

INSTITUTO DE GEOFISICA



Océano Pacífico



Manzanillo, Col.
Lázaro Cárdenas, Mich.
Acapulco, Gro.

Bahía de los Angeles, B.C.N.
Santa Rosalía, B.C.S.
La Paz, B.C.S.

Ensenada, B.C.
Guerrero Negro, B.C.N.
San Carlos, B.C.S.

2209
4215
30

CALENDARIO GRAFICO DE MAREAS 1989
Océano Pacífico

ESTACIONES	PLANO DE REFERENCIA BAJO EL NIVEL MEDIO DEL MAR		TIEMPO
REGION I			
Ensenada, B. C.	2.7 pies	0.82 m	120°W
Guerrero Negro, B.C.S.	2.7 pies	0.82 m	120°W
San Carlos, B.C.S.	2.9 pies	0.88 m	105°W
Cabo San Lucas, B.C.S.	2.1 pies	0.64 m	105°W
Mazatlán, Sin.	2.0 pies	0.61 m	105°W
Puerto Vallarta, Jal.	1.8 pies	0.55 m	90°W
REGION II			
Bahía de los Angeles, B.C.	3.3 pies	1.01 m	105°W
Santa Rosalia, B.C.S.	1.2 pies	0.36 m	105°W
La Paz, B.C.S.	1.7 pies	0.52 m	105°W
Puerto Peñasco, Son.	7.0 pies	2.13 m	105°W
Guaymas, Son.	1.5 pies	0.46 m	105°W
Topolobampo, Sin.	2.0 pies	0.61 m	105°W
REGION III			
Manzanillo, Col.	1.3 pies	0.40 m	90°W
Lázaro Cárdenas, Mich.	0.9 pies	0.27 m	90°W
Acapulco, Gro.	1.0 pies	0.30 m	90°W
Puerto Angel, Oax.	1.6 pies	0.49 m	90°W
Salina Cruz, Oax.	1.9 pies	0.58 m	90°W
Puerto Madero, Chis.	2.3 pies	0.70 m	90°W

Dr. Gerardo Suárez
Director

Instituto de Geofísica

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Responsable editorial

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Jefe del Servicio Mareográfico
Instituto de Geofísica de la U.N.A.M.

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Lorenzo Pérez

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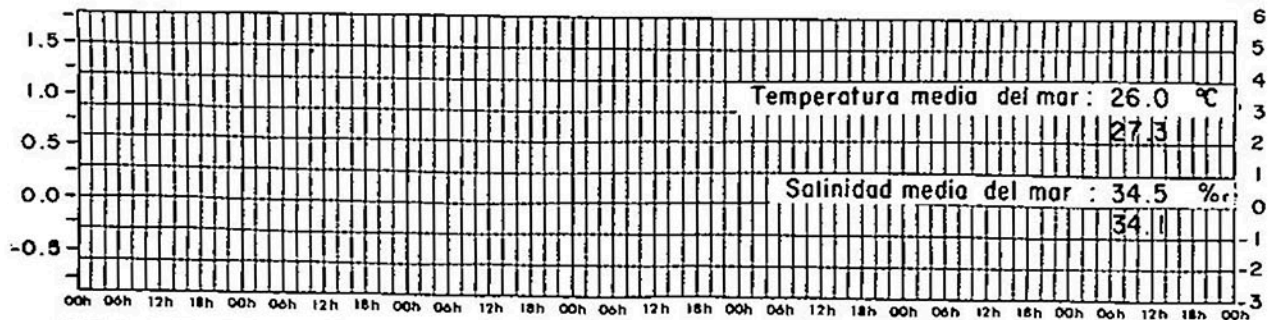
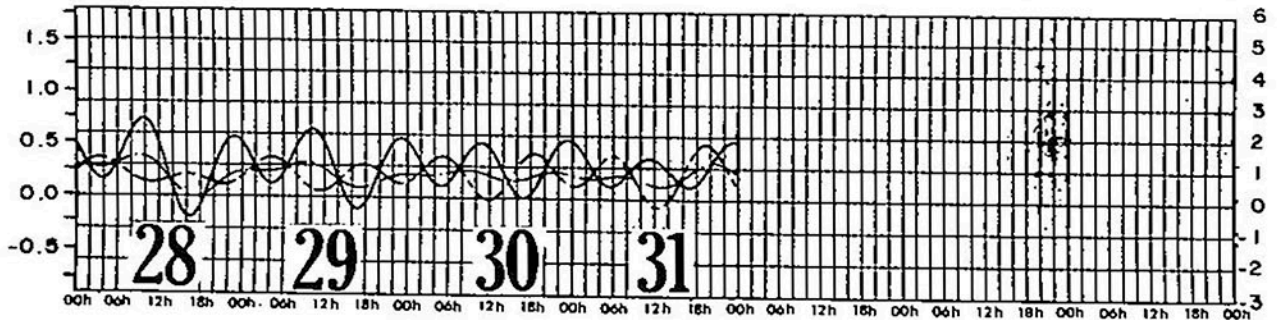
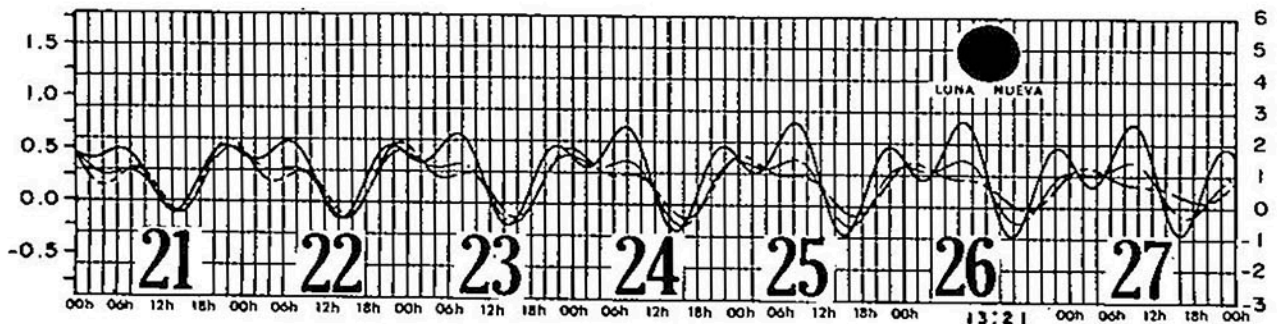
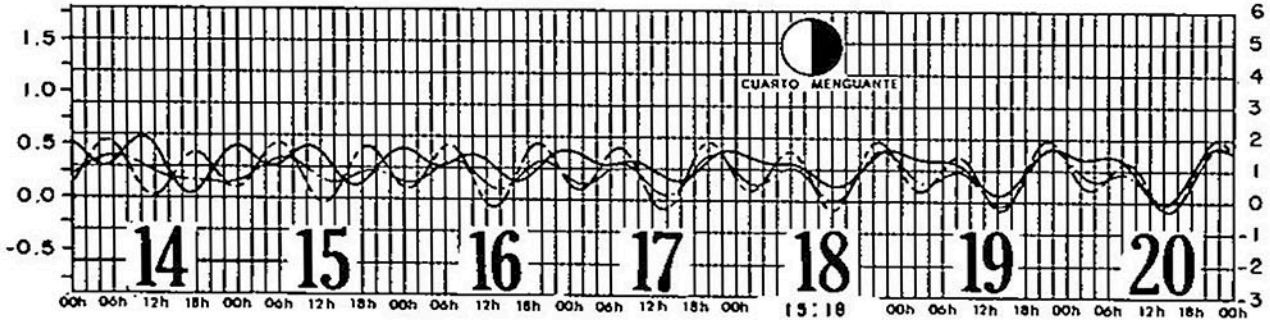
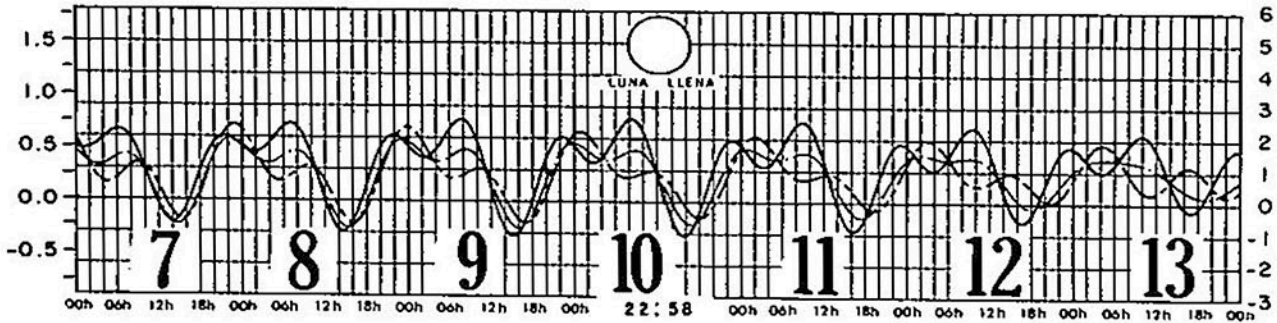
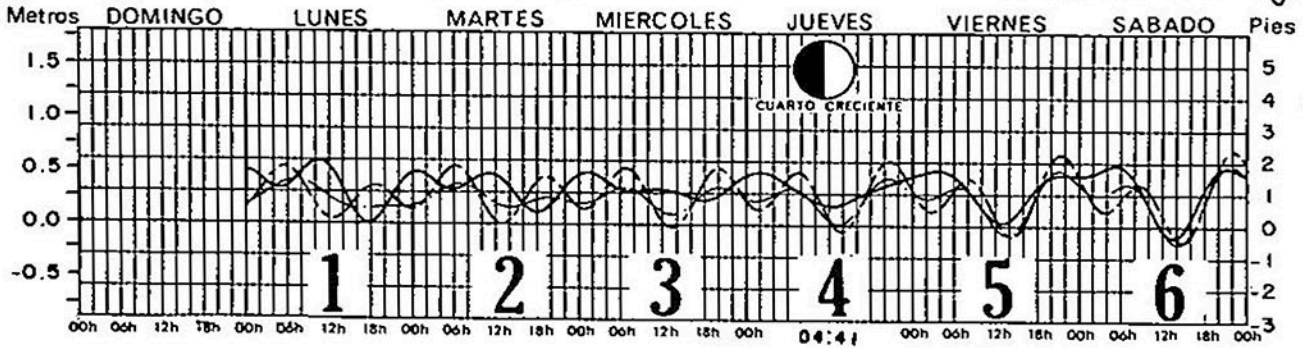


ENERO 1990

MANZANILLO, COL.
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ACAPULCO, GRO.



INSTITUTO DE GEOFISICA, U.N.A.M.



HORA DEL MERIDIANO 90° W

PLANO DE REFERENCIA N.B.M.I.

1213-45

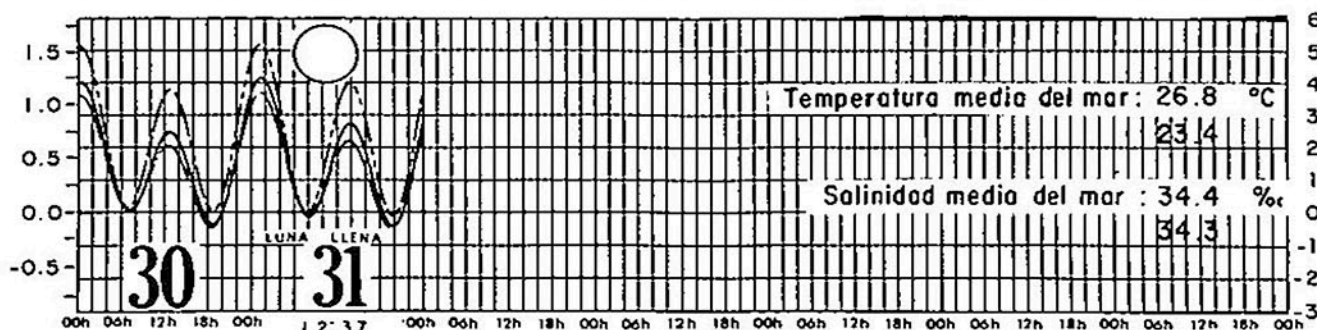
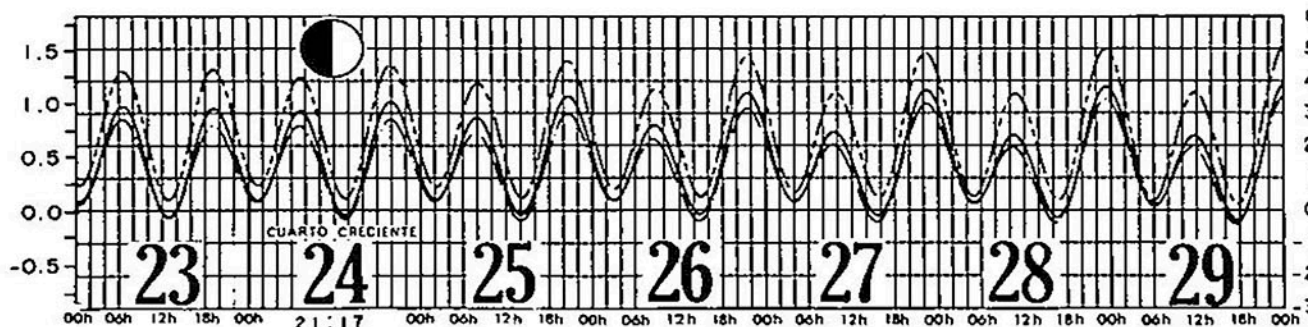
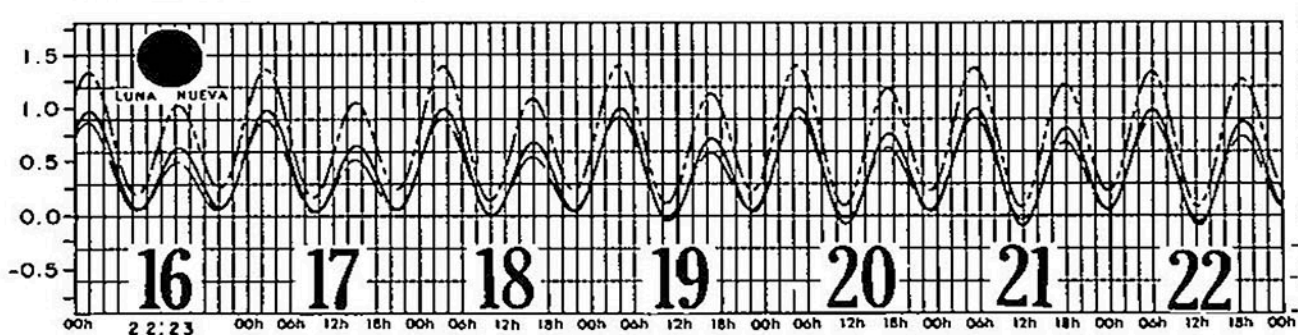
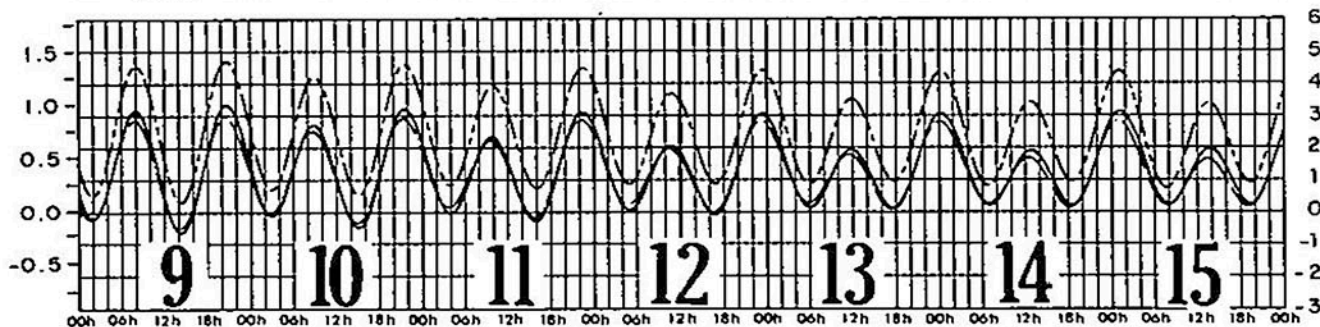
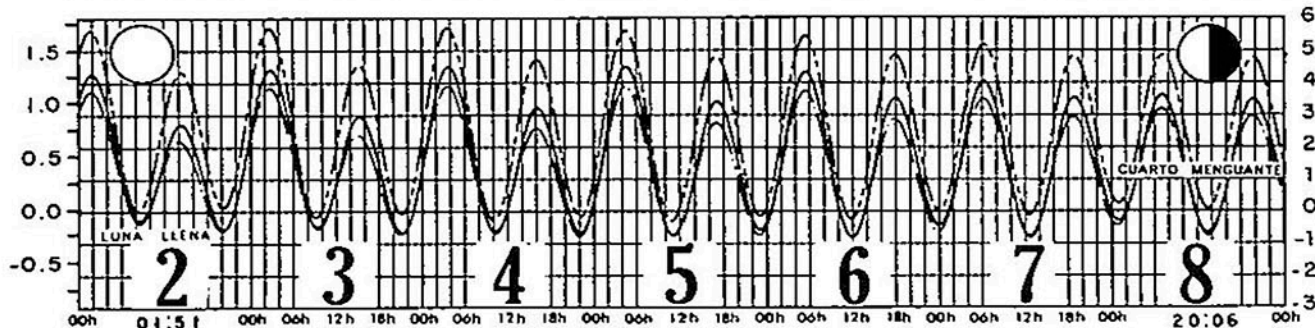
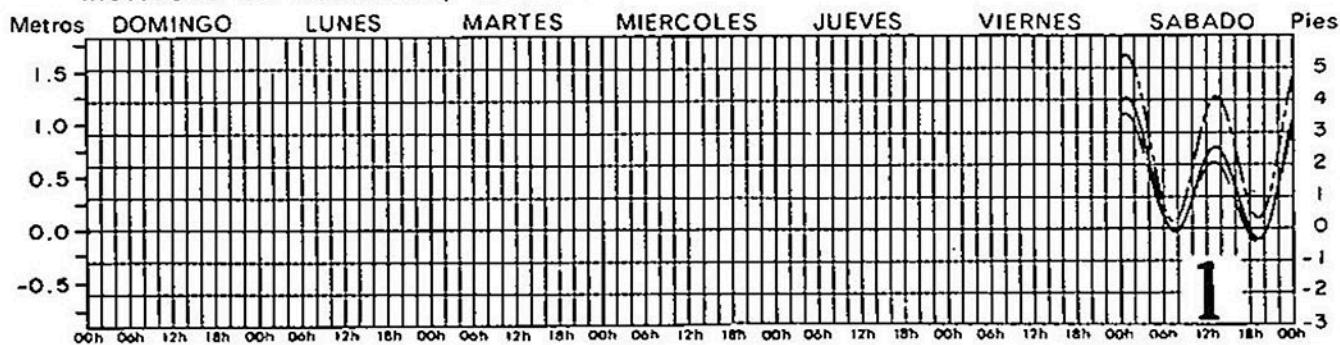


DICIEMBRE 1990

PTO. ANGEL, OAX.
SALINA CRUZ, OAX.
PTO. MADERO, CHIS



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HORA DEL MERIDIANO 90° W

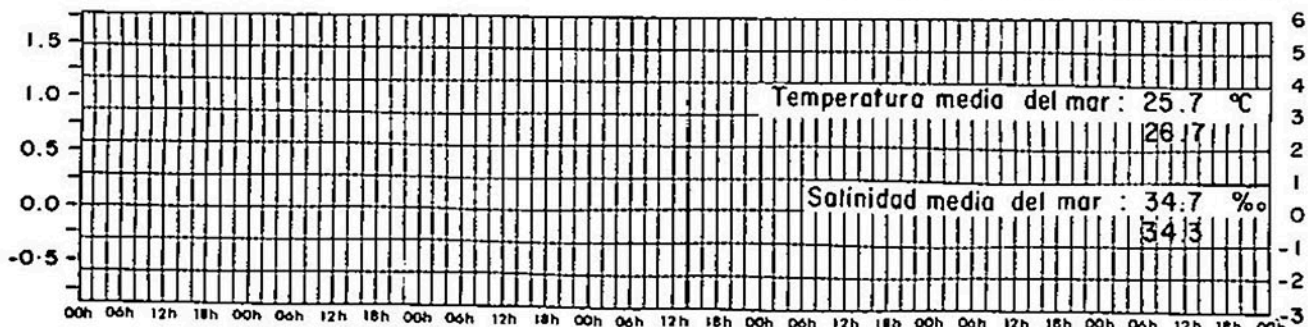
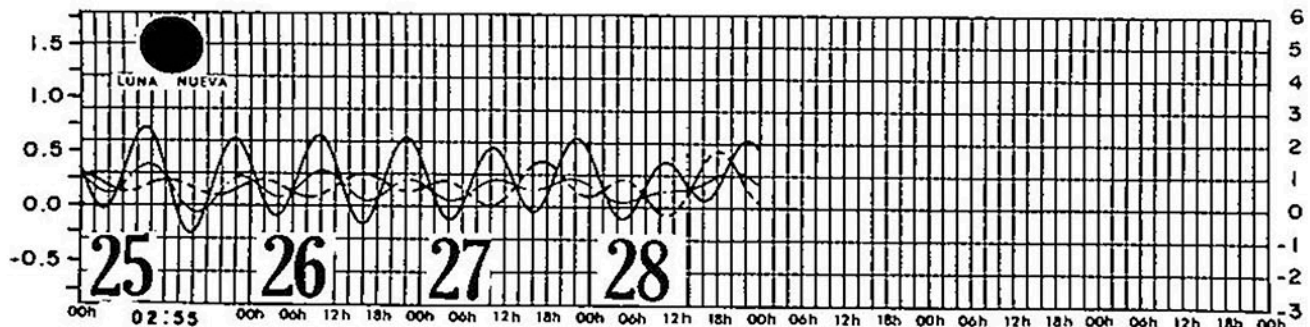
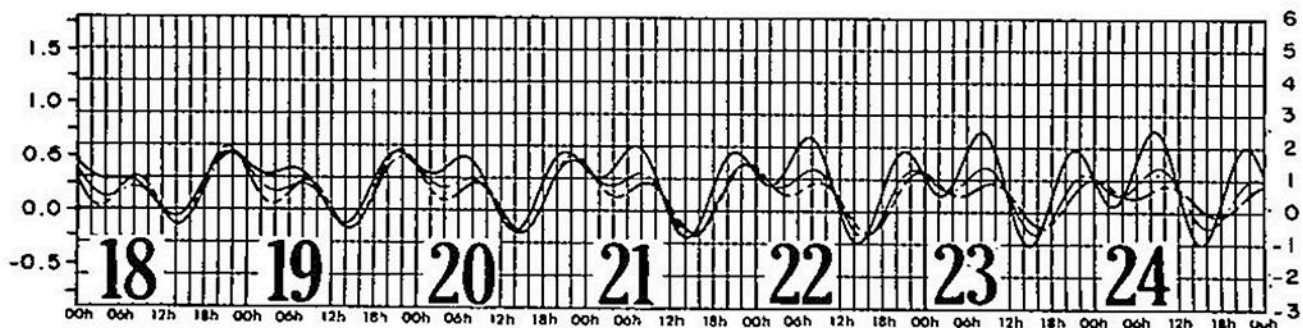
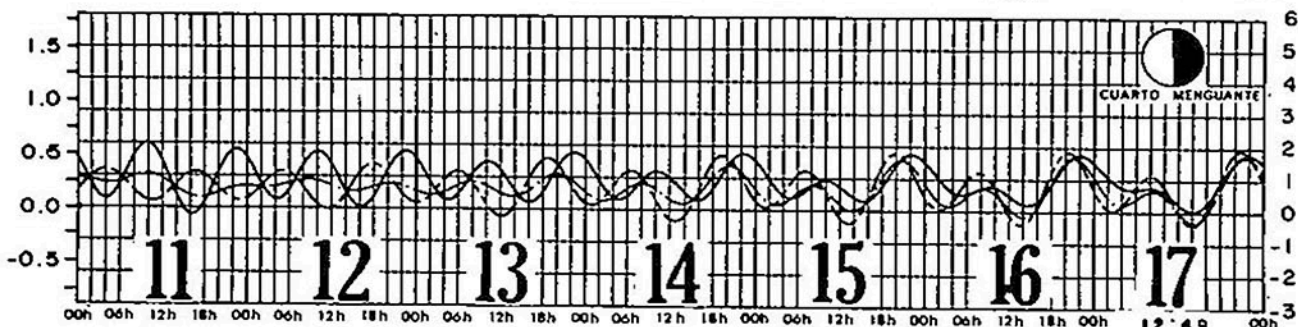
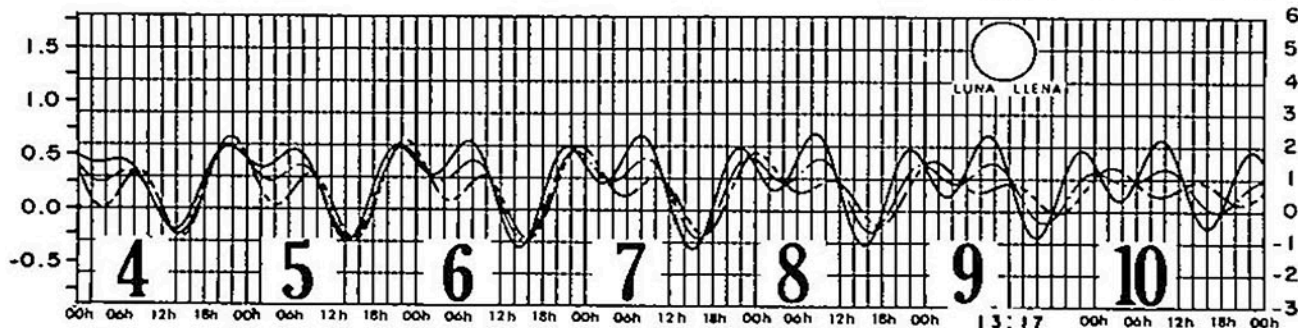
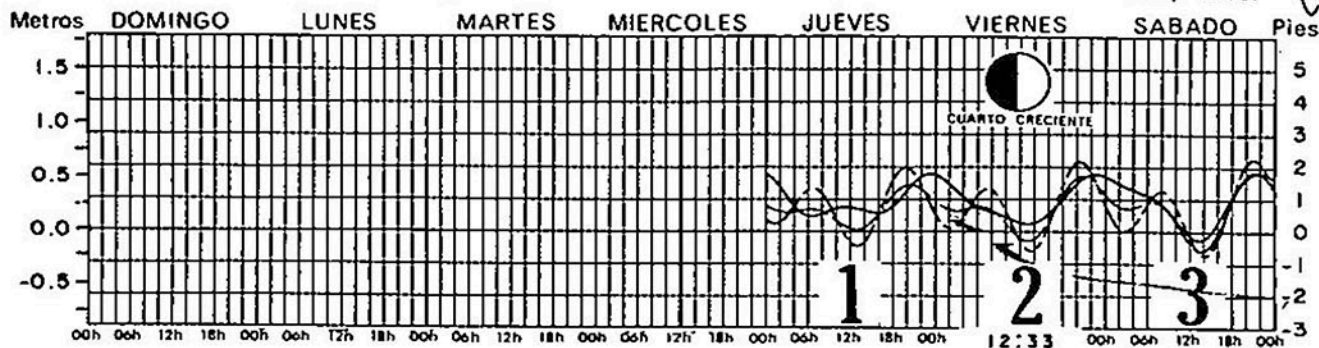
PLANO DE REFERENCIA N.B.M.I.



