.2 46.1	Nunki	76 20.4 S26 18.7
	02	56 32.7	168 08.2 50.2	219 08.2 41.1	314 57.2 45.5	137 26.5 46.1	Peacock	53 46.9 S56 46.4
	03	71 35.1	183 07.7 .. 50.7	234 09.1 .. 41.8	329 59.5 .. 45.5	152 28.8 .. 46.1	Pollux	243 49.4 N28 03.1
	04	86 37.6	198 07.1 51.3	249 10.0 42.4	345 01.9 45.5	167 31.1 46.1	Procyon	245 18.3 N 5 15.3
	05	101 40.1	213 06.6 51.8	264 11.0 43.1	0 04.3 45.5	182 33.5 46.1		
	06	116 42.5	228 06.1 S24 52.3	279 11.9 S 6 43.7	15 06.6 N22 45.5	197 35.8 S22 46.0	Rasalhague	96 23.1 N12 34.1
	07	131 45.0	243 05.6 52.8	294 12.8 44.3	30 09.0 45.5	212 38.1 46.0	Regulus	208 02.6 N12 01.1
	08	146 47.5	258 05.1 53.4	309 13.8 45.0	45 11.4 45.5	227 40.4 46.0	Rigel	281 29.0 S 8 12.5
	09	161 49.9	273 04.6 .. 53.9	324 14.7 .. 45.6	60 13.7 .. 45.4	242 42.7 .. 46.0	Rigel Kent.	140 17.0 S60 47.7
	10	176 52.4	288 04.1 54.4	339 15.6 46.3	75 16.1 45.4	257 45.0 46.0	Sabik	102 33.2 S15 42.9
	11	191 54.9	303 03.6 54.9	354 16.6 46.9	90 18.5 45.4	272 47.3 46.0		
	12	206 57.3	318 03.1 S24 55.4	9 17.5 S 6 47.6	105 20.8 N22 45.4	287 49.6 S22 46.0	Schedar	350 00.6 N56 29.1
	13	221 59.8	333 02.6 55.9	24 18.4 48.2	120 23.2 45.4	302 51.9 46.0	Shaula	96 46.3 S37 06.0
	14	237 02.3	348 02.1 56.4	39 19.4 48.8	135 25.6 45.4	317 54.2 46.0	Sirius	258 49.3 S16 41.8
	15	252 04.7	3 01.6 .. 57.0	54 20.3 .. 49.5	150 27.9 .. 45.4	332 56.5 .. 46.0	Spica	158 50.4 S11 06.5
	16	267 07.2	18 01.1 57.5	69 21.2 50.1	165 30.3 45.4	347 58.8 46.0	Suhail	223 05.8 S43 23.1
	17	282 09.6	33 00.6 58.0	84 22.1 50.8	180 32.7 45.4	3 01.1 46.0		
	18	297 12.1	48 00.1 S24 58.5	99 23.1 S 6 51.4	195 35.1 N22 45.4	18 03.4 S22 46.0	Vega	80 51.2 N38 46.6
	19	312 14.6	62 59.6 59.0	114 24.0 52.1	210 37.4 45.4	33 05.7 46.0	Zuben'ubi	137 25.5 S16 00.0
	20	327 17.0	77 59.0 24 59.5	129 24.9 52.7	225 39.8 45.4	48 08.0 46.0		
	21	342 19.5	92 58.5 25 00.0	144 25.9 .. 53.3	240 42.2 .. 45.4	63 10.3 .. 46.0		
	22	357 22.0	107 58.0 00.5	159 26.8 54.0	255 44.6 45.4	78 12.6 46.0	Venus	112 52.7 14 47
23	12 24.4	122 57.5 01.0	174 27.7 54.6	270 46.9 45.4	93 15.0 46.0	Marte	163 15.2 11 24	
						Júpiter	258 27.1 5 03	
						Saturno	80 57.9 16 52	

Pas. Mer. 22 14.4

v -0.5 d 0.5      v 0.9 d 0.6      v 2.4 d 0.0      v 2.3 d 0.0



T.M.G. (TU)	SOL		LUNA				Lat.	Crepúsculo		Orto Sol	Orto Luna					
	A.H.G.	Dec.	A.H.G.	v	Dec.	d		P.H.	Náut.		Civil	16	17	18	19	
	°	'	°	'	°	'		'	h		m	h	m	h	m	h
L U N E S	16 00	183 35.1	S 8 47.8	349 31.1	5.7	N19 08.4	13.3	61.3	N 72	05 04	06 22	07 34	□	□	□	□
	01	198 35.2	48.7	3 55.8	5.5	19 21.7	13.0	61.3	N 70	05 07	06 17	07 21	□	□	□	□
	02	213 35.3	49.6	18 20.3	5.5	19 34.7	13.0	61.3	68	05 09	06 13	07 11	13 48	□	□	□
	03	228 35.5	50.5	32 44.8	5.4	19 47.7	12.8	61.3	66	05 10	06 10	07 03	14 57	□	□	□
	04	243 35.6	51.5	47 09.2	5.4	20 00.5	12.6	61.3	64	05 12	06 07	06 55	15 34	15 01	□	□
	05	258 35.7	52.4	61 33.6	5.2	20 13.1	12.5	61.2	62	05 13	06 04	06 49	16 00	16 00	16 13	17 25
	06	273 35.9	S 8 53.3	75 57.8	5.2	N20 25.6	12.4	61.2	60	05 13	06 02	06 44	16 21	16 35	17 08	18 16
	07	288 36.0	54.2	90 22.0	5.0	20 38.0	12.2	61.2	N 58	05 14	05 59	06 39	16 38	17 00	17 40	18 48
	08	303 36.1	55.1	104 46.0	5.0	20 50.2	12.0	61.2	56	05 14	05 57	06 35	16 52	17 20	18 05	19 11
	09	318 36.3	56.1	119 10.0	5.0	21 02.2	11.9	61.2	54	05 15	05 56	06 31	17 05	17 37	18 24	19 30
	10	333 36.4	57.0	133 34.0	4.8	21 14.1	11.8	61.2	52	05 15	05 54	06 28	17 16	17 51	18 41	19 46
	11	348 36.5	57.9	147 57.8	4.8	21 25.9	11.6	61.1	50	05 15	05 52	06 25	17 26	18 04	18 55	20 00
	12	3 36.7	S 8 58.8	162 21.6	4.7	N21 37.5	11.4	61.1	45	05 14	05 48	06 18	17 47	18 30	19 24	20 29
	13	18 36.8	8 59.7	176 45.3	4.6	21 48.9	11.3	61.1	N 40	05 14	05 45	06 12	18 04	18 51	19 47	20 51
	14	33 36.9	9 00.7	191 08.9	4.5	22 00.2	11.1	61.1	35	05 12	05 42	06 07	18 18	19 08	20 06	21 10
	15	48 37.1	01.6	205 32.4	4.5	22 11.3	11.0	61.1	30	05 11	05 39	06 03	18 31	19 23	20 22	21 25
	16	63 37.2	02.5	219 55.9	4.4	22 22.3	10.8	61.0	20	05 07	05 33	05 55	18 53	19 49	20 50	21 52
	17	78 37.3	03.4	234 19.3	4.3	22 33.1	10.6	61.0	N 10	05 03	05 27	05 49	19 12	20 11	21 13	22 15
	18	93 37.5	S 9 04.3	248 42.6	4.3	N22 43.7	10.4	61.0	0	04 57	05 21	05 42	19 30	20 32	21 35	22 37
	19	108 37.6	05.2	263 05.9	4.2	22 54.1	10.3	61.0	S 10	04 49	05 14	05 35	19 48	20 53	21 58	22 58
	20	123 37.7	06.2	277 29.1	4.1	23 04.4	10.1	60.9	20	04 40	05 06	05 28	20 07	21 16	22 21	23 21
	21	138 37.9	07.1	291 52.2	4.1	23 14.5	10.0	60.9	30	04 27	04 55	05 20	20 29	21 42	22 49	23 48
	22	153 38.0	08.0	306 15.3	4.0	23 24.5	9.7	60.9	35	04 18	04 49	05 15	20 43	21 58	23 06	24 04
23	168 38.1	08.9	320 38.3	3.9	23 34.2	9.6	60.9	40	04 08	04 42	05 10	20 58	22 16	23 25	24 22	
17 00	183 38.2	S 9 09.8	335 01.2	3.9	N23 43.8	9.5	60.8	45	03 56	04 33	05 03	21 16	22 38	23 48	24 44	
01	198 38.4	10.7	349 24.1	3.8	23 53.3	9.2	60.8	S 50	03 40	04 21	04 55	21 39	23 06	24 18	00 18	
02	213 38.5	11.7	3 46.9	3.7	24 02.5	9.1	60.8	52	03 32	04 16	04 52	21 50	23 19	24 32	00 32	
03	228 38.6	12.6	18 09.6	3.7	24 11.6	8.8	60.8	54	03 23	04 10	04 48	22 03	23 35	24 49	00 49	
04	243 38.8	13.5	32 32.3	3.7	24 20.4	8.7	60.7	56	03 13	04 04	04 43	22 18	23 54	25 10	01 10	
05	258 38.9	14.4	46 55.0	3.6	24 29.1	8.5	60.7	58	03 01	03 56	04 38	22 35	24 17	00 17	01 36	
06	273 39.0	S 9 15.3	61 17.6	3.5	N24 37.6	8.4	60.7	S 60	02 47	03 47	04 33	22 56	24 48	00 48	02 11	
07	288 39.1	16.2	75 40.1	3.5	24 46.0	8.1	60.7									
08	303 39.3	17.1	90 02.6	3.5	24 54.1	8.0	60.6	Lat.	Ocaso Sol	Crepúsculo		Ocaso Luna				
09	318 39.4	18.1	104 25.1	3.4	25 02.1	7.8	60.6			Civil	Náut.	16	17	18	19	
10	333 39.5	19.0	118 47.5	3.3	25 09.9	7.5	60.6	N 70	15 55	17 07	18 24	□	□	□	□	
11	348 39.7	19.9	133 09.8	3.4	25 17.4	7.4	60.5	N 72	16 08	17 12	18 22	□	□	□	□	
12	3 39.8	S 9 20.8	147 32.2	3.2	N25 24.8	7.2	60.5	68	16 18	17 16	18 20	12 21	□	□	□	
13	18 39.9	21.7	161 54.4	3.2	25 32.0	7.1	60.5	66	16 27	17 19	18 19	11 13	□	□	□	
14	33 40.0	22.6	176 16.7	3.2	25 39.1	6.8	60.5	64	16 34	17 23	18 17	10 38	13 21	□	□	
15	48 40.2	23.5	190 38.9	3.2	25 45.9	6.6	60.4	62	16 40	17 25	18 17	10 12	12 21	14 22	15 20	
16	63 40.3	24.5	205 01.1	3.1	25 52.5	6.4	60.4	60	16 46	17 28	18 16	09 52	11 48	13 28	14 29	
17	78 40.4	25.4	219 23.2	3.1	25 58.9	6.3	60.4	N 58	16 50	17 30	18 16	09 36	11 23	12 55	13 58	
18	93 40.5	S 9 26.3	233 45.3	3.1	N26 05.2	6.0	60.3	56	16 55	17 32	18 15	09 22	11 04	12 31	13 34	
19	108 40.7	27.2	248 07.4	3.1	26 11.2	5.9	60.3	54	16 58	17 34	18 15	09 10	10 47	12 11	13 15	
20	123 40.8	28.1	262 29.5	3.1	26 17.1	5.6	60.3	52	17 02	17 36	18 15	09 00	10 33	11 55	12 58	
21	138 40.9	29.0	276 51.6	3.0	26 22.7	5.5	60.2	50	17 05	17 38	18 15	08 51	10 21	11 41	12 44	
22	153 41.0	29.9	291 13.6	3.0	26 28.2	5.3	60.2	45	17 12	17 42	18 16	08 31	09 55	11 12	12 15	
23	168 41.2	30.8	305 35.6	3.0	26 33.5	5.0	60.2	N 40	17 18	17 45	18 16	08 15	09 35	10 49	11 53	
18 00	183 41.3	S 9 31.7	319 57.6	3.0	N26 38.5	4.9	60.1	35	17 23	17 48	18 18	08 02	09 19	10 31	11 34	
01	198 41.4	32.7	334 19.6	3.0	26 43.4	4.7	60.1	30	17 27	17 51	18 19	07 50	09 04	10 15	11 18	
02	213 41.5	33.6	348 41.6	3.0	26 48.1	4.5	60.1	20	17 35	17 57	18 23	07 31	08 40	09 47	10 51	
03	228 41.7	34.5	3 03.6	3.0	26 52.6	4.2	60.0	N 10	17 42	18 03	18 28	07 14	08 19	09 24	10 27	
04	243 41.8	35.4	17 25.6	3.0	26 56.8	4.1	60.0	0	17 49	18 10	18 34	06 58	07 59	09 02	10 05	
05	258 41.9	36.3	31 47.6	3.0	27 00.9	3.9	60.0	S 10	17 55	18 17	18 42	06 42	07 39	08 41	09 43	
06	273 42.0	S 9 37.2	46 09.6	3.0	N27 04.8	3.7	59.9	20	18 03	18 25	18 52	06 25	07 19	08 17	09 19	
07	288 42.1	38.1	60 31.6	3.0	27 08.5	3.5	59.9	30	18 11	18 36	19 05	06 06	06 54	07 50	08 52	
08	303 42.3	39.0	74 53.6	3.0	27 12.0	3.3	59.8	35	18 16	18 42	19 13	05 55	06 40	07 34	08 35	
09	318 42.4	39.9	89 15.6	3.0	27 15.3	3.1	59.8	40	18 22	18 50	19 23	05 42	06 24	07 16	08 16	
10	333 42.5	40.8	103 37.6	3.1	27 18.4	2.9	59.8	45	18 28	18 59	19 36	05 27	06 05	06 53	07 53	
11	348 42.6	41.7	117 59.7	3.0	27 21.3	2.6	59.7	S 50	18 36	19 11	19 52	05 08	05 40	06 25	07 23	
12	3 42.7	S 9 42.7	132 21.7	3.1	N27 23.9	2.5	59.7	52	18 40	19 16	20 00	05 00	05 29	06 11	07 09	
13	18 42.9	43.6	146 43.8	3.1	27 26.4	2.3	59.7	54	18 44	19 22	20 09	04 50	05 16	05 55	06 52	
14	33 43.0	44.5	161 05.9	3.1	27 28.7	2.1	59.6	56	18 49	19 29	20 20	04 40	05 01	05 35	06 31	
15	48 43.1	45.4	175 28.0	3.2	27 30.8	2.0	59.6	58	18 54	19 37	20 32	04 27	04 43	05 12	06 06	
16	63 43.2	46.3	189 50.2	3.2	27 32.8	1.7	59.6	S 60	18 59	19 45	20 46	04 13	04 21	04 41	05 30	
17	78 43.3	47.2	204 12.4	3.2	27 34.5	1.5	59.5									
18	93 43.5	S 9 48.1	218 34.6	3.3	N27 36.0	1.3	59.5									
19	108 43.6	49.0	232 56.9	3.3	27 37.3	1.1	59.4									
20	123 43.7	49.9	247 19.2	3.3	27 38.4	1.0	59.4									



T.M.G. (TU)	ARIES	VENUS -4.3	MARTE +1.7	JUPITER -2.4	SATURNO +0.6	ESTRELLAS
d h	A.H.G.	A.H.G. Dec.	A.H.G. Dec.	A.H.G. Dec.	A.H.G. Dec.	Nombre A. H. S. Dec.
19 00	27 26.9	137 57.0 S25 01.5	189 28.7 S 6 55.3	285 49.3 N22 45.4	108 17.3 S22 46.0	Acamar 315 31.3 S40 20.4
01	42 29.4	152 56.5 02.0	204 29.6 55.9	300 51.7 45.4	123 19.6 46.0	Achernar 335 39.1 S57 17.2
02	57 31.8	167 56.0 02.5	219 30.5 56.5	315 54.0 45.4	138 21.9 46.0	Acrux 173 30.3 S63 02.5
03	72 34.3	182 55.5 03.0	234 31.5 57.2	330 56.4 45.4	153 24.2 46.0	Adhara 255 26.4 S28 57.1
04	87 36.7	197 55.0 03.5	249 32.4 57.8	345 58.8 45.4	168 26.5 45.9	Aldebaran 291 09.6 N16 29.6
05	102 39.2	212 54.5 04.0	264 33.3 58.5	1 01.2 45.4	183 28.8 45.9	
06	117 41.7	227 54.0 S25 04.5	279 34.3 S 6 59.1	16 03.6 N22 45.4	198 31.1 S22 45.9	Alioth 166 36.5 N56 00.8
07	132 44.1	242 53.5 05.0	294 35.2 6 59.8	31 05.9 45.4	213 33.4 45.9	Alkaid 153 13.2 N49 21.8
08	147 46.6	257 53.0 05.5	309 36.1 7 00.4	46 08.3 45.4	228 35.7 45.9	Al Na'ir 28 05.5 S47 00.8
09	162 49.1	272 52.5 06.0	324 37.0 01.0	61 10.7 45.4	243 38.0 45.9	Alnilam 276 04.2 S 1 12.2
10	177 51.5	287 52.0 06.5	339 38.0 01.7	76 13.1 45.4	258 40.3 45.9	Alphard 218 13.7 S 8 36.7
11	192 54.0	302 51.4 07.0	354 38.9 02.3	91 15.4 45.4	273 42.6 45.9	
12	207 56.5	317 50.9 S25 07.5	9 39.8 S 7 03.0	106 17.8 N22 45.3	288 44.9 S22 45.9	Alphecca 126 26.3 N26 44.9
13	222 58.9	332 50.4 07.9	24 40.8 03.6	121 20.2 45.3	303 47.2 45.9	Alpheratz 358 01.7 N29 02.3
14	238 01.4	347 49.9 08.4	39 41.7 04.3	136 22.6 45.3	318 49.5 45.9	Altair 62 25.6 N 8 50.5
15	253 03.9	2 49.4 08.9	54 42.6 04.9	151 25.0 45.3	333 51.8 45.9	Ankaa 353 32.6 S42 21.6
16	268 06.3	17 48.9 09.4	69 43.6 05.5	166 27.3 45.3	348 54.1 45.9	Antares 112 48.4 S26 24.7
17	283 08.8	32 48.4 09.9	84 44.5 06.2	181 29.7 45.3	3 56.4 45.9	
18	298 11.2	47 47.9 S25 10.4	99 45.4 S 7 06.8	196 32.1 N22 45.3	18 58.7 S22 45.9	Arcturus 146 12.2 N19 14.1
19	313 13.7	62 47.4 10.8	114 46.3 07.5	211 34.5 45.3	34 01.0 45.9	Atria 108 06.8 S69 00.9
20	328 16.2	77 46.9 11.3	129 47.3 08.1	226 36.9 45.3	49 03.3 45.9	Avior 234 25.5 S59 28.2
21	343 18.6	92 46.4 11.8	144 48.2 08.7	241 39.2 45.3	64 05.6 45.9	Bellatrix 278 50.9 N 6 20.7
22	358 21.1	107 45.9 12.3	159 49.1 09.4	256 41.6 45.3	79 07.9 45.9	Betelgeuse 271 20.4 N 7 24.6
23	13 23.6	122 45.4 12.8	174 50.1 10.0	271 44.0 45.3	94 10.2 45.9	
20 00	28 26.0	137 44.9 S25 13.2	189 51.0 S 7 10.7	286 46.4 N22 45.3	109 12.5 S22 45.8	Canopus 264 03.8 S52 41.0
01	43 28.5	152 44.3 13.7	204 51.9 11.3	301 48.8 45.3	124 14.8 45.8	Capella 281 00.5 N45 59.4
02	58 31.0	167 43.8 14.2	219 52.8 11.9	316 51.2 45.3	139 17.1 45.8	Deneb 49 43.6 N45 14.9
03	73 33.4	182 43.3 14.7	234 53.8 12.6	331 53.5 45.3	154 19.4 45.8	Denebola 182 52.0 N14 37.8
04	88 35.9	197 42.8 15.1	249 54.7 13.2	346 55.9 45.3	169 21.7 45.8	Diphda 349 13.3 S18 02.4
05	103 38.4	212 42.3 15.6	264 55.6 13.9	1 58.3 45.3	184 24.0 45.8	
06	118 40.8	227 41.8 S25 16.1	279 56.6 S 7 14.5	17 00.7 N22 45.3	199 26.3 S22 45.8	Dubhe 194 13.5 N61 48.2
07	133 43.3	242 41.3 16.5	294 57.5 15.1	32 03.1 45.3	214 28.6 45.8	Elnath 278 34.9 N28 36.1
08	148 45.7	257 40.8 17.0	309 58.4 15.8	47 05.5 45.3	229 30.9 45.8	Eltanin 90 54.7 N51 29.6
09	163 48.2	272 40.3 17.5	324 59.3 16.4	62 07.8 45.3	244 33.2 45.8	Enif 34 04.5 N 9 49.8
10	178 50.7	287 39.8 17.9	340 00.3 17.1	77 10.2 45.3	259 35.5 45.8	Fomalhaut 15 43.2 S29 40.6
11	193 53.1	302 39.3 18.4	355 01.2 17.7	92 12.6 45.3	274 37.8 45.8	
12	208 55.6	317 38.8 S25 18.9	10 02.1 S 7 18.3	107 15.0 N22 45.3	289 40.1 S22 45.8	Gacrux 172 21.6 S57 03.3
13	223 58.1	332 38.3 19.3	25 03.0 19.0	122 17.4 45.3	304 42.4 45.8	Giennah 176 11.0 S17 29.0
14	239 00.5	347 37.7 19.8	40 04.0 19.6	137 19.8 45.3	319 44.7 45.8	Hadar 149 14.2 S60 19.5
15	254 03.0	2 37.2 20.3	55 04.9 20.3	152 22.2 45.3	334 47.0 45.8	Hamal 328 20.6 N23 25.1
16	269 05.5	17 36.7 20.7	70 05.8 20.9	167 24.6 45.3	349 49.3 45.8	Kaus Aust. 84 07.5 S34 23.6
17	284 07.9	32 36.2 21.2	85 06.7 21.5	182 27.0 45.3	4 51.6 45.8	
18	299 10.4	47 35.7 S25 21.6	100 07.7 S 7 22.2	197 29.3 N22 45.3	19 53.9 S22 45.8	Kochab 137 19.9 N74 11.8
19	314 12.8	62 35.2 22.1	115 08.6 22.8	212 31.7 45.3	34 56.2 45.8	Markab 13 55.9 N15 09.2
20	329 15.3	77 34.7 22.5	130 09.5 23.5	227 34.1 45.3	49 58.5 45.7	Menkar 314 33.4 N 4 03.3
21	344 17.8	92 34.2 23.0	145 10.4 24.1	242 36.5 45.3	65 00.8 45.7	Menkent 148 29.1 S36 19.2
22	359 20.2	107 33.7 23.5	160 11.4 24.7	257 38.9 45.3	80 03.1 45.7	Miaplacidus 221 44.1 S69 40.1
23	14 22.7	122 33.2 23.9	175 12.3 25.4	272 41.3 45.2	95 05.4 45.7	
21 00	29 25.2	137 32.7 S25 24.4	190 13.2 S 7 26.0	287 43.7 N22 45.2	110 07.7 S22 45.7	Mirfak 309 05.6 N49 49.7
01	44 27.6	152 32.2 24.8	205 14.1 26.7	302 46.1 45.2	125 10.0 45.7	Nunki 76 20.4 S26 18.7
02	59 30.1	167 31.7 25.3	220 15.1 27.3	317 48.5 45.2	140 12.3 45.7	Peacock 53 46.9 S56 46.4
03	74 32.6	182 31.2 25.7	235 16.0 27.9	332 50.9 45.2	155 14.6 45.7	Pollux 243 49.4 N28 03.1
04	89 35.0	197 30.6 26.1	250 16.9 28.6	347 53.3 45.2	170 16.9 45.7	Procyon 245 18.3 N 5 15.3
05	104 37.5	212 30.1 26.6	265 17.8 29.2	2 55.7 45.2	185 19.2 45.7	
06	119 40.0	227 29.6 S25 27.0	280 18.8 S 7 29.8	17 58.0 N22 45.2	200 21.4 S22 45.7	Rasalhague 96 23.1 N12 34.1
07	134 42.4	242 29.1 27.5	295 19.7 30.5	33 00.4 45.2	215 23.7 45.7	Regulus 208 02.6 N12 01.1
08	149 44.9	257 28.6 27.9	310 20.6 31.1	48 02.8 45.2	230 26.0 45.7	Rigel 281 28.9 S 8 12.5
09	164 47.3	272 28.1 28.4	325 21.5 31.8	63 05.2 45.2	245 28.3 45.7	Rigil Kent. 140 17.0 S60 47.7
10	179 49.8	287 27.6 28.8	340 22.5 32.4	78 07.6 45.2	260 30.6 45.7	Sabik 102 33.2 S15 42.9
11	194 52.3	302 27.1 29.2	355 23.4 33.0	93 10.0 45.2	275 32.9 45.7	
12	209 54.7	317 26.6 S25 29.7	10 24.3 S 7 33.7	108 12.4 N22 45.2	290 35.2 S22 45.7	Schedar 350 00.6 N56 29.1
13	224 57.2	332 26.1 30.1	25 25.2 34.3	123 14.8 45.2	305 37.5 45.7	Shaula 96 46.3 S37 06.0
14	239 59.7	347 25.6 30.6	40 26.2 35.0	138 17.2 45.2	320 39.8 45.7	Sirius 258 49.3 S16 41.8
15	255 02.1	2 25.1 31.0	55 27.1 35.6	153 19.6 45.2	335 42.1 45.6	Spica 158 50.4 S11 06.5
16	270 04.6	17 24.6 31.4	70 28.0 36.2	168 22.0 45.2	350 44.4 45.6	Suhail 223 05.8 S43 23.1
17	285 07.1	32 24.0 31.9	85 28.9 36.9	183 24.4 45.2	5 46.7 45.6	
18	300 09.5	47 23.5 S25 32.3	100 29.8 S 7 37.5	198 26.8 N22 45.2	20 49.0 S22 45.6	Vega 80 51.2 N38 46.6
19	315 12.0	62 23.0 32.7	115 30.8 38.1	213 29.2 45.2	35 51.3 45.6	Zuben'ubi 137 25.5 S16 00.0
20	330 14.5	77 22.5 33.1	130 31.7 38.8	228 31.6 45.2	50 53.6 45.6	
21	345 16.9	92 22.0 33.6	145 32.6 39.4	243 34.0 45.2	65 55.9 45.6	
22	0 19.4	107 21.5 34.0	160 33.5 40.1	258 36.4 45.2	80 58.2 45.6	
23	15 21.8	122 21.0 34.4	175 34.5 40.7	273 38.8 45.2	96 00.4 45.6	
Pas. Mer. 22 02.6	v -0.5 d 0.5		v 0.9 d 0.6	v 2.4 d 0.0	v 2.3 d 0.0	
						A. H. S. Pos. Mer. h m
						Venus 109 18.8 14 50
						Marte 161 25.0 11 20
						Júpiter 258 20.4 4 52
						Saturno 80 46.5 16 41



T.M.G. (TU)	SOL		LUNA				Lat.	Crepúsculo		Orto Sol	Orto Luna						
	A.H.G.	Dec.	A.H.G.	v	Dec.	d		P.H.	Náut.		Civil	19	20	21	22		
												h m	h m	h m	h m		
JUEVES	19 00	183 44.2	S 9 53.5	304 48.8	3.5	N27 41.0	0.1	59.3	N 72	05 17	06 35	07 49	□	□	□	□	20 19
	01	198 44.3	54.4	319 11.3	3.6	27 41.1	0.0	59.2	N 70	05 18	06 29	07 34	□	□	□	□	21 20
	02	213 44.4	55.3	333 33.9	3.7	27 41.1	0.2	59.2	68	05 19	06 24	07 22	□	□	□	18 56	21 54
	03	228 44.5	56.2	347 56.6	3.7	27 40.9	0.4	59.1	66	05 20	06 19	07 13	□	□	□	20 09	22 18
	04	243 44.6	57.1	2 19.3	3.7	27 40.5	0.6	59.1	64	05 20	06 15	07 05	□	□	□	18 27	20 45
	05	258 44.8	58.0	16 42.0	3.8	27 39.9	0.8	59.1	62	05 20	06 12	06 58	17 25	19 19	21 10	22 37	22 53
	06	273 44.9	S 9 58.9	31 04.8	3.9	N27 39.1	1.0	59.0	60	05 20	06 09	06 52	18 16	19 51	21 30	23 06	23 06
	07	288 45.0	9 59.9	45 27.7	4.0	27 38.1	1.1	59.0	N 58	05 20	06 06	06 46	18 48	20 15	21 47	23 16	23 16
	08	303 45.1	10 00.8	59 50.7	4.0	27 37.0	1.4	58.9	56	05 20	06 03	06 41	19 11	20 34	22 01	23 26	23 26
	09	318 45.2	01.7	74 13.7	4.1	27 35.6	1.5	58.9	54	05 20	06 01	06 37	19 30	20 49	22 13	23 34	23 34
	10	333 45.3	02.6	88 36.8	4.2	27 34.1	1.7	58.9	52	05 20	05 59	06 33	19 46	21 03	22 23	23 42	23 42
	11	348 45.4	03.5	103 00.0	4.2	27 32.4	1.9	58.8	50	05 19	05 57	06 30	20 00	21 15	22 33	23 49	23 49
	12	3 45.6	S10 04.4	117 23.2	4.4	N27 30.5	2.1	58.8	45	05 18	05 52	06 22	20 29	21 40	22 52	24 03	24 03
	13	18 45.7	05.3	131 46.6	4.4	27 28.4	2.2	58.7	N 40	05 17	05 48	06 16	20 51	22 00	23 08	24 15	24 15
	14	33 45.8	06.2	146 10.0	4.5	27 26.2	2.5	58.7	35	05 15	05 44	06 10	21 10	22 16	23 22	24 25	24 25
	15	48 45.9	07.1	160 33.5	4.6	27 23.7	2.6	58.7	30	05 13	05 41	06 05	21 25	22 30	23 33	24 34	24 34
	16	63 46.0	08.0	174 57.1	4.6	27 21.1	2.8	58.6	20	05 08	05 34	05 56	21 52	22 54	23 53	24 49	24 49
	17	78 46.1	08.9	189 20.7	4.8	27 18.3	2.9	58.6	N 10	05 03	05 27	05 49	22 15	23 15	24 10	00 10	00 10
	18	93 46.2	S10 09.8	203 44.5	4.8	N27 15.4	3.1	58.5	0	04 56	05 20	05 41	22 37	23 34	24 26	00 26	00 26
	19	108 46.3	10.7	218 08.3	4.9	27 12.3	3.3	58.5	S 10	04 48	05 13	05 34	22 58	23 53	24 42	00 42	00 42
	20	123 46.5	11.6	232 32.2	5.1	27 09.0	3.5	58.5	20	04 37	05 04	05 26	23 21	24 14	00 14	00 59	00 59
	21	138 46.6	12.5	246 56.3	5.1	27 05.5	3.6	58.4	30	04 23	04 52	05 17	23 48	24 37	00 37	01 19	01 19
	22	153 46.7	13.4	261 20.4	5.2	27 01.9	3.9	58.4	35	04 14	04 45	05 11	24 04	00 04	00 51	01 30	01 30
23	168 46.8	14.3	275 44.6	5.3	26 58.0	3.9	58.3	40	04 03	04 37	05 05	24 22	00 22	01 07	01 43	01 43	
20 00	183 46.9	S10 15.2	290 08.9	5.4	N26 54.1	4.2	58.3	45	03 50	04 27	04 58	24 44	00 44	01 26	01 58	01 58	
01	198 47.0	16.1	304 33.3	5.5	26 49.9	4.3	58.3	S 50	03 33	04 15	04 49	00 18	01 12	01 50	02 17	02 17	
02	213 47.1	17.0	318 57.8	5.6	26 45.6	4.4	58.2	52	03 24	04 09	04 45	00 32	01 25	02 01	02 25	02 25	
03	228 47.2	17.9	333 22.4	5.8	26 41.2	4.7	58.2	54	03 15	04 03	04 41	00 49	01 41	02 14	02 35	02 35	
04	243 47.3	18.8	347 47.2	5.8	26 36.5	4.7	58.2	56	03 04	03 55	04 36	01 10	01 59	02 28	02 46	02 46	
05	258 47.4	19.7	2 12.0	5.9	26 31.8	5.0	58.1	58	02 51	03 47	04 30	01 36	02 22	02 46	02 58	02 58	
06	273 47.6	S10 20.5	16 36.9	6.0	N26 26.8	5.1	58.1	S 60	02 35	03 38	04 24	02 11	02 51	03 07	03 13	03 13	
07	288 47.7	21.4	31 01.9	6.2	26 21.7	5.2	58.0	Lat.	Ocaso Sol	Crepúsculo		Ocaso Luna					
08	303 47.8	22.3	45 27.1	6.2	26 16.5	5.4	58.0			Civil	Náut.	19	20	21	22		
09	318 47.9	23.2	59 52.3	6.4	26 11.1	5.6	58.0										
10	333 48.0	24.1	74 17.7	6.4	26 05.5	5.7	57.9										
11	348 48.1	25.0	88 43.1	6.6	25 59.8	5.9	57.9	N 72	15 39	16 52	18 11	□	□	□	□	18 06	
12	3 48.2	S10 25.9	103 08.7	6.7	N25 53.9	6.0	57.8	N 70	15 54	16 59	18 10	□	□	□	□	17 04	
13	18 48.3	26.8	117 34.4	6.8	25 47.9	6.1	57.8	68	16 06	17 04	18 09	□	□	□	17 46	16 28	
14	33 48.4	27.7	132 00.2	6.9	25 41.8	6.3	57.8	66	16 15	17 09	18 08	□	□	□	16 32	16 03	
15	48 48.5	28.6	146 26.1	7.1	25 35.5	6.4	57.7	64	16 24	17 13	18 08	□	□	□	15 55	15 43	
16	63 48.6	29.5	160 52.2	7.1	25 29.1	6.6	57.7	62	16 31	17 17	18 08	15 20	15 28	15 28	15 26	15 26	
17	78 48.7	30.4	175 18.3	7.3	25 22.5	6.7	57.6	60	16 37	17 20	18 08	14 29	14 56	15 07	15 12	15 12	
18	93 48.8	S10 31.3	189 44.6	7.4	N25 15.8	6.9	57.6	N 58	16 42	17 23	18 08	13 58	14 32	14 50	15 01	15 01	
19	108 48.9	32.2	204 11.0	7.5	25 08.9	7.0	57.6	56	16 47	17 25	18 08	13 34	14 13	14 36	14 50	14 50	
20	123 49.0	33.1	218 37.5	7.6	25 01.9	7.1	57.5	54	16 52	17 28	18 09	13 15	13 56	14 23	14 41	14 41	
21	138 49.1	34.0	233 04.1	7.7	24 54.8	7.2	57.5	52	16 55	17 30	18 09	12 58	13 42	14 12	14 33	14 33	
22	153 49.3	34.9	247 30.8	7.8	24 47.6	7.4	57.5	50	16 59	17 32	18 09	12 44	13 30	14 02	14 25	14 25	
23	168 49.4	35.8	261 57.6	8.0	24 40.2	7.5	57.4	45	17 07	17 37	18 11	12 15	13 05	13 41	14 10	14 10	
21 00	183 49.5	S10 36.7	276 24.6	8.1	N24 32.7	7.7	57.4	N 40	17 13	17 41	18 12	11 53	12 44	13 24	13 57	13 57	
01	198 49.6	37.5	290 51.7	8.2	24 25.0	7.7	57.3	35	17 19	17 45	18 14	11 34	12 27	13 10	13 45	13 45	
02	213 49.7	38.4	305 18.9	8.3	24 17.3	7.9	57.3	30	17 24	17 48	18 16	11 18	12 12	12 58	13 36	13 36	
03	228 49.8	39.3	319 46.2	8.5	24 09.4	8.1	57.3	20	17 33	17 55	18 21	10 51	11 47	12 36	13 19	13 19	
04	243 49.9	40.2	334 13.7	8.5	24 01.3	8.1	57.2	N 10	17 41	18 02	18 27	10 27	11 25	12 17	13 04	13 04	
05	258 50.0	41.1	348 41.2	8.7	23 53.2	8.3	57.2	0	17 48	18 09	18 34	10 05	11 05	12 00	12 50	12 50	
06	273 50.1	S10 42.0	3 08.9	8.8	N23 44.9	8.3	57.2	S 10	17 56	18 17	18 42	09 43	10 44	11 42	12 35	12 35	
07	288 50.2	42.9	17 36.7	8.9	23 36.6	8.5	57.1	20	18 04	18 26	18 53	09 19	10 22	11 23	12 20	12 20	
08	303 50.3	43.8	32 04.6	9.0	23 28.1	8.6	57.1	30	18 13	18 38	19 07	08 52	09 56	11 01	12 03	12 03	
09	318 50.4	44.7	46 32.6	9.2	23 19.5	8.8	57.1	35	18 19	18 45	19 16	08 35	09 41	10 48	11 52	11 52	
10	333 50.5	45.6	61 00.8	9.3	23 10.7	8.8	57.0	40	18 25	18 53	19 27	08 16	09 23	10 32	11 40	11 40	
11	348 50.6	46.4	75 29.1	9.4	23 01.9	8.9	57.0	45	18 32	19 03	19 41	07 53	09 02	10 14	11 26	11 26	
12	3 50.7	S10 47.3	89 57.5	9.5	N22 53.0	9.1	56.9	S 50	18 41	19 16	19 58	07 23	08 35	09 52	11 09	11 09	
13	18 50.8	48.2	104 26.0	9.6	22 43.9	9.2	56.9	52	18 46	19 22	20 07	07 09	08 21	09 41	11 01	11 01	
14	33 50.9	49.1	118 54.6	9.7	22 34.7	9.2	56.9	54	18 50	19 28	20 17	06 52	08 06	09 29	10 52	10 52	
15	48 51.0	50.0	133 23.3	9.9	22 25.5	9.4	56.8	56	18 55	19 36	20 28	06 31	07 48	09 14	10 42	10 42	
16	63 51.1	50.9	147 52.2	10.0	22 16.1	9.5	56.8										







T.M.G. (TU)	SOL		LUNA				Lat.	Crepúsculo		Orto Sol	Orto Luna									
	A.H.G.	Dec.	A.H.G.	v	Dec.	d		P.H.	Naut.		Civil	22	23	24	25					
												h m	h m	h m	h m	h m	h m	h m	h m	
DOMINGO	183	51.9	S10	58.0	263	47.2	10.9	N20	57.5	10.3	56.5	N 72	05 29	06 49	08 05	20 19	23 18	25 26	01 26	
	198	51.9		58.9	278	17.1	11.0		20	47.2	10.3	56.5	N 70	05 29	06 41	07 48	21 20	23 39	25 34	01 34
	213	52.0	10	59.8	292	47.1	11.1		20	36.9	10.4	56.5	68	05 29	06 34	07 34	21 54	23 55	25 41	01 41
	228	52.1	11	00.6	307	17.2	11.2		20	26.5	10.6	56.4	66	05 29	06 28	07 23	22 18	24 07	00 07	01 47
	243	52.2		01.5	321	47.4	11.3		20	15.9	10.6	56.4	64	05 28	06 24	07 14	22 37	24 18	00 18	01 51
	258	52.3		02.4	336	17.7	11.5		20	05.3	10.7	56.4	62	05 28	06 19	07 06	22 53	24 27	00 27	01 56
	273	52.4	S11	03.3	350	48.2	11.5	N19	54.6	10.7	56.3	60	05 27	06 16	06 59	23 06	24 35	00 35	01 59	
	288	52.5		04.2	5	18.7	11.7		19	43.9	10.9	56.3	N 58	05 27	06 12	06 53	23 16	24 41	00 41	02 02
	303	52.6		05.1	19	49.4	11.7		19	33.0	10.9	56.3	56	05 26	06 09	06 48	23 26	24 47	00 47	02 05
	318	52.7		05.9	34	20.1	11.9		19	22.1	11.0	56.2	54	05 25	06 06	06 43	23 34	24 53	00 53	02 07
	333	52.8		06.8	48	51.0	12.0		19	11.1	11.1	56.2	52	05 25	06 04	06 39	23 42	24 57	00 57	02 10
	348	52.9		07.7	63	22.0	12.1		19	00.0	11.2	56.2	50	05 24	06 01	06 35	23 49	25 02	01 02	02 12
	3	53.0	S11	08.6	77	53.1	12.1	N18	48.8	11.2	56.1	45	05 22	05 56	06 26	24 03	00 03	01 11	02 16	
	18	53.1		09.5	92	24.2	12.3		18	37.6	11.4	56.1	N 40	05 20	05 51	06 19	24 15	00 15	01 19	02 20
	33	53.2		10.4	106	55.5	12.4		18	26.2	11.3	56.1	35	05 17	05 47	06 13	24 25	00 25	01 25	02 23
	48	53.3		11.2	121	26.9	12.5		18	14.9	11.5	56.1	30	05 15	05 43	06 07	24 34	00 34	01 31	02 26
	63	53.3		12.1	135	58.4	12.6		18	03.4	11.5	56.0	20	05 09	05 35	05 58	24 49	00 49	01 41	02 31
	78	53.4		13.0	150	30.0	12.6		17	51.9	11.6	56.0	N 10	05 03	05 28	05 49	00 10	01 02	01 49	02 35
	93	53.5	S11	13.9	165	01.6	12.8	N17	40.3	11.7	56.0	0	04 55	05 20	05 41	00 26	01 14	01 58	02 39	
	108	53.6		14.8	179	33.4	12.9		17	28.6	11.7	55.9	S 10	04 46	05 11	05 33	00 42	01 26	02 06	02 43
	123	53.7		15.6	194	05.3	13.0		17	16.9	11.8	55.9	20	04 35	05 01	05 24	00 59	01 39	02 14	02 47
	138	53.8		16.5	208	37.3	13.0		17	05.1	11.9	55.9	30	04 20	04 49	05 14	01 19	01 53	02 24	02 52
	153	53.9		17.4	223	09.3	13.2		16	53.2	11.9	55.8	35	04 10	04 41	05 08	01 30	02 02	02 30	02 54
168	54.0		18.3	237	41.5	13.2		16	41.3	12.0	55.8	40	03 59	04 33	05 01	01 43	02 12	02 36	02 57	
183	54.1	S11	19.2	252	13.7	13.4	N16	29.3	12.0	55.8	45	03 44	04 22	04 53	01 58	02 23	02 43	03 01		
198	54.2		20.0	266	46.1	13.4		16	17.3	12.1	55.8	S 50	03 25	04 09	04 43	02 17	02 36	02 52	03 05	
213	54.2		20.9	281	18.5	13.5		16	05.2	12.2	55.7	52	03 16	04 02	04 39	02 25	02 43	02 56	03 07	
228	54.3		21.8	295	51.0	13.7		15	53.0	12.2	55.7	54	03 06	03 55	04 34	02 35	02 50	03 00	03 09	
243	54.4		22.7	310	23.7	13.7		15	40.8	12.3	55.7	56	02 54	03 47	04 28	02 46	02 57	03 05	03 12	
258	54.5		23.5	324	56.4	13.7		15	28.5	12.3	55.6	58	02 40	03 38	04 22	02 58	03 06	03 11	03 14	
273	54.6	S11	24.4	339	29.1	13.9	N15	16.2	12.4	55.6	S 60	02 22	03 28	04 15	03 13	03 16	03 17	03 17		
288	54.7		25.3	354	02.0	14.0		15	03.8	12.5	55.6									
303	54.8		26.2	8	35.0	14.0		14	51.3	12.4	55.6	Lat.	Ocaso Sol	Crepúsculo Civil	Ocaso Luna	22	23	24	25	
318	54.9		27.0	23	08.0	14.1		14	38.9	12.6	55.5	N 72	15 22	16 38	17 57	18 06	16 41	16 00	15 29	
333	54.9		27.9	37	41.1	14.2		14	26.3	12.6	55.5	N 70	15 40	16 46	17 57	17 04	16 18	15 49	15 25	
348	55.0		28.8	52	14.3	14.3		14	13.7	12.6	55.5	68	15 53	16 53	17 58	16 28	16 00	15 40	15 23	
3	55.1	S11	29.7	66	47.6	14.4	N14	01.1	12.7	55.5	66	16 04	16 59	17 58	16 03	15 46	15 32	15 21		
18	55.2		30.5	81	21.0	14.4		13	48.4	12.7	55.4	64	16 14	17 04	17 59	15 43	15 34	15 26	15 19	
33	55.3		31.4	95	54.4	14.5		13	35.7	12.8	55.4	62	16 22	17 08	18 00	15 26	15 23	15 20	15 17	
48	55.4		32.3	110	27.9	14.6		13	22.9	12.8	55.4	60	16 29	17 12	18 00	15 12	15 15	15 15	15 16	
63	55.5		33.2	125	01.5	14.7		13	10.1	12.9	55.4	N 58	16 35	17 15	18 01	15 01	15 07	15 11	15 14	
78	55.5		34.0	139	35.2	14.7		12	57.2	12.9	55.3	56	16 40	17 18	18 02	14 50	15 00	15 07	15 13	
93	55.6	S11	34.9	154	08.9	14.8	N12	44.3	12.9	55.3	54	16 45	17 21	18 02	14 41	14 54	15 04	15 12		
108	55.7		35.8	168	42.7	14.9		12	31.4	13.0	55.3	52	16 49	17 24	18 03	14 33	14 48	15 00	15 11	
123	55.8		36.7	183	16.6	14.9		12	18.4	13.0	55.3	50	16 53	17 26	18 04	14 25	14 43	14 58	15 10	
138	55.9		37.5	197	50.5	15.0		12	05.4	13.1	55.2	45	17 02	17 32	18 06	14 10	14 32	14 51	15 08	
153	55.9		38.4	212	24.5	15.1		11	52.3	13.1	55.2	N 40	17 09	17 37	18 08	13 57	14 23	14 46	15 07	
168	56.0		39.3	226	58.6	15.2		11	39.2	13.1	55.2	35	17 16	17 41	18 11	13 45	14 15	14 41	15 05	
183	56.1	S11	40.2	241	32.8	15.2	N11	26.1	13.2	55.2	30	17 21	17 45	18 13	13 36	14 08	14 37	15 04		
198	56.2		41.0	256	07.0	15.3		11	12.9	13.2	55.2	20	17 31	17 53	18 19	13 19	13 56	14 30	15 02	
213	56.3		41.9	270	41.3	15.3		10	59.7	13.2	55.1	N 10	17 39	18 01	18 26	13 04	13 45	14 24	15 00	
228	56.4		42.8	285	15.6	15.4		10	46.5	13.3	55.1	0	17 48	18 09	18 33	12 50	13 35	14 18	14 58	
243	56.4		43.6	299	50.0	15.5		10	33.2	13.3	55.1	S 10	17 56	18 18	18 43	12 35	13 25	14 12	14 56	
258	56.5		44.5	314	24.5	15.5		10	19.9	13.3	55.1	20	18 05	18 28	18 54	12 20	13 14	14 05	14 54	
273	56.6	S11	45.4	328	59.0	15.6	N10	06.6	13.3	55.0	30	18 15	18 40	19 10	12 03	13 02	13 58	14 52		
288	56.7		46.2	343	33.6	15.6		9	53.3	13.4	55.0	35	18 22	18 48	19 19	11 52	12 54	13 53	14 50	
303	56.8		47.1	358	08.2	15.7		9	39.9	13.4	55.0	40	18 28	18 57	19 31	11 40	12 46	13 48	14 49	
318	56.8		48.0	12	42.9	15.8		9	26.5	13.5	55.0	45	18 37	19 08	19 46	11 26	12 36	13 43	14 47	
333	56.9		48.9	27	17.7	15.8		8	59.5	13.5	54.9	S 50	18 46	19 21	20 05	11 09	12 24	13 36	14 45	
348	57.0		49.7	41	52.5	15.8		8	46.0	13.5	54.9	52	18 51	19 28	20 14	11 01	12 18	13 32	14 44	
3	57.1	S11	50.6	56	27.3	15.9	N 8	46.0	13.5	54.9	54	18 56	19 35	20 25	10 52	12 12	13 29	14 43		
18	57.1		51.5	71	02.2	16.0		8	32.5	13.5	54.9	56	19 02	19 43	20 37	10 42	12 05	13 25	14 41	
33	57.2		52.3	85	37.2	16.0		8	19.0	13.6	54.9	58	19 08	19 52	20 52	10 30	11 58	13 21	14 40	
48	57.3		53.2	100	12.2	16.0		7	51.8	13.6	54.8	S 60	19 15	20 03	21 10	10 16	11 49	13 16	14 39	
63	57.4		54.1	114	47.2	16.1		7	38.2	13.6	54.8									
78	57.4		54.9	129	22.3	16.2		7	24.6	13.6	54.8									
93	57.5	S11	55.8	143	57.5	16.2	N 7	24.6	13.6	54.8										



T.M.G. (TU)		ARIES			VENUS -4.3			MARTE +1.7			JUPITER -2.5			SATURNO +0.6			ESTRELLAS									
d	h	A.H.G.		Dec.	A.H.G.		Dec.	A.H.G.		Dec.	A.H.G.		Dec.	A.H.G.		Dec.	Nombre	A. H. S.	Dec.							
M I E R C O L E S	25	00	33	21.7	136	44.2	S26	02.6	191	41.4	S 8	27.0	291	35.0	N22	45.2	113	47.4	S22	45.2	Acamar	315	31.3	S40	20.5	
	01	48	24.2	151	43.7	02.9	206	42.3	27.6	221	43.2	28.3	306	37.5	45.2	128	49.7	45.2	Achernar	335	39.1	S57	17.2			
	02	63	26.7	166	43.2	03.3	221	43.2	28.3	321	39.9	45.2	143	52.0	45.1	173	30.2	S63	02.5	Acruz	173	30.2	S63	02.5		
	03	78	29.1	181	42.7	03.6	236	44.1	28.9	336	42.3	45.2	158	54.3	45.1	255	26.4	S28	57.1	Adhara	255	26.4	S28	57.1		
	04	93	31.6	196	42.2	04.0	251	45.0	29.5	351	44.7	45.2	173	56.6	45.1	291	09.5	N16	29.6	Aldebaran	291	09.5	N16	29.6		
	05	108	34.0	211	41.7	04.3	266	46.0	30.2	6	47.2	45.2	188	58.8	45.1											
	06	123	36.5	226	41.2	S26	04.7	281	46.9	S 8	30.8	21	49.6	N22	45.2	204	01.1	S22	45.1	Alioth	166	36.5	N56	00.8		
	07	138	39.0	241	40.7	05.0	296	47.8	31.4	36	52.0	45.2	219	03.4	45.1	219	03.4	45.1	Alkaid	153	13.2	N49	21.8			
	08	153	41.4	256	40.2	05.3	311	48.7	32.1	51	54.5	45.2	234	05.7	45.1	51	54.5	45.2	Al Na'ir	28	05.6	S47	00.8			
	09	168	43.9	271	39.7	05.7	326	49.6	32.7	66	56.9	45.2	249	08.0	45.1	66	56.9	45.2	Alnilam	276	04.2	S 1	12.2			
	10	183	46.4	286	39.2	06.0	341	50.5	33.3	81	59.3	45.2	264	10.2	45.1	81	59.3	45.2	Alphard	218	13.7	S 8	36.7			
	11	198	48.8	301	38.7	06.3	356	51.4	33.9	97	01.8	45.2	279	12.5	45.1	97	01.8	45.2								
	12	213	51.3	316	38.2	S26	06.7	11	52.3	S 8	34.6	112	04.2	N22	45.2	294	14.8	S22	45.1	Alphecca	126	26.3	N26	44.9		
	13	228	53.8	331	37.7	07.0	26	53.2	35.2	127	06.6	45.2	309	17.1	45.1	127	06.6	45.2	Alpheratz	358	01.7	N29	02.3			
	14	243	56.2	346	37.2	07.3	41	54.1	35.8	142	09.1	45.2	324	19.4	45.1	41	54.1	45.2	Altair	62	25.6	N 8	50.5			
	15	258	58.7	1	36.7	07.7	56	55.1	36.5	157	11.5	45.2	339	21.6	45.1	56	55.1	45.2	Ankaa	353	32.6	S42	21.6			
	16	274	01.2	16	36.2	08.0	71	56.0	37.1	172	13.9	45.2	354	23.9	45.1	71	56.0	45.2	Antares	112	48.4	S26	24.7			
	17	289	03.6	31	35.7	08.3	86	56.9	37.7	187	16.4	45.2	9	26.2	45.0	86	56.9	45.2								
	18	304	06.1	46	35.2	S26	08.6	101	57.8	S 8	38.4	202	18.8	N22	45.2	24	28.5	S22	45.0	Arcturus	146	12.2	N19	14.1		
	19	319	08.5	61	34.7	09.0	116	58.7	39.0	217	21.2	45.2	39	30.8	45.0	116	58.7	45.2	Atria	108	06.8	S69	00.9			
	20	334	11.0	76	34.2	09.3	131	59.6	39.6	232	23.7	45.2	54	33.0	45.0	131	59.6	45.2	Avior	234	25.5	S59	28.2			
	21	349	13.5	91	33.7	09.6	147	00.5	40.2	247	26.1	45.2	69	35.3	45.0	147	00.5	45.2	Bellatrix	278	50.9	N 6	20.7			
	22	4	15.9	106	33.2	09.9	162	01.4	40.9	262	28.5	45.2	84	37.6	45.0	162	01.4	45.2	Betelgeuse	271	20.3	N 7	24.6			
23	19	18.4	121	32.7	10.3	177	02.3	41.5	277	31.0	45.2	99	39.9	45.0	177	02.3	45.2									
J U E V E S	26	00	34	20.9	136	32.2	S26	10.6	192	03.2	S 8	42.1	292	33.4	N22	45.2	114	42.1	S22	45.0	Canopus	264	03.8	S52	41.0	
	01	49	23.3	151	31.7	10.9	207	04.1	42.8	307	35.8	45.2	129	44.4	45.0	207	04.1	42.8	Capella	281	00.4	N45	59.4			
	02	64	25.8	166	31.2	11.2	222	05.1	43.4	322	38.3	45.2	144	46.7	45.0	222	05.1	43.4	Deneb	49	43.7	N45	14.9			
	03	79	28.3	181	30.7	11.5	237	06.0	44.0	337	40.7	45.2	159	49.0	45.0	237	06.0	44.0	Denebola	182	52.0	N14	37.7			
	04	94	30.7	196	30.2	11.9	252	06.9	44.7	352	43.2	45.2	174	51.3	45.0	252	06.9	44.7	Diphda	349	13.3	S18	02.4			
	05	109	33.2	211	29.7	12.2	267	07.8	45.3	7	45.6	45.2	189	53.5	45.0	267	07.8	45.3								
	06	124	35.7	226	29.2	S26	12.5	282	08.7	S 8	45.9	22	48.0	N22	45.2	204	55.8	S22	45.0	Dubhe	194	13.5	N61	48.2		
	07	139	38.1	241	28.7	12.8	297	09.6	46.5	37	50.5	45.2	219	58.1	45.0	297	09.6	46.5	Elnath	278	34.9	N28	36.1			
	08	154	40.6	256	28.2	13.1	312	10.5	47.2	52	52.9	45.2	235	00.4	44.9	312	10.5	47.2	Eltanin	90	54.7	N51	29.5			
	09	169	43.0	271	27.7	13.4	327	11.4	47.8	67	55.3	45.2	250	02.6	44.9	327	11.4	47.8	Enif	34	04.5	N 9	49.8			
	10	184	45.5	286	27.2	13.7	342	12.3	48.4	82	57.8	45.2	265	04.9	44.9	342	12.3	48.4	Fomalhaut	15	43.2	S29	40.6			
	11	199	48.0	301	26.7	14.0	357	13.2	49.1	98	00.2	45.2	280	07.2	44.9	357	13.2	49.1								
	12	214	50.4	316	26.2	S26	14.3	12	14.1	S 8	49.7	113	02.7	N22	45.2	295	09.5	S22	44.9	Gacrux	172	21.6	S57	03.3		
	13	229	52.9	331	25.8	14.6	27	15.0	50.3	128	05.1	45.2	310	11.8	44.9	27	15.0	50.3	Gienah	176	11.0	S17	29.0			
	14	244	55.4	346	25.3	14.9	42	15.9	50.9	143	07.6	45.2	325	14.0	44.9	42	15.9	50.9	Hadar	149	14.2	S60	19.5			
	15	259	57.8	1	24.8	15.2	57	16.9	51.6	158	10.0	45.2	340	16.3	44.9	57	16.9	51.6	Hamal	328	20.6	N23	25.1			
	16	275	00.3	16	24.3	15.6	72	17.8	52.2	173	12.4	45.2	355	18.6	44.9	72	17.8	52.2	Kaus Aust.	84	07.6	S34	23.6			
	17	290	02.8	31	23.8	15.9	87	18.7	52.8	188	14.9	45.2	10	20.9	44.9	87	18.7	52.8								
	18	305	05.2	46	23.3	S26	16.2	102	19.6	S 8	53.4	203	17.3	N22	45.2	25	23.1	S22	44.9	Kochab	137	19.9	N74	11.8		
	19	320	07.7	61	22.8	16.5	117	20.5	54.1	218	19.8	45.2	40	25.4	44.9	117	20.5	54.1	Markab	13	55.9	N15	09.2			
	20	335	10.1	76	22.3	16.7	132	21.4	54.7	233	22.2	45.2	55	27.7	44.9	132	21.4	54.7	Menkar	314	33.3	N 4	03.3			
	21	350	12.6	91	21.8	17.0	147	22.3	55.3	248	24.7	45.2	70	30.0	44.9	147	22.3	55.3	Menkent	148	29.1	S36	19.2			
	22	5	15.1	106	21.3	17.3	162	23.2	56.0	263	27.1	45.2	85	32.2	44.8	162	23.2	56.0	Miaplacidus	221	44.0	S69	40.1			
23	20	17.5	121	20.8	17.6	177	24.1	56.6	278	29.5	45.2	100	34.5	44.8	177	24.1	56.6									
V I E R N E S	27	00	35	20.0	136	20.3	S26	17.9	192	25.0	S 8	57.2	293	32.0	N22	45.2	115	36.8	S22	44.8	Mirfak	309	05.5	N49	49.7	
	01	50	22.5	151	19.8	18.2	207	25.9	57.8	308	34.4	45.2	130	39.1	44.8	207	25.9	57.8	Nunki	76	20.4	S26	18.7			
	02	65	24.9	166	19.3	18.5	222	26.8	58.5	323	36.9	45.2	145	41.3	44.8	222	26.8	58.5	Peacock	53	47.0	S56	46.4			
	03	80	27.4	181	18.8	18.8	237	27.7	59.1	338	39.3	45.2	160	43.6	44.8	237	27.7	59.1	Pollux	243	49.3	N28	03.1			
	04	95	29.9	196	18.3	19.1	252	28.6	59.7	353	41.8	45.2	175	45.9	44.8	252	28.6	59.7	Procyon	245	18.2	N 5	15.3			
	05	110	32.3	211	17.9	19.4	267	29.5	60.3	8																



T.M.G. (TU)	SOL		LUNA				Lat.	Crepúsculo		Orto Sol	Orto Luna						
	A.H.G.	Dec.	A.H.G.	v	Dec.	d		P.H.	Náut.		Civil	25	26	27	28		
												h m	h m	h m	h m		
M I E R C O L E S	25 00	183 58.0	S12 01.0	231 29.2	16.5	N 6	02.5	13.8	54.7	N 72	05 42	07 02	08 21	01 26	03 23	05 19	07 25
	01	198 58.0	01.8	246 04.7	16.4	5	48.7	13.7	54.7	N 70	05 40	06 52	08 01	01 34	03 22	05 10	07 03
	02	213 58.1	02.7	260 40.1	16.5	5	35.0	13.8	54.7	68	05 39	06 45	07 46	01 41	03 22	05 02	06 46
	03	228 58.2	03.6	275 15.6	16.6	5	21.2	13.8	54.6	66	05 38	06 38	07 34	01 47	03 22	04 56	06 32
	04	243 58.3	04.4	289 51.2	16.6	5	07.4	13.8	54.6	64	05 36	06 32	07 23	01 51	03 21	04 50	06 21
	05	258 58.3	05.3	304 26.8	16.6	4	53.6	13.8	54.6	62	05 35	06 27	07 14	01 56	03 21	04 46	06 12
	06	273 58.4	06.2	319 02.4	16.6	N 4	39.8	13.8	54.6	60	05 34	06 23	07 07	01 59	03 21	04 42	06 04
	07	288 58.5	07.0	333 38.0	16.7	4	26.0	13.8	54.6	N 58	05 33	06 19	07 00	02 02	03 21	04 38	05 57
	08	303 58.6	07.9	348 13.7	16.6	4	12.2	13.9	54.6	56	05 32	06 15	06 54	02 05	03 20	04 35	05 51
	09	318 58.6	08.7	2 49.3	16.8	3	58.3	13.8	54.5	54	05 31	06 12	06 49	02 07	03 20	04 32	05 45
	10	333 58.7	09.6	17 25.1	16.7	3	44.5	13.8	54.5	52	05 29	06 09	06 44	02 10	03 20	04 30	05 40
	11	348 58.8	10.5	32 00.8	16.8	3	30.7	13.9	54.5	50	05 28	06 06	06 40	02 12	03 20	04 28	05 36
	12	3 58.8	S12 11.3	46 36.6	16.8	N 3	16.8	13.8	54.5	45	05 26	06 00	06 30	02 16	03 20	04 23	05 26
	13	18 58.9	12.2	61 12.4	16.8	3	03.0	13.9	54.5	N 40	05 23	05 54	06 22	02 20	03 20	04 19	05 18
	14	33 59.0	13.0	75 48.2	16.8	2	49.1	13.9	54.5	35	05 20	05 49	06 15	02 23	03 19	04 15	05 11
	15	48 59.0	13.9	90 24.0	16.9	2	35.2	13.8	54.5	30	05 17	05 45	06 09	02 26	03 19	04 12	05 05
	16	63 59.1	14.8	104 59.9	16.9	2	21.4	13.9	54.4	20	05 10	05 36	05 59	02 31	03 19	04 07	04 55
	17	78 59.2	15.6	119 35.8	16.9	2	07.5	13.9	54.4	N 10	05 03	05 28	05 49	02 35	03 19	04 02	04 46
	18	93 59.2	S12 16.5	134 11.7	16.9	N 1	53.6	13.9	54.4	0	04 55	05 19	05 41	02 39	03 18	03 58	04 38
	19	108 59.3	17.3	148 47.6	16.9	1	39.7	13.8	54.4	S 10	04 45	05 10	05 32	02 43	03 18	03 54	04 30
	20	123 59.4	18.2	163 23.5	17.0	1	25.9	13.9	54.4	20	04 33	04 59	05 22	02 47	03 18	03 49	04 21
	21	138 59.5	19.0	177 59.5	17.0	1	12.0	13.9	54.4	30	04 16	04 46	05 11	02 52	03 18	03 44	04 11
	22	153 59.5	19.9	192 35.5	16.9	0	58.1	13.8	54.4	35	04 06	04 38	05 04	02 54	03 18	03 41	04 05
23	168 59.6	20.8	207 11.4	17.0	0	44.3	13.9	54.3	40	03 54	04 28	04 57	02 57	03 18	03 38	03 59	
J U E V E S	26 00	183 59.7	S12 21.6	221 47.4	17.0	N 0	30.4	13.9	54.3	S 50	03 18	04 02	04 38	03 05	03 17	03 30	03 43
	01	198 59.7	22.5	236 23.4	17.0	0	16.5	13.8	54.3	52	03 09	03 56	04 33	03 07	03 17	03 28	03 39
	02	213 59.8	23.3	250 59.4	17.1	N 0	02.7	13.9	54.3	54	02 57	03 48	04 27	03 09	03 17	03 25	03 34
	03	228 59.8	24.2	265 35.5	17.0	S 0	11.2	13.8	54.3	56	02 44	03 39	04 21	03 12	03 17	03 23	03 29
	04	243 59.9	25.0	280 11.5	17.0	0	25.0	13.9	54.3	58	02 28	03 29	04 15	03 14	03 17	03 20	03 24
	05	259 00.0	25.9	294 47.5	17.1	0	38.9	13.8	54.3	S 60	02 09	03 18	04 07	03 17	03 17	03 17	03 18
	06	274 00.0	S12 26.7	309 23.6	17.0	S 0	52.7	13.8	54.3	Lat.	Ocaso Sol	Crepúsculo		Ocaso Luna			
	07	289 00.1	27.6	323 59.6	17.1	1	06.5	13.9	54.3	Civil	Náut.	25	26	27	28		
	08	304 00.2	28.5	338 35.7	17.0	1	20.4	13.8	54.2	h m	h m	h m	h m	h m	h m	h m	
	09	319 00.2	29.3	353 11.7	17.1	1	34.2	13.8	54.2	N 72	15 05	16 24	17 44	15 29	14 59	14 28	13 47
	10	334 00.3	30.2	7 47.8	17.1	1	48.0	13.8	54.2	N 70	15 25	16 34	17 46	15 25	15 03	14 40	14 11
	11	349 00.4	31.0	22 23.9	17.0	2	01.8	13.7	54.2	68	15 41	16 42	17 47	15 23	15 06	14 49	14 29
	12	4 00.4	S12 31.9	36 59.9	17.1	S 2	15.5	13.8	54.2	66	15 53	16 49	17 49	15 21	15 09	14 58	14 44
	13	19 00.5	32.7	51 36.0	17.0	2	29.3	13.7	54.2	64	16 04	16 55	17 50	15 19	15 12	15 04	14 57
	14	34 00.5	33.6	66 12.0	17.1	2	43.0	13.8	54.2	62	16 13	17 00	17 52	15 17	15 14	15 10	15 07
	15	49 00.6	34.4	80 48.1	17.0	2	56.8	13.7	54.2	60	16 20	17 04	17 53	15 16	15 16	15 16	15 16
	16	64 00.7	35.3	95 24.1	17.1	3	10.5	13.7	54.2	N 58	16 27	17 08	17 54	15 14	15 17	15 20	15 24
	17	79 00.7	36.1	110 00.2	17.0	3	24.2	13.7	54.2	56	16 33	17 12	17 55	15 13	15 19	15 25	15 31
	18	94 00.8	S12 37.0	124 36.2	17.1	S 3	37.9	13.7	54.1	54	16 38	17 15	17 56	15 12	15 20	15 28	15 38
	19	109 00.8	37.8	139 12.3	17.0	3	51.6	13.6	54.1	52	16 43	17 18	17 58	15 11	15 21	15 32	15 44
	20	124 00.9	38.7	153 48.3	17.0	4	05.2	13.7	54.1	50	16 48	17 21	17 59	15 10	15 22	15 35	15 49
	21	139 01.0	39.5	168 24.3	17.0	4	18.9	13.6	54.1	45	16 57	17 27	18 02	15 08	15 25	15 42	16 00
	22	154 01.0	40.4	183 00.3	17.0	4	32.5	13.6	54.1	N 40	17 05	17 33	18 05	15 07	15 27	15 47	16 09
23	169 01.1	41.2	197 36.3	17.0	4	46.1	13.6	54.1	35	17 12	17 38	18 08	15 05	15 29	15 52	16 17	
V I E R N E S	27 00	184 01.1	S12 42.1	212 12.3	16.9	S 4	59.7	13.5	54.1	30	17 18	17 43	18 11	15 04	15 30	15 57	16 24
	01	199 01.2	42.9	226 48.2	17.0	5	13.2	13.6	54.1	20	17 29	17 51	18 17	15 02	15 33	16 04	16 37
	02	214 01.3	43.8	241 24.2	16.9	5	26.8	13.5	54.1	N 10	17 38	18 00	18 25	15 00	15 35	16 11	16 48
	03	229 01.3	44.6	256 00.1	17.0	5	40.3	13.5	54.1	0	17 47	18 09	18 33	14 58	15 37	16 17	16 58
	04	244 01.4	45.5	270 36.1	16.9	5	53.8	13.5	54.1	S 10	17 56	18 18	18 43	14 56	15 40	16 23	17 08
	05	259 01.4	46.3	285 12.0	16.9	6	07.3	13.4	54.1	20	18 06	18 29	18 56	14 54	15 42	16 30	17 19
	06	274 01.5	S12 47.1	299 47.9	16.8	S 6	20.7	13.4	54.1	30	18 18	18 43	19 12	14 52	15 45	16 38	17 32
	07	289 01.5	48.0	314 23.7	16.9	6	34.1	13.4	54.0	35	18 24	18 51	19 23	14 50	15 46	16 42	17 39
	08	304 01.6	48.8	328 59.6	16.8	6	47.5	13.4	54.0	40	18 32	19 01	19 35	14 49	15 48	16 47	17 47
	09	319 01.7	49.7	343 35.4	16.8	7	00.9	13.3	54.0	45	18 41	19 12	19 51	14 47	15 50	16 53	17 57
	10	334 01.7	50.5	358 11.2	16.8	7	14.2	13.4	54.0	S 50	18 51	19 27	20 11	14 45	15 53	17 00	18 09
	11	349 01.8	51.4	12 47.0	16.8	7	27.6	13.2	54.0	52	18 56	19 34	20 21	14 44	15 54	17 04	18 15
	12	4 01.8	S12 52.2	27 22.8	16.7	S 7	40.8	13.3	54.0	54	19 02	19 42	20 33	14 43	15 55	17 07	18 21
	13	19 01.9	53.1	41 58.5	16.7	7	54.1	13.2	54.0	56	19 08	19 50	20 46	14 41	15 56	17 11	18 28
	14	34 01.9	53.9	56 34.2	16.7	8	07.3	13.2	54.0	58	19 15	20 00	21 02	14 40	15 58	17 16	18 35
	15	49 02.0	54.7	71 09.9	16.7	8	20.5	13.2	54.0	S 60	19 23	20 12	21 22	14 39	16 00	17 21	18 44
	16	64 02.0	55.6	85 45.6	16.6	8	33.7	13.1	54.0	Día	SOL E.T. (+)						



T.M.G. (TU)	ARIES	VENUS -4.3	MARTE +1.7	JUPITER -2.5	SATURNO +0.6	ESTRELLAS		
d h	A.H.G.	A.H.G. Dec.	A.H.G. Dec.	A.H.G. Dec.	A.H.G. Dec.	Nombre	A. H. S.	Dec.
28 00	36 19.1	136 08.6 S26 24.6	192 46.7 S 9 12.2	294 30.8 N22 45.3	116 31.3 S22 44.7	Acamar	315 31.3	S40 20.5
01	51 21.6	151 08.1 24.9	207 47.6 12.9	309 33.3 45.3	131 33.6 44.6	Achernar	335 39.1	S57 17.2
02	66 24.1	166 07.6 25.2	222 48.5 13.5	324 35.7 45.3	146 35.9 44.6	Acrux	173 30.2	S63 02.4
03	81 26.5	181 07.1 25.4	237 49.4 14.1	339 38.2 45.3	161 38.2 44.6	Adhara	255 26.4	S28 57.1
04	96 29.0	196 06.6 25.7	252 50.3 14.7	354 40.6 45.3	176 40.4 44.6	Aldebaran	291 09.5	N16 29.6
05	111 31.5	211 06.1 25.9	267 51.2 15.4	9 43.1 45.3	191 42.7 44.6			
06	126 33.9	226 05.6 S26 26.2	282 52.1 S 9 16.0	24 45.5 N22 45.3	206 45.0 S22 44.6	Alioth	166 36.5	N56 00.8
07	141 36.4	241 05.2 26.5	297 53.0 16.6	39 48.0 45.3	221 47.2 44.6	Alkaid	153 13.1	N49 21.7
08	156 38.9	256 04.7 26.7	312 53.9 17.2	54 50.5 45.3	236 49.5 44.6	Al Na'ir	28 05.6	S47 00.8
S 09	171 41.3	271 04.2 27.0	327 54.8 17.9	69 52.9 45.3	251 51.8 44.6	Alnilam	276 04.2	S 1 12.2
A 10	186 43.8	286 03.7 27.2	342 55.7 18.5	84 55.4 45.3	266 54.0 44.6	Alphard	218 13.6	S 8 36.7
B 11	201 46.2	301 03.2 27.5	357 56.6 19.1	99 57.8 45.3	281 56.3 44.6			
A 12	216 48.7	316 02.7 S26 27.7	12 57.5 S 9 19.7	115 00.3 N22 45.3	296 58.6 S22 44.6	Alphecca	126 26.4	N26 44.9
D 13	231 51.2	331 02.2 28.0	27 58.4 20.4	130 02.7 45.3	312 00.9 44.6	Alpheratz	358 01.7	N29 02.3
O 14	246 53.6	346 01.8 28.2	42 59.3 21.0	145 05.2 45.3	327 03.1 44.6	Altair	62 25.6	N 8 50.5
15	261 56.1	1 01.3 28.5	58 00.2 21.6	160 07.7 45.3	342 05.4 44.5	Ankaa	353 32.6	S42 21.6
16	276 58.6	16 00.8 28.7	73 01.1 22.2	175 10.1 45.3	357 07.7 44.5	Antares	112 48.4	S26 24.7
17	292 01.0	31 00.3 29.0	88 02.0 22.9	190 12.6 45.3	12 09.9 44.5			
18	307 03.5	45 59.8 S26 29.2	103 02.9 S 9 23.5	205 15.0 N22 45.3	27 12.2 S22 44.5	Arcturus	146 12.2	N19 14.1
19	322 06.0	60 59.3 29.5	118 03.8 24.1	220 17.5 45.3	42 14.5 44.5	Atria	108 06.8	S69 00.9
20	337 08.4	75 58.9 29.7	133 04.7 24.7	235 20.0 45.3	57 16.7 44.5	Avior	234 25.4	S59 28.2
21	352 10.9	90 58.4 30.0	148 05.6 25.3	250 22.4 45.3	72 19.0 44.5	Bellatrix	278 50.8	N 6 20.7
22	7 13.4	105 57.9 30.2	163 06.5 26.0	265 24.9 45.3	87 21.3 44.5	Betelgeuse	271 20.3	N 7 24.5
23	22 15.8	120 57.4 30.5	178 07.4 26.6	280 27.4 45.3	102 23.5 44.5			
29 00	37 18.3	135 56.9 S26 30.7	193 08.3 S 9 27.2	295 29.8 N22 45.3	117 25.8 S22 44.5	Canopus	264 03.8	S52 41.0
01	52 20.7	150 56.5 30.9	208 09.2 27.8	310 32.3 45.3	132 28.1 44.5	Capella	281 00.4	N45 59.4
02	67 23.2	165 56.0 31.2	223 10.1 28.5	325 34.8 45.3	147 30.3 44.5	Deneb	49 43.7	N45 14.9
03	82 25.7	180 55.5 31.4	238 11.0 29.1	340 37.2 45.3	162 32.6 44.5	Denebola	182 52.0	N14 37.7
04	97 28.1	195 55.0 31.6	253 11.9 29.7	355 39.7 45.3	177 34.9 44.4	Diphda	349 13.3	S18 02.4
05	112 30.6	210 54.5 31.9	268 12.8 30.3	10 42.1 45.3	192 37.1 44.4			
06	127 33.1	225 54.1 S26 32.1	283 13.7 S 9 30.9	25 44.6 N22 45.4	207 39.4 S22 44.4	Dubhe	194 13.4	N61 48.2
07	142 35.5	240 53.6 32.3	298 14.6 31.6	40 47.1 45.4	222 41.7 44.4	Elnath	278 34.8	N28 36.1
08	157 38.0	255 53.1 32.6	313 15.5 32.2	55 49.5 45.4	237 43.9 44.4	Eltanin	90 54.7	N51 29.5
09	172 40.5	270 52.6 32.8	328 16.4 32.8	70 52.0 45.4	252 46.2 44.4	Enif	34 04.5	N 9 49.8
10	187 42.9	285 52.1 33.0	343 17.3 33.4	85 54.5 45.4	267 48.5 44.4	Fomalhaut	15 43.2	S29 40.6
11	202 45.4	300 51.7 33.3	358 18.2 34.1	100 56.9 45.4	282 50.7 44.4			
12	217 47.9	315 51.2 S26 33.5	13 19.0 S 9 34.7	115 59.4 N22 45.4	297 53.0 S22 44.4	Gacrux	172 21.6	S57 03.3
13	232 50.3	330 50.7 33.7	28 19.9 35.3	131 01.9 45.4	312 55.3 44.4	Gienah	176 11.0	S17 29.0
14	247 52.8	345 50.2 33.9	43 20.8 35.9	146 04.4 45.4	327 57.5 44.4	Hadar	149 14.2	S60 19.5
15	262 55.2	0 49.8 34.2	58 21.7 36.5	161 06.8 45.4	342 59.8 44.4	Hamal	328 20.6	N23 25.1
16	277 57.7	15 49.3 34.4	73 22.6 37.2	176 09.3 45.4	358 02.1 44.3	Kaus Aust.	84 07.6	S34 23.6
17	293 00.2	30 48.8 34.6	88 23.5 37.8	191 11.8 45.4	13 04.3 44.3			
18	308 02.6	45 48.3 S26 34.8	103 24.4 S 9 38.4	206 14.2 N22 45.4	28 06.6 S22 44.3	Kochab	137 20.0	N74 11.7
19	323 05.1	60 47.8 35.0	118 25.3 39.0	221 16.7 45.4	43 08.9 44.3	Markab	13 55.9	N15 09.2
20	338 07.6	75 47.4 35.3	133 26.2 39.6	236 19.2 45.4	58 11.1 44.3	Menkar	314 33.3	N 4 03.2
21	353 10.0	90 46.9 35.5	148 27.1 40.3	251 21.6 45.4	73 13.4 44.3	Menkent	148 29.1	S36 19.2
22	8 12.5	105 46.4 35.7	163 28.0 40.9	266 24.1 45.4	88 15.7 44.3	Miaplacidus	221 44.0	S69 40.1
23	23 15.0	120 46.0 35.9	178 28.9 41.5	281 26.6 45.4	103 17.9 44.3			
30 00	38 17.4	135 45.5 S26 36.1	193 29.8 S 9 42.1	296 29.1 N22 45.4	118 20.2 S22 44.3	Mirfak	309 05.5	N49 49.7
01	53 19.9	150 45.0 36.3	208 30.7 42.7	311 31.5 45.4	133 22.5 44.3	Nunki	76 20.5	S26 18.7
02	68 22.4	165 44.5 36.5	223 31.6 43.4	326 34.0 45.4	148 24.7 44.3	Peacock	53 47.0	S56 46.4
03	83 24.8	180 44.1 36.7	238 32.5 44.0	341 36.5 45.4	163 27.0 44.3	Pollux	243 49.3	N28 03.1
04	98 27.3	195 43.6 37.0	253 33.4 44.6	356 39.0 45.4	178 29.3 44.2	Procyon	245 18.2	N 5 15.3
05	113 29.7	210 43.1 37.2	268 34.3 45.2	11 41.4 45.4	193 31.5 44.2			
06	128 32.2	225 42.6 S26 37.4	283 35.2 S 9 45.8	26 43.9 N22 45.4	208 33.8 S22 44.2	Rasalhague	96 23.2	N12 34.0
07	143 34.7	240 42.2 37.6	298 36.1 46.5	41 46.4 45.4	223 36.0 44.2	Regulus	208 02.5	N12 01.1
08	158 37.1	255 41.7 37.8	313 36.9 47.1	56 48.9 45.5	238 38.3 44.2	Rigel	281 28.9	S 8 12.5
09	173 39.6	270 41.2 38.0	328 37.8 47.7	71 51.3 45.5	253 40.6 44.2	Rigil Kent.	140 17.0	S60 47.6
10	188 42.1	285 40.8 38.2	343 38.7 48.3	86 53.8 45.5	268 42.8 44.2	Sabik	102 33.2	S15 42.9
11	203 44.5	300 40.3 38.4	358 39.6 48.9	101 56.3 45.5	283 45.1 44.2			
12	218 47.0	315 39.8 S26 38.6	13 40.5 S 9 49.6	116 58.8 N22 45.5	298 47.4 S22 44.2	Schedar	350 00.6	N56 29.2
13	233 49.5	330 39.3 38.8	28 41.4 50.2	132 01.2 45.5	313 49.6 44.2	Shaula	96 46.4	S37 06.0
14	248 51.9	345 38.9 39.0	43 42.3 50.8	147 03.7 45.5	328 51.9 44.2	Sirius	258 49.2	S16 41.8
15	263 54.4	0 38.4 39.2	58 43.2 51.4	162 06.2 45.5	343 54.1 44.2	Spica	158 50.4	S11 06.5
16	278 56.8	15 37.9 39.4	73 44.1 52.0	177 08.7 45.5	358 56.4 44.1	Suhail	223 05.7	S43 23.1
17	293 59.3	30 37.5 39.6	88 45.0 52.7	192 11.2 45.5	13 58.7 44.1			
18	309 01.8	45 37.0 S26 39.8	103 45.9 S 9 53.3	207 13.6 N22 45.5	29 00.9 S22 44.1	Vega	80 51.2	N38 46.6
19	324 04.2	60 36.5 40.0	118 46.8 53.9	222 16.1 45.5	44 03.2 44.1	Zuben'ubi	137 25.5	S16 00.0
20	339 06.7	75 36.1 40.1	133 47.7 54.5	237 18.6 45.5	59 05.5 44.1			
21	354 09.2	90 35.6 40.3	148 48.5 55.1	252 21.1 45.5	74 07.7 44.1			
22	9 11.6	105 35.1 40.5	163 49.4 55.7	267 23.6 45.5	89 10.0 44.1			
23	24 14.1	120 34.7 40.7	178 50.3 56.4	282 26.0 45.5	104 12.2 44.1			
Pas. Mer. 21	h m 27.3	v -0.5 d 0.2	v 0.9 d 0.6	v 2.5 d 0.0	v 2.3 d 0.0			
							A. H. S.	Pas. Mer.
						Venus	98 38.7	h 14 m 57
						Marte	155 50.0	h 11 m 07
						Júpiter	258 11.5	h 4 m 17
						Saturno	80 07.5	h 16 m 08



T.M.G. (TU)	SOL		LUNA					Lat.	Crepúsculo		Orto Sol	Orto Luna				
	A.H.G.	Dec.	A.H.G.	v	Dec.	d	P.H.		Náut.	Civil		28	29	30	31	
	° / ' / "	° / ' / "	° / ' / "	° / ' / "	° / ' / "	° / ' / "	° / ' / "	°	h m	h m	h m	h m	h m	h m	h m	
S A B A D O	28 00	184 02.4	S13 02.3	202 29.8	16.4	S10 17.7	12.8	54.0	N 72	05 54	07 15	08 38	07 25	10 20	■	■
	01	199 02.5	03.2	217 05.2	16.3	10 30.5	12.8	54.0	N 70	05 51	07 04	08 16	07 03	09 16	■	■
	02	214 02.5	04.0	231 40.5	16.3	10 43.3	12.8	54.0	68	05 49	06 55	07 58	06 46	08 41	11 21	■
	03	229 02.6	04.8	246 15.8	16.3	10 56.1	12.7	54.0	66	05 46	06 47	07 44	06 32	08 16	10 16	■
	04	244 02.6	05.7	260 51.1	16.2	11 08.8	12.7	53.9	64	05 44	06 41	07 33	06 21	07 57	09 41	11 42
	05	259 02.7	06.5	275 26.3	16.2	11 21.5	12.6	53.9	62	05 42	06 35	07 23	06 12	07 42	09 16	10 56
	06	274 02.7	S13 07.3	290 01.5	16.2	S11 34.1	12.6	53.9	60	05 41	06 30	07 14	06 04	07 29	08 57	10 27
	07	289 02.8	08.2	304 36.7	16.1	11 46.7	12.5	53.9	N 58	05 39	06 25	07 07	05 57	07 18	08 41	10 04
	08	304 02.8	09.0	319 11.8	16.0	11 59.2	12.5	53.9	56	05 37	06 21	07 00	05 51	07 08	08 27	09 46
	09	319 02.9	09.9	333 46.8	16.1	12 11.7	12.5	53.9	54	05 36	06 17	06 55	05 45	07 00	08 15	09 30
	10	334 02.9	10.7	348 21.9	15.9	12 24.2	12.4	53.9	52	05 34	06 14	06 49	05 40	06 52	08 05	09 17
	11	349 03.0	11.5	2 56.8	16.0	12 36.6	12.4	53.9	50	05 33	06 11	06 45	05 36	06 45	07 56	09 06
	12	4 03.0	S13 12.4	17 31.8	15.9	S12 49.0	12.3	53.9	45	05 29	06 04	06 34	05 26	06 31	07 36	08 42
	13	19 03.1	13.2	32 06.7	15.8	13 01.3	12.2	53.9	N 40	05 26	05 58	06 26	05 18	06 19	07 21	08 23
	14	34 03.1	14.0	46 41.5	15.8	13 13.5	12.2	53.9	35	05 22	05 52	06 18	05 11	06 09	07 07	08 07
	15	49 03.2	14.9	61 16.3	15.8	13 25.7	12.2	53.9	30	05 19	05 47	06 12	05 05	06 00	06 56	07 53
	16	64 03.2	15.7	75 51.1	15.7	13 37.9	12.1	53.9	20	05 11	05 37	06 00	04 55	05 45	06 36	07 29
	17	79 03.3	16.5	90 25.8	15.7	13 50.0	12.1	53.9	N 10	05 03	05 28	05 50	04 46	05 32	06 19	07 09
	18	94 03.3	S13 17.4	105 00.5	15.6	S14 02.1	12.0	53.9	0	04 54	05 19	05 40	04 38	05 20	06 04	06 51
	19	109 03.3	18.2	119 35.1	15.5	14 14.1	11.9	53.9	S 10	04 44	05 09	05 31	04 30	05 08	05 48	06 32
	20	124 03.4	19.0	134 09.6	15.6	14 26.0	11.9	53.9	20	04 30	04 57	05 20	04 21	04 55	05 32	06 12
	21	139 03.4	19.9	148 44.2	15.4	14 37.9	11.8	53.9	30	04 13	04 43	05 08	04 11	04 40	05 13	05 49
	22	154 03.5	20.7	163 18.6	15.4	14 49.7	11.8	53.9	35	04 02	04 34	05 01	04 05	04 32	05 02	05 36
23	169 03.5	21.5	177 53.0	15.4	15 01.5	11.7	53.9	40	03 49	04 24	04 53	03 59	04 22	04 49	05 21	
D O M I N G O	29 00	184 03.6	S13 22.4	192 27.4	15.3	S15 13.2	11.7	53.9	45	03 33	04 12	04 43	03 52	04 11	04 34	05 03
	01	199 03.6	23.2	207 01.7	15.2	15 24.9	11.6	53.9	S 50	03 11	03 56	04 32	03 43	03 58	04 16	04 40
	02	214 03.6	24.0	221 35.9	15.2	15 36.5	11.6	53.9	52	03 01	03 49	04 27	03 39	03 52	04 08	04 29
	03	229 03.7	24.9	236 10.1	15.2	15 48.1	11.4	53.9	54	02 49	03 41	04 21	03 34	03 45	03 58	04 17
	04	244 03.7	25.7	250 44.3	15.1	15 59.5	11.5	53.9	56	02 34	03 31	04 14	03 29	03 37	03 48	04 03
	05	259 03.8	26.5	265 18.4	15.0	16 11.0	11.3	53.9	58	02 17	03 21	04 07	03 24	03 28	03 36	03 47
	06	274 03.8	S13 27.3	279 52.4	15.0	S16 22.3	11.3	53.9	S 60	01 55	03 08	03 58	03 18	03 19	03 22	03 28
	07	289 03.9	28.2	294 26.4	14.9	16 33.6	11.3	53.9	Lat.	Ocaso Sol	Crepúsculo Civil	Ocaso Luna				
	08	304 03.9	29.0	309 00.3	14.8	16 44.9	11.1	53.9	28	14 48	16 10	17 32	13 47	12 17	■	■
	09	319 03.9	29.8	323 34.1	14.8	16 56.0	11.1	53.9	N 70	15 10	16 22	17 35	14 11	13 25	■	■
	10	334 04.0	30.7	338 07.9	14.8	17 07.1	11.1	53.9	68	15 28	16 31	17 37	14 29	14 01	12 55	■
	11	349 04.0	31.5	352 41.7	14.7	17 18.2	10.9	53.9	66	15 42	16 39	17 40	14 44	14 28	14 00	■
	12	4 04.1	S13 32.3	7 15.4	14.6	S17 29.1	10.9	53.9	64	15 54	16 46	17 42	14 57	14 48	14 36	14 14
	13	19 04.1	33.1	21 49.0	14.5	17 40.0	10.8	53.9	62	16 04	16 51	17 44	15 07	15 04	15 02	15 00
	14	34 04.1	34.0	36 22.5	14.5	17 50.8	10.8	53.9	60	16 12	16 57	17 46	15 16	15 18	15 22	15 30
	15	49 04.2	34.8	50 56.0	14.5	18 01.6	10.7	53.9	N 58	16 20	17 01	17 47	15 24	15 30	15 39	15 53
	16	64 04.2	35.6	65 29.5	14.3	18 12.3	10.6	53.9	56	16 26	17 05	17 49	15 31	15 40	15 53	16 12
	17	79 04.2	36.4	80 02.8	14.3	18 22.9	10.5	53.9	54	16 32	17 09	17 51	15 38	15 50	16 05	16 28
	18	94 04.3	S13 37.3	94 36.1	14.3	S18 33.4	10.5	54.0	52	16 37	17 13	17 52	15 44	15 58	16 16	16 41
	19	109 04.3	38.1	109 09.4	14.2	18 43.9	10.4	54.0	50	16 42	17 16	17 54	15 49	16 05	16 26	16 53
	20	124 04.3	38.9	123 42.6	14.1	18 54.3	10.3	54.0	45	16 53	17 23	17 58	16 00	16 21	16 46	17 18
	21	139 04.4	39.7	138 15.7	14.1	19 04.6	10.3	54.0	N 40	17 01	17 29	18 01	16 09	16 34	17 03	17 38
	22	154 04.4	40.6	152 48.8	13.9	19 14.9	10.1	54.0	35	17 09	17 35	18 05	16 17	16 45	17 17	17 54
23	169 04.5	41.4	167 21.7	14.0	19 25.0	10.1	54.0	30	17 16	17 40	18 08	16 24	16 55	17 29	18 09	
L U N E S	30 00	184 04.5	S13 42.2	181 54.7	13.8	S19 35.1	10.0	54.0	20	17 27	17 50	18 16	16 37	17 12	17 50	18 33
	01	199 04.5	43.0	196 27.5	13.8	19 45.1	9.9	54.0	N 10	17 37	17 59	18 24	16 48	17 27	18 09	18 54
	02	214 04.6	43.8	211 00.3	13.8	19 55.0	9.9	54.0	0	17 47	18 08	18 33	16 58	17 41	18 26	19 14
	03	229 04.6	44.7	225 33.1	13.6	20 04.9	9.7	54.0	S 10	17 57	18 19	18 44	17 08	17 55	18 43	19 34
	04	244 04.6	45.5	240 05.7	13.6	20 14.6	9.7	54.0	20	18 08	18 30	18 57	17 19	18 10	19 02	19 56
	05	259 04.7	46.3	254 38.3	13.5	20 24.3	9.6	54.0	30	18 20	18 45	19 15	17 32	18 27	19 23	20 20
	06	274 04.7	S13 47.1	269 10.8	13.5	S20 33.9	9.5	54.0	35	18 27	18 54	19 26	17 39	18 37	19 36	20 35
	07	289 04.7	47.9	283 43.3	13.4	20 43.4	9.4	54.0	40	18 35	19 04	19 39	17 47	18 49	19 50	20 52
	08	304 04.8	48.8	298 15.7	13.3	20 52.8	9.4	54.0	45	18 45	19 17	19 56	17 57	19 02	20 08	21 12
	09	319 04.8	49.6	312 48.0	13.3	21 02.2	9.2	54.0	S 50	18 57	19 32	20 18	18 09	19 19	20 29	21 38
	10	334 04.8	50.4	327 20.3	13.2	21 11.4	9.2	54.0	52	19 02	19 40	20 28	18 15	19 27	20 40	21 51
	11	349 04.8	51.2	341 52.5	13.1	21 20.6	9.0	54.0	54	19 08	19 48	20 41	18 21	19 36	20 51	22 05
	12	4 04.9	S13 52.0	356 24.6	13.0	S21 29.6	9.0	54.0	56	19 15	19 58	20 56	18 28	19 46	21 05	22 22
	13	19 04.9	52.9	10 56.6	13.0	21 38.6	8.9	54.0	58	19 22	20 09	21 14	18 35	19 57	21 20	22 42
	14	34 04.9	53.7	25 28.6	12.9	21 47.5	8.8	54.0	S 60	19 31	20 22	21 36	18 44	20 10	21 39	23 08
	15	49 05.0	54.5	40 00.5	12.9	21 56.3	8.7	54.0	Día	SOL E.T. (+)		LUNA				
	16	64 05.0	55.3	54 32.4	12.8	22 05.0	8.6	54.1	00 h	12 h	Pas. Mer.	Pas. Sup.	Mer. Inf.	Edad.	Fase	
	17	79 05.0	56.1	69 04.2	12.7	22 13.6	8.5	54.1	m s	m s	h m	h m	h m	d		
	18	94 05.1	S13 56.9	83 35.9	12.6	S22 22.1	8.4	54.1								







T.M.G. (TU)	SOL		LUNA				Lat.	Crepúsculo		Orto Sol	Orto Luna						
	A.H.G.	Dec.	A.H.G.	v	Dec.	d		P.H.	Náut.		Civil	31	1	2	3		
																h	m
M A R T E S	31 00	184 05.2	S14 01.8	170 44.7	12.2	S23 11.1	7.9	54.1	N 72	06 06	07 29	08 57	h m	h m	h m	h m	
	01	199 05.2	02.6	185 15.9	12.2	23 19.0	7.7	54.1	N 70	06 02	07 16	08 30	h m	h m	h m	h m	
	02	214 05.3	03.4	199 47.1	12.1	23 26.7	7.6	54.1	68	05 58	07 05	08 11	h m	h m	h m	h m	
	03	229 05.3	04.3	214 18.2	12.0	23 34.3	7.5	54.1	66	05 55	06 57	07 55	h m	h m	h m	h m	
	04	244 05.3	05.1	228 49.2	11.9	23 41.8	7.4	54.1	64	05 52	06 49	07 42	11 42	h m	h m	h m	
	05	259 05.3	05.9	243 20.1	11.9	23 49.2	7.3	54.1	62	05 50	06 43	07 31	10 56	12 39	14 05	14 30	
	06	274 05.4	06.7	257 51.0	11.9	S23 56.5	7.2	54.2	60	05 47	06 37	07 22	10 27	11 53	13 02	13 43	
	07	289 05.4	07.5	272 21.9	11.7	24 03.7	7.1	54.2	N 58	05 45	06 32	07 14	10 04	11 23	12 28	13 13	
	08	304 05.4	08.3	286 52.6	11.7	24 10.8	7.0	54.2	56	05 43	06 27	07 07	09 46	11 00	12 03	12 50	
	09	319 05.4	09.1	301 23.3	11.6	24 17.8	6.9	54.2	54	05 41	06 23	07 00	09 30	10 42	11 43	12 31	
	10	334 05.5	09.9	315 53.9	11.6	24 24.7	6.8	54.2	52	05 39	06 19	06 55	09 17	10 26	11 26	12 15	
	11	349 05.5	10.7	330 24.5	11.5	24 31.5	6.6	54.2	50	05 37	06 16	06 50	09 06	10 12	11 12	12 01	
	12	4 05.5	S14 11.5	344 55.0	11.4	S24 38.1	6.6	54.2	45	05 33	06 08	06 38	08 42	09 45	10 43	11 33	
	13	19 05.5	12.3	359 25.4	11.3	24 44.7	6.4	54.2	N 40	05 29	06 01	06 29	08 23	09 23	10 20	11 11	
	14	34 05.6	13.2	13 55.7	11.3	24 51.1	6.3	54.2	35	05 25	05 55	06 21	08 07	09 05	10 01	10 53	
	15	49 05.6	14.0	28 26.0	11.3	24 57.4	6.2	54.2	30	05 21	05 49	06 14	07 53	08 50	09 45	10 37	
	16	64 05.6	14.8	42 56.3	11.1	25 03.6	6.1	54.2	20	05 13	05 39	06 01	07 29	08 24	09 18	10 10	
	17	79 05.6	15.6	57 26.4	11.1	25 09.7	6.0	54.3	N 10	05 04	05 29	05 51	07 09	08 01	08 54	09 47	
	18	94 05.6	S14 16.4	71 56.5	11.1	S25 15.7	5.8	54.3	0	04 54	05 19	05 40	06 51	07 40	08 32	09 25	
	19	109 05.7	17.2	86 26.6	10.9	25 21.5	5.8	54.3	S 10	04 43	05 08	05 30	06 32	07 20	08 10	09 04	
	20	124 05.7	18.0	100 56.5	10.9	25 27.3	5.6	54.3	20	04 28	04 55	05 18	06 12	06 57	07 47	08 41	
	21	139 05.7	18.8	115 26.4	10.9	25 32.9	5.5	54.3	30	04 10	04 40	05 05	05 49	06 32	07 20	08 14	
	22	154 05.7	19.6	129 56.3	10.8	25 38.4	5.4	54.3	35	03 59	04 31	04 58	05 36	06 17	07 04	07 58	
23	169 05.7	20.4	144 26.1	10.7	25 43.8	5.2	54.3	40	03 45	04 20	04 49	05 21	05 59	06 45	07 39		
M I E R C O L E S	1 00	184 05.8	S14 21.2	158 55.8	10.7	S25 49.0	5.2	54.3	S 50	03 05	03 50	04 27	04 40	05 12	05 54	06 49	
	01	199 05.8	22.0	173 25.5	10.6	25 54.2	5.0	54.3	52	02 53	03 43	04 21	04 29	04 59	05 40	06 35	
	02	214 05.8	22.8	187 55.1	10.6	25 59.2	4.9	54.4	54	02 40	03 34	04 14	04 17	04 44	05 24	06 18	
	03	229 05.8	23.6	202 24.7	10.5	26 04.1	4.8	54.4	56	02 24	03 24	04 07	04 03	04 27	05 04	05 59	
	04	244 05.8	24.4	216 54.2	10.4	26 08.9	4.6	54.4	58	02 05	03 12	03 59	03 47	04 07	04 40	05 35	
	05	259 05.8	25.2	231 23.6	10.4	26 13.5	4.6	54.4	S 60	01 40	02 58	03 50	03 28	03 41	04 09	05 03	
	06	274 05.9	S14 26.0	245 53.0	10.3	S26 18.1	4.4	54.4	Lat.	Ocaso Sol	Crepúsculo		Ocaso Luna				
	07	289 05.9	26.8	260 22.3	10.3	26 22.5	4.2	54.4			Civil	Náut.	31	1	2	3	
	08	304 05.9	27.6	274 51.6	10.2	26 26.7	4.2	54.4	N 72	h m	h m	h m	h m	h m	h m	h m	
	09	319 05.9	28.4	289 20.8	10.2	26 30.9	4.0	54.4	N 70	14 29	15 57	17 19	h m	h m	h m	h m	
	10	334 05.9	29.2	303 50.0	10.1	26 34.9	3.9	54.5	68	14 56	16 10	17 24	h m	h m	h m	h m	
	11	349 05.9	30.0	318 19.1	10.1	26 38.8	3.8	54.5	66	15 15	16 20	17 27	h m	h m	h m	h m	
	12	4 05.9	S14 30.8	332 48.2	10.0	S26 42.6	3.6	54.5	64	15 31	16 29	17 31	h m	h m	h m	h m	
	13	19 06.0	31.6	347 17.2	10.0	26 46.2	3.5	54.5	62	15 44	16 37	17 34	14 14	h m	h m	h m	
	14	34 06.0	32.4	1 46.2	9.9	26 49.7	3.4	54.5	60	15 55	16 44	17 36	15 00	15 02	15 25	16 51	
	15	49 06.0	33.2	16 15.1	9.9	26 53.1	3.2	54.5	N 58	16 04	16 49	17 39	15 30	15 48	16 28	17 38	
	16	64 06.0	34.0	30 44.0	9.8	26 56.3	3.1	54.5	56	16 12	16 55	17 41	15 53	16 18	17 02	18 08	
	17	79 06.0	34.8	45 12.8	9.8	26 59.4	3.0	54.5	54	16 20	16 59	17 43	16 12	16 41	17 27	18 30	
	18	94 06.0	S14 35.6	59 41.6	9.7	S27 02.4	2.9	54.6	52	16 26	17 03	17 45	16 28	17 00	17 47	18 49	
	19	109 06.0	36.4	74 10.3	9.7	27 05.3	2.7	54.6	50	16 32	17 07	17 47	16 41	17 16	18 03	19 05	
	20	124 06.1	37.2	88 39.0	9.7	27 08.0	2.5	54.6	45	16 37	17 11	17 49	16 53	17 30	18 18	19 18	
	21	139 06.1	38.0	103 07.7	9.6	27 10.5	2.5	54.6	40	16 48	17 19	17 54	17 18	17 58	18 47	19 46	
	22	154 06.1	38.8	117 36.3	9.6	27 13.0	2.3	54.6	N 40	16 58	17 26	17 58	17 38	18 20	19 10	20 08	
23	169 06.1	39.6	132 04.9	9.5	27 15.3	2.2	54.6	35	17 06	17 32	18 02	17 54	18 38	19 29	20 26		
J U E V E S	2 00	184 06.1	S14 40.4	146 33.4	9.5	S27 17.5	2.0	54.6	30	17 13	17 38	18 06	18 09	18 54	19 45	20 41	
	01	199 06.1	41.2	161 01.9	9.5	27 19.5	1.9	54.7	20	17 26	17 48	18 14	18 33	19 21	20 12	21 07	
	02	214 06.1	42.0	175 30.4	9.4	27 21.4	1.8	54.7	N 10	17 37	17 58	18 23	18 54	19 44	20 36	21 30	
	03	229 06.1	42.8	189 58.8	9.4	27 23.2	1.6	54.7	0	17 47	18 08	18 33	19 14	20 05	20 58	21 51	
	04	244 06.1	43.5	204 27.2	9.4	27 24.8	1.5	54.7	S 10	17 58	18 19	18 45	19 34	20 27	21 20	22 12	
	05	259 06.1	44.3	218 55.6	9.3	27 26.3	1.3	54.7	20	18 09	18 32	18 59	19 56	20 50	21 43	22 34	
	06	274 06.1	S14 45.1	233 23.9	9.3	S27 27.6	1.3	54.7	30	18 22	18 47	19 18	20 20	21 17	22 10	23 00	
	07	289 06.2	45.9	247 52.2	9.3	27 28.9	1.0	54.8	35	18 30	18 57	19 29	20 35	21 32	22 26	23 15	
	08	304 06.2	46.7	262 20.5	9.2	27 29.9	1.0	54.8	40	18 39	19 08	19 43	20 52	21 51	22 45	23 32	
	09	319 06.2	47.5	276 48.7	9.2	27 30.9	0.8	54.8	45	18 49	19 21	20 01	21 12	22 13	23 07	23 53	
	10	334 06.2	48.3	291 16.9	9.2	27 31.7	0.6	54.8	S 50	19 02	19 38	20 24	21 38	22 42	23 36	24 20	
	11	349 06.2	49.1	305 45.1	9.2	27 32.3	0.5	54.8	52	19 08	19 46	20 36	21 51	22 56	23 50	24 33	
	12	4 06.2	S14 49.9	320 13.3	9.1	S27 32.8	0.4	54.8	54	19 14	19 55	20 49	22 05	23 12	24 07	00 07	
	13	19 06.2	50.7	334 41.4	9.1	27 33.2	0.2	54.9	56	19 21	20 05	21 06	22 22	23 31	24 26	00 26	
	14	34 06.2	51.4	349 09.5	9.1	27 33.4	0.1	54.9	58	19 29	20 17	21 25	22 42	23 55	24 50	00 50	
	15	49 06.2	52.2	3 37.6	9.1	27 33.5	0.0	54.9	S 60	19 39	20 31	21 51	23 08	24 26	00 26	01 22	
	16	64 06.2	53.0	18 05.7	9.0	27 33.5	0.2	54.9	Día	SOL E.T. (+)		LUNA					
	17	79 06.2	53.8	32 33.7	9.1	27 33.3	0.3	54.9		00 h	12 h	Pas. Mer.	Pas. Mer.	Mer. Sup.	Mer. Inf.	Edad.	Fase
	18	94 06.2	S14 54.6	47 01.8	9.0	S27 33.0	0.5	55.0	31	m s	m s	h m	h m	h m	d		
	19	109 06.2	55.4	61 29.8	9.0	27 32.5	0.6	55.0	1	16 21							



T.M.G. (TU)	ARIES	VENUS -4.4	MARTE +1.7	JUPITER -2.5	SATURNO +0.6	ESTRELLAS		
d h	A.H.G.	A.H.G. Dec.	A.H.G. Dec.	A.H.G. Dec.	A.H.G. Dec.	A.H.G. Dec.	Nombre	A. H. S. Dec.
Y I E R N E S	3 00	42 14.0	135 01.8 S26 51.4	194 55.0 S10 41.2	300 28.2 N22 46.0	121 56.9 S22 43.4	Acamar	315 31.3 S40 20.5
	01	57 16.4	150 01.4 51.5	209 55.9 41.8	315 30.7 46.0	136 59.2 43.4	Achernar	335 39.1 S57 17.2
	02	72 18.9	165 00.9 51.6	224 56.7 42.4	330 33.2 46.0	152 01.4 43.4	Acrux	173 30.2 S63 02.4
	03	87 21.4	180 00.5 .. 51.7	239 57.6 .. 43.0	345 35.7 .. 46.0	167 03.7 .. 43.4	Adhara	255 26.3 S28 57.1
	04	102 23.8	195 00.1 51.8	254 58.5 43.6	0 38.2 46.0	182 06.0 43.4	Aldebaran	291 09.5 N16 29.6
	05	117 26.3	209 59.6 51.9	269 59.4 44.2	15 40.8 46.0	197 08.2 43.4		
	06	132 28.8	224 59.2 S26 52.0	285 00.3 S10 44.8	30 43.3 N22 46.0	212 10.5 S22 43.4	Alioth	166 36.4 N56 00.7
	07	147 31.2	239 58.8 52.1	300 01.1 45.5	45 45.8 46.0	227 12.7 43.4	Alkaid	153 13.1 N49 21.7
	08	162 33.7	254 58.4 52.2	315 02.0 46.1	60 48.3 46.0	242 15.0 43.4	Al Na'ir	28 05.6 S47 00.8
	09	177 36.2	269 57.9 .. 52.3	330 02.9 .. 46.7	75 50.8 .. 46.0	257 17.2 .. 43.3	Alnilam	276 04.1 S 1 12.2
	10	192 38.6	284 57.5 52.4	345 03.8 47.3	90 53.3 46.0	272 19.5 43.3	Alphard	218 13.6 S 8 36.7
	11	207 41.1	299 57.1 52.5	0 04.6 47.9	105 55.8 46.0	287 21.7 43.3		
	12	222 43.5	314 56.6 S26 52.6	15 05.5 S10 48.5	120 58.3 N22 46.0	302 24.0 S22 43.3	Alphecca	126 26.3 N26 44.9
	13	237 46.0	329 56.2 52.7	30 06.4 49.1	136 00.9 46.0	317 26.2 43.3	Alpheratz	358 01.7 N29 02.3
	14	252 48.5	344 55.8 52.8	45 07.3 49.7	151 03.4 46.1	332 28.5 43.3	Altair	62 25.7 N 8 50.5
	15	267 50.9	359 55.4 .. 52.9	60 08.2 .. 50.3	166 05.9 .. 46.1	347 30.7 .. 43.3	Ankaa	353 32.6 S42 21.7
	16	282 53.4	14 54.9 52.9	75 09.0 50.9	181 08.4 46.1	2 32.9 43.3	Antares	112 48.4 S26 24.7
	17	297 55.9	29 54.5 53.0	90 09.9 51.5	196 10.9 46.1	17 35.2 43.3		
	18	312 58.3	44 54.1 S26 53.1	105 10.8 S10 52.1	211 13.4 N22 46.1	32 37.4 S22 43.3	Arcturus	146 12.2 N19 14.1
	19	328 00.8	59 53.7 53.2	120 11.7 52.8	226 15.9 46.1	47 39.7 43.2	Atria	108 06.9 S69 00.8
	20	343 03.3	74 53.2 53.3	135 12.5 53.4	241 18.5 46.1	62 41.9 43.2	Avior	234 25.4 S59 28.2
	21	358 05.7	89 52.8 .. 53.4	150 13.4 .. 54.0	256 21.0 .. 46.1	77 44.2 .. 43.2	Bellatrix	278 50.8 N 6 20.7
	22	13 08.2	104 52.4 53.5	165 14.3 54.6	271 23.5 46.1	92 46.4 43.2	Betelgeuse	271 20.3 N 7 24.5
23	28 10.7	119 52.0 53.5	180 15.2 55.2	286 26.0 46.1	107 48.7 43.2			
S A B A D O	4 00	43 13.1	134 51.6 S26 53.6	195 16.0 S10 55.8	301 28.5 N22 46.1	122 50.9 S22 43.2	Canopus	264 03.7 S52 41.0
	01	58 15.6	149 51.1 53.7	210 16.9 56.4	316 31.0 46.1	137 53.2 43.2	Capella	281 00.4 N45 59.4
	02	73 18.0	164 50.7 53.8	225 17.8 57.0	331 33.6 46.1	152 55.4 43.2	Deneb	49 43.7 N45 14.9
	03	88 20.5	179 50.3 .. 53.9	240 18.7 .. 57.6	346 36.1 .. 46.2	167 57.7 .. 43.2	Denebola	182 51.9 N14 37.7
	04	103 23.0	194 49.9 53.9	255 19.5 58.2	1 38.6 46.2	182 59.9 43.2	Diphda	349 13.3 S18 02.4
	05	118 25.4	209 49.5 54.0	270 20.4 58.8	16 41.1 46.2	198 02.2 43.1		
	06	133 27.9	224 49.0 S26 54.1	285 21.3 S10 59.4	31 43.6 N22 46.2	213 04.4 S22 43.1	Dubhe	194 13.4 N61 48.1
	07	148 30.4	239 48.6 54.2	300 22.2 11 00.0	46 46.2 46.2	228 06.7 43.1	Elnath	278 34.8 N28 36.1
	08	163 32.8	254 48.2 54.2	315 23.0 00.6	61 48.7 46.2	243 08.9 43.1	Eltanin	90 54.8 N51 29.5
	09	178 35.3	269 47.8 .. 54.3	330 23.9 .. 01.2	76 51.2 .. 46.2	258 11.2 .. 43.1	Enif	34 04.5 N 9 49.8
	10	193 37.8	284 47.4 54.4	345 24.8 01.9	91 53.7 46.2	273 13.4 43.1	Fomalhaut	15 43.2 S29 40.6
	11	208 40.2	299 47.0 54.4	0 25.7 02.5	106 56.2 46.2	288 15.7 43.1		
	12	223 42.7	314 46.5 S26 54.5	15 26.5 S11 03.1	121 58.8 N22 46.2	303 17.9 S22 43.1	Gacrux	172 21.5 S57 03.2
	13	238 45.2	329 46.1 54.6	30 27.4 03.7	137 01.3 46.2	318 20.2 43.1	Gienah	176 10.9 S17 29.0
	14	253 47.6	344 45.7 54.6	45 28.3 04.3	152 03.8 46.2	333 22.4 43.1	Hadar	149 14.1 S60 19.5
	15	268 50.1	359 45.3 .. 54.7	60 29.2 .. 04.9	167 06.3 .. 46.2	348 24.6 .. 43.0	Hamal	328 20.6 N23 25.1
	16	283 52.5	14 44.9 54.8	75 30.0 05.5	182 08.9 46.3	3 26.9 43.0	Kaus Aust.	84 07.6 S34 23.6
	17	298 55.0	29 44.5 54.8	90 30.9 06.1	197 11.4 46.3	18 29.1 43.0		
	18	313 57.5	44 44.1 S26 54.9	105 31.8 S11 06.7	212 13.9 N22 46.3	33 31.4 S22 43.0	Kochab	137 20.0 N74 11.7
	19	328 59.9	59 43.7 54.9	120 32.7 07.3	227 16.4 46.3	48 33.6 43.0	Markab	13 55.9 N15 09.2
	20	344 02.4	74 43.3 55.0	135 33.5 07.9	242 19.0 46.3	63 35.9 43.0	Menkar	314 33.3 N 4 03.2
	21	359 04.9	89 42.9 .. 55.1	150 34.4 .. 08.5	257 21.5 .. 46.3	78 38.1 .. 43.0	Menkent	148 29.1 S36 19.2
	22	14 07.3	104 42.4 55.1	165 35.3 09.1	272 24.0 46.3	93 40.4 43.0	Miaplacidus	221 43.8 S69 40.1
23	29 09.8	119 42.0 55.2	180 36.1 09.7	287 26.5 46.3	108 42.6 43.0			
D O M I N G O	5 00	44 12.3	134 41.6 S26 55.2	195 37.0 S11 10.3	302 29.1 N22 46.3	123 44.9 S22 43.0	Mirfak	309 05.5 N49 49.7
	01	59 14.7	149 41.2 55.3	210 37.9 10.9	317 31.6 46.3	138 47.1 42.9	Nunki	76 20.5 S26 18.7
	02	74 17.2	164 40.8 55.3	225 38.8 11.5	332 34.1 46.3	153 49.3 42.9	Peacock	53 47.0 S56 46.4
	03	89 19.6	179 40.4 .. 55.4	240 39.6 .. 12.1	347 36.7 .. 46.3	168 51.6 .. 42.9	Pollux	243 49.2 N28 03.1
	04	104 22.1	194 40.0 55.4	255 40.5 12.7	2 39.2 46.4	183 53.8 42.9	Procyon	245 18.2 N 5 15.2
	05	119 24.6	209 39.6 55.5	270 41.4 13.3	17 41.7 46.4	198 56.1 42.9		
	06	134 27.0	224 39.2 S26 55.5	285 42.2 S11 13.9	32 44.2 N22 46.4	213 58.3 S22 42.9	Rasalhague	96 23.2 N12 34.0
	07	149 29.5	239 38.8 55.6	300 43.1 14.5	47 46.8 46.4	229 00.6 42.9	Regulus	208 02.5 N12 01.1
	08	164 32.0	254 38.4 55.6	315 44.0 15.2	62 49.3 46.4	244 02.8 42.9	Rigel	281 28.8 S 8 12.5
	09	179 34.4	269 38.0 .. 55.7	330 44.9 .. 15.8	77 51.8 .. 46.4	259 05.1 .. 42.9	Rigil Kent.	140 16.9 S60 47.6
	10	194 36.9	284 37.6 55.7	345 45.7 16.4	92 54.4 46.4	274 07.3 42.9	Sabik	102 33.2 S15 42.9
	11	209 39.4	299 37.2 55.7	0 46.6 17.0	107 56.9 46.4	289 09.5 42.8		
	12	224 41.8	314 36.8 S26 55.8	15 47.5 S11 17.6	122 59.4 N22 46.4	304 11.8 S22 42.8	Schedar	350 00.6 N56 29.2
	13	239 44.3	329 36.4 55.8	30 48.3 18.2	138 02.0 46.4	319 14.0 42.8	Shaula	96 46.4 S37 06.0
	14	254 46.8	344 36.0 55.9	45 49.2 18.8	153 04.5 46.4	334 16.3 42.8	Sirius	258 49.2 S16 41.8
	15	269 49.2	359 35.6 .. 55.9	60 50.1 .. 19.4	168 07.0 .. 46.5	349 18.5 .. 42.8	Spica	158 50.3 S11 06.5
	16	284 51.7	14 35.2 55.9	75 51.0 20.0	183 09.6 46.5	4 20.8 42.8	Suhail	223 05.7 S43 23.1
	17	299 54.1	29 34.8 56.0	90 51.8 20.6	198 12.1 46.5	19 23.0 42.8		
	18	314 56.6	44 34.4 S26 56.0	105 52.7 S11 21.2	213 14.6 N22 46.5	34 25.2 S22 42.8	Vega	80 51.3 N38 46.6
	19	329 59.1	59 34.0 56.0	120 53.6 21.8	228 17.2 46.5	49 27.5 42.8	Zuben'ubi	137 25.5 S16 00.0
	20	345 01.5	74 33.6 56.1	135 54.4 22.4	243 19.7 46.5	64 29.7 42.7		
	21	0 04.0	89 33.2 .. 56.1	150 55.3 .. 23.0	258 22.2 .. 46.5	79 32.0 .. 42.7		
	22	15 06.5	104 32.8 56.1	165 56.2 23.6	273 24.8 46.5	94 34.2 42.7	Venus	91 38.4 15 01
23	30 08.9	119 32.4 56.2	180 57.0 24.2	288 27.3 46.5	109 36.5 42.7	Marte	152 02.9 10 58	
						Júpiter	258 15.4 3 53	
						Saturno	79 37.8 15 46	

Pas. Mer. h m 21 03.7

v -0.4 d 0.1 v 0.9 d 0.6 v 2.5 d 0.0 v 2.2 d 0.0



T.M.G. (TU)	SOL				LUNA				Lat.	Crepúsculo		Orto Sol	Orto Luna							
	A.H.G.		Dec.		A.H.G.		v Dec.			Naut.	Civil		3	4	5	6				
	o	'	o	'	o	'	o	'												
V I E R N E S	3 00	184	06.2	S14	59.3	133	49.7	9.0	S27	28.0	1.4	55.1	N 72	06 18	07 43	09 16	h m	h m	h m	h m
	01	199	06.2	15	00.1	148	17.7	8.9	27	26.6	1.4	55.1	N 70	06 12	07 28	08 46	■	■	■	16 44
	02	214	06.2		00.9	162	45.6	9.0	27	25.2	1.6	55.1	68	06 08	07 16	08 23	■	■	■	15 56
	03	229	06.2		01.6	177	13.6	8.9	27	23.6	1.8	55.1	66	06 04	07 06	08 06	■	■	16 25	15 25
	04	244	06.2		02.4	191	41.5	8.9	27	21.8	1.9	55.2	64	06 00	06 58	07 52	■	■	15 29	15 02
	05	259	06.2		03.2	206	09.4	8.9	27	19.9	2.0	55.2	62	05 57	06 50	07 40	■	15 18	14 55	14 43
	06	274	06.2	S15	04.0	220	37.3	9.0	S27	17.9	2.2	55.2	60	05 54	06 44	07 30	14 30	14 32	14 31	14 28
	07	289	06.2		04.8	235	05.3	8.9	27	15.7	2.4	55.2	N 58	05 51	06 38	07 21	13 43	13 39	13 55	14 04
	08	304	06.2		05.6	249	33.2	8.9	27	13.3	2.4	55.2	56	05 49	06 33	07 13	12 50	13 21	13 41	13 55
	09	319	06.2		06.3	264	01.1	9.0	27	10.9	2.7	55.3	54	05 46	06 28	07 06	12 31	13 05	13 29	13 46
	10	334	06.2		07.1	278	29.1	8.9	27	08.2	2.7	55.3	52	05 44	06 24	07 00	12 15	12 51	13 18	13 38
	11	349	06.2		07.9	292	57.0	8.9	27	05.5	2.9	55.3	50	05 42	06 20	06 55	12 01	12 39	13 09	13 31
	12	4	06.2	S15	08.7	307	24.9	9.0	S27	02.6	3.1	55.3	45	05 37	06 12	06 42	11 33	12 15	12 48	13 16
	13	19	06.2		09.4	321	52.9	8.9	26	59.5	3.2	55.3	N 40	05 32	06 04	06 32	11 11	11 55	12 32	13 04
	14	34	06.2		10.2	336	20.8	9.0	26	56.3	3.3	55.4	35	05 27	05 57	06 24	10 53	11 38	12 18	12 53
	15	49	06.2		11.0	350	48.8	9.0	26	53.0	3.5	55.4	30	05 23	05 51	06 16	10 37	11 24	12 06	12 44
	16	64	06.2		11.8	5	16.8	8.9	26	49.5	3.6	55.4	20	05 14	05 40	06 03	10 10	10 59	11 45	12 28
	17	79	06.2		12.6	19	44.7	9.0	26	45.9	3.7	55.4	N 10	05 04	05 29	05 51	09 47	10 38	11 27	12 14
	18	94	06.2	S15	13.3	34	12.7	9.0	S26	42.2	3.9	55.5	0	04 54	05 19	05 40	09 25	10 18	11 10	12 00
	19	109	06.2		14.1	48	40.7	9.1	26	38.3	4.1	55.5	S 10	04 42	05 07	05 29	09 04	09 58	10 53	11 47
	20	124	06.2		14.9	63	08.8	9.0	26	34.2	4.2	55.5	20	04 27	04 54	05 17	08 41	09 37	10 35	11 33
	21	139	06.2		15.7	77	36.8	9.0	26	30.0	4.3	55.5	30	04 07	04 38	05 03	08 14	09 12	10 14	11 16
	22	154	06.2		16.4	92	04.8	9.1	26	25.7	4.4	55.6	35	03 55	04 28	04 55	07 58	08 58	10 01	11 07
23	169	06.2		17.2	106	32.9	9.1	26	21.3	4.6	55.6	40	03 40	04 16	04 46	07 39	08 41	09 47	10 56	
4 00	184	06.2	S15	18.0	121	01.0	9.1	S26	16.7	4.8	55.6	45	03 22	04 02	04 35	07 17	08 20	09 30	10 43	
01	199	06.2		18.8	135	29.1	9.1	26	11.9	4.9	55.6	S 50	02 58	03 45	04 21	06 49	07 54	09 08	10 27	
02	214	06.2		19.5	149	57.2	9.1	26	07.0	5.0	55.6	52	02 46	03 36	04 15	06 35	07 42	08 58	10 19	
03	229	06.2		20.3	164	25.3	9.2	26	02.0	5.2	55.7	54	02 31	03 27	04 08	06 18	07 28	08 47	10 11	
04	244	06.2		21.1	178	53.5	9.2	25	56.8	5.3	55.7	56	02 14	03 16	04 01	05 59	07 11	08 34	10 01	
05	259	06.1		21.8	193	21.7	9.2	25	51.5	5.4	55.7	58	01 53	03 03	03 52	05 35	06 51	08 18	09 51	
06	274	06.1	S15	22.6	207	49.9	9.2	S25	46.1	5.6	55.7	S 60	01 24	02 49	03 42	05 03	06 25	08 00	09 38	
07	289	06.1		23.4	222	18.1	9.3	25	40.5	5.7	55.8									
08	304	06.1		24.2	236	46.4	9.3	25	34.8	5.9	55.8									
09	319	06.1		24.9	251	14.7	9.3	25	28.9	6.0	55.8									
10	334	06.1		25.7	265	43.0	9.3	25	22.9	6.1	55.9									
11	349	06.1		26.5	280	11.3	9.4	25	16.8	6.3	55.9									
12	4	06.1	S15	27.2	294	39.7	9.4	S25	10.5	6.4	55.9									
13	19	06.1		28.0	309	08.1	9.4	25	04.1	6.5	55.9									
14	34	06.1		28.8	323	36.5	9.4	24	57.6	6.7	56.0									
15	49	06.0		29.5	338	04.9	9.5	24	50.9	6.8	56.0									
16	64	06.0		30.3	352	33.4	9.5	24	44.1	6.9	56.0									
17	79	06.0		31.1	7	01.9	9.6	24	37.2	7.1	56.0									
18	94	06.0	S15	31.8	21	30.5	9.6	S24	30.1	7.2	56.1									
19	109	06.0		32.6	35	59.1	9.6	24	22.9	7.4	56.1	N 58	16 05	16 48	17 35	18 08	19 30	21 01	22 35	
20	124	06.0		33.4	50	27.7	9.6	24	15.5	7.4	56.1	56	16 13	16 53	17 38	18 30	19 49	21 15	22 44	
21	139	06.0		34.1	64	56.3	9.7	24	08.1	7.6	56.2	54	16 20	16 58	17 40	18 49	20 04	21 26	22 51	
22	154	06.0		34.9	79	25.0	9.7	24	00.5	7.8	56.2	52	16 26	17 02	17 42	19 05	20 17	21 36	22 58	
23	169	05.9		35.6	93	53.7	9.8	23	52.7	7.8	56.2	50	16 32	17 06	17 45	19 18	20 29	21 45	23 05	
5 00	184	05.9	S15	36.4	108	22.5	9.7	S23	44.9	8.0	56.2	45	16 44	17 15	17 50	19 46	20 53	22 04	23 18	
01	199	05.9		37.2	122	51.2	9.9	23	36.9	8.2	56.3	N 40	16 54	17 23	17 55	20 08	21 12	22 19	23 29	
02	214	05.9		37.9	137	20.1	9.8	23	28.7	8.2	56.3	35	17 03	17 29	17 59	20 26	21 28	22 32	23 38	
03	229	05.9		38.7	151	48.9	9.9	23	20.5	8.4	56.3	30	17 11	17 36	18 04	20 41	21 41	22 43	23 46	
04	244	05.9		39.5	166	17.8	9.9	23	12.1	8.5	56.4	20	17 24	17 47	18 13	21 07	22 05	23 03	24 00	
05	259	05.8		40.2	180	46.7	10.0	23	03.6	8.7	56.4	N 10	17 36	17 58	18 23	21 30	22 25	23 19	24 13	
06	274	05.8	S15	41.0	195	15.7	10.0	S22	54.9	8.7	56.4	0	17 47	18 09	18 33	21 51	22 43	23 34	24 24	
07	289	05.8		41.7	209	44.7	10.1	22	46.2	8.9	56.5	S 10	17 58	18 20	18 46	22 12	23 02	23 50	24 35	
08	304	05.8		42.5	224	13.8	10.0	22	37.3	9.0	56.5	20	18 11	18 34	19 01	22 34	23 22	24 06	00 06	
09	319	05.8		43.3	238	42.8	10.1	22	28.3	9.1	56.5	30	18 25	18 50	19 20	23 00	23 44	24 24	00 24	
10	334	05.8		44.0	253	11.9	10.2	22	19.2	9.3	56.5	35	18 33	19 00	19 33	23 15	23 58	24 35	00 35	
11	349	05.7		44.8	267	41.1	10.2	22	09.9	9.4	56.6	40	18 42	19 12	19 48	23 32	24 13	00 13	00 47	
12	4	05.7	S15	45.5	282	10.3	10.2	S22	00.5	9.5	56.6	45	18 53	19 26	20 06	23 53	24 31	00 31	01 01	
13	19	05.7		46.3	296	39.5	10.3	21	51.0	9.6	56.6	S 50	19 07	19 44	20 31	24 20	00 20	00 53	01 19	
14	34	05.7		47.0	311	08.8	10.3	21	41.4	9.8	56.7	52	19 13	19 52	20 44	24 33	00 33	01 04	01 27	
15	49	05.7		47.8	325	38.1	10.4	21	31.6	9.8	56.7	54	19 20	20 02	20 58	00 07	00 47	01 16	01 36	
16	64	05.6		48.6	340	07.5	10.3	21	21.8	10.0	56.7	56	19 28	20 13	21 16	00 26	01 04	01 29	01 46	
17	79	05.6		49.3	354	36.8	10.5	21	11.8	10.1	56.8	58	19 37	20 26	21 38	00 50	01 25	01 45	01 58	
18	94	05.6	S15	50.1	9	06.3	10.4	S21	01.7	10.2	56.8	S 60	19 47	20 41	22 08	01 22	01 51	02 04	02 11	
19	109	05.6		50.8	23	35.7	10.5	20	51.5	10.4	56.8									
20	124	05.6		51.6	38	05.2	10.6	20	41.1	10.4	56.9									
21	139	05.5		52.3	52	34.8	10.6	20	30.7	10.6	56.9									
22	154	05.5		53.1	67															



T.M.G. (TU)	ARIES			VENUS -4.4			MARTE +1.7			JUPITER -2.5			SATURNO +0.6			ESTRELLAS		
	A.H.G.	A.H.G.	Dec.	A.H.G.	Dec.	A.H.G.	Dec.	A.H.G.	Dec.	A.H.G.	Dec.	A.H.G.	Dec.	Nombre	A. H. S.	Dec.		
L U N E S	6 00	45 11.4	134 32.1	S26 56.2	195 57.9	S11 24.8	303 29.8	N22 46.5	124 38.7	S22 42.7	Acamar	315 31.2	S40 20.5					
	01	60 13.9	149 31.7	56.2	210 58.8	25.4	318 32.4	46.5	139 40.9	42.7	Achernar	335 39.1	S57 17.2					
	02	75 16.3	164 31.3	56.2	225 59.6	26.0	333 34.9	46.6	154 43.2	42.7	Acruz	173 30.1	S63 02.4					
	03	90 18.8	179 30.9	56.3	241 00.5	26.6	348 37.4	46.6	169 45.4	42.7	Adhara	255 26.3	S28 57.2					
	04	105 21.3	194 30.5	56.3	256 01.4	27.2	3 40.0	46.6	184 47.7	42.7	Aldebaran	291 09.5	N16 29.6					
	05	120 23.7	209 30.1	56.3	271 02.2	27.8	18 42.5	46.6	199 49.9	42.7								
	06	135 26.2	224 29.7	S26 56.3	286 03.1	S11 28.4	33 45.1	N22 46.6	214 52.1	S22 42.6	Alioth	166 36.4	N56 00.7					
	07	150 28.6	239 29.3	56.3	301 04.0	29.0	48 47.6	46.6	229 54.4	42.6	Alkaid	153 13.1	N49 21.7					
	08	165 31.1	254 28.9	56.4	316 04.8	29.6	63 50.1	46.6	244 56.6	42.6	Al Na'ir	28 05.6	S47 00.8					
	09	180 33.6	269 28.6	56.4	331 05.7	30.2	78 52.7	46.6	259 58.9	42.6	Alnilam	276 04.1	S 1 12.2					
	10	195 36.0	284 28.2	56.4	346 06.6	30.8	93 55.2	46.6	275 01.1	42.6	Alphard	218 13.6	S 8 36.7					
	11	210 38.5	299 27.8	56.4	1 07.4	31.4	108 57.7	46.6	290 03.4	42.6								
	12	225 41.0	314 27.4	S26 56.4	16 08.3	S11 32.0	124 00.3	N22 46.6	305 05.6	S22 42.6	Alphecca	126 26.3	N26 44.9					
	13	240 43.4	329 27.0	56.4	31 09.2	32.6	139 02.8	46.7	320 07.8	42.6	Alpheratz	358 01.7	N29 02.3					
	14	255 45.9	344 26.6	56.5	46 10.0	33.2	154 05.4	46.7	335 10.1	42.6	Altair	62 25.7	N 8 50.5					
	15	270 48.4	359 26.3	56.5	61 10.9	33.8	169 07.9	46.7	350 12.3	42.5	Ankaa	353 32.7	S42 21.7					
	16	285 50.8	14 25.9	56.5	76 11.8	34.4	184 10.5	46.7	5 14.6	42.5	Antares	112 48.4	S26 24.7					
	17	300 53.3	29 25.5	56.5	91 12.6	35.0	199 13.0	46.7	20 16.8	42.5								
	18	315 55.8	44 25.1	S26 56.5	106 13.5	S11 35.6	214 15.5	N22 46.7	35 19.0	S22 42.5	Arcturus	146 12.2	N19 14.0					
	19	330 58.2	59 24.7	56.5	121 14.4	36.2	229 18.1	46.7	50 21.3	42.5	Atria	108 06.9	S69 00.8					
	20	346 00.7	74 24.4	56.5	136 15.2	36.8	244 20.6	46.7	65 23.5	42.5	Avior	234 25.3	S59 28.2					
	21	1 03.1	89 24.0	56.5	151 16.1	37.4	259 23.2	46.7	80 25.7	42.5	Bellatrix	278 50.8	N 6 20.7					
	22	16 05.6	104 23.6	56.5	166 17.0	38.0	274 25.7	46.7	95 28.0	42.5	Betelgeuse	271 20.3	N 7 24.5					
23	31 08.1	119 23.2	56.5	181 17.8	38.6	289 28.3	46.8	110 30.2	42.5									
M A R T E S	7 00	46 10.5	134 22.9	S26 56.5	196 18.7	S11 39.2	304 30.8	N22 46.8	125 32.5	S22 42.4	Canopus	264 03.7	S52 41.0					
	01	61 13.0	149 22.5	56.5	211 19.5	39.8	319 33.3	46.8	140 34.7	42.4	Capella	281 00.3	N45 59.4					
	02	76 15.5	164 22.1	56.5	226 20.4	40.4	334 35.9	46.8	155 36.9	42.4	Deneb	49 43.8	N45 14.9					
	03	91 17.9	179 21.7	56.5	241 21.3	41.0	349 38.4	46.8	170 39.2	42.4	Denebola	182 51.9	N14 37.7					
	04	106 20.4	194 21.4	56.5	256 22.1	41.6	4 41.0	46.8	185 41.4	42.4	Diphda	349 13.3	S18 02.4					
	05	121 22.9	209 21.0	56.5	271 23.0	42.2	19 43.5	46.8	200 43.7	42.4								
	06	136 25.3	224 20.6	S26 56.5	286 23.9	S11 42.8	34 46.1	N22 46.8	215 45.9	S22 42.4	Dubhe	194 13.3	N61 48.1					
	07	151 27.8	239 20.3	56.5	301 24.7	43.4	49 48.6	46.8	230 48.1	42.4	Elnath	278 34.8	N28 36.1					
	08	166 30.2	254 19.9	56.5	316 25.6	44.0	64 51.2	46.8	245 50.4	42.4	Eltanin	90 54.8	N51 29.5					
	09	181 32.7	269 19.5	56.5	331 26.5	44.6	79 53.7	46.9	260 52.6	42.3	Enif	34 04.5	N 9 49.8					
	10	196 35.2	284 19.2	56.5	346 27.3	45.2	94 56.3	46.9	275 54.8	42.3	Fomalhaut	15 43.2	S29 40.6					
	11	211 37.6	299 18.8	56.5	1 28.2	45.7	109 58.8	46.9	290 57.1	42.3								
	12	226 40.1	314 18.4	S26 56.5	16 29.0	S11 46.3	125 01.4	N22 46.9	305 59.3	S22 42.3	Gacrux	172 21.5	S57 03.2					
	13	241 42.6	329 18.1	56.5	31 29.9	46.9	140 03.9	46.9	321 01.6	42.3	Gienah	176 10.9	S17 29.0					
	14	256 45.0	344 17.7	56.4	46 30.8	47.5	155 06.5	46.9	336 03.8	42.3	Hadar	149 14.1	S60 19.4					
	15	271 47.5	359 17.3	56.4	61 31.6	48.1	170 09.0	46.9	351 06.0	42.3	Hamal	328 20.6	N23 25.1					
	16	286 50.0	14 17.0	56.4	76 32.5	48.7	185 11.6	46.9	6 08.3	42.3	Kaus Aust.	84 07.6	S34 23.6					
	17	301 52.4	29 16.6	56.4	91 33.3	49.3	200 14.1	46.9	21 10.5	42.3								
	18	316 54.9	44 16.2	S26 56.4	106 34.2	S11 49.9	215 16.7	N22 46.9	36 12.7	S22 42.2	Kochab	137 20.0	N74 11.7					
	19	331 57.4	59 15.9	56.4	121 35.1	50.5	230 19.2	47.0	51 15.0	42.2	Markab	13 55.9	N15 09.2					
	20	346 59.8	74 15.5	56.3	136 35.9	51.1	245 21.8	47.0	66 17.2	42.2	Menkar	314 33.3	N 4 03.2					
	21	2 02.3	89 15.2	56.3	151 36.8	51.7	260 24.3	47.0	81 19.5	42.2	Menkent	148 29.1	S36 19.2					
	22	17 04.7	104 14.8	56.3	166 37.6	52.3	275 26.9	47.0	96 21.7	42.2	Miaplacidus	221 43.8	S69 40.1					
23	32 07.2	119 14.4	56.3	181 38.5	52.9	290 29.4	47.0	111 23.9	42.2									
M I E R C O L E S	8 00	47 09.7	134 14.1	S26 56.2	196 39.4	S11 53.5	305 32.0	N22 47.0	126 26.2	S22 42.2	Mirfak	309 05.5	N49 49.7					
	01	62 12.1	149 13.7	56.2	211 40.2	54.1	320 34.5	47.0	141 28.4	42.2	Nunki	76 20.5	S26 18.7					
	02	77 14.6	164 13.4	56.2	226 41.1	54.7	335 37.1	47.0	156 30.6	42.2	Peacock	53 47.0	S56 46.4					
	03	92 17.1	179 13.0	56.2	241 41.9	55.3	350 39.7	47.0	171 32.9	42.1	Pollux	243 49.2	N28 03.1					
	04	107 19.5	194 12.7	56.1	256 42.8	55.9	5 42.2	47.1	186 35.1	42.1	Procyon	245 18.1	N 5 15.2					
	05	122 22.0	209 12.3	56.1	271 43.7	56.5	20 44.8	47.1	201 37.3	42.1								
	06	137 24.5	224 11.9	S26 56.1	286 44.5	S11 57.1	35 47.3	N22 47.1	216 39.6	S22 42.1	Rasalhague	96 23.2	N12 34.0					
	07	152 26.9	239 11.6	56.1	301 45.4	57.7	50 49.9	47.1	231 41.8	42.1	Regulus	208 02.4	N12 01.1					
	08	167 29.4	254 11.2	56.0	316 46.2	58.2	65 52.4	47.1	246 44.0	42.1	Rigel	281 28.8	S 8 12.5					
	09	182 31.9	269 10.9	56.0	331 47.1	58.8	80 55.0	47.1	261 46.3	42.1	Rigil Kent.	140 16.9	S60 47.6					
	10	197 34.3	284 10.5	56.0	346 48.0	59.4	95 57.6	47.1	276 48.5	42.1	Sabik	102 33.2	S15 42.9					
	11	212 36.8	299 10.2	55.9	1 48.8	12 00.0	111 00.1	47.1	291 50.7	42.1								
	12	227 39.2	314 09.8	S26 55.9	16 49.7	S12 00.6	126 02.7	N22 47.1	306 53.0	S22 42.0	Schedar	350 00.6	N56 29.2					
	13	242 41.7	329 09.5	55.8	31 50.5	01.2	141 05.2	47.1	321 55.2	42.0	Shaula	96 46.4	S37 06.0					
	14	257 44.2	344 09.2	55.8	46 51.4	01.8	156 07.8	47.2	336 57.5	42.0	Sirius	258 49.2	S16 41.9					
	15	272 46.6	359 08.8	55.8	61 52.2	02.4	171 10.3	47.2	351 59.7	42.0	Spica	158 50.3	S11 06.5					
	16	287 49.1	14 08.5	55.7	76 53.1	03.0	186 12.9	47.2	7 01.9	42.0	Suhail	223 05.6	S43 23.1					
	17	302 51.6	29 08.1	55.7	91 54.0	03.6	201 15.5	47.2	22 04.2	42.0								
	18	317 54.0	44 07.8	S26 55.6	106 54.8	S12 04.2	216 18.0	N22 47.2	37 06.4	S22 42.0	Vega	80 51.3	N38 46.6					
	19	332 56.5	59 07.4	55.6	121 55.7	04.8	231 20.6	47.2	52 08.6	42.0	Zuben'ubi	137 25.5	S16 00.0					
	20	347 59.0	74 07.1	55.5	136 56.5	05.4	246 23.1	47.2	67 10.9	41.9								
	21	3 01.4	89 06.7	55.5	151 57.4	06.0	261 25.7	47.2	82 13.1	41.9								
	22	18 03.9	104 06.4	55.5	166 58.2	06.5	276 28.3	47.2	97 15.3	41.9								
23	33 06.3	119 06.1	55.4	181 59.1	07.1	291 30.8	47.3	112 17.6	41.9									
Pas. Mer. 20 51.9		v -0.4 d 0.0			v 0.9 d 0.6			v 2.5 d 0.0			v 2.2 d 0.0			A. H. S. Pas. Mer.				
														o h m				
														Venus 88 12.3 15 03				
														Marte 150 08.1 10 54				
														Júpiter 258 20.3 3 41				
														Saturno 79 21.9 15 36				



T.M.G. (TU)	SOL		LUNA				Lat.	Crepúsculo		Orto Sol	Orto Luna					
	A.H.G.	Dec.	A.H.G.	v	Dec.	d		P.H.	Náut.		Civil	6	7	8	9	
												h	m	h	m	h
LUNES	00	184 05.5	S15 54.6	96 03.6	10.7	S19 58.6	10.9	57.0	N 72	06 29	07 57	09 38	16 44	15 32	14 51	14 16
	01	199 05.4	55.3	110 33.3	10.7	19 47.7	11.0	57.0	N 70	06 23	07 40	09 02	15 56	15 13	14 43	14 17
	02	214 05.4	56.1	125 03.0	10.8	19 36.7	11.1	57.1	68	06 17	07 26	08 36	15 25	14 57	14 37	14 18
	03	229 05.4	56.8	139 32.8	10.8	19 25.6	11.3	57.1	66	06 12	07 15	08 17	15 02	14 45	14 31	14 18
	04	244 05.4	57.6	154 02.6	10.9	19 14.3	11.3	57.1	64	06 08	07 06	08 01	14 43	14 34	14 27	14 19
	05	259 05.3	58.3	168 32.5	10.8	19 03.0	11.5	57.2	62	06 04	06 58	07 48	14 28	14 25	14 23	14 20
	06	274 05.3	S15 59.1	183 02.3	11.0	S18 51.5	11.5	57.2	60	06 00	06 51	07 37	14 15	14 15	14 18	14 20
	07	289 05.3	15 59.8	197 32.3	10.9	18 40.0	11.7	57.2	N 58	05 57	06 44	07 28	14 04	14 11	14 16	14 21
	08	304 05.3	16 00.6	212 02.2	11.0	18 28.3	11.8	57.3	56	05 54	06 39	07 20	13 55	14 05	14 13	14 21
	09	319 05.2	01.3	226 32.2	11.0	18 16.5	11.9	57.3	54	05 51	06 34	07 12	13 46	13 59	14 11	14 21
	10	334 05.2	02.1	241 02.2	11.1	18 04.6	12.0	57.3	52	05 49	06 29	07 06	13 38	13 54	14 08	14 22
	11	349 05.2	02.8	255 32.3	11.1	17 52.6	12.1	57.4	50	05 46	06 25	07 00	13 31	13 50	14 06	14 22
	12	4 05.2	S16 03.6	270 02.4	11.1	S17 40.5	12.2	57.4	45	05 40	06 15	06 47	13 16	13 40	14 02	14 23
	13	19 05.1	04.3	284 32.5	11.1	17 28.3	12.3	57.4	N 40	05 35	06 07	06 36	13 04	13 32	13 58	14 23
	14	34 05.1	05.1	299 02.6	11.2	17 16.0	12.4	57.5	35	05 30	06 00	06 27	12 53	13 25	13 54	14 24
	15	49 05.1	05.8	313 32.8	11.2	17 03.6	12.5	57.5	30	05 25	05 54	06 18	12 44	13 19	13 51	14 24
	16	64 05.0	06.6	328 03.0	11.3	16 51.1	12.6	57.5	20	05 15	05 41	06 04	12 28	13 08	13 46	14 25
	17	79 05.0	07.3	342 33.3	11.3	16 38.5	12.7	57.6	N 10	05 05	05 30	05 52	12 14	12 58	13 42	14 26
	18	94 05.0	S16 08.0	357 03.6	11.3	S16 25.8	12.8	57.6	0	04 54	05 19	05 40	12 00	12 49	13 38	14 26
	19	109 05.0	08.8	11 33.9	11.3	16 13.0	12.9	57.6	S 10	04 41	05 06	05 28	11 47	12 40	13 33	14 27
	20	124 04.9	09.5	26 04.2	11.4	16 00.1	13.0	57.7	20	04 25	04 52	05 16	11 33	12 31	13 29	14 28
	21	139 04.9	10.3	40 34.6	11.4	15 47.1	13.1	57.7	30	04 05	04 35	05 01	11 16	12 20	13 23	14 29
	22	154 04.9	11.0	55 05.0	11.4	15 34.0	13.1	57.8	35	03 52	04 25	04 52	11 07	12 13	13 20	14 29
23	169 04.8	11.8	69 35.4	11.5	15 20.9	13.3	57.8	40	03 36	04 13	04 42	10 56	12 06	13 17	14 30	
MARTES	00	184 04.8	S16 12.5	84 05.9	11.5	S15 07.6	13.4	57.8	45	03 17	03 58	04 31	10 43	11 57	13 13	14 31
	01	199 04.8	13.2	98 36.4	11.5	14 54.2	13.4	57.9	S 50	02 51	03 39	04 17	10 27	11 47	13 08	14 32
	02	214 04.7	14.0	113 06.9	11.5	14 40.8	13.6	57.9	52	02 38	03 30	04 10	10 19	11 42	13 06	14 32
	03	229 04.7	14.7	127 37.4	11.6	14 27.2	13.6	57.9	54	02 23	03 20	04 03	10 11	11 37	13 04	14 32
	04	244 04.7	15.5	142 08.0	11.6	14 13.6	13.7	58.0	56	02 04	03 08	03 54	10 01	11 31	13 01	14 33
	05	259 04.6	16.2	156 38.6	11.6	13 59.9	13.8	58.0	58	01 40	02 55	03 45	09 51	11 24	12 58	14 34
	06	274 04.6	S16 16.9	171 09.2	11.6	S13 46.1	13.9	58.0	S 60	01 05	02 39	03 34	09 38	11 16	12 55	14 34
	07	289 04.6	17.7	185 39.8	11.6	13 32.2	14.0	58.1	Lat.	Ocaso Sol	Crepúsculo		Ocaso Luna			
	08	304 04.5	18.4	200 10.4	11.7	13 18.2	14.0	58.1			Civil	Náut.	6	7	8	9
	09	319 04.5	19.1	214 41.1	11.7	13 04.2	14.2	58.2	N 70	13 48	15 29	16 56	20 05	23 00	25 25	01 25
	10	334 04.5	19.9	229 11.8	11.7	12 50.0	14.2	58.2	N 72	14 25	15 46	17 03	20 50	23 17	25 29	01 29
	11	349 04.4	20.6	243 42.5	11.7	12 35.8	14.3	58.2	68	14 50	16 00	17 09	21 20	23 30	25 33	01 33
	12	4 04.4	S16 21.3	258 13.2	11.8	S12 21.5	14.4	58.3	66	15 09	16 11	17 14	21 42	23 40	25 35	01 35
	13	19 04.4	22.1	272 44.0	11.7	12 07.1	14.5	58.3	64	15 25	16 20	17 19	21 59	23 49	25 38	01 38
	14	34 04.3	22.8	287 14.7	11.8	11 52.6	14.5	58.3	62	15 38	16 29	17 22	22 13	23 56	25 40	01 40
	15	49 04.3	23.5	301 45.5	11.8	11 38.1	14.6	58.4	60	15 49	16 36	17 26	22 25	24 03	25 40	01 41
	16	64 04.2	24.3	316 16.3	11.8	11 23.5	14.7	58.4	N 58	15 59	16 42	17 29	22 35	24 08	25 40	01 43
	17	79 04.2	25.0	330 47.1	11.8	11 08.8	14.8	58.4	56	16 07	16 48	17 32	22 44	24 13	25 40	01 44
	18	94 04.2	S16 25.7	345 17.9	11.8	S10 54.0	14.8	58.5	54	16 15	16 53	17 35	22 51	24 18	25 40	01 45
	19	109 04.1	26.5	359 48.7	11.9	10 39.2	14.9	58.5	52	16 21	16 58	17 38	22 58	24 22	25 40	01 47
	20	124 04.1	27.2	14 19.6	11.8	10 24.3	15.0	58.6	50	16 27	17 02	17 40	23 05	24 25	25 40	01 48
	21	139 04.1	27.9	28 50.4	11.9	10 09.3	15.1	58.6	45	16 40	17 11	17 46	23 18	24 33	25 40	01 50
	22	154 04.0	28.7	43 21.3	11.8	9 54.2	15.1	58.6	N 40	16 51	17 20	17 52	23 29	24 40	25 40	01 51
23	169 04.0	29.4	57 52.1	11.9	9 39.1	15.2	58.7	35	17 00	17 27	17 57	23 38	24 45	25 40	01 53	
MIÉRCOLES	00	184 03.9	S16 30.1	72 23.0	11.9	S 9 23.9	15.3	58.7	30	17 09	17 34	18 02	23 46	24 50	25 40	01 54
	01	199 03.9	30.9	86 53.9	11.8	9 08.6	15.3	58.7	20	17 23	17 46	18 12	24 00	25 40	01 57	
	02	214 03.9	31.6	101 24.7	11.9	8 53.3	15.4	58.8	N 10	17 35	17 57	18 22	24 13	25 40	01 59	
	03	229 03.8	32.3	115 55.6	11.9	8 37.9	15.4	58.8	0	17 47	18 09	18 34	24 24	25 40	02 00	
	04	244 03.8	33.0	130 26.5	11.9	8 22.5	15.5	58.9	S 10	17 59	18 21	18 47	24 35	25 40	02 02	
	05	259 03.7	33.8	144 57.4	11.8	8 07.0	15.6	58.9	20	18 12	18 35	19 03	24 46	25 40	02 04	
	06	274 03.7	S16 34.5	159 28.2	11.9	S 7 51.4	15.6	58.9	30	18 27	18 53	19 23	24 57	25 40	02 06	
	07	289 03.6	35.2	173 59.1	11.9	7 35.8	15.7	59.0	35	18 36	19 03	19 36	25 08	25 40	02 07	
	08	304 03.6	35.9	188 30.0	11.9	7 20.1	15.8	59.0	40	18 46	19 16	19 52	25 19	25 40	02 09	
	09	319 03.6	36.7	203 00.9	11.8	7 04.3	15.8	59.0	45	18 58	19 31	20 12	25 30	25 40	02 10	
	10	334 03.5	37.4	217 31.7	11.9	6 48.5	15.8	59.1	S 50	19 12	19 49	20 38	25 41	25 40	02 12	
	11	349 03.5	38.1	232 02.6	11.8	6 32.7	16.0	59.1	52	19 19	19 59	20 51	25 52	25 40	02 13	
	12	4 03.4	S16 38.8	246 33.4	11.9	S 6 16.7	15.9	59.1	54	19 26	20 09	21 07	26 03	25 40	02 14	
	13	19 03.4	39.6	261 04.3	11.8	6 00.8	16.0	59.2	56	19 35	20 21	21 27	26 14	25 40	02 15	
	14	34 03.3	40.3	275 35.1	11.8	5 44.8	16.1	59.2	58	19 44	20 35	21 51	26 25	25 40	02 16	
	15	49 03.3	41.0	290 05.9	11.8	5 28.7	16.1	59.3	S 60	19 55	20 51	22 28	26 36	25 40	02 17	
	16	64 03.2	41.7	304 36.7	11.8	5 12.6	16.2	59.3	Día	SOL E.T. (+)		LUNA				
	17	79 03.2	42.5	319 07.5	11.8	4 56.4	16.2	59.3		00 h	12 h	Pas. Mer.	Pas. Sup.	Mer. Inf.	Edad.	Fase
	18	94 03.1	S16 43.2	333 38.3	11.8	S 4 40.2	16.2	59.4	6	m s	m s	h m	h m	h m	d	
	19	109 03.1	43.9	348 09.1	11.7	4 24.0	16.3	59.4	7	16 22						



T.M.G. (TU)	ARIES			VENUS -4.4			MARTE +1.7			JUPITER -2.6			SATURNO +0.6			ESTRELLAS										
	d	h	A.H.G.	A.H.G.	Dec.	A.H.G.	Dec.	A.H.G.	Dec.	A.H.G.	Dec.	A.H.G.	Dec.	Nombre	A. H. S.	Dec.										
J U E V E S	9	00	48 08.8	134 05.7	S26 55.4	197 00.0	S12 07.7	306 33.4	N22 47.3	127 19.8	S22 41.9	Acamar	315 31.2	S40 20.5												
	01	63 11.3	149 05.4	55.3	212 00.8	08.3	321 36.0	47.3	142 22.0	41.9	Achernar	335 39.1	S57 17.3													
	02	78 13.7	164 05.1	55.3	227 01.7	08.9	336 38.5	47.3	157 24.3	41.9	Acrux	173 30.1	S63 02.4													
	03	93 16.2	179 04.7	55.2	242 02.5	09.5	351 41.1	47.3	172 26.5	41.9	Adhara	255 26.3	S28 57.2													
	04	108 18.7	194 04.4	55.1	257 03.4	10.1	6 43.7	47.3	187 28.7	41.9	Aldebaran	291 09.5	N16 29.6													
	05	123 21.1	209 04.0	55.1	272 04.2	10.7	21 46.2	47.3	202 30.9	41.8																
	06	138 23.6	224 03.7	S26 55.0	287 05.1	S12 11.3	36 48.8	N22 47.3	217 33.2	S22 41.8	Alioth	166 36.4	N56 00.7													
	07	153 26.1	239 03.4	55.0	302 05.9	11.9	51 51.3	47.3	232 35.4	41.8	Alkaid	153 13.1	N49 21.7													
	08	168 28.5	254 03.1	54.9	317 06.8	12.5	66 53.9	47.4	247 37.6	41.8	Al Na'ir	28 05.7	S47 00.8													
	09	183 31.0	269 02.7	54.9	332 07.6	13.1	81 56.5	47.4	262 39.9	41.8	Alnilam	276 04.1	S 1 12.3													
	10	198 33.5	284 02.4	54.8	347 08.5	13.6	96 59.0	47.4	277 42.1	41.8	Alphard	218 13.5	S 8 36.7													
	11	213 35.9	299 02.1	54.7	2 09.4	14.2	112 01.6	47.4	292 44.3	41.8																
	12	228 38.4	314 01.7	S26 54.7	17 10.2	S12 14.8	127 04.2	N22 47.4	307 46.6	S22 41.8	Alphecca	126 26.3	N26 44.9													
	13	243 40.8	329 01.4	54.6	32 11.1	15.4	142 06.7	47.4	322 48.8	41.7	Alpheratz	358 01.8	N29 02.3													
	14	258 43.3	344 01.1	54.6	47 11.9	16.0	157 09.3	47.4	337 51.0	41.7	Altair	62 25.7	N 8 50.5													
	15	273 45.8	359 00.7	54.5	62 12.8	16.6	172 11.9	47.4	352 53.3	41.7	Ankaa	353 32.7	S42 21.7													
	16	288 48.2	14 00.4	54.4	77 13.6	17.2	187 14.5	47.5	7 55.5	41.7	Antares	112 48.4	S26 24.7													
	17	303 50.7	29 00.1	54.4	92 14.5	17.8	202 17.0	47.5	22 57.7	41.7																
	18	318 53.2	43 59.8	S26 54.3	107 15.3	S12 18.4	217 19.6	N22 47.5	38 00.0	S22 41.7	Arcturus	146 12.2	N19 14.0													
	19	333 55.6	58 59.5	54.2	122 16.2	19.0	232 22.2	47.5	53 02.2	41.7	Atria	108 06.9	S69 00.8													
	20	348 58.1	73 59.1	54.1	137 17.0	19.5	247 24.7	47.5	68 04.4	41.7	Avior	234 25.3	S59 28.2													
	21	4 00.6	88 58.8	54.1	152 17.9	20.1	262 27.3	47.5	83 06.6	41.7	Bellatrix	278 50.8	N 6 20.7													
	22	19 03.0	103 58.5	54.0	167 18.7	20.7	277 29.9	47.5	98 08.9	41.6	Betelgeuse	271 20.2	N 7 24.5													
23	34 05.5	118 58.2	53.9	182 19.6	21.3	292 32.4	47.5	113 11.1	41.6																	
V I E R N E S	10	00	49 08.0	133 57.8	S26 53.9	197 20.4	S12 21.9	307 35.0	N22 47.5	128 13.3	S22 41.6	Canopus	264 03.7	S52 41.0												
	01	64 10.4	148 57.5	53.8	212 21.3	22.5	322 37.6	47.6	143 15.6	41.6	Capella	281 00.3	N45 59.4													
	02	79 12.9	163 57.2	53.7	227 22.1	23.1	337 40.2	47.6	158 17.8	41.6	Deneb	49 43.8	N45 14.9													
	03	94 15.3	178 56.9	53.6	242 23.0	23.7	352 42.7	47.6	173 20.0	41.6	Denebola	182 51.9	N14 37.7													
	04	109 17.8	193 56.6	53.5	257 23.8	24.2	7 45.3	47.6	188 22.3	41.6	Diphda	349 13.3	S18 02.4													
	05	124 20.3	208 56.3	53.5	272 24.7	24.8	22 47.9	47.6	203 24.5	41.6																
	06	139 22.7	223 56.0	S26 53.4	287 25.5	S12 25.4	37 50.5	N22 47.6	218 26.7	S22 41.5	Dubhe	194 13.3	N61 48.1													
	07	154 25.2	238 55.6	53.3	302 26.4	26.0	52 53.0	47.6	233 28.9	41.5	Elnath	278 34.8	N28 36.1													
	08	169 27.7	253 55.3	53.2	317 27.2	26.6	67 55.6	47.6	248 31.2	41.5	Eltanin	90 54.8	N51 29.5													
	09	184 30.1	268 55.0	53.1	332 28.1	27.2	82 58.2	47.7	263 33.4	41.5	Enif	34 04.5	N 9 49.8													
	10	199 32.6	283 54.7	53.1	347 28.9	27.8	98 00.8	47.7	278 35.6	41.5	Fomalhaut	15 43.3	S29 40.6													
	11	214 35.1	298 54.4	53.0	2 29.8	28.4	113 03.3	47.7	293 37.9	41.5																
	12	229 37.5	313 54.1	S26 52.9	17 30.6	S12 28.9	128 05.9	N22 47.7	308 40.1	S22 41.5	Gacrux	172 21.5	S57 03.2													
	13	244 40.0	328 53.8	52.8	32 31.5	29.5	143 08.5	47.7	323 42.3	41.5	Gienah	176 10.9	S17 29.0													
	14	259 42.5	343 53.5	52.7	47 32.3	30.1	158 11.1	47.7	338 44.5	41.4	Hadar	149 14.1	S60 19.4													
	15	274 44.9	358 53.2	52.6	62 33.2	30.7	173 13.6	47.7	353 46.8	41.4	Hamal	328 20.6	N23 25.1													
	16	289 47.4	13 52.9	52.5	77 34.0	31.3	188 16.2	47.7	8 49.0	41.4	Kaus Aust.	84 07.6	S34 23.6													
	17	304 49.8	28 52.6	52.4	92 34.9	31.9	203 18.8	47.8	23 51.2	41.4																
	18	319 52.3	43 52.3	S26 52.3	107 35.7	S12 32.5	218 21.4	N22 47.8	38 53.5	S22 41.4	Kochab	137 20.0	N74 11.7													
	19	334 54.8	58 52.0	52.2	122 36.6	33.0	233 23.9	47.8	53 55.7	41.4	Markab	13 55.9	N15 09.2													
	20	349 57.2	73 51.7	52.1	137 37.4	33.6	248 26.5	47.8	68 57.9	41.4	Menkar	314 33.3	N 4 03.2													
	21	4 59.7	88 51.4	52.1	152 38.3	34.2	263 29.1	47.8	84 00.1	41.4	Menkent	148 29.1	S36 19.2													
	22	20 02.2	103 51.1	52.0	167 39.1	34.8	278 31.7	47.8	99 02.4	41.3	Miaplacidus	221 43.7	S69 40.1													
23	35 04.6	118 50.8	51.9	182 40.0	35.4	293 34.3	47.8	114 04.6	41.3																	
S A B I D O	11	00	50 07.1	133 50.5	S26 51.8	197 40.8	S12 36.0	308 36.8	N22 47.8	129 06.8	S22 41.3	Mirfak	309 05.5	N49 49.7												
	01	65 09.6	148 50.2	51.7	212 41.7	36.6	323 39.4	47.9	144 09.1	41.3	Nunki	76 20.5	S26 18.7													
	02	80 12.0	163 49.9	51.6	227 42.5	37.1	338 42.0	47.9	159 11.3	41.3	Peacock	53 47.1	S56 46.4													
	03	95 14.5	178 49.6	51.5	242 43.4	37.7	353 44.6	47.9	174 13.5	41.3	Pollux	243 49.2	N28 03.1													
	04	110 16.9	193 49.3	51.3	257 44.2	38.3	8 47.2	47.9	189 15.7	41.3	Procyon	245 18.1	N 5 15.2													
	05	125 19.4	208 49.0	51.2	272 45.0	38.9	23 49.8	47.9	204 18.0	41.3																
	06	140 21.9	223 48.7	S26 51.1	287 45.9	S12 39.5	38 52.3	N22 47.9	219 20.2	S22 41.2	Rasalhague	96 23.2	N12 34.0													
	07	155 24.3	238 48.4	51.0	302 46.7	40.1	53 54.9	47.9	234 22.4	41.2	Regulus	208 02.4	N12 01.0													
	08	170 26.8	253 48.1	50.9	317 47.6	40.6	68 57.5	47.9	249 24.6	41.2	Rigel	281 28.8	S 8 12.5													
	09	185 29.3	268 47.8	50.8	332 48.4	41.2	84 00.1	48.0	264 26.9	41.2	Rigil Kent.	140 16.9	S60 47.6													
	10	200 31.7	283 47.5	50.7	347 49.3	41.8	99 02.7	48.0	279 29.1	41.2	Sabik	102 33.2	S15 42.9													
	11	215 34.2	298 47.2	50.6	2 50.1	42.4	114 05.3	48.0	294 31.3	41.2																
	12	230 36.7	313 47.0	S26 50.5	17 51.0	S12 43.0	129 07.8	N22 48.0	309 33.5	S22 41.2	Schedar	350 00.7	N56 29.2													
	13	245 39.1	328 46.7	50.4	32 51.8	43.6	144 10.4	48.0	324 35.8	41.2	Shaula	96 46.4	S37 06.0													
	14	260 41.6	343 46.4	50.3	47 52.7	44.1	159 13.0	48.0	339 38.0	41.1	Sirius	258 49.1	S16 41.9													
	15	275 44.1	358 46.1	50.1	62 53.5	44.7	174 15.6	48.0	354 40.2	41.1	Spica	158 50.3	S11 06.5													
	16	290 46.5	13 45.8	50.0	77 54.3	45.3	189 18.2	48.0	9 42.4	41.1	Suhail	223 05.5	S43 23.1													
	17	305 49.0	28 45.5	49.9	92 55.2	45.9	204 20.8	48.1	24 44.7	41.1																
	18	320 51.4	43 45.3	S26 49.8	107 56.0	S12 46.5	219 23.4	N22 48.1	39 46.9	S22 41.1	Vega	80 51.3	N38 46.5													
	19	335 53.9	58 45.0	49.7	122 56.9	47.1	234 25.9	48.1	54 49.1	41.1	Zuben'ubi	137 25.5	S16 00.0													
	20	350 56.4	73 44.7	49.6	137 57.7	47.6	249 28.5	48.1	69 51.3	41.1																
	21	5 58.8	88 44.4	49.4	152 58.6	48.2	264 31.1	48.1	84 53.6	41.1																
	22	21 01.3	103 44.1	49.3	167 59.4	48.8	279 33.7	48.1	99 55.8	41.0																
23	36 03.8	118 43.9	49.2	183 00.2	49.4	294 36.3	48.1	114 58.0	41.0																	
Pas. Mer.															A. H. S.			Pas. Mer.								
h m															o /			h m								
20 40.1															v -0.3 d 0.1			v 0.8 d 0.6			v 2.6 d 0.0			v 2.2 d 0.0		
															Venus			84 49.9 15 04								
															Marte			148 12.5 10 50								
															Júpiter			258 27.1 3 29								
															Saturno			79 05.4 15 25								