FEBRERO 1990

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HORA DEL MERIDIANO 90° W

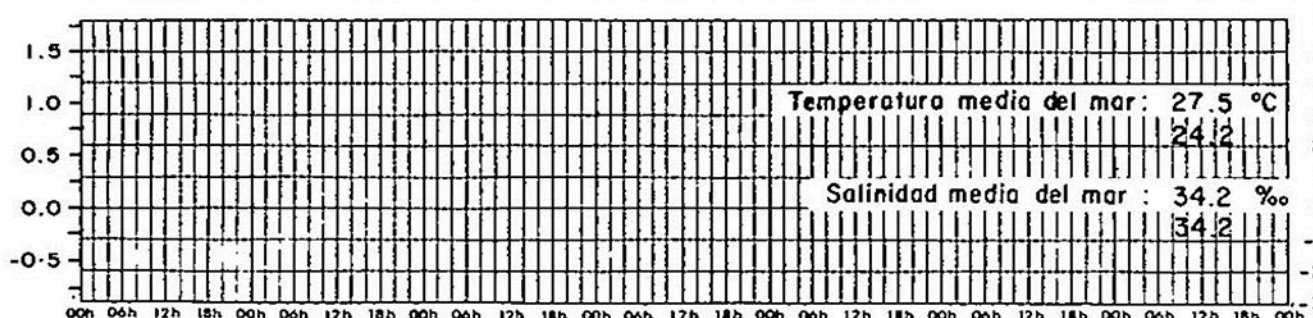
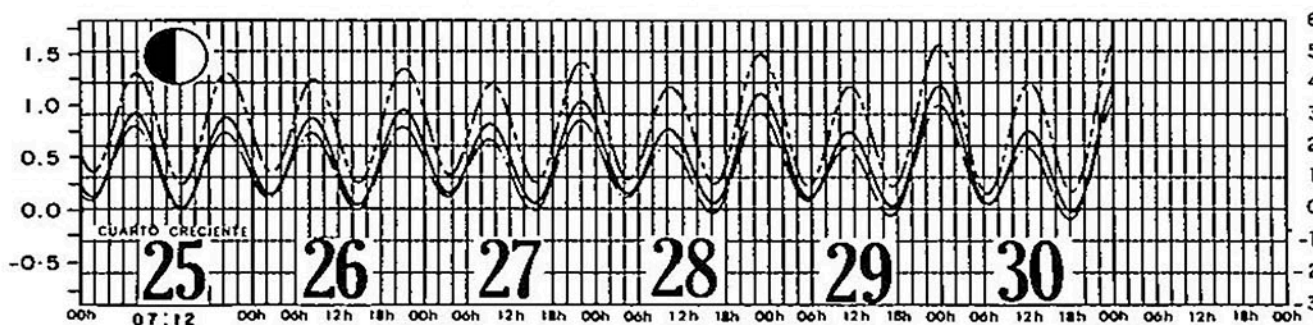
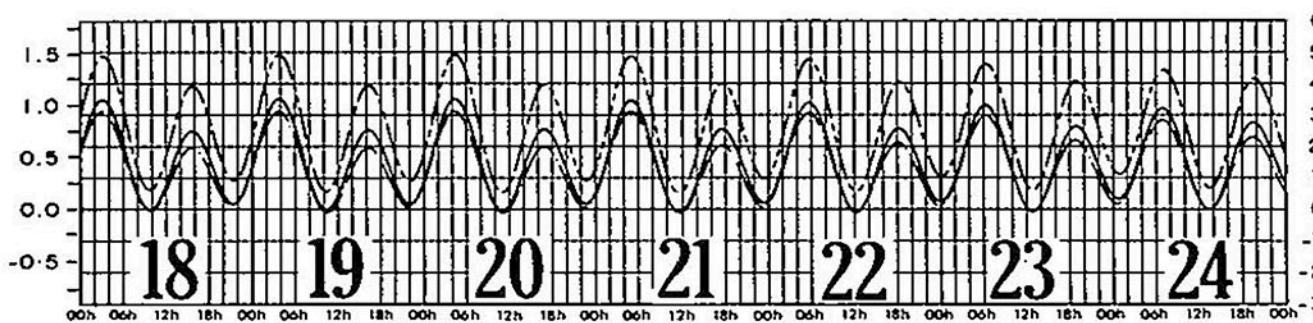
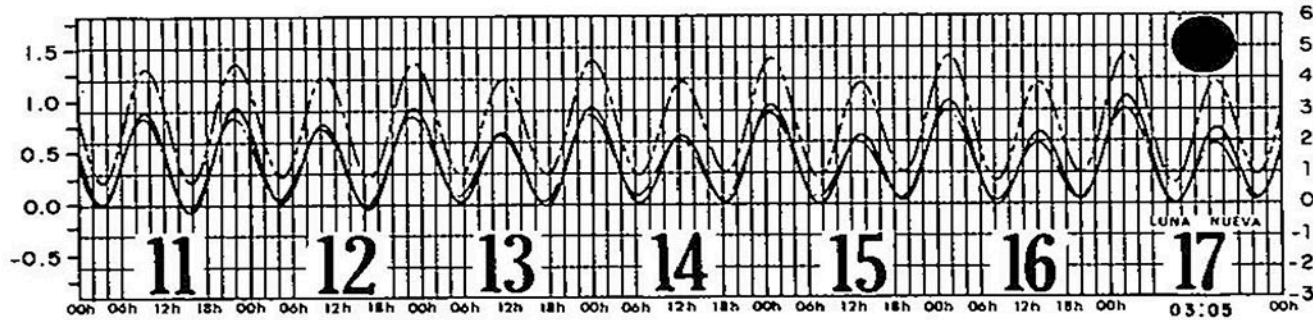
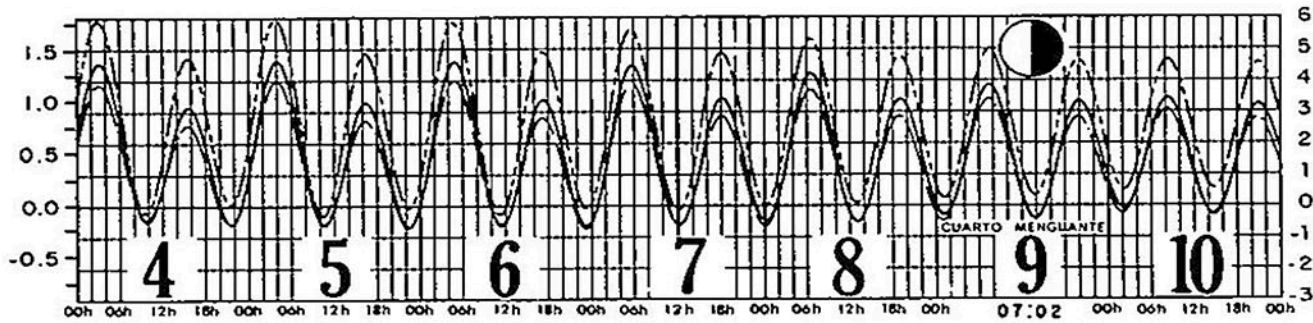
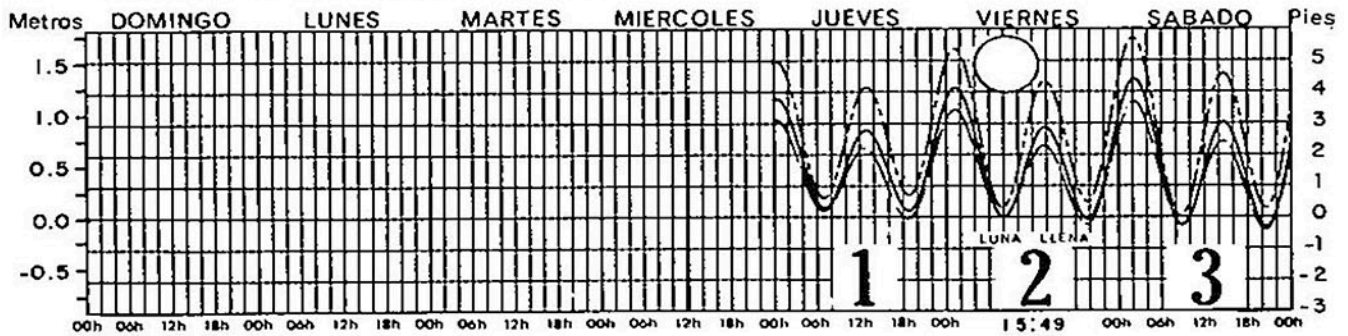
PLANO DE REFERENCIA N.B.M.I.



NOVIEMBRE 1990

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PTO. MADERO, CHIS



HORA DEL MERIDIANO 90° W

PLANO DE REFERENCIA: N.B.M.I.

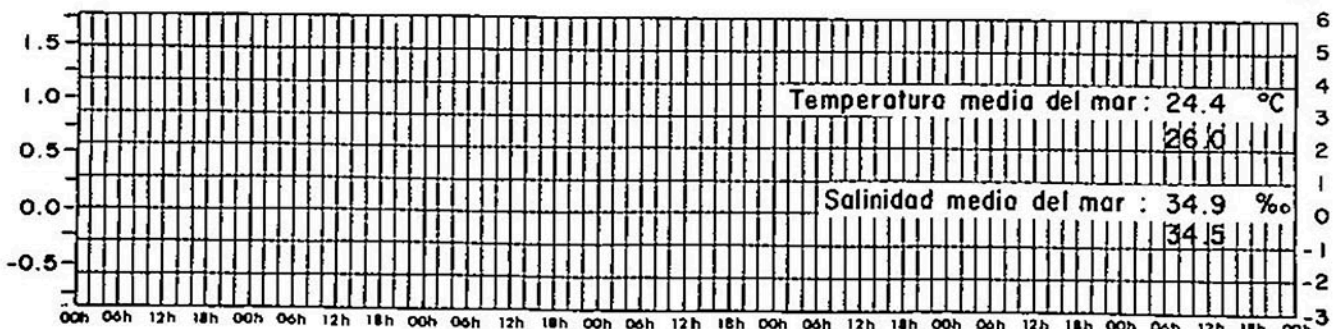
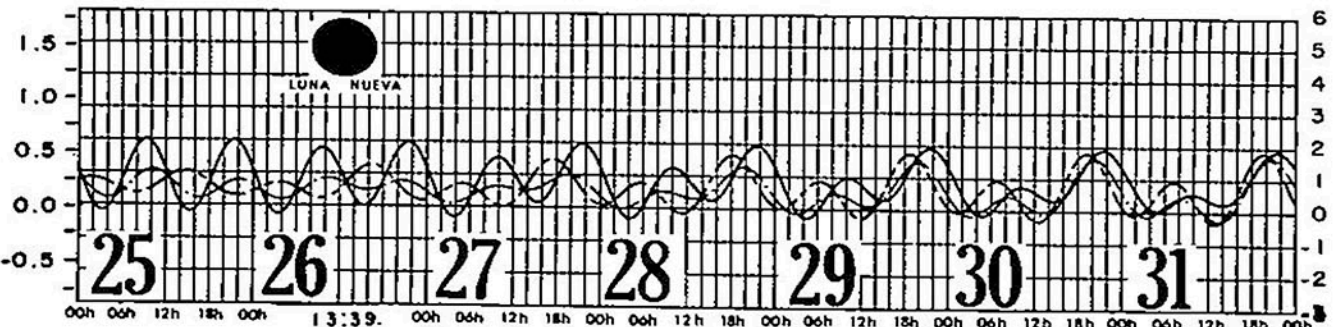
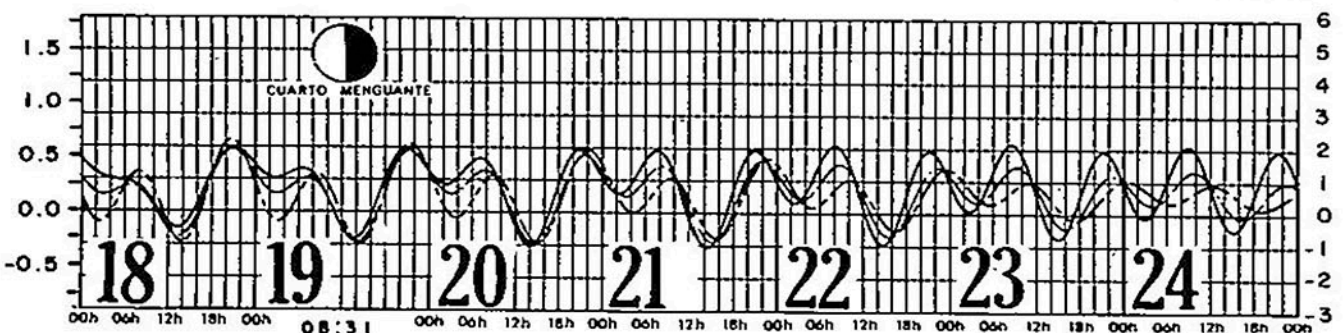
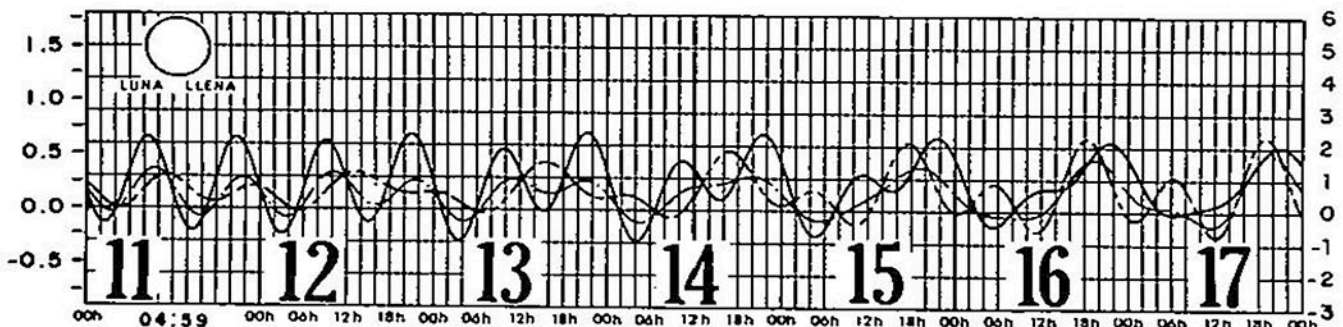
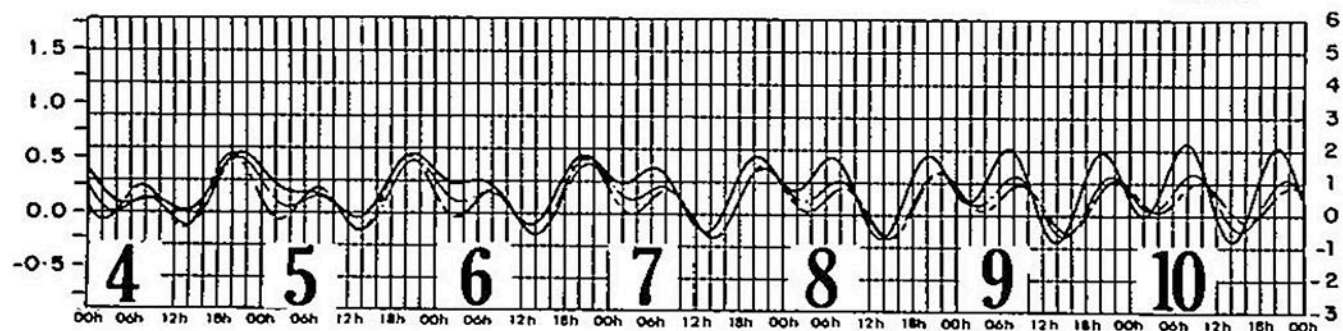
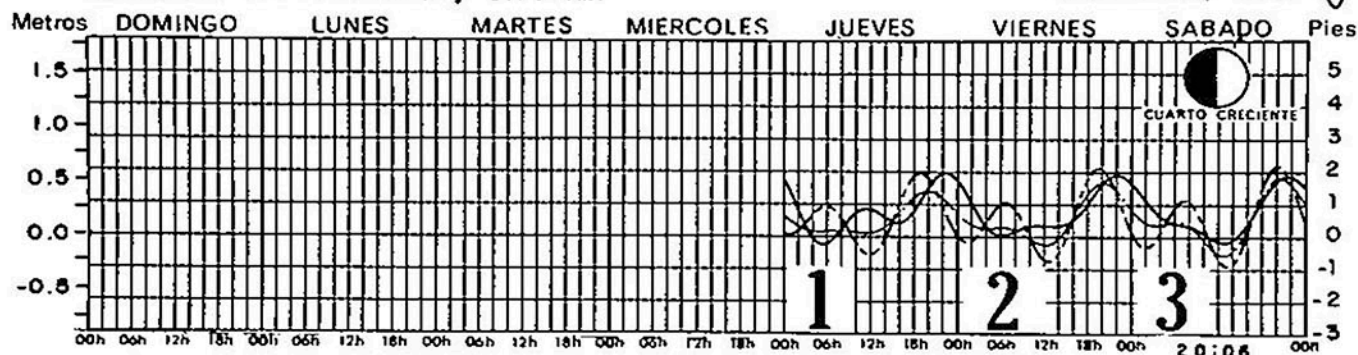


MARZO 1990

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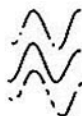
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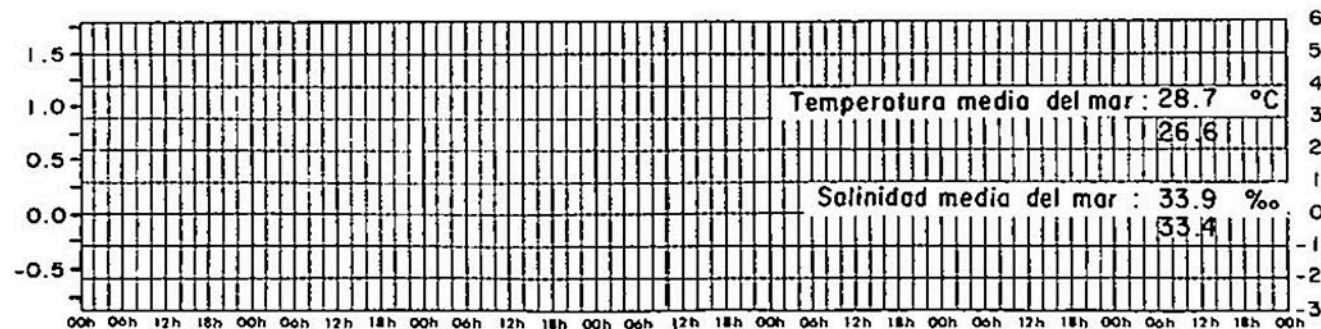
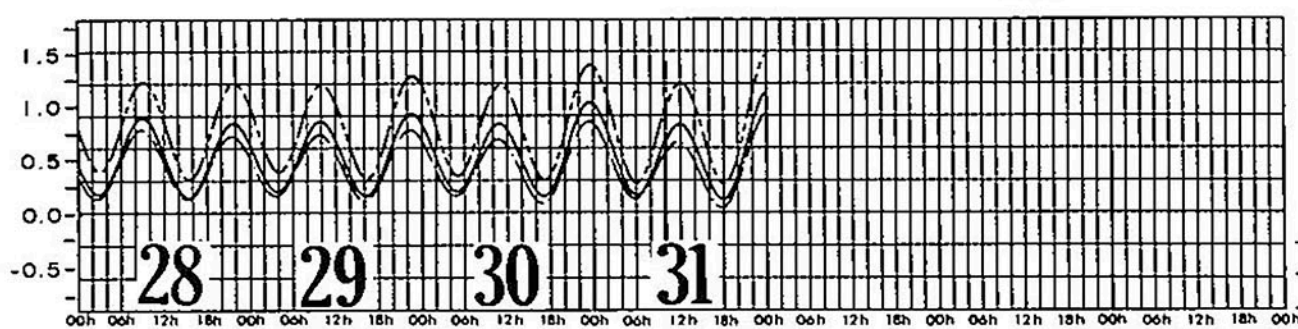
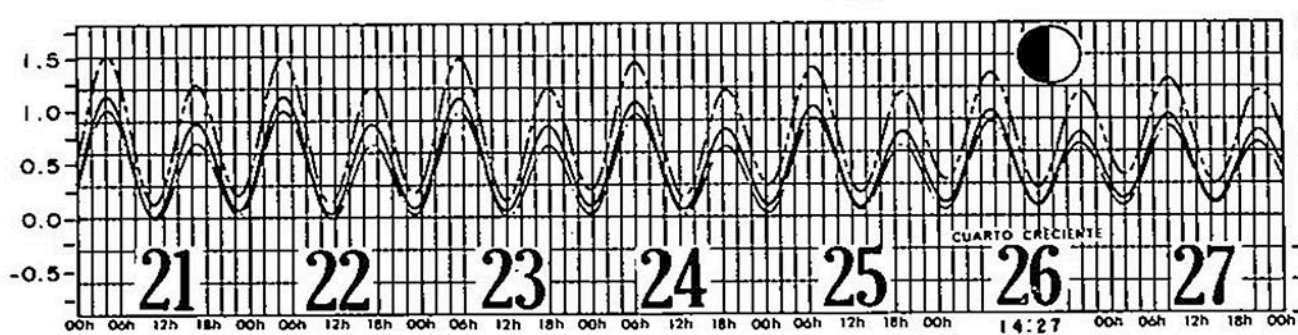
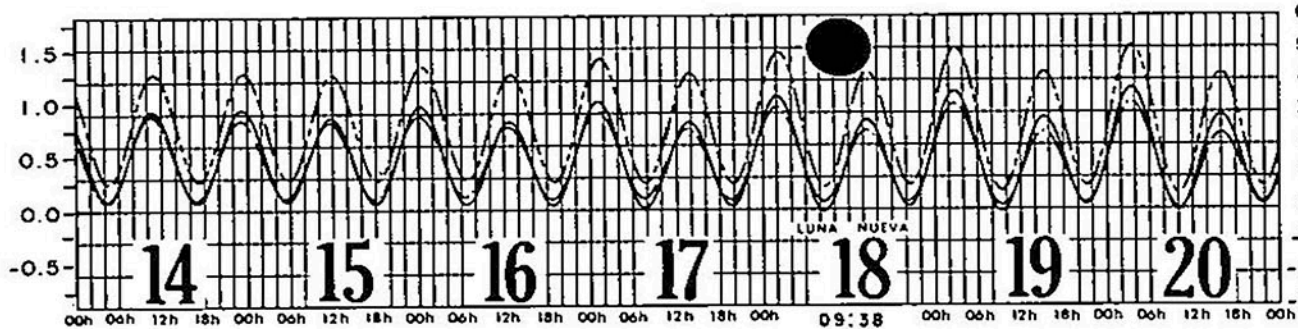
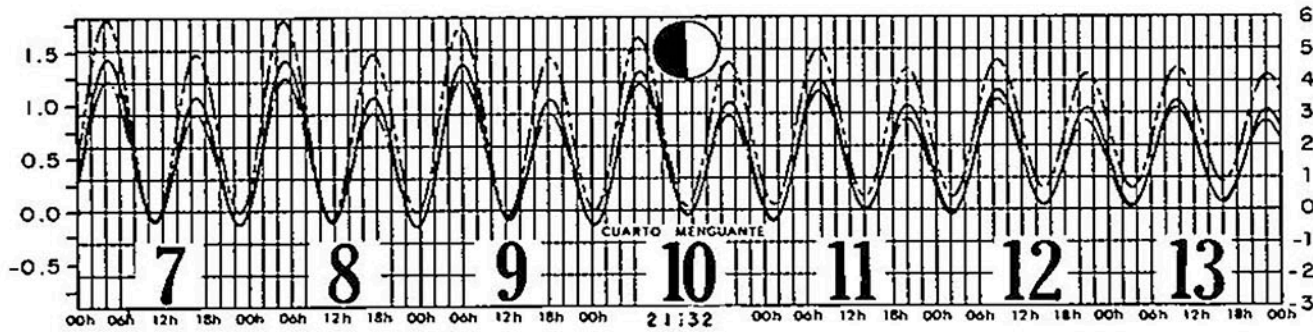
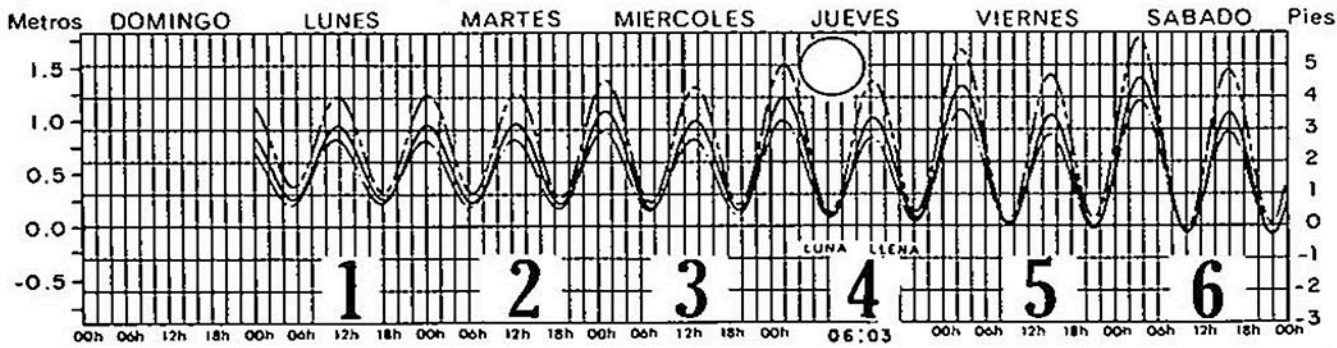


OCTUBRE 1990

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HORA DEL MERIDIANO 90° W

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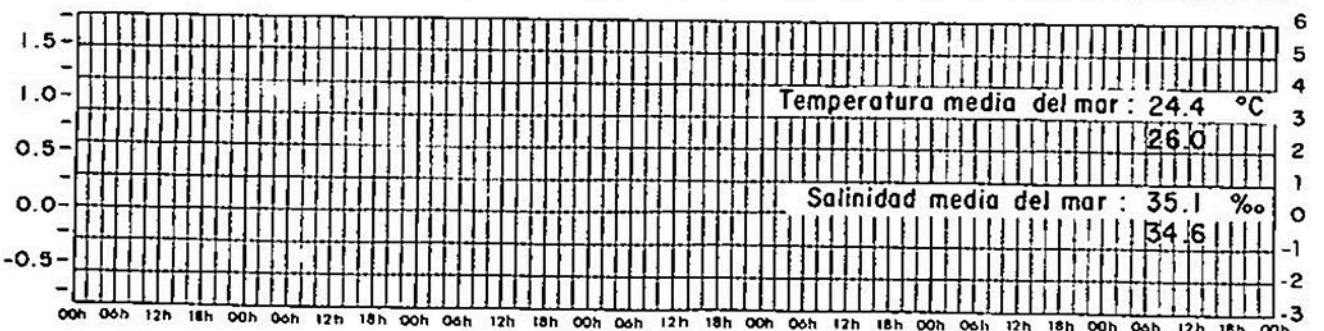
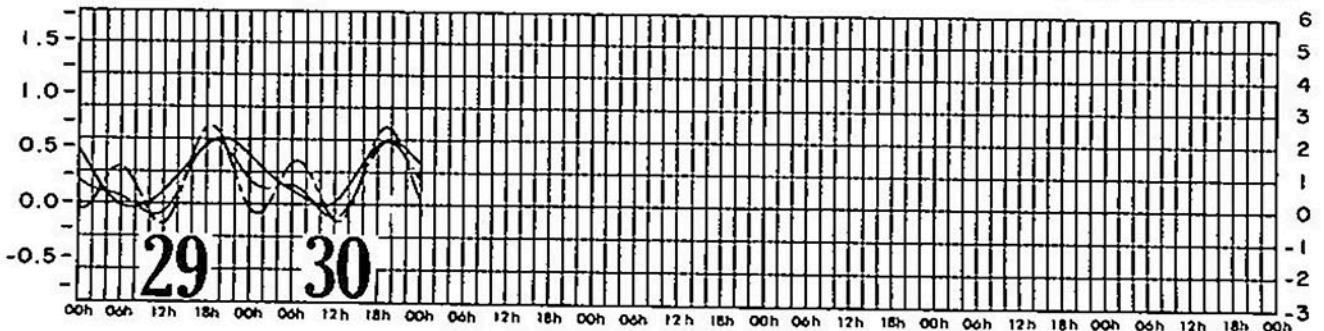
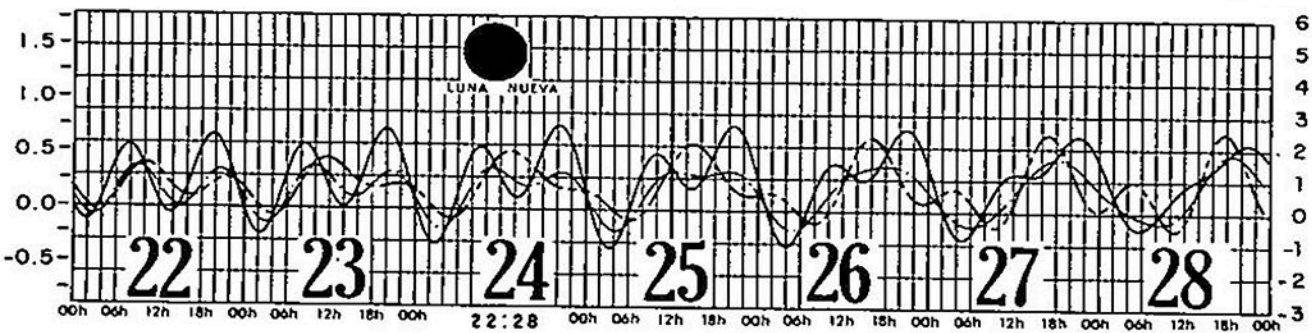
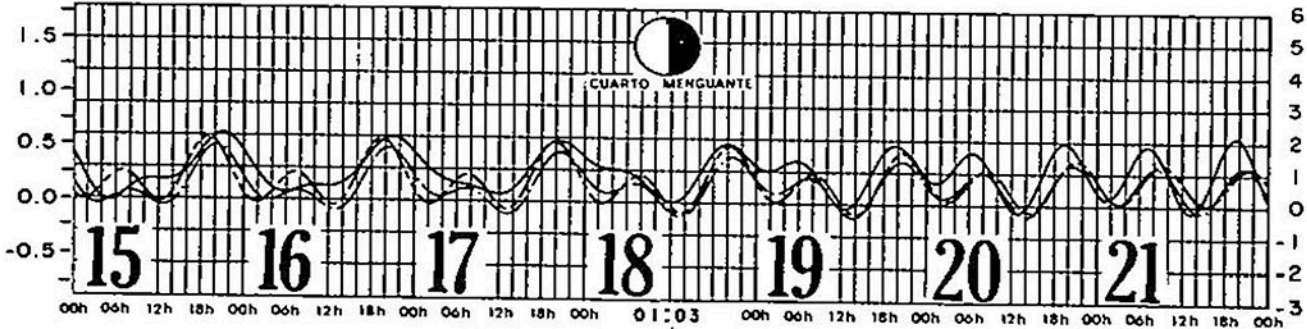
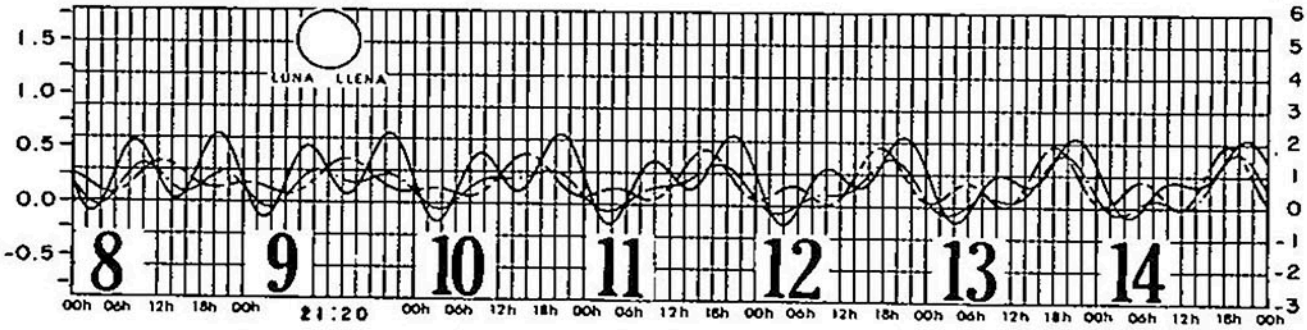
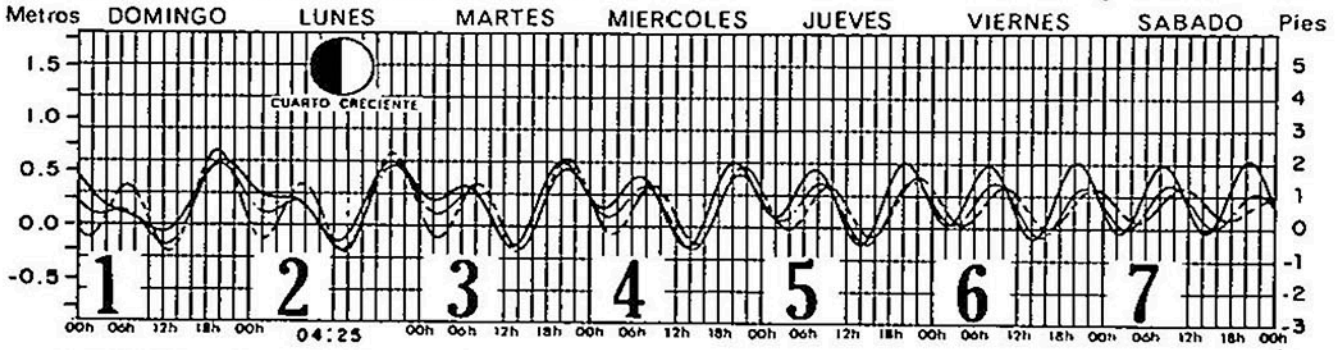


ABRIL 1990

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HORA DEL MERIDIANO 90° W

PLANO DE REFERENCIA N.B.M.I.

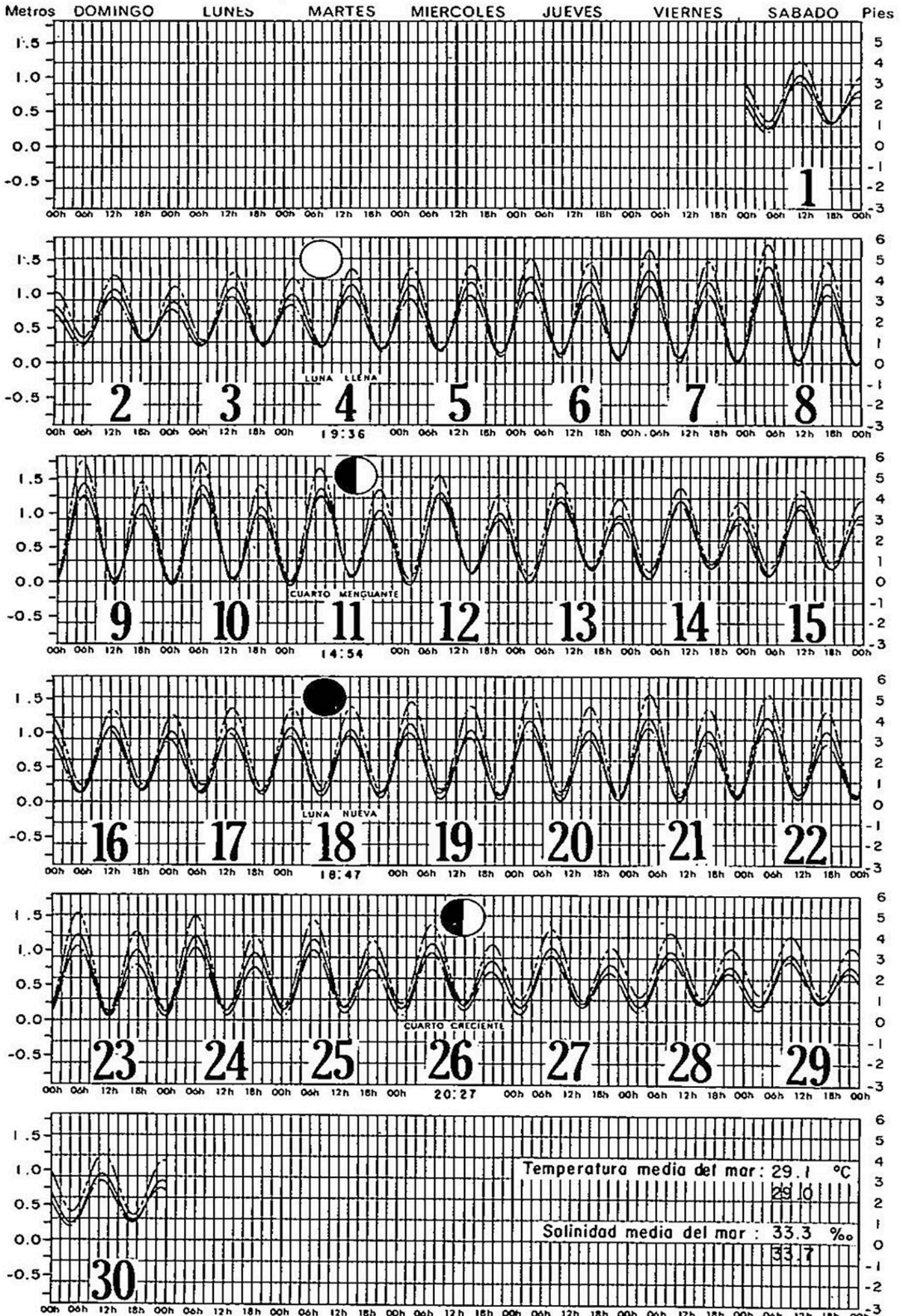


SEPTIEMBRE 1990

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NORA DEL MERIDIANO 90° W

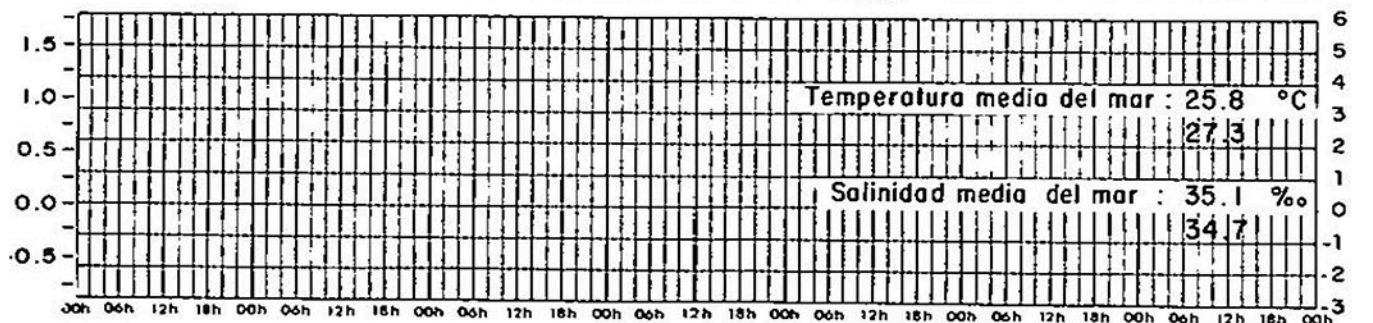
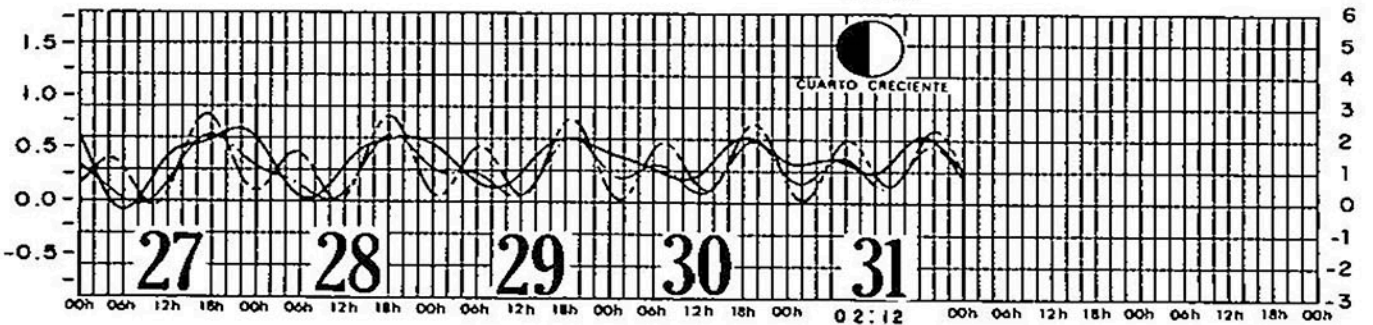
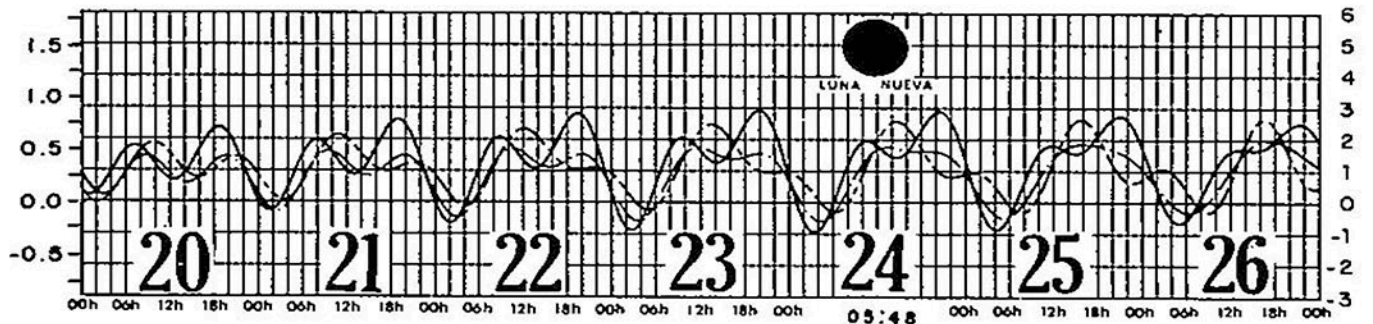
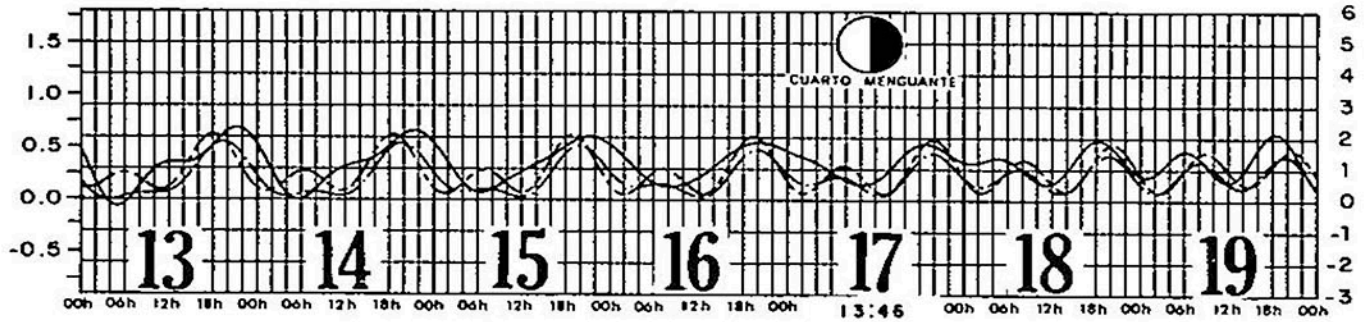
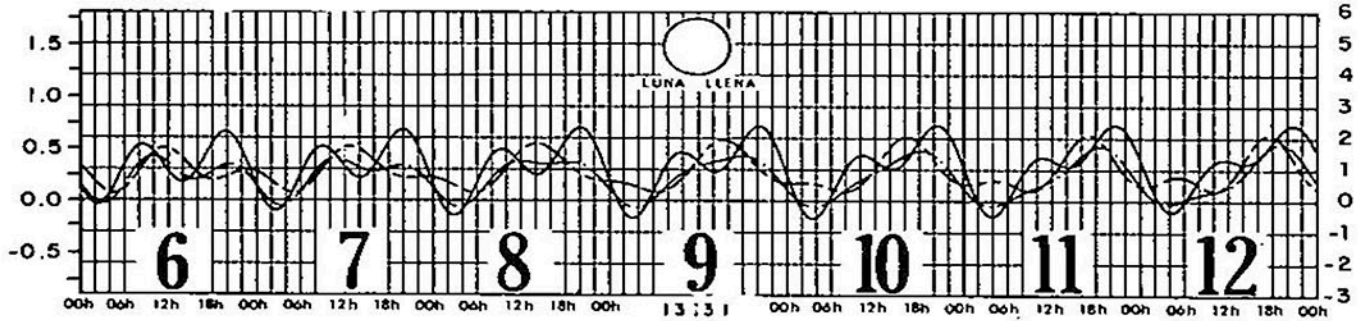
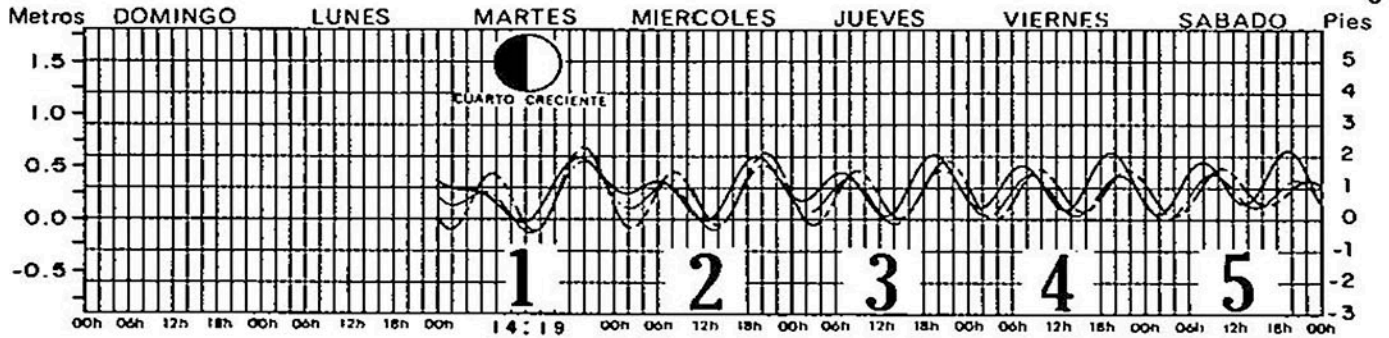
PLANO DE REFERENCIA: N.B.M.I.



MAYO 1990

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PLANO DE REFERENCIA N.B.M.I

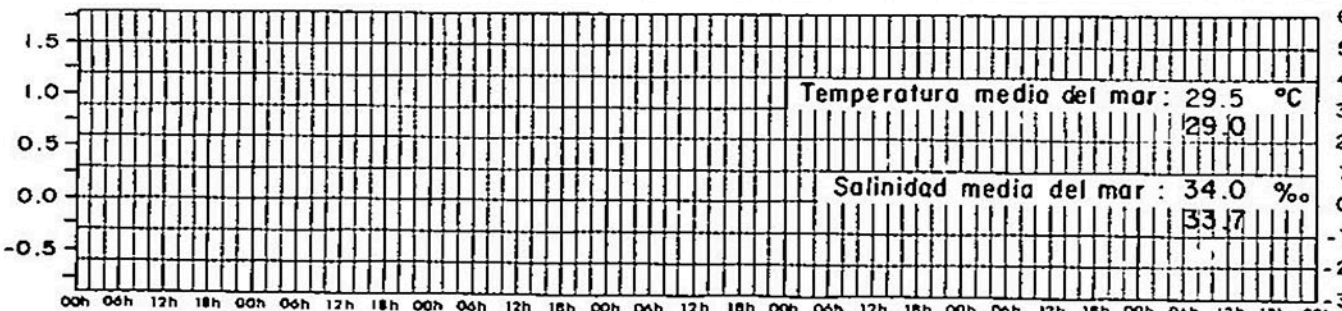
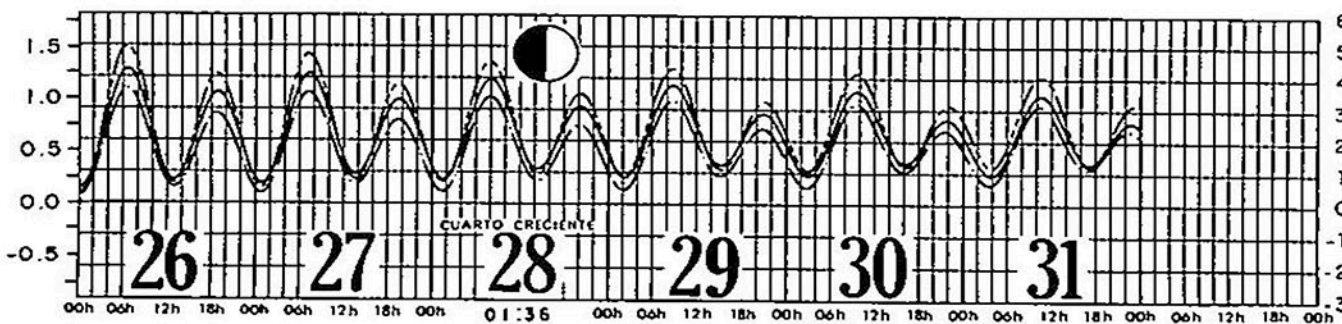
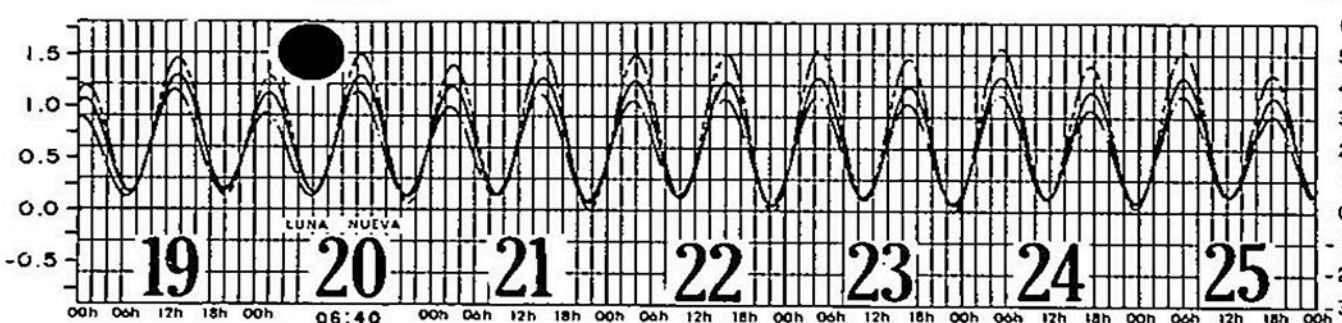
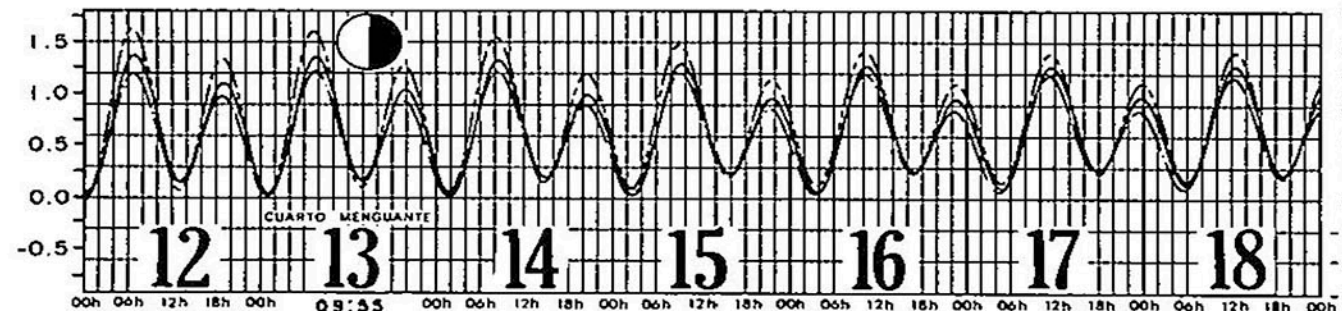
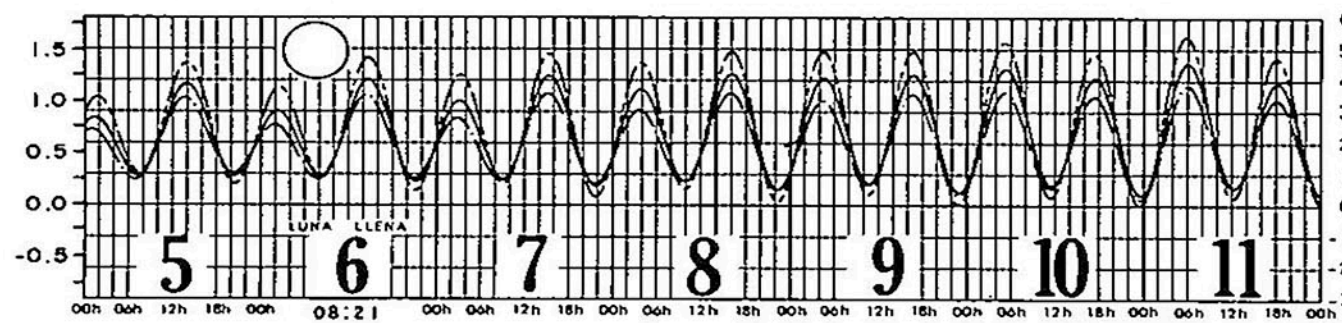
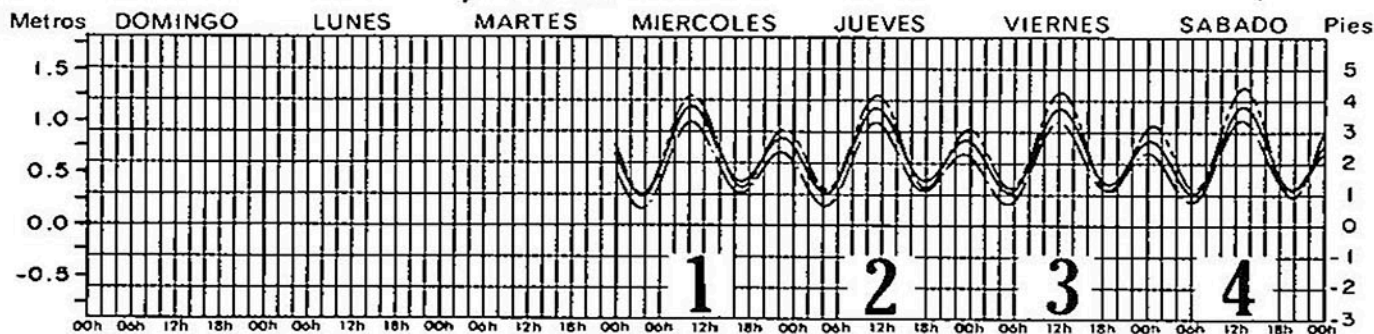


AGOSTO 1990

PTO. ANGEL, OAX.
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HORA DEL MERIDIANO 90° W

PLANO DE REFERENCIA : N.B.M.I.