T.M.G. (TU)	SOL		LUNA				Lat.	Crepúsculo		Orto Sol	Orto Luna							
	A.H.G.	Dec.	A.H.G.	v	Dec.	d		P.H.	Naut.		Civil	9	10	11	12			
												h m	h m	h m	h m	h m	h m	h m
J U E V E S	9 00	184 02.9	S16 47.5	60 42.6	11.7	S 3	02.1	16.4	59.6	N 72	06 41	08 11	10 02	14 16	13 40	12 51	h m	
	01	199 02.8	48.2	75 13.3	11.6	2	45.7	16.6	59.6	N 70	06 33	07 52	09 18	14 17	13 50	13 16	12 06	
	02	214 02.8	48.9	89 43.9	11.6	2	29.1	16.5	59.6	68	06 26	07 37	08 50	14 18	13 58	13 35	12 57	
	03	229 02.7	49.6	104 14.5	11.6	2	12.6	16.6	59.7	66	06 20	07 24	08 28	14 18	14 06	13 51	13 29	
	04	244 02.7	50.4	118 45.1	11.5	1	56.0	16.6	59.7	64	06 15	07 14	08 11	14 19	14 12	14 03	13 54	
	05	259 02.6	51.1	133 15.6	11.5	1	39.4	16.6	59.7	62	06 11	07 05	07 57	14 20	14 17	14 14	14 13	
	06	274 02.6	S16 51.8	147 46.1	11.5	S 1	22.8	16.7	59.8	60	06 07	06 58	07 45	14 20	14 22	14 24	14 29	
	07	289 02.5	52.5	162 16.6	11.4	0	06.1	16.7	59.8	N 58	06 03	06 51	07 35	14 21	14 26	14 32	14 42	
	08	304 02.5	53.2	176 47.0	11.5	0	49.4	16.7	59.9	56	06 00	06 45	07 26	14 21	14 29	14 40	14 54	
	09	319 02.4	53.9	191 17.5	11.3	0	32.7	16.8	59.9	54	05 56	06 39	07 18	14 21	14 33	14 46	15 04	
	10	334 02.3	54.6	205 47.8	11.4	S 0	15.9	16.7	59.9	52	05 53	06 34	07 11	14 22	14 36	14 52	15 13	
	11	349 02.3	55.3	220 18.2	11.3	N 0	00.8	16.8	59.9	50	05 51	06 30	07 04	14 22	14 38	14 58	15 22	
	12	4 02.2	S16 56.1	234 48.5	11.2	N 0	17.6	16.8	60.0	45	05 44	06 19	06 51	14 23	14 44	15 09	15 39	
	13	19 02.2	56.8	249 18.7	11.3	0	34.4	16.8	60.0	N 40	05 38	06 11	06 39	14 23	14 50	15 19	15 54	
	14	34 02.1	57.5	263 49.0	11.1	0	51.2	16.8	60.0	35	05 33	06 03	06 29	14 24	14 54	15 28	16 06	
	15	49 02.1	58.2	278 19.1	11.2	1	08.0	16.9	60.1	30	05 27	05 56	06 21	14 24	14 58	15 35	16 17	
	16	64 02.0	58.9	292 49.3	11.1	1	24.9	16.8	60.1	20	05 17	05 43	06 06	14 25	15 05	15 48	16 36	
	17	79 02.0	16 59.6	307 19.4	11.0	1	41.7	16.9	60.1	N 10	05 06	05 31	05 53	14 26	15 11	16 00	16 53	
	18	94 01.9	S17 00.3	321 49.4	11.0	N 1	58.6	16.9	60.2	0	04 54	05 19	05 40	14 26	15 17	16 10	17 08	
	19	109 01.9	01.0	336 19.4	11.0	2	15.5	16.8	60.2	S 10	04 40	05 06	05 28	14 27	15 23	16 21	17 24	
	20	124 01.8	01.7	350 49.4	10.9	2	32.3	16.9	60.2	20	04 24	04 51	05 14	14 28	15 29	16 33	17 41	
	21	139 01.7	02.4	5 19.3	10.8	2	49.2	16.9	60.3	30	04 02	04 33	04 59	14 29	15 36	16 47	18 00	
	22	154 01.7	03.1	19 49.1	10.8	3	06.1	16.9	60.3	35	03 49	04 22	04 50	14 29	15 40	16 55	18 12	
23	169 01.6	03.9	34 18.9	10.8	3	23.0	16.9	60.3	40	03 33	04 09	04 39	14 30	15 45	17 04	18 25		
Y I E R N E S	10 00	184 01.6	S17 04.6	48 48.7	10.7	N 3	39.9	16.8	60.4	S 50	02 45	03 34	04 12	14 32	15 58	17 28	19 01	
	01	199 01.5	05.3	63 18.4	10.6	3	56.7	16.9	60.4	52	02 30	03 24	04 05	14 32	16 01	17 34	19 10	
	02	214 01.5	06.0	77 48.0	10.6	4	13.6	16.9	60.4	54	02 14	03 14	03 57	14 32	16 04	17 41	19 20	
	03	229 01.4	06.7	92 17.6	10.5	4	30.5	16.8	60.4	56	01 53	03 01	03 48	14 33	16 08	17 48	19 32	
	04	244 01.3	07.4	106 47.1	10.5	4	47.3	16.9	60.5	58	01 26	02 47	03 38	14 34	16 13	17 57	19 46	
	05	259 01.3	08.1	121 16.6	10.4	5	04.2	16.8	60.5	S 60	00 43	02 29	03 27	14 34	16 18	18 07	20 03	
	06	274 01.2	S17 08.8	135 46.0	10.3	N 5	21.0	16.9	60.5									
	07	289 01.2	09.5	150 15.3	10.3	5	37.9	16.8	60.6	Lat.	Ocaso Sol	Crepúsculo Civil	Naut.	Ocaso Luna	9	10	11	12
	08	304 01.1	10.2	164 44.6	10.2	5	54.7	16.8	60.6									
	09	319 01.0	10.9	179 13.8	10.1	6	11.5	16.7	60.6									
	10	334 01.0	11.6	193 42.9	10.1	6	28.2	16.8	60.6	N 72	13 24	15 16	16 45	01 25	03 49	06 30	h m	
	11	349 00.9	12.3	208 12.0	10.0	6	45.0	16.7	60.7	N 70	14 08	15 35	16 54	01 29	03 43	06 08	09 16	
	12	4 00.9	S17 13.0	222 41.0	9.9	N 7	01.7	16.7	60.7	68	14 37	15 50	17 01	01 33	03 37	05 51	08 27	
	13	19 00.8	13.7	237 09.9	9.9	7	18.4	16.7	60.7	66	14 59	16 02	17 06	01 35	03 32	05 37	07 56	
	14	34 00.7	14.4	251 38.8	9.7	7	35.1	16.7	60.7	64	15 16	16 13	17 12	01 38	03 29	05 26	07 33	
	15	49 00.7	15.1	266 07.5	9.8	7	51.8	16.6	60.8	62	15 30	16 22	17 16	01 40	03 25	05 16	07 15	
	16	64 00.6	15.8	280 36.3	9.6	8	08.4	16.6	60.8	60	15 42	16 29	17 20	01 41	03 22	05 08	07 00	
	17	79 00.5	16.5	295 04.9	9.6	8	25.0	16.5	60.8	N 58	15 52	16 36	17 24	01 43	03 20	05 01	06 48	
	18	94 00.5	S17 17.2	309 33.5	9.4	N 8	41.5	16.5	60.8	56	16 01	16 42	17 27	01 44	03 18	04 55	06 37	
	19	109 00.4	17.9	324 01.9	9.4	8	58.0	16.5	60.8	54	16 09	16 48	17 31	01 45	03 16	04 49	06 27	
	20	124 00.3	18.6	338 30.3	9.4	9	14.5	16.4	60.9	52	16 16	16 53	17 34	01 47	03 14	04 44	06 19	
	21	139 00.3	19.3	352 58.7	9.2	9	30.9	16.4	60.9	50	16 23	16 58	17 37	01 48	03 12	04 40	06 11	
	22	154 00.2	20.0	7 26.9	9.2	9	47.3	16.4	60.9	45	16 37	17 08	17 43	01 50	03 08	04 30	05 55	
23	169 00.1	20.7	21 55.1	9.0	10	03.7	16.3	60.9	N 40	16 48	17 17	17 49	01 51	03 05	04 22	05 42		
S A B A D O	11 00	184 00.1	S17 21.3	36 23.1	9.0	N10	20.0	16.2	61.0	35	16 58	17 25	17 55	01 53	03 03	04 15	05 31	
	01	199 00.0	22.0	50 51.1	8.9	10	36.2	16.2	61.0	30	17 07	17 32	18 00	01 54	03 01	04 09	05 22	
	02	213 59.9	22.7	65 19.0	8.9	10	52.4	16.2	61.0	20	17 22	17 45	18 11	01 57	02 57	03 59	05 05	
	03	228 59.9	23.4	79 46.9	8.7	11	08.6	16.0	61.0	N 10	17 35	17 57	18 22	01 59	02 53	03 50	04 51	
	04	243 59.8	24.1	94 14.6	8.6	11	24.6	16.1	61.0	0	17 47	18 09	18 34	02 00	02 50	03 42	04 37	
	05	258 59.7	24.8	108 42.2	8.6	11	40.7	15.9	61.0	S 10	18 00	18 22	18 48	02 02	02 47	03 33	04 24	
	06	273 59.7	S17 25.5	123 09.8	8.5	N11	56.6	15.9	61.1	20	18 14	18 37	19 05	02 04	02 43	03 24	04 10	
	07	288 59.6	26.2	137 37.3	8.3	12	12.5	15.9	61.1	30	18 29	18 55	19 26	02 06	02 39	03 14	03 54	
	08	303 59.5	26.9	152 04.6	8.3	12	28.4	15.8	61.1	35	18 39	19 06	19 40	02 07	02 37	03 08	03 44	
	09	318 59.5	27.6	166 31.9	8.2	12	44.2	15.7	61.1	40	18 49	19 19	19 56	02 09	02 34	03 02	03 34	
	10	333 59.4	28.2	180 59.1	8.1	12	59.9	15.6	61.1	45	19 02	19 35	20 17	02 10	02 31	02 54	03 21	
	11	348 59.3	28.9	195 26.2	8.0	13	15.5	15.6	61.1	S 50	19 17	19 55	20 45	02 12	02 28	02 45	03 06	
	12	3 59.3	S17 29.6	209 53.2	7.9	N13	31.1	15.4	61.2	52	19 24	20 05	20 59	02 13	02 26	02 41	02 59	
	13	18 59.2	30.3	224 20.1	7.8	13	46.5	15.5	61.2	54	19 32	20 16	21 16	02 14	02 24	02 36	02 52	
	14	33 59.1	31.0	238 46.9	7.7	14	02.0	15.3	61.2	56	19 41	20 29	21 38	02 15	02 23	02 31	02 43	
	15	48 59.0	31.7	253 13.6	7.6	14	17.3	15.2	61.2	58	19 51	20 43	22 06	02 16	02 20	02 26	02 33	
	16	63 59.0	32.4	267 40.2	7.5	14	32.5	15.2	61.2	S 60	20 03	21 02	22 54	02 17	02 1			



T.M.G. (TU)	ARIES			VENUS -4.5			MARTE +1.7			JUPITER -2.6			SATURNO +0.6			ESTRELLAS			
	A.H.G.	A.H.G.	Dec.	A.H.G.	Dec.		A.H.G.	Dec.		A.H.G.	Dec.		A.H.G.	Dec.		Nombre	A. H. S.	Dec.	
D O M I N G O	12 00	51 06.2	133 43.6	S26 49.1	198 01.1	S12 50.0	309 38.9	N22 48.2	130 00.2	S22 41.0			Acamar	315 31.2	S40 20.5				
	01	66 08.7	148 43.3	48.9	213 01.9	50.6	324 41.5	48.2	145 02.5	41.0			Achernar	335 39.1	S57 17.3				
	02	81 11.2	163 43.0	48.8	228 02.8	51.1	339 44.1	48.2	160 04.7	41.0			Acrux	173 30.1	S63 02.4				
	03	96 13.6	178 42.8	48.7	243 03.6	51.7	354 46.7	48.2	175 06.9	41.0			Adhara	255 26.3	S28 57.2				
	04	111 16.1	193 42.5	48.6	258 04.5	52.3	9 49.2	48.2	190 09.1	41.0			Aldebaran	291 09.4	N16 29.6				
	05	126 18.6	208 42.2	48.4	273 05.3	52.9	24 51.8	48.2	205 11.4	41.0									
	06	141 21.0	223 42.0	S26 48.3	288 06.1	S12 53.5	39 54.4	N22 48.2	220 13.6	S22 40.9			Alioth	166 36.4	N56 00.7				
	07	156 23.5	238 41.7	48.2	303 07.0	54.0	54 57.0	48.2	235 15.8	40.9			Alkaid	153 13.1	N49 21.7				
	08	171 25.9	253 41.4	48.0	318 07.8	54.6	69 59.6	48.3	250 18.0	40.9			Al Na'ir	28 05.7	S47 00.8				
	09	186 28.4	268 41.2	47.9	333 08.7	55.2	85 02.2	48.3	265 20.3	40.9			Alnilam	276 04.1	S 1 12.3				
	10	201 30.9	283 40.9	47.8	348 09.5	55.8	100 04.8	48.3	280 22.5	40.9			Alphard	218 13.5	S 8 36.7				
	11	216 33.3	298 40.6	47.6	3 10.3	56.4	115 07.4	48.3	295 24.7	40.9									
	12	231 35.8	313 40.4	S26 47.5	18 11.2	S12 56.9	130 10.0	N22 48.3	310 26.9	S22 40.9			Alphecca	126 26.3	N26 44.9				
	13	246 38.3	328 40.1	47.4	33 12.0	57.5	145 12.6	48.3	325 29.1	40.8			Alpheratz	358 01.8	N29 02.3				
	14	261 40.7	343 39.8	47.2	48 12.9	58.1	160 15.2	48.3	340 31.4	40.8			Altair	62 25.7	N 8 50.5				
	15	276 43.2	358 39.6	47.1	63 13.7	58.7	175 17.8	48.4	355 33.6	40.8			Ankaa	353 32.7	S42 21.7				
	16	291 45.7	13 39.3	46.9	78 14.5	59.3	190 20.4	48.4	10 35.8	40.8			Antares	112 48.4	S26 24.7				
	17	306 48.1	28 39.1	46.8	93 15.4	12 59.8	205 23.0	48.4	25 38.0	40.8									
	18	321 50.6	43 38.8	S26 46.7	108 16.2	S13 00.4	220 25.6	N22 48.4	40 40.3	S22 40.8			Arcturus	146 12.2	N19 14.0				
	19	336 53.0	58 38.5	46.5	123 17.1	01.0	235 28.2	48.4	55 42.5	40.8			Atria	108 06.9	S69 00.8				
	20	351 55.5	73 38.3	46.4	138 17.9	01.6	250 30.8	48.4	70 44.7	40.8			Avior	234 25.2	S59 28.2				
	21	6 58.0	88 38.0	46.2	153 18.7	02.1	265 33.3	48.4	85 46.9	40.7			Bellatrix	278 50.8	N 6 20.7				
	22	22 00.4	103 37.8	46.1	168 19.6	02.7	280 35.9	48.5	100 49.1	40.7			Betelgeuse	271 20.2	N 7 24.5				
23	37 02.9	118 37.5	45.9	183 20.4	03.3	295 38.5	48.5	115 51.4	40.7										
L U N E S	13 00	52 05.4	133 37.3	S26 45.8	198 21.3	S13 03.9	310 41.1	N22 48.5	130 53.6	S22 40.7			Canopus	264 03.6	S52 41.1				
	01	67 07.8	148 37.0	45.6	213 22.1	04.5	325 43.7	48.5	145 55.8	40.7			Capella	281 00.3	N45 59.4				
	02	82 10.3	163 36.8	45.5	228 22.9	05.0	340 46.3	48.5	160 58.0	40.7			Deneb	49 43.8	N45 14.9				
	03	97 12.8	178 36.5	45.3	243 23.8	05.6	355 48.9	48.5	176 00.3	40.7			Denebola	182 51.9	N14 37.7				
	04	112 15.2	193 36.3	45.2	258 24.6	06.2	10 51.5	48.5	191 02.5	40.7			Diphda	349 13.4	S18 02.4				
	05	127 17.7	208 36.0	45.0	273 25.4	06.8	25 54.1	48.6	206 04.7	40.6									
	06	142 20.2	223 35.8	S26 44.9	288 26.3	S13 07.3	40 56.7	N22 48.6	221 06.9	S22 40.6			Dubhe	194 13.3	N61 48.1				
	07	157 22.6	238 35.5	44.7	303 27.1	07.9	55 59.3	48.6	236 09.1	40.6			Elnath	278 34.7	N28 36.1				
	08	172 25.1	253 35.3	44.6	318 28.0	08.5	71 01.9	48.6	251 11.4	40.6			Eltanin	90 54.8	N51 29.5				
	09	187 27.5	268 35.1	44.4	333 28.8	09.1	86 04.5	48.6	266 13.6	40.6			Enif	34 04.5	N 9 49.8				
	10	202 30.0	283 34.8	44.2	348 29.6	09.7	101 07.1	48.6	281 15.8	40.6			Fomalhaut	15 43.3	S29 40.6				
	11	217 32.5	298 34.6	44.1	3 30.5	10.2	116 09.7	48.6	296 18.0	40.6									
	12	232 34.9	313 34.3	S26 43.9	18 31.3	S13 10.8	131 12.3	N22 48.7	311 20.2	S22 40.5			Gacrux	172 21.5	S57 03.2				
	13	247 37.4	328 34.1	43.8	33 32.1	11.4	146 14.9	48.7	326 22.5	40.5			Gienah	176 10.9	S17 29.1				
	14	262 39.9	343 33.9	43.6	48 33.0	12.0	161 17.6	48.7	341 24.7	40.5			Hadar	149 14.1	S60 19.4				
	15	277 42.3	358 33.6	43.4	63 33.8	12.5	176 20.2	48.7	356 26.9	40.5			Hamal	328 20.6	N23 25.1				
	16	292 44.8	13 33.4	43.3	78 34.6	13.1	191 22.8	48.7	11 29.1	40.5			Kaus Aust.	84 07.6	S34 23.6				
	17	307 47.3	28 33.2	43.1	93 35.5	13.7	206 25.4	48.7	26 31.3	40.5									
	18	322 49.7	43 32.9	S26 42.9	108 36.3	S13 14.3	221 28.0	N22 48.7	41 33.6	S22 40.5			Kochab	137 20.0	N74 11.7				
	19	337 52.2	58 32.7	42.8	123 37.2	14.8	236 30.6	48.8	56 35.8	40.5			Markab	13 55.9	N15 09.2				
	20	352 54.7	73 32.5	42.6	138 38.0	15.4	251 33.2	48.8	71 38.0	40.4			Menkar	314 33.3	N 4 03.2				
	21	7 57.1	88 32.2	42.4	153 38.8	16.0	266 35.8	48.8	86 40.2	40.4			Menkent	148 29.0	S36 19.2				
	22	22 59.6	103 32.0	42.3	168 39.7	16.6	281 38.4	48.8	101 42.4	40.4			Miaplacidus	221 43.7	S69 40.2				
23	38 02.0	118 31.8	42.1	183 40.5	17.1	296 41.0	48.8	116 44.7	40.4										
M A R T E S	14 00	53 04.5	133 31.5	S26 41.9	198 41.3	S13 17.7	311 43.6	N22 48.8	131 46.9	S22 40.4			Mirfak	309 05.4	N49 49.7				
	01	68 07.0	148 31.3	41.7	213 42.2	18.3	326 46.2	48.8	146 49.1	40.4			Nunki	76 20.5	S26 18.7				
	02	83 09.4	163 31.1	41.6	228 43.0	18.9	341 48.8	48.9	161 51.3	40.4			Peacock	53 47.1	S56 46.4				
	03	98 11.9	178 30.9	41.4	243 43.8	19.4	356 51.4	48.9	176 53.5	40.3			Pollux	243 49.2	N28 03.1				
	04	113 14.4	193 30.6	41.2	258 44.7	20.0	11 54.0	48.9	191 55.7	40.3			Procyon	245 18.1	N 5 15.2				
	05	128 16.8	208 30.4	41.0	273 45.5	20.6	26 56.6	48.9	206 58.0	40.3									
	06	143 19.3	223 30.2	S26 40.9	288 46.3	S13 21.2	41 59.3	N22 48.9	222 00.2	S22 40.3			Rasalhague	96 23.2	N12 34.0				
	07	158 21.8	238 30.0	40.7	303 47.2	21.7	57 01.9	48.9	237 02.4	40.3			Regulus	208 02.4	N12 01.0				
	08	173 24.2	253 29.8	40.5	318 48.0	22.3	72 04.5	48.9	252 04.6	40.3			Rigel	281 28.8	S 8 12.5				
	09	188 26.7	268 29.5	40.3	333 48.8	22.9	87 07.1	49.0	267 06.8	40.3			Rigil Kent.	140 16.9	S60 47.6				
	10	203 29.2	283 29.3	40.1	348 49.6	23.4	102 09.7	49.0	282 09.1	40.2			Sabik	102 33.2	S15 42.9				
	11	218 31.6	298 29.1	39.9	3 50.5	24.0	117 12.3	49.0	297 11.3	40.2									
	12	233 34.1	313 28.9	S26 39.8	18 51.3	S13 24.6	132 14.9	N22 49.0	312 13.5	S22 40.2			Schedar	350 00.7	N56 29.2				
	13	248 36.5	328 28.7	39.6	33 52.1	25.2	147 17.5	49.0	327 15.7	40.2			Shaula	96 46.4	S37 06.0				
	14	263 39.0	343 28.5	39.4	48 53.0	25.7	162 20.1	49.0	342 17.9	40.2			Sirius	258 49.1	S16 41.9				
	15	278 41.5	358 28.3	39.2	63 53.8	26.3	177 22.7	49.0	357 20.1	40.2			Spica	158 50.3	S11 06.5				
	16	293 43.9	13 28.1	39.0	78 54.6	26.9	192 25.4	49.1	12 22.4	40.2			Suhail	223 05.6	S43 23.2				



T.M.G. (TU)	SOL		LUNA				Lat.	Crepúsculo		Orto Sol	Orto Luna					
	A.H.G.	Dec.	A.H.G.	v	Dec.	d		P.H.	Naut.		Civil	12	13	14	15	
												h	m	h	m	h
DOMINGO	12 00	183 58.4	S17 37.8	23 09.5	6.7	N16 31.2	14.4	61.3	N 72	06 52	08 25	10 33	12 06	13 06	14 13	15 01
	01	198 58.3	38.5	37 35.2	6.6	16 45.6	14.3	61.3	N 70	06 43	08 04	09 36	12 06	13 06	14 13	15 01
	02	213 58.2	39.2	52 00.8	6.5	16 59.9	14.2	61.3	68	06 35	07 47	09 03	12 57	13 29	14 34	15 01
	03	228 58.1	39.9	66 26.3	6.4	17 14.1	14.1	61.3	66	06 28	07 34	08 39	13 29	13 38	14 39	15 01
	04	243 58.1	40.5	80 51.7	6.3	17 28.2	14.0	61.3	64	06 23	07 22	08 21	13 54	13 38	14 20	15 01
	05	258 58.0	41.2	95 17.0	6.2	17 42.2	13.8	61.3	62	06 17	07 13	08 06	14 13	14 13	14 20	15 01
	06	273 57.9	S17 41.9	109 42.2	6.1	N17 56.0	13.7	61.3	60	06 13	07 04	07 53	14 29	14 39	15 02	15 54
	07	288 57.8	42.6	124 07.3	6.0	18 09.7	13.6	61.3	N 58	06 09	06 57	07 42	14 42	14 59	15 30	16 27
	08	303 57.8	43.3	138 32.3	5.9	18 23.3	13.5	61.3	56	06 05	06 50	07 32	14 54	15 16	15 53	16 51
	09	318 57.7	43.9	152 57.2	5.8	18 36.8	13.4	61.3	54	06 01	06 44	07 24	15 04	15 31	16 11	17 10
	10	333 57.6	44.6	167 22.0	5.6	18 50.2	13.3	61.3	52	05 58	06 39	07 16	15 13	15 43	16 26	17 27
	11	348 57.5	45.3	181 46.6	5.6	19 03.5	13.1	61.3	50	05 55	06 34	07 09	15 22	15 54	16 40	17 41
	12	3 57.4	S17 46.0	196 11.2	5.5	N19 16.6	12.9	61.3	45	05 48	06 23	06 55	15 39	16 18	17 08	18 10
	13	18 57.4	46.6	210 35.7	5.3	19 29.5	12.9	61.3	N 40	05 41	06 14	06 43	15 54	16 37	17 30	18 32
	14	33 57.3	47.3	225 00.0	5.3	19 42.4	12.7	61.3	35	05 35	06 06	06 32	16 06	16 53	17 48	18 51
	15	48 57.2	48.0	239 24.3	5.2	19 55.1	12.6	61.3	30	05 29	05 58	06 23	16 17	17 07	18 04	19 07
	16	63 57.1	48.6	253 48.5	5.0	20 07.7	12.4	61.3	20	05 18	05 45	06 08	16 36	17 30	18 30	19 34
	17	78 57.0	49.3	268 12.5	5.0	20 20.1	12.3	61.3	N 10	05 06	05 32	05 54	16 53	17 51	18 53	19 58
	18	93 57.0	S17 50.0	282 36.5	4.8	N20 32.4	12.2	61.3	0	04 54	05 19	05 41	17 08	18 10	19 15	20 20
	19	108 56.9	50.7	297 00.3	4.8	20 44.6	12.0	61.3	S 10	04 39	05 05	05 28	17 24	18 30	19 37	20 42
	20	123 56.8	51.3	311 24.1	4.7	20 56.6	11.9	61.3	20	04 22	04 50	05 13	17 41	18 51	20 00	21 05
	21	138 56.7	52.0	325 47.8	4.5	21 08.5	11.7	61.3	30	04 00	04 31	04 57	18 00	19 15	20 27	21 32
	22	153 56.6	52.7	340 11.3	4.5	21 20.2	11.5	61.3	35	03 46	04 20	04 47	18 12	19 30	20 43	21 48
23	168 56.5	53.3	354 34.8	4.4	21 31.7	11.5	61.3	40	03 29	04 06	04 36	18 25	19 46	21 02	22 07	
LUNES	13 00	183 56.5	S17 54.0	8 58.2	4.2	N21 43.2	11.2	61.3	45	03 07	03 50	04 23	18 41	20 07	21 25	22 30
	01	198 56.4	54.7	23 21.4	4.2	21 54.4	11.1	61.3	S 50	02 38	03 29	04 07	19 01	20 32	21 54	22 59
	02	213 56.3	55.3	37 44.6	4.1	22 05.5	10.9	61.3	52	02 23	03 19	04 00	19 10	20 44	22 08	23 13
	03	228 56.2	56.0	52 07.7	4.0	22 16.4	10.8	61.3	54	02 05	03 07	03 52	19 20	20 59	22 25	23 29
	04	243 56.1	56.7	66 30.7	3.9	22 27.2	10.6	61.3	56	01 42	02 54	03 42	19 32	21 15	22 45	23 48
	05	258 56.0	57.3	80 53.6	3.8	22 37.8	10.5	61.3	58	01 11	02 38	03 32	19 46	21 35	23 09	24 12
	06	273 55.9	S17 58.0	95 16.4	3.8	N22 48.3	10.2	61.3	S 60	00 04	02 19	03 19	20 03	22 00	23 43	24 44
	07	288 55.9	58.7	109 39.2	3.6	22 58.5	10.1	61.3	Lat.	Ocaso Sol	Crepúsculo		Ocaso Luna			
	08	303 55.8	17 59.3	124 01.8	3.5	23 08.6	10.0	61.2	Civil	Naut.	12	13	14	15		
	09	318 55.7	18 00.0	138 24.3	3.5	23 18.6	9.7	61.2	h m	h m	h m	h m	h m	h m	h m	h m
	10	333 55.6	00.7	152 46.8	3.4	23 28.3	9.6	61.2	N 72	12 55	15 03	16 35	19 16	20 56	22 30	24 06
	11	348 55.5	01.3	167 09.2	3.3	23 37.9	9.4	61.2	N 70	13 51	15 24	16 45	19 16	20 56	22 30	24 06
	12	3 55.4	S18 02.0	181 31.5	3.2	N23 47.3	9.3	61.2	68	14 24	15 41	16 52	19 16	20 56	22 30	24 06
	13	18 55.3	02.6	195 53.7	3.2	23 56.6	9.0	61.2	66	14 48	15 54	16 59	19 16	20 56	22 30	24 06
	14	33 55.2	03.3	210 15.9	3.1	24 05.6	8.9	61.2	64	15 07	16 05	17 05	19 16	20 56	22 30	24 06
	15	48 55.2	04.0	224 38.0	3.0	24 14.5	8.7	61.2	62	15 22	16 15	17 10	19 16	20 56	22 30	24 06
	16	63 55.1	04.6	239 00.0	2.9	24 23.2	8.5	61.1	60	15 35	16 23	17 15	19 16	20 56	22 30	24 06
	17	78 55.0	05.3	253 21.9	2.9	24 31.7	8.3	61.1	N 58	15 46	16 31	17 19	19 16	20 56	22 30	24 06
	18	93 54.9	S18 05.9	267 43.8	2.8	N24 40.0	8.2	61.1	56	15 56	16 38	17 23	19 16	20 56	22 30	24 06
	19	108 54.8	06.6	282 05.6	2.7	24 48.2	7.9	61.1	54	16 04	16 43	17 27	19 16	20 56	22 30	24 06
	20	123 54.7	07.3	296 27.3	2.7	24 56.1	7.8	61.1	52	16 12	16 49	17 30	19 16	20 56	22 30	24 06
	21	138 54.6	07.9	310 49.0	2.6	25 03.9	7.5	61.1	50	16 19	16 54	17 33	19 16	20 56	22 30	24 06
	22	153 54.5	08.6	325 10.6	2.5	25 11.4	7.4	61.0	45	16 33	17 05	17 40	19 16	20 56	22 30	24 06
23	168 54.4	09.2	339 32.1	2.5	25 18.8	7.2	61.0	N 40	16 45	17 14	17 47	19 16	20 56	22 30	24 06	
MARTES	14 00	183 54.3	S18 09.9	353 53.6	2.5	N25 26.0	6.9	61.0	35	16 56	17 23	17 53	19 16	20 56	22 30	24 06
	01	198 54.2	10.5	8 15.1	2.4	25 32.9	6.8	61.0	30	17 05	17 30	17 59	19 16	20 56	22 30	24 06
	02	213 54.1	11.2	22 36.5	2.3	25 39.7	6.6	61.0	20	17 21	17 44	18 10	19 16	20 56	22 30	24 06
	03	228 54.1	11.8	36 57.8	2.3	25 46.3	6.4	60.9	N 10	17 35	17 57	18 22	19 16	20 56	22 30	24 06
	04	243 54.0	12.5	51 19.1	2.3	25 52.7	6.2	60.9	0	17 48	18 10	18 35	19 16	20 56	22 30	24 06
	05	258 53.9	13.1	65 40.4	2.2	25 58.9	6.0	60.9	S 10	18 01	18 23	18 49	19 16	20 56	22 30	24 06
	06	273 53.8	S18 13.8	80 01.6	2.2	N26 04.9	5.8	60.9	20	18 15	18 39	19 07	19 16	20 56	22 30	24 06
	07	288 53.7	14.4	94 22.8	2.1	26 10.7	5.6	60.8	30	18 32	18 58	19 29	19 16	20 56	22 30	24 06
	08	303 53.6	15.1	108 43.9	2.1	26 16.3	5.4	60.8	35	18 42	19 10	19 43	19 16	20 56	22 30	24 06
	09	318 53.5	15.7	123 05.0	2.1	26 21.7	5.2	60.8	40	18 53	19 23	20 01	19 16	20 56	22 30	24 06
	10	333 53.4	16.4	137 26.1	2.1	26 26.9	4.9	60.8	45	19 06	19 40	20 23	19 16	20 56	22 30	24 06
	11	348 53.3	17.0	151 47.2	2.0	26 31.8	4.8	60.8	S 50	19 22	20 01	20 52	19 16	20 56	22 30	24 06
	12	3 53.2	S18 17.7	166 08.2	2.0	N26 36.6	4.6	60.7	52	19 30	20 11	21 07	19 16	20 56	22 30	24 06
	13	18 53.1	18.3	180 29.2	2.0	26 41.2	4.4	60.7	54	19 38	20 23	21 26	19 16	20 56	22 30	24 06
	14	33 53.0	19.0	194 50.2	2.0	26 45.6	4.1	60.7	56	19 48	20 36	21 49	19 16	20 56	22 30	24 06
	15	48 52.9	19.6	209 11.2	2.0	26 49.7	4.0	60.6	58	19 59	20 52	22 23	19 16	20 56	22 30	24 06
	16	63 52.8	20.3	223 32.2	1.9	26 53.7	3.7	60.6	S 60	20 11	21 12	///	19 16	20 56	22 30	24 06
	17	78 52.7	20.9	237 53.1	2.0	26 57.4	3.6	60.6	Día	SOL E.T. (+)		LUNA				
	18	93 52.6	S18 21.6	252 14.1	2.0	N27 01.0	3.3	60.6	00 h	12 h	Pas. Mer.	Pas. Sup.	Mer. Inf.	Edad	Fase	
	19	108 52.5	22.2	266 35.1	1.											



T.M.G. (TU)	ARIES			VENUS -4.5			MARTE +1.7			JUPITER -2.6			SATURNO +0.6			ESTRELLAS		
	A.H.G.	A.H.G.	Dec.	A.H.G.	Dec.	A.H.G.	Dec.	A.H.G.	Dec.	A.H.G.	Dec.	A.H.G.	Dec.	Nombre	A. H. S.	Dec.		
M I E R C O L E S	15 00	54 03.6	133 26.4	S26 37.5	199 01.3	S13 31.4	312 46.3	N22 49.2	132 40.1	S22 40.1	Acomar	315 31.2	S40 20.6	Acarnar	335 39.1	S57 17.3		
	01	69 06.1	148 26.2	37.3	214 02.1	32.0	327 48.9	49.2	147 42.3	40.0	Achernar	173 30.0	S63 02.4	Acrux	255 26.2	S28 57.2		
	02	84 08.6	163 26.0	37.1	229 02.9	32.6	342 51.5	49.2	162 44.5	40.0	Adhara	291 09.4	N16 29.6	Aldebaran	166 36.4	N56 00.6		
	03	99 11.0	178 25.8	36.9	244 03.8	33.2	357 54.1	49.2	177 46.7	40.0	Alioth	153 13.1	N49 21.6	Alkaid	28 05.7	S47 00.8		
	04	114 13.5	193 25.6	36.7	259 04.6	33.7	12 56.7	49.2	192 49.0	40.0	Al Na'ir	276 04.1	S 1 12.3	Alnilam	218 13.5	S 8 36.7		
	05	129 16.0	208 25.4	36.5	274 05.4	34.3	27 59.4	49.3	207 51.2	40.0	Alphard	126 26.3	N26 44.8	Alphecca	358 01.8	N29 02.3		
	06	144 18.4	223 25.2	S26 36.3	289 06.2	S13 34.9	43 02.0	N22 49.3	222 53.4	S22 40.0	Altair	62 25.7	N 8 50.5	Alpheratz	353 32.7	S42 21.7		
	07	159 20.9	238 25.0	36.1	304 07.1	35.4	58 04.6	49.3	237 55.6	40.0	Antares	112 48.4	S26 24.7	Alphair	146 12.2	N19 14.0		
	08	174 23.4	253 24.8	35.9	319 07.9	36.0	73 07.2	49.3	252 57.8	39.9	Atria	108 06.9	S69 00.8	Ankaa	234 25.2	S59 28.2		
	09	189 25.8	268 24.7	35.7	334 08.7	36.6	88 09.8	49.3	268 00.0	39.9	Avior	278 50.7	N 6 20.7	Arcturus	271 20.2	N 7 24.5		
	10	204 28.3	283 24.5	35.5	349 09.6	37.1	103 12.4	49.3	283 02.2	39.9	Bellatrix	271 20.2	N 7 24.5	Atrix	108 06.9	S69 00.8		
	11	219 30.8	298 24.3	35.3	4 10.4	37.7	118 15.1	49.3	298 04.5	39.9	Betelgeuse	264 03.6	S52 41.1	Avior	234 25.2	S59 28.2		
	12	234 33.2	313 24.1	S26 35.0	19 11.2	S13 38.3	133 17.7	N22 49.4	313 06.7	S22 39.9	Canopus	281 00.3	N45 59.4	Arcturus	146 12.2	N19 14.0		
	13	249 35.7	328 23.9	34.8	34 12.0	38.8	148 20.3	49.4	328 08.9	39.9	Capella	49 43.8	N45 14.9	Atrix	108 06.9	S69 00.8		
	14	264 38.1	343 23.7	34.6	49 12.9	39.4	163 22.9	49.4	343 11.1	39.9	Deneb	182 51.8	N14 37.7	Avior	234 25.2	S59 28.2		
	15	279 40.6	358 23.5	34.4	64 13.7	40.0	178 25.5	49.4	358 13.3	39.8	Denebola	349 13.4	S18 02.4	Bellatrix	278 50.7	N 6 20.7		
	16	294 43.1	13 23.4	34.2	79 14.5	40.6	193 28.2	49.4	13 15.5	39.8	Diphda	349 13.4	S18 02.4	Betelgeuse	271 20.2	N 7 24.5		
	17	309 45.5	28 23.2	34.0	94 15.3	41.1	208 30.8	49.4	28 17.7	39.8	Elnath	278 50.7	N28 36.1	Alphard	218 13.5	S 8 36.7		
	18	324 48.0	43 23.0	S26 33.8	109 16.2	S13 41.7	223 33.4	N22 49.5	43 20.0	S22 39.8	Eltanin	90 54.8	N51 29.5	Alphecca	126 26.3	N26 44.8		
	19	339 50.5	58 22.8	33.6	124 17.0	42.3	238 36.0	49.5	58 22.2	39.8	Enif	34 04.6	N 9 49.8	Alpheratz	358 01.8	N29 02.3		
	20	354 52.9	73 22.6	33.4	139 17.8	42.8	253 38.7	49.5	73 24.4	39.8	Fomalhaut	15 43.3	S29 40.6	Alphair	62 25.7	N 8 50.5		
	21	9 55.4	88 22.5	33.1	154 18.6	43.4	268 41.3	49.5	88 26.6	39.8	Gacrux	172 21.4	S57 03.2	Alphair	62 25.7	N 8 50.5		
	22	24 57.9	103 22.3	32.9	169 19.5	44.0	283 43.9	49.5	103 28.8	39.7	Gienah	176 10.8	S17 29.1	Alphair	62 25.7	N 8 50.5		
23	40 00.3	118 22.1	32.7	184 20.3	44.5	298 46.5	49.5	118 31.0	39.7	Hadar	149 14.0	S60 19.4	Alphair	62 25.7	N 8 50.5			
J U E V E S	16 00	55 02.8	133 21.9	S26 32.5	199 21.1	S13 45.1	313 49.2	N22 49.6	133 33.2	S22 39.7	Canopus	264 03.6	S52 41.1	Canopus	264 03.6	S52 41.1		
	01	70 05.3	148 21.8	32.3	214 21.9	45.7	328 51.8	49.6	148 35.5	39.7	Capella	281 00.3	N45 59.4	Capella	281 00.3	N45 59.4		
	02	85 07.7	163 21.6	32.0	229 22.8	46.2	343 54.4	49.6	163 37.7	39.7	Deneb	49 43.8	N45 14.9	Deneb	49 43.8	N45 14.9		
	03	100 10.2	178 21.4	31.8	244 23.6	46.8	358 57.0	49.6	178 39.9	39.7	Denebola	182 51.8	N14 37.7	Denebola	182 51.8	N14 37.7		
	04	115 12.6	193 21.2	31.6	259 24.4	47.4	13 59.7	49.6	193 42.1	39.7	Diphda	349 13.4	S18 02.4	Diphda	349 13.4	S18 02.4		
	05	130 15.1	208 21.1	31.4	274 25.2	47.9	29 02.3	49.6	208 44.3	39.6	Dubhe	194 13.2	N61 48.1	Dubhe	194 13.2	N61 48.1		
	06	145 17.6	223 20.9	S26 31.1	289 26.1	S13 48.5	44 04.9	N22 49.6	223 46.5	S22 39.6	Elnath	278 50.7	N28 36.1	Elnath	278 50.7	N28 36.1		
	07	160 20.0	238 20.7	30.9	304 26.9	49.1	59 07.5	49.7	238 48.7	39.6	Eltanin	90 54.8	N51 29.5	Eltanin	90 54.8	N51 29.5		
	08	175 22.5	253 20.6	30.7	319 27.7	49.6	74 10.2	49.7	253 50.9	39.6	Enif	34 04.6	N 9 49.8	Enif	34 04.6	N 9 49.8		
	09	190 25.0	268 20.4	30.5	334 28.5	50.2	89 12.8	49.7	268 53.2	39.6	Fomalhaut	15 43.3	S29 40.6	Fomalhaut	15 43.3	S29 40.6		
	10	205 27.4	283 20.3	30.2	349 29.4	50.7	104 15.4	49.7	283 55.4	39.6	Gacrux	172 21.4	S57 03.2	Gacrux	172 21.4	S57 03.2		
11	220 29.9	298 20.1	30.0	4 30.2	51.3	119 18.0	49.7	298 57.6	39.6	Gienah	176 10.8	S17 29.1	Gienah	176 10.8	S17 29.1			
V I E R N E S	16 00	56 01.9	133 18.1	S26 26.9	199 40.8	S13 58.6	314 52.2	N22 49.9	134 26.3	S22 39.4	Mirfak	309 05.4	N49 49.8	Mirfak	309 05.4	N49 49.8		
	01	71 04.4	148 18.0	26.7	214 41.7	59.2	329 54.9	50.0	149 28.5	39.3	Nunki	76 20.5	S26 18.7	Nunki	76 20.5	S26 18.7		
	02	86 06.9	163 17.8	26.4	229 42.5	13 59.8	344 57.5	50.0	164 30.8	39.3	Peacock	53 47.1	S56 46.4	Peacock	53 47.1	S56 46.4		
	03	101 09.3	178 17.7	26.2	244 43.3	14 00.3	0 00.1	50.0	179 33.0	39.3	Pollux	243 49.1	N28 03.1	Pollux	243 49.1	N28 03.1		
	04	116 11.8	193 17.5	26.0	259 44.1	00.9	15 02.8	50.0	194 35.2	39.3	Procyon	245 18.1	N 5 15.2	Procyon	245 18.1	N 5 15.2		
	05	131 14.2	208 17.4	25.7	274 44.9	01.5	30 05.4	50.0	209 37.4	39.3	Rasalhague	96 23.2	N12 34.0	Rasalhague	96 23.2	N12 34.0		
	06	146 16.7	223 17.3	S26 25.5	289 45.8	S14 02.0	45 08.0	N22 50.0	224 39.6	S22 39.3	Regulus	208 02.4	N12 01.0	Regulus	208 02.4	N12 01.0		
	07	161 19.2	238 17.1	25.2	304 46.6	02.6	60 10.7	50.1	239 41.8	39.3	Rigel	281 28.8	S 8 12.6	Rigel	281 28.8	S 8 12.6		
	08	176 21.6	253 17.0	25.0	319 47.4	03.1	75 13.3	50.1	254 44.0	39.2	Rigil Kent.	140 16.9	S60 47.6	Rigil Kent.	140 16.9	S60 47.6		
	09	191 24.1	268 16.8	24.7	334 48.2	03.7	90 15.9	50.1	269 46.2	39.2	Sabik	102 33.2	S15 42.9	Sabik	102 33.2	S15 42.9		
	10	206 26.6	283 16.7	24.5	349 49.0	04.3	105 18.6	50.1	284 48.4	39.2	Schedar	350 00.7	N56 29.2	Schedar	350 00.7	N56 29.2		
11	221 29.0	298 16.6	24.2	4 49.9	04.8	120 21.2	50.1	299 50.6	39.2	Shaula	96 46.4	S37 06.0	Shaula	96 46.4	S37 06.0			
P A S. M E R. 2 0	16 00	236 31.5	313 16.4	S26 23.9	19 50.7	S14 05.4	135 23.8	N22 50.1	314 52.9	S22 39.2	Sirius	258 49.1	S16 41.9	Sirius	258 49.1	S16 41.9		
	01	251 34.0	328 16.3	23.7	34 51.5	05.9	150 26.5	50.2	329 55.1	39.2	Spica	158 50.3	S11 06.5	Spica	158 50.3	S11 06.5		
	02	266 36.4	343 16.2	23.4	49 52.3	06.5	165 29.1	50.2	344 57.3	39.2	Suhail	223 05.5	S43 23.2	Suhail	223 05.5	S43 23.2		
	03	281 38.9	358 16.1	23.2	64 53.1	07.1	180 31.8	50.2	359 59.5	39.1	Vega	80 51.3	N38 46.5	Vega	80 51.3	N38 46.5		
	04	296 41.4	13 15.9	22.9	79 53.9	07.6	195 34.4	50.2	15 01.7	39.1	Zuben'ubi	137 25.5	S16 00.0	Zuben'ubi	137 25.5	S16 00.0		
	05	311 43.8	28 15.8	22.7	94 54.8	08.2	210 37.0	50.2	30 03.9	39.1	Venus	78 19.1	h 07	Venus	78 19.1	h 07		
	06	326 46.3	43 15.7	S26 22.4	109 55.6	S14 08.7	225 39.7	N22 50.2	45 06.1	S22 39.1	Marte	144 18.3	10 42	Marte	144 18.3	10 42		
	07	341 48.7	58 15.6	22.1	124 56.4	09.3	240 42.3	50.3	60 08.3	39.1	Júpiter	258 46.4	3 04	Júpiter	258 46.4	3 04		
	08	356 51.2	73 15.4	21.9	139 57.2	09.9	255 45.0	50.3	75 10.5	39.1	Saturno	78 30.5	15 04	Saturno	78 30.5	15 04		
	09	11 53.7	88 15.3	21.6	154 58.0	10.4	270 47.6	50.3	90 12.7	39.1								
	10	26 56.1	103 15.2	21.4	169 58.8	11.0	285 50.2	50.3	105 14.9	39.0								
11	41 58.6	118 15.1	21.1	184 59.7	11.5	300 52.9	50.3	120 17.2	39.0									



T.M.G. (TU)	SOL		LUNA				Lat.	Crepúsculo		Orto Sol	Orto- Luna					
	A.H.G.	Dec.	A.H.G.	v	Dec.	d		P.H.	Náut.		Civil	15	16	17	18	
									h			m	h	m	h	m
M I E R E S	15 00	183 52.0	S18 25.4	338 19.9	2.0	N27 17.9	2.1	60.4	N 72	07 03	08 39	11 30	□	□	□	□
	01	198 51.9	26.1	352 40.9	2.1	27 20.0	1.9	60.4	N 70	06 52	08 15	09 56	□	□	□	18 28
	02	213 51.8	26.7	7 02.0	2.0	27 21.9	1.7	60.3	68	06 44	07 57	09 17	□	□	□	19 17
	03	228 51.7	27.4	21 23.0	2.1	27 23.6	1.5	60.3	66	06 36	07 42	08 51	□	□	17 19	19 49
	04	243 51.6	28.0	35 44.1	2.1	27 25.1	1.2	60.3	64	06 30	07 30	08 30	□	□	18 10	20 11
	05	258 51.5	28.6	50 05.2	2.1	27 26.3	1.1	60.2	62	06 24	07 20	08 14	15 01	16 45	18 42	20 30
	06	273 51.4	S18 29.3	64 26.3	2.2	N27 27.4	0.9	60.2	60	06 19	07 11	08 00	15 54	17 23	19 05	20 45
	07	288 51.3	29.9	78 47.5	2.2	27 28.3	0.6	60.2	N 58	06 14	07 03	07 49	16 27	17 49	19 24	20 57
	08	303 51.2	30.5	93 08.7	2.3	27 28.9	0.5	60.1	56	06 10	06 56	07 38	16 51	18 10	19 39	21 08
	09	318 51.1	31.2	107 30.0	2.3	27 29.4	0.2	60.1	54	06 06	06 50	07 29	17 10	18 27	19 53	21 18
	10	333 51.0	31.8	121 51.3	2.3	27 29.6	0.1	60.1	52	06 03	06 44	07 21	17 27	18 42	20 04	21 26
	11	348 50.8	32.4	136 12.6	2.4	27 29.7	0.2	60.0	50	05 59	06 39	07 14	17 41	18 55	20 14	21 34
	12	3 50.7	S18 33.1	150 34.0	2.5	N27 29.5	0.3	60.0	45	05 51	06 27	06 59	18 10	19 21	20 36	21 50
	13	18 50.6	33.7	164 55.5	2.5	27 29.2	0.6	60.0	N 40	05 44	06 17	06 46	18 32	19 42	20 53	22 03
	14	33 50.5	34.4	179 17.0	2.5	27 28.6	0.7	59.9	35	05 38	06 08	06 35	18 51	19 59	21 08	22 14
	15	48 50.4	35.0	193 38.5	2.7	27 27.9	1.0	59.9	30	05 32	06 00	06 26	19 07	20 14	21 20	22 24
	16	63 50.3	35.6	208 00.2	2.7	27 26.9	1.1	59.9	20	05 19	05 46	06 09	19 34	20 39	21 42	22 40
	17	78 50.2	36.2	222 21.9	2.7	27 25.8	1.3	59.8	N 10	05 07	05 33	05 55	19 58	21 01	22 00	22 55
	18	93 50.1	S18 36.9	236 43.6	2.8	N27 24.5	1.6	59.8	0	04 54	05 19	05 41	20 20	21 21	22 17	23 08
	19	108 50.0	37.5	251 05.4	2.9	27 22.9	1.7	59.8	S 10	04 39	05 05	05 27	20 42	21 41	22 35	23 22
	20	123 49.9	38.1	265 27.3	3.0	27 21.2	1.9	59.7	20	04 21	04 49	05 13	21 05	22 03	22 53	23 36
	21	138 49.8	38.8	279 49.3	3.1	27 19.3	2.1	59.7	30	03 58	04 29	04 55	21 32	22 28	23 14	23 52
	22	153 49.7	39.4	294 11.4	3.1	27 17.2	2.3	59.6	35	03 43	04 17	04 45	21 48	22 42	23 26	24 02
23	168 49.5	40.0	308 33.5	3.2	27 14.9	2.5	59.6	40	03 26	04 03	04 34	22 07	22 59	23 40	24 12	
16 00	183 49.4	S18 40.7	322 55.7	3.3	N27 12.4	2.7	59.6	45	03 03	03 46	04 20	22 30	23 20	23 57	24 25	
01	198 49.3	41.3	337 18.0	3.4	27 09.7	2.9	59.5	S 50	02 32	03 24	04 03	22 59	23 45	24 17	00 17	
02	213 49.2	41.9	351 40.4	3.5	27 06.8	3.1	59.5	52	02 16	03 14	03 56	23 13	23 57	24 27	00 27	
03	228 49.1	42.5	6 02.9	3.5	27 03.7	3.2	59.5	54	01 56	03 01	03 47	23 29	24 11	00 11	00 37	
04	243 49.0	43.2	20 25.4	3.7	27 00.5	3.4	59.4	56	01 31	02 47	03 37	23 48	24 27	00 27	00 50	
05	258 48.9	43.8	34 48.1	3.7	26 57.1	3.6	59.4	58	00 53	02 30	03 25	24 12	00 12	00 46	01 04	
06	273 48.8	S18 44.4	49 10.8	3.9	N26 53.5	3.8	59.3	S 60	///	02 10	03 12	24 44	00 44	01 10	01 20	
07	288 48.7	45.0	63 33.7	4.0	26 49.7	4.0	59.3	Lat.	Ocaso Sol	Crepúsculo		Ocaso Luna				
08	303 48.5	45.7	77 56.7	4.0	26 45.7	4.1	59.3			Civil	Náut.	15	16	17	18	
09	318 48.4	46.3	92 19.7	4.2	26 41.6	4.3	59.2					h m	h m	h m	h m	
10	333 48.3	46.9	106 42.9	4.2	26 37.3	4.5	59.2	N 72	11 59	14 50	16 25	□	□	□	□	
11	348 48.2	47.5	121 06.1	4.4	26 32.8	4.7	59.1	N 70	13 33	15 13	16 36	□	□	□	15 43	
12	3 48.1	S18 48.1	135 29.5	4.5	N26 28.1	4.8	59.1	68	14 11	15 31	16 45	□	□	□	14 51	
13	18 48.0	48.8	149 53.0	4.6	26 23.3	5.0	59.1	66	14 38	15 46	16 52	□	□	15 00	14 19	
14	33 47.8	49.4	164 16.6	4.7	26 18.3	5.2	59.0	64	14 58	15 58	16 59	□	□	14 09	13 55	
15	48 47.7	50.0	178 40.3	4.8	26 13.1	5.3	59.0	62	15 15	16 09	17 05	13 06	13 33	13 37	13 36	
16	63 47.6	50.6	193 04.1	4.9	26 07.8	5.5	58.9	60	15 29	16 18	17 10	12 12	12 55	13 12	13 20	
17	78 47.5	51.2	207 28.0	5.1	26 02.3	5.6	58.9	N 58	15 40	16 26	17 14	11 40	12 28	12 53	13 07	
18	93 47.4	S18 51.9	221 52.1	5.2	N25 56.7	5.9	58.9	56	15 50	16 33	17 19	11 16	12 07	12 37	12 55	
19	108 47.3	52.5	236 16.3	5.2	25 50.8	5.9	58.8	54	15 59	16 39	17 23	10 56	11 49	12 23	12 45	
20	123 47.1	53.1	250 40.5	5.4	25 44.9	6.2	58.8	52	16 08	16 45	17 26	10 40	11 34	12 11	12 36	
21	138 47.0	53.7	265 04.9	5.6	25 38.7	6.3	58.7	50	16 15	16 50	17 30	10 26	11 21	12 00	12 28	
22	153 46.9	54.3	279 29.5	5.6	25 32.4	6.4	58.7	45	16 30	17 02	17 38	09 57	10 54	11 38	12 10	
23	168 46.8	54.9	293 54.1	5.8	25 26.0	6.6	58.7	N 40	16 43	17 12	17 45	09 34	10 33	11 19	11 56	
17 00	183 46.7	S18 55.6	308 18.9	5.9	N25 19.4	6.7	58.6	35	16 54	17 21	17 51	09 15	10 15	11 04	11 43	
01	198 46.5	56.2	322 43.8	6.0	25 12.7	6.9	58.6	30	17 03	17 29	17 58	08 59	10 00	10 50	11 33	
02	213 46.4	56.8	337 08.8	6.2	25 05.8	7.1	58.5	20	17 20	17 43	18 10	08 32	09 33	10 27	11 14	
03	228 46.3	57.4	351 34.0	6.3	24 58.7	7.1	58.5	N 10	17 35	17 57	18 22	08 08	09 11	10 07	10 58	
04	243 46.2	58.0	5 59.3	6.4	24 51.6	7.4	58.5	0	17 48	18 10	18 36	07 46	08 50	09 49	10 42	
05	258 46.1	58.6	20 24.7	6.5	24 44.2	7.4	58.4	S 10	18 02	18 25	18 51	07 24	08 28	09 30	10 27	
06	273 45.9	S18 59.2	34 50.2	6.6	N24 36.8	7.6	58.4	20	18 17	18 41	19 09	07 00	08 05	09 10	10 10	
07	288 45.8	18 59.8	49 15.8	6.8	24 29.2	7.8	58.3	30	18 35	19 01	19 32	06 33	07 39	08 46	09 51	
08	303 45.7	19 00.4	63 41.6	7.0	24 21.4	7.9	58.3	35	18 45	19 13	19 47	06 17	07 23	08 32	09 40	
09	318 45.6	01.1	78 07.6	7.0	24 13.5	8.0	58.3	40	18 56	19 27	20 05	05 58	07 05	08 16	09 27	
10	333 45.5	01.7	92 33.6	7.2	24 05.5	8.1	58.2	45	19 10	19 44	20 28	05 35	06 42	07 56	09 11	
11	348 45.3	02.3	106 59.8	7.3	23 57.4	8.3	58.2	S 50	19 27	20 07	20 59	05 06	06 14	07 32	08 52	
12	3 45.2	S19 02.9	121 26.1	7.4	N23 49.1	8.4	58.1	52	19 35	20 17	21 16	04 51	06 00	07 20	08 43	
13	18 45.1	03.5	135 52.5	7.6	23 40.7	8.5	58.1	54	19 44	20 30	21 36	04 34	05 44	07 07	08 33	
14	33 45.0	04.1	150 19.1	7.7	23 32.2	8.7	58.0	56	19 54	20 44	22 02	04 14	05 25	06 51	08 22	
15	48 44.8	04.7	164 45.8	7.8	23 23.5	8.7	58.0	58	20 06	21 01	22 42	03 50	05 01	06 32	08 08	
16	63 44.7	05.3	179 12.6	8.0	23 14.8	8.9	58.0	S 60	20 19	21 23	///	03 16	04 29	06 09	07 52	
17	78 44.6	05.9	193 39.6	8.1	23 05.9	9.0	57.9	Día	SOL E.T. (+)		LUNA					
18	93 44.5	S19 06.5	208 06.7	8.2	N22 56.9	9.2	57.9		00 h	12 h	Pas. Mer.	Pas. Mer. Sup.	Mer. Inf.	Edad.	Fase	
19	108 44.3	07.1	222 33.9	8.4	22 47.7	9.2	57.8	15	m s	m s	h m	h m	h m	d		
20	123 44.2	07.7	237 01													



T.M.G. (TU)	ARIES			VENUS -4.5			MARTE +1.7			JUPITER -2.6			SATURNO +0.6			ESTRELLAS		
	A.H.G.	A.H.G.	Dec.	A.H.G.	Dec.	A.H.G.	Dec.	A.H.G.	Dec.	A.H.G.	Dec.	A.H.G.	Dec.	Nombre	A. H. S.	Dec.		
18 00	57 01.1	133 15.0	S26 20.8	200 00.5	S14 12.1	315 55.5	N22 50.3	135 19.4	S22 39.0	Acomar	315 31.2	S40 20.6						
01	72 03.5	148 14.9	20.6	215 01.3	12.7	330 58.2	50.4	150 21.6	39.0	Achernar	335 39.1	S57 17.3						
02	87 06.0	163 14.7	20.3	230 02.1	13.2	346 00.8	50.4	165 23.8	39.0	Acrux	173 30.0	S63 02.4						
03	102 08.5	178 14.6	20.0	245 02.9	13.8	1 03.4	50.4	180 26.0	39.0	Adhara	255 26.2	S28 57.2						
04	117 10.9	193 14.5	19.8	260 03.7	14.3	16 06.1	50.4	195 28.2	38.9	Aldebaran	291 09.4	N16 29.6						
05	132 13.4	208 14.4	19.5	275 04.5	14.9	31 08.7	50.4	210 30.4	38.9									
06	147 15.9	223 14.3	S26 19.2	290 05.4	S14 15.4	46 11.4	N22 50.4	225 32.6	S22 38.9	Alioth	166 36.3	N56 00.6						
07	162 18.3	238 14.2	19.0	305 06.2	16.0	61 14.0	50.5	240 34.8	38.9	Alkaid	153 13.1	N49 21.6						
08	177 20.8	253 14.1	18.7	320 07.0	16.6	76 16.7	50.5	255 37.0	38.9	Al Na'ir	28 05.7	S47 00.8						
S 09	192 23.2	268 14.0	18.4	335 07.8	17.1	91 19.3	50.5	270 39.2	38.9	Alnilam	276 04.0	S 1 12.3						
A 10	207 25.7	283 13.9	18.1	350 08.6	17.7	106 21.9	50.5	285 41.4	38.9	Alphard	218 13.5	S 8 36.7						
B 11	222 28.2	298 13.8	17.9	5 09.4	18.2	121 24.6	50.5	300 43.6	38.8									
A 12	237 30.6	313 13.7	S26 17.6	20 10.2	S14 18.8	136 27.2	N22 50.5	315 45.9	S22 38.8	Alphecca	126 26.3	N26 44.8						
D 13	252 33.1	328 13.6	17.3	35 11.0	19.3	151 29.9	50.6	330 48.1	38.8	Alpheratz	358 01.8	N29 02.3						
O 14	267 35.6	343 13.5	17.0	50 11.9	19.9	166 32.5	50.6	345 50.3	38.8	Altair	62 25.7	N 8 50.5						
15	282 38.0	358 13.4	16.8	65 12.7	20.5	181 35.2	50.6	0 52.5	38.8	Ankaa	353 32.7	S42 21.7						
16	297 40.5	13 13.3	16.5	80 13.5	21.0	196 37.8	50.6	15 54.7	38.8	Antares	112 48.4	S26 24.7						
17	312 43.0	28 13.2	16.2	95 14.3	21.6	211 40.5	50.6	30 56.9	38.7									
18	327 45.4	43 13.1	S26 15.9	110 15.1	S14 22.1	226 43.1	N22 50.6	45 59.1	S22 38.7	Arcturus	146 12.2	N19 14.0						
19	342 47.9	58 13.0	15.6	125 15.9	22.7	241 45.8	50.7	61 01.3	38.7	Atria	108 06.9	S69 00.8						
20	357 50.3	73 12.9	15.4	140 16.7	23.2	256 48.4	50.7	76 03.5	38.7	Avior	234 25.2	S59 28.2						
21	12 52.8	88 12.8	15.1	155 17.5	23.8	271 51.1	50.7	91 05.7	38.7	Bellatrix	278 50.7	N 6 20.6						
22	27 55.3	103 12.7	14.8	170 18.3	24.3	286 53.7	50.7	106 07.9	38.7	Betelgeuse	271 20.2	N 7 24.5						
23	42 57.7	118 12.7	14.5	185 19.2	24.9	301 56.4	50.7	121 10.1	38.7									
19 00	58 00.2	133 12.6	S26 14.2	200 20.0	S14 25.5	316 59.0	N22 50.7	136 12.3	S22 38.6	Canopus	264 03.6	S52 41.1						
01	73 02.7	148 12.5	13.9	215 20.8	26.0	332 01.6	50.8	151 14.5	38.6	Capella	281 00.2	N45 59.4						
02	88 05.1	163 12.4	13.6	230 21.6	26.6	347 04.3	50.8	166 16.7	38.6	Deneb	49 43.8	N45 14.9						
03	103 07.6	178 12.3	13.3	245 22.4	27.1	2 06.9	50.8	181 18.9	38.6	Denebola	182 51.8	N14 37.7						
04	118 10.1	193 12.2	13.1	260 23.2	27.7	17 09.6	50.8	196 21.2	38.6	Diphda	349 13.4	S18 02.4						
05	133 12.5	208 12.2	12.8	275 24.0	28.2	32 12.3	50.8	211 23.4	38.6									
06	148 15.0	223 12.1	S26 12.5	290 24.8	S14 28.8	47 14.9	N22 50.9	226 25.6	S22 38.5	Dubhe	194 13.2	N61 48.1						
07	163 17.5	238 12.0	12.2	305 25.6	29.3	62 17.6	50.9	241 27.8	38.5	Elnath	278 34.7	N28 36.1						
D 08	178 19.9	253 11.9	11.9	320 26.4	29.9	77 20.2	50.9	256 30.0	38.5	Eltanin	90 54.8	N51 29.5						
09	193 22.4	268 11.9	11.6	335 27.3	30.4	92 22.9	50.9	271 32.2	38.5	Enif	34 04.6	N 9 49.8						
A 10	208 24.8	283 11.8	11.3	350 28.1	31.0	107 25.5	50.9	286 34.4	38.5	Fomalhaut	15 43.3	S29 40.6						
B 11	223 27.3	298 11.7	11.0	5 28.9	31.5	122 28.2	50.9	301 36.6	38.5									
A 12	238 29.8	313 11.6	S26 10.7	20 29.7	S14 32.1	137 30.8	N22 51.0	316 38.8	S22 38.5	Gacrux	172 21.4	S57 03.2						
D 13	253 32.2	328 11.6	10.4	35 30.5	32.6	152 33.5	51.0	331 41.0	38.4	Gienah	176 10.8	S17 29.1						
O 14	268 34.7	343 11.5	10.1	50 31.3	33.2	167 36.1	51.0	346 43.2	38.4	Hadar	149 14.0	S60 19.4						
15	283 37.2	358 11.4	09.8	65 32.1	33.7	182 38.8	51.0	1 45.4	38.4	Hamal	328 20.5	N23 25.1						
16	298 39.6	13 11.4	09.5	80 32.9	34.3	197 41.4	51.0	16 47.6	38.4	Kaus Aust.	84 07.6	S34 23.6						
17	313 42.1	28 11.3	09.2	95 33.7	34.9	212 44.1	51.0	31 49.8	38.4									
18	328 44.6	43 11.3	S26 08.9	110 34.5	S14 35.4	227 46.7	N22 51.1	46 52.0	S22 38.4	Kochab	137 20.0	N74 11.6						
19	343 47.0	58 11.2	08.6	125 35.3	36.0	242 49.4	51.1	61 54.2	38.3	Markab	13 55.9	N15 09.2						
20	358 49.5	73 11.1	08.3	140 36.1	36.5	257 52.1	51.1	76 56.4	38.3	Menkar	314 33.3	N 4 03.2						
21	13 52.0	88 11.1	08.0	155 36.9	37.1	272 54.7	51.1	91 58.6	38.3	Menkent	148 29.0	S36 19.2						
22	28 54.4	103 11.0	07.7	170 37.8	37.6	287 57.4	51.1	107 00.8	38.3	Miaplacidus	221 43.6	S69 40.2						
23	43 56.9	118 11.0	07.4	185 38.6	38.2	303 00.0	51.2	122 03.0	38.3									
20 00	58 59.3	133 10.9	S26 07.1	200 39.4	S14 38.7	318 02.7	N22 51.2	137 05.2	S22 38.3	Mirfak	309 05.4	N49 49.8						
01	74 01.8	148 10.9	06.8	215 40.2	39.3	333 05.3	51.2	152 07.4	38.2	Nunki	76 20.5	S26 18.7						
02	89 04.3	163 10.8	06.4	230 41.0	39.8	348 08.0	51.2	167 09.6	38.2	Peacock	53 47.1	S56 46.4						
03	104 06.7	178 10.8	06.1	245 41.8	40.4	3 10.7	51.2	182 11.8	38.2	Pollux	243 49.1	N28 03.1						
04	119 09.2	193 10.7	05.8	260 42.6	40.9	18 13.3	51.2	197 14.1	38.2	Procyon	245 18.1	N 5 15.2						
05	134 11.7	208 10.7	05.5	275 43.4	41.5	33 16.0	51.3	212 16.3	38.2									
06	149 14.1	223 10.6	S26 05.2	290 44.2	S14 42.0	48 18.6	N22 51.3	227 18.5	S22 38.2	Rasalhague	96 23.2	N12 34.0						
07	164 16.6	238 10.6	04.9	305 45.0	42.6	63 21.3	51.3	242 20.7	38.2	Regulus	208 02.3	N12 01.0						
08	179 19.1	253 10.5	04.6	320 45.8	43.1	78 24.0	51.3	257 22.9	38.1	Rigel	281 28.8	S 8 12.6						
L 09	194 21.5	268 10.5	04.3	335 46.6	43.7	93 26.6	51.3	272 25.1	38.1	Rigel Kent.	140 16.8	S60 47.6						
10	209 24.0	283 10.5	03.9	350 47.4	44.2	108 29.3	51.4	287 27.3	38.1	Sabik	102 33.2	S15 42.9						
N 11	224 26.4	298 10.4	03.6	5 48.2	44.8	123 31.9	51.4	302 29.5	38.1									
E 12	239 28.9	313 10.4	S26 03.3	20 49.0	S14 45.3	138 34.6	N22 51.4	317 31.7	S22 38.1	Schedar	350 00.7	N56 29.3						
S 13	254 31.4	328 10.3	03.0	35 49.8	45.8	153 37.3	51.4	332 33.9	38.1	Shaula	96 46.4	S37 06.0						
14	269 33.8	343 10.3	02.7	50 50.6	46.4	168 39.9	51.4	347 36.1	38.0	Sirius	258 49.1	S16 41.9						
15	284 36.3	358 10.3	02.3	65 51.4	46.9	183 42.6	51.4	2 38.3	38.0	Spica	158 50.2	S11 06.5						
16	299 38.8	13 10.2	02.0	80 52.2	47.5	198 45.2	51.5	17 40.5	38.0	Suhail	223 05.5	S43 23.2						
17	314 41.2	28 10.2	01.7	95 53.0	48.0	213 47.9	51.5	32 42.7	38.0									
18	329 43.7	43 10.2	S26 01.4	110 53.8	S14 48.6	228 50.6	N22 51.5	47 44.9	S22 38.0	Vega	80 51.3	N38 46.5						
19	344 46.2	58 10.2	01.0	125 54.6	49.1	243 53.2												



T.M.G. (TU)	SOL		LUNA				Lat.	Crepúsculo		Orto Sol	Orto Luna												
	A.H.G.	Dec.	A.H.G.	v	Dec.	d		P.H.	Náut.		Civil	18	19	20	21								
	° / ' / "	° / ' / "	° / ' / "	° / ' / "	° / ' / "	° / ' / "		° / ' / "	h m		h m	h m	h m	h m	h m	h m							
18 00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23	183	43.7	S19	10.1	294	52.0	9.0	N22	00.4	9.8	57.6	N 72	07 13	08 53	h m	h m	h m	h m	h m	h m	h m	h m	
	198	43.6		10.7	309	20.0	9.1	21	50.6	9.9	57.6	N 70	07 02	08 27	10 18	18 28	21 09	23 11	25 01				
	213	43.4		11.3	323	48.1	9.3	21	40.7	10.0	57.6	68	06 52	08 07	09 32	19 17	21 29	23 20	25 03				
	228	43.3		11.9	338	16.4	9.4	21	30.7	10.1	57.5	66	06 44	07 51	09 02	19 49	21 45	23 28	25 04				
	243	43.2		12.5	352	44.8	9.5	21	20.6	10.2	57.5	64	06 37	07 38	08 40	20 11	21 58	23 34	25 05				
	258	43.0		13.1	7	13.3	9.7	21	10.4	10.3	57.4	62	06 30	07 27	08 22	20 30	22 08	23 40	25 06				
	273	42.9	S19	13.7	21	42.0	9.7	N21	00.1	10.4	57.4	60	06 25	07 17	08 08	20 45	22 17	23 44	25 07				
	288	42.8		14.3	36	10.7	9.9	20	49.7	10.5	57.4	N 58	06 20	07 09	07 55	20 57	22 25	23 48	25 08				
	303	42.6		14.9	50	39.6	10.1	20	39.2	10.5	57.3	56	06 15	07 01	07 45	21 08	22 32	23 52	25 09				
	318	42.5		15.5	65	08.7	10.1	20	28.7	10.7	57.3	54	06 11	06 55	07 35	21 18	22 39	23 55	25 09				
	333	42.4		16.1	79	37.8	10.3	20	18.0	10.8	57.2	52	06 07	06 49	07 27	21 26	22 44	23 58	25 10				
	348	42.3		16.7	94	07.1	10.4	20	07.2	10.8	57.2	50	06 03	06 43	07 19	21 34	22 49	24 01	00 01				
	3	42.1	S19	17.3	108	36.5	10.5	N19	56.4	11.0	57.2	45	05 55	06 31	07 03	21 50	23 00	24 07	00 07				
	18	42.0		17.9	123	06.0	10.7	19	45.4	11.0	57.1	N 40	05 47	06 20	06 50	22 03	23 09	24 12	00 12				
	33	41.9		18.4	137	35.7	10.7	19	34.4	11.1	57.1	35	05 40	06 11	06 38	22 14	23 17	24 16	00 16				
	48	41.7		19.0	152	05.4	10.9	19	23.3	11.2	57.1	30	05 34	06 03	06 28	22 24	23 23	24 20	00 20				
	63	41.6		19.6	166	35.3	11.0	19	12.1	11.3	57.0	20	05 21	05 48	06 11	22 40	23 35	24 26	00 26				
	78	41.5		20.2	181	05.3	11.1	19	00.8	11.3	57.0	N 10	05 08	05 34	05 56	22 55	23 45	24 32	00 32				
	93	41.3	S19	20.8	195	35.4	11.3	N18	49.5	11.4	56.9	0	04 54	05 20	05 42	23 08	23 54	24 37	00 37				
	108	41.2		21.4	210	05.7	11.3	18	38.1	11.5	56.9	S 10	04 39	05 05	05 27	23 22	24 04	00 04	00 42				
	123	41.0		22.0	224	36.0	11.5	18	26.6	11.6	56.9	20	04 20	04 48	05 12	23 36	24 14	00 14	00 48				
	138	40.9		22.6	239	06.5	11.6	18	15.0	11.6	56.8	30	03 56	04 28	04 54	23 52	24 25	00 25	00 54				
	153	40.8		23.2	253	37.1	11.7	18	03.4	11.8	56.8	35	03 41	04 15	04 44	24 02	00 02	00 31	00 58				
168	40.6		23.7	268	07.8	11.8	17	51.6	11.7	56.7	40	03 22	04 01	04 32	24 12	00 12	00 39	01 02					
183	40.5	S19	24.3	282	38.6	11.9	N17	39.9	11.9	56.7	45	02 59	03 43	04 17	24 25	00 25	00 47	01 06					
198	40.4		24.9	297	09.5	12.1	17	28.0	11.9	56.7	S 50	02 26	03 20	04 00	00 17	00 40	00 58	01 12					
213	40.2		25.5	311	40.6	12.1	17	16.1	12.0	56.6	52	02 09	03 09	03 51	00 27	00 47	01 02	01 14					
228	40.1		26.1	326	11.7	12.3	17	04.1	12.1	56.6	54	01 48	02 56	03 42	00 37	00 55	01 07	01 17					
243	39.9		26.7	340	43.0	12.3	16	52.0	12.1	56.6	56	01 19	02 41	03 32	00 50	01 04	01 13	01 20					
258	39.8		27.2	355	14.3	12.5	16	39.9	12.1	56.5	58	00 31	02 23	03 20	01 04	01 13	01 20	01 24					
273	39.7	S19	27.8	9	45.8	12.5	N16	27.8	12.3	56.5	S 60	///	02 00	03 06	01 20	01 25	01 27	01 28					
288	39.5		28.4	24	17.3	12.7	16	15.5	12.3	56.5													
303	39.4		29.0	38	49.0	12.8	16	03.2	12.3	56.4	Lat.	Ocaso Sol	Crepúsculo Civil	Náut.	Ocaso Luna	18	19	20	21				
318	39.2		29.6	53	20.8	12.9	15	50.9	12.4	56.4	N 72	h m	h m	h m	h m	h m	h m	h m	h m	h m	h m	h m	
333	39.1		30.2	67	52.7	13.0	15	38.5	12.5	56.4	N 70	13 12	15 03	16 28	15 43	14 39	14 07	13 43					
348	39.0		30.7	82	24.7	13.0	15	26.0	12.5	56.3	68	13 58	15 23	16 38	14 51	14 17	13 56	13 38					
3	38.8	S19	31.3	96	56.7	13.2	N15	13.5	12.6	56.3	66	14 28	15 39	16 46	14 19	14 00	13 46	13 35					
18	38.7		31.9	111	28.9	13.3	15	00.9	12.6	56.2	64	14 50	15 52	16 53	13 55	13 46	13 38	13 31					
33	38.5		32.5	126	01.2	13.4	14	48.3	12.6	56.2	62	15 08	16 03	17 00	13 36	13 34	13 31	13 29					
48	38.4		33.0	140	33.6	13.4	14	35.7	12.8	56.2	60	15 22	16 13	17 05	13 20	13 24	13 25	13 26					
63	38.3		33.6	155	06.0	13.6	14	22.9	12.7	56.1	N 58	15 35	16 21	17 10	13 07	13 15	13 20	13 24					
78	38.1		34.2	169	38.6	13.6	14	10.2	12.8	56.1	56	15 46	16 29	17 15	12 55	13 07	13 15	13 22					
93	38.0	S19	34.8	184	11.2	13.8	N13	57.4	12.9	56.1	54	15 55	16 36	17 19	12 45	13 00	13 11	13 20					
108	37.8		35.3	198	44.0	13.8	13	44.5	12.9	56.0	52	16 04	16 42	17 23	12 36	12 53	13 07	13 19					
123	37.7		35.9	213	16.8	13.9	13	31.6	12.9	56.0	50	16 11	16 47	17 27	12 28	12 48	13 04	13 17					
138	37.5		36.5	227	49.7	14.0	13	18.7	13.0	56.0	45	16 28	17 00	17 35	12 10	12 35	12 56	13 14					
153	37.4		37.1	242	22.7	14.1	13	05.7	13.0	55.9	N 40	16 41	17 10	17 43	11 56	12 25	12 49	13 11					
168	37.2		37.6	256	55.8	14.2	12	52.7	13.1	55.9	35	16 52	17 19	17 50	11 43	12 16	12 44	13 09					
183	37.1	S19	38.2	271	29.0	14.3	N12	39.6	13.1	55.9	30	17 02	17 28	17 57	11 33	12 08	12 39	13 07					
198	37.0		38.8	286	02.3	14.3	12	26.5	13.1	55.9	20	17 20	17 43	18 10	11 14	11 54	12 30	13 03					
213	36.8		39.3	300	35.6	14.4	12	13.4	13.2	55.8	N 10	17 35	17 57	18 23	10 58	11 42	12 22	13 00					
228	36.7		39.9	315	09.0	14.5	12	00.2	13.2	55.8	0	17 49	18 11	18 36	10 42	11 31	12 15	12 57					
243	36.5		40.5	329	42.5	14.6	11	47.0	13.3	55.8	S 10	18 03	18 26	18 52	10 27	11 19	12 08	12 53					
258	36.4		41.0	344	16.1	14.7	11	33.7	13.2	55.7	20	18 19	18 43	19 11	10 10	11 07	12 00	12 50					
273	36.2	S19	41.6	358	49.8	14.7	N11	20.5	13.3	55.7	30	18 37	19 03	19 35	09 51	10 53	11 51	12 46					
288	36.1		42.2	13	23.5	14.8	11	07.2	13.4	55.7	35	18 48	19 16	19 50	09 40	10 45	11 46	12 44					
303	35.9		42.7	27	57.3	14.9	10	53.8	13.3	55.6	40	19 00	19 31	20 09	09 27	10 35	11 40	12 41					
318	35.8		43.3	42	31.2	15.0	10	40.5	13.4	55.6	45	19 14	19 49	20 33	09 11	10 24	11 33	12 38					
333	35.6		43.9	57	05.2	15.0	10	27.1	13.5	55.6	S 50	19 32	20 12	21 06	08 52	10 10	11 24	12 35					
348	35.5		44.4	71	39.2	15.1	10	13.6	13.4	55.6	52	19 40	20 23	21 24	08 43	10 04	11 20	12 33					
3	35.3	S19	45.0	86	13.3	15.1	N10	00.2	13.5	55.5	54	19 50	20 37	21 46	08 33	09 57	11 16	12 31					
18	35.2		45.6	100	47.4	15.3	9	46.7	13.5	55.5	56	20 00	20 52	22 15	08 22	09 49	11 11	12 29</					



T.M.G. (TU)		ARIES			VENUS -4.5			MARTE +1.7			JUPITER -2.6			SATURNO +0.6			ESTRELLAS		
d	h	A.H.G.	A.H.G.	Dec.	A.H.G.	A.H.G.	Dec.	A.H.G.	A.H.G.	Dec.	A.H.G.	A.H.G.	Dec.	Nombre	A. H. S.	Dec.			
M A R T E S	21	00	59 58.5	133 10.0	S25 59.4	200 58.6	S14 51.9	319 06.6	N22 51.6	137 58.1	S22 37.9	Acamar	315 31.2	S40 20.6					
	01	75 00.9	148 10.0	59.1	215 59.4	52.4	334 09.2	51.6	153 00.3	37.9	Achernar	335 39.1	S57 17.3						
	02	90 03.4	163 10.0	58.7	231 00.2	53.0	349 11.9	51.6	168 02.5	37.8	Acrux	173 29.9	S63 02.4						
	03	105 05.9	178 10.0	58.4	246 01.0	53.5	4 14.6	51.7	183 04.7	37.8	Adhara	255 26.2	S28 57.2						
	04	120 08.3	193 10.0	58.1	261 01.8	54.0	19 17.2	51.7	198 06.9	37.8	Aldebaran	291 09.4	N16 29.6						
	05	135 10.8	208 10.0	57.8	276 02.6	54.6	34 19.9	51.7	213 09.1	37.8									
	06	150 13.3	223 10.0	S25 57.4	291 03.4	S14 55.1	49 22.6	N22 51.7	228 11.3	S22 37.8	Alioth	166 36.3	N56 00.6						
	07	165 15.7	238 09.9	57.1	306 04.2	55.7	64 25.2	51.7	243 13.5	37.8	Alkaid	153 13.0	N49 21.6						
	08	180 18.2	253 09.9	56.7	321 05.0	56.2	79 27.9	51.8	258 15.7	37.7	Al Na'ir	28 05.7	S47 00.8						
	09	195 20.7	268 09.9	56.4	336 05.8	56.8	94 30.6	51.8	273 17.9	37.7	Alnilam	276 04.0	S 1 12.3						
	10	210 23.1	283 09.9	56.1	351 06.6	57.3	109 33.2	51.8	288 20.1	37.7	Alphard	218 13.4	S 8 36.7						
	11	225 25.6	298 09.9	55.7	6 07.4	57.9	124 35.9	51.8	303 22.3	37.7									
	12	240 28.1	313 09.9	S25 55.4	21 08.2	S14 58.4	139 38.6	N22 51.8	318 24.5	S22 37.7	Alphecca	126 26.3	N26 44.8						
	13	255 30.5	328 09.9	55.1	36 09.0	58.9	154 41.2	51.9	333 26.7	37.7	Alpheratz	358 01.8	N29 02.3						
	14	270 33.0	343 09.9	54.7	51 09.8	14 59.5	169 43.9	51.9	348 28.9	37.6	Altair	62 25.7	N 8 50.5						
	15	285 35.4	358 09.9	54.4	66 10.6	15 00.0	184 46.6	51.9	3 31.1	37.6	Ankaa	353 32.7	S42 21.7						
	16	300 37.9	13 09.9	54.0	81 11.4	00.6	199 49.3	51.9	18 33.3	37.6	Antares	112 48.4	S26 24.7						
	17	315 40.4	28 09.9	53.7	96 12.2	01.1	214 51.9	51.9	33 35.5	37.6									
	18	330 42.8	43 09.9	S25 53.3	111 13.0	S15 01.7	229 54.6	N22 51.9	48 37.7	S22 37.6	Arcturus	146 12.1	N19 14.0						
	19	345 45.3	58 09.9	53.0	126 13.8	02.2	244 57.3	52.0	63 39.9	37.6	Atria	108 06.9	S69 00.8						
	20	0 47.8	73 09.9	52.6	141 14.6	02.7	259 59.9	52.0	78 42.1	37.5	Avior	234 25.1	S59 28.3						
	21	15 50.2	88 10.0	52.3	156 15.4	03.3	275 02.6	52.0	93 44.3	37.5	Bellatrix	278 50.7	N 6 20.6						
	22	30 52.7	103 10.0	52.0	171 16.2	03.8	290 05.3	52.0	108 46.5	37.5	Betelgeuse	271 20.2	N 7 24.5						
23	45 55.2	118 10.0	51.6	186 17.0	04.4	305 08.0	52.0	123 48.7	37.5										
M I E R C O L E S	22	00	60 57.6	133 10.0	S25 51.3	201 17.8	S15 04.9	320 10.6	N22 52.1	138 50.9	S22 37.5	Canopus	264 03.6	S52 41.1					
	01	76 00.1	148 10.0	50.9	216 18.6	05.5	335 13.3	52.1	153 53.1	37.5	Capella	281 00.2	N45 59.4						
	02	91 02.6	163 10.0	50.6	231 19.4	06.0	350 16.0	52.1	168 55.3	37.4	Deneb	49 43.9	N45 14.9						
	03	106 05.0	178 10.0	50.2	246 20.2	06.5	5 18.7	52.1	183 57.5	37.4	Denebola	182 51.8	N14 37.6						
	04	121 07.5	193 10.1	49.9	261 21.0	07.1	20 21.3	52.1	198 59.7	37.4	Diphda	349 13.4	S18 02.5						
	05	136 09.9	208 10.1	49.5	276 21.8	07.6	35 24.0	52.2	214 01.9	37.4									
	06	151 12.4	223 10.1	S25 49.1	291 22.6	S15 08.2	50 26.7	N22 52.2	229 04.1	S22 37.4	Dubhe	194 13.1	N61 48.0						
	07	166 14.9	238 10.1	48.8	306 23.4	08.7	65 29.4	52.2	244 06.3	37.4	Elnath	278 34.7	N28 36.1						
	08	181 17.3	253 10.2	48.4	321 24.2	09.2	80 32.0	52.2	259 08.5	37.3	Eltanin	90 54.9	N51 29.4						
	09	196 19.8	268 10.2	48.1	336 25.0	09.8	95 34.7	52.2	274 10.7	37.3	Enif	34 04.6	N 9 49.8						
	10	211 22.3	283 10.2	47.7	351 25.7	10.3	110 37.4	52.3	289 12.9	37.3	Fomalhaut	15 43.3	S29 40.6						
	11	226 24.7	298 10.3	47.4	6 26.5	10.9	125 40.1	52.3	304 15.1	37.3									
	12	241 27.2	313 10.3	S25 47.0	21 27.3	S15 11.4	140 42.7	N22 52.3	319 17.3	S22 37.3	Gacrux	172 21.4	S57 03.2						
	13	256 29.7	328 10.3	46.6	36 28.1	11.9	155 45.4	52.3	334 19.5	37.3	Gienah	176 10.8	S17 29.1						
	14	271 32.1	343 10.4	46.3	51 28.9	12.5	170 48.1	52.3	349 21.7	37.2	Hadar	149 14.0	S60 19.4						
	15	286 34.6	358 10.4	45.9	66 29.7	13.0	185 50.8	52.3	4 23.9	37.2	Hamal	328 20.5	N23 25.1						
	16	301 37.0	13 10.4	45.6	81 30.5	13.6	200 53.5	52.4	19 26.0	37.2	Kaus Aust.	84 07.6	S34 23.6						
	17	316 39.5	28 10.5	45.2	96 31.3	14.1	215 56.1	52.4	34 28.2	37.2									
	18	331 42.0	43 10.5	S25 44.8	111 32.1	S15 14.6	230 58.8	N22 52.4	49 30.4	S22 37.2	Kochab	137 20.0	N74 11.6						
	19	346 44.4	58 10.6	44.5	126 32.9	15.2	246 01.5	52.4	64 32.6	37.2	Markab	13 56.0	N15 09.2						
	20	1 46.9	73 10.6	44.1	141 33.7	15.7	261 04.2	52.4	79 34.8	37.1	Menkar	314 33.3	N 4 03.2						
	21	16 49.4	88 10.6	43.7	156 34.5	16.2	276 06.9	52.5	94 37.0	37.1	Menkent	148 29.0	S36 19.2						
	22	31 51.8	103 10.7	43.4	171 35.3	16.8	291 09.5	52.5	109 39.2	37.1	Miaplacidus	221 43.5	S69 40.2						
23	46 54.3	118 10.7	43.0	186 36.0	17.3	306 12.2	52.5	124 41.4	37.1										
J U E V E S	23	00	61 56.8	133 10.8	S25 42.6	201 36.8	S15 17.9	321 14.9	N22 52.5	139 43.6	S22 37.1	Mirfak	309 05.4	N49 49.8					
	01	76 59.2	148 10.8	42.3	216 37.6	18.4	336 17.6	52.5	154 45.8	37.1	Nunki	76 20.5	S26 18.7						
	02	92 01.7	163 10.9	41.9	231 38.4	18.9	351 20.3	52.6	169 48.0	37.0	Pecock	53 47.1	S56 46.4						
	03	107 04.2	178 11.0	41.5	246 39.2	19.5	6 22.9	52.6	184 50.2	37.0	Pollux	243 49.1	N28 03.1						
	04	122 06.6	193 11.0	41.1	261 40.0	20.0	21 25.6	52.6	199 52.4	37.0	Procyon	245 18.0	N 5 15.2						
	05	137 09.1	208 11.1	40.8	276 40.8	20.5	36 28.3	52.6	214 54.6	37.0									
	06	152 11.5	223 11.1	S25 40.4	291 41.6	S15 21.1	51 31.0	N22 52.6	229 56.8	S22 37.0	Rasalhague	96 23.2	N12 34.0						
	07	167 14.0	238 11.2	40.0	306 42.4	21.6	66 33.7	52.7	244 59.0	37.0	Regulus	208 02.3	N12 01.0						
	08	182 16.5	253 11.3	39.6	321 43.2	22.1	81 36.4	52.7	260 01.2	36.9	Rigel	281 28.8	S 8 12.6						
	09	197 18.9	268 11.3	39.3	336 44.0	22.7	96 39.0	52.7	275 03.4	36.9	Rigil Kent.	140 16.8	S60 47.6						
	10	212 21.4	283 11.4	38.9	351 44.7	23.2	111 41.7	52.7	290 05.6	36.9	Sabik	102 33.2	S15 42.9						
	11	227 23.9	298 11.4	38.5	6 45.5	23.8	126 44.4	52.7	305 07.8	36.9									
	12	242 26.3	313 11.5	S25 38.1	21 46.3	S15 24.3	141 47.1	N22 52.8	320 10.0	S22 36.9	Schedar	350 00.7	N56 29.3						
	13	257 28.8	328 11.6	37.7	36 47.1	24.8	156 49.8	52.8	335 12.2	36.9	Shaula	96 46.4	S37 06.0						
	14	272 31.3	343 11.7	37.4	51 47.9	25.4	171 52.5	52.8	350 14.4	36.8	Sirius	258 49.1	S16 41.9						
	15	287 33.7	358 11.7	37.0	66 48.7	25.9	186 55.2	52.8	5 16.6	36.8	Spica	158 50.2	S11 06.5						
	16	302 36.2	13 11.8	36.6	81 49.5	26.4	201 57.8	52.8	20 18.8	36.8	Suhail	223 05.5	S43 23.2						
	17	317 38.7	28 11.9	36.2	96 50.3	27.0	217 00.5	52.9	35 20.9	36.8									
	18	332 41.1	43 12.0	S25 35.8	111 51.0	S15 27.5	232 03.2	N22 52.9	50 23.1	S22 36.8	Vega	80 51.3	N38 46.5						
	19	347 43.6	58 12.0	35.5	126 51.8	28.0	247 05.9	52.9	65 25.3	36.8	Zuben'ubi	137 25.4	S16 00.0						
	20	2 46.0	73 12.1	35.1	141 52.6	28.6	262 08.6	52.											



T.M.G. (TU)	SOL		LUNA				Lat.	Crepúsculo		Orto Sol	Orto Luna										
	A.H.G.	Dec.	A.H.G.	v	Dec.	d		P.H.	Naut.		Civil	21	22	23	24						
												h m	h m	h m	h m	h m	h m	h m	h m		
M A R T E S	183	33.5	S19	51.7	261	07.3	15.9	N	7	17.0	13.8	55.2	N 72	07 24	09 07	■	24 59	00 59	02 54	04 55	
	01	198	33.3		52.3	275	42.2	16.0		7	03.2	13.7	55.2	N 70	07 11	08 38	10 45	25 01	01 01	02 48	04 38
	02	213	33.2		52.8	290	17.2	15.9		6	49.5	13.8	55.1	68	07 00	08 17	09 47	25 03	01 03	02 42	04 24
	03	228	33.0		53.4	304	52.1	16.1		6	35.7	13.7	55.1	66	06 51	08 00	09 14	25 04	01 04	02 38	04 13
	04	243	32.9		53.9	319	27.2	16.1		6	22.0	13.8	55.1	64	06 43	07 46	08 49	25 05	01 05	02 34	04 04
	05	258	32.7		54.5	334	02.3	16.1		6	08.2	13.8	55.1	62	06 36	07 34	08 31	25 06	01 06	02 31	03 56
	06	273	32.6	S19	55.0	348	37.4	16.1	N	5	54.4	13.8	55.0	60	06 30	07 24	08 15	25 07	01 07	02 28	03 50
	07	288	32.4		55.6	3	12.5	16.3		5	40.6	13.8	55.0	N 58	06 25	07 15	08 02	25 08	01 08	02 26	03 44
	08	303	32.2		56.1	17	47.8	16.2		5	26.8	13.8	55.0	56	06 20	07 07	07 50	25 09	01 09	02 24	03 38
	09	318	32.1		56.7	32	23.0	16.3		5	13.0	13.8	55.0	54	06 15	07 00	07 40	25 09	01 09	02 22	03 34
	10	333	31.9		57.2	46	58.3	16.4		4	59.2	13.9	55.0	52	06 11	06 53	07 32	25 10	01 10	02 20	03 30
	11	348	31.8		57.8	61	33.7	16.3		4	45.3	13.8	54.9	50	06 07	06 47	07 24	00 01	01 10	02 18	03 26
	12	3	31.6	S19	58.3	76	09.0	16.4	N	4	31.5	13.9	54.9	45	05 58	06 34	07 07	00 07	01 11	02 15	03 18
	13	18	31.4		58.9	90	44.4	16.5		4	17.6	13.8	54.9	N 40	05 50	06 23	06 53	00 12	01 12	02 12	03 11
	14	33	31.3	19	59.4	105	19.9	16.5		4	03.8	13.9	54.9	35	05 43	06 14	06 41	00 16	01 13	02 09	03 05
	15	48	31.1	20	00.0	119	55.4	16.5		3	49.9	13.9	54.8	30	05 36	06 05	06 31	00 20	01 14	02 07	03 00
	16	63	31.0		00.5	134	30.9	16.6		3	36.1	13.9	54.8	20	05 23	05 50	06 13	00 26	01 15	02 03	02 51
	17	78	30.8		01.1	149	06.5	16.6		3	22.2	13.9	54.8	N 10	05 09	05 35	05 57	00 32	01 16	02 00	02 44
	18	93	30.6	S20	01.6	163	42.1	16.6	N	3	08.3	13.8	54.8	0	04 55	05 21	05 43	00 37	01 17	01 57	02 37
	19	108	30.5		02.2	178	17.7	16.6		2	54.5	13.9	54.8	S 10	04 39	05 05	05 28	00 42	01 18	01 54	02 30
	20	123	30.3		02.7	192	53.3	16.7		2	40.6	13.9	54.7	20	04 19	04 48	05 12	00 48	01 20	01 51	02 22
	21	138	30.2		03.2	207	29.0	16.7		2	26.7	13.8	54.7	30	03 55	04 27	04 53	00 54	01 21	01 47	02 14
	22	153	30.0		03.8	222	04.7	16.7		2	12.9	13.9	54.7	35	03 39	04 14	04 42	00 58	01 22	01 45	02 09
23	168	29.8		04.3	236	40.4	16.8		1	59.0	13.9	54.7	40	03 20	03 58	04 30	01 02	01 22	01 43	02 04	
M I E R C O L E S	00	183	29.7	S20	04.9	251	16.2	16.7	N	1	45.1	13.8	54.7	S 50	02 21	03 16	03 56	01 12	01 25	01 37	01 50
	01	198	29.5		05.4	265	51.9	16.8		1	31.3	13.9	54.6	52	02 02	03 04	03 48	01 14	01 25	01 35	01 46
	02	213	29.3		05.9	280	27.7	16.9		1	17.4	13.9	54.6	54	01 39	02 50	03 38	01 17	01 26	01 34	01 43
	03	228	29.2		06.5	295	03.6	16.8		1	03.5	13.8	54.6	56	01 07	02 35	03 27	01 20	01 26	01 32	01 38
	04	243	29.0		07.0	309	39.4	16.9		0	49.7	13.9	54.6	58	///	02 15	03 14	01 24	01 27	01 30	01 34
	05	258	28.9		07.6	324	15.3	16.8		0	35.8	13.8	54.6	S 60	///	01 50	02 59	01 28	01 28	01 28	01 29
	06	273	28.7	S20	08.1	338	51.1	16.9	N	0	22.0	13.8	54.6								
	07	288	28.5		08.6	353	27.0	16.9	N	0	08.2	13.9	54.5								
	08	303	28.4		09.2	8	02.9	16.9	S	0	05.7	13.8	54.5	Lat.	Ocaso Sol	Crepúsculo Civil	Naut.	Ocaso Luna			
	09	318	28.2		09.7	22	38.8	17.0		0	19.5	13.8	54.5					21	22	23	24
	10	333	28.0		10.2	37	14.8	16.9		0	33.3	13.8	54.5					h m	h m	h m	h m
	11	348	27.9		10.8	51	50.7	17.0		0	47.1	13.8	54.5	N 72	■	14 24	16 08	13 48	13 19	12 49	12 13
	12	3	27.7	S20	11.3	66	26.7	16.9	S	1	00.9	13.8	54.5	N 70	12 47	14 53	16 21	13 43	13 21	12 58	12 32
	13	18	27.5		11.8	81	02.6	17.0		1	14.7	13.7	54.4	68	13 45	15 15	16 31	13 38	13 22	13 06	12 47
	14	33	27.4		12.4	95	38.6	17.0		1	28.4	13.8	54.4	66	14 18	15 32	16 40	13 35	13 24	13 12	13 00
	15	48	27.2		12.9	110	14.6	17.0		1	42.2	13.7	54.4	64	14 42	15 46	16 48	13 31	13 25	13 18	13 11
	16	63	27.0		13.4	124	50.6	17.0		1	55.9	13.8	54.4	62	15 01	15 58	16 55	13 29	13 26	13 23	13 20
	17	78	26.9		14.0	139	26.6	16.9		2	09.7	13.7	54.4	60	15 17	16 08	17 01	13 26	13 26	13 27	13 27
	18	93	26.7	S20	14.5	154	02.5	17.0	S	2	23.4	13.7	54.4	N 58	15 30	16 17	17 07	13 24	13 27	13 30	13 34
	19	108	26.5		15.0	168	38.5	17.0		2	37.1	13.7	54.4	56	15 41	16 25	17 12	13 22	13 28	13 34	13 41
	20	123	26.3		15.5	183	14.5	17.0		2	50.8	13.6	54.3	54	15 51	16 32	17 16	13 20	13 28	13 37	13 46
	21	138	26.2		16.1	197	50.5	17.0		3	04.4	13.7	54.3	52	16 00	16 39	17 21	13 19	13 29	13 40	13 51
	22	153	26.0		16.6	212	26.5	17.0		3	18.1	13.6	54.3	50	16 08	16 45	17 24	13 17	13 30	13 42	13 56
23	168	25.8		17.1	227	02.5	17.0		3	31.7	13.6	54.3	45	16 25	16 57	17 34	13 14	13 31	13 47	14 05	
J U E V E S	00	183	25.7	S20	17.6	241	38.5	17.0	S	3	45.3	13.6	54.3	N 40	16 39	17 08	17 42	13 11	13 32	13 52	14 14
	01	198	25.5		18.2	256	14.5	17.0		3	58.9	13.6	54.3	35	16 51	17 18	17 49	13 09	13 32	13 56	14 21
	02	213	25.3		18.7	270	50.5	17.0		4	12.5	13.6	54.3	30	17 01	17 27	17 56	13 07	13 33	13 59	14 27
	03	228	25.1		19.2	285	26.5	16.9		4	26.1	13.5	54.3	20	17 19	17 43	18 10	13 03	13 34	14 06	14 38
	04	243	25.0		19.7	300	02.4	17.0		4	39.6	13.5	54.2	N 10	17 35	17 57	18 23	13 00	13 35	14 11	14 47
	05	258	24.8		20.3	314	38.4	16.9		4	53.1	13.5	54.2	0	17 50	18 12	18 37	12 57	13 36	14 16	14 56
	06	273	24.6	S20	20.8	329	14.3	17.0	S	5	06.6	13.5	54.2	S 10	18 05	18 27	18 54	12 53	13 37	14 21	15 05
	07	288	24.4		21.3	343	50.3	16.9		5	20.1	13.5	54.2	20	18 21	18 45	19 13	12 50	13 38	14 26	15 15
	08	303	24.3		21.8	358	26.2	16.9		5	33.6	13.4	54.2	30	18 40	19 06	19 38	12 46	13 40	14 33	15 26
	09	318	24.1		22.3	13	02.1	16.9		5	47.0	13.4	54.2	35	18 51	19 19	19 54	12 44	13 40	14 36	15 33
	10	333	23.9		22.9	27	38.0	16.9		6	00.4	13.4	54.2	40	19 03	19 35	20 13	12 41	13 41	14 40	15 40
	11	348	23.7		23.4	42	13.9	16.9		6	13.8	13.3	54.2	45	19 18	19 53	20 38	12 38	13 42	14 45	15 48
	12	3	23.6	S20	23.9	56	49.8	16.8	S	6	27.1	13.4	54.2	S 50	19 37	20 18	21 13	12 35	13 43	14 51	15 59
	13	18	23.4		24.4	71	25.6	16.9		6	40.5	13.3	54.2	52	19 46	20 29	21 32	12 33	13 44	14 53	16 04
	14	33	23.2		24.9	86	01.5	16.8		6	53.8	13.2	54.1	54	19 55	20 43	21 56	12 31	13 44	14 56	16 09
	15	48	23.0		25.4	100	37.3	16.8		7	07.0	13.3	54.1	56	20 07	20 59	22 29	12 29	13 45	14 59	16 15
	16	63	22.9		26.0	115	13.1	16.8		7	20.3	13.2	54.1	58	20 20	21 19	///</				



T.M.G. (TU)		ARIES			VENUS -4.6			MARTE +1.7			JUPITER -2.6			SATURNO +0.6			ESTRELLAS											
d	h	A.H.G.		A.H.G.	Dec.		A.H.G.	Dec.		A.H.G.	Dec.		A.H.G.	Dec.		Nombre	A. H. S.		Dec.									
VIERNES	24	00	62	55.9	133	12.5	S25	33.5	201	55.8	S15	30.7	322	19.3	N22	53.0	140	36.3	S22	36.7	Acamar	315	31.2	S40	20.6			
	01	77	58.4	148	12.6	33.1	216	56.6	31.2	337	22.0	53.0	155	38.5	36.6	170	40.7	36.6	185	42.9	36.6	Achernar	335	39.2	S57	17.3		
	02	93	00.8	163	12.7	32.7	231	57.3	31.8	352	24.7	53.0	170	40.7	36.6	7	27.4	53.1	200	45.1	36.6	Acrux	173	29.9	S63	02.4		
	03	108	03.3	178	12.7	32.3	246	58.1	32.3	7	27.4	53.1	185	42.9	36.6	22	30.1	53.1	200	45.1	36.6	Adhara	255	26.2	S28	57.2		
	04	123	05.8	193	12.8	32.0	261	58.9	32.8	22	30.1	53.1	200	45.1	36.6	37	32.8	53.1	215	47.3	36.6	Aldebaran	291	09.4	N16	29.6		
	05	138	08.2	208	12.9	31.6	276	59.7	33.4	37	32.8	53.1	215	47.3	36.6	52	35.5	N22	53.1	230	49.5	S22	36.6	Alioth	166	36.3	N56	00.6
	06	153	10.7	223	13.0	S25	31.2	292	00.5	S15	33.9	52	35.5	N22	53.1	230	49.5	S22	36.6	245	51.7	36.5	Alkaid	153	13.0	N49	21.6	
	07	168	13.1	238	13.1	30.8	307	01.3	34.4	67	38.2	53.1	245	51.7	36.5	82	40.9	53.2	260	53.9	36.5	Al Na'ir	28	05.7	S47	00.8		
	08	183	15.6	253	13.2	30.4	322	02.0	34.9	82	40.9	53.2	260	53.9	36.5	97	43.6	53.2	275	56.1	36.5	Alnilam	276	04.0	S 1	12.3		
	09	198	18.1	268	13.3	30.0	337	02.8	35.5	97	43.6	53.2	275	56.1	36.5	112	46.3	53.2	290	58.2	36.5	Alphard	218	13.4	S 8	36.7		
	10	213	20.5	283	13.4	29.6	352	03.6	36.0	112	46.3	53.2	290	58.2	36.5	127	48.9	53.2	306	00.4	36.5							
	11	228	23.0	298	13.5	29.2	7	04.4	36.5	127	48.9	53.2	306	00.4	36.5	142	51.6	N22	53.2	321	02.6	S22	36.5	Alphecca	126	26.3	N26	44.8
	12	243	25.5	313	13.6	S25	28.8	22	05.2	S15	37.1	142	51.6	N22	53.2	321	02.6	S22	36.5	321	02.6	S22	36.5	Alpheratz	358	01.8	N29	02.4
	13	258	27.9	328	13.8	28.4	37	06.0	37.6	157	54.3	53.3	336	04.8	36.4	157	54.3	53.3	336	04.8	36.4	62	25.7	N 8	50.5			
	14	273	30.4	343	13.9	28.0	52	06.8	38.1	172	57.0	53.3	351	07.0	36.4	172	57.0	53.3	351	07.0	36.4	62	25.7	N 8	50.5			
	15	288	32.9	358	14.0	27.6	67	07.5	38.7	187	59.7	53.3	6	09.2	36.4	187	59.7	53.3	6	09.2	36.4	353	32.7	S42	21.7			
	16	303	35.3	13	14.1	27.2	82	08.3	39.2	203	02.4	53.3	21	11.4	36.4	203	02.4	53.3	21	11.4	36.4	112	48.4	S26	24.7			
	17	318	37.8	28	14.2	26.8	97	09.1	39.7	218	05.1	53.3	36	13.6	36.4	218	05.1	53.3	36	13.6	36.4							
	18	333	40.3	43	14.3	S25	26.4	112	09.9	S15	40.2	233	07.8	N22	53.4	51	15.8	S22	36.3	51	15.8	S22	36.3	Arcturus	146	12.1	N19	14.0
	19	348	42.7	58	14.4	26.0	127	10.7	40.8	248	10.5	53.4	66	18.0	36.3	248	10.5	53.4	66	18.0	36.3	108	06.9	S69	00.8			
	20	3	45.2	73	14.6	25.6	142	11.4	41.3	263	13.2	53.4	81	20.2	36.3	263	13.2	53.4	81	20.2	36.3	234	25.1	S59	28.3			
	21	18	47.6	88	14.7	25.2	157	12.2	41.8	278	15.9	53.4	96	22.4	36.3	278	15.9	53.4	96	22.4	36.3	278	50.7	N 6	20.6			
	22	33	50.1	103	14.8	24.8	172	13.0	42.4	293	18.6	53.4	111	24.6	36.3	293	18.6	53.4	111	24.6	36.3	271	20.2	N 7	24.5			
23	48	52.6	118	14.9	24.4	187	13.8	42.9	308	21.3	53.5	126	26.7	36.3	308	21.3	53.5	126	26.7	36.3								
SABADO	25	00	63	55.0	133	15.1	S25	24.0	202	14.6	S15	43.4	323	24.0	N22	53.5	141	28.9	S22	36.2	Canopus	264	03.5	S52	41.1			
	01	78	57.5	148	15.2	23.5	217	15.4	43.9	338	26.7	53.5	156	31.1	36.2	338	26.7	53.5	156	31.1	36.2	281	00.2	N45	59.4			
	02	94	00.0	163	15.3	23.1	232	16.1	44.5	353	29.4	53.5	171	33.3	36.2	8	32.1	53.5	186	35.5	36.2	49	43.9	N45	14.9			
	03	109	02.4	178	15.5	22.7	247	16.9	45.0	8	32.1	53.5	186	35.5	36.2	23	34.8	53.6	201	37.7	36.2	182	51.8	N14	37.6			
	04	124	04.9	193	15.6	22.3	262	17.7	45.5	23	34.8	53.6	201	37.7	36.2	38	37.5	53.6	216	39.9	36.2	349	13.4	S18	02.5			
	05	139	07.4	208	15.7	21.9	277	18.5	46.1	38	37.5	53.6	216	39.9	36.2	53	40.2	N22	53.6	231	42.1	S22	36.1	Dubhe	194	13.1	N61	48.0
	06	154	09.8	223	15.9	S25	21.5	292	19.3	S15	46.6	53	40.2	N22	53.6	231	42.1	S22	36.1	231	42.1	S22	36.1	278	34.7	N28	36.1	
	07	169	12.3	238	16.0	21.1	307	20.0	47.1	68	42.9	53.6	246	44.3	36.1	68	42.9	53.6	246	44.3	36.1	90	54.9	N51	29.4			
	08	184	14.8	253	16.1	20.7	322	20.8	47.6	83	45.6	53.6	261	46.5	36.1	83	45.6	53.6	261	46.5	36.1	34	04.6	N 9	49.8			
	09	199	17.2	268	16.3	20.3	337	21.6	48.2	98	48.3	53.7	276	48.7	36.1	98	48.3	53.7	276	48.7	36.1	15	43.3	S29	40.6			
	10	214	19.7	283	16.4	19.8	352	22.4	48.7	113	51.0	53.7	291	50.9	36.1	113	51.0	53.7	291	50.9	36.1							
	11	229	22.1	298	16.6	19.4	7	23.2	49.2	128	53.7	53.7	306	53.0	36.0	128	53.7	53.7	306	53.0	36.0	172	21.3	S57	03.2			
	12	244	24.6	313	16.7	S25	19.0	22	23.9	S15	49.7	143	56.4	N22	53.7	321	55.2	S22	36.0	321	55.2	S22	36.0	Gacrux	176	10.8	S17	29.1
	13	259	27.1	328	16.9	18.6	37	24.7	50.3	158	59.1	53.7	336	57.4	36.0	37	24.7	50.3	158	59.1	53.7	176	10.8	S17	29.1			
	14	274	29.5	343	17.0	18.2	52	25.5	50.8	174	01.8	53.8	351	59.6	36.0	52	25.5	50.8	174	01.8	53.8	149	14.0	S60	19.4			
	15	289	32.0	358	17.2	17.8	67	26.3	51.3	189	04.5	53.8	7	01.8	36.0	67	26.3	51.3	189	04.5	53.8	328	20.5	N23	25.1			
	16	304	34.5	13	17.3	17.3	82	27.0	51.8	204	07.2	53.8	22	04.0	36.0	82	27.0	51.8	204	07.2	53.8	84	07.6	S34	23.6			
	17	319	36.9	28	17.5	16.9	97	27.8	52.4	219	09.9	53.8	37	06.2	35.9	97	27.8	52.4	219	09.9	53.8							
	18	334	39.4	43	17.6	S25	16.5	112	28.6	S15	52.9	234	12.6	N22	53.8	52	08.4	S22	35.9	52	08.4	S22	35.9	Kochab	137	20.0	N74	11.6
	19	349	41.9	58	17.8	16.1	127	29.4	53.4	249	15.3	53.9	67	10.6	35.9	127	29.4	53.4	249	15.3	53.9	13	56.0	N15	09.2			
	20	4	44.3	73	17.9	15.7	142	30.2	53.9	264	18.0	53.9	82	12.8	35.9	142	30.2	53.9	264	18.0	53.9	314	33.3	N 4	03.2			
	21	19	46.8	88	18.1	15.2	157	30.9	54.5	279	20.7	53.9	97	14.9	35.9	157	30.9	54.5	279	20.7	53.9	148	29.0	S36	19.2			
	22	34	49.3	103	18.3	14.8	172	31.7	55.0	294	23.4	53.9	112	17.1	35.8	172	31.7	55.0	294	23.4	53.9	221	43.5	S69	40.2			
23	49	51.7	118	18.4	14.4	187	32.5	55.5	309	26.1	53.9	127	19.3	35.8	187	32.5	55.5	309	26.1	53.9								
DOMINGO	26	00	64	54.2	133	18.6	S25	14.0	202	33.3	S15	56.0	324	28.8	N22	54.0	142	21.5										



T.M.G. (TU)	SOL				LUNA				Lat.	Crepúsculo		Orto Sol	Orto Luna									
	A.H.G.		Dec.	A.H.G.		v	Dec.	d		P.H.	Náut.		Civil	24	25	26	27					
	o	'		o	'									o	'	h	m	h	m	h	m	h
V I E R N E S	24 00	183	21.4	S20	30.1	231	58.6	16.6	S	9	05.1	13.0	54.1	N 72	07 33	09 22	h m	04 55	07 21	h m	h m	h m
	01	198	21.3		30.6	246	34.2	16.6		9	18.1	12.9	54.1	N 70	07 19	08 50	h m	04 38	06 41	h m	h m	h m
	02	213	21.1		31.1	261	09.8	16.5		9	31.0	12.9	54.1	68	07 08	08 26	h m	04 24	06 14	h m	08 28	h m
	03	228	20.9		31.6	275	45.3	16.5		9	43.9	12.8	54.1	66	06 58	08 08	h m	04 13	05 54	h m	07 46	10 27
	04	243	20.7		32.1	290	20.8	16.4		9	56.7	12.8	54.1	64	06 50	07 53	h m	04 04	05 38	h m	07 18	09 11
	05	258	20.5		32.6	304	56.2	16.4		10	09.5	12.8	54.0	62	06 42	07 40	h m	03 56	05 24	h m	06 57	08 35
	06	273	20.4	S20	33.1	319	31.6	16.4	S10	22.3	12.7	54.0		60	06 36	07 30	h m	03 50	05 13	h m	06 40	08 09
	07	288	20.2		33.6	334	07.0	16.3		10	35.0	12.7	54.0	N 58	06 30	07 20	h m	03 44	05 03	h m	06 25	07 49
	08	303	20.0		34.1	348	42.3	16.3		10	47.7	12.6	54.0	56	06 25	07 12	h m	03 38	04 55	h m	06 13	07 32
	09	318	19.8		34.6	3	17.6	16.3		11	00.3	12.7	54.0	54	06 20	07 04	h m	03 34	04 47	h m	06 02	07 18
	10	333	19.6		35.1	17	52.9	16.3		11	13.0	12.5	54.0	52	06 15	06 58	h m	03 30	04 41	h m	05 53	07 06
	11	348	19.4		35.6	32	28.2	16.1		11	25.5	12.5	54.0	50	06 11	06 51	h m	03 26	04 35	h m	05 45	06 55
	12	3	19.3	S20	36.1	47	03.3	16.2	S11	38.0	12.5	54.0		45	06 02	06 38	h m	03 18	04 22	h m	05 27	06 32
	13	18	19.1		36.6	61	38.5	16.1		11	50.5	12.5	54.0	N 40	05 53	06 27	h m	03 11	04 11	h m	05 12	06 14
	14	33	18.9		37.1	76	13.6	16.1		12	03.0	12.4	54.0	35	05 46	06 17	h m	03 05	04 02	h m	05 00	05 59
	15	48	18.7		37.6	90	48.7	16.0		12	15.4	12.3	54.0	30	05 38	06 08	h m	03 00	03 54	h m	04 50	05 46
	16	63	18.5		38.1	105	23.7	16.0		12	27.7	12.3	54.0	20	05 24	05 51	h m	02 51	03 41	h m	04 31	05 24
	17	78	18.3		38.6	119	58.7	15.9		12	40.0	12.2	54.0	N 10	05 10	05 36	h m	02 44	03 29	h m	04 16	05 05
	18	93	18.2	S20	39.1	134	33.6	15.9	S12	52.2	12.2	54.0		0	04 56	05 21	h m	02 37	03 18	h m	04 01	04 47
	19	108	18.0		39.6	149	08.5	15.9		13	04.4	12.2	54.0	S 10	04 39	05 05	h m	02 30	03 07	h m	03 47	04 30
	20	123	17.8		40.1	163	43.4	15.8		13	16.6	12.1	54.0	20	04 19	04 47	h m	02 22	02 55	h m	03 31	04 11
	21	138	17.6		40.6	178	18.2	15.7		13	28.7	12.1	54.0	30	03 53	04 26	h m	02 14	02 42	h m	03 14	03 49
	22	153	17.4		41.1	192	52.9	15.7		13	40.8	12.0	54.0	35	03 37	04 12	h m	02 09	02 35	h m	03 03	03 36
23	168	17.2		41.6	207	27.6	15.7		13	52.8	11.9	54.0	40	03 17	03 56	h m	02 04	02 26	h m	02 52	03 22	
24	183	17.0	S20	42.1	222	02.3	15.6	S14	04.7	11.9	54.0		45	02 52	03 37	h m	01 57	02 16	h m	02 38	03 05	
25 00	198	16.8		42.6	236	36.9	15.5		14	16.6	11.9	54.0	S 50	02 16	03 12	h m	01 50	02 04	h m	02 22	02 44	
01	213	16.7		43.1	251	11.4	15.5		14	28.5	11.7	54.0	52	01 56	03 00	h m	01 46	01 59	h m	02 14	02 34	
02	228	16.5		43.6	265	45.9	15.5		14	40.2	11.8	54.0	54	01 31	02 46	h m	01 43	01 53	h m	02 05	02 23	
03	243	16.3		44.1	280	20.4	15.4		14	52.0	11.7	54.0	56	00 54	02 29	h m	01 38	01 46	h m	01 56	02 10	
04	258	16.1		44.5	294	54.8	15.3		15	03.7	11.6	54.0	58	///	02 08	h m	01 34	01 38	h m	01 45	01 55	
05	273	15.9	S20	45.0	309	29.1	15.3	S15	15.3	11.5	54.0		S 60	///	01 41	h m	01 29	01 30	h m	01 32	01 38	
06	288	15.7		45.5	324	03.4	15.2		15	26.8	11.6	54.0				h m			h m			
07	303	15.5		46.0	338	37.6	15.2		15	38.4	11.4	54.0		Lat.	Ocaso Sol	Crepúsculo Civil	Ocaso Luna					
08	318	15.3		46.5	353	11.8	15.1		15	49.8	11.4	54.0				h m	24	25	26	27		
09	333	15.1		47.0	7	45.9	15.1		16	01.2	11.3	54.0				h m	h m	h m	h m	h m	h m	
10	348	14.9		47.5	22	20.0	15.0		16	12.5	11.3	54.0	N 72	h m	14 11	h m	12 13	11 13	h m	h m	h m	
11	3	14.8	S20	48.0	36	54.0	14.9	S16	23.8	11.2	54.0		N 70	12 01	14 44	h m	12 32	11 55	h m	h m	h m	
12	18	14.6		48.4	51	27.9	14.9		16	35.0	11.1	54.0	68	13 31	15 07	h m	12 47	12 24	h m	11 41	h m	
13	33	14.4		48.9	66	01.8	14.8		16	46.1	11.1	54.0	66	14 08	15 25	h m	13 00	12 45	h m	12 24	11 20	
14	48	14.2		49.4	80	35.6	14.8		16	57.2	11.0	54.0	64	14 35	15 40	h m	13 11	13 03	h m	12 52	12 37	
15	63	14.0		49.9	95	09.4	14.7		17	08.2	10.9	54.0	62	14 55	15 53	h m	13 20	13 17	h m	13 15	13 13	
16	78	13.8		50.4	109	43.1	14.6		17	19.1	10.9	54.0	60	15 12	16 04	h m	13 27	13 29	h m	13 33	13 40	
17	93	13.6	S20	50.9	124	16.7	14.6	S17	30.0	10.8	54.0		N 58	15 25	16 13	h m	13 34	13 40	h m	13 48	14 00	
18	108	13.4		51.3	138	50.3	14.5		17	40.8	10.8	54.0	56	15 37	16 22	h m	13 41	13 49	h m	14 00	14 17	
19	123	13.2		51.8	153	23.8	14.5		17	51.6	10.6	54.0	54	15 48	16 29	h m	13 46	13 57	h m	14 12	14 32	
20	138	13.0		52.3	167	57.3	14.4		18	02.2	10.6	54.0	52	15 57	16 36	h m	13 51	14 05	h m	14 22	14 45	
21	153	12.8		52.8	182	30.7	14.3		18	12.8	10.5	54.0	50	16 05	16 42	h m	13 56	14 11	h m	14 31	14 56	
22	168	12.6		53.3	197	04.0	14.2		18	23.3	10.5	54.0	45	16 23	16 56	h m	14 05	14 26	h m	14 50	15 19	
23	183	12.4	S20	53.7	211	37.2	14.2	S18	33.8	10.4	54.0		N 40	16 37	17 07	h m	14 14	14 37	h m	15 05	15 38	
24 00	198	12.2		54.2	226	10.4	14.1		18	44.2	10.3	54.0	35	16 50	17 17	h m	14 21	14 48	h m	15 18	15 54	
01	213	12.0		54.7	240	43.5	14.1		18	54.5	10.2	54.0	30	17 01	17 26	h m	14 27	14 57	h m	15 30	16 08	
02	228	11.8		55.2	255	16.6	14.0		19	04.7	10.2	54.0	20	17 19	17 43	h m	14 38	15 12	h m	15 50	16 31	
03	243	11.6		55.6	269	49.6	13.9		19	14.9	10.1	54.0	N 10	17 35	17 58	h m	14 47	15 26	h m	16 07	16 52	
04	258	11.4		56.1	284	22.5	13.8		19	25.0	10.0	54.1	0	17 51	18 13	h m	14 56	15 38	h m	16 23	17 11	
05	273	11.2	S20	56.6	298	55.3	13.8	S19	35.0	9.9	54.1		S 10	18 06	18 29	h m	15 05	15 51	h m	16 39	17 30	
06	288	11.0		57.1	313	28.1	13.7		19	44.9	9.8	54.1	20	18 23	18 47	h m	15 15	16 05	h m	16 57	17 50	
07	303	10.8		57.5	328	00.8	13.7		19	54.7	9.8	54.1	30	18 42	19 09	h m	15 26	16 21	h m	17 17	18 14	
08	318	10.6</																				



T.M.G. (TU)		ARIES			VENUS -4.6			MARTE +1.7			JUPITER -2.7			SATURNO +0.6			ESTRELLAS							
d	h	A.H.G.		Dec.	A.H.G.		Dec.	A.H.G.		Dec.	A.H.G.		Dec.	A.H.G.		Dec.	Nombre	A. H. S.	Dec.					
LUNES	27 00	65	53.3	133 23.1 S25 03.5	202 51.8 S16 08.5	325 33.8 N22 54.5	143 14.0 S22 35.4	Acamar	315 31.2 S40 20.6															
	01	80	55.8	148 23.3 03.1	217 52.6 09.0	340 36.5 54.5	158 16.2 35.3	Achernar	335 39.2 S57 17.3															
	02	95	58.2	163 23.6 02.6	232 53.4 09.6	355 39.2 54.5	173 18.4 35.3	Acrux	173 29.9 S63 02.4															
	03	111	00.7	178 23.8 02.2	247 54.1 10.1	10 41.9 54.5	188 20.6 35.3	Adhara	255 26.1 S28 57.2															
	04	126	03.2	193 24.0 01.7	262 54.9 10.6	25 44.6 54.5	203 22.8 35.3	Aldebaran	291 09.4 N16 29.6															
	05	141	05.6	208 24.2 01.3	277 55.7 11.1	40 47.3 54.6	218 25.0 35.3																	
	06	156	08.1	223 24.4 S25 00.9	292 56.5 S16 11.6	55 50.1 N22 54.6	233 27.2 S22 35.3	Alioth	166 36.3 N56 00.6															
	07	171	10.6	238 24.6 00.4	307 57.2 12.1	70 52.8 54.6	248 29.4 35.2	Alkaid	153 13.0 N49 21.6															
	08	186	13.0	253 24.9 25 00.0	322 58.0 12.7	85 55.5 54.6	263 31.5 35.2	Al Na'ir	28 05.8 S47 00.8															
	09	201	15.5	268 25.1 24 59.5	337 58.8 13.2	100 58.2 54.7	278 33.7 35.2	Alnilam	276 04.0 S 1 12.3															
	10	216	18.0	283 25.3 59.1	352 59.5 13.7	116 00.9 54.7	293 35.9 35.2	Alphard	218 13.4 S 8 36.8															
	11	231	20.4	298 25.5 58.6	8 00.3 14.2	131 03.6 54.7	308 38.1 35.2																	
	12	246	22.9	313 25.8 S24 58.2	23 01.1 S16 14.7	146 06.3 N22 54.7	323 40.3 S22 35.1	Alphecca	126 26.3 N26 44.8															
	13	261	25.4	328 26.0 57.7	38 01.8 15.2	161 09.1 54.7	338 42.5 35.1	Alpheratz	358 01.8 N29 02.4															
	14	276	27.8	343 26.2 57.3	53 02.6 15.8	176 11.8 54.8	353 44.7 35.1	Altair	62 25.7 N 8 50.5															
	15	291	30.3	358 26.5 56.8	68 03.4 16.3	191 14.5 54.8	8 46.8 35.1	Ankaa	353 32.7 S42 21.7															
	16	306	32.7	13 26.7 56.3	83 04.1 16.8	206 17.2 54.8	23 49.0 35.1	Antares	112 48.4 S26 24.7															
	17	321	35.2	28 26.9 55.9	98 04.9 17.3	221 19.9 54.8	38 51.2 35.1																	
	18	336	37.7	43 27.2 S24 55.4	113 05.7 S16 17.8	236 22.6 N22 54.8	53 53.4 S22 35.0	Arcturus	146 12.1 N19 14.0															
	19	351	40.1	58 27.4 55.0	128 06.4 18.3	251 25.4 54.9	68 55.6 35.0	Atria	108 06.9 S69 00.7															
	20	6	42.6	73 27.7 54.5	143 07.2 18.8	266 28.1 54.9	83 57.8 35.0	Avior	234 25.1 S59 28.3															
	21	21	45.1	88 27.9 54.1	158 08.0 19.4	281 30.8 54.9	99 00.0 35.0	Bellatrix	278 50.7 N 6 20.6															
	22	36	47.5	103 28.2 53.6	173 08.7 19.9	296 33.5 54.9	114 02.1 35.0	Betelgeuse	271 20.1 N 7 24.5															
23	51	50.0	118 28.4 53.1	188 09.5 20.4	311 36.2 55.0	129 04.3 34.9																		
MARTES	28 00	66	52.5	133 28.7 S24 52.7	203 10.3 S16 20.9	326 39.0 N22 55.0	144 06.5 S22 34.9	Canopus	264 03.5 S52 41.1															
	01	81	54.9	148 28.9 52.2	218 11.0 21.4	341 41.7 55.0	159 08.7 34.9	Capella	281 00.2 N45 59.4															
	02	96	57.4	163 29.2 51.8	233 11.8 21.9	356 44.4 55.0	174 10.9 34.9	Deneb	49 43.9 N45 14.8															
	03	111	59.9	178 29.4 51.3	248 12.6 22.4	11 47.1 55.0	189 13.1 34.9	Denebola	182 51.8 N14 37.6															
	04	127	02.3	193 29.7 50.8	263 13.3 23.0	26 49.8 55.1	204 15.3 34.8	Diphda	349 13.4 S18 02.5															
	05	142	04.8	208 30.0 50.4	278 14.1 23.5	41 52.5 55.1	219 17.4 34.8																	
	06	157	07.2	223 30.2 S24 49.9	293 14.9 S16 24.0	56 55.3 N22 55.1	234 19.6 S22 34.8	Dubhe	194 13.0 N61 48.0															
	07	172	09.7	238 30.5 49.5	308 15.6 24.5	71 58.0 55.1	249 21.8 34.8	Elnath	278 34.6 N28 36.1															
	08	187	12.2	253 30.8 49.0	323 16.4 25.0	87 00.7 55.1	264 24.0 34.8	Eltanin	90 54.9 N51 29.4															
	09	202	14.6	268 31.0 48.5	338 17.2 25.5	102 03.4 55.2	279 26.2 34.7	Enif	34 04.6 N 9 49.8															
	10	217	17.1	283 31.3 48.1	353 17.9 26.0	117 06.2 55.2	294 28.4 34.7	Fomalhaut	15 43.3 S29 40.6															
	11	232	19.6	298 31.6 47.6	8 18.7 26.5	132 08.9 55.2	309 30.6 34.7																	
	12	247	22.0	313 31.8 S24 47.1	23 19.5 S16 27.0	147 11.6 N22 55.2	324 32.7 S22 34.7	Gacrux	172 21.3 S57 03.2															
	13	262	24.5	328 32.1 46.7	38 20.2 27.6	162 14.3 55.3	339 34.9 34.7	Gienah	176 10.8 S17 29.1															
	14	277	27.0	343 32.4 46.2	53 21.0 28.1	177 17.0 55.3	354 37.1 34.7	Hadar	149 13.9 S60 19.4															
	15	292	29.4	358 32.7 45.7	68 21.7 28.6	192 19.8 55.3	9 39.3 34.6	Hamal	328 20.5 N23 25.1															
	16	307	31.9	13 33.0 45.2	83 22.5 29.1	207 22.5 55.3	24 41.5 34.6	Kaus Aust.	84 07.6 S34 23.6															
	17	322	34.3	28 33.2 44.8	98 23.3 29.6	222 25.2 55.3	39 43.7 34.6																	
	18	337	36.8	43 33.5 S24 44.3	113 24.0 S16 30.1	237 27.9 N22 55.4	54 45.8 S22 34.6	Kochab	137 19.9 N74 11.6															
	19	352	39.3	58 33.8 43.8	128 24.8 30.6	252 30.7 55.4	69 48.0 34.6	Markab	13 56.0 N15 09.2															
	20	7	41.7	73 34.1 43.4	143 25.6 31.1	267 33.4 55.4	84 50.2 34.5	Menkar	314 33.3 N 4 03.2															
	21	22	44.2	88 34.4 42.9	158 26.3 31.6	282 36.1 55.4	99 52.4 34.5	Menkent	148 28.9 S36 19.2															
	22	37	46.7	103 34.7 42.4	173 27.1 32.1	297 38.8 55.4	114 54.6 34.5	Miaplacidus	221 43.4 S69 40.2															
23	52	49.1	118 35.0 41.9	188 27.8 32.7	312 41.6 55.5	129 56.8 34.5																		
MIÉRCOLES	29 00	67	51.6	133 35.3 S24 41.5	203 28.6 S16 33.2	327 44.3 N22 55.5	144 59.0 S22 34.5	Mirfak	309 05.4 N49 49.8															
	01	82	54.1	148 35.6 41.0	218 29.4 33.7	342 47.0 55.5	160 01.1 34.4	Nunki	76 20.5 S26 18.7															
	02	97	56.5	163 35.9 40.5	233 30.1 34.2	357 49.7 55.5	175 03.3 34.4	Peacock	53 47.2 S56 46.3															
	03	112	59.0	178 36.2 40.0	248 30.9 34.7	12 52.5 55.6	190 05.5 34.4	Pollux	243 49.0 N28 03.1															
	04	128	01.5	193 36.5 39.5	263 31.7 35.2	27 55.2 55.6	205 07.7 34.4	Procyon	245 18.0 N 5 15.2															
	05	143	03.9	208 36.8 39.1	278 32.4 35.7	42 57.9 55.6	220 09.9 34.4																	
	06	158	06.4	223 37.1 S24 38.6	293 33.2 S16 36.2	58 00.6 N22 55.6	235 12.1 S22 34.3	Rasalhague	96 23.2 N12 34.0															
	07	173	08.8	238 37.4 38.1	308 33.9 36.7	73 03.4 55.6	250 14.2 34.3	Regulus	208 02.3 N12 01.0															
	08	188	11.3	253 37.7 37.6	323 34.7 37.2	88 06.1 55.7	265 16.4 34.3	Rigel	281 28.7 S 8 12.6															
	09	203	13.8	268 38.0 37.1	338 35.5 37.7	103 08.8 55.7	280 18.6 34.3	Rigel Kent.	140 16.8 S60 47.5															
	10	218	16.2	283 38.4 36.7	353 36.2 38.2	118 11.6 55.7	295 20.8 34.3	Sabik	102 33.2 S15 42.9															
	11	233	18.7	298 38.7 36.2	8 37.0 38.7	133 14.3 55.7	310 23.0 34.2																	
	12	248	21.2	313 39.0 S24 35.7	23 37.7 S16 39.2	148 17.0 N22 55.7	325 25.1 S22 34.2	Schedar	350 00.7 N56 29.3															
	13	263	23.6	328 39.3 35.2	38 38.5 39.8	163 19.7 55.8	340 27.3 34.2	Shaula	96 46.4 S37 06.0															
	14	278	26.1	343 39.6 34.7	53 39.2 40.3	178 22.5 55.8	355 29.5 34.2	Sirius	258 49.0 S16 41.9															
	15	293	28.6	358 40.0 34.2	68 40.0 40.8	193 25.2 55.8	10 31.7 34.2	Spica	158 50.2 S11 06.5															
	16	308	31.0	13 40.3 33.8	83 40.8 41.3	208 27.9 55.8	25 33.9 34.1	Suhail	223 05.4 S43 23.2															
	17	323	33.5	28 40.6 33.3	98 41.5 41.8	223 30.7 55.9	40 36.1 34.1																	
	18	338	36.0	43 41.0 S24 32.8	113 42.3 S16 42.3	238 33.4 N22 55.9	55 38.2 S22 34.1	Vega	80 51.3 N38 46.5															
	19	353	38.4	58 41.3 32.3	128 43.0 42.8	253 36.1 55.9	70 40.4 34.1	Zuben'ubi	137 25.4 S16 00.0															
	20	8	40.9	73 41.6 31.8	143 43.8 43.3	268 38.9 55.9	85 42.6 34.1																	
	21	23	43.3	88 42.0 31.3	158 44.5 43.8	283 41.6 55.9	100 44.8 34.0																	
	22	38	45.8	103 42.3 30.8	173 45.3 44.3	298 44.3 56.0	115 47.0 34.0																	
23	53	48.3	118 42.6 30.3	188 46.1 44.8	313 47.1 56.0	130 49.2 34.0																		
Pas. Mer.		h m	v 0.3 d 0.5	v 0.8 d 0.5	v 2.7 d 0.0	v 2.2 d 0.0	<table border="0"> <tr> <td></td> <td>A. H. S.</td> <td>Pas. Mer.</td> </tr> <tr> <td>Venus</td> <td>66 36.2</td> <td>15 06</td> </tr> <tr> <td>Marte</td> <td>136 17.8</td> <td>10 27</td> </tr> <tr> <td>Júpiter</td> <td>259 46.5</td> <td>2 13</td> </tr> <tr> <td>Saturno</td> <td>77 14.1</td> <td>14 21</td> </tr> </table>				A. H. S.	Pas. Mer.	Venus	66 36.2	15 06	Marte	136 17.8	10 27	Júpiter	259 46.5	2 13	Saturno	77 14.1	14 21
	A. H. S.	Pas. Mer.																						
Venus	66 36.2	15 06																						
Marte	136 17.8	10 27																						
Júpiter	259 46.5	2 13																						
Saturno	77 14.1	14 21																						







T.M.G. (TU)	ARIES			VENUS -4.6			MARTE +1.6			JUPITER -2.7			SATURNO +0.6			ESTRELLAS		
	A.H.G.	A.H.G.	Dec.	A.H.G.	Dec.	A.H.G.	Dec.	A.H.G.	Dec.	A.H.G.	Dec.	A.H.G.	Dec.	Nombre	A. H. S.	Dec.		
J U E V E S	30 00	68 50.7	133 43.0	S24 29.8	203 46.8	S16 45.3	328 49.8	N22 56.0	145 51.3	S22 34.0	Acomar	315 31.2	S40 20.6					
	01	83 53.2	148 43.3	29.4	218 47.6	45.8	343 52.5	56.0	160 53.5	34.0	Achernar	335 39.2	S57 17.3					
	02	98 55.7	163 43.7	28.9	233 48.3	46.3	358 55.3	56.1	175 55.7	33.9	Acrux	173 29.8	S63 02.4					
	03	113 58.1	178 44.0	28.4	248 49.1	46.8	13 58.0	56.1	190 57.9	33.9	Adhara	255 26.1	S28 57.3					
	04	129 00.6	193 44.4	27.9	263 49.8	47.3	29 00.7	56.1	206 00.1	33.9	Aldebaran	291 09.4	N16 29.6					
	05	144 03.1	208 44.7	27.4	278 50.6	47.8	44 03.5	56.1	221 02.2	33.9								
	06	159 05.5	223 45.1	S24 26.9	293 51.3	S16 48.3	59 06.2	N22 56.1	236 04.4	S22 33.9	Alioth	166 36.2	N56 00.6					
	07	174 08.0	238 45.4	26.4	308 52.1	48.8	74 08.9	56.2	251 06.6	33.9	Alkaid	153 13.0	N49 21.5					
	08	189 10.4	253 45.8	25.9	323 52.9	49.3	89 11.7	56.2	266 08.8	33.8	Al Na'ir	28 05.8	S47 00.8					
	09	204 12.9	268 46.2	25.4	338 53.6	49.8	104 14.4	56.2	281 11.0	33.8	Alnilam	276 04.0	S 1 12.3					
	10	219 15.4	283 46.5	24.9	353 54.4	50.3	119 17.1	56.2	296 13.1	33.8	Alphard	218 13.4	S 8 36.8					
	11	234 17.8	298 46.9	24.4	8 55.1	50.8	134 19.9	56.3	311 15.3	33.8								
	12	249 20.3	313 47.3	S24 23.9	23 55.9	S16 51.3	149 22.6	N22 56.3	326 17.5	S22 33.8	Alphecca	126 26.3	N26 44.8					
	13	264 22.8	328 47.6	23.4	38 56.6	51.8	164 25.3	56.3	341 19.7	33.7	Alpheratz	358 01.8	N29 02.4					
	14	279 25.2	343 48.0	22.9	53 57.4	52.3	179 28.1	56.3	356 21.9	33.7	Altair	62 25.7	N 8 50.5					
	15	294 27.7	358 48.4	22.4	68 58.1	52.8	194 30.8	56.3	11 24.0	33.7	Ankaa	353 32.7	S42 21.7					
	16	309 30.2	13 48.7	21.9	83 58.9	53.3	209 33.5	56.4	26 26.2	33.7	Antares	112 48.4	S26 24.7					
	17	324 32.6	28 49.1	21.4	98 59.6	53.8	224 36.3	56.4	41 28.4	33.7								
	18	339 35.1	43 49.5	S24 20.9	114 00.4	S16 54.3	239 39.0	N22 56.4	56 30.6	S22 33.6	Arcturus	146 12.1	N19 13.9					
	19	354 37.6	58 49.9	20.4	129 01.1	54.8	254 41.8	56.4	71 32.8	33.6	Atria	108 06.8	S69 00.7					
	20	9 40.0	73 50.3	19.9	144 01.9	55.3	269 44.5	56.5	86 34.9	33.6	Avior	234 25.0	S59 28.3					
	21	24 42.5	88 50.7	19.4	159 02.6	55.8	284 47.2	56.5	101 37.1	33.6	Bellatrix	278 50.7	N 6 20.6					
	22	39 44.9	103 51.0	18.9	174 03.4	56.3	299 50.0	56.5	116 39.3	33.6	Betelgeuse	271 20.1	N 7 24.5					
23	54 47.4	118 51.4	18.4	189 04.2	56.8	314 52.7	56.5	131 41.5	33.5									
V I E R N E S	1 00	69 49.9	133 51.8	S24 17.9	204 04.9	S16 57.3	329 55.5	N22 56.5	146 43.7	S22 33.5	Canopus	264 03.5	S52 41.2					
	01	84 52.3	148 52.2	17.4	219 05.7	57.8	344 58.2	56.6	161 45.8	33.5	Capella	281 00.2	N45 59.4					
	02	99 54.8	163 52.6	16.9	234 06.4	58.3	0 00.9	56.6	176 48.0	33.5	Deneb	49 43.9	N45 14.8					
	03	114 57.3	178 53.0	16.4	249 07.2	58.8	15 03.7	56.6	191 50.2	33.5	Denebola	182 51.7	N14 37.6					
	04	129 59.7	193 53.4	15.9	264 07.9	59.3	30 06.4	56.6	206 52.4	33.4	Diphda	349 13.4	S18 02.5					
	05	145 02.2	208 53.8	15.3	279 08.7	16 59.8	45 09.2	56.7	221 54.6	33.4								
	06	160 04.7	223 54.2	S24 14.8	294 09.4	S17 00.3	60 11.9	N22 56.7	236 56.7	S22 33.4	Dubhe	194 13.0	N61 48.0					
	07	175 07.1	238 54.6	14.3	309 10.2	00.8	75 14.6	56.7	251 58.9	33.4	Elnath	278 34.6	N28 36.1					
	08	190 09.6	253 55.0	13.8	324 10.9	01.3	90 17.4	56.7	267 01.1	33.3	Eltanin	90 54.9	N51 29.4					
	09	205 12.1	268 55.4	13.3	339 11.7	01.8	105 20.1	56.7	282 03.3	33.3	Enif	34 04.6	N 9 49.8					
	10	220 14.5	283 55.9	12.8	354 12.4	02.3	120 22.9	56.8	297 05.5	33.3	Fomalhaut	15 43.3	S29 40.6					
	11	235 17.0	298 56.3	12.3	9 13.2	02.8	135 25.6	56.8	312 07.6	33.3								
	12	250 19.4	313 56.7	S24 11.8	24 13.9	S17 03.3	150 28.3	N22 56.8	327 09.8	S22 33.3	Gacrux	172 21.2	S57 03.2					
	13	265 21.9	328 57.1	11.3	39 14.6	03.8	165 31.1	56.8	342 12.0	33.2	Gienah	176 10.7	S17 29.1					
	14	280 24.4	343 57.5	10.7	54 15.4	04.3	180 33.8	56.9	357 14.2	33.2	Hadar	149 13.9	S60 19.4					
	15	295 26.8	358 57.9	10.2	69 16.1	04.8	195 36.6	56.9	12 16.4	33.2	Hamal	328 20.5	N23 25.1					
	16	310 29.3	13 58.4	09.7	84 16.9	05.2	210 39.3	56.9	27 18.5	33.2	Kaus Aust.	84 07.6	S34 23.6					
	17	325 31.8	28 58.8	09.2	99 17.6	05.7	225 42.1	56.9	42 20.7	33.2								
	18	340 34.2	43 59.2	S24 08.7	114 18.4	S17 06.2	240 44.8	N22 56.9	57 22.9	S22 33.1	Kochab	137 19.9	N74 11.5					
	19	355 36.7	58 59.7	08.2	129 19.1	06.7	255 47.5	57.0	72 25.1	33.1	Markab	13 56.0	N15 09.2					
	20	10 39.2	74 00.1	07.6	144 19.9	07.2	270 50.3	57.0	87 27.2	33.1	Menkar	314 33.3	N 4 03.2					
	21	25 41.6	89 00.5	07.1	159 20.6	07.7	285 53.0	57.0	102 29.4	33.1	Menkent	148 28.9	S36 19.2					
	22	40 44.1	104 01.0	06.6	174 21.4	08.2	300 55.8	57.0	117 31.6	33.1	Miaplacidus	221 43.4	S69 40.2					
23	55 46.6	119 01.4	06.1	189 22.1	08.7	315 58.5	57.1	132 33.8	33.0									
S A B A D O	2 00	70 49.0	134 01.8	S24 05.6	204 22.9	S17 09.2	331 01.3	N22 57.1	147 36.0	S22 33.0	Mirfak	309 05.4	N49 49.8					
	01	85 51.5	149 02.3	05.1	219 23.6	09.7	346 04.0	57.1	162 38.1	33.0	Nunki	76 20.5	S26 18.7					
	02	100 53.9	164 02.7	04.5	234 24.4	10.2	1 06.8	57.1	177 40.3	33.0	Peacock	53 47.2	S56 46.3					
	03	115 56.4	179 03.2	04.0	249 25.1	10.7	16 09.5	57.1	192 42.5	33.0	Pollux	243 49.0	N28 03.1					
	04	130 58.9	194 03.6	03.5	264 25.8	11.2	31 12.3	57.2	207 44.7	32.9	Procyon	245 18.0	N 5 15.2					
	05	146 01.3	209 04.1	03.0	279 26.6	11.7	46 15.0	57.2	222 46.8	32.9								
	06	161 03.8	224 04.5	S24 02.4	294 27.3	S17 12.1	61 17.8	N22 57.2	237 49.0	S22 32.9	Rasalhague	96 23.2	N12 34.0					
	07	176 06.3	239 05.0	01.9	309 28.1	12.6	76 20.5	57.2	252 51.2	32.9	Regulus	208 02.2	N12 01.0					
	08	191 08.7	254 05.5	01.4	324 28.8	13.1	91 23.2	57.3	267 53.4	32.9	Rigel	281 28.7	S 8 12.6					
	09	206 11.2	269 05.9	00.9	339 29.6	13.6	106 26.0	57.3	282 55.6	32.8	Rigil Kent.	140 16.7	S60 47.5					
	10	221 13.7	284 06.4	24 00.3	354 30.3	14.1	121 28.7	57.3	297 57.7	32.8	Sabik	102 33.2	S15 42.9					
	11	236 16.1	299 06.8	23 59.8	9 31.1	14.6	136 31.5	57.3	312 59.9	32.8								
	12	251 18.6	314 07.3	S23 59.3	24 31.8	S17 15.1	151 34.2	N22 57.4	328 02.1	S22 32.8	Schedar	350 00.7	N56 29.3					
	13	266 21.0	329 07.8	58.8	39 32.5	15.6	166 37.0	57.4	343 04.3	32.8	Shaula	96 46.4	S37 06.0					
	14	281 23.5	344 08.3	58.2	54 33.3	16.1	181 39.7	57.4	358 06.4	32.7	Sirius	258 49.0	S16 41.9					
	15	296 26.0	359 08.7	57.7	69 34.0	16.6	196 42.5	57.4	13 08.6	32.7	Spica	158 50.2	S11 06.5					
	16	311 28.4	14 09.2	57.2	84 34.8	17.0	211 45.2	57.4	28 10.8	32.7	Suhail	223 05.4	S43 23.2					
	17	326 30.9	29 09.7	56.7	99 35.5	17.5	226 48.0	57.5	43 13.0	32.7								
	18	341 33.4	44 10.2	S23 56.1	114 36.3	S17 18.0	241 50.7	N22 57.5	58 15.1	S22 32.7	Vega	80 51.3	N38 46.5					
	19	356 35.8	59 10.6	55.6	129 37.0	18.5	256 53.5	57.5	73 17.3	32.6	Zuben'ubi	137 25.4	S16 00.1					
	20	11 38.3	74 11.1	55.1	144 37.7	19.0	271 56.2	57.5	88 19.5	32.6</								



T.M.G. (TU)	SOL		LUNA				Lat.	Crepúsculo		Orto Sol	Orto Luna					
	A.H.G.	Dec.	A.H.G.	v	Dec.	d		P.H.	Náut.		Civil	30	1	2	3	
												h m	h m	h m	h m	
J U E V E S	30 00	182 52.2	S21 36.4	163 43.5	8.8	S27 24.3	0.7	55.1	N 72	07 51	09 50	10 36	11 36	12 07	12 19	12 24
	01	197 52.0	36.8	178 11.3	8.8	27 23.6	0.7	55.1	N 70	07 35	09 11	10 36	11 36	12 07	12 19	12 24
	02	212 51.7	37.2	192 39.1	8.7	27 22.9	1.0	55.1	68	07 22	08 44	10 36	11 36	12 07	12 19	12 24
	03	227 51.5	37.6	207 06.8	8.8	27 21.9	1.0	55.1	66	07 11	08 23	09 47	10 36	11 36	12 07	12 19
	04	242 51.3	38.0	221 34.6	8.7	27 20.9	1.2	55.1	64	07 01	08 06	09 16	10 36	11 36	12 07	12 19
	05	257 51.1	38.4	236 02.3	8.8	27 19.7	1.4	55.1	62	06 53	07 52	08 53	12 33	13 36	13 08	12 39
	06	272 50.8	S21 38.8	250 30.1	8.7	S27 18.3	1.5	55.2	60	06 46	07 41	08 35	11 43	12 07	12 19	12 24
	07	287 50.6	39.2	264 57.8	8.7	27 16.8	1.6	55.2	N 58	06 39	07 30	08 20	11 11	11 43	12 01	12 12
	08	302 50.4	39.6	279 25.5	8.8	27 15.2	1.8	55.2	56	06 33	07 21	08 07	10 48	11 23	11 46	12 01
	09	317 50.1	40.0	293 53.3	8.7	27 13.4	1.9	55.2	54	06 28	07 13	07 56	10 29	11 07	11 33	11 52
	10	332 49.9	40.4	308 21.0	8.7	27 11.5	2.1	55.2	52	06 23	07 06	07 46	10 12	10 52	11 22	11 43
	11	347 49.7	40.8	322 48.7	8.8	27 09.4	2.2	55.2	50	06 19	06 59	07 37	09 58	10 40	11 11	11 36
	12	2 49.5	S21 41.2	337 16.5	8.7	S27 07.2	2.4	55.3	45	06 08	06 45	07 18	09 30	10 14	10 50	11 19
	13	17 49.2	41.6	351 44.2	8.7	27 04.8	2.5	55.3	N 40	05 59	06 33	07 03	09 08	09 54	10 33	11 06
	14	32 49.0	42.0	6 11.9	8.8	27 02.3	2.7	55.3	35	05 51	06 22	06 50	08 49	09 37	10 18	10 54
	15	47 48.8	42.4	20 39.7	8.8	26 59.6	2.8	55.3	30	05 43	06 12	06 38	08 33	09 22	10 05	10 44
	16	62 48.5	42.8	35 07.5	8.7	26 56.8	2.9	55.3	20	05 28	05 55	06 19	08 06	08 57	09 44	10 27
	17	77 48.3	43.2	49 35.2	8.8	26 53.9	3.1	55.3	N 10	05 13	05 39	06 02	07 43	08 35	09 25	10 12
	18	92 48.1	S21 43.6	64 03.0	8.8	S26 50.8	3.2	55.4	0	04 57	05 23	05 45	07 21	08 15	09 07	09 57
	19	107 47.8	44.0	78 30.8	8.8	26 47.6	3.4	55.4	S 10	04 40	05 06	05 29	07 00	07 54	08 49	09 43
	20	122 47.6	44.4	92 58.6	8.8	26 44.2	3.5	55.4	20	04 19	04 47	05 12	06 37	07 33	08 30	09 27
	21	137 47.4	44.8	107 26.4	8.8	26 40.7	3.6	55.4	30	03 52	04 24	04 51	06 10	07 07	08 08	09 10
	22	152 47.2	45.2	121 54.2	8.9	26 37.1	3.8	55.4	35	03 35	04 10	04 39	05 54	06 52	07 55	08 59
23	167 46.9	45.6	136 22.1	8.9	26 33.3	4.0	55.5	40	03 13	03 54	04 26	05 35	06 35	07 40	08 47	
V I E R N E S	1 00	182 46.7	S21 46.0	150 50.0	8.9	S26 29.3	4.0	55.5	45	02 46	03 33	04 09	05 13	06 14	07 22	08 33
	01	197 46.5	46.4	165 17.9	8.9	26 25.3	4.3	55.5	S 50	02 07	03 06	03 49	04 44	05 47	06 59	08 16
	02	212 46.2	46.8	179 45.8	8.9	26 21.0	4.3	55.5	52	01 45	02 53	03 39	04 30	05 34	06 49	08 08
	03	227 46.0	47.2	194 13.7	9.0	26 16.7	4.5	55.5	54	01 15	02 37	03 28	04 14	05 20	06 36	07 58
	04	242 45.8	47.6	208 41.7	8.9	26 12.2	4.7	55.5	56	00 17	02 19	03 15	03 54	05 02	06 22	07 48
	05	257 45.5	48.0	223 09.6	9.0	26 07.5	4.7	55.6	58	///	01 55	03 01	03 31	04 41	06 06	07 36
	06	272 45.3	S21 48.3	237 37.6	9.1	S26 02.8	5.0	55.6	S 60	///	01 23	02 44	02 59	04 14	05 46	07 22
	07	287 45.1	48.7	252 05.7	9.0	25 57.8	5.0	55.6	Lat.	Ocaso Sol	Crepúsculo		Ocaso Luna			
	08	302 44.8	49.1	266 33.7	9.1	25 52.8	5.2	55.6			Civil	Náut.	30	1	2	3
	09	317 44.6	49.5	281 01.8	9.1	25 47.6	5.4	55.6	N 72	13 01	14 27	15 46	16 03	16 16	16 16	16 16
	10	332 44.4	49.9	295 29.9	9.2	25 42.2	5.4	55.7	N 70	13 51	15 15	16 27	16 27	16 27	16 27	16 27
	11	347 44.1	50.3	309 58.1	9.2	25 36.8	5.7	55.7	68	14 22	15 31	16 36	16 36	16 36	16 36	16 36
	12	2 43.9	S21 50.7	324 26.3	9.2	S25 31.1	5.7	55.7	66	14 44	15 45	16 45	16 45	16 45	16 45	16 45
	13	17 43.6	51.0	338 54.5	9.2	25 25.4	5.9	55.7	64	15 03	15 57	16 52	16 52	16 52	16 52	16 52
	14	32 43.4	51.4	353 22.7	9.3	25 19.5	6.0	55.7	62	15 18	16 07	16 58	16 58	16 58	16 58	16 58
	15	47 43.2	51.8	7 51.0	9.3	25 13.5	6.2	55.8	60	15 31	16 16	17 04	16 24	17 39	19 02	20 30
	16	62 42.9	52.2	22 19.3	9.4	25 07.3	6.3	55.8	N 58	15 42	16 25	17 10	16 43	17 55	19 15	20 38
	17	77 42.7	52.6	36 47.7	9.4	25 01.0	6.4	55.8	56	15 52	16 32	17 15	16 59	18 08	19 26	20 46
	18	92 42.5	S21 53.0	51 16.1	9.4	S24 54.6	6.5	55.8	54	16 01	16 39	17 19	17 12	18 21	19 35	20 53
	19	107 42.2	53.3	65 44.5	9.5	24 48.1	6.7	55.8	52	16 20	16 53	17 30	17 41	18 46	19 56	21 08
	20	122 42.0	53.7	80 13.0	9.5	24 41.4	6.8	55.9	45	16 35	17 05	17 39	18 03	19 05	20 12	21 20
	21	137 41.8	54.1	94 41.5	9.5	24 34.6	7.0	55.9	35	16 48	17 16	17 47	18 21	19 22	20 26	21 30
	22	152 41.5	54.5	109 10.0	9.6	24 27.6	7.1	55.9	30	17 00	17 26	17 55	18 37	19 36	20 37	21 39
23	167 41.3	54.8	123 38.6	9.6	24 20.5	7.2	55.9	20	17 19	17 43	18 10	19 03	20 00	20 58	21 55	
S A B A D O	2 00	182 41.0	S21 55.2	138 07.2	9.7	S24 13.3	7.4	56.0	N 10	17 37	17 59	18 25	19 26	20 21	21 15	22 08
	01	197 40.8	55.6	152 35.9	9.7	24 05.9	7.4	56.0	0	17 53	18 15	18 41	19 47	20 40	21 31	22 21
	02	212 40.6	56.0	167 04.6	9.8	23 58.5	7.6	56.0	S 10	18 09	18 32	18 59	20 08	20 59	21 47	22 33
	03	227 40.3	56.3	181 33.4	9.8	23 50.9	7.8	56.0	20	18 27	18 51	19 20	20 31	21 20	22 05	22 46
	04	242 40.1	56.7	196 02.2	9.8	23 43.1	7.8	56.0	30	18 47	19 14	19 47	20 57	21 43	22 24	23 01
	05	257 39.8	57.1	210 31.0	9.9	23 35.3	8.0	56.1	45	18 59	19 28	20 04	21 12	21 57	22 36	23 09
	06	272 39.6	S21 57.5	224 59.9	9.9	S23 27.3	8.1	56.1	35	19 13	19 45	20 25	21 30	22 13	22 49	23 19
	07	287 39.4	57.8	239 28.8	10.0	23 19.2	8.2	56.1	20	19 30	20 06	20 53	21 52	22 32	23 04	23 30
	08	302 39.1	58.2	253 57.8	10.0	23 11.0	8.4	56.1	S 50	19 50	20 33	21 33	22 19	22 55	23 22	23 44
	09	317 38.9	58.6	268 26.8	10.1	23 02.6	8.5	56.1	52	20 00	20 46	21 55	22 32	23 06	23 31	23 50
	10	332 38.6	58.9	282 55.9	10.1	22 54.1	8.6	56.2	54	20 11	21 02	22 26	22 47	23 19	23 41	23 57
	11	347 38.4	59.3	297 25.0	10.2	22 45.5	8.7	56.2	56	20 24	21 21	23 32	23 05	23 33	23 52	24 05
	12	2 38.2	S21 59.7	311 54.2	10.2	S22 36.8	8.9	56.2	58	20 38	21 45	///	23 26	23 50	24 05	00 05
	13	17 37.9	22 00.0	326 23.4	10.2	22 27.9	8.9	56.2	S 60	20 56	22 18	///	23 53	24 11	00 11	00 19
	14	32 37.7	00.4	340 52.6	10.3	22 19.0	9.1	56.3	Día	SOL		LUNA				
	15	47 37.4	00.8	355 21.9	10.4	22 09.9	9.2	56.3		E.T. (+)	Pas. Mer.	Pas. Mer.	Sup.	Inf.	Edad.	Fase
	16	62 37.2	01.1	9 51.3	10.4	22 00.7	9.3	56.3	30	00 h	12 h	h m	h m	h m	d	
	17	77 36.9	01.5	24 20.7	10.5	21 51.4	9.5	56.3	1	m s	m s	h m	h m	h m		
	18	92 36.7	S22 01.9	38 50.2	10.5	S21 41.9	9.5	56.3	2	11 29	11 18	11 49	13 34	01 08	02	
	19	107 36.5	02.2	53 19.7	10.5	21 32.4	9.7	56.4		11						