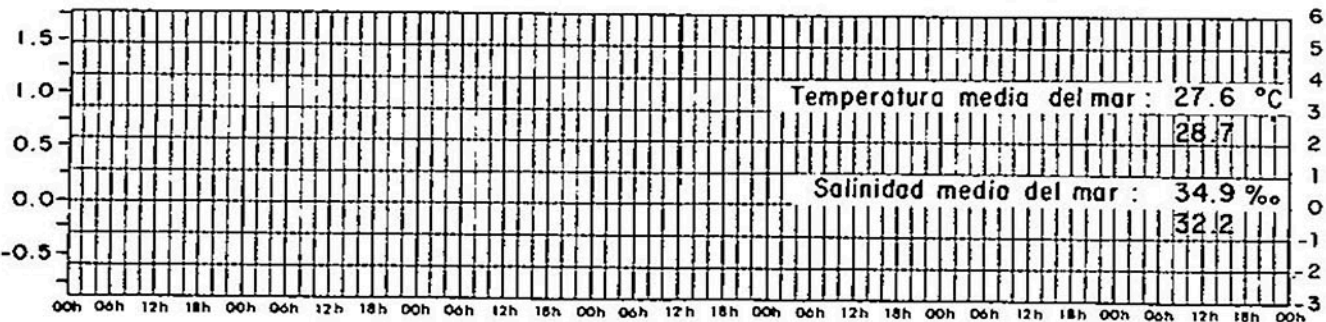
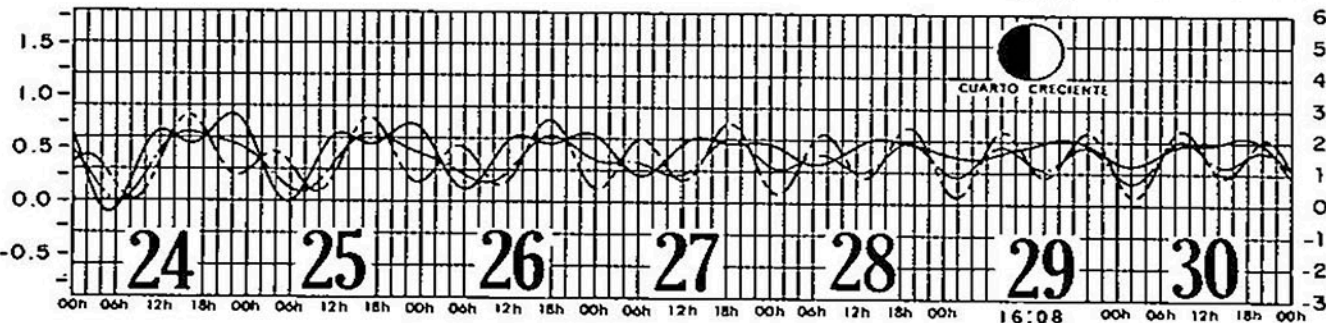
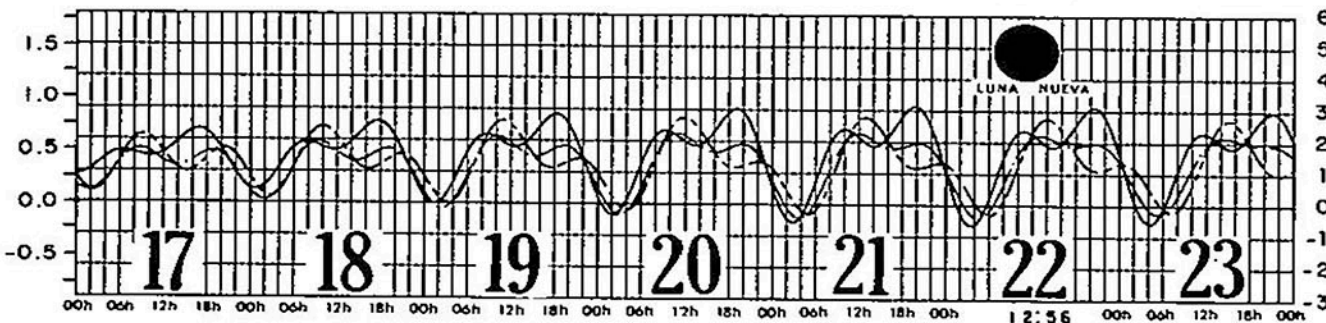
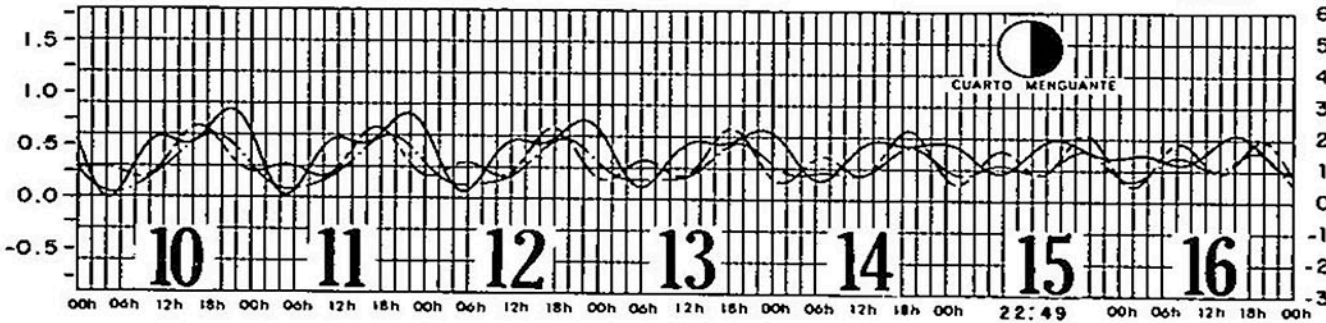
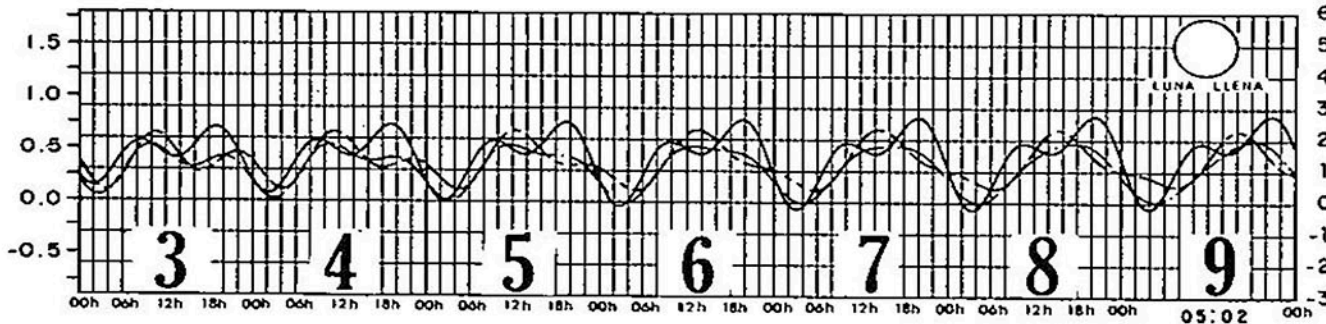
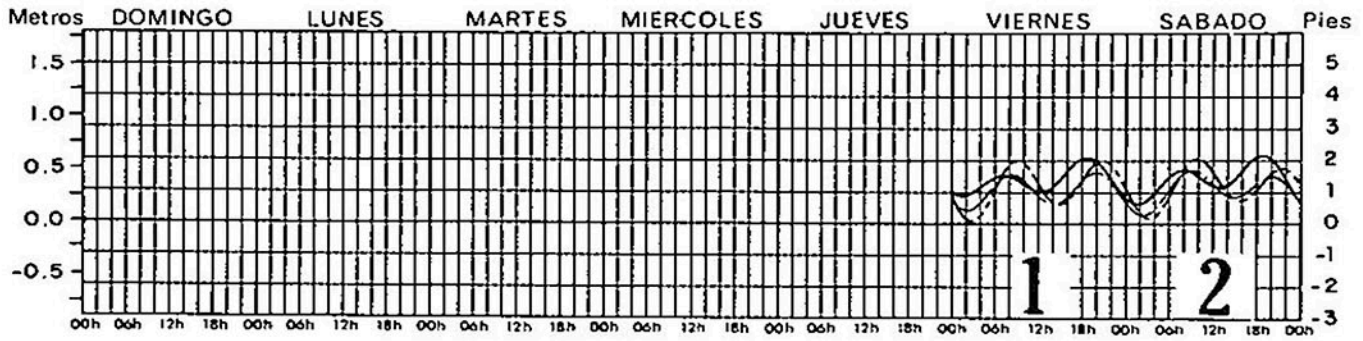


JUNIO 1990

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INSTITUTO DE GEOFISICA, U.N.A.M.



HORA DEL MERIDIANO 90° W

PLANO DE REFERENCIA N.B.M.J.

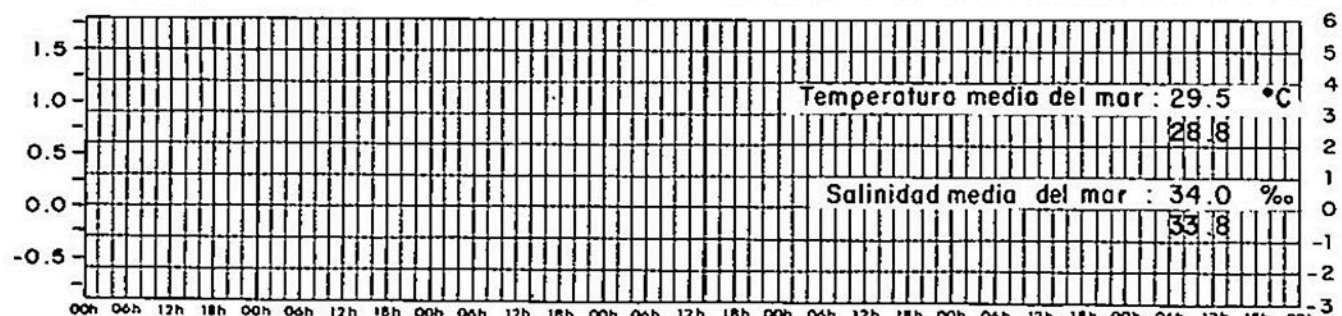
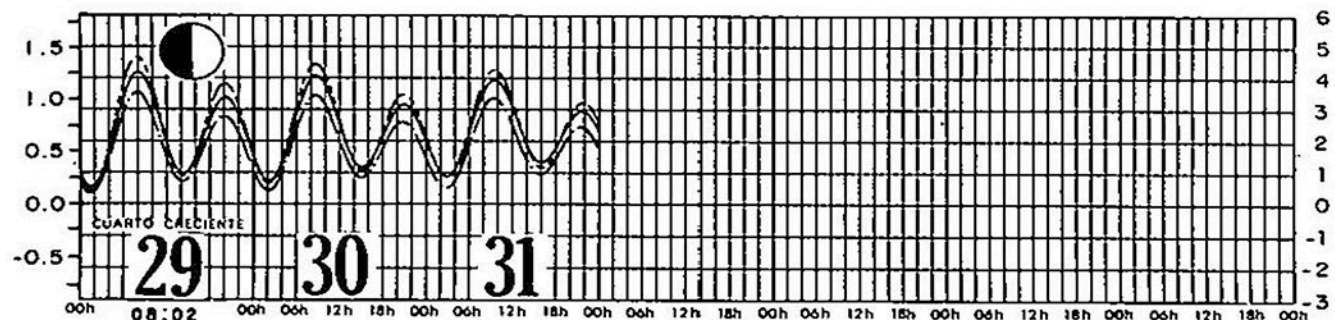
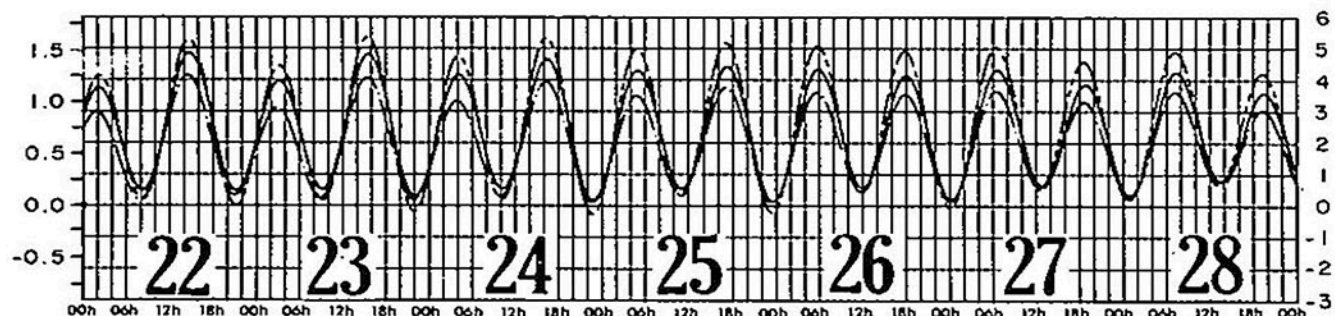
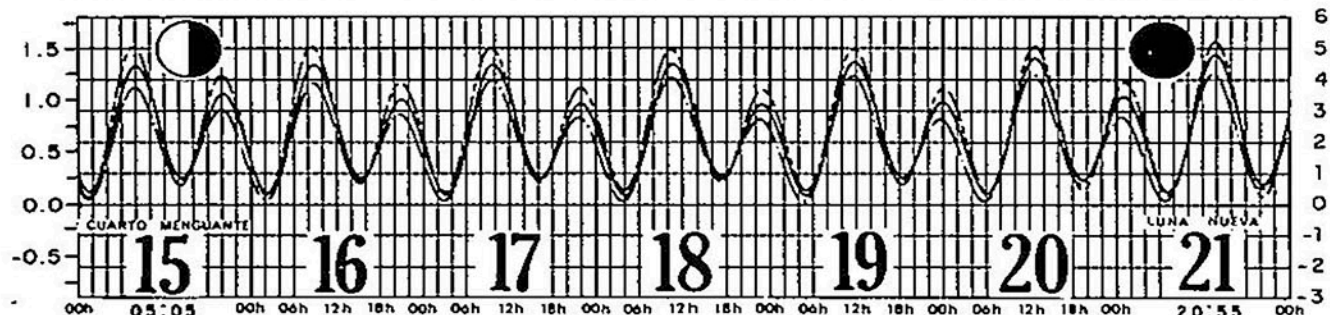
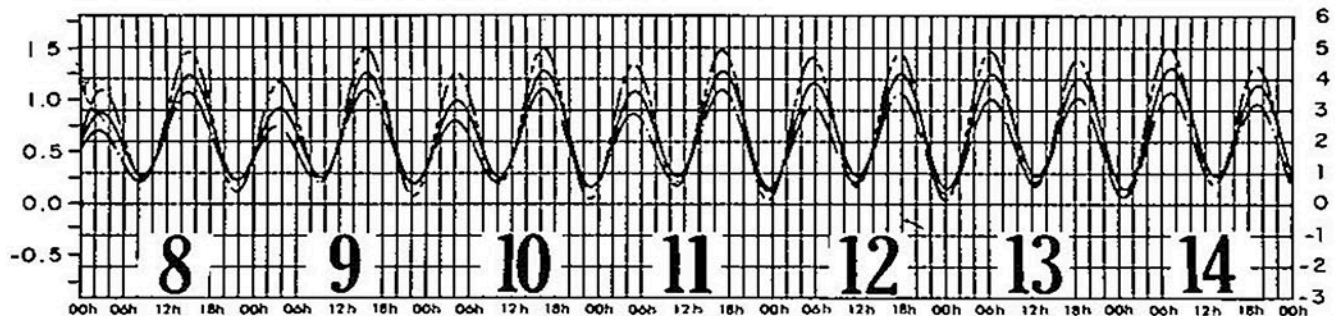
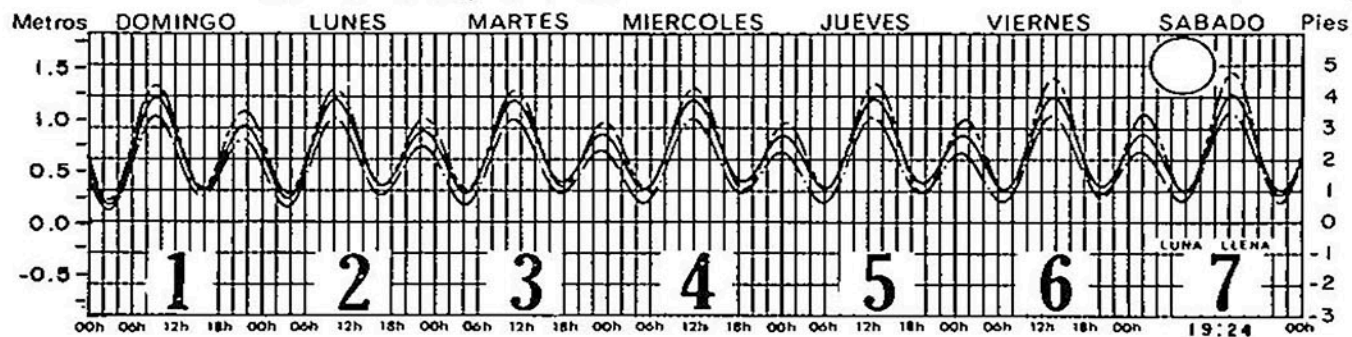


JULIO 1990

PTO. ANGEL, OAX.
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PTO. MADERO, CHIS.



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HORA DEL MERIDIANO 90° W

PLANO DE REFERENCIA: N.B.M.I.



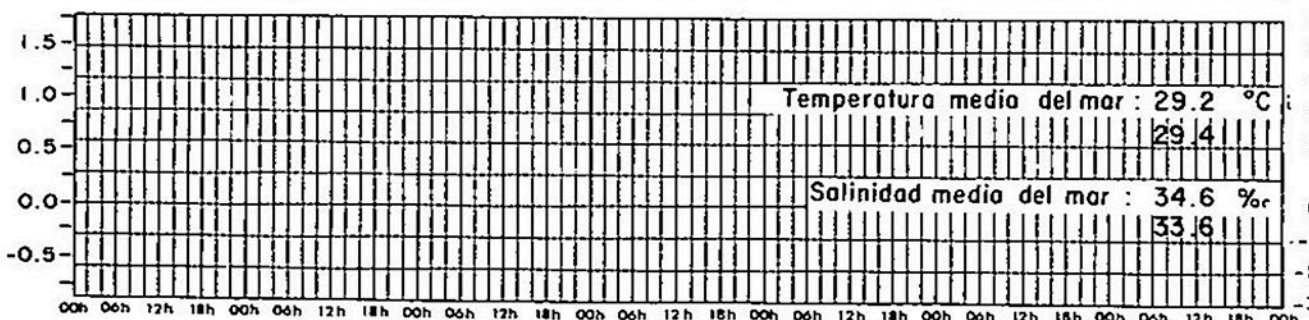
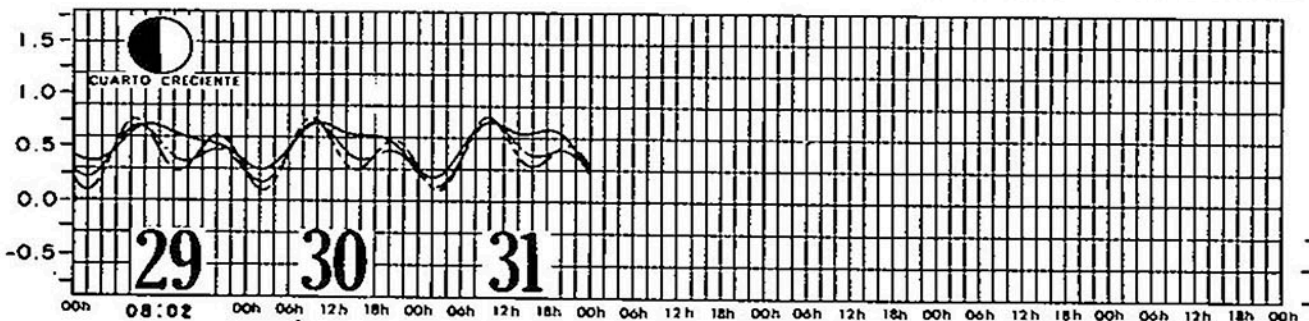
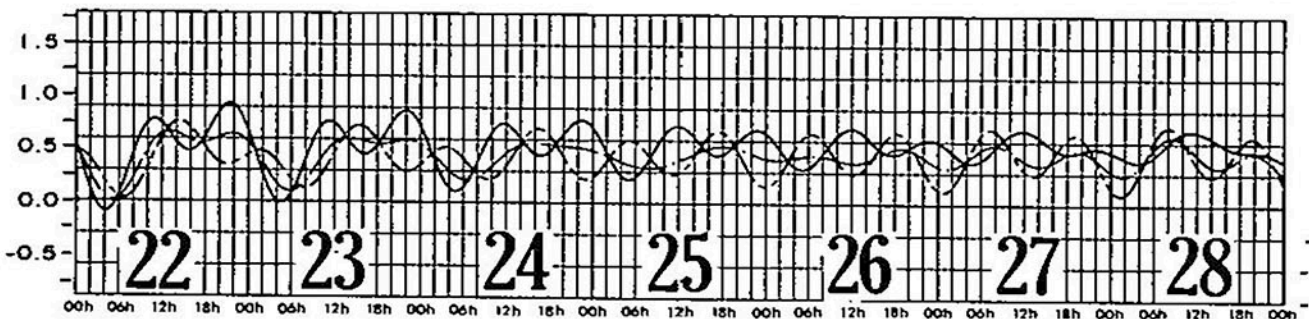
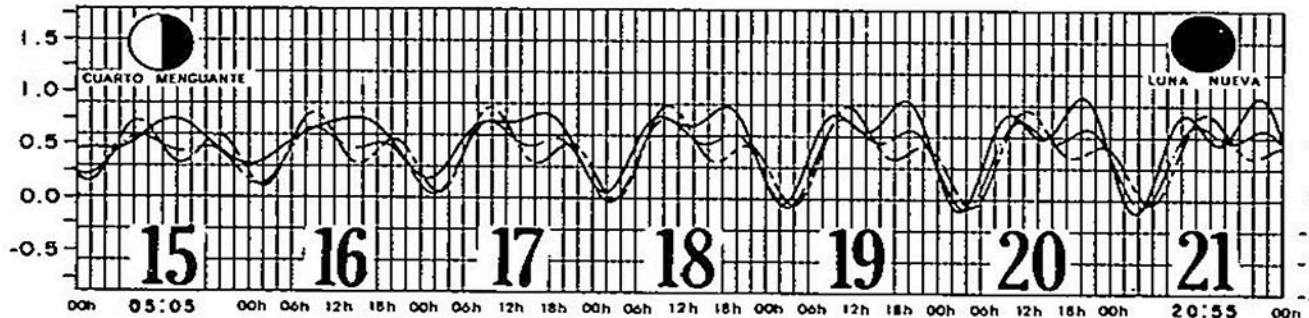
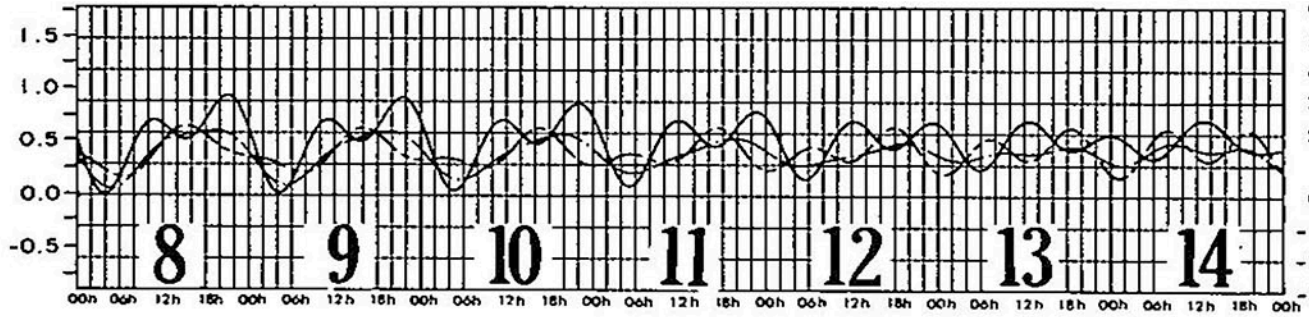
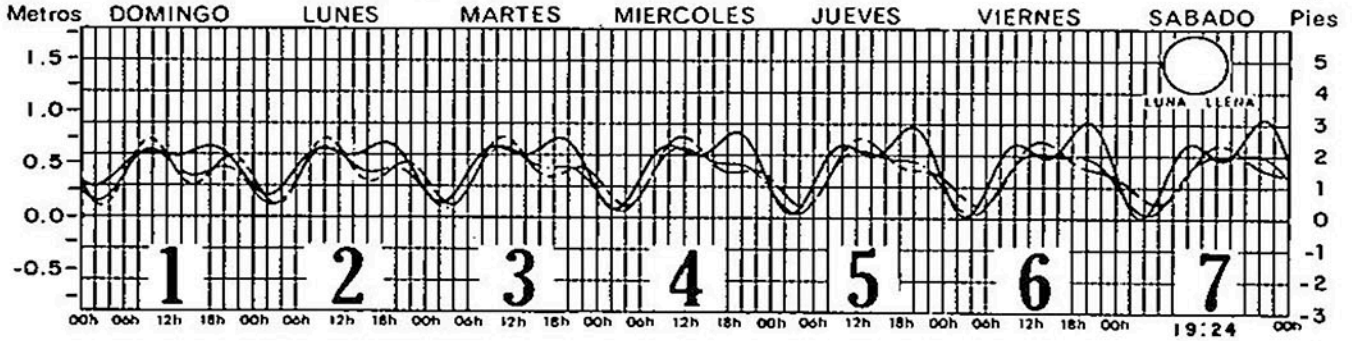
JULIO 1990

INSTITUTO DE GEOFISICA, U.N.A.M.

MANZANILLO, COL.

L. CARDENAS, MICH.

ACAPULCO, GRO.



HORA DEL MERIDIANO 90° W

PLANO DE REFERENCIA N.B.M.I.

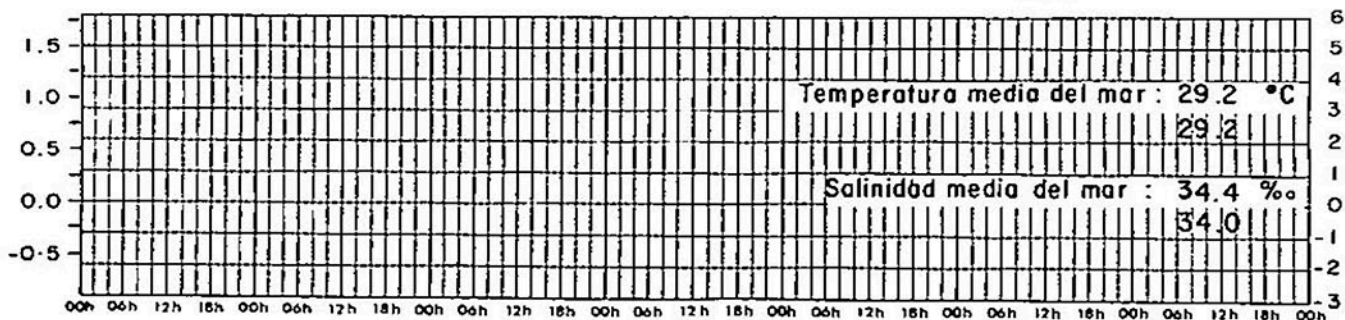
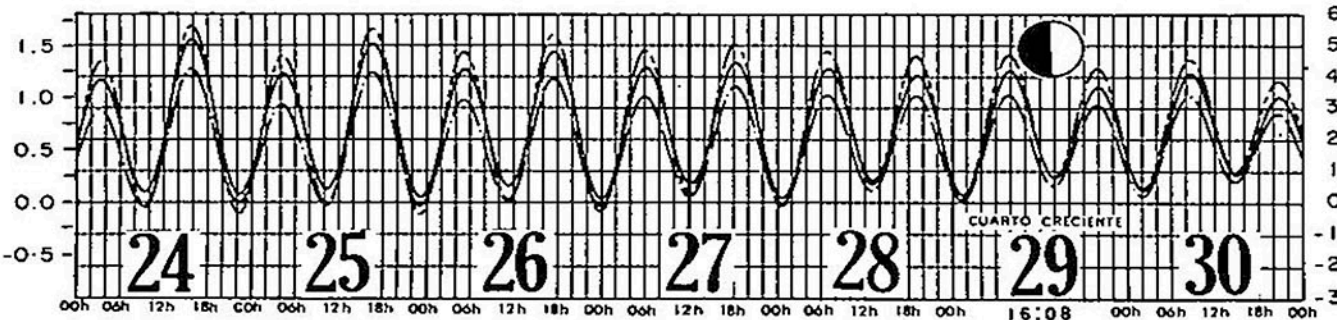
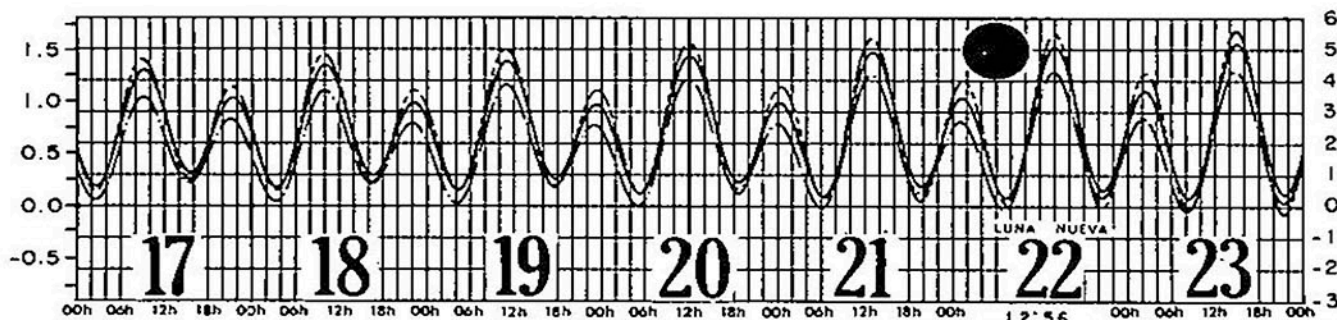
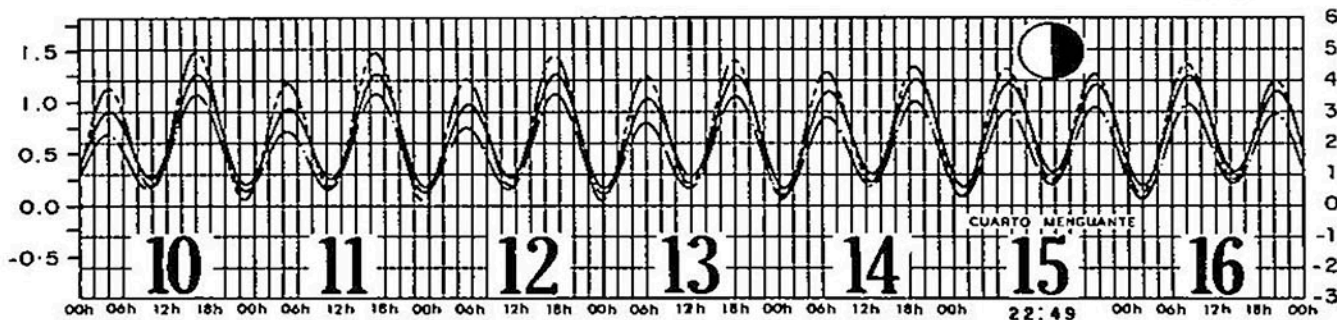
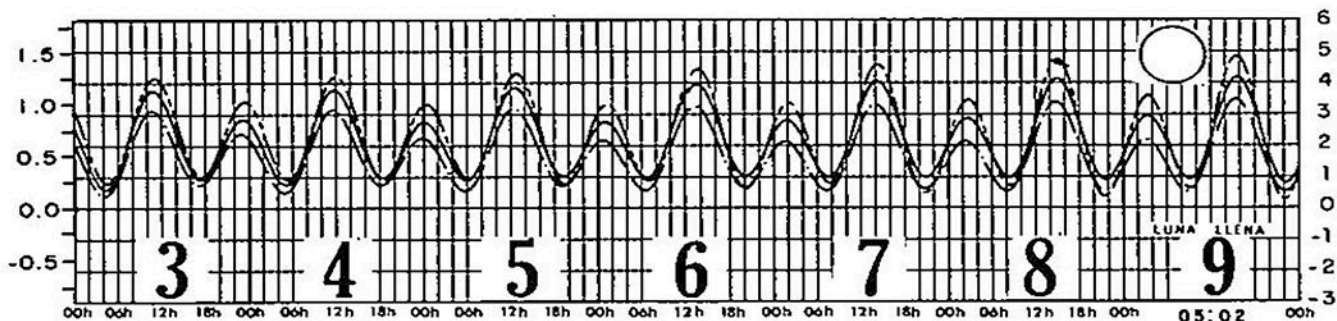
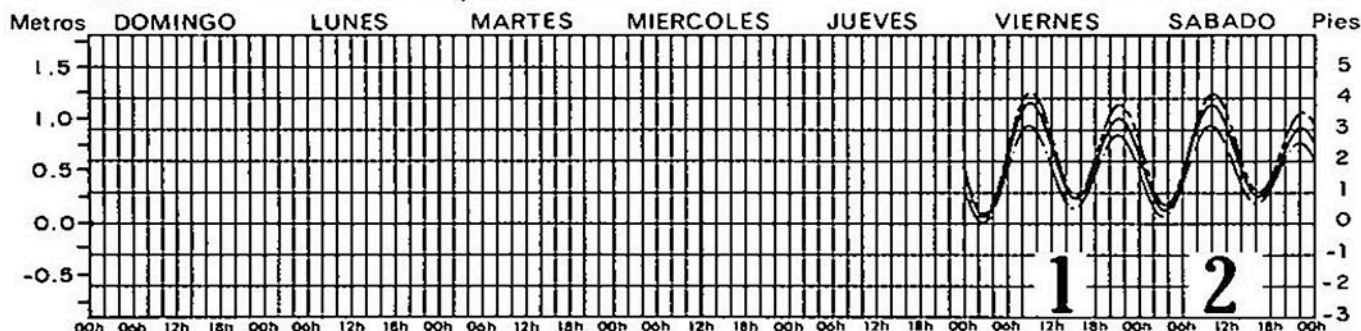


JUNIO 1990

PTO. ANGEL, OAX.
SALINA CRUZ, OAX.
PTO. MADERO, CHIS.