T.M.G. (TU)	ARIES			VENUS - 4.6			MARTE + 1.6			JUPITER - 2.7			SATURNO + 0.6			ESTRELLAS										
	A.H.G.	A.H.G.	Dec.	A.H.G.	Dec.	A.H.G.	Dec.	A.H.G.	Dec.	A.H.G.	Dec.	A.H.G.	Dec.	Nombre	A. H. S.	Dec.										
DOMINGO	3 00	71 48.2	134 13.1 S23	52.9	204 40.7 S17	20.9	332 07.2 N22	57.6	148 28.2 S22	32.5	Acamar	315 31.2 S40	20.6													
	01	86 50.6	149 13.6	52.4	219 41.4	21.4	347 10.0	57.6	163 30.4	32.5	Achernar	335 39.2 S57	17.4													
	02	101 53.1	164 14.1	51.9	234 42.2	21.9	2 12.8	57.7	178 32.6	32.5	Acrux	173 29.8 S63	02.4													
	03	116 55.5	179 14.6	51.3	249 42.9	22.4	17 15.5	57.7	193 34.7	32.5	Adhara	255 26.1 S28	57.3													
	04	131 58.0	194 15.1	50.8	264 43.7	22.9	32 18.3	57.7	208 36.9	32.4	Aldebaran	291 09.4 N16	29.6													
	05	147 00.5	209 15.6	50.3	279 44.4	23.4	47 21.0	57.7	223 39.1	32.4																
	06	162 02.9	224 16.1 S23	49.7	294 45.2 S17	23.9	62 23.8 N22	57.8	238 41.3 S22	32.4	Alioth	166 36.2 N56	00.5													
	07	177 05.4	239 16.6	49.2	309 45.9	24.4	77 26.5	57.8	253 43.4	32.4	Alkaid	153 13.0 N49	21.5													
	08	192 07.9	254 17.1	48.7	324 46.6	24.8	92 29.3	57.8	268 45.6	32.4	Al Na'ir	28 05.8 S47	00.8													
	09	207 10.3	269 17.6	48.1	339 47.4	25.3	107 32.0	57.8	283 47.8	32.3	Alnilam	276 04.0 S 1	12.3													
	10	222 12.8	284 18.1	47.6	354 48.1	25.8	122 34.8	57.9	298 50.0	32.3	Alphard	218 13.3 S 8	36.8													
	11	237 15.3	299 18.7	47.0	9 48.8	26.3	137 37.5	57.9	313 52.1	32.3																
	12	252 17.7	314 19.2 S23	46.5	24 49.6 S17	26.8	152 40.3 N22	57.9	328 54.3 S22	32.3	Alphecca	126 26.3 N26	44.7													
	13	267 20.2	329 19.7	46.0	39 50.3	27.3	167 43.0	57.9	343 56.5	32.3	Alpheratz	358 01.8 N29	02.4													
	14	282 22.7	344 20.2	45.4	54 51.1	27.7	182 45.8	57.9	358 58.7	32.2	Altair	62 25.7 N 8	50.5													
	15	297 25.1	359 20.8	44.9	69 51.8	28.2	197 48.6	58.0	14 00.8	32.2	Ankaa	353 32.8 S42	21.7													
	16	312 27.6	14 21.3	44.3	84 52.5	28.7	212 51.3	58.0	29 03.0	32.2	Antares	112 48.4 S26	24.7													
	17	327 30.0	29 21.8	43.8	99 53.3	29.2	227 54.1	58.0	44 05.2	32.2																
	18	342 32.5	44 22.4 S23	43.3	114 54.0 S17	29.7	242 56.8 N22	58.0	59 07.4 S22	32.1	Arcturus	146 12.1 N19	13.9													
	19	357 35.0	59 22.9	42.7	129 54.7	30.2	257 59.6	58.1	74 09.5	32.1	Atria	108 06.8 S69	00.7													
	20	12 37.4	74 23.4	42.2	144 55.5	30.6	273 02.3	58.1	89 11.7	32.1	Avior	234 25.0 S59	28.3													
	21	27 39.9	89 24.0	41.6	159 56.2	31.1	288 05.1	58.1	104 13.9	32.1	Bellatrix	278 50.6 N 6	20.6													
	22	42 42.4	104 24.5	41.1	174 57.0	31.6	303 07.9	58.1	119 16.1	32.1	Betelgeuse	271 20.1 N 7	24.5													
23	57 44.8	119 25.1	40.5	189 57.7	32.1	318 10.6	58.1	134 18.2	32.0																	
LUNES	4 00	72 47.3	134 25.6 S23	40.0	204 58.4 S17	32.6	333 13.4 N22	58.2	149 20.4 S22	32.0	Canopus	264 03.5 S52	41.2													
	01	87 49.8	149 26.1	39.5	219 59.2	33.1	348 16.1	58.2	164 22.6	32.0	Capella	281 00.1 N45	59.4													
	02	102 52.2	164 26.7	38.9	234 59.9	33.5	3 18.9	58.2	179 24.8	32.0	Deneb	49 43.9 N45	14.8													
	03	117 54.7	179 27.3	38.4	250 00.6	34.0	18 21.6	58.2	194 26.9	32.0	Denebola	182 51.7 N14	37.6													
	04	132 57.1	194 27.8	37.8	265 01.4	34.5	33 24.4	58.3	209 29.1	31.9	Diphda	349 13.4 S18	02.5													
	05	147 59.6	209 28.4	37.3	280 02.1	35.0	48 27.2	58.3	224 31.3	31.9																
	06	163 02.1	224 28.9 S23	36.7	295 02.8 S17	35.5	63 29.9 N22	58.3	239 33.5 S22	31.9	Dubhe	194 12.9 N61	48.0													
	07	178 04.5	239 29.5	36.2	310 03.6	35.9	78 32.7	58.3	254 35.6	31.9	Elnath	278 34.6 N28	36.1													
	08	193 07.0	254 30.1	35.6	325 04.3	36.4	93 35.4	58.4	269 37.8	31.9	Eltanin	90 54.9 N51	29.4													
	09	208 09.5	269 30.6	35.1	340 05.0	36.9	108 38.2	58.4	284 40.0	31.8	Enif	34 04.6 N 9	49.8													
	10	223 11.9	284 31.2	34.5	355 05.8	37.4	123 41.0	58.4	299 42.1	31.8	Fomalhaut	15 43.3 S29	40.6													
	11	238 14.4	299 31.8	34.0	10 06.5	37.9	138 43.7	58.4	314 44.3	31.8																
	12	253 16.9	314 32.3 S23	33.4	25 07.2 S17	38.3	153 46.5 N22	58.4	329 46.5 S22	31.8	Gacrux	172 21.2 S57	03.2													
	13	268 19.3	329 32.9	32.9	40 08.0	38.8	168 49.3	58.5	344 48.7	31.7	Gienah	176 10.7 S17	29.1													
	14	283 21.8	344 33.5	32.3	55 08.7	39.3	183 52.0	58.5	359 50.8	31.7	Hadar	149 13.8 S60	19.4													
	15	298 24.3	359 34.1	31.8	70 09.4	39.8	198 54.8	58.5	14 53.0	31.7	Hamal	328 20.5 N23	25.2													
	16	313 26.7	14 34.7	31.2	85 10.2	40.2	213 57.5	58.5	29 55.2	31.7	Kaus Aust.	84 07.6 S34	23.6													
	17	328 29.2	29 35.2	30.7	100 10.9	40.7	229 00.3	58.6	44 57.4	31.7																
	18	343 31.6	44 35.8 S23	30.1	115 11.6 S17	41.2	244 03.1 N22	58.6	59 59.5 S22	31.6	Kochab	137 19.9 N74	11.5													
	19	358 34.1	59 36.4	29.6	130 12.4	41.7	259 05.8	58.6	75 01.7	31.6	Markab	13 56.0 N15	09.2													
	20	13 36.6	74 37.0	29.0	145 13.1	42.2	274 08.6	58.6	90 03.9	31.6	Menkar	314 33.3 N 4	03.2													
	21	28 39.0	89 37.6	28.4	160 13.8	42.6	289 11.3	58.7	105 06.1	31.6	Menkent	148 28.9 S36	19.2													
	22	43 41.5	104 38.2	27.9	175 14.6	43.1	304 14.1	58.7	120 08.2	31.5	Miaplacidus	221 43.3 S69	40.2													
23	58 44.0	119 38.8	27.3	190 15.3	43.6	319 16.9	58.7	135 10.4	31.5																	
MARTES	5 00	73 46.4	134 39.4 S23	26.8	205 16.0 S17	44.1	334 19.6 N22	58.7	150 12.6 S22	31.5	Mirfak	309 05.4 N49	49.8													
	01	88 48.9	149 40.0	26.2	220 16.8	44.5	349 22.4	58.7	165 14.7	31.5	Nunki	76 20.5 S26	18.7													
	02	103 51.4	164 40.6	25.7	235 17.5	45.0	4 25.2	58.8	180 16.9	31.5	Peacock	53 47.2 S56	46.3													
	03	118 53.8	179 41.2	25.1	250 18.2	45.5	19 27.9	58.8	195 19.1	31.4	Pollux	243 49.0 N28	03.1													
	04	133 56.3	194 41.9	24.5	265 18.9	46.0	34 30.7	58.8	210 21.3	31.4	Procyon	245 17.9 N 5	15.2													
	05	148 58.8	209 42.5	24.0	280 19.7	46.4	49 33.5	58.8	225 23.4	31.4																
	06	164 01.2	224 43.1 S23	23.4	295 20.4 S17	46.9	64 36.2 N22	58.9	240 25.6 S22	31.4	Rasalhague	96 23.2 N12	33.9													
	07	179 03.7	239 43.7	22.9	310 21.1	47.4	79 39.0	58.9	255 27.8	31.4	Regulus	208 02.2 N12	01.0													
	08	194 06.1	254 44.3	22.3	325 21.9	47.9	94 41.8	58.9	270 30.0	31.3	Rigel	281 28.7 S 8	12.6													
	09	209 08.6	269 44.9	21.7	340 22.6	48.3	109 44.5	58.9	285 32.1	31.3	Rigel Kent.	140 16.7 S60	47.5													
	10	224 11.1	284 45.6	21.2	355 23.3	48.8	124 47.3	59.0	300 34.3	31.3	Sabik	102 33.2 S15	42.9													
	11	239 13.5	299 46.2	20.6	10 24.0	49.3	139 50.1	59.0	315 36.5	31.3																
	12	254 16.0	314 46.8 S23	20.1	25 24.8 S17	49.8	154 52.8 N22	59.0	330 38.6 S22	31.2	Schedar	350 00.8 N56	29.3													
	13	269 18.5	329 47.5	19.5	40 25.5	50.2	169 55.6	59.0	345 40.8	31.2	Shaula	96 46.4 S37	05.9													
	14	284 20.9	344 48.1	18.9	55 26.2	50.7	184 58.4	59.0	0 43.0	31.2	Sirius	258 49.0 S16	42.0													
	15	299 23.4	359 48.7	18.4	70 27.0	51.2	200 01.1	59.1	15 45.2	31.2	Spica	158 50.2 S11	06.5													
	16	314 25.9	14 49.4	17.8	85 27.7	51.7	215 03.9	59.1	30 47.3	31.2	Suhail	223 05.4 S43	23.2													
	17	329 28.3	29 50.0	17.2	100 28.4	52.1	230 06.7	59.1	45 49.5	31.1																
	18	344 30.8	44 50.7 S23	16.7	115 29.1 S17	52.6	245 09.4 N22	59.1	60 51.7 S22	31.1	Vega	80 51.3 N38	46.5													
	19	359 33.3	59 51.3	16.1	130 29.9	53.1	260 12.2	59.2	75 53.8	31.1	Zuben'ubi	137 25.4 S16	00.1													
	20	14 35.7	74 52.0	15.5	145 30.6	53.5	275 15.0	59.2	90 56.0	31.1																
	21	29 38.2	89 52.6	15.0	160 31.3	54.0	290 17.7	59.2	105 58.2	31.0																
	22	44 40.6	104 53.3	14.4	175 32.0	54.5	305 20.5	59.2	121 00.4	31.0																
23	59 43.1	119 53.9	13.8	190 32.8	54.9	320 23.3	59.3	136 02.5	31.0																	
Pas. Mer. 19 05.7															v 0.6 d 0.6			v 0.7 d 0.5			v 2.8 d 0.0			v 2.2 d 0.0		
															A. H. S.			Pas. Mer.								
															o / h m			o / h m								
															Venus 61 38.3 15 02			Marte 132 11.1 10 20			Júpiter 260 26.1 1 47			Saturno 76 33.1 14 01		



T.M.G. (TU)	SOL		LUNA				Lat.	Crepúsculo		Orto Sol	Orto Luna					
	A.H.G.	Dec.	A.H.G.	v	Dec.	d		P.H.	Náut.		Civil	3	4	5	6	
	o / ' / "	° / ' / "	o / ' / "	° / ' / "	o / ' / "	° / ' / "		° / ' / "	h m	h m	h m	h m	h m	h m	h m	
DOMINGO	3 00	182 35.2	S22 04.0	125 47.9	10.8	S20 42.9	10.2	56.5	N 72	07 59	10 04	15 48	13 56	13 12	12 38	
	01	197 35.0	04.4	140 17.7	10.8	20 32.7	10.4	56.5	N 70	07 42	09 21	14 24	13 33	13 02	12 36	
	02	212 34.7	04.7	154 47.5	10.9	20 22.3	10.4	56.5	68	07 28	08 52	13 45	13 14	12 53	12 34	
	03	227 34.5	05.1	169 17.4	11.0	20 11.9	10.6	56.6	66	07 16	08 30	13 17	12 59	12 45	12 33	
	04	242 34.2	05.5	183 47.4	11.0	20 01.3	10.6	56.6	64	07 06	08 12	12 56	12 47	12 39	12 32	
	05	257 34.0	05.8	198 17.4	11.0	19 50.7	10.8	56.6	62	06 58	07 58	12 39	12 36	12 34	12 31	
	06	272 33.8	S22 06.2	212 47.4	11.1	S19 39.9	10.9	56.6	60	06 50	07 46	12 24	12 27	12 29	12 30	
	07	287 33.5	06.5	227 17.5	11.1	19 29.0	11.0	56.7	N 58	06 43	07 35	12 12	12 19	12 25	12 29	
	08	302 33.3	06.9	241 47.6	11.2	19 18.0	11.1	56.7	56	06 37	07 26	12 01	12 12	12 21	12 28	
	09	317 33.0	07.2	256 17.8	11.2	19 06.9	11.1	56.7	54	06 32	07 17	11 52	12 06	12 17	12 28	
	10	332 32.8	07.6	270 48.0	11.3	18 55.8	11.3	56.7	52	06 27	07 10	11 43	12 00	12 14	12 27	
	11	347 32.5	07.9	285 18.3	11.3	18 44.5	11.4	56.7	50	06 22	07 03	11 36	11 55	12 11	12 27	
	12	2 32.3	S22 08.3	299 48.6	11.4	S18 33.1	11.5	56.8	45	06 11	06 48	11 19	11 44	12 05	12 25	
	13	17 32.0	08.6	314 19.0	11.4	18 21.6	11.6	56.8	N 40	06 02	06 35	11 06	11 34	12 00	12 24	
	14	32 31.8	09.0	328 49.4	11.5	18 10.0	11.7	56.8	35	05 53	06 24	10 54	11 26	11 55	12 23	
	15	47 31.5	09.3	343 19.9	11.5	17 58.3	11.8	56.8	30	05 45	06 14	10 44	11 19	11 51	12 23	
	16	62 31.3	09.7	357 50.4	11.5	17 46.5	11.8	56.9	20	05 29	05 57	10 27	11 07	11 44	12 21	
	17	77 31.0	10.0	12 20.9	11.6	17 34.7	12.0	56.9	N 10	05 14	05 40	10 12	10 56	11 38	12 20	
	18	92 30.8	S22 10.4	26 51.5	11.6	S17 22.7	12.1	56.9	0	04 58	05 24	09 57	10 46	11 33	12 19	
	19	107 30.5	10.7	41 22.1	11.7	17 10.6	12.2	56.9	S 10	04 40	05 07	09 43	10 35	11 27	12 18	
	20	122 30.3	11.0	55 52.8	11.7	16 58.4	12.2	57.0	20	04 19	04 48	09 27	10 24	11 21	12 17	
	21	137 30.0	11.4	70 23.5	11.8	16 46.2	12.4	57.0	30	03 51	04 24	09 10	10 12	11 13	12 16	
	22	152 29.8	11.7	84 54.3	11.8	16 33.8	12.4	57.0	35	03 34	04 10	08 59	10 04	11 09	12 15	
23	167 29.5	12.1	99 25.1	11.9	16 21.4	12.5	57.1	40	03 12	03 53	08 47	09 56	11 05	12 14		
LUNES	4 00	182 29.3	S22 12.4	113 56.0	11.9	S16 08.9	12.6	57.1	45	02 44	03 32	08 33	09 46	10 59	12 13	
	01	197 29.0	12.7	128 26.9	11.9	15 56.3	12.7	57.1	S 50	02 03	03 04	08 16	09 34	10 53	12 12	
	02	212 28.8	13.1	142 57.8	12.0	15 43.6	12.8	57.1	52	01 40	02 50	08 08	09 28	10 50	12 12	
	03	227 28.5	13.4	157 28.8	12.0	15 30.8	12.9	57.2	54	01 07	02 34	07 58	09 22	10 46	12 11	
	04	242 28.3	13.8	171 59.8	12.0	15 17.9	12.9	57.2	56	///	02 15	07 48	09 15	10 43	12 11	
	05	257 28.0	14.1	186 30.8	12.1	15 05.0	13.1	57.2	58	///	01 50	07 36	09 08	10 39	12 10	
	06	272 27.8	S22 14.4	201 01.9	12.1	S14 51.9	13.1	57.2	S 60	///	01 14	07 22	08 59	10 34	12 09	
	07	287 27.5	14.8	215 33.0	12.2	14 38.8	13.2	57.3	Lat.	Ocaso Sol	Crepúsculo		Ocaso Luna			
	08	302 27.3	15.1	230 04.2	12.1	14 25.6	13.3	57.3			Civil	Náut.	3	4	5	6
	09	317 27.0	15.4	244 35.3	12.3	14 12.3	13.4	57.3	N 72	h m	h m	h m	h m	h m	h m	h m
	10	332 26.8	15.8	259 06.6	12.2	13 58.9	13.4	57.3	N 70	13 36	15 41	16 51	20 25	22 49	25 05	
	11	347 26.5	16.1	273 37.8	12.3	13 45.5	13.5	57.4	68	14 19	15 58	18 14	20 46	22 56	25 03	
	12	2 26.2	S22 16.4	288 09.1	12.3	S13 32.0	13.6	57.4	66	12 45	14 48	18 52	21 03	23 02	25 00	
	13	17 26.0	16.8	302 40.4	12.4	13 18.4	13.7	57.4	64	13 43	15 10	19 18	21 16	23 08	24 59	
	14	32 25.7	17.1	317 11.8	12.4	13 04.7	13.7	57.4	62	14 16	15 28	19 38	21 27	23 12	24 57	
	15	47 25.5	17.4	331 43.2	12.4	12 51.0	13.8	57.5	60	14 40	15 42	19 55	21 36	23 16	24 56	
	16	62 25.2	17.8	346 14.6	12.4	12 37.2	13.9	57.5	N 58	14 59	15 54	20 08	21 44	23 19	24 55	
	17	77 25.0	18.1	0 46.0	12.5	12 23.3	14.0	57.5	56	15 15	16 05	20 20	21 51	23 22	24 54	
	18	92 24.7	S22 18.4	15 17.5	12.5	S12 09.3	14.0	57.6	54	15 29	16 15	20 30	21 57	23 24	24 53	
	19	107 24.5	18.7	29 49.0	12.5	11 55.3	14.1	57.6	52	15 40	16 23	20 38	22 02	23 27	24 52	
	20	122 24.2	19.1	44 20.5	12.5	11 41.2	14.2	57.6	50	15 50	16 30	20 46	22 07	23 29	24 51	
	21	137 23.9	19.4	58 52.0	12.6	11 27.0	14.2	57.6	45	16 00	16 37	20 53	22 11	23 30	24 51	
	22	152 23.7	19.7	73 23.6	12.6	11 12.8	14.3	57.7	S 10	16 19	16 52	21 08	22 21	23 34	24 49	
23	167 23.4	20.0	87 55.2	12.6	10 58.5	14.4	57.7	N 40	16 35	17 05	21 20	22 29	23 38	24 48		
MARTES	5 00	182 23.2	S22 20.4	102 26.8	12.6	S10 44.1	14.4	57.7	35	16 48	17 16	21 30	22 35	23 41	24 47	
	01	197 22.9	20.7	116 58.4	12.7	10 29.7	14.5	57.7	30	17 00	17 26	21 39	22 41	23 43	24 46	
	02	212 22.7	21.0	131 30.1	12.6	10 15.2	14.6	57.8	20	17 20	17 44	21 55	22 51	23 47	24 44	
	03	227 22.4	21.3	146 01.7	12.7	10 00.6	14.6	57.8	N 10	17 37	18 00	22 08	23 00	23 51	24 43	
	04	242 22.1	21.6	160 33.4	12.7	9 46.0	14.7	57.8	0	17 54	18 16	22 21	23 08	23 55	24 42	
	05	257 21.9	22.0	175 05.1	12.8	9 31.3	14.7	57.9	S 10	18 11	18 33	22 33	23 16	23 58	24 40	
	06	272 21.6	S22 22.3	189 36.9	12.7	S 9 16.6	14.8	57.9	20	18 29	18 53	22 46	23 25	24 02	00 02	
	07	287 21.4	22.6	204 08.6	12.7	9 01.8	14.9	57.9	30	18 49	19 17	23 01	23 34	24 06	00 06	
	08	302 21.1	22.9	218 40.3	12.8	8 46.9	14.9	57.9	35	19 02	19 31	23 09	23 40	24 08	00 08	
	09	317 20.9	23.2	233 12.1	12.8	8 32.0	14.9	58.0	40	19 16	19 48	23 19	23 46	24 11	00 11	
	10	332 20.6	23.5	247 43.9	12.7	8 17.1	15.0	58.0	45	19 33	20 09	23 30	23 53	24 14	00 14	
	11	347 20.3	23.9	262 15.6	12.8	8 02.1	15.1	58.0	S 50	19 54	20 37	23 44	24 02	00 02	00 17	
	12	2 20.1	S22 24.2	276 47.4	12.8	S 7 47.0	15.1	58.1	52	20 04	20 51	23 50	24 06	00 06	00 19	
	13	17 19.8	24.5	291 19.2	12.8	7 31.9	15.2	58.1	54	20 16	21 07	23 57	24 10	00 10	00 21	
	14	32 19.6	24.8	305 51.0	12.8	7 16.7	15.2	58.1	56	20 29	21 27	24 05	00 05	00 15	00 23	
	15	47 19.3	25.1	320 22.8	12.8	7 01.5	15.3	58.1	58	20 44	21 52	00 05	00 14	00 20	00 25	
	16	62 19.0	25.4	334 54.6	12.9	6 46.2	15.3	58.2	S 60	21 02	22 29	00 19	00 24	00 26	00 27	
	17	77 18.8	25.7	349 26.5	12.8	6 30.9	15.3	58.2	Día	SOL		LUNA				
	18	92 18.5	S22 26.0	3 58.3	12.8	S 6 15.6	15.4	58.2		E.T. (+)	Pas. Mer.	Pas. Sup.	Mer. Inf.	Edad.	Fase	
	19	107 18.3	26.3	18 30.1	12.8	6 00.2	15.5	58.3	3	00 h	12 h	h m	h m	d		
	20	122 18.0	26.7	33 01.9	12.8	5 44.7	15.5	58.3	4	m s	m s	h m	h m		)	
	21	137 17.7	27.0	47 33.7	12.8	5 29.2	15.5	58.3	5	10 21	10 10	11 50	16 09	03 44	05	
	22	152 17.5	27.3	62 05.5	12.8	5 13.7	15.6	58.3		09 58	09 45	11 50	16 57	04 33	06	
23																







T.M.G. (TU)	SOL		LUNA				Lat.	Crepúsculo		Orto Sol	Orto Luna						
	A.H.G.	Dec.	A.H.G.	v	Dec.	d		P.H.	Náut.		Civil	6	7	8	9		
	o / ' / "	o / ' / "	o / ' / "	o / ' / "	o / ' / "	o / ' / "		o / ' / "	h m		h m	h m	h m	h m	h m	h m	
M I E R C O L E S	6 00	182 16.9	S22 27.9	91 09.1	12.8	S 4	42.5	15.6	58.4	N 72	08 06	10 17	12 38	12 05	11 25	10 15	
	01	197 16.7	28.2	105 40.9	12.8	4	26.9	15.7	58.4	N 70	07 48	09 29	12 36	12 11	11 42	10 59	
	02	212 16.4	28.5	120 12.7	12.8	4	11.2	15.7	58.5	68	07 33	08 59	11 19	12 34	12 16	11 56	11 28
	03	227 16.2	28.8	134 44.5	12.8	3	55.5	15.7	58.5	66	07 21	08 36	10 07	12 33	12 21	12 08	11 51
	04	242 15.9	29.1	149 16.3	12.7	3	39.8	15.8	58.5	64	07 11	08 18	09 31	12 32	12 25	12 17	12 09
	05	257 15.6	29.4	163 48.0	12.8	3	24.0	15.8	58.5	62	07 02	08 03	09 06	12 31	12 28	12 26	12 24
	06	272 15.4	S22 29.7	178 19.8	12.7	S 3	08.2	15.9	58.6	60	06 54	07 50	08 46	12 30	12 31	12 33	12 36
	07	287 15.1	30.0	192 51.5	12.7	2	52.3	15.9	58.6	N 58	06 47	07 39	08 30	12 29	12 34	12 39	12 47
	08	302 14.8	30.3	207 23.2	12.7	2	36.4	15.9	58.6	56	06 41	07 30	08 16	12 28	12 36	12 45	12 57
	09	317 14.6	30.6	221 54.9	12.7	2	20.5	15.9	58.7	54	06 35	07 21	08 04	12 28	12 38	12 50	13 05
	10	332 14.3	30.9	236 26.6	12.6	2	04.6	15.9	58.7	52	06 30	07 13	07 53	12 27	12 40	12 55	13 13
	11	347 14.0	31.2	250 58.2	12.6	1	48.7	16.0	58.7	50	06 25	07 06	07 44	12 27	12 42	12 59	13 20
	12	2 13.8	S22 31.5	265 29.8	12.7	S 1	32.7	16.0	58.7	45	06 14	06 51	07 24	12 25	12 46	13 08	13 35
	13	17 13.5	31.8	280 01.5	12.5	1	16.7	16.0	58.8	N 40	06 04	06 38	07 08	12 24	12 49	13 16	13 47
	14	32 13.3	32.1	294 33.0	12.6	1	00.7	16.1	58.8	35	05 55	06 27	06 55	12 23	12 52	13 23	13 58
	15	47 13.0	32.3	309 04.6	12.5	0	44.6	16.0	58.8	30	05 47	06 17	06 43	12 23	12 55	13 29	14 07
	16	62 12.7	32.6	323 36.1	12.5	0	28.6	16.1	58.8	20	05 31	05 59	06 22	12 21	12 59	13 39	14 23
	17	77 12.5	32.9	338 07.6	12.5	S 0	12.5	16.1	58.9	N 10	05 16	05 42	06 05	12 20	13 03	13 48	14 37
	18	92 12.2	S22 33.2	352 39.1	12.5	N 0	03.6	16.1	58.9	0	04 59	05 25	05 48	12 19	13 07	13 57	14 51
	19	107 11.9	33.5	7 10.6	12.4	0	19.7	16.2	58.9	S 10	04 41	05 08	05 31	12 18	13 11	14 06	15 04
	20	122 11.7	33.8	21 42.0	12.4	0	35.9	16.1	59.0	20	04 19	04 48	05 13	12 17	13 15	14 15	15 19
	21	137 11.4	34.1	36 13.4	12.3	0	52.0	16.2	59.0	30	03 51	04 24	04 51	12 16	13 20	14 26	15 36
	22	152 11.1	34.4	50 44.7	12.3	1	08.2	16.1	59.0	35	03 33	04 10	04 39	12 15	13 22	14 32	15 46
23	167 10.9	34.7	65 16.0	12.3	1	24.3	16.2	59.0	40	03 11	03 52	04 25	12 14	13 25	14 40	15 57	
7 00	182 10.6	S22 35.0	79 47.3	12.2	N 1	40.5	16.2	59.1	45	02 42	03 31	04 07	12 13	13 29	14 48	16 10	
01	197 10.3	35.2	94 18.5	12.2	1	56.7	16.1	59.1	S 50	02 00	03 02	03 46	12 12	13 34	14 58	16 27	
02	212 10.0	35.5	108 49.7	12.2	2	12.8	16.2	59.1	52	01 36	02 48	03 36	12 12	13 36	15 03	16 34	
03	227 09.8	35.8	123 20.9	12.1	2	29.0	16.2	59.2	54	01 00	02 32	03 24	12 11	13 38	15 08	16 43	
04	242 09.5	36.1	137 52.0	12.1	2	45.2	16.2	59.2	56	///	02 11	03 11	12 11	13 40	15 14	16 53	
05	257 09.2	36.4	152 23.1	12.0	3	01.4	16.2	59.2	58	///	01 45	02 55	12 10	13 43	15 21	17 04	
06	272 09.0	S22 36.7	166 54.1	12.0	N 3	17.6	16.2	59.2	S 60	///	01 06	02 36	12 09	13 46	15 28	17 17	
07	287 08.7	36.9	181 25.1	11.9	3	33.8	16.2	59.3	Lat.	Ocaso Sol	Crepúsculo		Ocaso Luna				
08	302 08.4	37.2	195 56.0	11.9	3	50.0	16.2	59.3	Civil	Náut.	6	7	8	9			
09	317 08.2	37.5	210 26.9	11.8	4	06.2	16.1	59.3	h m	h m	h m	h m	h m	h m	h m	h m	
10	332 07.9	37.8	224 57.7	11.8	4	22.3	16.2	59.3	N 72	13 25	15 37	25 05	01 05	03 30	06 31		
11	347 07.6	38.0	239 28.5	11.7	4	38.5	16.2	59.4	N 70	14 13	15 55	25 03	01 03	03 15	05 49		
12	2 07.4	S22 38.3	253 59.2	11.6	N 4	54.7	16.1	59.4	68	12 24	14 44	16 09	25 00	01 00	03 04	05 21	
13	17 07.1	38.6	268 29.8	11.6	5	10.8	16.2	59.4	66	13 36	15 07	16 21	24 59	00 59	02 54	05 00	
14	32 06.8	38.9	283 00.4	11.6	5	27.0	16.1	59.4	64	14 11	15 25	16 32	24 57	00 57	02 46	04 44	
15	47 06.5	39.2	297 31.0	11.5	5	43.1	16.1	59.5	62	14 37	15 40	16 40	24 56	00 56	02 40	04 30	
16	62 06.3	39.4	312 01.5	11.4	5	59.2	16.1	59.5	60	14 57	15 53	16 48	24 55	00 55	02 34	04 19	
17	77 06.0	39.7	326 31.9	11.4	6	15.3	16.1	59.5	N 58	15 13	16 03	16 55	24 54	00 54	02 29	04 09	
18	92 05.7	S22 40.0	341 02.3	11.3	N 6	31.4	16.1	59.6	56	15 27	16 13	17 02	24 53	00 53	02 24	04 00	
19	107 05.5	40.2	355 32.6	11.2	6	47.5	16.0	59.6	54	15 39	16 22	17 07	24 52	00 52	02 20	03 53	
20	122 05.2	40.5	10 02.8	11.2	7	03.5	16.0	59.6	52	15 49	16 30	17 13	24 51	00 51	02 17	03 46	
21	137 04.9	40.8	24 33.0	11.1	7	19.5	16.0	59.6	50	15 59	16 37	17 18	24 51	00 51	02 13	03 40	
22	152 04.6	41.1	39 03.1	11.0	7	35.5	16.0	59.7	45	16 18	16 52	17 29	24 49	00 49	02 06	03 27	
23	167 04.4	41.3	53 33.1	11.0	7	51.5	15.9	59.7	N 40	16 35	17 05	17 39	24 48	00 48	02 00	03 16	
8 00	182 04.1	S22 41.6	68 03.1	10.8	N 8	07.4	15.9	59.7	35	16 48	17 16	17 48	24 47	00 47	01 55	03 07	
01	197 03.8	41.9	82 32.9	10.9	8	23.3	15.9	59.7	30	17 00	17 26	17 56	24 46	00 46	01 51	02 59	
02	212 03.6	42.1	97 02.8	10.7	8	39.2	15.8	59.8	20	17 21	17 44	18 12	24 44	00 44	01 43	02 45	
03	227 03.3	42.4	111 32.5	10.7	8	55.0	15.9	59.8	N 10	17 38	18 01	18 27	24 43	00 43	01 36	02 33	
04	242 03.0	42.7	126 02.2	10.6	9	10.9	15.7	59.8	0	17 55	18 18	18 44	24 42	00 42	01 30	02 22	
05	257 02.7	42.9	140 31.8	10.5	9	26.6	15.8	59.8	S 10	18 12	18 35	19 02	24 40	00 40	01 24	02 11	
06	272 02.5	S22 43.2	155 01.3	10.4	N 9	42.4	15.7	59.8	20	18 30	18 55	19 24	00 02	00 39	01 17	01 59	
07	287 02.2	43.4	169 30.7	10.3	9	58.1	15.6	59.9	30	18 52	19 19	19 52	00 06	00 37	01 10	01 46	
08	302 01.9	43.7	184 00.0	10.3	10	13.7	15.6	59.9	35	19 04	19 34	20 10	00 08	00 36	01 05	01 38	
09	317 01.6	44.0	198 29.3	10.2	10	29.3	15.6	59.9	40	19 19	19 51	20 32	00 11	00 35	01 01	01 29	
10	332 01.4	44.2	212 58.5	10.1	10	44.9	15.5	59.9	45	19 36	20 13	21 01	00 14	00 34	00 55	01 19	
11	347 01.1	44.5	227 27.6	10.0	11	00.4	15.5	60.0	S 50	19 58	20 41	21 44	00 17	00 32	00 48	01 07	
12	2 00.8	S22 44.7	241 56.6	9.9	N 11	15.9	15.4	60.0	52	20 08	20 56	22 09	00 19	00 32	00 45	01 01	
13	17 00.5	45.0	256 25.5	9.9	11	31.3	15.4	60.0	54	20 20	21 12	22 46	00 21	00 31	00 42	00 55	
14	32 00.3	45.3	270 54.4	9.7	11	46.7	15.3	60.0	56	20 33	21 33	///	00 23	00 30	00 38	00 48	
15	47 00.0	45.5	285 23.1	9.7	12	02.0	15.3	60.0	58	20 49	22 00	///	00 25	00 29	00 34	00 40	
16	61 59.7	45.8	299 51.8	9.6	12	17.3	15.2	60.1	S 60	21 08	22 39	///	00 27	00 28	00 29	00 31	











T.M.G. (TU)		ARIES			VENUS -4.7			MARTE +1.6			JUPITER -2.7			SATURNO +0.5			ESTRELLAS								
d	h	A.H.G.		A.H.G.	Dec.	A.H.G.		A.H.G.	Dec.	A.H.G.		A.H.G.	Dec.	A.H.G.		A.H.G.	Dec.	Nombre	A. H. S.	Dec.					
M A R T E S	12 00	80	40.4	136	56.8	S21	47.8	207	15.7	S19	00.6	342	07.1	N23	02.7	156	16.7	S22	27.6	Acamar	315	31.3	S40	20.7	
	01	95	42.9	151	57.8		47.2	222	16.4		01.0	357	09.9		02.7	171	18.8		27.6	Achernar	335	39.3	S57	17.4	
	02	110	45.3	166	58.9		46.6	237	17.1		01.4	12	12.7		02.7	186	21.0		27.6	Acruz	173	29.6	S63	02.4	
	03	125	47.8	181	59.9	..	46.0	252	17.8	..	01.9	27	15.5	..	02.7	201	23.1	..	27.6	Adhara	255	26.1	S28	57.3	
	04	140	50.3	197	01.0		45.4	267	18.5		02.3	42	18.3		02.8	216	25.3		27.6	Aldebaran	291	09.3	N16	29.5	
	05	155	52.7	212	02.0		44.8	282	19.2		02.7	57	21.1		02.8	231	27.5		27.5						
	06	170	55.2	227	03.1	S21	44.1	297	19.9	S19	03.2	72	23.9	N23	02.8	246	29.6	S22	27.5	Alioth	166	36.1	N56	00.5	
	07	185	57.7	242	04.2		43.5	312	20.6		03.6	87	26.7		02.8	261	31.8		27.5	Alkaid	153	12.9	N49	21.5	
	08	201	00.1	257	05.2		42.9	327	21.3		04.0	102	29.5		02.9	276	34.0		27.5	Al Na'ir	28	05.8	S47	00.8	
	09	216	02.6	272	06.3	..	42.3	342	22.0	..	04.5	117	32.3	..	02.9	291	36.1	..	27.4	Alnilam	276	03.9	S 1	12.3	
	10	231	05.0	287	07.4		41.7	357	22.7		04.9	132	35.1		02.9	306	38.3		27.4	Alphard	218	13.3	S 8	36.8	
	11	246	07.5	302	08.5		41.1	12	23.3		05.3	147	37.9		02.9	321	40.4		27.4						
	12	261	10.0	317	09.5	S21	40.5	27	24.0	S19	05.8	162	40.7	N23	03.0	336	42.6	S22	27.4	Alphecca	126	26.2	N26	44.7	
	13	276	12.4	332	10.6		39.8	42	24.7		06.2	177	43.5		03.0	351	44.8		27.3	Alpheratz	358	01.8	N29	02.4	
	14	291	14.9	347	11.7		39.2	57	25.4		06.6	192	46.3		03.0	6	46.9		27.3	Altair	62	25.7	N 8	50.5	
	15	306	17.4	2	12.8	..	38.6	72	26.1	..	07.1	207	49.1	..	03.0	21	49.1	..	27.3	Ankaa	353	32.8	S42	21.8	
	16	321	19.8	17	13.9		38.0	87	26.8		07.5	222	51.9		03.0	36	51.2		27.3	Antares	112	48.3	S26	24.7	
	17	336	22.3	32	15.0		37.4	102	27.5		07.9	237	54.7		03.1	51	53.4		27.2						
	18	351	24.8	47	16.1	S21	36.7	117	28.2	S19	08.3	252	57.5	N23	03.1	66	55.6	S22	27.2	Arcturus	146	12.0	N19	13.9	
	19	6	27.2	62	17.2		36.1	132	28.9		08.8	268	00.3		03.1	81	57.7		27.2	Atria	108	06.8	S69	00.7	
	20	21	29.7	77	18.3		35.5	147	29.6		09.2	283	03.1		03.1	96	59.9		27.2	Avior	234	24.9	S59	28.4	
	21	36	32.2	92	19.4	..	34.9	162	30.3	..	09.6	298	05.9	..	03.2	112	02.1	..	27.1	Bellatrix	278	50.6	N 6	20.6	
	22	51	34.6	107	20.5		34.3	177	30.9		10.1	313	08.7		03.2	127	04.2		27.1	Betelgeuse	271	20.1	N 7	24.5	
23	66	37.1	122	21.7		33.7	192	31.6		10.5	328	11.5		03.2	142	06.4		27.1							
M I E R C U L O S	13 00	81	39.5	137	22.8	S21	33.0	207	32.3	S19	10.9	343	14.3	N23	03.2	157	08.5	S22	27.1	Canopus	264	03.4	S52	41.2	
	01	96	42.0	152	23.9		32.4	222	33.0		11.3	358	17.1		03.3	172	10.7		27.0	Capella	281	00.1	N45	59.5	
	02	111	44.5	167	25.0		31.8	237	33.7		11.8	13	19.9		03.3	187	12.9		27.0	Deneb	49	44.0	N45	14.8	
	03	126	46.9	182	26.1	..	31.2	252	34.4	..	12.2	28	22.7	..	03.3	202	15.0	..	27.0	Denebola	182	51.6	N14	37.6	
	04	141	49.4	197	27.3		30.6	267	35.1		12.6	43	25.5		03.3	217	17.2		27.0	Diphda	349	13.4	S18	02.5	
	05	156	51.9	212	28.4		29.9	282	35.8		13.0	58	28.2		03.4	232	19.3		26.9						
	06	171	54.3	227	29.5	S21	29.3	297	36.5	S19	13.5	73	31.2	N23	03.4	247	21.5	S22	26.9	Dubhe	194	12.8	N61	48.0	
	07	186	56.8	242	30.7		28.7	312	37.1		13.9	88	34.0		03.4	262	23.7		26.9	Elnath	278	34.6	N28	36.1	
	08	201	59.3	257	31.8		28.1	327	37.8		14.3	103	36.8		03.4	277	25.8		26.9	Eltanin	90	54.9	N51	29.3	
	09	217	01.7	272	33.0	..	27.5	342	38.5	..	14.8	118	39.6	..	03.4	292	28.0	..	26.8	Enif	34	04.6	N 9	49.8	
	10	232	04.2	287	34.1		26.8	357	39.2		15.2	133	42.4		03.5	307	30.1		26.8	Fomalhaut	15	43.4	S29	40.7	
	11	247	06.7	302	35.3		26.2	12	39.9		15.6	148	45.2		03.5	322	32.3		26.8						
	12	262	09.1	317	36.4	S21	25.6	27	40.6	S19	16.0	163	48.0	N23	03.5	337	34.5	S22	26.8	Gacrux	172	21.1	S57	03.2	
	13	277	11.6	332	37.6		25.0	42	41.3		16.5	178	50.8		03.5	352	36.6		26.7	Gienah	176	10.6	S17	29.1	
	14	292	14.0	347	38.8		24.4	57	41.9		16.9	193	53.6		03.6	7	38.8		26.7	Hadar	149	13.7	S60	19.4	
	15	307	16.5	2	39.9	..	23.7	72	42.6	..	17.3	208	56.4	..	03.6	22	40.9	..	26.7	Hamal	328	20.5	N23	25.2	
	16	322	19.0	17	41.1		23.1	87	43.3		17.7	223	59.2		03.6	37	43.1		26.7	Kaus Aust.	84	07.6	S34	23.5	
	17	337	21.4	32	42.3		22.5	102	44.0		18.1	239	02.0		03.6	52	45.3		26.6						
	18	352	23.9	47	43.4	S21	21.9	117	44.7	S19	18.6	254	04.8	N23	03.7	67	47.4	S22	26.6	Kochab	137	19.8	N74	11.5	
	19	7	26.4	62	44.6		21.3	132	45.4		19.0	269	07.6		03.7	82	49.6		26.6	Markab	13	56.0	N15	09.2	
	20	22	28.8	77	45.8		20.6	147	46.1		19.4	284	10.4		03.7	97	51.7		26.6	Menkar	314	33.3	N 4	03.2	
	21	37	31.3	92	47.0	..	20.0	162	46.7	..	19.8	299	13.2	..	03.7	112	53.9	..	26.5	Menkent	148	28.8	S36	19.2	
	22	52	33.8	107	48.2		19.4	177	47.4		20.3	314	16.0		03.8	127	56.1		26.5	Miaplacidus	221	43.2	S69	40.3	
23	67	36.2	122	49.3		18.8	192	48.1		20.7	329	18.9		03.8	142	58.2		26.5							
J U E V E S	14 00	82	38.7	137	50.5	S21	18.1	207	48.8	S19	21.1	344	21.7	N23	03.8	158	00.4	S22	26.5	Mirfak	309	05.4	N49	49.8	
	01	97	41.1	152	51.7		17.5	222	49.5		21.5	359	24.5		03.8	173	02.5		26.4	Nunki	76	20.5	S26	18.7	
	02	112	43.6	167	52.9		16.9	237	50.2		21.9	14	27.3		03.8	188	04.7		26.4	Peacock	53	47.2	S56	46.3	
	03	127	46.1	182	54.1	..	16.3	252	50.8	..	22.4	29	30.1	..	03.9	203	06.9	..	26.4	Pollux	243	48.9	N28	03.1	
	04	142	48.5	197	55.3		15.7	267	51.5		22.8	44	32.9		03.9	218	09.0		26.4	Procyon	245	17.9	N 5	15.1	
	05	157	51.0	212	56.6		15.0	282	52.2		23.2	59	35.7		03.9	233	11.2		26.3						
	06	172	53.5	227	57.8	S21	14.4	297	52.9	S19	23.6	74	38.5	N23	03.9	248	13.3	S22	26.3	Rasalhague	96	23.2	N12	33.9	
	07	187	55.9	242	59.0		13.8	312																	



T.M.G. (TU)	SOL		LUNA					Lat.	Crepúsculo		Orto Sol	Orto Luna				
	A.H.G.	Dec.	A.H.G.	v	Dec.	d	P.H.		Naut.	Civil		12	13	14	15	
												h m	h m	h m	h m	
MARTES	12 00	181 37.1	S23 03.7	12 36.2	2.1	N26 39.4	4.2	60.5	N 72	08 17	10 41	█	□	□	□	□
	01	196 36.8	03.8	26 57.3	2.1	26 43.6	4.1	60.5	N 70	07 58	09 44	█	□	□	□	□
	02	211 36.5	04.0	41 18.4	2.1	26 47.7	3.8	60.5	68	07 42	09 10	█	□	□	□	16 12
	03	226 36.2	04.2	55 39.5	2.0	26 51.5	3.6	60.5	66	07 30	08 46	10 23	□	□	□	17 00
	04	241 35.9	04.4	70 00.5	2.1	26 55.1	3.4	60.5	64	07 19	08 27	09 43	□	□	15 15	17 31
	05	256 35.6	04.6	84 21.6	2.0	26 58.5	3.1	60.5	62	07 09	08 11	09 16	12 45	14 01	15 58	17 53
	06	271 35.3	S23 04.8	98 42.6	2.0	N27 01.6	3.0	60.5	60	07 01	07 58	08 55	13 34	14 47	16 27	18 12
	07	286 35.0	05.0	113 03.6	1.9	27 04.6	2.8	60.4	N 58	06 54	07 46	08 38	14 05	15 17	16 49	18 27
	08	301 34.8	05.2	127 24.5	2.0	27 07.4	2.6	60.4	56	06 47	07 36	08 23	14 29	15 40	17 07	18 39
	09	316 34.5	05.3	141 45.5	2.0	27 10.0	2.4	60.4	54	06 41	07 27	08 11	14 48	15 58	17 22	18 51
	10	331 34.2	05.5	156 06.5	1.9	27 12.4	2.1	60.4	52	06 36	07 19	08 00	15 05	16 14	17 35	19 00
	11	346 33.9	05.7	170 27.4	2.0	27 14.5	2.0	60.4	50	06 30	07 12	07 50	15 19	16 27	17 47	19 09
	12	1 33.6	S23 05.9	184 48.4	1.9	N27 16.5	1.8	60.4	45	06 19	06 56	07 30	15 47	16 55	18 11	19 28
	13	16 33.3	06.1	199 09.3	1.9	27 18.3	1.5	60.3	N 40	06 09	06 43	07 13	16 10	17 17	18 30	19 43
	14	31 33.0	06.3	213 30.2	2.0	27 19.8	1.4	60.3	35	05 59	06 31	06 59	16 28	17 35	18 46	19 55
	15	46 32.7	06.4	227 51.2	2.0	27 21.2	1.1	60.3	30	05 51	06 21	06 47	16 44	17 51	18 59	20 06
	16	61 32.4	06.6	242 12.2	2.0	27 22.3	0.9	60.3	20	05 35	06 02	06 26	17 12	18 17	19 23	20 25
	17	76 32.1	06.8	256 33.2	1.9	27 23.2	0.8	60.3	N 10	05 19	05 45	06 08	17 35	18 40	19 43	20 41
	18	91 31.8	S23 07.0	270 54.1	2.1	N27 24.0	0.5	60.2	0	05 02	05 28	05 50	17 57	19 01	20 01	20 56
	19	106 31.5	07.2	285 15.2	2.0	27 24.5	0.3	60.2	S 10	04 43	05 10	05 33	18 19	19 22	20 20	21 12
	20	121 31.3	07.3	299 36.2	2.1	27 24.8	0.1	60.2	20	04 21	04 50	05 14	18 43	19 45	20 40	21 28
	21	136 31.0	07.5	313 57.3	2.1	27 24.9	0.1	60.2	30	03 52	04 25	04 53	19 10	20 11	21 03	21 46
	22	151 30.7	07.7	328 18.4	2.1	27 24.8	0.3	60.2	35	03 34	04 10	04 40	19 26	20 27	21 16	21 57
23	166 30.4	07.9	342 39.5	2.2	27 24.5	0.5	60.1	40	03 11	03 52	04 25	19 45	20 45	21 32	22 09	
13 00	181 30.1	S23 08.0	357 00.7	2.2	N27 24.0	0.7	60.1	45	02 41	03 30	04 07	20 08	21 06	21 50	22 23	
01	196 29.8	08.2	11 21.9	2.2	27 23.3	0.9	60.1	S 50	01 56	03 01	03 45	20 37	21 33	22 13	22 40	
02	211 29.5	08.4	25 43.1	2.3	27 22.4	1.1	60.1	52	01 30	02 46	03 34	20 52	21 47	22 24	22 49	
03	226 29.2	08.5	40 04.4	2.4	27 21.3	1.3	60.0	54	00 48	02 28	03 22	21 09	22 02	22 36	22 58	
04	241 28.9	08.7	54 25.8	2.3	27 20.0	1.5	60.0	56	////	02 07	03 08	21 29	22 20	22 50	23 08	
05	256 28.6	08.9	68 47.1	2.5	27 18.5	1.7	60.0	58	////	01 38	02 52	21 53	22 41	23 06	23 19	
06	271 28.3	S23 09.1	83 08.6	2.5	N27 16.8	1.9	60.0	S 60	////	00 53	02 32	22 27	23 09	23 26	23 33	
07	286 28.0	09.2	97 30.1	2.6	27 14.9	2.1	59.9									
08	301 27.7	09.4	111 51.7	2.6	27 12.8	2.3	59.9	Lat.	Ocaso Sol	Crepúsculo		Ocaso Luna				
09	316 27.4	09.6	126 13.3	2.7	27 10.5	2.5	59.9			Civil	Naut.	12	13	14	15	
10	331 27.1	09.7	140 35.0	2.7	27 08.0	2.6	59.9									
11	346 26.8	09.9	154 56.7	2.9	27 05.4	2.9	59.8									
12	1 26.6	S23 10.1	169 18.6	2.9	N27 02.5	3.1	59.8	N 72	13 25	15 02	16 19	10 33	11 32	12 28	13 29	
13	16 26.3	10.2	183 40.5	2.9	26 59.4	3.2	59.8	N 70	14 05	15 21	16 29	11 32	12 28	13 29	14 21	
14	31 26.0	10.4	198 02.4	3.1	26 56.2	3.5	59.8	68	14 05	15 21	16 29	10 33	11 32	12 28	13 29	
15	46 25.7	10.5	212 24.5	3.1	26 52.7	3.6	59.7	66	14 32	15 37	16 39	11 32	12 28	13 29	14 21	
16	61 25.4	10.7	226 46.6	3.3	26 49.1	3.8	59.7	64	14 53	15 51	16 47	11 32	12 28	13 29	14 21	
17	76 25.1	10.9	241 08.9	3.3	26 45.3	4.0	59.7	62	15 11	16 02	16 54	11 32	12 28	13 29	14 21	
18	91 24.8	S23 11.0	255 31.2	3.4	N26 41.3	4.2	59.6	60	15 25	16 12	17 01	11 32	12 28	13 29	14 21	
19	106 24.5	11.2	269 53.6	3.5	26 37.1	4.4	59.6	N 58	15 37	16 21	17 07	11 32	12 28	13 29	14 21	
20	121 24.2	11.3	284 16.1	3.6	26 32.7	4.6	59.6	56	15 48	16 29	17 13	11 32	12 28	13 29	14 21	
21	136 23.9	11.5	298 38.7	3.6	26 28.1	4.7	59.6	54	15 58	16 36	17 18	11 32	12 28	13 29	14 21	
22	151 23.6	11.6	313 01.3	3.8	26 23.4	4.9	59.5	52	16 19	16 52	17 29	11 32	12 28	13 29	14 21	
23	166 23.3	11.8	327 24.1	3.9	26 18.5	5.1	59.5	50	16 35	17 06	17 40	11 32	12 28	13 29	14 21	
14 00	181 23.0	S23 12.0	341 47.0	4.0	N26 13.4	5.2	59.5	45	16 49	17 17	17 49	11 32	12 28	13 29	14 21	
01	196 22.7	12.1	356 10.0	4.1	26 08.2	5.5	59.4	N 40	17 01	17 28	17 58	11 32	12 28	13 29	14 21	
02	211 22.4	12.3	10 33.1	4.2	26 02.7	5.6	59.4	35	17 22	17 46	18 14	11 32	12 28	13 29	14 21	
03	226 22.1	12.4	24 56.3	4.3	25 57.1	5.8	59.4	30	17 41	18 03	18 30	11 32	12 28	13 29	14 21	
04	241 21.8	12.6	39 19.6	4.4	25 51.3	5.9	59.3	20	17 58	18 20	18 47	11 32	12 28	13 29	14 21	
05	256 21.5	12.7	53 43.0	4.5	25 45.4	6.1	59.3	N 10	18 15	18 38	19 05	11 32	12 28	13 29	14 21	
06	271 21.2	S23 12.9	68 06.5	4.6	N25 39.3	6.3	59.3	0	18 34	18 59	19 28	11 32	12 28	13 29	14 21	
07	286 20.9	13.0	82 30.1	4.7	25 33.0	6.4	59.2	S 10	18 56	19 23	19 57	11 32	12 28	13 29	14 21	
08	301 20.6	13.2	96 53.8	4.9	25 26.6	6.7	59.2	20	19 09	19 38	20 15	11 32	12 28	13 29	14 21	
09	316 20.3	13.3	111 17.7	5.0	25 19.9	6.7	59.2	30	19 24	19 56	20 38	11 32	12 28	13 29	14 21	
10	331 20.0	13.5	125 41.7	5.1	25 13.2	6.9	59.1	35	19 42	20 19	21 08	11 32	12 28	13 29	14 21	
11	346 19.7	13.6	140 05.8	5.2	25 06.3	7.1	59.1	40	20 04	20 48	21 53	11 32	12 28	13 29	14 21	
12	1 19.4	S23 13.7	154 30.0	5.3	N24 59.2	7.2	59.1	45	20 15	21 03	22 20	11 32	12 28	13 29	14 21	
13	16 19.1	13.9	168 54.3	5.5	24 52.0	7.4	59.0	S 50	20 27	21 21	23 03	11 32	12 28	13 29	14 21	
14	31 18.8	14.0	183 18.8	5.5	24 44.6	7.6	59.0	52	20 41	21 42	///	11 32	12 28	13 29	14 21	
15	46 18.5	14.2	197 43.3	5.7	24 37.0	7.6	59.0	54	20 57	22 11	///	11 32	12 28	13 29	14 21	
16	61 18.2	14.3	212 08.0	5.8	24 29.4	7.9	58.9	56	21 17	22 58	///	11 32	12 28	13 29	14 21	
17	76 17.9	14.5	226 32.8	6.0	24 21.5	7.9	58.9	58				11 32	12 28	13 29	14 21	
18	91 17.7	S23 14.6	240 57.8	6.1	N24 13.6	8.2	58.9	S 60				11 32	12 28	13 29	14 21	
19	106 17.4	14.7	255 22.9	6.2	24 05.4	8.2	58.8					11 32	12 28	13 29	14 21	
20	121 17.1	14.9	269 48.1	6.3	23 57.2	8.4	58.8					11 32	12 28	13		



T.M.G. (TU)	ARIES			VENUS -4.7			MARTE +1.6			JUPITER -2.7			SATURNO +0.5			ESTRELLAS		
	d	h	A.H.G.	A.H.G.	Dec.	A.H.G.	Dec.	A.H.G.	Dec.	A.H.G.	Dec.	A.H.G.	Dec.	Nombre	A. H. S.	Dec.		
V I E R N E S	15	00	83 37.8	138 20.1	S21 03.2	208 05.1	S19 31.1	345 29.1	N23 04.4	158 52.2	S22 25.9	173 54.4	25.8	Acamar	315 31.3	S40 20.7		
	01	98 40.3	153 21.4	02.5	223 05.8	31.5	0 31.9	04.4	173 54.4	25.8	188 56.5	25.8	Achernar	335 39.3	S57 17.4			
	02	113 42.8	168 22.7	01.9	238 06.5	32.0	15 34.7	04.4	188 56.5	25.8	203 58.7	25.8	Acrux	173 29.6	S63 02.4			
	03	128 45.2	183 23.9	01.3	253 07.2	32.4	30 37.5	04.4	203 58.7	25.8	219 00.8	25.8	Adhara	255 26.0	S28 57.3			
	04	143 47.7	198 25.2	00.7	268 07.9	32.8	45 40.3	04.5	219 00.8	25.8	234 03.0	25.7	Aldebaran	291 09.3	N16 29.5			
	05	158 50.1	213 26.5	21 00.0	283 08.5	33.2	60 43.1	04.5	234 03.0	25.7	249 05.2	S22 25.7	Alioth	166 36.1	N56 00.5			
	06	173 52.6	228 27.8	S20 59.4	298 09.2	S19 33.6	75 45.9	N23 04.5	249 05.2	S22 25.7	264 07.3	25.7	Alkaid	153 12.9	N49 21.5			
	07	188 55.1	243 29.1	58.8	313 09.9	34.0	90 48.8	04.5	264 07.3	25.7	279 09.5	25.7	Al Na'ir	28 05.8	S47 00.8			
	08	203 57.5	258 30.4	58.2	328 10.6	34.4	105 51.6	04.6	279 09.5	25.7	294 11.6	25.6	Alnilam	276 03.9	S 1 12.3			
	09	219 00.0	273 31.7	57.5	343 11.2	34.9	120 54.4	04.6	294 11.6	25.6	309 13.8	25.6	Alphard	218 13.2	S 8 36.8			
	10	234 02.5	288 33.0	56.9	358 11.9	35.3	135 57.2	04.6	309 13.8	25.6	324 15.9	25.6	Alphecca	126 26.2	N26 44.7			
	11	249 04.9	303 34.3	56.3	13 12.6	35.7	151 00.0	04.6	324 15.9	25.6	339 18.1	S22 25.6	Alpheratz	358 01.8	N29 02.4			
	12	264 07.4	318 35.6	S20 55.7	28 13.3	S19 36.1	166 02.8	N23 04.6	339 18.1	S22 25.6	354 20.3	25.5	Altair	62 25.7	N 8 50.5			
	13	279 09.9	333 36.9	55.0	43 13.9	36.5	181 05.6	04.7	354 20.3	25.5	9 22.4	25.5	Ankaa	353 32.8	S42 21.8			
	14	294 12.3	348 38.2	54.4	58 14.6	36.9	196 08.4	04.7	9 22.4	25.5	24 24.6	25.5	Antares	112 48.3	S26 24.7			
	15	309 14.8	3 39.5	53.8	73 15.3	37.3	211 11.2	04.7	24 24.6	25.5	39 26.7	25.5	Arcturus	146 12.0	N19 13.9			
	16	324 17.3	18 40.9	53.2	88 16.0	37.7	226 14.1	04.7	39 26.7	25.5	54 28.9	25.4	Atria	108 06.7	S69 00.7			
	17	339 19.7	33 42.2	52.5	103 16.7	38.1	241 16.9	04.8	54 28.9	25.4	69 31.0	S22 25.4	Avior	234 24.9	S59 28.4			
	18	354 22.2	48 43.5	S20 51.9	118 17.3	S19 38.6	256 19.7	N23 04.8	69 31.0	S22 25.4	84 33.2	25.4	Bellatrix	278 50.6	N 6 20.6			
	19	9 24.6	63 44.8	51.3	133 18.0	39.0	271 22.5	04.8	84 33.2	25.4	99 35.4	25.3	Betelgeuse	271 20.1	N 7 24.5			
	20	24 27.1	78 46.2	50.6	148 18.7	39.4	286 25.3	04.8	99 35.4	25.3	114 37.5	25.3	Canopus	264 03.4	S52 41.2			
	21	39 29.6	93 47.5	50.0	163 19.3	39.8	301 28.1	04.9	114 37.5	25.3	129 39.7	25.3	Capella	281 00.1	N45 59.5			
	22	54 32.0	108 48.9	49.4	178 20.0	40.2	316 30.9	04.9	129 39.7	25.3	144 41.8	25.3	Deneb	49 44.0	N45 14.8			
23	69 34.5	123 50.2	48.8	193 20.7	40.6	331 33.8	04.9	144 41.8	25.3	159 44.0	S22 25.2	Denebola	182 51.6	N14 37.5				
S A B A D O	16	00	84 37.0	138 51.6	S20 48.1	208 21.4	S19 41.0	346 36.6	N23 04.9	159 44.0	S22 25.2	174 46.2	25.2	Diphda	349 13.4	S18 02.5		
	01	99 39.4	153 52.9	47.5	223 22.0	41.4	1 39.4	05.0	174 46.2	25.2	189 48.3	25.2	Dubhe	194 12.8	N61 48.0			
	02	114 41.9	168 54.3	46.9	238 22.7	41.8	16 42.2	05.0	189 48.3	25.2	204 50.5	25.2	Elnath	278 34.6	N28 36.1			
	03	129 44.4	183 55.6	46.3	253 23.4	42.2	31 45.0	05.0	204 50.5	25.2	219 52.6	25.1	Eltanin	90 54.9	N51 29.3			
	04	144 46.8	198 57.0	45.6	268 24.1	42.6	46 47.8	05.0	219 52.6	25.1	234 54.8	25.1	Enif	34 04.6	N 9 49.8			
	05	159 49.3	213 58.3	45.0	283 24.7	43.0	61 50.6	05.0	234 54.8	25.1	249 56.9	S22 25.1	Fomalhaut	15 43.4	S29 40.7			
	06	174 51.7	228 59.7	S20 44.4	298 25.4	S19 43.4	76 53.5	N23 05.1	249 56.9	S22 25.1	264 59.1	25.1	Gacrux	172 21.0	S57 03.2			
	07	189 54.2	244 01.1	43.7	313 26.1	43.9	91 56.3	05.1	264 59.1	25.1	280 01.3	25.0	Gienah	176 10.6	S17 29.1			
	08	204 56.7	259 02.5	43.1	328 26.7	44.3	106 59.1	05.1	280 01.3	25.0	295 03.4	25.0	Hadar	149 13.7	S60 19.4			
	09	219 59.1	274 03.8	42.5	343 27.4	44.7	122 01.9	05.1	295 03.4	25.0	310 05.6	25.0	Hamal	328 20.5	N23 25.2			
	10	235 01.6	289 05.2	41.9	358 28.1	45.1	137 04.7	05.2	310 05.6	25.0	325 07.7	25.0	Kaus Aust.	84 07.6	S34 23.5			
	11	250 04.1	304 06.6	41.2	13 28.8	45.5	152 07.5	05.2	325 07.7	25.0	340 09.9	S22 24.9	Kochab	137 19.8	N74 11.4			
	12	265 06.5	319 08.0	S20 40.6	28 29.4	S19 45.9	167 10.3	N23 05.2	340 09.9	S22 24.9	355 12.0	24.9	Markab	13 56.0	N15 09.2			
	13	280 09.0	334 09.4	40.0	43 30.1	46.3	182 13.2	05.2	355 12.0	24.9	10 14.2	24.9	Menkar	314 33.3	N 4 03.2			
	14	295 11.5	349 10.8	39.4	58 30.8	46.7	197 16.0	05.3	10 14.2	24.9	25 16.3	24.9	Menkent	148 28.8	S36 19.2			
	15	310 13.9	4 12.2	38.7	73 31.4	47.1	212 18.8	05.3	25 16.3	24.9	40 18.5	24.8	Miaplacidus	221 43.1	S69 40.3			
	16	325 16.4	19 13.6	38.1	88 32.1	47.5	227 21.6	05.3	40 18.5	24.8	55 20.7	24.8	Mirfak	309 05.4	N49 49.9			
	17	340 18.9	34 15.0	37.5	103 32.8	47.9	242 24.4	05.3	55 20.7	24.8	70 22.8	S22 24.8	Nunki	76 20.5	S26 18.7			
	18	355 21.3	49 16.4	S20 36.8	118 33.5	S19 48.3	257 27.2	N23 05.3	70 22.8	S22 24.8	85 25.0	24.8	Peacock	53 47.2	S56 46.3			
	19	10 23.8	64 17.8	36.2	133 34.1	48.7	272 30.1	05.4	85 25.0	24.8	100 27.1	24.7	Pollux	243 48.9	N28 03.1			
	20	25 26.2	79 19.2	35.6	148 34.8	49.1	287 32.9	05.4	100 27.1	24.7	115 29.3	24.7	Procyon	245 17.9	N 5 15.1			
	21	40 28.7	94 20.6	35.0	163 35.5	49.5	302 35.7	05.4	115 29.3	24.7	130 31.4	24.7	Rasalhague	96 23.2	N12 33.9			
	22	55 31.2	109 22.0	34.3	178 36.1	49.9	317 38.5	05.4	130 31.4	24.7	145 33.6	24.7	Regulus	208 02.1	N12 00.9			
23	70 33.6	124 23.5	33.7	193 36.8	50.3	332 41.3	05.5	145 33.6	24.7	160 35.8	S22 24.6	Rigel	281 28.7	S 8 12.6				
D O M I N G O	17	00	85 36.1	139 24.9	S20 33.1	208 37.5	S19 50.7	347 44.1	N23 05.5	160 35.8	S22 24.6	175 37.9	24.6	Rigel Kent.	140 16.6	S60 47.5		
	01	100 38.6	154 26.3	32.4	223 38.1	51.1	2 47.0	05.5	175 37.9	24.6	190 40.1	24.6	Sabik	102 33.2	S15 42.9			
	02	115 41.0	169 27.8	31.8	238 38.8	51.5	17 49.8	05.5	190 40.1	24.6	205 42.2	24.5	Schedar	350 00.8	N56 29.3			
	03	130 43.5	184 29.2	31.2	253 39.5	51.9	32 52.6	05.6	205 42.2	24.5	220 44.4	24.5	Shaula	96 46.3	S37 05.9			
	04	145 46.0	199 30.7	30.6	268 40.1	52.3	47 55.4	05.6	220 44.4	24.5	235 46.5	24.5	Sirius	258 48.9	S16 42.0			
	05	160 48.4	214 32.1	29.9	283 40.8	52.7	62 58.2	05.6	235 46.5	24.5	250 48.7	S22 24.5	Spica	158 50.1	S11 06.6			
	06	175 50.9	229 33.5	S20 29.3	298 41.5	S19 53.1	78 01.0	N23 05.6	250 48.7	S22 24.5	265 50.9	24.4	Suhail	223 05.3	S43 23.3			
	07	190 53.4	244 35.0	28.7	313 42.1	53.5	93 03.9	05.7	265 50.9	24.4	280 53.0	24.4	Vega	80 51.4	N38 46.4			
	08	205 55.8	259 36.5	28.0	328 42.8	53.9	108 06.7	05.7	280 53.0	24.4	295 55.2	24.4	Zuben'ubi	137 25.3	S16 00.1			
	09	220 58.3	274 37.9	27.4	343 43.5	54.3	123 09.5	05.7	295 55.2	24.4	310 57.3	24.4	Venus	54 14.6	14 43			
	10	236 00.7	289 39.4	26.8	358 44.1	54.7	138 12.3	05.7	310 57.3	24.4	325 59.5	24.3	Marte	123 44.4	10 06			
11	251 03.2	304 40.8	26.2	13 44.8	55.1	153 15.1	05.7	325 59.5	24.3	341 01.6	S22 24.3	Júpiter	261 59.6	0 53				
P a s. M e r.	12	266 05.7	319 42.3	S20 25.5	28 45.5	S19 55.5	168 18.0	N23 05.8	341 01.6	S22 24.3	356 03.8	24.3	Saturno	75 07.0	13 19			
	13	281 08.1	334 43.8	24.9	43 46.1	55.9	183 20.8	05.8	356 03.8	24.3	11 05.9	24.3						
	14	296 10.6	349 45.3	24.3	58 46.8	56.3	198 23.6	05.8	11 05.9	24.3	26 08.1	24.2						
	15	311 13.1	4 46.7	23.6	73 47.5	56.7	213 26.4	05.8	26 08.1	24.2	41 10.3	24.2						
	16	326 15.5	19 48.2	23.0	88 48.1	57.1	228 29.2	05.9	41 10.3	24.2								



T.M.G. (TU)	SOL				LUNA				Lat.	Crepúsculo		Orto Sol	Orto Luna														
	A.H.G.		Dec.		A.H.G.		Dec.			Náut.			Civil		15	16	17	18									
	o	'	o	'	o	'	o	'		h	m		h	m	h	m	h	m	h	m							
V I E R N E S	15	00	181	15.9	S23	15.4	327	30.2	6.8	N23	22.8	8.9	58.7	N 72	08	21	10	50	h	m	h	m	h	m	h	m	
	01	196	15.6	15.5	341	56.0	7.0	23	13.9	9.1	58.6	N 70	08	02	09	49	h	m	h	m	h	m	h	m	h	m	
	02	211	15.3	15.7	356	22.0	7.1	23	04.8	9.2	58.6	68	07	46	09	15	h	m	h	m	h	m	h	m	h	m	
	03	226	15.0	15.8	10	48.1	7.2	22	55.6	9.3	58.5	66	07	33	08	50	h	m	h	m	h	m	h	m	h	m	
	04	241	14.7	15.9	25	14.3	7.4	22	46.3	9.5	58.5	64	07	22	08	30	h	m	h	m	h	m	h	m	h	m	
	05	256	14.4	16.1	39	40.7	7.5	22	36.8	9.5	58.5	62	07	12	08	14	h	m	h	m	h	m	h	m	h	m	
	06	271	14.1	S23	16.2	54	07.2	7.6	N22	27.3	9.7	58.4	60	07	04	08	01	h	m	h	m	h	m	h	m	h	m
	07	286	13.8	16.3	68	33.8	7.8	22	17.6	9.8	58.4	N 58	06	56	07	49	h	m	h	m	h	m	h	m	h	m	
	08	301	13.5	16.5	83	00.6	7.8	22	07.8	9.9	58.4	56	06	50	07	39	h	m	h	m	h	m	h	m	h	m	
	09	316	13.2	16.6	97	27.4	8.1	21	57.9	10.0	58.3	54	06	44	07	30	h	m	h	m	h	m	h	m	h	m	
	10	331	12.9	16.7	111	54.5	8.1	21	47.9	10.2	58.3	52	06	38	07	22	h	m	h	m	h	m	h	m	h	m	
	11	346	12.6	16.8	126	21.6	8.3	21	37.7	10.2	58.2	50	06	33	07	14	h	m	h	m	h	m	h	m	h	m	
	12	1	12.3	S23	17.0	140	48.9	8.4	N21	27.5	10.4	58.2	45	06	21	06	58	h	m	h	m	h	m	h	m	h	m
	13	16	12.0	17.1	155	16.3	8.6	21	17.1	10.5	58.2	N 40	06	11	06	45	h	m	h	m	h	m	h	m	h	m	
	14	31	11.7	17.2	169	43.9	8.6	21	06.6	10.5	58.1	35	06	01	06	33	h	m	h	m	h	m	h	m	h	m	
	15	46	11.4	17.3	184	11.5	8.8	20	56.1	10.7	58.1	30	05	53	06	23	h	m	h	m	h	m	h	m	h	m	
	16	61	11.1	17.5	198	39.3	9.0	20	45.4	10.8	58.1	20	05	36	06	04	h	m	h	m	h	m	h	m	h	m	
	17	76	10.8	17.6	213	07.3	9.0	20	34.6	10.9	58.0	N 10	05	20	05	46	h	m	h	m	h	m	h	m	h	m	
	18	91	10.4	S23	17.7	227	35.3	9.2	N20	23.7	10.9	58.0	0	05	03	05	29	h	m	h	m	h	m	h	m	h	m
	19	106	10.1	17.8	242	03.5	9.3	20	12.8	11.1	57.9	S 10	04	44	05	11	h	m	h	m	h	m	h	m	h	m	
	20	121	09.8	17.9	256	31.8	9.5	20	01.7	11.2	57.9	20	04	22	04	51	h	m	h	m	h	m	h	m	h	m	
	21	136	09.5	18.1	271	00.3	9.6	19	50.5	11.2	57.9	30	03	53	04	26	h	m	h	m	h	m	h	m	h	m	
	22	151	09.2	18.2	285	28.9	9.7	19	39.3	11.4	57.8	35	03	34	04	11	h	m	h	m	h	m	h	m	h	m	
23	166	08.9	18.3	299	57.6	9.8	19	27.9	11.4	57.8	40	03	11	03	53	h	m	h	m	h	m	h	m	h	m		
S A B A D O	16	00	181	08.6	S23	18.4	314	26.4	9.9	N19	16.5	11.5	57.8	S 50	01	56	03	01	h	m	h	m	h	m	h	m	
	01	196	08.3	18.5	328	55.3	10.1	19	05.0	11.6	57.7	52	01	28	02	46	h	m	h	m	h	m	h	m	h	m	
	02	211	08.0	18.6	343	24.4	10.2	18	53.4	11.7	57.7	54	00	43	02	28	h	m	h	m	h	m	h	m	h	m	
	03	226	07.7	18.7	357	53.6	10.3	18	41.7	11.8	57.6	56	///	///	02	06	h	m	h	m	h	m	h	m	h	m	
	04	241	07.4	18.9	12	22.9	10.5	18	29.9	11.8	57.6	58	///	///	01	37	h	m	h	m	h	m	h	m	h	m	
	05	256	07.1	19.0	26	52.4	10.5	18	18.1	11.9	57.6	S 60	///	///	00	48	h	m	h	m	h	m	h	m	h	m	
	06	271	06.8	S23	19.1	41	21.9	10.7	N18	06.2	12.0	57.5	Lat.	Ocaso Sol	Crepúsculo		Ocaso Luna										
	07	286	06.5	19.2	55	51.6	10.8	17	54.2	12.1	57.5	50	///	///	///	///	h	m	h	m	h	m	h	m	h	m	
	08	301	06.2	19.3	70	21.4	10.9	17	42.1	12.2	57.5	52	///	///	///	///	h	m	h	m	h	m	h	m	h	m	
	09	316	05.9	19.4	84	51.3	11.1	17	29.9	12.2	57.4	N 72	h	m	h	m	h	m	h	m	h	m	h	m	h	m	
	10	331	05.6	19.5	99	21.4	11.1	17	17.7	12.3	57.4	N 70	h	m	h	m	h	m	h	m	h	m	h	m	h	m	
	11	346	05.3	19.6	113	51.5	11.3	17	05.4	12.3	57.3	68	h	m	h	m	h	m	h	m	h	m	h	m	h	m	
	12	1	05.0	S23	19.7	128	21.8	11.4	N16	53.1	12.4	57.3	66	13	22	15	02	h	m	h	m	h	m	h	m	h	m
	13	16	04.7	19.8	142	52.2	11.5	16	40.7	12.5	57.3	64	14	04	15	21	h	m	h	m	h	m	h	m	h	m	
	14	31	04.4	19.9	157	22.7	11.6	16	28.2	12.6	57.2	62	14	32	15	37	h	m	h	m	h	m	h	m	h	m	
	15	46	04.1	20.0	171	53.3	11.8	16	15.6	12.6	57.2	60	14	53	15	51	h	m	h	m	h	m	h	m	h	m	
	16	61	03.8	20.1	186	24.1	11.8	16	03.0	12.7	57.2	N 58	15	10	16	02	h	m	h	m	h	m	h	m	h	m	
	17	76	03.5	20.2	200	54.9	12.0	15	50.3	12.7	57.1	56	15	25	16	12	h	m	h	m	h	m	h	m	h	m	
	18	91	03.2	S23	20.3	215	25.9	12.0	N15	37.6	12.8	57.1	54	15	38	16	21	h	m	h	m	h	m	h	m	h	m
	19	106	02.9	20.4	229	56.9	12.2	15	24.8	12.8	57.0	52	15	49	16	30	h	m	h	m	h	m	h	m	h	m	
	20	121	02.6	20.5	244	28.1	12.2	15	12.0	12.9	57.0	50	15	59	16	37	h	m	h	m	h	m	h	m	h	m	
	21	136	02.3	20.6	258	59.3	12.4	14	59.1	13.0	57.0	45	16	19	16	53	h	m	h	m	h	m	h	m	h	m	
	22	151	02.0	20.7	273	30.7	12.5	14	46.1	13.0	56.9	N 40	16	36	17	06	h	m	h	m	h	m	h	m	h	m	
23	166	01.7	20.8	288	02.2	12.6	14	33.1	13.1	56.9	35	16	50	17	18	h	m	h	m	h	m	h	m	h	m		
O G N I N O	17	00	181	01.4	S23	20.9	302	33.8	12.7	N14	20.0	13.1	56.9	30	17	02	h	m	h	m	h	m	h	m	h	m	
	01	196	01.1	21.0	317	05.5	12.8	14	06.9	13.1	56.8	20	17	24	17	48	h	m	h	m	h	m	h	m	h	m	
	02	211	00.8	21.1	331	37.3	12.9	13	53.8	13.2	56.8	N 10	17	42	18	05	h	m	h	m	h	m	h	m	h	m	
	03	226	00.4	21.2	346	09.2	12.9	13	40.6	13.2	56.8	0	17	59	18	22	h	m	h	m	h	m	h	m	h	m	
	04	241	00.1	21.3	0	41.1	13.1	13	27.4	13.3	56.7	S 10	18	17	18	40	h	m	h	m	h	m	h	m	h	m	
	05	255	59.8	21.4	15	13.2	13.2	13	14.1	13.4	56.7	20	18	36	19	00	h	m	h	m	h	m	h	m	h	m	
	06	270	59.5	S23	21.5	29	45.4	13.3	N13	00.7	13.3	56.7	30	18	58	19	25	h	m	h	m	h	m	h	m	h	m
	07	285	59.2	21.6																							



T.M.G. (TU)	ARIES			VENUS -4.7			MARTE +1.6			JUPITER -2.7			SATURNO +0.5			ESTRELLAS		
	A.H.G.	A.H.G.	Dec.	A.H.G.	A.H.G.	Dec.	A.H.G.	A.H.G.	Dec.	A.H.G.	A.H.G.	Dec.	Nombre	A. H. S.	Dec.			
18 00	86 35.2	140 00.2	S20 18.0	208 53.4	S20 00.3		348 51.8	N23 06.0		161 27.5	S22 24.0		Acamar	315 31.3	S40 20.7			
01	101 37.7	155 01.7	17.4	223 54.1	00.7		3 54.6	06.1		176 29.7	24.0		Achernar	335 39.3	S57 17.4			
02	116 40.2	170 03.3	16.7	238 54.8	01.1		18 57.4	06.1		191 31.8	23.9		Acrux	173 29.5	S63 02.4			
03	131 42.6	185 04.8	16.1	253 55.4	01.4		34 00.2	06.1		206 34.0	23.9		Adhara	255 26.0	S28 57.3			
04	146 45.1	200 06.3	15.5	268 56.1	01.8		49 03.1	06.1		221 36.1	23.9		Aldebaran	291 09.3	N16 29.5			
05	161 47.6	215 07.8	14.9	283 56.8	02.2		64 05.9	06.2		236 38.3	23.9							
06	176 50.0	230 09.4	S20 14.2	298 57.4	S20 02.6		79 08.7	N23 06.2		251 40.4	S22 23.8		Alioth	166 36.0	N56 00.5			
07	191 52.5	245 10.9	13.6	313 58.1	03.0		94 11.5	06.2		266 42.6	23.8		Alkaid	153 12.8	N49 21.5			
08	206 55.0	260 12.4	13.0	328 58.7	03.4		109 14.3	06.2		281 44.7	23.8		Al Na'ir	28 05.8	S47 00.8			
L 09	221 57.4	275 14.0	12.3	343 59.4	03.8		124 17.2	06.3		296 46.9	23.8		Alnilam	276 03.9	S 1 12.3			
U 10	236 59.9	290 15.5	11.7	359 00.1	04.2		139 20.0	06.3		311 49.0	23.7		Alphard	218 13.2	S 8 36.8			
N 11	252 02.3	305 17.1	11.1	14 00.7	04.6		154 22.8	06.3		326 51.2	23.7							
E 12	267 04.8	320 18.6	S20 10.5	29 01.4	S20 05.0		169 25.6	N23 06.3		341 53.4	S22 23.7		Alphecca	126 26.2	N26 44.7			
S 13	282 07.3	335 20.2	09.8	44 02.0	05.4		184 28.5	06.3		356 55.5	23.6		Alpheratz	358 01.8	N29 02.4			
14	297 09.7	350 21.8	09.2	59 02.7	05.8		199 31.3	06.4		11 57.7	23.6		Altair	62 25.7	N 8 50.5			
15	312 12.2	5 23.3	08.6	74 03.4	06.2		214 34.1	06.4		26 59.8	23.6		Ankaa	353 32.8	S42 21.8			
16	327 14.7	20 24.9	07.9	89 04.0	06.5		229 36.9	06.4		42 02.0	23.6		Antares	112 48.3	S26 24.7			
17	342 17.1	35 26.5	07.3	104 04.7	06.9		244 39.7	06.4		57 04.1	23.5							
18	357 19.6	50 28.0	S20 06.7	119 05.3	S20 07.3		259 42.6	N23 06.5		72 06.3	S22 23.5		Arcturus	146 12.0	N19 13.9			
19	12 22.1	65 29.6	06.1	134 06.0	07.7		274 45.4	06.5		87 08.4	23.5		Atria	108 06.7	S69 00.7			
20	27 24.5	80 31.2	05.4	149 06.7	08.1		289 48.2	06.5		102 10.6	23.5		Avior	234 24.9	S59 28.4			
21	42 27.0	95 32.8	04.8	164 07.3	08.5		304 51.0	06.5		117 12.8	23.4		Bellatrix	278 50.6	N 6 20.6			
22	57 29.5	110 34.4	04.2	179 08.0	08.9		319 53.9	06.6		132 14.9	23.4		Betelgeuse	271 20.0	N 7 24.5			
23	72 31.9	125 36.0	03.6	194 08.6	09.3		334 56.7	06.6		147 17.1	23.4							
19 00	87 34.4	140 37.6	S20 02.9	209 09.3	S20 09.7		349 59.5	N23 06.6		162 19.2	S22 23.4		Canopus	264 03.4	S52 41.3			
01	102 36.8	155 39.2	02.3	224 09.9	10.0		5 02.3	06.6		177 21.4	23.3		Capella	281 00.1	N45 59.5			
02	117 39.3	170 40.8	01.7	239 10.6	10.4		20 05.1	06.6		192 23.5	23.3		Deneb	49 44.0	N45 14.8			
03	132 41.8	185 42.4	01.0	254 11.3	10.8		35 08.0	06.7		207 25.7	23.3		Denebola	182 51.6	N14 37.5			
04	147 44.2	200 44.0	20 00.4	269 11.9	11.2		50 10.8	06.7		222 27.8	23.2		Diphda	349 13.4	S18 02.5			
05	162 46.7	215 45.6	19 59.8	284 12.6	11.6		65 13.6	06.7		237 30.0	23.2							
06	177 49.2	230 47.2	S19 59.2	299 13.2	S20 12.0		80 16.4	N23 06.7		252 32.1	S22 23.2		Dubhe	194 12.7	N61 48.0			
07	192 51.6	245 48.9	58.5	314 13.9	12.4		95 19.3	06.8		267 34.3	23.2		Elnath	278 34.6	N28 36.1			
08	207 54.1	260 50.5	57.9	329 14.5	12.7		110 22.1	06.8		282 36.4	23.1		Eltanin	90 54.9	N51 29.3			
M 09	222 56.6	275 52.1	57.3	344 15.2	13.1		125 24.9	06.8		297 38.6	23.1		Enif	34 04.6	N 9 49.8			
10	237 59.0	290 53.7	56.7	359 15.9	13.5		140 27.7	06.8		312 40.8	23.1		Fomalhaut	15 43.4	S29 40.7			
A 11	253 01.5	305 55.4	56.0	14 16.5	13.9		155 30.5	06.9		327 42.9	23.1							
T 12	268 04.0	320 57.0	S19 55.4	29 17.2	S20 14.3		170 33.4	N23 06.9		342 45.1	S22 23.0		Gacrux	172 21.0	S57 03.2			
E 13	283 06.4	335 58.7	54.8	44 17.8	14.7		185 36.2	06.9		357 47.2	23.0		Giennah	176 10.6	S17 29.1			
S 14	298 08.9	351 00.3	54.2	59 18.5	15.0		200 39.0	06.9		12 49.4	23.0		Hadar	149 13.7	S60 19.4			
15	313 11.3	6 02.0	53.5	74 19.1	15.4		215 41.8	06.9		27 51.5	23.0		Hamal	328 20.6	N23 25.2			
16	328 13.8	21 03.6	52.9	89 19.8	15.8		230 44.7	07.0		42 53.7	22.9		Kaus Aust.	84 07.6	S34 23.5			
17	343 16.3	36 05.3	52.3	104 20.4	16.2		245 47.5	07.0		57 55.8	22.9							
18	358 18.7	51 07.0	S19 51.6	119 21.1	S20 16.6		260 50.3	N23 07.0		72 58.0	S22 22.9		Kochab	137 19.7	N74 11.4			
19	13 21.2	66 08.6	51.0	134 21.7	17.0		275 53.1	07.0		88 00.1	22.8		Markab	13 56.0	N15 09.2			
20	28 23.7	81 10.3	50.4	149 22.4	17.3		290 56.0	07.1		103 02.3	22.8		Menkar	314 33.3	N 4 03.2			
21	43 26.1	96 12.0	49.8	164 23.1	17.7		305 58.8	07.1		118 04.4	22.8		Menkent	148 28.8	S36 19.2			
22	58 28.6	111 13.6	49.1	179 23.7	18.1		321 01.6	07.1		133 06.6	22.8		Miaplacidus	221 43.1	S69 40.3			
23	73 31.1	126 15.3	48.5	194 24.4	18.5		336 04.4	07.1		148 08.8	22.7							
20 00	88 33.5	141 17.0	S19 47.9	209 25.0	S20 18.9		351 07.3	N23 07.2		163 10.9	S22 22.7		Mirfak	309 05.4	N49 49.9			
01	103 36.0	156 18.7	47.3	224 25.7	19.2		6 10.1	07.2		178 13.1	22.7		Nunki	76 20.5	S26 18.7			
02	118 38.4	171 20.4	46.6	239 26.3	19.6		21 12.9	07.2		193 15.2	22.7		Peacock	53 47.2	S56 46.3			
03	133 40.9	186 22.1	46.0	254 27.0	20.0		36 15.7	07.2		208 17.4	22.6		Pollux	243 48.9	N28 03.1			
04	148 43.4	201 23.8	45.4	269 27.6	20.4		51 18.6	07.2		223 19.5	22.6		Procyon	245 17.9	N 5 15.1			
05	163 45.8	216 25.5	44.8	284 28.3	20.8		66 21.4	07.3		238 21.7	22.6							
06	178 48.3	231 27.2	S19 44.1	299 28.9	S20 21.1		81 24.2	N23 07.3		253 23.8	S22 22.5		Rasalhague	96 23.2	N12 33.9			
07	193 50.8	246 28.9	43.5	314 29.6	21.5		96 27.0	07.3		268 26.0	22.5		Regulus	208 02.1	N12 00.9			
08	208 53.2	261 30.6	42.9	329 30.2	21.9		111 29.9	07.3		283 28.1	22.5		Rigel	281 28.7	S 8 12.6			
09	223 55.7	276 32.3	42.3	344 30.9	22.3		126 32.7	07.4		298 30.3	22.5		Rigil Kent.	140 16.5	S60 47.5			
10	238 58.2	291 34.1	41.6	359 31.5	22.7		141 35.5	07.4		313 32.4	22.4		Sabik	102 33.1	S15 42.9			
M 11	254 00.6	306 35.8	41.0	14 32.2	23.0		156 38.3	07.4		328 34.6	22.4							
12	269 03.1	321 37.5	S19 40.4	29 32.8	S20 23.4		171 41.2	N23 07.4		343 36.7	S22 22.4		Schedar	350 00.8	N56 29.3			
13	284 05.6	336 39.3	39.8	44 33.5	23.8		186 44.0	07.4		358 38.9	22.4		Shaula	96 46.3	S37 05.9			
14	299 08.0	351 41.0	39.2	59 34.1	24.2		201 46.8	07.5		13 41.1	22.3		Sirius	258 48.9	S16 42.0			
15	314 10.5	6 42.7	38.5	74 34.8	24.5		216 49.6	07.5		28 43.2	22.3		Spica	158 50.0	S11 06.6			
16	329 12.9	21 44.5	37.9	89 35.4	24.9		231 52.5	07.5		43 45.4	22.3		Suhail	223 05.2	S43 23.3			
17	344 15.4	36 46.2	37.3	104 36.1	25.3		246 55.3	07.5		58 47.5	22.2							
18	359 17.9	51 48.0	S19 36.7	119 36.7	S20 25.7		261 58.1	N23 07.6		73 49.7	S22 22.2		Vega	80 51.4	N38 46.4			
19	14 20.3	66 49.7	36.0	134 37.4	26.0		277 00.9	07.6		88 51.8	22.2		Zuben'ubi	137 25.3	S16 00.1			
20	29 22.8	81 51.5	35.4	149 38.0	26.4		292 03.8	07.6		103 54.0	22.2							
21	44 25.3	96 53.3	34.8	164 38.7	26.8		307 06.6											







T.M.G. (TU)		ARIES		VENUS -4.7			MARTE +1.6			JUPITER -2.7			SATURNO +0.5			ESTRELLAS									
d	h	A.H.G.		A.H.G.	Dec.	A.H.G.	Dec.	A.H.G.	Dec.	A.H.G.	Dec.	A.H.G.	Dec.	Nombre	A. H. S.	Dec.									
21	00	89	32.7	141	58.6	S19	32.9	209	40.6	S20	27.9	352	15.1	N23	07.7	164	02.6	S22	22.1	Acamar	315	31.3	S40	20.7	
	01	104	35.1	157	00.4		32.3	224	41.3		28.3	7	17.9		07.7	179	04.7		22.0	Achernar	335	39.3	S57	17.4	
	02	119	37.6	172	02.1		31.7	239	41.9		28.7	22	20.7		07.7	194	06.9		22.0	Acrux	173	29.5	S63	02.4	
	03	134	40.1	187	03.9	· ·	31.1	254	42.6	· ·	29.0	37	23.6	· ·	07.8	209	09.0	· ·	22.0	Adhara	255	26.0	S28	57.4	
	04	149	42.5	202	05.7		30.4	269	43.2		29.4	52	26.4		07.8	224	11.2		21.9	Aldebaran	291	09.3	N16	29.5	
	05	164	45.0	217	07.5		29.8	284	43.8		29.8	67	29.2		07.8	239	13.3		21.9						
	06	179	47.4	232	09.3	S19	29.2	299	44.5	S20	30.2	82	32.0	N23	07.8	254	15.5	S22	21.9	Alioth	166	36.0	N56	00.5	
	07	194	49.9	247	11.1		28.6	314	45.1		30.5	97	34.9		07.9	269	17.6		21.9	Alkaid	153	12.8	N49	21.4	
	08	209	52.4	262	12.9		27.9	329	45.8		30.9	112	37.7		07.9	284	19.8		21.8	Al Na'ir	28	05.9	S47	00.8	
	09	224	54.8	277	14.7	· ·	27.3	344	46.4	· ·	31.3	127	40.5	· ·	07.9	299	22.0	· ·	21.8	Alnilam	276	03.9	S 1	12.4	
	10	239	57.3	292	16.5		26.7	359	47.1		31.6	142	43.3		07.9	314	24.1		21.8	Alphard	218	13.2	S 8	36.8	
	11	254	59.8	307	18.4		26.1	14	47.7		32.0	157	46.2		07.9	329	26.3		21.7						
	12	270	02.2	322	20.2	S19	25.5	29	48.4	S20	32.4	172	49.0	N23	08.0	344	28.4	S22	21.7	Alphecca	126	26.2	N26	44.7	
	13	285	04.7	337	22.0		24.8	44	49.0		32.7	187	51.8		08.0	359	30.6		21.7	Alpheratz	358	01.9	N29	02.3	
	14	300	07.2	352	23.8		24.2	59	49.7		33.1	202	54.7		08.0	14	32.7		21.7	Altair	62	25.7	N 8	50.4	
	15	315	09.6	7	25.7	· ·	23.6	74	50.3	· ·	33.5	217	57.5	· ·	08.0	29	34.9	· ·	21.6	Ankaa	353	32.8	S42	21.8	
	16	330	12.1	22	27.5		23.0	89	50.9		33.9	233	00.3		08.1	44	37.0		21.6	Antares	112	48.3	S26	24.7	
	17	345	14.6	37	29.3		22.4	104	51.6		34.2	248	03.1		08.1	59	39.2		21.6						
	18	0	17.0	52	31.2	S19	21.7	119	52.2	S20	34.6	263	06.0	N23	08.1	74	41.3	S22	21.6	Arcturus	146	12.0	N19	13.8	
	19	15	19.5	67	33.0		21.1	134	52.9		35.0	278	08.8		08.1	89	43.5		21.5	Atria	108	06.7	S69	00.6	
	20	30	21.9	82	34.9		20.5	149	53.5		35.3	293	11.6		08.1	104	45.6		21.5	Avior	234	24.8	S59	28.4	
	21	45	24.4	97	36.7	· ·	19.9	164	54.2	· ·	35.7	308	14.5	· ·	08.2	119	47.8	· ·	21.5	Bellatrix	278	50.6	N 6	20.6	
	22	60	26.9	112	38.6		19.3	179	54.8		36.1	323	17.3		08.2	134	49.9		21.4	Betelgeuse	271	20.0	N 7	24.5	
23	75	29.3	127	40.5		18.6	194	55.4		36.4	338	20.1		08.2	149	52.1		21.4							
22	00	90	31.8	142	42.3	S19	18.0	209	56.1	S20	36.8	353	22.9	N23	08.2	164	54.2	S22	21.4	Canopus	264	03.4	S52	41.3	
	01	105	34.3	157	44.2		17.4	224	56.7		37.2	8	25.8		08.3	179	56.4		21.4	Capella	281	00.1	N45	59.5	
	02	120	36.7	172	46.1		16.8	239	57.4		37.5	23	28.6		08.3	194	58.5		21.3	Deneb	49	44.0	N45	14.8	
	03	135	39.2	187	48.0	· ·	16.2	254	58.0	· ·	37.9	38	31.4	· ·	08.3	210	00.7	· ·	21.3	Denebola	182	51.5	N14	37.5	
	04	150	41.7	202	49.9		15.6	269	58.7		38.3	53	34.3		08.3	225	02.8		21.3	Diphda	349	13.4	S18	02.5	
	05	165	44.1	217	51.7		14.9	284	59.3		38.6	68	37.1		08.4	240	05.0		21.2						
	06	180	46.6	232	53.6	S19	14.3	299	59.9	S20	39.0	83	39.9	N23	08.4	255	07.1	S22	21.2	Dubhe	194	12.7	N61	48.0	
	07	195	49.0	247	55.5		13.7	315	00.6		39.3	98	42.7		08.4	270	09.3		21.2	Elnath	278	34.6	N28	36.1	
	08	210	51.5	262	57.4		13.1	330	01.2		39.7	113	45.6		08.4	285	11.4		21.2	Eltanin	90	54.9	N51	29.3	
	09	225	54.0	277	59.3	· ·	12.5	345	01.9	· ·	40.1	128	48.4	· ·	08.4	300	13.6	· ·	21.1	Enif	34	04.7	N 9	49.8	
	10	240	56.4	293	01.2		11.9	0	02.5		40.4	143	51.2		08.5	315	15.7		21.1	Fomalhaut	15	43.4	S29	40.7	
	11	255	58.9	308	03.1		11.2	15	03.1		40.8	158	54.1		08.5	330	17.9		21.1						
	12	271	01.4	323	05.1	S19	10.6	30	03.8	S20	41.2	173	56.9	N23	08.5	345	20.1	S22	21.1	Gacrux	172	21.0	S57	03.2	
	13	286	03.8	338	07.0		10.0	45	04.4		41.5	188	59.7		08.5	0	22.2		21.0	Gienah	176	10.5	S17	29.2	
	14	301	06.3	353	08.9		09.4	60	05.1		41.9	204	02.5		08.6	15	24.4		21.0	Hadar	149	13.6	S60	19.4	
	15	316	08.8	8	10.8	· ·	08.8	75	05.7	· ·	42.3	219	05.4	· ·	08.6	30	26.5	· ·	21.0	Hamal	328	20.6	N23	25.2	
	16	331	11.2	23	12.8		08.2	90	06.3		42.6	234	08.2		08.6	45	28.7		20.9	Kaus Aust.	84	07.6	S34	23.5	
	17	346	13.7	38	14.7		07.5	105	07.0		43.0	249	11.0		08.6	60	30.8		20.9						
	18	1	16.2	53	16.6	S19	06.9	120	07.6	S20	43.3	264	13.9	N23	08.6	75	33.0	S22	20.9	Kochab	137	19.7	N74	11.4	
	19	16	18.6	68	18.6		06.3	135	08.3		43.7	279	16.7		08.7	90	35.1		20.9	Markab	13	56.0	N15	09.2	
	20	31	21.1	83	20.5		05.7	150	08.9		44.1	294	19.5		08.7	105	37.3		20.8	Menkar	314	33.3	N 4	03.2	
	21	46	23.5	98	22.5	· ·	05.1	165	09.5	· ·	44.4	309	22.4	· ·	08.7	120	39.4	· ·	20.8	Menkent	148	28.7	S36	19.2	
	22	61	26.0	113	24.4		04.5	180	10.2		44.8	324	25.2		08.7	135	41.6		20.8	Miaplacidus	221	43.1	S69	40.3	
23	76	28.5	128	26.4		03.9	195	10.8		45.1	339	28.0		08.8	150	43.7		20.7							
23	00	91	30.9	143	28.4	S19	03.2	210	11.4	S20	45.5	354	30.8	N23	08.8	165	45.9	S22	20.7	Mirfak	309	05.4	N49	49.9	
	01	106	33.4	158	30.3		02.6	225	12.1		45.9	9	33.7		08.8	180	48.0		20.7	Nunki	76	20.5	S26	18.7	
	02	121	35.9	173	32.3		02.0	240	12.7		46.2	24	36.5		08.8	195	50.2		20.7	Pelluc	53	47.3	S56	46.3	
	03	136	38.3	188	34.3	· ·	01.4	255	13.4	· ·	46.6	39	39.3	· ·	08.8	210	52.3	· ·	20.6	Peacock	243	48.9	N28	03.1	
	04	151	40.8	203	36.2		00.8	270	14.0		46.9	54	42.2		08.9	225	54.5		20.6	Procyon	245	17.8	N 5	15.1	
	05	166	43.3	218	38.2	19	00.2	285	14.6		47.3	69	45.0		08.9	240	56.6		20.6						
	06	181	45.7	233	40.2	S18	59.6	300	15.3	S20	47.6	84	47.8	N23	08.9	255	58.8	S22	20.5	Rasalhague	96	23.2	N12	33.9	
	07	196	48.2	248	42.2		59.0	315	15.9		48.0	99	50.7												



T.M.G. (TU)	SOL		LUNA				Lat.	Crepúsculo		Orto Sol	Orto Luna						
	A.H.G.	Dec.	A.H.G.	v	Dec.	d		P.H.	Náut.		Civil	21	22	23	24		
												h m	h m	h m	h m		
J U E V E S	21 00	180 31.8	S23 26.4	261 53.0	16.6	S 7	44.0	13.2	54.4	N 72	08 26	10 58	02 24	04 37	06 40	08 52	
	01	195 31.5	26.4	276 28.6	16.5	7	57.2	13.2	54.4	N 70	08 06	09 55	02 11	04 08	06 40	08 52	
	02	210 31.2	26.4	291 04.1	16.6	8	10.4	13.1	54.4	68	07 50	09 20	02 00	03 47	05 49	08 52	
	03	225 30.9	26.4	305 39.7	16.5	8	23.5	13.1	54.3	66	07 37	08 54	10 35	01 51	03 30	05 17	07 27
	04	240 30.6	26.4	320 15.2	16.5	8	36.6	13.1	54.3	64	07 26	08 34	09 53	01 44	03 16	04 54	06 42
	05	255 30.2	26.4	334 50.7	16.5	8	49.7	13.0	54.3	62	07 16	08 18	09 24	01 38	03 05	04 36	06 12
	06	270 29.9	S23 26.5	349 26.2	16.5	S 9	02.7	13.0	54.3	60	07 08	08 05	09 03	01 33	02 55	04 21	05 49
	07	285 29.6	26.5	4 01.7	16.4	9	15.7	13.0	54.3	N 58	07 00	07 53	08 45	01 28	02 47	04 08	05 31
	08	300 29.3	26.5	18 37.1	16.4	9	28.7	12.9	54.3	56	06 53	07 43	08 30	01 24	02 40	03 57	05 16
	09	315 29.0	26.5	33 12.5	16.4	9	41.6	12.9	54.3	54	06 47	07 34	08 17	01 20	02 33	03 48	05 03
	10	330 28.7	26.5	47 47.9	16.4	9	54.5	12.8	54.3	52	06 42	07 25	08 06	01 17	02 27	03 39	04 52
	11	345 28.4	26.5	62 23.3	16.3	10	07.3	12.8	54.3	50	06 36	07 18	07 56	01 14	02 22	03 32	04 42
	12	0 28.1	S23 26.5	76 58.6	16.3	S10	20.1	12.8	54.3	45	06 24	07 02	07 36	01 07	02 11	03 15	04 21
	13	15 27.8	26.5	91 33.9	16.3	10	32.9	12.7	54.2	N 40	06 14	06 48	07 19	01 02	02 01	03 02	04 04
	14	30 27.5	26.5	106 09.2	16.2	10	45.6	12.7	54.2	35	06 05	06 36	07 05	00 57	01 54	02 51	03 50
	15	45 27.1	26.5	120 44.4	16.2	10	58.3	12.6	54.2	30	05 56	06 26	06 52	00 53	01 47	02 41	03 38
	16	60 26.8	26.5	135 19.6	16.2	11	10.9	12.6	54.2	20	05 39	06 07	06 31	00 46	01 35	02 25	03 17
	17	75 26.5	26.5	149 54.8	16.1	11	23.5	12.5	54.2	N 10	05 23	05 49	06 12	00 40	01 24	02 10	02 59
	18	90 26.2	S23 26.5	164 29.9	16.1	S11	36.0	12.5	54.2	0	05 06	05 32	05 55	00 34	01 14	01 57	02 42
	19	105 25.9	26.5	179 05.0	16.1	11	48.5	12.5	54.2	S 10	04 47	05 14	05 37	00 28	01 05	01 44	02 25
	20	120 25.6	26.6	193 40.1	16.0	12	01.0	12.4	54.2	20	04 24	04 54	05 18	00 22	00 55	01 29	02 07
	21	135 25.3	26.6	208 15.1	16.0	12	13.4	12.3	54.2	30	03 55	04 29	04 56	00 15	00 43	01 13	01 47
	22	150 25.0	26.6	222 50.1	16.0	12	25.7	12.3	54.2	35	03 37	04 13	04 43	00 11	00 36	01 04	01 35
23	165 24.6	26.5	237 25.1	15.9	12	38.0	12.3	54.2	40	03 13	03 55	04 28	00 07	00 29	00 53	01 22	
									45	02 43	03 32	04 10	00 02	00 20	00 41	01 06	
V I E R N E S	22 00	180 24.3	S23 26.5	252 00.0	15.9	S12	50.3	12.2	54.2	S 50	01 57	03 03	03 47	24 10	00 10	00 26	00 46
	01	195 24.0	26.5	266 34.9	15.8	13	02.5	12.1	54.2	52	01 29	02 47	03 36	24 05	00 05	00 19	00 37
	02	210 23.7	26.5	281 09.7	15.8	13	14.6	12.1	54.2	54	00 41	02 29	03 24	24 00	00 00	00 11	00 27
	03	225 23.4	26.5	295 44.5	15.7	13	26.7	12.1	54.1	56	///	02 07	03 10	23 54	24 03	00 03	00 15
	04	240 23.1	26.5	310 19.2	15.7	13	38.8	12.0	54.1	58	///	01 37	02 53	23 47	23 53	24 02	00 02
	05	255 22.8	26.5	324 53.9	15.7	13	50.8	11.9	54.1	S 60	///	00 46	02 32	23 40	23 42	23 46	23 55
	06	270 22.5	S23 26.5	339 28.6	15.6	S14	02.7	11.9	54.1								
	07	285 22.2	26.5	354 03.2	15.5	14	14.6	11.9	54.1								
	08	300 21.8	26.5	8 37.7	15.6	14	26.5	11.8	54.1	Lat.	Ocaso Sol	Crepúsculo Civil	Náut.	21	22	23	24
	09	315 21.5	26.5	23 12.3	15.4	14	38.3	11.7	54.1								
	10	330 21.2	26.5	37 46.7	15.4	14	50.0	11.7	54.1								
	11	345 20.9	26.5	52 21.1	15.4	15	01.7	11.6	54.1								
	12	0 20.6	S23 26.5	66 55.5	15.3	S15	13.3	11.5	54.1	N 72	12 59	15 31	10 36	09 49	09 18	08 52	
	13	15 20.3	26.4	81 29.8	15.3	15	24.8	11.5	54.1	N 70	14 02	15 51	10 52	10 20	09 18	08 52	
14	30 20.0	26.4	96 04.1	15.2	15	36.3	11.5	54.1	68	13 22	14 38	16 07	11 04	10 10	09 52		
15	45 19.7	26.4	110 38.3	15.1	15	47.8	11.3	54.1	66	13 22	15 03	16 20	11 15	11 01	10 43	10 07	
16	60 19.4	26.4	125 12.4	15.1	15	59.1	11.3	54.1	64	14 05	15 23	16 31	11 24	11 16	11 07	10 54	
17	75 19.0	26.4	139 46.5	15.1	16	10.4	11.3	54.1	62	14 33	15 39	16 41	11 31	11 28	11 26	11 24	
18	90 18.7	S23 26.4	154 20.6	14.9	S16	21.7	11.2	54.1	60	14 55	15 53	16 49	11 38	11 39	11 42	11 47	
19	105 18.4	26.4	168 54.5	15.0	16	32.9	11.1	54.1	N 58	15 12	16 04	16 57	11 43	11 48	11 55	12 06	
20	120 18.1	26.3	183 28.5	14.8	16	44.0	11.1	54.1	56	15 27	16 15	17 04	11 49	11 56	12 07	12 22	
21	135 17.8	26.3	198 02.3	14.9	16	55.1	11.0	54.1	54	15 40	16 24	17 10	11 53	12 04	12 17	12 35	
22	150 17.5	26.3	212 36.2	14.7	17	06.1	10.9	54.1	52	15 51	16 32	17 16	11 57	12 10	12 26	12 47	
23	165 17.2	26.3	227 09.9	14.7	17	17.0	10.9	54.1	50	16 01	16 39	17 21	12 01	12 16	12 34	12 57	
									45	16 22	16 55	17 33	12 10	12 29	12 52	13 19	
S A B A D O	23 00	180 16.9	S23 26.3	241 43.6	14.6	S17	27.9	10.7	54.1	N 40	16 38	17 09	17 43	12 17	12 40	13 06	13 37
	01	195 16.6	26.2	256 17.2	14.6	17	38.6	10.8	54.1	35	16 53	17 21	17 53	12 23	12 49	13 18	13 52
	02	210 16.2	26.2	270 50.8	14.5	17	49.4	10.6	54.1	30	17 05	17 31	18 01	12 28	12 57	13 29	14 05
	03	225 15.9	26.2	285 24.3	14.4	18	00.0	10.6	54.1	20	17 26	17 50	18 18	12 37	13 11	13 47	14 27
	04	240 15.6	26.2	299 57.7	14.4	18	10.6	10.5	54.1	N 10	17 45	18 08	18 34	12 45	13 23	14 03	14 47
	05	255 15.3	26.1	314 31.1	14.3	18	21.1	10.5	54.1	0	18 02	18 25	18 51	12 53	13 35	14 18	15 05
	06	270 15.0	S23 26.1	329 04.4	14.3	S18	31.6	10.3	54.1	S 10	18 20	18 43	19 10	13 01	13 46	14 33	15 23
	07	285 14.7	26.1	343 37.7	14.2	18	41.9	10.3	54.1	20	18 39	19 04	19 33	13 09	13 59	14 50	15 43
	08	300 14.4	26.1	358 10.9	14.1	18	52.2	10.2	54.1	30	19 01	19 29	20 02	13 19	14 13	15 08	16 05
	09	315 14.1	26.0	12 44.0	14.0	19	02.4	10.2	54.1	35	19 14	19 44	20 21	13 24	14 21	15 19	16 19
	10	330 13.7	26.0	27 17.0	14.0	19	12.6	10.1	54.1	40	19 29	20 02	20 44	13 30	14 31	15 32	16 34
	11	345 13.4	26.0	41 50.0	13.9	19	22.7	9.9	54.1	45	19 47	20 25	21 15	13 38	14 42	15 47	16 52
	12	0 13.1	S23 25.9	56 22.9	13.9	S19	32.6	10.0	54.1	S 50	20 10	20 55	22 00	13 47	14 55	16 05	17 15
	13	15 12.8	25.9	70 55.8	13.8	19	42.6	9.8	54.2	52	20 21	21 10	22 28	13 51	15 02	16 14	17 26
14	30 12.5	25.9	85 28.6	13.7	19	52.4	9.7	54.2	54	20 33	21 28	23 16	13 55	15 09	16 24	17 39	
15	45 12.2	25.8	100 01.3	13.6	20	02.1	9.7	54.2	56	20 47	21 50	///	14 00	15 17	16 35	17 54	
16	60 11.9	25.8</															



T.M.G. (TU)	ARIES			VENUS -4.6			MARTE +1.6			JUPITER -2.7			SATURNO +0.5			ESTRELLAS		
	A.H.G.	A.H.G.	Dec.	A.H.G.	A.H.G.	Dec.	A.H.G.	A.H.G.	Dec.	A.H.G.	A.H.G.	Dec.	A.H.G.	A.H.G.	Dec.	Nombre	A. H. S.	Dec.
24 00	92 30.1	144 16.7	S18 48.6	210 26.7	S20 54.0		355 38.8	N23 09.3		166 37.5	S22 20.0		Acamar	315 31.3	S40 20.7			
01	107 32.5	159 18.7	48.0	225 27.3	54.4		10 41.6	09.3		181 39.6	20.0		Achernar	335 39.3	S57 17.4			
02	122 35.0	174 20.8	47.4	240 27.9	54.7		25 44.4	09.3		196 41.8	20.0		Acruz	173 29.5	S63 02.4			
03	137 37.5	189 22.9	46.8	255 28.6	55.1		40 47.3	09.4		211 43.9	19.9		Adhara	255 26.0	S28 57.4			
04	152 39.9	204 24.9	46.2	270 29.2	55.4		55 50.1	09.4		226 46.1	19.9		Aldebaran	291 09.3	N16 29.5			
05	167 42.4	219 27.0	45.6	285 29.8	55.8		70 52.9	09.4		241 48.2	19.9							
06	182 44.9	234 29.1	S18 45.0	300 30.5	S20 56.1		85 55.8	N23 09.4		256 50.4	S22 19.9		Alioth	166 36.0	N56 00.5			
07	197 47.3	249 31.2	44.3	315 31.1	56.5		100 58.6	09.5		271 52.5	19.8		Alkaid	153 12.8	N49 21.4			
08	212 49.8	264 33.3	43.7	330 31.7	56.8		116 01.4	09.5		286 54.7	19.8		Al Na'ir	28 05.9	S47 00.8			
09	227 52.3	279 35.4	43.1	345 32.4	57.2		131 04.3	09.5		301 56.8	19.8		Alnilam	276 03.9	S 1 12.4			
10	242 54.7	294 37.5	42.5	0 33.0	57.5		146 07.1	09.5		316 59.0	19.7		Alphard	218 13.2	S 8 36.9			
11	257 57.2	309 39.6	41.9	15 33.6	57.9		161 09.9	09.5		332 01.1	19.7							
12	272 59.6	324 41.7	S18 41.3	30 34.2	S20 58.2		176 12.7	N23 09.6		347 03.3	S22 19.7		Alphecca	126 26.2	N26 44.6			
13	288 02.1	339 43.8	40.7	45 34.9	58.6		191 15.6	09.6		2 05.4	19.7		Alpheratz	358 01.9	N29 02.3			
14	303 04.6	354 45.9	40.1	60 35.5	58.9		206 18.4	09.6		17 07.6	19.6		Altair	62 25.7	N 8 50.4			
15	318 07.0	9 48.1	39.5	75 36.1	59.3		221 21.2	09.6		32 09.7	19.6		Ankaa	353 32.9	S42 21.8			
16	333 09.5	24 50.2	38.9	90 36.8	59.6		236 24.1	09.7		47 11.9	19.6		Antares	112 48.3	S26 24.7			
17	348 12.0	39 52.3	38.3	105 37.4	00.0		251 26.9	09.7		62 14.0	19.5							
18	3 14.4	54 54.4	S18 37.7	120 38.0	S21 00.3		266 29.7	N23 09.7		77 16.2	S22 19.5		Arcturus	146 11.9	N19 13.8			
19	18 16.9	69 56.6	37.1	135 38.7	00.6		281 32.6	09.7		92 18.3	19.5		Atria	108 06.6	S69 00.6			
20	33 19.4	84 58.7	36.5	150 39.3	01.0		296 35.4	09.7		107 20.5	19.5		Avior	234 24.8	S59 28.4			
21	48 21.8	100 00.9	35.9	165 39.9	01.3		311 38.2	09.8		122 22.6	19.4		Betatrix	278 50.6	N 6 20.6			
22	63 24.3	115 03.0	35.3	180 40.5	01.7		326 41.1	09.8		137 24.8	19.4		Betelgeuse	271 20.0	N 7 24.4			
23	78 26.8	130 05.2	34.7	195 41.2	02.0		341 43.9	09.8		152 26.9	19.4							
25 00	93 29.2	145 07.3	S18 34.1	210 41.8	S21 02.4		356 46.7	N23 09.8		167 29.1	S22 19.3		Canopus	264 03.4	S52 41.3			
01	108 31.7	160 09.5	33.5	225 42.4	02.7		11 49.6	09.8		182 31.2	19.3		Capella	281 00.1	N45 59.5			
02	123 34.1	175 11.7	32.9	240 43.0	03.1		26 52.4	09.9		197 33.4	19.3		Deneb	49 44.0	N45 14.8			
03	138 36.6	190 13.8	32.3	255 43.7	03.4		41 55.2	09.9		212 35.5	19.3		Denebola	182 51.5	N14 37.5			
04	153 39.1	205 16.0	31.7	270 44.3	03.7		56 58.1	09.9		227 37.7	19.2		Diphda	349 13.4	S18 02.5			
05	168 41.5	220 18.2	31.1	285 44.9	04.1		72 00.9	09.9		242 39.8	19.2							
06	183 44.0	235 20.4	S18 30.5	300 45.5	S21 04.4		87 03.7	N23 10.0		257 42.0	S22 19.2		Dubhe	194 12.6	N61 48.0			
07	198 46.5	250 22.6	29.9	315 46.2	04.8		102 06.6	10.0		272 44.1	19.1		Elnath	278 34.5	N28 36.1			
08	213 48.9	265 24.8	29.3	330 46.8	05.1		117 09.4	10.0		287 46.3	19.1		Eltanin	90 54.9	N51 29.3			
09	228 51.4	280 26.9	28.7	345 47.4	05.5		132 12.2	10.0		302 48.4	19.1		Enif	34 04.7	N 9 49.8			
10	243 53.9	295 29.1	28.1	0 48.1	05.8		147 15.1	10.0		317 50.6	19.1		Fomalhaut	15 43.4	S29 40.7			
11	258 56.3	310 31.4	27.5	15 48.7	06.1		162 17.9	10.1		332 52.7	19.0							
12	273 58.8	325 33.6	S18 26.9	30 49.3	S21 06.5		177 20.7	N23 10.1		347 54.9	S22 19.0		Gacrux	172 20.9	S57 03.2			
13	289 01.3	340 35.8	26.3	45 49.9	06.8		192 23.5	10.1		2 57.0	19.0		Gienah	176 10.5	S17 29.2			
14	304 03.7	355 38.0	25.7	60 50.6	07.2		207 26.4	10.1		17 59.2	18.9		Hadar	149 13.6	S60 19.4			
15	319 06.2	10 40.2	25.1	75 51.2	07.5		222 29.2	10.2		33 01.3	18.9		Hamal	328 20.6	N23 25.2			
16	334 08.6	25 42.4	24.5	90 51.8	07.8		237 32.0	10.2		48 03.5	18.9		Kaus Aust.	84 07.6	S34 23.5			
17	349 11.1	40 44.7	23.9	105 52.4	08.2		252 34.9	10.2		63 05.6	18.9							
18	4 13.6	55 46.9	S18 23.3	120 53.0	S21 08.5		267 37.7	N23 10.2		78 07.8	S22 18.8		Kochab	137 19.6	N74 11.4			
19	19 16.0	70 49.1	22.7	135 53.7	08.8		282 40.5	10.2		93 09.9	18.8		Markab	13 56.0	N15 09.2			
20	34 18.5	85 51.4	22.1	150 54.3	09.2		297 43.4	10.3		108 12.1	18.8		Menkar	314 33.3	N 4 03.2			
21	49 21.0	100 53.6	21.6	165 54.9	09.5		312 46.2	10.3		123 14.2	18.7		Menkent	148 28.7	S36 19.2			
22	64 23.4	115 55.9	21.0	180 55.5	09.9		327 49.0	10.3		138 16.4	18.7		Miaplacidus	221 43.0	S69 40.3			
23	79 25.9	130 58.1	20.4	195 56.2	10.2		342 51.9	10.3		153 18.5	18.7							
26 00	94 28.4	146 00.4	S18 19.8	210 56.8	S21 10.5		357 54.7	N23 10.3		168 20.7	S22 18.7		Mirfak	309 05.4	N49 49.9			
01	109 30.8	161 02.7	19.2	225 57.4	10.9		12 57.5	10.4		183 22.8	18.6		Nunki	76 20.5	S26 18.7			
02	124 33.3	176 04.9	18.6	240 58.0	11.2		28 00.4	10.4		198 25.0	18.6		Peacock	53 47.3	S56 46.3			
03	139 35.7	191 07.2	18.0	255 58.6	11.5		43 03.2	10.4		213 27.1	18.6		Pollux	243 48.9	N28 03.0			
04	154 38.2	206 09.5	17.4	270 59.3	11.9		58 06.0	10.4		228 29.3	18.5		Procyon	245 17.8	N 5 15.1			
05	169 40.7	221 11.8	16.8	285 59.9	12.2		73 08.9	10.5		243 31.4	18.5							
06	184 43.1	236 14.0	S18 16.2	301 00.5	S21 12.5		88 11.7	N23 10.5		258 33.6	S22 18.5		Rasalhague	96 23.2	N12 33.9			
07	199 45.6	251 16.3	15.6	316 01.1	12.9		103 14.5	10.5		273 35.7	18.4		Regulus	208 02.0	N12 00.9			
08	214 48.1	266 18.6	15.0	331 01.8	13.2		118 17.4	10.5		288 37.9	18.4		Rigel	281 28.7	S 8 12.7			
09	229 50.5	281 20.9	14.5	346 02.4	13.6		133 20.2	10.5		303 40.0	18.4		Rigil Kent.	140 16.5	S60 47.5			
10	244 53.0	296 23.2	13.9	1 03.0	13.9		148 23.0	10.6		318 42.2	18.4		Sabik	102 33.1	S15 42.9			
11	259 55.5	311 25.5	13.3	16 03.6	14.2		163 25.9	10.6		333 44.3	18.3							
12	274 57.9	326 27.8	S18 12.7	31 04.2	S21 14.6		178 28.7	N23 10.6		348 46.5	S22 18.3		Schedar	350 00.9	N56 29.3			
13	290 00.4	341 30.2	12.1	46 04.9	14.9		193 31.5	10.6		3 48.6	18.3		Shaula	96 46.3	S37 05.9			
14	305 02.9	356 32.5	11.5	61 05.5	15.2		208 34.4	10.6		18 50.8	18.2		Sirius	258 48.9	S16 42.0			
15	320 05.3	11 34.8	10.9	76 06.1	15.5		223 37.2	10.7		33 52.9	18.2		Spica	158 50.0	S11 06.6			
16	335 07.8	26 37.1	10.3	91 06.7	15.9		238 40.0	10.7		48 55.0	18.2		Suhail	223 05.2	S43 23.3			
17	350 10.2	41 39.5	09.8	106 07.3	16.2		253 42.9	10.7		63 57.2								



T.M.G. (TU)	SOL		LUNA					Lat.	Crepúsculo		Orto Sol	Orto Luna								
	A.H.G.	Dec.	A.H.G.	v	Dec.	d	P. H.		Naut.	Civil		24	25	26	27					
												h m	h m	h m	h m	h m	h m	h m	h m	
DOMINGO	180	09.4	S23	25.5	230	52.5	13.0	S21	26.2	8.9	54.2	N 70	08 27	10 57	■	■	■	■	■	
	01	195	09.1	25.5	245	24.5	12.9	21	35.1	8.8	54.2	N 72	08 07	09 55	■	■	■	■	■	
	02	210	08.8	25.4	259	56.4	12.9	21	43.9	8.8	54.2	68	07 51	09 20	■	■	■	■	■	
	03	225	08.4	25.4	274	28.3	12.7	21	52.7	8.6	54.2	66	07 38	08 55	10 35	■	■	■	■	■
	04	240	08.1	25.3	289	00.0	12.7	22	01.3	8.5	54.2	64	07 27	08 35	09 53	06 42	08 55	■	■	■
	05	255	07.8	25.3	303	31.7	12.7	22	09.8	8.5	54.3	62	07 17	08 19	09 25	06 12	07 53	09 32	10 36	■
	06	270	07.5	S23	25.2	318	03.4	12.5	S22	18.3	8.4	54.3	60	07 09	08 06	09 03	05 49	07 19	08 41	09 40
	07	285	07.2	25.2	332	34.9	12.5	22	26.7	8.2	54.3	N 58	07 01	07 54	08 46	05 31	06 54	08 09	09 08	■
	08	300	06.9	25.1	347	06.4	12.4	22	34.9	8.2	54.3	56	06 55	07 44	08 31	05 16	06 34	07 46	08 43	■
	09	315	06.6	25.1	1	37.8	12.3	22	43.1	8.0	54.3	54	06 49	07 35	08 19	05 03	06 18	07 27	08 24	■
	10	330	06.3	25.0	16	09.1	12.3	22	51.1	8.0	54.3	52	06 43	07 27	08 08	04 52	06 04	07 10	08 07	■
	11	345	06.0	25.0	30	40.4	12.1	22	59.1	7.9	54.3	50	06 38	07 19	07 58	04 42	05 51	06 57	07 53	■
	12	0	05.6	S23	24.9	45	11.5	12.1	S23	07.0	7.8	54.3	45	06 26	07 03	07 37	04 21	05 26	06 28	07 24
	13	15	05.3	24.9	59	42.6	12.1	23	14.8	7.6	54.3	N 40	06 15	06 50	07 20	04 04	05 06	06 06	07 02	■
	14	30	05.0	24.8	74	13.7	11.9	23	22.4	7.6	54.3	35	06 06	06 38	07 06	03 50	04 49	05 48	06 43	■
	15	45	04.7	24.8	88	44.6	11.9	23	30.0	7.5	54.3	30	05 57	06 27	06 54	03 38	04 35	05 32	06 27	■
	16	60	04.4	24.7	103	15.5	11.8	23	37.5	7.3	54.4	20	05 41	06 08	06 32	03 17	04 11	05 05	06 00	■
	17	75	04.1	24.7	117	46.3	11.7	23	44.8	7.3	54.4	N 10	05 25	05 51	06 14	02 59	03 50	04 42	05 36	■
	18	90	03.8	S23	24.6	132	17.0	11.7	S23	52.1	7.1	54.4	0	05 08	05 34	05 56	02 42	03 30	04 21	05 15
	19	105	03.5	24.6	146	47.7	11.6	23	59.2	7.1	54.4	S 10	04 49	05 16	05 39	02 25	03 11	04 00	04 53	■
	20	120	03.2	24.5	161	18.3	11.5	24	06.3	6.9	54.4	20	04 26	04 55	05 20	02 07	02 50	03 37	04 29	■
	21	135	02.8	24.4	175	48.8	11.4	24	13.2	6.9	54.4	30	03 57	04 30	04 58	01 47	02 26	03 11	04 02	■
	22	150	02.5	24.4	190	19.2	11.3	24	20.1	6.7	54.4	35	03 38	04 15	04 45	01 35	02 12	02 56	03 46	■
23	165	02.2	24.3	204	49.5	11.3	24	26.8	6.6	54.4	40	03 15	03 57	04 30	01 22	01 56	02 38	03 28	■	
24	180	01.9	S23	24.3	219	19.8	11.2	S24	33.4	6.5	54.4	45	02 44	03 34	04 12	01 06	01 37	02 16	03 05	
LUNES	01	195	01.6	24.2	233	50.0	11.2	24	39.9	6.4	54.5	S 50	01 59	03 04	03 49	00 46	01 13	01 49	02 37	
	02	210	01.3	24.1	248	20.2	11.0	24	46.3	6.3	54.5	52	01 31	02 49	03 38	00 37	01 02	01 36	02 22	
	03	225	01.0	24.1	262	50.2	11.0	24	52.6	6.1	54.5	54	00 44	02 31	03 26	00 27	00 49	01 20	02 06	
	04	240	00.7	24.0	277	20.2	10.9	24	58.7	6.1	54.5	56	///	02 09	03 12	00 15	00 34	01 02	01 47	
	05	255	00.4	24.0	291	50.1	10.9	25	04.8	5.9	54.5	58	///	01 39	02 55	00 02	00 16	00 41	01 23	
	06	270	00.0	S23	23.9	306	20.0	10.8	S25	10.7	5.8	54.5	S 60	///	00 49	02 34	23 55	24 13	00 13	00 51
	07	284	59.7	23.8	320	49.8	10.7	25	16.5	5.7	54.5	Lat.	Ocaso Sol	Crepúsculo Civil	Naut.	24	25	26	27	
	08	299	59.4	23.8	335	19.5	10.6	25	22.2	5.6	54.6	N 72	h m	h m	h m	h m	h m	h m	h m	h m
	09	314	59.1	23.7	349	49.1	10.6	25	27.8	5.5	54.6	N 70	■	13 03	15 33	■	■	■	■	■
	10	329	58.8	23.6	4	18.7	10.5	25	33.3	5.3	54.6	68	■	14 05	15 53	■	■	■	■	■
	11	344	58.5	23.5	18	48.2	10.4	25	38.6	5.2	54.6	66	■	14 40	16 09	■	■	■	■	■
	12	359	58.2	S23	23.5	33	17.6	10.4	S25	43.8	5.1	54.6	64	13 25	15 05	16 22	10 07	■	■	■
	13	14	57.9	23.4	47	47.0	10.3	25	48.9	5.0	54.6	62	14 07	15 25	16 33	10 54	10 22	■	■	■
	14	29	57.6	23.3	62	16.3	10.2	25	53.9	4.9	54.6	60	14 35	15 41	16 43	11 24	11 25	11 33	12 21	■
	15	44	57.2	23.3	76	45.5	10.2	25	58.8	4.7	54.6	58	14 07	15 25	16 33	10 54	10 22	■	■	■
	16	59	56.9	23.2	91	14.7	10.1	26	03.5	4.6	54.7	N 70	14 35	15 41	16 43	11 24	11 25	11 33	12 21	■
	17	74	56.6	23.1	105	43.8	10.0	26	08.1	4.5	54.7	68	14 57	15 55	16 51	11 47	11 59	12 24	13 16	■
	18	89	56.3	S23	23.0	120	12.8	10.0	S26	12.6	4.3	54.7	N 50	15 14	16 06	16 59	12 06	12 24	12 56	13 49
	19	104	56.0	23.0	134	41.8	9.9	26	16.9	4.3	54.7	56	15 29	16 16	17 06	12 22	12 44	13 20	14 13	■
	20	119	55.7	22.9	149	10.7	9.8	26	21.2	4.1	54.7	54	15 42	16 26	17 12	12 35	13 01	13 39	14 33	■
	21	134	55.4	22.8	163	39.5	9.8	26	25.3	3.9	54.7	52	15 53	16 34	17 17	12 47	13 15	13 55	14 49	■
	22	149	55.1	22.7	178	08.3	9.7	26	29.2	3.9	54.8	50	16 03	16 41	17 23	12 57	13 28	14 09	15 03	■
	23	164	54.8	22.6	192	37.0	9.7	26	33.1	3.7	54.8	45	16 23	16 57	17 34	13 19	13 54	14 38	15 32	■
MARTES	00	179	54.4	S23	22.6	207	05.7	9.6	S26	36.8	3.6	54.8	N 40	16 40	17 11	17 45	13 37	14 15	15 00	15 54
	01	194	54.1	22.5	221	34.3	9.6	26	40.4	3.4	54.8	35	16 54	17 23	17 54	13 52	14 32	15 19	16 13	
	02	209	53.8	22.4	236	02.9	9.5	26	43.8	3.3	54.8	30	17 07	17 33	18 03	14 05	14 47	15 35	16 29	
	03	224	53.5	22.3	250	31.4	9.4	26	47.1	3.2	54.8	20	17 28	17 52	18 19	14 27	15 12	16 02	16 56	
	04	239	53.2	22.2	264	59.8	9.4	26	50.3	3.0	54.8	N 10	17 46	18 09	18 36	14 47	15 34	16 25	17 19	
	05	254	52.9	22.2	279	28.2	9.3	26	53.3	3.0	54.9	0	18 04	18 26	18 53	15 05	15 54	16 47	17 41	
	06	269	52.6	S23	22.1	293	56.5	9.3	S26	56.3	2.7	54.9	S 10	18 21	18 45	19 12	15 23	16 15	17 08	18 02
	07	284	52.3	22.0	308	24.8	9.3	26	59.0	2.7	54.9	20	18 40	19 05	19 34	15 43	16 37	17 32	18 25	
	08	299	52.0	21.9	322	53.1	9.2	27	01.7	2.5	54.9	30	19 02	19 30	20 03	16 05	17 02	17 59	18 52	
	09	314	51.7	21.8	337	21.3	9.1	27	04.2	2.3	54.9	35	19 15	19 45	20 22	16 19	17 18	18 15	19 08	
	10	329	51.3	21.7	351	49.4	9.1	27	06.5	2.3	54.9	40	19 30	20 03	20 45	16 34	17 35	18 33	19 26	
	11	344	51.0	21.6	6	17.5	9.0	27	08.8	2.1	55.0	45	19 48	20 26	21 16	16 52	17 56	18 56	19 48	
	12	359	50.7	S23	21.5	20	45.5	9.0	S27	10.9	1.9	55.0	S 50	20 11	20 56	22 01	17 15	18 23	19 24	20 16
	13	14	50.4	21.4	35	13.5	9.0	27	12.8	1.8	55.0	52	20 22	21 11	22 29	17 26	18 36	19 38	20 29	
	14	29	50.1	21.4	49	41.5	8.9	27	14.6	1.7	55.0	54	20 34	21 29	23 15	17 39	18 51	19 55	20 45	
	15	44	49.8	21.3	64	09.4	8.9	27	16.3	1.5	55.0	56	20 48	21 51	///	17 54	19 09	20 14	21 03	
	16	59	49.5	21.2	78	37.3	8.8	27	17.8	1.4	55.1	58	21 05	22 21	///	18 11	19 30	20 38	21 26	
	17	74	49.2	21.1	93	05.1	8.8	27	19.2	1.2	55.1	S 60	21 26	23 11	///	18 32	19 58	21 10	21 55	
	18	89	48.9	S23	21.0	107	32.9	8.8	S27	20.4	1.1	55.1	Día	SOL E.T. (+)(-)	Pas. Mer.	LUNA Pas. Mer. Edad. Fase				
	19	104	48.6	20.9	122	00.7	8.7	27	21.5	1.0										



T.M.G. (TU)	ARIES			VENUS -4.6			MARTE +1.6			JUPITER -2.7			SATURNO +0.5			ESTRELLAS		
	A.H.G.	A.H.G.	Dec.	A.H.G.	A.H.G.	Dec.	A.H.G.	A.H.G.	Dec.	A.H.G.	A.H.G.	Dec.	Nombre	A. H. S.	Dec.			
M I E R C O L E S	27 00	95 27.5	146 55.9	S18 05.7	211 11.7	S21 18.5	359 02.7	N23 10.9	169 12.2	S22 17.9	169 12.2	S22 17.9	Acamar	315 31.3	S40 20.7			
	01	110 30.0	161 58.3	05.1	226 12.3	18.8	14 05.5	10.9	184 14.4	17.9	184 14.4	17.9	Achernar	335 39.4	S57 17.4			
	02	125 32.4	177 00.7	04.5	241 12.9	19.2	29 08.4	10.9	199 16.5	17.9	199 16.5	17.9	Acruz	173 29.4	S63 02.4			
	03	140 34.9	192 03.0	03.9	256 13.5	19.5	44 11.2	10.9	214 18.7	17.9	214 18.7	17.9	Adhara	255 26.0	S28 57.4			
	04	155 37.4	207 05.4	03.3	271 14.1	19.8	59 14.0	10.9	229 20.8	17.8	229 20.8	17.8	Aldebaran	291 09.3	N16 29.5			
	05	170 39.8	222 07.8	02.7	286 14.7	20.2	74 16.9	11.0	244 23.0	17.8	244 23.0	17.8						
	06	185 42.3	237 10.2	S18 02.2	301 15.4	S21 20.5	89 19.7	N23 11.0	259 25.1	S22 17.8	259 25.1	S22 17.8	Alioth	166 35.9	N56 00.5			
	07	200 44.7	252 12.6	01.6	316 16.0	20.8	104 22.5	11.0	274 27.3	17.7	274 27.3	17.7	Alkaid	153 12.7	N49 21.4			
	08	215 47.2	267 15.0	01.0	331 16.6	21.1	119 25.4	11.0	289 29.4	17.7	289 29.4	17.7	Al Na'ir	28 05.9	S47 00.8			
	09	230 49.7	282 17.4	18 00.4	346 17.2	21.5	134 28.2	11.0	304 31.6	17.7	304 31.6	17.7	Alnilam	276 03.9	S 1 12.4			
	10	245 52.1	297 19.8	17 59.8	1 17.8	21.8	149 31.0	11.1	319 33.7	17.7	319 33.7	17.7	Alphard	218 13.2	S 8 36.9			
	11	260 54.6	312 22.2	59.3	16 18.4	22.1	164 33.9	11.1	334 35.9	17.6	334 35.9	17.6						
	12	275 57.1	327 24.6	S17 58.7	31 19.1	S21 22.4	179 36.7	N23 11.1	349 38.0	S22 17.6	349 38.0	S22 17.6	Alphecca	126 26.1	N26 44.6			
	13	290 59.5	342 27.0	58.1	46 19.7	22.8	194 39.5	11.1	4 40.2	17.6	4 40.2	17.6	Alpheratz	358 01.9	N29 02.3			
	14	306 02.0	357 29.4	57.5	61 20.3	23.1	209 42.4	11.1	19 42.3	17.5	19 42.3	17.5	Altair	62 25.7	N 8 50.4			
	15	321 04.5	12 31.9	57.0	76 20.9	23.4	224 45.2	11.2	34 44.5	17.5	34 44.5	17.5	Ankaa	353 32.9	S42 21.8			
	16	336 06.9	27 34.3	56.4	91 21.5	23.7	239 48.0	11.2	49 46.6	17.5	49 46.6	17.5	Antares	112 48.3	S26 24.7			
	17	351 09.4	42 36.7	55.8	106 22.1	24.1	254 50.8	11.2	64 48.8	17.4	64 48.8	17.4						
	18	6 11.9	57 39.2	S17 55.2	121 22.7	S21 24.4	269 53.7	N23 11.2	79 50.9	S22 17.4	79 50.9	S22 17.4	Arcturus	146 11.9	N19 13.8			
	19	21 14.3	72 41.6	54.6	136 23.4	24.7	284 56.5	11.3	94 53.1	17.4	94 53.1	17.4	Atria	108 06.6	S69 00.6			
	20	36 16.8	87 44.1	54.1	151 24.0	25.0	299 59.3	11.3	109 55.2	17.4	109 55.2	17.4	Avior	234 24.8	S59 28.4			
	21	51 19.2	102 46.5	53.5	166 24.6	25.4	315 02.2	11.3	124 57.4	17.3	124 57.4	17.3	Bellatrix	278 50.6	N 6 20.6			
	22	66 21.7	117 49.0	52.9	181 25.2	25.7	330 05.0	11.3	139 59.5	17.3	139 59.5	17.3	Betelgeuse	271 20.0	N 7 24.4			
23	81 24.2	132 51.5	52.3	196 25.8	26.0	345 07.8	11.3	155 01.6	17.3	155 01.6	17.3							
J U E V E S	28 00	96 26.6	147 53.9	S17 51.8	211 26.4	S21 26.3	0 10.7	N23 11.4	170 03.8	S22 17.2	170 03.8	S22 17.2	Canopus	264 03.4	S52 41.3			
	01	111 29.1	162 56.4	51.2	226 27.0	26.6	15 13.5	11.4	185 05.9	17.2	185 05.9	17.2	Capella	281 00.1	N45 59.5			
	02	126 31.6	177 58.9	50.6	241 27.6	27.0	30 16.3	11.4	200 08.1	17.2	200 08.1	17.2	Deneb	49 44.0	N45 14.8			
	03	141 34.0	193 01.3	50.1	256 28.3	27.3	45 19.2	11.4	215 10.2	17.1	215 10.2	17.1	Denebola	182 51.5	N14 37.5			
	04	156 36.5	208 03.8	49.5	271 28.9	27.6	60 22.0	11.4	230 12.4	17.1	230 12.4	17.1	Diphda	349 13.5	S18 02.5			
	05	171 39.0	223 06.3	48.9	286 29.5	27.9	75 24.8	11.5	245 14.5	17.1	245 14.5	17.1						
	06	186 41.4	238 08.8	S17 48.3	301 30.1	S21 28.2	90 27.7	N23 11.5	260 16.7	S22 17.1	260 16.7	S22 17.1	Dubhe	194 12.6	N61 48.0			
	07	201 43.9	253 11.3	47.8	316 30.7	28.6	105 30.5	11.5	275 18.8	17.0	275 18.8	17.0	Elnath	278 34.5	N28 36.1			
	08	216 46.3	268 13.8	47.2	331 31.3	28.9	120 33.3	11.5	290 21.0	17.0	290 21.0	17.0	Eltanin	90 54.9	N51 29.2			
	09	231 48.8	283 16.3	46.6	346 31.9	29.2	135 36.2	11.5	305 23.1	17.0	305 23.1	17.0	Enif	34 04.7	N 9 49.8			
	10	246 51.3	298 18.8	46.1	1 32.5	29.5	150 39.0	11.6	320 25.3	16.9	320 25.3	16.9	Fomalhaut	15 43.4	S29 40.7			
	11	261 53.7	313 21.3	45.5	16 33.1	29.8	165 41.8	11.6	335 27.4	16.9	335 27.4	16.9						
	12	276 56.2	328 23.9	S17 44.9	31 33.8	S21 30.2	180 44.7	N23 11.6	350 29.6	S22 16.9	350 29.6	S22 16.9	Gacrux	172 20.9	S57 03.2			
	13	291 58.7	343 26.4	44.4	46 34.4	30.5	195 47.5	11.6	5 31.7	16.8	5 31.7	16.8	Gienah	176 10.5	S17 29.2			
	14	307 01.1	358 28.9	43.8	61 35.0	30.8	210 50.3	11.6	20 33.9	16.8	20 33.9	16.8	Hadar	149 13.5	S60 19.4			
	15	322 03.6	13 31.5	43.2	76 35.6	31.1	225 53.2	11.7	35 36.0	16.8	35 36.0	16.8	Hamal	328 20.6	N23 25.2			
	16	337 06.1	28 34.0	42.7	91 36.2	31.4	240 56.0	11.7	50 38.2	16.8	50 38.2	16.8	Kaus Aust.	84 07.6	S34 23.5			
	17	352 08.5	43 36.5	42.1	106 36.8	31.7	255 58.8	11.7	65 40.3	16.7	65 40.3	16.7						
	18	7 11.0	58 39.1	S17 41.5	121 37.4	S21 32.0	271 01.7	N23 11.7	80 42.5	S22 16.7	80 42.5	S22 16.7	Kochab	137 19.6	N74 11.4			
	19	22 13.5	73 41.6	41.0	136 38.0	32.4	286 04.5	11.7	95 44.6	16.7	95 44.6	16.7	Markab	13 56.1	N15 09.2			
	20	37 15.9	88 44.2	40.4	151 38.6	32.7	301 07.3	11.8	110 46.8	16.6	110 46.8	16.6	Menkar	314 33.3	N 4 03.2			
	21	52 18.4	103 46.7	39.8	166 39.2	33.0	316 10.2	11.8	125 48.9	16.6	125 48.9	16.6	Menkent	148 28.7	S36 19.2			
	22	67 20.8	118 49.3	39.3	181 39.8	33.3	331 13.0	11.8	140 51.0	16.6	140 51.0	16.6	Miaplacidus	221 43.0	S69 40.3			
23	82 23.3	133 51.9	38.7	196 40.5	33.6	346 15.8	11.8	155 53.2	16.5	155 53.2	16.5							
V I E R N E S	29 00	97 25.8	148 54.4	S17 38.1	211 41.1	S21 33.9	1 18.7	N23 11.9	170 55.3	S22 16.5	170 55.3	S22 16.5	Mirfak	309 05.4	N49 49.9			
	01	112 28.2	163 57.0	37.6	226 41.7	34.2	16 21.5	11.9	185 57.5	16.5	185 57.5	16.5	Nunki	76 20.5	S26 18.7			
	02	127 30.7	178 59.6	37.0	241 42.3	34.6	31 24.3	11.9	200 59.6	16.5	200 59.6	16.5	Peacock	53 47.3	S56 46.3			
	03	142 33.2	194 02.2	36.5	256 42.9	34.9	46 27.2	11.9	216 01.8	16.4	216 01.8	16.4	Pollux	243 48.8	N28 03.0			
	04	157 35.6	209 04.8	35.9	271 43.5	35.2	61 30.0	11.9	231 03.9	16.4	231 03.9	16.4	Procyon	245 17.8	N 5 15.1			
	05	172 38.1	224 07.4	35.3	286 44.1	35.5	76 32.8	12.0	246 06.1	16.4	246 06.1	16.4						
	06	187 40.6	239 10.0	S17 34.8	301 44.7	S21 35.8	91 35.7	N23 12.0	261 08.2	S22 16.3	261 08.2	S22 16.3	Rasalhague	96 23.1	N12 33.9			
	07	202 43.0	254 12.6	34.2	316 45.3	36.1	106 38.5	12.0	276 10.4	16.3	276 10.4	16.3	Regulus	208 02.0	N12 00.9			
	08	217 45.5	269 15.2	33.7	331 45.9	36.4	121 41.3	12.0	291 12.5	16.3	291 12.5	16.3	Rigel	281 28.7	S 8 12.7			
	09	232 48.0	284 17.8	33.1	346 46.5	36.7	136 44.2	12.0	306 14.7	16.2	306 14.7	16.2	Rigil Kent.	140 16.4	S60 47.5			
	10	247 50.4	299 20.4	32.5	1 47.1	37.1	151 47.0	12.1	321 16.8	16.2	321 16.8	16.2	Sabik	102 33.1	S15 42.9			
	11	262 52.9	314 23.0	32.0	16 47.7	37.4	166 49.8	12.1	336 19.0	16.2	336 19.0	16.2						
	12	277 55.3	329 25.7	S17 31.4	31 48.3	S21 37.7	181 52.7	N23 12.1	351 21.1	S22 16.2	351 21.1	S22 16.2	Schedar	350 00.9	N56 29.3			
	13	292 57.8	344 28.3	30.9	46 48.9	38.0	196 55.5	12.1	6 23.3	16.1	6 23.3	16.1	Shaula	96 46.3	S37 05.9			
	14	308 00.3	359 30.9	30.3	61 49.5	38.3	211 58.3	12.1	21 25.4	16.1	21 25.4	16.1	Sirius	258 48.9	S16 42.1			
	15	323 02.7	14 33.6	29.8	76 50.2	38.6	227 01.2	12.2	36 27.6	16.1	36 27.6	16.1	Spica	158 50.0	S11 06.6			
	16	338 05.2	29 36.2	29.2	91 50.8	38.9	242 04.0	12.2	51 29.7	16.0	51 29.7	16.0	Suhail	223 05.2	S43 23.4			
	17	353 07.7	44 38.9	28.6	106 51.4	39.2	257 06.8											



T.M.G. (TU)	SOL		LUNA				Lat.	Crepúsculo		Orto Sol	Orto Luna					
	A.H.G.	Dec.	A.H.G.	v	Dec.	d		P.H.	Náut.		Civil	27	28	29	30	
												h m	h m	h m	h m	
M I E R C O L E S	00	179 47.0	S23 20.4	194 19.0	8.6	S27 24.9	0.2	55.2	N 72	08 27	10 53	■	■	■	■	
	01	194 46.7	20.3	208 46.6	8.5	27 25.1	0.1	55.2	N 70	08 07	09 54	■	■	■	13 06	
	02	209 46.4	20.2	223 14.1	8.5	27 25.2	0.0	55.2	68	07 51	09 20	■	■	■	12 09	
	03	224 46.1	20.1	237 41.6	8.5	27 25.2	0.2	55.3	66	07 38	08 55	10 34	■	■	12 20	11 35
	04	239 45.8	20.0	252 09.1	8.5	27 25.0	0.3	55.3	64	07 27	08 36	09 53	■	■	11 25	11 10
	05	254 45.5	19.9	266 36.6	8.5	27 24.7	0.5	55.3	62	07 18	08 20	09 25	10 36	10 50	10 51	10 50
	06	269 45.2	S23 19.8	281 04.1	8.4	S27 24.2	0.7	55.3	60	07 10	08 06	09 04	09 40	10 12	10 27	10 34
	07	284 44.8	19.7	295 31.5	8.4	27 23.5	0.7	55.3	N 58	07 02	07 55	08 46	09 08	09 45	10 07	10 20
	08	299 44.5	19.6	309 58.9	8.4	27 22.8	1.0	55.3	56	06 55	07 44	08 32	08 43	09 24	09 51	10 08
	09	314 44.2	19.5	324 26.3	8.4	27 21.8	1.1	55.4	54	06 49	07 35	08 19	08 24	09 07	09 37	09 58
	10	329 43.9	19.3	338 53.7	8.4	27 20.7	1.2	55.4	52	06 44	07 27	08 08	08 07	08 52	09 25	09 49
	11	344 43.6	19.2	353 21.1	8.3	27 19.5	1.3	55.4	50	06 38	07 20	07 58	07 53	08 39	09 14	09 40
	12	359 43.3	S23 19.1	7 48.4	8.4	S27 18.2	1.6	55.4	45	06 27	07 04	07 38	07 24	08 12	08 51	09 22
	13	14 43.0	19.0	22 15.8	8.3	27 16.6	1.6	55.4	N 40	06 17	06 51	07 21	07 02	07 51	08 33	09 08
	14	29 42.7	18.9	36 43.1	8.4	27 15.0	1.8	55.5	35	06 07	06 39	07 07	06 43	07 33	08 17	08 55
	15	44 42.4	18.8	51 10.5	8.3	27 13.2	2.0	55.5	30	05 59	06 28	06 55	06 27	07 18	08 04	08 45
	16	59 42.1	18.7	65 37.8	8.3	27 11.2	2.1	55.5	20	05 42	06 10	06 34	06 00	06 52	07 41	08 26
	17	74 41.8	18.6	80 05.1	8.4	27 09.1	2.3	55.5	N 10	05 26	05 52	06 15	05 36	06 30	07 21	08 09
	18	89 41.5	S23 18.5	94 32.5	8.3	S27 06.8	2.4	55.5	0	05 09	05 35	05 58	05 15	06 09	07 02	07 54
	19	104 41.1	18.3	108 59.8	8.3	27 04.4	2.5	55.6	S 10	04 50	05 17	05 40	04 53	05 48	06 44	07 39
	20	119 40.8	18.2	123 27.1	8.3	27 01.9	2.7	55.6	20	04 28	04 57	05 21	04 29	05 25	06 23	07 22
	21	134 40.5	18.1	137 54.4	8.4	26 59.2	2.9	55.6	30	03 59	04 32	05 00	04 02	04 59	06 00	07 03
	22	149 40.2	18.0	152 21.8	8.3	26 56.3	3.0	55.6	35	03 40	04 17	04 47	03 46	04 44	05 46	06 52
23	164 39.9	17.9	166 49.1	8.4	26 53.3	3.1	55.6	40	03 17	03 59	04 32	03 28	04 26	05 31	06 39	
J U E V E S	00	179 39.6	S23 17.8	181 16.5	8.3	S26 50.2	3.3	55.7	45	02 47	03 36	04 14	03 05	04 04	05 12	06 23
	01	194 39.3	17.6	195 43.8	8.4	26 46.9	3.4	55.7	S 50	02 02	03 07	03 51	02 37	03 37	04 48	06 05
	02	209 39.0	17.5	210 11.2	8.3	26 43.5	3.6	55.7	52	01 34	02 52	03 41	02 22	03 24	04 36	05 56
	03	224 38.7	17.4	224 38.5	8.4	26 39.9	3.7	55.7	54	00 50	02 34	03 28	02 06	03 08	04 23	05 46
	04	239 38.4	17.3	239 05.9	8.4	26 36.2	3.9	55.7	56	///	02 12	03 14	01 47	02 50	04 08	05 34
	05	254 38.1	17.1	253 33.3	8.4	26 32.3	4.0	55.8	58	///	01 43	02 58	01 23	02 27	03 50	05 21
	06	269 37.8	S23 17.0	268 00.7	8.5	S26 28.3	4.2	55.8	S 60	///	00 54	02 37	00 51	01 58	03 28	05 05
	07	284 37.5	16.9	282 28.2	8.4	26 24.1	4.3	55.8								
	08	299 37.1	16.8	296 55.6	8.5	26 19.8	4.5	55.8	Lat.	Ocaso Sol	Crepúsculo		Ocaso Luna			
	09	314 36.8	16.6	311 23.1	8.4	26 15.3	4.6	55.8			Civil	Náut.	27	28	29	30
	10	329 36.5	16.5	325 50.5	8.6	26 10.7	4.7	55.9					h m	h m	h m	h m
	11	344 36.2	16.4	340 18.1	8.5	26 06.0	4.9	55.9	N 72	h m	h m	h m	h m	h m	h m	h m
	12	359 35.9	S23 16.3	354 45.6	8.5	S26 01.1	5.0	55.9	N 70	■	13 10	15 37	■	■	■	■
	13	14 35.6	16.1	9 13.1	8.6	25 56.1	5.2	55.9	68	■	14 09	15 57	■	■	■	15 26
	14	29 35.3	16.0	23 40.7	8.6	25 50.9	5.3	55.9	66	■	14 44	16 12	■	■	■	16 21
	15	44 35.0	15.9	38 08.3	8.7	25 45.6	5.5	56.0	64	13 30	15 08	16 25	■	■	14 22	16 54
	16	59 34.7	15.7	52 36.0	8.6	25 40.1	5.6	56.0	62	14 11	15 28	16 36	■	■	15 17	17 18
	17	74 34.4	15.6	67 03.6	8.7	25 34.5	5.8	56.0	60	14 11	15 44	16 45	12 21	14 00	15 49	17 37
	18	89 34.1	S23 15.5	81 31.3	8.7	S25 28.7	5.8	56.0	N 58	15 00	15 57	16 54	13 16	14 37	16 13	17 52
	19	104 33.8	15.3	95 59.0	8.8	25 22.9	6.1	56.0	56	15 17	16 09	17 01	13 49	15 04	16 32	18 05
	20	119 33.5	15.2	110 26.8	8.8	25 16.8	6.1	56.1	54	15 32	16 19	17 08	14 13	15 25	16 48	18 16
	21	134 33.2	15.1	124 54.6	8.8	25 10.7	6.3	56.1	52	15 44	16 28	17 14	14 33	15 42	17 02	18 26
	22	149 32.9	14.9	139 22.4	8.9	25 04.4	6.5	56.1	50	15 55	16 36	17 20	14 49	15 57	17 13	18 34
23	164 32.5	14.8	153 50.3	8.9	24 57.9	6.6	56.1	45	16 05	16 43	17 25	15 03	16 09	17 24	18 42	
V I E R N E S	00	179 32.2	S23 14.6	168 18.2	8.9	S24 51.3	6.7	56.1	45	16 25	16 59	17 37	15 32	16 35	17 45	18 58
	01	194 31.9	14.5	182 46.1	9.0	24 44.6	6.9	56.2	N 40	16 42	17 13	17 47	15 54	16 56	18 03	19 12
	02	209 31.6	14.4	197 14.1	9.0	24 37.7	6.9	56.2	35	16 56	17 24	17 56	16 13	17 13	18 17	19 23
	03	224 31.3	14.2	211 42.1	9.1	24 30.8	7.2	56.2	30	17 09	17 35	18 05	16 29	17 28	18 30	19 33
	04	239 31.0	14.1	226 10.2	9.1	24 23.6	7.2	56.2	20	17 30	17 54	18 21	16 56	17 53	18 52	19 50
	05	254 30.7	13.9	240 38.3	9.1	24 16.4	7.4	56.3	N 10	17 48	18 11	18 37	17 19	18 15	19 10	20 04
	06	269 30.4	S23 13.8	255 06.4	9.2	S24 09.0	7.6	56.3	0	18 05	18 28	18 54	17 41	18 35	19 27	20 18
	07	284 30.1	13.7	269 34.6	9.2	24 01.4	7.6	56.3	S 10	18 23	18 46	19 13	18 02	18 55	19 44	20 31
	08	299 29.8	13.5	284 02.8	9.3	23 53.8	7.8	56.3	20	18 42	19 06	19 35	18 25	19 16	20 03	20 46
	09	314 29.5	13.4	298 31.1	9.3	23 46.0	8.0	56.3	30	19 04	19 31	20 04	18 52	19 40	20 24	21 02
	10	329 29.2	13.2	312 59.4	9.4	23 38.0	8.0	56.4	35	19 16	19 46	20 23	19 08	19 55	20 36	21 11
	11	344 28.9	13.1	327 27.8	9.4	23 30.0	8.2	56.4	40	19 31	20 04	20 46	19 26	20 11	20 50	21 22
	12	359 28.6	S23 12.9	341 56.2	9.4	S23 21.8	8.3	56.4	45	19 49	20 27	21 16	19 48	20 31	21 06	21 34
	13	14 28.3	12.8	356 24.6	9.5	23 13.5	8.4	56.4	S 50	20 12	20 56	22 01	20 16	20 56	21 26	21 49
	14	29 28.0	12.6	10 53.1	9.6	23 05.1	8.6	56.4	52	20 22	21 11	22 28	20 29	21 07	21 36	21 56
	15	44 27.7	12.5	25 21.7	9.6	22 56.5	8.7	56.5	54	20 35	21 29	23 12	20 45	21 21	21 46	22 04
	16	59 27.4	12.3	39 50.3	9.6	22 47.8	8.8	56.5	56	20 49	21 51	///	21 03	21 37	21 58	22 13
	17	74 27.1	12.2	54 18.9	9.7	22 39.0	9.0	56.5	58	21 05	22 20	///	21 26	21 55	22 12	22 22
	18	89 26.8	S23 12.0	68 47.6	9.8	S22 30.0	9.0	56.5	S 60	21 25	23 07	///	21 55	22 17	22 28	22 34
	19	104 26.4	11.9	83 16.4	9.8	22 21.0	9.2	56.5								
	20	119 26.1	11.7	97 45.2	9.9	22 11.8	9.3	56.6								
	21	134 25.8	11.5	112 14.1	9.9	22 02.5	9.5	56.6								
	22	149 25.5	11.4	126 43.0	9.9	21 53.0	9.5	56.6								
23	164 25.2	11.2	141 11.9	10.0	21 43.5	9.7	56.6									
	S.D. 16.3	d 0.1	S.D.	15.1	15.2	15.4		Día	SOL		LUNA					
									E.T. (-)	Pas. Mer.	Pas. Sup.	Mer. Inf.	Edad.	Fase		
									00 h	12 h	h m	h m	h m	d		
								27	00 51	01 06	12 01	11 28	23 55	29		
								28	01 21	01 36	12 02	12 22	24 49	00		
								29	01 50	02 05	12 02	13 15	00 49	01		



T.M.G. (TU)	ARIES			VENUS -4.6			MARTE +1.6			JUPITER -2.7			SATURNO +0.5			ESTRELLAS		
	A.H.G.	A.H.G.	Dec.	A.H.G.	A.H.G.	Dec.	A.H.G.	A.H.G.	Dec.	A.H.G.	A.H.G.	Dec.	Nombre	A. H. S.	Dec.			
30 00	98 24.9	149 57.5	S17 24.8	211 55.6	S21 41.4		2 26.6	N23 12.3		171 46.9	S22 15.8		Acamar	315 31.3	S40 20.7			
01	113 27.4	165 00.2	24.2	226 56.2	41.7		17 29.5	12.4		186 49.0	15.8		Achernar	335 39.4	S57 17.4			
02	128 29.8	180 02.9	23.7	241 56.8	42.0		32 32.3	12.4		201 51.2	15.7		Acruz	173 29.4	S63 02.4			
03	143 32.3	195 05.6	23.1	256 57.4	42.3		47 35.1	12.4		216 53.3	15.7		Adhara	255 26.0	S28 57.4			
04	158 34.8	210 08.3	22.6	271 58.0	42.6		62 38.0	12.4		231 55.5	15.7		Aldebaran	291 09.3	N16 29.5			
05	173 37.2	225 11.0	22.0	286 58.6	42.9		77 40.8	12.4		246 57.6	15.6							
06	188 39.7	240 13.7	S17 21.5	301 59.2	S21 43.2		92 43.6	N23 12.5		261 59.8	S22 15.6		Alioth	166 35.9	N56 00.4			
07	203 42.2	255 16.4	20.9	316 59.8	43.5		107 46.5	12.5		277 01.9	15.6		Alkaid	153 12.7	N49 21.4			
08	218 44.6	270 19.1	20.4	332 00.4	43.8		122 49.3	12.5		292 04.1	15.5		Al Na'ir	28 05.9	S47 00.8			
S 09	233 47.1	285 21.8	19.9	347 01.0	44.1		137 52.1	12.5		307 06.2	15.5		Alnilam	276 03.9	S 1 12.4			
A 10	248 49.6	300 24.6	19.3	2 01.6	44.4		152 55.0	12.5		322 08.4	15.5		Alphard	218 13.1	S 8 36.9			
B 11	263 52.0	315 27.3	18.8	17 02.2	44.7		167 57.8	12.6		337 10.5	15.5							
A 12	278 54.5	330 30.0	S17 18.2	32 02.8	S21 45.0		183 00.6	N23 12.6		352 12.6	S22 15.4		Alphecca	126 26.1	N26 44.6			
D 13	293 56.9	345 32.8	17.7	47 03.4	45.3		198 03.5	12.6		7 14.8	15.4		Alpheratz	358 01.9	N29 02.3			
O 14	308 59.4	0 35.5	17.1	62 04.0	45.6		213 06.3	12.6		22 16.9	15.4		Altair	62 25.7	N 8 50.4			
15	324 01.9	15 38.3	16.6	77 04.6	45.9		228 09.1	12.6		37 19.1	15.3		Ankaa	353 32.9	S42 21.8			
16	339 04.3	30 41.0	16.0	92 05.2	46.2		243 12.0	12.7		52 21.2	15.3		Antares	112 48.2	S26 24.7			
17	354 06.8	45 43.8	15.5	107 05.8	46.5		258 14.8	12.7		67 23.4	15.3							
18	9 09.3	60 46.5	S17 15.0	122 06.4	S21 46.8		273 17.6	N23 12.7		82 25.5	S22 15.2		Arcturus	146 11.9	N19 13.8			
19	24 11.7	75 49.3	14.4	137 07.0	47.1		288 20.4	12.7		97 27.7	15.2		Atria	108 06.5	S69 00.6			
20	39 14.2	90 52.1	13.9	152 07.6	47.4		303 23.3	12.7		112 29.8	15.2		Avior	234 24.8	S59 28.5			
21	54 16.7	105 54.8	13.3	167 08.2	47.7		318 26.1	12.8		127 32.0	15.1		Bellatrix	278 50.6	N 6 20.6			
22	69 19.1	120 57.6	12.8	182 08.8	48.0		333 28.9	12.8		142 34.1	15.1		Betelgeuse	271 20.0	N 7 24.4			
23	84 21.6	136 00.4	12.3	197 09.4	48.3		348 31.8	12.8		157 36.3	15.1							
31 00	99 24.1	151 03.2	S17 11.7	212 10.0	S21 48.6		3 34.6	N23 12.8		172 38.4	S22 15.1		Canopus	264 03.4	S52 41.3			
01	114 26.5	166 06.0	11.2	227 10.6	48.9		18 37.4	12.8		187 40.6	15.0		Capella	281 00.1	N45 59.5			
02	129 29.0	181 08.8	10.7	242 11.2	49.2		33 40.3	12.9		202 42.7	15.0		Deneb	49 44.0	N45 14.7			
03	144 31.4	196 11.6	10.1	257 11.8	49.5		48 43.1	12.9		217 44.9	15.0		Denebola	182 51.5	N14 37.5			
04	159 33.9	211 14.4	09.6	272 12.4	49.8		63 45.9	12.9		232 47.0	14.9		Diphda	349 13.5	S18 02.5			
05	174 36.4	226 17.2	09.1	287 13.0	50.1		78 48.8	12.9		247 49.1	14.9							
06	189 38.8	241 20.0	S17 08.5	302 13.6	S21 50.4		93 51.6	N23 12.9		262 51.3	S22 14.9		Dubhe	194 12.5	N61 48.0			
07	204 41.3	256 22.8	08.0	317 14.2	50.7		108 54.4	13.0		277 53.4	14.8		Elnath	278 34.5	N28 36.1			
08	219 43.8	271 25.7	07.5	332 14.8	51.0		123 57.3	13.0		292 55.6	14.8		Eltanin	90 54.9	N51 29.2			
09	234 46.2	286 28.5	06.9	347 15.4	51.3		139 00.1	13.0		307 57.7	14.8		Enif	34 04.7	N 9 49.8			
A 10	249 48.7	301 31.3	06.4	2 16.0	51.6		154 02.9	13.0		322 59.9	14.7		Fomalhaut	15 43.4	S29 40.7			
B 11	264 51.2	316 34.1	05.9	17 16.6	51.8		169 05.7	13.0		338 02.0	14.7							
D 12	279 53.6	331 37.0	S17 05.3	32 17.2	S21 52.1		184 08.6	N23 13.1		353 04.2	S22 14.7		Gacrux	172 20.8	S57 03.3			
13	294 56.1	346 39.8	04.8	47 17.8	52.4		199 11.4	13.1		8 06.3	14.7		Gienah	176 10.5	S17 29.2			
O 14	309 58.6	1 42.7	04.3	62 18.4	52.7		214 14.2	13.1		23 08.5	14.6		Hadar	149 13.5	S60 19.4			
15	325 01.0	16 45.5	03.7	77 19.0	53.0		229 17.1	13.1		38 10.6	14.6		Hamal	328 20.6	N23 25.2			
16	340 03.5	31 48.4	03.2	92 19.6	53.3		244 19.9	13.1		53 12.8	14.6		Kaus Aust.	84 07.5	S34 23.5			
17	355 05.9	46 51.3	02.7	107 20.1	53.6		259 22.7	13.1		68 14.9	14.5							
18	10 08.4	61 54.1	S17 02.2	122 20.7	S21 53.9		274 25.6	N23 13.2		83 17.1	S22 14.5		Kochab	137 19.5	N74 11.4			
19	25 10.9	76 57.0	01.6	137 21.3	54.2		289 28.4	13.2		98 19.2	14.5		Markab	13 56.1	N15 09.2			
20	40 13.3	91 59.9	01.1	152 21.9	54.5		304 31.2	13.2		113 21.3	14.4		Menkar	314 33.3	N 4 03.2			
21	55 15.8	107 02.8	00.6	167 22.5	54.8		319 34.1	13.2		128 23.5	14.4		Menkent	148 28.6	S36 19.2			
22	70 18.3	122 05.7	17 00.1	182 23.1	55.1		334 36.9	13.2		143 25.6	14.4		Miaplacidus	221 43.0	S69 40.3			
23	85 20.7	137 08.5	16 59.5	197 23.7	55.4		349 39.7	13.3		158 27.8	14.3							
1 00	100 23.2	152 11.4	S16 59.0	212 24.3	S21 55.6		4 42.5	N23 13.3		173 29.9	S22 14.3		Mirfak	309 05.4	N49 49.9			
01	115 25.7	167 14.3	58.5	227 24.9	55.9		19 45.4	13.3		188 32.1	14.3		Nunki	76 20.5	S26 18.7			
02	130 28.1	182 17.2	58.0	242 25.5	56.2		34 48.2	13.3		203 34.2	14.2		Peacock	53 47.3	S56 46.3			
03	145 30.6	197 20.2	57.4	257 26.1	56.5		49 51.0	13.3		218 36.4	14.2		Pollux	243 48.8	N28 03.0			
04	160 33.0	212 23.1	56.9	272 26.7	56.8		64 53.9	13.4		233 38.5	14.2		Procyon	245 17.8	N 5 15.1			
05	175 35.5	227 26.0	56.4	287 27.3	57.1		79 56.7	13.4		248 40.7	14.2							
06	190 38.0	242 28.9	S16 55.9	302 27.9	S21 57.4		94 59.5	N23 13.4		263 42.8	S22 14.1		Rasalhague	96 23.1	N12 33.9			
07	205 40.4	257 31.8	55.4	317 28.5	57.7		110 02.4	13.4		278 45.0	14.1		Regulus	208 02.0	N12 00.9			
08	220 42.9	272 34.8	54.8	332 29.1	57.9		125 05.2	13.4		293 47.1	14.1		Rigel	281 28.6	S 8 12.7			
09	235 45.4	287 37.7	54.3	347 29.6	58.2		140 08.0	13.5		308 49.3	14.0		Rigel Kent.	140 16.4	S60 47.5			
L 10	250 47.8	302 40.6	53.8	2 30.2	58.5		155 10.8	13.5		323 51.4	14.0		Sabik	102 33.1	S15 42.9			
11	265 50.3	317 43.6	53.3	17 30.8	58.8		170 13.7	13.5		338 53.5	14.0							
12	280 52.8	332 46.5	S16 52.8	32 31.4	S21 59.1		185 16.5	N23 13.5		353 55.7	S22 13.9		Schedar	350 00.9	N56 29.3			
13	295 55.2	347 49.5	52.3	47 32.0	59.4		200 19.3	13.5		8 57.8	13.9		Shaula	96 46.2	S37 05.9			
14	310 57.7	2 52.4	51.7	62 32.6	59.7		215 22.2	13.6		24 00.0	13.9		Sirius	258 48.9	S16 42.1			
15	326 00.2	17 55.4	51.2	77 33.2	21 59.9		230 25.0	13.6		39 02.1	13.8		Spica	158 49.9	S11 06.6			
16	341 02.6	32 58.4	50.7	92 33.8	22 00.2		245 27.8	13.6		54 04.3	13.8		Suhail	223 05.1	S43 23.4			
17	356 05.1	48 01.3	50.2	107 34.4	00.5		260 30.6	13.6		69 06.4	13.8							
18	11 07.5	63 04.3	S16 49.7	122 35.0	S22 00.8		275 33.5	N23 13.6		84 08.6	S22 13.7		Vega	80 51.3	N38 46.3			
19	26 10.0	78 07.3	49.2	137 35.6	01.1		290 36.3	13.6		99 10.7	13.7		Zuben'ubi	137 25.2	S16 00.1			
20	41 12.5	93 10.3	48.7	152 36.1	01.4		305 39.1	13.7		114 12.9	13.7							
21	56 14.9	108 13.3	48.2	167 36.7	01.6		320 42.0	13										



T.M.G. (TU)	SOL		LUNA				Lat.	Crepúsculo		Orto Sol	Orto Luna					
	A.H.G.	Dec.	A.H.G.	<i>v</i>	Dec.	<i>d</i>		P.H.	Náut.		Civil	30	31	1	2	
	° / ' / "	° / ' / "	° / ' / "	° / ' / "	° / ' / "	° / ' / "	° / ' / "	h m	h m	h m	h m	h m	h m	h m		
30	00	179 24.9	S23 11.1	155 40.9	10.1	S21 33.8	9.8	56.6	N 72	08 25	10 46	■	■	12 24	11 34	10 58
	01	194 24.6	10.9	170 10.0	10.1	21 24.0	9.9	56.7	N 70	08 06	09 51	■	■	13 06	11 54	11 20
	02	209 24.3	10.8	184 39.1	10.2	21 14.1	10.0	56.7	68	07 50	09 18	■	■	12 09	11 32	11 09
	03	224 24.0	10.6	199 08.3	10.2	21 04.1	10.2	56.7	66	07 38	08 54	10 30	■	11 35	11 15	11 00
	04	239 23.7	10.4	213 37.5	10.3	20 53.9	10.2	56.7	64	07 27	08 35	09 51	11 10	11 00	10 52	10 45
	05	254 23.4	10.3	228 06.8	10.3	20 43.7	10.4	56.7	62	07 18	08 19	09 24	10 50	10 48	10 45	10 43
	06	269 23.1	S23 10.1	242 36.1	10.4	S20 33.3	10.4	56.8	60	07 10	08 06	09 03	10 34	10 38	10 39	10 41
	07	284 22.8	09.9	257 05.5	10.5	20 22.9	10.6	56.8	N 58	07 02	07 55	08 46	10 20	10 28	10 34	10 39
	08	299 22.5	09.8	271 35.0	10.4	20 12.3	10.7	56.8	56	06 56	07 45	08 32	10 08	10 20	10 30	10 37
	09	314 22.2	09.6	286 04.4	10.6	20 01.6	10.8	56.8	54	06 50	07 36	08 19	09 58	10 13	10 25	10 36
	10	329 21.9	09.4	300 34.0	10.6	19 50.8	10.9	56.8	52	06 44	07 28	08 08	09 49	10 07	10 22	10 35
	11	344 21.6	09.3	315 03.6	10.6	19 39.9	11.1	56.9	50	06 39	07 20	07 59	09 40	10 01	10 18	10 33
	12	359 21.3	S23 09.1	329 33.2	10.8	S19 28.8	11.1	56.9	45	06 27	07 05	07 38	09 22	09 48	10 11	10 31
	13	14 21.0	08.9	344 03.0	10.7	19 17.7	11.2	56.9	N 40	06 17	06 51	07 22	09 08	09 38	10 04	10 29
	14	29 20.7	08.8	358 32.7	10.8	19 06.5	11.3	56.9	35	06 08	06 40	07 08	08 55	09 29	09 59	10 27
	15	44 20.4	08.6	13 02.5	10.9	18 55.2	11.5	56.9	30	06 00	06 29	06 56	08 45	09 21	09 54	10 25
	16	59 20.1	08.4	27 32.4	10.9	18 43.7	11.5	57.0	20	05 43	06 11	06 35	08 26	09 07	09 45	10 22
	17	74 19.8	08.3	42 02.3	11.0	18 32.2	11.7	57.0	N 10	05 27	05 54	06 17	08 09	08 55	09 38	10 20
	18	89 19.5	S23 08.1	56 32.3	11.0	S18 20.5	11.7	57.0	0	05 11	05 37	05 59	07 54	08 43	09 31	10 17
	19	104 19.2	07.9	71 02.3	11.1	18 08.8	11.8	57.0	S 10	04 52	05 19	05 42	07 39	08 32	09 24	10 15
	20	119 18.9	07.7	85 32.4	11.1	17 57.0	12.0	57.0	20	04 30	04 59	05 23	07 22	08 20	09 16	10 13
	21	134 18.6	07.6	100 02.5	11.2	17 45.0	12.0	57.1	30	04 01	04 34	05 02	07 03	08 06	09 08	10 10
	22	149 18.3	07.4	114 32.7	11.3	17 33.0	12.1	57.1	35	03 43	04 19	04 49	06 52	07 57	09 03	10 08
23	164 18.0	07.2	129 03.0	11.3	17 20.9	12.2	57.1	40	03 20	04 01	04 34	06 39	07 48	08 57	10 06	
31	00	179 17.7	S23 07.0	143 33.3	11.3	S17 08.7	12.3	57.1	45	02 50	03 39	04 16	06 23	07 37	08 51	10 04
01	194 17.4	06.9	158 03.6	11.4	16 56.4	12.4	57.1	S 50	02 05	03 10	03 54	06 05	07 23	08 43	10 01	
02	209 17.1	06.7	172 34.0	11.4	16 44.0	12.5	57.2	52	01 39	02 55	03 43	05 56	07 17	08 39	10 00	
03	224 16.8	06.5	187 04.4	11.5	16 31.5	12.6	57.2	54	00 57	02 38	03 31	05 46	07 10	08 35	09 59	
04	239 16.5	06.3	201 34.9	11.6	16 18.9	12.7	57.2	56	///	02 16	03 17	05 34	07 02	08 30	09 57	
05	254 16.2	06.1	216 05.5	11.5	16 06.2	12.7	57.2	58	///	01 48	03 01	05 21	06 54	08 25	09 56	
06	269 15.9	S23 06.0	230 36.0	11.7	S15 53.5	12.8	57.2	S 60	///	01 02	02 41	05 05	06 43	08 19	09 54	
07	284 15.6	05.8	245 06.7	11.7	15 40.7	13.0	57.3									
08	299 15.3	05.6	259 37.4	11.7	15 27.7	13.0	57.3	Lat.	Ocaso Sol	Crepúsculo Civil		Ocaso Luna				
09	314 15.0	05.4	274 08.1	11.8	15 14.7	13.1	57.3									
10	329 14.7	05.2	288 38.9	11.8	15 01.6	13.1	57.3									
11	344 14.4	05.0	303 09.7	11.9	14 48.5	13.3	57.3									
12	359 14.1	S23 04.8	317 40.6	11.9	S14 35.2	13.3	57.4	N 72	■	13 20	15 41	■	17 52	20 22	22 38	
13	14 13.8	04.7	332 11.5	11.9	14 21.9	13.4	57.4	N 70	■	14 15	16 01	■	18 20	20 33	22 38	
14	29 13.5	04.5	346 42.4	12.0	14 08.5	13.5	57.4	68	■	14 48	16 16	■	18 40	20 42	22 38	
15	44 13.2	04.3	1 13.4	12.1	13 55.0	13.6	57.4	66	13 37	15 13	16 29	16 21	18 40	20 42	22 38	
16	59 12.9	04.1	15 44.5	12.1	13 41.4	13.6	57.4	64	14 16	15 32	16 39	16 54	18 56	20 49	22 39	
17	74 12.6	03.9	30 15.6	12.1	13 27.8	13.7	57.5	62	14 16	15 32	16 39	17 18	19 09	20 55	22 39	
18	89 12.3	S23 03.7	44 46.7	12.2	S13 14.1	13.8	57.5	60	14 43	15 47	16 49	17 37	19 20	21 00	22 39	
19	104 12.0	03.5	59 17.9	12.2	13 00.3	13.8	57.5	N 58	15 03	16 00	16 57	17 52	19 29	21 04	22 39	
20	119 11.7	03.3	73 49.1	12.2	12 46.5	14.0	57.5	56	15 20	16 12	17 04	18 05	19 37	21 08	22 39	
21	134 11.4	03.1	88 20.3	12.3	12 32.5	13.9	57.5	54	15 35	16 22	17 11	18 16	19 44	21 12	22 39	
22	149 11.1	02.9	102 51.6	12.3	12 18.6	14.1	57.6	52	15 47	16 31	17 17	18 26	19 51	21 15	22 39	
23	164 10.8	02.7	117 22.9	12.4	12 04.5	14.1	57.6	50	15 58	16 39	17 22	18 34	19 56	21 18	22 39	
1	00	179 10.5	S23 02.5	131 54.3	12.4	S11 50.4	14.2	57.6	50	16 08	16 46	17 27	18 42	20 01	21 20	22 39
01	194 10.2	02.3	146 25.7	12.4	11 36.2	14.3	57.6	45	16 28	17 02	17 39	18 58	20 12	21 26	22 39	
02	209 09.9	02.1	160 57.1	12.4	11 21.9	14.3	57.6	N 40	16 44	17 15	17 49	19 12	20 21	21 30	22 39	
03	224 09.6	01.9	175 28.5	12.5	11 07.6	14.3	57.7	35	16 58	17 26	17 58	19 23	20 29	21 34	22 39	
04	239 09.3	01.7	190 00.0	12.6	10 53.3	14.5	57.7	30	17 11	17 37	18 07	19 33	20 35	21 37	22 39	
05	254 09.0	01.5	204 31.6	12.5	10 38.8	14.5	57.7	20	17 31	17 55	18 23	19 50	20 47	21 43	22 39	
06	269 08.7	S23 01.3	219 03.1	12.6	S10 24.3	14.5	57.7	N 10	17 50	18 12	18 39	20 04	20 57	21 48	22 39	
07	284 08.4	01.1	233 34.7	12.6	10 09.8	14.6	57.7	0	18 07	18 29	18 55	20 18	21 06	21 53	22 39	
08	299 08.1	00.9	248 06.3	12.7	9 55.2	14.7	57.7	S 10	18 24	18 47	19 14	20 31	21 16	21 58	22 39	
09	314 07.8	00.7	262 38.0	12.6	9 40.5	14.7	57.8	20	18 43	19 07	19 36	20 46	21 25	22 03	22 39	
10	329 07.5	00.5	277 09.6	12.7	9 25.8	14.8	57.8	30	19 04	19 32	20 05	21 02	21 36	22 08	22 39	
11	344 07.2	00.3	291 41.3	12.8	9 11.0	14.8	57.8	35	19 17	19 47	20 23	21 11	21 43	22 12	22 39	
12	359 06.9	S23 00.1	306 13.1	12.7	S 8 56.2	14.9	57.8	40	19 32	20 05	20 46	21 22	21 50	22 15	22 39	
13	14 06.6	22 59.9	320 44.8	12.8	8 41.3	14.9	57.8	45	19 50	20 27	21 16	21 34	21 58	22 19	22 39	
14	29 06.4	59.7	335 16.6	12.8	8 26.4	15.0	57.9	S 50	20 12	20 56	22 00	21 49	22 08	22 24	22 39	
15	44 06.1	59.5	349 48.4	12.8	8 11.4	15.0	57.9	52	20 22	21 11	22 26	21 56	22 13	22 26	22 39	
16	59 05.8	59.3	4 20.2	12.8	7 56.4	15.0	57.9	54	20 34	21 28	23 07	22 04	22 18	22 29	22 39	
17	74 05.5	59.1	18 52.0	12.9	7 41.4	15.2	57.9	56	20 48	21 49	///	22 13	22 23	22 31	22 39	
18	89 05.2	S22 58.9	33 23.9	12.9	S 7 26.2	15.1	57.9	58	21 04	22 17	///	22 22	22 29	22 34	22 39	
19	104 04.9	58.6														



# EXPLICACIONES



## FUNDAMENTO Y DISPOSICION DE LOS DATOS

1. OBJETO: El objeto de este Almanaque es el de proporcionar en forma conveniente los datos necesarios para la práctica de la navegación astronómica en el mar.