INSTITUTO DE GEOFISICA, U.N.A.M.



HORA DEL MERIDIANO 90° W

PLANO DE REFERENCIA: N.B.M.I.

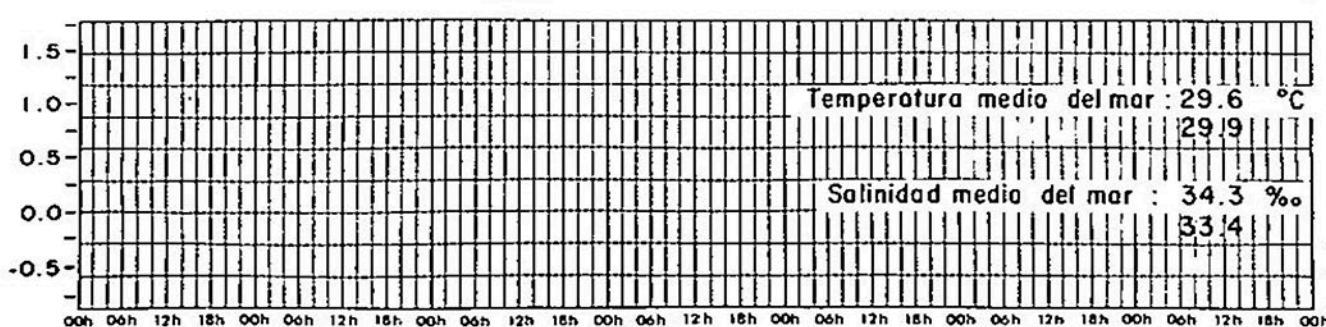
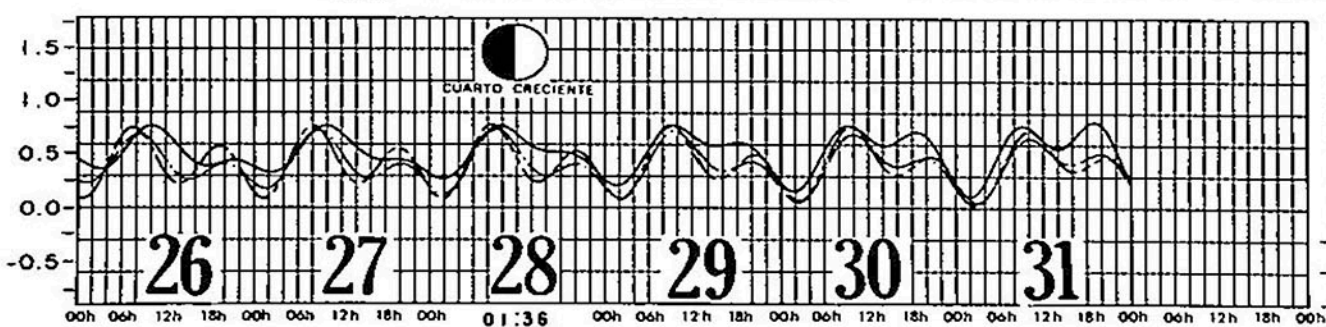
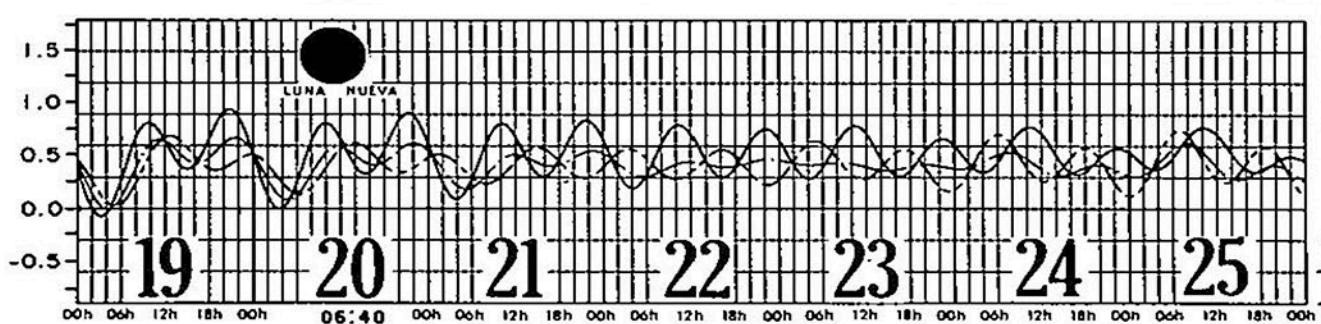
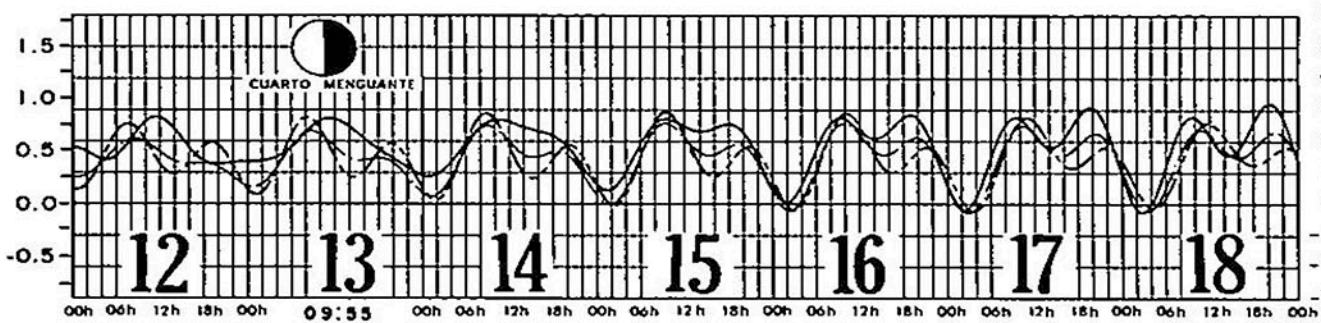
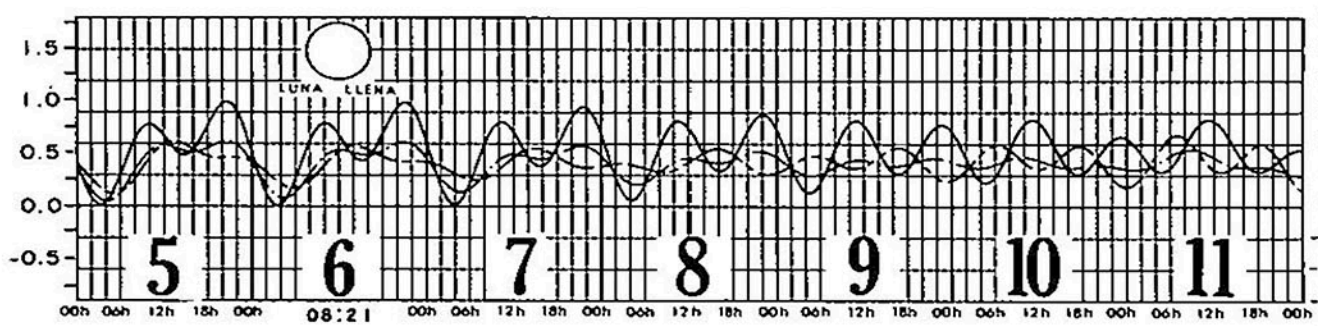
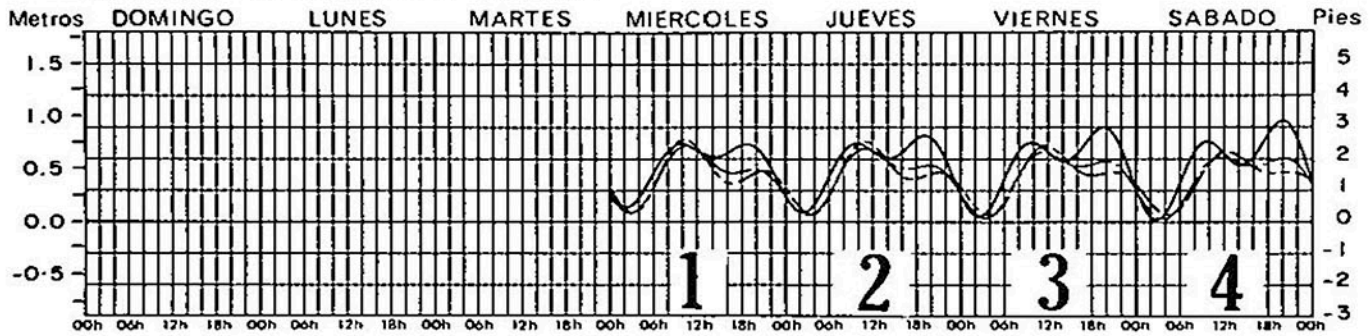


A OSTO 1990

MANZANILLO, COL.
L. CARDENAS, MICH.
ACAPULCO, GRO.



INSTITUTO DE GEOFISICA, U.N.A.M.



HORA DEL MERIDIANO 90° W

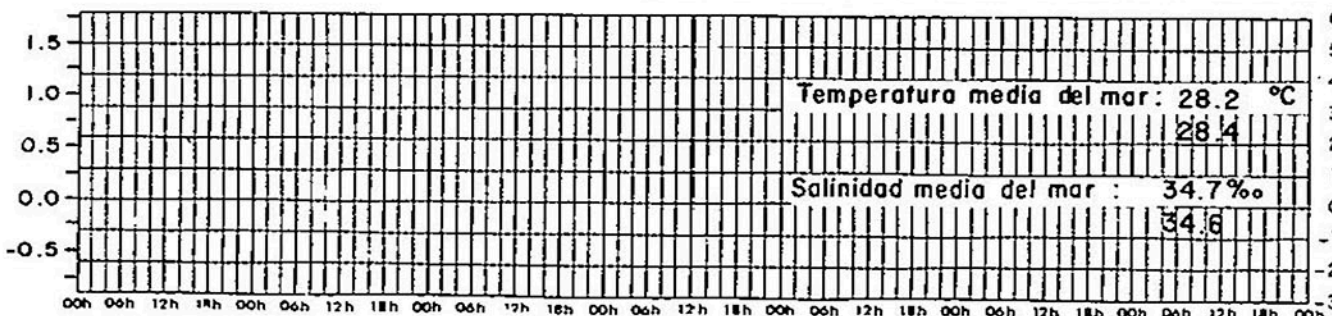
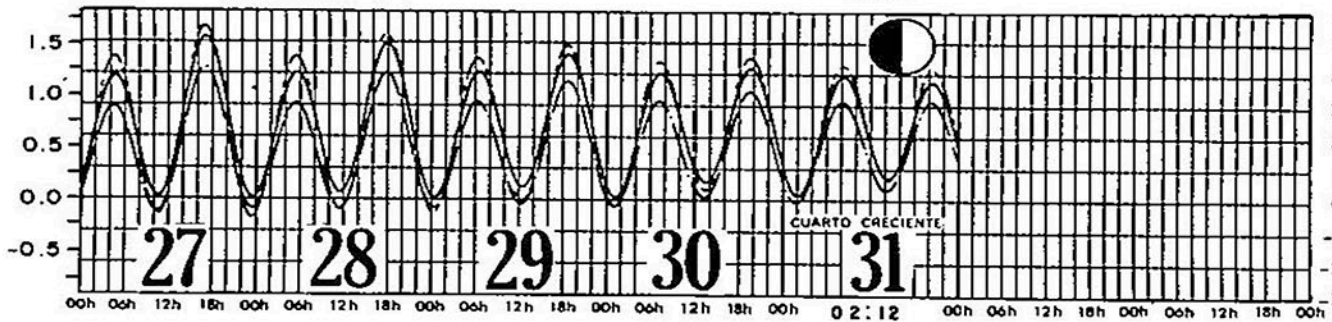
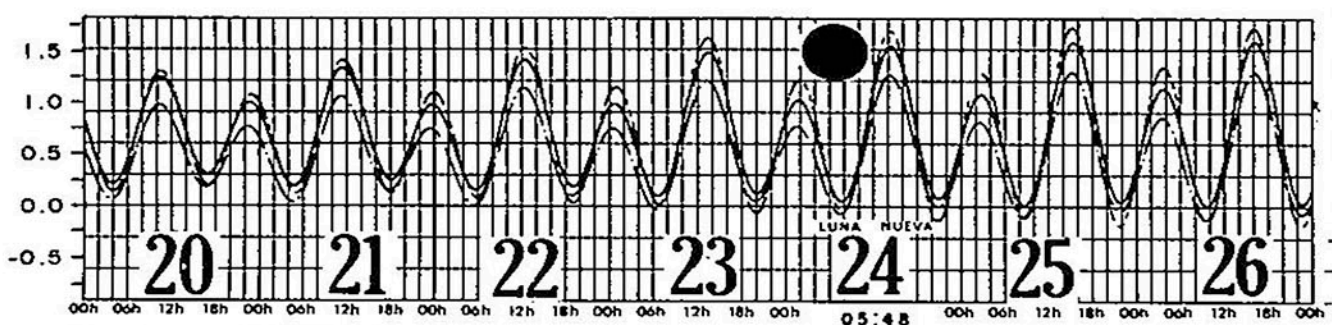
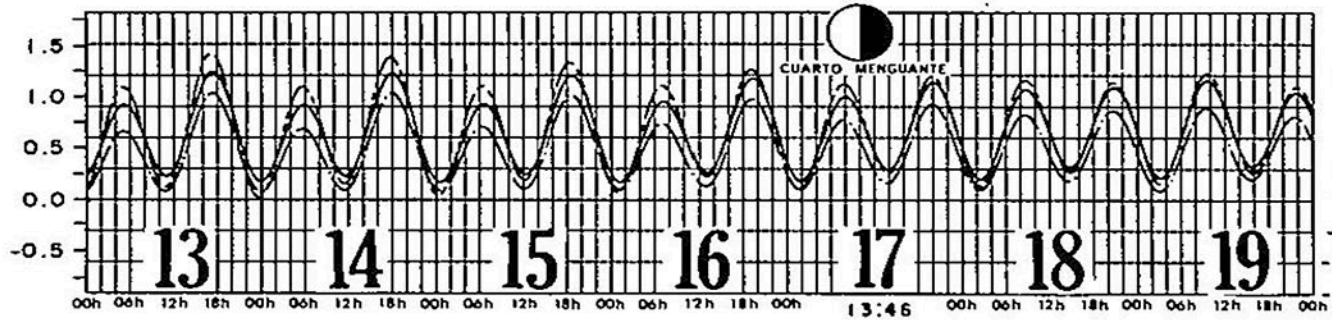
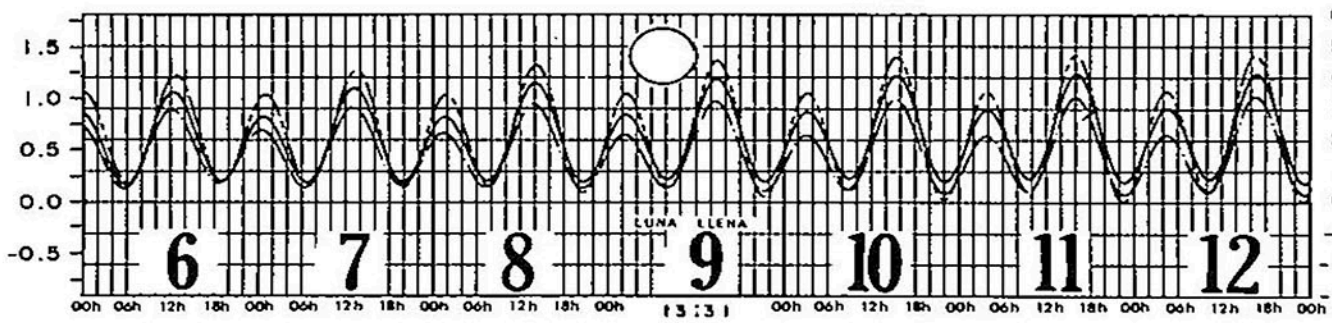
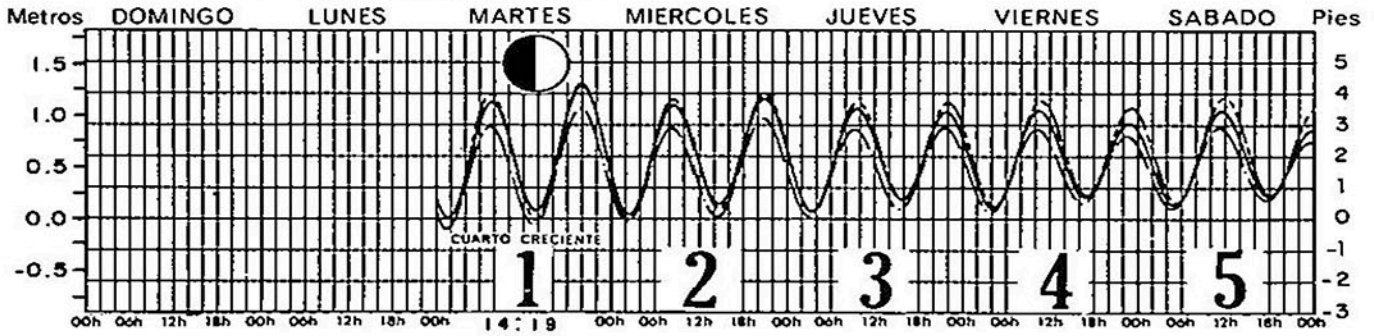
PLANO DE REFERENCIA N.B.M.I.



MAYO 1990

INSTITUTO DE GEOFISICA, U.N.A.M.

PTO. ANGEL, OAX.
SALINA CRUZ, OAX.
PTO. MADERO, CHIS.



HORA DEL MERIDIANO 90° W

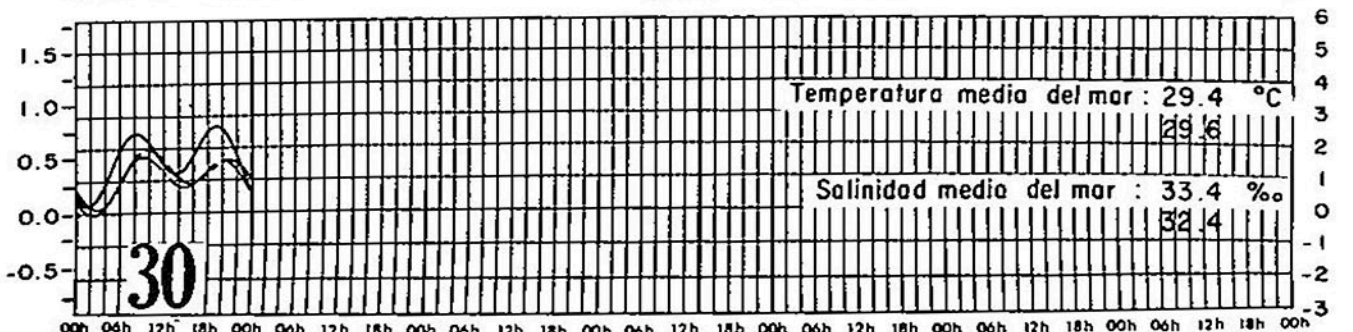
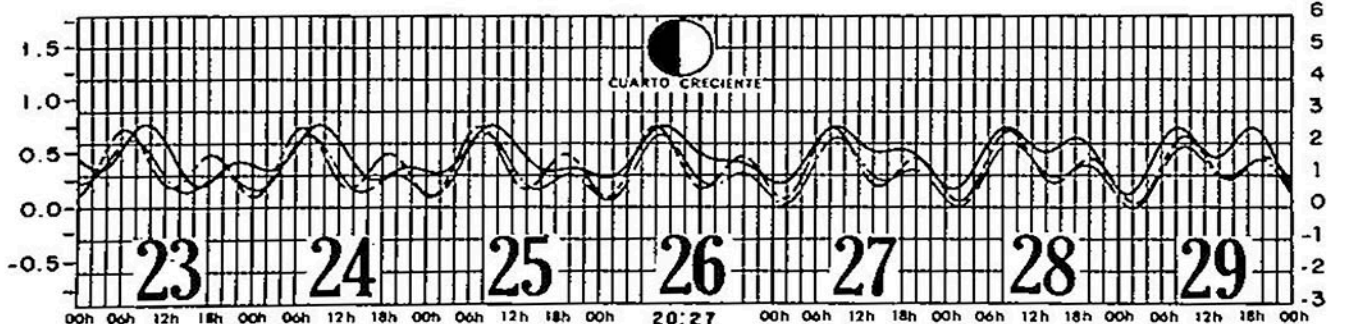
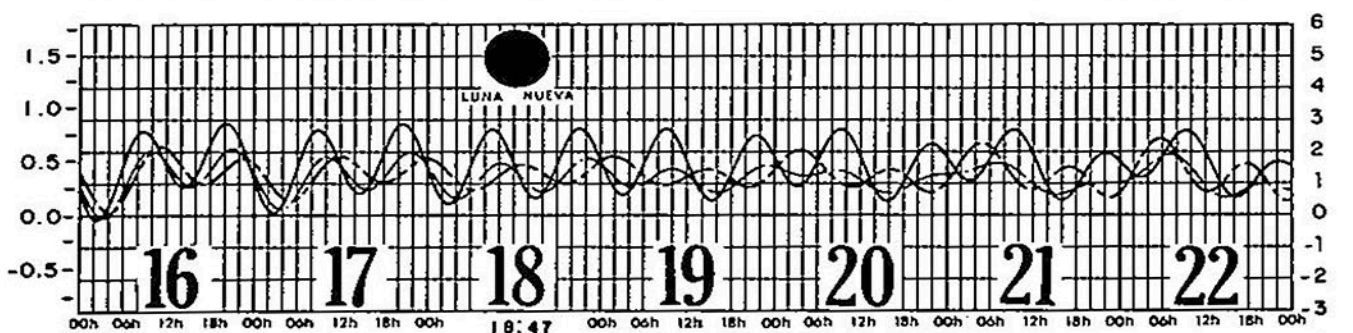
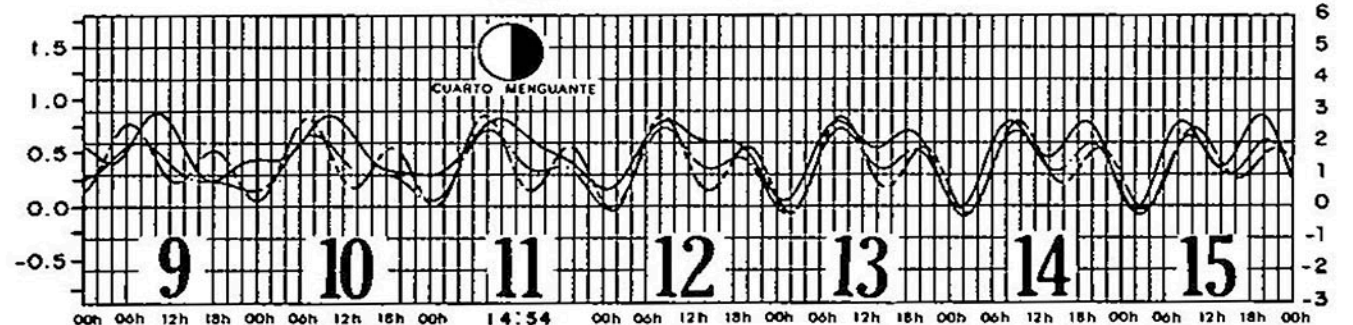
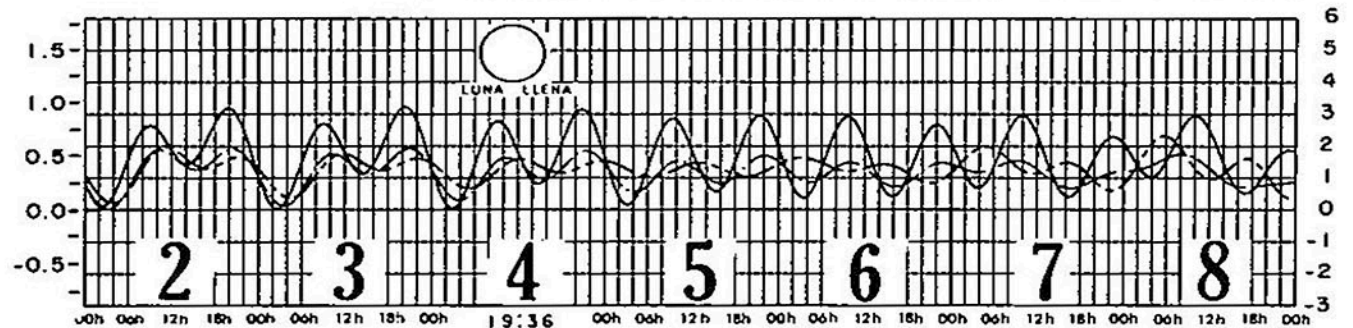
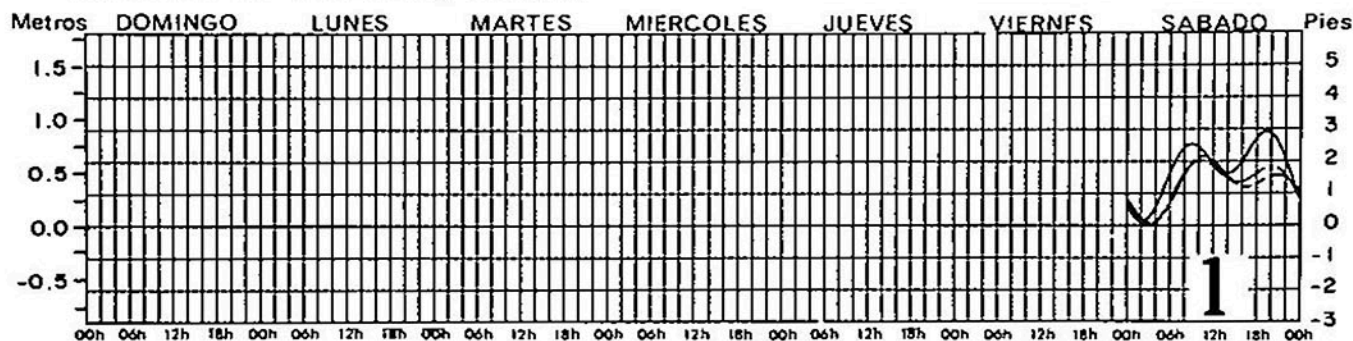
PLANO DE REFERENCIA N.B.M.I.