2. PRINCIPIO: Los contenidos principales del Almanaque consisten en los datos a partir de los cuales pueden obtenerse los valores del Angulo Horario de Greenwich (A.H.G.) y la Declinación (Dec.) de todos los astros usados en la navegación, para cualquier instante de *Tiempo Medio de Greenwich* (T.M.G. = Tiempo Universal T.U. = Tiempo Civil de Greenwich T.C.G.). El Angulo Horario Local (A.H.L.), puede obtenerse mediante el uso de la fórmula:

$$\text{A.H.L.} = \text{A.H.G.} \begin{array}{l} - \text{Oeste} \\ \text{longitud} \\ + \text{Este} \end{array}$$

Los datos restantes se refieren a: horas de orto y ocaso del Sol y la Luna, así como la duración de los crepúsculos; datos varios de calendario y otros; tablas auxiliares, incluyendo una lista de Horas Legales; correcciones que deben aplicarse a las alturas observadas.

Para el Sol, la Luna y los planetas, los valores del A.H.G. y la Dec., se encuentran tabulados directamente para cada hora de T.U. a través del año. Para las estrellas, se indican los valores del Angulo Horario Sidéreo (A.H.S.); el A.H.G. se obtiene mediante la fórmula:

$$\text{A.H.G. estrella} = \text{A.H.G. Aries} + \text{A.H.S. estrella.}$$

El A.H.S. y la Dec. de las estrellas cambian de valor lentamente y pueden considerarse como constantes a lo largo de períodos de varios días. El A.H.G. de Aries, o Angulo Horario en Greenwich para el primer punto de Aries (Equinoccio Vernal), se encuentra tabulado para cada hora. Unas tablas permanentes dan los incrementos apropiados y las correcciones, que deben aplicarse a los valores horarios tabulados del A.H.G. y la Dec., por minutos y segundos de T.U.

Los seis volúmenes de "Sight Reduction Tables for Marine Navigation" (publicadas en los E.U.A. como Pub. No. 229 y en el R.U. como N.P. 401) han sido formuladas para resolver el triángulo de navegación, usando el Almanaque Náutico.

Dos procedimientos alternativos para la reducción de visuales se describen en las páginas 283 a 327. El primero requiere el uso de una calculadora electrónica programable o computadora personal, mientras que el segundo utiliza un conjunto de tablas concisas que se dan en las páginas 295 a 326.

La aproximación tabulada es de 0.1' para todos los datos. El argumento tiempo en las páginas diarias de este Almanaque es: 12 h + el Angulo Horario de Greenwich para el Sol medio en T.U., que también se conoce como Tiempo Universal T.M.G. Ésta escala puede diferir de las señales de tiempo emitidas por radio (T.U.C.), una cantidad que, si se ignora, puede introducirse un error de más de 0.2' en la determinación de la longitud por observaciones astronómicas. (La diferencia aparece porque el argumento tiempo depende de las variaciones en la rotación de la Tierra, mientras que, las señales de tiempo emitidas por radio, están basadas ahora en una escala de tiempo atómico). Se hacen ajustes escalonados de exactamente un segundo, a las señales de tiempo cuando se requiere (normalmente a las 24<sup>h</sup> del 31 de diciembre y el 30 de junio), para que las diferencias entre las señales de tiempo y el T.U., que se usan en este Almanaque, no excedan de 0.9<sup>s</sup>. Si se requiere reducir las observaciones a una precisión mayor de 1<sup>s</sup>, debe por esto obtenerse la corrección (DTUI) para las señales del tiempo codificado o de otras fuentes; el tiempo requerido está dado por TUI = TUC + DTUI para una precisión de 0<sup>s</sup>.1. La corrección puede aplicarse a cada uno de los tiempos de observación, alternativamente; la longitud, cuando se determina por observaciones astronómicas, puede corregirse en las cantidades correspondientes que aparecen en la siguiente tabla.

Correcciones a las señales de tiempo	-0 <sup>s</sup> .9 a -0 <sup>s</sup> .7	Corrección a la Longitud	0'.2 al Este
	-0 .6 a -0 .3		0 .1 al Este
	-0 .2 a +0 .2		No corregir
	+0 .3 a +0 .6		0 .1 al Oeste
	+0 .7 a +0 .9		0 .2 al Oeste



3. **PRESENTACION:** Los datos correspondientes a tres días se presentan a lo largo de dos páginas: la página de la izquierda contiene los datos referentes a los planetas y las estrellas; la página de la derecha contiene los datos inherentes al Sol y la Luna, junto con las horas de sus ortos y ocasos y la duración de los crepúsculos.

Los datos restantes se encuentran arreglados como sigue: para facilidad de referencia, las tablas de correcciones para las alturas se encuentran en las páginas A<sub>2</sub>, A<sub>3</sub>, A<sub>4</sub>, xxxiv y xxxv; el Calendario, las fases de la Luna y las notas acerca de eclipses y planetas (datos de interés general) anteceden a las tabulaciones principales y se han arreglado, hasta donde ha sido posible, en orden de importancia o frecuencia de empleo, partiendo de la página xxxv.

#### DATOS PRINCIPALES

4. **PAGINAS DIARIAS:** En estas páginas se encuentran los valores del A.H.G. de Aries, del A.H.G. y la Dec. del Sol, la Luna y los cuatro planetas empleados en navegación, para cada hora de T.U. Para la Luna también se han tabulado los valores de  $v$  y  $d$  para cada hora, a fin de facilitar la corrección del A.H.G. y la Dec. para valores intermedios; los valores  $v$  y  $d$  correspondientes al Sol y los planetas cambian tan lentamente que se encuentran anotados al pie de la columna apropiada, solamente una vez en cada página;  $v$  vale cero para Aries, es despreciable para el Sol, y se omite. También se dan los valores de A.H.S. y la Dec. correspondientes a las 57 estrellas seleccionadas, arregladas en orden alfabético de los nombres de dichas estrellas.

5. **ESTRELLAS:** En las páginas 272-277 se han tabulado los valores mensuales de A.H.S. y Dec. correspondientes a 173 estrellas, incluyendo las 57 seleccionadas; no se necesita interpolación y los datos pueden usarse precisamente en la misma forma que se hace con los referentes a las 57 estrellas seleccionadas. Las estrellas se han arreglado en orden a su A.H.S.

La lista de 173 estrellas, incluye todas aquellas hasta la 3a. magnitud, junto con algunas menos brillantes, para cubrir claros grandes. Para las 57 estrellas seleccionadas, se ha tomado en cuenta su brillantez y distribución en el cielo; esta selección es suficiente para la mayoría de las observaciones.

Las 57 estrellas seleccionadas, son conocidas por sus nombres propios, pero también están numeradas en orden descendiente del A.H.S. En la lista de 173 estrellas, los nombres de las constelaciones, están siempre relacionadas en la parte izquierda de la página; en la cubierta posterior, se dan los nombres propios cuando existen. Los números de las estrellas seleccionadas se anotan en ambas columnas.

En la página xxxiii se encuentra un índice de estrellas seleccionadas, el cual contiene la lista de éstas, tanto en orden alfabético, como numérico; el mismo índice se halla impreso en la hoja suelta adjunta.

6. **INCREMENTOS Y CORRECCIONES:** Estas tablas, impresas en papel de color (páginas ii-xxxi) en la parte posterior del Almanaque, proporcionan los incrementos y correcciones, por minutos y segundos, que deben aplicarse a los valores horarios del A.H.G. y la Dec. Consisten de sesenta tablas, una por cada minuto, separadas en dos partes: incrementos al A.H.G. para el Sol y planetas, Aries y Luna por cada minuto y segundo de tiempo; y, por cada minuto de arco, las correcciones que deben aplicarse al A.H.G. y a la Dec., correspondientes a los valores de  $v$  y  $d$  anotados en las páginas diarias.

Los incrementos están basados en las siguientes tasas de incremento horario del A.H.G.: Sol y planetas 15°; Aries, 15°02'.46; Luna, 14°19'.0. Los valores de  $v$  anotados en las páginas diarias se encuentran excedidos de los movimientos horarios actuales sobre los valores adoptados; son generalmente positivos, excepto para Venus. Los valores horarios tabulados del A.H.G. para el Sol, se han ajustado a fin de reducir al mínimo el error que se ocasiona al considerar a  $v$  como despreciable. Los valores de  $d$  consignados en las pá-



ginas diarias, son las diferencias horarias de la Dec. Para la Luna, se dan los valores verdaderos de  $v$  y  $d$  para cada hora; en otros casos se dan valores medios para los tres días de cada página.

7. METODO DE ENTRADA: El T.U. correspondiente a una observación, se expresa por un día y hora seguido por un cierto número de minutos y segundos. Por lo tanto, los valores tabulares de A.H.G., la Dec. y, donde es necesario, los valores correspondientes de  $v$  y  $d$ , se toman directamente de las páginas diarias para el día y la hora de T.U. Esta hora es siempre anterior a la de la observación. Los valores del A.H.S. y la Dec. de las estrellas seleccionadas, también se toman de las páginas diarias.

A continuación se busca la corrección correspondiente para el minuto de T.U. Para el A.H.G., el incremento por minutos y segundos se toma de la columna apropiada opuesta al valor de los segundos de T.U.; la corrección  $v$  se toma de la segunda parte de la misma tabla opuesta al valor de  $v$  dada en las páginas diarias. Tanto el incremento como la corrección de  $v$  deben agregarse al valor del A.H.G., excepto en el caso de Venus cuando  $v$  está antecedida por el signo menos y, esta corrección  $v$ , debe restarse. Para la declinación no hay incremento, pero se aplica una corrección  $d$  en la misma forma que la corrección  $v$ ;  $d$  se encuentra sin signo en la página diaria; el signo de la corrección debe deducirse por inspección de la columna de Dec. En muchos casos la corrección puede aplicarse mentalmente.

8.- Ejemplos.- (a) Sol y Luna. Determinar el A.H.G. y la declinación del Sol y Luna el 6 de octubre de 1989 a las 15<sup>h</sup> 47<sup>m</sup> 13<sup>s</sup> (T.U.)

		SOL			LUNA			
		A.H.G.	Dec.	$d$	A.H.G.	$v$	Dec.	$d$
Página diaria	Oct. 6 <sup>d</sup> 15 <sup>h</sup>	47 58.9	S.5 15.9	1.0	333 35.5	8.6	S.27 44.0	0.8
Incrementos por	47 <sup>m</sup> 13 <sup>s</sup>	11 48.3			11 16.0			
Correcciones por $v$ ó $d$	47 <sup>m</sup>		+0.8		+6.8		-0.6	
Suma para	Oct. 6 <sup>d</sup> 15 <sup>h</sup> 47 <sup>m</sup> 13 <sup>s</sup>	59 47.2	S.5 16.7		344 58.3		S.27 43.4	

(b).- Planetas.- Determinar el A.H.L. y la Dec. de (i) Venus el 6 de octubre de 1989 a las 11<sup>h</sup> 57<sup>m</sup> 28<sup>s</sup> T.U. en longitud de 103° 45' E.G.; (ii) Júpiter el 6 de octubre de 1989 a las 13<sup>h</sup> 48<sup>m</sup> 51<sup>s</sup> T.U. en longitud de 130° 12' W.G.

		VENUS				JUPITER			
		A.H.G.	$v$	Dec.	$d$	A.H.G.	$v$	Dec.	$d$
Página diaria	Oct. 6 <sup>d</sup> (11 <sup>h</sup> )	305 23.2	-0.4	S.21 45.0	0.8	(13 <sup>h</sup> ) 109 15.1	2.3	N.22 47.5	0.0
Increment. (Planetas)	(57 <sup>m</sup> 28 <sup>s</sup> )	14 22.0				(48 <sup>m</sup> 51 <sup>s</sup> ) 12 12.8			
Correc. por $v$ ó $d$	(57 <sup>m</sup> )	-0.4		+0.8		(48 <sup>m</sup> ) +1.9			0.0
Suma = A.H.G. y Dec.		319 44.8		S.21 45.8		121 29.8		N.22 47.5	
Longitud	Este +	103 45.0				Oeste -130 12.0			
Múltiplos de 360°	-	360				+ 360			
A.H.L. Planeta		63 29.8				351 17.8			

(c).- Estrellas.- Determinar el A.H.G. y Dec. de (i) Regulus el 6 de octubre de 1989 a las 6<sup>h</sup> 30<sup>m</sup> 45<sup>s</sup> T.U.; (ii) Antares el 6 de octubre de 1989 a las 19<sup>h</sup> 55<sup>m</sup> 13<sup>s</sup> T.U.



	Regulus		Antares	
	A.H.G.	Dec.	A.H.G.	Dec.
Página diaria (A.H.S. y Dec.)	208 02.7	N.12 01.1		
Página diaria (A.H.G. Aries) (6 <sup>h</sup> )	104 52.9		112 48.4	S.26 24.7
Incremento (Aries) (30 <sup>m</sup> 45 <sup>s</sup> )	7 42.5		(19 <sup>h</sup> ) 300 24.9	
			(55 <sup>m</sup> 13 <sup>s</sup> ) 13 50.5	
Suma = A.H.G. Estrella	320 38.1		427 03.8	
Múltiplos de 360°			-360	
A.H.G. Estrella	320 38.1		67 03.8	

9. TABLAS DE POLAR. Las tablas contenidas en las páginas 278-280 dan los valores de las correcciones que permiten deducir la latitud partiendo de una observación de altura de Polar y también dan su azimut; su empleo se explica e ilustra en dichas páginas. Las tablas están basadas en la fórmula siguiente:

$$\text{Latitud} - H_0 = -p \cos b + 1/2 p \operatorname{sen}^2 b \tan (\text{latitud}).$$

En la que:

$$H_0 = \text{Altura aparente (corregida por refracción).}$$

$$p = \text{distancia polar de Polaris} = 90^\circ - (\text{Declinación})$$

$$b = \text{ángulo horario local de Polaris} = \text{A.H.L. Aries} + \text{A.H.S.}$$

$a_0$ , que es una función de A.H.L. de Aries únicamente, es el valor de ambos términos de la fórmula anterior, calculada para valores medios del A.H.S. (324° 53') y

de la Dec. (N. 89° 13'.2) de la Polar, para una latitud media de 50° y ajustada mediante la adición de una constante (58'.8).  $a_1$ , que es una función del A.H.L. de Aries y de la latitud, es el exceso del valor del segundo término sobre su valor medio para la latitud de 50°, incrementado por una constante (0'.6) a fin de hacerlo siempre positivo.  $a_2$ , que es una función del A.H.L. de Aries y de la fecha, es la corrección aplicable al primer término por la variación de la Estrella Polar a partir de su posición media adoptada; este valor está incrementado por una constante (0'.6) a fin de hacerlo positivo. La suma de las constantes agregadas es 1°, de tal manera que:

$$\text{Latitud} = \text{Altura aparente (corregida por refracción)} - 1^\circ + a_0 + a_1 + a_2$$

#### FENOMENO DE ORTO Y OCASO.

10. GENERALIDADES: En el lado derecho de las páginas diarias se encuentran anotadas las horas de orto y ocaso del Sol, las de comienzo y fin de los crepúsculos civil y náutico y las del orto y ocaso de la Luna para latitudes comprendidas entre 72°N, y 60°S. Estas horas se encuentran dadas al minuto próximo, son estrictamente los T.U. en que ocurre el fenómeno sobre el meridiano de Greenwich; están dadas para cada día, para el fenómeno de orto y ocaso de la Luna, pero solamente para el día medio de los 3 contenidos en cada página, para el caso del fenómeno solar.

Estas horas son aproximadamente los T.M.L. del fenómeno correspondiente sobre otros meridianos; pueden interpolarse si se desea. El T.U. de ocurrencia de un fenómeno se obtiene a partir del T.M.L. por medio de la siguiente fórmula:

$$\text{T.U.} = \text{T.M.L.} \begin{array}{l} + \text{Oeste} \\ \text{Longitud} \\ - \text{Este} \end{array}$$

En la cual el valor de la longitud debe convertirse primero en tiempo, mediante el uso de la tabla contenida en la página i, o de otra forma.

La interpolación por latitud puede hacerse mentalmente, o con auxilio de la tabla I de la página xxxii.

Para indicar las condiciones bajo las cuales algunos de los fenómenos no ocurren en altas latitudes, se usan los símbolos siguientes:

- El Sol o la Luna permanecen continuamente sobre el horizonte;
- El Sol o la Luna permanecen continuamente por debajo del horizonte;
- //// El crepúsculo dura toda la noche.



**BASES PARA EL CALCULO** Para el orto y el ocaso del Sol, se adoptaron los valores de 16' por semidiámetro y 34' por refracción horizontal, de tal manera que, a las horas dadas, el limbo superior del Sol se encuentra sobre el horizonte visible; todas las horas se refieren al fenómeno, tal como se ve desde el nivel del mar con horizonte claro.

A las horas dadas para comienzo y final de los crepúsculos, la distancia cenital del Sol es de 96° para el civil y de 102° para el náutico. El grado de iluminación a las horas dadas para el crepúsculo civil (en buenas condiciones y en ausencia de otra iluminación) es tal, que las estrellas más brillantes resultan visibles y el horizonte claramente definido.

A las horas dadas por el crepúsculo náutico, el horizonte por regla general, no resulta visible y está demasiado obscuro para efectuar alguna observación con el sextante.

Por interpolación y extrapolación, pueden obtenerse las horas correspondientes a otras depresiones del Sol, no siendo de confianza las mayores de 12°; las horas obtenidas de esta forma estarán sujetas a considerable incertidumbre cerca de las condiciones extremas.

Para el orto y el ocaso se adoptó el valor de (34') por semidiámetro, paralaje y retracción: de tal manera que, a las horas dadas, el limbo superior de la Luna se encuentre sobre el horizonte visible, tal como se ve desde el nivel del mar.

**11. CREPUSCULO, ORTO Y OCASO DEL SOL.** Las horas tabuladas pueden considerarse sin errores serios, como T.M.L. de ocurrencia del fenómeno, en cualquiera de los tres días contenidos en la página, y en cualquier longitud. Las horas precisas pueden obtenerse normalmente interpolando los valores tabulares por latitud y de acuerdo con el día y longitud correctos, considerando a esta última expresada como fracción de un día dividiendo su valor entre 360°; positiva para las longitudes oestes y negativas para las estes. En las condiciones extremas, cerca de los símbolos □, ■ o ////, puede no ser posible la interpolación en una dirección, pero los valores exactos son de escasa significación en estas circunstancias.

*Ejemplo.* Determinar el T.U. de: (a), el comienzo del crepúsculo matutino y el orto del Sol para el día 22 de enero de 1989 en la latitud de 48° 55' S. y en longitud de 75° 18' E.G.; (b) el ocaso del Sol y el fin del crepúsculo vespertino el 24 de enero de 1989 en la latitud de 67° 10' N y longitud de 168° 05' W.G.

		CREPUSCULO						CREPUSCULO												
		Náutico		Civil		Orto		Ocaso		Civil		Náutico								
		d	h	m	d	h	m	d	h	m	d	h	m	d	h	m				
De la pág.	25																			
T.M.L. para																				
Lat	S. 45°	22	03	25	22	04	09	22	04	44	N. 66°	24	14	57	24	16	08	24	17	15
Corr.	S. 48° 55'			-27			-20			-16	N. 67° 10'			-17			-9			-6
(pág. xxxii) Tabla I																				
Long. (p. i)	E. 75° 18'	-5	01		-5	01		-5	01		W. 168° 05'	+11	12		+11	12		+11	12	
T.U.		21	21	57	21	22	48	21	23	27		25	01	52	25	03	11	25	04	21

Los T.M.L. son estrictamente para el 23 de Enero (día medio de la página) y 0° de longitud; para obtener la hora precisa es necesario interpolar, pero los errores de redondeo pueden acumular 2<sup>m</sup>. aprox.

a) Para enero 22<sup>d</sup> - 75° / 360° = Ene. 21<sup>d</sup>.8, es decir 1/3 (1.2) = 0.4; respecto a los datos anteriores; en la misma latitud e igual interpolación según la página 23; las correcciones son en los crepúsculos: náutico -2<sup>m</sup> civil -2<sup>m</sup> y al orto del Sol -2<sup>m</sup>.

b) Para enero 24<sup>d</sup> + 168° / 360° = Ene. 24<sup>d</sup>.5, es decir 1/3 (1.5) = 0.5; respecto a estos datos y los de adelante, según la página 27 en la misma latitud e igual interpolación, las correcciones son: +8<sup>m</sup> al ocaso del Sol, en los crepúsculos; civil +5<sup>m</sup> y para el náutico +4<sup>m</sup>.

**12. ORTO Y OCASO DE LA LUNA.** Raramente se necesitan las horas precisas de orto y ocaso de la Luna; una mirada a las tablas generalmente dará suficiente indicación acerca de si la Luna se encuentra en condiciones de observación y de las horas de su orto y ocaso. De ser necesario, las horas precisas pueden obtenerse como sigue: Interpolar por latitud, usando la tabla I de la página xxxii, para el día deseado, y también para el día anterior,



en longitudes este, o para el día siguiente en longitudes oeste; tomar la diferencia entre estas horas e interpolar por longitud aplicando a la hora del día deseado la corrección de la tabla II de la página xxxii, de tal manera que la hora resultante queda entre las dos horas usadas.

En condiciones extremas cerca de los símbolos □ ó ■, la interpolación por latitud o longitud solamente es posible en una dirección; en estas circunstancias las horas exactas son de escaso valor.

Para facilitar esta interpolación, en cada página se encuentran registradas las horas de orto y ocaso de la Luna para cuatro días; cuando no hay ocurrencia del fenómeno durante un día particular (tal como acontece una vez al mes), la hora de ocurrencia del fenómeno para el día siguiente viene dada, aumentada en 24<sup>h</sup>; debe tenerse mucho cuidado al interpolar entre dos valores, cuando uno de éstos excede de 24<sup>h</sup>. En la práctica es suficiente emplear la diferencia diaria entre las horas para la latitud más próxima tabulada y, generalmente, entrar a la tabla II con los argumentos tabulares más próximos, tal como se muestra en los ejemplos que siguen:

*Ejemplo.* Determinar el T.U. del orto y ocaso de la Luna en latitud  $47^{\circ} 10' S.$  y en las longitudes de  $124^{\circ} 00' E.G.$  y  $78^{\circ} 31' W.G.$  el 24 de enero de 1989.

	Longitud E. $124^{\circ} 00'$			Longitud W. $78^{\circ} 31'$		
	Orto			Ocaso		
	d	h	m	d	h	m
T.M.L. para Lat. $S 45^{\circ}$	24	20	56	24	07	13
Correc. por Lat. (pág. xxxii Tabla I)		+02			-04	
Correc. por Long. (pág. xxxii Tabla II)		-07			-23	
	<hr/>			<hr/>		
T.M.L. corregido	24	20	51	24	06	46
Longitud (p.i.)		-8	16		-8	16
	<hr/>			<hr/>		
T.U.	24	12	35	23	22	30
				25	02	14
				24	12	39

#### TABLAS DE CORRECCION DE ALTURAS

13. GENERALIDADES. En general, se dan dos correcciones para aplicarse a las alturas observadas con el sextante; se necesitan correcciones adicionales para Venus y Marte; y también para alturas muy bajas.

En las páginas A<sub>2</sub> y xxxiv, están dadas las tablas de corrección por depresión del horizonte, debido a la altura del ojo del observador sobre el nivel del mar; esta corrección debe aplicarse primero y restarse de la altura del sextante, para obtener la altura aparente, que es el argumento correcto de entrada para las otras tablas.

Se dan tablas separadas para obtener la segunda corrección para el Sol, estrellas y planetas (en las páginas A<sub>2</sub> y A<sub>3</sub>) y para la Luna (en las páginas xxxiv y xxxv). Para el Sol, se dan valores para ambos limbos, superior e inferior, para dos periodos de año. Las tablas de estrellas se usan para planetas, pero se necesita hacer correcciones adicionales para Venus y Marte por paralaje (página A<sub>2</sub>). Las Tablas de la Luna están divididas en dos partes: La corrección principal es una función de la altura aparente únicamente, y está tabulada para el limbo inferior (deben restarse 30' para obtener la corrección del limbo superior); la otra, que viene dada para ambos limbos superior e inferior, dependen también del paralaje horizontal, que debe tomarse de las páginas diarias.

Se necesita también, una corrección adicional consignada en la página A<sub>4</sub>, para el cambio en la refracción, debida a variaciones de presión y temperatura, a partir de las condiciones normales adoptadas; ésta puede despreciarse generalmente, para alturas mayores de 10°, excepto posiblemente, en condiciones extremas. Las tablas de correcciones para Sol, estrellas y planetas, están presentadas en dos partes; solamente aquellas referentes a alturas mayores de 10° se han reimpresso en la hoja suelta adjunta.

14. TABLAS CRITICAS. Algunas de las tablas de correcciones de alturas se han dispuesto como tablas críticas. En éstas, un intervalo de altura aparente (o altura del ojo del observador) corresponde a un solo valor de la corrección; no se necesita interpolación. Para una entrada "crítica" se toma el valor superior de los dos posibles para la corrección. Por ejemplo, en la tabla de depresión, una corrección de (-) 4'.1 corresponde a todos los valores de altura del ojo de 5.3 a 5.5 metros (17.5 a 18.3 pies) inclusive.



15.- *Ejemplos.*- Los ejemplos siguientes ilustran el uso de las tablas de corrección de alturas; se supone que las alturas del sextante fueron tomadas el 6 de octubre de 1989 con un sextante a una altura de 5.4 mts. (18 pies), temperatura de  $-30^{\circ}\text{C}$  y una presión de 982 mb., observándose la Luna alrededor de las 10<sup>h</sup> T.U.

	SOL Limbo. Inf.	SOL Limbo. Sup.	LUNA Limbo. Inf.	LUNA Limbo. Sup.	VENUS	Polaris
Altura del Sextante	21 19.7	3 20.2	33 27.6	26 06.7	4 32.6	49 36.5
Depresión 5.4 m (18 pies)	-4.1	-4.1	-4.1	-4.1	-4.1	-4.1
Corrección principal	+13.8	-29.6	+57.4	+60.5	-10.8	-0.8
-30' Limb. sup. (Luna)	—	—	—	-30.0	—	—
Corr. para Luna (limbos)	—	—	+2.2	+2.1	—	—
Corr. adicional para Venus	—	—	—	—	+0.2	—
Corr. adicional por refracción	-0.1	-0.3	0.0	-0.1	-0.3	0.0
Altura del Sextante Corregida	21 29.3	2 46.2	34 23.1	26 35.1	4 17.6	49 31.6

Las correcciones principales se han obtenido partiendo de la altura aparente (altura de sextante corregida por depresión) como argumento, interpolando donde fue posible. Estos refinamientos raramente se necesitan.

16. BASES DE LAS CORRECCIONES. La tabla por depresión de horizonte del mar está basada en la fórmula:

$$\text{Corr. por dep.} = -1.76 \sqrt{(\text{altura del ojo en metros})} = -0.97 \sqrt{(\text{altura del ojo en pies})}$$

La tabla de correcciones para el Sol, incluye : los efectos de semidiámetro, paralaje y refracción media.

Las tablas de corrección para estrellas y planetas se aplican para el efecto de refracción media. Las correcciones adicionales para Venus y Marte, son en función del paralaje; no se requiere corrección por fase. Alternativamente, la corrección por paralaje, puede calcularse de:  $p \cos H$ , en donde  $p$  es el paralaje; y  $H$  es la altura.

Para 1989 los valores de  $p$  son:

VENUS					
1 Ene.	28 Sep.	19 Nov.	12 Dic.	28 Dic.	31 Dic.
0.1	0.2	0.3	0.4	0.5	
MARTE					
1 Ene.	31 Dic.				
0.1					

La corrección de Venus por fase ha sido incorporada en las tablas para el A.H.G. y Declinación, y no es necesaria ésta corrección por fase.

La tabla corregida para la Luna incluye los efectos de semidiámetro, paralaje, aumento y refracción media.

La refracción media se calcula para una temperatura de  $10^{\circ}\text{C}$ . ( $50^{\circ}\text{F}$ .) y una presión de 1010 mb. (29.83 pulgadas).

17. OBSERVACIONES CON SEXTANTE DE BURBUJA. Cuando se observa con sextante de burbuja no son esenciales las correcciones por depresión, semidiámetro o aumento. Las correcciones a alturas de estrellas y planetas en la página A<sub>2</sub> y en la hoja suelta, también pueden usarse para el Sol; para la Luna es más fácil usar el valor medio, del limbo superior e inferior y restar 15' a la altura; la corrección por depresión no debe aplicarse.



## DATOS AUXILIARES Y DE PLANEACION.

18. SOL Y LUNA. En las páginas diarias se encuentran anotados los semidiámetros y las horas de paso por el meridiano de Greenwich, tanto del Sol como de la Luna; la ecuación del tiempo; el paralaje horizontal y la Edad de la Luna, junto con un símbolo indicativo de su fase. Para la Luna, al pie de su columna, se encuentran los valores de los semidiámetros para cada uno de los tres días; para el Sol es suficiente un valor.

La ecuación del tiempo (E.T.), es dada con su signo, para las 00<sup>h</sup> y 12<sup>h</sup> de T.U. para cada día. Para obtener la hora verdadera, se aplica la ecuación del tiempo con su signo a la hora media.

Las horas de las fases de la Luna se dan en T.U. en la página 4.

19. PLANETAS. Las magnitudes de los planetas están asentadas siguiendo inmediatamente a sus nombres en los encabezados de las páginas diarias; también están dadas para el día medio de los tres de cada página, sus A.H.S. a las 00<sup>h</sup> T.U. y sus horas de paso por el meridiano.

Las notas y diagramas sobre planetas contenidas en las páginas 8 y 9 proporcionan una información descriptiva acerca de la posibilidad de observación de los planetas durante el año, así como de sus posiciones y movimientos.

20. ESTRELLAS. En las páginas diarias se anota la hora al 0.1<sup>m</sup> del paso por el meridiano de Greenwich del primer punto de Aries para el día medio de los tres contenidos en cada página. El intervalo de dos pasos sucesivos por el meridiano es de 23<sup>h</sup>56.1<sup>m</sup> (24<sup>h</sup> menos 3.9<sup>m</sup>) de tal manera que pueden deducirse rápidamente las horas de paso correspondientes a días intermedios, así como las de paso por otros meridianos. Si se necesita la hora precisa, ésta puede determinarse encontrando el T.U. al cual corresponde un valor cero para el A.H.L. de Aries.

El paso de una estrella por el meridiano ocurre cuando su A.H.L. vale cero, esto es, cuando  $A.H.L. \text{ de Aries} + A.H.S. = 360^\circ$ . Una hora aproximada puede obtenerse empleando el diagrama de planetas consignado en la página 9.

Las cartas de estrellas que se muestran en las páginas 270-271 sirven como ayuda en su identificación. Estas cartas muestran la posición relativa de las estrellas en el cielo tal como se ven desde la Tierra e incluyen todas las 173 estrellas empleadas en el Almanaque, junto con otras más para completar la configuración de las constelaciones principales.

El meridiano local puede determinarse en la carta por medio de su A.H.S., el cual es igual a  $360^\circ - A.H.L. \text{ de Aries}$ , o longitud oeste  $- A.H.G. \text{ de Aries}$ .

21. ESFERA CELESTE. Para emplear la escala de A.H.L. de Aries, impresa en una esfera celeste, primero se fija la esfera de acuerdo con la latitud y luego se hace girar alrededor del eje polar, hasta que se lea en la escala bajo el bordo del círculo meridiano el A.H.L. de Aries.

Para encontrar las posiciones del Sol, la Luna y los planetas sobre una esfera celeste, tómesese la diferencia  $A.H.G. \text{ de Aries} - A.H.G. \text{ del astro}$  y úsese esta diferencia a lo largo de la escala de A.H.L. de Aries junto con la declinación, para establecer la posición del astro. La diferencia  $A.H.G. \text{ de Aries} - A.H.G. \text{ del astro}$  se facilita tomándola cuando el A.H.G. del astro es pequeño (menos de  $15^\circ$ ), lo cual acontece una vez al día.

22. CALENDARIO. En la página 4 se encuentran listas de fiestas, aniversarios y fases de la Luna.

El calendario de la página 5 incluye el orden numérico progresivo de los días del año y del mes, así como el nombre correspondiente de los días de la semana.

Al pie de la página 5 se consignan notas breves acerca de los eclipses solares y lunares durante el año; las horas anotadas están expresadas en términos de T.U. Las características principales de los eclipses del Sol más importantes se muestran en los mapas de las páginas 6 y 7.

23. HORAS LEGALES. Las listas de las páginas 266-269 dan las horas legales usadas en la mayoría de los países. En general no se ha intentado dar detalles acerca del comienzo y final de la hora de verano por carecer de la información del cambio de la hora, con la anticipación que requiere la preparación de este Almanaque.



La Línea Internacional del Tiempo es una línea arbitraria que determina una diferencia de un día entre cada uno de sus lados; cuando se cruza esta línea en rumbo hacia el Oeste, la fecha debe adelantarse un día; cuando se cruza en rumbo al Este la fecha debe atrasarse un día. Esta línea es una modificación de la correspondiente al meridiano de  $180^\circ$  y se ha trazado de modo que incluya hasta donde sea posible, islas de un mismo grupo, etc., hacia el mismo lado de la línea. Puede trazarse comenzando en el Polo Sur y uniendo los siguientes puntos:

Lat.	S. $51^\circ 0'$	S. $45^\circ 0'$	S. $15^\circ 0'$	S. $5^\circ 0'$	N. $48^\circ 0'$	N. $53^\circ 0'$	N. $65^\circ 5'$
Long.	$180^\circ 0'$	W. $172^\circ 5'$	W. $172^\circ 5'$	$180^\circ 0'$	$180^\circ 0'$	E. $170^\circ 0'$	W. $169^\circ 0'$

De ahí dividiendo las islas Diomedes, llega hasta la Lat. N.  $68^\circ 0'$ , long. W.  $169^\circ 0'$ , pasando al Este de Ostrov Vrangelya (Isla Wrangel) en Lat. N.  $75^\circ 0'$ , Log.  $180^\circ 0'$ , y después hacia el Polo Norte.

### EXACTITUD.

24. DATOS PRINCIPALES. Las cantidades tabuladas en este Almanaque son generalmente correctas al  $0'.1$  más próximo; la excepción la constituye el A.H.G. del Sol, el cual está ajustado deliberadamente a  $0'.15$  a fin de reducir el error cometido al desprestigiar la corrección  $v$ . El A.H.G. y la Dec., para horas intermedias no pueden obtenerse con esta precisión, ya que al menos deben agregarse dos cantidades; más aún, las correcciones  $v$  y  $d$  están basadas en valores medios de  $v$  y  $d$  y se toman de las tablas al minuto cerrado solamente. El error más grande que puede ocurrir en el A.H.G. o la Dec. de cualquier astro diferente del Sol o la Luna, es menos de  $0'.2$ ; puede llegar  $0'.25$  para el A.H.G. del Sol y a  $0'.3$  para el de la Luna.

En la práctica puede esperarse que, solamente una tercera parte de los valores tomados del A.H.G. y la Dec., tengan errores mayores de  $0'.05$  y menos de una décima parte tengan errores mayores de  $0'.1$ .

25. CORRECCIONES A LAS ALTURAS. Los errores en las correcciones de las alturas son nominalmente del mismo orden que los correspondientes al A.H.G. y la Dec., en vista de que son el resultado de sumar varias cantidades, cada una de las cuales se ha redondeado correctamente al  $0'.1$ . En caso de condiciones extremas, los valores actuales de la depresión y de la refracción a bajas alturas, pueden diferir considerablemente de los valores medios empleados en las tablas.

### UTILIDAD Y USO DE ESTE ALMANAQUE EN 1990

Este Almanaque se puede utilizar para el Sol y las estrellas en 1990 de la manera siguiente:

Para el Sol, asumir el A.H.G. y Dec. para la misma fecha, sin embargo, anticipar  $5^h 48^m 00^s$ , con relación a la hora del T.U. de observación; adicionar  $87^\circ 00'$  al A.H.G. así obtenido. El error, debido principalmente a perturbaciones planetarias de la Tierra, es difícil que exceda de  $0'.4$ .

Para las estrellas, calcular el A.H.G. y la Dec. para la misma fecha y hora pero substraer  $15'.1$  conforme al A.H.G. así encontrado. El error, debido a la incompleta corrección por precesión y nutación, es difícil que exceda de  $0'.4$ . Aún cuando, el mismo resultado puede ser obtenido utilizando según la anticipación de  $5^h 48^m 00^s$  ó el retraso de  $18^h 12^m 00^s$  del T.U. de observación (como para el Sol) y adicionando  $86^\circ 59'.2$  al A.H.G. (o sumando  $87^\circ$  como para el Sol y restando  $0'.8$ , por precesión, conforme al A.H.S. de la estrella).

El Almanaque no debe ser utilizado de éste modo, para la Luna o planetas.



HORAS LEGALES (Corregidas hasta Septiembre de 1986)

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LISTA I - LUGARES CON HORA ADELANTADA AL T.U.C. (principalmente aquellos que se hallan al ESTE DE GREENWICH).

Las horas dadas } sumarse al T.U.C. para obtener Hora Legal.  
 abajo deben } restarse de la Hora Legal para dar T.U.C.

	h	m		h	m
Admiralty Islands ...	10		Djibouti ...	03	
Afghanistan ...	04	30	Egypt, Arab Republic of ...	02	
Albania* ...	01		Equatorial Guinea, Republic of ...	01	
Algeria ...	01		Estonia ...	03	
Amirante Islands ...	04		Ethiopia ...	03	
Andaman Islands ...	05	30	Fernando Póo ...	01	
Angola ...	01		Fiji ...	12	
Annobon Island ...	01		Finland* ...	02	
Australia			France* ...	01	
Australian Capital Territory* ...	10		Friendly Islands ...	13	
New South Wales <sup>1*</sup> ...	10		Gabon ...	01	
Northern Territory ...	09	30	Germany, East* ...	01	
Queensland ...	10		West <sup>3*</sup> ...	01	
South Australia* ...	09	30	Gibraltar* ...	01	
Tasmania* ...	10		Greece* ...	02	
Victoria* ...	10		Guam ...	10	
Western Australia* ...	08		Holland (The Netherlands)* ...	01	
Austria* ...	01		Hong Kong ...	08	
Bahrain ...	03		Hungary* ...	01	
Balearic Islands* ...	01		India ...	05	30
Banaba ...	11	30	Indonesia, Republic of		
Bangladesh ...	06		Bali, Bangka, Billiton, Java,		
Belgium* ...	01		Madura, Sumatra ...	07	
Benin (Dahomey) ...	01		Flores, Kalimantan, Lombok,		
Botswana, Republic of ...	02		Sulawesi, Sumba, Sumbawa, Timor	08	
Brunei ...	08		Aru, Irian Jaya, Kai, Moluccas,		
Bulgaria* ...	02		Tanimbar ...	09	
Burma ...	06	30	Iran ...	03	30
Burundi ...	02		Iraq* ...	03	
Cameroon Republic ...	01		Israel* ...	02	
Caroline Islands, west of long. E. 135°	09		Italy* ...	01	
long. E. 135° to E. 150°	10		Japan ...	09	
long. E. 150° to E. 160°	11		Jordan* ...	02	
east of long. E. 160°	12		Kamchatka Peninsula ...	12	
Central African Republic ...	01		Kampuchea, Democratic ...	07	
Chad ...	01		Kenya ...	03	
Chagos Archipelago <sup>2</sup> ...	05		Kiribati Republic <sup>4</sup> ...	12	
Chatham Islands ...	12	45	Korea, North ...	09	
China* ...	08		Republic of (South)* ...	09	
Christmas Island, Indian Ocean ...	07		Kuril Islands ...	11	
Cocos Keeling Islands ...	06	30	Kuwait ...	03	
Comoro Islands (Comoros) ...	03		Laccadive Islands ...	05	30
Congo Republic ...	01		Laos ...	07	
Corsica* ...	01		Latvia ...	03	
Crete* ...	02		Lebanon* ...	02	
Cyprus, Ercan* ...	02				
Larnaca* ...	02				
Czechoslovakia* ...	01				
Denmark* ...	01				

\* La hora de verano puede conservarse en estos países.

1 Excepto el "Area Broker Hill", la cual conserva 09<sup>h</sup> 30<sup>m</sup>.

2 Excepto Diego García el cual conserva 06<sup>h</sup>.

3 Incluyendo Berlín Oeste.

4 Excepto la isla de Kiritimati y las islas Phoenix las cuales conservan 10<sup>h</sup> y 11<sup>h</sup> de atraso al T.U.C.



## LISTA I - (continúa).

	h	m		h	m
Lesotho ... ..	02		Socotra ... ..	03	
Libya* ... ..	01		Solomon Islands ... ..	11	
Liechtenstein ... ..	01		Somalia Republic ... ..	03	
Lord Howe Island* ... ..	10	30	South Africa, Republic of ... ..	02	
Luxembourg* ... ..	01		South West Africa (Namibia) ... ..	02	
Macao ... ..	08		Spain* ... ..	01	
Madagascar, Democratic Republic of ... ..	03		Spanish Possessions in North Africa (Ceuta, Melilla)* ... ..	01	
Malawi ... ..	02		Spitsbergen (Svalbard) ... ..	01	
Malaysia			Sri Lanka ... ..	05	30
Malaya, Sabah, Sarawak ... ..	08		Sudan, Republic of ... ..	02	
Maldives, Republic of The ... ..	05		Swaziland ... ..	02	
Malta* ... ..	01		Sweden* ... ..	01	
Mariana Islands ... ..	10		Switzerland* ... ..	01	
Marshall Islands <sup>1</sup> ... ..	12		Syria (Syrian Arab Republic)* ... ..	02	
Mauritius ... ..	04		Taiwan* ... ..	08	
Monaco* ... ..	01		Tanzania ... ..	03	
Mongolia, West ... ..	07		Thailand ... ..	07	
Central* ... ..	08		Tonga Islands ... ..	13	
East ... ..	09		Truk ... ..	10	
Mozambique ... ..	02		Tunisia ... ..	01	
Namibia (South West Africa) ... ..	02		Turkey* ... ..	02	
Nauru ... ..	12		Tuvalu Islands ... ..	12	
Netherlands, The* ... ..	01		Uganda ... ..	03	
New Caledonia* ... ..	11		Union of Soviet Socialist Republics <sup>2*</sup>		
New Zealand* ... ..	12		Zone 1 Amderma, Arkhangelsk, Kiev, Leningrad, Moscow, Odessa ... ..	03	
Nicobar Islands ... ..	05	30	Zone 2 Baku, Tbilsi, Volgograd ... ..	04	
Niger ... ..	01		Zone 3 Ashkabad, Novvy Port, Sverdlovsk ... ..	05	
Nigeria, Republic of ... ..	01		Zone 4 Alma-Ata, Omsk, Tashkent ... ..	06	
Norfolk Island ... ..	11	30	Zone 5 Krasnoyarsk, Novosibirsk ... ..	07	
Norway* ... ..	01		Zone 6 Irkutsk ... ..	08	
Novaya Zemlya ... ..	05		Zone 7 Tiksi, Yakutsk ... ..	09	
Okinawa ... ..	09		Zone 8 Khabarovsk, Okhotsk, Vladivostok ... ..	10	
Oman ... ..	04		Zone 9 Magadan, Sakhalin I. ... ..	11	
Pakistan ... ..	05		Zone 10 Anadyr, Petropaviovsk ... ..	12	
Papua New Guinea ... ..	10		United Arab Emirates ... ..	04	
Pescadores Islands ... ..	08		Vanuatu, Republic of* ... ..	11	
Philippine Republic ... ..	08		Vietnam, Socialist Republic of ... ..	07	
Poland* ... ..	01		Wrangell Island ... ..	13	
Réunion ... ..	04		Yemen ... ..	03	
Romania* ... ..	02		Yugoslavia* ... ..	01	
Rwanda ... ..	02		Zaire		
Ryukyu Islands ... ..	09		Kinshasa, Mbandaka ... ..	01	
Sakhalin ... ..	11		Haut-Zaire, Kasai, Kivu, Shaba ... ..	02	
Santa Cruz Islands ... ..	11		Zambia, Republic of ... ..	02	
Sardinia* ... ..	01		Zimbabwe ... ..	02	
Saudi Arabia ... ..	03				
Schouten Islands ... ..	09				
Seychelles ... ..	04				
Sicily* ... ..	01				
Singapore ... ..	08				

\* La hora de verano puede conservarse en estos países.

1 Excepto en las islas Kwajalein y Eniwetok, las cuales conservan 24<sup>h</sup> de atraso que del resto de las otras Islas.

2 Las fronteras entre las zonas, son irregulares; el listado son pueblos en cada zona.



## LISTA II - LUGARES QUE GUARDAN NORMALMENTE T.U.C.

Ascension Island	Ghana	Ireland, Northern <sup>1</sup>	Mauritania	Senegal
Bourkina-Faso	Great Britain <sup>1</sup>	Irish Republic*	Morocco*	Sierra Leone
Canary Islands*	Guinea Bissau	Ivory Coast	Portugal*	Tangier
Channel Islands <sup>1</sup>	Guinea Republic	Liberia	Principe	Togo Republic
Faeroes*, The	Iceland	Madeira*	St. Helena	Tristan da Cunha
Gambia	Ifni	Mali	São Tomé	

\* El tiempo de verano puede conservarse en estos países.

<sup>1</sup> En el tiempo de verano, adelantar una hora según T.U.C., éste se conserva desde las 01<sup>h</sup> del 26 de marzo hasta las 01<sup>h</sup> del 29 de octubre T.U.C., sujeto a confirmación.

## LISTA III - LUGARES CON HORA ATRASADA AL T.U.C. (OESTE DE GREENWICH)

Las horas dadas } restarse al T.U.C. para obtener Hora Standard  
 abajo deben } sumarse a la Hora Standard para dar T.U.C.

	h	m		h
Argentina ...	...	03	Cape Verde Islands ...	01
Austral Islands <sup>1</sup> ...	...	10	Cayman Islands ...	05
Azores* ...	...	01	Chile* ...	04
Bahamas* ...	...	05	Christmas Island, Pacific Ocean ...	10
Barbados ...	...	04	Colombia ...	05
Belize ...	...	06	Cook Islands*, except Niue ...	10
Bermuda* ...	...	04	Costa Rica ...	06
Bolivia ...	...	04	Cuba* ...	05
Brazil, eastern <sup>2*</sup> ...	...	03	Curaçao Island ...	04
Territory of Acre* ...	...	05	Dominican Republic ...	04
western* ...	...	04	Easter Island (I. de Pascua)* ...	06
British Antarctic Territory <sup>3</sup> ...	...	03	Ecuador ...	05
Canada			Falkland Islands* ...	04
Alberta* ...	...	07	Fanning Island ...	10
British Columbia* ...	...	08	Fernando de Noronha Island* ...	02
Labrador* ...	...	04	French Guiana ...	03
Manitoba* ...	...	06	Galápagos Islands ...	06
New Brunswick* ...	...	04	Greenland <sup>4</sup> , Scoresby Sound* ...	01
Newfoundland* ...	...	03 30	Angmagssalik and west coast* ...	03
Northwest Territories*			Thule area ...	04
east of long. W. 68° ...	...	04	Grenada ...	04
long. W. 68° to W. 85° ...	...	05	Guadeloupe ...	04
long. W. 85° to W. 102° ...	...	06	Guatemala ...	06
west of long. W. 102° ...	...	07	Guyana, Republic of ...	03
Nova Scotia* ...	...	04	Haiti* ...	05
Ontario*, east of long. W. 90° ...	...	05	Honduras ...	06
west of long. W. 90° ...	...	06	Jamaica ...	05
Prince Edward Island* ...	...	04	Jan Mayen Island ...	01
Quebec*, east of long. W. 63° ...	...	04	Johnston Island ...	10
west of long. W. 63° ...	...	05		
Saskatchewan*				
east of long. W. 106° ...	...	06		
west of long. W. 106° ...	...	07		
Yukon* ...	...	08		

\* La hora de verano puede conservarse en estos países.

<sup>1</sup> Esta es la hora legal standard, pero la hora local media se usa generalmente.

<sup>2</sup> Incluyendo toda la costa y Brasilia.

<sup>3</sup> Excepto el Sur de Georgia que conserva 02h.

<sup>4</sup> Danmarkshaun y Mesters Vig conservan e. T.U.C.



LISTA III - (continúa).

	h	m		h
Juan Fernandez Islands ... ..	04		United States of America (continued)	
Leeward Islands ... ..	04		Hawaii ... ..	10
Low Archipelago ... ..	10		Idaho <sup>3,4</sup> ... ..	07
Marquesas Islands <sup>1</sup> ... ..	09	30	Illinois <sup>3</sup> ... ..	06
Martinique... ..	04		Indiana <sup>4</sup> ... ..	05
Mexico <sup>2</sup> ... ..	06		Iowa <sup>3</sup> ... ..	06
Midway Islands ... ..	11		Kansas <sup>3,4</sup> ... ..	06
Miquelon ... ..	03		Kentucky <sup>3</sup> , eastern part	05
Nicaragua ... ..	06		western part	06
Niue Island ... ..	11		Louisiana <sup>3</sup> ... ..	06
Panama, Republic of ... ..	05		Maine <sup>3</sup> ... ..	05
Paraguay* ... ..	04		Maryland <sup>3</sup> ... ..	05
Peru ... ..	05		Massachusetts <sup>3</sup> ... ..	05
Puerto Rico ... ..	04		Michigan <sup>3,4</sup> ... ..	05
Rarotonga ... ..	10		Minnesota <sup>3</sup> ... ..	06
St. Pierre and Miquelon*	03		Mississippi <sup>3</sup> ... ..	06
Salvador, El ... ..	06		Missouri <sup>3</sup> ... ..	06
Samoa ... ..	11		Montana <sup>3</sup> ... ..	07
Society Islands <sup>1</sup> ... ..	10		Nebraska <sup>3,4</sup> ... ..	06
South Georgia ... ..	02		Nevada <sup>3</sup> ... ..	08
Surinam ... ..	03		New Hampshire <sup>3</sup> ... ..	05
Tobago ... ..	04		New Jersey <sup>3</sup> ... ..	05
Trindade Island, South Atlantic*	02		New Mexico <sup>3</sup> ... ..	07
Trinidad ... ..	04		New York <sup>3</sup> ... ..	05
Tuamotu Archipelago <sup>1</sup> ... ..	10		North Carolina <sup>3</sup> ... ..	05
Tubuai Islands <sup>1</sup> ... ..	10		North Dakota <sup>3,4</sup> ... ..	06
Turks and Caicos Islands*	05		Ohio <sup>3</sup> ... ..	05
United States of America			Oklahoma <sup>3</sup> ... ..	06
Alabama <sup>3</sup> ... ..	06		Oregon <sup>3,4</sup> ... ..	08
Alaska <sup>3</sup> , east of W. 169° 30'	09		Pennsylvania <sup>3</sup> ... ..	05
Aleutian Islands, west of W. 169° 30'	10		Rhode Island <sup>3</sup> ... ..	05
Arizona ... ..	07		South Carolina <sup>3</sup> ... ..	05
Arkansas <sup>3</sup> ... ..	06		South Dakota <sup>3</sup> , eastern part	06
California <sup>3</sup> ... ..	08		western part	07
Colorado <sup>3</sup> ... ..	07		Tennessee <sup>3,4</sup> ... ..	06
Connecticut <sup>3</sup> ... ..	05		Texas <sup>3,4</sup> ... ..	06
Delaware <sup>3</sup> ... ..	05		Utah <sup>3</sup> ... ..	07
District of Columbia <sup>3</sup> ... ..	05		Vermont <sup>3</sup> ... ..	05
Florida <sup>3,4</sup> ... ..	05		Virginia <sup>3</sup> ... ..	05
Georgia <sup>3</sup> ... ..	05		Washington, D.C. <sup>3</sup> ... ..	05
			Washington <sup>3</sup> ... ..	08
			West Virginia <sup>3</sup> ... ..	05
			Wisconsin <sup>3</sup> ... ..	06
			Wyoming <sup>3</sup> ... ..	07
			Uruguay* ... ..	03
			Venezuela ... ..	04
			Virgin Islands ... ..	04
			Windward Islands ... ..	04

\* El tiempo de verano puede conservarse en estos países.

1 Esta es la hora legal standard, pero la hora local media es generalmente usada.

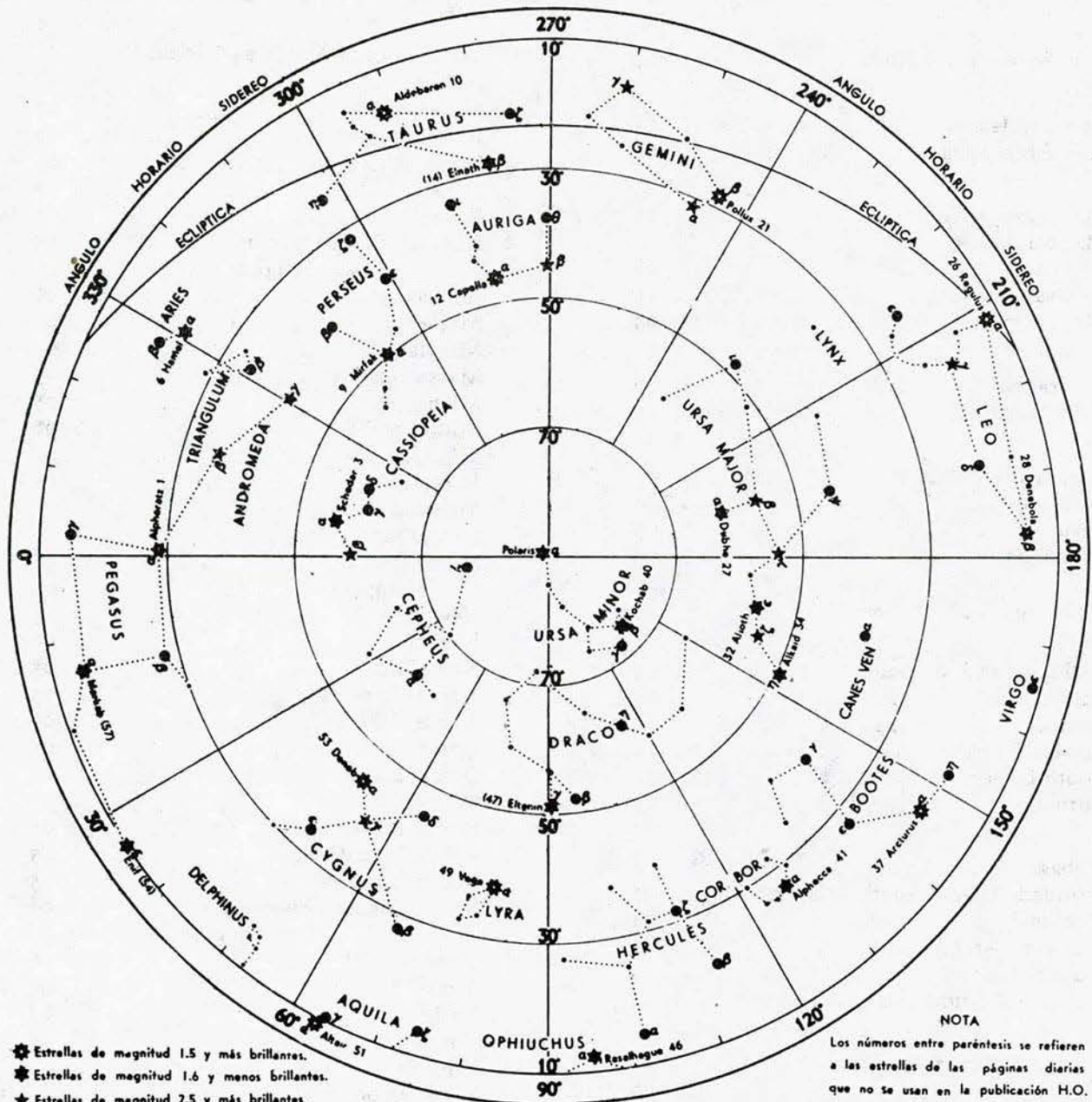
2 Excepto los estados de Sonora, Sinaloa, Nayarit y Baja California Sur los cuales conservan 07<sup>h</sup> y Baja California Norte la cual conserva 08<sup>h</sup> \*.

3 En el tiempo de verano (por economía, con la luz del día), se adelanta una hora con respecto al tiempo dado, se conserva en estos estados, desde el primer domingo de abril hasta el último domingo de octubre, cambiando a las 02<sup>h</sup> 00<sup>m</sup> de la hora del reloj local.

4 Esto se aplica a la mayor parte del estado.



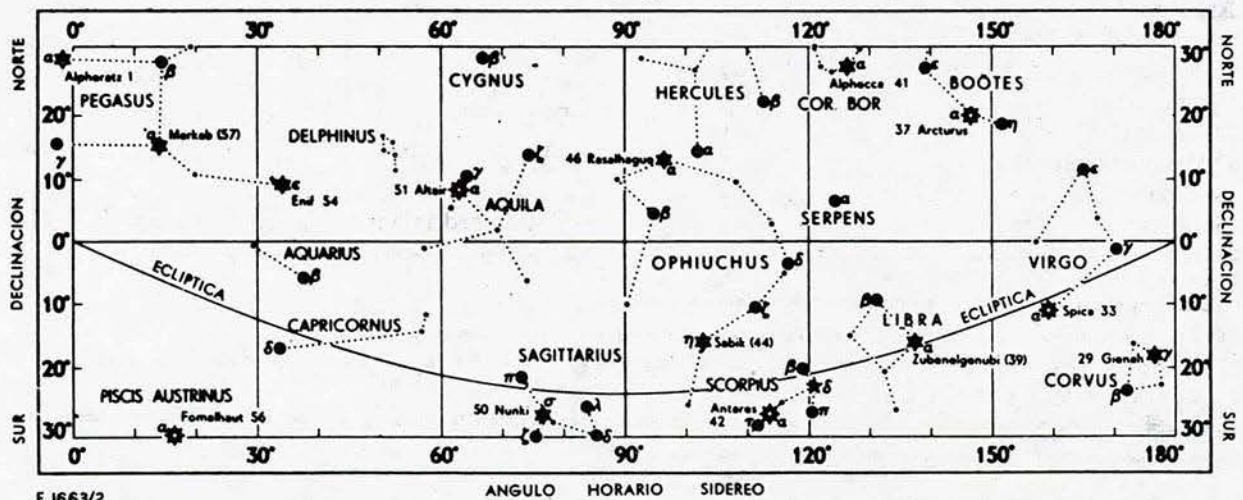
CARTA CELESTE  
HEMISFERIO BOREAL



- ★ Estrellas de magnitud 1.5 y más brillantes.
- ☆ Estrellas de magnitud 1.6 y menos brillantes.
- ☆ Estrellas de magnitud 2.5 y más brillantes.
- Estrellas de magnitud 2.6 y menos brillantes.
- Estrellas no tubuladas

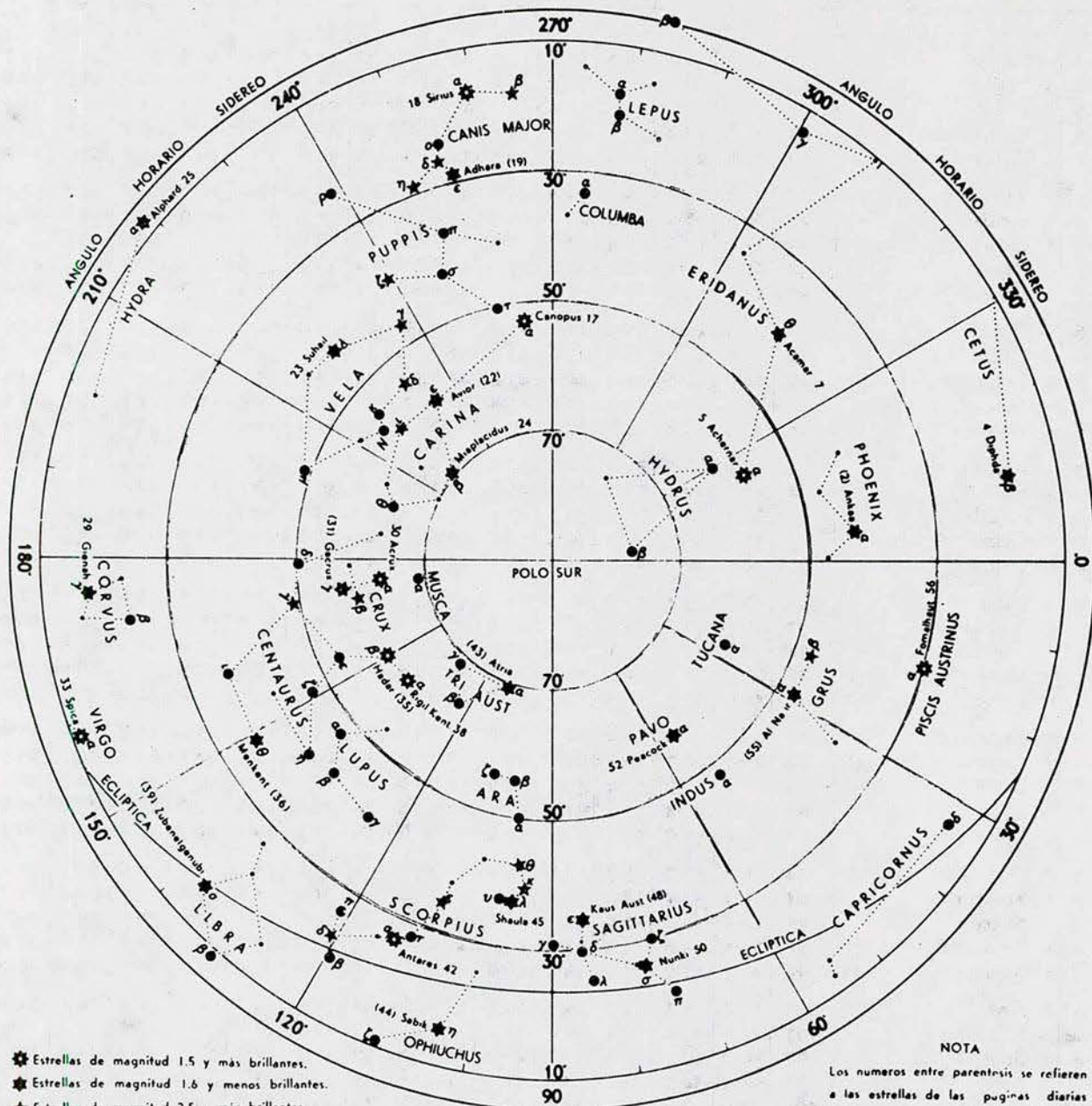
NOTA  
Los números entre paréntesis se refieren a las estrellas de las páginas diarias que no se usan en la publicación H.O. 249 (A. P. 3270)

ESTRELLAS ECUATORIALES (A.H.S. DE 0° A 180°)





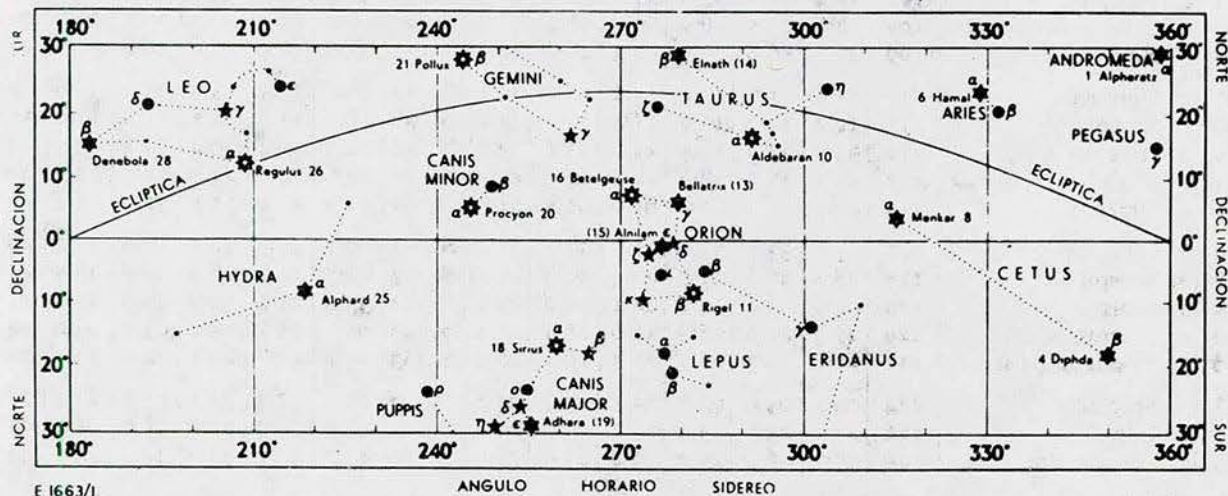
CARTA CELESTE  
HEMISFERIO AUSTRAL



- ☼ Estrellas de magnitud 1.5 y más brillantes.
- ★ Estrellas de magnitud 1.6 y menos brillantes.
- ☆ Estrellas de magnitud 2.5 y más brillantes.
- Estrellas de magnitud 2.6 y menos brillantes.
- Estrellas no tabuladas.

NOTA  
Los números entre parentesis se refieren a las estrellas de las paginas diarias que no se usan en la publicación H.O. 249 (A. P. 3270)

ESTRELLAS ECUATORIALES (A.H.S. DE 180° A 360°)





Mag.	Nombres y Números	A. H. S.						Dec.							
		ENE.	FEB.	MAR.	ABR.	MAY.	JUN.	ENE.	FEB.	MAR.	ABR.	MAY.	JUN.		
3.4	γ Cephei	5	17.9	18.4	18.6	18.3	17.7	16.8	N. 77	34.6	34.5	34.3	34.2	34.1	34.1
2.6	α Pegasi	57	13	56.9	56.9	56.9	56.8	56.6	56.3	N. 15	08.8	08.7	08.7	08.7	08.7
2.6	β Pegasi	14	11.6	11.6	11.6	11.4	11.2	11.0	N. 28	01.5	01.4	01.3	01.3	01.3	
1.3	α Piscis Aust.	56	15	44.3	44.4	44.3	44.2	43.9	43.7	S. 29	41.0	40.9	40.9	40.7	40.5
2.2	β Gruis	19	29.8	29.8	29.8	29.6	29.3	29.0	S. 46	56.8	56.7	56.5	56.4	56.3	
2.9	α Tucanæ	25	33.8	33.8	33.7	33.4	33.0	32.6	S. 60	19.1	19.0	18.8	18.7	18.5	
2.2	α Gruis	55	28	06.9	06.9	06.8	06.6	06.3	06.0	S. 47	01.1	01.0	00.9	00.7	00.5
3.0	δ Capricorni	33	23.6	23.5	23.4	23.3	23.0	22.8	S. 16	10.8	10.8	10.7	10.7	10.5	
2.5	ε Pegasi	54	34	05.5	05.5	05.4	05.2	05.0	04.7	N. 9	49.4	49.3	49.3	49.3	49.5
3.1	β Aquarii	37	15.4	15.4	15.3	15.1	14.9	14.6	S. 5	37.3	37.3	37.3	37.3	37.1	
2.6	α Cephei	40	26.0	26.0	25.9	25.6	25.2	24.8	N. 62	32.4	32.2	32.1	32.0	32.2	
2.6	ε Cygni	48	33.8	33.8	33.6	33.4	33.2	32.9	N. 33	55.7	55.6	55.5	55.4	55.5	
1.3	α Cygni	53	49	44.6	44.5	44.4	44.1	43.8	43.6	N. 45	14.4	14.3	14.2	14.1	14.3
3.2	α Indi	50	50	48.2	48.1	47.9	47.6	47.3	47.0	S. 47	20.0	19.9	19.8	19.7	19.6
2.1	α Pavonis	52	53	48.5	48.4	48.1	47.7	47.3	47.0	S. 56	46.4	46.3	46.2	46.1	46.1
2.3	γ Cygni	54	32.9	32.8	32.7	32.4	32.1	31.9	N. 40	13.2	13.1	13.0	12.9	13.0	
0.9	α Aquilæ	51	62	26.5	26.4	26.2	26.0	25.8	25.6	N. 8	50.2	50.1	50.1	50.1	50.3
2.8	γ Aquilæ	63	34.2	34.1	33.9	33.7	33.4	33.2	N. 10	35.0	34.9	34.9	34.9	35.0	
3.0	δ Cygni	63	51.0	50.9	50.7	50.4	50.1	49.9	N. 45	06.1	05.9	05.9	05.8	05.9	
3.2	β Cygni	67	26.1	26.0	25.8	25.6	25.3	25.1	N. 27	56.0	55.9	55.8	55.8	55.9	
3.0	π Sagittarii	72	43.5	43.4	43.1	42.9	42.7	42.5	S. 21	02.7	02.7	02.6	02.6	02.5	
3.0	ζ Aquilæ	73	46.7	46.5	46.3	46.1	45.9	45.7	N. 13	50.6	50.5	50.5	50.5	50.7	
2.7	ζ Sagittarii	74	31.5	31.3	31.1	30.8	30.6	30.3	S. 29	53.9	53.9	53.9	53.9	53.8	
2.1	σ Sagittarii	50	76	21.4	21.2	21.0	20.7	20.5	20.3	S. 26	18.8	18.8	18.8	18.7	18.7
0.1	α Lyræ	49	80	51.9	51.7	51.5	51.2	51.0	50.8	N. 38	46.2	46.0	46.0	46.0	46.2
2.9	λ Sagittarii	83	10.8	10.6	10.4	10.1	09.9	09.7	S. 25	25.8	25.8	25.8	25.8	25.8	
2.0	ε Sagittarii	48	84	08.6	08.3	08.1	07.8	07.5	07.3	S. 34	23.6	23.5	23.5	23.5	23.5
2.8	δ Sagittarii	84	55.8	55.6	55.4	55.1	54.9	54.7	S. 29	50.1	50.1	50.1	50.1	50.1	
3.1	γ Sagittarii	88	43.7	43.4	43.2	42.9	42.7	42.5	S. 30	25.6	25.6	25.6	25.6	25.6	
2.4	γ Draconis	47	90	55.2	55.0	54.7	54.4	54.1	54.0	N. 51	29.1	29.0	28.9	29.0	29.2
2.9	β Ophiuchi	94	16.2	16.0	15.8	15.6	15.4	15.3	N. 4	34.1	34.0	34.0	34.0	34.0	
2.5	κ Scorpii	94	34.3	34.1	33.8	33.5	33.2	33.0	S. 39	01.6	01.6	01.6	01.6	01.7	
2.0	θ Scorpii	95	52.3	52.0	51.7	51.4	51.1	51.0	S. 42	59.6	59.5	59.5	59.6	59.7	
2.1	α Ophiuchi	46	96	23.8	23.6	23.4	23.2	23.0	22.9	N. 12	33.8	33.7	33.7	33.7	33.9
1.7	λ Scorpii	45	96	47.3	47.0	46.7	46.4	46.2	46.0	S. 37	05.9	05.9	05.9	05.9	06.0
3.0	α Aræ	97	15.4	15.1	14.7	14.4	14.1	13.9	S. 49	52.2	52.1	52.1	52.1	52.3	
3.0	β Draconis	97	27.6	27.4	27.1	26.8	26.6	26.5	N. 52	18.2	18.1	18.1	18.1	18.4	
2.8	ν Scorpii	97	30.0	29.7	29.4	29.1	28.9	28.7	S. 37	17.4	17.3	17.3	17.4	17.4	
2.8	β Aræ	98	54.5	54.2	53.8	53.4	53.1	52.9	S. 55	31.3	31.2	31.2	31.2	31.4	
Var. †	α Herculis	101	28.0	27.8	27.5	27.3	27.1	27.0	N. 14	23.9	23.8	23.8	23.8	23.9	
2.6	η Ophiuchi	44	102	33.9	33.7	33.5	33.2	33.1	32.9	S. 15	42.9	42.9	42.9	42.9	42.9
3.1	ζ Aræ	105	34.7	34.3	33.9	33.5	33.2	33.1	S. 55	58.4	58.4	58.4	58.5	58.6	
2.4	ε Scorpii	107	38.4	38.1	37.9	37.6	37.4	37.3	S. 34	16.5	16.5	16.6	16.6	16.7	
1.9	α Triang. Aust.	43	108	08.1	07.5	06.9	06.4	06.0	05.8	S. 69	00.5	00.4	00.5	00.5	00.8
3.0	ζ Herculis	109	47.1	46.8	46.6	46.4	46.2	46.2	N. 31	37.0	36.9	36.9	36.9	37.2	
2.7	ζ Ophiuchi	110	51.8	51.6	51.4	51.1	51.0	50.9	S. 10	32.9	32.9	33.0	33.0	32.9	
2.9	τ Scorpii	111	12.2	11.9	11.7	11.4	11.2	11.1	S. 28	11.7	11.8	11.8	11.8	11.9	
2.8	β Herculis	112	33.9	33.7	33.5	33.2	33.1	33.0	N. 21	30.5	30.4	30.4	30.4	30.6	
1.2	α Scorpii	42	112	49.1	48.9	48.6	48.4	48.2	48.1	S. 26	24.6	24.6	24.7	24.7	24.7
2.9	η Draconis	114	02.7	02.4	02.0	01.7	01.5	01.5	N. 61	31.9	31.8	31.8	31.9	32.2	
3.0	δ Ophiuchi	116	33.6	33.3	33.1	32.9	32.7	32.7	S. 3	40.2	40.3	40.3	40.3	40.2	
2.8	β Scorpii	118	48.1	47.9	47.6	47.4	47.3	47.2	S. 19	46.7	46.7	46.8	46.8	46.8	
2.5	δ Scorpii	120	04.9	04.6	04.4	04.1	04.0	03.9	S. 22	35.6	35.6	35.7	35.7	35.7	
3.0	π Scorpii	120	27.3	27.0	26.8	26.6	26.4	26.4	S. 26	05.1	05.1	05.2	05.2	05.3	
3.0	β Trianguli Aust.	121	27.8	27.3	26.9	26.5	26.2	26.1	S. 63	23.8	23.8	23.8	24.0	24.2	
2.8	α Serpentis	124	04.2	03.9	03.7	03.5	03.4	03.4	N. 6	27.3	27.3	27.2	27.2	27.4	
3.0	γ Lupi	126	24.0	23.7	23.4	23.2	23.0	23.0	S. 41	07.8	07.9	07.9	08.0	08.2	
2.3	α Coronæ Bor.	41	126	26.7	26.5	26.2	26.0	25.9	25.9	N. 26	44.7	44.7	44.6	44.7	44.9



Mag.	Nombres y Números	A.H.S.						Dec.							
			JUL.	AGO.	SEP.	OCT.	NOV.	DIC.		JUL.	AGO.	SEP.	OCT.	NOV.	DIC.
3.4	$\gamma$ Cephei	5	16.1	15.5	15.3	15.4	15.8	16.4	N. 77	34.2	34.4	34.6	34.8	34.9	35.0
2.6	Markab	57	13	56.1	55.9	55.8	55.9	56.0	N. 15	08.9	09.1	09.2	09.2	09.2	09.2
2.6	Scheat	14	10.7	10.5	10.5	10.5	10.6	10.7	N. 28	01.5	01.7	01.8	01.9	01.9	01.9
1.3	Fomalhaut	56	15	43.4	43.2	43.1	43.2	43.3	S. 29	40.5	40.5	40.5	40.6	40.6	40.7
2.2	$\beta$ Gruis	19	28.7	28.5	28.4	28.5	28.6	28.7	S. 46	56.1	56.2	56.3	56.4	56.4	56.4
2.9	$\alpha$ Tucanæ	25	32.2	32.0	31.9	32.0	32.3	32.5	S. 60	18.5	18.6	18.7	18.8	18.9	18.9
2.2	Al Na'ir	55	28	05.7	05.5	05.4	05.5	05.7	S. 47	00.5	00.6	00.7	00.8	00.8	00.8
3.0	$\delta$ Capricorni	33	22.6	22.4	22.4	22.5	22.6	22.7	S. 16	10.4	10.4	10.4	10.4	10.4	10.5
2.5	Enif	54	34	04.5	04.4	04.4	04.5	04.6	N. 9	49.6	49.7	49.8	49.8	49.8	49.8
3.1	$\beta$ Aquarii	37	14.4	14.3	14.3	14.4	14.5	14.5	S. 5	37.0	36.9	36.9	36.9	36.9	37.0
2.6	Alderamin	40	24.5	24.4	24.5	24.8	25.1	25.4	N. 62	32.3	32.5	32.7	32.8	32.9	32.8
2.6	$\epsilon$ Cygni	48	32.7	32.7	32.7	32.9	33.0	33.1	N. 33	55.8	55.9	56.0	56.1	56.1	56.1
1.3	Deneb	53	49	43.4	43.4	43.4	43.6	43.8	N. 45	14.5	14.6	14.8	14.9	14.9	14.8
3.2	$\alpha$ Indi	50	50	46.7	46.6	46.7	46.8	47.0	S. 47	19.7	19.7	19.8	19.9	19.9	19.8
2.1	Peacock	52	53	46.7	46.6	46.7	46.9	47.1	S. 56	46.1	46.2	46.3	46.4	46.4	46.3
2.3	$\gamma$ Cygni	54	31.7	31.7	31.8	32.0	32.1	32.3	N. 40	13.3	13.5	13.6	13.6	13.6	13.6
0.9	Altair	51	62	25.4	25.4	25.5	25.6	25.7	N. 8	50.4	50.5	50.5	50.5	50.5	50.5
2.8	$\gamma$ Aquilæ	63	33.1	33.1	33.1	33.3	33.4	33.4	N. 10	35.2	35.3	35.4	35.4	35.3	35.3
3.0	$\delta$ Cygni	63	49.8	49.8	49.9	50.1	50.3	50.4	N. 45	06.2	06.4	06.5	06.6	06.5	06.4
3.2	Albireo	67	25.0	25.0	25.1	25.3	25.4	25.5	N. 27	56.2	56.3	56.4	56.4	56.4	56.3
3.0	$\pi$ Sagittarii	72	42.3	42.3	42.4	42.5	42.6	42.6	S. 21	02.5	02.5	02.5	02.5	02.5	02.5
3.0	$\zeta$ Aquilæ	73	45.6	45.6	45.7	45.8	45.9	46.0	N. 13	50.8	50.9	50.9	51.0	50.9	50.8
2.7	$\zeta$ Sagittarii	74	30.2	30.2	30.3	30.4	30.5	30.5	S. 29	53.8	53.9	53.9	53.9	53.9	53.9
2.1	Nunki	50	76	20.2	20.2	20.3	20.4	20.5	S. 26	18.7	18.7	18.7	18.7	18.7	18.7
0.1	Vega	49	80	50.7	50.8	51.0	51.1	51.3	N. 38	46.4	46.5	46.6	46.6	46.5	46.4
2.9	$\lambda$ Sagittarii	83	09.6	09.6	09.7	09.8	09.9	09.9	S. 25	25.8	25.8	25.8	25.8	25.8	25.8
2.0	Kaus Australis	48	84	07.2	07.2	07.4	07.5	07.6	S. 34	23.5	23.6	23.6	23.6	23.6	23.5
2.8	$\delta$ Sagittarii	84	54.6	54.6	54.7	54.8	54.9	54.9	S. 29	50.1	50.1	50.2	50.2	50.1	50.1
3.1	$\gamma$ Sagittarii	88	42.4	42.4	42.5	42.7	42.8	42.7	S. 30	25.6	25.7	25.7	25.7	25.6	25.6
2.4	Eltanin	47	90	54.0	54.1	54.4	54.6	54.8	N. 51	29.4	29.5	29.6	29.6	29.5	29.3
2.9	$\beta$ Ophiuchi	94	15.2	15.3	15.4	15.5	15.6	15.5	N. 4	34.2	34.3	34.3	34.3	34.2	34.2
2.5	$\kappa$ Scorpii	94	33.0	33.0	33.2	33.3	33.4	33.3	S. 39	01.7	01.7	01.8	01.7	01.7	01.6
2.0	$\theta$ Scorpii	95	50.9	51.0	51.1	51.3	51.4	51.3	S. 42	59.7	59.8	59.8	59.8	59.7	59.6
2.1	Rasalhague	46	96	22.8	22.9	23.0	23.1	23.2	N. 12	34.0	34.1	34.1	34.1	34.0	33.9
1.7	Shaula	45	96	46.0	46.0	46.2	46.3	46.4	S. 37	06.0	06.0	06.0	06.0	06.0	05.9
3.0	$\alpha$ Aræ	97	13.9	13.9	14.1	14.3	14.4	14.3	S. 49	52.3	52.4	52.4	52.4	52.3	52.2
3.0	$\beta$ Draconis	97	26.5	26.7	26.9	27.2	27.4	27.4	N. 52	18.6	18.7	18.7	18.7	18.6	18.4
2.8	$\nu$ Scorpii	97	28.7	28.7	28.9	29.0	29.1	29.0	S. 37	17.5	17.5	17.5	17.5	17.5	17.4
2.8	$\beta$ Aræ	98	52.8	52.9	53.1	53.4	53.5	53.4	S. 55	31.5	31.6	31.6	31.6	31.5	31.4
Var. ‡	$\alpha$ Herculis	101	27.0	27.1	27.2	27.3	27.4	27.4	N. 14	24.1	24.1	24.2	24.1	24.1	24.0
2.6	Sabik	44	102	32.9	32.9	33.1	33.2	33.2	S. 15	42.9	42.9	42.9	42.9	42.9	42.9
3.1	$\zeta$ Aræ	105	33.1	33.2	33.4	33.6	33.7	33.6	S. 55	58.7	58.8	58.8	58.8	58.7	58.6
2.4	$\epsilon$ Scorpii	107	37.3	37.3	37.5	37.6	37.6	37.5	S. 34	16.7	16.7	16.7	16.7	16.6	16.6
1.9	Atria	43	108	05.8	06.0	06.4	06.7	06.9	S. 69	00.9	01.0	01.0	00.9	00.8	00.7
3.0	$\zeta$ Herculis	109	46.2	46.3	46.5	46.6	46.7	46.6	N. 31	37.3	37.4	37.4	37.3	37.2	37.1
2.7	$\zeta$ Ophiuchi	110	50.9	50.9	51.0	51.2	51.2	51.1	S. 10	32.9	32.9	32.9	32.9	32.9	32.9
2.9	$\tau$ Scorpii	111	11.1	11.2	11.3	11.4	11.5	11.4	S. 28	11.9	11.9	11.9	11.9	11.8	11.8
2.8	$\beta$ Herculis	112	33.0	33.1	33.3	33.4	33.5	33.4	N. 21	30.7	30.8	30.8	30.7	30.6	30.5
1.2	Antares	42	112	48.1	48.2	48.3	48.4	48.3	S. 26	24.8	24.8	24.8	24.7	24.7	24.7
2.9	$\eta$ Draconis	114	01.7	01.9	02.3	02.6	02.8	02.8	N. 61	32.4	32.4	32.4	32.3	32.2	32.0
3.0	$\delta$ Ophiuchi	116	32.7	32.7	32.9	33.0	33.0	32.9	S. 3	40.2	40.1	40.1	40.1	40.2	40.2
2.8	$\beta$ Scorpii	118	47.2	47.3	47.4	47.5	47.5	47.4	S. 19	46.8	46.8	46.8	46.8	46.8	46.8
2.5	Dschubba	120	03.9	04.0	04.1	04.2	04.2	04.1	S. 22	35.7	35.7	35.7	35.7	35.7	35.7
3.0	$\pi$ Scorpii	120	26.4	26.4	26.6	26.7	26.7	26.5	S. 26	05.3	05.3	05.3	05.2	05.2	05.2
3.0	$\beta$ Trianguli Aust.	121	26.2	26.4	26.7	26.9	27.0	26.8	S. 63	24.3	24.3	24.3	24.2	24.1	24.0
2.8	$\alpha$ Serpentis	124	03.4	03.5	03.6	03.7	03.7	03.5	N. 6	27.4	27.5	27.5	27.4	27.4	27.3
3.0	$\gamma$ Lupi	126	23.0	23.1	23.3	23.4	23.4	23.2	S. 41	08.2	08.2	08.2	08.1	08.1	08.0
2.3	Alphecca	41	126	26.0	26.1	26.2	26.3	26.2	N. 26	45.0	45.0	45.0	45.0	44.8	44.7



Mag.	Nombres y Números	A.H.S.						Dec.							
		ENE.	FEB.	MAR.	ABR.	MAY.	JUN.	ENE.	FEB.	MAR.	ABR.	MAY.	JUN.		
3·1	γ Ursæ Minoris	129	49·2	48·6	48·1	47·7	47·6	47·8	N. 71	51·9	51·9	51·9	52·0	52·2	52·3
3·1	γ Trianguli Aust.	130	32·3	31·7	31·2	30·7	30·5	30·5	S. 68	38·3	38·3	38·4	38·5	38·7	38·8
2·7	β Libræ	130	53·8	53·6	53·3	53·2	53·1	53·0	S. 9	20·7	20·8	20·9	20·9	20·9	20·8
2·8	β Lupi	135	33·0	32·6	32·4	32·1	32·0	32·0	S. 43	05·4	05·4	05·5	05·6	05·7	05·8
2·2	β Ursæ Minoris 40	137	19·1	18·5	17·9	17·6	17·6	17·8	N. 74	11·6	11·5	11·6	11·7	11·9	12·0
2·9	α Libræ 39	137	26·0	25·7	25·5	25·3	25·2	25·2	S. 15	59·9	60·0	60·0	60·1	60·1	60·1
2·6	ε Bootis	138	52·3	52·1	51·9	51·7	51·7	51·7	N. 27	06·9	06·8	06·8	06·9	07·0	07·1
2·9	α Lupi	139	42·2	41·8	41·5	41·3	41·2	41·2	S. 47	20·4	20·5	20·6	20·7	20·8	20·9
0·1	α Centauri 38	140	17·3	16·9	16·5	16·3	16·2	16·2	S. 60	47·2	47·3	47·4	47·6	47·7	47·8
2·6	η Centauri	141	18·0	17·6	17·4	17·2	17·1	17·1	S. 42	06·6	06·6	06·7	06·8	06·9	07·0
3·0	γ Bootis	142	05·4	05·1	04·9	04·7	04·7	04·7	N. 38	21·0	20·9	20·9	21·0	21·1	21·3
0·2	α Bootis 37	146	12·5	12·3	12·1	11·9	11·9	11·9	N. 19	14·1	14·0	14·0	14·0	14·1	14·2
2·3	θ Centauri 36	148	29·5	29·2	29·0	28·8	28·8	28·8	S. 36	18·9	19·0	19·1	19·3	19·3	19·4
0·9	β Centauri 35	149	14·5	14·0	13·7	13·5	13·4	13·5	S. 60	19·1	19·2	19·3	19·5	19·6	19·7
3·1	ζ Centauri	151	17·3	16·9	16·7	16·5	16·5	16·5	S. 47	14·0	14·1	14·2	14·3	14·4	14·5
2·8	η Bootis	151	27·4	27·2	27·0	26·9	26·9	26·9	N. 18	26·9	26·8	26·8	26·8	26·9	27·0
1·9	η Ursæ Majoris 34	153	13·2	12·8	12·6	12·5	12·5	12·6	N. 49	21·7	21·6	21·7	21·8	21·9	22·0
2·6	ε Centauri	155	12·2	11·9	11·6	11·4	11·4	11·5	S. 53	24·5	24·6	24·8	24·9	25·0	25·1
1·2	α Virginis 33	158	50·7	50·4	50·3	50·2	50·2	50·2	S. 11	06·3	06·4	06·5	06·6	06·6	06·6
2·2	ζ Ursæ Majoris	159	07·4	07·1	06·8	06·7	06·8	06·9	N. 54	58·5	58·5	58·6	58·7	58·9	59·0
2·9	ι Centauri	159	60·3	60·0	59·8	59·7	59·7	59·7	S. 36	39·2	39·3	39·5	39·6	39·7	39·7
3·0	ε Virginis	164	35·4	35·1	35·0	34·9	34·9	35·0	N. 11	00·9	00·8	00·8	00·8	00·9	00·9
2·9	α Canum Venat.	166	07·0	06·7	06·5	06·5	06·5	06·6	N. 38	22·3	22·3	22·3	22·4	22·5	22·6
1·7	ε Ursæ Majoris 32	166	36·4	36·0	35·8	35·7	35·8	36·0	N. 56	00·8	00·8	00·8	01·0	01·1	01·2
1·5	β Crucis	168	13·8	13·5	13·2	13·1	13·2	13·4	S. 59	37·6	37·7	37·9	38·0	38·2	38·2
2·9	γ Virginis	169	43·3	43·0	42·9	42·8	42·9	42·9	S. 1	23·5	23·6	23·6	23·6	23·6	23·6
2·4	γ Centauri	169	46·3	46·0	45·8	45·7	45·8	45·9	S. 48	53·8	54·0	54·1	54·3	54·4	54·4
2·9	α Muscæ	170	52·2	51·7	51·4	51·3	51·5	51·7	S. 69	04·3	04·4	04·6	04·8	04·9	05·0
2·8	β Corvi	171	32·7	32·5	32·3	32·3	32·3	32·4	S. 23	20·2	20·3	20·4	20·5	20·5	20·5
1·6	γ Crucis 31	172	21·6	21·3	21·1	21·0	21·1	21·3	S. 57	02·9	03·1	03·2	03·4	03·5	03·6
1·1	α Crucis 30	173	30·1	29·7	29·5	29·5	29·6	29·8	S. 63	02·1	02·3	02·4	02·6	02·7	02·8
2·8	γ Corvi 29	176	11·2	11·0	10·9	10·8	10·8	10·9	S. 17	28·9	29·0	29·1	29·2	29·2	29·2
2·9	δ Centauri	178	03·0	02·8	02·6	02·6	02·7	02·8	S. 50	39·5	39·7	39·8	40·0	40·1	40·1
2·5	γ Ursæ Majoris	181	40·6	40·3	40·2	40·2	40·3	40·5	N. 53	45·0	45·0	45·1	45·3	45·4	45·4
2·2	β Leonis 28	182	52·2	52·0	51·9	51·9	51·9	52·0	N. 14	37·8	37·8	37·8	37·8	37·8	37·9
2·6	δ Leonis	191	36·7	36·5	36·5	36·5	36·5	36·6	N. 20	34·9	34·8	34·8	34·9	34·9	35·0
3·2	ψ Ursæ Majoris	192	43·7	43·5	43·4	43·4	43·6	43·7	N. 44	33·2	33·3	33·3	33·4	33·5	33·6
2·0	α Ursæ Majoris 27	194	13·3	13·0	12·9	13·0	13·2	13·5	N. 61	48·3	48·4	48·5	48·6	48·7	48·7
2·4	β Ursæ Majoris	194	41·5	41·3	41·2	41·2	41·4	41·6	N. 56	26·2	26·3	26·4	26·5	26·6	26·6
2·8	μ Velorum	198	25·3	25·1	25·0	25·1	25·3	25·4	S. 49	21·6	21·7	21·9	22·0	22·1	22·1
3·0	θ Carinæ	199	21·2	21·0	20·9	21·1	21·4	21·7	S. 64	20·0	20·2	20·4	20·5	20·6	20·7
2·3	γ Leonis	205	09·0	08·9	08·8	08·9	09·0	09·1	N. 19	53·7	53·7	53·7	53·8	53·8	53·8
1·3	α Leonis 26	208	02·7	02·6	02·6	02·6	02·7	02·8	N. 12	01·2	01·1	01·1	01·1	01·2	01·2
3·1	ε Leonis	213	41·1	40·9	40·9	41·0	41·1	41·2	N. 23	49·4	49·4	49·4	49·5	49·5	49·5
3·0	N Velorum	217	16·2	16·1	16·2	16·4	16·6	16·9	S. 56	59·0	59·2	59·4	59·5	59·5	59·5
2·2	α Hydræ 25	218	13·9	13·8	13·8	13·9	14·0	14·0	S. 8	36·6	36·7	36·8	36·8	36·8	36·8
2·6	κ Velorum	219	32·9	32·9	32·9	33·1	33·4	33·6	S. 54	57·7	57·9	58·0	58·1	58·2	58·1
2·2	ι Carinæ	220	47·6	47·5	47·6	47·8	48·1	48·3	S. 59	13·6	13·8	14·0	14·1	14·1	14·1
1·8	β Carinæ 24	221	43·1	43·0	43·2	43·6	44·0	44·4	S. 69	40·2	40·3	40·5	40·6	40·7	40·6
2·2	λ Velorum 23	223	05·7	05·6	05·7	05·8	06·0	06·2	S. 43	23·2	23·3	23·5	23·6	23·6	23·5
3·1	ι Ursæ Majoris	225	22·4	22·2	22·3	22·4	22·6	22·7	N. 48	05·0	05·1	05·2	05·3	05·3	05·2
2·0	δ Velorum	228	53·5	53·4	53·6	53·8	54·0	54·2	S. 54	40·0	40·1	40·3	40·4	40·4	40·3
1·7	ε Carinæ 22	234	25·1	25·1	25·3	25·6	25·9	26·1	S. 59	28·3	28·5	28·7	28·7	28·7	28·7
1·9	γ Velorum	237	41·6	41·6	41·7	41·9	42·1	42·3	S. 47	18·2	18·3	18·4	18·5	18·5	18·4
2·9	ρ Puppis	238	13·4	13·4	13·5	13·6	13·7	13·8	S. 24	16·3	16·4	16·5	16·5	16·5	16·4
2·3	ζ Puppis	239	11·6	11·5	11·7	11·8	12·0	12·1	S. 39	58·2	58·4	58·5	58·6	58·5	58·5
1·2	β Geminorum 21	243	49·8	49·7	49·8	49·9	50·0	50·1	N. 28	03·2	03·3	03·3	03·3	03·3	03·3
0·5	α Canis Minoris 20	245	18·6	18·6	18·7	18·8	18·9	18·9	N. 5	15·3	15·2	15·2	15·2	15·2	15·2



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			JUL.	AGO.	SEP.	OCT.	NOV.	DIC.		JUL.	AGO.	SEP.	OCT.	NOV.	DIC.
3.1	γ Ursæ Minoris	129	48.2	48.7	49.2	49.6	49.8	49.6	N. 71	52.4	52.5	52.4	52.3	52.1	51.9
3.1	γ Trianguli Aust.	130	30.6	31.0	31.3	31.6	31.5	31.2	S. 68	38.9	38.9	38.9	38.8	38.6	38.5
2.7	β Libræ	130	53.1	53.1	53.2	53.3	53.3	53.1	S. 9	20.8	20.8	20.8	20.8	20.8	20.9
2.8	β Lupi	135	32.1	32.2	32.3	32.4	32.4	32.2	S. 43	05.8	05.8	05.8	05.7	05.6	05.6
2.2	Kochab 40	137	18.3	18.9	19.5	19.9	20.0	19.8	N. 74	12.1	12.1	12.0	11.8	11.6	11.5
2.9	Zubenelgenubi 39	137	25.3	25.4	25.5	25.5	25.5	25.3	S. 16	00.1	00.1	00.0	00.0	00.0	00.1
2.6	ε Bootis	138	51.7	51.9	52.0	52.1	52.0	51.9	N. 27	07.1	07.2	07.1	07.0	06.9	06.8
2.9	α Lupi	139	41.3	41.4	41.6	41.7	41.6	41.4	S. 47	20.9	20.9	20.9	20.8	20.7	20.7
0.1	Rigil Kent. 38	140	16.4	16.6	16.9	17.0	16.9	16.6	S. 60	47.9	47.9	47.8	47.7	47.6	47.5
2.6	η Centauri	141	17.2	17.3	17.4	17.5	17.4	17.2	S. 42	07.0	07.0	07.0	06.9	06.8	06.8
3.0	γ Bootis	142	04.8	05.0	05.1	05.2	05.2	05.0	N. 38	21.3	21.3	21.3	21.2	21.0	20.9
0.2	Arcturus 37	146	12.0	12.1	12.2	12.2	12.2	12.0	N. 19	14.2	14.2	14.2	14.1	14.0	13.9
2.3	Menkent 36	148	28.9	29.0	29.1	29.1	29.0	28.8	S. 36	19.4	19.4	19.3	19.2	19.2	19.2
0.9	Hadar 35	149	13.7	13.9	14.1	14.2	14.0	13.7	S. 60	19.8	19.7	19.7	19.5	19.4	19.4
3.1	ζ Centauri	151	16.6	16.8	16.9	16.9	16.8	16.6	S. 47	14.5	14.5	14.4	14.3	14.3	14.2
2.8	η Bootis	151	27.0	27.1	27.2	27.2	27.1	26.9	N. 18	27.0	27.0	27.0	26.9	26.8	26.7
1.9	Alkaid 34	153	12.8	13.0	13.1	13.2	13.1	12.9	N. 49	22.1	22.1	22.0	21.8	21.6	21.5
2.6	ε Centauri	155	11.6	11.8	11.9	12.0	11.8	11.5	S. 53	25.1	25.1	25.0	24.9	24.8	24.8
1.2	Spica 33	158	50.3	50.3	50.4	50.4	50.3	50.1	S. 11	06.5	06.5	06.5	06.5	06.5	06.6
2.2	Mizar	159	07.1	07.3	07.5	07.5	07.4	07.2	N. 54	59.0	58.9	58.8	58.7	58.5	58.3
2.9	ι Centauri	159	59.8	59.9	60.0	60.0	59.9	59.6	S. 36	39.7	39.7	39.6	39.5	39.5	39.5
3.0	ε Virginis	164	35.0	35.1	35.2	35.1	35.0	34.8	N. 11	00.9	00.9	00.9	00.9	00.8	00.6
2.9	Cor Caroli	166	06.7	06.8	06.9	06.9	06.8	06.5	N. 38	22.6	22.6	22.5	22.4	22.2	22.1
1.7	Alioth 32	166	36.2	36.4	36.5	36.5	36.4	36.1	N. 56	01.2	01.1	01.0	00.8	00.7	00.5
1.5	Mimosa	168	13.6	13.8	13.9	13.9	13.6	13.3	S. 59	38.2	38.2	38.1	37.9	37.9	37.8
2.9	γ Virginis	169	43.0	43.0	43.1	43.0	42.9	42.7	S. 1	23.6	23.5	23.5	23.6	23.6	23.7
2.4	Muhlifain	169	46.0	46.2	46.3	46.2	46.0	45.7	S. 48	54.4	54.4	54.3	54.2	54.1	54.1
2.9	α Muscæ	170	52.1	52.4	52.6	52.5	52.2	51.7	S. 69	05.0	05.0	04.9	04.7	04.6	04.6
2.8	β Corvi	171	32.4	32.5	32.5	32.5	32.3	32.1	S. 23	20.5	20.5	20.4	20.3	20.4	20.4
1.6	Gacrux 31	172	21.4	21.6	21.7	21.7	21.4	21.1	S. 57	03.6	03.5	03.4	03.3	03.2	03.2
1.1	Acrux 30	173	30.0	30.3	30.4	30.3	30.0	29.6	S. 63	02.8	02.7	02.6	02.5	02.4	02.4
2.8	Gienah 29	176	11.0	11.1	11.1	11.0	10.9	10.6	S. 17	29.2	29.1	29.1	29.0	29.1	29.1
2.9	δ Centauri	178	03.0	03.1	03.2	03.1	02.8	02.5	S. 50	40.1	40.1	39.9	39.8	39.8	39.8
2.5	Phecda	181	40.6	40.8	40.8	40.7	40.5	40.2	N. 53	45.4	45.3	45.2	45.0	44.8	44.7
2.2	Denebola 28	182	52.1	52.1	52.1	52.0	51.9	51.6	N. 14	37.9	37.9	37.9	37.8	37.7	37.6
2.6	δ Leonis	191	36.7	36.7	36.7	36.6	36.4	36.1	N. 20	35.0	34.9	34.9	34.8	34.7	34.6
3.2	ψ Ursæ Majoris	192	43.8	43.9	43.8	43.7	43.5	43.1	N. 44	33.5	33.4	33.3	33.2	33.0	32.9
2.0	Dubhe 27	194	13.7	13.8	13.7	13.6	13.2	12.8	N. 61	48.7	48.6	48.4	48.2	48.1	48.0
2.4	Merak	194	41.8	41.8	41.8	41.6	41.3	41.0	N. 56	26.5	26.4	26.3	26.1	26.0	25.9
2.8	μ Velorum	198	25.6	25.6	25.6	25.5	25.2	24.8	S. 49	22.1	22.0	21.8	21.7	21.7	21.8
3.0	θ Carinæ	199	21.9	22.1	22.0	21.8	21.4	21.0	S. 64	20.6	20.5	20.3	20.2	20.2	20.2
2.3	Algeiba	205	09.1	09.1	09.0	08.9	08.6	08.4	N. 19	53.8	53.8	53.7	53.7	53.5	53.4
1.3	Regulus 26	208	02.8	02.8	02.7	02.6	02.4	02.1	N. 12	01.2	01.2	01.2	01.1	01.0	00.9
3.1	ε Leonis	213	41.2	41.2	41.1	40.9	40.6	40.4	N. 23	49.5	49.5	49.4	49.3	49.2	49.1
3.0	N Velorum	217	17.0	17.1	16.9	16.7	16.3	16.0	S. 56	59.4	59.2	59.1	59.0	59.0	59.1
2.2	Alphard 25	218	14.1	14.0	13.9	13.7	13.5	13.3	S. 8	36.7	36.7	36.6	36.6	36.7	36.8
2.6	κ Velorum	219	33.7	33.7	33.6	33.3	33.0	32.6	S. 54	58.0	57.9	57.7	57.7	57.7	57.8
2.2	ι Carinæ	220	48.5	48.5	48.4	48.1	47.7	47.3	S. 59	14.0	13.8	13.7	13.6	13.6	13.7
1.8	Miaplacidus 24	221	44.7	44.8	44.6	44.2	43.7	43.2	S. 69	40.5	40.4	40.2	40.1	40.2	40.3
2.2	Suhail 23	223	06.2	06.2	06.1	05.9	05.6	05.3	S. 43	23.4	23.3	23.2	23.1	23.2	23.3
3.1	ι Ursæ Majoris	225	22.7	22.7	22.5	22.2	21.9	21.5	N. 48	05.2	05.1	05.0	04.8	04.8	04.7
2.0	δ Velorum	228	54.3	54.3	54.1	53.9	53.5	53.2	S. 54	40.2	40.0	39.9	39.9	39.9	40.0
1.7	Avior 22	234	26.2	26.1	25.9	25.6	25.2	24.9	S. 59	28.5	28.4	28.2	28.2	28.2	28.4
1.9	γ Velorum	237	42.3	42.2	42.0	41.8	41.5	41.2	S. 47	18.3	18.1	18.0	18.0	18.0	18.2
2.9	ρ Puppis	238	13.8	13.7	13.5	13.3	13.1	12.8	S. 24	16.3	16.2	16.1	16.1	16.2	16.3
2.3	ζ Puppis	239	12.1	12.0	11.9	11.6	11.3	11.1	S. 39	58.3	58.2	58.1	58.1	58.1	58.3
1.2	Pollux 21	243	50.0	49.9	49.7	49.4	49.2	48.9	N. 28	03.3	03.2	03.2	03.1	03.1	03.1
0.5	Procyon 20	245	18.9	18.7	18.5	18.3	18.1	17.9	N. 5	15.3	15.3	15.3	15.3	15.2	15.1



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			ENE.	FEB.	MAR.	ABR.	MAY.	JUN.		ENE.	FEB.	MAR.	ABR.	MAY.	JUN.
1-6	α Geminorum	246	30·9	30·9	31·0	31·1	31·2	31·2	N. 31	54·8	54·9	54·9	54·9	54·9	54·9
3-3	σ Puppis	247	46·3	46·3	46·4	46·6	46·8	46·9	S. 43	16·7	16·8	16·9	17·0	16·9	16·8
3-1	β Canis Minoris	248	21·2	21·2	21·2	21·4	21·4	21·5	N. 8	18·8	18·7	18·7	18·7	18·7	18·8
2-4	η Canis Majoris	249	04·6	04·6	04·8	04·9	05·0	05·1	S. 29	16·8	17·0	17·0	17·1	17·0	16·9
2-7	π Puppis	250	48·2	48·2	48·4	48·5	48·7	48·8	S. 37	04·6	04·7	04·8	04·8	04·8	04·7
2-0	δ Canis Majoris	253	00·4	00·4	00·5	00·7	00·8	00·8	S. 26	22·5	22·6	22·7	22·7	22·6	22·5
3-1	ο Canis Majoris	254	21·1	21·1	21·2	21·3	21·5	21·5	S. 23	49·0	49·1	49·1	49·2	49·1	49·0
1-6	ε Canis Majoris	19 255	26·6	26·7	26·8	26·9	27·1	27·1	S. 28	57·4	57·5	57·6	57·6	57·5	57·4
2-8	τ Puppis	257	34·5	34·6	34·8	35·0	35·3	35·4	S. 50	36·0	36·2	36·3	36·3	36·2	36·1
-1-6	α Canis Majoris	18 258	49·6	49·6	49·7	49·9	50·0	50·0	S. 16	42·0	42·1	42·2	42·2	42·1	42·0
1-9	γ Geminorum	260	43·3	43·3	43·4	43·6	43·6	43·6	N. 16	24·7	24·6	24·6	24·6	24·6	24·7
-0-9	α Carinae	17 264	03·8	03·9	04·2	04·4	04·6	04·7	S. 52	41·3	41·5	41·6	41·5	41·5	41·3
2-0	β Canis Majoris	264	26·3	26·4	26·5	26·6	26·7	26·7	S. 17	57·0	57·1	57·1	57·1	57·0	56·9
2-7	θ Aurigæ	270	14·8	14·9	15·0	15·2	15·3	15·2	N. 37	12·9	13·0	13·0	13·0	12·9	12·9
2-1	β Aurigæ	270	18·5	18·6	18·7	18·9	19·0	19·0	N. 44	57·0	57·1	57·1	57·1	57·0	57·0
Var. ‡	α Orionis	16 271	20·9	20·9	21·0	21·2	21·2	21·2	N. 7	24·4	24·4	24·4	24·4	24·4	24·5
2-2	κ Orionis	273	11·0	11·1	11·2	11·3	11·4	11·4	S. 9	40·3	40·4	40·4	40·4	40·3	40·3
1-9	ζ Orionis	274	56·5	56·6	56·7	56·8	56·9	56·8	S. 1	56·8	56·8	56·9	56·9	56·8	56·7
2-8	α Columbæ	275	10·8	10·9	11·0	11·2	11·3	11·3	S. 34	04·8	04·9	04·9	04·9	04·8	04·7
3-0	ζ Tauri	275	44·7	44·8	44·9	45·0	45·1	45·0	N. 21	08·3	08·3	08·3	08·3	08·3	08·3
1-8	ε Orionis	15 276	04·7	04·8	04·9	05·0	05·1	05·0	S. 1	12·4	12·5	12·5	12·5	12·4	12·4
2-9	ι Orionis	276	16·1	16·2	16·3	16·4	16·5	16·5	S. 5	54·9	55·0	55·0	55·0	54·9	54·9
2-7	α Leporis	276	55·9	56·0	56·1	56·2	56·3	56·3	S. 17	49·7	49·8	49·8	49·8	49·7	49·6
2-5	δ Orionis	277	07·9	08·0	08·1	08·2	08·2	08·2	S. 0	18·3	18·4	18·4	18·4	18·3	18·3
3-0	β Leporis	278	03·0	03·0	03·2	03·3	03·4	03·4	S. 20	46·0	46·1	46·1	46·1	46·0	45·9
1-8	β Tauri	14 278	35·6	35·6	35·7	35·9	35·9	35·9	N. 28	36·1	36·1	36·1	36·1	36·1	36·1
1-7	γ Orionis	13 278	51·5	51·5	51·6	51·7	51·8	51·7	N. 6	20·5	20·5	20·5	20·5	20·5	20·6
0-2	α Aurigæ	12 281	01·3	01·4	01·5	01·7	01·8	01·7	N. 45	59·5	59·6	59·6	59·5	59·5	59·4
0-3	β Orionis	11 281	29·4	29·5	29·6	29·8	29·8	29·8	S. 8	12·8	12·8	12·8	12·8	12·8	12·7
2-9	β Eridani	283	10·0	10·0	10·1	10·3	10·3	10·3	S. 5	05·9	06·0	06·0	06·0	05·9	05·9
2-9	ι Aurigæ	285	55·4	55·5	55·6	55·7	55·8	55·7	N. 33	09·2	09·2	09·2	09·2	09·1	09·1
1-1	α Tauri	10 291	10·3	10·3	10·5	10·6	10·6	10·5	N. 16	29·4	29·4	29·4	29·4	29·4	29·4
3-2	γ Eridani	300	36·9	37·0	37·1	37·2	37·2	37·1	S. 13	32·3	32·4	32·4	32·3	32·2	32·1
3-0	ε Persei	300	42·9	43·0	43·2	43·3	43·3	43·1	N. 39	59·0	59·0	59·0	59·0	58·9	58·9
2-9	ζ Persei	301	38·1	38·2	38·3	38·4	38·4	38·2	N. 31	51·3	51·3	51·3	51·3	51·2	51·2
3-0	η Tauri	303	17·2	17·3	17·4	17·5	17·5	17·4	N. 24	04·5	04·5	04·5	04·5	04·4	04·4
1-9	α Persei	9 309	06·7	06·8	07·0	07·1	07·1	06·9	N. 49	49·7	49·7	49·7	49·6	49·5	49·4
Var. §	β Persei	313	08·0	08·1	08·2	08·3	08·3	08·1	N. 40	55·1	55·1	55·1	55·0	55·0	54·9
2-8	α Ceti	8 314	34·2	34·3	34·4	34·4	34·4	34·2	N. 4	02·9	02·9	02·9	02·9	03·0	03·0
3-1	θ Eridani	7 315	32·0	32·2	32·3	32·4	32·4	32·3	S. 40	21·0	21·0	21·0	20·9	20·7	20·5
2-1	α Ursæ Minoris	324	57·1	67·8	76·6	80·9	78·0	69·7	N. 89	13·3	13·4	13·3	13·1	13·0	12·9
3-1	β Trianguli	327	46·6	46·7	46·8	46·8	46·7	46·5	N. 34	56·4	56·4	56·3	56·3	56·2	56·2
2-2	α Arietis	6 328	21·6	21·7	21·7	21·8	21·7	21·5	N. 23	24·9	24·8	24·8	24·7	24·7	24·8
2-2	γ Andromedæ	329	11·6	11·7	11·8	11·8	11·7	11·5	N. 42	16·9	16·9	16·8	16·8	16·7	16·7
3-0	α Hydri	330	23·2	23·5	23·8	23·9	23·8	23·6	S. 61	37·6	37·6	37·4	37·3	37·1	36·9
2-7	β Arietis	331	29·4	29·5	29·6	29·6	29·5	29·3	N. 20	45·5	45·4	45·4	45·4	45·4	45·4
0-6	α Eridani	5 335	40·1	40·3	40·5	40·5	40·4	40·2	S. 57	17·7	17·7	17·6	17·4	17·2	17·1
2-8	δ Cassiopeiæ	338	43·7	43·9	44·1	44·1	43·9	43·6	N. 60	11·1	11·0	10·9	10·8	10·7	10·7
2-4	β Andromedæ	342	43·3	43·4	43·4	43·4	43·3	43·0	N. 35	34·0	33·9	33·9	33·8	33·8	33·8
Var.	γ Cassiopeiæ	345	59·6	59·8	60·0	59·9	59·7	59·3	N. 60	39·8	39·7	39·6	39·5	39·4	39·4
2-2	β Ceti	4 349	14·3	14·4	14·4	14·4	14·2	14·0	S. 18	02·9	02·9	02·8	02·7	02·6	02·5
2-5	α Cassiopeiæ	3 350	02·0	02·2	02·3	02·2	02·0	01·6	N. 56	29·0	28·9	28·8	28·7	28·6	28·6
2-4	α Phœnicis	2 353	33·7	33·8	33·9	33·8	33·7	33·4	S. 42	22·1	22·1	22·0	21·8	21·6	21·5
2-9	β Hydri	353	41·9	42·4	42·7	42·6	42·2	41·5	S. 77	19·2	19·1	18·9	18·7	18·6	18·4
2-9	γ Pegasi	356	50·0	50·0	50·1	50·0	49·8	49·6	N. 15	07·4	07·4	07·4	07·3	07·4	07·5
2-4	β Cassiopeiæ	357	51·5	51·7	51·8	51·7	51·4	51·0	N. 59	05·7	05·6	05·4	05·3	05·3	05·3
2-2	α Andromedæ	1 358	02·8	02·9	02·9	02·8	02·6	02·4	N. 29	02·0	01·9	01·8	01·8	01·8	01·8

‡ 0·1—1·2 § 2·3—3·5 || Variable irregular; 1986 mag. 2·3



Mag.	Nombres y Números	A. H. S.						Dec.								
			JUL.	AGO.	SEP.	OCT.	NOV.	DIC.		JUL.	AGO.	SEP.	OCT.	NOV.	DIC.	
1.6	<i>Castor</i>		246	31.2	31.0	30.8	30.6	30.3	30.0	N. 31	54.9	54.8	54.8	54.7	54.7	54.7
3.3	$\alpha$ <i>Puppis</i>		247	46.9	46.8	46.6	46.3	46.1	45.8	S. 43	16.7	16.5	16.4	16.4	16.5	16.7
3.1	$\beta$ <i>Canis Minoris</i>		248	21.4	21.3	21.1	20.9	20.6	20.4	N. 8	18.8	18.8	18.8	18.8	18.7	18.7
2.4	$\eta$ <i>Canis Majoris</i>		249	05.1	05.0	04.8	04.5	04.3	04.1	S. 29	16.8	16.7	16.6	16.6	16.7	16.8
2.7	$\pi$ <i>Puppis</i>		250	48.7	48.6	48.4	48.2	47.9	47.7	S. 37	04.6	04.4	04.3	04.3	04.4	04.6
2.0	<i>Wezen</i>		252	60.8	60.7	60.5	60.2	60.0	59.8	S. 26	22.4	22.3	22.2	22.2	22.3	22.5
3.1	$\circ$ <i>Canis Majoris</i>		254	21.4	21.3	21.1	20.9	20.6	20.5	S. 23	48.9	48.8	48.7	48.7	48.8	48.9
1.6	<i>Adhara</i>	19	255	27.1	26.9	26.7	26.5	26.2	26.1	S. 28	57.3	57.2	57.1	57.1	57.2	57.3
2.8	$\tau$ <i>Puppis</i>		257	35.3	35.2	34.9	34.6	34.3	34.1	S. 50	35.9	35.8	35.7	35.7	35.8	36.0
-1.6	<i>Sirius</i>	18	258	49.9	49.8	49.6	49.3	49.1	48.9	S. 16	41.9	41.8	41.8	41.8	41.9	42.0
1.9	<i>Alhena</i>		260	43.6	43.4	43.2	42.9	42.7	42.5	N. 16	24.7	24.7	24.7	24.7	24.6	24.6
-0.9	<i>Canopus</i>	17	264	04.7	04.5	04.2	03.9	03.6	03.4	S. 52	41.2	41.0	40.9	41.0	41.1	41.2
2.0	<i>Mirzam</i>		264	26.6	26.5	26.3	26.0	25.8	25.7	S. 17	56.8	56.7	56.7	56.7	56.8	56.9
2.7	$\theta$ <i>Aurigæ</i>		270	15.1	14.8	14.6	14.3	14.0	13.8	N. 37	12.8	12.8	12.8	12.8	12.8	12.8
2.1	<i>Menkalinan</i>		270	18.8	18.5	18.2	17.9	17.6	17.4	N. 44	56.9	56.9	56.8	56.8	56.9	56.9
Var. †	<i>Betelgeuse</i>	16	271	21.1	20.9	20.7	20.4	20.2	20.1	N. 7	24.5	24.5	24.6	24.6	24.5	24.5
2.2	$\kappa$ <i>Orionis</i>		273	11.3	11.1	10.9	10.6	10.4	10.3	S. 9	40.2	40.1	40.0	40.1	40.1	40.2
1.9	<i>Alnitak</i>		274	56.7	56.5	56.3	56.1	55.9	55.7	S. 1	56.7	56.6	56.6	56.6	56.6	56.7
2.8	<i>Phact</i>		275	11.2	11.0	10.8	10.5	10.3	10.2	S. 34	04.5	04.4	04.3	04.4	04.5	04.6
3.0	$\zeta$ <i>Tauri</i>		275	44.9	44.6	44.4	44.2	43.9	43.8	N. 21	08.3	08.3	08.4	08.4	08.4	08.3
1.8	<i>Alnilam</i>	15	276	04.9	04.7	04.5	04.3	04.1	03.9	S. 1	12.3	12.2	12.2	12.2	12.3	12.3
2.9	$\iota$ <i>Orionis</i>		276	16.3	16.1	15.9	15.7	15.5	15.4	S. 5	54.8	54.7	54.7	54.7	54.7	54.8
2.7	$\alpha$ <i>Leporis</i>		276	56.2	56.0	55.7	55.5	55.3	55.2	S. 17	49.5	49.4	49.4	49.4	49.5	49.6
2.5	$\delta$ <i>Orionis</i>		277	08.1	07.9	07.6	07.4	07.2	07.1	S. 0	18.2	18.1	18.1	18.1	18.2	18.2
3.0	$\beta$ <i>Leporis</i>		278	03.2	03.0	02.8	02.6	02.4	02.3	S. 20	45.8	45.7	45.7	45.7	45.8	45.9
1.8	<i>Elnath</i>	14	278	35.7	35.5	35.2	35.0	34.7	34.6	N. 28	36.1	36.1	36.1	36.1	36.1	36.1
1.7	<i>Bellatrix</i>	13	278	51.6	51.4	51.2	50.9	50.7	50.6	N. 6	20.6	20.7	20.7	20.7	20.7	20.6
0.2	<i>Capella</i>	12	281	01.5	01.2	00.9	00.6	00.3	00.1	N. 45	59.3	59.3	59.3	59.3	59.4	59.5
0.3	<i>Rigel</i>	11	281	29.6	29.4	29.2	29.0	28.8	28.7	S. 8	12.6	12.5	12.5	12.5	12.5	12.6
2.9	$\beta$ <i>Eridani</i>		283	10.1	09.9	09.7	09.5	09.3	09.2	S. 5	05.8	05.7	05.6	05.7	05.7	05.8
2.9	$\iota$ <i>Aurigæ</i>		285	55.5	55.2	54.9	54.7	54.5	54.3	N. 33	09.1	09.1	09.1	09.2	09.2	09.2
1.1	<i>Aldebaran</i>	10	291	10.3	10.1	09.8	09.6	09.4	09.3	N. 16	29.5	29.5	29.5	29.6	29.6	29.5
3.2	$\gamma$ <i>Eridani</i>		300	37.0	36.7	36.5	36.3	36.2	36.1	S. 13	32.0	31.9	31.9	31.9	32.0	32.1
3.0	$\epsilon$ <i>Persei</i>		300	42.9	42.6	42.3	42.0	41.9	41.8	N. 39	58.8	58.9	58.9	59.0	59.1	59.1
2.9	$\zeta$ <i>Persei</i>		301	38.0	37.7	37.5	37.2	37.1	37.0	N. 31	51.2	51.3	51.3	51.4	51.4	51.5
3.0	<i>Alcyone</i>		303	17.2	16.9	16.6	16.4	16.3	16.2	N. 24	04.5	04.5	04.6	04.6	04.7	04.7
1.9	<i>Mirfak</i>	9	309	06.6	06.2	05.9	05.6	05.4	05.4	N. 49	49.4	49.5	49.5	49.6	49.7	49.8
Var. §	<i>Algol</i>		313	07.8	07.5	07.2	07.0	06.8	06.8	N. 40	54.9	55.0	55.1	55.2	55.3	55.3
2.8	<i>Menkar</i>	8	314	34.0	33.8	33.6	33.4	33.3	33.3	N. 4	03.1	03.2	03.2	03.3	03.2	03.2
3.1	<i>Acamar</i>	7	315	32.0	31.7	31.5	31.3	31.2	31.3	S. 40	20.4	20.3	20.3	20.4	20.6	20.7
2.1	<i>Polaris</i>		324	57.8	45.1	34.3	27.1	25.0	29.4	N. 89	12.8	12.9	13.0	13.2	13.4	13.5
3.1	$\beta$ <i>Trianguli</i>		327	46.2	45.9	45.7	45.5	45.5	45.5	N. 34	56.3	56.4	56.5	56.6	56.6	56.7
2.2	<i>Hamal</i>	6	328	21.2	21.0	20.7	20.6	20.5	20.5	N. 23	24.8	24.9	25.0	25.1	25.1	25.2
2.2	<i>Almak</i>		329	11.2	10.9	10.6	10.5	10.4	10.4	N. 42	16.7	16.8	16.9	17.1	17.2	17.2
3.0	$\alpha$ <i>Hydri</i>		330	23.2	22.8	22.5	22.3	22.3	22.5	S. 61	36.8	36.8	36.8	37.0	37.1	37.2
2.7	<i>Sheratan</i>		331	29.0	28.8	28.6	28.4	28.4	28.4	N. 20	45.5	45.6	45.7	45.7	45.8	45.8
0.6	<i>Achernar</i>	5	335	39.9	39.5	39.2	39.1	39.1	39.3	S. 57	17.0	16.9	17.0	17.1	17.3	17.4
2.8	<i>Ruchbah</i>		338	43.1	42.7	42.4	42.3	42.2	42.4	N. 60	10.7	10.8	11.0	11.1	11.3	11.4
2.4	<i>Mirach</i>		342	42.7	42.5	42.3	42.2	42.2	42.2	N. 35	33.9	34.0	34.1	34.2	34.3	34.3
Var.	$\gamma$ <i>Cassiopeiæ</i>		345	58.9	58.5	58.2	58.1	58.2	58.3	N. 60	39.4	39.6	39.7	39.9	40.0	40.1
2.2	<i>Diphda</i>	4	349	13.8	13.6	13.4	13.3	13.4	13.4	S. 18	02.4	02.3	02.3	02.4	02.4	02.5
2.5	<i>Schedar</i>	3	350	01.3	00.9	00.7	00.6	00.7	00.8	N. 56	28.6	28.8	28.9	29.1	29.2	29.3
2.4	<i>Ankaa</i>	2	353	33.1	32.8	32.7	32.6	32.7	32.8	S. 42	21.4	21.4	21.5	21.6	21.7	21.8
2.9	$\beta$ <i>Hydri</i>		353	40.7	40.0	39.5	39.5	39.9	40.5	S. 77	18.4	18.4	18.5	18.7	18.8	18.9
2.9	<i>Algenib</i>		356	49.3	49.1	49.0	49.0	49.0	49.0	N. 15	07.6	07.7	07.8	07.8	07.9	07.8
2.4	<i>Caph</i>		357	50.6	50.3	50.1	50.1	50.2	50.3	N. 59	05.3	05.5	05.7	05.8	06.0	06.0
2.2	<i>Alpheratz</i>	1	358	02.1	01.9	01.8	01.7	01.8	01.8	N. 29	01.9	02.1	02.2	02.3	02.3	02.4

† 0.1—1.2 § 2.3—3.5 || Variable irregular; 1986 mag. 2.3



**ESTRELLA POLAR. TABLAS PARA, 1989**

PARA DETERMINAR, LA LATITUD CONFORME ALTURA DE SEXTANTE Y EL AZIMUT.

A.H.L. ARIES	0°- 9°	10°- 19°	20°- 29°	30°- 39°	40°- 49°	50°- 59°	60°- 69°	70°- 79°	80°- 89°	90°- 99°	100°- 109°	110°- 119°
	$a_0$	$a_0$	$a_0$	$a_0$	$a_0$	$a_0$	$a_0$	$a_0$	$a_0$	$a_0$	$a_0$	$a_0$
0	20.6	16.5	13.6	12.2	12.2	13.6	16.4	20.5	25.8	32.1	39.2	46.9
1	20.2	16.1	13.4	12.1	12.3	13.8	16.8	21.0	26.4	32.8	40.0	47.7
2	19.7	15.8	13.2	12.1	12.3	14.0	17.1	21.5	27.0	33.5	40.7	48.5
3	19.3	15.5	13.1	12.0	12.4	14.3	17.5	22.0	27.6	34.2	41.5	49.3
4	18.8	15.2	12.9	12.0	12.6	14.6	17.9	22.5	28.2	34.9	42.3	50.1
5	18.4	14.9	12.7	12.0	12.7	14.8	18.3	23.0	28.9	35.6	43.0	50.9
6	18.0	14.6	12.6	12.0	12.9	15.1	18.7	23.6	29.5	36.3	43.8	51.8
7	17.6	14.4	12.5	12.0	13.0	15.4	19.2	24.1	30.1	37.0	44.6	52.6
8	17.2	14.1	12.4	12.1	13.2	15.7	19.6	24.7	30.8	37.8	45.4	53.4
9	16.9	13.9	12.3	12.1	13.4	16.1	20.1	25.3	31.5	38.5	46.2	54.2
10	16.5	13.6	12.2	12.2	13.6	16.4	20.5	25.8	32.1	39.2	46.9	55.0
Lat.	$a_1$	$a_1$	$a_1$	$a_1$	$a_1$	$a_1$	$a_1$	$a_1$	$a_1$	$a_1$	$a_1$	$a_1$
0	0.5	0.6	0.6	0.6	0.6	0.6	0.5	0.4	0.4	0.3	0.3	0.2
10	.5	.6	.6	.6	.6	.6	.5	.5	.4	.4	.3	.3
20	.5	.6	.6	.6	.6	.6	.5	.5	.4	.4	.4	.3
30	.6	.6	.6	.6	.6	.6	.6	.5	.5	.5	.4	.4
40	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.5	0.5	0.5	0.5
45	.6	.6	.6	.6	.6	.6	.6	.6	.6	.6	.5	.5
50	.6	.6	.6	.6	.6	.6	.6	.6	.6	.6	.6	.6
55	.6	.6	.6	.6	.6	.6	.6	.6	.6	.7	.7	.7
60	.6	.6	.6	.6	.6	.6	.6	.7	.7	.7	.8	.8
62	0.7	0.6	0.6	0.6	0.6	0.6	0.7	0.7	0.7	0.8	0.8	0.8
64	.7	.6	.6	.6	.6	.6	.7	.7	.8	.8	.8	.9
66	.7	.6	.6	.6	.6	.6	.7	.7	.8	.9	0.9	0.9
68	0.7	0.6	0.6	0.6	0.6	0.6	0.7	0.8	0.8	0.9	1.0	1.0
Mes.	$a_2$	$a_2$	$a_2$	$a_2$	$a_2$	$a_2$	$a_2$	$a_2$	$a_2$	$a_2$	$a_2$	$a_2$
Ene.	0.7	0.7	0.7	0.7	0.8	0.8	0.8	0.7	0.7	0.7	0.7	0.7
Feb.	.6	.7	.7	.7	.8	.8	.8	.8	.9	.8	.8	.8
Mar.	.5	.6	.6	.7	.7	.8	.8	.9	.9	.9	.9	0.9
Abr.	0.4	0.4	0.5	0.5	0.6	0.7	0.7	0.8	0.8	0.9	0.9	1.0
May.	.2	.3	.3	.4	.4	.5	.6	.7	.7	.8	.8	0.9
Jun.	.2	.2	.2	.3	.3	.4	.4	.5	.6	.6	.7	.8
Jul.	0.3	0.3	0.2	0.3	0.3	0.3	0.3	0.4	0.4	0.5	0.5	0.6
Ago.	.4	.4	.3	.3	.3	.3	.3	.3	.3	.4	.4	.4
Sep.	.6	.5	.5	.4	.4	.3	.3	.3	.3	.3	.3	.3
Oct.	0.8	0.7	0.6	0.6	0.5	0.5	0.4	0.4	0.3	0.3	0.3	0.2
Nov.	0.9	0.9	0.8	.8	.7	.6	.6	.5	.4	.4	.3	.3
Dic.	1.0	1.0	1.0	0.9	0.9	0.8	0.7	0.6	0.6	0.5	0.4	0.3
Lat.	AZIMUT											
0	0.4	0.3	0.1	0.0	359.9	359.7	359.6	359.5	359.4	359.3	359.3	359.2
20	0.4	0.3	0.1	0.0	359.9	359.7	359.6	359.5	359.4	359.3	359.2	359.2
40	0.5	0.4	0.2	0.0	359.8	359.6	359.5	359.3	359.2	359.1	359.0	359.0
50	0.6	0.4	0.2	0.0	359.8	359.6	359.4	359.2	359.1	358.9	358.9	358.8
55	0.7	0.5	0.2	0.0	359.8	359.5	359.3	359.1	358.9	358.8	358.7	358.7
60	0.8	0.5	0.3	0.0	359.7	359.5	359.2	359.0	358.8	358.6	358.5	358.5
65	0.9	0.7	0.3	0.0	359.7	359.4	359.1	358.8	358.6	358.4	358.2	358.2

**Latitud = Altura aparente (corregida por refracción) - 1° +  $a_0$  +  $a_1$  +  $a_2$**

Se entra a la tabla con el valor del A. H. L. de Aries para determinar la columna que debe usarse; cada columna se refiere a un alcance de 10°  $a_0$ , se toma mediante interpolación mental de la tabla superior, con las unidades del A. H. L. de Aries en grados, como argumento;  $a_1$  y  $a_2$  se toman sin interpolación de la segunda y tercera tablas usando la latitud y el mes como argumento respectivamente;  $a_0$ ,  $a_1$  y  $a_2$  son siempre positivas. La tabla final da el azimut de la Polar.



# ESTRELLA POLAR TABLAS PARA, 1989

PARA DETERMINAR; LA LATITUD CONFORME ALTURA DE SEXTANTE Y EL AZIMUT.

A.H.L. ARIES	120°- 129°	130°- 139°	140°- 149°	150°- 159°	160°- 169°	170°- 179°	180°- 189°	190°- 199°	200°- 209°	210°- 219°	220°- 229°	230°- 239°
	$a_0$	$a_0$	$a_0$	$a_0$	$a_0$	$a_0$	$a_0$	$a_0$	$a_0$	$a_0$	$a_0$	$a_0$
0	0 55.0	I 03.2	I 11.2	I 18.8	I 25.8	I 32.0	I 37.2	I 41.2	I 44.0	I 45.4	I 45.4	I 44.1
1	55.8	04.0	12.0	19.5	26.5	32.6	37.7	41.6	44.2	45.5	45.4	43.8
2	56.6	04.8	12.7	20.3	27.1	33.1	38.1	41.9	44.4	45.5	45.3	43.6
3	57.5	05.6	13.5	21.0	27.8	33.7	38.5	42.2	44.6	45.6	45.2	43.4
4	58.3	06.4	14.3	21.7	28.4	34.2	39.0	42.5	44.7	45.6	45.0	43.1
5	0 59.1	I 07.2	I 15.1	I 22.4	I 29.0	I 34.7	I 39.4	I 42.8	I 44.9	I 45.6	I 44.9	I 42.9
6	0 59.9	08.0	15.8	23.1	29.6	35.3	39.8	43.1	45.0	45.6	44.8	42.6
7	I 00.7	08.8	16.6	23.8	30.3	35.8	40.2	43.3	45.1	45.6	44.6	42.3
8	01.5	09.6	17.3	24.5	30.9	36.3	40.5	43.6	45.2	45.5	44.4	42.0
9	02.3	10.4	18.1	25.2	31.4	36.7	40.9	43.8	45.3	45.5	44.3	41.7
10	I 03.2	I 11.2	I 18.8	I 25.8	I 32.0	I 37.2	I 41.2	I 44.0	I 45.4	I 45.4	I 44.1	I 41.3
Lat.	$a_1$	$a_1$	$a_1$	$a_1$	$a_1$	$a_1$	$a_1$	$a_1$	$a_1$	$a_1$	$a_1$	$a_1$
0	0.2	0.2	0.3	0.3	0.4	0.4	0.5	0.6	0.6	0.6	0.6	0.6
10	.3	.3	.3	.4	.4	.5	.5	.6	.6	.6	.6	.6
20	.3	.3	.4	.4	.4	.5	.5	.6	.6	.6	.6	.6
30	.4	.4	.4	.5	.5	.5	.6	.6	.6	.6	.6	.6
40	0.5	0.5	0.5	0.5	0.5	0.6	0.6	0.6	0.6	0.6	0.6	0.6
45	.5	.5	.5	.6	.6	.6	.6	.6	.6	.6	.6	.6
50	.6	.6	.6	.6	.6	.6	.6	.6	.6	.6	.6	.6
55	.7	.7	.7	.7	.6	.6	.6	.6	.6	.6	.6	.6
60	.8	.8	.8	.7	.7	.7	.6	.6	.6	.6	.6	.6
62	0.8	0.8	0.8	0.8	0.7	0.7	0.7	0.6	0.6	0.6	0.6	0.6
64	.9	.9	.8	.8	.8	.7	.7	.6	.6	.6	.6	.6
66	0.9	0.9	0.9	.9	.8	.7	.7	.6	.6	.6	.6	.6
68	1.0	1.0	1.0	0.9	0.8	0.8	0.7	0.6	0.6	0.6	0.6	0.6
Mes	$a_2$	$a_2$	$a_2$	$a_2$	$a_2$	$a_2$	$a_2$	$a_2$	$a_2$	$a_2$	$a_2$	$a_2$
Ene.	0.7	0.6	0.6	0.6	0.6	0.5	0.5	0.5	0.5	0.5	0.4	0.4
Feb.	.8	.8	.7	.7	.7	.6	.6	.5	.5	.5	.4	.4
Mar.	0.9	0.9	0.9	0.8	.8	.8	.7	.6	.6	.5	.5	.4
Abr.	1.0	1.0	1.0	1.0	0.9	0.9	0.8	0.8	0.7	0.7	0.6	0.5
May.	0.9	1.0	1.0	1.0	1.0	1.0	1.0	0.9	0.9	.8	.8	.7
Jun.	.8	0.9	0.9	1.0	1.0	1.0	1.0	1.0	1.0	.9	.9	.8
Jul.	0.7	0.7	0.8	0.8	0.9	0.9	0.9	0.9	1.0	0.9	0.9	0.9
Ago.	.5	.5	.6	.7	.7	.8	.8	.8	0.9	.9	.9	.9
Sep.	.3	.4	.4	.5	.5	.6	.6	.7	.7	.8	.8	.9
Oct.	0.2	0.3	0.3	0.3	0.3	0.4	0.4	0.5	0.6	0.6	0.7	0.7
Nov.	.2	.2	.2	.2	.2	.2	.3	.3	.4	.4	.5	.6
Dic.	0.3	0.2	0.2	0.2	0.1	0.1	0.2	0.2	0.2	0.3	0.3	0.4

Lat.	AZIMUT											
0	359.2	359.2	359.3	359.3	359.4	359.5	359.6	359.7	359.9	0.0	0.1	0.3
20	359.2	359.2	359.2	359.3	359.4	359.5	359.6	359.7	359.9	0.0	0.1	0.3
40	359.0	359.0	359.0	359.1	359.2	359.3	359.5	359.7	359.8	0.0	0.2	0.3
50	358.8	358.8	358.9	359.0	359.1	359.2	359.4	359.6	359.8	0.0	0.2	0.4
55	358.6	358.7	358.7	358.8	359.0	359.1	359.3	359.5	359.8	0.0	0.2	0.5
60	358.4	358.5	358.5	358.7	358.8	359.0	359.2	359.5	359.7	0.0	0.3	0.5
65	358.2	358.2	358.3	358.4	358.6	358.8	359.1	359.4	359.7	0.0	0.3	0.6

**Ejemplo:** El 21 de abril de 1989 a las 23<sup>h</sup> 18<sup>m</sup> 56<sup>s</sup> T.U. a una longitud Oeste de 37° 14' la altura aparente (corregida por refracción),  $H_o$ , de la Polaris fue: 49° 31'.6.

<p>De las páginas diarias :</p> <p>A.H.G. de Aries (23<sup>h</sup>)      194 59.4</p> <p>Incremento a (18<sup>m</sup> 56<sup>s</sup>)      4 44.8</p> <p>Longitud (Oeste)            -37 14</p> <hr style="width: 50%; margin-left: 0;"/> <p>A.H.L. Aries                    162 30</p>	<p style="text-align: right;"><math>H_o</math>                    49 31.6</p> <p><math>a_0</math> (argumento 162° 30')    1 27.4</p> <p><math>a_1</math> (Latitud 50° aprox.)      0.6</p> <p><math>a_2</math> (Abril)                    0.9</p> <hr style="width: 50%; margin-left: 0;"/> <p>Sum <math>-1^\circ = \text{Lat.} =</math>            50 00.5</p>
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ESTRELLA POLAR. TABLAS PARA 1989

PARA DETERMINAR LA LATITUD CONFORME ALTURA DE SEXTANTE Y EL AZIMUT.

A.H.L. ARIES	240°- 249°	250°- 259°	260°- 269°	270°- 279°	280°- 289°	290°- 299°	300°- 309°	310°- 319°	320°- 329°	330°- 339°	340°- 349°	350°- 359°
	<i>a</i> <sub>0</sub>	<i>a</i> <sub>0</sub>	<i>a</i> <sub>0</sub>	<i>a</i> <sub>0</sub>	<i>a</i> <sub>0</sub>	<i>a</i> <sub>0</sub>	<i>a</i> <sub>0</sub>	<i>a</i> <sub>0</sub>	<i>a</i> <sub>0</sub>	<i>a</i> <sub>0</sub>	<i>a</i> <sub>0</sub>	<i>a</i> <sub>0</sub>
0	I 41.3	I 37.3	I 32.1	I 26.0	I 19.0	I 11.4	I 03.4	O 55.2	O 47.1	O 39.4	O 32.3	O 26.0
1	41.0	36.8	31.6	25.3	18.2	10.6	02.5	54.4	46.3	38.7	31.6	25.4
2	40.6	36.4	31.0	24.6	17.5	09.8	01.7	53.6	45.6	37.9	31.0	24.8
3	40.2	35.9	30.4	24.0	16.7	09.0	00.9	52.8	44.8	37.2	30.3	24.3
4	39.9	35.4	29.8	23.3	16.0	08.2	I 00.1	51.9	44.0	36.5	29.7	23.7
5	I 39.5	I 34.9	I 29.2	I 22.6	I 15.2	I 07.4	O 59.3	O 51.1	O 43.2	O 35.8	O 29.0	O 23.2
6	39.1	34.3	28.6	21.9	14.5	06.6	58.5	50.3	42.4	35.1	28.4	22.6
7	38.6	33.8	27.9	21.2	13.7	05.8	57.6	49.5	41.7	34.4	27.8	22.1
8	38.2	33.3	27.3	20.4	12.9	05.0	56.8	48.7	40.9	33.7	27.2	21.6
9	37.8	32.7	26.6	19.7	12.1	04.2	56.0	47.9	40.2	33.0	26.6	21.1
10	I 37.3	I 32.1	I 26.0	I 19.0	I 11.4	I 03.4	O 55.2	O 47.1	O 39.4	O 32.3	O 26.0	O 20.6
Lat.	<i>a</i> <sub>1</sub>	<i>a</i> <sub>1</sub>	<i>a</i> <sub>1</sub>	<i>a</i> <sub>1</sub>	<i>a</i> <sub>1</sub>	<i>a</i> <sub>1</sub>	<i>a</i> <sub>1</sub>	<i>a</i> <sub>1</sub>	<i>a</i> <sub>1</sub>	<i>a</i> <sub>1</sub>	<i>a</i> <sub>1</sub>	<i>a</i> <sub>1</sub>
0	0.5	0.4	0.4	0.3	0.3	0.2	0.2	0.2	0.3	0.3	0.4	0.4
10	.5	.5	.4	.4	.3	.3	.3	.3	.3	.4	.4	.5
20	.5	.5	.4	.4	.4	.3	.3	.3	.4	.4	.4	.5
30	.6	.5	.5	.5	.4	.4	.4	.4	.4	.5	.5	.5
40	0.6	0.6	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.6
45	.6	.6	.6	.6	.5	.5	.5	.5	.5	.6	.6	.6
50	.6	.6	.6	.6	.6	.6	.6	.6	.6	.6	.6	.6
55	.6	.6	.6	.7	.7	.7	.7	.7	.7	.7	.6	.6
60	.6	.7	.7	.7	.8	.8	.8	.8	.8	.7	.7	.7
62	0.7	0.7	0.7	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.7	0.7
64	.7	.7	.8	.8	.8	.9	.9	.9	.8	.8	.8	.7
66	.7	.7	.8	.9	0.9	0.9	0.9	0.9	0.9	.9	.8	.7
68	0.7	0.8	0.8	0.9	1.0	1.0	1.0	1.0	1.0	0.9	0.8	0.8
Mes	<i>a</i> <sub>2</sub>	<i>a</i> <sub>2</sub>	<i>a</i> <sub>2</sub>	<i>a</i> <sub>2</sub>	<i>a</i> <sub>2</sub>	<i>a</i> <sub>2</sub>	<i>a</i> <sub>2</sub>	<i>a</i> <sub>2</sub>	<i>a</i> <sub>2</sub>	<i>a</i> <sub>2</sub>	<i>a</i> <sub>2</sub>	<i>a</i> <sub>2</sub>
Ene.	0.4	0.5	0.5	0.5	0.5	0.5	0.5	0.6	0.6	0.6	0.6	0.7
Feb.	.4	.4	.3	.4	.4	.4	.4	.4	.5	.5	.5	.6
Mar.	.4	.3	.3	.3	.3	.3	.3	.3	.3	.4	.4	.4
Abr.	0.5	0.4	0.4	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.3	0.3
May.	.6	.5	.5	.4	.4	.3	.3	.2	.2	.2	.2	.2
Jun.	.8	.7	.6	.6	.5	.4	.4	.3	.3	.2	.2	.2
Jul.	0.9	0.8	0.8	0.7	0.7	0.6	0.5	0.5	0.4	0.4	0.3	0.3
Ago.	.9	.9	.9	.8	.8	.8	.7	.7	.6	.5	.5	.4
Sep.	.9	.9	.9	.9	.9	0.9	0.9	.8	.8	.7	.7	.6
Oct.	0.8	0.8	0.9	0.9	0.9	1.0	1.0	0.9	0.9	0.9	0.9	0.8
Nov.	.6	.7	.8	.8	.9	0.9	1.0	1.0	1.0	1.0	1.0	1.0
Dic.	0.5	0.6	0.6	0.7	0.8	0.9	0.9	1.0	1.0	1.0	1.1	1.1
Lat.	AZIMUT											
0	0.4	0.5	0.6	0.7	0.7	0.8	0.8	0.8	0.7	0.7	0.6	0.5
20	0.4	0.5	0.6	0.7	0.8	0.8	0.8	0.8	0.8	0.7	0.6	0.5
40	0.5	0.6	0.8	0.9	1.0	1.0	1.0	1.0	1.0	0.9	0.8	0.7
50	0.6	0.8	0.9	1.0	1.1	1.2	1.2	1.2	1.1	1.1	0.9	0.8
55	0.7	0.9	1.0	1.2	1.3	1.3	1.4	1.3	1.3	1.2	1.1	0.9
60	0.8	1.0	1.2	1.3	1.5	1.5	1.6	1.5	1.5	1.4	1.2	1.0
65	0.9	1.2	1.4	1.6	1.7	1.8	1.8	1.8	1.8	1.6	1.4	1.2

Latitud = Altura aparente (corregida por refracción) - 1° + *a*<sub>0</sub> + *a*<sub>1</sub> + *a*<sub>2</sub>

Se entra a la tabla con el valor del A. H. L. de Aries para determinar la columna que debe usarse; cada columna se refiere a un alcance de 10° *a*<sub>0</sub> se toma, mediante interpolación mental de la tabla superior con las unidades del A. H. L. de Aries en grados, como argumento; *a*<sub>1</sub> y *a*<sub>2</sub> se toman sin interpolación de la segunda y tercera tablas usando la latitud y el mes como argumento respectivamente; *a*<sub>0</sub>, *a*<sub>1</sub> y *a*<sub>2</sub> son siempre positivas. La tabla final da el azimut de la Polar.



PROCEDIMIENTOS DE REDUCCION  
DE LAS VISUALES



## METODOS Y FORMULAS PARA CALCULO DIRECTO

1. *Introducción.* Las fórmulas y métodos aquí descritos son para empleo con una calculadora electrónica o microcomputadora, para la determinación de la posición en la mar a partir de alturas observadas con un sextante marino. La calculadora deberá contar con funciones trigonométricas o preferentemente debe ser programable y retener el contenido de su memoria cuando se apague. Las fórmulas se han expresado en notación algebraica y se supone que el usuario será capaz de traducirlas al código o lenguaje utilizado por la calculadora. Los datos astronómicos tales como *AHG* y la *Dec* de un astro (o cuerpo celeste), se supone tomados de las páginas tabulares principales del presente "Almanaque Náutico" e ingresados en la calculadora para su interpolación. Todos los cálculos subsecuentes para la reducción de las visuales, son realizados con la calculadora. La Longitud y Latitud estimadas para el intervalo de observación, son ingresados en la calculadora para resolverlas, ajustados; el azimut y la altura. La calculadora también puede emplearse para reducir las alturas observadas con sextante, según la aplicación de las correcciones por: depresión, refracción, paralaje y semi-diámetro. Interceptar cada una de las observaciones y un azimut, proporciona un trazo de posición que puede ser usado para delinear sobre una carta. Se requieren varios trazos de posición para determinar una posición fija. Se da un método para calcular una posición fija a partir de varias observaciones por cálculo directo, utilizando una calculadora programable. El método, el cual está basado en los mínimos cuadrados, tiene la ventaja de que pueden incluirse observaciones ulteriores; pueden ser incluidas en la solución y las observaciones inciertas se pueden suprimir de la solución.

2. *Notación.*

- AHG* = Angulo Horario de Greenwich. El *AHG* varía desde  $0^{\circ}$  a  $360^{\circ}$  comienza sobre el meridiano de Greenwich incrementándose hacia el oeste, de retorno a  $360^{\circ}$  sobre el meridiano de Greenwich.
- AHS* = Angulo Horario Sideral (o Sidéreo). El *AHS* varía desde  $0^{\circ}$  a  $360^{\circ}$ .
- Dec* = Declinación. Los signos convencionales para la declinación son: positivo hacia el norte y negativo al sur. La *Dec* varía desde  $0^{\circ}$  en el ecuador celeste hasta  $-90^{\circ}$  sobre el polo sur celeste y desde  $0^{\circ}$  en el ecuador celeste hasta  $+90^{\circ}$  sobre el polo norte celeste.
- Long* = Longitud. Los signos convencionales para la longitud son: positivo hacia el este y negativo al oeste. La *Long* varía desde  $0^{\circ}$  a  $+180^{\circ}$  y de  $0^{\circ}$  a  $-180^{\circ}$ .
- Lat* = Latitud. Los signos convencionales para la Latitud son: positivo hacia el norte y negativo al sur. La *Lat* varía desde  $0^{\circ}$  en el ecuador terrestre hasta  $+90^{\circ}$  sobre el polo norte terrestre y desde  $0^{\circ}$  en el ecuador terrestre hasta  $-90^{\circ}$  sobre el polo sur terrestre.
- AHL* = *AHG* + *Long* = Angulo Horario Local. El *AHL* se incrementa hacia el oeste, desde  $0^{\circ}$  sobre el Meridiano Local hasta  $360^{\circ}$ .
- H<sub>C</sub>* = altura calculada. Arriba del horizonte es positiva, debajo del horizonte es negativa. La *H<sub>C</sub>* varía desde  $0^{\circ}$  hasta  $-90^{\circ}$  en el nadir y de  $0^{\circ}$  hasta  $+90^{\circ}$  en el zenit.
- H<sub>S</sub>* = altura del sextante.
- H* = altura aparente = altura del sextante corregida por error instrumental y depresión.
- H<sub>O</sub>* = altura observada = altura aparente o corregida por refracción y en casos particulares, corregida por paralaje y semi-diámetro.
- Z* = azimut verdadero. *Z* se mide a partir del norte verdadero a través del este, sur, oeste y de vuelta hacia el norte. El azimut varía desde  $0^{\circ}$  a  $360^{\circ}$ .
- I* = error de índice del sextante.
- D* = depresión del horizonte.
- R* = refracción atmosférica.
- PH* = paralaje horizontal del : Sol, Luna, Venus o Marte.
- PA* = paralaje por altura del : Sol, Luna, Venus o Marte.
- S* = semi-diámetro, del Sol o de la Luna.
- p* = intersección =  $H_0 - H_C$  cercano a, es positiva; alejado es negativa.
- T* = rumbo o derrota, medido como azimut desde el Norte.
- V* = velocidad en nudos.



3. Datos Básicos de Entrada. Cuando se ingresen a la calculadora cantidades como el *AHG*, los que en el *Almanaque Náutico*; se dan en grados y minutos, convertirlos a grados y décimas de un grado mediante la división de los minutos entre 60 y sumando a los grados; por ejemplo, si el  $AHG = 123^\circ 45.6'$  ingrese los dos números 123 y 45.6 dentro de la memoria y determine  $AHG = 123 + 45.6/60 = 123.7600^\circ$ . Aunque cuatro cifras decimales de un grado son suficientes, se supone en los ejemplos que se mantiene la precisión completa dentro de la calculadora.

Muchas calculadoras tienen una tecla especial para convertir grados, minutos y segundos a grados y decimales. Con calculadoras programables, siempre es posible escribir una subrutina que efectúe la conversión automáticamente. Para cantidades como las declinaciones; las cuales tienen un signo menos, con relación a las declinaciones meridionales o del sur, cambiar el signo de más (+) a menos (-), después de que el valor haya sido convertido a grados y decimales, por ejemplo:  $Dec = 0^\circ 12.3' S = 0.2050^\circ S = -0.2050^\circ$ . Otras cantidades las cuales requieren conversión son: semi-diámetro, paralaje horizontal, longitud y latitud.