SEPTIEMBRE 1990

MANZANILLO, COL.
L. CARDENAS, MICH.
ACAPULCO, GRO.

INSTITUTO DE GEOFISICA, U.N.A.M.



HORA DEL MERIDIANO 90° W

PLANO DE REFERENCIA N.B.M.I.

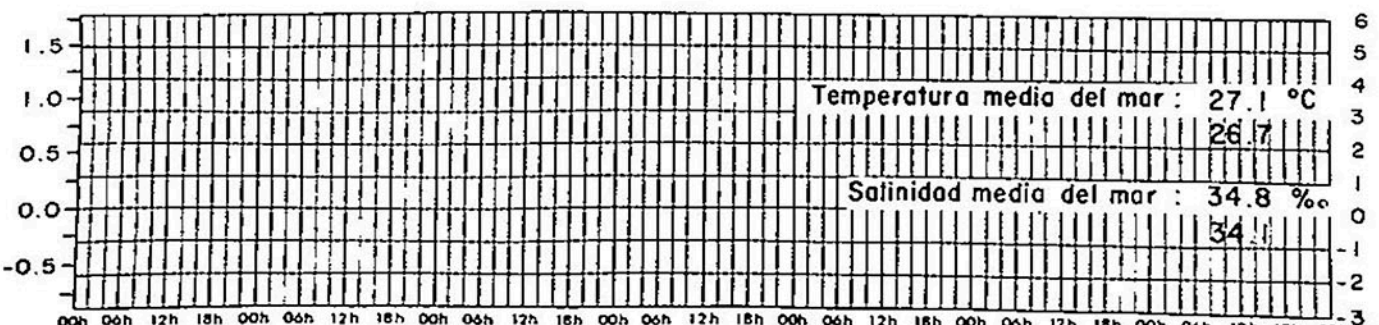
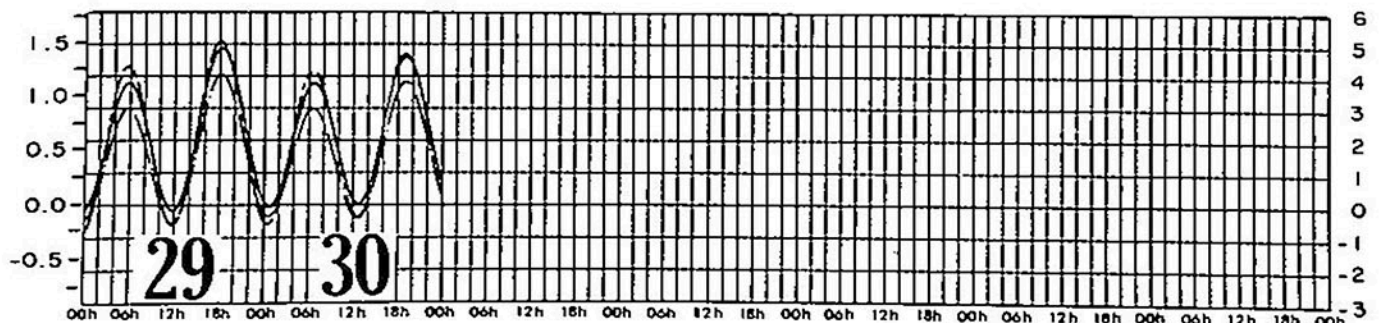
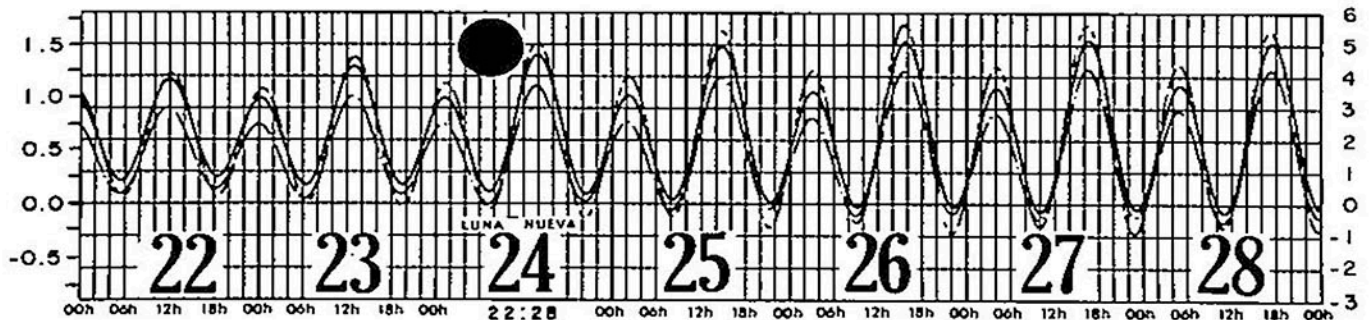
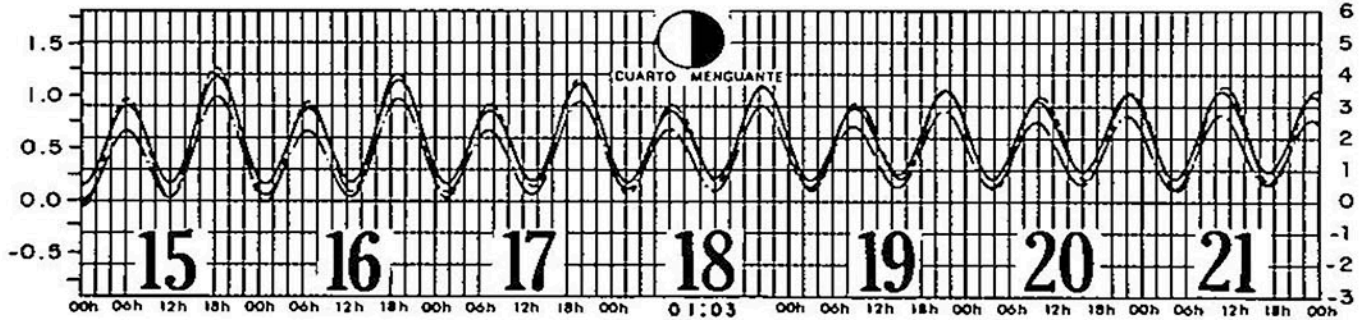
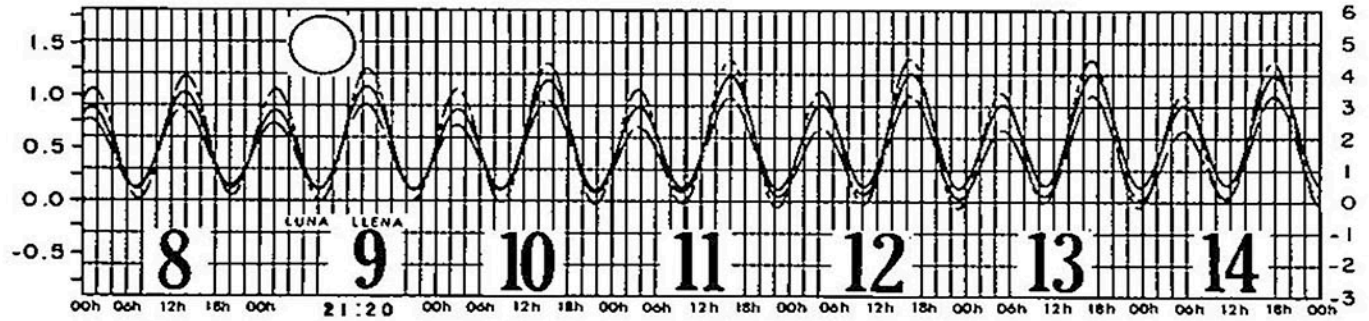
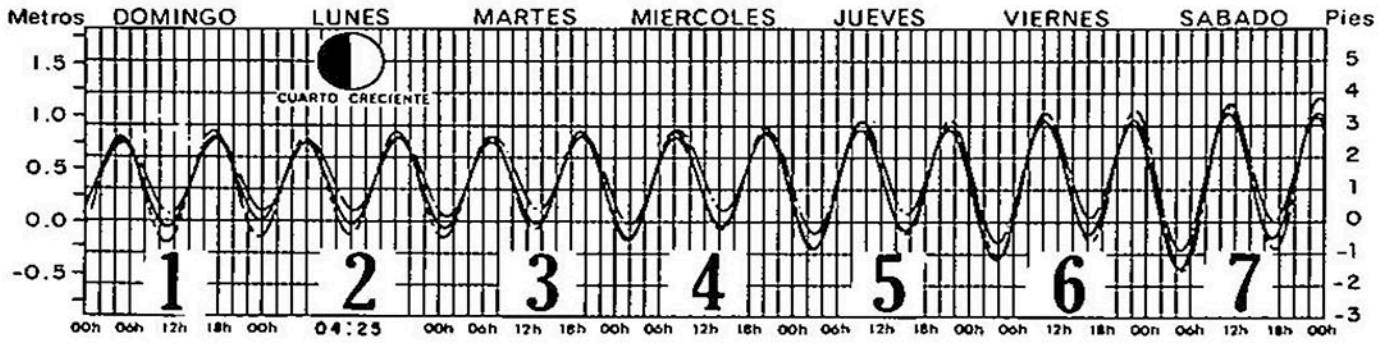


ABRIL 1990

PTO. ANGEL, OAX.
SALINA CRUZ, OAX.
PTO. MADERO, CHIS.



INSTITUTO DE GEOFISICA, U.N.A.M.



HORA DEL MERIDIANO 90° W

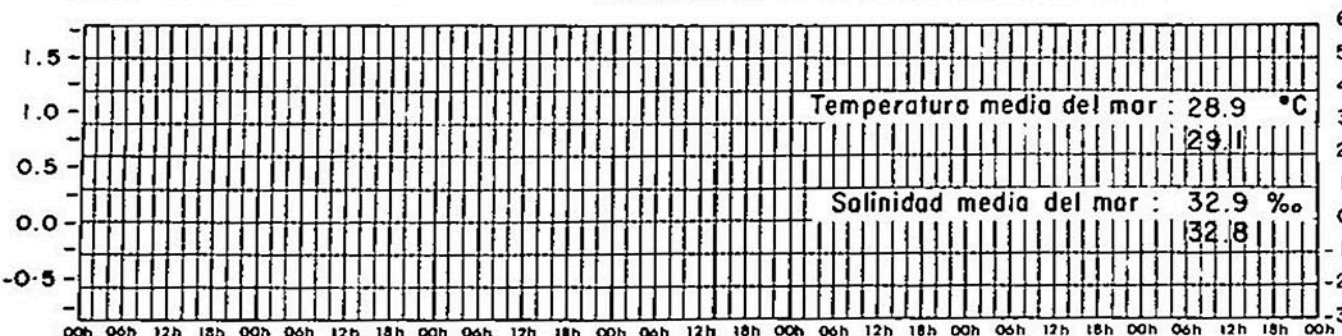
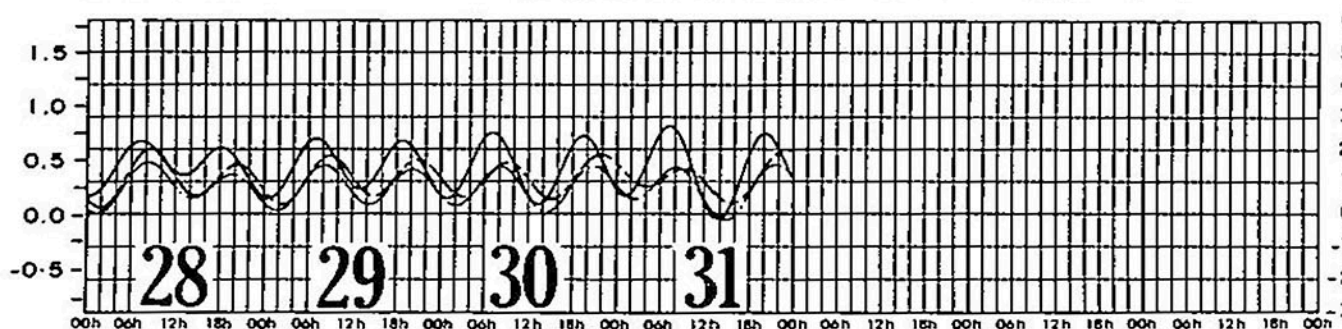
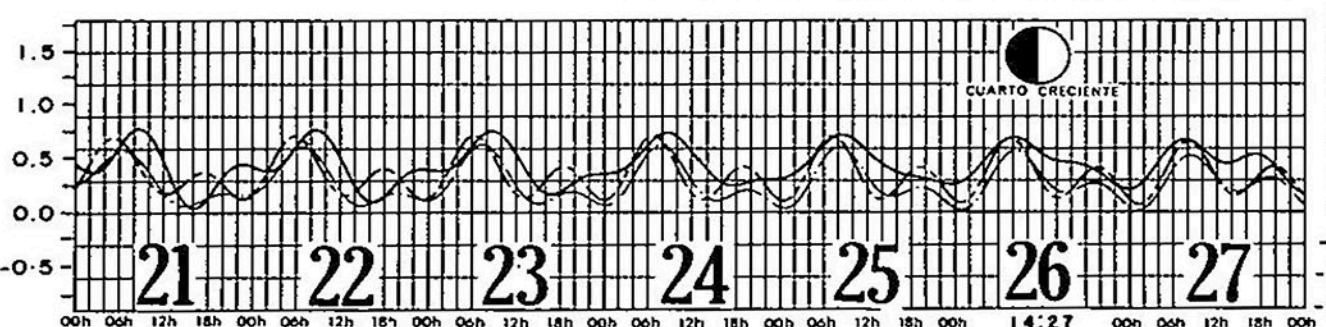
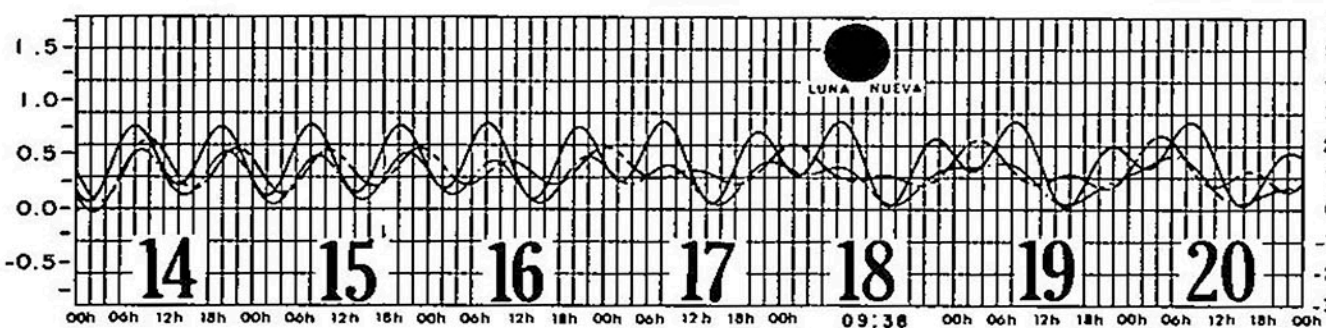
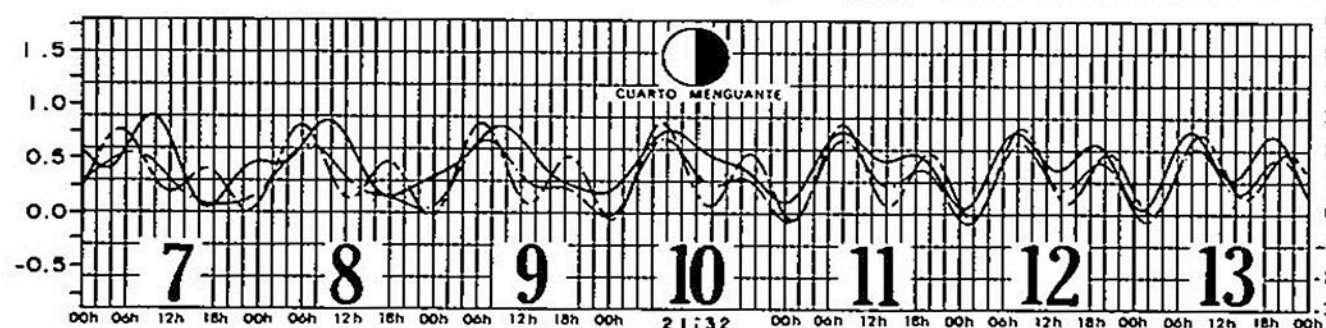
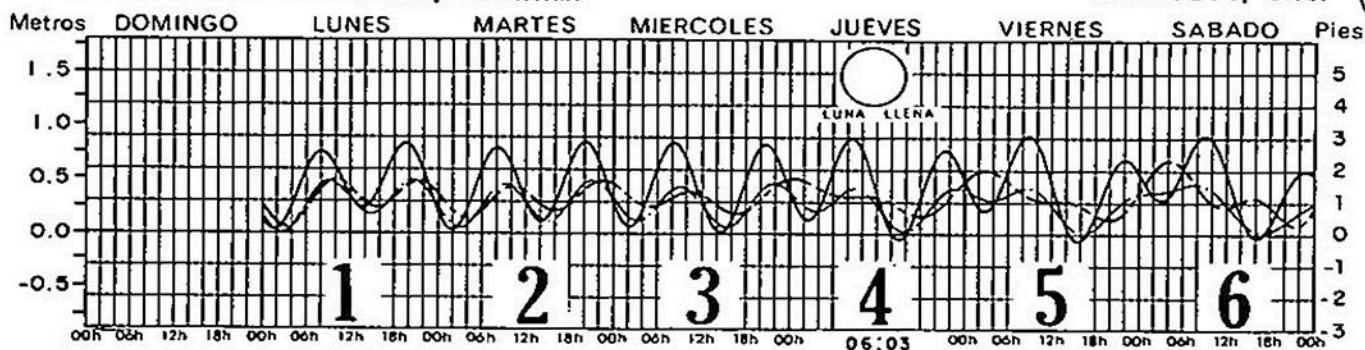
PLANO DE REFERENCIA: N.B.M.I.



OCTUBRE 1990

MANZANILLO, COL.
L. CARDENAS, MICH.
ACAPULCO, GRO.

INSTITUTO DE GEOFISICA, U.N.A.M.



HORA DEL MERIDIANO 90° W

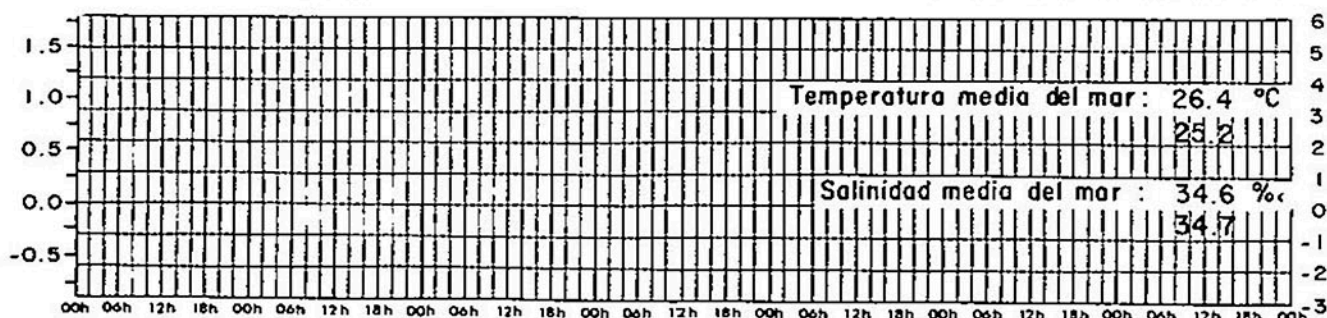
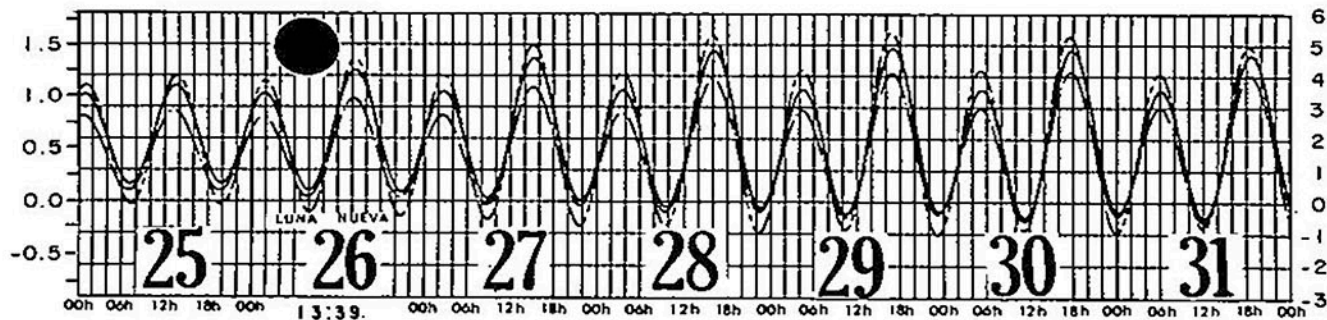
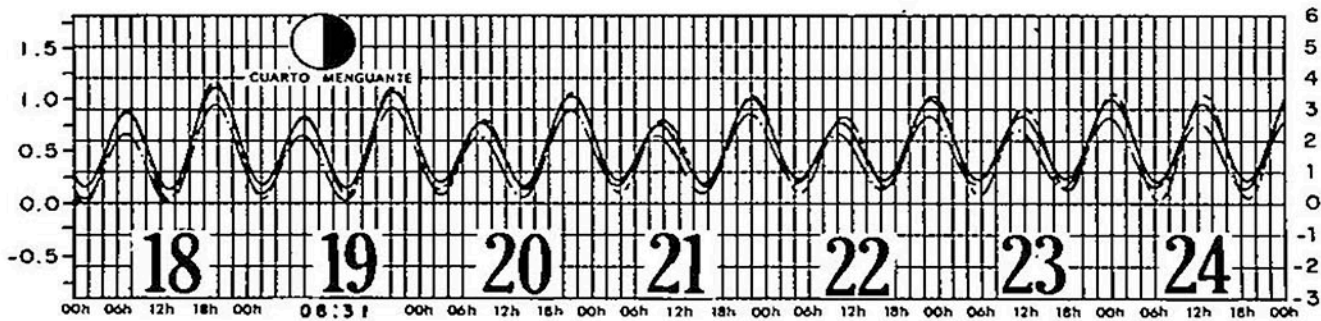
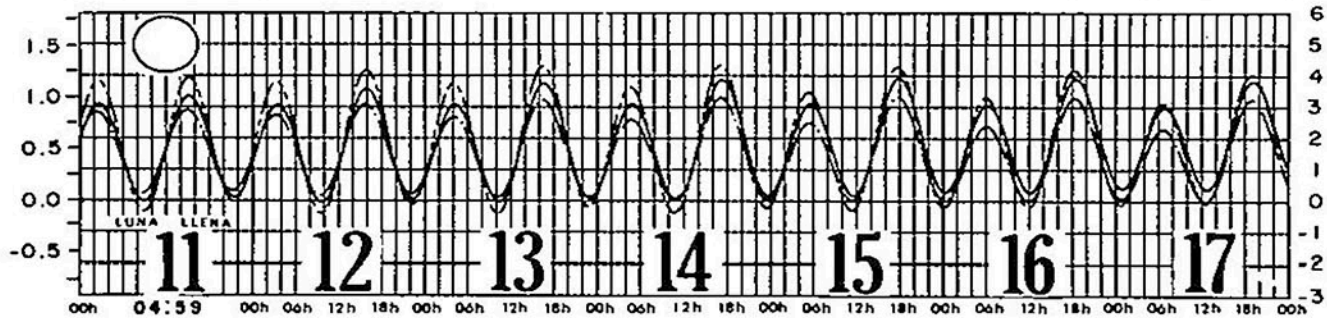
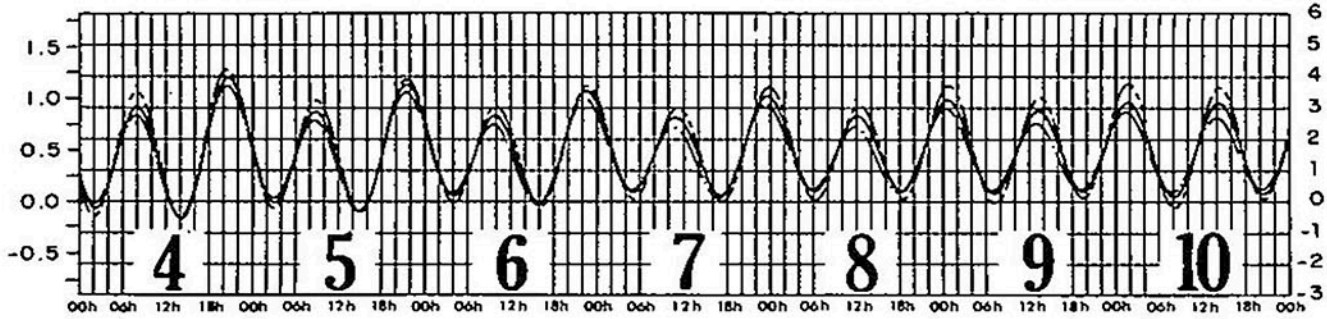
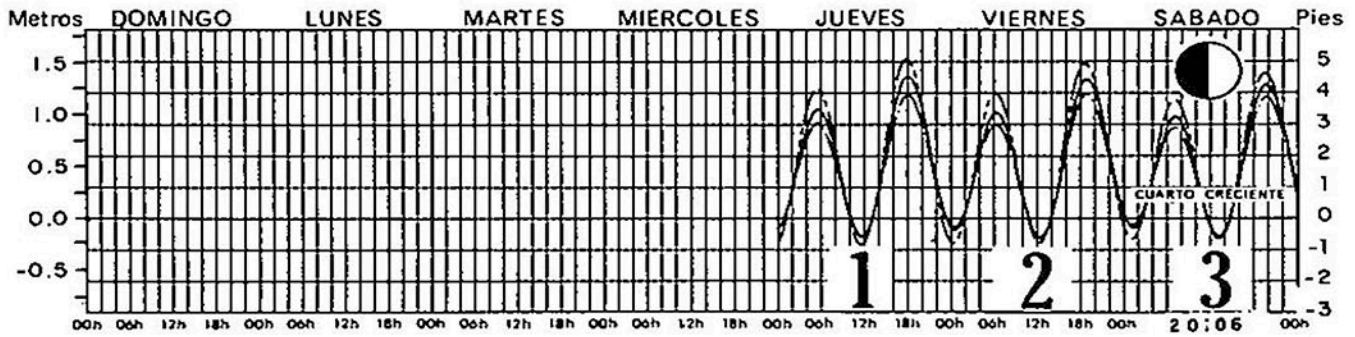
PLANO DE REFERENCIA N.B.M.I.



MARZO 1991

INSTITUTO DE GEOFISICA, U.N.A.M.

PTO. ANGEL, OAX.
SALINA CRUZ, OAX.
PTO. MADERO, CHIS.