4. *Interpolación del AHG y Declinación.* Los *AHG* y *Dec* del Sol, Luna y Planetas, se interpolan al tiempo de observación con una calculadora como sigue: si el tiempo universal es  $a^h b^m c^s$ , ordenar el factor de interpolación  $x = b/60 + c/3600$ . Ingrese el valor tabular del  $AHG_0$  (inicial) para la hora precedente (a) y el valor tabular del  $AHG_1$  para la hora siguiente (a+1), entonces el valor interpolado del *AHG* está dado por:

$$AHG = AHG_0 + X (AHG_1 - AHG_0)$$

Si el *AHG* supera completamente  $360^\circ$  entre valores tabulares, adicionar  $360^\circ$  al  $AHG_1$  antes de interpolar. Si el valor interpolado excede de  $360^\circ$ , substraigase  $360^\circ$  conforme al *AHG*.

De forma análoga, para la declinación, ingrese el valor tabular  $Dec_0$  (inicial) para la hora presente (a) y el valor tabular  $Dec_1$  para la hora siguiente (a+1), entonces el valor interpolado *Dec* está dado por:

$$Dec = Dec_0 + X (Dec_1 - Dec_0)$$

5. *Ejemplo.* (a) Encontrar el *AHG* y *Dec* del Sol el 6 de octubre de 1989 a las  $15^h 47^m 13^s$  TU.

El factor de interpolación  $x = 47/60 + 13/3600 = 0.7869^h$

$$\text{De la página 195} \quad 15^h AHG_0 = 47^\circ 58.9' = 47.9817^\circ$$

$$16^h AHG_1 = 62^\circ 59.1' = 62.9850^\circ$$

$$15.7869^h AHG = 47.9817 + 0.7869 (62.9850 - 47.9817) = 59.7885^\circ$$

$$15^h Dec_0 = 5^\circ 15.9' S = -5.2650^\circ$$

$$16^h Dec_1 = 5^\circ 16.9' S = -5.2817^\circ$$

$$15.7869^h Dec = -5.2650 + 0.7869 (-5.2817 + 5.2650) = -5.2781^\circ$$

El *AHG* de Aries se interpola del mismo modo que el *AHG* de un astro. Para una estrella el *AHS* y la *Declinación*, se toman de la página tabular y no se requiere interpolación, entonces:

$$AHG = AHG \text{ Aries} + AHS$$

donde *AHG* Aries se interpola, para la hora de observación.

(b) Encontrar el *AHG* y la *Dec* de Vega el 6 de octubre de 1989 a las  $22^h 47^m 13^s$  TU.

El factor de interpolación  $X = 0.7869^h$  como en el ejemplo anterior.

$$\text{De la página 194} \quad 22^h AHG \text{ Aries}_0 = 345^\circ 32.3' = 345.5383^\circ$$

$$(\text{sumando } 360^\circ) 23^h AHG \text{ Aries}_1 = 0^\circ 34.8' = 360.5800^\circ$$

$$22.7869^h AHG \text{ Aries} = 345.5383 + 0.7869 (360.5800 - 345.5383) = 357.3753^\circ$$

$$AHS = 80^\circ 51.1' = 80.8517^\circ$$

$$AHG = AHG \text{ Aries} + AHS = 78.2270^\circ \text{ (múltiplo de } 360^\circ \text{ normalizado).}$$

$$Dec = 38^\circ 46.6' N = +38.7767^\circ$$



6. La altura calculada y azimut. La altura calculada  $H_C$  y el azimut verdadero  $Z$  se determina conforme al  $AHG$  y la  $Dec$  interpolados para el tiempo de observación y según la  $Long$  y  $Lat$ , estimadas en la hora de observación, como sigue:

1o. Paso. Calcular el ángulo horario local.

$$AHL = AHG + Long$$

2o. Paso. Calcular la altura según:

$$H_C = \text{sen}^{-1} (\text{sen Lat} \text{ sen Dec} + \text{cos Lat} \cdot \text{cos Dec} \cdot \text{cos AHL})$$

en donde  $\text{sen}^{-1}$  es la función inversa del  $\text{sen}$

3o. Paso. Calcular  $X, Y$ , y  $A$  conforme:

$$X = \text{cos Lat} \cdot \text{sen Dec} - \text{sen Lat} \cdot \text{cos Dec} \cdot \text{cos AHL}$$

$$Y = - \text{cos Dec} \cdot \text{sen AHL}$$

$$A = \text{tan}^{-1} (Y/X)$$

en donde  $\text{tan}^{-1}$  es la función inversa de la  $\text{tan}$

4o. Paso. Calcular el azimut  $Z$  ;

$$\text{Si } X < 0 \text{ entonces } Z = A + 180^\circ$$

$$\text{Si } X > 0 \text{ e } Y < 0 \text{ en tal caso } Z = A + 360^\circ$$

$$\text{Por otra parte } Z = A$$

**Notas.**

1. En el paso 1, no es esencial en adicionar o substraer multiples de  $360^\circ$  al  $AHL$  para determinarlo entre la graduación de  $0^\circ$  a  $360^\circ$
2. En el paso 3, para evitar la división entre cero, cerca de los puntos cardinales, este y oeste, lo cual produciría un error en la calculadora (indeterminación), adicionar una cantidad muy pequeña al denominador  $X$  antes de la división; por ejemplo; adicionar,  $1.0 \times 10^{-10} \equiv 1.0E - 10$ .
3. En el paso 4, muchas calculadoras poseen la facilidad de convertir directamente, de coordenadas rectangulares  $(x, y)$  a coordenadas polares  $(r, \theta)$ . Establecer  $x = X$ ,  $y = Y$  y convertirla a coordenadas polares. En tal caso  $Z = \theta$ .

7. *Ejemplo.* Encontrar la altura calculada  $H_C$  y el azimut  $Z$  en que:

$$AHG = 353^\circ, Dec = 15^\circ \text{ S}, Lat = 32^\circ \text{ N}, Long = 16^\circ \text{ W G.}$$

Para el cálculo.

$$AHG = 353.0000^\circ, Dec = -15.0000^\circ, Lat = +32.0000^\circ, Long = -16.0000^\circ$$

1o. Paso  $AHL = 353.0000 - 16.0000 = 337.0000$

$$\text{Sen } H_C = 0.5299 \times (-0.2588) + 0.8480 \times 0.9659 \times 0.9205 = 0.6169$$

2o. Paso  $H_C = 38.0886^\circ$

3o. Paso  $X = 0.8480 \times (-0.2588) - 0.5299 \times 0.9659 \times 0.9205 = -0.6907$

$$Y = -(0.9659) (-0.3907) = 0.3774$$

$$\text{tan } A = Y/X = 0.3774 / (-0.6907)$$

$$A = -28.6547^\circ$$

4o. Paso Puesto que  $X < 0$  entonces  $Z = A + 180^\circ = 151.3453^\circ$



## 8.- Reducción por altura de sextante a la altura observada.

1o. Paso. Calcular la depresión:

$$D = 0^{\circ}0293\sqrt{h}$$

en donde  $h$  es la altura del ojo sobre el horizonte en metros.

2o. Paso. Calcular la altura aparente.

$$H = H_s + I - D$$

donde  $I$  es el error del índice, del sextante.3o. Paso. Calcular la refracción atmosférica ( $R$ ) a la temperatura normal de  $10^{\circ}$  Celsius, ( $C$ ) y a 1010 milibares (mb) de presión atmosférica.

$$R_0 = 0.0167^{\circ}/\tan (H + 7.31 / (H - 4.4))$$

Si la temperatura  $T^{\circ}C$  y la presión atmosférica  $P$  mb, son conocidas, calcular la refracción atmosférica conforme:

$$R = f R_0 \text{ en donde } f = 0.28P / (T + 273)$$

de otra manera  $R = R_0$ .4o. Paso. Calcular el paralaje por altura ( $PA$ ) según el paralaje horizontal ( $PH$ ) y la altura aparente ( $H$ ) del: Sol, Luna, Venus y Marte, como sigue.

$$(PA) = (PH) \cdot \cos H$$

El paralaje horizontal para el Sol ( $PH$ ) =  $0.0024^{\circ}$ . Esta corrección es muy pequeña y puede ser ignorada.El paralaje horizontal para la Luna ( $PH$ ), se toma para la hora más cercana, según las tablas de las páginas diarias (nones), y convertir a grados.Para Venus y Marte el Paralaje horizontal ( $PH$ ), se usa conforme a la tabla crítica, al pie de la página 263 y convertida a grados.Para las estrellas de uso en navegación y los planetas restantes, Júpiter y Saturno establecer: ( $PA$ ) = 0.Supuesto que un error de  $0.2'$  es importante, la expresión para el paralaje por altura, para la Luna debe de incluir una corrección pequeña ( $OB$ ) por la curvatura de la Tierra como sigue:

$$(PA) = (PH) \cdot \cos H + (OB).$$

en donde ( $OB$ ) =  $-0.0032^{\circ} \sin^2 \text{Lat} \cos H + 0.0032^{\circ} \sin (2 \text{Lat}) \cos Z \cdot \sin H$ En latitudes medias y para alturas de la Luna por debajo de los  $60^{\circ}$ , una simple aproximación para ( $OB$ ) es:

$$(OB) = -0.0017^{\circ} \cos H$$

5o. Paso. Calcular el semi-diámetro para el Sol y la Luna como sigue.

Sol:  $S$  se toma del pie de las páginas diarias (nones) y convertir a grados.Luna:  $S = 0.2794 \cdot (PH)$  en donde ( $PH$ ), es tomado para la hora más cercana de la tabla en las páginas diarias nones y convertir a grados.

6o. Paso. Calcular la altura observada.

$$H_o = H - R + (PA) \pm S$$

en donde el signo positivo es usado en caso que fuese observado el Sol o la Luna con el limbo inferior y el signo negativo si se observa con el limbo superior.

9. *Ejemplo.* El siguiente ilustra como usar una calculadora para reducir la altura del sextante ( $H_s$ ) a la altura observada ( $H_o$ ); las alturas con sextante dadas, se asumen que fueron tomadas el 6 de octubre de 1989 con un sextante marino, el índice de error cero a la altura de 5.4 m., temperatura de  $-3^{\circ}C$  y presión de 982 mb., las visuales a la Luna se asumen que fueron tomadas a las  $10^h$  TU.



Astro	Sol inferior	Sol superior	Luna inferior	Luna superior	Venus	Polaris
Limbo					—	—
Altura del sextante: $H_s$	21.3283	03.3367	33.4600	26.1117	04.5433	49.6083
1o. Paso. Depresión: $D = 0.0293\sqrt{h}$	0.0681	0.0681	0.0681	0.0681	0.0681	0.0681
2o. Paso. Altura aparente: $H = H_s + I - D$	21.2602	03.2686	33.3919	26.0436	04.4752	49.5402
3o. Paso. Refracción: $R_o$	0.0423	0.2262	0.0251	0.0338	0.1801	0.0142
$f$	1.0184	1.0184	1.0184	1.0184	1.0184	1.0184
$R = fR_o$	0.0431	0.2304	0.0256	0.0344	0.1834	0.0144
4o. Paso. Paralaje: (PH)	0.0024	0.0024	(55.2') 0.9200	(55.2') 0.9200	(0.2') 0.0033	—
Paralaje por altura: (PA) = (PH) · cos H	0.0022	0.0024	0.7681	0.8266	0.0033	—
5o. Paso Semi-diámetro Sol: $S = 16.0/60$	0.2667	0.2667	—	—	—	—
Luna $S = 0.2724$ (PH)	—	—	0.2506	0.2506	—	—
6o. Paso Altura observada: $H_o = H - R + PA \pm S$	21.4860	02.7740	34.3850	26.5852	04.2952	49.5258

Notése que para la Luna la corrección por curvatura de la tierra de aproximadamente  $-0.0017^\circ \cos H$ , lo cual es equivalente a  $-0.0014^\circ$  para el limbo inferior y  $-0.0013^\circ$  para el limbo superior, han sido ignoradas en los cálculos anteriores.

10.- Posición por intersección y azimut usando una carta. Se hace una estimación de la posición a la hora asumida para la fija. La posición, a la hora de observación; es por ésta razón, calculada por estima, conforme la hora de la fija. Por ejemplo si el rumbo (derrota)  $T$  y la velocidad  $V$  (en nudos) del observador son constantes entonces la Longitud y la Latitud para la hora de observación son calculados por:

$$Long = L_F + t(V/60) \text{ sen } T / \cos B_F$$

$$Lat = B_F + t(V/60) \cos T.$$

En donde  $L_F$  y  $B_F$  son la latitud y longitud estimadas para la hora de la fija y  $t$  es el intervalo de tiempo en horas, conforme la hora de la fija, para la hora de observación;  $t$  es positivo, si la hora de observación es posterior a la hora de la fija y negativo si es anterior.

El trazo de la posición de una observación es delineada sobre una carta usando, la intersección;  $p = H_o - H_c$  y el azimut  $Z$ , con origen en la posición calculada a la hora de observación. La posición calculada que inicia conforme una serie ( $long, lat$  a la hora de observación), se delinea sobre la carta a lo largo de la dirección del azimut de la embarcación. Convertir " $p$ " a millas náuticas, con multiplicador de 60. La posición línea por línea, es "trazada en ángulos rectos sobre el trazo del azimut; la diferencia " $p$ " a causa de ( $long, lat$ ), próximo a la embarcación, si " $p$ " es positiva y la diferencia " $p$ " alejada con respecto a la embarcación si " $p$ " es negativa. Siempre que no hay crasos errores el navegante debe de estar en algún lugar sobre o cerca del trazo de posición a la hora de observación. Dos o más trazos de posición son necesarios para determinar una fija.

11.- Posición por intersección y azimut usando una calculadora. La posición de la fija puede ser calculada conforme dos o más observaciones con sextante, del modo siguiente:

Si  $P_1, Z_1$ , son la intersección y el azimut de la primera observación;  $P_2, Z_2$ , de la segunda observación y así sucesivamente, conforme las sumas:

$$A = \cos^2 Z_1 + \cos^2 Z_2 + \dots$$

$$B = \cos Z_1 \text{ sen } Z_1 + \cos Z_2 \text{ sen } Z_2 + \dots$$

$$C = \text{sen}^2 Z_1 + \text{sen}^2 Z_2 + \dots$$

$$D = P_1 \cos Z_1 + P_2 \cos Z_2 + \dots$$

$$E = P_1 \text{ sen } Z_1 + P_2 \text{ sen } Z_2 + \dots$$

en donde el número de términos de cada suma es igual al número de observaciones.



Con  $G = AC - B^2$ , una estimación corregida de la posición, a la hora de la fija ( $L_I, B_I$ ) está dada por:

$$L_I = L_F + (AE - BD) / (G \cdot \cos BF), \quad B_I = B_F + (CD - BE) / G$$

Calcular la distancia  $d$  entre la posición inicial estimada ( $L_F, B_F$ ) a la hora de fijar y la posición estimada corregida ( $L_I, B_I$ ) en millas náuticas según:

$$d = 60 \sqrt{((L_I - L_F)^2 \cos^2 B_F + (B_I - B_F)^2)}$$

Si  $d$  supera alrededor de 20 millas náuticas, establecer  $L_F = L_I, B_F = B_I$  y repetir el cálculo hasta que " $d$ ", la distancia entre la posición a la estimación anterior y la estimación corregida sea menor que alrededor de 20 millas náuticas.

12.— *Ejemplo de cálculo directo.* Usando el método arriba descrito, calcular la posición de una embarcación el 16 de junio de 1989 a las 20<sup>h</sup> 00<sup>m</sup> 00<sup>s</sup> TU, conforme las observaciones, obtenidas con sextante marino de las tres estrellas; *Spica* (No. 33) a las 19<sup>h</sup> 40<sup>m</sup> 00<sup>s</sup> TU, *Pollux* (No. 21) a las 19<sup>h</sup> 50<sup>m</sup> 00<sup>s</sup> TU y *Vega* (No. 49) a las 20<sup>h</sup> 00<sup>m</sup> 00<sup>s</sup> TU, en donde las alturas observadas de las tres estrellas, corregidas por los efectos de refracción, depresión y error instrumental, son: 43.9230°, 29.4745° y 20.0422° respectivamente. La embarcación viajaba a una velocidad constante de 20 nudos sobre un rumbo (curso o derrota) de 325°, durante el período de observación, y la posición de la embarcación, a la hora de fijar (de la fija) 20<sup>h</sup> 00<sup>m</sup> 00<sup>s</sup> TU, es sólo conocida al grado entero más próximo: 15° W G y 32° N.

Los valores intermedios para la primera iteración se muestran en la tabla. El AHG de Aries es interpolado según los valores tabulares para las 19<sup>h</sup> y 20<sup>h</sup> del TU en la página 120. Para la primera iteración asignar:

$L_F = -15.0000^\circ, B_F = +32.0000^\circ$  a la hora de la fija a las 20<sup>h</sup> 00<sup>m</sup> 00<sup>s</sup> TU.

#### Primera iteración

Astro	<i>Spica</i>	<i>Pollux</i>	<i>Vega</i>
No.	33	21	49
hora de observación	19 <sup>h</sup> 40 <sup>m</sup> 00 <sup>s</sup>	19 <sup>h</sup> 50 <sup>m</sup> 00 <sup>s</sup>	20 <sup>h</sup> 00 <sup>m</sup> 00 <sup>s</sup>
$H_O$	43.9230	29.4745	20.0422
factor de interpolación	0.6667	0.8333	1.0000
AHG de Aries	200.0494	202.5564	205.0633
AHS (página 120)	158.8367	243.8350	080.8467
AHG	358.8861	086.3914	285.9100
Dec (página 120)	-11.1100	+28.0550	+38.7700
$t$	-0.3333	-0.1667	0.0000
Long	-14.9249	-14.9624	-15.0000
Lat	+31.9090	+31.9545	+32.0000
Z	157.7310	286.6577	056.0679
$H_c$	44.3231	29.1687	20.0191
P	-0.4001	+0.3058	+0.0231

$$A = 1.2502 \quad B = -0.1622 \quad C = 1.7498 \quad D = 0.4708 \quad E = -0.4255 \quad G = 2.1613$$

$$(AE - BD) / (G \cos B_F) = -0.2485, \quad (CD - BE) / G = +0.3493$$

Una estimación rectificada de la posición a la hora de la fija es:

$$L_I = L_F - 0.2485 = -15.2485 \quad \text{y} \quad B_I = B_F + 0.3493 = +32.3493$$

Puesto que la distancia entre la posición estimada previa y la estimación rectificada es:

$d = 24.5$  millas náuticas, asignar  $L_F = -15.2485$ , y  $B_F = +32.3493$  y repetir el cálculo.

La tabla muestra los valores intermedios del cálculo para la segunda iteración. En cada iteración las cantidades: AHG, Dec y  $H_O$  no cambian.



Segunda iteración

Astro	Spica	Pollux	Vega
No.	33	21	49
$H_o$	43.9230	29.4745	20.0422
AHG	358.8861	086.3914	285.9100
Dec	-11.1100	+280550	+38.7700
Long	-15.1731	-15.2108	-15.2485
Lat	+32.2582	+32.3037	+32.3493
Z	157.5393	286.3711	056.0840
$H_c$	43.9201	29.4697	20.0395
P	+0.0029	+0.0048	+0.0027

$$A = 1.2448 \quad B = -0.1605 \quad C = 1.7552 \quad D = 0.0002 \quad E = -0.0013 \quad G = 2.1591$$

$$(A E - B D)/(G \cos B_F) = -0.0009, \quad (C D - B E)/G = 0.0001$$

Una estimación rectificada de la posición a la hora de la fija es:

$$L_I = L_F - 0.0009 = -15.2494 \quad \text{y} \quad B_I = B_F + 0.0001 = +32.3493$$

La distancia, entre la posición estimada previa y la estimación de la posición rectificada es  $d = 0.05$  millas náuticas, es tan pequeña, de manera que, una tercera iteración, produciría un perfeccionamiento omisible, para la estimación de la posición.



## USO DE LAS TABLAS ABREVIADAS DE REDUCCION DE VISUALES

1. *Introducción.* Las tablas abreviadas de reducción de visuales dadas en las páginas 295 a 326 son intencionales para utilizarse cuando no están disponibles ni tablas más extensas o ningún instrumento electrónico de cálculo. Estas, "tablas de reducción de visuales, editadas por la "NAO" proporcionan para la reducción del ángulo horario local y la declinación de un objeto celeste, por azimut y altura, referidas a una posición asumida sobre la superficie de la tierra; para uso en el método de intersecciones de navegación celeste, el cual es ahora una práctica normal.

2. *Conformación de las tablas.* En la tabla de reducción, están registradas todas las latitudes y ángulos horarios; sobre un intervalo determinado para un grado. Resultados en disposición concisa a causa de distribución del triángulo de navegación en dos triángulos esféricos rectos, de modo que debe entrarse dos veces a la tabla. Los argumentos para la primera entrada son supuesta la latitud y el ángulo horario. La tabla de reducción responde con los argumentos intermedios  $A$ ,  $B$  y  $Z_1$  en donde,  $A$  es usado como uno de los argumentos para la segunda entrada a la tabla,  $B$  debe ser incrementado con la declinación para producir la cantidad  $F$ , y  $Z_1$  es un componente del ángulo azimutal. En consecuencia se vuelve a entrar a la tabla de reducción con  $A$  y  $F$ ; y producir  $H$ ,  $P$  y  $Z_2$  en donde  $H$  es la altura; " $P$ " es el complemento del ángulo paraláctico, y  $Z_2$  es el segundo componente del ángulo azimutal. Es usualmente necesario el ajustar la altura tabular por las partes fraccionarias de los argumentos intermedios de entrada para deducir la altura calculada, y una tabla auxiliar está dispuesta para la resolución. Las reglas que rigen los signos, de las cantidades; las cuales deben de adicionarse o restarse, están indicadas en las instrucciones y resumidas encima de cada página tabulada. El ángulo azimutal es la suma de dos componentes y se convierte a azimut verdadero por medio de las reglas conocidas, reiteradas al calce de las página tabulada.

La altura tabular y cantidades intermedias están indicadas al minuto de arco más próximo, aunque errores de 2' en la altura calculada puede acumularse durante el ajuste por los fragmentos de minutos de los argumentos de entrada.

Los componentes del ángulo azimutal están expresados al décimo de 0.1°; para deducir el azimut verdadero, solamente se garantiza a grados enteros. Puesto que, astros cercanos al Zenit son difíciles de observar con un sextante marino, respecto a ellos deben ser evitados; alturas mayores alrededor de 80° no son convenientes para reducción por éste método.

En la mayoría de las circunstancias la exactitud proporcionada por estas tablas es suficiente. No obstante, para mantener la totalidad de precisión (0.1') de los datos efeméricos del almanaque durante toda sus reducciones para la altura y azimut; tablas más extensivas o una calculadora deberán de ser usadas.

3. *Uso de las tablas.*

1o. *Paso.* Determinar el ángulo horario de Greenwich ( $AHG$ ) y la declinación ( $Dec$ ) del astro conforme el almanaque. Seleccione una latitud supuesta ( $Lat$ ) de grados enteros la más próxima a la latitud estimada. Escoger una longitud supuesta cercana a la longitud estimada tal que, el ángulo horario local:

$$AHL = AHG \quad \begin{array}{l} - \text{longitud al oeste.} \\ + \text{longitud al este.} \end{array}$$

efectuar en grados enteros.

2o. *Paso.* Entrar a la tabla de reducción con  $Lat$  y  $AHL$  como argumentos. Anotar las cantidades  $A$ ,  $B$  y  $Z_1$ . Aplicar las reglas de los signos de  $B$  y  $Z_1$ :  $B$  es negativa si  $90^\circ < AHL < 270^\circ$ ;  $Z_1$  tendrá el mismo signo, al igual que  $B$ . Asignar,  $A^0 =$  al grado entero más próximo de  $A$  y  $A' =$  la parte de los minutos de  $A$ . Este paso puede ser repetido para todas las reducciones antes de dejar la latitud de apertura de la tabla.

3o. *Paso.* Anotar la declinación  $Dec$ . Aplicar la regla para el signo de  $Dec$ :  $Dec$  es negativa, si la especificación de  $Dec$  (por ejem. N o S) es contraria a la latitud. Sumar  $B$  y la  $Dec$  algebraicamente para obtener  $F$ . Si  $F$  es negativa, el astro está por debajo del horizonte (en la reducción de visuales, esto puede ocurrir cuando los astros están cerca del horizonte). Considerar  $F$  como positivo hasta el paso, 7. Asignar  $F^0 =$  al grado entero más próximo de  $F$  y  $F' =$  la parte de los minutos de  $F$ .

4o. *Paso.* Entrar a la tabla de reducción una segunda vez con  $A^0$  y  $F^0$  como argumentos y anotar  $H$ ,  $P$ , y  $Z_2$ . Asignar  $P^0 =$  al grado entero más próximo a  $P$  y  $Z_2^0 =$  al grado entero inmediato a  $Z_2$ .

5o. *Paso.* Entrar a la tabla auxiliar con  $F'$  y  $P^0$  como argumentos para obtener la " $corr_1$ " de  $H$  y para  $F'$ . Aplicar la regla el signo de  $corr_1$ :  $corr_1$  es negativa si  $F > 90^\circ$  y  $F' > 29'$  o si  $F < 90^\circ$  y  $F' < 30'$ , de lo contrario  $corr_1$  es positiva.

6o. *Paso.* Entrar a la tabla auxiliar con  $A'$  y  $Z_2^0$  como argumentos para obtener la  $corr_2$  de  $H$  y para  $A'$ . Aplicar la regla el signo de  $corr_2$ :  $corr_2$  es negativa si  $A' < 30'$ , de lo contrario  $corr_2$  es positiva.

7o. *Paso.* Computar la altura calculada  $H_C$  como la suma de  $H$ ,  $corr_1$  y  $corr_2$ . Aplicar la regla para el signo de  $H_C$ :  $H_C$  es negativa si  $F$  negativa.



8o. Paso. Aplicar la regla de los signos de  $Z_2$ :  $Z_2$  es negativa si  $F > 90^\circ$  si  $F$  es negativa, substituir  $Z_2$  por  $180^\circ - Z_2$ . Asignar el ángulo azimutal  $Z$ , igual a la suma algebraica de  $Z_1$  y  $Z_2$  ó ignore el signo resultante. Obtener el azimut verdadero  $Z_n$  conforme las reglas:

$$\begin{aligned} \text{Para la latitud N., si } AHL > 180^\circ \quad Z_n &= Z \\ &\text{si } AHL < 180^\circ \quad Z_n = 360^\circ - Z \\ \text{Para la latitud S., si } AHL > 180^\circ \quad Z_n &= 180^\circ - Z \\ &\text{si } AHL < 180^\circ \quad Z_n = 180^\circ + Z \end{aligned}$$

La altura observada  $H_o$  es comparada con  $H_c$  para obtener la diferencia de altura, la que, con  $Z_n$  son utilizados para trazar la posición de la trayectoria.

4. Ejemplo (a) conforme la posición estimada de  $5^\circ$  este de Greenwich y  $53^\circ$  latitud norte, se requieren, la altura y el azimut de la estrella *Schedar*, el 5 de febrero de 1989, a las  $6^h 25^m$  TU.

1. Latitud supuesta  $Lat = 53^\circ N$   
conforme al almanaque  $AHG = 221^\circ 40'$   
Longitud supuesta  $Long = \underline{5^\circ 20'}$  E.G.  
Angulo horario local  $AHL = 227^\circ$

2. Primera entrada, a la tabla de reducción.

$$\begin{aligned} (Lat, AHL) = (53^\circ, 227) \quad A &= 26 \ 07 \quad A^\circ = 26, A' = 7 \\ B &= -27 \ 12 \quad Z_1 = -49.4 \quad 90^\circ < AHL < 270^\circ \end{aligned}$$

3. Conforme al almanaque  $Dec = \underline{+56 \ 29}$  Lat y Dec semejantes

$$\text{Suma} = B + Dec \quad F = +29 \ 17 \quad F^\circ = 29, F' = 17$$

4. Segunda entrada, a la tabla de reducción.

$$\begin{aligned} (A^\circ, F^\circ) = (26, 29) \quad H &= 25 \ 50 \quad P^\circ = 61 \\ Z_2 &= 76.3 \end{aligned}$$

5. Primera entrada, a la tabla auxiliar.

$$\begin{aligned} (F', P^\circ) = (17, 61) \quad corr_1 &= \underline{+ \ 15} \quad F < 90^\circ, F' < 29' \\ \text{suma} & \quad \quad \quad 26 \ 05 \end{aligned}$$

6. Segunda entrada, a la tabla auxiliar.

$$(A', Z_2^\circ) = (7, 76) \quad corr_2 = \underline{- \ 2} \quad A' < 30'$$

7. Suma = altura calculada  $H_c = + 26^\circ 03'$   $F > 0^\circ$

8. Azimut: primer componente  $Z_1 = - 49.4$  mismo signo al igual que B

$$\text{segundo componente } Z_2 = + \underline{76.3} \quad F < 90^\circ, F > 0^\circ$$

$$\text{Suma} = \text{ángulo azimutal} \quad Z = 26.9$$

$$\text{Azimut verdadero} \quad Z_n = 27^\circ \quad \text{Latitud N. } AHL > 180^\circ$$



**TABLAS ABREVIADAS PARA REDUCCION  
DE  
VISUALES**



B: (—) para 90° &lt; AHL &lt; 270°

Dec: (—) para la Lat. especificada y opuesta.

## TABLA PARA REDUCCION DE VISUALES

Z<sub>1</sub>: mismo signo que BZ<sub>2</sub>: (—) para F > 90°

Lat. / A	0°			1°			2°			3°			4°			5°			Lat. / A
AHL/F	A/H	B/P	Z <sub>1</sub> /Z <sub>2</sub>	A/H	B/P	Z <sub>1</sub> /Z <sub>2</sub>	A/H	B/P	Z <sub>1</sub> /Z <sub>2</sub>	A/H	B/P	Z <sub>1</sub> /Z <sub>2</sub>	A/H	B/P	Z <sub>1</sub> /Z <sub>2</sub>	A/H	B/P	Z <sub>1</sub> /Z <sub>2</sub>	AHL
0 180	0 00	90 00	90 00	0 00	89 00	90 00	0 00	88 00	90 00	0 00	87 00	90 00	0 00	86 00	90 00	0 00	85 00	90 00	180 360
1 179	1 00	90 00	90 00	1 00	89 00	90 00	1 00	88 00	90 00	1 00	87 00	89 99	1 00	86 00	89 99	1 00	85 00	89 99	181 359
2 178	2 00	90 00	90 00	2 00	89 00	90 00	2 00	88 00	89 99	2 00	87 00	89 99	2 00	86 00	89 99	2 00	85 00	89 99	182 358
3 177	3 00	90 00	90 00	3 00	89 00	89 99	3 00	88 00	89 99	3 00	87 00	89 99	3 00	86 00	89 99	3 00	85 00	89 99	183 357
4 176	4 00	90 00	90 00	4 00	89 00	89 99	4 00	88 00	89 99	4 00	87 00	89 99	4 00	86 00	89 99	4 00	85 00	89 99	184 356
5 175	5 00	90 00	90 00	5 00	89 00	89 99	5 00	88 00	89 99	5 00	87 00	89 99	5 00	86 00	89 99	5 00	85 00	89 99	185 355
6 174	6 00	90 00	90 00	6 00	89 00	89 99	6 00	87 59	89 99	6 00	86 59	89 99	6 00	85 59	89 99	6 00	84 59	89 99	186 354
7 173	7 00	90 00	90 00	7 00	89 00	89 99	7 00	87 59	89 99	7 00	86 59	89 99	7 00	85 59	89 99	7 00	84 59	89 99	187 353
8 172	8 00	90 00	90 00	8 00	88 59	89 99	8 00	87 59	89 99	8 00	86 59	89 99	8 00	85 59	89 99	8 00	84 59	89 99	188 352
9 171	9 00	90 00	90 00	9 00	88 59	89 99	9 00	87 59	89 99	9 00	86 59	89 99	9 00	85 59	89 99	9 00	84 59	89 99	189 351
10 170	10 00	90 00	90 00	10 00	88 59	89 99	10 00	87 59	89 99	10 00	86 59	89 99	10 00	85 59	89 99	10 00	84 59	89 99	190 350
11 169	11 00	90 00	90 00	11 00	88 59	89 99	11 00	87 59	89 99	11 00	86 59	89 99	11 00	85 59	89 99	11 00	84 59	89 99	191 349
12 168	12 00	90 00	90 00	12 00	88 59	89 99	12 00	87 59	89 99	12 00	86 59	89 99	12 00	85 59	89 99	12 00	84 59	89 99	192 348
13 167	13 00	90 00	90 00	13 00	88 58	89 99	13 00	87 59	89 99	13 00	86 59	89 99	13 00	85 59	89 99	13 00	84 59	89 99	193 347
14 166	14 00	90 00	90 00	14 00	88 58	89 99	13 59	87 59	89 99	13 59	86 59	89 99	13 59	85 59	89 99	13 59	84 59	89 99	194 346
15 165	15 00	90 00	90 00	15 00	88 58	89 99	14 59	87 59	89 99	14 59	86 59	89 99	14 59	85 59	89 99	14 59	84 59	89 99	195 345
16 164	16 00	90 00	90 00	16 00	88 58	89 99	15 59	87 59	89 99	15 59	86 59	89 99	15 59	85 59	89 99	15 59	84 59	89 99	196 344
17 163	17 00	90 00	90 00	17 00	88 57	89 99	16 59	87 59	89 99	16 59	86 59	89 99	16 59	85 59	89 99	16 59	84 59	89 99	197 343
18 162	18 00	90 00	90 00	18 00	88 57	89 99	17 59	87 59	89 99	17 59	86 59	89 99	17 59	85 59	89 99	17 59	84 59	89 99	198 342
19 161	19 00	90 00	90 00	19 00	88 57	89 99	18 59	87 59	89 99	18 59	86 59	89 99	18 59	85 59	89 99	18 59	84 59	89 99	199 341
20 160	20 00	90 00	90 00	20 00	88 56	89 99	19 59	87 59	89 99	19 59	86 59	89 99	19 59	85 59	89 99	19 59	84 59	89 99	200 340
21 159	21 00	90 00	90 00	21 00	88 56	89 99	20 59	87 59	89 99	20 59	86 59	89 99	20 59	85 59	89 99	20 59	84 59	89 99	201 339
22 158	22 00	90 00	90 00	22 00	88 55	89 99	21 59	87 59	89 99	21 59	86 59	89 99	21 59	85 59	89 99	21 59	84 59	89 99	202 338
23 157	23 00	90 00	90 00	23 00	88 55	89 99	22 59	87 59	89 99	22 59	86 59	89 99	22 59	85 59	89 99	22 59	84 59	89 99	203 337
24 156	24 00	90 00	90 00	24 00	88 54	89 99	23 59	87 49	89 99	23 59	86 49	89 99	23 59	85 49	89 99	23 59	84 49	89 99	204 336
25 155	25 00	90 00	90 00	25 00	88 54	89 99	24 59	87 49	89 99	24 59	86 49	89 99	24 59	85 49	89 99	24 59	84 49	89 99	205 335
26 154	26 00	90 00	90 00	26 00	88 53	89 99	25 59	87 49	89 99	25 59	86 49	89 99	25 59	85 49	89 99	25 59	84 49	89 99	206 334
27 153	27 00	90 00	90 00	27 00	88 53	89 99	26 59	87 49	89 99	26 59	86 49	89 99	26 59	85 49	89 99	26 59	84 49	89 99	207 333
28 152	28 00	90 00	90 00	28 00	88 52	89 99	27 59	87 49	89 99	27 59	86 49	89 99	27 59	85 49	89 99	27 59	84 49	89 99	208 332
29 151	29 00	90 00	90 00	29 00	88 51	89 99	28 59	87 49	89 99	28 59	86 49	89 99	28 59	85 49	89 99	28 59	84 49	89 99	209 331
30 150	30 00	90 00	90 00	30 00	88 51	89 99	29 59	87 41	88 99	29 59	86 41	88 99	29 59	85 41	88 99	29 59	84 41	88 99	210 330
31 149	31 00	90 00	90 00	31 00	88 50	89 99	30 59	87 40	88 99	30 59	86 40	88 99	30 59	85 40	88 99	30 59	84 40	88 99	211 329
32 148	32 00	90 00	90 00	32 00	88 49	89 99	31 59	87 39	88 99	31 59	86 39	88 99	31 59	85 39	88 99	31 59	84 39	88 99	212 328
33 147	33 00	90 00	90 00	33 00	88 48	89 99	32 59	87 37	88 99	32 59	86 37	88 99	32 59	85 37	88 99	32 59	84 37	88 99	213 327
34 146	34 00	90 00	90 00	34 00	88 48	89 99	33 59	87 35	88 99	33 59	86 35	88 99	33 59	85 35	88 99	33 59	84 35	88 99	214 326
35 145	35 00	90 00	90 00	35 00	88 47	89 99	34 59	87 34	88 99	34 59	86 34	88 99	34 59	85 34	88 99	34 59	84 34	88 99	215 325
36 144	36 00	90 00	90 00	36 00	88 46	89 99	35 58	87 32	88 99	35 58	86 32	88 99	35 58	85 32	88 99	35 58	84 32	88 99	216 324
37 143	37 00	90 00	90 00	37 00	88 45	89 99	36 58	87 30	88 99	36 58	86 30	88 99	36 58	85 30	88 99	36 58	84 30	88 99	217 323
38 142	38 00	90 00	90 00	38 00	88 44	89 99	37 58	87 28	88 99	37 58	86 28	88 99	37 58	85 28	88 99	37 58	84 28	88 99	218 322
39 141	39 00	90 00	90 00	39 00	88 43	89 99	38 58	87 26	88 99	38 58	86 26	88 99	38 58	85 26	88 99	38 58	84 26	88 99	219 321
40 140	40 00	90 00	90 00	40 00	88 42	89 99	39 58	87 23	88 99	39 58	86 23	88 99	39 58	85 23	88 99	39 58	84 23	88 99	220 320
41 139	41 00	90 00	90 00	41 00	88 40	89 99	40 58	87 21	88 99	40 58	86 21	88 99	40 58	85 21	88 99	40 58	84 21	88 99	221 319
42 138	42 00	90 00	90 00	42 00	88 39	89 99	41 58	87 19	88 99	41 58	86 19	88 99	41 58	85 19	88 99	41 58	84 19	88 99	222 318
43 137	43 00	90 00	90 00	43 00	88 38	89 99	42 58	87 16	88 99	42 58	86 16	88 99	42 58	85 16	88 99	42 58	84 16	88 99	223 317
44 136	44 00	90 00	90 00	43 59	88 37	89 00	43 58	87 13	88 99	43 58	86 13	88 99	43 58	85 13	88 99	43 58	84 13	88 99	224 316
45 135	45 00	90 00	90 00	44 59	88 35	89 00	44 58	87 10	88 99	44 58	86 10	88 99	44 58	85 10	88 99	44 58	84 10	88 99	225 315

LATITUD / A. 0° - 5°



Lat. / A	0°			1°			2°			3°			4°			5°			Lat. / A
AHL/F	A/H	B/P	Z <sub>1</sub> /Z <sub>2</sub>	A/H	B/P	Z <sub>1</sub> /Z <sub>2</sub>	A/H	B/P	Z <sub>1</sub> /Z <sub>2</sub>	A/H	B/P	Z <sub>1</sub> /Z <sub>2</sub>	A/H	B/P	Z <sub>1</sub> /Z <sub>2</sub>	A/H	B/P	Z <sub>1</sub> /Z <sub>2</sub>	AHL
45 135	45 00	90 00	90.0	44 59	88 35	89.0	44 58	87 10	88.0	44 55	85 46	87.0	44 52	84 21	86.0	44 47	82 57	85.0	225 315
46 134	46 00	90 00	90.0	45 59	88 34	89.0	45 58	87 07	87.9	45 55	85 41	86.9	45 51	84 15	85.9	45 46	82 49	84.8	226 314
47 133	47 00	90 00	90.0	46 59	88 32	88.9	46 58	87 04	87.9	46 55	85 36	86.8	46 51	84 09	85.7	46 46	82 41	84.7	227 313
48 132	48 00	90 00	90.0	47 59	88 30	88.9	47 58	87 01	87.8	47 55	85 31	86.7	47 51	84 02	85.6	47 46	82 33	84.5	228 312
49 131	49 00	90 00	90.0	48 59	88 29	88.8	48 58	86 57	87.7	48 55	85 26	86.6	48 50	83 55	85.4	48 45	82 24	84.3	229 311
50 130	50 00	90 00	90.0	49 59	88 27	88.8	49 58	86 53	87.6	49 54	85 20	86.4	49 50	83 47	85.2	49 44	82 15	84.1	230 310
51 129	51 00	90 00	90.0	50 59	88 25	88.8	50 57	86 49	87.5	50 54	85 14	86.3	50 50	83 40	85.1	50 44	82 05	83.9	231 309
52 128	52 00	90 00	90.0	51 59	88 23	88.7	51 57	86 45	87.4	51 54	85 08	86.2	51 49	83 31	84.9	51 43	81 55	83.6	232 308
53 127	53 00	90 00	90.0	52 59	88 20	88.7	52 57	86 41	87.3	52 54	85 01	86.0	52 49	83 22	84.7	52 43	81 44	83.4	233 307
54 126	54 00	90 00	90.0	53 59	88 18	88.6	53 57	86 36	87.2	53 54	84 54	85.9	53 49	83 13	84.5	53 42	81 32	83.2	234 306
55 125	55 00	90 00	90.0	54 59	88 15	88.6	54 57	86 31	87.1	54 53	84 47	85.7	54 48	83 03	84.3	54 41	81 20	82.9	235 305
56 124	56 00	90 00	90.0	55 59	88 13	88.5	55 57	86 26	87.0	55 53	84 39	85.6	55 48	82 52	84.1	55 41	81 06	82.6	236 304
57 123	57 00	90 00	90.0	56 59	88 10	88.5	56 57	86 20	86.9	56 53	84 30	85.4	56 47	82 41	83.9	56 40	80 52	82.4	237 303
58 122	58 00	90 00	90.0	57 59	88 07	88.4	57 57	86 14	86.8	57 52	84 21	85.2	57 47	82 29	83.6	57 39	80 38	82.1	238 302
59 121	59 00	90 00	90.0	58 59	88 04	88.3	58 57	86 07	86.7	58 52	84 11	85.0	58 46	82 16	83.4	58 38	80 22	81.7	239 301
60 120	60 00	90 00	90.0	59 59	88 00	88.3	59 56	86 00	86.5	59 52	84 01	84.8	59 46	82 02	83.1	59 37	80 04	81.4	240 300
61 119	61 00	90 00	90.0	60 59	87 56	88.2	60 56	85 53	86.4	60 52	83 50	84.6	60 45	81 48	82.8	60 37	79 46	81.1	241 299
62 118	62 00	90 00	90.0	61 59	87 52	88.1	61 56	85 45	86.2	61 51	83 38	84.4	61 44	81 32	82.5	61 36	79 27	80.7	242 298
63 117	63 00	90 00	90.0	62 59	87 48	88.0	62 56	85 36	86.1	62 51	83 25	84.1	62 44	81 15	82.2	62 35	79 06	80.3	243 297
64 116	64 00	90 00	90.0	63 59	87 43	88.0	63 56	85 27	85.9	63 50	83 11	83.9	63 43	80 56	81.9	63 33	78 43	79.9	244 296
65 115	65 00	90 00	90.0	64 59	87 38	87.9	64 56	85 17	85.7	64 50	82 56	83.6	64 42	80 36	81.5	64 32	78 18	79.4	245 295
66 114	66 00	90 00	90.0	65 59	87 33	87.8	65 55	85 06	85.5	65 49	82 39	83.3	65 41	80 15	81.1	65 31	77 52	78.9	246 294
67 113	67 00	90 00	90.0	66 59	87 26	87.6	66 55	84 54	85.3	66 49	82 22	83.0	66 40	79 51	80.7	66 29	77 23	78.4	247 293
68 112	68 00	90 00	90.0	67 59	87 20	87.5	67 55	84 40	85.1	67 48	82 02	82.6	67 39	79 26	80.2	67 28	76 51	77.8	248 292
69 111	69 00	90 00	90.0	68 59	87 13	87.4	68 55	84 26	84.8	68 48	81 41	82.2	68 38	78 57	79.7	68 26	76 17	77.2	249 291
70 110	70 00	90 00	90.0	69 59	87 05	87.3	69 54	84 10	84.5	69 47	81 17	81.8	69 37	78 27	79.2	69 25	75 39	76.5	250 290
71 109	71 00	90 00	90.0	70 58	86 56	87.1	70 54	83 53	84.2	70 46	80 51	81.4	70 36	77 53	78.5	70 23	74 57	75.8	251 289
72 108	72 00	90 00	90.0	71 58	86 46	86.9	71 54	83 33	83.9	71 46	80 22	80.8	71 35	77 15	77.9	71 20	74 12	75.0	252 288
73 107	73 00	90 00	90.0	72 58	86 35	86.7	72 53	83 11	83.5	72 45	79 50	80.3	72 33	76 33	77.1	72 18	73 20	74.1	253 287
74 106	74 00	90 00	90.0	73 58	86 22	86.5	73 53	82 47	83.1	73 44	79 14	79.7	73 31	75 46	76.3	73 15	72 23	73.1	254 286
75 105	75 00	90 00	90.0	74 58	86 08	86.3	74 52	82 19	82.6	74 43	78 33	78.9	74 29	74 53	75.4	74 12	71 19	72.0	255 285
76 104	76 00	90 00	90.0	75 58	85 52	86.0	75 52	81 47	82.0	75 41	77 47	78.1	75 27	73 53	74.4	75 09	70 07	70.7	256 284
77 103	77 00	90 00	90.0	76 58	85 34	85.7	76 51	81 11	81.4	76 40	76 53	77.2	76 25	72 44	73.2	76 05	68 45	69.3	257 283
78 102	78 00	90 00	90.0	77 58	85 12	85.3	77 50	80 28	80.7	77 38	75 51	76.2	77 22	71 25	71.8	77 01	67 11	67.7	258 282
79 101	79 00	90 00	90.0	78 57	84 46	84.9	78 49	79 38	79.8	78 36	74 38	74.9	78 18	69 52	70.3	77 56	65 22	65.8	259 281
80 100	80 00	90 00	90.0	79 57	84 16	84.3	79 48	78 38	78.8	79 34	73 12	73.5	79 14	68 04	68.4	78 50	63 16	63.7	260 280
81 99	81 00	90 00	90.0	80 57	83 38	83.7	80 47	77 25	77.6	80 31	71 29	71.7	80 09	65 55	66.2	79 43	60 47	61.2	261 279
82 98	82 00	90 00	90.0	81 56	82 51	82.9	81 45	75 55	76.1	81 28	69 22	69.6	81 04	63 19	63.6	80 34	57 51	58.2	262 278
83 97	83 00	90 00	90.0	82 56	81 51	81.9	82 43	74 01	74.1	82 23	66 44	66.9	81 57	60 09	60.4	81 24	54 20	54.6	263 277
84 96	84 00	90 00	90.0	83 55	80 31	80.6	83 41	71 32	71.6	83 18	63 22	63.5	82 48	56 13	56.4	82 12	50 04	50.3	264 276
85 95	85 00	90 00	90.0	84 54	78 40	78.7	84 37	68 10	68.3	84 10	58 59	59.1	83 36	51 16	51.4	82 56	44 53	45.1	265 275
86 94	86 00	90 00	90.0	85 53	75 57	76.0	85 32	63 24	63.5	85 00	53 05	53.2	84 21	44 56	45.1	83 36	38 34	38.7	266 274
87 93	87 00	90 00	90.0	86 50	71 33	71.6	86 24	56 17	56.3	85 45	44 58	45.0	85 00	36 49	36.9	84 10	30 53	31.0	267 273
88 92	88 00	90 00	90.0	87 46	63 26	63.4	87 10	44 59	45.0	86 24	33 40	33.7	85 32	26 31	26.6	84 37	21 45	21.8	268 272
89 91	89 00	90 00	90.0	88 35	45 00	45.0	87 46	26 33	26.6	86 50	18 25	18.4	85 53	14 01	14.0	84 54	11 17	11.3	269 271
90 90	90 00	0 00	0.0	89 00	0 00	0.0	88 00	0 00	0.0	87 00	0 00	0.0	86 00	0 00	0.0	85 00	0 00	0.0	270 270

Lat. N.: para AHL > 180°... Z<sub>N</sub> = Z  
 para AHL < 180°... Z<sub>N</sub> = 360° - Z

Lat. S.: para AHL > 180°... Z<sub>N</sub> = 180° - Z  
 para AHL < 180°... Z<sub>N</sub> = 180° + Z



B: (—) para 90° &lt; AHL &lt; 270°

Dec: (—) para la Lat. especificada y opuesta.

## TABLA PARA REDUCCION DE VISUALES

Z<sub>1</sub>: mismo signo que BZ<sub>2</sub>: (—) para F > 90°

Lat. / A	6°			7°			8°			9°			10°			11°			Lat. / A
AHL/F	A/H	B/P	Z <sub>1</sub> /Z <sub>2</sub>	A/H	B/P	Z <sub>1</sub> /Z <sub>2</sub>	A/H	B/P	Z <sub>1</sub> /Z <sub>2</sub>	A/H	B/P	Z <sub>1</sub> /Z <sub>2</sub>	A/H	B/P	Z <sub>1</sub> /Z <sub>2</sub>	A/H	B/P	Z <sub>1</sub> /Z <sub>2</sub>	AHL
0 180	0 00	84 00	90 0	0 00	83 00	90 0	0 00	82 00	90 0	0 00	81 00	90 0	0 00	80 00	90 0	0 00	79 00	90 0	180 360
1 179	1 00	84 00	89 9	1 00	83 00	89 9	0 59	82 00	89 9	0 59	81 00	89 8	0 59	80 00	89 8	0 59	79 00	89 8	181 359
2 178	1 59	84 00	89 8	1 59	83 00	89 8	1 59	82 00	89 7	1 59	81 00	89 7	1 58	80 00	89 7	1 58	79 00	89 6	182 358
3 177	2 59	84 00	89 7	2 59	82 59	89 6	2 58	81 59	89 6	2 58	80 59	89 5	2 57	79 59	89 5	2 57	78 59	89 4	183 357
4 176	3 59	83 59	89 6	3 58	82 59	89 5	3 58	81 59	89 4	3 57	80 59	89 4	3 56	79 59	89 3	3 56	78 58	89 2	184 356
5 175	4 58	83 59	89 5	4 58	82 58	89 4	4 57	81 58	89 3	4 56	80 58	89 2	4 55	79 58	89 1	4 54	78 58	89 0	185 355
6 174	5 58	83 58	89 4	5 57	82 58	89 3	5 56	81 57	89 2	5 56	80 57	89 1	5 55	79 57	89 0	5 53	78 56	88 9	186 354
7 173	6 58	83 57	89 3	6 57	82 57	89 1	6 56	81 56	89 0	6 55	80 56	88 9	6 54	79 56	88 8	6 52	78 55	88 7	187 353
8 172	7 57	83 56	89 2	7 56	82 56	89 0	7 55	81 55	88 9	7 54	80 55	88 7	7 53	79 54	88 6	7 51	78 54	88 5	188 352
9 171	8 57	83 56	89 1	8 56	82 55	88 9	8 55	81 54	88 7	8 53	80 53	88 6	8 52	79 53	88 4	8 50	78 52	88 3	189 351
10 170	9 57	83 54	88 9	9 55	82 54	88 8	9 54	81 53	88 6	9 53	80 52	88 4	9 51	79 51	88 2	9 49	78 50	88 1	190 350
11 169	10 56	83 53	88 8	10 55	82 52	88 6	10 53	81 51	88 5	10 52	80 50	88 3	10 50	79 49	88 1	10 48	78 48	87 9	191 349
12 168	11 56	83 52	88 7	11 55	82 51	88 5	11 53	81 49	88 3	11 51	80 48	88 1	11 49	79 47	87 9	11 47	78 46	87 7	192 348
13 167	12 56	83 51	88 6	12 54	82 49	88 4	12 52	81 48	88 2	12 50	80 46	87 9	12 48	79 45	87 7	12 45	78 43	87 5	193 347
14 166	13 55	83 49	88 5	13 54	82 47	88 3	13 52	81 46	88 0	13 49	80 44	87 8	13 47	79 42	87 5	13 44	78 40	87 3	194 346
15 165	14 55	83 47	88 4	14 53	82 45	88 1	14 51	81 43	87 9	14 49	80 41	87 6	14 46	79 39	87 3	14 43	78 37	87 1	195 345
16 164	15 55	83 46	88 3	15 53	82 43	88 0	15 50	81 41	87 7	15 48	80 39	87 4	15 45	79 36	87 1	15 42	78 34	86 9	196 344
17 163	16 54	83 44	88 2	16 52	82 41	87 9	16 50	81 38	87 6	16 47	80 36	87 3	16 44	79 33	87 0	16 41	78 31	86 7	197 343
18 162	17 54	83 42	88 1	17 52	82 39	87 7	17 49	81 36	87 4	17 46	80 33	87 1	17 43	79 30	86 8	17 39	78 27	86 5	198 342
19 161	18 54	83 39	87 9	18 51	82 36	87 6	18 48	81 33	87 3	18 45	80 29	86 9	18 42	79 26	86 6	18 38	78 23	86 2	199 341
20 160	19 53	83 37	87 8	19 51	82 33	87 5	19 48	81 30	87 1	19 45	80 26	86 7	19 41	79 22	86 4	19 37	78 19	86 0	200 340
21 159	20 53	83 35	87 7	20 50	82 30	87 3	20 47	81 26	86 9	20 44	80 22	86 6	20 40	79 18	86 2	20 36	78 14	85 8	201 339
22 158	21 52	83 32	87 6	21 50	82 27	87 2	21 46	81 23	86 8	21 43	80 18	86 4	21 39	79 14	86 0	21 35	78 10	85 6	202 338
23 157	22 52	83 29	87 5	22 49	82 24	87 0	22 46	81 19	86 6	22 42	80 14	86 2	22 38	79 09	85 8	22 33	78 05	85 4	203 337
24 156	23 52	83 26	87 3	23 49	82 21	86 9	23 45	81 15	86 5	23 41	80 10	86 0	23 37	79 05	85 6	23 32	77 59	85 1	204 336
25 155	24 51	83 23	87 2	24 48	82 17	86 7	24 44	81 11	86 3	24 40	80 05	85 8	24 36	78 59	85 4	24 31	77 54	84 9	205 335
26 154	25 51	83 20	87 1	25 48	82 13	86 6	25 44	81 07	86 1	25 39	80 00	85 6	25 35	78 54	85 2	25 29	77 48	84 7	206 334
27 153	26 50	83 16	87 0	26 47	82 09	86 4	26 43	81 02	85 9	26 38	79 55	85 4	26 33	78 48	84 9	26 28	77 42	84 4	207 333
28 152	27 50	83 13	86 8	27 46	82 05	86 3	27 42	80 57	85 8	27 38	79 50	85 2	27 32	78 42	84 7	27 27	77 35	84 2	208 332
29 151	28 50	83 09	86 7	28 46	82 01	86 1	28 41	80 52	85 6	28 37	79 44	85 0	28 31	78 36	84 5	28 25	77 28	84 0	209 331
30 150	29 49	83 05	86 5	29 45	81 56	86 0	29 41	80 47	85 4	29 36	79 38	84 8	29 30	78 29	84 3	29 24	77 21	83 7	210 330
31 149	30 49	83 01	86 4	30 45	81 51	85 8	30 40	80 41	85 2	30 35	79 32	84 6	30 29	78 23	84 0	30 22	77 13	83 5	211 329
32 148	31 48	82 56	86 3	31 44	81 46	85 6	31 39	80 35	85 0	31 34	79 25	84 4	31 27	78 15	83 8	31 21	77 05	83 2	212 328
33 147	32 48	82 51	86 1	32 43	81 40	85 5	32 38	80 29	84 8	32 33	79 18	84 2	32 26	78 08	83 6	32 19	76 57	82 9	213 327
34 146	33 47	82 46	86 0	33 43	81 35	85 3	33 37	80 23	84 6	33 32	79 11	84 0	33 25	78 00	83 3	33 18	76 48	82 7	214 326
35 145	34 47	82 41	85 8	34 42	81 29	85 1	34 37	80 16	84 4	34 30	79 03	83 7	34 24	77 51	83 1	34 16	76 39	82 4	215 325
36 144	35 46	82 36	85 7	35 41	81 22	84 9	35 36	80 09	84 2	35 29	78 55	83 5	35 22	77 42	82 8	35 14	76 29	82 1	216 324
37 143	36 46	82 30	85 5	36 41	81 16	84 8	36 35	80 01	84 0	36 28	78 47	83 3	36 21	77 33	82 5	36 13	76 19	81 8	217 323
38 142	37 45	82 24	85 3	37 40	81 09	84 6	37 34	79 53	83 8	37 27	78 38	83 0	37 19	77 23	82 3	37 11	76 09	81 5	218 322
39 141	38 45	82 18	85 2	38 39	81 01	84 4	38 33	79 45	83 6	38 26	78 29	82 8	38 18	77 13	82 0	38 09	75 57	81 2	219 321
40 140	39 44	82 11	85 0	39 39	80 54	84 2	39 32	79 36	83 3	39 25	78 19	82 5	39 16	77 02	81 7	39 07	75 46	80 9	220 320
41 139	40 44	82 04	84 8	40 38	80 46	84 0	40 31	79 27	83 1	40 23	78 09	82 3	40 15	76 51	81 4	40 05	75 33	80 6	221 319
42 138	41 43	81 57	84 6	41 37	80 37	83 7	41 30	79 17	82 9	41 22	77 58	82 0	41 13	76 39	81 1	41 04	75 21	80 3	222 318
43 137	42 42	81 49	84 4	42 36	80 28	83 5	42 29	79 07	82 6	42 21	77 47	81 7	42 12	76 27	80 8	42 02	75 07	79 9	223 317
44 136	43 42	81 41	84 2	43 35	80 19	83 3	43 28	78 57	82 3	43 19	77 35	81 4	43 10	76 14	80 5	43 00	74 53	79 6	224 316
45 135	44 41	81 33	84 0	44 34	80 09	83 1	44 27	78 46	82 1	44 18	77 22	81 1	44 08	76 00	80 1	43 57	74 38	79 2	225 315

LATITUD / A: 6° - 11°

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Lat. / A	6°			7°			8°			9°			10°			11°			Lat. / A
AHL/F	A/H	B/P	Z <sub>1</sub> /Z <sub>2</sub>	A/H	B/P	Z <sub>1</sub> /Z <sub>2</sub>	A/H	B/P	Z <sub>1</sub> /Z <sub>2</sub>	A/H	B/P	Z <sub>1</sub> /Z <sub>2</sub>	A/H	B/P	Z <sub>1</sub> /Z <sub>2</sub>	A/H	B/P	Z <sub>1</sub> /Z <sub>2</sub>	AHL
45 135	44 41	81 33	84.0	44 34	80 09	83.1	44 27	78 46	82.1	44 18	77 22	81.1	44 08	76 00	80.1	43 57	74 38	79.2	225 315
46 134	45 41	81 24	83.8	45 34	79 59	82.8	45 26	78 34	81.8	45 16	77 09	80.8	45 06	75 45	79.8	44 55	74 22	78.8	226 314
47 133	46 40	81 14	83.6	46 33	79 48	82.6	46 24	78 21	81.5	46 15	76 56	80.5	46 04	75 30	79.5	44 53	74 05	78.4	227 313
48 132	47 39	81 04	83.4	47 32	79 36	82.3	47 23	78 08	81.2	47 13	76 41	80.1	47 03	75 14	79.1	46 51	73 48	78.0	228 312
49 131	48 38	80 54	83.1	48 31	79 24	82.0	48 22	77 55	80.9	48 12	76 26	79.8	48 01	74 57	78.7	47 48	73 30	77.6	229 311
50 130	49 38	80 43	82.9	49 30	79 11	81.7	49 20	77 40	80.6	49 10	76 09	79.4	48 58	74 40	78.3	48 46	73 10	77.2	230 310
51 129	50 37	80 31	82.6	50 29	78 58	81.4	50 19	77 25	80.2	50 08	75 52	79.1	49 56	74 21	77.9	49 43	72 50	76.7	231 309
52 128	51 36	80 19	82.4	51 27	78 43	81.1	51 18	77 08	79.9	51 06	75 34	78.7	50 54	74 01	77.5	50 40	72 29	76.3	232 308
53 127	52 35	80 06	82.1	52 26	78 28	80.8	52 16	76 51	79.5	52 04	75 15	78.3	51 52	73 40	77.0	51 37	72 06	75.8	233 307
54 126	53 34	79 52	81.8	53 25	78 12	80.5	53 14	76 33	79.2	53 02	74 55	77.8	52 49	73 18	76.6	52 35	71 42	75.3	234 306
55 125	54 33	79 37	81.5	54 24	77 55	80.1	54 13	76 14	78.8	54 00	74 34	77.4	53 47	72 55	76.1	53 31	71 17	74.8	235 305
56 124	55 32	79 21	81.2	55 22	77 37	79.8	55 11	75 54	78.3	54 58	74 11	76.9	54 44	72 30	75.6	54 28	70 50	74.2	236 304
57 123	56 31	79 05	80.9	56 21	77 18	79.4	56 09	75 32	77.9	55 56	73 47	76.5	55 41	72 04	75.0	55 25	70 22	73.6	237 303
58 122	57 30	78 47	80.5	57 19	76 57	79.0	57 07	75 09	77.4	56 53	73 22	75.9	56 38	71 36	74.5	56 21	69 51	73.0	238 302
59 121	58 29	78 28	80.1	58 18	76 35	78.5	58 05	74 44	77.0	57 51	72 54	75.4	57 35	71 06	73.9	57 17	69 19	72.4	239 301
60 120	59 28	78 08	79.7	59 16	76 12	78.1	59 03	74 18	76.4	58 48	72 25	74.8	58 32	70 34	73.3	58 13	68 45	71.7	240 300
61 119	60 26	77 46	79.3	60 14	75 47	77.6	60 01	73 50	75.9	59 45	71 54	74.2	59 28	70 01	72.6	59 09	68 09	71.0	241 299
62 118	61 25	77 23	78.9	61 12	75 21	77.1	60 58	73 20	75.3	60 42	71 21	73.6	60 24	69 25	71.9	60 05	67 30	70.3	242 298
63 117	62 23	76 58	78.4	62 10	74 52	76.5	61 56	72 48	74.7	61 39	70 46	72.9	61 20	68 46	71.2	61 00	66 49	69.5	243 297
64 116	63 22	76 31	77.9	63 08	74 21	76.0	62 53	72 13	74.1	62 35	70 08	72.2	62 16	68 05	70.4	61 55	66 05	68.6	244 296
65 115	64 20	76 02	77.4	64 06	73 48	75.4	63 50	71 36	73.4	63 32	69 27	71.5	63 12	67 21	69.6	62 50	65 18	67.7	245 295
66 114	65 18	75 31	76.8	65 03	73 12	74.7	64 47	70 56	72.6	64 28	68 43	70.6	64 07	66 34	68.7	63 44	64 27	66.8	246 294
67 113	66 16	74 57	76.2	66 01	72 33	74.0	65 43	70 13	71.8	65 23	67 56	69.8	65 02	65 43	67.8	64 38	63 33	65.8	247 293
68 112	67 14	74 20	75.5	66 58	71 51	73.2	66 40	69 26	71.0	66 19	67 05	68.8	65 56	64 48	66.7	65 32	62 35	64.7	248 292
69 111	68 12	73 39	74.8	67 55	71 05	72.4	67 36	68 35	70.1	67 14	66 09	67.8	66 50	63 48	65.7	66 25	61 31	63.6	249 291
70 110	69 09	72 55	74.0	68 51	70 15	71.5	68 31	67 40	69.1	68 09	65 09	66.7	67 44	62 44	64.5	67 17	60 23	62.3	250 290
71 109	70 07	72 06	73.1	69 48	69 20	70.5	69 27	66 39	68.0	69 03	64 03	65.6	68 37	61 34	63.2	68 09	59 10	61.0	251 289
72 108	71 03	71 13	72.2	70 44	68 20	69.4	70 21	65 33	66.8	69 57	62 52	64.3	69 29	60 17	61.9	69 00	57 50	59.6	252 288
73 107	72 00	70 14	71.1	71 39	67 13	68.3	71 16	64 20	65.5	70 50	61 33	62.9	70 21	58 54	60.4	69 50	56 23	58.0	253 287
74 106	72 56	69 08	70.0	72 34	65 59	67.0	72 09	62 59	64.1	71 42	60 07	61.4	71 12	57 24	58.8	70 40	54 48	56.4	254 286
75 105	73 52	67 54	68.7	73 29	64 37	65.5	73 03	61 30	62.6	72 34	58 32	59.7	72 02	55 44	57.1	71 28	53 06	54.5	255 285
76 104	74 48	66 31	67.3	74 23	63 05	64.0	73 55	59 51	60.8	73 24	56 47	57.9	72 51	53 55	55.1	72 16	51 13	52.6	256 284
77 103	75 42	64 57	65.6	75 16	61 22	62.2	74 46	58 00	58.9	74 14	54 51	55.9	73 39	51 55	53.1	73 02	49 10	50.4	257 283
78 102	76 36	63 11	63.8	76 08	59 26	60.2	75 37	55 57	56.8	75 02	52 42	53.6	74 26	49 42	50.8	73 47	46 56	48.1	258 282
79 101	77 29	61 09	61.7	76 59	57 14	57.9	76 26	53 38	54.4	75 49	50 18	51.2	75 11	47 16	48.2	74 30	44 28	45.5	259 281
80 100	78 21	58 49	59.3	77 49	54 44	55.3	77 13	51 01	51.7	76 35	47 38	48.4	75 54	44 34	45.4	75 11	41 47	42.7	260 280
81 99	79 12	56 06	56.6	78 37	51 52	52.4	77 59	48 04	48.7	77 18	44 39	45.4	76 35	41 35	42.4	75 49	38 50	39.7	261 279
82 98	80 01	52 56	53.4	79 23	48 35	49.1	78 42	44 43	45.3	77 59	41 18	41.9	77 13	38 17	39.0	76 26	35 36	36.4	262 278
83 97	80 47	49 13	49.6	80 07	44 47	45.2	79 23	40 56	41.4	78 37	37 35	38.1	77 49	34 39	35.3	76 59	32 05	32.8	263 277
84 96	81 31	44 51	45.2	80 47	40 24	40.8	80 01	36 38	37.1	79 12	33 25	33.9	78 21	30 40	31.2	77 29	28 16	28.8	264 276
85 95	82 12	39 40	39.9	81 24	35 22	35.7	80 34	31 48	32.2	79 43	28 49	29.2	78 50	26 18	26.7	77 56	24 09	24.6	265 275
86 94	82 48	33 34	33.8	81 57	29 36	29.8	81 04	26 24	26.7	80 09	23 46	24.1	79 14	21 35	21.9	78 18	19 44	20.1	266 274
87 93	83 18	26 28	26.6	82 23	23 05	23.3	81 28	20 25	20.6	80 31	18 17	18.5	79 34	16 32	16.8	78 36	15 04	15.4	267 273
88 92	83 41	18 22	18.5	82 43	15 52	16.0	81 45	13 57	14.1	80 47	12 26	12.6	79 48	11 12	11.4	78 49	10 11	10.4	268 272
89 91	83 55	9 26	9.5	82 56	8 05	8.2	81 56	7 05	7.1	80 57	6 17	6.4	79 57	5 39	5.7	78 57	5 08	5.2	269 271
90 90	84 00	0 00	0.0	83 00	0 00	0.0	82 00	0 00	0.0	81 00	0 00	0.0	80 00	0 00	0.0	79 00	0 00	0.0	270 270

Lat. N.: para AHL > 180°... Z<sub>n</sub> = Z  
 para AHL < 180°... Z<sub>n</sub> = 360° - Z

Lat. S.: para AHL > 180°... Z<sub>n</sub> = 180° - Z  
 para AHL < 180°... Z<sub>n</sub> = 180° + Z



B: (-) para 90° < AHL < 270°  
 Dec: (-) para la Lat. especificada y opuesta.

TABLA PARA REDUCCION DE VISUALES

Z<sub>1</sub>: mismo signo que B  
 Z<sub>2</sub>: (-) para F > 90°

Lat. / A	12°			13°			14°			15°			16°			17°			Lat. / A
AHL/F	A/H	B/P	Z <sub>1</sub> /Z <sub>2</sub>	A/H	B/P	Z <sub>1</sub> /Z <sub>2</sub>	A/H	B/P	Z <sub>1</sub> /Z <sub>2</sub>	A/H	B/P	Z <sub>1</sub> /Z <sub>2</sub>	A/H	B/P	Z <sub>1</sub> /Z <sub>2</sub>	A/H	B/P	Z <sub>1</sub> /Z <sub>2</sub>	AHL
0 180	0 00	78 00	90 0	0 00	77 00	90 0	0 00	76 00	90 0	0 00	75 00	90 0	0 00	74 00	90 0	0 00	73 00	90 0	180 360
1 179	0 59	78 00	89 8	0 58	77 00	89 8	0 58	76 00	89 8	0 58	75 00	89 7	0 58	74 00	89 7	0 57	73 00	89 7	181 359
2 178	1 57	78 00	89 6	1 57	77 00	89 5	1 56	76 00	89 5	1 56	74 59	89 5	1 55	73 59	89 4	1 55	72 59	89 4	182 358
3 177	2 56	77 59	89 4	2 55	76 59	89 3	2 55	75 59	89 3	2 54	74 59	89 2	2 53	73 59	89 2	2 52	72 59	89 1	183 357
4 176	3 55	77 58	89 2	3 54	76 58	89 1	3 53	75 58	89 0	3 52	74 58	89 0	3 51	73 58	88 9	3 49	72 58	88 8	184 356
5 175	4 53	77 57	89 0	4 52	76 57	88 9	4 51	75 57	88 8	4 50	74 57	88 7	4 48	73 57	88 6	4 47	72 56	88 5	185 355
6 174	5 52	77 56	88 7	5 51	76 56	88 6	5 49	75 56	88 5	5 48	74 55	88 4	5 46	73 55	88 3	5 44	72 55	88 2	186 354
7 173	6 51	77 55	88 5	6 49	76 54	88 4	6 47	75 54	88 3	6 46	74 54	88 2	6 44	73 53	88 1	6 42	72 53	87 9	187 353
8 172	7 49	77 53	88 3	7 48	76 53	88 2	7 46	75 52	88 1	7 44	74 52	87 9	7 41	73 51	87 8	7 39	72 51	87 6	188 352
9 171	8 48	77 51	88 1	8 46	76 51	88 0	8 44	75 50	87 8	8 41	74 49	87 7	8 39	73 49	87 5	8 36	72 48	87 3	189 351
10 170	9 47	77 49	87 9	9 44	76 48	87 7	9 42	75 48	87 6	9 39	74 47	87 4	9 37	73 46	87 2	9 34	72 45	87 0	190 350
11 169	10 45	77 47	87 7	10 43	76 46	87 5	10 40	75 45	87 3	10 37	74 44	87 1	10 34	73 43	86 9	10 31	72 42	86 7	191 349
12 168	11 44	77 44	87 5	11 41	76 43	87 3	11 38	75 42	87 1	11 35	74 41	86 9	11 32	73 40	86 6	11 28	72 39	86 4	192 348
13 167	12 43	77 42	87 3	12 40	76 40	87 0	12 36	75 39	86 8	12 33	74 37	86 6	12 29	73 36	86 4	12 25	72 35	86 1	193 347
14 166	13 41	77 39	87 1	13 38	76 37	86 8	13 35	75 35	86 5	13 31	74 34	86 3	13 27	73 32	86 1	13 23	72 31	85 8	194 346
15 165	14 40	77 35	86 8	14 36	76 33	86 6	14 33	75 32	86 3	14 29	74 30	86 0	14 24	73 28	85 8	14 20	72 26	85 5	195 345
16 164	15 38	77 32	86 6	15 35	76 30	86 3	15 31	75 28	86 0	15 26	74 25	85 8	15 22	73 23	85 5	15 17	72 21	85 2	196 344
17 163	16 37	77 28	86 4	16 33	76 26	86 1	16 29	75 23	85 8	16 24	74 21	85 5	16 19	73 19	85 2	16 14	72 16	84 9	197 343
18 162	17 36	77 24	86 1	17 31	76 21	85 8	17 27	75 19	85 5	17 22	74 16	85 2	17 17	73 13	84 9	17 11	72 11	84 6	198 342
19 161	18 34	77 20	85 9	18 30	76 17	85 6	18 25	75 14	85 2	18 20	74 11	84 9	18 14	73 08	84 6	18 08	72 05	84 3	199 341
20 160	19 33	77 15	85 7	19 28	76 12	85 3	19 23	75 08	85 0	19 17	74 05	84 6	19 12	73 02	84 3	19 05	71 59	83 9	200 340
21 159	20 31	77 10	85 4	20 26	76 07	85 1	20 21	75 03	84 7	20 15	73 59	84 3	20 09	72 56	84 0	20 03	71 52	83 6	201 339
22 158	21 30	77 05	85 2	21 24	76 01	84 8	21 19	74 57	84 4	21 13	73 53	84 0	21 06	72 49	83 6	21 00	71 45	83 3	202 338
23 157	22 28	77 00	85 0	22 23	75 55	84 5	22 17	74 51	84 1	22 10	73 46	83 7	22 04	72 42	83 3	21 56	71 38	82 9	203 337
24 156	23 27	76 54	84 7	23 21	75 49	84 3	23 15	74 44	83 9	23 08	73 39	83 4	23 01	72 34	83 0	22 53	71 30	82 6	204 336
25 155	24 25	76 48	84 5	24 19	75 43	84 0	24 13	74 37	83 6	24 06	73 32	83 1	23 58	72 27	82 7	23 50	71 22	82 2	205 335
26 154	25 23	76 42	84 2	25 17	75 36	83 7	25 10	74 30	83 3	25 03	73 24	82 8	24 55	72 18	82 3	24 47	71 13	81 9	206 334
27 153	26 22	76 35	84 0	26 15	75 28	83 5	26 08	74 22	83 0	26 01	73 16	82 5	25 52	72 10	82 0	25 44	71 04	81 5	207 333
28 152	27 20	76 28	83 7	27 13	75 21	83 2	27 06	74 14	82 7	26 58	73 07	82 2	26 50	72 00	81 7	26 41	70 54	81 2	208 332
29 151	28 18	76 20	83 4	28 11	75 13	82 9	28 04	74 05	82 4	27 55	72 58	81 8	27 47	71 51	81 3	27 37	70 44	80 8	209 331
30 150	29 17	76 13	83 2	29 09	75 04	82 6	29 01	73 56	82 0	28 53	72 48	81 5	28 44	71 41	81 0	28 34	70 33	80 4	210 330
31 149	30 15	76 04	82 9	30 07	74 56	82 3	29 59	73 47	81 7	29 50	72 38	81 2	29 41	71 30	80 6	29 30	70 22	80 0	211 329
32 148	31 13	75 56	82 6	31 05	74 46	82 0	30 57	73 37	81 4	30 47	72 28	80 8	30 37	71 19	80 2	30 27	70 11	79 6	212 328
33 147	32 11	75 47	82 3	32 03	74 37	81 1	31 54	73 27	81 1	31 44	72 17	80 5	31 34	71 07	79 9	31 23	69 58	79 2	213 327
34 146	33 10	75 37	82 0	33 01	74 26	81 4	32 52	73 16	80 7	32 42	72 05	80 1	32 31	70 55	79 5	32 20	69 45	78 8	214 326
35 145	34 08	75 27	81 7	33 59	74 16	81 0	33 49	73 04	80 4	33 39	71 53	79 7	33 28	70 42	79 1	33 16	69 32	78 4	215 325
36 144	35 06	75 17	81 4	34 56	74 04	80 7	34 46	72 52	80 0	34 36	71 40	79 4	34 24	70 29	78 7	34 12	69 18	78 0	216 324
37 143	36 04	75 06	81 1	35 54	73 53	80 4	35 44	72 40	79 7	35 33	71 27	79 0	35 21	70 15	78 3	35 08	69 03	77 6	217 323
38 142	37 02	74 54	80 8	36 52	73 40	80 0	36 41	72 27	79 3	36 29	71 13	78 6	36 17	70 00	77 8	36 04	68 48	77 1	218 322
39 141	38 00	74 42	80 4	37 49	73 27	79 7	37 38	72 13	78 9	37 26	70 59	78 2	37 13	69 45	77 4	37 00	68 32	76 7	219 321
40 140	38 57	74 30	80 1	38 47	73 14	79 3	38 35	71 58	78 5	38 23	70 43	77 7	38 10	69 29	77 0	37 56	68 15	76 2	220 320
41 139	39 55	74 16	79 8	39 44	72 59	78 9	39 32	71 43	78 1	39 19	70 27	77 3	39 06	69 12	76 5	38 51	67 57	75 7	221 319
42 138	40 53	74 02	79 4	40 41	72 45	78 5	40 29	71 27	77 7	40 16	70 10	76 9	40 02	68 54	76 1	39 47	67 38	75 3	222 318
43 137	41 51	73 48	79 0	41 39	72 29	78 2	41 26	71 11	77 3	41 12	69 53	76 4	40 58	68 35	75 6	40 42	67 19	74 7	223 317
44 136	42 48	73 32	78 6	42 36	72 12	77 7	42 23	70 53	76 9	42 09	69 34	76 0	41 54	68 16	75 1	41 38	66 58	74 2	224 316
45 135	43 46	73 16	78 3	43 33	71 55	77 3	43 19	70 35	76 4	43 05	69 15	75 5	42 49	67 56	74 6	42 33	66 37	73 7	225 315

LATITUD / A: 12° - 17°



Lat. / A	12°			13°			14°			15°			16°			17°			Lat. / A
AHL/F	A/H	B/P	Z <sub>1</sub> /Z <sub>2</sub>	A/H	B/P	Z <sub>1</sub> /Z <sub>2</sub>	A/H	B/P	Z <sub>1</sub> /Z <sub>2</sub>	A/H	B/P	Z <sub>1</sub> /Z <sub>2</sub>	A/H	B/P	Z <sub>1</sub> /Z <sub>2</sub>	A/H	B/P	Z <sub>1</sub> /Z <sub>2</sub>	AHL
45 135	43 46	73 16	78.3	43 33	71 55	77.3	43 19	70 35	76.4	43 05	69 15	75.5	42 49	67 56	74.6	42 33	66 37	73.7	225 315
46 134	44 43	72 59	77.8	44 30	71 37	76.9	44 16	70 15	75.9	44 01	68 54	75.0	43 45	67 34	74.1	43 28	66 15	73.2	226 314
47 133	45 40	72 41	77.4	45 27	71 18	76.4	45 12	69 55	75.5	44 57	68 33	74.5	44 40	67 12	73.5	44 23	65 51	72.6	227 313
48 132	46 38	72 23	77.0	46 24	70 58	76.0	46 09	69 34	75.0	45 53	68 11	74.0	45 35	66 48	73.0	45 17	65 27	72.0	228 312
49 131	47 35	72 03	76.5	47 20	70 37	75.5	47 05	69 11	74.4	46 48	67 47	73.4	46 30	66 23	72.4	46 12	65 01	71.4	229 311
50 130	48 32	71 42	76.1	48 17	70 15	75.0	48 01	68 48	73.9	47 44	67 22	72.9	47 25	65 58	71.8	47 06	64 34	70.8	230 310
51 129	49 29	71 20	75.6	49 13	69 51	74.5	48 57	68 23	73.4	48 39	66 56	72.3	48 20	65 30	71.2	48 00	64 05	70.1	231 309
52 128	50 25	70 57	75.1	50 09	69 27	73.9	49 52	67 57	72.8	49 34	66 29	71.7	49 15	65 02	70.6	48 54	63 35	69.5	232 308
53 127	51 22	70 33	74.6	51 06	69 01	73.4	50 48	67 30	72.2	50 29	66 00	71.0	50 09	64 31	69.9	49 48	63 04	68.8	233 307
54 126	52 19	70 07	74.0	52 02	68 33	72.8	51 43	67 01	71.6	51 24	65 30	70.4	51 03	64 00	69.2	50 41	62 31	68.1	234 306
55 125	53 15	69 40	73.5	52 57	68 04	72.2	52 38	66 30	70.9	52 18	64 58	69.7	51 57	63 26	68.5	51 34	61 56	67.3	235 305
56 124	54 11	69 11	72.9	53 53	67 34	71.6	53 33	65 58	70.3	53 12	64 24	69.0	52 50	62 51	67.8	52 27	61 20	66.6	236 304
57 123	55 07	68 41	72.2	54 48	67 02	70.9	54 28	65 24	69.6	54 06	63 48	68.3	53 43	62 14	67.0	53 19	60 42	65.8	237 303
58 122	56 03	68 09	71.6	55 43	66 28	70.2	55 22	64 48	68.8	55 00	63 11	67.5	54 36	61 35	66.2	54 12	60 01	64.9	238 302
59 121	56 59	67 34	70.9	56 38	65 51	69.5	56 16	64 10	68.1	55 53	62 31	66.7	55 29	60 54	65.4	55 03	59 18	64.1	239 301
60 120	57 54	66 58	70.2	57 33	65 13	68.7	57 10	63 30	67.3	56 46	61 49	65.9	56 21	60 10	64.5	55 55	58 33	63.1	240 300
61 119	58 49	66 20	69.4	58 27	64 32	67.9	58 04	62 47	66.4	57 39	61 04	65.0	57 13	59 24	63.6	56 46	57 46	62.2	241 299
62 118	59 44	65 38	68.6	59 21	63 49	67.1	58 57	62 02	65.5	58 31	60 17	64.0	58 05	58 35	62.6	57 36	56 56	61.2	242 298
63 117	60 38	64 55	67.8	60 15	63 03	66.2	59 50	61 13	64.6	59 23	59 27	63.1	58 55	57 43	61.6	58 26	56 03	60.2	243 297
64 116	61 32	64 08	66.9	61 08	62 14	65.2	60 42	60 22	63.6	60 15	58 34	62.0	59 46	56 49	60.5	59 16	55 06	59.1	244 296
65 115	62 26	63 18	66.0	62 01	61 21	64.2	61 34	59 28	62.6	61 06	57 37	61.0	60 36	55 51	59.4	60 05	54 07	57.9	245 295
66 114	63 20	62 25	65.0	62 53	60 25	63.2	62 26	58 30	61.5	61 56	56 37	59.8	61 25	54 49	58.2	60 53	53 04	56.7	246 294
67 113	64 13	61 27	63.9	63 45	59 25	62.1	63 16	57 27	60.3	62 46	55 34	58.6	62 14	53 44	57.0	61 41	51 57	55.4	247 293
68 112	65 05	60 26	62.8	64 37	58 21	60.9	64 07	56 21	59.1	63 35	54 25	57.4	63 02	52 34	55.7	62 27	50 47	54.1	248 292
69 111	65 57	59 20	61.6	65 27	57 13	59.6	64 56	55 10	57.8	64 23	53 13	56.0	63 49	51 20	54.3	63 14	49 32	52.7	249 291
70 110	66 48	58 08	60.3	66 18	55 59	58.3	65 45	53 55	56.4	65 11	51 55	54.6	64 36	50 01	52.9	63 59	48 12	51.2	250 290
71 109	67 39	56 52	58.9	67 07	54 40	56.8	66 33	52 33	54.9	66 58	50 33	53.1	65 21	48 38	51.3	64 43	46 48	49.7	251 289
72 108	68 29	55 29	57.4	67 55	53 14	55.3	67 20	51 06	53.3	66 44	49 04	51.5	66 06	47 08	49.7	65 26	45 18	48.0	252 288
73 107	69 18	53 59	55.8	68 43	51 42	53.7	68 07	49 33	51.6	67 29	47 30	49.8	66 49	45 33	48.0	66 08	43 43	46.3	253 287
74 106	70 06	52 22	54.1	69 30	50 03	51.9	68 52	47 52	49.8	68 12	45 49	47.9	67 31	43 52	46.1	66 49	42 02	44.4	254 286
75 105	70 53	50 36	52.2	70 15	48 16	50.0	69 36	46 04	47.9	68 55	44 00	46.0	68 12	42 04	44.2	67 29	40 15	42.5	255 285
76 104	71 38	48 42	50.2	70 59	46 20	47.9	70 18	44 08	45.9	69 36	42 05	43.9	68 52	40 09	42.1	68 07	38 21	40.5	256 284
77 103	72 23	46 37	48.0	71 42	44 15	45.7	70 59	42 03	43.7	70 15	40 01	41.7	69 30	38 07	39.9	68 43	36 21	38.3	257 283
78 102	73 06	44 22	45.6	72 23	42 00	43.4	71 38	39 49	41.3	70 53	37 49	39.4	70 06	35 57	37.6	69 18	34 13	36.0	258 282
79 101	73 47	41 55	43.1	73 02	39 34	40.8	72 16	37 26	38.8	71 28	35 27	36.9	70 40	33 38	35.2	69 50	31 58	33.6	259 281
80 100	74 26	39 15	40.3	73 39	36 57	38.1	72 51	34 51	36.1	72 02	32 57	34.3	71 12	31 12	32.6	70 21	29 36	31.1	260 280
81 99	75 02	36 21	37.3	74 14	34 07	35.1	73 24	32 06	33.2	72 34	30 17	31.5	71 42	28 37	29.9	70 50	27 06	28.4	261 279
82 98	75 37	33 13	34.1	74 46	31 05	32.0	73 55	29 10	30.2	73 03	27 27	28.5	72 09	25 53	27.0	71 16	24 29	25.7	262 278
83 97	76 08	29 50	30.6	75 16	27 50	28.6	74 23	26 03	26.9	73 29	24 27	25.4	72 34	23 02	24.0	71 39	21 44	22.8	263 277
84 96	76 36	26 11	26.8	75 42	24 22	25.0	74 48	22 45	23.5	73 52	21 19	22.1	72 56	20 02	20.9	72 00	18 53	19.8	264 276
85 95	77 01	22 18	22.8	76 05	20 41	21.3	75 09	19 16	19.9	74 12	18 01	18.7	73 15	16 54	17.6	72 18	15 55	16.7	265 275
86 94	77 22	18 10	18.6	76 25	16 49	17.3	75 27	15 38	16.1	74 29	14 36	15.1	73 31	13 40	14.2	72 33	12 51	13.5	266 274
87 93	77 38	13 50	14.1	76 40	12 46	13.1	75 41	11 51	12.2	74 43	11 03	11.4	73 44	10 21	10.8	72 45	9 43	10.2	267 273
88 92	77 50	9 19	9.5	76 51	8 36	8.8	75 52	7 58	8.2	74 52	7 25	7.7	73 53	6 56	7.2	72 53	6 31	6.8	268 272
89 91	77 58	4 42	4.8	76 58	4 19	4.4	75 58	4 00	4.1	74 58	3 44	3.9	73 58	3 29	3.6	72 58	3 16	3.4	269 271
90 90	78 00	0 00	0.0	77 00	0 00	0.0	76 00	0 00	0.0	75 00	0 00	0.0	74 00	0 00	0.0	73 00	0 00	0.0	270 270

Lat. N.: para AHL > 180°... Z<sub>n</sub> = Z  
 para AHL < 180°... Z<sub>n</sub> = 360° - Z

Lat. S.: para AHL > 180°... Z<sub>n</sub> = 180° - Z  
 para AHL < 180°... Z<sub>n</sub> = 180° + Z



B: (—) para 90° &lt; AHL &lt; 270°

Dec: (—) para la Lat. especificada y opuesta.

## TABLA PARA REDUCCION DE VISUALES

Z<sub>1</sub>: mismo signo que BZ<sub>2</sub>: (—) para F > 90°

Lat. / A	18°			19°			20°			21°			22°			23°			Lat. / A
AHL/F	A/H	B/P	Z <sub>1</sub> /Z <sub>2</sub>	A/H	B/P	Z <sub>1</sub> /Z <sub>2</sub>	A/H	B/P	Z <sub>1</sub> /Z <sub>2</sub>	A/H	B/P	Z <sub>1</sub> /Z <sub>2</sub>	A/H	B/P	Z <sub>1</sub> /Z <sub>2</sub>	A/H	B/P	Z <sub>1</sub> /Z <sub>2</sub>	AHL
0 180	0 00	72 00	90 0	0 00	71 00	90 0	0 00	70 00	90 0	0 00	69 00	90 0	0 00	68 00	90 0	0 00	67 00	90 0	180 360
1 179	0 57	72 00	89 7	0 57	71 00	89 7	0 56	70 00	89 7	0 56	69 00	89 6	0 56	68 00	89 6	0 55	67 00	89 6	181 359
2 178	1 54	71 59	89 4	1 53	70 59	89 3	1 53	69 59	89 3	1 52	68 59	89 3	1 51	67 59	89 3	1 50	66 59	89 2	182 358
3 177	2 51	71 59	89 1	2 50	70 59	89 0	2 49	69 58	89 0	2 48	68 58	88 9	2 47	67 58	88 9	2 46	66 58	88 8	183 357
4 176	3 48	71 58	88 8	3 47	70 57	88 7	3 46	69 57	88 6	3 44	68 57	88 6	3 42	67 57	88 5	3 41	66 57	88 4	184 356
5 175	4 45	71 56	88 5	4 44	70 56	88 4	4 42	69 56	88 3	4 40	68 56	88 2	4 38	67 55	88 1	4 36	66 55	88 0	185 355
6 174	5 42	71 54	88 1	5 40	70 54	88 0	5 38	69 54	87 9	5 36	68 54	87 8	5 34	67 53	87 7	5 31	66 53	87 6	186 354
7 173	6 39	71 52	87 8	6 37	70 52	87 7	6 35	69 52	87 6	6 32	68 51	87 5	6 29	67 51	87 4	6 26	66 51	87 3	187 353
8 172	7 36	71 50	87 5	7 34	70 50	87 4	7 31	69 49	87 2	7 28	68 49	87 1	7 25	67 48	87 0	7 22	66 48	86 9	188 352
9 171	8 33	71 47	87 2	8 30	70 47	87 0	8 27	69 46	86 9	8 24	68 46	86 8	8 20	67 45	86 6	8 17	66 45	86 5	189 351
10 170	9 30	71 44	86 9	9 27	70 44	86 7	9 23	69 43	86 5	9 20	68 42	86 4	9 16	67 42	86 2	9 12	66 41	86 1	190 350
11 169	10 27	71 41	86 6	10 24	70 40	86 4	10 20	69 39	86 2	10 16	68 39	86 0	10 11	67 38	85 8	10 07	66 37	85 7	191 349
12 168	11 24	71 37	86 2	11 20	70 36	86 0	11 16	69 35	85 8	11 12	68 34	85 6	11 07	67 33	85 4	11 02	66 32	85 3	192 348
13 167	12 21	71 33	85 9	12 17	70 32	85 7	12 12	69 31	85 5	12 07	68 30	85 3	12 02	67 29	85 1	11 57	66 28	84 9	193 347
14 166	13 18	71 29	85 6	13 13	70 28	85 4	13 08	69 26	85 1	13 03	68 25	84 9	12 58	67 24	84 7	12 52	66 22	84 4	194 346
15 165	14 15	71 24	85 3	14 10	70 23	85 0	14 05	69 21	84 8	13 59	68 20	84 5	13 53	67 18	84 3	13 47	66 17	84 0	195 345
16 164	15 12	71 19	84 9	15 06	70 18	84 7	15 01	69 16	84 4	14 55	68 14	84 1	14 48	67 12	83 9	14 42	66 10	83 6	196 344
17 163	16 09	71 14	84 6	16 03	70 12	84 3	15 57	69 10	84 0	15 50	68 08	83 7	15 44	67 06	83 5	15 37	66 04	83 2	197 343
18 162	17 05	71 08	84 3	16 59	70 06	84 0	16 53	69 03	83 7	16 46	68 01	83 4	16 39	66 59	83 1	16 32	65 57	82 8	198 342
19 161	18 02	71 02	83 9	17 56	69 59	83 6	17 49	68 57	83 3	17 42	67 54	83 0	17 34	66 52	82 7	17 26	65 49	82 3	199 341
20 160	18 59	70 56	83 6	18 52	69 53	83 2	18 45	68 50	82 9	18 37	67 47	82 6	18 29	66 44	82 2	18 21	65 41	81 9	200 340
21 159	19 56	70 49	83 2	19 48	69 45	82 9	19 41	68 42	82 5	19 33	67 39	82 2	19 24	66 36	81 8	19 16	65 33	81 5	201 339
22 158	20 52	70 41	82 9	20 45	69 38	82 5	20 37	68 34	82 1	20 28	67 31	81 8	20 19	66 27	81 4	20 10	65 24	81 0	202 338
23 157	21 49	70 33	82 5	21 41	69 29	82 1	21 32	68 26	81 7	21 24	67 22	81 4	21 14	66 18	81 0	21 05	65 15	80 6	203 337
24 156	22 45	70 25	82 2	22 37	69 21	81 8	22 28	68 17	81 3	22 19	67 12	80 9	22 09	66 09	80 5	21 59	65 05	80 1	204 336
25 155	23 42	70 17	81 8	23 33	69 12	81 4	23 24	68 07	80 9	23 14	67 03	80 5	23 04	65 58	80 1	22 54	64 54	79 7	205 335
26 154	24 38	70 07	81 4	24 29	69 02	81 0	24 20	67 57	80 5	24 09	66 52	80 1	23 59	65 48	79 6	23 48	64 43	79 2	206 334
27 153	25 35	69 58	81 1	25 25	68 52	80 6	25 15	67 47	80 1	25 05	66 42	79 7	24 54	65 36	79 2	24 42	64 32	78 7	207 333
28 152	26 31	69 48	80 7	26 21	68 42	80 2	26 11	67 36	79 7	26 00	66 30	79 2	25 48	65 25	78 7	25 36	64 19	78 3	208 332
29 151	27 27	69 37	80 3	27 17	68 31	79 8	27 06	67 24	79 3	26 55	66 18	78 8	26 43	65 12	78 3	26 30	64 07	77 8	209 331
30 150	28 24	69 26	79 9	28 13	68 19	79 4	28 01	67 12	78 8	27 50	66 06	78 3	27 37	64 59	77 8	27 24	63 53	77 3	210 330
31 149	29 20	69 14	79 5	29 09	68 07	78 9	28 57	67 00	78 4	28 44	65 53	77 8	28 31	64 46	77 3	28 18	63 39	76 8	211 329
32 148	30 16	69 02	79 1	30 04	67 54	78 5	29 52	66 46	77 9	29 39	65 39	77 4	29 26	64 32	76 8	29 12	63 25	76 3	212 328
33 147	31 12	68 49	78 7	31 00	67 41	78 1	30 47	66 32	77 5	30 34	65 24	76 9	30 20	64 17	76 3	30 05	63 09	75 8	213 327
34 146	32 08	68 36	78 2	31 55	67 27	77 6	31 42	66 18	77 0	31 28	65 09	76 4	31 14	64 01	75 8	30 59	62 53	75 2	214 326
35 145	33 04	68 22	77 8	32 51	67 12	77 2	32 37	66 03	76 5	32 23	64 54	75 9	32 08	63 45	75 3	31 52	62 36	74 7	215 325
36 144	33 59	68 07	77 3	33 46	66 57	76 7	33 32	65 47	76 0	33 17	64 37	75 4	33 01	63 28	74 8	32 45	62 19	74 2	216 324
37 143	34 55	67 52	76 9	34 41	66 41	76 2	34 26	65 30	75 5	34 11	64 20	74 9	33 55	63 10	74 2	33 38	62 01	73 6	217 323
38 142	35 50	67 36	76 4	35 36	66 24	75 7	35 21	65 13	75 0	35 05	64 02	74 4	34 48	62 51	73 7	34 31	61 41	73 0	218 322
39 141	36 46	67 19	76 0	36 31	66 06	75 2	36 15	64 54	74 5	35 59	63 43	73 8	35 42	62 32	73 1	35 24	61 21	72 4	219 321
40 140	37 41	67 01	75 5	37 26	65 48	74 7	37 10	64 35	74 0	36 53	63 23	73 3	36 35	62 12	72 6	36 17	61 01	71 8	220 320
41 139	38 36	66 42	75 0	38 20	65 29	74 2	38 04	64 15	73 4	37 46	63 02	72 7	37 28	61 50	72 0	37 09	60 39	71 2	221 319
42 138	39 31	66 23	74 5	39 15	65 08	73 7	38 58	63 54	72 9	38 40	62 41	72 1	38 21	61 28	71 4	38 01	60 16	70 6	222 318
43 137	40 26	66 03	73 9	40 09	64 47	73 1	39 51	63 33	72 3	39 33	62 18	71 5	39 13	61 05	70 7	38 53	59 52	70 0	223 317
44 136	41 21	65 42	73 4	41 03	64 25	72 5	40 45	63 10	71 7	40 26	61 55	70 9	40 06	60 41	70 1	39 45	59 27	69 3	224 316
45 135	42 16	65 19	72 8	41 57	64 02	72 0	41 38	62 46	71 1	41 19	61 30	70 3	40 58	60 15	69 5	40 37	59 01	68 7	225 315

LATITUD / A: 18° - 23°

301



Lat. / A		18°			19°			20°			21°			22°			23°			Lat. / A	
AHL/F	A/H	B/P	Z <sub>1</sub> /Z <sub>2</sub>	A/H	B/P	Z <sub>1</sub> /Z <sub>2</sub>	A/H	B/P	Z <sub>1</sub> /Z <sub>2</sub>	A/H	B/P	Z <sub>1</sub> /Z <sub>2</sub>	A/H	B/P	Z <sub>1</sub> /Z <sub>2</sub>	A/H	B/P	Z <sub>1</sub> /Z <sub>2</sub>	AHL		
45	135	42 16	65 19	72.8	41 57	64 02	72.0	41 38	62 46	71.1	41 19	61 30	70.3	40 58	60 15	69.5	40 37	59 01	68.7	225	315
46	134	43 10	64 56	72.3	42 51	63 38	71.4	42 32	62 21	70.5	42 11	61 05	69.6	41 50	59 49	68.8	41 28	58 34	68.0	226	314
47	133	44 04	64 32	71.7	43 45	63 13	70.8	43 25	61 55	69.9	43 04	60 38	69.0	42 42	59 21	68.1	42 19	58 06	67.3	227	313
48	132	44 58	64 06	71.1	44 38	62 46	70.1	44 18	61 27	69.2	43 56	60 09	68.3	43 33	58 53	67.4	43 10	57 37	66.5	228	312
49	131	45 52	63 39	70.4	45 32	62 18	69.5	45 10	60 59	68.5	44 48	59 40	67.6	44 24	58 22	66.7	44 00	57 06	65.8	229	311
50	130	46 46	63 11	69.8	46 25	61 49	68.8	46 03	60 29	67.8	45 39	59 09	66.9	45 15	57 51	65.9	44 50	56 34	65.0	230	310
51	129	47 39	62 42	69.1	47 17	61 19	68.1	46 55	59 57	67.1	46 31	58 37	66.1	46 06	57 18	65.2	46 06	56 00	64.2	231	309
52	128	48 33	62 11	68.4	48 10	60 47	67.4	47 46	59 25	66.4	47 22	58 03	65.4	46 56	56 44	64.4	46 30	55 25	63.4	232	308
53	127	49 25	61 38	67.7	49 02	60 13	66.6	48 38	58 50	65.6	48 13	57 28	64.6	47 46	56 07	63.6	47 19	54 48	62.6	233	307
54	126	50 18	61 04	67.0	49 54	59 38	65.9	49 29	58 14	64.8	49 03	56 51	63.7	48 36	55 30	62.7	48 08	54 10	61.7	234	306
55	125	51 10	60 28	66.2	50 46	59 01	65.1	50 20	57 36	64.0	49 53	56 12	62.9	49 25	54 50	61.9	48 56	53 30	60.8	235	305
56	124	52 03	59 50	65.4	51 37	58 23	64.2	51 10	56 56	63.1	50 43	55 32	62.0	50 14	54 09	61.0	49 44	52 48	59.9	236	304
57	123	52 54	59 11	64.6	52 28	57 42	63.4	52 00	56 15	62.2	51 32	54 49	61.1	51 02	53 26	60.0	50 32	52 04	59.0	237	303
58	122	53 46	58 29	63.7	53 18	56 59	62.5	52 50	55 31	61.3	52 21	54 05	60.2	51 50	52 41	59.1	51 19	51 18	58.0	238	302
59	121	54 37	57 45	62.8	54 08	56 14	61.5	53 39	54 45	60.4	53 09	53 18	59.2	52 38	51 53	58.1	52 06	50 30	57.0	239	301
60	120	55 27	56 59	61.8	54 58	55 27	60.6	54 28	53 57	59.4	53 57	52 29	58.2	53 25	51 04	57.0	52 52	49 40	55.9	240	300
61	119	56 17	56 10	60.9	55 47	54 37	59.6	55 16	53 06	58.3	54 44	51 38	57.1	54 11	50 12	55.9	53 37	48 48	54.8	241	299
62	118	57 07	55 19	59.8	56 36	53 45	58.5	56 04	52 13	57.2	55 31	50 44	56.0	54 57	49 17	54.8	54 22	47 53	53.7	242	298
63	117	57 56	54 25	58.8	57 24	52 49	57.4	56 51	51 17	56.1	56 17	49 47	54.9	55 42	48 20	53.7	55 06	46 55	52.5	243	297
64	116	58 44	53 27	57.6	58 12	51 51	56.3	57 38	50 18	55.0	57 03	48 48	53.7	56 27	47 20	52.5	55 50	45 55	51.3	244	296
65	115	59 32	52 27	56.5	58 58	50 50	55.1	58 23	49 16	53.7	57 47	47 45	52.5	57 10	46 17	51.2	56 32	44 52	50.0	245	295
66	114	60 19	51 23	55.2	59 45	49 45	53.8	59 09	48 11	52.5	58 32	46 39	51.2	57 53	45 11	49.9	57 14	43 47	48.7	246	294
67	113	61 06	50 15	53.9	60 30	48 37	52.5	59 53	47 02	51.1	59 15	45 30	49.8	58 36	44 02	48.6	57 55	42 38	47.4	247	293
68	112	61 52	49 04	52.6	61 15	47 25	51.1	60 36	45 50	49.8	59 57	44 18	48.4	59 17	42 50	47.2	58 36	41 26	46.0	248	292
69	111	62 37	47 48	51.2	61 58	46 09	49.7	61 19	44 33	48.3	60 39	43 02	47.0	59 57	41 34	45.7	59 15	40 10	44.5	249	291
70	110	63 21	46 28	49.7	62 41	44 48	48.2	62 01	43 13	46.8	61 19	41 42	45.4	60 36	40 15	44.2	59 53	38 52	43.0	250	290
71	109	64 04	45 03	48.1	63 23	43 24	46.6	62 41	41 49	45.2	61 58	40 18	43.9	61 15	38 52	42.6	60 30	37 29	41.4	251	289
72	108	64 45	43 34	46.4	64 04	41 54	44.9	63 21	40 20	43.5	62 37	38 50	42.2	61 52	37 25	40.9	61 06	36 03	39.7	252	288
73	107	65 26	41 59	44.7	64 43	40 20	43.2	63 59	38 46	41.8	63 14	37 18	40.5	62 27	35 53	39.2	61 41	34 34	38.0	253	287
74	106	66 06	40 19	42.9	65 21	38 41	41.4	64 36	37 08	40.0	63 49	35 41	38.7	63 02	34 18	37.4	62 14	33 00	36.3	254	286
75	105	66 44	38 32	40.9	65 58	36 56	39.5	65 11	35 25	38.1	64 23	33 59	36.8	63 35	32 39	35.6	62 46	31 22	34.4	255	285
76	104	67 20	36 40	38.9	66 33	35 05	37.4	65 45	33 37	36.1	64 56	32 13	34.8	64 07	30 55	33.6	63 16	29 41	32.5	256	284
77	103	67 55	34 42	36.8	67 07	33 09	35.3	66 18	31 43	34.0	65 27	30 22	32.8	64 37	29 06	31.6	63 45	27 55	30.6	257	283
78	102	68 29	32 37	34.5	67 39	31 07	33.1	66 48	29 44	31.9	65 57	28 26	30.7	65 05	27 14	29.6	64 13	26 06	28.5	258	282
79	101	69 00	30 25	32.2	68 09	29 00	30.8	67 17	27 40	29.6	66 25	26 26	28.5	65 32	25 17	27.4	64 38	24 12	26.4	259	281
80	100	69 29	28 07	29.7	68 37	26 46	28.4	67 44	25 30	27.3	66 50	24 20	26.2	65 56	23 15	25.2	65 02	22 15	24.3	260	280
81	99	69 57	25 43	27.1	69 03	24 26	25.9	68 09	23 15	24.8	67 14	22 10	23.8	66 19	21 10	22.9	65 23	20 14	22.1	261	279
82	98	70 21	23 11	24.5	69 27	22 00	23.3	68 31	20 56	22.3	67 36	19 56	21.4	66 40	19 00	20.6	65 43	18 09	19.8	262	278
83	97	70 44	20 34	21.7	69 48	19 29	20.7	68 51	18 31	19.7	67 55	17 37	18.9	66 58	16 47	18.1	66 01	16 01	17.4	263	277
84	96	71 03	17 50	18.8	70 07	16 53	17.9	69 09	16 01	17.1	68 12	15 14	16.3	67 14	14 30	15.7	66 16	13 50	15.1	264	276
85	95	71 20	15 01	15.8	70 23	14 12	15.0	69 25	13 28	14.3	68 26	12 48	13.7	67 28	12 10	13.1	66 29	11 36	12.6	265	275
86	94	71 35	12 07	12.8	70 36	11 27	12.1	69 37	10 51	11.6	68 38	10 18	11.0	67 39	9 48	10.6	66 40	9 20	10.1	266	274
87	93	71 46	9 09	9.6	70 46	8 39	9.1	69 47	8 11	8.7	68 48	7 46	8.3	67 48	7 23	8.0	66 49	7 02	7.6	267	273
88	92	71 54	6 08	6.4	70 54	5 47	6.1	69 54	5 29	5.8	68 55	5 12	5.6	67 55	4 56	5.3	66 55	4 42	5.1	268	272
89	91	71 58	3 04	3.2	70 58	2 54	3.1	69 59	2 45	2.9	68 59	2 36	2.8	67 59	2 28	2.7	66 59	2 21	2.6	269	271
90	90	72 00	0 00	0.0	71 00	0 00	0.0	70 00	0 00	0.0	69 00	0 00	0.0	68 00	0 00	0.0	67 00	0 00	0.0	270	270

Lat. N.: para AHL > 180°... Z<sub>n</sub> = Z  
 para AHL < 180°... Z<sub>n</sub> = 360° - Z

Lat. S.: para AHL > 180°... Z<sub>n</sub> = 180° - Z  
 para AHL < 180°... Z<sub>n</sub> = 180° + Z



B: (—) para 90° &lt; AHL &lt; 270°

Dec: (—) para la Lat. especificada y opuesta.

## TABLA PARA REDUCCION DE VISUALES

Z<sub>1</sub>: mismo signo que BZ<sub>2</sub>: (—) para F > 90°

Lat. / A	24°			25°			26°			27°			28°			29°			Lat. / A
AHL/F	A/H	B/P	Z <sub>1</sub> /Z <sub>2</sub>	A/H	B/P	Z <sub>1</sub> /Z <sub>2</sub>	A/H	B/P	Z <sub>1</sub> /Z <sub>2</sub>	A/H	B/P	Z <sub>1</sub> /Z <sub>2</sub>	A/H	B/P	Z <sub>1</sub> /Z <sub>2</sub>	A/H	B/P	Z <sub>1</sub> /Z <sub>2</sub>	AHL
0 180	0 00	66 00	90 0	0 00	65 00	90 0	0 00	64 00	90 0	0 00	63 00	90 0	0 00	62 00	90 0	0 00	61 00	90 0	180 360
1 179	0 55	66 00	89 6	0 54	65 00	89 6	0 54	64 00	89 6	0 53	63 00	89 5	0 53	62 00	89 5	0 52	61 00	89 5	181 359
2 178	1 50	65 59	89 2	1 49	64 59	89 2	1 48	63 59	89 1	1 47	62 59	89 1	1 46	61 59	89 1	1 45	60 59	89 0	182 358
3 177	2 44	65 58	88 8	2 43	64 58	88 7	2 42	63 58	88 7	2 40	62 58	88 6	2 39	61 58	88 6	2 37	60 58	88 5	183 357
4 176	3 39	65 57	88 4	3 37	64 57	88 3	3 36	63 57	88 2	3 34	62 57	88 2	3 32	61 57	88 1	3 30	60 56	88 1	184 356
5 175	4 34	65 55	88 0	4 32	64 55	87 9	4 30	63 55	87 8	4 27	62 55	87 7	4 25	61 55	87 6	4 22	60 54	87 6	185 355
6 174	5 29	65 53	87 6	5 26	64 53	87 5	5 23	63 53	87 4	5 21	62 52	87 3	5 18	61 52	87 2	5 15	60 52	87 1	186 354
7 173	6 24	65 50	87 1	6 20	64 50	87 0	6 17	63 50	86 9	6 14	62 50	86 8	6 11	61 49	86 7	6 07	60 49	86 6	187 353
8 172	7 18	65 47	86 7	7 15	64 47	86 6	7 11	63 47	86 5	7 07	62 46	86 3	7 04	61 46	86 2	6 59	60 46	86 1	188 352
9 171	8 13	65 44	86 3	8 09	64 44	86 2	8 05	63 43	86 0	8 01	62 43	85 9	7 56	61 42	85 7	7 52	60 42	85 6	189 351
10 170	9 08	65 40	85 9	9 03	64 40	85 7	8 59	63 39	85 6	8 54	62 39	85 4	8 49	61 38	85 3	8 44	60 38	85 1	190 350
11 169	10 02	65 36	85 5	9 57	64 35	85 3	9 52	63 35	85 1	9 47	62 34	85 0	9 42	61 33	84 8	9 36	60 33	84 6	191 349
12 168	10 57	65 32	85 1	10 52	64 31	84 9	10 46	63 30	84 7	10 41	62 29	84 5	10 35	61 28	84 3	10 29	60 28	84 1	192 348
13 167	11 52	65 27	84 6	11 46	64 26	84 4	11 40	63 25	84 2	11 34	62 24	84 0	11 27	61 23	83 8	11 21	60 22	83 6	193 347
14 166	12 46	65 21	84 2	12 40	64 20	84 0	12 34	63 19	83 8	12 27	62 18	83 5	12 20	61 17	83 3	12 13	60 16	83 1	194 346
15 165	13 41	65 15	83 8	13 34	64 14	83 5	13 27	63 13	83 3	13 20	62 11	83 1	13 13	61 10	82 8	13 05	60 09	82 6	195 345
16 164	14 35	65 09	83 3	14 28	64 07	83 1	14 21	63 06	82 8	14 13	62 04	82 6	14 05	61 03	82 3	13 57	60 02	82 1	196 344
17 163	15 29	65 02	82 9	15 22	64 00	82 6	15 14	62 59	82 4	15 06	61 57	82 1	14 58	60 56	81 8	14 49	59 54	81 6	197 343
18 162	16 24	64 55	82 5	16 16	63 53	82 2	16 08	62 51	81 9	15 59	61 49	81 6	15 50	60 47	81 3	15 41	59 46	81 0	198 342
19 161	17 18	64 47	82 0	17 10	63 45	81 7	17 01	62 43	81 4	16 52	61 41	81 1	16 42	60 39	80 8	16 33	59 37	80 5	199 341
20 160	18 12	64 39	81 6	18 03	63 36	81 3	17 54	62 34	80 9	17 45	61 32	80 6	17 35	60 30	80 3	17 24	59 28	80 0	200 340
21 159	19 07	64 30	81 1	18 57	63 28	80 8	18 47	62 25	80 4	18 37	61 23	80 1	18 27	60 20	79 8	18 16	59 18	79 5	201 339
22 158	20 01	64 21	80 7	19 51	63 18	80 3	19 41	62 15	80 0	19 30	61 13	79 6	19 19	60 10	79 3	19 08	59 08	78 9	202 338
23 157	20 55	64 11	80 2	20 44	63 08	79 8	20 34	62 05	79 5	20 22	61 02	79 1	20 11	59 59	78 7	19 59	58 57	78 4	203 337
24 156	21 49	64 01	79 7	21 38	62 58	79 3	21 27	61 54	79 0	21 15	60 51	78 6	21 03	59 48	78 2	20 50	58 45	77 8	204 336
25 155	22 43	63 50	79 3	22 31	62 46	78 9	22 19	61 43	78 4	22 07	60 39	78 0	21 55	59 36	77 7	21 42	58 33	77 3	205 335
26 154	23 36	63 39	78 8	23 25	62 35	78 4	23 12	61 31	77 9	22 59	60 27	77 5	22 46	59 24	77 1	22 33	58 20	76 7	206 334
27 153	24 30	63 27	78 3	24 18	62 22	77 8	24 05	61 18	77 4	23 52	60 14	77 0	23 38	59 10	76 5	23 24	58 07	76 1	207 333
28 152	25 24	63 14	77 8	25 11	62 10	77 3	24 57	61 05	76 9	24 44	60 01	76 4	24 29	58 57	76 0	24 15	57 53	75 5	208 332
29 151	26 17	63 01	77 3	26 04	61 56	76 8	25 50	60 51	76 3	25 36	59 47	75 9	25 21	58 42	75 4	25 05	57 38	75 0	209 331
30 150	27 11	62 48	76 8	26 57	61 42	76 3	26 42	60 37	75 8	26 27	59 32	75 3	26 12	58 27	74 8	25 56	57 23	74 4	210 330
31 149	28 04	62 33	76 3	27 50	61 27	75 8	27 35	60 22	75 2	27 19	59 16	74 7	27 03	58 11	74 2	26 46	57 07	73 8	211 329
32 148	28 57	62 18	75 7	28 42	61 12	75 2	28 27	60 06	74 7	28 10	59 00	74 2	27 54	57 55	73 7	27 37	56 50	73 1	212 328
33 147	29 50	62 02	75 2	29 35	60 56	74 7	29 19	59 49	74 1	29 02	58 43	73 6	28 45	57 38	73 0	28 27	56 32	72 5	213 327
34 146	30 43	61 46	74 7	30 27	60 39	74 1	30 10	59 32	73 5	29 53	58 26	73 0	29 35	57 20	72 4	29 17	56 14	71 9	214 326
35 145	31 36	61 28	74 1	31 19	60 21	73 5	31 02	59 14	72 9	30 44	58 07	72 4	30 26	57 01	71 8	30 07	55 55	71 2	215 325
36 144	32 29	61 10	73 5	32 11	60 02	72 9	31 53	58 55	72 3	31 35	57 48	71 7	31 16	56 41	71 2	30 56	55 35	70 6	216 324
37 143	33 21	60 52	73 0	33 03	59 43	72 3	32 45	58 35	71 7	32 26	57 28	71 1	32 06	56 21	70 5	31 46	55 14	69 9	217 323
38 142	34 13	60 32	72 4	33 55	59 23	71 7	33 36	58 15	71 1	33 16	57 07	70 5	32 56	55 59	69 9	32 35	54 53	69 3	218 322
39 141	35 06	60 11	71 8	34 47	59 02	71 1	34 27	57 53	70 5	34 06	56 45	69 8	33 45	55 37	69 2	33 24	54 30	68 6	219 321
40 140	35 58	59 50	71 2	35 38	58 40	70 5	35 17	57 31	69 8	34 56	56 22	69 1	34 35	55 14	68 5	34 12	54 07	67 9	220 320
41 139	36 49	59 28	70 5	36 29	58 17	69 8	36 08	57 08	69 1	35 46	55 59	68 5	35 24	54 50	67 8	35 01	53 42	67 1	221 319
42 138	37 41	59 04	69 9	37 20	57 54	69 2	36 58	56 43	68 5	36 36	55 34	67 8	36 13	54 25	67 1	35 49	53 17	66 4	222 318
43 137	38 32	58 40	69 2	38 11	57 29	68 5	37 48	56 18	67 8	37 25	55 08	67 1	37 02	53 59	66 4	36 37	52 50	65 7	223 317
44 136	39 23	58 15	68 6	39 01	57 03	67 8	38 38	55 52	67 1	38 14	54 41	66 3	37 50	53 32	65 6	37 25	52 23	64 9	224 316
45 135	40 14	57 48	67 9	39 51	56 36	67 1	39 28	55 24	66 3	39 03	54 13	65 6	38 38	53 04	64 9	38 12	51 54	64 1	225 315



Lat. / A	24°			25°			26°			27°			28°			29°			Lat. / A
AHL/F	A/H	B/P	Z <sub>1</sub> /Z <sub>2</sub>	A/H	B/P	Z <sub>1</sub> /Z <sub>2</sub>	A/H	B/P	Z <sub>1</sub> /Z <sub>2</sub>	A/H	B/P	Z <sub>1</sub> /Z <sub>2</sub>	A/H	B/P	Z <sub>1</sub> /Z <sub>2</sub>	A/H	B/P	Z <sub>1</sub> /Z <sub>2</sub>	AHL
45 135	40 14	57 48	67.9	39 51	56 36	67.1	39 28	55 24	66.3	39 03	54 13	65.6	38 38	53 04	64.9	38 12	51 54	64.1	225 315
46 134	41 05	57 21	67.2	40 41	56 08	66.4	40 17	54 56	65.6	39 52	53 44	64.8	39 26	52 34	64.1	38 59	51 25	63.3	226 314
47 133	41 55	56 52	66.4	41 31	55 38	65.6	41 06	54 26	64.8	40 40	53 14	64.0	40 13	52 04	63.3	39 46	50 54	62.5	227 313
48 132	42 45	56 22	65.7	42 20	55 08	64.9	41 54	53 55	64.0	41 28	52 43	63.2	41 00	51 32	62.5	40 32	50 22	61.7	228 312
49 131	43 35	55 50	64.9	43 09	54 36	64.1	42 43	53 22	63.2	42 15	52 10	62.4	41 47	50 59	61.6	41 18	49 48	60.9	229 311
50 130	44 25	55 17	64.1	43 58	54 02	63.3	43 31	52 49	62.4	43 03	51 36	61.6	42 34	50 24	60.8	42 04	49 14	60.0	230 310
51 129	45 14	54 43	63.3	44 47	53 28	62.4	44 18	52 13	61.6	43 49	51 00	60.7	43 20	49 48	59.9	42 49	48 38	59.1	231 309
52 128	46 03	54 08	62.5	45 35	52 52	61.6	45 06	51 37	60.7	44 36	50 23	59.8	44 05	49 11	59.0	43 34	48 00	58.2	232 308
53 127	46 51	53 30	61.6	46 22	52 14	60.7	45 52	50 59	59.8	45 22	49 45	58.9	44 51	48 32	58.1	44 18	47 21	57.2	233 307
54 126	47 39	52 51	60.8	47 09	51 34	59.8	46 39	50 19	58.9	46 07	49 05	58.0	45 35	47 52	57.1	45 02	46 41	56.3	234 306
55 125	48 27	52 11	59.8	47 56	50 53	58.9	47 25	49 37	58.0	46 53	48 23	57.0	46 19	47 10	56.2	45 46	45 59	55.3	235 305
56 124	49 14	51 28	58.9	48 43	50 11	57.9	48 10	48 54	57.0	47 37	47 40	56.1	47 03	46 27	55.2	46 29	45 15	54.3	236 304
57 123	50 01	50 44	57.9	49 28	49 26	56.9	48 55	48 09	56.0	48 21	46 54	55.0	47 46	45 41	54.1	47 11	44 30	53.3	237 303
58 122	50 47	49 58	56.9	50 14	48 39	55.9	49 40	47 22	54.9	49 05	46 07	54.0	48 29	44 54	53.1	47 53	43 43	52.2	238 302
59 121	51 33	49 09	55.9	50 58	47 51	54.9	50 23	46 34	53.9	49 48	45 18	52.9	49 11	44 05	52.0	48 34	42 54	51.1	239 301
60 120	52 18	48 19	54.8	51 43	47 00	53.8	51 07	45 43	52.8	50 30	44 28	51.8	49 53	43 14	50.9	49 14	42 03	50.0	240 300
61 119	53 02	47 26	53.7	52 26	46 07	52.7	51 49	44 50	51.7	51 12	43 35	50.7	50 33	42 22	49.7	49 54	41 10	48.8	241 299
62 118	53 46	46 31	52.6	53 09	45 12	51.5	52 31	43 54	50.5	51 53	42 39	49.5	51 13	41 27	48.6	50 33	40 16	47.6	242 298
63 117	54 29	45 33	51.4	53 51	44 14	50.3	53 13	42 57	49.3	52 33	41 42	48.3	51 53	40 30	47.3	51 12	39 19	46.4	243 297
64 116	55 12	44 33	50.2	54 33	43 14	49.1	53 53	41 57	48.1	53 13	40 42	47.1	52 31	39 30	46.1	51 49	38 20	45.2	244 296
65 115	55 53	43 30	48.9	55 13	42 11	47.8	54 33	40 55	46.8	53 51	39 40	45.8	53 09	38 29	44.8	52 26	37 19	43.9	245 295
66 114	56 34	42 25	47.6	55 53	41 06	46.5	55 12	39 50	45.4	54 29	38 36	44.4	53 46	37 25	43.5	53 02	36 16	42.6	246 294
67 113	57 14	41 16	46.2	56 32	39 58	45.1	55 50	38 42	44.1	55 06	37 29	43.1	54 22	36 19	42.1	54 22	35 11	41.2	247 293
68 112	57 53	40 05	44.8	57 10	38 47	43.7	56 27	37 32	42.7	55 42	36 19	41.7	54 57	35 10	40.7	54 11	34 03	39.8	248 292
69 111	58 32	38 50	43.3	57 47	37 33	42.2	57 03	36 18	41.2	56 17	35 07	40.2	55 31	33 59	39.3	54 44	32 53	38.4	249 291
70 110	59 09	37 32	41.8	58 23	36 16	40.7	57 38	35 02	39.7	56 51	33 52	38.7	56 04	32 45	37.8	55 16	31 41	36.9	250 290
71 109	59 45	36 11	40.2	58 58	34 55	39.2	58 12	33 43	38.1	57 24	32 35	37.2	56 36	31 29	36.3	55 47	30 26	35.4	251 289
72 108	60 19	34 46	38.6	59 32	33 32	37.6	58 44	32 21	36.5	57 56	31 14	35.6	57 07	30 10	34.7	56 17	29 08	33.8	252 288
73 107	60 53	33 18	36.9	60 05	32 05	35.9	59 16	30 56	34.9	58 26	29 51	34.0	57 36	28 48	33.1	56 46	27 49	32.2	253 287
74 106	61 25	31 46	35.2	60 36	30 35	34.2	59 46	29 28	33.2	58 55	28 25	32.3	58 05	27 24	31.4	57 13	26 26	30.6	254 286
75 105	61 56	30 10	33.4	61 06	29 02	32.4	60 15	27 57	31.4	59 23	26 56	30.5	58 31	25 57	29.7	57 39	25 02	28.9	255 285
76 104	62 26	28 31	31.5	61 34	27 25	30.5	60 42	26 23	29.6	59 50	25 24	28.8	58 57	24 28	28.0	58 04	23 35	27.2	256 284
77 103	62 53	26 48	29.6	62 01	25 45	28.6	61 08	24 46	27.8	60 15	23 49	27.0	59 21	22 56	26.2	58 27	22 05	25.5	257 283
78 102	63 20	25 02	27.6	62 26	24 02	26.7	61 32	23 05	25.9	60 38	22 12	25.1	59 44	21 21	24.4	58 49	20 34	23.7	258 282
79 101	63 44	23 12	25.5	62 50	22 15	24.7	61 55	21 22	23.9	61 00	20 32	23.2	60 05	19 44	22.5	59 09	19 00	21.8	259 281
80 100	64 07	21 18	23.4	63 12	20 25	22.6	62 16	19 36	21.9	61 20	18 49	21.2	60 24	18 05	20.6	59 28	17 24	20.0	260 280
81 99	64 28	19 22	21.3	63 32	18 33	20.5	62 35	17 47	19.9	61 39	17 04	19.2	60 42	16 24	18.6	59 45	15 46	18.1	261 279
82 98	64 47	17 22	19.1	63 50	16 37	18.4	62 53	15 56	17.8	61 56	15 17	17.2	60 58	14 40	16.7	60 01	14 06	16.2	262 278
83 97	65 03	15 18	16.8	64 06	14 39	16.2	63 08	14 02	15.6	62 10	13 27	15.1	61 12	12 55	14.7	60 14	12 24	14.2	263 277
84 96	65 18	13 13	14.5	64 20	12 38	14.0	63 22	12 06	13.5	62 23	11 36	13.0	61 25	11 07	12.6	60 26	10 41	12.2	264 276
85 95	65 31	11 05	12.1	64 32	10 35	11.7	63 33	10 08	11.1	62 35	9 42	10.9	61 36	9 19	10.6	60 37	8 56	10.2	265 275
86 94	65 41	8 54	9.8	64 42	8 30	9.4	63 43	8 08	9.3	62 44	7 48	8.8	61 44	7 28	8.5	60 45	7 10	8.2	266 274
87 93	65 49	6 42	7.3	64 50	6 24	7.1	63 50	6 07	6.8	62 51	5 52	6.6	61 51	5 37	6.4	60 52	5 24	6.2	267 273
88 92	65 55	4 29	4.9	64 56	4 17	4.7	63 56	4 06	4.6	62 56	3 55	4.4	61 56	3 45	4.3	60 56	3 36	4.1	268 272
89 91	65 59	2 15	2.5	64 59	2 09	2.4	63 59	2 03	2.3	62 59	1 58	2.2	61 59	1 53	2.1	60 59	1 48	2.1	269 271
90 90	66 00	0 00	0.0	65 00	0 00	0.0	64 00	0 00	0.0	63 00	0 00	0.0	62 00	0 00	0.0	61 00	0 00	0.0	270 270

Lat. N.: para AHL > 180°... Z<sub>n</sub> = Z  
 para AHL < 180°... Z<sub>n</sub> = 360° - Z

Lat. S.: para AHL > 180°... Z<sub>n</sub> = 180° - Z  
 para AHL < 180°... Z<sub>n</sub> = 180° + Z



B: (-) para  $90^\circ < \text{AHL} < 270^\circ$ 

## TABLA PARA REDUCCION DE VISUALES

 $Z_1$ : mismo signo que B  
 $Z_2$ : (-) para  $F > 90^\circ$ 

Dec: (-) para la Lat. especificada y opuesta.

Lat. / A	30°			31°			32°			33°			34°			35°			Lat. / A
AHL/F	A/H	B/P	Z <sub>1</sub> /Z <sub>2</sub>	A/H	B/P	Z <sub>1</sub> /Z <sub>2</sub>	A/H	B/P	Z <sub>1</sub> /Z <sub>2</sub>	A/H	B/P	Z <sub>1</sub> /Z <sub>2</sub>	A/H	B/P	Z <sub>1</sub> /Z <sub>2</sub>	A/H	B/P	Z <sub>1</sub> /Z <sub>2</sub>	AHL
0 180	0 00	60 00	90 00	0 00	59 00	90 00	0 00	58 00	90 00	0 00	57 00	90 00	0 00	56 00	90 00	0 00	55 00	90 00	180 360
1 179	0 52	60 00	89 50	0 51	59 00	89 50	0 51	58 00	89 50	0 50	57 00	89 50	0 50	56 00	89 40	0 49	55 00	89 40	181 359
2 178	1 44	59 59	89 00	1 43	58 59	89 00	1 42	57 59	88 90	1 41	56 59	88 90	1 39	55 59	88 90	1 38	54 59	88 90	182 358
3 177	2 36	59 58	88 50	2 34	58 58	88 50	2 33	57 58	88 40	2 31	56 58	88 40	2 29	55 58	88 30	2 27	54 58	88 30	183 357
4 176	3 28	59 56	88 00	3 26	58 56	87 90	3 23	57 56	87 90	3 21	56 56	87 80	3 19	55 56	87 80	3 17	54 56	87 70	184 356
5 175	4 20	59 54	87 50	4 17	58 54	87 40	4 14	57 54	87 30	4 12	56 54	87 30	4 09	55 54	87 20	4 06	54 54	87 10	185 355
6 174	5 12	59 52	87 00	5 08	58 52	86 90	5 05	57 52	86 80	5 02	56 51	86 70	4 58	55 51	86 60	4 55	54 51	86 60	186 354
7 173	6 04	59 49	86 50	6 00	58 49	86 40	5 56	57 48	86 30	5 52	56 48	86 20	5 48	55 48	86 10	5 44	54 48	86 00	187 353
8 172	6 55	59 45	86 00	6 51	58 45	85 90	6 47	57 45	85 70	6 42	56 45	85 60	6 38	55 44	85 50	6 33	54 44	85 40	188 352
9 171	7 47	59 42	85 50	7 42	58 41	85 30	7 37	57 41	85 20	7 32	56 40	85 10	7 27	55 40	84 90	7 22	54 40	84 80	189 351
10 170	8 39	59 37	85 00	8 34	58 37	84 80	8 28	57 36	84 70	8 22	56 36	84 50	8 17	55 36	84 40	8 11	54 35	84 20	190 350
11 169	9 31	59 32	84 40	9 25	58 32	84 30	9 19	57 31	84 10	9 13	56 31	84 00	9 06	55 30	83 80	9 00	54 30	83 60	191 349
12 168	10 22	59 27	83 90	10 16	58 26	83 80	10 09	57 26	83 60	10 03	56 25	83 40	9 56	55 25	83 20	9 48	54 24	83 00	192 348
13 167	11 14	59 21	83 40	11 07	58 20	83 20	11 00	57 20	83 00	10 52	56 19	82 80	10 45	55 18	82 60	10 37	54 18	82 50	193 347
14 166	12 06	59 15	82 90	11 58	58 14	82 70	11 50	57 13	82 50	11 42	56 12	82 30	11 34	55 12	82 10	11 26	54 11	81 90	194 346
15 165	12 57	59 08	82 40	12 49	58 07	82 10	12 41	57 06	81 90	12 32	56 05	81 70	12 23	55 04	81 50	12 14	54 04	81 30	195 345
16 164	13 49	59 01	81 80	13 40	57 59	81 60	13 31	56 58	81 40	13 22	55 57	81 10	13 13	54 57	80 90	13 03	53 56	80 70	196 344
17 163	14 40	58 53	81 30	14 31	57 51	81 10	14 21	56 50	80 80	14 12	55 49	80 50	14 02	54 48	80 30	13 51	53 47	80 10	197 343
18 162	15 31	58 44	80 80	15 22	57 43	80 50	15 12	56 42	80 20	15 01	55 40	80 00	14 51	54 39	79 70	14 40	53 38	79 40	198 342
19 161	16 23	58 35	80 20	16 12	57 34	79 90	16 02	56 32	79 70	15 51	55 31	79 40	15 40	54 30	79 10	15 28	53 29	78 80	199 341
20 160	17 14	58 26	79 70	17 03	57 24	79 40	16 52	56 23	79 10	16 40	55 21	78 80	16 28	54 20	78 50	16 16	53 19	78 20	200 340
21 159	18 05	58 16	79 10	17 53	57 14	78 80	17 42	56 12	78 50	17 29	55 11	78 20	17 17	54 09	77 90	17 04	53 08	77 60	201 339
22 158	18 56	58 05	78 60	18 44	57 03	78 20	18 31	56 01	77 90	18 19	55 00	77 60	18 06	53 58	77 30	17 52	52 56	77 00	202 338
23 157	19 47	57 54	78 00	19 34	56 52	77 70	19 21	55 50	77 30	19 08	54 48	77 00	18 54	53 46	76 60	18 40	52 44	76 30	203 337
24 156	20 37	57 42	77 40	20 24	56 40	77 10	20 11	55 38	76 70	19 57	54 36	76 40	19 42	53 34	76 00	19 28	52 32	75 70	204 336
25 155	21 28	57 30	76 90	21 14	56 27	76 50	21 00	55 25	76 10	20 46	54 23	75 70	20 31	53 21	75 40	20 15	52 19	75 00	205 335
26 154	22 19	57 17	76 30	22 04	56 14	75 90	21 49	55 12	75 50	21 34	54 09	75 10	21 19	53 07	74 70	21 03	52 05	74 40	206 334
27 153	23 09	57 03	75 70	22 54	56 00	75 30	22 39	54 57	74 90	22 23	53 55	74 50	22 07	52 52	74 10	21 50	51 50	73 70	207 333
28 152	23 59	56 49	75 10	23 44	55 46	74 70	23 28	54 43	74 30	23 11	53 40	73 80	22 54	52 37	73 40	22 37	51 35	73 00	208 332
29 151	24 50	56 34	74 50	24 33	55 31	74 10	24 17	54 27	73 60	23 59	53 24	73 20	23 42	52 22	72 80	23 24	51 19	72 40	209 331
30 150	25 40	56 19	73 90	25 23	55 15	73 40	25 05	54 11	73 00	24 48	53 08	72 50	24 29	52 05	72 10	24 11	51 03	71 70	210 330
31 149	26 29	56 02	73 30	26 12	54 58	72 80	25 54	53 54	72 30	25 35	52 51	71 90	25 17	51 48	71 40	24 57	50 45	71 00	211 329
32 148	27 19	55 45	72 60	27 01	54 41	72 20	26 42	53 37	71 70	26 23	52 33	71 20	26 04	51 30	70 70	25 44	50 27	70 30	212 328
33 147	28 09	55 27	72 00	27 50	54 23	71 50	27 31	53 19	71 00	27 11	52 15	70 50	26 50	51 12	70 00	26 30	50 08	69 60	213 327
34 146	28 58	55 09	71 40	28 38	54 04	70 80	28 19	53 00	70 30	27 58	51 56	69 80	27 37	50 52	69 30	27 16	49 49	68 80	214 326
35 145	29 47	54 49	70 70	29 27	53 44	70 20	29 06	52 40	69 60	28 45	51 36	69 10	28 24	50 32	68 60	28 01	49 29	68 10	215 325
36 144	30 36	54 29	70 00	30 15	53 24	69 50	29 54	52 19	68 90	29 32	51 15	68 40	29 10	50 11	67 90	28 47	49 07	67 40	216 324
37 143	31 25	54 08	69 40	31 03	53 03	68 80	30 41	51 58	68 20	30 19	50 53	67 70	29 56	49 49	67 20	29 32	48 45	66 60	217 323
38 142	32 13	53 46	68 70	31 51	52 40	68 10	31 28	51 35	67 50	31 05	50 30	66 90	30 41	49 26	66 40	30 17	48 23	65 90	218 322
39 141	33 02	53 23	68 00	32 39	52 17	67 40	32 15	51 12	66 80	31 51	50 07	66 20	31 27	49 03	65 60	31 02	47 59	65 10	219 321
40 140	33 50	53 00	67 20	33 26	51 53	66 60	33 02	50 48	66 00	32 37	49 43	65 40	32 12	48 38	64 90	31 46	47 34	64 30	220 320
41 139	34 37	52 35	66 50	34 13	51 29	65 90	33 48	50 23	65 30	33 23	49 17	64 70	32 57	48 13	64 10	32 30	47 09	63 50	221 319
42 138	35 25	52 09	65 80	35 00	51 03	65 10	34 34	49 56	64 50	34 08	48 51	63 90	33 42	47 46	63 30	33 14	46 42	62 70	222 318
43 137	36 12	51 43	65 00	35 46	50 36	64 30	35 20	49 29	63 70	34 53	48 24	63 10	34 26	47 19	62 50	33 58	46 15	61 90	223 317
44 136	36 59	51 15	64 20	36 33	50 08	63 60	36 06	49 01	62 90	35 38	47 55	62 30	35 10	46 51	61 60	34 41	45 46	61 00	224 316
45 135	37 46	50 46	63 40	37 19	49 39	62 70	36 51	48 32	62 10	36 22	47 26	61 40	35 53	46 21	60 80	35 24	45 17	60 20	225 315

LATITUD / A: 30° - 35°

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Lat. / A	30°			31°			32°			33°			34°			35°			Lat. / A		
AHL/F	A/H	B/P	Z <sub>1</sub> /Z <sub>2</sub>	A/H	B/P	Z <sub>1</sub> /Z <sub>2</sub>	A/H	B/P	Z <sub>1</sub> /Z <sub>2</sub>	A/H	B/P	Z <sub>1</sub> /Z <sub>2</sub>	A/H	B/P	Z <sub>1</sub> /Z <sub>2</sub>	A/H	B/P	Z <sub>1</sub> /Z <sub>2</sub>	AHL		
45	135	37 46	50 46	63.4	37 19	49 39	62.7	36 51	48 32	62.1	36 22	47 26	61.4	35 53	46 21	60.8	35 24	45 17	60.2	225	315
46	134	38 32	50 16	62.6	38 04	49 08	61.9	37 36	48 02	61.2	37 06	46 56	60.6	36 37	45 51	59.9	36 06	44 46	59.3	226	314
47	133	39 18	49 45	61.8	38 49	48 37	61.1	38 20	47 30	60.4	37 50	46 24	59.7	37 19	45 19	59.1	36 48	44 15	58.4	227	313
48	132	40 04	49 13	61.0	39 34	48 05	60.2	39 04	46 58	59.5	38 33	45 51	58.8	38 02	44 46	58.2	37 30	43 42	57.5	228	312
49	131	40 49	48 39	60.1	40 19	47 31	59.4	39 48	46 24	58.6	39 16	45 18	57.9	38 44	44 12	57.2	38 11	43 08	56.6	229	311
50	130	41 34	48 04	59.2	41 03	46 56	58.5	40 31	45 49	57.7	39 59	44 42	57.0	39 26	43 37	56.3	38 52	42 33	55.6	230	310
51	129	42 18	47 28	58.3	41 46	46 20	57.5	41 14	45 12	56.8	40 41	44 06	56.1	40 07	43 01	55.4	39 32	41 57	54.7	231	309
52	128	43 02	46 50	57.4	42 29	45 42	56.6	41 56	44 34	55.9	41 22	43 28	55.1	40 47	42 23	54.4	40 12	41 19	53.7	232	308
53	127	43 46	46 11	56.4	43 12	45 03	55.6	42 38	43 55	54.9	42 03	42 49	54.1	41 28	41 44	53.4	40 52	40 41	52.7	233	307
54	126	44 29	45 31	55.5	43 54	44 22	54.7	43 19	43 15	53.9	42 44	42 09	53.1	42 07	41 04	52.4	41 30	40 01	51.7	234	306
55	125	45 11	44 49	54.5	44 36	43 40	53.7	44 00	42 33	52.9	43 24	41 27	52.1	42 46	40 23	51.4	42 09	39 19	50.7	235	305
56	124	45 53	44 05	53.5	45 17	42 57	52.6	44 40	41 50	51.8	44 03	40 44	51.1	43 25	39 40	50.3	42 46	38 37	49.6	236	304
57	123	46 35	43 20	52.4	45 58	42 11	51.6	45 20	41 05	50.8	44 42	39 59	50.0	44 03	38 55	49.3	43 24	37 53	48.5	237	303
58	122	47 16	42 33	51.3	46 38	41 25	50.5	45 59	40 18	49.7	45 20	39 13	48.9	44 40	38 09	48.2	44 00	37 07	47.5	238	302
59	121	47 56	41 44	50.2	47 17	40 36	49.4	46 38	39 30	48.6	45 58	38 25	47.8	45 17	37 22	47.1	44 36	36 20	46.3	239	301
60	120	48 35	40 54	49.1	47 56	39 46	48.3	47 16	38 40	47.5	46 35	37 36	46.7	45 53	36 33	45.9	45 11	35 32	45.2	240	300
61	119	49 14	40 01	47.9	48 34	38 54	47.1	47 53	37 48	46.3	47 11	36 45	45.5	46 29	35 42	44.7	45 46	34 42	44.0	241	299
62	118	49 53	39 07	46.8	49 11	38 00	45.9	48 29	36 55	45.1	47 46	35 52	44.3	47 03	34 50	43.6	46 19	33 50	42.8	242	298
63	117	50 30	38 11	45.5	49 48	37 04	44.7	49 05	36 00	43.9	48 21	34 57	43.1	47 37	33 57	42.3	46 53	32 57	41.6	243	297
64	116	51 07	37 13	44.3	50 23	36 07	43.4	49 40	35 03	42.6	48 55	34 01	41.8	48 10	33 01	41.1	47 25	32 03	40.4	244	296
65	115	51 43	36 12	43.0	50 58	35 07	42.2	50 14	34 04	41.3	49 28	33 03	40.6	48 43	32 04	39.8	47 56	31 07	39.1	245	295
66	114	52 18	35 10	41.7	51 33	34 06	40.8	50 47	33 04	40.0	50 01	32 04	39.3	49 14	31 05	38.5	48 27	30 09	37.8	246	294
67	113	52 52	34 05	40.3	52 06	33 02	39.5	51 19	32 01	38.7	50 32	31 02	37.9	49 44	30 05	37.2	48 56	29 10	36.5	247	293
68	112	53 25	32 59	38.9	52 38	31 56	38.1	51 50	30 57	37.3	51 02	29 59	36.6	50 14	29 03	35.8	49 25	28 09	35.2	248	292
69	111	53 57	31 50	37.5	53 09	30 49	36.7	52 21	29 50	35.9	51 32	28 53	35.2	50 43	27 59	34.5	49 53	27 06	33.8	249	291
70	110	54 28	30 39	36.1	53 39	29 39	35.2	52 50	28 42	34.5	52 00	27 46	33.8	51 10	26 53	33.1	50 20	26 02	32.4	250	290
71	109	54 58	29 25	34.6	54 08	28 27	33.8	53 18	27 31	33.0	52 28	26 38	32.3	51 37	25 46	31.6	50 46	24 56	31.0	251	289
72	108	55 27	28 09	33.0	54 37	27 13	32.2	53 46	26 19	31.5	52 54	25 27	30.8	52 03	24 37	30.2	51 10	23 49	29.5	252	288
73	107	55 55	26 51	31.4	55 03	25 57	30.7	54 12	25 04	30.0	53 19	24 14	29.3	52 27	23 26	28.7	51 34	22 40	28.1	253	287
74	106	56 21	25 31	29.8	55 29	24 39	29.1	54 36	23 48	28.4	53 43	23 00	27.8	52 50	22 14	27.1	51 57	21 29	26.6	254	286
75	105	56 46	24 09	28.2	55 53	23 18	27.5	55 00	22 30	26.8	54 06	21 44	26.2	53 12	21 00	25.6	52 18	20 17	25.0	255	285
75	104	57 10	22 44	26.5	56 16	21 56	25.8	55 22	21 10	25.2	54 28	20 26	24.6	53 33	19 44	24.0	52 38	19 04	23.5	256	284
77	103	57 33	21 17	24.8	56 38	20 31	24.1	55 43	19 48	23.5	54 48	19 06	23.0	53 53	18 27	22.4	52 57	17 49	21.9	257	283
78	102	57 54	19 48	23.0	56 59	19 05	22.4	56 03	18 24	21.9	55 07	17 45	21.3	54 11	17 08	20.8	53 15	16 32	20.3	258	282
79	101	58 13	18 17	21.2	57 17	17 37	20.7	56 21	16 59	20.1	55 25	16 22	19.6	54 28	15 48	19.2	53 31	15 15	18.7	259	281
80	100	58 32	16 44	19.4	57 35	16 07	18.9	56 38	15 32	18.4	55 41	14 58	17.9	54 44	14 26	17.5	53 47	13 56	17.1	260	280
81	99	58 48	15 10	17.6	57 51	14 36	17.1	56 53	14 03	16.6	55 56	13 33	16.2	54 58	13 03	15.8	54 00	12 36	15.4	261	279
82	98	59 03	13 33	15.7	58 05	13 02	15.3	57 07	12 33	14.9	56 09	12 06	14.5	55 11	11 40	14.1	54 13	11 14	13.8	262	278
83	97	59 16	11 55	13.8	58 18	11 28	13.4	57 19	11 02	13.0	56 21	10 38	12.7	55 22	10 14	12.4	54 24	9 52	12.1	263	277
84	96	59 28	10 16	11.9	58 29	9 52	11.5	57 30	9 30	11.2	56 31	9 09	10.9	55 32	8 49	10.6	54 33	8 29	10.4	264	276
85	95	59 37	8 35	9.9	58 38	8 15	9.6	57 39	7 56	9.4	56 40	7 39	9.1	55 41	7 22	8.9	54 41	7 06	8.7	265	275
86	94	59 46	6 53	8.0	58 46	6 37	7.7	57 47	6 22	7.5	56 47	6 08	7.3	55 48	5 54	7.1	54 48	5 41	7.0	266	274
87	93	59 52	5 11	6.0	58 52	4 59	5.8	57 52	4 47	5.6	56 53	4 36	5.5	55 53	4 26	5.4	54 53	4 16	5.2	267	273
88	92	59 56	3 28	4.0	58 57	3 19	3.9	57 57	3 12	3.8	56 57	3 05	3.7	55 57	2 58	3.6	54 57	2 51	3.5	268	272
89	91	59 59	1 44	2.0	58 59	1 40	1.9	57 59	1 36	1.9	56 59	1 32	1.8	55 59	1 29	1.8	54 59	1 26	1.7	269	271
90	90	60 00	0 00	0.0	59 00	0 00	0.0	58 00	0 00	0.0	57 00	0 00	0.0	56 00	0 00	0.0	55 00	0 00	0.0	270	270

Lat. N.: para AHL > 180°... Z<sub>n</sub> = Z  
 para AHL < 180°... Z<sub>n</sub> = 360° - Z

Lat. S.: para AHL > 180°... Z<sub>n</sub> = 180° - Z  
 para AHL < 180°... Z<sub>n</sub> = 180° + Z



B: (—) para 90° < AHL < 270°  
 Dec: (—) para la Lat. especificada y opuesta.

TABLA PARA REDUCCION DE VISUALES

Z<sub>1</sub>: mismo signo que B  
 Z<sub>2</sub>: (—) para F > .90°

Lat. / A	36°			37°			38°			39°			40°			41°			Lat. / A
AHL/F	A/H	B/P	Z <sub>1</sub> /Z <sub>2</sub>	A/H	B/P	Z <sub>1</sub> /Z <sub>2</sub>	A/H	B/P	Z <sub>1</sub> /Z <sub>2</sub>	A/H	B/P	Z <sub>1</sub> /Z <sub>2</sub>	A/H	B/P	Z <sub>1</sub> /Z <sub>2</sub>	A/H	B/P	Z <sub>1</sub> /Z <sub>2</sub>	AHL
0 180	0 00	54 00	90.0	0 00	53 00	90.0	0 00	52 00	90.0	0 00	51 00	90.0	0 00	50 00	90.0	0 00	49 00	90.0	180 360
1 179	0 49	54 00	89.4	0 48	53 00	89.4	0 47	52 00	89.4	0 47	51 00	89.4	0 46	50 00	89.4	0 45	49 00	89.3	181 359
2 178	1 37	53 59	88.8	1 36	52 59	88.8	1 35	51 59	88.8	1 33	50 59	88.7	1 32	49 59	88.7	1 31	48 59	88.7	182 358
3 177	2 26	53 58	88.2	2 24	52 58	88.2	2 22	51 58	88.2	2 20	50 58	88.1	2 18	49 58	88.1	2 16	48 58	88.0	183 357
4 176	3 14	53 56	87.6	3 12	52 56	87.6	3 09	51 56	87.5	3 06	50 56	87.5	3 04	49 56	87.4	3 01	48 56	87.4	184 356
5 175	4 03	53 54	87.1	3 59	52 54	87.0	3 56	51 54	86.9	3 53	50 54	86.8	3 50	49 54	86.8	3 46	48 54	86.7	185 355
6 174	4 51	53 51	86.5	4 47	52 51	86.4	4 43	51 51	86.3	4 40	50 51	86.2	4 36	49 51	86.1	4 31	48 51	86.1	186 354
7 173	5 39	53 48	85.9	5 35	52 48	85.8	5 31	51 48	85.7	5 26	50 47	85.6	5 21	49 47	85.5	5 17	48 47	85.4	187 353
8 172	6 28	53 44	85.3	6 23	52 44	85.2	6 18	51 44	85.1	6 13	50 44	84.9	6 07	49 43	84.8	6 02	48 43	84.7	188 352
9 171	7 16	53 40	84.7	7 11	52 39	84.6	7 05	51 39	84.4	6 59	50 39	84.3	6 53	49 39	84.2	6 47	48 39	84.1	189 351
10 170	8 05	53 35	84.1	7 58	52 35	83.9	7 52	51 34	83.8	7 45	50 34	83.7	7 39	49 34	83.5	7 32	48 34	83.4	190 350
11 169	8 53	53 30	83.5	8 46	52 29	83.3	8 39	51 29	83.2	8 32	50 29	83.0	8 24	49 29	82.9	8 17	48 28	82.7	191 349
12 168	9 41	53 24	82.9	9 33	52 23	82.7	9 26	51 23	82.5	9 18	50 23	82.4	9 10	49 23	82.2	9 02	48 22	82.1	192 348
13 167	10 29	53 17	82.3	10 21	52 17	82.1	10 13	51 17	81.9	10 04	50 16	81.7	9 55	49 16	81.6	9 46	48 16	81.4	193 347
14 166	11 17	53 10	81.7	11 08	52 10	81.5	11 09	51 10	81.3	10 50	50 09	81.1	10 41	49 09	80.9	10 31	48 09	80.7	194 346
15 165	12 05	53 03	81.0	11 56	52 02	80.8	11 46	51 02	80.6	11 36	50 02	80.4	11 26	49 01	80.2	11 16	48 01	80.0	195 345
16 164	12 53	52 55	80.4	12 43	51 54	80.2	12 33	50 54	80.0	12 22	49 53	79.8	12 11	48 53	79.6	12 00	47 53	79.3	196 344
17 163	13 41	52 46	79.8	13 30	51 46	79.6	13 19	50 45	79.3	13 08	49 45	79.1	12 57	48 44	78.9	12 45	47 44	78.7	197 343
18 162	14 29	52 37	79.2	14 17	51 37	78.9	14 06	50 36	78.7	13 54	49 35	78.4	13 42	48 35	78.2	13 29	47 34	78.0	198 342
19 161	15 16	52 28	78.6	15 04	51 27	78.3	14 52	50 26	78.0	14 39	49 25	77.8	14 27	48 25	77.5	14 13	47 24	77.3	199 341
20 160	16 04	52 17	77.9	15 51	51 16	77.6	15 38	50 16	77.4	15 25	49 15	77.1	15 11	48 14	76.8	14 58	47 14	76.6	200 340
21 159	16 51	52 07	77.3	16 38	51 05	77.0	16 24	50 05	76.7	16 10	49 04	76.4	15 56	48 03	76.1	15 42	47 03	75.9	201 339
22 158	17 39	51 55	76.6	17 24	50 54	76.3	17 10	49 53	76.0	16 56	48 52	75.7	16 41	47 51	75.4	16 25	46 51	75.2	202 338
23 157	18 26	51 43	76.0	18 11	50 42	75.7	17 56	49 41	75.4	17 41	48 40	75.0	17 25	47 39	74.7	17 09	46 38	74.4	203 337
24 156	19 13	51 30	75.3	18 57	50 29	75.0	18 42	49 28	74.7	18 26	48 27	74.3	18 09	47 26	74.0	17 53	46 25	73.7	204 336
25 155	20 00	51 17	74.7	19 44	50 15	74.3	19 27	49 14	74.0	19 10	48 13	73.6	18 53	47 12	73.3	18 36	46 12	73.0	205 335
26 154	20 46	51 03	74.0	20 30	50 01	73.6	20 13	49 00	73.3	19 55	47 59	72.9	19 37	46 58	72.6	19 19	45 57	72.3	206 334
27 153	21 33	50 48	73.3	21 15	49 47	73.0	20 58	48 45	72.6	20 40	47 44	72.2	20 21	46 43	71.9	20 02	45 42	71.5	207 333
28 152	22 19	50 33	72.6	22 01	49 31	72.3	21 43	48 30	71.9	21 24	47 28	71.5	21 05	46 28	71.1	20 45	45 27	70.8	208 332
29 151	23 06	50 17	72.0	22 47	49 15	71.6	22 28	48 14	71.2	22 08	47 12	70.8	21 48	46 11	70.4	21 28	45 11	70.0	209 331
30 150	23 52	50 00	71.3	23 32	48 58	70.8	23 12	47 57	70.4	22 52	46 55	70.0	22 31	45 54	69.6	22 10	44 54	69.3	210 330
31 149	24 37	49 43	70.5	24 17	48 41	70.1	23 57	47 39	69.7	23 36	46 38	69.3	23 14	45 37	68.9	22 52	44 36	68.5	211 329
32 148	25 23	49 25	69.8	25 02	48 23	69.4	24 41	47 21	69.0	24 19	46 19	68.5	23 57	45 18	68.1	23 34	44 17	67.7	212 328
33 147	26 09	49 06	69.1	25 47	48 04	68.7	25 25	47 02	68.2	25 02	46 00	67.8	24 40	44 59	67.3	24 16	43 58	66.9	213 327
34 146	26 54	48 46	68.4	26 32	47 44	67.9	26 09	46 42	67.4	25 45	45 40	67.0	25 22	44 39	66.6	24 58	43 39	66.1	214 326
35 145	27 39	48 26	67.6	27 16	47 23	67.1	26 52	46 21	66.7	26 28	45 20	66.2	26 04	44 19	65.8	25 39	43 18	65.3	215 325
36 144	28 24	48 04	66.9	28 00	47 02	66.4	27 36	46 00	65.9	27 11	44 58	65.4	26 46	43 57	65.0	26 20	42 57	64.5	216 324
37 143	29 08	47 42	66.1	28 44	46 40	65.6	28 19	45 38	65.1	27 53	44 36	64.6	27 27	43 35	64.2	27 01	42 34	63.7	217 323
38 142	29 52	47 19	65.3	29 27	46 17	64.8	29 01	45 15	64.3	28 35	44 13	63.8	28 08	43 12	63.3	27 41	42 12	62.9	218 322
39 141	30 36	46 56	64.5	30 10	45 53	64.0	29 44	44 51	63.5	29 17	43 49	63.0	28 49	42 48	62.5	28 21	41 48	62.0	219 321
40 140	31 20	46 31	63.7	30 53	45 28	63.2	30 26	44 26	62.7	29 58	43 25	62.2	29 30	42 24	61.7	29 01	41 23	61.2	220 320
41 139	32 03	46 05	62.9	31 36	45 03	62.4	31 08	44 01	61.8	30 39	42 59	61.3	30 10	41 58	60.8	29 41	40 58	60.3	221 319
42 138	32 46	45 39	62.1	32 18	44 36	61.5	31 49	43 34	61.0	31 20	42 33	60.5	30 50	41 32	59.9	30 20	40 32	59.4	222 318
43 137	33 29	45 11	61.3	33 00	44 09	60.7	32 30	43 07	60.1	32 00	42 05	59.6	31 30	41 05	59.1	30 59	40 04	58.5	223 317
44 136	34 12	44 43	60.4	33 42	43 40	59.8	33 11	42 38	59.3	32 40	41 37	58.7	32 09	40 36	58.2	31 37	39 36	57.6	224 316
45 135	34 54	44 13	59.6	34 23	43 11	59.0	33 52	42 09	58.4	33 20	41 08	57.8	32 48	40 07	57.3	32 15	39 08	56.7	225 315

LATITUD / A: 36° - 41°



Lat. / A	36°			37°			38°			39°			40°			41°			Lat. / A		
AHL/F	A/H	B/P	Z <sub>1</sub> /Z <sub>2</sub>	A/H	B/P	Z <sub>1</sub> /Z <sub>2</sub>	A/H	B/P	Z <sub>1</sub> /Z <sub>2</sub>	A/H	B/P	Z <sub>1</sub> /Z <sub>2</sub>	A/H	B/P	Z <sub>1</sub> /Z <sub>2</sub>	A/H	B/P	Z <sub>1</sub> /Z <sub>2</sub>	AHL		
45	135	34 54	44 13	59.6	34 23	43 11	59.0	33 52	42 09	58.4	33 20	41 08	57.8	32 48	40 07	57.3	32 15	39 08	56.7	225	315
46	134	35 35	43 43	58.7	35 04	42 40	58.1	34 32	41 38	57.5	33 59	40 37	56.9	33 26	39 37	56.4	32 53	38 38	55.8	226	314
47	133	36 17	43 11	57.8	35 44	42 09	57.2	35 12	41 07	56.6	34 38	40 06	56.0	34 04	39 06	55.4	33 30	38 07	54.9	227	313
48	132	36 57	42 39	56.9	36 24	41 36	56.2	35 51	40 35	55.6	35 17	39 34	55.0	34 42	38 34	54.5	34 07	37 35	53.9	228	312
49	131	37 38	42 05	55.9	37 04	41 03	55.3	36 30	40 01	54.7	35 55	39 01	54.1	35 19	38 01	53.5	34 43	37 03	53.0	229	311
50	130	38 18	41 30	55.0	37 43	40 28	54.4	37 08	39 27	53.7	36 32	38 27	53.1	35 56	37 27	52.5	35 19	36 29	52.0	230	310
51	129	38 57	40 54	54.0	38 22	39 52	53.4	37 46	38 51	52.8	37 09	37 51	52.1	36 32	36 52	51.6	35 55	35 54	51.0	231	309
52	128	39 36	40 17	53.0	39 00	39 15	52.4	38 23	38 14	51.8	37 46	37 15	51.1	37 08	36 16	50.6	36 30	35 18	50.0	232	308
53	127	40 15	39 38	52.0	39 38	38 37	51.4	39 00	37 36	50.8	38 22	36 37	50.1	37 43	35 39	49.5	37 04	34 42	49.0	233	307
54	126	40 53	38 58	51.0	40 15	37 57	50.4	39 36	36 57	49.7	38 57	35 58	49.1	38 18	35 01	48.5	37 38	34 04	47.9	234	306
55	125	41 30	38 17	50.0	40 52	37 17	49.3	40 12	36 17	48.7	39 32	35 19	48.1	38 52	34 21	47.4	38 11	33 25	46.9	235	305
56	124	42 07	37 35	48.9	41 28	36 35	48.3	40 47	35 36	47.6	40 07	34 38	47.0	39 26	33 41	46.4	38 44	32 45	45.8	236	304
57	123	42 44	36 51	47.9	42 03	35 51	47.2	41 22	34 53	46.5	40 41	33 55	45.9	39 59	32 59	45.3	39 16	32 04	44.7	237	303
58	122	43 19	36 06	46.8	42 38	35 07	46.1	41 56	34 09	45.4	41 14	33 12	44.8	40 31	32 16	44.2	39 48	31 22	43.6	238	302
59	121	43 54	35 20	45.6	43 12	34 21	45.0	42 29	33 24	44.3	41 46	32 27	43.7	41 03	31 32	43.1	40 19	30 39	42.5	239	301
60	120	44 29	34 32	44.5	43 46	33 34	43.8	43 02	32 37	43.2	42 18	31 42	42.5	41 34	30 47	41.9	40 49	29 54	41.3	240	300
61	119	45 02	33 43	43.3	44 18	32 45	42.6	43 34	31 49	42.0	42 49	30 55	41.4	42 04	30 01	40.8	41 18	29 09	40.2	241	299
62	118	45 35	32 52	42.1	44 51	31 55	41.5	44 05	31 00	40.8	43 20	30 06	40.2	42 34	29 14	39.6	41 47	28 22	39.0	242	298
63	117	46 07	32 00	40.9	45 22	31 04	40.3	44 36	30 10	39.6	43 49	29 17	39.0	43 03	28 25	38.4	42 15	27 35	37.8	243	297
64	116	46 39	31 06	39.7	45 52	30 11	39.0	45 06	29 18	38.4	44 18	28 26	37.8	43 31	27 35	37.2	42 43	26 46	36.6	244	296
65	115	47 09	30 11	38.4	46 22	29 17	37.8	45 35	28 25	37.1	44 47	27 34	36.5	43 58	26 44	36.0	43 09	25 56	35.4	245	295
66	114	47 39	29 14	37.1	46 51	28 21	36.5	46 03	27 30	35.9	45 14	26 40	35.3	44 25	25 52	34.7	43 35	25 04	34.2	246	294
67	113	48 08	28 16	35.8	47 19	27 24	35.2	46 30	26 34	34.6	45 40	25 45	34.0	44 50	24 58	33.4	44 00	24 12	32.9	247	293
68	112	48 36	27 17	34.5	47 46	26 26	33.9	46 56	25 37	33.3	46 06	24 50	32.7	45 15	24 03	32.2	44 24	23 19	31.6	248	292
69	111	49 03	26 15	33.1	48 13	25 26	32.5	47 22	24 38	31.9	46 31	23 52	31.4	45 39	23 08	30.8	44 48	22 24	30.3	249	291
70	110	49 29	25 13	31.8	48 38	24 25	31.2	47 46	23 39	30.6	46 55	22 54	30.0	46 03	22 11	29.5	45 10	21 29	29.0	250	290
71	109	49 54	24 08	30.4	49 02	23 22	29.8	48 10	22 37	29.2	47 17	21 54	28.7	46 25	21 12	28.2	45 32	20 32	27.7	251	289
72	108	50 18	23 02	28.9	49 25	22 18	28.4	48 33	21 35	27.8	47 39	20 53	27.3	46 46	20 13	26.8	45 52	19 34	26.3	252	288
73	107	50 41	21 55	27.5	49 48	21 12	26.9	48 54	20 31	26.4	48 00	19 51	25.9	47 06	19 13	25.4	46 12	18 35	25.0	253	287
74	106	51 03	20 47	26.0	50 09	20 06	25.5	49 15	19 26	25.0	48 20	18 48	24.5	47 25	18 11	24.0	46 30	17 36	23.6	254	286
75	105	51 24	19 36	24.5	50 29	18 57	24.0	49 34	18 20	23.5	48 39	17 43	23.1	47 44	17 09	22.6	46 48	16 35	22.2	255	285
76	104	51 43	18 25	23.0	50 48	17 48	22.5	49 52	17 12	22.0	48 57	16 38	21.6	48 01	16 05	21.2	47 05	15 33	20.8	256	284
77	103	52 02	17 12	21.4	51 06	16 37	21.0	50 09	16 04	20.6	49 13	15 31	20.1	48 17	15 00	19.8	47 20	14 31	19.4	257	283
78	102	52 19	15 58	19.9	51 22	15 25	19.5	50 25	14 54	19.0	49 29	14 24	18.7	48 32	13 55	18.3	47 35	13 27	18.0	258	282
79	101	52 35	14 43	18.3	51 37	14 13	17.9	50 40	13 43	17.5	49 43	13 16	17.2	48 46	12 49	16.8	47 48	12 23	16.5	259	281
80	100	52 49	13 27	16.7	51 52	12 59	16.3	50 54	12 32	16.0	49 56	12 06	15.7	48 58	11 42	15.3	48 01	11 18	15.0	260	280
81	99	53 02	12 09	15.1	52 04	11 44	14.7	51 06	11 19	14.4	50 08	10 56	14.1	49 10	10 34	13.8	48 12	10 12	13.6	261	279
82	98	53 14	10 51	13.4	52 16	10 28	13.1	51 18	10 06	12.9	50 19	9 45	12.6	49 20	9 25	12.3	48 22	9 06	12.1	262	278
83	97	53 25	9 31	11.8	52 26	9 11	11.5	51 27	8 52	11.3	50 29	8 34	11.0	49 30	8 16	10.8	48 31	7 59	10.6	263	277
84	96	53 34	8 11	10.1	52 35	7 54	9.9	51 36	7 37	9.7	50 37	7 21	9.5	49 38	7 06	9.3	48 38	6 51	9.1	264	276
85	95	53 42	6 50	8.5	52 43	6 36	8.3	51 43	6 22	8.1	50 44	6 09	7.9	49 44	5 56	7.8	48 45	5 44	7.6	265	275
86	94	53 49	5 29	6.8	52 49	5 17	6.6	51 49	5 06	6.5	50 50	4 55	6.3	49 50	4 45	6.2	48 50	4 35	6.1	266	274
87	93	53 54	4 07	5.1	52 54	3 58	5.0	51 54	3 50	4.9	50 54	3 42	4.8	49 54	3 34	4.7	48 55	3 27	4.6	267	273
88	92	53 57	2 45	3.4	52 57	2 39	3.3	51 57	2 33	3.2	50 57	2 28	3.2	49 58	2 23	3.1	48 58	2 18	3.0	268	272
89	91	53 59	1 23	1.7	52 59	1 20	1.7	51 59	1 17	1.6	50 59	1 14	1.6	49 59	1 11	1.6	48 59	1 09	1.5	269	271
90	90	54 00	0 00	0.0	53 00	0 00	0.0	52 00	0 00	0.0	51 00	0 00	0.0	50 00	0 00	0.0	49 00	0 00	0.0	270	270

Lat. N.: para AHL > 180°... Z<sub>n</sub> = Z  
 para AHL < 180°... Z<sub>n</sub> = 360° - Z

Lat. S.: para AHL > 180°... Z<sub>n</sub> = 180° - Z  
 para AHL < 180°... Z<sub>n</sub> = 180° + Z



B: (—) para 90° &lt; AHL &lt; 270°

Dec: (—) para la Lat. especificada y opuesta.

## TABLA PARA REDUCCION DE VISUALES

Z<sub>1</sub>: mismo signo que BZ<sub>2</sub>: (—) para F > 90°

Lat. / A	42°			43°			44°			45°			46°			47°			Lat. / A
AHL/F	A/H	B/P	Z <sub>1</sub> /Z <sub>2</sub>	A/H	B/P	Z <sub>1</sub> /Z <sub>2</sub>	A/H	B/P	Z <sub>1</sub> /Z <sub>2</sub>	A/H	B/P	Z <sub>1</sub> /Z <sub>2</sub>	A/H	B/P	Z <sub>1</sub> /Z <sub>2</sub>	A/H	B/P	Z <sub>1</sub> /Z <sub>2</sub>	AHL
0 180	0 00	48 00	90.0	0 00	47 00	90.0	0 00	46 00	90.0	0 00	45 00	90.0	0 00	44 00	90.0	0 00	43 00	90.0	180 360
1 179	0 45	48 00	89.3	0 44	47 00	89.3	0 43	46 00	89.3	0 42	45 00	89.3	0 42	44 00	89.3	0 41	43 00	89.3	181 359
2 178	1 29	47 59	88.7	1 28	46 59	88.6	1 26	45 59	88.6	1 25	44 59	88.6	1 23	43 59	88.6	1 22	42 59	88.5	182 358
3 177	2 14	47 58	88.0	2 12	46 58	88.0	2 09	45 58	87.9	2 07	44 58	87.9	2 05	43 58	87.8	2 03	42 58	87.8	183 357
4 176	2 58	47 56	87.3	2 55	46 56	87.3	2 53	45 56	87.2	2 50	44 56	87.2	2 47	43 56	87.1	2 44	42 56	87.1	184 356
5 175	3 43	47 53	86.6	3 39	46 53	86.6	3 36	45 53	86.5	3 32	44 53	86.5	3 28	43 53	86.4	3 24	42 53	86.3	185 355
6 174	4 27	47 51	86.0	4 23	46 51	85.9	4 19	45 51	85.8	4 14	44 51	85.7	4 10	43 51	85.7	4 05	42 51	85.6	186 354
7 173	5 12	47 47	85.3	5 07	46 47	85.2	5 02	45 47	85.1	4 57	44 47	85.0	4 51	43 47	85.0	4 46	42 47	84.9	187 353
8 172	5 56	47 43	84.6	5 51	46 43	84.5	5 45	45 43	84.4	5 39	44 43	84.3	5 33	43 43	84.2	5 27	42 43	84.1	188 352
9 171	6 41	47 39	84.0	6 34	46 39	83.8	6 28	45 39	83.7	6 21	44 39	83.6	6 14	43 39	83.5	6 07	42 39	83.4	189 351
10 170	7 25	47 34	83.3	7 18	46 34	83.1	7 11	45 34	83.0	7 03	44 34	82.9	6 56	43 34	82.8	6 48	42 34	82.7	190 350
11 169	8 09	47 28	82.6	8 01	46 28	82.4	7 53	45 28	82.3	7 45	44 28	82.2	7 37	43 28	82.0	7 29	42 28	81.9	191 349
12 168	8 53	47 22	81.9	8 45	46 22	81.8	8 36	45 22	81.6	8 27	44 22	81.5	8 18	43 22	81.3	8 09	42 22	81.2	192 348
13 167	9 37	47 16	81.2	9 28	46 16	81.1	9 19	45 16	80.9	9 09	44 16	80.7	8 59	43 16	80.6	8 49	42 16	80.4	193 347
14 166	10 21	47 08	80.5	10 11	46 08	80.3	10 01	45 08	80.2	9 51	44 08	80.0	9 40	43 08	79.8	9 30	42 08	79.7	194 346
15 165	11 05	47 01	79.8	10 55	46 00	79.6	10 44	45 00	79.5	10 33	44 00	79.3	10 21	43 00	79.1	10 10	42 01	78.9	195 345
16 164	11 49	46 52	79.1	11 38	45 52	78.9	11 26	44 52	78.7	11 14	43 52	78.5	11 02	42 52	78.3	10 50	41 52	78.2	196 344
17 163	12 33	46 43	78.4	12 21	45 43	78.2	12 08	44 43	78.0	11 56	43 43	77.8	11 43	42 43	77.6	11 30	41 44	77.4	197 343
18 162	13 17	46 34	77.7	13 04	45 34	77.5	12 51	44 34	77.3	12 37	43 34	77.1	12 24	42 34	76.8	12 10	41 34	76.6	198 342
19 161	14 00	46 24	77.0	13 46	45 24	76.8	13 33	44 24	76.5	13 19	43 24	76.3	13 04	42 24	76.1	12 50	41 24	75.9	199 341
20 160	14 43	46 13	76.3	14 29	45 13	76.1	14 15	44 13	75.8	14 00	43 13	75.6	13 45	42 13	75.3	13 29	41 14	75.1	200 340
21 159	15 27	46 02	75.6	15 12	45 02	75.3	14 56	44 02	75.1	14 41	43 02	74.8	14 25	42 02	74.6	14 09	41 03	74.3	201 339
22 158	16 10	45 50	74.9	15 54	44 50	74.6	15 38	43 50	74.3	15 22	42 50	74.1	15 05	41 50	73.8	14 48	40 51	73.5	202 338
23 157	16 53	45 38	74.1	16 36	44 38	73.9	16 19	43 38	73.6	16 02	42 38	73.3	15 45	41 38	73.0	15 27	40 39	72.8	203 337
24 156	17 36	45 25	73.4	17 18	44 25	73.1	17 01	43 25	72.8	16 43	42 25	72.5	16 25	41 25	72.2	16 06	40 26	72.0	204 336
25 155	18 18	45 11	72.7	18 00	44 11	72.4	17 42	43 11	72.1	17 23	42 11	71.8	17 04	41 12	71.5	16 45	40 12	71.2	205 335
26 154	19 01	44 57	71.9	18 42	43 57	71.6	18 23	42 57	71.3	18 03	41 57	71.0	17 44	40 57	70.7	17 24	39 58	70.4	206 334
27 153	19 43	44 42	71.2	19 24	43 42	70.8	19 04	42 42	70.5	18 43	41 42	70.2	18 23	40 43	69.9	18 02	39 43	69.6	207 333
28 152	20 25	44 26	70.4	20 05	43 26	70.1	19 44	42 26	69.7	19 23	41 27	69.4	19 02	40 27	69.1	18 40	39 28	68.8	208 332
29 151	21 07	44 10	69.6	20 46	43 10	69.3	20 25	42 10	68.9	20 03	41 10	68.6	19 41	40 11	68.3	19 18	39 12	67.9	209 331
30 150	21 49	43 53	68.9	21 27	42 53	68.5	21 05	41 53	68.1	20 42	40 54	67.8	20 19	39 54	67.4	19 56	38 55	67.1	210 330
31 149	22 30	43 35	68.1	22 08	42 35	67.7	21 45	41 36	67.3	21 21	40 36	67.0	20 58	39 37	66.6	20 34	38 38	66.3	211 329
32 148	23 11	43 17	67.3	22 48	42 17	66.9	22 24	41 17	66.5	22 00	40 18	66.2	21 36	39 19	65.8	21 11	38 20	65.4	212 328
33 147	23 53	42 58	66.5	23 28	41 58	66.1	23 04	40 58	65.7	22 39	39 59	65.3	22 14	39 00	65.0	21 48	38 02	64.6	213 327
34 146	24 33	42 38	65.7	24 08	41 38	65.3	23 43	40 39	64.9	23 17	39 40	64.5	22 51	38 41	64.1	22 25	37 42	63.7	214 326
35 145	25 14	42 18	64.9	24 48	41 18	64.5	24 22	40 18	64.1	23 56	39 19	63.7	23 29	38 21	63.3	23 02	37 23	62.9	215 325
36 144	25 54	41 56	64.1	25 28	40 57	63.6	25 01	39 57	63.2	24 34	38 58	62.8	24 06	38 00	62.4	23 38	37 02	62.0	216 324
37 143	26 34	41 34	63.2	26 07	40 35	62.8	25 39	39 35	62.4	25 11	38 37	61.9	24 43	37 38	61.5	24 14	36 41	61.1	217 323
38 142	27 14	41 11	62.4	26 46	40 12	61.9	26 17	39 13	61.5	25 48	38 14	61.1	25 19	37 16	60.7	24 50	36 19	60.3	218 322
39 141	27 53	40 48	61.5	27 24	39 48	61.1	26 55	38 50	60.6	26 25	37 51	60.2	25 55	36 53	59.8	25 25	35 56	59.4	219 321
40 140	28 32	40 23	60.7	28 02	39 24	60.2	27 32	38 25	59.8	27 02	37 27	59.3	26 31	36 30	58.9	26 00	35 32	58.5	220 320
41 139	29 11	39 58	59.8	28 40	38 59	59.3	28 10	38 01	58.9	27 38	37 03	58.4	27 07	36 05	58.0	26 35	35 08	57.6	221 319
42 138	29 49	39 32	58.9	29 18	38 33	58.4	28 46	37 35	58.0	28 14	36 37	57.5	27 42	35 40	57.1	27 09	34 43	56.6	222 318
43 137	30 27	39 05	58.0	29 55	38 06	57.5	29 23	37 08	57.1	28 50	36 11	56.6	28 17	35 14	56.1	27 43	34 18	55.7	223 317
44 136	31 05	38 37	57.1	30 32	37 39	56.6	29 59	36 41	56.1	29 25	35 44	55.7	28 51	34 47	55.2	28 17	33 51	54.8	224 316
45 135	31 42	38 09	56.2	31 08	37 10	55.7	30 34	36 13	55.2	30 00	35 16	54.7	29 25	34 20	54.3	28 50	33 24	53.8	225 315

LATITUD / A: 42° - 47°

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Lat. / A		42°			43°			44°			45°			46°			47°			Lat. / A	
AHL/F		A/H	B/P	Z <sub>1</sub> /Z <sub>2</sub>	A/H	B/P	Z <sub>1</sub> /Z <sub>2</sub>	A/H	B/P	Z <sub>1</sub> /Z <sub>2</sub>	A/H	B/P	Z <sub>1</sub> /Z <sub>2</sub>	A/H	B/P	Z <sub>1</sub> /Z <sub>2</sub>	A/H	B/P	Z <sub>1</sub> /Z <sub>2</sub>	AHL	
45	135	31 42	38 09	56.2	31 08	37 10	55.7	30 34	36 13	55.2	30 00	35 16	54.7	29 25	34 20	54.3	28 50	33 24	53.8	225	315
46	134	32 19	37 39	55.3	31 45	36 41	54.8	31 10	35 44	54.3	30 34	34 47	53.8	29 59	33 51	53.3	29 23	32 56	52.9	226	314
47	133	32 55	37 08	54.3	32 20	36 11	53.8	31 45	35 14	53.3	31 08	34 18	52.8	30 32	33 22	52.4	29 55	32 27	51.9	227	313
48	132	33 31	36 37	53.4	32 55	35 40	52.9	32 19	34 43	52.3	31 42	33 47	51.9	31 05	32 52	51.4	30 27	31 58	50.9	228	312
49	131	34 07	36 05	52.4	33 30	35 08	51.9	32 53	34 11	51.4	32 15	33 16	50.9	31 37	32 21	50.4	30 59	31 27	49.9	229	311
50	130	34 42	35 31	51.4	34 04	34 35	50.9	33 26	33 39	50.4	32 48	32 44	49.9	32 09	31 50	49.4	31 30	30 56	48.9	230	310
51	129	35 17	34 57	50.4	34 38	34 01	49.9	33 59	33 05	49.4	33 20	32 11	48.9	32 40	31 17	48.4	32 00	30 24	47.9	231	309
52	128	35 51	34 22	49.4	35 12	33 26	48.9	34 32	32 31	48.4	33 52	31 37	47.9	33 11	30 44	47.4	32 30	29 52	46.9	232	308
53	127	36 24	33 45	48.4	35 44	32 50	47.9	35 04	31 56	47.3	34 23	31 02	46.8	33 42	30 10	46.3	33 00	29 18	45.9	233	307
54	126	36 57	33 08	47.4	36 17	32 13	46.8	35 35	31 20	46.3	34 54	30 27	45.8	34 12	29 35	45.3	33 29	28 44	44.8	234	306
55	125	37 30	32 30	46.3	36 48	31 36	45.8	36 06	30 43	45.2	35 24	29 50	44.7	34 41	28 59	44.2	33 58	28 08	43.8	235	305
56	124	38 02	31 51	45.2	37 19	30 57	44.7	36 37	30 04	44.2	35 53	29 13	43.6	35 10	28 22	43.2	34 26	27 32	42.7	236	304
57	123	38 33	31 10	44.1	37 50	30 17	43.6	37 06	29 25	43.1	36 22	28 34	42.6	35 38	27 45	42.1	34 53	26 56	41.6	237	303
58	122	39 04	30 29	43.0	38 20	29 36	42.5	37 36	28 45	42.0	36 51	27 55	41.5	36 06	27 06	41.0	35 20	26 18	40.5	238	302
59	121	39 34	29 46	41.9	38 49	28 55	41.4	38 04	28 04	40.9	37 19	27 15	40.4	36 33	26 27	39.9	35 46	25 39	39.4	239	301
60	120	40 04	29 03	40.8	39 18	28 12	40.2	38 32	27 22	39.7	37 46	26 34	39.2	36 59	25 46	38.8	36 12	25 00	38.3	240	300
61	119	40 32	28 18	39.6	39 46	27 28	39.1	38 59	26 39	38.6	38 12	25 52	38.1	37 25	25 05	37.6	36 37	24 20	37.2	241	299
62	118	41 00	27 32	38.5	40 13	26 43	37.9	39 26	25 56	37.4	38 38	25 09	36.9	37 50	24 23	36.5	37 02	23 39	36.0	242	298
63	117	41 28	26 45	37.3	40 40	25 58	36.8	39 52	25 11	36.3	39 03	24 25	35.8	38 14	23 40	35.3	37 25	22 57	34.9	243	297
64	116	41 54	25 58	36.1	41 06	25 11	35.6	40 17	24 25	35.1	39 28	23 40	34.6	38 38	22 57	34.1	37 48	22 14	33.7	244	296
65	115	42 20	25 09	34.9	41 31	24 23	34.4	40 41	23 38	33.9	39 51	22 55	33.4	39 01	22 12	33.0	38 11	21 31	32.5	245	295
66	114	42 45	24 19	33.6	41 55	23 34	33.1	41 05	22 50	32.7	40 14	22 08	32.2	39 23	21 27	31.8	38 32	20 46	31.3	246	294
67	113	43 10	23 28	32.4	42 19	22 44	31.9	41 28	22 02	31.4	40 37	21 21	31.0	39 45	20 40	30.5	38 53	20 01	30.1	247	293
68	112	43 33	22 35	31.1	42 42	21 53	30.6	41 50	21 12	30.2	40 58	20 32	29.7	40 06	19 53	29.3	39 13	19 15	28.9	248	292
69	111	43 56	21 42	29.8	43 04	21 01	29.4	42 11	20 22	28.9	41 19	19 43	28.5	40 26	19 05	28.1	39 33	18 29	27.7	249	291
70	110	44 18	20 48	28.5	43 25	20 08	28.1	42 32	19 30	27.7	41 38	18 53	27.2	40 45	18 17	26.8	39 51	17 41	26.5	250	290
71	109	44 38	19 53	27.2	43 45	19 15	26.8	42 51	18 38	26.4	41 57	18 02	26.0	41 03	17 27	25.6	40 09	16 53	25.2	251	289
72	108	44 58	18 57	25.9	44 04	18 20	25.5	43 10	17 45	25.1	42 16	17 10	24.7	41 21	16 37	24.3	40 26	16 05	24.0	252	288
73	107	45 17	17 59	24.6	44 23	17 24	24.1	43 28	16 51	23.8	42 33	16 18	23.4	41 38	15 46	23.0	40 42	15 15	22.7	253	287
74	106	45 35	17 01	23.2	44 40	16 28	22.8	43 45	15 56	22.4	42 49	15 25	22.1	41 54	14 54	21.7	40 58	14 25	21.4	254	286
75	105	45 53	16 02	21.8	44 57	15 31	21.4	44 01	15 00	21.1	43 05	14 31	20.8	42 09	14 02	20.4	41 12	13 34	20.1	255	285
76	104	46 09	15 02	20.4	45 12	14 33	20.1	44 16	14 04	19.7	43 19	13 36	19.4	42 23	13 09	19.1	41 26	12 43	18.8	256	284
77	103	46 24	14 02	19.0	45 27	13 34	18.7	44 30	13 07	18.4	43 33	12 41	18.1	42 36	12 15	17.8	41 39	11 51	17.5	257	283
78	102	46 38	13 00	17.6	45 40	12 34	17.3	44 43	12 09	17.0	43 46	11 45	16.7	42 48	11 21	16.5	41 51	10 58	16.2	258	282
79	101	46 51	11 58	16.2	45 53	11 34	15.9	44 55	11 11	15.6	43 57	10 48	15.4	43 00	10 26	15.1	42 02	10 05	14.9	259	281
80	100	47 03	10 55	14.8	46 04	10 33	14.5	45 06	10 12	14.2	44 08	9 51	14.0	43 10	9 31	13.8	42 12	9 12	13.6	260	280
81	99	47 13	9 51	13.3	46 15	9 31	13.1	45 16	9 12	12.8	44 18	8 53	12.6	43 19	8 35	12.4	42 21	8 18	12.2	261	279
82	98	47 23	8 47	11.9	46 24	8 29	11.6	45 26	8 12	11.4	44 27	7 55	11.2	43 28	7 39	11.1	42 29	7 24	10.9	262	278
83	97	47 32	7 42	10.4	46 33	7 27	10.2	45 34	7 12	10.0	44 34	6 57	9.9	43 35	6 43	9.7	42 36	6 29	9.5	263	277
84	96	47 39	6 37	8.9	46 40	6 24	8.8	45 41	6 11	8.6	44 41	5 58	8.5	43 42	5 46	8.3	42 42	5 34	8.2	264	276
85	95	47 46	5 32	7.4	46 46	5 20	7.3	45 46	5 09	7.2	44 47	4 59	7.1	43 47	4 49	6.9	42 48	4 39	6.8	265	275
86	94	47 51	4 26	6.0	46 51	4 17	5.9	45 51	4 08	5.7	44 52	3 59	5.6	43 52	3 51	5.6	42 52	3 43	5.5	266	274
87	93	47 55	3 20	4.5	46 55	3 13	4.4	45 55	3 06	4.3	44 55	3 00	4.2	43 55	2 54	4.2	42 56	2 48	4.1	267	273
88	92	47 58	2 13	3.0	46 58	2 09	2.9	45 58	2 04	2.9	44 58	2 00	2.8	43 58	1 56	2.8	42 58	1 52	2.7	268	272
89	91	47 59	1 07	1.5	46 59	1 04	1.5	45 59	1 02	1.4	44 59	1 00	1.4	43 59	0 58	1.4	43 00	0 56	1.4	269	271
90	90	48 00	0 00	0.0	47 00	0 00	0.0	46 00	0 00	0.0	45 00	0 00	0.0	44 00	0 00	0.0	43 00	0 00	0.0	270	270

Lat. N.: para AHL > 180°... Z<sub>n</sub> = Z  
 para AHL < 180°... Z<sub>n</sub> = 360° - Z

Lat. S.: para AHL > 180°... Z<sub>n</sub> = 180° - Z  
 para AHL < 180°... Z<sub>n</sub> = 180° + Z



B: (—) para  $90^\circ < \text{AHL} < 270^\circ$ 

Dec: (—) para la Lat. especificada y opuesta.

## TABLA PARA REDUCCION DE VISUALES

 $Z_1$ : mismo signo que B  
 $Z_2$ : (—) para  $F > 90^\circ$ 

Lat. / A	48°			49°			50°			51°			52°			53°			Lat. / A
AHL/F	A/H	B/P	Z <sub>1</sub> /Z <sub>2</sub>	A/H	B/P	Z <sub>1</sub> /Z <sub>2</sub>	A/H	B/P	Z <sub>1</sub> /Z <sub>2</sub>	A/H	B/P	Z <sub>1</sub> /Z <sub>2</sub>	A/H	B/P	Z <sub>1</sub> /Z <sub>2</sub>	A/H	B/P	Z <sub>1</sub> /Z <sub>2</sub>	AHL
0 180	0 00	42 00	90.0	0 00	41 00	90.0	0 00	40 00	90.0	0 00	39 00	90.0	0 00	38 00	90.0	0 00	37 00	90.0	180 360
1 179	0 40	42 00	89.3	0 39	41 00	89.2	0 39	40 00	89.2	0 38	39 00	89.2	0 37	38 00	89.2	0 36	37 00	89.2	181 359
2 178	1 20	41 59	88.5	1 19	40 59	88.5	1 17	39 59	88.5	1 16	38 59	88.4	1 14	37 59	88.4	1 12	36 59	88.4	182 358
3 177	2 00	41 58	87.8	1 58	40 58	87.7	1 56	39 58	87.7	1 53	38 58	87.7	1 51	37 58	87.6	1 48	36 58	87.6	183 357
4 176	2 41	41 56	87.0	2 37	40 56	87.0	2 34	39 56	86.9	2 31	38 56	86.9	2 28	37 56	86.8	2 24	36 56	86.8	184 356
5 175	3 21	41 53	86.3	3 17	40 54	86.2	3 13	39 54	86.2	3 09	38 54	86.1	3 05	37 54	86.1	3 00	36 54	86.0	185 355
6 174	4 01	41 51	85.5	3 56	40 51	85.5	3 51	39 51	85.4	3 46	38 51	85.3	3 41	37 51	85.3	3 36	36 51	85.2	186 354
7 173	4 41	41 47	84.8	4 35	40 47	84.7	4 30	39 47	84.6	4 24	38 47	84.5	4 18	37 48	84.5	4 12	36 48	84.4	187 353
8 172	5 21	41 43	84.0	5 14	40 43	83.9	5 08	39 43	83.9	5 01	38 44	83.8	4 55	37 44	83.7	4 48	36 44	83.6	188 352
9 171	6 01	41 39	83.3	5 53	40 39	83.2	5 46	39 39	83.1	5 39	38 39	83.0	5 32	37 39	82.9	5 24	36 40	82.8	189 351
10 170	6 40	41 34	82.5	6 32	40 34	82.4	6 25	39 34	82.3	6 16	38 34	82.2	6 08	37 35	82.1	6 00	36 35	82.0	190 350
11 169	7 20	41 28	81.8	7 11	40 28	81.7	7 03	39 29	81.5	6 54	38 29	81.4	6 45	37 29	81.3	6 36	36 29	81.2	191 349
12 168	8 00	41 22	81.0	7 50	40 22	80.9	7 41	39 23	80.8	7 31	38 23	80.6	7 21	37 23	80.5	7 11	36 24	80.4	192 348
13 167	8 39	41 16	80.3	8 29	40 16	80.1	8 19	39 16	80.0	8 08	38 16	79.8	7 58	37 17	79.7	7 47	36 17	79.6	193 347
14 166	9 19	41 09	79.5	9 08	40 09	79.3	8 57	39 09	79.2	8 45	38 09	79.0	8 34	37 10	78.9	8 22	36 10	78.7	194 346
15 165	9 58	41 01	78.7	9 47	40 01	78.6	9 35	39 02	78.4	9 22	38 02	78.2	9 10	37 02	78.1	8 58	36 03	77.9	195 345
16 164	10 38	40 53	78.0	10 25	39 53	77.8	10 12	38 53	77.6	9 59	37 54	77.4	9 46	36 54	77.3	9 33	35 55	77.1	196 344
17 163	11 17	40 44	77.2	11 04	39 44	77.0	10 50	38 45	76.8	10 36	37 45	76.6	10 22	36 46	76.5	10 08	35 47	76.3	197 343
18 162	11 56	40 34	76.4	11 42	39 35	76.2	11 27	38 35	76.0	11 13	37 36	75.8	10 58	36 37	75.6	10 43	35 38	75.5	198 342
19 161	12 35	40 25	75.6	12 20	39 25	75.4	12 05	38 26	75.2	11 49	37 26	75.0	11 34	36 27	74.8	11 18	35 28	74.6	199 341
20 160	13 14	40 14	74.9	12 58	39 15	74.6	12 42	38 15	74.4	12 26	37 16	74.2	12 09	36 17	74.0	11 53	35 18	73.8	200 340
21 159	13 52	40 03	74.1	13 36	39 04	73.8	13 19	38 04	73.6	13 02	37 05	73.4	12 45	36 06	73.2	12 27	35 08	73.0	201 339
22 158	14 31	39 51	73.3	14 14	38 52	73.0	13 56	37 53	72.8	13 38	36 54	72.6	13 20	35 55	72.3	13 02	34 56	72.1	202 338
23 157	15 09	39 39	72.5	14 51	38 40	72.2	14 33	37 41	72.0	14 14	36 42	71.7	13 55	35 43	71.5	13 36	34 45	71.3	203 337
24 156	15 48	39 26	71.7	15 29	38 27	71.4	15 09	37 28	71.2	14 50	36 30	70.9	14 30	35 31	70.7	14 10	34 33	70.4	204 336
25 155	16 26	39 13	70.9	16 06	38 14	70.6	15 46	37 15	70.3	15 25	36 17	70.1	15 05	35 18	69.8	14 44	34 20	69.6	205 335
26 154	17 03	38 59	70.1	16 43	38 00	69.8	16 22	37 01	69.5	16 01	36 03	69.2	15 39	35 05	69.0	15 18	34 07	68.7	206 334
27 153	17 41	38 44	69.3	17 20	37 46	69.0	16 58	36 47	68.7	16 36	35 49	68.4	16 14	34 51	68.1	15 51	33 53	67.9	207 333
28 152	18 19	38 29	68.4	17 56	37 30	68.1	17 34	36 32	67.8	17 11	35 34	67.5	16 48	34 36	67.3	16 25	33 38	67.0	208 332
29 151	18 56	38 13	67.6	18 33	37 15	67.3	18 09	36 16	67.0	17 46	35 18	66.7	17 22	34 21	66.4	16 58	33 23	66.1	209 331
30 150	19 33	37 57	66.8	19 09	36 58	66.5	18 45	36 00	66.1	18 20	35 03	65.8	17 56	34 05	65.5	17 31	33 08	65.2	210 330
31 149	20 10	37 40	65.9	19 45	36 41	65.6	19 20	35 44	65.3	18 55	34 46	65.0	18 29	33 49	64.7	18 03	32 52	64.4	211 329
32 148	20 46	37 22	65.1	20 21	36 24	64.8	19 55	35 26	64.4	19 29	34 29	64.1	19 02	33 32	63.8	18 36	32 35	63.5	212 328
33 147	21 22	37 03	64.2	20 56	36 06	63.9	20 30	35 08	63.6	20 03	34 11	63.2	19 35	33 14	62.9	19 08	32 18	62.6	213 327
34 146	21 58	36 44	63.4	21 31	35 47	63.0	21 04	34 49	62.7	20 36	33 53	62.3	20 08	32 56	62.0	19 40	32 00	61.7	214 326
35 145	22 34	36 25	62.5	22 06	35 27	62.1	21 38	34 30	61.8	21 10	33 33	61.4	20 41	32 37	61.1	20 12	31 41	60.8	215 325
36 144	23 10	36 04	61.6	22 41	35 07	61.3	22 12	34 10	60.9	21 43	33 14	60.5	21 13	32 18	60.2	20 43	31 22	59.9	216 324
37 143	23 45	35 43	60.8	23 15	34 46	60.4	22 45	33 50	60.0	22 15	32 54	59.6	21 45	31 58	59.3	21 14	31 02	59.0	217 323
38 142	24 20	35 21	59.9	23 49	34 25	59.5	23 19	33 28	59.1	22 48	32 33	58.7	22 16	31 37	58.4	21 45	30 42	58.0	218 322
39 141	24 54	34 59	59.0	24 23	34 02	58.6	23 52	33 07	58.2	23 20	32 11	57.8	22 48	31 16	57.5	22 15	30 21	57.1	219 321
40 140	25 28	34 36	58.1	24 57	33 40	57.7	24 24	32 44	57.3	23 52	31 49	56.9	23 19	30 54	56.5	22 45	30 00	56.2	220 320
41 139	26 02	34 12	57.1	25 30	33 16	56.7	24 57	32 21	56.3	24 23	31 26	56.0	23 49	30 32	55.6	23 15	29 38	55.2	221 319
42 138	26 36	33 47	56.2	26 02	32 52	55.8	25 28	31 57	55.4	24 54	31 02	55.0	24 20	30 08	54.6	23 45	29 15	54.3	222 318
43 137	27 09	33 22	55.3	26 35	32 27	54.9	26 00	31 32	54.5	25 25	30 38	54.1	24 50	29 45	53.7	24 14	28 52	53.3	223 317
44 136	27 42	32 56	54.3	27 07	32 01	53.9	26 31	31 07	53.5	25 55	30 13	53.1	25 19	29 20	52.7	24 43	28 28	52.4	224 316
45 135	28 14	32 29	53.4	27 38	31 35	53.0	27 02	30 41	52.5	26 25	29 48	52.1	25 48	28 55	51.8	25 11	28 03	51.4	225 315



Lat. / A		48°			49°			50°			51°			52°			53°			Lat. / A	
AHL/F		A/H	B/P	Z <sub>1</sub> /Z <sub>2</sub>	A/H	B/P	Z <sub>1</sub> /Z <sub>2</sub>	A/H	B/P	Z <sub>1</sub> /Z <sub>2</sub>	A/H	B/P	Z <sub>1</sub> /Z <sub>2</sub>	A/H	B/P	Z <sub>1</sub> /Z <sub>2</sub>	A/H	B/P	Z <sub>1</sub> /Z <sub>2</sub>	AHL	
45	135	28 14	32 29	53.4	27 38	31 35	53.0	27 02	30 41	52.5	26 25	29 48	52.1	25 48	28 55	51.8	25 11	28 03	51.4	225	315
46	134	28 46	32 01	52.4	28 10	31 08	52.0	27 32	30 14	51.6	26 55	29 22	51.2	26 17	28 29	50.8	25 39	27 38	50.4	226	314
47	133	29 18	31 33	51.4	28 40	30 40	51.0	28 02	29 47	50.6	27 24	28 55	50.2	26 46	28 03	49.8	26 07	27 12	49.4	227	313
48	132	29 49	31 04	50.5	29 11	30 11	50.0	28 32	29 19	49.6	27 53	28 27	49.2	27 14	27 36	48.8	26 34	26 46	48.4	228	312
49	131	30 20	30 34	49.5	29 41	29 42	49.0	29 01	28 50	48.6	28 21	27 59	48.2	27 41	27 08	47.8	27 01	26 18	47.4	229	311
50	130	30 50	30 04	48.5	30 10	29 12	48.0	29 30	28 20	47.6	28 49	27 30	47.2	28 08	26 40	46.8	27 27	25 51	46.4	230	310
51	129	31 20	29 32	47.5	30 39	28 41	47.0	29 58	27 50	46.6	29 17	27 00	46.2	28 35	26 11	45.8	27 53	25 22	45.4	231	309
52	128	31 49	29 00	46.4	31 08	28 09	46.0	30 26	27 19	45.6	29 44	26 30	45.2	29 01	25 41	44.8	28 19	24 53	44.4	232	308
53	127	32 18	28 27	45.4	31 36	27 37	45.0	30 53	26 48	44.5	30 10	25 59	44.1	29 27	25 11	43.7	28 44	24 24	43.3	233	307
54	126	32 46	27 53	44.4	32 03	27 04	43.9	31 20	26 15	43.5	30 36	25 27	43.1	29 52	24 40	42.7	29 08	23 53	42.3	234	306
55	125	33 14	27 19	43.3	32 30	26 30	42.9	31 46	25 42	42.4	31 02	24 55	42.0	30 17	24 08	41.6	29 32	23 23	41.2	235	305
56	124	33 42	26 44	42.2	32 57	25 55	41.8	32 12	25 08	41.4	31 27	24 22	41.0	30 41	23 36	40.6	29 56	22 51	40.2	236	304
57	123	34 08	26 07	41.1	33 23	25 20	40.7	32 37	24 34	40.3	31 51	23 48	39.9	31 05	23 03	39.5	30 19	22 19	39.1	237	303
58	122	34 34	25 30	40.1	33 48	24 44	39.6	33 02	23 58	39.2	32 15	23 14	38.8	31 28	22 29	38.4	30 41	21 46	38.0	238	302
59	121	35 00	24 53	39.0	34 13	24 07	38.5	33 26	23 22	38.1	32 39	22 38	37.7	31 51	21 55	37.3	31 03	21 13	37.0	239	301
60	120	35 25	24 14	37.8	34 37	23 30	37.4	33 50	22 46	37.0	33 02	22 03	36.6	32 13	21 20	36.2	31 25	20 39	35.9	240	300
61	119	35 49	23 35	36.7	35 01	22 51	36.3	34 12	22 08	35.9	33 24	21 26	35.5	32 35	20 45	35.1	31 46	20 04	34.8	241	299
62	118	36 13	22 55	35.6	35 24	22 12	35.2	34 35	21 30	34.8	33 45	20 49	34.4	32 56	20 09	34.0	32 06	19 29	33.7	242	298
63	117	36 36	22 14	34.4	35 46	21 32	34.0	34 56	20 51	33.6	34 06	20 11	33.3	33 16	19 32	32.9	32 26	18 53	32.5	243	297
64	116	36 58	21 32	33.3	36 08	20 52	32.9	35 17	20 12	32.5	34 27	19 33	32.1	33 36	18 54	31.8	32 45	18 17	31.4	244	296
65	115	37 20	20 50	32.1	36 29	20 10	31.7	35 38	19 32	31.3	34 47	18 54	31.0	33 55	18 16	30.6	33 03	17 40	30.3	245	295
66	114	37 41	20 07	30.9	36 49	19 28	30.5	35 58	18 51	30.2	35 06	18 14	29.8	34 13	17 38	29.5	33 21	17 02	29.1	246	294
67	113	38 01	19 23	29.7	37 09	18 46	29.4	36 17	18 09	29.0	35 24	17 33	28.6	34 31	16 59	28.3	33 38	16 24	28.0	247	293
68	112	38 21	18 38	28.5	37 28	18 02	28.2	36 35	17 27	27.8	35 42	16 53	27.5	34 48	16 19	27.1	33 55	15 46	26.8	248	292
69	111	38 40	17 53	27.3	37 46	17 18	27.0	36 53	16 44	26.6	35 59	16 11	26.3	35 05	15 38	26.0	34 11	15 07	25.7	249	291
70	110	38 58	17 07	26.1	38 04	16 33	25.7	37 10	16 01	25.4	36 15	15 29	25.1	35 21	14 58	24.8	34 26	14 27	24.5	250	290
71	109	39 15	16 20	24.9	38 20	15 48	24.5	37 26	15 17	24.2	36 31	14 46	23.9	35 36	14 16	23.6	34 41	13 47	23.3	251	289
72	108	39 31	15 33	23.6	38 36	15 02	23.3	37 41	14 32	23.0	36 46	14 03	22.7	35 50	13 34	22.4	34 55	13 07	22.1	252	288
73	107	39 47	14 45	22.4	38 51	14 16	22.1	37 56	13 47	21.8	37 00	13 19	21.5	36 04	12 52	21.2	35 08	12 25	20.9	253	287
74	106	40 02	13 56	21.1	39 06	13 28	20.8	38 10	13 01	20.5	37 13	12 35	20.3	36 17	12 09	20.0	35 21	11 44	19.8	254	286
75	105	40 16	13 07	19.8	39 19	12 41	19.5	38 23	12 15	19.3	37 26	11 50	19.0	36 29	11 26	18.8	35 33	11 02	18.5	255	285
76	104	40 29	12 17	18.5	39 32	11 53	18.3	38 35	11 28	18.0	37 38	11 05	17.8	36 41	10 42	17.6	35 44	10 20	17.3	256	284
77	103	40 41	11 27	17.3	39 44	11 04	17.0	38 47	10 41	16.8	37 49	10 19	16.5	36 52	9 58	16.3	35 54	9 37	16.1	257	283
78	102	40 53	10 36	16.0	39 55	10 15	15.7	38 57	9 54	15.5	38 00	9 33	15.3	37 02	9 14	15.1	36 04	8 54	14.9	258	282
79	101	41 04	9 45	14.7	40 05	9 25	14.4	39 07	9 06	14.2	38 09	8 47	14.0	37 11	8 29	13.9	36 13	8 11	13.7	259	281
80	100	41 13	8 53	13.3	40 15	8 35	13.2	39 16	8 17	13.0	38 18	8 00	12.8	37 19	7 44	12.6	36 21	7 27	12.5	260	280
81	99	41 22	8 01	12.0	40 23	7 45	11.9	39 25	7 29	11.7	38 26	7 13	11.5	37 27	6 58	11.4	36 28	6 43	11.2	261	279
82	98	41 30	7 09	10.7	40 31	6 54	10.5	39 32	6 40	10.4	38 33	6 26	10.3	37 34	6 12	10.1	36 35	5 59	10.0	262	278
83	97	41 37	6 16	9.4	40 38	6 03	9.2	39 39	5 50	9.1	38 39	5 38	9.0	37 40	5 26	8.9	36 41	5 15	8.7	263	277
84	96	41 43	5 23	8.1	40 44	5 12	7.9	39 44	5 01	7.8	38 45	4 50	7.7	37 45	4 40	7.6	36 46	4 30	7.5	264	276
85	95	41 48	4 29	6.7	40 49	4 20	6.6	39 49	4 11	6.5	38 49	4 02	6.4	37 50	3 54	6.3	36 50	3 45	6.3	265	275
86	94	41 52	3 36	5.4	40 53	3 28	5.3	39 53	3 21	5.2	38 53	3 14	5.1	37 53	3 07	5.1	36 54	3 01	5.0	266	274
87	93	41 56	2 42	4.0	40 56	2 36	4.0	39 56	2 31	3.9	38 56	2 26	3.9	37 56	2 20	3.8	36 56	2 16	3.8	267	273
88	92	41 58	1 48	2.7	40 58	1 44	2.6	39 58	1 41	2.6	38 58	1 37	2.6	37 58	1 34	2.5	36 58	1 30	2.5	268	272
89	91	42 00	0 54	1.3	41 00	0 52	1.3	40 00	0 50	1.3	39 00	0 49	1.3	38 00	0 47	1.3	37 00	0 45	1.3	269	271
90	90	42 00	0 00	0.0	41 00	0 00	0.0	40 00	0 00	0.0	39 00	0 00	0.0	38 00	0 00	0.0	37 00	0 00	0.0	270	270

Lat. N.: para AHL > 180°... Z<sub>n</sub> = Z  
 para AHL < 180°... Z<sub>n</sub> = 360° - Z

Lat. S.: para AHL > 180°... Z<sub>n</sub> = 180° - Z  
 para AHL < 180°... Z<sub>n</sub> = 180° + Z



B: (—) para  $90^\circ < \text{AHL} < 270^\circ$ 

Dec: (—) para la Lat. especificada y opuesta.

## TABLA PARA REDUCCION DE VISUALES

 $Z_1$ : mismo signo que B  
 $Z_2$ : (—) para  $F > 90^\circ$ 

Lat. / A	54°			55°			56°			57°			58°			59°			Lat. / A	
	AHL/F	A/H	B/P	$Z_1/Z_2$	A/H	B/P	$Z_1/Z_2$	A/H	B/P	$Z_1/Z_2$	A/H	B/P	$Z_1/Z_2$	A/H	B/P	$Z_1/Z_2$	A/H	B/P		$Z_1/Z_2$
0 180	0 00	36 00	90.0	0 00	35 00	90.0	0 00	34 00	90.0	0 00	33 00	90.0	0 00	32 00	90.0	0 00	31 00	90.0	180	360
1 179	0 35	36 00	89.2	0 34	35 00	89.2	0 34	34 00	89.2	0 33	33 00	89.2	0 32	32 00	89.2	0 31	31 00	89.1	181	359
2 178	1 11	35 59	88.4	1 09	34 59	88.4	1 07	33 59	88.3	1 05	32 59	88.3	1 04	31 59	88.3	1 02	30 59	88.3	182	358
3 177	1 46	35 58	87.6	1 43	34 58	87.5	1 41	33 58	87.5	1 38	32 58	87.5	1 35	31 58	87.5	1 33	30 58	87.4	183	357
4 176	2 21	35 56	86.8	2 18	34 56	86.8	2 14	33 56	86.7	2 11	32 56	86.6	2 07	31 56	86.6	2 04	30 56	86.6	184	356
5 175	2 56	35 54	86.0	2 52	34 54	85.9	2 48	33 54	85.9	2 43	32 54	85.8	2 39	31 54	85.8	2 34	30 54	85.7	185	355
6 174	3 31	35 51	85.1	3 26	34 51	85.1	3 21	33 51	85.0	3 16	32 51	85.0	3 11	31 52	84.9	3 05	30 52	84.9	186	354
7 173	4 06	35 48	84.3	4 00	34 48	84.3	3 54	33 48	84.2	3 48	32 48	84.1	3 42	31 48	84.1	3 36	30 49	84.0	187	353
8 172	4 42	35 44	83.5	4 35	34 44	83.4	4 28	33 44	83.4	4 21	32 45	83.3	4 14	31 45	83.2	4 07	30 45	83.1	188	352
9 171	5 17	35 40	82.7	5 09	34 40	82.6	5 01	33 40	82.5	4 53	32 41	82.4	4 45	31 41	82.3	4 37	30 41	82.3	189	351
10 170	5 51	35 35	81.9	5 43	34 35	81.8	5 34	33 36	81.7	5 26	32 36	81.6	5 17	31 36	81.5	5 08	30 37	81.4	190	350
11 169	6 26	35 30	81.1	6 17	34 30	81.0	6 08	33 31	80.8	5 58	32 31	80.7	5 48	31 31	80.6	5 38	30 32	80.5	191	349
12 168	7 01	35 24	80.2	6 51	34 24	80.1	6 41	33 25	80.0	6 30	32 25	79.9	6 20	31 26	79.8	6 09	30 27	79.7	192	348
13 167	7 36	35 18	79.4	7 25	34 18	79.3	7 14	33 19	79.2	7 02	32 19	79.0	6 51	31 20	78.9	6 39	30 21	78.8	193	347
14 166	8 11	35 11	78.6	7 59	34 12	78.5	7 46	33 12	78.3	7 34	32 13	78.2	7 22	31 14	78.1	7 09	30 15	77.9	194	346
15 165	8 45	35 04	77.8	8 32	34 04	77.6	8 19	33 05	77.5	8 06	32 06	77.3	7 53	31 07	77.2	7 40	30 08	77.1	195	345
16 164	9 19	34 56	76.9	9 06	33 57	76.8	8 52	32 58	76.6	8 38	31 58	76.5	8 24	31 00	76.3	8 10	30 01	76.2	196	344
17 163	9 54	34 47	76.1	9 39	33 48	75.9	9 25	32 49	75.8	9 10	31 50	75.6	8 55	30 52	75.5	8 40	29 53	75.3	197	343
18 162	10 28	34 39	75.3	10 13	33 40	75.1	9 57	32 41	74.9	9 41	31 42	74.8	9 25	30 43	74.6	9 09	29 55	74.4	198	342
19 161	11 02	34 29	74.4	10 46	33 30	74.2	10 29	32 32	74.1	10 13	31 33	73.9	9 56	30 35	73.7	9 39	29 36	73.6	199	341
20 160	11 36	34 19	73.6	11 19	33 21	73.4	11 02	32 22	73.2	10 44	31 24	73.0	10 27	30 25	72.8	10 09	29 27	72.7	200	340
21 159	12 10	34 09	72.7	11 52	33 10	72.5	11 34	32 12	72.3	11 15	31 14	72.2	10 57	30 15	72.0	10 38	29 17	71.8	201	339
22 158	12 43	33 58	71.9	12 24	33 00	71.7	12 06	32 01	71.5	11 46	31 03	71.3	11 27	30 05	71.1	11 07	29 07	70.9	202	338
23 157	13 17	33 46	71.0	12 57	32 48	70.8	12 37	31 50	70.6	12 17	30 52	70.4	11 57	29 54	70.2	11 37	28 57	70.0	203	337
24 156	13 50	33 34	70.2	13 29	32 36	70.0	13 09	31 38	69.7	12 48	30 41	69.5	12 27	29 43	69.3	12 06	28 46	69.1	204	336
25 155	14 23	33 22	69.3	14 02	32 24	69.1	13 40	31 26	68.9	13 18	30 29	68.6	12 56	29 31	68.4	12 34	28 34	68.2	205	335
26 154	14 56	33 09	68.5	14 34	32 11	68.2	14 11	31 14	68.0	13 49	30 16	67.8	13 26	29 19	67.5	13 03	28 22	67.3	206	334
27 153	15 29	32 55	67.6	15 06	31 58	67.3	14 42	31 00	67.1	14 19	30 03	66.9	13 55	29 06	66.6	13 31	28 10	66.4	207	333
28 152	16 01	32 41	66.7	15 37	31 44	66.5	15 13	30 47	66.2	14 49	29 50	66.0	14 24	28 53	65.7	14 00	27 57	65.5	208	332
29 151	16 33	32 26	65.8	16 09	31 29	65.6	15 44	30 32	65.3	15 19	29 36	65.1	14 53	28 39	64.8	14 28	27 43	64.6	209	331
30 150	17 05	32 11	65.0	16 40	31 14	64.7	16 14	30 17	64.4	15 48	29 21	64.2	15 22	28 25	63.9	14 55	27 29	63.7	210	330
31 149	17 37	31 55	64.1	17 11	30 58	63.8	16 44	30 02	63.5	16 17	29 06	63.3	15 50	28 10	63.0	15 23	27 15	62.7	211	329
32 148	18 09	31 38	63.2	17 42	30 42	62.9	17 14	29 46	62.6	16 47	28 51	62.3	16 19	27 55	62.1	15 50	27 00	61.8	212	328
33 147	18 40	31 21	62.3	18 12	30 25	62.0	17 44	29 30	61.7	17 15	28 34	61.4	16 47	27 39	61.2	16 17	26 45	60.9	213	327
34 146	19 11	31 04	61.4	18 42	30 08	61.1	18 13	29 13	60.8	17 44	28 18	60.5	17 14	27 23	60.2	16 44	26 29	60.0	214	326
35 145	19 42	30 46	60.5	19 12	29 50	60.2	18 42	28 55	59.9	18 12	28 01	59.6	17 42	27 06	59.3	17 11	26 12	59.0	215	325
36 144	20 13	30 27	59.6	19 42	29 32	59.2	19 11	28 37	58.9	18 40	27 43	58.6	18 09	26 49	58.4	17 37	25 55	58.1	216	324
37 143	20 43	30 07	58.6	20 12	29 13	58.3	19 40	28 19	58.0	19 08	27 25	57.7	18 36	26 31	57.4	18 03	25 38	57.1	217	323
38 142	21 13	29 48	57.7	20 41	28 53	57.4	20 08	27 59	57.1	19 35	27 06	56.8	19 02	26 13	56.5	18 29	25 20	56.2	218	322
39 141	21 43	29 27	56.8	21 10	28 33	56.4	20 36	27 40	56.1	20 03	26 47	55.8	19 29	25 54	55.5	18 55	25 02	55.2	219	321
40 140	22 12	29 06	55.8	21 38	28 13	55.5	21 04	27 20	55.2	20 30	26 27	54.9	19 55	25 35	54.6	19 20	24 43	54.3	220	320
41 139	22 41	28 44	54.9	22 06	27 51	54.5	21 31	26 59	54.2	20 56	26 07	53.9	20 21	25 15	53.6	19 45	24 24	53.3	221	319
42 138	23 10	28 22	53.9	22 34	27 29	53.6	21 58	26 37	53.3	21 22	25 46	52.9	20 46	24 55	52.6	20 10	24 04	52.3	222	318
43 137	23 38	27 59	53.0	23 02	27 07	52.6	22 25	26 15	52.3	21 48	25 24	52.0	21 11	24 34	51.7	20 34	23 43	51.4	223	317
44 136	24 06	27 36	52.0	23 29	26 44	51.7	22 51	25 53	51.3	22 14	25 02	51.0	21 36	24 12	50.7	20 58	23 23	50.4	224	316
45 135	24 34	27 11	51.0	23 56	26 20	50.7	23 17	25 30	50.3	22 39	24 40	50.0	22 00	23 50	49.7	21 21	23 01	49.4	225	315

LATITUD / A: 54° - 59°



Lat. / A	54°			55°			56°			57°			58°			59°			Lat. / A		
AHL/F	A/H	B/P	Z <sub>1</sub> /Z <sub>2</sub>	A/H	B/P	Z <sub>1</sub> /Z <sub>2</sub>	A/H	B/P	Z <sub>1</sub> /Z <sub>2</sub>	A/H	B/P	Z <sub>1</sub> /Z <sub>2</sub>	A/H	B/P	Z <sub>1</sub> /Z <sub>2</sub>	A/H	B/P	Z <sub>1</sub> /Z <sub>2</sub>	AHL		
45	135	24 34	27 11	51.0	23 56	26 20	50.7	23 17	25 30	50.3	22 39	24 40	50.0	22 00	23 50	49.7	21 21	23 01	49.4	225	315
46	134	25 01	26 47	50.0	24 22	25 56	49.7	23 43	25 06	49.4	23 04	24 17	49.0	22 24	23 28	48.7	21 45	22 39	48.4	226	314
47	133	25 28	26 22	49.1	24 48	25 32	48.7	24 08	24 42	48.4	23 28	23 53	48.0	22 48	23 05	47.7	22 08	22 17	47.4	227	313
48	132	25 54	25 56	48.1	25 14	25 06	47.7	24 33	24 17	47.4	23 53	23 29	47.0	23 11	22 41	46.7	22 30	21 54	46.4	228	312
49	131	26 20	25 29	47.1	25 39	24 40	46.7	24 58	23 52	46.4	24 16	23 05	46.0	23 34	22 17	45.7	22 52	21 31	45.4	229	311
50	130	26 46	25 02	46.0	26 04	24 14	45.7	25 22	23 26	45.3	24 40	22 39	45.0	23 57	21 53	44.7	23 14	21 07	44.4	230	310
51	129	27 11	24 34	45.0	26 28	23 47	44.7	25 45	23 00	44.3	25 02	22 14	44.0	24 19	21 28	43.7	23 36	20 43	43.4	231	309
52	128	27 36	24 06	44.0	26 52	23 19	43.6	26 09	22 33	43.3	25 25	21 48	43.0	24 41	21 03	42.7	23 57	20 18	42.3	232	308
53	127	28 00	23 37	43.0	27 16	22 51	42.6	26 32	22 06	42.3	25 47	21 21	41.9	25 02	20 37	41.6	24 17	19 53	41.3	233	307
54	126	28 24	23 07	41.9	27 39	22 22	41.6	26 54	21 38	41.2	26 09	20 54	40.9	25 23	20 10	40.6	24 37	19 27	40.3	234	306
55	125	28 47	22 37	40.9	28 01	21 53	40.5	27 16	21 09	40.2	26 30	20 26	39.9	25 44	19 43	39.5	24 57	19 01	39.2	235	305
56	124	29 10	22 07	39.8	28 24	21 23	39.5	27 37	20 40	39.1	26 50	19 57	38.8	26 04	19 16	38.5	25 17	18 34	38.2	236	304
57	123	29 32	21 35	38.8	28 45	20 52	38.4	27 58	20 10	38.1	27 11	19 29	37.8	26 23	18 48	37.4	25 35	18 07	37.1	237	303
58	122	29 54	21 03	37.7	29 06	20 21	37.3	28 19	19 40	37.0	27 31	18 59	36.7	26 42	18 19	36.4	25 54	17 40	36.1	238	302
59	121	30 15	20 31	36.6	29 27	19 50	36.3	28 38	19 09	35.9	27 50	18 30	35.6	27 01	17 50	35.3	26 12	17 12	35.0	239	301
60	120	30 36	19 58	35.5	29 47	19 18	35.2	28 58	18 38	34.9	28 09	17 59	34.5	27 19	17 21	34.2	26 29	16 43	34.0	240	300
61	119	30 56	19 24	34.4	30 07	18 45	34.1	29 17	18 06	33.8	28 27	17 29	33.5	27 37	16 51	33.2	26 46	16 14	32.9	241	299
62	118	31 16	18 50	33.3	30 26	18 12	33.0	29 35	17 34	32.7	28 45	16 57	32.4	27 54	16 21	32.1	27 03	15 45	31.8	242	298
63	117	31 35	18 15	32.2	30 44	17 38	31.7	29 53	17 02	31.6	29 02	16 26	31.3	28 10	15 50	31.0	27 19	15 15	30.7	243	297
64	116	31 53	17 40	31.1	31 02	17 04	30.8	30 10	16 28	30.5	29 19	15 53	30.2	28 27	15 19	29.9	27 35	14 45	29.6	244	296
65	115	32 11	17 04	30.0	31 19	16 29	29.7	30 27	15 55	29.4	29 35	15 21	29.1	28 42	14 48	28.8	27 50	14 15	28.5	245	295
66	114	32 29	16 28	28.8	31 36	15 54	28.5	30 43	15 20	28.2	29 50	14 48	28.0	28 57	14 16	27.7	28 04	13 44	27.4	246	294
67	113	32 45	15 51	27.7	31 52	15 18	27.4	30 59	14 46	27.1	30 05	14 14	26.8	29 12	13 43	26.6	28 18	13 13	26.3	247	293
68	112	33 01	15 14	26.5	32 08	14 42	26.3	31 14	14 11	26.0	30 20	13 40	25.7	29 26	13 10	25.5	28 31	12 41	25.2	248	292
69	111	33 17	14 36	25.4	32 23	14 05	25.1	31 28	13 35	24.8	30 34	13 06	24.6	29 39	12 37	24.4	28 44	12 09	24.1	249	291
70	110	33 32	13 57	24.2	32 37	13 28	24.0	31 42	12 59	23.7	30 47	12 31	23.5	29 52	12 04	23.2	28 57	11 37	23.0	250	290
71	109	33 46	13 18	23.1	32 51	12 51	22.8	31 55	12 23	22.6	31 00	11 56	22.3	30 04	11 30	22.1	29 09	11 04	21.9	251	289
72	108	33 59	12 39	21.9	33 04	12 13	21.6	32 08	11 46	21.4	31 12	11 21	21.2	30 16	10 56	21.0	29 20	10 31	20.8	252	288
73	107	34 12	12 00	20.7	33 16	11 34	20.5	32 20	11 09	20.2	31 23	10 45	20.0	30 27	10 21	19.8	29 30	9 58	19.6	253	287
74	106	34 24	11 19	19.5	33 28	10 55	19.3	32 31	10 32	19.1	31 34	10 09	18.9	30 37	9 46	18.7	29 41	9 24	18.5	254	286
75	105	34 36	10 39	18.3	33 39	10 16	18.1	32 42	9 54	17.9	31 44	9 32	17.7	30 47	9 11	17.5	29 50	8 50	17.4	255	285
76	104	34 46	9 58	17.1	33 49	9 37	16.9	32 52	9 16	16.7	31 54	8 56	16.6	30 57	8 36	16.4	29 59	8 16	16.2	256	284
77	103	34 56	9 17	15.9	33 59	8 57	15.7	33 01	8 38	15.6	32 03	8 19	15.4	31 05	8 00	15.2	30 07	7 42	15.1	257	283
78	102	35 06	8 35	14.7	34 08	8 17	14.5	33 10	7 59	14.4	32 11	7 41	14.2	31 13	7 24	14.1	30 15	7 07	13.9	258	282
79	101	35 14	7 54	13.5	34 16	7 37	13.3	33 18	7 20	13.2	32 19	7 04	13.0	31 21	6 48	12.9	30 22	6 32	12.8	259	281
80	100	35 22	7 11	12.3	34 24	6 56	12.1	33 25	6 41	12.0	32 26	6 26	11.9	31 27	6 12	11.7	30 29	5 57	11.6	260	280
81	99	35 29	6 29	11.1	34 30	6 15	10.9	33 32	6 01	10.8	32 33	5 48	10.7	31 34	5 35	10.6	30 35	5 22	10.5	261	279
82	98	35 36	5 46	9.9	34 37	5 34	9.7	33 37	5 22	9.6	32 38	5 10	9.5	31 39	4 58	9.4	30 40	4 47	9.3	262	278
83	97	35 41	5 04	8.6	34 42	4 53	8.5	33 43	4 42	8.4	32 43	4 32	8.3	31 44	4 21	8.2	30 45	4 11	8.2	263	277
84	96	35 46	4 21	7.4	34 47	4 11	7.3	33 47	4 02	7.2	32 48	4 33	7.1	31 48	3 44	7.1	30 49	3 36	7.0	264	276
85	95	35 51	3 37	6.2	34 51	3 30	6.1	33 51	3 22	6.0	32 52	3 14	6.0	31 52	3 07	5.9	30 52	3 00	5.8	265	275
86	94	35 54	2 54	4.9	34 54	2 48	4.9	33 54	2 42	4.8	32 55	2 36	4.8	31 55	2 30	4.7	30 55	2 24	4.7	266	274
87	93	35 57	2 11	3.7	34 57	2 06	3.7	33 57	2 01	3.6	32 57	1 57	3.6	31 57	1 52	3.5	30 57	1 48	3.5	267	273
88	92	35 58	1 27	2.5	34 59	1 24	2.4	33 59	1 21	2.4	32 59	1 18	2.4	31 59	1 15	2.4	30 59	1 12	2.3	268	272
89	91	36 00	0 44	1.2	35 00	0 42	1.2	34 00	0 40	1.2	33 00	0 39	1.2	32 00	0 37	1.2	31 00	0 36	1.2	269	271
90	90	36 00	0 00	0.0	35 00	0 00	0.0	34 00	0 00	0.0	33 00	0 00	0.0	32 00	0 00	0.0	31 00	0 00	0.0	270	270

Lat. N.: para AHL > 180°... Z<sub>n</sub> = Z  
 para AHL < 180°... Z<sub>n</sub> = 360° - Z

Lat. S.: para AHL > 180°... Z<sub>n</sub> = 180° - Z  
 para AHL < 180°... Z<sub>n</sub> = 180° + Z



B: (-) para 90° &lt; AHL &lt; 270°

Dec: (-) para la Lat. especificada y opuesta.

## TABLA PARA REDUCCION DE VISUALES

Z<sub>1</sub>: mismo signo que BZ<sub>2</sub>: (-) para F > 90°

Lat. / A	60°			61°			62°			63°			64°			65°			Lat. / A
AHL/F	A/H	B/P	Z <sub>1</sub> /Z <sub>2</sub>	A/H	B/P	Z <sub>1</sub> /Z <sub>2</sub>	A/H	B/P	Z <sub>1</sub> /Z <sub>2</sub>	A/H	B/P	Z <sub>1</sub> /Z <sub>2</sub>	A/H	B/P	Z <sub>1</sub> /Z <sub>2</sub>	A/H	B/P	Z <sub>1</sub> /Z <sub>2</sub>	AHL
0 180	0 00	30 00	90 0	0 00	29 00	90 0	0 00	28 00	90 0	0 00	27 00	90 0	0 00	26 00	90 0	0 00	25 00	90 0	180 360
1 179	0 30	30 00	89 1	0 29	29 00	89 1	0 28	28 00	89 1	0 27	27 00	89 1	0 26	26 00	89 1	0 25	25 00	89 1	181 359
2 178	1 00	29 59	88 3	0 58	28 59	88 3	0 56	27 59	88 2	0 54	26 59	88 2	0 53	25 59	88 2	0 51	24 59	88 2	182 358
3 177	1 30	29 58	87 4	1 27	28 58	87 4	1 24	27 58	87 4	1 22	26 58	87 3	1 19	25 58	87 3	1 16	24 58	87 3	183 357
4 176	2 00	29 56	86 5	1 56	28 56	86 5	1 53	27 57	86 5	1 49	26 57	86 4	1 45	25 57	86 4	1 41	24 57	86 4	184 356
5 175	2 30	29 54	85 7	2 25	28 54	85 6	2 21	27 55	85 6	2 16	26 55	85 5	2 11	25 55	85 5	2 07	24 55	85 5	185 355
6 174	3 00	29 52	84 8	2 54	28 52	84 7	2 49	27 52	84 7	2 43	26 52	84 6	2 38	25 53	84 6	2 32	24 53	84 6	186 354
7 173	3 30	29 49	83 9	3 23	28 49	83 9	3 17	27 49	83 8	3 10	26 50	83 8	3 04	25 50	83 7	2 57	24 50	83 7	187 353
8 172	3 59	29 45	83 1	3 52	28 46	83 0	3 45	27 46	82 9	3 37	26 46	82 9	3 30	25 47	82 8	3 22	24 47	82 7	188 352
9 171	4 29	29 42	82 2	4 21	28 42	82 1	4 13	27 42	82 0	4 04	26 43	82 0	3 56	25 43	81 9	3 47	24 44	81 8	189 351
10 170	4 59	29 37	81 3	4 50	28 38	81 2	4 41	27 38	81 2	4 31	26 39	81 1	4 22	25 39	81 0	4 13	24 40	80 9	190 350
11 169	5 28	29 33	80 4	5 18	28 33	80 4	5 08	27 34	80 3	4 58	26 34	80 2	4 48	25 35	80 1	4 38	24 36	80 0	191 349
12 168	5 58	29 27	79 6	5 47	28 28	79 5	5 36	27 29	79 4	5 25	26 29	79 3	5 14	25 30	79 2	5 02	24 31	79 1	192 348
13 167	6 27	29 22	78 7	6 16	28 22	78 6	6 04	27 23	78 5	5 52	26 24	78 4	5 40	25 25	78 3	5 27	24 26	78 2	193 347
14 166	6 57	29 15	77 8	6 44	28 16	77 7	6 31	27 17	77 6	6 18	26 18	77 5	6 05	25 20	77 4	5 52	24 21	77 3	194 346
15 165	7 26	29 09	76 9	7 13	28 10	76 8	6 59	27 11	76 7	6 45	26 12	76 6	6 31	25 14	76 5	6 17	24 15	76 4	195 345
16 164	7 55	29 02	76 1	7 41	28 03	75 9	7 26	27 04	75 8	7 11	26 06	75 7	6 56	25 07	75 5	6 41	24 09	75 4	196 344
17 163	8 24	28 54	75 2	8 09	27 56	75 0	7 53	26 57	74 9	7 38	25 59	74 8	7 22	25 00	74 6	7 06	24 02	74 5	197 343
18 162	8 53	28 46	74 3	8 37	27 48	74 1	8 20	26 50	74 0	8 04	25 51	73 9	7 47	24 53	73 7	7 30	23 55	73 6	198 342
19 161	9 22	28 38	73 4	9 05	27 40	73 2	8 48	26 41	73 1	8 30	25 43	72 9	8 12	24 45	72 8	7 55	23 48	72 7	199 341
20 160	9 51	28 29	72 5	9 33	27 31	72 3	9 14	26 33	72 2	8 56	25 35	72 0	8 37	24 37	71 9	8 19	23 40	71 7	200 340
21 159	10 19	28 19	71 6	10 00	27 22	71 4	9 41	26 24	71 3	9 22	25 26	71 1	9 02	24 29	71 0	8 43	23 32	70 8	201 339
22 158	10 48	28 10	70 7	10 28	27 12	70 5	10 08	26 15	70 4	9 48	25 17	70 2	9 27	24 20	70 0	9 07	23 23	69 9	202 338
23 157	11 16	27 59	69 8	10 55	27 02	69 6	10 34	26 05	69 5	10 13	25 08	69 3	9 52	24 11	69 1	9 30	23 14	69 0	203 337
24 156	11 44	27 49	68 9	11 22	26 51	68 7	11 00	25 54	68 5	10 38	24 58	68 4	10 16	24 01	68 2	9 54	23 04	68 0	204 336
25 155	12 12	27 37	68 0	11 49	26 40	67 8	11 27	25 44	67 6	11 04	24 47	67 4	10 41	23 51	67 3	10 17	22 55	67 1	205 335
26 154	12 40	27 26	67 1	12 16	26 29	66 9	11 53	25 33	66 7	11 29	24 36	66 5	11 05	23 40	66 3	10 41	22 44	66 2	206 334
27 153	13 07	27 13	66 2	12 43	26 17	66 0	12 18	25 21	65 8	11 54	24 25	65 6	11 29	23 29	65 4	11 04	22 34	65 2	207 333
28 152	13 35	27 01	65 3	13 09	26 05	65 1	12 44	25 09	64 9	12 18	24 13	64 7	11 53	23 18	64 5	11 27	22 23	64 3	208 332
29 151	14 02	26 48	64 4	13 36	25 52	64 1	13 09	24 56	63 9	12 43	24 01	63 7	12 16	23 06	63 5	11 49	22 11	63 3	209 331
30 150	14 29	26 34	63 4	14 02	25 39	63 2	13 35	24 43	63 0	13 07	23 49	62 8	12 40	22 54	62 6	12 12	21 59	62 4	210 330
31 149	14 55	26 20	62 5	14 28	25 25	62 3	14 00	24 30	62 1	13 31	23 36	61 8	13 03	22 41	61 6	12 34	21 47	61 4	211 329
32 148	15 22	26 05	61 6	14 53	25 11	61 3	14 24	24 16	61 1	13 55	23 22	60 9	13 26	22 28	60 7	12 56	21 35	60 5	212 328
33 147	15 48	25 50	60 6	15 19	24 56	60 4	14 49	24 02	60 2	14 19	23 08	59 9	13 49	22 15	59 7	13 18	21 22	59 5	213 327
34 146	16 14	25 35	59 7	15 44	24 41	59 5	15 13	23 47	59 2	14 42	22 54	59 0	14 11	22 01	58 8	13 40	21 08	58 6	214 326
35 145	16 40	25 19	58 8	16 09	24 25	58 5	15 37	23 32	58 3	15 06	22 39	58 0	14 34	21 47	57 8	14 02	20 54	57 6	215 325
36 144	17 05	25 02	57 8	16 33	24 09	57 6	16 01	23 17	57 3	15 29	22 24	57 1	14 56	21 32	56 9	14 23	20 40	56 6	216 324
37 143	17 31	24 45	56 9	16 58	23 53	56 6	16 25	23 00	56 4	15 51	22 09	56 1	15 18	21 17	55 9	14 44	20 26	55 7	217 323
38 142	17 56	24 28	55 9	17 22	23 36	55 7	16 48	22 44	55 4	16 14	21 53	55 2	15 39	21 01	54 9	15 05	20 11	54 7	218 322
39 141	18 20	24 10	55 0	17 46	23 18	54 7	17 11	22 27	54 4	16 36	21 36	54 2	16 01	20 46	54 0	15 25	19 55	53 7	219 321
40 140	18 45	23 52	54 0	18 09	23 00	53 7	17 34	22 10	53 5	16 58	21 19	53 2	16 22	20 29	53 0	15 46	19 39	52 7	220 320
41 139	19 09	23 33	53 0	18 33	22 42	52 8	17 56	21 52	52 5	17 20	21 02	52 2	16 43	20 13	52 0	16 06	19 23	51 8	221 319
42 138	19 33	23 13	52 1	18 56	22 23	51 8	18 19	21 34	51 5	17 41	20 44	51 3	17 03	19 55	51 0	16 26	19 07	50 8	222 318
43 137	19 56	22 54	51 1	19 18	22 04	50 8	18 40	21 15	50 5	18 02	20 26	50 3	17 24	19 38	50 0	16 45	18 50	49 8	223 317
44 136	20 19	22 33	50 1	19 41	21 44	49 8	19 02	20 56	49 5	18 23	20 08	49 3	17 44	19 20	49 0	17 04	18 33	48 8	224 316
45 135	20 42	22 12	49 1	20 03	21 24	48 8	19 23	20 36	48 6	18 43	19 49	48 3	18 03	19 02	48 1	17 23	18 15	47 8	225 315

LATITUD / A: 60° - 65°



Lat. / A	60°			61°			62°			63°			64°			65°			Lat. / A
AHL/F	A/H	B/P	Z <sub>1</sub> /Z <sub>2</sub>	A/H	B/P	Z <sub>1</sub> /Z <sub>2</sub>	A/H	B/P	Z <sub>1</sub> /Z <sub>2</sub>	A/H	B/P	Z <sub>1</sub> /Z <sub>2</sub>	A/H	B/P	Z <sub>1</sub> /Z <sub>2</sub>	A/H	B/P	Z <sub>1</sub> /Z <sub>2</sub>	AHL
45 135	20 42	22 12	49.1	20 03	21 24	48.8	19 23	20 36	48.6	18 43	19 49	48.3	18 03	19 02	48.1	17 23	18 15	47.8	225 315
46 134	21 05	21 51	48.1	20 25	21 04	47.8	19 44	20 16	47.6	19 04	19 29	47.3	18 23	18 43	47.1	17 42	17 57	46.8	226 314
47 133	21 27	21 30	47.1	20 46	20 43	46.8	20 05	19 56	46.6	19 24	19 10	46.3	18 42	18 24	46.1	18 00	17 39	45.8	227 313
48 132	21 49	21 07	46.1	21 07	20 21	45.8	20 25	19 35	45.6	19 43	18 50	45.3	19 01	18 04	45.1	18 18	17 20	44.8	228 312
49 131	22 10	20 45	45.1	21 28	19 59	44.8	20 45	19 14	44.6	20 02	18 29	44.3	19 19	17 45	44.0	18 36	17 01	43.8	229 311
50 130	22 31	20 22	44.1	21 48	19 37	43.8	21 05	18 52	43.5	20 21	18 08	43.3	19 37	17 24	43.0	18 53	16 41	42.8	230 310
51 129	22 52	19 58	43.1	22 08	19 14	42.8	21 24	18 30	42.5	20 40	17 47	42.3	19 55	17 04	42.0	19 10	16 21	41.8	231 309
52 128	23 12	19 34	42.1	22 28	18 51	41.8	21 43	18 08	41.5	20 58	17 25	41.2	20 13	16 43	41.0	19 27	16 01	40.8	232 308
53 127	23 32	19 10	41.0	22 47	18 27	40.7	22 01	17 45	40.5	21 15	17 03	40.2	20 30	16 21	40.0	19 44	15 41	39.7	233 307
54 126	23 52	18 45	40.0	23 06	18 03	39.7	22 19	17 21	39.4	21 33	16 40	39.2	20 46	16 00	39.0	20 00	15 20	38.7	234 306
55 125	24 11	18 19	39.0	23 24	17 38	38.7	22 37	16 58	38.4	21 50	16 17	38.2	21 03	15 38	37.9	20 15	14 58	37.7	235 305
56 124	24 29	17 54	37.9	23 42	17 13	37.6	22 54	16 34	37.4	22 07	15 54	37.1	21 19	15 15	36.9	20 31	14 37	36.7	236 304
57 123	24 48	17 27	36.9	23 59	16 48	36.6	23 11	16 09	36.3	22 23	15 31	36.1	21 34	14 53	35.8	20 46	14 15	35.6	237 303
58 122	25 05	17 01	35.8	24 17	16 22	35.5	23 28	15 44	35.3	22 39	15 07	35.0	21 49	14 29	34.8	21 00	13 53	34.6	238 302
59 121	25 23	16 34	34.8	24 33	15 56	34.5	23 44	15 19	34.2	22 54	14 42	34.0	22 04	14 06	33.8	21 14	13 30	33.5	239 301
60 120	25 40	16 06	33.7	24 50	15 29	33.4	23 59	14 53	33.2	23 09	14 18	32.9	22 19	13 42	32.7	21 28	13 07	32.5	240 300
61 119	25 56	15 38	32.6	25 05	15 03	32.4	24 15	14 27	32.1	23 24	13 53	31.9	22 33	13 18	31.7	21 42	12 44	31.5	241 299
62 118	26 12	15 10	31.5	25 21	14 35	31.3	24 29	14 01	31.1	23 38	13 27	30.8	22 46	12 54	30.6	21 55	12 21	30.4	242 298
63 117	26 27	14 41	30.5	25 36	14 08	30.2	24 44	13 34	30.0	23 52	13 01	29.8	22 59	12 29	29.5	22 07	11 57	29.3	243 297
64 116	26 42	14 12	29.4	25 50	13 39	29.1	24 57	13 07	28.9	24 05	12 35	28.7	23 12	12 04	28.5	22 19	11 33	28.3	244 296
65 115	26 57	13 43	28.3	26 04	13 11	28.1	25 11	12 40	27.8	24 18	12 09	27.6	23 25	11 39	27.4	22 31	11 09	27.2	245 295
66 114	27 11	13 13	27.2	26 17	12 42	27.0	25 24	12 12	26.8	24 30	11 43	26.6	23 36	11 13	26.4	22 43	10 44	26.2	246 294
67 113	27 24	12 43	26.1	26 30	12 13	25.9	25 36	11 44	25.7	24 42	11 16	25.5	23 48	10 47	25.3	22 54	10 20	25.1	247 293
68 112	27 37	12 12	25.0	26 43	11 44	24.8	25 48	11 16	24.6	24 54	10 48	24.4	23 59	10 21	24.2	23 04	9 55	24.0	248 292
69 111	27 50	11 41	23.9	26 55	11 14	23.7	26 00	10 47	23.5	25 05	10 21	23.3	24 09	9 55	23.1	23 14	9 29	23.0	249 291
70 110	28 01	11 10	22.8	27 06	10 44	22.6	26 11	10 18	22.4	25 15	9 53	22.2	24 20	9 28	22.0	23 24	9 04	21.9	250 290
71 109	28 13	10 39	21.7	27 17	10 14	21.5	26 21	9 49	21.3	25 25	9 25	21.1	24 29	9 01	21.0	23 33	8 38	20.8	251 289
72 108	28 24	10 07	20.6	27 27	9 43	20.4	26 31	9 20	20.2	25 35	8 57	20.0	24 38	8 34	19.9	23 42	8 12	19.7	252 288
73 107	28 34	9 35	19.4	27 37	9 12	19.3	26 41	8 50	19.1	25 44	8 28	18.9	24 47	8 07	18.8	23 50	7 46	18.6	253 287
74 106	28 44	9 03	18.3	27 47	8 41	18.2	26 50	8 20	18.0	25 52	8 00	17.8	24 55	7 39	17.7	23 58	7 19	17.6	254 286
75 105	28 53	8 30	17.2	27 55	8 10	17.0	26 58	7 50	16.9	26 01	7 31	16.7	25 03	7 12	16.6	24 06	6 53	16.5	255 285
76 104	29 01	7 57	16.1	28 04	7 38	15.9	27 06	7 20	15.8	26 08	7 02	15.6	25 10	6 44	15.5	24 13	6 26	15.4	256 284
77 103	29 09	7 24	14.9	28 11	7 06	14.8	27 13	6 49	14.7	26 15	6 32	14.5	25 17	6 16	14.4	24 19	5 59	14.3	257 283
78 102	29 17	6 51	13.8	28 18	6 34	13.7	27 20	6 19	13.5	26 22	6 03	13.4	25 23	5 47	13.3	24 25	5 32	13.2	258 282
79 101	29 24	6 17	12.7	28 25	6 02	12.5	27 27	5 48	12.4	26 28	5 33	12.3	25 29	5 19	12.2	24 31	5 05	12.1	259 281
80 100	29 30	5 44	11.5	28 31	5 30	11.4	27 32	5 17	11.3	26 33	5 03	11.2	25 35	4 50	11.1	24 36	4 38	11.0	260 280
81 99	29 36	5 10	10.4	28 37	4 57	10.3	27 38	4 45	10.2	26 38	4 33	10.1	25 39	4 22	10.0	24 40	4 10	9.9	261 279
82 98	29 41	4 36	9.2	28 41	4 25	9.1	27 42	4 14	9.0	26 43	4 03	9.0	25 44	3 53	8.9	24 44	3 43	8.8	262 278
83 97	29 45	4 01	8.1	28 46	3 52	8.0	27 46	3 42	7.9	26 47	3 33	7.8	25 48	3 24	7.8	24 48	3 15	7.7	263 277
84 96	29 49	3 27	6.9	28 50	3 19	6.9	27 50	3 11	6.8	26 50	3 03	6.7	25 51	2 55	6.7	24 51	2 47	6.6	264 276
85 95	29 52	2 53	5.8	28 53	2 46	5.7	27 53	2 39	5.7	26 53	2 33	5.6	25 54	2 26	5.6	24 54	2 20	5.5	265 275
86 94	29 55	2 18	4.6	28 55	2 13	4.6	27 56	2 07	4.5	26 56	2 02	4.5	25 56	1 57	4.4	24 56	1 52	4.4	266 274
87 93	29 57	1 44	3.5	28 57	1 40	3.4	27 57	1 36	3.4	26 58	1 32	3.4	25 58	1 28	3.3	24 58	1 24	3.3	267 273
88 92	29 59	1 09	2.3	28 59	1 06	2.3	27 59	1 04	2.3	26 59	1 01	2.2	25 59	0 59	2.2	24 59	0 56	2.2	268 272
89 91	30 00	0 35	1.2	29 00	0 33	1.1	28 00	0 32	1.1	27 00	0 31	1.1	26 00	0 29	1.1	25 00	0 28	1.1	269 271
90 90	30 00	0 00	0.0	29 00	0 00	0.0	28 00	0 00	0.0	27 00	0 00	0.0	26 00	0 00	0.0	25 00	0 00	0.0	270 270

Lat. N.: para AHL > 180°... Z<sub>n</sub> = Z  
 para AHL < 180°... Z<sub>n</sub> = 360° - Z

Lat. S.: para AHL > 180°... Z<sub>n</sub> = 180° - Z  
 para AHL < 180°... Z<sub>n</sub> = 180° + Z



B: (-) para  $90^\circ < \text{AHL} < 270^\circ$ 

## TABLA PARA REDUCCION DE VISUALES

 $Z_1$ : mismo signo que B  
 $Z_2$ : (-) para  $F > 90^\circ$ 

Dec: (-) para la Lat. especificada y opuesta.

Lat. / A	66°			67°			68°			69°			70°			71°			Lat. / A
AHL/F	A/H	B/P	Z <sub>1</sub> /Z <sub>2</sub>	A/H	B/P	Z <sub>1</sub> /Z <sub>2</sub>	A/H	B/P	Z <sub>1</sub> /Z <sub>2</sub>	A/H	B/P	Z <sub>1</sub> /Z <sub>2</sub>	A/H	B/P	Z <sub>1</sub> /Z <sub>2</sub>	A/H	B/P	Z <sub>1</sub> /Z <sub>2</sub>	AHL
0 180	0 00	24 00	90.0	0 00	23 00	90.0	0 00	22 00	90.0	0 00	21 00	90.0	0 00	20 00	90.0	0 00	19 00	90.0	180 360
1 179	0 24	24 00	89.1	0 23	23 00	89.1	0 22	22 00	89.1	0 22	21 00	89.1	0 21	20 00	89.1	0 20	19 00	89.1	181 359
2 178	0 49	23 59	88.2	0 47	22 59	88.2	0 45	21 59	88.1	0 43	20 59	88.1	0 41	19 59	88.1	0 39	18 59	88.1	182 358
3 177	1 13	23 58	87.3	1 10	22 58	87.2	1 07	21 58	87.2	1 04	20 58	87.2	1 02	19 58	87.2	0 59	18 59	87.2	183 357
4 176	1 38	23 57	86.3	1 34	22 57	86.3	1 30	21 57	86.3	1 26	20 57	86.3	1 22	19 57	86.2	1 18	18 57	86.2	184 356
5 175	2 02	23 55	85.4	1 57	22 55	85.4	1 52	21 55	85.4	1 47	20 56	85.3	1 42	19 56	85.3	1 38	18 56	85.3	185 355
6 174	2 26	23 53	84.5	2 20	22 53	84.5	2 15	21 53	84.4	2 09	20 54	84.4	2 03	19 54	84.4	1 57	18 54	84.3	186 354
7 173	2 50	23 50	83.6	2 44	22 51	83.6	2 37	21 51	83.5	2 30	20 51	83.5	2 23	19 52	83.4	2 16	18 52	83.4	187 353
8 172	3 15	23 48	82.7	3 07	22 48	82.6	2 59	21 48	82.6	2 52	20 49	82.5	2 44	19 49	82.5	2 36	18 50	82.4	188 352
9 171	3 39	23 44	81.8	3 30	22 45	81.7	3 22	21 45	81.6	3 13	20 46	81.6	3 04	19 46	81.5	2 55	18 47	81.5	189 351
10 170	4 03	23 41	80.8	3 53	22 41	80.8	3 44	21 42	80.7	3 34	20 42	80.7	3 24	19 43	80.6	3 14	18 44	80.5	190 350
11 169	4 27	23 36	79.9	4 17	22 37	79.9	4 06	21 38	79.8	3 55	20 39	79.7	3 45	19 40	79.6	3 34	18 41	79.6	191 349
12 168	4 51	23 32	79.0	4 40	22 33	78.9	4 28	21 34	78.9	4 16	20 35	78.8	4 05	19 36	78.7	3 53	18 37	78.6	192 348
13 167	5 15	23 27	78.1	5 03	22 28	78.0	4 50	21 29	77.9	4 37	20 30	77.8	4 25	19 32	77.8	4 12	18 33	77.7	193 347
14 166	5 39	23 22	77.2	5 25	22 23	77.1	5 12	21 24	77.0	4 58	20 26	76.9	4 45	19 27	76.8	4 31	18 28	76.7	194 346
15 165	6 03	23 16	76.2	5 48	22 18	76.1	5 34	21 19	76.0	5 19	20 21	76.0	5 05	19 22	75.9	4 50	18 24	75.8	195 345
16 164	6 26	23 10	75.3	6 11	22 12	75.2	5 56	21 13	75.1	5 40	20 15	75.0	5 25	19 17	74.9	5 09	18 19	74.8	196 344
17 163	6 50	23 04	74.4	6 34	22 06	74.3	6 17	21 08	74.2	6 01	20 09	74.1	5 44	19 11	74.0	5 28	18 14	73.9	197 343
18 162	7 13	22 57	73.5	6 56	21 59	73.3	6 39	21 01	73.2	6 21	20 03	73.1	6 04	19 06	73.0	5 46	18 08	72.9	198 342
19 161	7 37	22 50	72.5	7 19	21 52	72.4	7 00	20 54	72.3	6 42	19 57	72.2	6 24	18 59	72.1	6 05	18 02	72.0	199 341
20 160	8 00	22 42	71.6	7 41	21 45	71.5	7 22	20 47	71.4	7 02	19 50	71.2	6 43	18 53	71.1	6 24	17 56	71.0	200 340
21 159	8 23	22 34	70.7	8 03	21 37	70.5	7 43	20 40	70.4	7 23	19 43	70.3	7 02	18 46	70.2	6 42	17 49	70.1	201 339
22 158	8 46	22 26	69.7	8 25	21 29	69.6	8 04	20 32	69.5	7 43	19 35	69.3	7 22	18 39	69.2	7 00	17 42	69.1	202 338
23 157	9 09	22 17	68.8	8 47	21 21	68.7	8 25	20 24	68.5	8 03	19 28	68.4	7 41	18 31	68.3	7 19	17 35	68.1	203 337
24 156	9 31	22 08	67.9	9 09	21 12	67.7	8 46	20 16	67.6	8 23	19 19	67.4	8 00	18 24	67.3	7 37	17 28	67.2	204 336
25 155	9 54	21 58	66.9	9 30	21 03	66.8	9 07	20 07	66.6	8 43	19 11	66.5	8 19	18 15	66.3	7 55	17 20	66.2	205 335
26 154	10 16	21 49	66.0	9 52	20 53	65.8	9 27	19 57	65.7	9 02	19 02	65.5	8 37	18 07	65.4	8 12	17 12	65.2	206 334
27 153	10 38	21 38	65.0	10 13	20 43	64.9	9 48	19 48	64.7	9 22	18 53	64.6	8 56	17 58	64.4	8 30	17 03	64.3	207 333
28 152	11 00	21 28	64.1	10 34	20 33	63.9	10 08	19 38	63.8	9 41	18 43	63.6	9 14	17 49	63.5	8 48	16 55	63.3	208 332
29 151	11 22	21 17	63.1	10 55	20 22	63.0	10 28	19 28	62.8	10 00	18 34	62.6	9 33	17 39	62.5	9 05	16 46	62.3	209 331
30 150	11 44	21 05	62.2	11 16	20 11	62.0	10 48	19 17	61.8	10 19	18 23	61.7	9 51	17 30	61.5	9 22	16 36	61.4	210 330
31 149	12 06	20 53	61.2	11 37	20 00	61.1	11 07	19 06	60.9	10 38	18 13	60.7	10 09	17 20	60.5	9 39	16 27	60.4	211 329
32 148	12 27	20 41	60.3	11 57	19 48	60.1	11 27	18 55	59.9	10 57	18 02	59.7	10 27	17 09	59.6	9 56	16 17	59.4	212 328
33 147	12 48	20 29	59.3	12 17	19 36	59.1	11 46	18 43	58.9	11 15	17 51	58.8	10 44	16 58	58.6	10 13	16 06	58.4	213 327
34 146	13 09	20 16	58.4	12 37	19 23	58.2	12 06	18 31	58.0	11 34	17 39	57.8	11 02	16 47	57.6	10 29	15 56	57.5	214 326
35 145	13 29	20 02	57.4	12 57	19 10	57.2	12 24	18 19	57.0	11 52	17 27	56.8	11 19	16 36	56.7	10 46	15 45	56.5	215 325
36 144	13 50	19 49	56.4	13 17	18 57	56.2	12 43	18 06	56.0	12 10	17 15	55.9	11 36	16 24	55.7	11 02	15 34	55.5	216 324
37 143	14 10	19 34	55.5	13 36	18 44	55.3	13 02	17 53	55.1	12 27	17 03	54.9	11 53	16 12	54.7	11 18	15 23	54.5	217 323
38 142	14 30	19 20	54.5	13 55	18 30	54.3	13 20	17 40	54.1	12 45	16 50	53.9	12 09	16 00	53.7	11 34	15 11	53.5	218 322
39 141	14 50	19 05	53.5	14 14	18 15	53.3	13 38	17 26	53.1	13 02	16 37	52.9	12 26	15 48	52.7	11 49	14 59	52.6	219 321
40 140	15 09	18 50	52.5	14 33	18 01	52.3	13 56	17 12	52.1	13 19	16 23	51.9	12 42	15 35	51.7	12 05	14 47	51.6	220 320
41 139	15 29	18 34	51.5	14 51	17 46	51.3	14 14	16 57	51.1	13 36	16 09	50.9	12 58	15 22	50.8	12 20	14 34	50.6	221 319
42 138	15 48	18 18	50.6	15 09	17 30	50.3	14 31	16 43	50.1	13 52	15 55	49.9	13 14	15 08	49.8	12 35	14 21	49.6	222 318
43 137	16 06	18 02	49.6	15 27	17 15	49.4	14 48	16 28	49.2	14 09	15 41	49.0	13 29	14 54	48.8	12 50	14 08	48.6	223 317
44 136	16 25	17 46	48.6	15 45	16 59	48.4	15 05	16 12	48.2	14 25	15 26	48.0	13 45	14 40	47.8	13 04	13 55	47.6	224 316
45 135	16 43	17 29	47.6	16 02	16 42	47.4	15 22	15 57	47.2	14 41	15 11	47.0	14 00	14 26	46.8	13 19	13 41	46.6	225 315

LATITUD / A: 66° - 71°

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Lat. / A	66°			67°			68°			69°			70°			71°			Lat. / A
AHL/F	A/H	B/P	Z <sub>1</sub> /Z <sub>2</sub>	A/H	B/P	Z <sub>1</sub> /Z <sub>2</sub>	A/H	B/P	Z <sub>1</sub> /Z <sub>2</sub>	A/H	B/P	Z <sub>1</sub> /Z <sub>2</sub>	A/H	B/P	Z <sub>1</sub> /Z <sub>2</sub>	A/H	B/P	Z <sub>1</sub> /Z <sub>2</sub>	AHL
45 135	16 43	17 29	47.6	16 02	16 42	47.4	15 22	15 57	47.2	14 41	15 11	47.0	14 00	14 26	46.8	13 19	13 41	46.6	225 315
46 134	17 01	17 11	46.6	16 19	16 26	46.4	15 38	15 41	46.2	14 56	14 56	46.0	14 15	14 11	45.8	13 33	13 27	45.6	226 314
47 133	17 18	16 53	45.6	16 36	16 09	45.4	15 54	15 24	45.2	15 12	14 40	45.0	14 29	13 56	44.8	13 46	13 13	44.6	227 313
48 132	17 36	16 35	44.6	16 53	15 51	44.4	16 10	15 08	44.2	15 27	14 24	44.0	14 43	13 41	43.8	14 00	12 58	43.6	228 312
49 131	17 53	16 17	43.6	17 09	15 34	43.4	16 25	14 51	43.2	15 42	14 08	43.0	14 58	13 26	42.8	14 13	12 44	42.6	229 311
50 130	18 09	15 58	42.6	17 25	15 16	42.4	16 41	14 33	42.1	15 56	13 52	41.9	15 11	13 10	41.8	14 27	12 29	41.6	230 310
51 129	18 26	15 39	41.6	17 41	14 57	41.3	16 56	14 16	41.1	16 10	13 35	40.9	15 25	12 54	40.8	14 39	12 14	40.6	231 309
52 128	18 42	15 20	40.5	17 56	14 39	40.3	17 10	13 58	40.1	16 24	13 18	39.9	15 38	12 38	39.7	14 52	11 58	39.6	232 308
53 127	18 57	15 00	39.5	18 11	14 20	39.3	17 24	13 40	39.1	16 38	13 00	38.9	15 51	12 21	38.7	15 04	11 42	38.6	233 307
54 126	19 13	14 40	38.5	18 26	14 01	38.3	17 39	13 22	38.1	16 51	12 43	37.9	16 04	12 05	37.7	15 16	11 26	37.5	234 306
55 125	19 28	14 20	37.5	18 40	13 41	37.3	17 52	13 03	37.1	17 04	12 25	36.9	16 16	11 48	36.7	15 28	11 10	36.5	235 305
56 124	19 42	13 59	36.4	18 54	13 21	36.2	18 06	12 44	36.0	17 17	12 07	35.8	16 28	11 30	35.7	15 40	10 54	35.5	236 304
57 123	19 57	13 38	35.4	19 08	13 01	35.2	18 19	12 25	35.0	17 29	11 49	34.8	16 40	11 13	34.6	15 51	10 37	34.5	237 303
58 122	20 11	13 17	34.4	19 21	12 41	34.2	18 31	12 05	34.0	17 42	11 30	33.8	16 52	10 55	33.6	16 02	10 20	33.5	238 302
59 121	20 24	12 55	33.3	19 34	12 20	33.1	18 44	11 45	32.9	17 53	11 11	32.8	17 03	10 37	32.6	16 12	10 03	32.4	239 301
60 120	20 37	12 33	32.3	19 47	11 59	32.1	18 56	11 25	31.9	18 05	10 52	31.7	17 14	10 19	31.6	16 23	9 46	31.4	240 300
61 119	20 50	12 11	31.2	19 59	11 38	31.1	19 08	11 05	30.9	18 16	10 33	30.7	17 24	10 00	30.5	16 33	9 29	30.4	241 299
62 118	21 03	11 48	30.2	20 11	11 16	30.0	19 19	10 44	29.8	18 27	10 13	29.7	17 35	9 42	29.5	16 42	9 11	29.4	242 298
63 117	21 15	11 26	29.2	20 22	10 54	29.0	19 30	10 24	28.8	18 37	9 53	28.6	17 45	9 23	28.5	16 52	8 53	28.3	243 297
64 116	21 27	11 03	28.1	20 34	10 32	27.9	19 41	10 03	27.7	18 47	9 33	27.6	17 54	9 04	27.4	17 01	8 35	27.3	244 296
65 115	21 38	10 39	27.0	20 44	10 10	26.9	19 51	9 41	26.7	18 57	9 13	26.5	18 03	8 45	26.4	17 10	8 17	26.3	245 295
66 114	21 49	10 16	26.0	20 55	9 48	25.8	20 01	9 20	25.7	19 07	8 52	25.5	18 12	8 25	25.4	17 18	7 58	25.2	246 294
67 113	21 59	9 52	24.9	21 05	9 25	24.8	20 10	8 58	24.6	19 16	8 32	24.5	18 21	8 06	24.3	17 26	7 40	24.2	247 293
68 112	22 09	9 28	23.9	21 14	9 02	23.7	20 19	8 36	23.5	19 24	8 11	23.4	18 29	7 46	23.3	17 34	7 21	23.1	248 292
69 111	22 19	9 04	22.8	21 24	8 39	22.6	20 28	8 14	22.5	19 33	7 50	22.4	18 37	7 26	22.2	17 42	7 02	22.1	249 291
70 110	22 28	8 40	21.7	21 32	8 16	21.6	20 37	7 52	21.4	19 41	7 29	21.3	18 45	7 06	21.2	17 49	6 43	21.1	250 290
71 109	22 37	8 15	20.7	21 41	7 52	20.5	20 45	7 30	20.4	19 48	7 07	20.2	18 52	6 45	20.1	17 56	6 24	20.0	251 289
72 108	22 45	7 50	19.6	21 49	7 28	19.4	20 52	7 07	19.3	19 56	6 46	19.2	18 59	6 25	19.1	18 02	6 04	19.0	252 288
73 107	22 53	7 25	18.5	21 56	7 04	18.4	21 00	6 44	18.2	20 03	6 24	18.1	19 05	6 04	18.0	18 08	5 45	17.9	253 287
74 106	23 01	7 00	17.4	22 04	6 40	17.3	21 06	6 21	17.2	20 09	6 02	17.1	19 12	5 44	17.0	18 14	5 25	16.9	254 286
75 105	23 08	6 34	16.3	22 10	6 16	16.2	21 13	5 58	16.1	20 15	5 40	16.0	19 17	5 23	15.9	18 20	5 06	15.8	255 285
76 104	23 15	6 09	15.3	22 17	5 52	15.2	21 19	5 35	15.1	20 21	5 18	15.0	19 23	5 02	14.9	18 25	4 46	14.8	256 284
77 103	23 21	5 43	14.2	22 23	5 27	14.1	21 24	5 12	14.0	20 26	4 56	13.9	19 28	4 41	13.8	18 30	4 26	13.7	257 283
78 102	23 27	5 17	13.1	22 28	5 03	13.0	21 30	4 48	12.9	20 31	4 34	12.8	19 33	4 20	12.7	18 34	4 06	12.7	258 282
79 101	23 32	4 51	12.0	22 33	4 38	11.9	21 35	4 24	11.8	20 36	4 11	11.8	19 37	3 58	11.7	18 38	3 46	11.6	259 281
80 100	23 37	4 25	10.9	22 38	4 13	10.8	21 39	4 01	10.8	20 40	3 49	10.7	19 41	3 37	10.6	18 42	3 25	10.6	260 280
81 99	23 41	3 59	9.8	22 42	3 48	9.8	21 43	3 37	9.7	20 44	3 26	9.6	19 45	3 16	9.6	18 45	3 05	9.5	261 279
82 98	23 45	3 33	8.7	22 46	3 23	8.7	21 46	3 13	8.6	20 47	3 03	8.6	19 48	2 54	8.5	18 48	2 45	8.5	262 278
83 97	23 49	3 06	7.7	22 49	2 58	7.6	21 50	2 49	7.5	20 50	2 41	7.5	19 51	2 32	7.4	18 51	2 24	7.4	263 277
84 96	23 52	2 40	6.6	22 52	2 32	6.5	21 52	2 25	6.5	20 53	2 18	6.4	19 53	2 11	6.4	18 54	2 04	6.3	264 276
85 95	23 54	2 13	5.5	22 54	2 07	5.4	21 55	2 01	5.4	20 55	1 55	5.4	19 55	1 49	5.3	18 55	1 43	5.3	265 275
86 94	23 56	1 47	4.4	22 56	1 42	4.3	21 57	1 37	4.3	20 57	1 32	4.3	19 57	1 27	4.3	18 57	1 23	4.2	266 274
87 93	23 58	1 20	3.3	22 58	1 16	3.3	21 58	1 13	3.2	20 58	1 09	3.2	19 58	1 05	3.2	18 58	1 02	3.2	267 273
88 92	23 59	0 53	2.2	22 59	0 51	2.2	21 59	0 48	2.2	20 59	0 46	2.1	19 59	0 44	2.1	18 59	0 41	2.1	268 272
89 91	24 00	0 27	1.1	23 00	0 25	1.1	22 00	0 24	1.1	21 00	0 23	1.1	20 00	0 22	1.1	19 00	0 21	1.1	269 271
90 90	24 00	0 00	0.0	23 00	0 00	0.0	22 00	0 00	0.0	21 00	0 00	0.0	20 00	0 00	0.0	19 00	0 00	0.0	270 270

Lat. N.: para AHL > 180°... Z<sub>n</sub> = Z  
 para AHL < 180°... Z<sub>n</sub> = 360° - Z

Lat. S.: para AHL > 180°... Z<sub>n</sub> = 180° - Z  
 para AHL < 180°... Z<sub>n</sub> = 180° + Z



B: (—) para  $90^\circ < \text{AHL} < 270^\circ$ 

Dec: (—) para la Lat. especificada y opuesta.

## TABLA PARA REDUCCION DE VISUALES

 $Z_1$ : mismo signo que B  
 $Z_2$ : (—) para  $F > 90^\circ$ 

Lat. / A	72°			73°			74°			75°			76°			77°			Lat. / A
AHL/F	A/H	B/P	Z <sub>1</sub> /Z <sub>2</sub>	A/H	B/P	Z <sub>1</sub> /Z <sub>2</sub>	A/H	B/P	Z <sub>1</sub> /Z <sub>2</sub>	A/H	B/P	Z <sub>1</sub> /Z <sub>2</sub>	A/H	B/P	Z <sub>1</sub> /Z <sub>2</sub>	A/H	B/P	Z <sub>1</sub> /Z <sub>2</sub>	AHL
0 180	0 00	18 00	90 0	0 00	17 00	90 0	0 00	16 00	90 0	0 00	15 00	90 0	0 00	14 00	90 0	0 00	13 00	90 0	180 360
1 179	0 19	18 00	89 0	0 18	17 00	89 0	0 17	16 00	89 0	0 16	15 00	89 0	0 15	14 00	89 0	0 13	13 00	89 0	181 359
2 178	0 37	17 59	88 1	0 35	16 59	88 1	0 33	15 59	88 1	0 31	14 59	88 1	0 29	14 00	88 1	0 27	13 00	88 1	182 358
3 177	0 56	17 59	87 1	0 53	16 59	87 1	0 50	15 59	87 1	0 47	14 59	87 1	0 44	13 59	87 1	0 40	12 59	87 1	183 357
4 176	1 14	17 58	86 2	1 10	16 58	86 2	1 06	15 58	86 2	1 02	14 58	86 1	0 58	13 58	86 1	0 54	12 58	86 1	184 356
5 175	1 33	17 56	85 2	1 28	16 56	85 2	1 23	15 57	85 2	1 18	14 57	85 2	1 12	13 57	85 1	1 07	12 57	85 1	185 355
6 174	1 51	17 54	84 3	1 45	16 55	84 3	1 39	15 55	84 2	1 33	14 55	84 2	1 27	13 56	84 2	1 21	12 56	84 2	186 354
7 173	2 09	17 52	83 3	2 03	16 53	83 3	1 56	15 53	83 3	1 48	14 54	83 2	1 41	13 54	83 2	1 34	12 54	83 2	187 353
8 172	2 28	17 50	82 4	2 20	16 51	82 3	2 12	15 51	82 3	2 04	14 52	82 3	1 56	13 52	82 2	1 48	12 53	82 2	188 352
9 171	2 46	17 48	81 4	2 37	16 48	81 4	2 28	15 49	81 3	2 19	14 49	81 3	2 10	13 50	81 3	2 01	12 51	81 2	189 351
10 170	3 05	17 45	80 5	2 55	16 45	80 4	2 45	15 46	80 4	2 35	14 47	80 3	2 24	13 48	80 3	2 14	12 49	80 3	190 350
11 169	3 23	17 41	79 5	3 12	16 42	79 5	3 01	15 43	79 4	2 50	14 44	79 4	2 39	13 45	79 3	2 28	12 46	79 3	191 349
12 168	3 41	17 38	78 6	3 29	16 39	78 5	3 17	15 40	78 5	3 05	14 41	78 4	2 53	13 42	78 3	2 41	12 44	78 3	192 348
13 167	3 59	17 34	77 6	3 46	16 35	77 5	3 33	15 37	77 5	3 20	14 38	77 4	3 07	13 39	77 4	2 54	12 41	77 3	193 347
14 166	4 17	17 30	76 7	4 03	16 31	76 6	3 49	15 33	76 5	3 35	14 34	76 5	3 21	13 36	76 4	3 07	12 38	76 3	194 346
15 165	4 35	17 25	75 7	4 20	16 27	75 6	4 05	15 29	75 6	3 50	14 31	75 5	3 35	13 32	75 4	3 20	12 34	75 4	195 345
16 164	4 53	17 21	74 7	4 37	16 23	74 7	4 21	15 25	74 6	4 05	14 27	74 5	3 49	13 29	74 5	3 33	12 31	74 4	196 344
17 163	5 11	17 16	73 8	4 54	16 18	73 7	4 37	15 20	73 6	4 20	14 22	73 5	4 03	13 25	73 5	3 46	12 27	73 4	197 343
18 162	5 29	17 10	72 8	5 11	16 13	72 7	4 53	15 15	72 7	4 35	14 18	72 6	4 17	13 20	72 5	3 59	12 23	72 4	198 342
19 161	5 46	17 05	71 9	5 28	16 07	71 8	5 09	15 10	71 7	4 50	14 13	71 6	4 31	13 16	71 5	4 12	12 19	71 5	199 341
20 160	6 04	16 59	70 9	5 44	16 02	70 8	5 25	15 05	70 7	5 05	14 08	70 6	4 45	13 11	70 5	4 25	12 14	70 5	200 340
21 159	6 21	16 52	69 9	6 01	15 56	69 8	5 40	14 59	69 7	5 19	14 03	69 7	4 58	13 06	69 6	4 37	12 10	69 5	201 339
22 158	6 39	16 46	69 0	6 17	15 50	68 9	5 56	14 53	68 8	5 34	13 57	68 7	5 12	13 01	68 6	4 50	12 05	68 5	202 338
23 157	6 56	16 39	68 0	6 34	15 43	67 9	6 11	14 47	67 8	5 48	13 51	67 7	5 25	12 56	67 6	5 03	12 00	67 5	203 337
24 156	7 13	16 32	67 1	6 50	15 36	66 9	6 26	14 41	66 8	6 03	13 45	66 7	5 39	12 50	66 6	5 15	11 55	66 5	204 336
25 155	7 30	16 25	66 1	7 06	15 29	66 0	6 41	14 34	65 9	6 17	13 39	65 8	5 52	12 44	65 7	5 27	11 49	65 6	205 335
26 154	7 47	16 17	65 1	7 22	15 22	65 0	6 56	14 27	64 9	6 31	13 32	64 8	6 05	12 38	64 7	5 40	11 43	64 6	206 334
27 153	8 04	16 09	64 1	7 38	15 14	64 0	7 11	14 20	63 9	6 45	13 26	63 8	6 18	12 32	63 7	5 52	11 37	63 6	207 333
28 152	8 20	16 00	63 2	7 53	15 06	63 0	7 26	14 12	62 9	6 59	13 19	62 8	6 31	12 25	62 7	6 04	11 31	62 6	208 332
29 151	8 37	15 52	62 2	8 09	14 58	62 1	7 41	14 05	61 9	7 13	13 11	61 8	6 44	12 18	61 7	6 16	11 25	61 6	209 331
30 150	8 53	15 43	61 2	8 24	14 50	61 1	7 55	13 57	61 0	7 26	13 04	60 9	6 57	12 11	60 7	6 27	11 18	60 6	210 330
31 149	9 09	15 34	60 3	8 40	14 41	60 1	8 10	13 49	60 0	7 40	12 56	59 9	7 09	12 04	59 8	6 39	11 12	59 7	211 329
32 148	9 25	15 24	59 3	8 55	14 32	59 1	8 24	13 40	59 0	7 53	12 48	58 9	7 22	11 56	58 8	6 51	11 05	58 7	212 328
33 147	9 41	15 15	58 3	9 10	14 23	58 2	8 38	13 31	58 0	8 06	12 40	57 9	7 34	11 49	57 8	7 02	10 57	57 7	213 327
34 146	9 57	15 05	57 3	9 25	14 13	57 2	8 52	13 22	57 0	8 19	12 31	56 9	7 46	11 41	56 8	7 14	10 50	56 7	214 326
35 145	10 13	14 54	56 3	9 39	14 04	56 2	9 06	13 13	56 1	8 32	12 23	55 9	7 59	11 33	55 8	7 25	10 43	55 7	215 325
36 144	10 28	14 44	55 4	9 54	13 54	55 2	9 19	13 04	55 1	8 45	12 14	54 9	8 11	11 24	54 8	7 36	10 35	54 7	216 324
37 143	10 43	14 33	54 4	10 08	13 43	54 2	9 33	12 54	54 1	8 58	12 05	53 9	8 22	11 16	53 8	7 47	10 27	53 7	217 323
38 142	10 58	14 22	53 4	10 22	13 33	53 2	9 46	12 44	53 1	9 10	11 55	53 0	8 34	11 07	52 8	7 58	10 19	52 7	218 322
39 141	11 13	14 10	52 4	10 36	13 22	52 2	9 59	12 34	52 1	9 22	11 46	52 0	8 45	10 58	51 8	8 08	10 10	51 7	219 321
40 140	11 27	13 59	51 4	10 50	13 11	51 3	10 12	12 23	51 1	9 35	11 36	51 0	8 57	10 49	50 8	8 19	10 02	50 7	220 320
41 139	11 42	13 47	50 4	11 04	13 00	50 3	10 25	12 13	50 1	9 47	11 26	50 0	9 08	10 39	49 9	8 29	9 53	49 7	221 319
42 138	11 56	13 34	49 4	11 17	12 48	49 3	10 38	12 02	49 1	9 58	11 16	49 0	9 19	10 30	48 9	8 39	9 44	48 7	222 318
43 137	12 10	13 22	48 4	11 30	12 36	48 3	10 50	11 51	48 1	10 10	11 05	48 0	9 30	10 20	47 9	8 49	9 35	47 7	223 317
44 136	12 24	13 09	47 4	11 43	12 24	47 3	11 02	11 39	47 1	10 21	10 55	47 0	9 40	10 10	46 9	8 59	9 26	46 7	224 316
45 135	12 37	12 56	46 4	11 56	12 12	46 3	11 14	11 28	46 1	10 33	10 44	46 0	9 51	10 00	45 9	9 09	9 16	45 7	225 315

LATITUD / A: 72° - 77°

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Lat. / A		72°			73°			74°			75°			76°			77°			Lat. / A	
AHL/F		A/H	B/P	Z <sub>1</sub> /Z <sub>2</sub>	A/H	B/P	Z <sub>1</sub> /Z <sub>2</sub>	A/H	B/P	Z <sub>1</sub> /Z <sub>2</sub>	A/H	B/P	Z <sub>1</sub> /Z <sub>2</sub>	A/H	B/P	Z <sub>1</sub> /Z <sub>2</sub>	A/H	B/P	Z <sub>1</sub> /Z <sub>2</sub>	AHL	
45	135	12 37	12 56	46.4	11 56	12 12	46.3	11 14	11 28	46.1	10 33	10 44	46.0	9 51	10 00	45.9	9 09	9 16	45.7	225	315
46	134	12 51	12 43	45.4	12 08	11 59	45.3	11 26	11 16	45.1	10 44	10 33	45.0	10 01	9 50	44.9	9 19	9 07	44.7	226	314
47	133	13 04	12 30	44.4	12 21	11 47	44.3	11 38	11 04	44.1	10 55	10 21	44.0	10 11	9 39	43.9	9 28	8 57	43.7	227	313
48	132	13 17	12 15	43.4	12 33	11 34	43.3	11 49	10 52	43.1	11 05	10 10	43.0	10 21	9 28	42.9	9 37	8 47	42.7	228	312
49	131	13 29	12 02	42.4	12 45	11 21	42.3	12 00	10 39	42.1	11 16	9 58	42.0	10 31	9 17	41.9	9 46	8 37	41.7	229	311
50	130	13 42	11 48	41.4	12 57	11 07	41.3	12 11	10 27	41.1	11 26	9 46	41.0	10 41	9 06	40.9	9 55	8 26	40.7	230	310
51	129	13 54	11 33	40.4	13 08	10 53	40.3	12 22	10 14	40.1	11 36	9 34	40.0	10 50	8 55	39.8	10 04	8 16	39.7	231	309
52	128	14 06	11 19	39.4	13 19	10 40	39.2	12 33	10 01	39.1	11 46	9 22	39.0	10 59	8 44	38.8	10 13	8 05	38.7	232	308
53	127	14 17	11 04	38.4	13 30	10 26	38.2	12 43	9 47	38.1	11 56	9 10	38.0	11 08	8 32	37.8	10 21	7 55	37.7	233	307
54	126	14 29	10 49	37.4	13 41	10 11	37.2	12 53	9 34	37.1	12 05	8 57	36.9	11 17	8 20	36.8	10 29	7 44	36.7	234	306
55	125	14 40	10 33	36.4	13 51	9 57	36.2	13 03	9 20	36.1	12 14	8 44	35.9	11 26	8 08	35.8	10 37	7 33	35.7	235	305
56	124	14 51	10 18	35.3	14 02	9 42	35.2	13 13	9 07	35.1	12 23	8 31	34.9	11 34	7 56	34.8	10 45	7 21	34.7	236	304
57	123	15 01	10 02	34.3	14 12	9 27	34.2	13 22	8 53	34.0	12 32	8 18	33.9	11 42	7 44	33.8	10 52	7 10	33.7	237	303
58	122	15 12	9 46	33.3	14 21	9 12	33.2	13 31	8 38	33.0	12 41	8 05	32.9	11 50	7 32	32.8	11 00	6 59	32.7	238	302
59	121	15 22	9 30	32.3	14 31	8 57	32.1	13 40	8 24	32.0	12 49	7 51	31.9	11 58	7 19	31.8	11 07	6 47	31.7	239	301
60	120	15 31	9 14	31.3	14 40	8 41	31.1	13 49	8 10	31.0	12 57	7 38	30.9	12 06	7 06	30.8	11 14	6 35	30.6	240	300
61	119	15 41	8 57	30.2	14 49	8 26	30.1	13 57	7 55	30.0	13 05	7 24	29.8	12 13	6 54	29.7	11 21	6 23	29.6	241	299
62	118	15 50	8 40	29.2	14 58	8 10	29.1	14 05	7 40	28.9	13 13	7 10	28.8	12 20	6 41	28.7	11 27	6 11	28.6	242	298
63	117	15 59	8 23	28.2	15 06	7 54	28.0	14 13	7 25	27.9	13 20	6 56	27.8	12 27	6 27	27.7	11 34	5 59	27.6	243	297
64	116	16 08	8 06	27.2	15 14	7 38	27.0	14 21	7 10	26.9	13 27	6 42	26.8	12 34	6 14	26.7	11 40	5 47	26.6	244	296
65	115	16 16	7 49	26.1	15 22	7 22	26.0	14 28	6 55	25.9	13 34	6 28	25.8	12 40	6 01	25.7	11 46	5 34	25.6	245	295
66	114	16 24	7 32	25.1	15 29	7 05	25.0	14 35	6 39	24.9	13 41	6 13	24.7	12 46	5 47	24.6	11 52	5 22	24.6	246	294
67	113	16 32	7 14	24.1	15 37	6 49	23.9	14 42	6 24	23.8	13 47	5 59	23.7	12 52	5 34	23.6	11 57	5 09	23.5	247	293
68	112	16 39	6 56	23.0	15 44	6 32	22.9	14 48	6 08	22.8	13 53	5 44	22.7	12 58	5 20	22.6	12 02	4 57	22.5	248	292
69	111	16 46	6 39	22.0	15 50	6 15	21.9	14 55	5 52	21.8	13 59	5 29	21.7	13 03	5 06	21.6	12 07	4 44	21.5	249	291
70	110	16 53	6 20	20.9	15 57	5 58	20.8	15 01	5 36	20.7	14 05	5 14	20.6	13 08	4 52	20.6	12 12	4 31	20.5	250	290
71	109	16 59	6 02	19.9	16 03	5 41	19.8	15 06	5 20	19.7	14 10	4 59	19.6	13 13	4 38	19.5	12 17	4 18	19.5	251	289
72	108	17 05	5 44	18.9	16 09	5 24	18.8	15 12	5 04	18.7	14 15	4 44	18.6	13 18	4 24	18.5	12 21	4 05	18.4	252	288
73	107	17 11	5 26	17.8	16 14	5 06	17.7	15 17	4 48	17.6	14 20	4 29	17.6	13 23	4 10	17.5	12 25	3 52	17.4	253	287
74	106	17 17	5 07	16.8	16 19	4 49	16.7	15 22	4 31	16.6	14 24	4 13	16.5	13 27	3 56	16.5	12 29	3 38	16.4	254	286
75	105	17 22	4 48	15.7	16 24	4 31	15.7	15 26	4 15	15.6	14 29	3 58	15.5	13 31	3 42	15.4	12 33	3 25	15.4	255	285
76	104	17 27	4 30	14.7	16 29	4 14	14.6	15 31	3 58	14.5	14 33	3 43	14.5	13 35	3 27	14.4	12 36	3 12	14.4	256	284
77	103	17 31	4 11	13.6	16 33	3 56	13.6	15 35	3 41	13.5	14 36	3 27	13.4	13 38	3 13	13.4	12 40	2 58	13.3	257	283
78	102	17 36	3 52	12.6	16 37	3 38	12.5	15 38	3 25	12.5	14 40	3 11	12.4	13 41	2 58	12.4	12 43	2 45	12.3	258	282
79	101	17 39	3 33	11.6	16 41	3 20	11.5	15 42	3 08	11.4	14 43	2 56	11.4	13 44	2 43	11.3	12 45	2 31	11.3	259	281
80	100	17 43	3 14	10.5	16 44	3 02	10.4	15 45	2 51	10.4	14 46	2 40	10.3	13 47	2 29	10.3	12 48	2 18	10.3	260	280
81	99	17 46	2 55	9.5	16 47	2 44	9.4	15 48	2 34	9.4	14 49	2 24	9.3	13 49	2 14	9.3	12 50	2 04	9.2	261	279
82	98	17 49	2 35	8.4	16 50	2 26	8.4	15 50	2 17	8.3	14 51	2 08	8.3	13 52	1 59	8.2	12 52	1 50	8.2	262	278
83	97	17 52	2 16	7.4	16 52	2 08	7.3	15 53	2 00	7.3	14 53	1 52	7.2	13 54	1 44	7.2	12 54	1 37	7.2	263	277
84	96	17 54	1 57	6.3	16 54	1 50	6.3	15 55	1 43	6.2	14 55	1 36	6.2	13 55	1 30	6.2	12 56	1 23	6.2	264	276
85	95	17 56	1 37	5.3	16 56	1 32	5.2	15 56	1 26	5.2	14 56	1 20	5.2	13 57	1 15	5.2	12 57	1 09	5.1	265	275
86	94	17 57	1 18	4.2	16 57	1 13	4.2	15 58	1 09	4.2	14 58	1 04	4.1	13 58	1 00	4.1	12 58	0 55	4.1	266	274
87	93	17 58	0 58	3.2	16 59	0 55	3.1	15 59	0 52	3.1	14 59	0 48	3.1	13 59	0 45	3.1	12 59	0 42	3.1	267	273
88	92	17 59	0 39	2.1	16 59	0 37	2.1	15 59	0 34	2.1	14 59	0 32	2.1	13 59	0 30	2.1	13 00	0 28	2.1	268	272
89	91	18 00	0 19	1.1	17 00	0 18	1.0	16 00	0 17	1.0	15 00	0 16	1.0	14 00	0 15	1.0	13 00	0 14	1.0	269	271
90	90	18 00	0 00	0.0	17 00	0 00	0.0	16 00	0 00	0.0	15 00	0 00	0.0	14 00	0 00	0.0	13 00	0 00	0.0	270	270

Lat. N.: para AHL > 180°... Z<sub>n</sub> = Z  
 para AHL < 180°... Z<sub>n</sub> = 360° - Z

Lat. S.: para AHL > 180°... Z<sub>n</sub> = 180° - Z  
 para AHL < 180°... Z<sub>n</sub> = 180° + Z



B: (-) para  $90^\circ < \text{AHL} < 270^\circ$ 

Dec: (-) para la Lat. especificada y opuesta.

## TABLA PARA REDUCCION DE VISUALES

 $Z_1$ : mismo signo que B  
 $Z_2$ : (-) para  $F > 90^\circ$ 

Lat. / A	78°			79°			80°			81°			82°			83°			Lat. / A
AHL/F	A/H	B/P	Z <sub>1</sub> /Z <sub>2</sub>	A/H	B/P	Z <sub>1</sub> /Z <sub>2</sub>	A/H	B/P	Z <sub>1</sub> /Z <sub>2</sub>	A/H	B/P	Z <sub>1</sub> /Z <sub>2</sub>	A/H	B/P	Z <sub>1</sub> /Z <sub>2</sub>	A/H	B/P	Z <sub>1</sub> /Z <sub>2</sub>	AHL
0 180	0 00	12 00	90.0	0 00	11 00	90.0	0 00	10 00	90.0	0 00	9 00	90.0	0 00	8 00	90.0	0 00	7 00	90.0	180 360
1 179	0 12	12 00	89.0	0 11	11 00	89.0	0 10	10 00	89.0	0 09	9 00	89.0	0 08	8 00	89.0	0 07	7 00	89.0	181 359
2 178	0 25	12 00	88.0	0 23	11 00	88.0	0 21	10 00	88.0	0 19	9 00	88.0	0 17	8 00	88.0	0 15	7 00	88.0	182 358
3 177	0 37	11 59	87.1	0 34	10 59	87.1	0 31	9 59	87.0	0 28	8 59	87.0	0 25	7 59	87.0	0 22	6 59	87.0	183 357
4 176	0 50	11 58	86.1	0 46	10 58	86.1	0 42	9 59	86.1	0 38	8 59	86.0	0 33	7 59	86.0	0 29	6 59	86.0	184 356
5 175	1 02	11 57	85.1	0 57	10 58	85.1	0 52	9 58	85.1	0 47	8 58	85.1	0 42	7 58	85.0	0 37	6 58	85.0	185 355
6 174	1 15	11 56	84.1	1 09	10 56	84.1	1 02	9 57	84.1	0 56	8 57	84.1	0 50	7 57	84.1	0 44	6 58	84.0	186 354
7 173	1 27	11 55	83.2	1 20	10 55	83.1	1 13	9 56	83.1	1 06	8 56	83.1	0 58	7 56	83.1	0 51	6 57	83.1	187 353
8 172	1 39	11 53	82.2	1 31	10 54	82.1	1 23	9 54	82.1	1 15	8 55	82.1	1 07	7 55	82.1	0 58	6 56	82.1	188 352
9 171	1 52	11 51	81.2	1 43	10 52	81.2	1 33	9 53	81.1	1 24	8 53	81.1	1 15	7 54	81.1	1 06	6 55	81.1	189 351
10 170	2 04	11 49	80.2	1 54	10 50	80.2	1 44	9 51	80.1	1 33	8 52	80.1	1 23	7 53	80.1	1 13	6 54	80.1	190 350
11 169	2 16	11 47	79.2	2 05	10 48	79.2	1 54	9 49	79.2	1 43	8 50	79.1	1 31	7 51	79.1	1 20	6 52	79.1	191 349
12 168	2 29	11 45	78.3	2 16	10 46	78.2	2 04	9 47	78.2	1 52	8 48	78.1	1 39	7 50	78.1	1 27	6 51	78.1	192 348
13 167	2 41	11 42	77.3	2 28	10 43	77.2	2 14	9 45	77.2	2 01	8 46	77.2	1 48	7 48	77.1	1 34	6 49	77.1	193 347
14 166	2 53	11 39	76.3	2 39	10 41	76.2	2 24	9 43	76.2	2 10	8 44	76.2	1 56	7 46	76.1	1 41	6 48	76.1	194 346
15 165	3 05	11 36	75.3	2 50	10 38	75.3	2 35	9 40	75.2	2 19	8 42	75.2	2 04	7 44	75.1	1 48	6 46	75.1	195 345
16 164	3 17	11 33	74.3	3 01	10 35	74.3	2 45	9 37	74.2	2 28	8 39	74.2	2 12	7 42	74.1	1 56	6 44	74.1	196 344
17 163	3 29	11 29	73.4	3 12	10 32	73.3	2 55	9 34	73.2	2 37	8 37	73.2	2 20	7 39	73.2	2 03	6 42	73.1	197 343
18 162	3 41	11 26	72.4	3 23	10 28	72.3	3 05	9 31	72.3	2 46	8 34	72.2	2 28	7 37	72.2	2 09	6 40	72.1	198 342
19 161	3 53	11 22	71.4	3 34	10 25	71.3	3 14	9 28	71.3	2 55	8 31	71.2	2 36	7 34	71.2	2 16	6 37	71.1	199 341
20 160	4 05	11 18	70.4	3 45	10 21	70.3	3 24	9 24	70.3	3 04	8 28	70.2	2 44	7 31	70.2	2 23	6 35	70.1	200 340
21 159	4 16	11 13	69.4	3 55	10 17	69.4	3 34	9 21	69.3	3 13	8 25	69.2	2 52	7 28	69.2	2 30	6 32	69.1	201 339
22 158	4 28	11 09	68.4	4 06	10 13	68.4	3 44	9 17	68.3	3 22	8 21	68.2	2 59	7 25	68.2	2 37	6 30	68.1	202 338
23 157	4 40	11 04	67.5	4 17	10 09	67.4	3 53	9 13	67.3	3 30	8 18	67.3	3 07	7 22	67.2	2 44	6 27	67.2	203 337
24 156	4 51	10 59	66.5	4 27	10 04	66.4	4 03	9 09	66.3	3 39	8 14	66.3	3 15	7 19	66.2	2 50	6 24	66.2	204 336
25 155	5 02	10 54	65.5	4 38	9 59	65.4	4 13	9 05	65.3	3 47	8 10	65.3	3 22	7 16	65.2	2 57	6 21	65.2	205 335
26 154	5 14	10 49	64.5	4 48	9 55	64.4	4 22	9 00	64.3	3 56	8 06	64.3	3 30	7 12	64.2	3 04	6 18	64.2	206 334
27 153	5 25	10 43	63.5	4 58	9 50	63.4	4 31	8 56	63.4	4 04	8 02	63.3	3 37	7 08	63.2	3 10	6 15	63.2	207 333
28 152	5 36	10 38	62.5	5 08	9 44	62.4	4 41	8 51	62.4	4 13	7 58	62.3	3 45	7 04	62.2	3 17	6 11	62.2	208 332
29 151	5 47	10 32	61.5	5 18	9 39	61.4	4 50	8 46	61.4	4 21	7 53	61.3	3 52	7 00	61.2	3 23	6 08	61.2	209 331
30 150	5 58	10 26	60.5	5 28	9 33	60.5	4 59	8 41	60.4	4 29	7 49	60.3	3 59	6 56	60.2	3 30	6 04	60.2	210 330
31 149	6 09	10 20	59.6	5 38	9 28	59.5	5 08	8 36	59.4	4 37	7 44	59.3	4 07	6 52	59.2	3 36	6 00	59.2	211 329
32 148	6 20	10 13	58.6	5 48	9 22	58.5	5 17	8 30	58.4	4 45	7 39	58.3	4 14	6 48	58.3	3 42	5 57	58.2	212 328
33 147	6 30	10 06	57.6	5 58	9 16	57.5	5 26	8 25	57.4	4 53	7 34	57.3	4 21	6 43	57.3	3 48	5 53	57.2	213 327
34 146	6 41	10 00	56.6	6 08	9 09	56.5	5 34	8 19	56.4	5 01	7 29	56.3	4 28	6 39	56.3	3 54	5 49	56.2	214 326
35 145	6 51	9 53	55.6	6 17	9 03	55.5	5 43	8 13	55.4	5 09	7 24	55.3	4 35	6 34	55.3	4 00	5 45	55.2	215 325
36 144	7 01	9 45	54.6	6 26	8 56	54.5	5 51	8 07	54.4	5 17	7 18	54.3	4 42	6 29	54.3	4 06	5 40	54.2	216 324
37 143	7 11	9 38	53.6	6 36	8 49	53.5	6 00	8 01	53.4	5 24	7 13	53.3	4 48	6 24	53.3	4 12	5 36	53.2	217 323
38 142	7 21	9 31	52.6	6 45	8 43	52.5	6 08	7 55	52.4	5 32	7 07	52.3	4 55	6 19	52.3	4 18	5 32	52.2	218 322
39 141	7 31	9 23	51.6	6 54	8 35	51.5	6 16	7 48	51.4	5 39	7 01	51.3	5 01	6 14	51.3	4 24	5 27	51.2	219 321
40 140	7 41	9 15	50.6	7 03	8 28	50.5	6 25	7 42	50.4	5 46	6 55	50.3	5 08	6 09	50.3	4 30	5 22	50.2	220 320
41 139	7 50	9 07	49.6	7 11	8 21	49.5	6 32	7 35	49.4	5 53	6 49	49.4	5 14	6 03	49.3	4 35	5 18	49.2	221 319
42 138	8 00	8 59	48.6	7 20	8 13	48.5	6 40	7 28	48.4	6 01	6 43	48.4	5 21	5 58	48.3	4 41	5 13	48.2	222 318
43 137	8 09	8 50	47.6	7 29	8 05	47.5	6 48	7 21	47.4	6 07	6 36	47.4	5 27	5 52	47.3	4 46	5 08	47.2	223 317
44 136	8 18	8 42	46.6	7 37	7 58	46.6	6 56	7 14	46.6	6 14	6 30	46.4	5 33	5 46	46.3	4 51	5 03	46.2	224 316
45 135	8 27	8 33	45.6	7 45	7 50	45.5	7 03	7 06	45.4	6 21	6 23	45.4	5 39	5 41	45.3	4 57	4 58	45.2	225 315

LATITUD / A: 78° - 83°

321



Lat. / A	78°			79°			80°			81°			82°			83°			Lat. / A
AHL/F	A/H	B/P	Z <sub>1</sub> /Z <sub>2</sub>	A/H	B/P	Z <sub>1</sub> /Z <sub>2</sub>	A/H	B/P	Z <sub>1</sub> /Z <sub>2</sub>	A/H	B/P	Z <sub>1</sub> /Z <sub>2</sub>	A/H	B/P	Z <sub>1</sub> /Z <sub>2</sub>	A/H	B/P	Z <sub>1</sub> /Z <sub>2</sub>	AHL
45 135	8 27	8 33	45.6	7 45	7 50	45.5	7 03	7 06	45.4	6 21	6 23	45.4	5 39	5 41	45.3	4 57	4 58	45.2	225 315
46 134	8 36	8 24	44.6	7 53	7 41	44.5	7 11	6 59	44.4	6 28	6 17	44.4	5 45	5 35	44.3	5 02	4 53	44.2	226 314
47 133	8 45	8 15	43.6	8 01	7 33	43.5	7 18	6 51	43.4	6 34	6 10	43.4	5 51	5 29	43.3	5 07	4 47	43.2	227 313
48 132	8 53	8 06	42.6	8 09	7 25	42.5	7 25	6 44	42.4	6 41	6 03	42.4	5 56	5 22	42.3	5 12	4 42	42.2	228 312
49 131	9 02	7 56	41.6	8 17	7 16	41.5	7 32	6 36	41.4	6 47	5 56	41.4	6 02	5 16	41.3	5 17	4 36	41.2	229 311
50 130	9 10	7 47	40.6	8 24	7 07	40.5	7 39	6 28	40.4	6 53	5 49	40.3	6 07	5 10	40.3	5 21	4 31	40.2	230 310
51 129	9 18	7 37	39.6	8 32	6 58	39.5	7 45	6 20	39.4	6 59	5 42	39.3	6 13	5 03	39.3	5 26	4 25	39.2	231 309
52 128	9 26	7 27	38.6	8 39	6 49	38.5	7 52	6 12	38.4	7 05	5 34	38.3	6 18	4 57	38.3	5 31	4 19	38.2	232 308
53 127	9 33	7 17	37.6	8 46	6 40	37.5	7 58	6 03	37.4	7 11	5 27	37.3	6 23	4 50	37.3	5 35	4 14	37.2	233 307
54 126	9 41	7 07	36.6	8 53	6 31	36.5	8 05	5 55	36.4	7 16	5 19	36.3	6 28	4 43	36.3	5 39	4 08	36.2	234 306
55 125	9 48	6 57	35.6	9 00	6 22	35.5	8 11	5 47	35.4	7 22	5 11	35.3	6 33	4 37	35.3	5 44	4 02	35.2	235 305
56 124	9 56	6 47	34.6	9 06	6 12	34.5	8 17	5 38	34.4	7 27	5 04	34.3	6 38	4 30	34.3	5 48	3 56	34.2	236 304
57 123	10 03	6 36	33.6	9 13	6 03	33.5	8 22	5 29	33.4	7 32	4 56	33.3	6 42	4 23	33.3	5 52	3 50	33.2	237 303
58 122	10 09	6 26	32.6	9 19	5 53	32.5	8 28	5 20	32.4	7 37	4 48	32.3	6 47	4 16	32.3	5 56	3 43	32.2	238 302
59 121	10 16	6 15	31.6	9 25	5 43	31.5	8 34	5 11	31.4	7 42	4 40	31.3	6 51	4 08	31.2	6 00	3 37	31.2	239 301
60 120	10 22	6 04	30.6	9 31	5 33	30.5	8 39	5 02	30.4	7 47	4 32	30.3	6 55	4 01	30.2	6 04	3 31	30.2	240 300
61 119	10 29	5 53	29.5	9 36	5 23	29.5	8 44	4 53	29.4	7 52	4 23	29.3	6 59	3 54	29.2	6 07	3 24	29.2	241 299
62 118	10 35	5 42	28.5	9 42	5 13	28.4	8 49	4 44	28.4	7 56	4 15	28.3	7 04	3 46	28.2	6 11	3 18	28.2	242 298
63 117	10 41	5 31	27.5	9 47	5 03	27.4	8 54	4 35	27.4	8 01	4 07	27.3	7 07	3 39	27.2	6 14	3 11	27.2	243 297
64 116	10 46	5 19	26.5	9 52	4 52	26.4	8 59	4 25	26.3	8 05	3 58	26.3	7 11	3 32	26.2	6 17	3 05	26.2	244 296
65 115	10 52	5 08	25.5	9 57	4 42	25.4	9 03	4 16	25.3	8 09	3 50	25.3	7 15	3 24	25.2	6 20	2 58	25.2	245 295
66 114	10 57	4 56	24.5	10 02	4 31	24.4	9 08	4 06	24.3	8 13	3 41	24.3	7 18	3 16	24.2	6 24	2 52	24.2	246 294
67 113	11 02	4 45	23.5	10 07	4 21	23.4	9 12	3 56	23.3	8 17	3 32	23.3	7 22	3 09	23.2	6 26	2 45	23.2	247 293
68 112	11 07	4 33	22.4	10 11	4 10	22.4	9 16	3 47	22.3	8 20	3 24	22.2	7 25	3 01	22.2	6 29	2 38	22.1	248 292
69 111	11 12	4 21	21.4	10 16	3 59	21.4	9 20	3 37	21.3	8 24	3 15	21.2	7 28	2 53	21.2	6 32	2 31	21.1	249 291
70 110	11 16	4 09	20.4	10 20	3 48	20.3	9 23	3 27	20.3	8 27	3 06	20.2	7 31	2 45	20.2	6 35	2 24	20.1	250 290
71 109	11 20	3 58	19.4	10 24	3 37	19.3	9 27	3 17	19.3	8 30	2 57	19.2	7 34	2 37	19.2	6 37	2 17	19.1	251 289
72 108	11 24	3 45	18.4	10 27	3 26	18.3	9 30	3 07	18.3	8 33	2 48	18.2	7 36	2 29	18.2	6 39	2 10	18.1	252 288
73 107	11 28	3 33	17.4	10 31	3 15	17.3	9 34	2 57	17.2	8 36	2 39	17.2	7 39	2 21	17.2	6 42	2 03	17.1	253 287
74 106	11 32	3 21	16.3	10 34	3 04	16.3	9 37	2 47	16.2	8 39	2 30	16.2	7 41	2 13	16.1	6 44	1 56	16.1	254 286
75 105	11 35	3 09	15.3	10 37	2 53	15.3	9 39	2 37	15.2	8 41	2 21	15.2	7 44	2 05	15.1	6 46	1 49	15.1	255 285
76 104	11 38	2 57	14.3	10 40	2 42	14.3	9 42	2 27	14.2	8 44	2 12	14.2	7 46	1 57	14.1	6 47	1 42	14.1	256 284
77 103	11 41	2 44	13.3	10 43	2 30	13.2	9 44	2 16	13.2	8 46	2 02	13.2	7 48	1 49	13.1	6 49	1 35	13.1	257 283
78 102	11 44	2 32	12.3	10 45	2 19	12.2	9 47	2 06	12.2	8 48	1 53	12.1	7 49	1 40	12.1	6 51	1 28	12.1	258 282
79 101	11 47	2 19	11.2	10 48	2 07	11.2	9 49	1 56	11.2	8 50	1 44	11.1	7 51	1 32	11.1	6 52	1 21	11.1	259 281
80 100	11 49	2 07	10.2	10 50	1 56	10.2	9 51	1 45	10.2	8 52	1 35	10.1	7 53	1 24	10.1	6 54	1 13	10.1	260 280
81 99	11 51	1 54	9.2	10 52	1 45	9.2	9 53	1 35	9.1	8 53	1 25	9.1	7 54	1 16	9.1	6 55	1 06	9.1	261 279
82 98	11 53	1 42	8.2	10 53	1 33	8.1	9 54	1 24	8.1	8 55	1 16	8.1	7 55	1 07	8.1	6 56	0 59	8.1	262 278
83 97	11 55	1 29	7.2	10 55	1 21	7.1	9 55	1 14	7.1	8 56	1 06	7.1	7 56	0 59	7.1	6 57	0 51	7.1	263 277
84 96	11 56	1 16	6.1	10 56	1 10	6.1	9 57	1 03	6.1	8 57	0 57	6.1	7 57	0 50	6.1	6 58	0 44	6.0	264 276
85 95	11 57	1 04	5.1	10 57	0 58	5.1	9 58	0 53	5.1	8 58	0 47	5.1	7 58	0 42	5.0	6 58	0 37	5.0	265 275
86 94	11 58	0 51	4.1	10 58	0 47	4.1	9 59	0 42	4.1	8 59	0 38	4.0	7 59	0 34	4.0	6 59	0 29	4.0	266 274
87 93	11 59	0 38	3.1	10 59	0 35	3.1	9 59	0 32	3.0	8 59	0 28	3.0	7 59	0 25	3.0	6 59	0 22	3.0	267 273
88 92	12 00	0 26	2.0	11 00	0 23	2.0	10 00	0 21	2.0	9 00	0 19	2.0	8 00	0 17	2.0	7 00	0 15	2.0	268 272
89 91	12 00	0 13	1.0	11 00	0 12	1.0	10 00	0 11	1.0	9 00	0 10	1.0	8 00	0 08	1.0	7 00	0 07	1.0	269 271
90 90	12 00	0 00	0.0	11 00	0 00	0.0	10 00	0 00	0.0	9 00	0 00	0.0	8 00	0 00	0.0	7 00	0 00	0.0	270 270

Lat. N.: para AHL > 180°... Z<sub>n</sub> = Z  
 para AHL < 180°... Z<sub>n</sub> = 360° - Z

Lat. S.: para AHL > 180°... Z<sub>n</sub> = 180° - Z  
 para AHL < 180°... Z<sub>n</sub> = 180° + Z



B: (-) para  $90^\circ < \text{AHL} < 270^\circ$ 

Dec: (-) para la Lat. especificada y opuesta.

TABLA PARA REDUCCION DE VISUALES

 $Z_1$ : mismo signo que B.  
 $Z_2$ : (-) para  $F > 90^\circ$ 

Lat. / A	84°			85°			86°			87°			88°			89°			Lat. / A
AHL/F	A/H	B/P	Z <sub>1</sub> /Z <sub>2</sub>	A/H	B/P	Z <sub>1</sub> /Z <sub>2</sub>	A/H	B/P	Z <sub>1</sub> /Z <sub>2</sub>	A/H	B/P	Z <sub>1</sub> /Z <sub>2</sub>	A/H	B/P	Z <sub>1</sub> /Z <sub>2</sub>	A/H	B/P	Z <sub>1</sub> /Z <sub>2</sub>	AHL
0 180	0 00	6 00	90 0	0 00	5 00	90 0	0 00	4 00	90 0	0 00	3 00	90 0	0 00	2 00	90 0	0 00	1 00	90 0	180 360
1 179	0 06	6 00	89 0	0 05	5 00	89 0	0 04	4 00	89 0	0 03	3 00	89 0	0 02	2 00	89 0	0 01	1 00	89 0	181 359
2 178	0 13	6 00	88 0	0 10	5 00	88 0	0 08	4 00	88 0	0 06	3 00	88 0	0 04	2 00	88 0	0 02	1 00	88 0	182 358
3 177	0 19	6 00	87 0	0 16	5 00	87 0	0 13	4 00	87 0	0 09	3 00	87 0	0 06	2 00	87 0	0 03	1 00	87 0	183 357
4 176	0 25	5 59	86 0	0 21	4 59	86 0	0 17	3 59	86 0	0 13	3 00	86 0	0 08	2 00	86 0	0 04	1 00	86 0	184 356
5 175	0 31	5 59	85 0	0 26	4 59	85 0	0 21	3 59	85 0	0 16	2 59	85 0	0 10	2 00	85 0	0 05	1 00	85 0	185 355
6 174	0 38	5 58	84 0	0 31	4 58	84 0	0 25	3 59	84 0	0 19	2 59	84 0	0 13	1 59	84 0	0 06	1 00	84 0	186 354
7 173	0 44	5 57	83 0	0 37	4 58	83 0	0 29	3 58	83 0	0 22	2 59	83 0	0 15	1 59	83 0	0 07	1 00	83 0	187 353
8 172	0 50	5 57	82 0	0 42	4 57	82 0	0 33	3 58	82 0	0 25	2 58	82 0	0 17	1 59	82 0	0 08	0 59	82 0	188 352
9 171	0 56	5 56	81 0	0 47	4 56	81 0	0 38	3 57	81 0	0 28	2 58	81 0	0 19	1 59	81 0	0 09	0 59	81 0	189 351
10 170	1 02	5 55	80 1	0 52	4 55	80 0	0 42	3 56	80 0	0 31	2 57	80 0	0 21	1 58	80 0	0 10	0 59	80 0	190 350
11 169	1 09	5 53	79 1	0 57	4 55	79 0	0 46	3 56	79 0	0 34	2 57	79 0	0 23	1 58	79 0	0 11	0 59	79 0	191 349
12 168	1 15	5 52	78 1	1 02	4 53	78 0	0 50	3 55	78 0	0 37	2 56	78 0	0 25	1 57	78 0	0 12	0 59	78 0	192 348
13 167	1 21	5 51	77 1	1 07	4 52	77 0	0 54	3 54	77 0	0 40	2 55	77 0	0 27	1 57	77 0	0 13	0 58	77 0	193 347
14 166	1 27	5 49	76 1	1 12	4 51	76 1	0 58	3 53	76 0	0 44	2 55	76 0	0 29	1 56	76 0	0 15	0 58	76 0	194 346
15 165	1 33	5 48	75 1	1 18	4 50	75 1	1 02	3 52	75 0	0 47	2 54	75 0	0 31	1 56	75 0	0 16	0 58	75 0	195 345
16 164	1 39	5 46	74 1	1 23	4 48	74 1	1 06	3 51	74 0	0 50	2 53	74 0	0 33	1 55	74 0	0 17	0 58	74 0	196 344
17 163	1 45	5 44	73 1	1 28	4 47	73 1	1 10	3 50	73 0	0 53	2 52	73 0	0 35	1 55	73 0	0 18	0 57	73 0	197 343
18 162	1 51	5 43	72 1	1 33	4 45	72 1	1 14	3 48	72 0	0 56	2 51	72 0	0 37	1 54	72 0	0 19	0 57	72 0	198 342
19 161	1 57	5 41	71 1	1 38	4 44	71 1	1 18	3 47	71 0	0 59	2 50	71 0	0 39	1 53	71 0	0 20	0 57	71 0	199 341
20 160	2 03	5 38	70 1	1 42	4 42	70 1	1 22	3 46	70 0	1 02	2 49	70 0	0 41	1 53	70 0	0 21	0 56	70 0	200 340
21 159	2 09	5 36	69 1	1 47	4 40	69 1	1 26	3 44	69 0	1 04	2 48	69 0	0 43	1 52	69 0	0 22	0 56	69 0	201 339
22 158	2 15	5 34	68 1	1 52	4 38	68 1	1 30	3 43	68 0	1 07	2 47	68 0	0 45	1 51	68 0	0 22	0 56	68 0	202 338
23 157	2 20	5 32	67 1	1 57	4 36	67 1	1 34	3 41	67 1	1 10	2 46	67 0	0 47	1 50	67 0	0 23	0 55	67 0	203 337
24 156	2 26	5 29	66 1	2 02	4 34	66 1	1 38	3 39	66 1	1 13	2 44	66 0	0 49	1 50	66 0	0 24	0 55	66 0	204 336
25 155	2 32	5 26	65 1	2 07	4 32	65 1	1 41	3 38	65 1	1 16	2 43	65 0	0 51	1 49	65 0	0 25	0 54	65 0	205 335
26 154	2 38	5 24	64 1	2 11	4 30	64 1	1 45	3 36	64 1	1 19	2 42	64 0	0 53	1 48	64 0	0 26	0 54	64 0	206 334
27 153	2 43	5 21	63 1	2 16	4 27	63 1	1 49	3 34	63 1	1 22	2 40	63 0	0 54	1 47	63 0	0 27	0 53	63 0	207 333
28 152	2 49	5 18	62 1	2 21	4 25	62 1	1 53	3 32	62 1	1 24	2 39	62 0	0 56	1 46	62 0	0 28	0 53	62 0	208 332
29 151	2 54	5 15	61 1	2 25	4 23	61 1	1 56	3 30	61 1	1 27	2 37	61 0	0 58	1 45	61 0	0 29	0 52	61 0	209 331
30 150	3 00	5 12	60 1	2 30	4 20	60 1	2 00	3 28	60 1	1 30	2 36	60 0	1 00	1 44	60 0	0 30	0 52	60 0	210 330
31 149	3 05	5 09	59 1	2 34	4 17	59 1	2 04	3 26	59 1	1 33	2 34	59 0	1 02	1 43	59 0	0 31	0 51	59 0	211 329
32 148	3 11	5 06	58 1	2 39	4 15	58 1	2 07	3 24	58 1	1 35	2 33	58 0	1 04	1 42	58 0	0 32	0 51	58 0	212 328
33 147	3 16	5 02	57 1	2 43	4 12	57 1	2 11	3 21	57 1	1 38	2 31	57 0	1 05	1 41	57 0	0 33	0 50	57 0	213 327
34 146	3 21	4 59	56 1	2 48	4 09	56 1	2 14	3 19	56 1	1 41	2 29	56 0	1 07	1 39	56 0	0 34	0 50	56 0	214 326
35 145	3 26	4 55	55 1	2 52	4 06	55 1	2 18	3 17	55 1	1 43	2 27	55 0	1 09	1 38	55 0	0 34	0 49	55 0	215 325
36 144	3 31	4 52	54 1	2 56	4 03	54 1	2 21	3 14	54 1	1 46	2 26	54 0	1 11	1 37	54 0	0 35	0 49	54 0	216 324
37 143	3 36	4 48	53 2	3 00	4 00	53 1	2 24	3 12	53 1	1 48	2 24	53 0	1 12	1 36	53 0	0 36	0 48	53 0	217 323
38 142	3 41	4 44	52 2	3 05	3 57	52 1	2 28	3 09	52 1	1 51	2 22	52 0	1 14	1 35	52 0	0 37	0 47	52 0	218 322
39 141	3 46	4 40	51 2	3 09	3 53	51 1	2 31	3 07	51 1	1 53	2 20	51 0	1 16	1 33	51 0	0 38	0 47	51 0	219 321
40 140	3 51	4 36	50 2	3 13	3 50	50 1	2 34	3 04	50 1	1 56	2 18	50 0	1 17	1 32	50 0	0 39	0 46	50 0	220 320
41 139	3 56	4 32	49 2	3 17	3 47	49 1	2 37	3 01	49 1	1 58	2 16	49 0	1 19	1 31	49 0	0 39	0 45	49 0	221 319
42 138	4 01	4 28	48 2	3 21	3 43	48 1	2 41	2 58	48 1	2 00	2 14	48 0	1 20	1 29	48 0	0 40	0 45	48 0	222 318
43 137	4 05	4 24	47 2	3 24	3 40	47 1	2 44	2 56	47 1	2 03	2 12	47 0	1 22	1 28	47 0	0 41	0 44	47 0	223 317
44 136	4 10	4 19	46 2	3 28	3 36	46 1	2 47	2 53	46 1	2 05	2 10	46 0	1 23	1 26	46 0	0 42	0 43	46 0	224 316
45 135	4 14	4 15	45 2	3 32	3 32	45 1	2 50	2 50	45 1	2 07	2 07	45 0	1 25	1 25	45 0	0 42	0 42	45 0	225 315

LATITUD / A: 84° - 89°

323



Lat. / A	84°			85°			86°			87°			88°			89°			Lat. / A
AHL/F	A/H	B/P	Z <sub>1</sub> /Z <sub>2</sub>	A/H	B/P	Z <sub>1</sub> /Z <sub>2</sub>	A/H	B/P	Z <sub>1</sub> /Z <sub>2</sub>	A/H	B/P	Z <sub>1</sub> /Z <sub>2</sub>	A/H	B/P	Z <sub>1</sub> /Z <sub>2</sub>	A/H	B/P	Z <sub>1</sub> /Z <sub>2</sub>	AHL
45 135	4 14	4 15	45.2	3 32	3 32	45.1	2 50	2 50	45.1	2 07	2 07	45.0	1 25	1 25	45.0	0 42	0 42	45.0	225 315
46 134	4 19	4 11	44.2	3 36	3 29	44.1	2 53	2 47	44.1	2 09	2 05	44.0	1 26	1 23	44.0	0 43	0 42	44.0	226 314
47 133	4 23	4 06	43.2	3 39	3 25	43.1	2 55	2 44	43.1	2 12	2 03	43.0	1 28	1 22	43.0	0 44	0 41	43.0	227 313
48 132	4 27	4 01	42.2	3 43	3 21	42.1	2 58	2 41	42.1	2 14	2 01	42.0	1 29	1 20	42.0	0 45	0 40	42.0	228 312
49 131	4 31	3 57	41.2	3 46	3 17	41.1	3 01	2 38	41.1	2 16	1 58	41.0	1 31	1 19	41.0	0 45	0 39	41.0	229 311
50 130	4 36	3 52	40.2	3 50	3 13	40.1	3 04	2 34	40.1	2 18	1 56	40.0	1 32	1 17	40.0	0 46	0 39	40.0	230 310
51 129	4 40	3 47	39.2	3 53	3 09	39.1	3 06	2 31	39.1	2 20	1 53	39.0	1 33	1 16	39.0	0 47	0 38	39.0	231 309
52 128	4 43	3 42	38.2	3 56	3 05	38.1	3 09	2 28	38.1	2 22	1 51	38.0	1 35	1 14	38.0	0 47	0 37	38.0	232 308
53 127	4 47	3 37	37.2	3 59	3 01	37.1	3 12	2 25	37.1	2 24	1 48	37.0	1 36	1 12	37.0	0 48	0 36	37.0	233 307
54 126	4 51	3 32	36.1	4 03	2 57	36.1	3 14	2 21	36.1	2 26	1 46	36.0	1 37	1 11	36.0	0 49	0 35	36.0	234 306
55 125	4 55	3 27	35.1	4 06	2 52	35.1	3 17	2 18	35.1	2 27	1 43	35.0	1 38	1 09	35.0	0 49	0 34	35.0	235 305
56 124	4 58	3 22	34.1	4 09	2 48	34.1	3 19	2 14	34.1	2 29	1 41	34.0	1 39	1 07	34.0	0 50	0 34	34.0	236 304
57 123	5 02	3 17	33.1	4 12	2 44	33.1	3 21	2 11	33.1	2 31	1 38	33.0	1 41	1 05	33.0	0 50	0 33	33.0	237 303
58 122	5 05	3 11	32.1	4 14	2 39	32.1	3 23	2 07	32.1	2 33	1 35	32.0	1 42	1 04	32.0	0 51	0 32	32.0	238 302
59 121	5 08	3 06	31.1	4 17	2 35	31.1	3 26	2 04	31.1	2 34	1 33	31.0	1 43	1 02	31.0	0 51	0 31	31.0	239 301
60 120	5 12	3 00	30.1	4 20	2 30	30.1	3 28	2 00	30.1	2 36	1 30	30.0	1 44	1 00	30.0	0 52	0 30	30.0	240 300
61 119	5 15	2 55	29.1	4 22	2 26	29.1	3 30	1 56	29.1	2 37	1 27	29.0	1 45	0 58	29.0	0 52	0 29	29.0	241 299
62 118	5 18	2 49	28.1	4 25	2 21	28.1	3 32	1 53	28.1	2 39	1 25	28.0	1 46	0 56	28.0	0 53	0 28	28.0	242 298
63 117	5 21	2 44	27.1	4 27	2 16	27.1	3 34	1 49	27.1	2 40	1 22	27.0	1 47	0 54	27.0	0 53	0 27	27.0	243 297
64 116	5 23	2 38	26.1	4 30	2 12	26.1	3 36	1 45	26.1	2 42	1 19	26.0	1 48	0 53	26.0	0 54	0 26	26.0	244 296
65 115	5 26	2 33	25.1	4 32	2 07	25.1	3 37	1 42	25.1	2 43	1 16	25.0	1 49	0 51	25.0	0 54	0 25	25.0	245 295
66 114	5 29	2 27	24.1	4 34	2 02	24.1	3 39	1 38	24.1	2 44	1 13	24.0	1 50	0 49	24.0	0 55	0 24	24.0	246 294
67 113	5 31	2 21	23.1	4 36	1 57	23.1	3 41	1 34	23.1	2 46	1 10	23.0	1 50	0 47	23.0	0 55	0 23	23.0	247 293
68 112	5 34	2 15	22.1	4 38	1 53	22.1	3 42	1 30	22.0	2 47	1 07	22.0	1 51	0 45	22.0	0 56	0 22	22.0	248 292
69 111	5 36	2 09	21.1	4 40	1 48	21.1	3 44	1 26	21.0	2 48	1 05	21.0	1 52	0 43	21.0	0 56	0 22	21.0	249 291
70 110	5 38	2 04	20.1	4 42	1 43	20.1	3 46	1 22	20.0	2 49	1 02	20.0	1 53	0 41	20.0	0 56	0 21	20.0	250 290
71 109	5 40	1 58	19.1	4 44	1 38	19.1	3 47	1 18	19.0	2 50	0 59	19.0	1 53	0 39	19.0	0 57	0 20	19.0	251 289
72 108	5 42	1 52	18.1	4 45	1 33	18.1	3 48	1 14	18.0	2 51	0 56	18.0	1 54	0 37	18.0	0 57	0 19	18.0	252 288
73 107	5 44	1 46	17.1	4 47	1 28	17.1	3 49	1 10	17.0	2 52	0 53	17.0	1 55	0 35	17.0	0 57	0 18	17.0	253 287
74 106	5 46	1 40	16.1	4 48	1 23	16.1	3 51	1 06	16.0	2 53	0 50	16.0	1 55	0 33	16.0	0 58	0 17	16.0	254 286
75 105	5 48	1 33	15.1	4 50	1 18	15.1	3 52	1 02	15.0	2 54	0 47	15.0	1 56	0 31	15.0	0 58	0 16	15.0	255 285
76 104	5 49	1 27	14.1	4 51	1 13	14.1	3 53	0 58	14.0	2 55	0 44	14.0	1 56	0 29	14.0	0 58	0 15	14.0	256 284
77 103	5 51	1 21	13.1	4 52	1 08	13.0	3 54	0 54	13.0	2 55	0 41	13.0	1 57	0 27	13.0	0 58	0 13	13.0	257 283
78 102	5 52	1 15	12.1	4 53	1 03	12.0	3 55	0 50	12.0	2 56	0 37	12.0	1 57	0 25	12.0	0 59	0 12	12.0	258 282
79 101	5 53	1 09	11.1	4 54	0 57	11.0	3 56	0 46	11.0	2 57	0 34	11.0	1 58	0 23	11.0	0 59	0 11	11.0	259 281
80 100	5 55	1 03	10.1	4 55	0 52	10.0	3 56	0 42	10.0	2 57	0 31	10.0	1 58	0 21	10.0	0 59	0 10	10.0	260 280
81 99	5 56	0 57	9.0	4 56	0 47	9.0	3 57	0 38	9.0	2 58	0 28	9.0	1 59	0 19	9.0	0 59	0 09	9.0	261 279
82 98	5 56	0 50	8.0	4 57	0 42	8.0	3 58	0 33	8.0	2 58	0 25	8.0	1 59	0 17	8.0	0 59	0 08	8.0	262 278
83 97	5 57	0 44	7.0	4 58	0 37	7.0	3 58	0 29	7.0	2 59	0 22	7.0	1 59	0 15	7.0	1 00	0 07	7.0	263 277
84 96	5 58	0 38	6.0	4 58	0 31	6.0	3 59	0 25	6.0	2 59	0 19	6.0	1 59	0 13	6.0	1 00	0 06	6.0	264 276
85 95	5 59	0 31	5.0	4 59	0 26	5.0	3 59	0 21	5.0	2 59	0 16	5.0	2 00	0 10	5.0	1 00	0 05	5.0	265 275
86 94	5 59	0 25	4.0	4 59	0 21	4.0	3 59	0 17	4.0	3 00	0 13	4.0	2 00	0 08	4.0	1 00	0 04	4.0	266 274
87 93	6 00	0 19	3.0	5 00	0 16	3.0	4 00	0 13	3.0	3 00	0 09	3.0	2 00	0 06	3.0	1 00	0 03	3.0	267 273
88 92	6 00	0 13	2.0	5 00	0 10	2.0	4 00	0 08	2.0	3 00	0 06	2.0	2 00	0 04	2.0	1 00	0 02	2.0	268 272
89 91	6 00	0 06	1.0	5 00	0 05	1.0	4 00	0 04	1.0	3 00	0 03	1.0	2 00	0 02	1.0	1 00	0 01	1.0	269 271
90 90	6 00	0 00	0.0	5 00	0 00	0.0	4 00	0 00	0.0	3 00	0 00	0.0	2 00	0 00	0.0	1 00	0 00	0.0	270 270

Lat. N.: para AHL > 180°... Z<sub>n</sub> = Z  
 para AHL < 180°... Z<sub>n</sub> = 360° - Z

Lat. S.: para AHL > 180°... Z<sub>n</sub> = 180° - Z  
 para AHL < 180°... Z<sub>n</sub> = 180° + Z



F < 90° y F' > 29' : (-) corr.  
 F > 90° y F' < 30' : (-) corr.

TABLA AUXILIAR

A' < 30' : (-) corr.