HORA DEL MERIDIANO 90° W

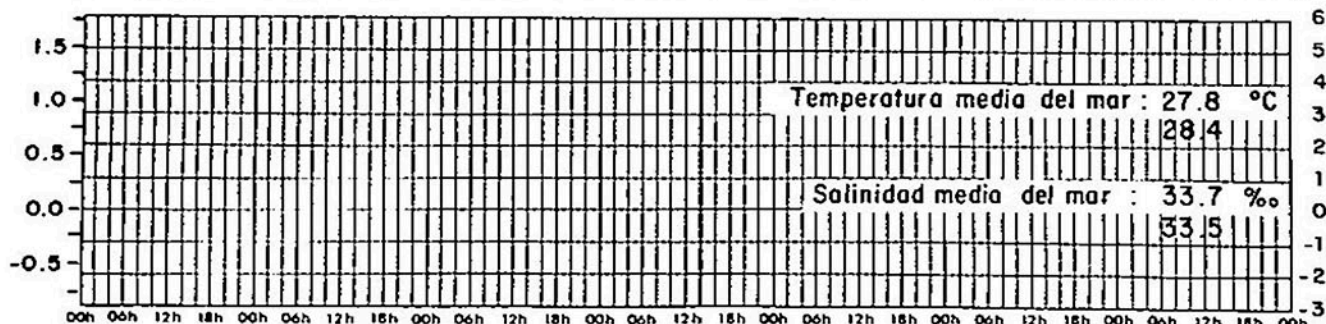
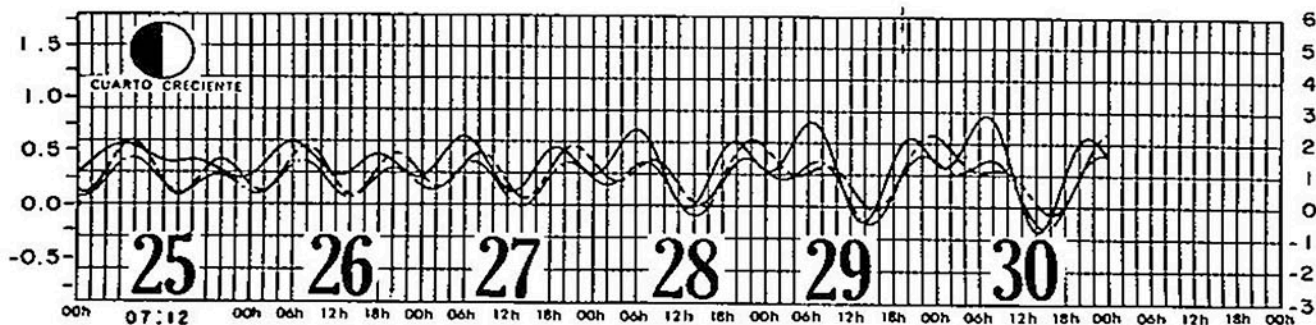
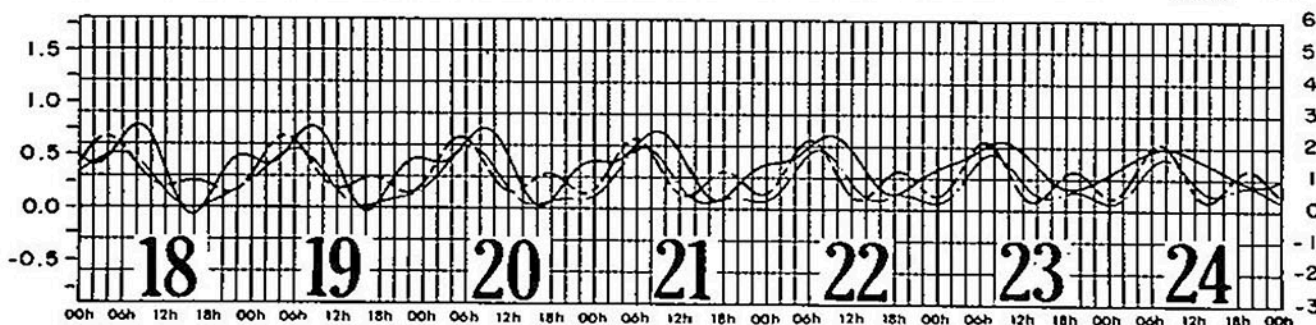
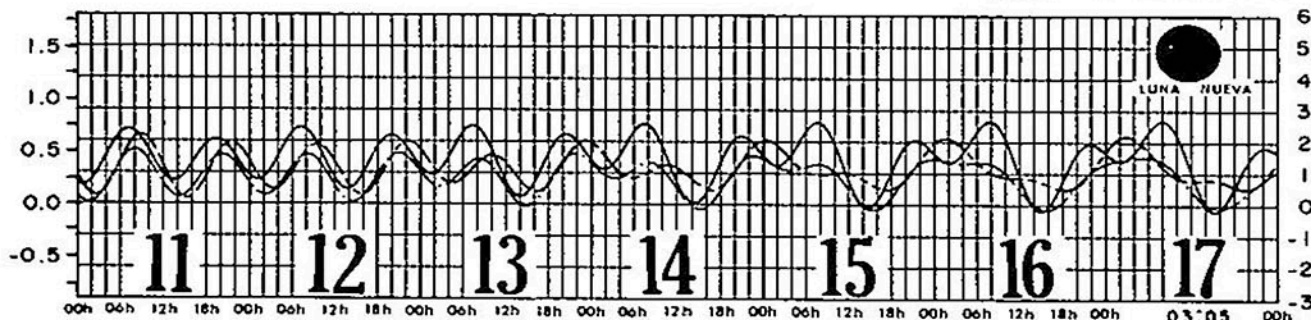
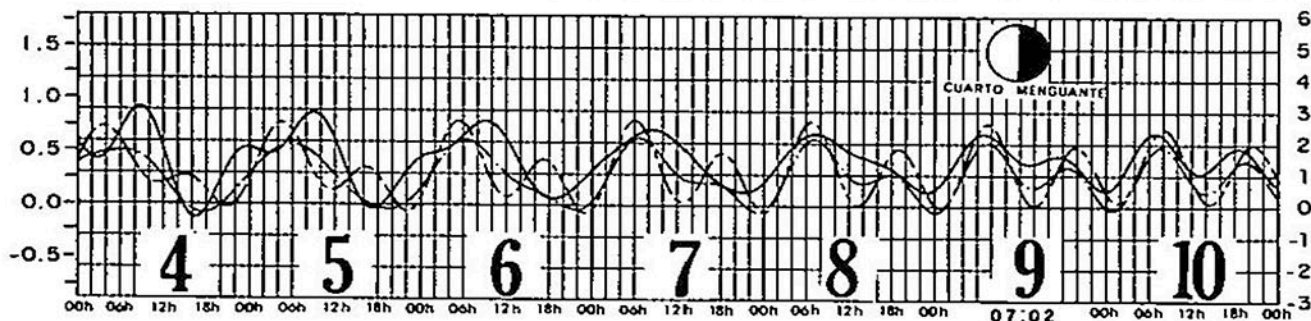
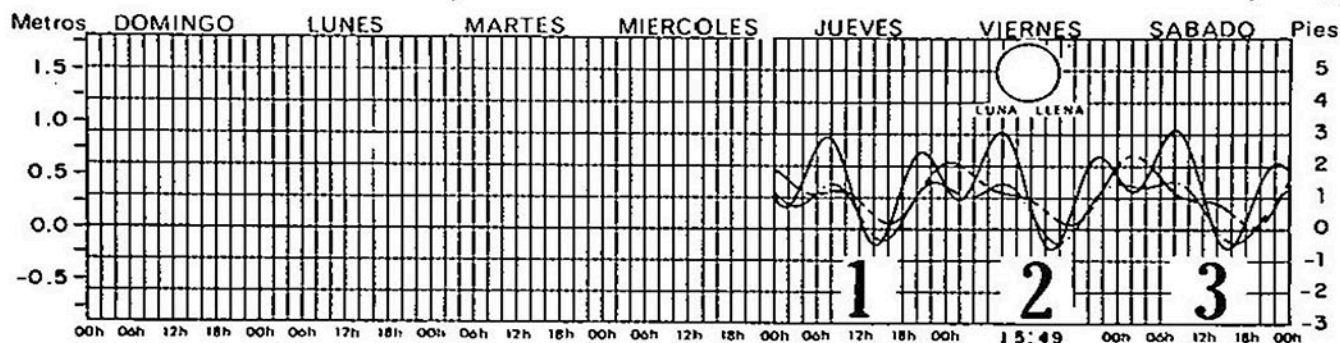
PLANO DE REFERENCIA: N.B.M.I.



NOVIEMBRE 1990

INSTITUTO DE GEOFISICA, U.N.A.M.

MANZANILLO, COL.
L. CARDENAS, MICH.
ACAPULCO, GRO.



MORA DEL MERIDIANO 90° W

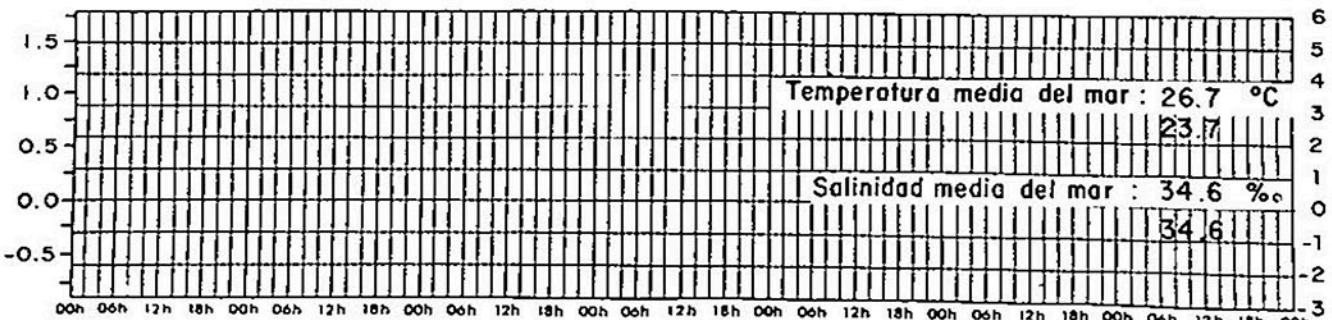
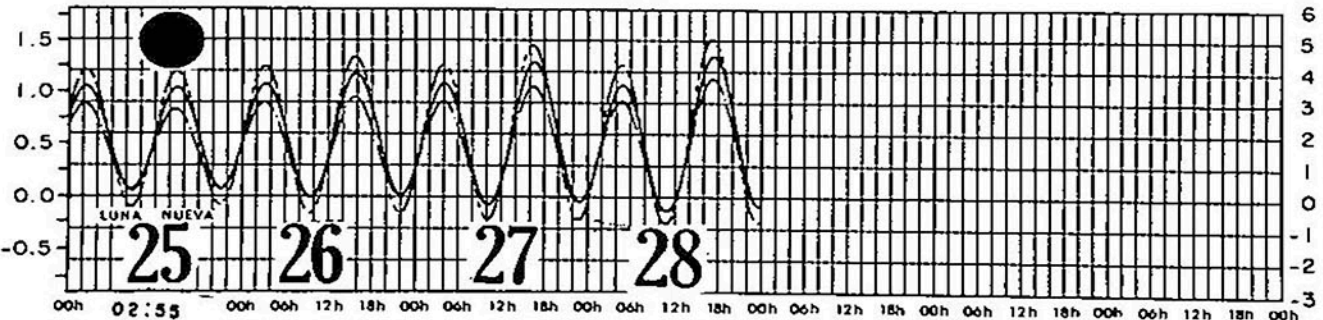
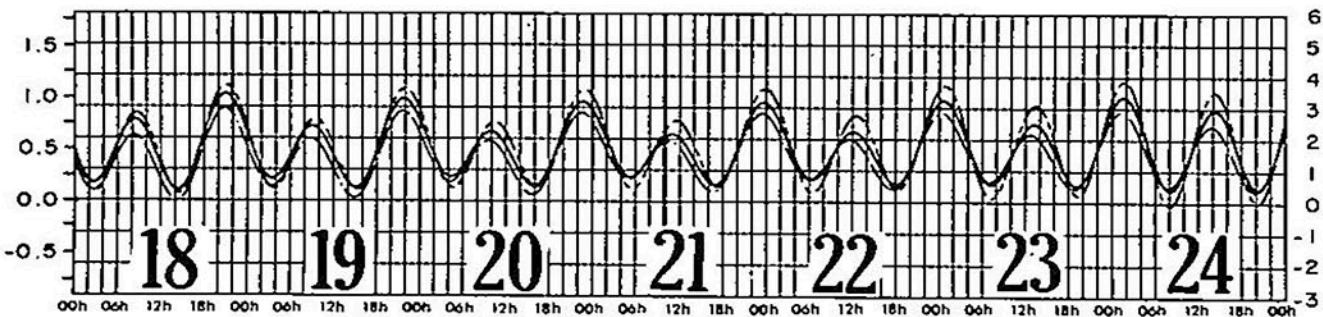
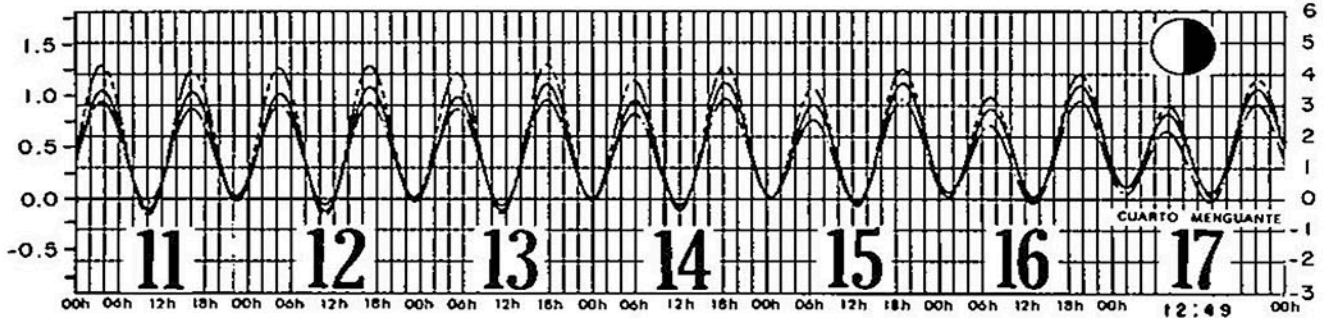
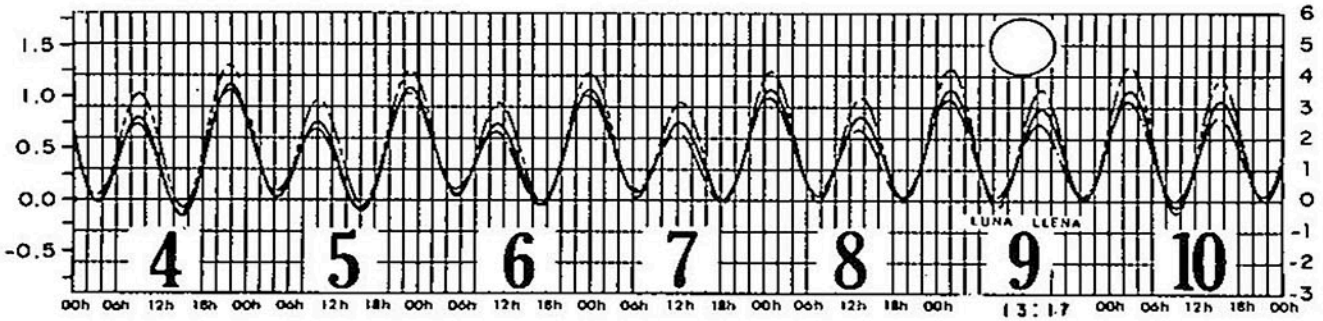
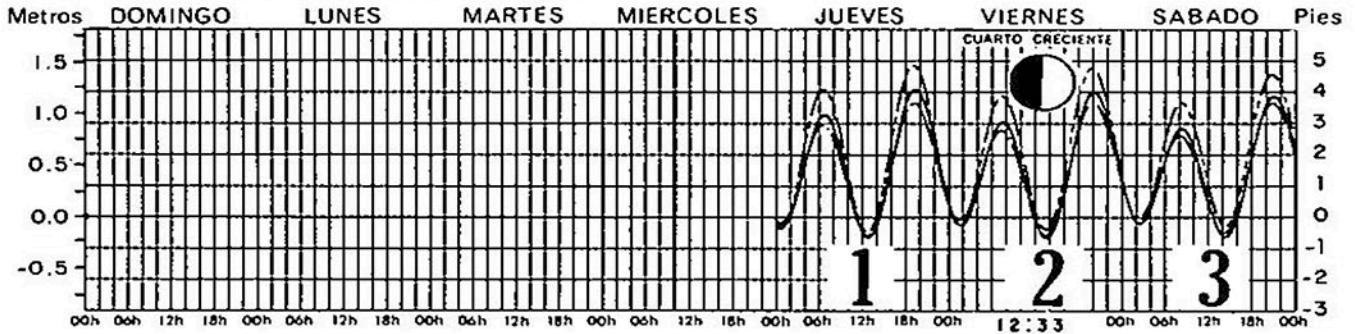
PLANO DE REFERENCIA N.B.M.I.



FEBRERO 1990

INSTITUTO DE GEOFISICA, U.N.A.M.

PTO. ANGEL, OAX.
SALINA CRUZ, OAX.
PTO. MADERO, CHIS.



HORA DEL MERIDIANO 90° W

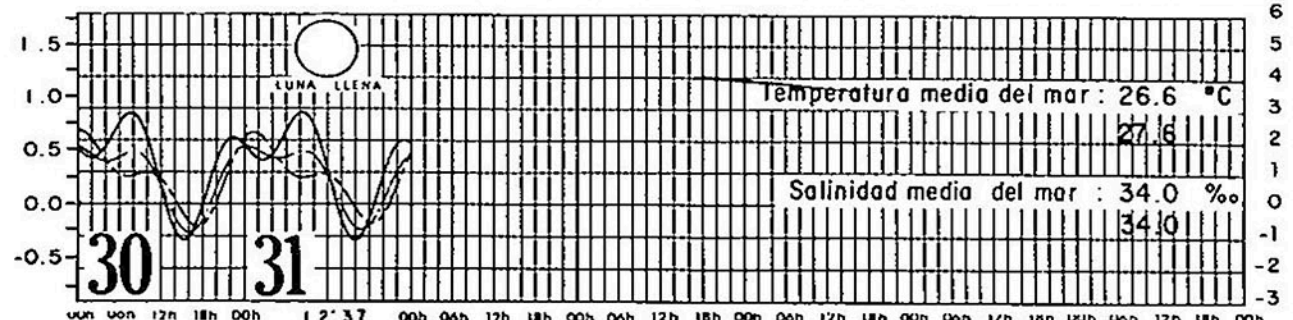
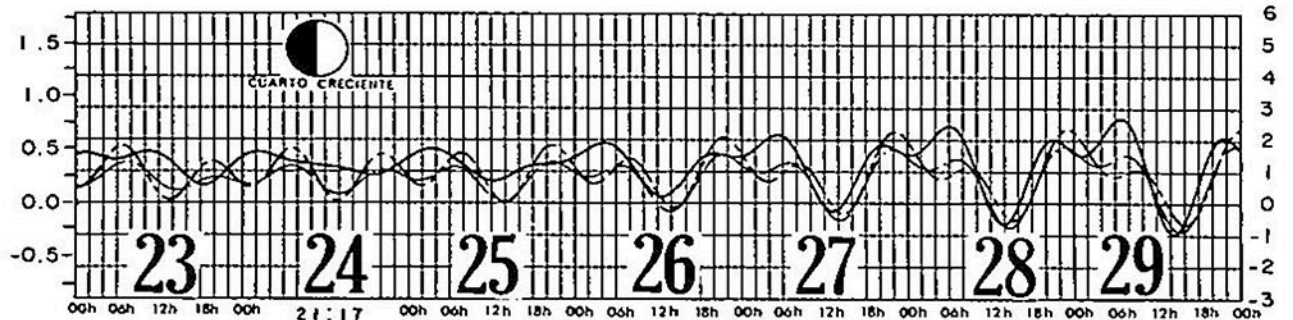
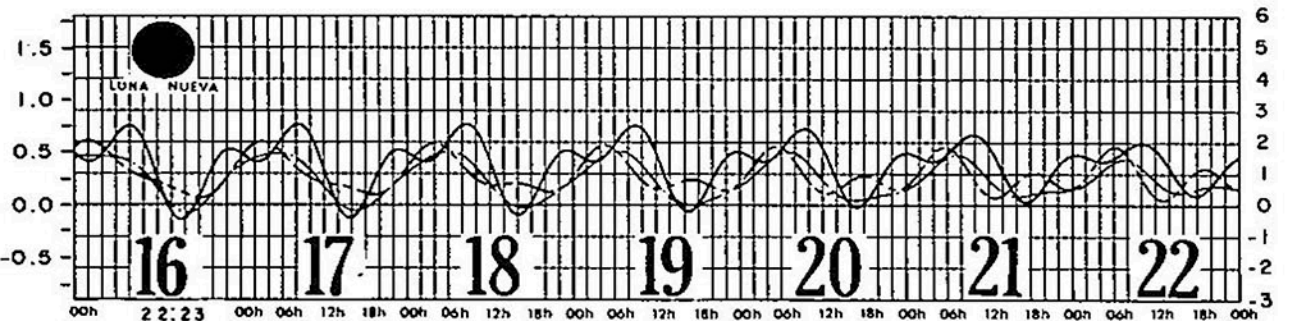
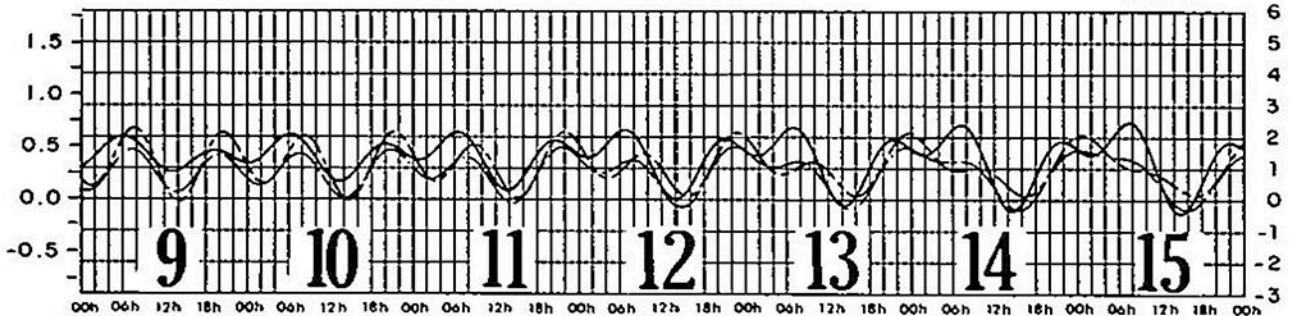
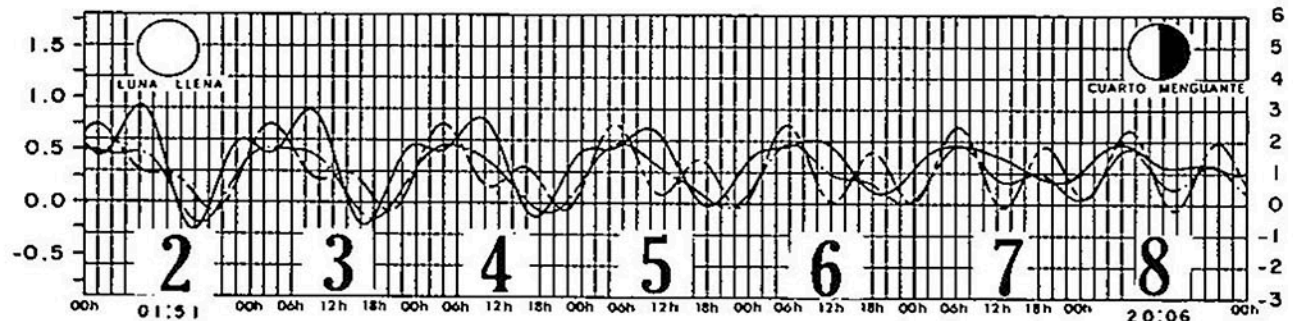
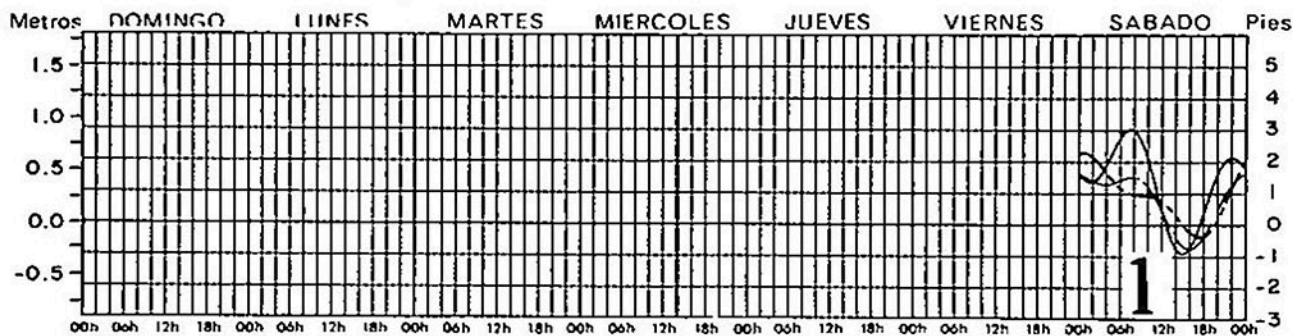
PLANO DE REFERENCIA N.B.M.I.



DICIEMBRE 1990

INSTITUTO DE GEOFISICA, U.N.A.M.

MANZANILLO, COL.
L. CARDENAS, MICH.
ACAPULCO, GRO.



HORA DEL MERIDIANO 90° W

PLANO DE REFERENCIA N.B.M.I.

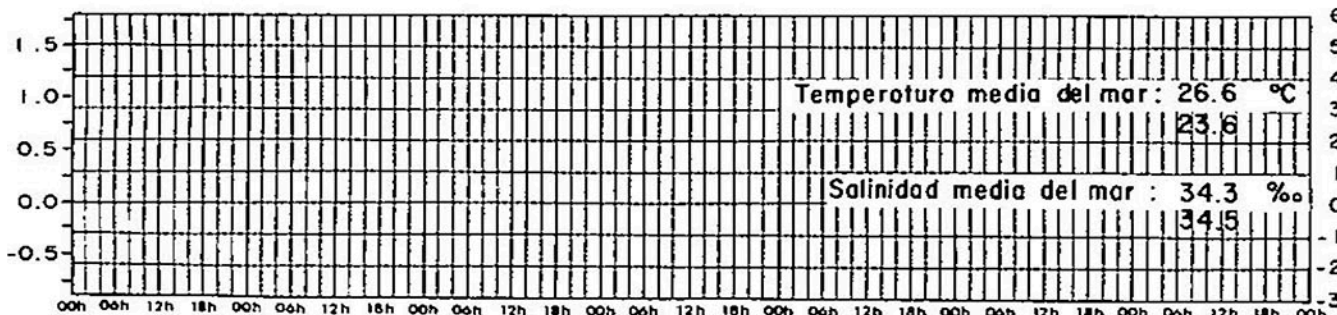
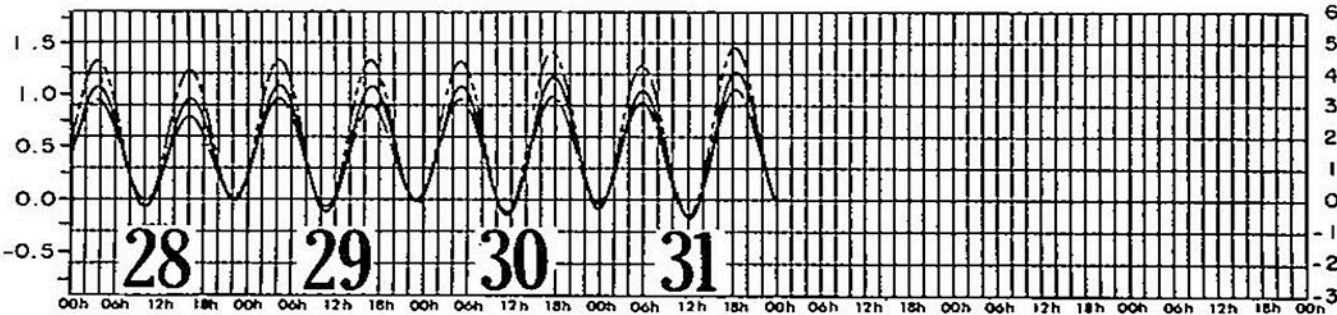
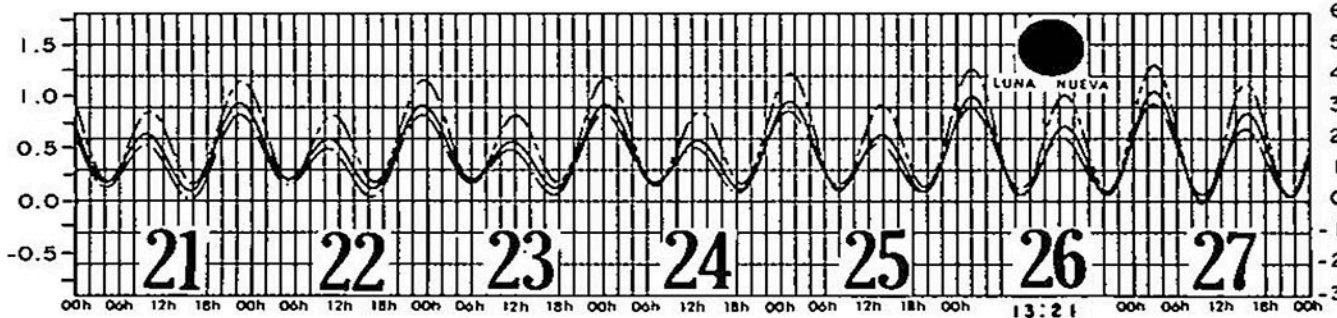
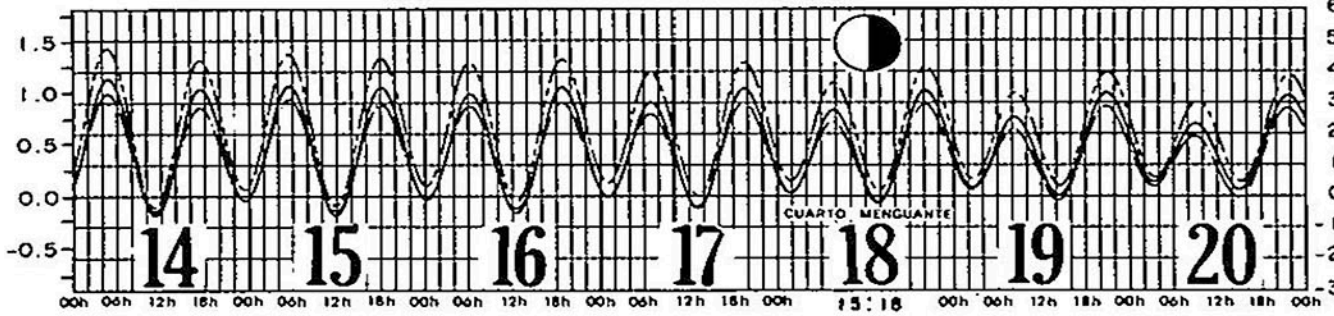
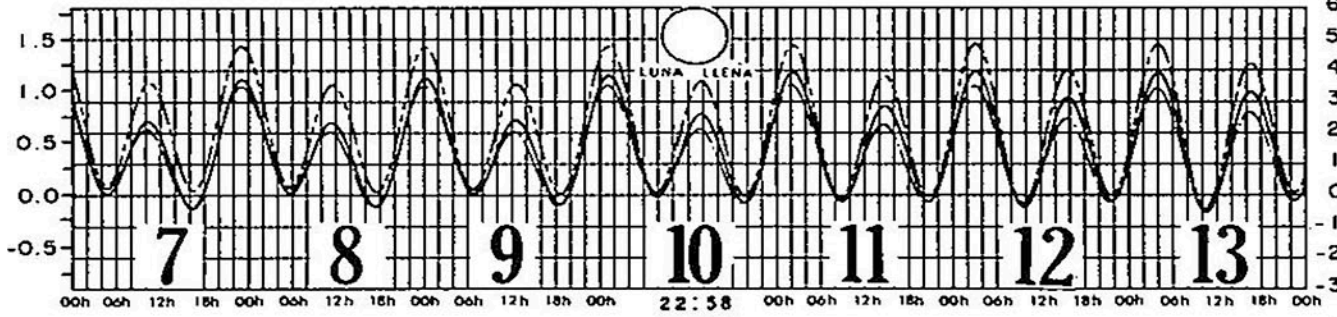
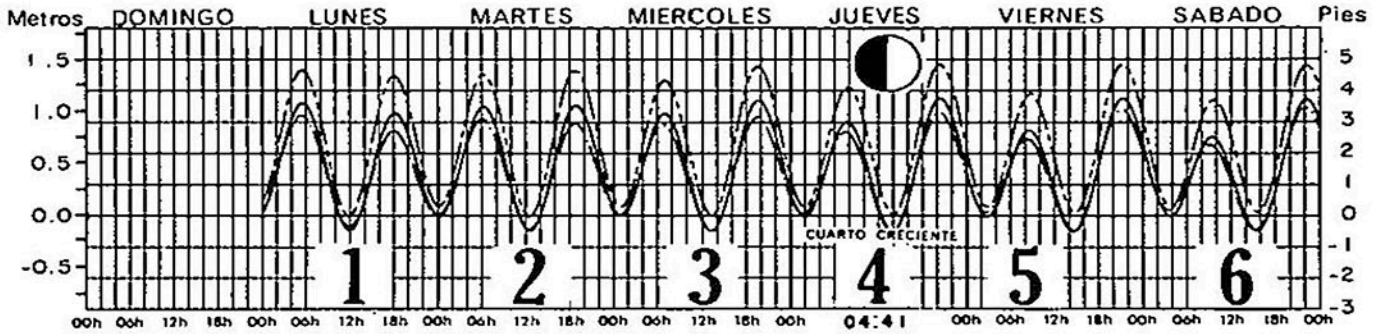


ENERO 1990

PTO. ANGEL, OAX.
SALINA CRUZ, OAX.
PTO. MADERO, CHIS.