F' / A'	1' 59	2' 58	3' 57	4' 56	5' 55	6' 54	7' 53	8' 52	9' 51	10' 50	11' 49	12' 48	13' 47	14' 46	15' 45	16' 44	17' 43	18' 42	19' 41	20' 40	21' 39	22' 38	23' 37	24' 36	25' 35	26' 34	27' 33	28' 32	29' 31	30' 30	F' / A'	
P.																															Z <sub>0</sub>	
1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	89
2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	88
3	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	87
4	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	86
5	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	2	2	3	3	85	
6	0	0	0	0	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	3	3	3	3	3	3	3	84	
7	0	0	0	0	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	3	3	3	3	3	3	3	4	4	83	
8	0	0	0	1	1	1	1	1	1	1	2	2	2	2	2	2	3	3	3	3	3	3	3	3	3	3	4	4	4	4	82	
9	0	0	0	1	1	1	1	1	1	2	2	2	2	2	2	3	3	3	3	3	3	3	4	4	4	4	4	4	5	5	81	
10	0	0	1	1	1	1	1	2	2	2	2	2	2	3	3	3	3	3	3	4	4	4	4	4	4	4	5	5	5	5	80	
11	0	0	1	1	1	1	2	2	2	2	2	2	3	3	3	3	3	3	4	4	4	4	4	5	5	5	5	5	6	6	79	
12	0	0	1	1	1	1	2	2	2	2	2	3	3	3	3	4	4	4	4	4	4	5	5	5	5	5	6	6	6	6	78	
13	0	0	1	1	1	1	2	2	2	2	3	3	3	3	3	4	4	4	4	4	4	5	5	5	5	6	6	6	7	7	77	
14	0	0	1	1	1	1	2	2	2	2	3	3	3	3	4	4	4	4	5	5	5	5	6	6	6	6	7	7	7	7	76	
15	0	1	1	1	1	2	2	2	2	3	3	3	3	4	4	4	5	5	5	5	5	6	6	6	6	7	7	7	8	8	75	
16	0	1	1	1	1	2	2	2	2	3	3	3	4	4	4	4	5	5	5	6	6	6	6	7	7	7	7	8	8	8	74	
17	0	1	1	1	1	2	2	2	3	3	3	4	4	4	4	5	5	5	6	6	6	6	7	7	7	8	8	8	8	8	73	
18	0	1	1	1	2	2	2	2	3	3	3	4	4	4	5	5	5	6	6	6	6	7	7	7	8	8	8	9	9	9	72	
19	0	1	1	1	2	2	2	3	3	3	4	4	4	4	5	5	6	6	6	7	7	7	8	8	8	9	9	9	9	10	71	
20	0	1	1	1	2	2	2	3	3	3	4	4	4	5	5	5	6	6	6	7	7	8	8	8	9	9	9	10	10	10	70	
21	0	1	1	1	2	2	3	3	3	4	4	4	5	5	5	6	6	6	7	7	8	8	8	9	9	9	10	10	10	11	69	
22	0	1	1	1	2	2	3	3	3	4	4	4	5	5	6	6	6	7	7	7	8	8	8	9	9	10	10	10	11	11	68	
23	0	1	1	2	2	2	3	3	4	4	4	5	5	5	6	6	7	7	7	8	8	8	9	9	9	10	10	11	11	11	12	67
24	0	1	1	2	2	2	3	3	4	4	4	5	5	6	6	6	7	7	8	8	8	9	9	9	10	10	11	11	11	12	12	66
25	0	1	1	2	2	3	3	3	4	4	5	5	5	6	6	7	7	8	8	8	9	9	10	10	11	11	11	12	12	13	65	
26	0	1	1	2	2	3	3	4	4	4	5	5	6	6	7	7	7	8	8	9	9	9	10	10	11	11	11	12	12	13	64	
27	0	1	1	2	2	3	3	4	4	5	5	5	6	6	7	7	8	8	9	9	10	10	10	11	11	12	12	13	13	14	63	
28	0	1	1	2	2	3	3	4	4	5	5	6	6	7	7	8	8	8	9	9	10	10	11	11	12	12	13	13	14	14	62	
29	0	1	1	2	2	3	3	4	4	5	5	6	6	7	7	8	8	9	9	10	10	11	11	12	12	13	13	14	14	15	61	
30	0	1	1	2	2	3	3	4	4	5	5	6	6	7	7	8	8	9	9	10	10	11	11	12	12	13	13	14	14	15	60	
31	1	1	2	2	3	3	4	4	5	5	6	6	7	7	8	8	9	9	10	10	11	11	12	12	13	13	14	14	15	15	59	
32	1	1	2	2	3	3	4	4	5	5	6	6	7	7	8	8	9	10	10	11	11	12	12	13	13	14	14	15	15	16	58	
33	1	1	2	2	3	3	4	4	5	5	6	7	7	8	8	9	9	10	10	11	11	12	13	13	14	14	15	15	16	16	57	
34	1	1	2	2	3	3	4	4	5	6	6	7	7	8	8	9	10	10	11	11	12	12	13	13	14	14	15	16	16	17	56	
35	1	1	2	2	3	3	4	5	5	6	6	7	8	8	9	9	10	10	11	11	12	13	13	14	14	15	15	16	17	17	55	
36	1	1	2	2	3	4	4	5	5	6	6	7	8	8	9	9	10	11	11	12	12	13	14	14	15	15	16	16	17	18	54	
37	1	1	2	2	3	4	4	5	5	6	7	7	8	8	9	10	10	11	11	12	13	13	14	14	15	16	16	17	17	18	53	
38	1	1	2	2	3	4	4	5	6	6	7	7	8	8	9	10	10	11	11	12	13	14	14	15	15	16	17	17	18	18	52	
39	1	1	2	3	3	4	4	5	6	6	7	8	8	9	9	10	11	11	12	13	13	14	14	15	16	16	17	18	18	19	51	
40	1	1	2	3	3	4	4	5	6	6	7	8	8	9	10	10	11	12	12	13	13	14	15	15	16	17	17	18	19	19	50	

AJUSTES PARA ALTURAS TABULADAS



P°	F' / A'																											F' / A'	Z <sub>2</sub>		
	59	58	57	56	55	54	53	52	51	50	49	48	47	46	45	44	43	42	41	40	39	38	37	36	35	34	33			32	31
41	1	1	2	3	3	4	5	5	6	7	7	8	9	9	10	10	11	12	12	13	14	14	15	16	16	17	18	18	19	20	49
42	1	1	2	3	3	4	5	5	6	7	7	8	9	9	10	11	11	12	13	13	14	15	15	16	17	17	18	19	19	20	48
43	1	1	2	3	3	4	5	5	6	7	8	8	9	10	10	11	12	12	13	14	14	15	16	16	17	18	18	19	20	47	
44	1	1	2	3	3	4	5	5	6	6	7	8	8	9	10	10	11	12	13	13	14	15	15	16	17	17	18	19	20	21	46
45	1	1	2	3	4	4	5	6	6	7	8	8	9	10	11	11	12	13	13	14	15	16	16	17	18	18	19	20	21	21	45
46	1	1	2	3	4	4	5	6	6	7	8	9	9	10	11	12	12	13	14	14	15	16	17	17	18	19	19	20	21	22	44
47	1	1	2	3	4	4	5	6	7	7	8	9	10	10	11	12	12	13	14	15	15	16	17	17	18	19	20	21	22	43	
48	1	1	2	3	4	4	5	6	7	7	8	9	10	10	11	12	13	13	14	15	16	16	17	18	19	19	20	21	22	42	
49	1	2	2	3	4	5	5	6	7	8	8	9	10	11	11	12	13	14	14	15	16	17	17	18	19	20	20	21	22	41	
50	1	2	2	3	4	5	5	6	7	8	8	9	10	11	11	12	13	14	15	15	16	17	18	18	19	20	21	21	22	40	
51	1	2	2	3	4	5	5	6	7	8	9	9	10	11	12	12	13	14	15	16	16	17	18	19	19	20	21	22	23	39	
52	1	2	2	3	4	5	6	6	7	8	9	9	10	11	12	13	13	14	15	16	17	17	18	19	20	20	21	22	23	38	
53	1	2	2	3	4	5	6	6	7	8	9	10	10	11	12	13	14	14	15	16	17	18	18	19	20	21	22	23	24	37	
54	1	2	2	3	4	5	6	6	7	8	9	10	11	11	12	13	14	15	15	16	17	18	19	19	20	21	22	23	24	36	
55	1	2	2	3	4	5	6	7	7	8	9	10	11	11	12	13	14	15	16	16	17	18	19	20	20	21	22	23	24	35	
56	1	2	2	3	4	5	6	7	7	8	9	10	11	12	12	13	14	15	16	17	17	18	19	20	21	22	22	23	24	34	
57	1	2	3	3	4	5	6	7	8	8	9	10	11	12	13	13	14	15	16	17	18	18	19	20	21	22	23	24	25	33	
58	1	2	3	3	4	5	6	7	8	8	9	10	11	12	13	14	14	15	16	17	18	19	20	21	22	23	24	25	25	32	
59	1	2	3	3	4	5	6	7	8	9	9	10	11	12	13	14	15	15	16	17	18	19	20	21	21	22	23	24	25	31	
60	1	2	3	3	4	5	6	7	8	9	10	10	11	12	13	14	15	16	16	17	18	19	20	21	22	23	23	24	25	30	
61	1	2	3	3	4	5	6	7	8	9	10	10	11	12	13	14	15	16	17	17	18	19	20	21	22	23	24	25	26	29	
62	1	2	3	4	4	5	6	7	8	9	10	11	11	12	13	14	15	16	17	18	19	19	20	21	22	23	24	25	26	28	
63	1	2	3	4	4	5	6	7	8	9	10	11	12	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	27	
64	1	2	3	4	4	5	6	7	8	9	10	11	12	13	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	26	
65	1	2	3	4	5	5	6	7	8	9	10	11	12	13	14	15	15	16	17	18	19	20	21	22	23	24	24	25	26	27	25
66	1	2	3	4	5	5	6	7	8	9	10	11	12	13	14	15	16	16	17	18	19	20	21	22	23	24	25	26	26	27	24
67	1	2	3	4	5	6	6	7	8	9	10	11	12	13	14	15	16	17	17	18	19	20	21	22	23	24	25	26	27	28	23
68	1	2	3	4	5	6	6	7	8	9	10	11	12	13	14	15	16	17	18	19	19	20	21	22	23	24	25	26	27	28	22
69	1	2	3	4	5	6	7	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	21	22	23	24	25	26	27	28	21
70	1	2	3	4	5	6	7	8	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	20	
71	1	2	3	4	5	6	7	8	9	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	19	
72	1	2	3	4	5	6	7	8	9	10	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	18	
73	1	2	3	4	5	6	7	8	9	10	11	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	17	
74	1	2	3	4	5	6	7	8	9	10	11	12	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	16	
75	1	2	3	4	5	6	7	8	9	10	11	12	13	14	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	15	
76	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	16	17	18	19	20	21	22	23	24	25	26	27	28	14	
77	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	13	
78	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	22	23	24	25	26	27	28	12	
79	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	11	
80	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	10	

Para  $P > 80^\circ$ , utilice  $80^\circ$ .Para  $Z_2 < 10^\circ$ , utilice  $10^\circ$ .



# PROCEDIMIENTOS DE REDUCCION DE LAS VISUALES

## USO DE LAS TABLAS ABREVIADAS DE REDUCCION DE VISUALES

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(continuación)

5. *Ejemplo.* (b) Conforme la posición estimada de  $152^\circ$  oeste de Greenwich,  $15^\circ$  latitud sur, se requieren, la altura y el azimut de la estrella Vega, el 4 de agosto de 1969 a las  $4^h 26^m$ .

- |   |   |                                       |
|---|---|---------------------------------------|
| 1. Latitud supuesta                         | $Lat = 15^\circ S$                      |                                       |
| Conforme al almanaque                       | $AHG = 100^\circ 04'$                   |                                       |
| Longitud supuesta                           | $Long = \underline{152^\circ 04'} W.G.$ |                                       |
| Angulo horario local                        | $AHL = 308$                             |                                       |
| 2. Primera entrada, a la tabla de reducción |   |                                       |
| $(Lat, AHL) = (15, 308)$                    | $A = 49 \quad 34$                       | $A^\circ = 50, A' = 34$               |
|   | $B = +66 \quad 29$                      | $Z_1 = +71.7, \quad AHL > 270^\circ$  |
| 3. Conforme al almanaque                    |   |                                       |
|   | $Dec = \underline{-38 \quad 46}$        | $Lat \text{ y } Dec \text{ opuestas}$ |
| Suma = $B + Dec$                            | $F = +27 \quad 43$                      | $F^\circ = 28, F' = 43$               |
| 4. Segunda entrada a la tabla de reducción  |   |                                       |
| $(A^\circ, F^\circ) = (50, 28)$             | $H = 17 \quad 34$                       | $P^\circ = 37$                        |
|   |   | $Z_2 = 67.8$                          |
| 5. Primera entrada a la tabla auxiliar      |   |                                       |
| $(F, P^\circ) = (43, 37)$                   | $corr_1 = \underline{-10}$              | $F < 90^\circ, F > 29'$               |
| Suma  | $17 \quad 24$                           |                                       |
| 6. Segunda entrada a la tabla auxiliar      |   |                                       |
| $(A', Z_2^\circ) = (34, 68)$                | $corr_2 = \underline{+10}$              | $A' > 30'$                            |
| 7. Suma = altura calculada                  | $H_c = +17^\circ 34'$                   | $F > 0^\circ$                         |
| 8. Azimut: primer componente                | $Z_1 = +71.7$                           | mismo signo al igual que B.           |
| Segundo componente                          | $Z_2 = \underline{+67.8}$               | $F < 90^\circ, F > 0^\circ$           |
| Suma = ángulo azimutal                      | $Z = 139.5$                             |                                       |
| Azimut verdadero                            | $Z_n = 40^\circ$                        | $Lat, S. AHL > 180^\circ$             |



## CONVERSION DE ARCO A TIEMPO

0°-59°			60°-119°			120°-179°			180°-239°			240°-299°			300°-359°			0'00	0'25	0'50	0'75			
°	h	m	°	h	m	°	h	m	°	h	m	°	h	m	°	h	m	m	s	m	s	m	s	
0	0	00	60	4	00	120	8	00	180	12	00	240	16	00	300	20	00	0	0	00	0	01	0	03
1	0	04	61	4	04	121	8	04	181	12	04	241	16	04	301	20	04	1	0	04	0	05	0	07
2	0	08	62	4	08	122	8	08	182	12	08	242	16	08	302	20	08	2	0	08	0	09	0	11
3	0	12	63	4	12	123	8	12	183	12	12	243	16	12	303	20	12	3	0	12	0	13	0	15
4	0	16	64	4	16	124	8	16	184	12	16	244	16	16	304	20	16	4	0	16	0	17	0	19
5	0	20	65	4	20	125	8	20	185	12	20	245	16	20	305	20	20	5	0	20	0	21	0	23
6	0	24	66	4	24	126	8	24	186	12	24	246	16	24	306	20	24	6	0	24	0	25	0	27
7	0	28	67	4	28	127	8	28	187	12	28	247	16	28	307	20	28	7	0	28	0	29	0	31
8	0	32	68	4	32	128	8	32	188	12	32	248	16	32	308	20	32	8	0	32	0	33	0	35
9	0	36	69	4	36	129	8	36	189	12	36	249	16	36	309	20	36	9	0	36	0	37	0	39
10	0	40	70	4	40	130	8	40	190	12	40	250	16	40	310	20	40	10	0	40	0	41	0	43
11	0	44	71	4	44	131	8	44	191	12	44	251	16	44	311	20	44	11	0	44	0	45	0	47
12	0	48	72	4	48	132	8	48	192	12	48	252	16	48	312	20	48	12	0	48	0	49	0	51
13	0	52	73	4	52	133	8	52	193	12	52	253	16	52	313	20	52	13	0	52	0	53	0	55
14	0	56	74	4	56	134	8	56	194	12	56	254	16	56	314	20	56	14	0	56	0	57	0	59
15	1	00	75	5	00	135	9	00	195	13	00	255	17	00	315	21	00	15	1	00	1	01	1	03
16	1	04	76	5	04	136	9	04	196	13	04	256	17	04	316	21	04	16	1	04	1	05	1	07
17	1	08	77	5	08	137	9	08	197	13	08	257	17	08	317	21	08	17	1	08	1	09	1	11
18	1	12	78	5	12	138	9	12	198	13	12	258	17	12	318	21	12	18	1	12	1	13	1	15
19	1	16	79	5	16	139	9	16	199	13	16	259	17	16	319	21	16	19	1	16	1	17	1	19
20	1	20	80	5	20	140	9	20	200	13	20	260	17	20	320	21	20	20	1	20	1	21	1	23
21	1	24	81	5	24	141	9	24	201	13	24	261	17	24	321	21	24	21	1	24	1	25	1	27
22	1	28	82	5	28	142	9	28	202	13	28	262	17	28	322	21	28	22	1	28	1	29	1	31
23	1	32	83	5	32	143	9	32	203	13	32	263	17	32	323	21	32	23	1	32	1	33	1	35
24	1	36	84	5	36	144	9	36	204	13	36	264	17	36	324	21	36	24	1	36	1	37	1	39
25	1	40	85	5	40	145	9	40	205	13	40	265	17	40	325	21	40	25	1	40	1	41	1	43
26	1	44	86	5	44	146	9	44	206	13	44	266	17	44	326	21	44	26	1	44	1	45	1	47
27	1	48	87	5	48	147	9	48	207	13	48	267	17	48	327	21	48	27	1	48	1	49	1	51
28	1	52	88	5	52	148	9	52	208	13	52	268	17	52	328	21	52	28	1	52	1	53	1	55
29	1	56	89	5	56	149	9	56	209	13	56	269	17	56	329	21	56	29	1	56	1	57	1	59
30	2	00	90	6	00	150	10	00	210	14	00	270	18	00	330	22	00	30	2	00	2	01	2	03
31	2	04	91	6	04	151	10	04	211	14	04	271	18	04	331	22	04	31	2	04	2	05	2	07
32	2	08	92	6	08	152	10	08	212	14	08	272	18	08	332	22	08	32	2	08	2	09	2	11
33	2	12	93	6	12	153	10	12	213	14	12	273	18	12	333	22	12	33	2	12	2	13	2	15
34	2	16	94	6	16	154	10	16	214	14	16	274	18	16	334	22	16	34	2	16	2	17	2	19
35	2	20	95	6	20	155	10	20	215	14	20	275	18	20	335	22	20	35	2	20	2	21	2	23
36	2	24	96	6	24	156	10	24	216	14	24	276	18	24	336	22	24	36	2	24	2	25	2	27
37	2	28	97	6	28	157	10	28	217	14	28	277	18	28	337	22	28	37	2	28	2	29	2	31
38	2	32	98	6	32	158	10	32	218	14	32	278	18	32	338	22	32	38	2	32	2	33	2	35
39	2	36	99	6	36	159	10	36	219	14	36	279	18	36	339	22	36	39	2	36	2	37	2	39
40	2	40	100	6	40	160	10	40	220	14	40	280	18	40	340	22	40	40	2	40	2	41	2	43
41	2	44	101	6	44	161	10	44	221	14	44	281	18	44	341	22	44	41	2	44	2	45	2	47
42	2	48	102	6	48	162	10	48	222	14	48	282	18	48	342	22	48	42	2	48	2	49	2	51
43	2	52	103	6	52	163	10	52	223	14	52	283	18	52	343	22	52	43	2	52	2	53	2	55
44	2	56	104	6	56	164	10	56	224	14	56	284	18	56	344	22	56	44	2	56	2	57	2	59
45	3	00	105	7	00	165	11	00	225	15	00	285	19	00	345	23	00	45	3	00	3	01	3	03
46	3	04	106	7	04	166	11	04	226	15	04	286	19	04	346	23	04	46	3	04	3	05	3	07
47	3	08	107	7	08	167	11	08	227	15	08	287	19	08	347	23	08	47	3	08	3	09	3	11
48	3	12	108	7	12	168	11	12	228	15	12	288	19	12	348	23	12	48	3	12	3	13	3	15
49	3	16	109	7	16	169	11	16	229	15	16	289	19	16	349	23	16	49	3	16	3	17	3	19
50	3	20	110	7	20	170	11	20	230	15	20	290	19	20	350	23	20	50	3	20	3	21	3	23
51	3	24	111	7	24	171	11	24	231	15	24	291	19	24	351	23	24	51	3	24	3	25	3	27
52	3	28	112	7	28	172	11	28	232	15	28	292	19	28	352	23	28	52	3	28	3	29	3	31
53	3	32	113	7	32	173	11	32	233	15	32	293	19	32	353	23	32	53	3	32	3	33	3	35
54	3	36	114	7	36	174	11	36	234	15	36	294	19	36	354	23	36	54	3	36	3	37	3	39
55	3	40	115	7	40	175	11	40	235	15	40	295	19	40	355	23	40	55	3	40	3	41	3	43
56	3	44	116	7	44	176	11	44	236	15	44	296	19	44	356	23	44	56	3	44	3	45	3	47
57	3	48	117	7	48	177	11	48	237	15	48	297	19	48	357	23	48	57	3	48	3	49	3	51
58	3	52	118	7	52	178	11	52	238	15	52	298	19	52	358	23	52	58	3	52	3	53	3	55
59	3	56	119	7	56	179	11	56	239	15	56	299	19	56	359	23	56	59	3	56	3	57	3	59

La tabla anterior se usa para convertir expresiones en arco a sus equivalentes en tiempo; su uso principal en este Almanaque es para la conversión de valores de la longitud para aplicarse a T. M. L. (Sumadas al oeste, restadas al este) para obtener T. M. G. o viceversa, particularmente en el caso de orto y ocaso del Sol, etc.



0	SOL PLANETAS	ARIES	LUNA	v		o		d	
				o	o	d	d	o	o
00	0 00-0	0 00-0	0 00-0	0-0	0-0	6-0	0-1	12-0	0-1
01	0 00-3	0 00-3	0 00-2	0-1	0-0	6-1	0-1	12-1	0-1
02	0 00-5	0 00-5	0 00-5	0-2	0-0	6-2	0-1	12-2	0-1
03	0 00-8	0 00-8	0 00-7	0-3	0-0	6-3	0-1	12-3	0-1
04	0 01-0	0 01-0	0 01-0	0-4	0-0	6-4	0-1	12-4	0-1
05	0 01-3	0 01-3	0 01-2	0-5	0-0	6-5	0-1	12-5	0-1
06	0 01-5	0 01-5	0 01-4	0-6	0-0	6-6	0-1	12-6	0-1
07	0 01-8	0 01-8	0 01-7	0-7	0-0	6-7	0-1	12-7	0-1
08	0 02-0	0 02-0	0 01-9	0-8	0-0	6-8	0-1	12-8	0-1
09	0 02-3	0 02-3	0 02-1	0-9	0-0	6-9	0-1	12-9	0-1
10	0 02-5	0 02-5	0 02-4	1-0	0-0	7-0	0-1	13-0	0-1
11	0 02-8	0 02-8	0 02-6	1-1	0-0	7-1	0-1	13-1	0-1
12	0 03-0	0 03-0	0 02-9	1-2	0-0	7-2	0-1	13-2	0-1
13	0 03-3	0 03-3	0 03-1	1-3	0-0	7-3	0-1	13-3	0-1
14	0 03-5	0 03-5	0 03-3	1-4	0-0	7-4	0-1	13-4	0-1
15	0 03-8	0 03-8	0 03-6	1-5	0-0	7-5	0-1	13-5	0-1
16	0 04-0	0 04-0	0 03-8	1-6	0-0	7-6	0-1	13-6	0-1
17	0 04-3	0 04-3	0 04-1	1-7	0-0	7-7	0-1	13-7	0-1
18	0 04-5	0 04-5	0 04-3	1-8	0-0	7-8	0-1	13-8	0-1
19	0 04-8	0 04-8	0 04-5	1-9	0-0	7-9	0-1	13-9	0-1
20	0 05-0	0 05-0	0 04-8	2-0	0-0	8-0	0-1	14-0	0-1
21	0 05-3	0 05-3	0 05-0	2-1	0-0	8-1	0-1	14-1	0-1
22	0 05-5	0 05-5	0 05-2	2-2	0-0	8-2	0-1	14-2	0-1
23	0 05-8	0 05-8	0 05-5	2-3	0-0	8-3	0-1	14-3	0-1
24	0 06-0	0 06-0	0 05-7	2-4	0-0	8-4	0-1	14-4	0-1
25	0 06-3	0 06-3	0 06-0	2-5	0-0	8-5	0-1	14-5	0-1
26	0 06-5	0 06-5	0 06-2	2-6	0-0	8-6	0-1	14-6	0-1
27	0 06-8	0 06-8	0 06-4	2-7	0-0	8-7	0-1	14-7	0-1
28	0 07-0	0 07-0	0 06-7	2-8	0-0	8-8	0-1	14-8	0-1
29	0 07-3	0 07-3	0 06-9	2-9	0-0	8-9	0-1	14-9	0-1
30	0 07-5	0 07-5	0 07-2	3-0	0-0	9-0	0-1	15-0	0-1
31	0 07-8	0 07-8	0 07-4	3-1	0-0	9-1	0-1	15-1	0-1
32	0 08-0	0 08-0	0 07-6	3-2	0-0	9-2	0-1	15-2	0-1
33	0 08-3	0 08-3	0 07-9	3-3	0-0	9-3	0-1	15-3	0-1
34	0 08-5	0 08-5	0 08-1	3-4	0-0	9-4	0-1	15-4	0-1
35	0 08-8	0 08-8	0 08-4	3-5	0-0	9-5	0-1	15-5	0-1
36	0 09-0	0 09-0	0 08-6	3-6	0-0	9-6	0-1	15-6	0-1
37	0 09-3	0 09-3	0 08-8	3-7	0-0	9-7	0-1	15-7	0-1
38	0 09-5	0 09-5	0 09-1	3-8	0-0	9-8	0-1	15-8	0-1
39	0 09-8	0 09-8	0 09-3	3-9	0-0	9-9	0-1	15-9	0-1
40	0 10-0	0 10-0	0 09-5	4-0	0-0	10-0	0-1	16-0	0-1
41	0 10-3	0 10-3	0 09-8	4-1	0-0	10-1	0-1	16-1	0-1
42	0 10-5	0 10-5	0 10-0	4-2	0-0	10-2	0-1	16-2	0-1
43	0 10-8	0 10-8	0 10-3	4-3	0-0	10-3	0-1	16-3	0-1
44	0 11-0	0 11-0	0 10-5	4-4	0-0	10-4	0-1	16-4	0-1
45	0 11-3	0 11-3	0 10-7	4-5	0-0	10-5	0-1	16-5	0-1
46	0 11-5	0 11-5	0 11-0	4-6	0-0	10-6	0-1	16-6	0-1
47	0 11-8	0 11-8	0 11-2	4-7	0-0	10-7	0-1	16-7	0-1
48	0 12-0	0 12-0	0 11-5	4-8	0-0	10-8	0-1	16-8	0-1
49	0 12-3	0 12-3	0 11-7	4-9	0-0	10-9	0-1	16-9	0-1
50	0 12-5	0 12-5	0 11-9	5-0	0-0	11-0	0-1	17-0	0-1
51	0 12-8	0 12-8	0 12-2	5-1	0-0	11-1	0-1	17-1	0-1
52	0 13-0	0 13-0	0 12-4	5-2	0-0	11-2	0-1	17-2	0-1
53	0 13-3	0 13-3	0 12-6	5-3	0-0	11-3	0-1	17-3	0-1
54	0 13-5	0 13-5	0 12-9	5-4	0-0	11-4	0-1	17-4	0-1
55	0 13-8	0 13-8	0 13-1	5-5	0-0	11-5	0-1	17-5	0-1
56	0 14-0	0 14-0	0 13-4	5-6	0-0	11-6	0-1	17-6	0-1
57	0 14-3	0 14-3	0 13-6	5-7	0-0	11-7	0-1	17-7	0-1
58	0 14-5	0 14-5	0 13-8	5-8	0-0	11-8	0-1	17-8	0-1
59	0 14-8	0 14-8	0 14-1	5-9	0-0	11-9	0-1	17-9	0-1
60	0 15-0	0 15-0	0 14-3	6-0	0-1	12-0	0-1	18-0	0-2

1	SOL PLANETAS	ARIES	LUNA	v		o		d	
				o	o	d	d	o	o
00	0 15-0	0 15-0	0 14-3	0-0	0-0	6-0	0-2	12-0	0-3
01	0 15-3	0 15-3	0 14-6	0-1	0-0	6-1	0-2	12-1	0-3
02	0 15-5	0 15-5	0 14-8	0-2	0-0	6-2	0-2	12-2	0-3
03	0 15-8	0 15-8	0 15-0	0-3	0-0	6-3	0-2	12-3	0-3
04	0 16-0	0 16-0	0 15-3	0-4	0-0	6-4	0-2	12-4	0-3
05	0 16-3	0 16-3	0 15-5	0-5	0-0	6-5	0-2	12-5	0-3
06	0 16-5	0 16-5	0 15-7	0-6	0-0	6-6	0-2	12-6	0-3
07	0 16-8	0 16-8	0 16-0	0-7	0-0	6-7	0-2	12-7	0-3
08	0 17-0	0 17-0	0 16-2	0-8	0-0	6-8	0-2	12-8	0-3
09	0 17-3	0 17-3	0 16-5	0-9	0-0	6-9	0-2	12-9	0-3
10	0 17-5	0 17-5	0 16-7	1-0	0-0	7-0	0-2	13-0	0-3
11	0 17-8	0 17-8	0 16-9	1-1	0-0	7-1	0-2	13-1	0-3
12	0 18-0	0 18-0	0 17-2	1-2	0-0	7-2	0-2	13-2	0-3
13	0 18-3	0 18-3	0 17-4	1-3	0-0	7-3	0-2	13-3	0-3
14	0 18-5	0 18-6	0 17-7	1-4	0-0	7-4	0-2	13-4	0-3
15	0 18-8	0 18-8	0 17-9	1-5	0-0	7-5	0-2	13-5	0-3
16	0 19-0	0 19-1	0 18-1	1-6	0-0	7-6	0-2	13-6	0-3
17	0 19-3	0 19-3	0 18-4	1-7	0-0	7-7	0-2	13-7	0-3
18	0 19-5	0 19-6	0 18-6	1-8	0-0	7-8	0-2	13-8	0-3
19	0 19-8	0 19-8	0 18-9	1-9	0-0	7-9	0-2	13-9	0-3
20	0 20-0	0 20-1	0 19-1	2-0	0-1	8-0	0-2	14-0	0-4
21	0 20-3	0 20-3	0 19-3	2-1	0-1	8-1	0-2	14-1	0-4
22	0 20-5	0 20-6	0 19-6	2-2	0-1	8-2	0-2	14-2	0-4
23	0 20-8	0 20-8	0 19-8	2-3	0-1	8-3	0-2	14-3	0-4
24	0 21-0	0 21-1	0 20-0	2-4	0-1	8-4	0-2	14-4	0-4
25	0 21-3	0 21-3	0 20-3	2-5	0-1	8-5	0-2	14-5	0-4
26	0 21-5	0 21-6	0 20-5	2-6	0-1	8-6	0-2	14-6	0-4
27	0 21-8	0 21-8	0 20-8	2-7	0-1	8-7	0-2	14-7	0-4
28	0 22-0	0 22-1	0 21-0	2-8	0-1	8-8	0-2	14-8	0-4
29	0 22-3	0 22-3	0 21-2	2-9	0-1	8-9	0-2	14-9	0-4
30	0 22-5	0 22-6	0 21-5	3-0	0-1	9-0	0-2	15-0	0-4
31	0 22-8	0 22-8	0 21-7	3-1	0-1	9-1	0-2	15-1	0-4
32	0 23-0	0 23-1	0 22-0	3-2	0-1	9-2	0-2	15-2	0-4
33	0 23-3	0 23-3	0 22-2	3-3	0-1	9-3	0-2	15-3	0-4
34	0 23-5	0 23-6	0 22-4	3-4	0-1	9-4	0-2	15-4	0-4
35	0 23-8	0 23-8	0 22-7	3-5	0-1	9-5	0-2	15-5	0-4
36	0 24-0	0 24-1	0 22-9	3-6	0-1	9-6	0-2	15-6	0-4
37	0 24-3	0 24-3	0 23-1	3-7	0-1	9-7	0-2	15-7	0-4
38	0 24-5	0 24-6	0 23-4	3-8	0-1	9-8	0-2	15-8	0-4
39	0 24-8	0 24-8	0 23-6	3-9	0-1	9-9	0-2	15-9	0-4
40	0 25-0	0 25-1	0 23-9	4-0	0-1	10-0	0-3	16-0	0-4
41	0 25-3	0 25-3	0 24-1	4-1	0-1	10-1	0-3	16-1	0-4
42	0 25-5	0 25-6	0 24-3	4-2	0-1	10-2	0-3	16-2	0-4
43	0 25-8	0 25-8	0 24-6	4-3	0-1	10-3	0-3	16-3	0-4
44	0 26-0	0 26-1	0 24-8	4-4	0-1	10-4	0-3	16-4	0-4
45	0 26-3	0 26-3	0 25-1	4-5	0-1	10-5	0-3	16-5	0-4
46	0 26-5	0 26-6	0 25-3	4-6	0-1	10-6	0-3	16-6	0-4
47	0 26-8	0 26-8	0 25-5	4-7	0-1	10-7	0-3	16-7	0-4
48	0 27-0	0 27-1	0 25-8	4-8	0-1	10-8	0-3	16-8	0-4
49	0 27-3	0 27-3	0 26-0	4-9	0-1	10-9	0-3	16-9	0-4
50	0 27-5	0 27-6	0 26-2	5-0	0-1	11-0	0-3	17-0	0-4
51	0 27-8	0 27-8	0 26-5	5-1	0-1	11-1	0-3	17-1	0-4
52	0 28-0	0 28-1	0 26-7	5-2	0-1	11-2	0-3	17-2	0-4
53	0 28-3	0 28-3	0 27-0	5-3	0-1	11-3	0-3	17-3	0-4
54	0 28-5	0 28-6	0 27-2	5-4	0-1	11-4	0-3	17-4	0-4
55	0 28-8	0 28-8	0 27-4	5-5	0-1	11-5	0-3	17-5	0-4
56	0 29-0	0 29-1	0 27-7	5-6	0-1	11-6	0-3	17-6	0-4
57	0 29-3	0 29-3	0 27-9	5-7	0-1	11-7	0-3	17-7	0-4
58	0 29-5	0 29-6	0 28-2	5-8	0-1	11-8	0-3	17-8	0-4
59	0 29-8	0 29-8	0 28-4	5-9	0-1	11-9	0-3	17-9	0-4
60	0 30-0	0 30-1	0 28-6	6-0	0-2	12-0	0-3	18-0	0-5



2 <sup>m</sup>	SOL PLANETAS			v o d	Corr <sup>n</sup>		v o d	Corr <sup>n</sup>		v o d	Corr <sup>n</sup>	
	ARIES	LUNA										
00	0 30-0	0 30-1	0 28-6	0-0	0-0	6-0	0-3	12-0	0-5			
01	0 30-3	0 30-3	0 28-9	0-1	0-0	6-1	0-3	12-1	0-5			
02	0 30-5	0 30-6	0 29-1	0-2	0-0	6-2	0-3	12-2	0-5			
03	0 30-8	0 30-8	0 29-3	0-3	0-0	6-3	0-3	12-3	0-5			
04	0 31-0	0 31-1	0 29-6	0-4	0-0	6-4	0-3	12-4	0-5			
05	0 31-3	0 31-3	0 29-8	0-5	0-0	6-5	0-3	12-5	0-5			
06	0 31-5	0 31-6	0 30-1	0-6	0-0	6-6	0-3	12-6	0-5			
07	0 31-8	0 31-8	0 30-3	0-7	0-0	6-7	0-3	12-7	0-5			
08	0 32-0	0 32-1	0 30-5	0-8	0-0	6-8	0-3	12-8	0-5			
09	0 32-3	0 32-3	0 30-8	0-9	0-0	6-9	0-3	12-9	0-5			
10	0 32-5	0 32-6	0 31-0	1-0	0-0	7-0	0-3	13-0	0-5			
11	0 32-8	0 32-8	0 31-3	1-1	0-0	7-1	0-3	13-1	0-5			
12	0 33-0	0 33-1	0 31-5	1-2	0-1	7-2	0-3	13-2	0-6			
13	0 33-3	0 33-3	0 31-7	1-3	0-1	7-3	0-3	13-3	0-6			
14	0 33-5	0 33-6	0 32-0	1-4	0-1	7-4	0-3	13-4	0-6			
15	0 33-8	0 33-8	0 32-2	1-5	0-1	7-5	0-3	13-5	0-6			
16	0 34-0	0 34-1	0 32-5	1-6	0-1	7-6	0-3	13-6	0-6			
17	0 34-3	0 34-3	0 32-7	1-7	0-1	7-7	0-3	13-7	0-6			
18	0 34-5	0 34-6	0 32-9	1-8	0-1	7-8	0-3	13-8	0-6			
19	0 34-8	0 34-8	0 33-2	1-9	0-1	7-9	0-3	13-9	0-6			
20	0 35-0	0 35-1	0 33-4	2-0	0-1	8-0	0-3	14-0	0-6			
21	0 35-3	0 35-3	0 33-6	2-1	0-1	8-1	0-3	14-1	0-6			
22	0 35-5	0 35-6	0 33-9	2-2	0-1	8-2	0-3	14-2	0-6			
23	0 35-8	0 35-8	0 34-1	2-3	0-1	8-3	0-3	14-3	0-6			
24	0 36-0	0 36-1	0 34-4	2-4	0-1	8-4	0-4	14-4	0-6			
25	0 36-3	0 36-3	0 34-6	2-5	0-1	8-5	0-4	14-5	0-6			
26	0 36-5	0 36-6	0 34-8	2-6	0-1	8-6	0-4	14-6	0-6			
27	0 36-8	0 36-9	0 35-1	2-7	0-1	8-7	0-4	14-7	0-6			
28	0 37-0	0 37-1	0 35-3	2-8	0-1	8-8	0-4	14-8	0-6			
29	0 37-3	0 37-4	0 35-6	2-9	0-1	8-9	0-4	14-9	0-6			
30	0 37-5	0 37-6	0 35-8	3-0	0-1	9-0	0-4	15-0	0-6			
31	0 37-8	0 37-9	0 36-0	3-1	0-1	9-1	0-4	15-1	0-6			
32	0 38-0	0 38-1	0 36-3	3-2	0-1	9-2	0-4	15-2	0-6			
33	0 38-3	0 38-4	0 36-5	3-3	0-1	9-3	0-4	15-3	0-6			
34	0 38-5	0 38-6	0 36-7	3-4	0-1	9-4	0-4	15-4	0-6			
35	0 38-8	0 38-9	0 37-0	3-5	0-1	9-5	0-4	15-5	0-6			
36	0 39-0	0 39-1	0 37-2	3-6	0-2	9-6	0-4	15-6	0-7			
37	0 39-3	0 39-4	0 37-5	3-7	0-2	9-7	0-4	15-7	0-7			
38	0 39-5	0 39-6	0 37-7	3-8	0-2	9-8	0-4	15-8	0-7			
39	0 39-8	0 39-9	0 37-9	3-9	0-2	9-9	0-4	15-9	0-7			
40	0 40-0	0 40-1	0 38-2	4-0	0-2	10-0	0-4	16-0	0-7			
41	0 40-3	0 40-4	0 38-4	4-1	0-2	10-1	0-4	16-1	0-7			
42	0 40-5	0 40-6	0 38-7	4-2	0-2	10-2	0-4	16-2	0-7			
43	0 40-8	0 40-9	0 38-9	4-3	0-2	10-3	0-4	16-3	0-7			
44	0 41-0	0 41-1	0 39-1	4-4	0-2	10-4	0-4	16-4	0-7			
45	0 41-3	0 41-4	0 39-4	4-5	0-2	10-5	0-4	16-5	0-7			
46	0 41-5	0 41-6	0 39-6	4-6	0-2	10-6	0-4	16-6	0-7			
47	0 41-8	0 41-9	0 39-8	4-7	0-2	10-7	0-4	16-7	0-7			
48	0 42-0	0 42-1	0 40-1	4-8	0-2	10-8	0-5	16-8	0-7			
49	0 42-3	0 42-4	0 40-3	4-9	0-2	10-9	0-5	16-9	0-7			
50	0 42-5	0 42-6	0 40-6	5-0	0-2	11-0	0-5	17-0	0-7			
51	0 42-8	0 42-9	0 40-8	5-1	0-2	11-1	0-5	17-1	0-7			
52	0 43-0	0 43-1	0 41-0	5-2	0-2	11-2	0-5	17-2	0-7			
53	0 43-3	0 43-4	0 41-3	5-3	0-2	11-3	0-5	17-3	0-7			
54	0 43-5	0 43-6	0 41-5	5-4	0-2	11-4	0-5	17-4	0-7			
55	0 43-8	0 43-9	0 41-8	5-5	0-2	11-5	0-5	17-5	0-7			
56	0 44-0	0 44-1	0 42-0	5-6	0-2	11-6	0-5	17-6	0-7			
57	0 44-3	0 44-4	0 42-2	5-7	0-2	11-7	0-5	17-7	0-7			
58	0 44-5	0 44-6	0 42-5	5-8	0-2	11-8	0-5	17-8	0-7			
59	0 44-8	0 44-9	0 42-7	5-9	0-2	11-9	0-5	17-9	0-7			
60	0 45-0	0 45-1	0 43-0	6-0	0-3	12-0	0-5	18-0	0-8			

3 <sup>m</sup>	SOL PLANETAS			v o d	Corr <sup>n</sup>		v o d	Corr <sup>n</sup>		v o d	Corr <sup>n</sup>	
	ARIES	LUNA										
00	0 45-0	0 45-1	0 43-0	0-0	0-0	6-0	0-4	12-0	0-7			
01	0 45-3	0 45-4	0 43-2	0-1	0-0	6-1	0-4	12-1	0-7			
02	0 45-5	0 45-6	0 43-4	0-2	0-0	6-2	0-4	12-2	0-7			
03	0 45-8	0 45-9	0 43-7	0-3	0-0	6-3	0-4	12-3	0-7			
04	0 46-0	0 46-1	0 43-9	0-4	0-0	6-4	0-4	12-4	0-7			
05	0 46-3	0 46-4	0 44-1	0-5	0-0	6-5	0-4	12-5	0-7			
06	0 46-5	0 46-6	0 44-4	0-6	0-0	6-6	0-4	12-6	0-7			
07	0 46-8	0 46-9	0 44-6	0-7	0-0	6-7	0-4	12-7	0-7			
08	0 47-0	0 47-1	0 44-9	0-8	0-0	6-8	0-4	12-8	0-7			
09	0 47-3	0 47-4	0 45-1	0-9	0-1	6-9	0-4	12-9	0-8			
10	0 47-5	0 47-6	0 45-3	1-0	0-1	7-0	0-4	13-0	0-8			
11	0 47-8	0 47-9	0 45-6	1-1	0-1	7-1	0-4	13-1	0-8			
12	0 48-0	0 48-1	0 45-8	1-2	0-1	7-2	0-4	13-2	0-8			
13	0 48-3	0 48-4	0 46-1	1-3	0-1	7-3	0-4	13-3	0-8			
14	0 48-5	0 48-6	0 46-3	1-4	0-1	7-4	0-4	13-4	0-8			
15	0 48-8	0 48-9	0 46-5	1-5	0-1	7-5	0-4	13-5	0-8			
16	0 49-0	0 49-1	0 46-8	1-6	0-1	7-6	0-4	13-6	0-8			
17	0 49-3	0 49-4	0 47-0	1-7	0-1	7-7	0-4	13-7	0-8			
18	0 49-5	0 49-6	0 47-2	1-8	0-1	7-8	0-5	13-8	0-8			
19	0 49-8	0 49-9	0 47-5	1-9	0-1	7-9	0-5	13-9	0-8			
20	0 50-0	0 50-1	0 47-7	2-0	0-1	8-0	0-5	14-0	0-8			
21	0 50-3	0 50-4	0 48-0	2-1	0-1	8-1	0-5	14-1	0-8			
22	0 50-5	0 50-6	0 48-2	2-2	0-1	8-2	0-5	14-2	0-8			
23	0 50-8	0 50-9	0 48-4	2-3	0-1	8-3	0-5	14-3	0-8			
24	0 51-0	0 51-1	0 48-7	2-4	0-1	8-4	0-5	14-4	0-8			
25	0 51-3	0 51-4	0 48-9	2-5	0-1	8-5	0-5	14-5	0-8			
26	0 51-5	0 51-6	0 49-2	2-6	0-2	8-6	0-5	14-6	0-9			
27	0 51-8	0 51-9	0 49-4	2-7	0-2	8-7	0-5	14-7	0-9			
28	0 52-0	0 52-1	0 49-6	2-8	0-2	8-8	0-5	14-8	0-9			
29	0 52-3	0 52-4	0 49-9	2-9	0-2	8-9	0-5	14-9	0-9			
30	0 52-5	0 52-6	0 50-1	3-0	0-2	9-0	0-5	15-0	0-9			
31	0 52-8	0 52-9	0 50-3	3-1	0-2	9-1	0-5	15-1	0-9			
32	0 53-0	0 53-1	0 50-6	3-2	0-2	9-2	0-5	15-2	0-9			
33	0 53-3	0 53-4	0 50-8	3-3	0-2	9-3	0-5	15-3	0-9			
34	0 53-5	0 53-6	0 51-1	3-4	0-2	9-4	0-5	15-4	0-9			
35	0 53-8	0 53-9	0 51-3	3-5	0-2	9-5	0-6	15-5	0-9			
36	0 54-0	0 54-1	0 51-5	3-6	0-2	9-6	0-6	15-6	0-9			
37	0 54-3	0 54-4	0 51-8	3-7	0-2	9-7	0-6	15-7	0-9			
38	0 54-5	0 54-6	0 52-0	3-8	0-2	9-8	0-6	15-8	0-9			
39	0 54-8	0 54-9	0 52-3	3-9	0-2	9-9	0-6	15-9	0-9			
40	0 55-0	0 55-2	0 52-5	4-0	0-2	10-0	0-6	16-0	0-9			
41	0 55-3	0 55-4	0 52-7	4-1	0-2	10-1	0-6	16-1	0-9			
42	0 55-5	0 55-7	0 53-0	4-2	0-2	10-2	0-6	16-2	0-9			
43	0 55-8	0 55-9	0 53-2	4-3	0-3	10-3	0-6	16-3	1-0			
44	0 56-0	0 56-2	0 53-4	4-4	0-3	10-4	0-6	16-4	1-0			
45	0 56-3	0 56-4	0 53-7	4-5	0-3	10-5	0-6	16-5	1-0			
46	0 56-5	0 56-7	0 53-9	4-6	0-3	10-6	0-6	16-6	1-0			
47	0 56-8	0 56-9	0 54-2	4-7	0-3	10-7	0-6	16-7	1-0			
48	0 57-0	0 57-2	0 54-4	4-8	0-3	10-8	0-6	16-8	1-0			
49	0 57-3	0 57-4	0 54-6	4-9	0-3	10-9	0-6	16-9	1-0			
50												



8 <sup>m</sup>	SOL		ARIES	LUNA		v		v		v	
	o	PLANETAS		o	PLANETAS	o	Corr <sup>n</sup>	o	Corr <sup>n</sup>	o	Corr <sup>n</sup>
00	2 00-0	2 00-3	1 54-5	0-0	0-0	6-0	0-9	12-0	1-7		
01	2 00-3	2 00-6	1 54-8	0-1	0-0	6-1	0-9	12-1	1-7		
02	2 00-5	2 00-8	1 55-0	0-2	0-0	6-2	0-9	12-2	1-7		
03	2 00-8	2 01-1	1 55-2	0-3	0-0	6-3	0-9	12-3	1-7		
04	2 01-0	2 01-3	1 55-5	0-4	0-1	6-4	0-9	12-4	1-8		
05	2 01-3	2 01-6	1 55-7	0-5	0-1	6-5	0-9	12-5	1-8		
06	2 01-5	2 01-8	1 56-0	0-6	0-1	6-6	0-9	12-6	1-8		
07	2 01-8	2 02-1	1 56-2	0-7	0-1	6-7	0-9	12-7	1-8		
08	2 02-0	2 02-3	1 56-4	0-8	0-1	6-8	1-0	12-8	1-8		
09	2 02-3	2 02-6	1 56-7	0-9	0-1	6-9	1-0	12-9	1-8		
10	2 02-5	2 02-8	1 56-9	1-0	0-1	7-0	1-0	13-0	1-8		
11	2 02-8	2 03-1	1 57-2	1-1	0-2	7-1	1-0	13-1	1-9		
12	2 03-0	2 03-3	1 57-4	1-2	0-2	7-2	1-0	13-2	1-9		
13	2 03-3	2 03-6	1 57-6	1-3	0-2	7-3	1-0	13-3	1-9		
14	2 03-5	2 03-8	1 57-9	1-4	0-2	7-4	1-0	13-4	1-9		
15	2 03-8	2 04-1	1 58-1	1-5	0-2	7-5	1-1	13-5	1-9		
16	2 04-0	2 04-3	1 58-4	1-6	0-2	7-6	1-1	13-6	1-9		
17	2 04-3	2 04-6	1 58-6	1-7	0-2	7-7	1-1	13-7	1-9		
18	2 04-5	2 04-8	1 58-8	1-8	0-3	7-8	1-1	13-8	2-0		
19	2 04-8	2 05-1	1 59-1	1-9	0-3	7-9	1-1	13-9	2-0		
20	2 05-0	2 05-3	1 59-3	2-0	0-3	8-0	1-1	14-0	2-0		
21	2 05-3	2 05-6	1 59-5	2-1	0-3	8-1	1-1	14-1	2-0		
22	2 05-5	2 05-8	1 59-8	2-2	0-3	8-2	1-2	14-2	2-0		
23	2 05-8	2 06-1	2 00-0	2-3	0-3	8-3	1-2	14-3	2-0		
24	2 06-0	2 06-3	2 00-3	2-4	0-3	8-4	1-2	14-4	2-0		
25	2 06-3	2 06-6	2 00-5	2-5	0-4	8-5	1-2	14-5	2-1		
26	2 06-5	2 06-8	2 00-7	2-6	0-4	8-6	1-2	14-6	2-1		
27	2 06-8	2 07-1	2 01-0	2-7	0-4	8-7	1-2	14-7	2-1		
28	2 07-0	2 07-3	2 01-2	2-8	0-4	8-8	1-2	14-8	2-1		
29	2 07-3	2 07-6	2 01-5	2-9	0-4	8-9	1-3	14-9	2-1		
30	2 07-5	2 07-8	2 01-7	3-0	0-4	9-0	1-3	15-0	2-1		
31	2 07-8	2 08-1	2 01-9	3-1	0-4	9-1	1-3	15-1	2-1		
32	2 08-0	2 08-4	2 02-2	3-2	0-5	9-2	1-3	15-2	2-2		
33	2 08-3	2 08-6	2 02-4	3-3	0-5	9-3	1-3	15-3	2-2		
34	2 08-5	2 08-9	2 02-6	3-4	0-5	9-4	1-3	15-4	2-2		
35	2 08-8	2 09-1	2 02-9	3-5	0-5	9-5	1-3	15-5	2-2		
36	2 09-0	2 09-4	2 03-1	3-6	0-5	9-6	1-4	15-6	2-2		
37	2 09-3	2 09-6	2 03-4	3-7	0-5	9-7	1-4	15-7	2-2		
38	2 09-5	2 09-9	2 03-6	3-8	0-5	9-8	1-4	15-8	2-2		
39	2 09-8	2 10-1	2 03-8	3-9	0-6	9-9	1-4	15-9	2-3		
40	2 10-0	2 10-4	2 04-1	4-0	0-6	10-0	1-4	16-0	2-3		
41	2 10-3	2 10-6	2 04-3	4-1	0-6	10-1	1-4	16-1	2-3		
42	2 10-5	2 10-9	2 04-6	4-2	0-6	10-2	1-4	16-2	2-3		
43	2 10-8	2 11-1	2 04-8	4-3	0-6	10-3	1-5	16-3	2-3		
44	2 11-0	2 11-4	2 05-0	4-4	0-6	10-4	1-5	16-4	2-3		
45	2 11-3	2 11-6	2 05-3	4-5	0-6	10-5	1-5	16-5	2-3		
46	2 11-5	2 11-9	2 05-5	4-6	0-7	10-6	1-5	16-6	2-4		
47	2 11-8	2 12-1	2 05-7	4-7	0-7	10-7	1-5	16-7	2-4		
48	2 12-0	2 12-4	2 06-0	4-8	0-7	10-8	1-5	16-8	2-4		
49	2 12-3	2 12-6	2 06-2	4-9	0-7	10-9	1-5	16-9	2-4		
50	2 12-5	2 12-9	2 06-5	5-0	0-7	11-0	1-6	17-0	2-4		
51	2 12-8	2 13-1	2 06-7	5-1	0-7	11-1	1-6	17-1	2-4		
52	2 13-0	2 13-4	2 06-9	5-2	0-7	11-2	1-6	17-2	2-4		
53	2 13-3	2 13-6	2 07-2	5-3	0-8	11-3	1-6	17-3	2-5		
54	2 13-5	2 13-9	2 07-4	5-4	0-8	11-4	1-6	17-4	2-5		
55	2 13-8	2 14-1	2 07-7	5-5	0-8	11-5	1-6	17-5	2-5		
56	2 14-0	2 14-4	2 07-9	5-6	0-8	11-6	1-6	17-6	2-5		
57	2 14-3	2 14-6	2 08-1	5-7	0-8	11-7	1-7	17-7	2-5		
58	2 14-5	2 14-9	2 08-4	5-8	0-8	11-8	1-7	17-8	2-5		
59	2 14-8	2 15-1	2 08-6	5-9	0-8	11-9	1-7	17-9	2-5		
60	2 15-0	2 15-4	2 08-9	6-0	0-9	12-0	1-7	18-0	2-6		



10 <sup>m</sup>	SOL PLANETAS			v o d	Corr <sup>n</sup>		v o d	Corr <sup>n</sup>		v o d	Corr <sup>n</sup>	
	o	'	o		'	'		o	'		'	o
00	2 30-0		2 30-4	2 23-2	0-0	0-0	6-0	1-1	12-0	2-1		
01	2 30-3		2 30-7	2 23-4	0-1	0-0	6-1	1-1	12-1	2-1		
02	2 30-5		2 30-9	2 23-6	0-2	0-0	6-2	1-1	12-2	2-1		
03	2 30-8		2 31-2	2 23-9	0-3	0-1	6-3	1-1	12-3	2-2		
04	2 31-0		2 31-4	2 24-1	0-4	0-1	6-4	1-1	12-4	2-2		
05	2 31-3		2 31-7	2 24-4	0-5	0-1	6-5	1-1	12-5	2-2		
06	2 31-5		2 31-9	2 24-6	0-6	0-1	6-6	1-2	12-6	2-2		
07	2 31-8		2 32-2	2 24-8	0-7	0-1	6-7	1-2	12-7	2-2		
08	2 32-0		2 32-4	2 25-1	0-8	0-1	6-8	1-2	12-8	2-2		
09	2 32-3		2 32-7	2 25-3	0-9	0-2	6-9	1-2	12-9	2-3		
10	2 32-5		2 32-9	2 25-6	1-0	0-2	7-0	1-2	13-0	2-3		
11	2 32-8		2 33-2	2 25-8	1-1	0-2	7-1	1-2	13-1	2-3		
12	2 33-0		2 33-4	2 26-0	1-2	0-2	7-2	1-3	13-2	2-3		
13	2 33-3		2 33-7	2 26-3	1-3	0-2	7-3	1-3	13-3	2-3		
14	2 33-5		2 33-9	2 26-5	1-4	0-2	7-4	1-3	13-4	2-3		
15	2 33-8		2 34-2	2 26-7	1-5	0-3	7-5	1-3	13-5	2-4		
16	2 34-0		2 34-4	2 27-0	1-6	0-3	7-6	1-3	13-6	2-4		
17	2 34-3		2 34-7	2 27-2	1-7	0-3	7-7	1-3	13-7	2-4		
18	2 34-5		2 34-9	2 27-5	1-8	0-3	7-8	1-4	13-8	2-4		
19	2 34-8		2 35-2	2 27-7	1-9	0-3	7-9	1-4	13-9	2-4		
20	2 35-0		2 35-4	2 27-9	2-0	0-4	8-0	1-4	14-0	2-5		
21	2 35-3		2 35-7	2 28-2	2-1	0-4	8-1	1-4	14-1	2-5		
22	2 35-5		2 35-9	2 28-4	2-2	0-4	8-2	1-4	14-2	2-5		
23	2 35-8		2 36-2	2 28-7	2-3	0-4	8-3	1-5	14-3	2-5		
24	2 36-0		2 36-4	2 28-9	2-4	0-4	8-4	1-5	14-4	2-5		
25	2 36-3		2 36-7	2 29-1	2-5	0-4	8-5	1-5	14-5	2-5		
26	2 36-5		2 36-9	2 29-4	2-6	0-5	8-6	1-5	14-6	2-6		
27	2 36-8		2 37-2	2 29-6	2-7	0-5	8-7	1-5	14-7	2-6		
28	2 37-0		2 37-4	2 29-8	2-8	0-5	8-8	1-5	14-8	2-6		
29	2 37-3		2 37-7	2 30-1	2-9	0-5	8-9	1-6	14-9	2-6		
30	2 37-5		2 37-9	2 30-3	3-0	0-5	9-0	1-6	15-0	2-6		
31	2 37-8		2 38-2	2 30-6	3-1	0-5	9-1	1-6	15-1	2-6		
32	2 38-0		2 38-4	2 30-8	3-2	0-6	9-2	1-6	15-2	2-7		
33	2 38-3		2 38-7	2 31-0	3-3	0-6	9-3	1-6	15-3	2-7		
34	2 38-5		2 38-9	2 31-3	3-4	0-6	9-4	1-6	15-4	2-7		
35	2 38-8		2 39-2	2 31-5	3-5	0-6	9-5	1-7	15-5	2-7		
36	2 39-0		2 39-4	2 31-8	3-6	0-6	9-6	1-7	15-6	2-7		
37	2 39-3		2 39-7	2 32-0	3-7	0-6	9-7	1-7	15-7	2-7		
38	2 39-5		2 39-9	2 32-2	3-8	0-7	9-8	1-7	15-8	2-8		
39	2 39-8		2 40-2	2 32-5	3-9	0-7	9-9	1-7	15-9	2-8		
40	2 40-0		2 40-4	2 32-7	4-0	0-7	10-0	1-8	16-0	2-8		
41	2 40-3		2 40-7	2 32-9	4-1	0-7	10-1	1-8	16-1	2-8		
42	2 40-5		2 40-9	2 33-2	4-2	0-7	10-2	1-8	16-2	2-8		
43	2 40-8		2 41-2	2 33-4	4-3	0-8	10-3	1-8	16-3	2-9		
44	2 41-0		2 41-4	2 33-7	4-4	0-8	10-4	1-8	16-4	2-9		
45	2 41-3		2 41-7	2 33-9	4-5	0-8	10-5	1-8	16-5	2-9		
46	2 41-5		2 41-9	2 34-1	4-6	0-8	10-6	1-9	16-6	2-9		
47	2 41-8		2 42-2	2 34-4	4-7	0-8	10-7	1-9	16-7	2-9		
48	2 42-0		2 42-4	2 34-6	4-8	0-8	10-8	1-9	16-8	2-9		
49	2 42-3		2 42-7	2 34-9	4-9	0-9	10-9	1-9	16-9	3-0		
50	2 42-5		2 42-9	2 35-1	5-0	0-9	11-0	1-9	17-0	3-0		
51	2 42-8		2 43-2	2 35-3	5-1	0-9	11-1	1-9	17-1	3-0		
52	2 43-0		2 43-4	2 35-6	5-2	0-9	11-2	2-0	17-2	3-0		
53	2 43-3		2 43-7	2 35-8	5-3	0-9	11-3	2-0	17-3	3-0		
54	2 43-5		2 43-9	2 36-1	5-4	0-9	11-4	2-0	17-4	3-0		
55	2 43-8		2 44-2	2 36-3	5-5	1-0	11-5	2-0	17-5	3-1		
56	2 44-0		2 44-4	2 36-5	5-6	1-0	11-6	2-0	17-6	3-1		
57	2 44-3		2 44-7	2 36-8	5-7	1-0	11-7	2-0	17-7	3-1		
58	2 44-5		2 45-0	2 37-0	5-8	1-0	11-8	2-1	17-8	3-1		
59	2 44-8		2 45-2	2 37-2	5-9	1-0	11-9	2-1	17-9	3-1		
60	2 45-0		2 45-5	2 37-5	6-0	1-1	12-0	2-1	18-0	3-2		

11 <sup>m</sup>	SOL PLANETAS			v o d	Corr <sup>n</sup>		v o d	Corr <sup>n</sup>		v o d	Corr <sup>n</sup>	
	o	'	o		'	'		o	'		'	o
00	2 45-0		2 45-5	2 37-5	0-0	0-0	6-0	1-2	12-0	2-3		
01	2 45-3		2 45-7	2 37-7	0-1	0-0	6-1	1-2	12-1	2-3		
02	2 45-5		2 46-0	2 38-0	0-2	0-0	6-2	1-2	12-2	2-3		
03	2 45-8		2 46-2	2 38-2	0-3	0-1	6-3	1-2	12-3	2-4		
04	2 46-0		2 46-5	2 38-4	0-4	0-1	6-4	1-2	12-4	2-4		
05	2 46-3		2 46-7	2 38-7	0-5	0-1	6-5	1-2	12-5	2-4		
06	2 46-5		2 47-0	2 38-9	0-6	0-1	6-6	1-3	12-6	2-4		
07	2 46-8		2 47-2	2 39-2	0-7	0-1	6-7	1-3	12-7	2-4		
08	2 47-0		2 47-5	2 39-4	0-8	0-2	6-8	1-3	12-8	2-5		
09	2 47-3		2 47-7	2 39-6	0-9	0-2	6-9	1-3	12-9	2-5		
10	2 47-5		2 48-0	2 39-9	1-0	0-2	7-0	1-3	13-0	2-5		
11	2 47-8		2 48-2	2 40-1	1-1	0-2	7-1	1-4	13-1	2-5		
12	2 48-0		2 48-5	2 40-3	1-2	0-2	7-2	1-4	13-2	2-5		
13	2 48-3		2 48-7	2 40-6	1-3	0-2	7-3	1-4	13-3	2-5		
14	2 48-5		2 49-0	2 40-8	1-4	0-3	7-4	1-4	13-4	2-6		
15	2 48-8		2 49-2	2 41-1	1-5	0-3	7-5	1-4	13-5	2-6		
16	2 49-0		2 49-5	2 41-3	1-6	0-3	7-6	1-5	13-6	2-6		
17	2 49-3		2 49-7	2 41-5	1-7	0-3	7-7	1-5	13-7	2-6		
18	2 49-5		2 50-0	2 41-8	1-8	0-3	7-8	1-5	13-8	2-6		
19	2 49-8		2 50-2	2 42-0	1-9	0-4	7-9	1-5	13-9	2-7		
20	2 50-0		2 50-5	2 42-3	2-0	0-4	8-0	1-5	14-0	2-7		
21	2 50-3		2 50-7	2 42-5	2-1	0-4	8-1	1-6	14-1	2-7		
22	2 50-5		2 51-0	2 42-7	2-2	0-4	8-2	1-6	14-2	2-7		
23	2 50-8		2 51-2	2 43-0	2-3	0-4	8-3	1-6	14-3	2-7		
24	2 51-0		2 51-5	2 43-2	2-4	0-5	8-4	1-6	14-4	2-8		
25	2 51-3		2 51-7	2 43-4	2-5	0-5	8-5	1-6	14-5	2-8		
26	2 51-5		2 52-0	2 43-7	2-6	0-5	8-6	1-6	14-6	2-8		
27	2 51-8		2 52-2	2 43-9	2-7	0-5	8-7	1-7	14-7	2-8		
28	2 52-0		2 52-5	2 44-2	2-8	0-5	8-8	1-7	14-8	2-8		
29	2 52-3		2 52-7	2 44-4	2-9	0-6	8-9	1-7	14-9	2-9		
30	2 52-5		2 53-0	2 44-6	3-0	0-6	9-0	1-7	15-0	2-9		
31	2 52-8		2 53-2	2 44-9	3-1	0-6	9-1	1-7	15-1	2-9		
32	2 53-0		2 53-5	2 45-1	3-2	0-6	9-2	1-8	15-2	2-9		
33	2 53-3		2 53-7	2 45-4	3-3	0-6	9-3	1-8	15-3	2-9		
34	2 53-5		2 54-0	2 45-6	3-4	0-7	9-4	1-8	15-4	3-0		
35	2 53-8		2 54-2	2 45-8	3-5	0-7	9-5	1-8	15-5	3-0		
36	2 54-0		2 54-5	2 46-1	3-6	0-7	9-6	1-8	15-6	3-0		
37	2 54-3		2 54-7	2 46-3	3-7	0-7	9-7	1-9	15-7	3-0		
38	2 54-5		2 55-0	2 46-6	3-8	0-7	9-8	1-9	15-8	3-0		
39	2 54-8		2 55-2	2 46-8	3-9	0-7	9-9	1-9	15-9	3-0		
40	2 55-0		2 55-5	2 47-0	4-0	0-8	10-0	1-9	16-0	3-1		
41	2 55-3		2 55-7	2 47-3	4-1	0-8	10-1	1-9	16-1	3-1		
42	2 55-5		2 56-0	2 47-5	4-2	0-8	10-2	2-0	16-2	3-1		
43	2 55-8		2 56-2	2 47-7	4-3	0-8	10-3	2-0	16-3	3-1		
44	2 56-0		2 56-5	2 48-0	4-4	0-8	10-4	2-0	16-4	3-1		
45	2 56-3		2 56-7	2 48-2	4-5	0-9	10-5	2-0	16-5	3-2		
46	2 56-5		2 57-0	2 48-5	4-6	0-9	10-6	2-0	16-6	3-2		
47	2 56-8		2 57-2	2 48-7	4-7	0-9	10-7	2-1	16-7	3-2		
48	2 57-0		2 57-5	2 48-9	4-8	0-9	10-8	2-1	16-8	3-2		
49	2 57-3		2 5									



12 <sup>m</sup>	SOL PLANETAS	ARIES	LUNA	v		o		d		Corr <sup>n</sup>	v	o		d		Corr <sup>n</sup>	v	o		d		Corr <sup>n</sup>
				'	''	'	''	'	''			'	''	'	''			'	''	'	''	
00	3 00-0	3 00-5	2 51-8	0-0	0-0	6-0	1-3	12-0	2-5		00	3 15-0	3 15-5	3 06-1	0-0	0-0	6-0	1-4	12-0	2-7		
01	3 00-3	3 00-7	2 52-0	0-1	0-0	6-1	1-3	12-1	2-5		01	3 15-3	3 15-8	3 06-4	0-1	0-0	6-1	1-4	12-1	2-7		
02	3 00-5	3 01-0	2 52-3	0-2	0-0	6-2	1-3	12-2	2-5		02	3 15-5	3 16-0	3 06-6	0-2	0-0	6-2	1-4	12-2	2-7		
03	3 00-8	3 01-2	2 52-5	0-3	0-1	6-3	1-3	12-3	2-6		03	3 15-8	3 16-3	3 06-8	0-3	0-1	6-3	1-4	12-3	2-8		
04	3 01-0	3 01-5	2 52-8	0-4	0-1	6-4	1-3	12-4	2-6		04	3 16-0	3 16-5	3 07-1	0-4	0-1	6-4	1-4	12-4	2-8		
05	3 01-3	3 01-7	2 53-0	0-5	0-1	6-5	1-4	12-5	2-6		05	3 16-3	3 16-8	3 07-3	0-5	0-1	6-5	1-5	12-5	2-8		
06	3 01-5	3 02-0	2 53-2	0-6	0-1	6-6	1-4	12-6	2-6		06	3 16-5	3 17-0	3 07-5	0-6	0-1	6-6	1-5	12-6	2-8		
07	3 01-8	3 02-2	2 53-5	0-7	0-1	6-7	1-4	12-7	2-6		07	3 16-8	3 17-3	3 07-8	0-7	0-2	6-7	1-5	12-7	2-9		
08	3 02-0	3 02-5	2 53-7	0-8	0-2	6-8	1-4	12-8	2-7		08	3 17-0	3 17-5	3 08-0	0-8	0-2	6-8	1-5	12-8	2-9		
09	3 02-3	3 02-7	2 53-9	0-9	0-2	6-9	1-4	12-9	2-7		09	3 17-3	3 17-8	3 08-3	0-9	0-2	6-9	1-6	12-9	2-9		
10	3 02-5	3 03-0	2 54-2	1-0	0-2	7-0	1-5	13-0	2-7		10	3 17-5	3 18-0	3 08-5	1-0	0-2	7-0	1-6	13-0	2-9		
11	3 02-8	3 03-3	2 54-4	1-1	0-2	7-1	1-5	13-1	2-7		11	3 17-8	3 18-3	3 08-7	1-1	0-2	7-1	1-6	13-1	2-9		
12	3 03-0	3 03-5	2 54-7	1-2	0-3	7-2	1-5	13-2	2-8		12	3 18-0	3 18-5	3 09-0	1-2	0-3	7-2	1-6	13-2	3-0		
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14	3 03-5	3 04-0	2 55-1	1-4	0-3	7-4	1-5	13-4	2-8		14	3 18-5	3 19-0	3 09-5	1-4	0-3	7-4	1-7	13-4	3-0		
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m 14	SOL PLANETAS	ARIES	LUNA	v		v		v		m 15	SOL PLANETAS	ARIES	LUNA	v		v		v	
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00	3 30-0	3 30-6	3 20-4	0-0	0-0	6-0	1-5	12-0	2-9	00	3 45-0	3 45-6	3 34-8	0-0	0-0	6-0	1-6	12-0	3-1
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46	3 41-5	3 42-1	3 31-4	4-6	1-1	10-6	2-6	16-6	4-0	46	3 56-5	3 57-1	3 45-7	4-6	1-2	10-6	2-7	16-6	4-3
47	3 41-8	3 42-4	3 31-6	4-7	1-1	10-7	2-6	16-7	4-0	47	3 56-8	3 57-4	3 46-0	4-7	1-2	10-7	2-8	16-7	4-3
48	3 42-0	3 42-6	3 31-9	4-8	1-2	10-8	2-6	16-8	4-1	48	3 57-0	3 57-6	3 46-2	4-8	1-2	10-8	2-8	16-8	4-3
49	3 42-3	3 42-9	3 32-1	4-9	1-2	10-9	2-6	16-9	4-1	49	3 57-3	3 57-9	3 46-4	4-9	1-3	10-9	2-8	16-9	4-4
50	3 42-5	3 43-1	3 32-4	5-0	1-2	11-0	2-7	17-0	4-1	50	3 57-5	3 58-2	3 46-7	5-0	1-3	11-0	2-8	17-0	4-4
51	3 42-8	3 43-4	3 32-6	5-1	1-2	11-1	2-7	17-1	4-1	51	3 57-8	3 58-4	3 46-9	5-1	1-3	11-1	2-9	17-1	4-4
52	3 43-0	3 43-6	3 32-8	5-2	1-3	11-2	2-7	17-2	4-2	52	3 58-0	3 58-7	3 47-2	5-2	1-3	11-2	2-9	17-2	4-4
53	3 43-3	3 43-9	3 33-1	5-3	1-3	11-3	2-7	17-3	4-2	53	3 58-3	3 58-9	3 47-4	5-3	1-4	11-3	2-9	17-3	4-5
54	3 43-5	3 44-1	3 33-3	5-4	1-3	11-4	2-8	17-4	4-2	54	3 58-5	3 59-2	3 47-6	5-4	1-4	11-4	2-9	17-4	4-5
55	3 43-8	3 44-4	3 33-6	5-5	1-3	11-5	2-8	17-5	4-2	55	3 58-8	3 59-4	3 47-9	5-5	1-4	11-5	3-0	17-5	4-5
56	3 44-0	3 44-6	3 33-8	5-6	1-4	11-6	2-8	17-6	4-3	56	3 59-0	3 59-7	3 48-1	5-6	1-4	11-6	3-0	17-6	4-5
57	3 44-3	3 44-9	3 34-0	5-7	1-4	11-7	2-8	17-7	4-3	57	3 59-3	3 59-9	3 48-4	5-7	1-5	11-7	3-0	17-7	4-6
58	3 44-5	3 45-1	3 34-3	5-8	1-4	11-8	2-9	17-8	4-3	58	3 59-5	4 00-2	3 48-6	5-8	1-5	11-8	3-0	17-8	4-6
59	3 44-8	3 45-4	3 34-5	5-9	1-4	11-9	2-9	17-9	4-3	59	3 59-8	4 00-4	3 48-8	5-9	1-5	11-9	3-1	17-9	4-6
60	3 45-0	3 45-6	3 34-8	6-0	1-5	12-0	2-9	18-0	4-4	60	4 00-0	4 00-7	3 49-1	6-0	1-6	12-0	3-1	18-0	4-7



16 <sup>m</sup>	SOL PLANETAS	ARIES	LUNA	v		o		d		Corr <sup>n</sup>	
				o	d	o	d	o	d	o	d
00	4 00-0	4 00-7	3 49-1	0-0	0-0	6-0	1-7	12-0	3-3		
01	4 00-3	4 00-9	3 49-3	0-1	0-0	6-1	1-7	12-1	3-3		
02	4 00-5	4 01-2	3 49-5	0-2	0-1	6-2	1-7	12-2	3-4		
03	4 00-8	4 01-4	3 49-8	0-3	0-1	6-3	1-7	12-3	3-4		
04	4 01-0	4 01-7	3 50-0	0-4	0-1	6-4	1-8	12-4	3-4		
05	4 01-3	4 01-9	3 50-3	0-5	0-1	6-5	1-8	12-5	3-4		
06	4 01-5	4 02-2	3 50-5	0-6	0-2	6-6	1-8	12-6	3-5		
07	4 01-8	4 02-4	3 50-7	0-7	0-2	6-7	1-8	12-7	3-5		
08	4 02-0	4 02-7	3 51-0	0-8	0-2	6-8	1-9	12-8	3-5		
09	4 02-3	4 02-9	3 51-2	0-9	0-2	6-9	1-9	12-9	3-5		
10	4 02-5	4 03-2	3 51-5	1-0	0-3	7-0	1-9	13-0	3-6		
11	4 02-8	4 03-4	3 51-7	1-1	0-3	7-1	2-0	13-1	3-6		
12	4 03-0	4 03-7	3 51-9	1-2	0-3	7-2	2-0	13-2	3-6		
13	4 03-3	4 03-9	3 52-2	1-3	0-4	7-3	2-0	13-3	3-7		
14	4 03-5	4 04-2	3 52-4	1-4	0-4	7-4	2-0	13-4	3-7		
15	4 03-8	4 04-4	3 52-6	1-5	0-4	7-5	2-1	13-5	3-7		
16	4 04-0	4 04-7	3 52-9	1-6	0-4	7-6	2-1	13-6	3-7		
17	4 04-3	4 04-9	3 53-1	1-7	0-5	7-7	2-1	13-7	3-8		
18	4 04-5	4 05-2	3 53-4	1-8	0-5	7-8	2-1	13-8	3-8		
19	4 04-8	4 05-4	3 53-6	1-9	0-5	7-9	2-2	13-9	3-8		
20	4 05-0	4 05-7	3 53-8	2-0	0-6	8-0	2-2	14-0	3-9		
21	4 05-3	4 05-9	3 54-1	2-1	0-6	8-1	2-2	14-1	3-9		
22	4 05-5	4 06-2	3 54-3	2-2	0-6	8-2	2-3	14-2	3-9		
23	4 05-8	4 06-4	3 54-6	2-3	0-6	8-3	2-3	14-3	3-9		
24	4 06-0	4 06-7	3 54-8	2-4	0-7	8-4	2-3	14-4	4-0		
25	4 06-3	4 06-9	3 55-0	2-5	0-7	8-5	2-3	14-5	4-0		
26	4 06-5	4 07-2	3 55-3	2-6	0-7	8-6	2-4	14-6	4-0		
27	4 06-8	4 07-4	3 55-5	2-7	0-7	8-7	2-4	14-7	4-0		
28	4 07-0	4 07-7	3 55-7	2-8	0-8	8-8	2-4	14-8	4-1		
29	4 07-3	4 07-9	3 56-0	2-9	0-8	8-9	2-4	14-9	4-1		
30	4 07-5	4 08-2	3 56-2	3-0	0-8	9-0	2-5	15-0	4-1		
31	4 07-8	4 08-4	3 56-5	3-1	0-9	9-1	2-5	15-1	4-2		
32	4 08-0	4 08-7	3 56-7	3-2	0-9	9-2	2-5	15-2	4-2		
33	4 08-3	4 08-9	3 56-9	3-3	0-9	9-3	2-6	15-3	4-2		
34	4 08-5	4 09-2	3 57-2	3-4	0-9	9-4	2-6	15-4	4-2		
35	4 08-8	4 09-4	3 57-4	3-5	1-0	9-5	2-6	15-5	4-3		
36	4 09-0	4 09-7	3 57-7	3-6	1-0	9-6	2-6	15-6	4-3		
37	4 09-3	4 09-9	3 57-9	3-7	1-0	9-7	2-7	15-7	4-3		
38	4 09-5	4 10-2	3 58-1	3-8	1-0	9-8	2-7	15-8	4-3		
39	4 09-8	4 10-4	3 58-4	3-9	1-1	9-9	2-7	15-9	4-4		
40	4 10-0	4 10-7	3 58-6	4-0	1-1	10-0	2-8	16-0	4-4		
41	4 10-3	4 10-9	3 58-8	4-1	1-1	10-1	2-8	16-1	4-4		
42	4 10-5	4 11-2	3 59-1	4-2	1-2	10-2	2-8	16-2	4-5		
43	4 10-8	4 11-4	3 59-3	4-3	1-2	10-3	2-8	16-3	4-5		
44	4 11-0	4 11-7	3 59-6	4-4	1-2	10-4	2-9	16-4	4-5		
45	4 11-3	4 11-9	3 59-8	4-5	1-2	10-5	2-9	16-5	4-5		
46	4 11-5	4 12-2	4 00-0	4-6	1-3	10-6	2-9	16-6	4-6		
47	4 11-8	4 12-4	4 00-3	4-7	1-3	10-7	2-9	16-7	4-6		
48	4 12-0	4 12-7	4 00-5	4-8	1-3	10-8	3-0	16-8	4-6		
49	4 12-3	4 12-9	4 00-8	4-9	1-3	10-9	3-0	16-9	4-6		
50	4 12-5	4 13-2	4 01-0	5-0	1-4	11-0	3-0	17-0	4-7		
51	4 12-8	4 13-4	4 01-2	5-1	1-4	11-1	3-1	17-1	4-7		
52	4 13-0	4 13-7	4 01-5	5-2	1-4	11-2	3-1	17-2	4-7		
53	4 13-3	4 13-9	4 01-7	5-3	1-5	11-3	3-1	17-3	4-8		
54	4 13-5	4 14-2	4 02-0	5-4	1-5	11-4	3-1	17-4	4-8		
55	4 13-8	4 14-4	4 02-2	5-5	1-5	11-5	3-2	17-5	4-8		
56	4 14-0	4 14-7	4 02-4	5-6	1-5	11-6	3-2	17-6	4-8		
57	4 14-3	4 14-9	4 02-7	5-7	1-6	11-7	3-2	17-7	4-9		
58	4 14-5	4 15-2	4 02-9	5-8	1-6	11-8	3-2	17-8	4-9		
59	4 14-8	4 15-4	4 03-1	5-9	1-6	11-9	3-3	17-9	4-9		
60	4 15-0	4 15-7	4 03-4	6-0	1-7	12-0	3-3	18-0	5-0		

17 <sup>m</sup>	SOL PLANETAS	ARIES	LUNA	v		o		d		Corr <sup>n</sup>	
				o	d	o	d	o	d	o	d
00	4 15-0	4 15-7	4 03-4	0-0	0-0	6-0	1-8	12-0	3-5		
01	4 15-3	4 15-9	4 03-6	0-1	0-0	6-1	1-8	12-1	3-5		
02	4 15-5	4 16-2	4 03-9	0-2	0-1	6-2	1-8	12-2	3-6		
03	4 15-8	4 16-5	4 04-1	0-3	0-1	6-3	1-8	12-3	3-6		
04	4 16-0	4 16-7	4 04-3	0-4	0-1	6-4	1-9	12-4	3-6		
05	4 16-3	4 17-0	4 04-6	0-5	0-1	6-5	1-9	12-5	3-6		
06	4 16-5	4 17-2	4 04-8	0-6	0-2	6-6	1-9	12-6	3-7		
07	4 16-8	4 17-5	4 05-1	0-7	0-2	6-7	2-0	12-7	3-7		
08	4 17-0	4 17-7	4 05-3	0-8	0-2	6-8	2-0	12-8	3-7		
09	4 17-3	4 18-0	4 05-5	0-9	0-3	6-9	2-0	12-9	3-8		
10	4 17-5	4 18-2	4 05-8	1-0	0-3	7-0	2-0	13-0	3-8		
11	4 17-8	4 18-5	4 06-0	1-1	0-3	7-1	2-1	13-1	3-8		
12	4 18-0	4 18-7	4 06-2	1-2	0-4	7-2	2-1	13-2	3-9		
13	4 18-3	4 19-0	4 06-5	1-3	0-4	7-3	2-1	13-3	3-9		
14	4 18-5	4 19-2	4 06-7	1-4	0-4	7-4	2-2	13-4	3-9		
15	4 18-8	4 19-5	4 07-0	1-5	0-4	7-5	2-2	13-5	3-9		
16	4 19-0	4 19-7	4 07-2	1-6	0-5	7-6	2-2	13-6	4-0		
17	4 19-3	4 20-0	4 07-4	1-7	0-5	7-7	2-2	13-7	4-0		
18	4 19-5	4 20-2	4 07-7	1-8	0-5	7-8	2-3	13-8	4-0		
19	4 19-8	4 20-5	4 07-9	1-9	0-6	7-9	2-3	13-9	4-1		
20	4 20-0	4 20-7	4 08-2	2-0	0-6	8-0	2-3	14-0	4-1		
21	4 20-3	4 21-0	4 08-4	2-1	0-6	8-1	2-4	14-1	4-1		
22	4 20-5	4 21-2	4 08-6	2-2	0-6	8-2	2-4	14-2	4-1		
23	4 20-8	4 21-5	4 08-9	2-3	0-7	8-3	2-4	14-3	4-2		
24	4 21-0	4 21-7	4 09-1	2-4	0-7	8-4	2-5	14-4	4-2		
25	4 21-3	4 22-0	4 09-3	2-5	0-7	8-5	2-5	14-5	4-2		
26	4 21-5	4 22-2	4 09-6	2-6	0-8	8-6	2-5	14-6	4-3		
27	4 21-8	4 22-5	4 09-8	2-7	0-8	8-7	2-5	14-7	4-3		
28	4 22-0	4 22-7	4 10-1	2-8	0-8	8-8	2-6	14-8	4-3		
29	4 22-3	4 23-0	4 10-3	2-9	0-8	8-9	2-6	14-9	4-3		
30	4 22-5	4 23-2	4 10-5	3-0	0-9	9-0	2-6	15-0	4-4		
31	4 22-8	4 23-5	4 10-8	3-1	0-9	9-1	2-7	15-1	4-4		
32	4 23-0	4 23-7	4 11-0	3-2	0-9	9-2	2-7	15-2	4-4		
33	4 23-3	4 24-0	4 11-3	3-3	1-0	9-3	2-7	15-3	4-5		
34	4 23-5	4 24-2	4 11-5	3-4	1-0	9-4	2-7	15-4	4-5		
35	4 23-8	4 24-5	4 11-7	3-5	1-0	9-5	2-8	15-5	4-5		
36	4 24-0	4 24-7	4 12-0	3-6	1-1	9-6	2-8	15-6	4-6		
37	4 24-3	4 25-0	4 12-2	3-7	1-1	9-7	2-8	15-7	4-6		
38	4 24-5	4 25-2	4 12-5	3-8	1-1	9-8	2-9	15-8	4-6		
39	4 24-8	4 25-5	4 12-7	3-9	1-1	9-9	2-9	15-9	4-6		
40	4 25-0	4 25-7	4 12-9	4-0	1-2	10-0	2-9	16-0	4-7		
41	4 25-3	4 26-0	4 13-2	4-1	1-2	10-1	2-9	16-1	4-7		
42	4 25-5	4 26-2	4 13-4	4-2	1-2	10-2	3-0	16-2	4-7		
43	4 25-8	4 26-5	4 13-6	4-3	1-3	10-3	3-0	16-3	4-8		
44	4 26-0	4 26-7	4 13-9	4-4	1-3	10-4	3-0	16-4	4-8		
45	4 26-3	4 27-0	4 14-1	4-5	1-3	10-5	3-1	16-5	4-8		
46	4 26-5	4 27-2	4 14-4	4-6	1-3	10-6	3-1	16-6	4-8		
47	4 26-8	4 27-5	4 14-6	4-7	1-4	10-7	3-1	16-7	4-9		
48	4 27-0	4 27-7	4 14-8	4-8	1-4	10-8	3-2	16-8	4-9		
49	4 27-3	4 28-0	4 15-1	4-9	1-4	10-9	3-2	16-9	4-9		
50	4 27-5	4 28-2	4 15-3	5-0	1-5	11-0	3-2	17-0	5-0		
51	4 27-8	4 28-5	4 15-6	5-1	1-5	11-1	3-2	17-1	5-0		
52	4 28-0	4 28-7	4 15-8	5-2	1-5	11-2	3-3	17-2	5-0		
53	4 28-3	4 29-0	4 16-0	5-3	1-5	11-3	3-3	17-3	5-0		
54	4 28-5										



18 <sup>m</sup>	SOL PLANETAS		ARIES	LUNA	v <sub>o</sub> Corr <sup>n</sup>		v <sub>o</sub> Corr <sup>n</sup>		v <sub>o</sub> Corr <sup>n</sup>		19 <sup>m</sup>	SOL PLANETAS		ARIES	LUNA	v <sub>o</sub> Corr <sup>n</sup>		v <sub>o</sub> Corr <sup>n</sup>		v <sub>o</sub> Corr <sup>n</sup>															
	s	o	'	o	'	o	'	o	'	o		'	s	o	'	o	'	o	'	o	'	o	'												
00	4	30	0	4	30	7	4	17	7	0	0	0	0	0	4	45	0	4	45	8	4	32	0	0	0	0	6	0	2	0	0	12	0	3	9
01	4	30	3	4	31	0	4	17	9	0	1	0	0	6	1	1	9	12	1	3	7	0	1	0	0	6	1	2	0	12	1	3	9		
02	4	30	5	4	31	2	4	18	2	0	2	0	1	6	2	1	9	12	2	3	8	0	2	0	1	6	2	2	0	12	2	4	0		
03	4	30	8	4	31	5	4	18	4	0	3	0	1	6	3	1	9	12	3	3	8	0	3	0	1	6	3	2	0	12	3	4	0		
04	4	31	0	4	31	7	4	18	7	0	4	0	1	6	4	2	0	12	4	3	8	0	4	0	1	6	4	2	1	12	4	4	0		
05	4	31	3	4	32	0	4	18	9	0	5	0	2	6	5	2	0	12	5	3	9	0	5	0	2	6	5	2	1	12	5	4	1		
06	4	31	5	4	32	2	4	19	1	0	6	0	2	6	6	2	0	12	6	3	9	0	6	0	2	6	6	2	1	12	6	4	1		
07	4	31	8	4	32	5	4	19	4	0	7	0	2	6	7	2	1	12	7	3	9	0	7	0	2	6	7	2	1	12	7	4	1		
08	4	32	0	4	32	7	4	19	6	0	8	0	2	6	8	2	1	12	8	3	9	0	8	0	3	6	8	2	2	12	8	4	2		
09	4	32	3	4	33	0	4	19	8	0	9	0	3	6	9	2	1	12	9	4	0	0	9	0	3	6	9	2	2	12	9	4	2		
10	4	32	5	4	33	2	4	20	1	1	0	0	3	7	0	2	2	13	0	4	0	1	0	0	3	7	0	2	13	0	4	2			
11	4	32	8	4	33	5	4	20	3	1	1	0	3	7	1	2	2	13	1	4	0	1	1	0	4	7	1	2	13	1	4	3			
12	4	33	0	4	33	7	4	20	6	1	2	0	4	7	2	2	2	13	2	4	1	1	2	0	4	7	2	2	13	2	4	3			
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14	4	33	5	4	34	2	4	21	0	1	4	0	4	7	4	2	3	13	4	4	1	1	4	0	5	7	4	2	13	4	4	4			
15	4	33	8	4	34	5	4	21	3	1	5	0	5	7	5	2	3	13	5	4	2	1	5	0	5	7	5	2	13	5	4	4			
16	4	34	0	4	34	8	4	21	5	1	6	0	5	7	6	2	3	13	6	4	2	1	6	0	5	7	6	2	13	6	4	4			
17	4	34	3	4	35	0	4	21	8	1	7	0	5	7	7	2	4	13	7	4	2	1	7	0	6	7	7	2	13	7	4	5			
18	4	34	5	4	35	3	4	22	0	1	8	0	6	7	8	2	4	13	8	4	3	1	8	0	6	7	8	2	13	8	4	5			
19	4	34	8	4	35	5	4	22	2	1	9	0	6	7	9	2	4	13	9	4	3	1	9	0	6	7	9	2	13	9	4	5			
20	4	35	0	4	35	8	4	22	5	2	0	0	6	8	0	2	5	14	0	4	3	2	0	0	7	8	0	2	14	0	4	6			
21	4	35	3	4	36	0	4	22	7	2	1	0	6	8	1	2	5	14	1	4	3	2	1	0	7	8	1	2	14	1	4	6			
22	4	35	5	4	36	3	4	22	9	2	2	0	7	8	2	2	5	14	2	4	4	2	2	0	7	8	2	2	14	2	4	6			
23	4	35	8	4	36	5	4	23	2	3	0	7	8	3	2	6	14	3	4	4	2	3	0	7	8	3	2	14	3	4	6				
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54	4	43	5	4	44	3	4	30	6	5	4	1	7	11	4	3	1	17	4	4	9	2	3	0	1	11	4	3	1	17	4	4	9		
55	4	43	8	4	44	5	4	30	8	6	5	1	7	11	5	3	1	17	5	4	9														



20 <sup>m</sup>	SOL PLANETAS		ARIES	LUNA	v o d Corr <sup>n</sup>		v o d Corr <sup>n</sup>		v o d Corr <sup>n</sup>		21 <sup>m</sup>	SOL PLANETAS		ARIES	LUNA	v o d Corr <sup>n</sup>		v o d Corr <sup>n</sup>		v o d Corr <sup>n</sup>	
	s	o	'	o	'	o	'	o	'	o		'	s	o	'	o	'	o	'	o	'
00	5 00-0	5 00-8	4 46-3	0-0	0-0	6-0	2-1	12-0	4-1	00	5 15-0	5 15-9	5 00-7	0-0	0-0	6-0	2-2	12-0	4-3		
01	5 00-3	5 01-1	4 46-6	0-1	0-0	6-1	2-1	12-1	4-1	01	5 15-3	5 16-1	5 00-9	0-1	0-0	6-1	2-2	12-1	4-3		
02	5 00-5	5 01-3	4 46-8	0-2	0-1	6-2	2-1	12-2	4-2	02	5 15-5	5 16-4	5 01-1	0-2	0-1	6-2	2-2	12-2	4-4		
03	5 00-8	5 01-6	4 47-0	0-3	0-1	6-3	2-2	12-3	4-2	03	5 15-8	5 16-6	5 01-4	0-3	0-1	6-3	2-3	12-3	4-4		
04	5 01-0	5 01-8	4 47-3	0-4	0-1	6-4	2-2	12-4	4-2	04	5 16-0	5 16-9	5 01-6	0-4	0-1	6-4	2-3	12-4	4-4		
05	5 01-3	5 02-1	4 47-5	0-5	0-2	6-5	2-2	12-5	4-3	05	5 16-3	5 17-1	5 01-8	0-5	0-2	6-5	2-3	12-5	4-5		
06	5 01-5	5 02-3	4 47-8	0-6	0-2	6-6	2-3	12-6	4-3	06	5 16-5	5 17-4	5 02-1	0-6	0-2	6-6	2-4	12-6	4-5		
07	5 01-8	5 02-6	4 48-0	0-7	0-2	6-7	2-3	12-7	4-3	07	5 16-8	5 17-6	5 02-3	0-7	0-3	6-7	2-4	12-7	4-6		
08	5 02-0	5 02-8	4 48-2	0-8	0-3	6-8	2-3	12-8	4-4	08	5 17-0	5 17-9	5 02-6	0-8	0-3	6-8	2-4	12-8	4-6		
09	5 02-3	5 03-1	4 48-5	0-9	0-3	6-9	2-4	12-9	4-4	09	5 17-3	5 18-1	5 02-8	0-9	0-3	6-9	2-5	12-9	4-6		
10	5 02-5	5 03-3	4 48-7	1-0	0-3	7-0	2-4	13-0	4-4	10	5 17-5	5 18-4	5 03-0	1-0	0-4	7-0	2-5	13-0	4-7		
11	5 02-8	5 03-6	4 49-0	1-1	0-4	7-1	2-4	13-1	4-5	11	5 17-8	5 18-6	5 03-3	1-1	0-4	7-1	2-5	13-1	4-7		
12	5 03-0	5 03-8	4 49-2	1-2	0-4	7-2	2-5	13-2	4-5	12	5 18-0	5 18-9	5 03-5	1-2	0-4	7-2	2-6	13-2	4-7		
13	5 03-3	5 04-1	4 49-4	1-3	0-4	7-3	2-5	13-3	4-5	13	5 18-3	5 19-1	5 03-8	1-3	0-5	7-3	2-6	13-3	4-8		
14	5 03-5	5 04-3	4 49-7	1-4	0-5	7-4	2-5	13-4	4-6	14	5 18-5	5 19-4	5 04-0	1-4	0-5	7-4	2-7	13-4	4-8		
15	5 03-8	5 04-6	4 49-9	1-5	0-5	7-5	2-6	13-5	4-6	15	5 18-8	5 19-6	5 04-2	1-5	0-5	7-5	2-7	13-5	4-8		
16	5 04-0	5 04-8	4 50-2	1-6	0-5	7-6	2-6	13-6	4-6	16	5 19-0	5 19-9	5 04-5	1-6	0-6	7-6	2-7	13-6	4-9		
17	5 04-3	5 05-1	4 50-4	1-7	0-6	7-7	2-6	13-7	4-7	17	5 19-3	5 20-1	5 04-7	1-7	0-6	7-7	2-8	13-7	4-9		
18	5 04-5	5 05-3	4 50-6	1-8	0-6	7-8	2-7	13-8	4-7	18	5 19-5	5 20-4	5 04-9	1-8	0-6	7-8	2-8	13-8	4-9		
19	5 04-8	5 05-6	4 50-9	1-9	0-6	7-9	2-7	13-9	4-7	19	5 19-8	5 20-6	5 05-2	1-9	0-7	7-9	2-8	13-9	5-0		
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21	5 05-3	5 06-1	4 51-3	2-1	0-7	8-1	2-8	14-1	4-8	21	5 20-3	5 21-1	5 05-7	2-1	0-8	8-1	2-9	14-1	5-1		
22	5 05-5	5 06-3	4 51-6	2-2	0-8	8-2	2-8	14-2	4-9	22	5 20-5	5 21-4	5 05-9	2-2	0-8	8-2	2-9	14-2	5-1		
23	5 05-8	5 06-6	4 51-8	2-3	0-8	8-3	2-8	14-3	4-9	23	5 20-8	5 21-6	5 06-1	2-3	0-8	8-3	3-0	14-3	5-1		
24	5 06-0	5 06-8	4 52-1	2-4	0-8	8-4	2-9	14-4	4-9	24	5 21-0	5 21-9	5 06-4	2-4	0-9	8-4	3-0	14-4	5-2		
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27	5 06-8	5 07-6	4 52-8	2-7	0-9	8-7	3-0	14-7	5-0	27	5 21-8	5 22-6	5 07-1	2-7	1-0	8-7	3-1	14-7	5-3		
28	5 07-0	5 07-8	4 53-0	2-8	1-0	8-8	3-0	14-8	5-1	28	5 22-0	5 22-9	5 07-3	2-8	1-0	8-8	3-2	14-8	5-3		
29	5 07-3	5 08-1	4 53-3	2-9	1-0	8-9	3-0	14-9	5-1	29	5 22-3	5 23-1	5 07-6	2-9	1-0	8-9	3-2	14-9	5-3		
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32	5 08-0	5 08-8	4 54-0	3-2	1-1	9-2	3-1	15-2	5-2	32	5 23-0	5 23-9	5 08-3	3-2	1-1	9-2	3-3	15-2	5-4		
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37	5 09-3	5 10-1	4 55-2	3-7	1-3	9-7	3-3	15-7	5-4	37	5 24-3	5 25-1	5 09-5	3-7	1-3	9-7	3-5	15-7	5-6		
38	5 09-5	5 10-3	4 55-4	3-8	1-3	9-8	3-3	15-8	5-4	38	5 24-5	5 25-4	5 09-7	3-8	1-4	9-8	3-5	15-8	5-7		
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41	5 10-3	5 11-1	4 56-1	4-1	1-4	10-1	3-5	16-1	5-5	41	5 25-3	5 26-1	5 10-4	4-1	1-5	10-1	3-6	16-1	5-8		
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47	5 11-8	5 12-6	4 57-5	4-7	1-6	10-7	3-7	16-7	5-7	47	5 26-8	5 27-6	5 11-9	4-7	1-7	10-7	3-8	16-7	6-0		
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57	5 14-3	5 15-1	4 59-9	5-7	1-9	11-7	4-0	17-7	6-0	57	5 29-3	5 30-2	5 14-3	5-7	2-0	11-7	4-2	17-7	6-3		
58	5 14-5	5 15-4	5 00-2	5-8	2-0	11-8	4-0	17-8	6-1	58	5 29-5	5 30-4	5 14-5	5-8	2-1	11-8	4-2	17-8	6-4		
59	5 14-8	5 15-6	5 00-4	5-9	2-0	11-9	4-1	17-9	6-1	59	5 29-8	5 30-7	5 14-7	5-9	2-1	11-9	4-3	17-9	6-4		
60	5 15-0	5 15-9	5 00-7	6-0	2-1	12-0	4-1	18-0	6-2	60	5 30-0	5 30-9	5 15-0	6-0	2-2	12-0	4-3	18-0	6-5		



22 <sup>m</sup>	SOL PLANETAS	ARIES	LUNA	v		v		v		23 <sup>m</sup>	SOL PLANETAS	ARIES	LUNA	v		v		v	
				o	d	o	d	o	d					o	d	o	d	o	d
00	5 30-0	5 30-9	5 15-0	0-0	0-0	6-0	2-3	12-0	4-5	00	5 45-0	5 45-9	5 29-3	0-0	0-0	6-0	2-4	12-0	4-7
01	5 30-3	5 31-2	5 15-2	0-1	0-0	6-1	2-3	12-1	4-5	01	5 45-3	5 46-2	5 29-5	0-1	0-0	6-1	2-4	12-1	4-7
02	5 30-5	5 31-4	5 15-4	0-2	0-1	6-2	2-3	12-2	4-6	02	5 45-5	5 46-4	5 29-8	0-2	0-1	6-2	2-4	12-2	4-8
03	5 30-8	5 31-7	5 15-7	0-3	0-1	6-3	2-4	12-3	4-6	03	5 45-8	5 46-7	5 30-0	0-3	0-1	6-3	2-5	12-3	4-8
04	5 31-0	5 31-9	5 15-9	0-4	0-2	6-4	2-4	12-4	4-7	04	5 46-0	5 46-9	5 30-2	0-4	0-2	6-4	2-5	12-4	4-9
05	5 31-3	5 32-2	5 16-2	0-5	0-2	6-5	2-4	12-5	4-7	05	5 46-3	5 47-2	5 30-5	0-5	0-2	6-5	2-5	12-5	4-9
06	5 31-5	5 32-4	5 16-4	0-6	0-2	6-6	2-5	12-6	4-7	06	5 46-5	5 47-4	5 30-7	0-6	0-2	6-6	2-6	12-6	4-9
07	5 31-8	5 32-7	5 16-6	0-7	0-3	6-7	2-5	12-7	4-8	07	5 46-8	5 47-7	5 31-0	0-7	0-3	6-7	2-6	12-7	5-0
08	5 32-0	5 32-9	5 16-9	0-8	0-3	6-8	2-6	12-8	4-8	08	5 47-0	5 48-0	5 31-2	0-8	0-3	6-8	2-7	12-8	5-0
09	5 32-3	5 33-2	5 17-1	0-9	0-3	6-9	2-6	12-9	4-8	09	5 47-3	5 48-2	5 31-4	0-9	0-4	6-9	2-7	12-9	5-1
10	5 32-5	5 33-4	5 17-4	1-0	0-4	7-0	2-6	13-0	4-9	10	5 47-5	5 48-5	5 31-7	1-0	0-4	7-0	2-7	13-0	5-1
11	5 32-8	5 33-7	5 17-6	1-1	0-4	7-1	2-7	13-1	4-9	11	5 47-8	5 48-7	5 31-9	1-1	0-4	7-1	2-8	13-1	5-1
12	5 33-0	5 33-9	5 17-8	1-2	0-5	7-2	2-7	13-2	5-0	12	5 48-0	5 49-0	5 32-1	1-2	0-5	7-2	2-8	13-2	5-2
13	5 33-3	5 34-2	5 18-1	1-3	0-5	7-3	2-7	13-3	5-0	13	5 48-3	5 49-2	5 32-4	1-3	0-5	7-3	2-9	13-3	5-2
14	5 33-5	5 34-4	5 18-3	1-4	0-5	7-4	2-8	13-4	5-0	14	5 48-5	5 49-5	5 32-6	1-4	0-5	7-4	2-9	13-4	5-2
15	5 33-8	5 34-7	5 18-5	1-5	0-6	7-5	2-8	13-5	5-1	15	5 48-8	5 49-7	5 32-9	1-5	0-6	7-5	2-9	13-5	5-3
16	5 34-0	5 34-9	5 18-8	1-6	0-6	7-6	2-9	13-6	5-1	16	5 49-0	5 50-0	5 33-1	1-6	0-6	7-6	3-0	13-6	5-3
17	5 34-3	5 35-2	5 19-0	1-7	0-6	7-7	2-9	13-7	5-1	17	5 49-3	5 50-2	5 33-3	1-7	0-7	7-7	3-0	13-7	5-4
18	5 34-5	5 35-4	5 19-3	1-8	0-7	7-8	2-9	13-8	5-2	18	5 49-5	5 50-5	5 33-6	1-8	0-7	7-8	3-1	13-8	5-4
19	5 34-8	5 35-7	5 19-5	1-9	0-7	7-9	3-0	13-9	5-2	19	5 49-8	5 50-7	5 33-8	1-9	0-7	7-9	3-1	13-9	5-4
20	5 35-0	5 35-9	5 19-7	2-0	0-8	8-0	3-0	14-0	5-3	20	5 50-0	5 51-0	5 34-1	2-0	0-8	8-0	3-1	14-0	5-5
21	5 35-3	5 36-2	5 20-0	2-1	0-8	8-1	3-0	14-1	5-3	21	5 50-3	5 51-2	5 34-3	2-1	0-8	8-1	3-2	14-1	5-5
22	5 35-5	5 36-4	5 20-2	2-2	0-8	8-2	3-1	14-2	5-3	22	5 50-5	5 51-5	5 34-5	2-2	0-9	8-2	3-2	14-2	5-6
23	5 35-8	5 36-7	5 20-5	2-3	0-9	8-3	3-1	14-3	5-4	23	5 50-8	5 51-7	5 34-8	2-3	0-9	8-3	3-3	14-3	5-6
24	5 36-0	5 36-9	5 20-7	2-4	0-9	8-4	3-2	14-4	5-4	24	5 51-0	5 52-0	5 35-0	2-4	0-9	8-4	3-3	14-4	5-6
25	5 36-3	5 37-2	5 20-9	2-5	0-9	8-5	3-2	14-5	5-4	25	5 51-3	5 52-2	5 35-2	2-5	1-0	8-5	3-3	14-5	5-7
26	5 36-5	5 37-4	5 21-2	2-6	1-0	8-6	3-2	14-6	5-5	26	5 51-5	5 52-5	5 35-5	2-6	1-0	8-6	3-4	14-6	5-7
27	5 36-8	5 37-7	5 21-4	2-7	1-0	8-7	3-3	14-7	5-5	27	5 51-8	5 52-7	5 35-7	2-7	1-1	8-7	3-4	14-7	5-8
28	5 37-0	5 37-9	5 21-6	2-8	1-1	8-8	3-3	14-8	5-6	28	5 52-0	5 53-0	5 36-0	2-8	1-1	8-8	3-4	14-8	5-8
29	5 37-3	5 38-2	5 21-9	2-9	1-1	8-9	3-3	14-9	5-6	29	5 52-3	5 53-2	5 36-2	2-9	1-1	8-9	3-5	14-9	5-8
30	5 37-5	5 38-4	5 22-1	3-0	1-1	9-0	3-4	15-0	5-6	30	5 52-5	5 53-5	5 36-4	3-0	1-2	9-0	3-5	15-0	5-9
31	5 37-8	5 38-7	5 22-4	3-1	1-2	9-1	3-4	15-1	5-7	31	5 52-8	5 53-7	5 36-7	3-1	1-2	9-1	3-6	15-1	5-9
32	5 38-0	5 38-9	5 22-6	3-2	1-2	9-2	3-5	15-2	5-7	32	5 53-0	5 54-0	5 36-9	3-2	1-3	9-2	3-6	15-2	6-0
33	5 38-3	5 39-2	5 22-8	3-3	1-2	9-3	3-5	15-3	5-7	33	5 53-3	5 54-2	5 37-2	3-3	1-3	9-3	3-6	15-3	6-0
34	5 38-5	5 39-4	5 23-1	3-4	1-3	9-4	3-5	15-4	5-8	34	5 53-5	5 54-5	5 37-4	3-4	1-3	9-4	3-7	15-4	6-0
35	5 38-8	5 39-7	5 23-3	3-5	1-3	9-5	3-6	15-5	5-8	35	5 53-8	5 54-7	5 37-6	3-5	1-4	9-5	3-7	15-5	6-1
36	5 39-0	5 39-9	5 23-6	3-6	1-4	9-6	3-6	15-6	5-9	36	5 54-0	5 55-0	5 37-9	3-6	1-4	9-6	3-8	15-6	6-1
37	5 39-3	5 40-2	5 23-8	3-7	1-4	9-7	3-6	15-7	5-9	37	5 54-3	5 55-2	5 38-1	3-7	1-4	9-7	3-8	15-7	6-1
38	5 39-5	5 40-4	5 24-0	3-8	1-4	9-8	3-7	15-8	5-9	38	5 54-5	5 55-5	5 38-4	3-8	1-5	9-8	3-8	15-8	6-2
39	5 39-8	5 40-7	5 24-3	3-9	1-5	9-9	3-7	15-9	6-0	39	5 54-8	5 55-7	5 38-6	3-9	1-5	9-9	3-9	15-9	6-2
40	5 40-0	5 40-9	5 24-5	4-0	1-5	10-0	3-8	16-0	6-0	40	5 55-0	5 56-0	5 38-8	4-0	1-6	10-0	3-9	16-0	6-3
41	5 40-3	5 41-2	5 24-7	4-1	1-5	10-1	3-8	16-1	6-0	41	5 55-3	5 56-2	5 39-1	4-1	1-6	10-1	4-0	16-1	6-3
42	5 40-5	5 41-4	5 25-0	4-2	1-6	10-2	3-8	16-2	6-1	42	5 55-5	5 56-5	5 39-3	4-2	1-6	10-2	4-0	16-2	6-3
43	5 40-8	5 41-7	5 25-2	4-3	1-6	10-3	3-9	16-3	6-1	43	5 55-8	5 56-7	5 39-5	4-3	1-7	10-3	4-0	16-3	6-4
44	5 41-0	5 41-9	5 25-5	4-4	1-7	10-4	3-9	16-4	6-2	44	5 56-0	5 57-0	5 39-8	4-4	1-7	10-4	4-1	16-4	6-4
45	5 41-3	5 42-2	5 25-7	4-5	1-7	10-5	3-9	16-5	6-2	45	5 56-3	5 57-2	5 40-0	4-5	1-8	10-5	4-1	16-5	6-5
46	5 41-5	5 42-4	5 25-9	4-6	1-7	10-6	4-0	16-6	6-2	46	5 56-5	5 57-5	5 40-3	4-6	1-8	10-6	4-2	16-6	6-5
47	5 41-8	5 42-7	5 26-2	4-7	1-8	10-7	4-0	16-7	6-3	47	5 56-8	5 57-7	5 40-5	4-7	1-8	10-7	4-2	16-7	6-5
48	5 42-0	5 42-9	5 26-4	4-8	1-8	10-8	4-1	16-8	6-3	48	5 57-0	5 58-0	5 40-7	4-8	1-9	10-8	4-2	16-8	6-6
49	5 42-3	5 43-2	5 26-7	4-9	1-8	10-9	4-1	16-9	6-3	49	5 57-3	5 58-2	5 41-0	4-9	1-9	10-9	4-3	16-9	6-6
50	5 42-5	5 43-4	5 26-9	5-0	1-9	11-0	4-1	17-0	6-4	50	5 57-5	5 58-5	5 41-2	5-0	2-0	11-0	4-3	17-0	6-7
51	5 42-8	5 43-7	5 27-1	5-1	1-9	11-1	4-2	17-1	6-4	51	5 57-8	5 58-7	5 41-5	5-1	2-0	11-1	4-3	17-1	6-7
52	5 43-0	5 43-9	5 27-4	5-2	2-0	11-2	4-2	17-2	6-5	52	5 58-0	5 59-0	5 41-7	5-2	2-0	11-2	4-4	17-2	6-7
53	5 43-3	5 44-2	5 27-6	5-3	2-0	11-3	4-2	17-3	6-5	53	5 58-3	5 59-2	5 41-9	5-3	2-1	11-3	4-4	17-3	6-8
54	5 43-5	5 44-4	5 27-9	5-4	2-0	11-4	4-3	17-4	6-5	54	5 58-5	5 59-5	5 42-2	5-4	2-1	11-4	4-5	17-4	6-8
55	5 43-8	5 44-7	5 28-1	5-5	2-1	11-5	4-3	17-5	6-6	55	5 58-8	5 59-7	5 42-4	5-5	2-2	11-5	4-5	17-5	6-9
56	5 44-0	5 44-9	5 28-3	5-6	2-1	11-6	4-4	17-6	6-6	56	5 59-0	6 00-0	5 42-6	5-6	2-2	11-6	4-5	17-6	6-9
57	5 44-3	5 45-2	5 28-6	5-7	2-1	11-7	4-4	17-7	6-6	57	5 59-3	6 00-2	5 42-9	5-7	2-2	11-7	4-6	17-7	6-9
58	5 44-5	5 45-4	5 28-8	5-8	2-2	11-8	4-4	17-8	6-7	58	5 59-5	6 00-5	5 43-1	5-8	2-3	11-8	4-6	17-8	7-0
59	5 44-8	5 45-7	5 29-0	5-9	2-2	11-9	4-5	17-9	6-7	59	5 59-8	6 00-7	5 43-4	5-9	2-3	11-9	4-7	17-9	7-0
60	5 45-0	5 45-9	5 29-3	6-0	2-3	12-0	4-5	18-0	6-8	60	6 00-0	6 01-0	5 43-6	6-0	2-4	12-0	4-7	18-0	7-1



m 24	SOL PLANETAS	ARIES	LUNA	v		o		d	
				o	Corr <sup>n</sup>	o	Corr <sup>n</sup>	o	Corr <sup>n</sup>
00	6 00-0	6 01-0	5 43-6	0-0	0-0	6-0	2-5	12-0	4-9
01	6 00-3	6 01-2	5 43-8	0-1	0-0	6-1	2-5	12-1	4-9
02	6 00-5	6 01-5	5 44-1	0-2	0-1	6-2	2-5	12-2	5-0
03	6 00-8	6 01-7	5 44-3	0-3	0-1	6-3	2-6	12-3	5-0
04	6 01-0	6 02-0	5 44-6	0-4	0-2	6-4	2-6	12-4	5-1
05	6 01-3	6 02-2	5 44-8	0-5	0-2	6-5	2-7	12-5	5-1
06	6 01-5	6 02-5	5 45-0	0-6	0-2	6-6	2-7	12-6	5-1
07	6 01-8	6 02-7	5 45-3	0-7	0-3	6-7	2-7	12-7	5-2
08	6 02-0	6 03-0	5 45-5	0-8	0-3	6-8	2-8	12-8	5-2
09	6 02-3	6 03-2	5 45-7	0-9	0-4	6-9	2-8	12-9	5-3
10	6 02-5	6 03-5	5 46-0	1-0	0-4	7-0	2-9	13-0	5-3
11	6 02-8	6 03-7	5 46-2	1-1	0-4	7-1	2-9	13-1	5-3
12	6 03-0	6 04-0	5 46-5	1-2	0-5	7-2	2-9	13-2	5-4
13	6 03-3	6 04-2	5 46-7	1-3	0-5	7-3	3-0	13-3	5-4
14	6 03-5	6 04-5	5 46-9	1-4	0-6	7-4	3-0	13-4	5-5
15	6 03-8	6 04-7	5 47-2	1-5	0-6	7-5	3-1	13-5	5-5
16	6 04-0	6 05-0	5 47-4	1-6	0-7	7-6	3-1	13-6	5-6
17	6 04-3	6 05-2	5 47-7	1-7	0-7	7-7	3-1	13-7	5-6
18	6 04-5	6 05-5	5 47-9	1-8	0-7	7-8	3-2	13-8	5-6
19	6 04-8	6 05-7	5 48-1	1-9	0-8	7-9	3-2	13-9	5-7
20	6 05-0	6 06-0	5 48-4	2-0	0-8	8-0	3-3	14-0	5-7
21	6 05-3	6 06-3	5 48-6	2-1	0-9	8-1	3-3	14-1	5-8
22	6 05-5	6 06-5	5 48-8	2-2	0-9	8-2	3-3	14-2	5-8
23	6 05-8	6 06-8	5 49-1	2-3	0-9	8-3	3-4	14-3	5-8
24	6 06-0	6 07-0	5 49-3	2-4	1-0	8-4	3-4	14-4	5-9
25	6 06-3	6 07-3	5 49-6	2-5	1-0	8-5	3-5	14-5	5-9
26	6 06-5	6 07-5	5 49-8	2-6	1-1	8-6	3-5	14-6	6-0
27	6 06-8	6 07-8	5 50-0	2-7	1-1	8-7	3-6	14-7	6-0
28	6 07-0	6 08-0	5 50-3	2-8	1-1	8-8	3-6	14-8	6-0
29	6 07-3	6 08-3	5 50-5	2-9	1-2	8-9	3-6	14-9	6-1
30	6 07-5	6 08-5	5 50-8	3-0	1-2	9-0	3-7	15-0	6-1
31	6 07-8	6 08-8	5 51-0	3-1	1-3	9-1	3-7	15-1	6-2
32	6 08-0	6 09-0	5 51-2	3-2	1-3	9-2	3-8	15-2	6-2
33	6 08-3	6 09-3	5 51-5	3-3	1-3	9-3	3-8	15-3	6-2
34	6 08-5	6 09-5	5 51-7	3-4	1-4	9-4	3-8	15-4	6-3
35	6 08-8	6 09-8	5 52-0	3-5	1-4	9-5	3-9	15-5	6-3
36	6 09-0	6 10-0	5 52-2	3-6	1-5	9-6	3-9	15-6	6-4
37	6 09-3	6 10-3	5 52-4	3-7	1-5	9-7	4-0	15-7	6-4
38	6 09-5	6 10-5	5 52-7	3-8	1-6	9-8	4-0	15-8	6-5
39	6 09-8	6 10-8	5 52-9	3-9	1-6	9-9	4-0	15-9	6-5
40	6 10-0	6 11-0	5 53-1	4-0	1-6	10-0	4-1	16-0	6-5
41	6 10-3	6 11-3	5 53-4	4-1	1-7	10-1	4-1	16-1	6-6
42	6 10-5	6 11-5	5 53-6	4-2	1-7	10-2	4-2	16-2	6-6
43	6 10-8	6 11-8	5 53-9	4-3	1-8	10-3	4-2	16-3	6-7
44	6 11-0	6 12-0	5 54-1	4-4	1-8	10-4	4-2	16-4	6-7
45	6 11-3	6 12-3	5 54-3	4-5	1-8	10-5	4-3	16-5	6-7
46	6 11-5	6 12-5	5 54-6	4-6	1-9	10-6	4-3	16-6	6-8
47	6 11-8	6 12-8	5 54-8	4-7	1-9	10-7	4-4	16-7	6-8
48	6 12-0	6 13-0	5 55-1	4-8	2-0	10-8	4-4	16-8	6-9
49	6 12-3	6 13-3	5 55-3	4-9	2-0	10-9	4-5	16-9	6-9
50	6 12-5	6 13-5	5 55-5	5-0	2-0	11-0	4-5	17-0	6-9
51	6 12-8	6 13-8	5 55-8	5-1	2-1	11-1	4-5	17-1	7-0
52	6 13-0	6 14-0	5 56-0	5-2	2-1	11-2	4-6	17-2	7-0
53	6 13-3	6 14-3	5 56-2	5-3	2-2	11-3	4-6	17-3	7-1
54	6 13-5	6 14-5	5 56-5	5-4	2-2	11-4	4-7	17-4	7-1
55	6 13-8	6 14-8	5 56-7	5-5	2-2	11-5	4-7	17-5	7-1
56	6 14-0	6 15-0	5 57-0	5-6	2-3	11-6	4-7	17-6	7-2
57	6 14-3	6 15-3	5 57-2	5-7	2-3	11-7	4-8	17-7	7-2
58	6 14-5	6 15-5	5 57-4	5-8	2-4	11-8	4-8	17-8	7-3
59	6 14-8	6 15-8	5 57-7	5-9	2-4	11-9	4-9	17-9	7-3
60	6 15-0	6 16-0	5 57-9	6-0	2-5	12-0	4-9	18-0	7-4

m 25	SOL PLANETAS	ARIES	LUNA	v		o		d	
				o	Corr <sup>n</sup>	o	Corr <sup>n</sup>	o	Corr <sup>n</sup>
00	6 15-0	6 16-0	5 57-9	0-0	0-0	6-0	2-6	12-0	5-1
01	6 15-3	6 16-3	5 58-2	0-1	0-0	6-1	2-6	12-1	5-1
02	6 15-5	6 16-5	5 58-4	0-2	0-1	6-2	2-6	12-2	5-2
03	6 15-8	6 16-8	5 58-6	0-3	0-1	6-3	2-7	12-3	5-2
04	6 16-0	6 17-0	5 58-9	0-4	0-2	6-4	2-7	12-4	5-3
05	6 16-3	6 17-3	5 59-1	0-5	0-2	6-5	2-8	12-5	5-3
06	6 16-5	6 17-5	5 59-3	0-6	0-3	6-6	2-8	12-6	5-4
07	6 16-8	6 17-8	5 59-6	0-7	0-3	6-7	2-8	12-7	5-4
08	6 17-0	6 18-0	5 59-8	0-8	0-3	6-8	2-9	12-8	5-4
09	6 17-3	6 18-3	6 00-1	0-9	0-4	6-9	2-9	12-9	5-5
10	6 17-5	6 18-5	6 00-3	1-0	0-4	7-0	3-0	13-0	5-5
11	6 17-8	6 18-8	6 00-5	1-1	0-5	7-1	3-0	13-1	5-6
12	6 18-0	6 19-0	6 00-8	1-2	0-5	7-2	3-1	13-2	5-6
13	6 18-3	6 19-3	6 01-0	1-3	0-6	7-3	3-1	13-3	5-7
14	6 18-5	6 19-5	6 01-3	1-4	0-6	7-4	3-1	13-4	5-7
15	6 18-8	6 19-8	6 01-5	1-5	0-6	7-5	3-2	13-5	5-7
16	6 19-0	6 20-0	6 01-7	1-6	0-7	7-6	3-2	13-6	5-8
17	6 19-3	6 20-3	6 02-0	1-7	0-7	7-7	3-3	13-7	5-8
18	6 19-5	6 20-5	6 02-2	1-8	0-8	7-8	3-3	13-8	5-9
19	6 19-8	6 20-8	6 02-5	1-9	0-8	7-9	3-4	13-9	5-9
20	6 20-0	6 21-0	6 02-7	2-0	0-9	8-0	3-4	14-0	6-0
21	6 20-3	6 21-3	6 02-9	2-1	0-9	8-1	3-4	14-1	6-0
22	6 20-5	6 21-5	6 03-2	2-2	0-9	8-2	3-5	14-2	6-0
23	6 20-8	6 21-8	6 03-4	2-3	1-0	8-3	3-5	14-3	6-1
24	6 21-0	6 22-0	6 03-6	2-4	1-0	8-4	3-6	14-4	6-1
25	6 21-3	6 22-3	6 03-9	2-5	1-1	8-5	3-6	14-5	6-2
26	6 21-5	6 22-5	6 04-1	2-6	1-1	8-6	3-7	14-6	6-2
27	6 21-8	6 22-8	6 04-4	2-7	1-1	8-7	3-7	14-7	6-2
28	6 22-0	6 23-0	6 04-6	2-8	1-2	8-8	3-7	14-8	6-3
29	6 22-3	6 23-3	6 04-8	2-9	1-2	8-9	3-8	14-9	6-3
30	6 22-5	6 23-5	6 05-1	3-0	1-3	9-0	3-8	15-0	6-4
31	6 22-8	6 23-8	6 05-3	3-1	1-3	9-1	3-9	15-1	6-4
32	6 23-0	6 24-0	6 05-6	3-2	1-4	9-2	3-9	15-2	6-5
33	6 23-3	6 24-3	6 05-8	3-3	1-4	9-3	4-0	15-3	6-5
34	6 23-5	6 24-5	6 06-0	3-4	1-4	9-4	4-0	15-4	6-5
35	6 23-8	6 24-8	6 06-3	3-5	1-5	9-5	4-0	15-5	6-6
36	6 24-0	6 25-0	6 06-5	3-6	1-5	9-6	4-1	15-6	6-6
37	6 24-3	6 25-3	6 06-7	3-7	1-6	9-7	4-1	15-7	6-7
38	6 24-5	6 25-6	6 07-0	3-8	1-6	9-8	4-2	15-8	6-7
39	6 24-8	6 25-8	6 07-2	3-9	1-7	9-9	4-2	15-9	6-8
40	6 25-0	6 26-0	6 07-5	4-0	1-7	10-0	4-3	16-0	6-8
41	6 25-3	6 26-3	6 07-7	4-1	1-7	10-1	4-3	16-1	6-8
42	6 25-5	6 26-6	6 07-9	4-2	1-8	10-2	4-3	16-2	6-9
43	6 25-8	6 26-8	6 08-2	4-3	1-8	10-3	4-4	16-3	6-9
44	6 26-0	6 27-0	6 08-4	4-4	1-9	10-4	4-4	16-4	7-0
45	6 26-3	6 27-3	6 08-7	4-5	1-9	10-5	4-5	16-5	7-0
46	6 26-5	6 27-6	6 08-9	4-6	2-0	10-6	4-5	16-6	7-1
47	6 26-8	6 27-8	6 09-1	4-7	2-0	10-7	4-5	16-7	7-1
48	6 27-0	6 28-0	6 09-4	4-8	2-0	10-8	4-6	16-8	7-1
49	6 27-3	6 28-3	6 09-6	4-9	2-1	10-9	4-6	16-9	7-2
50	6 27-5	6 28-6	6 09-8	5-0	2-1	11-0	4-7	17-0	7-2
51	6 27-8	6 28-8	6 10-1	5-1	2-2	11-1	4-7	17-1	7-3
52	6 28-0	6 29-0	6 10-3	5-2	2-2	11-2	4-8	17-2	7-3
53	6 28-3	6 29-3	6 10-6	5-3	2-3	11-3	4-8	17-3	7-4
54	6 28-5	6 29-6	6 10-8	5-4	2-3	11-4	4-8	17-4	7-4
55	6 28-8	6 29-8	6 11-0	5-5	2-3	11-5	4-9	17-5	7-4
56	6 29-0	6 30-0	6 11-3	5-6	2-4	11-6	4-9	17-6	7-5
57	6 29-3	6 30-3	6 11-5	5-7	2-4	11-7	5-0	17-7	7-5
58	6 29-5	6 30-6	6 11-8	5-8	2-5	11-8	5-0	17-8	7-6
59	6 29-8	6 30-8	6 12-0	5-9	2-5	11-9	5-1	17-9	7-6
60	6 30-0	6 31-0	6 12-2	6-0	2-6	12-0	5-1	18-0	7-7



26 <sup>m</sup>	SOL PLANETAS		ARIES	LUNA	v <sub>o</sub> Corr <sup>n</sup>		v <sub>o</sub> Corr <sup>n</sup>		v <sub>o</sub> Corr <sup>n</sup>	
	s	o /	o /	o /	/ /	/ /	/ /	/ /	/ /	/ /
00	6 30-0	6 31-1	6 12-2	0-0	0-0	6-0	2-7	12-0	5-3	
01	6 30-3	6 31-3	6 12-5	0-1	0-0	6-1	2-7	12-1	5-3	
02	6 30-5	6 31-6	6 12-7	0-2	0-1	6-2	2-7	12-2	5-4	
03	6 30-8	6 31-8	6 12-9	0-3	0-1	6-3	2-8	12-3	5-4	
04	6 31-0	6 32-1	6 13-2	0-4	0-2	6-4	2-8	12-4	5-5	
05	6 31-3	6 32-3	6 13-4	0-5	0-2	6-5	2-9	12-5	5-5	
06	6 31-5	6 32-6	6 13-7	0-6	0-3	6-6	2-9	12-6	5-6	
07	6 31-8	6 32-8	6 13-9	0-7	0-3	6-7	3-0	12-7	5-6	
08	6 32-0	6 33-1	6 14-1	0-8	0-4	6-8	3-0	12-8	5-7	
09	6 32-3	6 33-3	6 14-4	0-9	0-4	6-9	3-0	12-9	5-7	
10	6 32-5	6 33-6	6 14-6	1-0	0-4	7-0	3-1	13-0	5-7	
11	6 32-8	6 33-8	6 14-9	1-1	0-5	7-1	3-1	13-1	5-8	
12	6 33-0	6 34-1	6 15-1	1-2	0-5	7-2	3-2	13-2	5-8	
13	6 33-3	6 34-3	6 15-3	1-3	0-6	7-3	3-2	13-3	5-9	
14	6 33-5	6 34-6	6 15-6	1-4	0-6	7-4	3-3	13-4	5-9	
15	6 33-8	6 34-8	6 15-8	1-5	0-7	7-5	3-3	13-5	6-0	
16	6 34-0	6 35-1	6 16-1	1-6	0-7	7-6	3-4	13-6	6-0	
17	6 34-3	6 35-3	6 16-3	1-7	0-8	7-7	3-4	13-7	6-1	
18	6 34-5	6 35-6	6 16-5	1-8	0-8	7-8	3-4	13-8	6-1	
19	6 34-8	6 35-8	6 16-8	1-9	0-8	7-9	3-5	13-9	6-1	
20	6 35-0	6 36-1	6 17-0	2-0	0-9	8-0	3-5	14-0	6-2	
21	6 35-3	6 36-3	6 17-2	2-1	0-9	8-1	3-6	14-1	6-2	
22	6 35-5	6 36-6	6 17-5	2-2	1-0	8-2	3-6	14-2	6-3	
23	6 35-8	6 36-8	6 17-7	2-3	1-0	8-3	3-7	14-3	6-3	
24	6 36-0	6 37-1	6 18-0	2-4	1-1	8-4	3-7	14-4	6-4	
25	6 36-3	6 37-3	6 18-2	2-5	1-1	8-5	3-8	14-5	6-4	
26	6 36-5	6 37-6	6 18-4	2-6	1-1	8-6	3-8	14-6	6-4	
27	6 36-8	6 37-8	6 18-7	2-7	1-2	8-7	3-8	14-7	6-5	
28	6 37-0	6 38-1	6 18-9	2-8	1-2	8-8	3-9	14-8	6-5	
29	6 37-3	6 38-3	6 19-2	2-9	1-3	8-9	3-9	14-9	6-6	
30	6 37-5	6 38-6	6 19-4	3-0	1-3	9-0	4-0	15-0	6-6	
31	6 37-8	6 38-8	6 19-6	3-1	1-4	9-1	4-0	15-1	6-7	
32	6 38-0	6 39-1	6 19-9	3-2	1-4	9-2	4-1	15-2	6-7	
33	6 38-3	6 39-3	6 20-1	3-3	1-5	9-3	4-1	15-3	6-8	
34	6 38-5	6 39-6	6 20-3	3-4	1-5	9-4	4-2	15-4	6-8	
35	6 38-8	6 39-8	6 20-6	3-5	1-5	9-5	4-2	15-5	6-8	
36	6 39-0	6 40-1	6 20-8	3-6	1-6	9-6	4-2	15-6	6-9	
37	6 39-3	6 40-3	6 21-1	3-7	1-6	9-7	4-3	15-7	6-9	
38	6 39-5	6 40-6	6 21-3	3-8	1-7	9-8	4-3	15-8	7-0	
39	6 39-8	6 40-8	6 21-5	3-9	1-7	9-9	4-4	15-9	7-0	
40	6 40-0	6 41-1	6 21-8	4-0	1-8	10-0	4-4	16-0	7-1	
41	6 40-3	6 41-3	6 22-0	4-1	1-8	10-1	4-5	16-1	7-1	
42	6 40-5	6 41-6	6 22-3	4-2	1-9	10-2	4-5	16-2	7-2	
43	6 40-8	6 41-8	6 22-5	4-3	1-9	10-3	4-5	16-3	7-2	
44	6 41-0	6 42-1	6 22-7	4-4	1-9	10-4	4-6	16-4	7-2	
45	6 41-3	6 42-3	6 23-0	4-5	2-0	10-5	4-6	16-5	7-3	
46	6 41-5	6 42-6	6 23-2	4-6	2-0	10-6	4-7	16-6	7-3	
47	6 41-8	6 42-8	6 23-4	4-7	2-1	10-7	4-7	16-7	7-4	
48	6 42-0	6 43-1	6 23-7	4-8	2-1	10-8	4-8	16-8	7-4	
49	6 42-3	6 43-4	6 23-9	4-9	2-2	10-9	4-8	16-9	7-5	
50	6 42-5	6 43-6	6 24-2	5-0	2-2	11-0	4-9	17-0	7-5	
51	6 42-8	6 43-9	6 24-4	5-1	2-3	11-1	4-9	17-1	7-6	
52	6 43-0	6 44-1	6 24-6	5-2	2-3	11-2	4-9	17-2	7-6	
53	6 43-3	6 44-4	6 24-9	5-3	2-3	11-3	5-0	17-3	7-6	
54	6 43-5	6 44-6	6 25-1	5-4	2-4	11-4	5-0	17-4	7-7	
55	6 43-8	6 44-9	6 25-4	5-5	2-4	11-5	5-1	17-5	7-7	
56	6 44-0	6 45-1	6 25-6	5-6	2-5	11-6	5-1	17-6	7-8	
57	6 44-3	6 45-4	6 25-8	5-7	2-5	11-7	5-2	17-7	7-8	
58	6 44-5	6 45-6	6 26-1	5-8	2-6	11-8	5-2	17-8	7-9	
59	6 44-8	6 45-9	6 26-3	5-9	2-6	11-9	5-3	17-9	7-9	
60	6 45-0	6 46-1	6 26-6	6-0	2-7	12-0	5-3	18-0	8-0	

27 <sup>m</sup>	SOL PLANETAS		ARIES	LUNA	v <sub>o</sub> Corr <sup>n</sup>		v <sub>o</sub> Corr <sup>n</sup>		v <sub>o</sub> Corr <sup>n</sup>	
	s	o /	o /	o /	/ /	/ /	/ /	/ /	/ /	/ /
00	6 45-0	6 46-1	6 26-6	0-0	0-0	6-0	2-8	12-0	5-5	
01	6 45-3	6 46-4	6 26-8	0-1	0-0	6-1	2-8	12-1	5-5	
02	6 45-5	6 46-6	6 27-0	0-2	0-1	6-2	2-8	12-2	5-6	
03	6 45-8	6 46-9	6 27-3	0-3	0-1	6-3	2-9	12-3	5-6	
04	6 46-0	6 47-1	6 27-5	0-4	0-2	6-4	2-9	12-4	5-7	
05	6 46-3	6 47-4	6 27-7	0-5	0-2	6-5	3-0	12-5	5-7	
06	6 46-5	6 47-6	6 28-0	0-6	0-3	6-6	3-0	12-6	5-8	
07	6 46-8	6 47-9	6 28-2	0-7	0-3	6-7	3-1	12-7	5-8	
08	6 47-0	6 48-1	6 28-5	0-8	0-4	6-8	3-1	12-8	5-9	
09	6 47-3	6 48-4	6 28-7	0-9	0-4	6-9	3-2	12-9	5-9	
10	6 47-5	6 48-6	6 28-9	1-0	0-5	7-0	3-2	13-0	6-0	
11	6 47-8	6 48-9	6 29-2	1-1	0-5	7-1	3-3	13-1	6-0	
12	6 48-0	6 49-1	6 29-4	1-2	0-6	7-2	3-3	13-2	6-1	
13	6 48-3	6 49-4	6 29-7	1-3	0-6	7-3	3-3	13-3	6-1	
14	6 48-5	6 49-6	6 29-9	1-4	0-6	7-4	3-4	13-4	6-1	
15	6 48-8	6 49-9	6 30-1	1-5	0-7	7-5	3-4	13-5	6-2	
16	6 49-0	6 50-1	6 30-4	1-6	0-7	7-6	3-5	13-6	6-2	
17	6 49-3	6 50-4	6 30-6	1-7	0-8	7-7	3-5	13-7	6-3	
18	6 49-5	6 50-6	6 30-8	1-8	0-8	7-8	3-6	13-8	6-3	
19	6 49-8	6 50-9	6 31-1	1-9	0-9	7-9	3-6	13-9	6-4	
20	6 50-0	6 51-1	6 31-3	2-0	0-9	8-0	3-7	14-0	6-4	
21	6 50-3	6 51-4	6 31-6	2-1	1-0	8-1	3-7	14-1	6-5	
22	6 50-5	6 51-6	6 31-8	2-2	1-0	8-2	3-8	14-2	6-5	
23	6 50-8	6 51-9	6 32-0	2-3	1-1	8-3	3-8	14-3	6-6	
24	6 51-0	6 52-1	6 32-3	2-4	1-1	8-4	3-9	14-4	6-6	
25	6 51-3	6 52-4	6 32-5	2-5	1-1	8-5	3-9	14-5	6-6	
26	6 51-5	6 52-6	6 32-8	2-6	1-2	8-6	3-9	14-6	6-7	
27	6 51-8	6 52-9	6 33-0	2-7	1-2	8-7	4-0	14-7	6-7	
28	6 52-0	6 53-1	6 33-2	2-8	1-3	8-8	4-0	14-8	6-8	
29	6 52-3	6 53-4	6 33-5	2-9	1-3	8-9	4-1	14-9	6-8	
30	6 52-5	6 53-6	6 33-7	3-0	1-4	9-0	4-1	15-0	6-9	
31	6 52-8	6 53-9	6 33-9	3-1	1-4	9-1	4-2	15-1	6-9	
32	6 53-0	6 54-1	6 34-2	3-2	1-5	9-2	4-2	15-2	7-0	
33	6 53-3	6 54-4	6 34-4	3-3	1-5	9-3	4-3	15-3	7-0	
34	6 53-5	6 54-6	6 34-7	3-4	1-6	9-4	4-3	15-4	7-1	
35	6 53-8	6 54-9	6 34-9	3-5	1-6	9-5	4-4	15-5	7-1	
36	6 54-0	6 55-1	6 35-1	3-6	1-7	9-6	4-4	15-6	7-2	
37	6 54-3	6 55-4	6 35-4	3-7	1-7	9-7	4-4	15-7	7-2	
38	6 54-5	6 55-6	6 35-6	3-8	1-7	9-8	4-5	15-8	7-2	
39	6 54-8	6 55-9	6 35-9	3-9	1-8	9-9	4-5	15-9	7-3	
40	6 55-0	6 56-1	6 36-1	4-0	1-8	10-0	4-6	16-0	7-3	
41	6 55-3	6 56-4	6 36-3	4-1	1-9	10-1	4-6	16-1	7-4	
42	6 55-5	6 56-6	6 36-6	4-2	1-9	10-2	4-7	16-2	7-4	
43	6 55-8	6 56-9	6 36-8	4-3	2-0	10-3	4-7	16-3	7-5	
44	6 56-0	6 57-1	6 37-0	4-4	2-0	10-4	4-8	16-4	7-5	
45	6 56-3	6 57-4	6 37-3	4-5	2-1	10-5	4-8	16-5	7-6	
46	6 56-5	6 57-6	6 37-5	4-6	2-1	10-6	4-9	16-6	7-6	
47	6 56-8	6 57-9	6 37-8	4-7	2-2	10-7	4-9	16-7	7-7	
48	6 57-0	6 58-1	6 38-0	4-8	2-2	10-8	5-0	16-8	7-7	
49	6 57-3	6 58-4	6 38-2	4-9	2-2	10-9	5-0	16-9	7-7	
50	6 57-5	6 58-6	6 38-5	5-0	2-3	11-0	5-0	17-0	7-8	
51	6 57-8	6 58-9	6 38-7	5-1	2-3	11-1	5-1	17-1	7-8	
52	6 58-0	6 59-1	6 39-0	5-2	2-4	11-2	5-1	17-2	7-9	
53	6 58-3	6 59-4	6 39-2	5-3	2-4	11-3	5-2	17-3	7-9	
54	6 58-5	6 59-6	6 39-4	5-4	2-5	11-4	5-2	17-4	8-0	
55	6 58-8	6 59-9	6 39-7	5-5	2-5	11-5	5-3	17-5	8-0	
56	6 59-0	7 00-1	6 39-9	5-6	2-6	11-6	5-3	17-6	8-1	
57	6 59-3	7 00-4	6 40-2	5-7	2-6	11-7	5-4	17-7	8-1	
58	6 59-5	7 00-6	6 40-4	5-8	2					



28 <sup>m</sup>	SOL PLANETAS	ARIES	LUNA	v		v		v		29 <sup>m</sup>	SOL PLANETAS	ARIES	LUNA	v		v		v	
				o	d	o	d	o	d					o	d	o	d	o	d
00	7 00-0	7 01-1	6 40-9	0-0	0-0	6-0	2-9	12-0	5-7	00	7 15-0	7 16-2	6 55-2	0-0	0-0	6-0	3-0	12-0	5-9
01	7 00-3	7 01-4	6 41-1	0-1	0-0	6-1	2-9	12-1	5-7	01	7 15-3	7 16-4	6 55-4	0-1	0-0	6-1	3-0	12-1	5-9
02	7 00-5	7 01-7	6 41-3	0-2	0-1	6-2	2-9	12-2	5-8	02	7 15-5	7 16-7	6 55-7	0-2	0-1	6-2	3-0	12-2	6-0
03	7 00-8	7 01-9	6 41-6	0-3	0-1	6-3	3-0	12-3	5-8	03	7 15-8	7 16-9	6 55-9	0-3	0-1	6-3	3-1	12-3	6-0
04	7 01-0	7 02-2	6 41-8	0-4	0-2	6-4	3-0	12-4	5-9	04	7 16-0	7 17-2	6 56-1	0-4	0-2	6-4	3-1	12-4	6-1
05	7 01-3	7 02-4	6 42-1	0-5	0-2	6-5	3-1	12-5	5-9	05	7 16-3	7 17-4	6 56-4	0-5	0-2	6-5	3-2	12-5	6-1
06	7 01-5	7 02-7	6 42-3	0-6	0-3	6-6	3-1	12-6	6-0	06	7 16-5	7 17-7	6 56-6	0-6	0-3	6-6	3-2	12-6	6-2
07	7 01-8	7 02-9	6 42-5	0-7	0-3	6-7	3-2	12-7	6-0	07	7 16-8	7 17-9	6 56-9	0-7	0-3	6-7	3-3	12-7	6-2
08	7 02-0	7 03-2	6 42-8	0-8	0-4	6-8	3-2	12-8	6-1	08	7 17-0	7 18-2	6 57-1	0-8	0-4	6-8	3-3	12-8	6-3
09	7 02-3	7 03-4	6 43-0	0-9	0-4	6-9	3-3	12-9	6-1	09	7 17-3	7 18-4	6 57-3	0-9	0-4	6-9	3-4	12-9	6-3
10	7 02-5	7 03-7	6 43-3	1-0	0-5	7-0	3-3	13-0	6-2	10	7 17-5	7 18-7	6 57-6	1-0	0-5	7-0	3-4	13-0	6-4
11	7 02-8	7 03-9	6 43-5	1-1	0-5	7-1	3-4	13-1	6-2	11	7 17-8	7 18-9	6 57-8	1-1	0-5	7-1	3-5	13-1	6-4
12	7 03-0	7 04-2	6 43-7	1-2	0-6	7-2	3-4	13-2	6-3	12	7 18-0	7 19-2	6 58-0	1-2	0-6	7-2	3-5	13-2	6-5
13	7 03-3	7 04-4	6 44-0	1-3	0-6	7-3	3-5	13-3	6-3	13	7 18-3	7 19-4	6 58-3	1-3	0-6	7-3	3-6	13-3	6-5
14	7 03-5	7 04-7	6 44-2	1-4	0-7	7-4	3-5	13-4	6-4	14	7 18-5	7 19-7	6 58-5	1-4	0-7	7-4	3-6	13-4	6-6
15	7 03-8	7 04-9	6 44-4	1-5	0-7	7-5	3-6	13-5	6-4	15	7 18-8	7 20-0	6 58-8	1-5	0-7	7-5	3-7	13-5	6-6
16	7 04-0	7 05-2	6 44-7	1-6	0-8	7-6	3-6	13-6	6-5	16	7 19-0	7 20-2	6 59-0	1-6	0-8	7-6	3-7	13-6	6-7
17	7 04-3	7 05-4	6 44-9	1-7	0-8	7-7	3-7	13-7	6-5	17	7 19-3	7 20-5	6 59-2	1-7	0-8	7-7	3-8	13-7	6-7
18	7 04-5	7 05-7	6 45-2	1-8	0-9	7-8	3-7	13-8	6-6	18	7 19-5	7 20-7	6 59-5	1-8	0-9	7-8	3-8	13-8	6-8
19	7 04-8	7 05-9	6 45-4	1-9	0-9	7-9	3-8	13-9	6-6	19	7 19-8	7 21-0	6 59-7	1-9	0-9	7-9	3-9	13-9	6-8
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22	7 05-5	7 06-7	6 46-1	2-2	1-0	8-2	3-9	14-2	6-7	22	7 20-5	7 21-7	7 00-4	2-2	1-1	8-2	4-0	14-2	7-0
23	7 05-8	7 06-9	6 46-4	2-3	1-1	8-3	3-9	14-3	6-8	23	7 20-8	7 22-0	7 00-7	2-3	1-1	8-3	4-1	14-3	7-0
24	7 06-0	7 07-2	6 46-6	2-4	1-1	8-4	4-0	14-4	6-8	24	7 21-0	7 22-2	7 00-9	2-4	1-2	8-4	4-1	14-4	7-1
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31	7 07-8	7 08-9	6 48-3	3-1	1-5	9-1	4-3	15-1	7-2	31	7 22-8	7 24-0	7 02-6	3-1	1-5	9-1	4-5	15-1	7-4
32	7 08-0	7 09-2	6 48-5	3-2	1-5	9-2	4-4	15-2	7-2	32	7 23-0	7 24-2	7 02-8	3-2	1-6	9-2	4-5	15-2	7-5
33	7 08-3	7 09-4	6 48-7	3-3	1-6	9-3	4-4	15-3	7-3	33	7 23-3	7 24-5	7 03-1	3-3	1-6	9-3	4-6	15-3	7-5
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43	7 10-8	7 11-9	6 51-1	4-3	2-0	10-3	4-9	16-3	7-7	43	7 25-8	7 27-0	7 05-4	4-3	2-1	10-3	5-1	16-3	8-0
44	7 11-0	7 12-2	6 51-4	4-4	2-1	10-4	4-9	16-4	7-8	44	7 26-0	7 27-2	7 05-7	4-4	2-2	10-4	5-1	16-4	8-1
45	7 11-3	7 12-4	6 51-6	4-5	2-1	10-5	5-0	16-5	7-8	45	7 26-3	7 27-5	7 05-9	4-5	2-2	10-5	5-2	16-5	8-1
46	7 11-5	7 12-7	6 51-8	4-6	2-2	10-6	5-0	16-6	7-9	46	7 26-5	7 27-7	7 06-2	4-6	2-3	10-6	5-2	16-6	8-2
47	7 11-8	7 12-9	6 52-1	4-7	2-2	10-7	5-1	16-7	7-9	47	7 26-8	7 28-0	7 06-4	4-7	2-3	10-7	5-3	16-7	8-2
48	7 12-0	7 13-2	6 52-3	4-8	2-3	10-8	5-1	16-8	8-0	48	7 27-0	7 28-2	7 06-6	4-8	2-4	10-8	5-3	16-8	8-3
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50	7 12-5	7 13-7	6 52-8	5-0	2-4	11-0	5-2	17-0	8-1	50	7 27-5	7 28-7	7 07-1	5-0	2-5	11-0	5-4	17-0	8-4
51	7 12-8	7 13-9	6 53-0	5-1	2-4	11-1	5-3	17-1	8-1	51	7 27-8	7 29-0	7 07-4	5-1	2-5	11-1	5-5	17-1	8-4
52	7 13-0	7 14-2	6 53-3	5-2	2-5	11-2	5-3	17-2	8-2	52	7 28-0	7 29-2	7 07-6	5-2	2-6	11-2	5-5	17-2	8-5
53	7 13-3	7 14-4	6 53-5	5-3	2-5	11-3	5-4	17-3	8-2	53	7 28-3	7 29-5	7 07-8	5-3	2-6	11-3	5-6	17-3	8-5
54	7 13-5	7 14-7	6 53-8	5-4	2-6	11-4	5-4	17-4	8-3	54	7 28-5	7 29-7	7 08-1	5-4	2-7	11-4	5-6	17-4	8-6
55	7 13-8	7 14-9	6 54-0	5-5	2-6	11-5	5-5	17-5	8-3	55	7 28-8	7 30-0	7 08-3	5-5	2-7	11-5	5-7	17-5	8-6
56	7 14-0	7 15-2	6 54-2	5-6	2-7	11-6	5-5	17-6	8-4	56	7 29-0	7 30-2	7 08-5	5-6	2-8	11-6	5-7	17-6	8-7
57	7 14-3	7 15-4	6 54-5	5-7	2-7	11-7	5-6	17-7	8-4	57	7 29-3	7 30-5	7 08-8	5-7	2-8	11-7	5-8	17-7	8-7
58	7 14-5	7 15-7	6 54-7	5-8	2-8	11-8	5-6	17-8	8-5	58	7 29-5	7 30-7	7 09-0	5-8	2-9	11-8	5-8	17-8	8-8
59	7 14-8	7 15-9	6 54-9	5-9	2-8	11-9	5-7	17-9	8-5	59	7 29-8	7 31-0	7 09-3	5-9	2-9	11-9	5-9	17-9	8-8
60	7 15-0	7 16-2	6 55-2	6-0	2-9	12-0	5-7	18-0	8-6	60	7 30-0	7 31-2	7 09-5	6-0	3-0	12-0	5-9	18-0	8-9



30 <sup>m</sup>	SOL PLANETAS	ARIES	LUNA	° o d	Corr <sup>n</sup>	° o d	Corr <sup>n</sup>	° o d	Corr <sup>n</sup>	31 <sup>m</sup>	SOL PLANETAS	ARIES	LUNA	° o d	Corr <sup>n</sup>	° o d	Corr <sup>n</sup>	° o d	Corr <sup>n</sup>
00	7 30-0	7 31-2	7 09-5	0-0	0-0	6-0	3-1	12-0	6-1	00	7 45-0	7 46-3	7 23-8	0-0	0-0	6-0	3-2	12-0	6-3
01	7 30-3	7 31-5	7 09-7	0-1	0-1	6-1	3-1	12-1	6-2	01	7 45-3	7 46-5	7 24-1	0-1	0-1	6-1	3-2	12-1	6-4
02	7 30-5	7 31-7	7 10-0	0-2	0-1	6-2	3-2	12-2	6-2	02	7 45-5	7 46-8	7 24-3	0-2	0-1	6-2	3-3	12-2	6-4
03	7 30-8	7 32-0	7 10-2	0-3	0-2	6-3	3-2	12-3	6-3	03	7 45-8	7 47-0	7 24-5	0-3	0-2	6-3	3-3	12-3	6-5
04	7 31-0	7 32-2	7 10-5	0-4	0-2	6-4	3-3	12-4	6-3	04	7 46-0	7 47-3	7 24-8	0-4	0-2	6-4	3-4	12-4	6-5
05	7 31-3	7 32-5	7 10-7	0-5	0-3	6-5	3-3	12-5	6-4	05	7 46-3	7 47-5	7 25-0	0-5	0-3	6-5	3-4	12-5	6-6
06	7 31-5	7 32-7	7 10-9	0-6	0-3	6-6	3-4	12-6	6-4	06	7 46-5	7 47-8	7 25-2	0-6	0-3	6-6	3-5	12-6	6-6
07	7 31-8	7 33-0	7 11-2	0-7	0-4	6-7	3-4	12-7	6-5	07	7 46-8	7 48-0	7 25-5	0-7	0-4	6-7	3-5	12-7	6-7
08	7 32-0	7 33-2	7 11-4	0-8	0-4	6-8	3-5	12-8	6-5	08	7 47-0	7 48-3	7 25-7	0-8	0-4	6-8	3-6	12-8	6-7
09	7 32-3	7 33-5	7 11-6	0-9	0-5	6-9	3-5	12-9	6-6	09	7 47-3	7 48-5	7 26-0	0-9	0-5	6-9	3-6	12-9	6-8
10	7 32-5	7 33-7	7 11-9	1-0	0-5	7-0	3-6	13-0	6-6	10	7 47-5	7 48-8	7 26-2	1-0	0-5	7-0	3-7	13-0	6-8
11	7 32-8	7 34-0	7 12-1	1-1	0-6	7-1	3-6	13-1	6-7	11	7 47-8	7 49-0	7 26-4	1-1	0-6	7-1	3-7	13-1	6-9
12	7 33-0	7 34-2	7 12-4	1-2	0-6	7-2	3-7	13-2	6-7	12	7 48-0	7 49-3	7 26-7	1-2	0-6	7-2	3-8	13-2	6-9
13	7 33-3	7 34-5	7 12-6	1-3	0-7	7-3	3-7	13-3	6-8	13	7 48-3	7 49-5	7 26-9	1-3	0-7	7-3	3-8	13-3	7-0
14	7 33-5	7 34-7	7 12-8	1-4	0-7	7-4	3-8	13-4	6-8	14	7 48-5	7 49-8	7 27-2	1-4	0-7	7-4	3-9	13-4	7-0
15	7 33-8	7 35-0	7 13-1	1-5	0-8	7-5	3-8	13-5	6-9	15	7 48-8	7 50-0	7 27-4	1-5	0-8	7-5	3-9	13-5	7-1
16	7 34-0	7 35-2	7 13-3	1-6	0-8	7-6	3-9	13-6	6-9	16	7 49-0	7 50-3	7 27-6	1-6	0-8	7-6	4-0	13-6	7-1
17	7 34-3	7 35-5	7 13-6	1-7	0-9	7-7	3-9	13-7	7-0	17	7 49-3	7 50-5	7 27-9	1-7	0-9	7-7	4-0	13-7	7-2
18	7 34-5	7 35-7	7 13-8	1-8	0-9	7-8	4-0	13-8	7-0	18	7 49-5	7 50-8	7 28-1	1-8	0-9	7-8	4-1	13-8	7-2
19	7 34-8	7 36-0	7 14-0	1-9	1-0	7-9	4-0	13-9	7-1	19	7 49-8	7 51-0	7 28-4	1-9	1-0	7-9	4-1	13-9	7-3
20	7 35-0	7 36-2	7 14-3	2-0	1-0	8-0	4-1	14-0	7-1	20	7 50-0	7 51-3	7 28-6	2-0	1-1	8-0	4-2	14-0	7-4
21	7 35-3	7 36-5	7 14-5	2-1	1-1	8-1	4-1	14-1	7-2	21	7 50-3	7 51-5	7 28-8	2-1	1-1	8-1	4-3	14-1	7-4
22	7 35-5	7 36-7	7 14-7	2-2	1-1	8-2	4-2	14-2	7-2	22	7 50-5	7 51-8	7 29-1	2-2	1-2	8-2	4-3	14-2	7-5
23	7 35-8	7 37-0	7 15-0	2-3	1-2	8-3	4-2	14-3	7-3	23	7 50-8	7 52-0	7 29-3	2-3	1-2	8-3	4-4	14-3	7-5
24	7 36-0	7 37-2	7 15-2	2-4	1-2	8-4	4-3	14-4	7-3	24	7 51-0	7 52-3	7 29-5	2-4	1-3	8-4	4-4	14-4	7-6
25	7 36-3	7 37-5	7 15-5	2-5	1-3	8-5	4-3	14-5	7-4	25	7 51-3	7 52-5	7 29-8	2-5	1-3	8-5	4-5	14-5	7-6
26	7 36-5	7 37-7	7 15-7	2-6	1-3	8-6	4-4	14-6	7-4	26	7 51-5	7 52-8	7 30-0	2-6	1-4	8-6	4-5	14-6	7-7
27	7 36-8	7 38-0	7 15-9	2-7	1-4	8-7	4-4	14-7	7-5	27	7 51-8	7 53-0	7 30-3	2-7	1-4	8-7	4-6	14-7	7-7
28	7 37-0	7 38-3	7 16-2	2-8	1-4	8-8	4-5	14-8	7-5	28	7 52-0	7 53-3	7 30-5	2-8	1-5	8-8	4-6	14-8	7-8
29	7 37-3	7 38-5	7 16-4	2-9	1-5	8-9	4-5	14-9	7-6	29	7 52-3	7 53-5	7 30-7	2-9	1-5	8-9	4-7	14-9	7-8
30	7 37-5	7 38-8	7 16-7	3-0	1-5	9-0	4-6	15-0	7-6	30	7 52-5	7 53-8	7 31-0	3-0	1-6	9-0	4-7	15-0	7-9
31	7 37-8	7 39-0	7 16-9	3-1	1-6	9-1	4-6	15-1	7-7	31	7 52-8	7 54-0	7 31-2	3-1	1-6	9-1	4-8	15-1	7-9
32	7 38-0	7 39-3	7 17-1	3-2	1-6	9-2	4-7	15-2	7-7	32	7 53-0	7 54-3	7 31-5	3-2	1-7	9-2	4-8	15-2	8-0
33	7 38-3	7 39-5	7 17-4	3-3	1-7	9-3	4-7	15-3	7-8	33	7 53-3	7 54-5	7 31-7	3-3	1-7	9-3	4-9	15-3	8-0
34	7 38-5	7 39-8	7 17-6	3-4	1-7	9-4	4-8	15-4	7-8	34	7 53-5	7 54-8	7 31-9	3-4	1-8	9-4	4-9	15-4	8-1
35	7 38-8	7 40-0	7 17-9	3-5	1-8	9-5	4-8	15-5	7-9	35	7 53-8	7 55-0	7 32-2	3-5	1-8	9-5	5-0	15-5	8-1
36	7 39-0	7 40-3	7 18-1	3-6	1-8	9-6	4-9	15-6	7-9	36	7 54-0	7 55-3	7 32-4	3-6	1-9	9-6	5-0	15-6	8-2
37	7 39-3	7 40-5	7 18-3	3-7	1-9	9-7	4-9	15-7	8-0	37	7 54-3	7 55-5	7 32-6	3-7	1-9	9-7	5-1	15-7	8-2
38	7 39-5	7 40-8	7 18-6	3-8	1-9	9-8	5-0	15-8	8-0	38	7 54-5	7 55-8	7 32-9	3-8	2-0	9-8	5-1	15-8	8-3
39	7 39-8	7 41-0	7 18-8	3-9	2-0	9-9	5-0	15-9	8-1	39	7 54-8	7 56-0	7 33-1	3-9	2-0	9-9	5-2	15-9	8-3
40	7 40-0	7 41-3	7 19-0	4-0	2-0	10-0	5-1	16-0	8-1	40	7 55-0	7 56-3	7 33-4	4-0	2-1	10-0	5-3	16-0	8-4
41	7 40-3	7 41-5	7 19-3	4-1	2-1	10-1	5-1	16-1	8-2	41	7 55-3	7 56-6	7 33-6	4-1	2-2	10-1	5-3	16-1	8-5
42	7 40-5	7 41-8	7 19-5	4-2	2-1	10-2	5-2	16-2	8-2	42	7 55-5	7 56-8	7 33-8	4-2	2-2	10-2	5-4	16-2	8-5
43	7 40-8	7 42-0	7 19-8	4-3	2-2	10-3	5-2	16-3	8-3	43	7 55-8	7 57-1	7 34-1	4-3	2-3	10-3	5-4	16-3	8-6
44	7 41-0	7 42-3	7 20-0	4-4	2-2	10-4	5-3	16-4	8-3	44	7 56-0	7 57-3	7 34-3	4-4	2-3	10-4	5-5	16-4	8-6
45	7 41-3	7 42-5	7 20-2	4-5	2-3	10-5	5-3	16-5	8-4	45	7 56-3	7 57-6	7 34-6	4-5	2-4	10-5	5-5	16-5	8-7
46	7 41-5	7 42-8	7 20-5	4-6	2-3	10-6	5-4	16-6	8-4	46	7 56-5	7 57-8	7 34-8	4-6	2-4	10-6	5-6	16-6	8-7
47	7 41-8	7 43-0	7 20-7	4-7	2-4	10-7	5-4	16-7	8-5	47	7 56-8	7 58-1	7 35-0	4-7	2-5	10-7	5-6	16-7	8-8
48	7 42-0	7 43-3	7 21-0	4-8	2-4	10-8	5-5	16-8	8-5	48	7 57-0	7 58-3	7 35-3	4-8	2-5	10-8	5-7	16-8	8-8
49	7 42-3	7 43-5	7 21-2	4-9	2-5	10-9	5-5	16-9	8-6	49	7 57-3	7 58-6	7 35-5	4-9	2-6	10-9	5-7	16-9	8-9
50	7 42-5	7 43-8	7 21-4	5-0	2-5	11-0	5-6	17-0	8-6	50	7 57-5	7 58-8	7 35-7	5-0	2-6	11-0	5-8	17-0	8-9
51	7 42-8	7 44-0	7 21-7	5-1	2-6	11-1	5-6	17-1	8-7	51	7 57-8	7 59-1	7 36-0	5-1	2-7	11-1	5-8	17-1	9-0
52	7 43-0	7 44-3	7 21-9	5-2	2-6	11-2	5-7	17-2	8-7	52	7 58-0	7 59-3	7 36-2	5-2	2-7	11-2	5-9	17-2	9-0
53	7 43-3	7 44-5	7 22-1	5-3	2-7	11-3	5-7	17-3	8-8	53	7 58-3	7 59-6	7 36-5	5-3	2-8	11-3	5-9	17-3	9-1
54	7 43-5	7 44-8	7 22-4	5-4	2-7	11-4	5-8	17-4	8-8	54	7 58-5	7 59-8	7 36-7	5-4	2-8	11-4	6-0	17-4	9-1
55	7 43-8	7 45-0	7 22-6	5-5	2-8	11-5	5-8	17-5	8-9	55	7 58-8	8 00-1	7 36-9	5-5	2-9	11-5	6-0	17-5	9-2
56	7 44-0	7 45-3	7 22-9	5-6	2-8	11-6	5-9	17-6	8-9	56	7 59-0	8 00-3	7 37-2	5-6	2-9	11-6	6-1	17-6	9-2
57	7 44-3	7 45-5	7 23-1	5-7	2-9	11-7	5-9	17-7	9-0	57	7 59-3	8 00-6	7 37-4	5-7	3-0	11-7	6-1	17-7	9-3
58	7 44-5	7 45-8	7 23-3	5-8	2-9	11-8	6-0	17-8	9-0	58	7 59-5	8 00-8	7 37-7	5-8	3-0	11-8	6-2	17-8	9-3
59	7 44-8	7 46-0	7 23-6	5-9	3-0	11-9	6-0	17-9	9-1	59	7 59-8	8 01-1	7 37-9	5-9	3-1	11-9	6-2	17-9	9-4
60	7 45-0	7 46-3	7 23-8	6-0	3-1	12-0	6-1	18-0	9-2	60	8 00-0	8 01-3	7 38-1	6-0	3-2	12-0	6-3	18-0	9-5



32 <sup>m</sup>	SOL PLANETAS	ARIES	LUNA	v <sub>o</sub> d Corr <sup>n</sup>		v <sub>o</sub> d Corr <sup>n</sup>		v <sub>o</sub> d Corr <sup>n</sup>	
				'	''	'	''	'	''
00	8 00-0	8 01-3	7 38-1	0-0	0-0	6-0	3-3	12-0	6-5
01	8 00-3	8 01-6	7 38-4	0-1	0-1	6-1	3-3	12-1	6-6
02	8 00-5	8 01-8	7 38-6	0-2	0-1	6-2	3-4	12-2	6-6
03	8 00-8	8 02-1	7 38-8	0-3	0-2	6-3	3-4	12-3	6-7
04	8 01-0	8 02-3	7 39-1	0-4	0-2	6-4	3-5	12-4	6-7
05	8 01-3	8 02-6	7 39-3	0-5	0-3	6-5	3-5	12-5	6-8
06	8 01-5	8 02-8	7 39-6	0-6	0-3	6-6	3-6	12-6	6-8
07	8 01-8	8 03-1	7 39-8	0-7	0-4	6-7	3-6	12-7	6-9
08	8 02-0	8 03-3	7 40-0	0-8	0-4	6-8	3-7	12-8	6-9
09	8 02-3	8 03-6	7 40-3	0-9	0-5	6-9	3-7	12-9	7-0
10	8 02-5	8 03-8	7 40-5	1-0	0-5	7-0	3-8	13-0	7-0
11	8 02-8	8 04-1	7 40-8	1-1	0-6	7-1	3-8	13-1	7-1
12	8 03-0	8 04-3	7 41-0	1-2	0-7	7-2	3-9	13-2	7-2
13	8 03-3	8 04-6	7 41-2	1-3	0-7	7-3	4-0	13-3	7-2
14	8 03-5	8 04-8	7 41-5	1-4	0-8	7-4	4-0	13-4	7-3
15	8 03-8	8 05-1	7 41-7	1-5	0-8	7-5	4-1	13-5	7-3
16	8 04-0	8 05-3	7 42-0	1-6	0-9	7-6	4-1	13-6	7-4
17	8 04-3	8 05-6	7 42-2	1-7	0-9	7-7	4-2	13-7	7-4
18	8 04-5	8 05-8	7 42-4	1-8	1-0	7-8	4-2	13-8	7-5
19	8 04-8	8 06-1	7 42-7	1-9	1-0	7-9	4-3	13-9	7-5
20	8 05-0	8 06-3	7 42-9	2-0	1-1	8-0	4-3	14-0	7-6
21	8 05-3	8 06-6	7 43-1	2-1	1-1	8-1	4-4	14-1	7-6
22	8 05-5	8 06-8	7 43-4	2-2	1-2	8-2	4-4	14-2	7-7
23	8 05-8	8 07-1	7 43-6	2-3	1-2	8-3	4-5	14-3	7-7
24	8 06-0	8 07-3	7 43-9	2-4	1-3	8-4	4-6	14-4	7-8
25	8 06-3	8 07-6	7 44-1	2-5	1-4	8-5	4-6	14-5	7-9
26	8 06-5	8 07-8	7 44-3	2-6	1-4	8-6	4-7	14-6	7-9
27	8 06-8	8 08-1	7 44-6	2-7	1-5	8-7	4-7	14-7	8-0
28	8 07-0	8 08-3	7 44-8	2-8	1-5	8-8	4-8	14-8	8-0
29	8 07-3	8 08-6	7 45-1	2-9	1-6	8-9	4-8	14-9	8-1
30	8 07-5	8 08-8	7 45-3	3-0	1-6	9-0	4-9	15-0	8-1
31	8 07-8	8 09-1	7 45-5	3-1	1-7	9-1	4-9	15-1	8-2
32	8 08-0	8 09-3	7 45-8	3-2	1-7	9-2	5-0	15-2	8-2
33	8 08-3	8 09-6	7 46-0	3-3	1-8	9-3	5-0	15-3	8-3
34	8 08-5	8 09-8	7 46-2	3-4	1-8	9-4	5-1	15-4	8-3
35	8 08-8	8 10-1	7 46-5	3-5	1-9	9-5	5-1	15-5	8-4
36	8 09-0	8 10-3	7 46-7	3-6	2-0	9-6	5-2	15-6	8-5
37	8 09-3	8 10-6	7 47-0	3-7	2-0	9-7	5-3	15-7	8-5
38	8 09-5	8 10-8	7 47-2	3-8	2-1	9-8	5-3	15-8	8-6
39	8 09-8	8 11-1	7 47-4	3-9	2-1	9-9	5-4	15-9	8-6
40	8 10-0	8 11-3	7 47-7	4-0	2-2	10-0	5-4	16-0	8-7
41	8 10-3	8 11-6	7 47-9	4-1	2-2	10-1	5-5	16-1	8-7
42	8 10-5	8 11-8	7 48-2	4-2	2-3	10-2	5-5	16-2	8-8
43	8 10-8	8 12-1	7 48-4	4-3	2-3	10-3	5-6	16-3	8-8
44	8 11-0	8 12-3	7 48-6	4-4	2-4	10-4	5-6	16-4	8-9
45	8 11-3	8 12-6	7 48-9	4-5	2-4	10-5	5-7	16-5	8-9
46	8 11-5	8 12-8	7 49-1	4-6	2-5	10-6	5-7	16-6	9-0
47	8 11-8	8 13-1	7 49-3	4-7	2-5	10-7	5-8	16-7	9-0
48	8 12-0	8 13-3	7 49-6	4-8	2-6	10-8	5-9	16-8	9-1
49	8 12-3	8 13-6	7 49-8	4-9	2-7	10-9	5-9	16-9	9-2
50	8 12-5	8 13-8	7 50-1	5-0	2-7	11-0	6-0	17-0	9-2
51	8 12-8	8 14-1	7 50-3	5-1	2-8	11-1	6-0	17-1	9-3
52	8 13-0	8 14-3	7 50-5	5-2	2-8	11-2	6-1	17-2	9-3
53	8 13-3	8 14-6	7 50-8	5-3	2-9	11-3	6-1	17-3	9-4
54	8 13-5	8 14-9	7 51-0	5-4	2-9	11-4	6-2	17-4	9-4
55	8 13-8	8 15-1	7 51-3	5-5	3-0	11-5	6-2	17-5	9-5
56	8 14-0	8 15-4	7 51-5	5-6	3-0	11-6	6-3	17-6	9-5
57	8 14-3	8 15-6	7 51-7	5-7	3-1	11-7	6-3	17-7	9-6
58	8 14-5	8 15-9	7 52-0	5-8	3-1	11-8	6-4	17-8	9-6
59	8 14-8	8 16-1	7 52-2	5-9	3-2	11-9	6-4	17-9	9-7
60	8 15-0	8 16-4	7 52-5	6-0	3-3	12-0	6-5	18-0	9-8

33 <sup>m</sup>	SOL PLANETAS	ARIES	LUNA	v <sub>o</sub> d Corr <sup>n</sup>		v <sub>o</sub> d Corr <sup>n</sup>		v <sub>o</sub> d Corr <sup>n</sup>	
				'	''	'	''	'	''
00	8 15-0	8 16-4	7 52-5	0-0	0-0	6-0	3-4	12-0	6-7
01	8 15-3	8 16-6	7 52-7	0-1	0-1	6-1	3-4	12-1	6-8
02	8 15-5	8 16-9	7 52-9	0-2	0-1	6-2	3-5	12-2	6-8
03	8 15-8	8 17-1	7 53-2	0-3	0-2	6-3	3-5	12-3	6-9
04	8 16-0	8 17-4	7 53-4	0-4	0-2	6-4	3-6	12-4	6-9
05	8 16-3	8 17-6	7 53-6	0-5	0-3	6-5	3-6	12-5	7-0
06	8 16-5	8 17-9	7 53-9	0-6	0-3	6-6	3-7	12-6	7-0
07	8 16-8	8 18-1	7 54-1	0-7	0-4	6-7	3-7	12-7	7-1
08	8 17-0	8 18-4	7 54-4	0-8	0-4	6-8	3-8	12-8	7-1
09	8 17-3	8 18-6	7 54-6	0-9	0-5	6-9	3-9	12-9	7-2
10	8 17-5	8 18-9	7 54-8	1-0	0-6	7-0	3-9	13-0	7-3
11	8 17-8	8 19-1	7 55-1	1-1	0-6	7-1	4-0	13-1	7-3
12	8 18-0	8 19-4	7 55-3	1-2	0-7	7-2	4-0	13-2	7-4
13	8 18-3	8 19-6	7 55-6	1-3	0-7	7-3	4-1	13-3	7-4
14	8 18-5	8 19-9	7 55-8	1-4	0-8	7-4	4-1	13-4	7-5
15	8 18-8	8 20-1	7 56-0	1-5	0-8	7-5	4-2	13-5	7-5
16	8 19-0	8 20-4	7 56-3	1-6	0-9	7-6	4-2	13-6	7-6
17	8 19-3	8 20-6	7 56-5	1-7	0-9	7-7	4-3	13-7	7-6
18	8 19-5	8 20-9	7 56-7	1-8	1-0	7-8	4-4	13-8	7-7
19	8 19-8	8 21-1	7 57-0	1-9	1-1	7-9	4-4	13-9	7-8
20	8 20-0	8 21-4	7 57-2	2-0	1-1	8-0	4-5	14-0	7-8
21	8 20-3	8 21-6	7 57-5	2-1	1-2	8-1	4-5	14-1	7-9
22	8 20-5	8 21-9	7 57-7	2-2	1-2	8-2	4-6	14-2	7-9
23	8 20-8	8 22-1	7 57-9	2-3	1-3	8-3	4-6	14-3	8-0
24	8 21-0	8 22-4	7 58-2	2-4	1-3	8-4	4-7	14-4	8-0
25	8 21-3	8 22-6	7 58-4	2-5	1-4	8-5	4-7	14-5	8-1
26	8 21-5	8 22-9	7 58-7	2-6	1-5	8-6	4-8	14-6	8-2
27	8 21-8	8 23-1	7 58-9	2-7	1-5	8-7	4-9	14-7	8-2
28	8 22-0	8 23-4	7 59-1	2-8	1-6	8-8	4-9	14-8	8-3
29	8 22-3	8 23-6	7 59-4	2-9	1-6	8-9	5-0	14-9	8-3
30	8 22-5	8 23-9	7 59-6	3-0	1-7	9-0	5-0	15-0	8-4
31	8 22-8	8 24-1	7 59-8	3-1	1-7	9-1	5-1	15-1	8-4
32	8 23-0	8 24-4	8 00-1	3-2	1-8	9-2	5-1	15-2	8-5
33	8 23-3	8 24-6	8 00-3	3-3	1-8	9-3	5-2	15-3	8-5
34	8 23-5	8 24-9	8 00-6	3-4	1-9	9-4	5-2	15-4	8-6
35	8 23-8	8 25-1	8 00-8	3-5	2-0	9-5	5-3	15-5	8-7
36	8 24-0	8 25-4	8 01-0	3-6	2-0	9-6	5-4	15-6	8-7
37	8 24-3	8 25-6	8 01-3	3-7	2-1	9-7	5-4	15-7	8-8
38	8 24-5	8 25-9	8 01-5	3-8	2-1	9-8	5-5	15-8	8-8
39	8 24-8	8 26-1	8 01-8	3-9	2-2	9-9	5-5	15-9	8-9
40	8 25-0	8 26-4	8 02-0	4-0	2-2	10-0	5-6	16-0	8-9
41	8 25-3	8 26-6	8 02-2	4-1	2-3	10-1	5-6	16-1	9-0
42	8 25-5	8 26-9	8 02-5	4-2	2-3	10-2	5-7	16-2	9-0
43	8 25-8	8 27-1	8 02-7	4-3	2-4	10-3	5-8	16-3	9-1
44	8 26-0	8 27-4	8 02-9	4-4	2-5	10-4	5-8	16-4	9-2
45	8 26-3	8 27-6	8 03-2	4-5	2-5	10-5	5-9	16-5	9-2
46	8 26-5	8 27-9	8 03-4	4-6	2-6	10-6	5-9	16-6	9-3
47	8 26-8	8 28-1	8 03-7	4-7	2-6	10-7	6-0	16-7	9-3
48	8 27-0	8 28-4	8 03-9	4-8	2-7	10-8	6-0	16-8	9-4
49	8 27-3	8 28-6	8 04-1	4-9	2-7	10-9	6-1	16-9	9-4
50	8 27-5	8 28-9	8 04-4	5-0	2-8	11-0	6-1	17-0	9-5
51	8 27-8	8 29-1	8 04-6	5-1	2-8	11-1	6-2	17-1	9-5
52	8 28-0	8 29-4	8 04-9	5-2	2-9	11-2	6-3	17-2	9-6
53	8 28-3	8 29-6	8 05-1	5-3	3-0	11-3	6-3	17-3	9-7
54	8 28-5	8 29-9	8 05-3	5-4	3-0	11-4	6-4	17-4	9-7
55	8 28-8	8 30-1	8 05-6	5-5	3-1	11-5	6-4	17-5	9-8
56	8 29-0	8 30-4	8 05-8	5-6	3-1	11-6	6-5	17-6	9-8
57	8 29-3	8 30-6	8 06-1	5-7	3-2	11-7	6-5	17-7	9-9
58	8 29-5	8 30-9	8 06-3	5-8	3-2	11-8	6-6	17-8	9-9
59	8 29-8	8 31-1	8 06-5	5-9	3-3	11-9	6-6	17-9	10-0
60	8 30-0	8 31-4	8 06-8	6-0	3-4	12-0	6-7	18-0	10-1



34 <sup>m</sup>	SOL PLANETAS		ARIES	LUNA	v o d Corr <sup>n</sup>		v o d Corr <sup>n</sup>		v o d Corr <sup>n</sup>	
	s	o / ' / "			' / "	' / "	' / "	' / "	' / "	' / "
00	8 30-0	8 31-4	8 06-8	0-0 0-0	6-0 3-5	12-0 6-9				
01	8 30-3	8 31-6	8 07-0	0-1 0-1	6-1 3-5	12-1 7-0				
02	8 30-5	8 31-9	8 07-2	0-2 0-1	6-2 3-6	12-2 7-0				
03	8 30-8	8 32-1	8 07-5	0-3 0-2	6-3 3-6	12-3 7-1				
04	8 31-0	8 32-4	8 07-7	0-4 0-2	6-4 3-7	12-4 7-1				
05	8 31-3	8 32-6	8 08-0	0-5 0-3	6-5 3-7	12-5 7-2				
06	8 31-5	8 32-9	8 08-2	0-6 0-3	6-6 3-8	12-6 7-2				
07	8 31-8	8 33-2	8 08-4	0-7 0-4	6-7 3-9	12-7 7-3				
08	8 32-0	8 33-4	8 08-7	0-8 0-5	6-8 3-9	12-8 7-4				
09	8 32-3	8 33-7	8 08-9	0-9 0-5	6-9 4-0	12-9 7-4				
10	8 32-5	8 33-9	8 09-2	1-0 0-6	7-0 4-0	13-0 7-5				
11	8 32-8	8 34-2	8 09-4	1-1 0-6	7-1 4-1	13-1 7-5				
12	8 33-0	8 34-4	8 09-6	1-2 0-7	7-2 4-1	13-2 7-6				
13	8 33-3	8 34-7	8 09-9	1-3 0-7	7-3 4-2	13-3 7-6				
14	8 33-5	8 34-9	8 10-1	1-4 0-8	7-4 4-3	13-4 7-7				
15	8 33-8	8 35-2	8 10-3	1-5 0-9	7-5 4-3	13-5 7-8				
16	8 34-0	8 35-4	8 10-6	1-6 0-9	7-6 4-4	13-6 7-8				
17	8 34-3	8 35-7	8 10-8	1-7 1-0	7-7 4-4	13-7 7-9				
18	8 34-5	8 35-9	8 11-1	1-8 1-0	7-8 4-5	13-8 7-9				
19	8 34-8	8 36-2	8 11-3	1-9 1-1	7-9 4-5	13-9 8-0				
20	8 35-0	8 36-4	8 11-5	2-0 1-2	8-0 4-6	14-0 8-1				
21	8 35-3	8 36-7	8 11-8	2-1 1-2	8-1 4-7	14-1 8-1				
22	8 35-5	8 36-9	8 12-0	2-2 1-3	8-2 4-7	14-2 8-2				
23	8 35-8	8 37-2	8 12-3	2-3 1-3	8-3 4-8	14-3 8-2				
24	8 36-0	8 37-4	8 12-5	2-4 1-4	8-4 4-8	14-4 8-3				
25	8 36-3	8 37-7	8 12-7	2-5 1-4	8-5 4-9	14-5 8-3				
26	8 36-5	8 37-9	8 13-0	2-6 1-5	8-6 4-9	14-6 8-4				
27	8 36-8	8 38-2	8 13-2	2-7 1-6	8-7 5-0	14-7 8-5				
28	8 37-0	8 38-4	8 13-4	2-8 1-6	8-8 5-1	14-8 8-5				
29	8 37-3	8 38-7	8 13-7	2-9 1-7	8-9 5-1	14-9 8-6				
30	8 37-5	8 38-9	8 13-9	3-0 1-7	9-0 5-2	15-0 8-6				
31	8 37-8	8 39-2	8 14-2	3-1 1-8	9-1 5-2	15-1 8-7				
32	8 38-0	8 39-4	8 14-4	3-2 1-8	9-2 5-3	15-2 8-7				
33	8 38-3	8 39-7	8 14-6	3-3 1-9	9-3 5-3	15-3 8-8				
34	8 38-5	8 39-9	8 14-9	3-4 2-0	9-4 5-4	15-4 8-9				
35	8 38-8	8 40-2	8 15-1	3-5 2-0	9-5 5-5	15-5 8-9				
36	8 39-0	8 40-4	8 15-4	3-6 2-1	9-6 5-5	15-6 9-0				
37	8 39-3	8 40-7	8 15-6	3-7 2-1	9-7 5-6	15-7 9-0				
38	8 39-5	8 40-9	8 15-8	3-8 2-2	9-8 5-6	15-8 9-1				
39	8 39-8	8 41-2	8 16-1	3-9 2-2	9-9 5-7	15-9 9-1				
40	8 40-0	8 41-4	8 16-3	4-0 2-3	10-0 5-8	16-0 9-2				
41	8 40-3	8 41-7	8 16-5	4-1 2-4	10-1 5-8	16-1 9-3				
42	8 40-5	8 41-9	8 16-8	4-2 2-4	10-2 5-9	16-2 9-3				
43	8 40-8	8 42-2	8 17-0	4-3 2-5	10-3 5-9	16-3 9-4				
44	8 41-0	8 42-4	8 17-3	4-4 2-5	10-4 6-0	16-4 9-4				
45	8 41-3	8 42-7	8 17-5	4-5 2-6	10-5 6-0	16-5 9-5				
46	8 41-5	8 42-9	8 17-7	4-6 2-6	10-6 6-1	16-6 9-5				
47	8 41-8	8 43-2	8 18-0	4-7 2-7	10-7 6-2	16-7 9-6				
48	8 42-0	8 43-4	8 18-2	4-8 2-8	10-8 6-2	16-8 9-7				
49	8 42-3	8 43-7	8 18-5	4-9 2-8	10-9 6-3	16-9 9-7				
50	8 42-5	8 43-9	8 18-7	5-0 2-9	11-0 6-3	17-0 9-8				
51	8 42-8	8 44-2	8 18-9	5-1 2-9	11-1 6-4	17-1 9-8				
52	8 43-0	8 44-4	8 19-2	5-2 3-0	11-2 6-4	17-2 9-9				
53	8 43-3	8 44-7	8 19-4	5-3 3-0	11-3 6-5	17-3 9-9				
54	8 43-5	8 44-9	8 19-7	5-4 3-1	11-4 6-6	17-4 10-0				
55	8 43-8	8 45-2	8 19-9	5-5 3-2	11-5 6-6	17-5 10-1				
56	8 44-0	8 45-4	8 20-1	5-6 3-2	11-6 6-7	17-6 10-1				
57	8 44-3	8 45-7	8 20-4	5-7 3-3	11-7 6-7	17-7 10-2				
58	8 44-5	8 45-9	8 20-6	5-8 3-3	11-8 6-8	17-8 10-2				
59	8 44-8	8 46-2	8 20-8	5-9 3-4	11-9 6-8	17-9 10-3				
60	8 45-0	8 46-4	8 21-1	6-0 3-5	12-0 6-9	18-0 10-4				

35 <sup>m</sup>	SOL PLANETAS		ARIES	LUNA	v o d Corr <sup>n</sup>		v o d Corr <sup>n</sup>		v o d Corr <sup>n</sup>	
	s	o / ' / "			' / "	' / "	' / "	' / "	' / "	' / "
00	8 45-0	8 46-4	8 21-1	0-0 0-0	6-0 3-6	12-0 7-1				
01	8 45-3	8 46-7	8 21-3	0-1 0-1	6-1 3-6	12-1 7-2				
02	8 45-5	8 46-9	8 21-6	0-2 0-1	6-2 3-7	12-2 7-2				
03	8 45-8	8 47-2	8 21-8	0-3 0-2	6-3 3-7	12-3 7-3				
04	8 46-0	8 47-4	8 22-0	0-4 0-2	6-4 3-8	12-4 7-3				
05	8 46-3	8 47-7	8 22-3	0-5 0-3	6-5 3-8	12-5 7-4				
06	8 46-5	8 47-9	8 22-5	0-6 0-4	6-6 3-9	12-6 7-5				
07	8 46-8	8 48-2	8 22-8	0-7 0-4	6-7 4-0	12-7 7-5				
08	8 47-0	8 48-4	8 23-0	0-8 0-5	6-8 4-0	12-8 7-6				
09	8 47-3	8 48-7	8 23-2	0-9 0-5	6-9 4-1	12-9 7-6				
10	8 47-5	8 48-9	8 23-5	1-0 0-6	7-0 4-1	13-0 7-7				
11	8 47-8	8 49-2	8 23-7	1-1 0-7	7-1 4-2	13-1 7-8				
12	8 48-0	8 49-4	8 23-9	1-2 0-7	7-2 4-3	13-2 7-8				
13	8 48-3	8 49-7	8 24-2	1-3 0-8	7-3 4-3	13-3 7-9				
14	8 48-5	8 49-9	8 24-4	1-4 0-8	7-4 4-4	13-4 7-9				
15	8 48-8	8 50-2	8 24-7	1-5 0-9	7-5 4-4	13-5 8-0				
16	8 49-0	8 50-4	8 24-9	1-6 0-9	7-6 4-5	13-6 8-0				
17	8 49-3	8 50-7	8 25-1	1-7 1-0	7-7 4-6	13-7 8-1				
18	8 49-5	8 50-9	8 25-4	1-8 1-1	7-8 4-6	13-8 8-2				
19	8 49-8	8 51-2	8 25-6	1-9 1-1	7-9 4-7	13-9 8-2				
20	8 50-0	8 51-5	8 25-9	2-0 1-2	8-0 4-7	14-0 8-3				
21	8 50-3	8 51-7	8 26-1	2-1 1-2	8-1 4-8	14-1 8-3				
22	8 50-5	8 52-0	8 26-3	2-2 1-3	8-2 4-9	14-2 8-4				
23	8 50-8	8 52-2	8 26-6	2-3 1-4	8-3 4-9	14-3 8-5				
24	8 51-0	8 52-5	8 26-8	2-4 1-4	8-4 5-0	14-4 8-5				
25	8 51-3	8 52-7	8 27-0	2-5 1-5	8-5 5-0	14-5 8-6				
26	8 51-5	8 53-0	8 27-3	2-6 1-5	8-6 5-1	14-6 8-6				
27	8 51-8	8 53-2	8 27-5	2-7 1-6	8-7 5-1	14-7 8-7				
28	8 52-0	8 53-5	8 27-8	2-8 1-7	8-8 5-2	14-8 8-8				
29	8 52-3	8 53-7	8 28-0	2-9 1-7	8-9 5-3	14-9 8-8				
30	8 52-5	8 54-0	8 28-2	3-0 1-8	9-0 5-3	15-0 8-9				
31	8 52-8	8 54-2	8 28-5	3-1 1-8	9-1 5-4	15-1 8-9				
32	8 53-0	8 54-5	8 28-7	3-2 1-9	9-2 5-4	15-2 9-0				
33	8 53-3	8 54-7	8 29-0	3-3 2-0	9-3 5-5	15-3 9-1				
34	8 53-5	8 55-0	8 29-2	3-4 2-0	9-4 5-6	15-4 9-1				
35	8 53-8	8 55-2	8 29-4	3-5 2-1	9-5 5-6	15-5 9-2				
36	8 54-0	8 55-5	8 29-7	3-6 2-1	9-6 5-7	15-6 9-2				
37	8 54-3	8 55-7	8 29-9	3-7 2-2	9-7 5-7	15-7 9-3				
38	8 54-5	8 56-0	8 30-2	3-8 2-2	9-8 5-8	15-8 9-3				
39	8 54-8	8 56-2	8 30-4	3-9 2-3	9-9 5-9	15-9 9-4				
40	8 55-0	8 56-5	8 30-6	4-0 2-4	10-0 5-9	16-0 9-5				
41	8 55-3	8 56-7	8 30-9	4-1 2-4	10-1 6-0	16-1 9-5				
42	8 55-5	8 57-0	8 31-1	4-2 2-5	10-2 6-0	16-2 9-6				
43	8 55-8	8 57-2	8 31-3	4-3 2-5	10-3 6-1	16-3 9-6				
44	8 56-0	8 57-5	8 31-6	4-4 2-6	10-4 6-2	16-4 9-7				
45	8 56-3	8 57-7	8 31-8	4-5 2-7	10-5 6-2	16-5 9-8				
46	8 56-5	8 58-0	8 32-1	4-6 2-7	10-6 6-3	16-6 9-8				
47	8 56-8	8 58-2	8 32-3	4-7 2-8	10-7 6-3	16-7 9-9				
48	8 57-0	8 58-5	8 32-5	4-8 2-8	10-8 6-4	16-8 9-9				
49	8 57-3	8 58-7	8 32-8	4-9 2-9	10-9 6-4	16-9 10-0				
50	8 57-5	8 59-0	8 33-0	5-0 3-0	11-0 6-5	17-0 10-1				
51	8 57-8	8 59-2	8 33-3	5-1 3-0	11-1 6-6	17-1 10-1				
52	8 58-0	8 59-5	8 33-5	5-2 3-1	11-2 6-6	17-2 10-2				
53	8 58-3	8 59-7	8 33-7	5-3 3-1	11-3 6-7	17-3 10-2				
54	8 58-5	9 00-0	8 34-0	5-4 3-2	11-4 6-7	17-4 10-3				
55	8 58-8	9 00-2	8 34-2	5-5 3-3	11-5 6-8	17-5 10-4				
56	8 59-0	9 00-5	8 34-4	5-6 3-3	11-6 6-9	17-6 10-4				
57	8 59-3	9 00-7	8 34-7	5-7 3-4	11-7 6-9	17-7 10-5				
58	8 59-5	9 01-0	8 34-9	5-8 3-4	11-8 7-0	17-8 10-5				
59	8 59-8	9 01-2	8 35-2	5-9 3-5	11-9 7-0	17-9 10-6				
60	9 00-0	9 01-5	8 35-4	6-0 3-6	12-0 7-1	18-0 10-7				



m 40	SOL PLANETAS		ARIES	LUNA	v o Corr <sup>n</sup> d		v o Corr <sup>n</sup> d		v o Corr <sup>n</sup> d	
	s	o /			/	/	/	/	/	/
00	10 00-0	10 01-6	9 32-7	0-0 0-0	6-0 4-1	12-0 8-1				
01	10 00-3	10 01-9	9 32-9	0-1 0-1	6-1 4-1	12-1 8-2				
02	10 00-5	10 02-1	9 33-1	0-2 0-1	6-2 4-2	12-2 8-2				
03	10 00-8	10 02-4	9 33-4	0-3 0-2	6-3 4-3	12-3 8-3				
04	10 01-0	10 02-6	9 33-6	0-4 0-3	6-4 4-3	12-4 8-4				
05	10 01-3	10 02-9	9 33-9	0-5 0-3	6-5 4-4	12-5 8-4				
06	10 01-5	10 03-1	9 34-1	0-6 0-4	6-6 4-5	12-6 8-5				
07	10 01-8	10 03-4	9 34-3	0-7 0-5	6-7 4-5	12-7 8-6				
08	10 02-0	10 03-6	9 34-6	0-8 0-5	6-8 4-6	12-8 8-6				
09	10 02-3	10 03-9	9 34-8	0-9 0-6	6-9 4-7	12-9 8-7				
10	10 02-5	10 04-1	9 35-1	1-0 0-7	7-0 4-7	13-0 8-8				
11	10 02-8	10 04-4	9 35-3	1-1 0-7	7-1 4-8	13-1 8-8				
12	10 03-0	10 04-7	9 35-5	1-2 0-8	7-2 4-9	13-2 8-9				
13	10 03-3	10 04-9	9 35-8	1-3 0-9	7-3 4-9	13-3 9-0				
14	10 03-5	10 05-2	9 36-0	1-4 0-9	7-4 5-0	13-4 9-0				
15	10 03-8	10 05-4	9 36-2	1-5 1-0	7-5 5-1	13-5 9-1				
16	10 04-0	10 05-7	9 36-5	1-6 1-1	7-6 5-1	13-6 9-2				
17	10 04-3	10 05-9	9 36-7	1-7 1-1	7-7 5-2	13-7 9-2				
18	10 04-5	10 06-2	9 37-0	1-8 1-2	7-8 5-3	13-8 9-3				
19	10 04-8	10 06-4	9 37-2	1-9 1-3	7-9 5-3	13-9 9-4				
20	10 05-0	10 06-7	9 37-4	2-0 1-4	8-0 5-4	14-0 9-5				
21	10 05-3	10 06-9	9 37-7	2-1 1-4	8-1 5-5	14-1 9-5				
22	10 05-5	10 07-2	9 37-9	2-2 1-5	8-2 5-5	14-2 9-6				
23	10 05-8	10 07-4	9 38-2	2-3 1-6	8-3 5-6	14-3 9-7				
24	10 06-0	10 07-7	9 38-4	2-4 1-6	8-4 5-7	14-4 9-7				
25	10 06-3	10 07-9	9 38-6	2-5 1-7	8-5 5-7	14-5 9-8				
26	10 06-5	10 08-2	9 38-9	2-6 1-8	8-6 5-8	14-6 9-9				
27	10 06-8	10 08-4	9 39-1	2-7 1-8	8-7 5-9	14-7 9-9				
28	10 07-0	10 08-7	9 39-3	2-8 1-9	8-8 5-9	14-8 10-0				
29	10 07-3	10 08-9	9 39-6	2-9 2-0	8-9 5-0	14-9 10-1				
30	10 07-5	10 09-2	9 39-8	3-0 2-0	9-0 6-1	15-0 10-1				
31	10 07-8	10 09-4	9 40-1	3-1 2-1	9-1 6-1	15-1 10-2				
32	10 08-0	10 09-7	9 40-3	3-2 2-2	9-2 6-2	15-2 10-3				
33	10 08-3	10 09-9	9 40-5	3-3 2-2	9-3 6-3	15-3 10-3				
34	10 08-5	10 10-2	9 40-8	3-4 2-3	9-4 6-3	15-4 10-4				
35	10 08-8	10 10-4	9 41-0	3-5 2-4	9-5 6-4	15-5 10-5				
36	10 09-0	10 10-7	9 41-3	3-6 2-4	9-6 6-5	15-6 10-5				
37	10 09-3	10 10-9	9 41-5	3-7 2-5	9-7 6-5	15-7 10-6				
38	10 09-5	10 11-2	9 41-7	3-8 2-6	9-8 6-6	15-8 10-7				
39	10 09-8	10 11-4	9 42-0	3-9 2-6	9-9 6-7	15-9 10-7				
40	10 10-0	10 11-7	9 42-2	4-0 2-7	10-0 6-8	16-0 10-8				
41	10 10-3	10 11-9	9 42-4	4-1 2-8	10-1 6-8	16-1 10-9				
42	10 10-5	10 12-2	9 42-7	4-2 2-8	10-2 6-9	16-2 10-9				
43	10 10-8	10 12-4	9 42-9	4-3 2-9	10-3 7-0	16-3 11-0				
44	10 11-0	10 12-7	9 43-2	4-4 3-0	10-4 7-0	16-4 11-1				
45	10 11-3	10 12-9	9 43-4	4-5 3-0	10-5 7-1	16-5 11-1				
46	10 11-5	10 13-2	9 43-6	4-6 3-1	10-6 7-2	16-6 11-2				
47	10 11-8	10 13-4	9 43-9	4-7 3-2	10-7 7-2	16-7 11-3				
48	10 12-0	10 13-7	9 44-1	4-8 3-2	10-8 7-3	16-8 11-3				
49	10 12-3	10 13-9	9 44-4	4-9 3-3	10-9 7-4	16-9 11-4				
50	10 12-5	10 14-2	9 44-6	5-0 3-4	11-0 7-4	17-0 11-5				
51	10 12-8	10 14-4	9 44-8	5-1 3-4	11-1 7-5	17-1 11-5				
52	10 13-0	10 14-7	9 45-1	5-2 3-5	11-2 7-6	17-2 11-6				
53	10 13-3	10 14-9	9 45-3	5-3 3-6	11-3 7-6	17-3 11-7				
54	10 13-5	10 15-2	9 45-6	5-4 3-6	11-4 7-7	17-4 11-7				
55	10 13-8	10 15-4	9 45-8	5-5 3-7	11-5 7-8	17-5 11-8				
56	10 14-0	10 15-7	9 46-0	5-6 3-8	11-6 7-8	17-6 11-9				
57	10 14-3	10 15-9	9 46-3	5-7 3-8	11-7 7-9	17-7 11-9				
58	10 14-5	10 16-2	9 46-5	5-8 3-9	11-8 8-0	17-8 12-0				
59	10 14-8	10 16-4	9 46-7	5-9 4-0	11-9 8-0	17-9 12-1				
60	10 15-0	10 16-7	9 47-0	6-0 4-1	12-0 8-1	18-0 12-2				

m 41	SOL PLANETAS		ARIES	LUNA	v o Corr <sup>n</sup> d		v o Corr <sup>n</sup> d		v o Corr <sup>n</sup> d	
	s	o /			/	/	/	/	/	/
00	10 15-0	10 16-7	9 47-0	0-0 0-0	6-0 4-2	12-0 8-3				
01	10 15-3	10 16-9	9 47-2	0-1 0-1	6-1 4-2	12-1 8-4				
02	10 15-5	10 17-2	9 47-5	0-2 0-1	6-2 4-3	12-2 8-4				
03	10 15-8	10 17-4	9 47-7	0-3 0-2	6-3 4-4	12-3 8-5				
04	10 16-0	10 17-7	9 47-9	0-4 0-3	6-4 4-4	12-4 8-6				
05	10 16-3	10 17-9	9 48-2	0-5 0-3	6-5 4-5	12-5 8-6				
06	10 16-5	10 18-2	9 48-4	0-6 0-4	6-6 4-6	12-6 8-7				
07	10 16-8	10 18-4	9 48-7	0-7 0-5	6-7 4-6	12-7 8-8				
08	10 17-0	10 18-7	9 48-9	0-8 0-6	6-8 4-7	12-8 8-9				
09	10 17-3	10 18-9	9 49-1	0-9 0-6	6-9 4-8	12-9 8-9				
10	10 17-5	10 19-2	9 49-4	1-0 0-7	7-0 4-8	13-0 9-0				
11	10 17-8	10 19-4	9 49-6	1-1 0-8	7-1 4-9	13-1 9-1				
12	10 18-0	10 19-7	9 49-8	1-2 0-8	7-2 5-0	13-2 9-1				
13	10 18-3	10 19-9	9 50-1	1-3 0-9	7-3 5-0	13-3 9-2				
14	10 18-5	10 20-2	9 50-3	1-4 1-0	7-4 5-1	13-4 9-3				
15	10 18-8	10 20-4	9 50-6	1-5 1-0	7-5 5-2	13-5 9-3				
16	10 19-0	10 20-7	9 50-8	1-6 1-1	7-6 5-3	13-6 9-4				
17	10 19-3	10 20-9	9 51-0	1-7 1-2	7-7 5-3	13-7 9-5				
18	10 19-5	10 21-2	9 51-3	1-8 1-2	7-8 5-4	13-8 9-5				
19	10 19-8	10 21-4	9 51-5	1-9 1-3	7-9 5-5	13-9 9-6				
20	10 20-0	10 21-7	9 51-8	2-0 1-4	8-0 5-5	14-0 9-7				
21	10 20-3	10 21-9	9 52-0	2-1 1-5	8-1 5-6	14-1 9-8				
22	10 20-5	10 22-2	9 52-2	2-2 1-5	8-2 5-7	14-2 9-8				
23	10 20-8	10 22-4	9 52-5	2-3 1-6	8-3 5-7	14-3 9-9				
24	10 21-0	10 22-7	9 52-7	2-4 1-7	8-4 5-8	14-4 10-0				
25	10 21-3	10 23-0	9 52-9	2-5 1-7	8-5 5-9	14-5 10-0				
26	10 21-5	10 23-2	9 53-2	2-6 1-8	8-6 5-9	14-6 10-1				
27	10 21-8	10 23-5	9 53-4	2-7 1-9	8-7 6-0	14-7 10-2				
28	10 22-0	10 23-7	9 53-7	2-8 1-9	8-8 6-1	14-8 10-2				
29	10 22-3	10 24-0	9 53-9	2-9 2-0	8-9 6-2	14-9 10-3				
30	10 22-5	10 24-2	9 54-1	3-0 2-1	9-0 6-2	15-0 10-4				
31	10 22-8	10 24-5	9 54-4	3-1 2-1	9-1 6-3	15-1 10-4				
32	10 23-0	10 24-7	9 54-6	3-2 2-2	9-2 6-4	15-2 10-5				
33	10 23-3	10 25-0	9 54-9	3-3 2-3	9-3 6-4	15-3 10-6				
34	10 23-5	10 25-2	9 55-1	3-4 2-4	9-4 6-5	15-4 10-7				
35	10 23-8	10 25-5	9 55-3	3-5 2-4	9-5 6-6	15-5 10-7				
36	10 24-0	10 25-7	9 55-6	3-6 2-5	9-6 6-6	15-6 10-8				
37	10 24-3	10 26-0	9 55-8	3-7 2-6	9-7 6-7	15-7 10-9				
38	10 24-5	10 26-2	9 56-1	3-8 2-6	9-8 6-8	15-8 10-9				
39	10 24-8	10 26-5	9 56-3	3-9 2-7	9-9 6-8	15-9 11-0				
40	10 25-0	10 26-7	9 56-5	4-0 2-8	10-0 6-9	16-0 11-1				
41	10 25-3	10 27-0	9 56-8	4-1 2-8	10-1 7-0	16-1 11-1				
42	10 25-5	10 27-2	9 57-0	4-2 2-9	10-2 7-1	16-2 11-2				
43	10 25-8	10 27-5	9 57-2	4-3 3-0	10-3 7-1	16-3 11-3				
44	10 26-0	10 27-7	9 57-5	4-4 3-0	10-4 7-2	16-4 11-3				
45	10 26-3	10 28-0	9 57-7	4-5 3-1	10-5 7-3	16-5 11-4				
46	10 26-5	10 28-2	9 58-0	4-6 3-2	10-6 7-3	16-6 11-5				
47	10 26-8	10 28-5	9 58-2	4-7 3-3	10-7 7-4	16-7 11-6				
48	10 27-0	10 28-7	9 58-4	4-8 3-3	10-8 7-5	16-8 11-6				
49	10 27-3	10 29-0	9 58-7	4-9 3-4	10-9 7-5	16-9 11-7				
50	10 27-5	10 29-2	9 58-9	5-0 3-5	11-0 7-6	17-0 11-8				
51	10 27-8	10 29-5	9 59-2	5-1 3-5	11-1 7-7	17-1 11-8				
52	10 28-0	10 29-7	9 59-4	5-2 3-6	11-2 7-7	17-2 11-9				
53	10 28-3	10 30-0	9 59-6	5-3 3-7	11-3 7-8	17-3 12-0				
54	10 28-5	10 30-2	9 59-9	5-4 3-7	11-4 7-9	17-4 12-0				
55	10 28-8	10 30-5	10 00-1	5-5 3-8	11-5 8-0	17-5 12-1				
56	10 29-0	10 30-7	10 00-3	5-6 3-9	11-6 8-0	17-6 12-2				
57	10 29-3	10 31-0	10 00-6	5-7 3-9	11-7 8-1	17-7 12-2				
58	10 29-5	10 31-2	10 00-8	5-8 4-0	11-8 8-2	17-8 12-3				
59	10 29-8	10 31-5	10 01-1	5-9 4-1	11-9 8-2	17-9 12-4				
60	10 30-0	10 31-7	10 01-3	6-0 4-2	12-0 8-3	18-0 12-5				



42 <sup>m</sup>	SOL PLANETAS			v o d	Corr <sup>n</sup>		v o d	Corr <sup>n</sup>		v o d	Corr <sup>n</sup>		v o d	Corr <sup>n</sup>		v o d	Corr <sup>n</sup>				
	s	o	'		o	'		o	'		o	'		o	'		o	'	o	'	o
00	10 30-0	10 31-7	10 01-3	0-0	0-0	6-0	4-3	12-0	8-5	0-0	0-0	6-0	4-4	12-0	8-7	0-0	0-0	6-0	4-4	12-0	8-7
01	10 30-3	10 32-0	10 01-5	0-1	0-1	6-1	4-3	12-1	8-6	0-1	0-1	6-1	4-4	12-1	8-8	0-1	0-1	6-1	4-4	12-1	8-8
02	10 30-5	10 32-2	10 01-8	0-2	0-1	6-2	4-4	12-2	8-6	0-2	0-1	6-2	4-5	12-2	8-8	0-2	0-1	6-2	4-5	12-2	8-8
03	10 30-8	10 32-5	10 02-0	0-3	0-2	6-3	4-5	12-3	8-7	0-3	0-2	6-3	4-6	12-3	8-9	0-3	0-2	6-3	4-6	12-3	8-9
04	10 31-0	10 32-7	10 02-3	0-4	0-3	6-4	4-5	12-4	8-8	0-4	0-3	6-4	4-6	12-4	9-0	0-4	0-3	6-4	4-6	12-4	9-0
05	10 31-3	10 33-0	10 02-5	0-5	0-4	6-5	4-6	12-5	8-9	0-5	0-4	6-5	4-7	12-5	9-1	0-5	0-4	6-5	4-7	12-5	9-1
06	10 31-5	10 33-2	10 02-7	0-6	0-4	6-6	4-7	12-6	8-9	0-6	0-4	6-6	4-8	12-6	9-1	0-6	0-4	6-6	4-8	12-6	9-1
07	10 31-8	10 33-5	10 03-0	0-7	0-5	6-7	4-7	12-7	9-0	0-7	0-5	6-7	4-9	12-7	9-2	0-7	0-5	6-7	4-9	12-7	9-2
08	10 32-0	10 33-7	10 03-2	0-8	0-6	6-8	4-8	12-8	9-1	0-8	0-6	6-8	4-9	12-8	9-3	0-8	0-6	6-8	4-9	12-8	9-3
09	10 32-3	10 34-0	10 03-4	0-9	0-6	6-9	4-9	12-9	9-1	0-9	0-6	6-9	5-0	12-9	9-4	0-9	0-7	6-9	5-0	12-9	9-4
10	10 32-5	10 34-2	10 03-7	1-0	0-7	7-0	5-0	13-0	9-2	1-0	0-7	7-0	5-1	13-0	9-4	1-0	0-7	7-0	5-1	13-0	9-4
11	10 32-8	10 34-5	10 03-9	1-1	0-8	7-1	5-0	13-1	9-3	1-1	0-8	7-1	5-1	13-1	9-5	1-1	0-8	7-1	5-1	13-1	9-5
12	10 33-0	10 34-7	10 04-2	1-2	0-9	7-2	5-1	13-2	9-4	1-2	0-9	7-2	5-2	13-2	9-6	1-2	0-9	7-2	5-2	13-2	9-6
13	10 33-3	10 35-0	10 04-4	1-3	0-9	7-3	5-2	13-3	9-4	1-3	0-9	7-3	5-3	13-3	9-6	1-3	0-9	7-3	5-3	13-3	9-6
14	10 33-5	10 35-2	10 04-6	1-4	1-0	7-4	5-2	13-4	9-5	1-4	1-0	7-4	5-4	13-4	9-7	1-4	1-0	7-4	5-4	13-4	9-7
15	10 33-8	10 35-5	10 04-9	1-5	1-1	7-5	5-3	13-5	9-6	1-5	1-1	7-5	5-4	13-5	9-8	1-5	1-1	7-5	5-4	13-5	9-8
16	10 34-0	10 35-7	10 05-1	1-6	1-1	7-6	5-4	13-6	9-6	1-6	1-2	7-6	5-5	13-6	9-9	1-6	1-2	7-6	5-5	13-6	9-9
17	10 34-3	10 36-0	10 05-4	1-7	1-2	7-7	5-5	13-7	9-7	1-7	1-2	7-7	5-6	13-7	9-9	1-7	1-2	7-7	5-6	13-7	9-9
18	10 34-5	10 36-2	10 05-6	1-8	1-3	7-8	5-5	13-8	9-8	1-8	1-3	7-8	5-7	13-8	10-0	1-8	1-3	7-8	5-7	13-8	10-0
19	10 34-8	10 36-5	10 05-8	1-9	1-3	7-9	5-6	13-9	9-8	1-9	1-3	7-9	5-7	13-9	10-1	1-9	1-4	7-9	5-7	13-9	10-1
20	10 35-0	10 36-7	10 06-1	2-0	1-4	8-0	5-7	14-0	9-9	2-0	1-4	8-0	5-8	14-0	10-2	2-0	1-5	8-0	5-8	14-0	10-2
21	10 35-3	10 37-0	10 06-3	2-1	1-5	8-1	5-7	14-1	10-0	2-1	1-5	8-1	5-9	14-1	10-2	2-1	1-5	8-1	5-9	14-1	10-2
22	10 35-5	10 37-2	10 06-5	2-2	1-6	8-2	5-8	14-2	10-1	2-2	1-6	8-2	5-9	14-2	10-3	2-2	1-6	8-2	5-9	14-2	10-3
23	10 35-8	10 37-5	10 06-8	2-3	1-6	8-3	5-9	14-3	10-1	2-3	1-6	8-3	6-0	14-3	10-4	2-3	1-7	8-3	6-0	14-3	10-4
24	10 36-0	10 37-7	10 07-0	2-4	1-7	8-4	6-0	14-4	10-2	2-4	1-7	8-4	6-1	14-4	10-4	2-4	1-7	8-4	6-1	14-4	10-4
25	10 36-3	10 38-0	10 07-3	2-5	1-8	8-5	6-0	14-5	10-3	2-5	1-8	8-5	6-2	14-5	10-5	2-5	1-8	8-5	6-2	14-5	10-5
26	10 36-5	10 38-2	10 07-5	2-6	1-8	8-6	6-1	14-6	10-3	2-6	1-9	8-6	6-2	14-6	10-6	2-6	1-9	8-6	6-2	14-6	10-6
27	10 36-8	10 38-5	10 07-7	2-7	1-9	8-7	6-2	14-7	10-4	2-7	1-9	8-7	6-3	14-7	10-7	2-7	2-0	8-7	6-3	14-7	10-7
28	10 37-0	10 38-7	10 08-0	2-8	2-0	8-8	6-2	14-8	10-5	2-8	2-0	8-8	6-4	14-8	10-7	2-8	2-0	8-8	6-4	14-8	10-7
29	10 37-3	10 39-0	10 08-2	2-9	2-1	8-9	6-3	14-9	10-6	2-9	2-1	8-9	6-5	14-9	10-8	2-9	2-1	8-9	6-5	14-9	10-8
30	10 37-5	10 39-2	10 08-5	3-0	2-1	9-0	6-4	15-0	10-6	3-0	2-2	9-0	6-5	15-0	10-9	3-0	2-2	9-0	6-5	15-0	10-9
31	10 37-8	10 39-5	10 08-7	3-1	2-2	9-1	6-4	15-1	10-7	3-1	2-2	9-1	6-6	15-1	10-9	3-1	2-2	9-1	6-6	15-1	10-9
32	10 38-0	10 39-7	10 08-9	3-2	2-3	9-2	6-5	15-2	10-8	3-2	2-3	9-2	6-7	15-2	11-0	3-2	2-3	9-2	6-7	15-2	11-0
33	10 38-3	10 40-0	10 09-2	3-3	2-3	9-3	6-6	15-3	10-8	3-3	2-4	9-3	6-7	15-3	11-1	3-3	2-4	9-3	6-7	15-3	11-1
34	10 38-5	10 40-2	10 09-4	3-4	2-4	9-4	6-7	15-4	10-9	3-4	2-5	9-4	6-8	15-4	11-2	3-4	2-5	9-4	6-8	15-4	11-2
35	10 38-8	10 40-5	10 09-7	3-5	2-5	9-5	6-7	15-5	11-0	3-5	2-5	9-5	6-9	15-5	11-2	3-5	2-5	9-5	6-9	15-5	11-2
36	10 39-0	10 40-7	10 09-9	3-6	2-6	9-6	6-8	15-6	11-1	3-6	2-6	9-6	7-0	15-6	11-3	3-6	2-6	9-6	7-0	15-6	11-3
37	10 39-3	10 41-0	10 10-1	3-7	2-6	9-7	6-9	15-7	11-1	3-7	2-7	9-7	7-0	15-7	11-4	3-7	2-7	9-7	7-0	15-7	11-4
38	10 39-5	10 41-3	10 10-4	3-8	2-7	9-8	6-9	15-8	11-2	3-8	2-7	9-8	7-1	15-8	11-5	3-8	2-8	9-8	7-1	15-8	11-5
39	10 39-8	10 41-5	10 10-6	3-9	2-8	9-9	7-0	15-9	11-3	3-9	2-8	9-9	7-2	15-9	11-5	3-9	2-8	9-9	7-2	15-9	11-5
40	10 40-0	10 41-8	10 10-8	4-0	2-8	10-0	7-1	16-0	11-3	4-0	2-9	10-0	7-3	16-0	11-6	4-0	2-9	10-0	7-3	16-0	11-6
41	10 40-3	10 42-0	10 11-1	4-1	2-9	10-1	7-2	16-1	11-4	4-1	3-0	10-1	7-3	16-1	11-7	4-1	3-0	10-1	7-3	16-1	11-7
42	10 40-5	10 42-3	10 11-3	4-2	3-0	10-2	7-2	16-2	11-5	4-2	3-0	10-2	7-4	16-2	11-7	4-2	3-0	10-2	7-4	16-2	11-7
43	10 40-8	10 42-5	10 11-6	4-3	3-0	10-3	7-3	16-3	11-5	4-3	3-1	10-3	7-5	16-3	11-8	4-3	3-1	10-3	7-5	16-3	11-8
44	10 41-0	10 42-8	10 11-8	4-4	3-1	10-4	7-4	16-4	11-6	4-4	3-2	10-4	7-5	16-4	11-9	4-4	3-2	10-4	7-5	16-4	11-9
45	10 41-3	10 43-0	10 12-0	4-5	3-2	10-5	7-4	16-5	11-7	4-5	3-3	10-5	7-6	16-5	12-0	4-5	3-3	10-5	7-6	16-5	12-0
46	10 41-5	10 43-3	10 12-3	4-6	3-3	10-6	7-5	16-6	11-8	4-6	3-3	10-6	7-7	16-6	12-0	4-6	3-3	10-6	7-7	16-6	12-0
47	10 41-8	10 43-5	10 12-5	4-7	3-3	10-7	7-6	16-7	11-8	4-7	3-4	10-7	7-8	16-7	12-1	4-7	3-4	10-7	7-8	16-7	12-1
48	10 42-0	10 43-8	10 12-8	4-8	3-4	10-8	7-7	16-8	11-9	4-8	3-5	10-8	7-8	16-8	12-2	4-8	3-5	10-8	7-8	16-8	12-2
49	10 42-3	10 44-0	10 13-0	4-9	3-5	10-9	7-7	16-9	12-0	4-9	3-6	10-9	7-9	16-9	12-3	4-9	3-6	10-9	7-9	16-9	12-3
50	10 42-5	10 44-3	10 13-2	5-0	3-5	11-0	7-8	17-0	12-0	5-0	3-6	11-0	8-0	17-0	12-3	5-0	3-6	11-0	8-0	17-0	12-3
51	10 42-8	10 44-5	10 13-5	5-1	3-6	11-1	7-9	17-1	12-1	5-1	3-7	11-1	8-0	17-1	12-4	5-1	3-7	11-1	8-0	17-1	12-4
52	10 43-0	10 44-8	10 13-7	5-2	3-7	11-2	7-9	17-2	12-2	5-2	3-8	11-2	8-1	17-2	12-5	5-2	3-8	11-2	8-1	17-2	12-5
53	10 43-3	10 45-0	10 13-9	5-3	3-8	11-3	8-0	17-3	12-3	5-3	3-8	11-3	8-2	17-3	12-5	5-3	3-8	11-3	8-2	17-3	12-5
54	10 43-5	10 45-3	10 14-2	5-4	3-8	11-4	8-1	17-4	12-3	5-4	3-9	11-4	8-3	17-4	12-6	5-4	3-9	11-4	8-3	17-4	12-6
55	10 43-8	10 45-5	10 14-4	5-5	3-9	11-5	8-1	17-5	12-4	5-5	4-0	11-5	8-3	17-5	12-7	5-5	4-0	11-5	8-3	17-5	12-7
56	10 44-0	10 45-8	10 14-7	5-6	4-0	11-6	8-2	17-6	12-5	5-6	4-1	11-6	8-4	17-6	12-8	5-6	4-1	11-6	8-4	17-6	12-8
57	10 44-3	10 46-0	10 14-9	5-7	4-0	11-7	8-3	17-7	12-5	5-7	4-1	11-7	8-5	17-7	12-8	5-7	4-1	11-7	8-5	17-7	12-8
58	10 44-5	10 46-3	10 15-1	5-8	4-1	11-8	8-4	17-8	12-6	5-8	4-2	11-8	8-6	17-8	12-9	5-8	4-2	11-8	8-6	17-8	12-9
59	10 44-8	10 46-5	10 15-4	5-9	4-2	11-9	8-4	17-9	12-7	5-9	4-3	11-9	8-6	17-9	13-0	5-9	4-3	11-9	8-6	17-9	13-0
60	10 45-0	10 46-8</																			



44 <sup>m</sup>	SOL PLANETAS	ARIES	LUNA	v			v	v	v	45 <sup>m</sup>	SOL PLANETAS	ARIES	LUNA	v			v	v	v
				o	d	Corr <sup>n</sup>								o	d	Corr <sup>n</sup>			
00	11 00-0	11 01-8	10 29-9	0-0	0-0	6-0	4-5	12-0	8-9	00	11 15-0	11 16-8	10 44-3	0-0	0-0	6-0	4-6	12-0	9-1
01	11 00-3	11 02-1	10 30-2	0-1	0-1	6-1	4-5	12-1	9-0	01	11 15-3	11 17-1	10 44-5	0-1	0-1	6-1	4-6	12-1	9-2
02	11 00-5	11 02-3	10 30-4	0-2	0-1	6-2	4-6	12-2	9-0	02	11 15-5	11 17-3	10 44-7	0-2	0-2	6-2	4-7	12-2	9-3
03	11 00-8	11 02-6	10 30-6	0-3	0-2	6-3	4-7	12-3	9-1	03	11 15-8	11 17-6	10 45-0	0-3	0-2	6-3	4-8	12-3	9-3
04	11 01-0	11 02-8	10 30-9	0-4	0-3	6-4	4-7	12-4	9-2	04	11 16-0	11 17-9	10 45-2	0-4	0-3	6-4	4-9	12-4	9-4
05	11 01-3	11 03-1	10 31-1	0-5	0-4	6-5	4-8	12-5	9-3	05	11 16-3	11 18-1	10 45-4	0-5	0-4	6-5	4-9	12-5	9-5
06	11 01-5	11 03-3	10 31-4	0-6	0-4	6-6	4-9	12-6	9-3	06	11 16-5	11 18-4	10 45-7	0-6	0-5	6-6	5-0	12-6	9-6
07	11 01-8	11 03-6	10 31-6	0-7	0-5	6-7	5-0	12-7	9-4	07	11 16-8	11 18-6	10 45-9	0-7	0-5	6-7	5-1	12-7	9-6
08	11 02-0	11 03-8	10 31-8	0-8	0-6	6-8	5-0	12-8	9-5	08	11 17-0	11 18-9	10 46-2	0-8	0-6	6-8	5-2	12-8	9-7
09	11 02-3	11 04-1	10 32-1	0-9	0-7	6-9	5-1	12-9	9-6	09	11 17-3	11 19-1	10 46-4	0-9	0-7	6-9	5-2	12-9	9-8
10	11 02-5	11 04-3	10 32-3	1-0	0-7	7-0	5-2	13-0	9-6	10	11 17-5	11 19-4	10 46-6	1-0	0-8	7-0	5-3	13-0	9-9
11	11 02-8	11 04-6	10 32-6	1-1	0-8	7-1	5-3	13-1	9-7	11	11 17-8	11 19-6	10 46-9	1-1	0-8	7-1	5-4	13-1	9-9
12	11 03-0	11 04-8	10 32-8	1-2	0-9	7-2	5-3	13-2	9-8	12	11 18-0	11 19-9	10 47-1	1-2	0-9	7-2	5-5	13-2	10-0
13	11 03-3	11 05-1	10 33-0	1-3	1-0	7-3	5-4	13-3	9-9	13	11 18-3	11 20-1	10 47-4	1-3	1-0	7-3	5-5	13-3	10-1
14	11 03-5	11 05-3	10 33-3	1-4	1-0	7-4	5-5	13-4	9-9	14	11 18-5	11 20-4	10 47-6	1-4	1-1	7-4	5-6	13-4	10-2
15	11 03-8	11 05-6	10 33-5	1-5	1-1	7-5	5-6	13-5	10-0	15	11 18-8	11 20-6	10 47-8	1-5	1-1	7-5	5-7	13-5	10-2
16	11 04-0	11 05-8	10 33-8	1-6	1-2	7-6	5-6	13-6	10-1	16	11 19-0	11 20-9	10 48-1	1-6	1-2	7-6	5-8	13-6	10-3
17	11 04-3	11 06-1	10 34-0	1-7	1-3	7-7	5-7	13-7	10-2	17	11 19-3	11 21-1	10 48-3	1-7	1-3	7-7	5-8	13-7	10-4
18	11 04-5	11 06-3	10 34-2	1-8	1-3	7-8	5-8	13-8	10-2	18	11 19-5	11 21-4	10 48-5	1-8	1-4	7-8	5-9	13-8	10-5
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46 <sup>m</sup>	SOL PLANETAS			ARIES	LUNA	v <sub>o</sub> Corr <sup>n</sup>		v <sub>o</sub> Corr <sup>n</sup>		v <sub>o</sub> Corr <sup>n</sup>		47 <sup>m</sup>	SOL PLANETAS			ARIES	LUNA	v <sub>o</sub> Corr <sup>n</sup>		v <sub>o</sub> Corr <sup>n</sup>		v <sub>o</sub> Corr <sup>n</sup>			
	s	o	'			'	'	'	'	'	'		'	'	s			o	'	'	'	'	'	'	'
00	11	30-0	11	31-9	10	58-6	0-0	0-0	6-0	4-7	12-0	9-3	00	11	45-0	11	46-9	11	12-9	0-0	0-0	6-0	4-8	12-0	9-5
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48	11	42-0	11	43-9	11	10-0	4-8	3-7	10-8	8-4	16-8	13-0	48	11	57-0	11	59-0	11	24-3	4-8	3-8	10-8	8-6	16-8	13-3
49	11	42-3	11	44-2	11	10-3	4-9	3-8	10-9	8-4	16-9	13-1	49	11	57-3	11	59-2	11	24-6	4-9	3-9	10-9	8-6	16-9	13-4
50	11	42-5	11	44-4	11	10-5	5-0	3-9	11-0	8-5	17-0	13-2	50	11	57-5	11	59-5	11	24-8	5-0	4-0	11-0	8-7	17-0	13-5
51	11	42-8	11	44-7	11	10-7	5-1	4-0	11-1	8-6	17-1	13-3	51	11	57-8	11	59-7	11	25	5-1	4-0	11-1	8-8	17-1	13-5
52	11	43-0	11	44-9	11	11-0	5-2	4-0	11-2	8-7	17-2	13-3	52	11	58-0	12	00-0	11	25-3	5-2	4-1	11-2	8-9	17-2	13-6
53	11	43-3	11	45-2	11	11-2	5-3	4-1	11-3	8-8	17-3	13-4	53	11	58-3	12	00-2	11	25-5	5-3	4-2	11-3	8-9	17-3	13-7
54	11	43-5	11	45-4	11	11-5	5-4	4-2	11-4	8-8	17-4	13-5	54	11	58-5	12	00-5	11	25-8	5-4	4-3	11-4	9-0	17-4	13-8



48 <sup>m</sup>	SOL PLANETAS			ARIES	LUNA	v <sub>o</sub> Corr <sup>n</sup>		v <sub>o</sub> Corr <sup>n</sup>		v <sub>o</sub> Corr <sup>n</sup>	
	s	o	'	o	'	'	''	'	''	'	''
00	12 00-0	12 02-0	11 27-2	0-0	0-0	6-0	4-9	12-0	9-7		
01	12 00-3	12 02-2	11 27-4	0-1	0-1	6-1	4-9	12-1	9-8		
02	12 00-5	12 02-5	11 27-7	0-2	0-2	6-2	5-0	12-2	9-9		
03	12 00-8	12 02-7	11 27-9	0-3	0-2	6-3	5-1	12-3	9-9		
04	12 01-0	12 03-0	11 28-2	0-4	0-3	6-4	5-2	12-4	10-0		
05	12 01-3	12 03-2	11 28-4	0-5	0-4	6-5	5-3	12-5	10-1		
06	12 01-5	12 03-5	11 28-6	0-6	0-5	6-6	5-3	12-6	10-2		
07	12 01-8	12 03-7	11 28-9	0-7	0-6	6-7	5-4	12-7	10-3		
08	12 02-0	12 04-0	11 29-1	0-8	0-6	6-8	5-5	12-8	10-3		
09	12 02-3	12 04-2	11 29-3	0-9	0-7	6-9	5-6	12-9	10-4		
10	12 02-5	12 04-5	11 29-6	1-0	0-8	7-0	5-7	13-0	10-5		
11	12 02-8	12 04-7	11 29-8	1-1	0-9	7-1	5-7	13-1	10-6		
12	12 03-0	12 05-0	11 30-1	1-2	1-0	7-2	5-8	13-2	10-7		
13	12 03-3	12 05-2	11 30-3	1-3	1-1	7-3	5-9	13-3	10-8		
14	12 03-5	12 05-5	11 30-5	1-4	1-1	7-4	6-0	13-4	10-8		
15	12 03-8	12 05-7	11 30-8	1-5	1-2	7-5	6-1	13-5	10-9		
16	12 04-0	12 06-0	11 31-0	1-6	1-3	7-6	6-1	13-6	11-0		
17	12 04-3	12 06-2	11 31-3	1-7	1-4	7-7	6-2	13-7	11-1		
18	12 04-5	12 06-5	11 31-5	1-8	1-5	7-8	6-3	13-8	11-2		
19	12 04-8	12 06-7	11 31-7	1-9	1-5	7-9	6-4	13-9	11-2		
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21	12 05-3	12 07-2	11 32-2	2-1	1-7	8-1	6-5	14-1	11-4		
22	12 05-5	12 07-5	11 32-4	2-2	1-8	8-2	6-6	14-2	11-5		
23	12 05-8	12 07-7	11 32-7	2-3	1-9	8-3	6-7	14-3	11-6		
24	12 06-0	12 08-0	11 32-9	2-4	1-9	8-4	6-8	14-4	11-6		
25	12 06-3	12 08-2	11 33-2	2-5	2-0	8-5	6-9	14-5	11-7		
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27	12 06-8	12 08-7	11 33-6	2-7	2-2	8-7	7-0	14-7	11-9		
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29	12 07-3	12 09-2	11 34-1	2-9	2-3	8-9	7-2	14-9	12-0		
30	12 07-5	12 09-5	11 34-4	3-0	2-4	9-0	7-3	15-0	12-1		
31	12 07-8	12 09-7	11 34-6	3-1	2-5	9-1	7-4	15-1	12-2		
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35	12 08-8	12 10-7	11 35-6	3-5	2-8	9-5	7-7	15-5	12-5		
36	12 09-0	12 11-0	11 35-8	3-6	2-9	9-6	7-8	15-6	12-6		
37	12 09-3	12 11-2	11 36-0	3-7	3-0	9-7	7-8	15-7	12-7		
38	12 09-5	12 11-5	11 36-3	3-8	3-1	9-8	7-9	15-8	12-8		
39	12 09-8	12 11-7	11 36-5	3-9	3-2	9-9	8-0	15-9	12-9		
40	12 10-0	12 12-0	11 36-7	4-0	3-2	10-0	8-1	16-0	12-9		
41	12 10-3	12 12-2	11 37-0	4-1	3-3	10-1	8-2	16-1	13-0		
42	12 10-5	12 12-5	11 37-2	4-2	3-4	10-2	8-2	16-2	13-1		
43	12 10-8	12 12-8	11 37-5	4-3	3-5	10-3	8-3	16-3	13-2		
44	12 11-0	12 13-0	11 37-7	4-4	3-6	10-4	8-4	16-4	13-3		
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53	12 13-3	12 15-3	11 39-8	5-3	4-3	11-3	9-1	17-3	14-0		
54	12 13-5	12 15-5	11 40-1	5-4	4-4	11-4	9-2	17-4	14-1		
55	12 13-8	12 15-8	11 40-3	5-5	4-4	11-5	9-3	17-5	14-1		
56	12 14-0	12 16-0	11 40-6	5-6	4-5	11-6	9-4	17-6	14-2		
57	12 14-3	12 16-3	11 40-8	5-7	4-6	11-7	9-5	17-7	14-3		
58	12 14-5	12 16-5	11 41-0	5-8	4-7	11-8	9-5	17-8	14-4		
59	12 14-8	12 16-8	11 41-3	5-9	4-8	11-9	9-6	17-9	14-5		
60	12 15-0	12 17-0	11 41-5	6-0	4-9	12-0	9-7	18-0	14-6		

49 <sup>m</sup>	SOL PLANETAS			ARIES	LUNA	v <sub>o</sub> Corr <sup>n</sup>		v <sub>o</sub> Corr <sup>n</sup>		v <sub>o</sub> Corr <sup>n</sup>	
	s	o	'	o	'	'	''	'	''	'	''
00	12 15-0	12 17-0	11 41-5	0-0	0-0	6-0	5-0	12-0	9-9		
01	12 15-3	12 17-3	11 41-8	0-1	0-1	6-1	5-0	12-1	10-0		
02	12 15-5	12 17-5	11 42-0	0-2	0-2	6-2	5-1	12-2	10-1		
03	12 15-8	12 17-8	11 42-2	0-3	0-2	6-3	5-2	12-3	10-1		
04	12 16-0	12 18-0	11 42-5	0-4	0-3	6-4	5-3	12-4	10-2		
05	12 16-3	12 18-3	11 42-7	0-5	0-4	6-5	5-4	12-5	10-3		
06	12 16-5	12 18-5	11 42-9	0-6	0-5	6-6	5-4	12-6	10-4		
07	12 16-8	12 18-8	11 43-2	0-7	0-6	6-7	5-5	12-7	10-5		
08	12 17-0	12 19-0	11 43-4	0-8	0-7	6-8	5-6	12-8	10-6		
09	12 17-3	12 19-3	11 43-7	0-9	0-7	6-9	5-7	12-9	10-6		
10	12 17-5	12 19-5	11 43-9	1-0	0-8	7-0	5-8	13-0	10-7		
11	12 17-8	12 19-8	11 44-1	1-1	0-9	7-1	5-9	13-1	10-8		
12	12 18-0	12 20-0	11 44-4	1-2	1-0	7-2	5-9	13-2	10-9		
13	12 18-3	12 20-3	11 44-6	1-3	1-1	7-3	6-0	13-3	11-0		
14	12 18-5	12 20-5	11 44-9	1-4	1-2	7-4	6-1	13-4	11-1		
15	12 18-8	12 20-8	11 45-1	1-5	1-2	7-5	6-2	13-5	11-1		
16	12 19-0	12 21-0	11 45-3	1-6	1-3	7-6	6-3	13-6	11-2		
17	12 19-3	12 21-3	11 45-6	1-7	1-4	7-7	6-4	13-7	11-3		
18	12 19-5	12 21-5	11 45-8	1-8	1-5	7-8	6-4	13-8	11-4		
19	12 19-8	12 21-8	11 46-1	1-9	1-6	7-9	6-5	13-9	11-5		
20	12 20-0	12 22-0	11 46-3	2-0	1-7	8-0	6-6	14-0	11-6		
21	12 20-3	12 22-3	11 46-5	2-1	1-7	8-1	6-7	14-1	11-6		
22	12 20-5	12 22-5	11 46-8	2-2	1-8	8-2	6-8	14-2	11-7		
23	12 20-8	12 22-8	11 47-0	2-3	1-9	8-3	6-8	14-3	11-8		
24	12 21-0	12 23-0	11 47-2	2-4	2-0	8-4	6-9	14-4	11-9		
25	12 21-3	12 23-3	11 47-5	2-5	2-1	8-5	7-0	14-5	12-0		
26	12 21-5	12 23-5	11 47-7	2-6	2-1	8-6	7-1	14-6	12-0		
27	12 21-8	12 23-8	11 48-0	2-7	2-2	8-7	7-2	14-7	12-1		
28	12 22-0	12 24-0	11 48-2	2-8	2-3	8-8	7-3	14-8	12-2		
29	12 22-3	12 24-3	11 48-4	2-9	2-4	8-9	7-3	14-9	12-3		
30	12 22-5	12 24-5	11 48-7	3-0	2-5	9-0	7-4	15-0	12-4		
31	12 22-8	12 24-8	11 48-9	3-1	2-6	9-1	7-5	15-1	12-5		
32	12 23-0	12 25-0	11 49-2	3-2	2-6	9-2	7-6	15-2	12-5		
33	12 23-3	12 25-3	11 49-4	3-3	2-7	9-3	7-7	15-3	12-6		
34	12 23-5	12 25-5	11 49-6	3-4	2-8	9-4	7-8	15-4	12-7		
35	12 23-8	12 25-8	11 49-9	3-5	2-9	9-5	7-8	15-5	12-8		
36	12 24-0	12 26-0	11 50-1	3-6	3-0	9-6	7-9	15-6	12-9		
37	12 24-3	12 26-3	11 50-3	3-7	3-1	9-7	8-0	15-7	13-0		
38	12 24-5	12 26-5	11 50-6	3-8	3-1	9-8	8-1	15-8	13-0		
39	12 24-8	12 26-8	11 50-8	3-9	3-2	9-9	8-2	15-9	13-1		
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43	12 25-8	12 27-8	11 51-8	4-3	3-5	10-3	8-5	16-3	13-4		
44	12 26-0	12 28-0	11 52-0	4-4	3-6	10-4	8-6	16-4	13-5		
45	12 26-3	12 28-3	11 52-3	4-5	3-7	10-5	8-7	16-5	13-6		
46	12 26-5	12 28-5	11 52-5	4-6	3-8	10-6	8-7	16-6	13-7		
47	12 26-8	12 28-8	11 52-7	4-7	3-9	10-7	8-8	16-7	13-8		
48	12 27-0	12 29-0	11 53-0	4-8	4-0	10-8	8-9	16-8	13-9		
49	12 27-3	12 29-3	11 53-2	4-9	4-0	10-9					



50 <sup>m</sup>	SOL PLANETAS			ARIES	LUNA	v <sub>o</sub> Corr <sup>n</sup>		v <sub>o</sub> Corr <sup>n</sup>		v <sub>o</sub> Corr <sup>n</sup>		
	s	o	'			d	'	''	d	'	''	d
00	12 30-0	12 32-1	11 55-8	0-0	0-0	6-0	5-1	12-0	10-1			
01	12 30-3	12 32-3	11 56-1	0-1	0-1	6-1	5-1	12-1	10-2			
02	12 30-5	12 32-6	11 56-3	0-2	0-2	6-2	5-2	12-2	10-3			
03	12 30-8	12 32-8	11 56-5	0-3	0-3	6-3	5-3	12-3	10-4			
04	12 31-0	12 33-1	11 56-8	0-4	0-3	6-4	5-4	12-4	10-4			
05	12 31-3	12 33-3	11 57-0	0-5	0-4	6-5	5-5	12-5	10-5			
06	12 31-5	12 33-6	11 57-3	0-6	0-5	6-6	5-6	12-6	10-6			
07	12 31-8	12 33-8	11 57-5	0-7	0-6	6-7	5-6	12-7	10-7			
08	12 32-0	12 34-1	11 57-7	0-8	0-7	6-8	5-7	12-8	10-8			
09	12 32-3	12 34-3	11 58-0	0-9	0-8	6-9	5-8	12-9	10-9			
10	12 32-5	12 34-6	11 58-2	1-0	0-8	7-0	5-9	13-0	10-9			
11	12 32-8	12 34-8	11 58-5	1-1	0-9	7-1	6-0	13-1	11-0			
12	12 33-0	12 35-1	11 58-7	1-2	1-0	7-2	6-1	13-2	11-1			
13	12 33-3	12 35-3	11 58-9	1-3	1-1	7-3	6-1	13-3	11-2			
14	12 33-5	12 35-6	11 59-2	1-4	1-2	7-4	6-2	13-4	11-3			
15	12 33-8	12 35-8	11 59-4	1-5	1-3	7-5	6-3	13-5	11-4			
16	12 34-0	12 36-1	11 59-7	1-6	1-3	7-6	6-4	13-6	11-4			
17	12 34-3	12 36-3	11 59-9	1-7	1-4	7-7	6-5	13-7	11-5			
18	12 34-5	12 36-6	12 00-1	1-8	1-5	7-8	6-6	13-8	11-6			
19	12 34-8	12 36-8	12 00-4	1-9	1-6	7-9	6-6	13-9	11-7			
20	12 35-0	12 37-1	12 00-6	2-0	1-7	8-0	6-7	14-0	11-8			
21	12 35-3	12 37-3	12 00-8	2-1	1-8	8-1	6-8	14-1	11-9			
22	12 35-5	12 37-6	12 01-1	2-2	1-9	8-2	6-9	14-2	12-0			
23	12 35-8	12 37-8	12 01-3	2-3	1-9	8-3	7-0	14-3	12-0			
24	12 36-0	12 38-1	12 01-6	2-4	2-0	8-4	7-1	14-4	12-1			
25	12 36-3	12 38-3	12 01-8	2-5	2-1	8-5	7-2	14-5	12-2			
26	12 36-5	12 38-6	12 02-0	2-6	2-2	8-6	7-2	14-6	12-3			
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29	12 37-3	12 39-3	12 02-8	2-9	2-4	8-9	7-5	14-9	12-5			
30	12 37-5	12 39-6	12 03-0	3-0	2-5	9-0	7-6	15-0	12-6			
31	12 37-8	12 39-8	12 03-2	3-1	2-6	9-1	7-7	15-1	12-7			
32	12 38-0	12 40-1	12 03-5	3-2	2-7	9-2	7-7	15-2	12-8			
33	12 38-3	12 40-3	12 03-7	3-3	2-8	9-3	7-8	15-3	12-9			
34	12 38-5	12 40-6	12 03-9	3-4	2-9	9-4	7-9	15-4	13-0			
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36	12 39-0	12 41-1	12 04-4	3-6	3-0	9-6	8-1	15-6	13-1			
37	12 39-3	12 41-3	12 04-7	3-7	3-1	9-7	8-2	15-7	13-2			
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40	12 40-0	12 42-1	12 05-4	4-0	3-4	10-0	8-4	16-0	13-5			
41	12 40-3	12 42-3	12 05-6	4-1	3-5	10-1	8-5	16-1	13-6			
42	12 40-5	12 42-6	12 05-9	4-2	3-5	10-2	8-6	16-2	13-6			
43	12 40-8	12 42-8	12 06-1	4-3	3-6	10-3	8-7	16-3	13-7			
44	12 41-0	12 43-1	12 06-3	4-4	3-7	10-4	8-8	16-4	13-8			
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46	12 41-5	12 43-6	12 06-8	4-6	3-9	10-6	8-9	16-6	14-0			
47	12 41-8	12 43-8	12 07-0	4-7	4-0	10-7	9-0	16-7	14-1			
48	12 42-0	12 44-1	12 07-3	4-8	4-0	10-8	9-1	16-8	14-1			
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50	12 42-5	12 44-6	12 07-8	5-0	4-2	11-0	9-3	17-0	14-3			
51	12 42-8	12 44-8	12 08-0	5-1	4-3	11-1	9-3	17-1	14-4			
52	12 43-0	12 45-1	12 08-2	5-2	4-4	11-2	9-4	17-2	14-5			
53	12 43-3	12 45-3	12 08-5	5-3	4-5	11-3	9-5	17-3	14-6			
54	12 43-5	12 45-6	12 08-7	5-4	4-5	11-4	9-6	17-4	14-6			
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57	12 44-3	12 46-3	12 09-4	5-7	4-8	11-7	9-8	17-7	14-9			
58	12 44-5	12 46-6	12 09-7	5-8	4-9	11-8	9-9	17-8	15-0			
59	12 44-8	12 46-8	12 09-9	5-9	5-0	11-9	10-0	17-9	15-1			
60	12 45-0	12 47-1	12 10-2	6-0	5-1	12-0	10-1	18-0	15-2			
00	12 45-0	12 47-1	12 10-2	0-0	0-0	6-0	5-2	12-0	10-3			
01	12 45-3	12 47-3	12 10-4	0-1	0-1	6-1	5-2	12-1	10-4			
02	12 45-5	12 47-6	12 10-6	0-2	0-2	6-2	5-3	12-2	10-5			
03	12 45-8	12 47-8	12 10-9	0-3	0-3	6-3	5-4	12-3	10-6			
04	12 46-0	12 48-1	12 11-1	0-4	0-3	6-4	5-5	12-4	10-6			
05	12 46-3	12 48-3	12 11-3	0-5	0-4	6-5	5-6	12-5	10-7			
06	12 46-5	12 48-6	12 11-6	0-6	0-5	6-6	5-7	12-6	10-8			
07	12 46-8	12 48-8	12 11-8	0-7	0-6	6-7	5-8	12-7	10-9			
08	12 47-0	12 49-1	12 12-1	0-8	0-7	6-8	5-8	12-8	11-0			
09	12 47-3	12 49-4	12 12-3	0-9	0-8	6-9	5-9	12-9	11-1			
10	12 47-5	12 49-6	12 12-5	1-0	0-9	7-0	6-0	13-0	11-2			
11	12 47-8	12 49-9	12 12-8	1-1	0-9	7-1	6-1	13-1	11-2			
12	12 48-0	12 50-1	12 13-0	1-2	1-0	7-2	6-2	13-2	11-3			
13	12 48-3	12 50-4	12 13-3	1-3	1-1	7-3	6-3	13-3	11-4			
14	12 48-5	12 50-6	12 13-5	1-4	1-2	7-4	6-4	13-4	11-5			
15	12 48-8	12 50-9	12 13-7	1-5	1-3	7-5	6-4	13-5	11-6			
16	12 49-0	12 51-1	12 14-0	1-6	1-4	7-6	6-5	13-6	11-7			
17	12 49-3	12 51-4	12 14-2	1-7	1-5	7-7	6-6	13-7	11-8			
18	12 49-5	12 51-6	12 14-4	1-8	1-5	7-8	6-7	13-8	11-8			
19	12 49-8	12 51-9	12 14-7	1-9	1-6	7-9	6-8	13-9	11-9			
20	12 50-0	12 52-1	12 14-9	2-0	1-7	8-0	6-9	14-0	12-0			
21	12 50-3	12 52-4	12 15-2	2-1	1-8	8-1	7-0	14-1	12-1			
22	12 50-5	12 52-6	12 15-4	2-2	1-9	8-2	7-0	14-2	12-2			
23	12 50-8	12 52-9	12 15-6	2-3	2-0	8-3	7-1	14-3	12-3			
24	12 51-0	12 53-1	12 15-9	2-4	2-1	8-4	7-2	14-4	12-4			
25	12 51-3	12 53-4	12 16-1	2-5	2-1	8-5	7-3	14-5	12-4			
26	12 51-5	12 53-6	12 16-4	2-6	2-2	8-6	7-4	14-6	12-5			
27	12 51-8	12 53-9	12 16-6	2-7	2-3	8-7	7-5	14-7	12-6			
28	12 52-0	12 54-1	12 16-8	2-8	2-4	8-8	7-6	14-8	12-7			
29	12 52-3	12 54-4	12 17-1	2-9	2-5	8-9	7-6	14-9	12-8			
30	12 52-5	12 54-6	12 17-3	3-0	2-6	9-0	7-7	15-0	12-9			
31	12 52-8	12 54-9	12 17-5	3-1	2-7	9-1	7-8	15-1	13-0			
32	12 53-0	12 55-1	12 17-8	3-2	2-7	9-2	7-9	15-2	13-0			
33	12 53-3	12 55-4	12 18-0	3-3	2-8	9-3	8-0	15-3	13-1			
34	12 53-5	12 55-6	12 18-3	3-4	2-9	9-4	8-1	15-4	13-2			
35	12 53-8	12 55-9	12 18-5	3-5	3-0	9-5	8-2	15-5	13-3			
36	12 54-0	12 56-1	12 18-7	3-6	3-1	9-6	8-2	15-6	13-4			
37	12 54-3	12 56-4	12 19-0	3-7	3-2	9-7	8-3	15-7	13-5			
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40	12 55-0	12 57-1	12 19-7	4-0	3-4	10-0	8-6	16-0	13-7			
41	12 55-3	12 57-4	12 19-9	4-1	3-5	10-1	8-7	16-1	13-8			
42	12 55-5	12 57-6	12 20-2	4-2	3-6	10-2	8-8	16-2	13-9			
43	12 55-8	12 57-9	12 20-4	4-3	3-7	10-3	8-8	16-3	14-0			
44	12 56-0	12 58-1	12 20-6	4-4	3-8	10-4	8-9	16-4	14-1			
45	12 56-3	12 58-4	12 20-9	4-5	3-9	10-5	9-0	16-5	14-2			
46	12 56-5	12 58-6	12 21-1	4-6	3-9	10-6	9-1	16-6	14-2			
47	12 56-8	12 58-9	12 21-4	4-7	4-0	10-7	9-2	16-7				



52 <sup>m</sup>	SOL PLANETAS		ARIES	LUNA	v <sub>o</sub> Corr <sup>n</sup>		v <sub>o</sub> Corr <sup>n</sup>		v <sub>o</sub> Corr <sup>n</sup>	
	s	o' / ' / "	o' / ' / "	o' / ' / "	' / "	' / "	' / "	' / "	' / "	' / "
00	13 00-0	13 02-1	12 24-5	0-0	0-0	6-0	5-3	12-0	10-5	
01	13 00-3	13 02-4	12 24-7	0-1	0-1	6-1	5-3	12-1	10-6	
02	13 00-5	13 02-6	12 24-9	0-2	0-2	6-2	5-4	12-2	10-7	
03	13 00-8	13 02-9	12 25-2	0-3	0-3	6-3	5-5	12-3	10-8	
04	13 01-0	13 03-1	12 25-4	0-4	0-4	6-4	5-6	12-4	10-9	
05	13 01-3	13 03-4	12 25-7	0-5	0-4	6-5	5-7	12-5	10-9	
06	13 01-5	13 03-6	12 25-9	0-6	0-5	6-6	5-8	12-6	11-0	
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08	13 02-0	13 04-1	12 26-4	0-8	0-7	6-8	6-0	12-8	11-2	
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14	13 03-5	13 05-6	12 27-8	1-4	1-2	7-4	6-5	13-4	11-7	
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16	13 04-0	13 06-1	12 28-3	1-6	1-4	7-6	6-7	13-6	11-9	
17	13 04-3	13 06-4	12 28-5	1-7	1-5	7-7	6-7	13-7	12-0	
18	13 04-5	13 06-6	12 28-8	1-8	1-6	7-8	6-8	13-8	12-1	
19	13 04-8	13 06-9	12 29-0	1-9	1-7	7-9	6-9	13-9	12-2	
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24	13 06-0	13 08-2	12 30-2	2-4	2-1	8-4	7-4	14-4	12-6	
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28	13 07-0	13 09-2	12 31-1	2-8	2-5	8-8	7-7	14-8	13-0	
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31	13 07-8	13 09-9	12 31-9	3-1	2-7	9-1	8-0	15-1	13-2	
32	13 08-0	13 10-2	12 32-1	3-2	2-8	9-2	8-1	15-2	13-3	
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40	13 10-0	13 12-2	12 34-0	4-0	3-5	10-0	8-8	16-0	14-0	
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44	13 11-0	13 13-2	12 35-0	4-4	3-9	10-4	9-1	16-4	14-4	
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46	13 11-5	13 13-7	12 35-4	4-6	4-0	10-6	9-3	16-6	14-5	
47	13 11-8	13 13-9	12 35-7	4-7	4-1	10-7	9-4	16-7	14-6	
48	13 12-0	13 14-2	12 35-9	4-8	4-2	10-8	9-5	16-8	14-7	
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52	13 13-0	13 15-2	12 36-9	5-2	4-6	11-2	9-8	17-2	15-1	
53	13 13-3	13 15-4	12 37-1	5-3	4-6	11-3	9-9	17-3	15-1	
54	13 13-5	13 15-7	12 37-4	5-4	4-7	11-4	10-0	17-4	15-2	
55	13 13-8	13 15-9	12 37-6	5-5	4-8	11-5	10-1	17-5	15-3	
56	13 14-0	13 16-2	12 37-8	5-6	4-9	11-6	10-2	17-6	15-4	
57	13 14-3	13 16-4	12 38-1	5-7	5-0	11-7	10-2	17-7	15-5	
58	13 14-5	13 16-7	12 38-3	5-8	5-1	11-8	10-3	17-8	15-6	
59	13 14-8	13 16-9	12 38-5	5-9	5-2	11-9	10-4	17-9	15-7	
60	13 15-0	13 17-2	12 38-8	6-0	5-3	12-0	10-5	18-0	15-8	

53 <sup>m</sup>	SOL PLANETAS		ARIES	LUNA	v <sub>o</sub> Corr <sup>n</sup>		v <sub>o</sub> Corr <sup>n</sup>		v <sub>o</sub> Corr <sup>n</sup>	
	s	o' / ' / "	o' / ' / "	o' / ' / "	' / "	' / "	' / "	' / "	' / "	' / "
00	13 15-0	13 17-2	12 38-8	0-0	0-0	6-0	5-4	12-0	10-7	
01	13 15-3	13 17-4	12 39-0	0-1	0-1	6-1	5-4	12-1	10-8	
02	13 15-5	13 17-7	12 39-3	0-2	0-2	6-2	5-5	12-2	10-9	
03	13 15-8	13 17-9	12 39-5	0-3	0-3	6-3	5-6	12-3	11-0	
04	13 16-0	13 18-2	12 39-7	0-4	0-4	6-4	5-7	12-4	11-1	
05	13 16-3	13 18-4	12 40-0	0-5	0-4	6-5	5-8	12-5	11-1	
06	13 16-5	13 18-7	12 40-2	0-6	0-5	6-6	5-9	12-6	11-2	
07	13 16-8	13 18-9	12 40-5	0-7	0-6	6-7	6-0	12-7	11-3	
08	13 17-0	13 19-2	12 40-7	0-8	0-7	6-8	6-1	12-8	11-4	
09	13 17-3	13 19-4	12 40-9	0-9	0-8	6-9	6-2	12-9	11-5	
10	13 17-5	13 19-7	12 41-2	1-0	0-9	7-0	6-2	13-0	11-6	
11	13 17-8	13 19-9	12 41-4	1-1	1-0	7-1	6-3	13-1	11-7	
12	13 18-0	13 20-2	12 41-6	1-2	1-1	7-2	6-4	13-2	11-8	
13	13 18-3	13 20-4	12 41-9	1-3	1-2	7-3	6-5	13-3	11-9	
14	13 18-5	13 20-7	12 42-1	1-4	1-2	7-4	6-6	13-4	11-9	
15	13 18-8	13 20-9	12 42-4	1-5	1-3	7-5	6-7	13-5	12-0	
16	13 19-0	13 21-2	12 42-6	1-6	1-4	7-6	6-8	13-6	12-1	
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18	13 19-5	13 21-7	12 43-1	1-8	1-6	7-8	7-0	13-8	12-3	
19	13 19-8	13 21-9	12 43-3	1-9	1-7	7-9	7-0	13-9	12-4	
20	13 20-0	13 22-2	12 43-6	2-0	1-8	8-0	7-1	14-0	12-5	
21	13 20-3	13 22-4	12 43-8	2-1	1-9	8-1	7-2	14-1	12-6	
22	13 20-5	13 22-7	12 44-0	2-2	2-0	8-2	7-3	14-2	12-7	
23	13 20-8	13 22-9	12 44-3	2-3	2-1	8-3	7-4	14-3	12-8	
24	13 21-0	13 23-2	12 44-5	2-4	2-1	8-4	7-5	14-4	12-8	
25	13 21-3	13 23-4	12 44-7	2-5	2-2	8-5	7-6	14-5	12-9	
26	13 21-5	13 23-7	12 45-0	2-6	2-3	8-6	7-7	14-6	13-0	
27	13 21-8	13 23-9	12 45-2	2-7	2-4	8-7	7-8	14-7	13-1	
28	13 22-0	13 24-2	12 45-5	2-8	2-5	8-8	7-8	14-8	13-2	
29	13 22-3	13 24-4	12 45-7	2-9	2-6	8-9	7-9	14-9	13-3	
30	13 22-5	13 24-7	12 45-9	3-0	2-7	9-0	8-0	15-0	13-4	
31	13 22-8	13 24-9	12 46-2	3-1	2-8	9-1	8-1	15-1	13-5	
32	13 23-0	13 25-2	12 46-4	3-2	2-9	9-2	8-2	15-2	13-6	
33	13 23-3	13 25-4	12 46-7	3-3	2-9	9-3	8-3	15-3	13-6	
34	13 23-5	13 25-7	12 46-9	3-4	3-0	9-4	8-4	15-4	13-7	
35	13 23-8	13 26-0	12 47-1	3-5	3-1	9-5	8-5	15-5	13-8	
36	13 24-0	13 26-2	12 47-4	3-6	3-2	9-6	8-6	15-6	13-9	
37	13 24-3	13 26-5	12 47-6	3-7	3-3	9-7	8-6	15-7	14-0	
38	13 24-5	13 26-7	12 47-9	3-8	3-4	9-8	8-7	15-8	14-1	
39	13 24-8	13 27-0	12 48-1	3-9	3-5	9-9	8-8	15-9	14-2	
40	13 25-0	13 27-2	12 48-3	4-0	3-6	10-0	8-9	16-0	14-3	
41	13 25-3	13 27-5	12 48-6	4-1	3-7	10-1	9-0	16-1	14-4	
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43	13 25-8	13 28-0	12 49-0	4-3	3-8	10-3	9-2	16-3	14-5	
44	13 26-0	13 28-2	12 49-3	4-4	3-9	10-4	9-3	16-4	14-6	
45	13 26-3	13 28-5	12 49-5	4-5	4-0	10-5	9-4	16-5	14-7	
46	13 26-5	13 28-7	12 49-8	4-6	4-1	10-6	9-5	16-6	14-8	
47	13 26-8	13 29-0	12 50-0	4-7	4-2	10-7	9-5	16-7	14-9	
48	13 27-0	13 29-2	12 50-2	4-8	4-3	10-8	9-6	16-8	15-0	
49	13 27-3	13 29-5	12 50-5	4-9	4-4	10-9	9-7	16-9	15-1	
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51	13 27-8	13 30-0	12 51-0	5-1	4-5	11-1	9-9	17-1	15-2	
52	13 28-0	13 30-2	12 51-2	5-2	4-6	11-2	10-0	17-2	15-3	
53	13 28-3	13 30-5	12 51-4	5-3	4-7	11-3	10-1	17-3</		



54 <sup>m</sup>	SOL PLANETAS	ARIES	LUNA	v		o		d		Corr <sup>n</sup>	
				o	d	o	d	o	d	o	d
00	13 30-0	13 32-2	12 53-1	0-0	0-0	6-0	5-5	12-0	10-9		
01	13 30-3	13 32-5	12 53-3	0-1	0-1	6-1	5-5	12-1	11-0		
02	13 30-5	13 32-7	12 53-6	0-2	0-2	6-2	5-6	12-2	11-1		
03	13 30-8	13 33-0	12 53-8	0-3	0-3	6-3	5-7	12-3	11-2		
04	13 31-0	13 33-2	12 54-1	0-4	0-4	6-4	5-8	12-4	11-3		
05	13 31-3	13 33-5	12 54-3	0-5	0-5	6-5	5-9	12-5	11-4		
06	13 31-5	13 33-7	12 54-5	0-6	0-5	6-6	6-0	12-6	11-4		
07	13 31-8	13 34-0	12 54-8	0-7	0-6	6-7	6-1	12-7	11-5		
08	13 32-0	13 34-2	12 55-0	0-8	0-7	6-8	6-2	12-8	11-6		
09	13 32-3	13 34-5	12 55-2	0-9	0-8	6-9	6-3	12-9	11-7		
10	13 32-5	13 34-7	12 55-5	1-0	0-9	7-0	6-4	13-0	11-8		
11	13 32-8	13 35-0	12 55-7	1-1	1-0	7-1	6-4	13-1	11-9		
12	13 33-0	13 35-2	12 56-0	1-2	1-1	7-2	6-5	13-2	12-0		
13	13 33-3	13 35-5	12 56-2	1-3	1-2	7-3	6-6	13-3	12-1		
14	13 33-5	13 35-7	12 56-4	1-4	1-3	7-4	6-7	13-4	12-2		
15	13 33-8	13 36-0	12 56-7	1-5	1-4	7-5	6-8	13-5	12-3		
16	13 34-0	13 36-2	12 56-9	1-6	1-5	7-6	6-9	13-6	12-4		
17	13 34-3	13 36-5	12 57-2	1-7	1-5	7-7	7-0	13-7	12-4		
18	13 34-5	13 36-7	12 57-4	1-8	1-6	7-8	7-1	13-8	12-5		
19	13 34-8	13 37-0	12 57-6	1-9	1-7	7-9	7-2	13-9	12-6		
20	13 35-0	13 37-2	12 57-9	2-0	1-8	8-0	7-3	14-0	12-7		
21	13 35-3	13 37-5	12 58-1	2-1	1-9	8-1	7-4	14-1	12-8		
22	13 35-5	13 37-7	12 58-3	2-2	2-0	8-2	7-4	14-2	12-9		
23	13 35-8	13 38-0	12 58-6	2-3	2-1	8-3	7-5	14-3	13-0		
24	13 36-0	13 38-2	12 58-8	2-4	2-2	8-4	7-6	14-4	13-1		
25	13 36-3	13 38-5	12 59-1	2-5	2-3	8-5	7-7	14-5	13-2		
26	13 36-5	13 38-7	12 59-3	2-6	2-4	8-6	7-8	14-6	13-3		
27	13 36-8	13 39-0	12 59-5	2-7	2-5	8-7	7-9	14-7	13-4		
28	13 37-0	13 39-2	12 59-8	2-8	2-5	8-8	8-0	14-8	13-4		
29	13 37-3	13 39-5	13 00-0	2-9	2-6	8-9	8-1	14-9	13-5		
30	13 37-5	13 39-7	13 00-3	3-0	2-7	9-0	8-2	15-0	13-6		
31	13 37-8	13 40-0	13 00-5	3-1	2-8	9-1	8-3	15-1	13-7		
32	13 38-0	13 40-2	13 00-7	3-2	2-9	9-2	8-4	15-2	13-8		
33	13 38-3	13 40-5	13 01-0	3-3	3-0	9-3	8-4	15-3	13-9		
34	13 38-5	13 40-7	13 01-2	3-4	3-1	9-4	8-5	15-4	14-0		
35	13 38-8	13 41-0	13 01-5	3-5	3-2	9-5	8-6	15-5	14-1		
36	13 39-0	13 41-2	13 01-7	3-6	3-3	9-6	8-7	15-6	14-2		
37	13 39-3	13 41-5	13 01-9	3-7	3-4	9-7	8-8	15-7	14-3		
38	13 39-5	13 41-7	13 02-2	3-8	3-5	9-8	8-9	15-8	14-4		
39	13 39-8	13 42-0	13 02-4	3-9	3-5	9-9	9-0	15-9	14-4		
40	13 40-0	13 42-2	13 02-6	4-0	3-6	10-0	9-1	16-0	14-5		
41	13 40-3	13 42-5	13 02-9	4-1	3-7	10-1	9-2	16-1	14-6		
42	13 40-5	13 42-7	13 03-1	4-2	3-8	10-2	9-3	16-2	14-7		
43	13 40-8	13 43-0	13 03-4	4-3	3-9	10-3	9-4	16-3	14-8		
44	13 41-0	13 43-2	13 03-6	4-4	4-0	10-4	9-4	16-4	14-9		
45	13 41-3	13 43-5	13 03-8	4-5	4-1	10-5	9-5	16-5	15-0		
46	13 41-5	13 43-7	13 04-1	4-6	4-2	10-6	9-6	16-6	15-1		
47	13 41-8	13 44-0	13 04-3	4-7	4-3	10-7	9-7	16-7	15-2		
48	13 42-0	13 44-3	13 04-6	4-8	4-4	10-8	9-8	16-8	15-3		
49	13 42-3	13 44-5	13 04-8	4-9	4-5	10-9	9-9	16-9	15-4		
50	13 42-5	13 44-8	13 05-0	5-0	4-5	11-0	10-0	17-0	15-4		
51	13 42-8	13 45-0	13 05-3	5-1	4-6	11-1	10-1	17-1	15-5		
52	13 43-0	13 45-3	13 05-5	5-2	4-7	11-2	10-2	17-2	15-6		
53	13 43-3	13 45-5	13 05-7	5-3	4-8	11-3	10-3	17-3	15-7		
54	13 43-5	13 45-8	13 06-0	5-4	4-9	11-4	10-4	17-4	15-8		
55	13 43-8	13 46-0	13 06-2	5-5	5-0	11-5	10-4	17-5	15-9		
56	13 44-0	13 46-3	13 06-5	5-6	5-1	11-6	10-5	17-6	16-0		
57	13 44-3	13 46-5	13 06-7	5-7	5-2	11-7	10-6	17-7	16-1		
58	13 44-5	13 46-8	13 06-9	5-8	5-3	11-8	10-7	17-8	16-2		
59	13 44-8	13 47-0	13 07-2	5-9	5-4	11-9	10-8	17-9	16-3		
60	13 45-0	13 47-3	13 07-4	6-0	5-5	12-0	10-9	18-0	16-4		

55 <sup>m</sup>	SOL PLANETAS	ARIES	LUNA	v		o		d		Corr <sup>n</sup>	
				o	d	o	d	o	d	o	d
00	13 45-0	13 47-3	13 07-4	0-0	0-0	6-0	5-6	12-0	11-1		
01	13 45-3	13 47-5	13 07-7	0-1	0-1	6-1	5-6	12-1	11-2		
02	13 45-5	13 47-8	13 07-9	0-2	0-2	6-2	5-7	12-2	11-3		
03	13 45-8	13 48-0	13 08-1	0-3	0-3	6-3	5-8	12-3	11-4		
04	13 46-0	13 48-3	13 08-4	0-4	0-4	6-4	5-9	12-4	11-5		
05	13 46-3	13 48-5	13 08-6	0-5	0-5	6-5	6-0	12-5	11-6		
06	13 46-5	13 48-8	13 08-8	0-6	0-6	6-6	6-1	12-6	11-7		
07	13 46-8	13 49-0	13 09-1	0-7	0-6	6-7	6-2	12-7	11-7		
08	13 47-0	13 49-3	13 09-3	0-8	0-7	6-8	6-3	12-8	11-8		
09	13 47-3	13 49-5	13 09-6	0-9	0-8	6-9	6-4	12-9	11-9		
10	13 47-5	13 49-8	13 09-8	1-0	0-9	7-0	6-5	13-0	12-0		
11	13 47-8	13 50-0	13 10-0	1-1	1-0	7-1	6-6	13-1	12-1		
12	13 48-0	13 50-3	13 10-3	1-2	1-1	7-2	6-7	13-2	12-2		
13	13 48-3	13 50-5	13 10-5	1-3	1-2	7-3	6-8	13-3	12-3		
14	13 48-5	13 50-8	13 10-8	1-4	1-3	7-4	6-8	13-4	12-4		
15	13 48-8	13 51-0	13 11-0	1-5	1-4	7-5	6-9	13-5	12-5		
16	13 49-0	13 51-3	13 11-2	1-6	1-5	7-6	7-0	13-6	12-6		
17	13 49-3	13 51-5	13 11-5	1-7	1-6	7-7	7-1	13-7	12-7		
18	13 49-5	13 51-8	13 11-7	1-8	1-7	7-8	7-2	13-8	12-8		
19	13 49-8	13 52-0	13 12-0	1-9	1-8	7-9	7-3	13-9	12-9		
20	13 50-0	13 52-3	13 12-2	2-0	1-9	8-0	7-4	14-0	13-0		
21	13 50-3	13 52-5	13 12-4	2-1	1-9	8-1	7-5	14-1	13-0		
22	13 50-5	13 52-8	13 12-7	2-2	2-0	8-2	7-6	14-2	13-1		
23	13 50-8	13 53-0	13 12-9	2-3	2-1	8-3	7-7	14-3	13-2		
24	13 51-0	13 53-3	13 13-1	2-4	2-2	8-4	7-8	14-4	13-3		
25	13 51-3	13 53-5	13 13-4	2-5	2-3	8-5	7-9	14-5	13-4		
26	13 51-5	13 53-8	13 13-6	2-6	2-4	8-6	8-0	14-6	13-5		
27	13 51-8	13 54-0	13 13-9	2-7	2-5	8-7	8-0	14-7	13-6		
28	13 52-0	13 54-3	13 14-1	2-8	2-6	8-8	8-1	14-8	13-7		
29	13 52-3	13 54-5	13 14-3	2-9	2-7	8-9	8-2	14-9	13-8		
30	13 52-5	13 54-8	13 14-6	3-0	2-8	9-0	8-3	15-0	13-9		
31	13 52-8	13 55-0	13 14-8	3-1	2-9	9-1	8-4	15-1	14-0		
32	13 53-0	13 55-3	13 15-1	3-2	3-0	9-2	8-5	15-2	14-1		
33	13 53-3	13 55-5	13 15-3	3-3	3-1	9-3	8-6	15-3	14-2		
34	13 53-5	13 55-8	13 15-5	3-4	3-1	9-4	8-7	15-4	14-2		
35	13 53-8	13 56-0	13 15-8	3-5	3-2	9-5	8-8	15-5	14-3		
36	13 54-0	13 56-3	13 16-0	3-6	3-3	9-6	8-9	15-6	14-4		
37	13 54-3	13 56-5	13 16-2	3-7	3-4	9-7	9-0	15-7	14-5		
38	13 54-5	13 56-8	13 16-5	3-8	3-5	9-8	9-1	15-8	14-6		
39	13 54-8	13 57-0	13 16-7	3-9	3-6	9-9	9-2	15-9	14-7		
40	13 55-0	13 57-3	13 17-0	4-0	3-7	10-0	9-3	16-0	14-8		
41	13 55-3	13 57-5	13 17-2	4-1	3-8	10-1	9-3	16-1	14-9		
42	13 55-5	13 57-8	13 17-4	4-2	3-9	10-2	9-4	16-2	15-0		
43	13 55-8	13 58-0	13 17-7	4-3	4-0	10-3	9-5	16-3	15-1		
44	13 56-0	13 58-3	13 17-9	4-4	4-1	10-4	9-6	16-4	15-2		
45	13 56-3	13 58-5	13 18-2	4-5	4-2	10-5	9-7	16-5	15-3		
46	13 56-5	13 58-8	13 18-4	4-6	4-3	10-6	9-8	16-6	15-4		
47	13 56-8	13 59-0	13 18-6	4-7	4-3	10-7	9-9	16-7	15-4		
48	13 57-0	13 59-3	13 18-9	4-8	4-4	10-8	10-0	16-8	15-5		
49	13 57-3	13 59-5	13 19-1	4-9	4-5	10-9	10-1	16-9	15-6		
50	13 57-5	13 59-8									



56 <sup>m</sup>	SOL PLANETAS		ARIES	LUNA	v <sub>o</sub> Corr <sup>n</sup>		v <sub>o</sub> Corr <sup>n</sup>		v <sub>o</sub> Corr <sup>n</sup>		
	s	o /			'	"	'	"	'	"	'
00	14 00-0	14 02-3	13 21-7	0-0	0-0	6-0	5-7	12-0	11-3		
01	14 00-3	14 02-6	13 22-0	0-1	0-1	6-1	5-7	12-1	11-4		
02	14 00-5	14 02-8	13 22-2	0-2	0-2	6-2	5-8	12-2	11-5		
03	14 00-8	14 03-1	13 22-4	0-3	0-3	6-3	5-9	12-3	11-6		
04	14 01-0	14 03-3	13 22-7	0-4	0-4	6-4	6-0	12-4	11-7		
05	14 01-3	14 03-6	13 22-9	0-5	0-5	6-5	6-1	12-5	11-8		
06	14 01-5	14 03-8	13 23-2	0-6	0-6	6-6	6-2	12-6	11-9		
07	14 01-8	14 04-1	13 23-4	0-7	0-7	6-7	6-3	12-7	12-0		
08	14 02-0	14 04-3	13 23-6	0-8	0-8	6-8	6-4	12-8	12-1		
09	14 02-3	14 04-6	13 23-9	0-9	0-8	6-9	6-5	12-9	12-1		
10	14 02-5	14 04-8	13 24-1	1-0	0-9	7-0	6-6	13-0	12-2		
11	14 02-8	14 05-1	13 24-4	1-1	1-0	7-1	6-7	13-1	12-3		
12	14 03-0	14 05-3	13 24-6	1-2	1-1	7-2	6-8	13-2	12-4		
13	14 03-3	14 05-6	13 24-8	1-3	1-2	7-3	6-9	13-3	12-5		
14	14 03-5	14 05-8	13 25-1	1-4	1-3	7-4	7-0	13-4	12-6		
15	14 03-8	14 06-1	13 25-3	1-5	1-4	7-5	7-1	13-5	12-7		
16	14 04-0	14 06-3	13 25-6	1-6	1-5	7-6	7-2	13-6	12-8		
17	14 04-3	14 06-6	13 25-8	1-7	1-6	7-7	7-3	13-7	12-9		
18	14 04-5	14 06-8	13 26-0	1-8	1-7	7-8	7-3	13-8	13-0		
19	14 04-8	14 07-1	13 26-3	1-9	1-8	7-9	7-4	13-9	13-1		
20	14 05-0	14 07-3	13 26-5	2-0	1-9	8-0	7-5	14-0	13-2		
21	14 05-3	14 07-6	13 26-7	2-1	2-0	8-1	7-6	14-1	13-3		
22	14 05-5	14 07-8	13 27-0	2-2	2-1	8-2	7-7	14-2	13-4		
23	14 05-8	14 08-1	13 27-2	2-3	2-2	8-3	7-8	14-3	13-5		
24	14 06-0	14 08-3	13 27-5	2-4	2-3	8-4	7-9	14-4	13-6		
25	14 06-3	14 08-6	13 27-7	2-5	2-4	8-5	8-0	14-5	13-7		
26	14 06-5	14 08-8	13 27-9	2-6	2-4	8-6	8-1	14-6	13-7		
27	14 06-8	14 09-1	13 28-2	2-7	2-5	8-7	8-2	14-7	13-8		
28	14 07-0	14 09-3	13 28-4	2-8	2-6	8-8	8-3	14-8	13-9		
29	14 07-3	14 09-6	13 28-7	2-9	2-7	8-9	8-4	14-9	14-0		
30	14 07-5	14 09-8	13 28-9	3-0	2-8	9-0	8-5	15-0	14-1		
31	14 07-8	14 10-1	13 29-1	3-1	2-9	9-1	8-6	15-1	14-2		
32	14 08-0	14 10-3	13 29-4	3-2	3-0	9-2	8-7	15-2	14-3		
33	14 08-3	14 10-6	13 29-6	3-3	3-1	9-3	8-8	15-3	14-4		
34	14 08-5	14 10-8	13 29-8	3-4	3-2	9-4	8-9	15-4	14-5		
35	14 08-8	14 11-1	13 30-1	3-5	3-3	9-5	8-9	15-5	14-6		
36	14 09-0	14 11-3	13 30-3	3-6	3-4	9-6	9-0	15-6	14-7		
37	14 09-3	14 11-6	13 30-6	3-7	3-5	9-7	9-1	15-7	14-8		
38	14 09-5	14 11-8	13 30-8	3-8	3-6	9-8	9-2	15-8	14-9		
39	14 09-8	14 12-1	13 31-0	3-9	3-7	9-9	9-3	15-9	15-0		
40	14 10-0	14 12-3	13 31-3	4-0	3-8	10-0	9-4	16-0	15-1		
41	14 10-3	14 12-6	13 31-5	4-1	3-9	10-1	9-5	16-1	15-2		
42	14 10-5	14 12-8	13 31-8	4-2	4-0	10-2	9-6	16-2	15-3		
43	14 10-8	14 13-1	13 32-0	4-3	4-0	10-3	9-7	16-3	15-3		
44	14 11-0	14 13-3	13 32-2	4-4	4-1	10-4	9-8	16-4	15-4		
45	14 11-3	14 13-6	13 32-5	4-5	4-2	10-5	9-9	16-5	15-5		
46	14 11-5	14 13-8	13 32-7	4-6	4-3	10-6	10-0	16-6	15-6		
47	14 11-8	14 14-1	13 32-9	4-7	4-4	10-7	10-1	16-7	15-7		
48	14 12-0	14 14-3	13 33-2	4-8	4-5	10-8	10-2	16-8	15-8		
49	14 12-3	14 14-6	13 33-4	4-9	4-6	10-9	10-3	16-9	15-9		
50	14 12-5	14 14-8	13 33-7	5-0	4-7	11-0	10-4	17-0	16-0		
51	14 12-8	14 15-1	13 33-9	5-1	4-8	11-1	10-5	17-1	16-1		
52	14 13-0	14 15-3	13 34-1	5-2	4-9	11-2	10-5	17-2	16-2		
53	14 13-3	14 15-6	13 34-4	5-3	5-0	11-3	10-6	17-3	16-3		
54	14 13-5	14 15-8	13 34-6	5-4	5-1	11-4	10-7	17-4	16-4		
55	14 13-8	14 16-1	13 34-9	5-5	5-2	11-5	10-8	17-5	16-5		
56	14 14-0	14 16-3	13 35-1	5-6	5-3	11-6	10-9	17-6	16-6		
57	14 14-3	14 16-6	13 35-3	5-7	5-4	11-7	11-0	17-7	16-7		
58	14 14-5	14 16-8	13 35-6	5-8	5-5	11-8	11-1	17-8	16-8		
59	14 14-8	14 17-1	13 35-8	5-9	5-6	11-9	11-2	17-9	16-9		
60	14 15-0	14 17-3	13 36-1	6-0	5-7	12-0	11-3	18-0	17-0		

57 <sup>m</sup>	SOL PLANETAS		ARIES	LUNA	v <sub>o</sub> Corr <sup>n</sup>		v <sub>o</sub> Corr <sup>n</sup>		v <sub>o</sub> Corr <sup>n</sup>		
	s	o /			'	"	'	"	'	"	'
00	14 15-0	14 17-3	13 36-1	0-0	0-0	6-0	5-8	12-0	11-5		
01	14 15-3	14 17-6	13 36-3	0-1	0-1	6-1	5-8	12-1	11-6		
02	14 15-5	14 17-8	13 36-5	0-2	0-2	6-2	5-9	12-2	11-7		
03	14 15-8	14 18-1	13 36-8	0-3	0-3	6-3	6-0	12-3	11-8		
04	14 16-0	14 18-3	13 37-0	0-4	0-4	6-4	6-1	12-4	11-9		
05	14 16-3	14 18-6	13 37-2	0-5	0-5	6-5	6-2	12-5	12-0		
06	14 16-5	14 18-8	13 37-5	0-6	0-6	6-6	6-3	12-6	12-1		
07	14 16-8	14 19-1	13 37-7	0-7	0-7	6-7	6-4	12-7	12-2		
08	14 17-0	14 19-3	13 38-0	0-8	0-8	6-8	6-5	12-8	12-3		
09	14 17-3	14 19-6	13 38-2	0-9	0-9	6-9	6-6	12-9	12-4		
10	14 17-5	14 19-8	13 38-4	1-0	1-0	7-0	6-7	13-0	12-5		
11	14 17-8	14 20-1	13 38-7	1-1	1-1	7-1	6-8	13-1	12-6		
12	14 18-0	14 20-3	13 38-9	1-2	1-2	7-2	6-9	13-2	12-7		
13	14 18-3	14 20-6	13 39-2	1-3	1-2	7-3	7-0	13-3	12-7		
14	14 18-5	14 20-9	13 39-4	1-4	1-3	7-4	7-1	13-4	12-8		
15	14 18-8	14 21-1	13 39-6	1-5	1-4	7-5	7-2	13-5	12-9		
16	14 19-0	14 21-4	13 39-9	1-6	1-5	7-6	7-3	13-6	13-0		
17	14 19-3	14 21-6	13 40-1	1-7	1-6	7-7	7-4	13-7	13-1		
18	14 19-5	14 21-9	13 40-3	1-8	1-7	7-8	7-5	13-8	13-2		
19	14 19-8	14 22-1	13 40-6	1-9	1-8	7-9	7-6	13-9	13-3		
20	14 20-0	14 22-4	13 40-8	2-0	1-9	8-0	7-7	14-0	13-4		
21	14 20-3	14 22-6	13 41-1	2-1	2-0	8-1	7-8	14-1	13-5		
22	14 20-5	14 22-9	13 41-3	2-2	2-1	8-2	7-9	14-2	13-6		
23	14 20-8	14 23-1	13 41-5	2-3	2-2	8-3	8-0	14-3	13-7		
24	14 21-0	14 23-4	13 41-8	2-4	2-3	8-4	8-1	14-4	13-8		
25	14 21-3	14 23-6	13 42-0	2-5	2-4	8-5	8-1	14-5	13-9		
26	14 21-5	14 23-9	13 42-3	2-6	2-5	8-6	8-2	14-6	14-0		
27	14 21-8	14 24-1	13 42-5	2-7	2-6	8-7	8-3	14-7	14-1		
28	14 22-0	14 24-4	13 42-7	2-8	2-7	8-8	8-4	14-8	14-2		
29	14 22-3	14 24-6	13 43-0	2-9	2-8	8-9	8-5	14-9	14-3		
30	14 22-5	14 24-9	13 43-2	3-0	2-9	9-0	8-6	15-0	14-4		
31	14 22-8	14 25-1	13 43-4	3-1	3-0	9-1	8-7	15-1	14-5		
32	14 23-0	14 25-4	13 43-7	3-2	3-1	9-2	8-8	15-2	14-6		
33	14 23-3	14 25-6	13 43-9	3-3	3-2	9-3	8-9	15-3	14-7		
34	14 23-5	14 25-9	13 44-2	3-4	3-3	9-4	9-0	15-4	14-8		
35	14 23-8	14 26-1	13 44-4	3-5	3-4	9-5	9-1	15-5	14-9		
36	14 24-0	14 26-4	13 44-6	3-6	3-5	9-6	9-2	15-6	15-0		
37	14 24-3	14 26-6	13 44-9	3-7	3-5	9-7	9-3	15-7	15-0		
38	14 24-5	14 26-9	13 45-1	3-8	3-6	9-8	9-4	15-8	15-1		
39	14 24-8	14 27-1	13 45-4	3-9	3-7	9-9	9-5	15-9	15-2		
40	14 25-0	14 27-4	13 45-6	4-0	3-8	10-0	9-6	16-0	15-3		
41	14 25-3	14 27-6	13 45-8	4-1	3-9	10-1	9-7	16-1	15-4		
42	14 25-5	14 27-9	13 46-1	4-2	4-0	10-2	9-8	16-2	15-5		
43	14 25-8	14 28-1	13 46-3	4-3	4-1	10-3	9-9	16-3	15-6		
44	14 26-0	14 28-4	13 46-5	4-4	4-2	10-4	10-0	16-4	15-7		
45	14 26-3	14 28-6	13 46-8	4-5	4-3	10-5	10-1	16-5	15-8		
46	14 26-5	14 28-9	13 47-0	4-6	4-4	10-6	10-2	16-6	15-9		
47	14 26-8	14 29-1	13 47-3	4-7	4-5	10-7	10-3	16-7	16-0		
48	14 27-0	14 29-4	13 47-5	4-8	4-6	10-8	10-4	16-8	16-1		
49	14 27-3	14 29-6	13 47-7	4-							



58 <sup>m</sup>	SOL PLANETAS	ARIES	LUNA	v o d	Corr <sup>n</sup>	v o d	Corr <sup>n</sup>	v o d	Corr <sup>n</sup>
00	14 30-0	14 32-4	13 50-4	0-0	0-0	6-0	5-9	12-0	11-7
01	14 30-3	14 32-6	13 50-6	0-1	0-1	6-1	5-9	12-1	11-8
02	14 30-5	14 32-9	13 50-8	0-2	0-2	6-2	6-0	12-2	11-9
03	14 30-8	14 33-1	13 51-1	0-3	0-3	6-3	6-1	12-3	12-0
04	14 31-0	14 33-4	13 51-3	0-4	0-4	6-4	6-2	12-4	12-1
05	14 31-3	14 33-6	13 51-6	0-5	0-5	6-5	6-3	12-5	12-2
06	14 31-5	14 33-9	13 51-8	0-6	0-6	6-6	6-4	12-6	12-3
07	14 31-8	14 34-1	13 52-0	0-7	0-7	6-7	6-5	12-7	12-4
08	14 32-0	14 34-4	13 52-3	0-8	0-8	6-8	6-6	12-8	12-5
09	14 32-3	14 34-6	13 52-5	0-9	0-9	6-9	6-7	12-9	12-6
10	14 32-5	14 34-9	13 52-8	1-0	1-0	7-0	6-8	13-0	12-7
11	14 32-8	14 35-1	13 53-0	1-1	1-1	7-1	6-9	13-1	12-8
12	14 33-0	14 35-4	13 53-2	1-2	1-2	7-2	7-0	13-2	12-9
13	14 33-3	14 35-6	13 53-5	1-3	1-3	7-3	7-1	13-3	13-0
14	14 33-5	14 35-9	13 53-7	1-4	1-4	7-4	7-2	13-4	13-1
15	14 33-8	14 36-1	13 53-9	1-5	1-5	7-5	7-3	13-5	13-2
16	14 34-0	14 36-4	13 54-2	1-6	1-6	7-6	7-4	13-6	13-3
17	14 34-3	14 36-6	13 54-4	1-7	1-7	7-7	7-5	13-7	13-4
18	14 34-5	14 36-9	13 54-7	1-8	1-8	7-8	7-6	13-8	13-5
19	14 34-8	14 37-1	13 54-9	1-9	1-9	7-9	7-7	13-9	13-6
20	14 35-0	14 37-4	13 55-1	2-0	2-0	8-0	7-8	14-0	13-7
21	14 35-3	14 37-6	13 55-4	2-1	2-0	8-1	7-9	14-1	13-7
22	14 35-5	14 37-9	13 55-6	2-2	2-1	8-2	8-0	14-2	13-8
23	14 35-8	14 38-1	13 55-9	2-3	2-2	8-3	8-1	14-3	13-9
24	14 36-0	14 38-4	13 56-1	2-4	2-3	8-4	8-2	14-4	14-0
25	14 36-3	14 38-6	13 56-3	2-5	2-4	8-5	8-3	14-5	14-1
26	14 36-5	14 38-9	13 56-6	2-6	2-5	8-6	8-4	14-6	14-2
27	14 36-8	14 39-2	13 56-8	2-7	2-6	8-7	8-5	14-7	14-3
28	14 37-0	14 39-4	13 57-0	2-8	2-7	8-8	8-6	14-8	14-4
29	14 37-3	14 39-7	13 57-3	2-9	2-8	8-9	8-7	14-9	14-5
30	14 37-5	14 39-9	13 57-5	3-0	2-9	9-0	8-8	15-0	14-6
31	14 37-8	14 40-2	13 57-8	3-1	3-0	9-1	8-9	15-1	14-7
32	14 38-0	14 40-4	13 58-0	3-2	3-1	9-2	9-0	15-2	14-8
33	14 38-3	14 40-7	13 58-2	3-3	3-2	9-3	9-1	15-3	14-9
34	14 38-5	14 40-9	13 58-5	3-4	3-3	9-4	9-2	15-4	15-0
35	14 38-8	14 41-2	13 58-7	3-5	3-4	9-5	9-3	15-5	15-1
36	14 39-0	14 41-4	13 59-0	3-6	3-5	9-6	9-4	15-6	15-2
37	14 39-3	14 41-7	13 59-2	3-7	3-6	9-7	9-5	15-7	15-3
38	14 39-5	14 41-9	13 59-4	3-8	3-7	9-8	9-6	15-8	15-4
39	14 39-8	14 42-2	13 59-7	3-9	3-8	9-9	9-7	15-9	15-5
40	14 40-0	14 42-4	13 59-9	4-0	3-9	10-0	9-8	16-0	15-6
41	14 40-3	14 42-7	14 00-1	4-1	4-0	10-1	9-8	16-1	15-7
42	14 40-5	14 42-9	14 00-4	4-2	4-1	10-2	9-9	16-2	15-8
43	14 40-8	14 43-2	14 00-6	4-3	4-2	10-3	10-0	16-3	15-9
44	14 41-0	14 43-4	14 00-9	4-4	4-3	10-4	10-1	16-4	16-0
45	14 41-3	14 43-7	14 01-1	4-5	4-4	10-5	10-2	16-5	16-1
46	14 41-5	14 43-9	14 01-3	4-6	4-5	10-6	10-3	16-6	16-2
47	14 41-8	14 44-2	14 01-6	4-7	4-6	10-7	10-4	16-7	16-3
48	14 42-0	14 44-4	14 01-8	4-8	4-7	10-8	10-5	16-8	16-4
49	14 42-3	14 44-7	14 02-1	4-9	4-8	10-9	10-6	16-9	16-5
50	14 42-5	14 44-9	14 02-3	5-0	4-9	11-0	10-7	17-0	16-6
51	14 42-8	14 45-2	14 02-5	5-1	5-0	11-1	10-8	17-1	16-7
52	14 43-0	14 45-4	14 02-8	5-2	5-1	11-2	10-9	17-2	16-8
53	14 43-3	14 45-7	14 03-0	5-3	5-2	11-3	11-0	17-3	16-9
54	14 43-5	14 45-9	14 03-3	5-4	5-3	11-4	11-1	17-4	17-0
55	14 43-8	14 46-2	14 03-5	5-5	5-4	11-5	11-2	17-5	17-1
56	14 44-0	14 46-4	14 03-7	5-6	5-5	11-6	11-3	17-6	17-2
57	14 44-3	14 46-7	14 04-0	5-7	5-6	11-7	11-4	17-7	17-3
58	14 44-5	14 46-9	14 04-2	5-8	5-7	11-8	11-5	17-8	17-4
59	14 44-8	14 47-2	14 04-4	5-9	5-8	11-9	11-6	17-9	17-5
60	14 45-0	14 47-4	14 04-7	6-0	5-9	12-0	11-7	18-0	17-6

59 <sup>m</sup>	SOL PLANETAS	ARIES	LUNA	v o d	Corr <sup>n</sup>	v o d	Corr <sup>n</sup>	v o d	Corr <sup>n</sup>
00	14 45-0	14 47-4	14 04-7	0-0	0-0	6-0	6-0	12-0	11-9
01	14 45-3	14 47-7	14 04-9	0-1	0-1	6-1	6-0	12-1	12-0
02	14 45-5	14 47-9	14 05-2	0-2	0-2	6-2	6-1	12-2	12-1
03	14 45-8	14 48-2	14 05-4	0-3	0-3	6-3	6-2	12-3	12-2
04	14 46-0	14 48-4	14 05-6	0-4	0-4	6-4	6-3	12-4	12-3
05	14 46-3	14 48-7	14 05-9	0-5	0-5	6-5	6-4	12-5	12-4
06	14 46-5	14 48-9	14 06-1	0-6	0-6	6-6	6-5	12-6	12-5
07	14 46-8	14 49-2	14 06-4	0-7	0-7	6-7	6-6	12-7	12-6
08	14 47-0	14 49-4	14 06-6	0-8	0-8	6-8	6-7	12-8	12-7
09	14 47-3	14 49-7	14 06-8	0-9	0-9	6-9	6-8	12-9	12-8
10	14 47-5	14 49-9	14 07-1	1-0	1-0	7-0	6-9	13-0	12-9
11	14 47-8	14 50-2	14 07-3	1-1	1-1	7-1	7-0	13-1	13-0
12	14 48-0	14 50-4	14 07-5	1-2	1-2	7-2	7-1	13-2	13-1
13	14 48-3	14 50-7	14 07-8	1-3	1-3	7-3	7-2	13-3	13-2
14	14 48-5	14 50-9	14 08-0	1-4	1-4	7-4	7-3	13-4	13-3
15	14 48-8	14 51-2	14 08-3	1-5	1-5	7-5	7-4	13-5	13-4
16	14 49-0	14 51-4	14 08-5	1-6	1-6	7-6	7-5	13-6	13-5
17	14 49-3	14 51-7	14 08-7	1-7	1-7	7-7	7-6	13-7	13-6
18	14 49-5	14 51-9	14 09-0	1-8	1-8	7-8	7-7	13-8	13-7
19	14 49-8	14 52-2	14 09-2	1-9	1-9	7-9	7-8	13-9	13-8
20	14 50-0	14 52-4	14 09-5	2-0	2-0	8-0	7-9	14-0	13-9
21	14 50-3	14 52-7	14 09-7	2-1	2-1	8-1	8-0	14-1	14-0
22	14 50-5	14 52-9	14 09-9	2-2	2-2	8-2	8-1	14-2	14-1
23	14 50-8	14 53-2	14 10-2	2-3	2-3	8-3	8-2	14-3	14-2
24	14 51-0	14 53-4	14 10-4	2-4	2-4	8-4	8-3	14-4	14-3
25	14 51-3	14 53-7	14 10-6	2-5	2-5	8-5	8-4	14-5	14-4
26	14 51-5	14 53-9	14 10-9	2-6	2-6	8-6	8-5	14-6	14-5
27	14 51-8	14 54-2	14 11-1	2-7	2-7	8-7	8-6	14-7	14-6
28	14 52-0	14 54-4	14 11-4	2-8	2-8	8-8	8-7	14-8	14-7
29	14 52-3	14 54-7	14 11-6	2-9	2-9	8-9	8-8	14-9	14-8
30	14 52-5	14 54-9	14 11-8	3-0	3-0	9-0	8-9	15-0	14-9
31	14 52-8	14 55-2	14 12-1	3-1	3-1	9-1	9-0	15-1	15-0
32	14 53-0	14 55-4	14 12-3	3-2	3-2	9-2	9-1	15-2	15-1
33	14 53-3	14 55-7	14 12-6	3-3	3-3	9-3	9-2	15-3	15-2
34	14 53-5	14 55-9	14 12-8	3-4	3-4	9-4	9-3	15-4	15-3
35	14 53-8	14 56-2	14 13-0	3-5	3-5	9-5	9-4	15-5	15-4
36	14 54-0	14 56-4	14 13-3	3-6	3-6	9-6	9-5	15-6	15-5
37	14 54-3	14 56-7	14 13-5	3-7	3-7	9-7	9-6	15-7	15-6
38	14 54-5	14 56-9	14 13-8	3-8	3-8	9-8	9-7	15-8	15-7
39	14 54-8	14 57-2	14 14-0	3-9	3-9	9-9	9-8	15-9	15-8
40	14 55-0	14 57-5	14 14-2	4-0	4-0	10-0	9-9	16-0	15-9
41	14 55-3	14 57-7	14 14-5	4-1	4-1	10-1	10-0	16-1	16-0
42	14 55-5	14 58-0	14 14-7	4-2	4-2	10-2	10-1	16-2	16-1
43	14 55-8	14 58-2	14 14-9	4-3	4-3	10-3	10-2	16-3	16-2
44	14 56-0	14 58-5	14 15-2	4-4	4-4	10-4	10-3	16-4	16-3
45	14 56-3	14 58-7	14 15-4	4-5	4-5	10-5	10-4	16-5	16-4
46	14 56-5	14 59-0	14 15-7	4-6	4-6	10-6	10-5	16-6	16-5
47	14 56-8	14 59-2	14 15-9	4-7	4-7	10-7	10-6	16-7	16-6
48	14 57-0	14 59-5	14 16-1	4-8	4-8	10-8	10-7	16-8	16-7
49	14 57-3	14 59-7	14 16-4	4-9	4-9	10-9	10-8	16-9	16-8
50	14 57-5	15 00-0	14 16-6	5-0	5-0	11-0	10-9	17-0	16-9
51	14 57-8	15 00-2	14 16-9	5-1	5-1	11-1	11-0	17-1	17-0
52	14 58-0	15 00-5	14 17-1	5-2	5-2	11-2	11-1	17-2	17-1
53	14 58-3	15 00-7	14 17-3	5-3	5-3	11-3	11-2	17-3	17-2
54	14 58-5	15 01-0	14 17-6	5-4	5-4	11-4	11-3	17-4	17-3
55	14 58-8	15 01-2	14 17-8	5-5	5-5	11-5	11-4	17-5	17-4
56	14 59-0	15 01-5	14 18-0	5-6	5-6	11-6	11-5	17-6	17-5
57	14 59-3	15 01-7	14 18-3	5-7	5-7	11-7	11-6	17-7	17-6
58	14 59-5	15 02-0	14 18-5	5-8	5-8	11-8	11-7	17-8	17-7
59	14 59-8	15 02-2	14 18-8	5-9	5-9	11-9	11		



TABLAS PARA INTERPOLAR ORTOS DEL SOL, ORTOS DE LUNA, ETC.

TABLA I - POR LATITUD

Intervalo Tabular	Diferencia entre los tiempos para latitudes consecutivas.																		
	10°	5°	2°	5 <sup>m</sup>	10 <sup>m</sup>	15 <sup>m</sup>	20 <sup>m</sup>	25 <sup>m</sup>	30 <sup>m</sup>	35 <sup>m</sup>	40 <sup>m</sup>	45 <sup>m</sup>	50 <sup>m</sup>	55 <sup>m</sup>	60 <sup>m</sup>	1 <sup>h</sup> 05 <sup>m</sup>	1 <sup>h</sup> 10 <sup>m</sup>	1 <sup>h</sup> 15 <sup>m</sup>	1 <sup>h</sup> 20 <sup>m</sup>
0 30	0 15	0 06	0	0	1	1	1	1	2	2	2	2	2	2	2	0 02	0 02	0 02	0 02
1 00	0 30	0 12	0	1	1	2	2	3	3	3	4	4	4	5	05	05	05	05	
1 30	0 45	0 18	1	1	2	3	3	4	4	5	5	6	7	7	07	07	07	07	
2 00	1 00	0 24	1	2	3	4	5	5	6	7	7	8	9	10	10	10	10	10	
2 30	1 15	0 30	1	2	4	5	6	7	8	9	9	10	11	12	12	13	13	13	
3 00	1 30	0 36	1	3	4	6	7	8	9	10	11	12	13	14	0 15	0 15	0 16	0 16	
3 30	1 45	0 42	2	3	5	7	8	10	11	12	13	14	16	17	18	18	19	19	
4 00	2 00	0 48	2	4	6	8	9	11	13	14	15	16	18	19	20	21	22	22	
4 30	2 15	0 54	2	4	7	9	11	13	15	16	18	19	21	22	23	24	25	26	
5 00	2 30	1 00	2	5	7	10	12	14	16	18	20	22	23	25	26	27	28	29	
5 30	2 45	1 06	3	5	8	11	13	16	18	20	22	24	26	28	0 29	0 30	0 31	0 32	
6 00	3 00	1 12	3	6	9	12	14	17	20	22	24	26	29	31	32	33	34	36	
6 30	3 15	1 18	3	6	10	13	16	19	22	24	26	29	31	34	36	37	38	40	
7 00	3 30	1 24	3	7	10	14	17	20	23	26	29	31	34	37	39	41	42	44	
7 30	3 45	1 30	4	7	11	15	18	22	25	28	31	34	37	40	43	44	46	48	
8 00	4 00	1 36	4	8	12	16	20	23	27	30	34	37	41	44	0 47	0 48	0 51	0 53	
8 30	4 15	1 42	4	8	13	17	21	25	29	33	36	40	44	48	0 51	0 53	0 56	0 58	
9 00	4 30	1 48	4	9	13	18	22	27	31	35	39	43	47	52	0 55	0 58	1 01	1 04	
9 30	4 45	1 54	5	9	14	19	24	28	33	38	42	47	51	56	1 00	1 04	1 08	1 12	
10 00	5 00	2 00	5	10	15	20	25	30	35	40	45	50	55	60	1 05	1 10	1 15	1 20	

La tabla I se usa para interpolar el T.M.L. del orto del Sol, crepúsculo, orto de la Luna, etc. por latitud. Debe entrarse en la columna apropiada de la izquierda con la diferencia entre la latitud verdadera y la latitud tabulada más próxima que sea menor que la verdadera; y con el argumento en la parte superior que es el valor más próximo de la diferencia entre las horas para la latitud tabular y la siguiente superior; la corrección así obtenida se aplica a la hora para la latitud tabular; el signo de la corrección puede determinarse por inspección. Debe notarse que la interpolación no es lineal, de tal manera que cuando se usa la tabla es esencial tomar el fenómeno tabular para la latitud menor que la latitud verdadera.

TABLA II - POR LONGITUD

Long. Este u Oeste	Diferencia entre las horas para la fecha dada y la fecha inmediata anterior (para longitudes este) o para la fecha dada y la inmediata posterior (para longitudes oeste)																	
	10 <sup>m</sup>	20 <sup>m</sup>	30 <sup>m</sup>	40 <sup>m</sup>	50 <sup>m</sup>	60 <sup>m</sup>	1 <sup>h</sup> + 10 <sup>m</sup>	1 <sup>h</sup> + 20 <sup>m</sup>	1 <sup>h</sup> + 30 <sup>m</sup>	1 <sup>h</sup> + 40 <sup>m</sup>	1 <sup>h</sup> + 50 <sup>m</sup>	2 <sup>h</sup> 10 <sup>m</sup>	2 <sup>h</sup> 20 <sup>m</sup>	2 <sup>h</sup> 30 <sup>m</sup>	2 <sup>h</sup> 40 <sup>m</sup>	2 <sup>h</sup> 50 <sup>m</sup>	3 <sup>h</sup> 00 <sup>m</sup>	
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10	0	1	1	1	1	2	2	2	3	3	3	04	04	04	04	05	05	
20	1	1	2	2	3	3	4	4	6	6	7	07	08	08	09	09	10	
30	1	2	2	3	4	5	6	7	8	9	10	11	12	12	13	14	15	
40	1	2	3	4	6	7	8	9	11	12	13	14	16	17	18	19	20	
50	1	3	4	6	7	8	10	11	14	15	17	0 18	0 19	0 21	0 22	0 24	0 25	
60	2	3	5	7	8	10	12	13	17	18	20	22	23	25	27	28	30	
70	2	4	6	8	10	12	14	16	19	21	23	25	27	29	31	33	35	
80	2	4	7	9	11	13	16	18	22	24	27	29	31	33	36	38	40	
90	2	5	7	10	12	15	17	20	25	27	30	32	35	37	40	42	45	
100	3	6	8	11	14	17	19	22	28	31	33	0 36	0 39	0 42	0 44	0 47	0 50	
110	3	6	9	12	15	18	21	24	31	34	37	40	43	46	49	0 52	0 55	
120	3	7	10	13	17	20	23	27	33	37	40	43	47	50	53	0 57	1 00	
130	4	7	11	14	18	22	25	29	36	40	43	47	51	54	0 58	1 01	1 05	
140	4	8	12	16	19	23	27	31	39	43	47	51	54	0 58	1 02	1 06	1 10	
150	4	8	13	17	21	25	29	33	42	46	50	0 54	0 58	1 03	1 07	1 11	1 15	
160	4	9	13	18	22	27	31	36	44	49	53	0 58	1 02	1 07	1 11	1 16	1 20	
170	5	9	14	19	24	28	33	38	47	52	57	1 01	1 06	1 11	1 16	1 20	1 25	
180	5	10	15	20	25	30	35	40	50	55	60	1 05	1 10	1 15	1 20	1 25	1 30	

La tabla II se usa para interpolar por longitud el T.M.L. del orto y ocaso de la Luna y el paso de la Luna por el meridiano. Se entra a la tabla con la longitud y con la diferencia entre las horas para la fecha dada y la fecha inmediata anterior (en longitudes este) o la fecha inmediata posterior (en longitudes oeste). Normalmente la corrección se suma en las longitudes oeste y se resta en las este, pero si como ocurre ocasionalmente, las horas se hacen más temprano cada día en lugar de más tarde, los signos de la corrección deben invertirse.



# INDICE DE ESTRELLAS SELECCIONADAS., 1989

Nombres	No.	Mag.	A. H. S.	Dec.
<i>Acamar</i>	7	3.1	316	S. 40
<i>Achernar</i>	5	0.6	336	S. 57
<i>Acrux</i>	30	1.1	173	S. 63
<i>Adhara</i>	19	1.6	255	S. 29
<i>Aldebaran</i>	10	1.1	291	N. 16
<i>Alioth</i>	32	1.7	167	N. 56
<i>Alkaid</i>	34	1.9	153	N. 49
<i>Al Na'ir</i>	55	2.2	28	S. 47
<i>Alnilam</i>	15	1.8	276	S. 1
<i>Alpharā</i>	25	2.2	218	S. 9
<i>Alphecca</i>	41	2.3	126	N. 27
<i>Alpheratz</i>	1	2.2	358	N. 29
<i>Altair</i>	51	0.9	62	N. 9
<i>Ankaa</i>	2	2.4	354	S. 42
<i>Antares</i>	42	1.2	113	S. 26
<i>Arcturus</i>	37	0.2	146	N. 19
<i>Atria</i>	43	1.9	108	S. 69
<i>Avior</i>	22	1.7	234	S. 59
<i>Bellatrix</i>	13	1.7	279	N. 6
<i>Betelgeuse</i>	16	Var.*	271	N. 7
<i>Canopus</i>	17	-0.9	264	S. 53
<i>Capella</i>	12	0.2	281	N. 46
<i>Deneb</i>	53	1.3	50	N. 45
<i>Denebola</i>	28	2.2	183	N. 15
<i>Diphda</i>	4	2.2	349	S. 18
<i>Dubhe</i>	27	2.0	194	N. 62
<i>Elnath</i>	14	1.8	279	N. 29
<i>Eltanin</i>	47	2.4	91	N. 51
<i>Enif</i>	54	2.5	34	N. 10
<i>Fomalhaut</i>	56	1.3	16	S. 30
<i>Gacrux</i>	31	1.6	172	S. 57
<i>Gienah</i>	29	2.8	176	S. 17
<i>Hadar</i>	35	0.9	149	S. 60
<i>Hamal</i>	6	2.2	328	N. 23
<i>Kaus Australis</i>	48	2.0	84	S. 34
<i>Kochab</i>	40	2.2	137	N. 74
<i>Markab</i>	57	2.6	14	N. 15
<i>Menkar</i>	8	2.8	315	N. 4
<i>Menkent</i>	36	2.3	148	S. 36
<i>Miaplacidus</i>	24	1.8	222	S. 70
<i>Mirfak</i>	9	1.9	309	N. 50
<i>Nunki</i>	50	2.1	76	S. 26
<i>Peacock</i>	52	2.1	54	S. 57
<i>Pollux</i>	21	1.2	244	N. 28
<i>Procyon</i>	20	0.5	245	N. 5
<i>Rasalhague</i>	46	2.1	96	N. 13
<i>Regulus</i>	26	1.3	208	N. 12
<i>Rigel</i>	11	0.3	281	S. 8
<i>Rigil Kentaurus</i>	38	0.1	140	S. 61
<i>Sabik</i>	44	2.6	103	S. 16
<i>Schedar</i>	3	2.5	350	N. 56
<i>Shaula</i>	45	1.7	97	S. 37
<i>Sirius</i>	18	-1.6	259	S. 17
<i>Spica</i>	33	1.2	159	S. 11
<i>Suhail</i>	23	2.2	223	S. 43
<i>Vega</i>	49	0.1	81	N. 39
<i>Zubenelgenubi</i>	39	2.9	137	S. 16

No.	Nombres	Mag.	A. H. S.	Dec.
1	<i>Alpheratz</i>	2.2	358	N. 29
2	<i>Ankaa</i>	2.4	354	S. 42
3	<i>Schedar</i>	2.5	350	N. 56
4	<i>Diphda</i>	2.2	349	S. 18
5	<i>Achernar</i>	0.6	336	S. 57
6	<i>Hamal</i>	2.2	328	N. 23
7	<i>Acamar</i>	3.1	316	S. 40
8	<i>Menkar</i>	2.8	315	N. 4
9	<i>Mirfak</i>	1.9	309	N. 50
10	<i>Aldebaran</i>	1.1	291	N. 16
11	<i>Rigel</i>	0.3	281	S. 8
12	<i>Capella</i>	0.2	281	N. 46
13	<i>Bellatrix</i>	1.7	279	N. 6
14	<i>Elnath</i>	1.8	279	N. 29
15	<i>Alnilam</i>	1.8	276	S. 1
16	<i>Betelgeuse</i>	Var.*	271	N. 7
17	<i>Canopus</i>	-0.9	264	S. 53
18	<i>Sirius</i>	-1.6	259	S. 17
19	<i>Adhara</i>	1.6	255	S. 29
20	<i>Procyon</i>	0.5	245	N. 5
21	<i>Pollux</i>	1.2	244	N. 28
22	<i>Avior</i>	1.7	234	S. 59
23	<i>Suhail</i>	2.2	223	S. 43
24	<i>Miaplacidus</i>	1.8	222	S. 70
25	<i>Alphard</i>	2.2	218	S. 9
26	<i>Regulus</i>	1.3	208	N. 12
27	<i>Dubhe</i>	2.0	194	N. 62
28	<i>Denebola</i>	2.2	183	N. 15
29	<i>Gienah</i>	2.8	176	S. 17
30	<i>Acrux</i>	1.1	173	S. 63
31	<i>Gacrux</i>	1.6	172	S. 57
32	<i>Alioth</i>	1.7	167	N. 56
33	<i>Spica</i>	1.2	159	S. 11
34	<i>Alkaid</i>	1.9	153	N. 49
35	<i>Hadar</i>	0.9	149	S. 60
36	<i>Menkent</i>	2.3	148	S. 36
37	<i>Arcturus</i>	0.2	146	N. 19
38	<i>Rigil Kentaurus</i>	0.1	140	S. 61
39	<i>Zubenelgenubi</i>	2.9	137	S. 16
40	<i>Kochab</i>	2.2	137	N. 74
41	<i>Alphecca</i>	2.3	126	N. 27
42	<i>Antares</i>	1.2	113	S. 26
43	<i>Atria</i>	1.9	108	S. 69
44	<i>Sabik</i>	2.6	103	S. 16
45	<i>Shaula</i>	1.7	97	S. 37
46	<i>Rasalhague</i>	2.1	96	N. 13
47	<i>Eltanin</i>	2.4	91	N. 51
48	<i>Kaus Australis</i>	2.0	84	S. 34
49	<i>Vega</i>	0.1	81	N. 39
50	<i>Nunki</i>	2.1	76	S. 26
51	<i>Altair</i>	0.9	62	N. 9
52	<i>Peacock</i>	2.1	54	S. 57
53	<i>Deneb</i>	1.3	50	N. 45
54	<i>Enif</i>	2.5	34	N. 10
55	<i>Al Na'ir</i>	2.2	28	S. 47
56	<i>Fomalhaut</i>	1.3	16	S. 30
57	<i>Markab</i>	2.6	14	N. 15

\* 0.1—1.2



# TABLAS DE CORRECCION DE ALTURAS 0° — 35° — LUNA

Alt. Ap.	0°-4°		5°-9°		10°-14°		15°-19°		20°-24°		25°-29°		30°-34°		Alt. Ap.
	Corr <sup>a</sup>		Corr <sup>a</sup>		Corr <sup>a</sup>		Corr <sup>a</sup>		Corr <sup>a</sup>		Corr <sup>a</sup>		Corr <sup>a</sup>		
00	0	33.8	5	58.2	10	62.1	15	62.8	20	62.2	25	60.8	30	58.9	00
10		35.9		58.5		62.2		62.8		62.1		60.8		58.8	10
20		37.8		58.7		62.2		62.8		62.1		60.7		58.8	20
30		39.6		58.9		62.3		62.8		62.1		60.7		58.7	30
40		41.2		59.1		62.3		62.8		62.0		60.6		58.6	40
50		42.6		59.3		62.4		62.7		62.0		60.6		58.5	50
00	I	44.0	6	59.5	II	62.4	16	62.7	21	62.0	26	60.5	31	58.5	00
10		45.2		59.7		62.4		62.7		61.9		60.4		58.4	10
20		46.3		59.9		62.5		62.7		61.9		60.4		58.3	20
30		47.3		60.0		62.5		62.7		61.9		60.3		58.2	30
40		48.3		60.2		62.5		62.7		61.8		60.3		58.2	40
50		49.2		60.3		62.6		62.7		61.8		60.2		58.1	50
00	2	50.0	7	60.5	12	62.6	17	62.7	22	61.7	27	60.1	32	58.0	00
10		50.8		60.6		62.6		62.6		61.7		60.1		57.9	10
20		51.4		60.7		62.6		62.6		61.6		60.0		57.8	20
30		52.1		60.9		62.7		62.6		61.6		59.9		57.8	30
40		52.7		61.0		62.7		62.6		61.5		59.9		57.7	40
50		53.3		61.1		62.7		62.6		61.5		59.8		57.6	50
00	3	53.8	8	61.2	13	62.7	18	62.5	23	61.5	28	59.7	33	57.5	00
10		54.3		61.3		62.7		62.5		61.4		59.7		57.4	10
20		54.8		61.4		62.7		62.5		61.4		59.6		57.4	20
30		55.2		61.5		62.8		62.5		61.3		59.6		57.3	30
40		55.6		61.6		62.8		62.4		61.3		59.5		57.2	40
50		56.0		61.6		62.8		62.4		61.2		59.4		57.1	50
00	4	56.4	9	61.7	14	62.8	19	62.4	24	61.2	29	59.3	34	57.0	00
10		56.7		61.8		62.8		62.3		61.1		59.3		56.9	10
20		57.1		61.9		62.8		62.3		61.1		59.2		56.9	20
30		57.4		61.9		62.8		62.3		61.0		59.1		56.8	30
40		57.7		62.0		62.8		62.2		60.9		59.1		56.7	40
50		57.9		62.1		62.8		62.2		60.9		59.0		56.6	50
P. H.	I	S	I	S	I	S	I	S	I	S	I	S	I	S	P. H.
54.0	0.3	0.9	0.3	0.9	0.4	1.0	0.5	1.1	0.6	1.2	0.7	1.3	0.9	1.5	54.0
54.3	0.7	1.1	0.7	1.2	0.7	1.2	0.8	1.3	0.9	1.4	1.1	1.5	1.2	1.7	54.3
54.6	1.1	1.4	1.1	1.4	1.1	1.4	1.2	1.5	1.3	1.6	1.4	1.7	1.5	1.8	54.6
54.9	1.4	1.6	1.5	1.6	1.5	1.6	1.6	1.7	1.6	1.8	1.8	1.9	1.9	2.0	54.9
55.2	1.8	1.8	1.8	1.8	1.9	1.9	1.9	1.9	2.0	2.0	2.1	2.1	2.2	2.2	55.2
55.5	2.2	2.0	2.2	2.0	2.3	2.1	2.3	2.1	2.4	2.2	2.4	2.3	2.5	2.4	55.5
55.8	2.6	2.2	2.6	2.2	2.6	2.3	2.7	2.3	2.7	2.4	2.8	2.4	2.9	2.5	55.8
56.1	3.0	2.4	3.0	2.5	3.0	2.5	3.0	2.5	3.1	2.6	3.1	2.6	3.2	2.7	56.1
56.4	3.4	2.7	3.4	2.7	3.4	2.7	3.4	2.7	3.4	2.8	3.5	2.8	3.5	2.9	56.4
56.7	3.7	2.9	3.7	2.9	3.8	2.9	3.8	2.9	3.8	3.0	3.8	3.0	3.9	3.0	56.7
57.0	4.1	3.1	4.1	3.1	4.1	3.1	4.1	3.1	4.2	3.1	4.2	3.2	4.2	3.2	57.0
57.3	4.5	3.3	4.5	3.3	4.5	3.3	4.5	3.3	4.5	3.3	4.5	3.4	4.6	3.4	57.3
57.6	4.9	3.5	4.9	3.5	4.9	3.5	4.9	3.5	4.9	3.5	4.9	3.5	4.9	3.6	57.6
57.9	5.3	3.8	5.3	3.8	5.2	3.8	5.2	3.7	5.2	3.7	5.2	3.7	5.2	3.7	57.9
58.2	5.6	4.0	5.6	4.0	5.6	4.0	5.6	4.0	5.6	3.9	5.6	3.9	5.6	3.9	58.2
58.5	6.0	4.2	6.0	4.2	6.0	4.2	6.0	4.2	6.0	4.1	5.9	4.1	5.9	4.1	58.5
58.8	6.4	4.4	6.4	4.4	6.4	4.4	6.3	4.4	6.3	4.3	6.3	4.3	6.2	4.2	58.8
59.1	6.8	4.6	6.8	4.6	6.7	4.6	6.7	4.6	6.7	4.5	6.6	4.5	6.6	4.4	59.1
59.4	7.2	4.8	7.1	4.8	7.1	4.8	7.1	4.8	7.0	4.7	7.0	4.7	6.9	4.6	59.4
59.7	7.5	5.1	7.5	5.0	7.5	5.0	7.5	5.0	7.4	4.9	7.3	4.8	7.2	4.7	59.7
60.0	7.9	5.3	7.9	5.3	7.9	5.2	7.8	5.2	7.8	5.1	7.7	5.0	7.6	4.9	60.0
60.3	8.3	5.5	8.3	5.5	8.2	5.4	8.2	5.4	8.1	5.3	8.0	5.2	7.9	5.1	60.3
60.6	8.7	5.7	8.7	5.7	8.6	5.7	8.6	5.6	8.5	5.5	8.4	5.4	8.2	5.3	60.6
60.9	9.1	5.9	9.0	5.9	9.0	5.9	8.9	5.8	8.8	5.7	8.7	5.6	8.6	5.4	60.9
61.2	9.5	6.2	9.4	6.1	9.4	6.1	9.3	6.0	9.2	5.9	9.1	5.8	8.9	5.6	61.2
61.5	9.8	6.4	9.8	6.3	9.7	6.3	9.7	6.2	9.5	6.1	9.4	5.9	9.2	5.8	61.5

DEPRESION			
Alt. del ojo	Alt. del corr. ojo	Alt. del ojo	Alt. del corr. ojo
m	Pies	m	Pies
2.4	-2.8	8.0	9.5
2.6	-2.9	8.6	9.9
2.8	-3.0	9.2	10.3
3.0	-3.1	9.8	10.6
3.2			11.0
3.4			11.4
3.6			11.8
3.8	-3.5	12.6	12.2
4.0	-3.6	13.3	12.6
4.3	-3.7	14.1	13.0
4.5	-3.8	14.9	13.4
4.7	-3.9	15.7	13.8
5.0	-4.0	16.5	14.2
5.2	-4.1	17.4	14.7
5.5	-4.2	18.3	15.1
5.8	-4.3	19.1	15.5
6.1	-4.4	20.1	16.0
6.3	-4.5	21.0	16.5
6.6	-4.6	22.0	16.9
6.9	-4.7	22.9	17.4
7.2	-4.8	23.9	17.9
7.5	-4.9	24.9	18.4
7.9	-5.0	26.0	18.8
8.2	-5.1	27.1	19.3
8.5	-5.2	28.1	19.8
8.8	-5.3	29.2	20.4
9.2	-5.4	30.4	20.9
9.5		31.5	21.4

## TABLA DE CORRECCION DE LUNA

La corrección está dividida en dos partes; la primera corrección se toma de la parte superior de la tabla usando la altura aparente como argumento, y la segunda de la parte inferior, usando P. H. como argumento, en la misma columna que se usó para tomar la primera corrección. En la parte inferior se dan correcciones separadas para los limbos inferior (I) y superior (S). Todas las correcciones deben sumarse a la altura aparente, pero deben restarse 30' de la altura correspondiente al limbo superior.

Para correcciones por presión y temperatura ver página A4

Para observaciones con sextante de burbuja, despreciar la depresión, tomar la media de las correcciones para limbo superior y limbo inferior y restar 15' de la altura.

Alt. Ap. = Altura aparente = Altura de sextante corregida por error de índice y depresión.



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A <sub>4</sub>	Correcciones adicionales por refracción para condiciones no standard.
Hojas sueltas	Lo mismo de la contraportada anterior A <sub>2</sub> y la página xxxiii, y Listas de Contenidos.



# INDICE DE ESTRELLAS SELECCIONADAS., 1989

Nombres	No.	Mag.	A. H. S.	Dec.
<i>Acamar</i>	7	3.1	316	S. 40
<i>Achernar</i>	5	0.6	336	S. 57
<i>Acrux</i>	30	1.1	173	S. 63
<i>Adhara</i>	19	1.6	255	S. 29
<i>Aldebaran</i>	10	1.1	291	N. 16
<i>Alioth</i>	32	1.7	167	N. 56
<i>Alkaid</i>	34	1.9	153	N. 49
<i>Al Na'ir</i>	55	2.2	28	S. 47
<i>Alnilam</i>	15	1.8	276	S. 1
<i>Alpharā</i>	25	2.2	218	S. 9
<i>Alphecca</i>	41	2.3	126	N. 27
<i>Alpheratz</i>	1	2.2	358	N. 29
<i>Altair</i>	51	0.9	62	N. 9
<i>Ankaa</i>	2	2.4	354	S. 42
<i>Antares</i>	42	1.2	113	S. 26
<i>Arcturus</i>	37	0.2	146	N. 19
<i>Atria</i>	43	1.9	108	S. 69
<i>Avior</i>	22	1.7	234	S. 59
<i>Bellatrix</i>	13	1.7	279	N. 6
<i>Betelgeuse</i>	16	Var.*	271	N. 7
<i>Canopus</i>	17	-0.9	264	S. 53
<i>Capella</i>	12	0.2	281	N. 46
<i>Deneb</i>	53	1.3	50	N. 45
<i>Denebola</i>	28	2.2	183	N. 15
<i>Diphda</i>	4	2.2	349	S. 18
<i>Dubhe</i>	27	2.0	194	N. 62
<i>Elnath</i>	14	1.8	279	N. 29
<i>Eltamin</i>	47	2.4	91	N. 51
<i>Enif</i>	54	2.5	34	N. 10
<i>Fomalhaut</i>	56	1.3	16	S. 30
<i>Gacrux</i>	31	1.6	172	S. 57
<i>Gienah</i>	29	2.8	176	S. 17
<i>Hadar</i>	35	0.9	149	S. 60
<i>Hamal</i>	6	2.2	328	N. 23
<i>Kaus Australis</i>	48	2.0	84	S. 34
<i>Kochab</i>	40	2.2	137	N. 74
<i>Markab</i>	57	2.6	14	N. 15
<i>Menkar</i>	8	2.8	315	N. 4
<i>Menkent</i>	36	2.3	148	S. 36
<i>Miaplacidus</i>	24	1.8	222	S. 70
<i>Mirfak</i>	9	1.9	309	N. 50
<i>Nunki</i>	50	2.1	76	S. 26
<i>Peacock</i>	52	2.1	54	S. 57
<i>Pollux</i>	21	1.2	244	N. 28
<i>Procyon</i>	20	0.5	245	N. 5
<i>Rasalhague</i>	46	2.1	96	N. 13
<i>Regulus</i>	26	1.3	208	N. 12
<i>Rigel</i>	11	0.3	281	S. 8
<i>Rigil Kentaurus</i>	38	0.1	140	S. 61
<i>Sabik</i>	44	2.6	103	S. 16
<i>Schedar</i>	3	2.5	350	N. 56
<i>Shaula</i>	45	1.7	97	S. 37
<i>Sirius</i>	18	-1.6	259	S. 17
<i>Spica</i>	33	1.2	159	S. 11
<i>Suhail</i>	23	2.2	223	S. 43
<i>Vega</i>	49	0.1	81	N. 39
<i>Zubenelgenubi</i>	39	2.9	137	S. 16

No.	Nombres	Mag.	A. H. S.	Dec.
1	<i>Alpheratz</i>	2.2	358	N. 29
2	<i>Ankaa</i>	2.4	354	S. 42
3	<i>Schedar</i>	2.5	350	N. 56
4	<i>Diphda</i>	2.2	349	S. 18
5	<i>Achernar</i>	0.6	336	S. 57
6	<i>Hamal</i>	2.2	328	N. 23
7	<i>Acamar</i>	3.1	316	S. 40
8	<i>Menkar</i>	2.8	315	N. 4
9	<i>Mirfak</i>	1.9	309	N. 50
10	<i>Aldebaran</i>	1.1	291	N. 16
11	<i>Rigel</i>	0.3	281	S. 8
12	<i>Capella</i>	0.2	281	N. 46
13	<i>Bellatrix</i>	1.7	279	N. 6
14	<i>Elnath</i>	1.8	279	N. 29
15	<i>Alnilam</i>	1.8	276	S. 1
16	<i>Betelgeuse</i>	Var.*	271	N. 7
17	<i>Canopus</i>	-0.9	264	S. 53
18	<i>Sirius</i>	-1.6	259	S. 17
19	<i>Adhara</i>	1.6	255	S. 29
20	<i>Procyon</i>	0.5	245	N. 5
21	<i>Pollux</i>	1.2	244	N. 28
22	<i>Avior</i>	1.7	234	S. 59
23	<i>Suhail</i>	2.2	223	S. 43
24	<i>Miaplacidus</i>	1.8	222	S. 70
25	<i>Alphard</i>	2.2	218	S. 9
26	<i>Regulus</i>	1.3	208	N. 12
27	<i>Dubhe</i>	2.0	194	N. 62
28	<i>Denebola</i>	2.2	183	N. 15
29	<i>Gienah</i>	2.8	176	S. 17
30	<i>Acrux</i>	1.1	173	S. 63
31	<i>Gacrux</i>	1.6	172	S. 57
32	<i>Alioth</i>	1.7	167	N. 56
33	<i>Spica</i>	1.2	159	S. 11
34	<i>Alkaid</i>	1.9	153	N. 49
35	<i>Hadar</i>	0.9	149	S. 60
36	<i>Menkent</i>	2.3	148	S. 36
37	<i>Arcturus</i>	0.2	146	N. 19
38	<i>Rigil Kentaurus</i>	0.1	140	S. 61
39	<i>Zubenelgenubi</i>	2.9	137	S. 16
40	<i>Kochab</i>	2.2	137	N. 74
41	<i>Alphecca</i>	2.3	126	N. 27
42	<i>Antares</i>	1.2	113	S. 26
43	<i>Atria</i>	1.9	108	S. 69
44	<i>Sabik</i>	2.6	103	S. 16
45	<i>Shaula</i>	1.7	97	S. 37
46	<i>Rasalhague</i>	2.1	96	N. 13
47	<i>Eltamin</i>	2.4	91	N. 51
48	<i>Kaus Australis</i>	2.0	84	S. 34
49	<i>Vega</i>	0.1	81	N. 39
50	<i>Nunki</i>	2.1	76	S. 26
51	<i>Altair</i>	0.9	62	N. 9
52	<i>Peacock</i>	2.1	54	S. 57
53	<i>Deneb</i>	1.3	50	N. 45
54	<i>Enif</i>	2.5	34	N. 10
55	<i>Al Na'ir</i>	2.2	28	S. 47
56	<i>Fomalhaut</i>	1.3	16	S. 30
57	<i>Markab</i>	2.6	14	N. 15



# EL ALMANAQUE NAUTICO, 1989

## LISTA DE CONTENIDOS

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A <sub>2</sub> - A <sub>3</sub>	Tablas de corrección de altura para el Sol, Estrellas y Planetas.
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4	Fases de la Luna.
4-5	Calendario.
5-7	Eclipses.
8-9	Notas de los planetas y diagrama.
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283 a 327	Procedimientos de reducción de las visuales; cálculo directo.
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xxxiii	Indice de estrellas seleccionadas.
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Hojas sueltas	Lo mismo de la contraportada anterior A <sub>2</sub> y la página xxxiii, y listas de contenidos.



TABLAS DE CORRECCION DE ALTURAS DE 10° - 90°, DEL SOL, ESTRELLAS Y PLANETAS

OCT.—MAR. SOL			ABR.—SEP.			ESTRELLAS PLANETAS		DEPRESION					
Alt. Ap.	Limbo Inf.	Limbo Sup.	Alt. Ap.	Limbo Inf.	Limbo Sup.	Alt. Ap.	Corr.	Alt. Ap.	Corr. Adicional	Alt. del ojo	Corr.	Alt. del ojo	Corr.
9 34	+10.8	-21.5	9 39	+10.6	-21.2	9 56	-5.3			m		pies	
9 45	+10.9	-21.4	9 51	+10.7	-21.1	10 08	-5.2			2.4	-2.8	8.0	1.0 - 1.8
9 56	+10.9	-21.4	10 03	+10.8	-21.0	10 20	-5.1			2.6	-2.9	8.6	1.5 - 2.2
10 08	+11.0	-21.3	10 15	+10.8	-21.0	10 33	-5.0			2.8	-3.0	9.2	2.0 - 2.5
10 21	+11.1	-21.2	10 27	+10.9	-20.9	10 46	-4.9			3.0	-3.1	9.8	2.5 - 2.8
10 34	+11.2	-21.1	10 40	+11.0	-20.8	11 00	-4.8			3.2	-3.2	10.5	3.0 - 3.0
10 47	+11.3	-21.0	10 54	+11.1	-20.7	11 14	-4.7			3.4	-3.3	11.2	Ver tabla
11 01	+11.4	-20.9	11 08	+11.2	-20.6	11 29	-4.6			3.6	-3.4	11.9	←
11 15	+11.5	-20.8	11 23	+11.3	-20.5	11 45	-4.5			3.8	-3.5	12.6	m
11 30	+11.6	-20.7	11 38	+11.4	-20.4	12 01	-4.4			4.0	-3.6	13.3	20 - 7.9
11 46	+11.7	-20.6	11 54	+11.5	-20.3	12 18	-4.3			4.3	-3.7	14.1	22 - 8.3
12 02	+11.8	-20.5	12 10	+11.6	-20.2	12 35	-4.2			4.5	-3.8	14.9	24 - 8.6
12 19	+11.9	-20.4	12 28	+11.7	-20.1	13 13	-4.0			4.7	-3.9	15.7	26 - 9.0
12 37	+12.0	-20.3	12 46	+11.8	-20.0	13 33	-3.9			5.0	-4.0	16.5	28 - 9.3
12 55	+12.1	-20.2	13 05	+11.9	-19.9	14 16	-3.7			5.2	-4.1	17.4	
13 14	+12.2	-20.1	13 24	+12.0	-19.8	14 40	-3.6			5.5	-4.2	18.3	30 - 9.6
13 35	+12.3	-20.0	14 07	+12.3	-19.5	15 04	-3.5			5.8	-4.3	19.1	32 - 10.0
13 56	+12.4	-19.9	14 30	+12.4	-19.4	15 30	-3.4			6.1	-4.4	20.1	34 - 10.3
14 18	+12.5	-19.8	15 19	+12.6	-19.2	16 26	-3.2			6.3	-4.5	21.0	36 - 10.6
14 42	+12.6	-19.7	16 14	+12.8	-19.0	17 28	-3.0			6.6	-4.6	22.0	38 - 10.8
15 06	+12.7	-19.6	17 15	+12.9	-18.9	18 38	-2.8			6.9	-4.7	22.9	
15 32	+12.8	-19.5	18 24	+13.2	-18.6	19 58	-2.6			7.2	-4.8	23.9	40 - 11.1
15 59	+12.9	-19.4	19 01	+13.3	-18.5	20 42	-2.5			7.5	-4.9	24.9	42 - 11.4
16 28	+13.0	-19.3	19 42	+13.4	-18.4	21 28	-2.4			7.9	-5.0	26.0	44 - 11.7
16 59	+13.1	-19.2	20 25	+13.5	-18.3	22 19	-2.3			8.2	-5.1	27.1	46 - 11.9
17 32	+13.2	-19.1	21 11	+13.6	-18.2	23 13	-2.2			8.5	-5.2	28.1	48 - 12.2
18 06	+13.3	-19.0	22 00	+13.7	-18.1	24 11	-2.1			8.8	-5.3	29.2	
18 42	+13.4	-18.9	22 54	+13.8	-18.0	25 14	-2.0			9.2	-5.4	30.4	Pies
19 21	+13.5	-18.8	23 51	+13.9	-17.9	26 22	-1.9			9.5	-5.5	31.5	2 - 1.4
20 03	+13.6	-18.7	24 53	+14.0	-17.8	27 36	-1.8			9.9	-5.6	32.7	4 - 1.9
20 48	+13.7	-18.6	26 00	+14.1	-17.7	28 56	-1.7			10.3	-5.7	33.9	6 - 2.4
21 35	+13.8	-18.5	27 13	+14.2	-17.6	30 24	-1.6			10.6	-5.8	35.1	8 - 2.7
22 26	+14.0	-18.3	28 33	+14.3	-17.5	32 00	-1.5			11.0	-5.9	36.3	10 - 3.1
23 22	+14.1	-18.2	30 00	+14.4	-17.4	33 45	-1.4			11.4	-6.0	37.6	Ver tabla
24 21	+14.2	-18.1	31 35	+14.5	-17.3	35 40	-1.3			11.8	-6.1	38.9	←
25 26	+14.3	-18.0	33 20	+14.6	-17.2	37 48	-1.2			12.2	-6.2	40.1	Pies
26 36	+14.4	-17.9	35 17	+14.7	-17.1	40 08	-1.1			12.6	-6.3	41.5	70 - 8.1
27 52	+14.5	-17.8	37 26	+14.8	-17.0	42 44	-1.0			13.0	-6.4	42.8	75 - 8.4
29 15	+14.6	-17.7	39 50	+14.9	-16.9	45 36	-0.9			13.4	-6.5	44.2	80 - 8.7
30 46	+14.7	-17.6	42 31	+15.0	-16.8	48 47	-0.8			13.8	-6.6	45.5	85 - 8.9
32 26	+14.8	-17.5	45 31	+15.1	-16.7	52 18	-0.7			14.2	-6.7	46.9	90 - 9.2
34 17	+14.9	-17.4	48 55	+15.2	-16.6	56 11	-0.6			14.7	-6.8	48.4	95 - 9.5
36 20	+15.0	-17.3	52 44	+15.3	-16.5	60 28	-0.5			15.1	-6.9	49.8	
38 36	+15.1	-17.2	57 02	+15.4	-16.4	65 08	-0.4			15.5	-7.0	51.3	100 - 9.7
41 08	+15.2	-17.1	61 51	+15.5	-16.3	70 11	-0.3			16.0	-7.1	52.8	105 - 9.9
43 59	+15.3	-17.0	67 17	+15.6	-16.2	75 34	-0.2			16.5	-7.2	54.3	110 - 10.2
47 10	+15.4	-16.9	73 16	+15.7	-16.1	81 13	-0.1			16.9	-7.3	55.8	115 - 10.4
50 46	+15.5	-16.8	79 43	+15.8	-16.0	87 03	0.0			17.4	-7.4	57.4	120 - 10.6
54 49	+15.6	-16.7	86 32	+15.9	-15.9	90 00				17.9	-7.5	58.9	125 - 10.8
59 23	+15.7	-16.6								18.4	-7.6	60.5	
64 30	+15.8	-16.5								18.8	-7.7	62.1	130 - 11.1
70 12	+15.9	-16.4								19.3	-7.8	63.8	135 - 11.3
76 26	+16.0	-16.3								19.8	-7.9	65.4	140 - 11.5
83 05	+16.1	-16.2								20.4	-8.0	67.1	145 - 11.7
90 00										20.9	-8.1	68.8	150 - 11.9
										21.4		70.5	155 - 12.1

Alt. Ap. = Altura aparente = Altura de sextante corregida por error de índice y depresión.