INSTITUTO DE GEOFISICA, U.N.A.M.



HORA DEL MERIDIANO 90° W

PLANO DE REFERENCIA N.B.M.I.



ENERO 1990

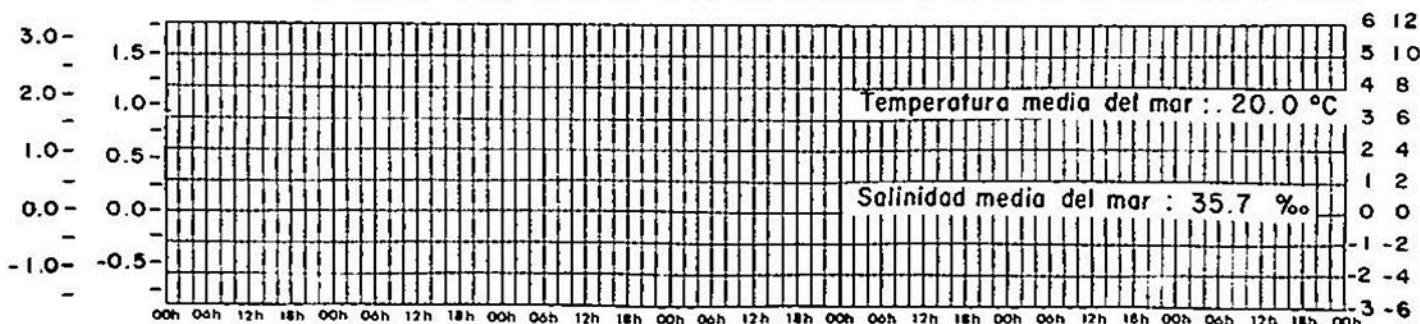
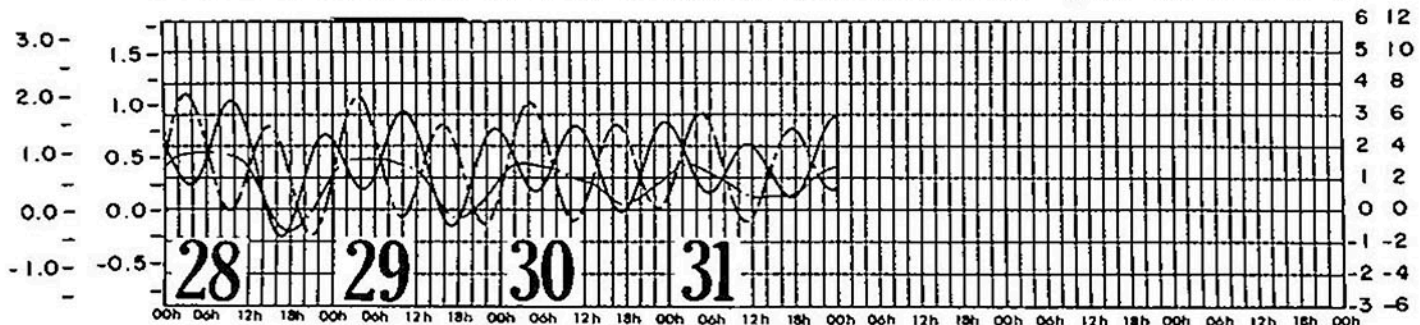
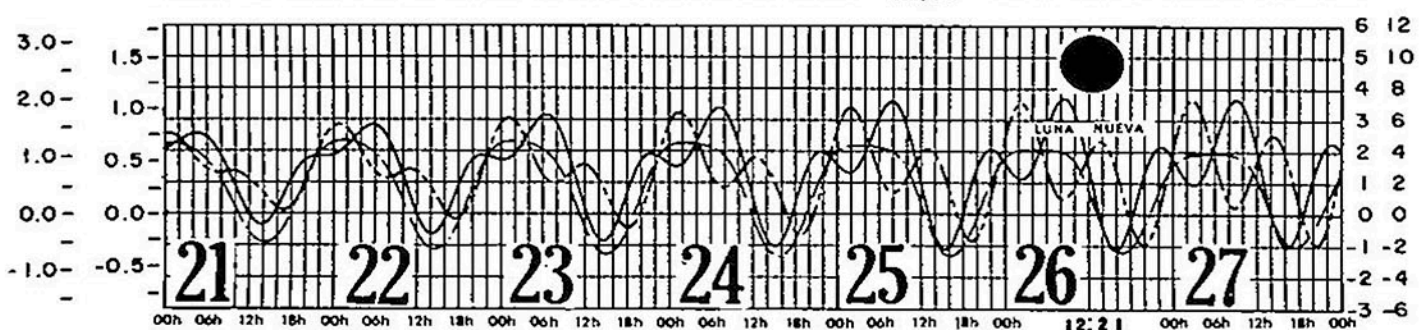
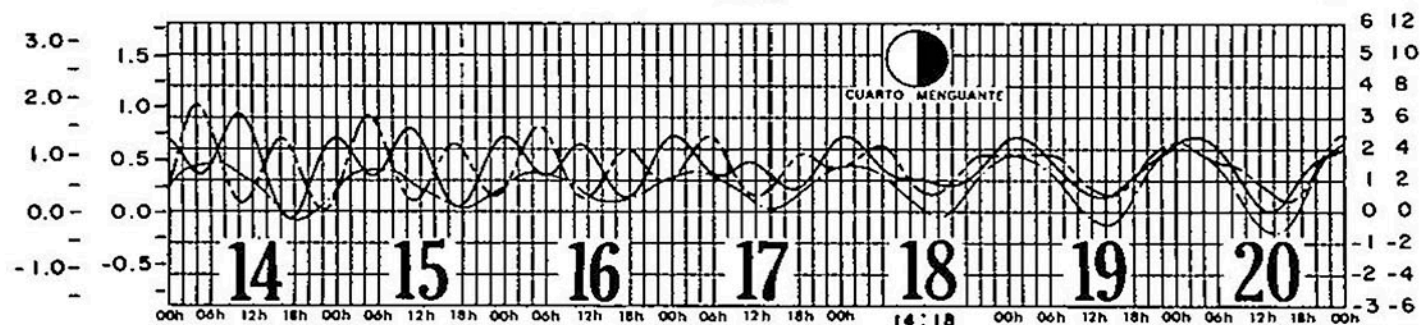
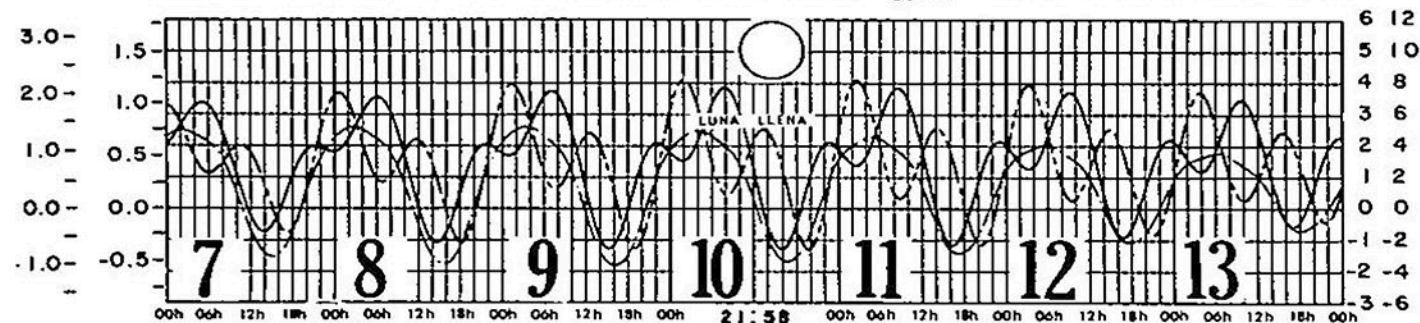
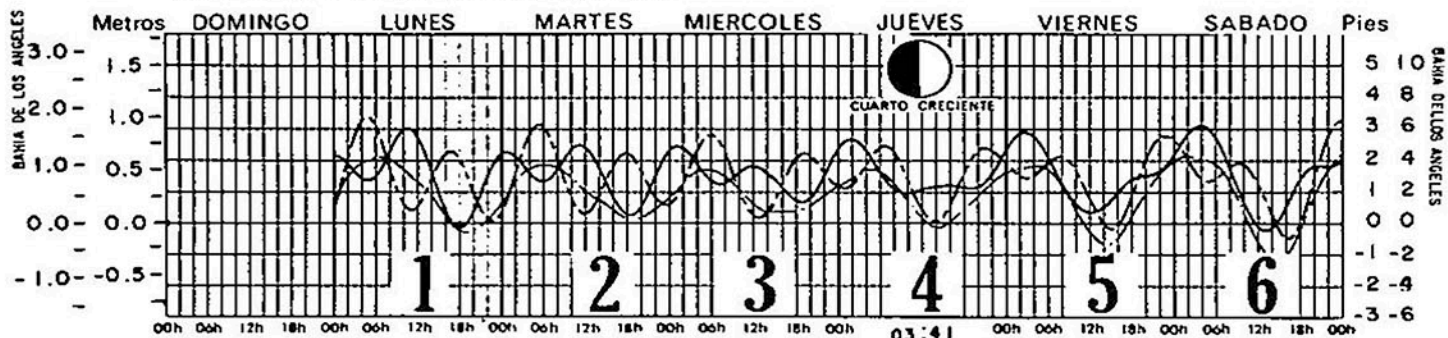
B. DE LOS ANGELES, B.C.S.

STA. ROSALIA, B.C.S.

LA PAZ, B.C.S.



INSTITUTO DE GEOFISICA, U.N.A.M.



HORA DEL MERIDIANO 105° W

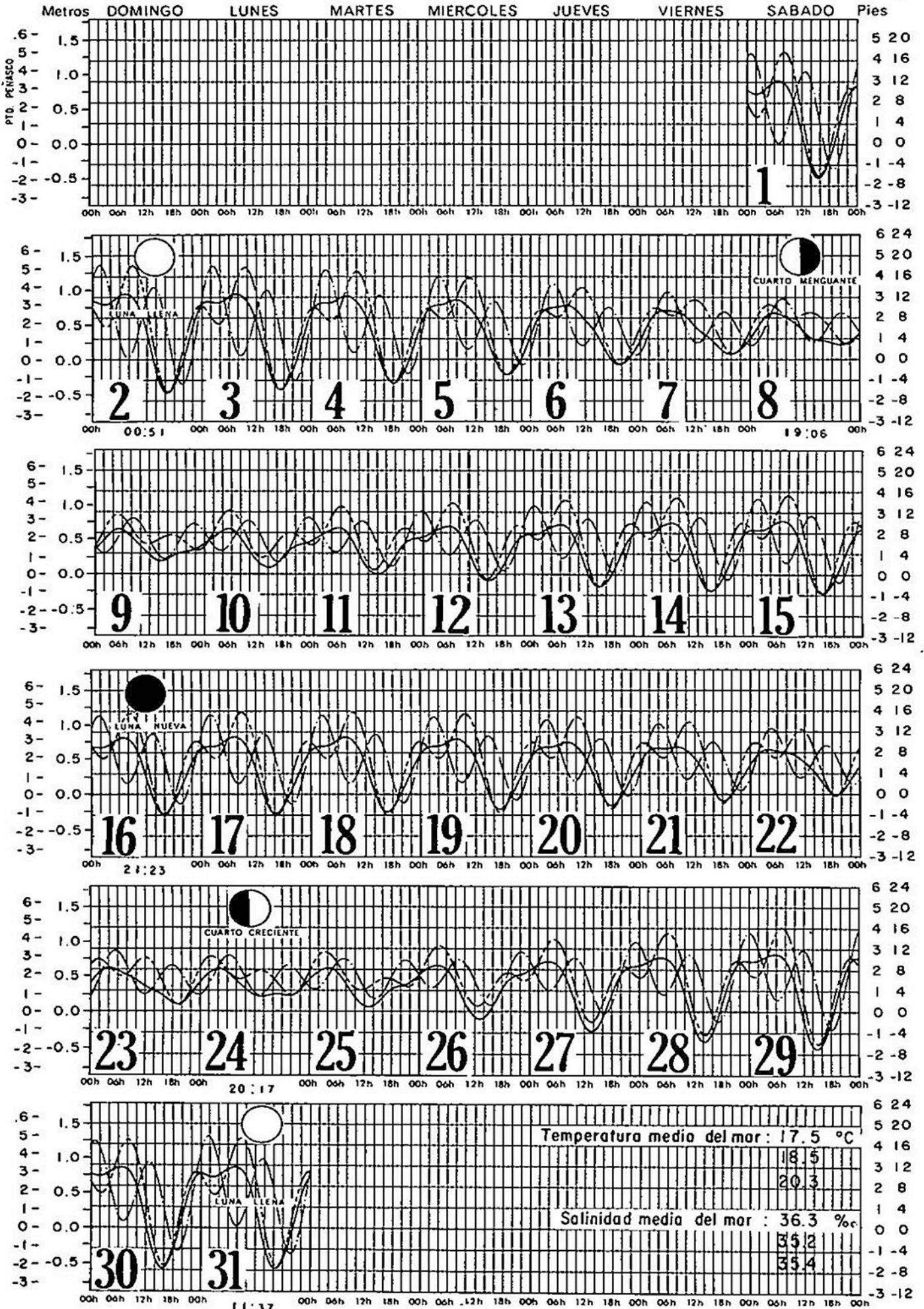
PLANO DE REFERENCIA: N.M.M.I.



LICIEMBRE 1990

INSTITUTO DE GEOFISICA, U.N.A.M.

PTO. PEÑASCO, SON.
GUAYMAS, SON.
TOPOLOBAMPO, SIN.



HORA DEL MERIDIANO 105° W

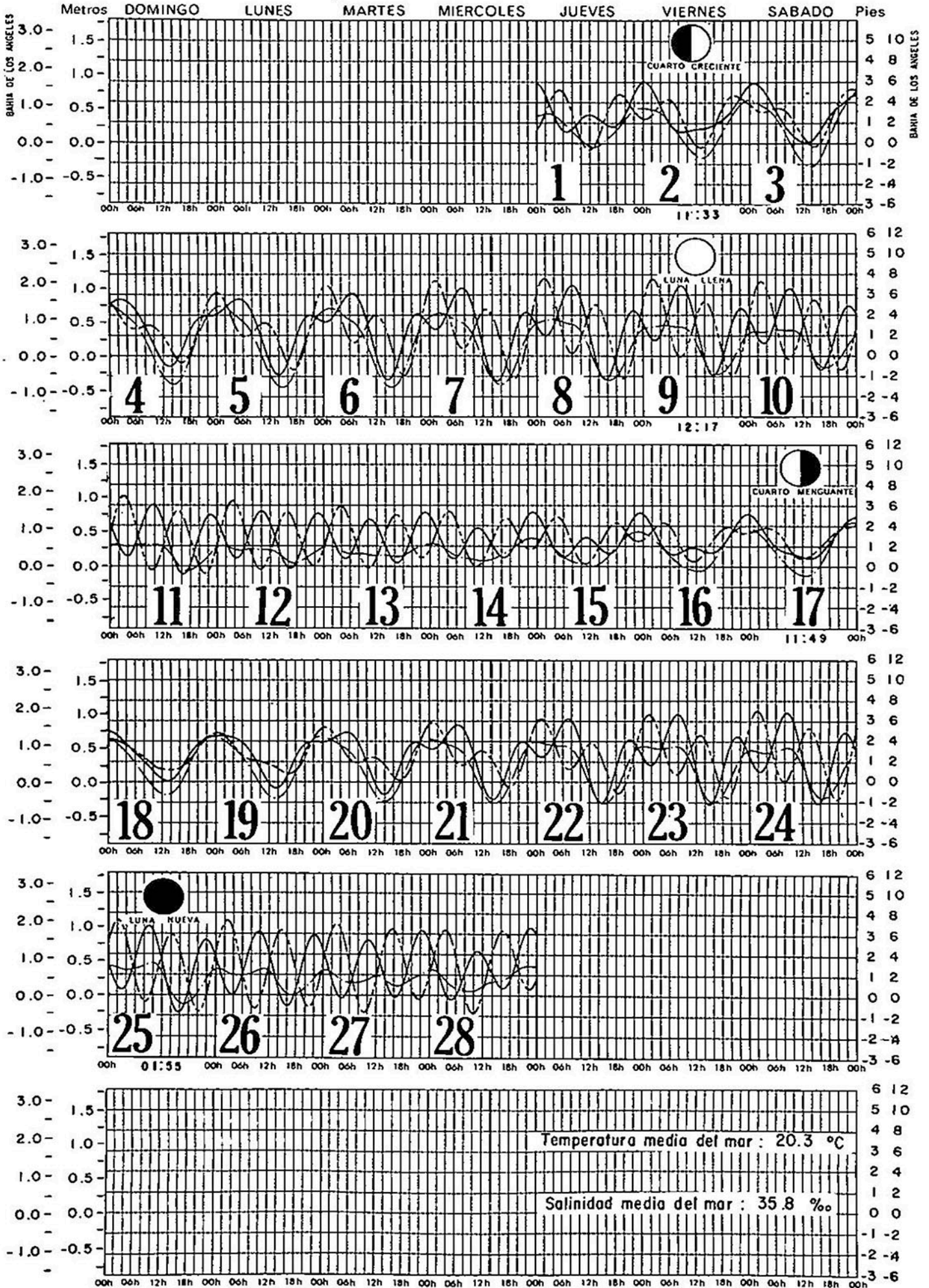
PLANO DE REFERENCIA: N.B.M.I.



FEBRERO 1990

B. DE LOS ANGELES, B.C.S.
STA. ROSALIA, B.C.S.
LA PAZ, B.C.S.

INSTITUTO DE GEOFISICA, U.N.A.M.

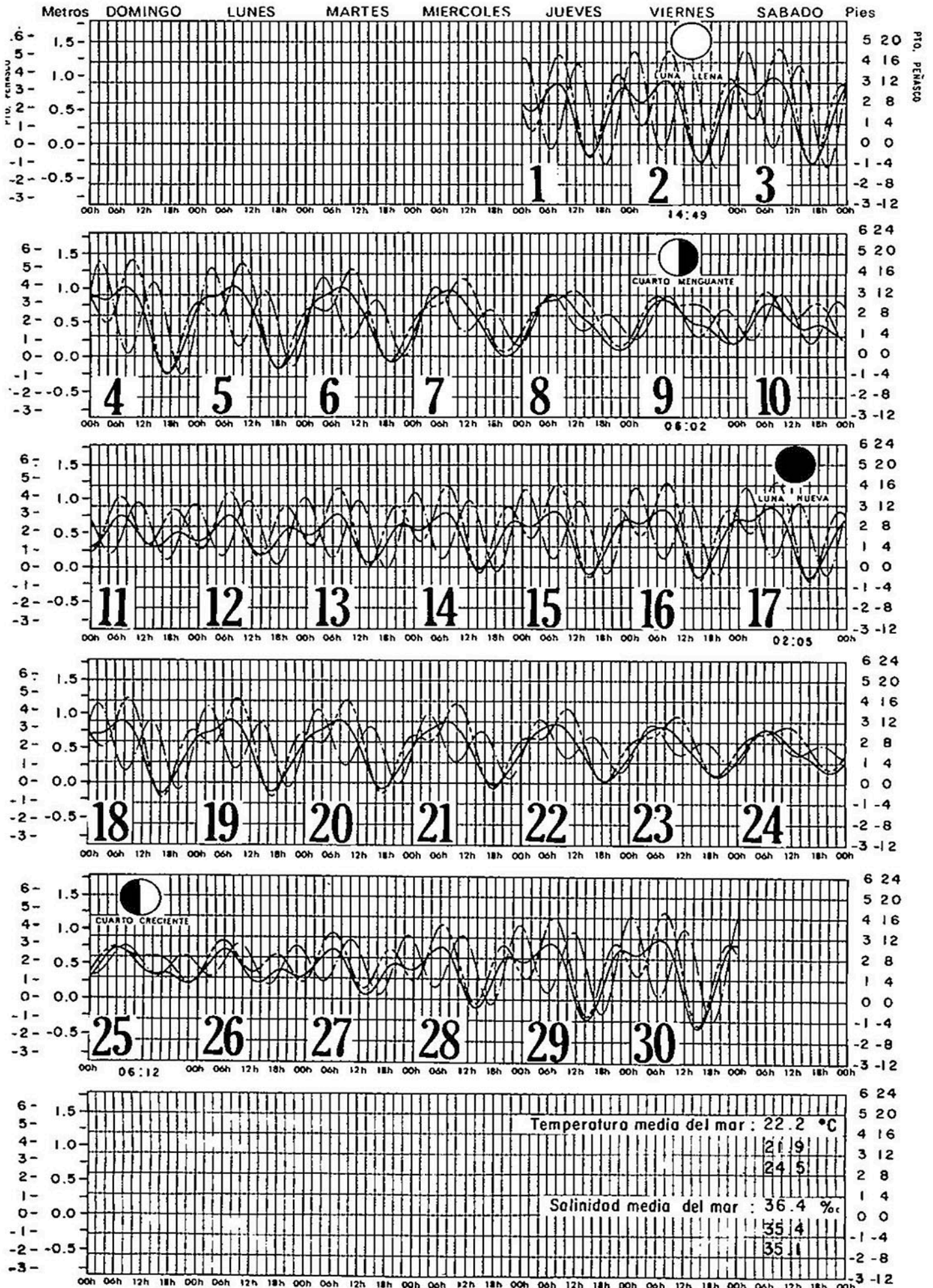




NOVIEMBRE 1990

INSTITUTO DE GEOFISICA, U.N.A.M.

PTO. PEÑASCO, SON.
GUAYMAS, SON.
TOPOLOBAMPO, SIN.





MARZO 1990

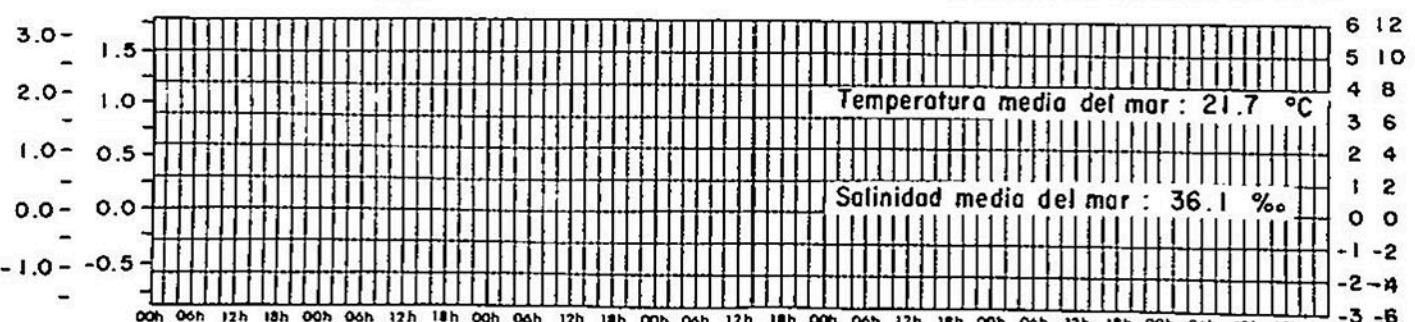
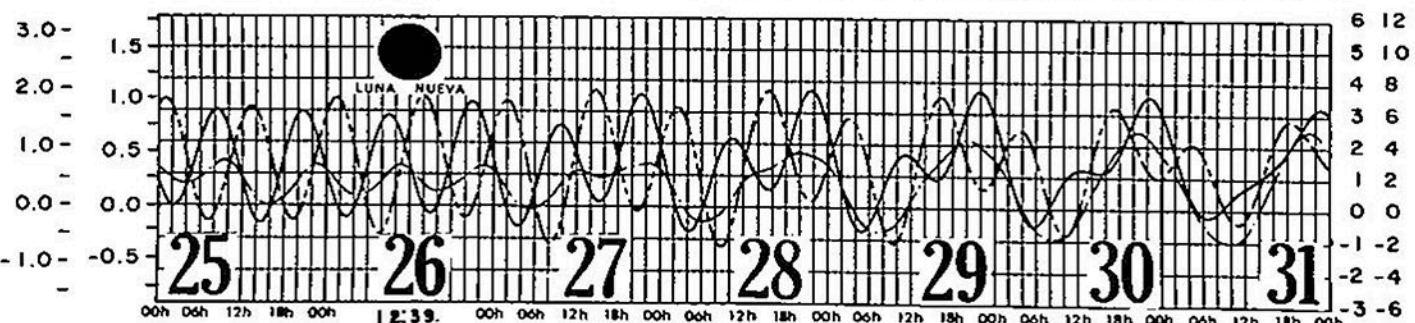
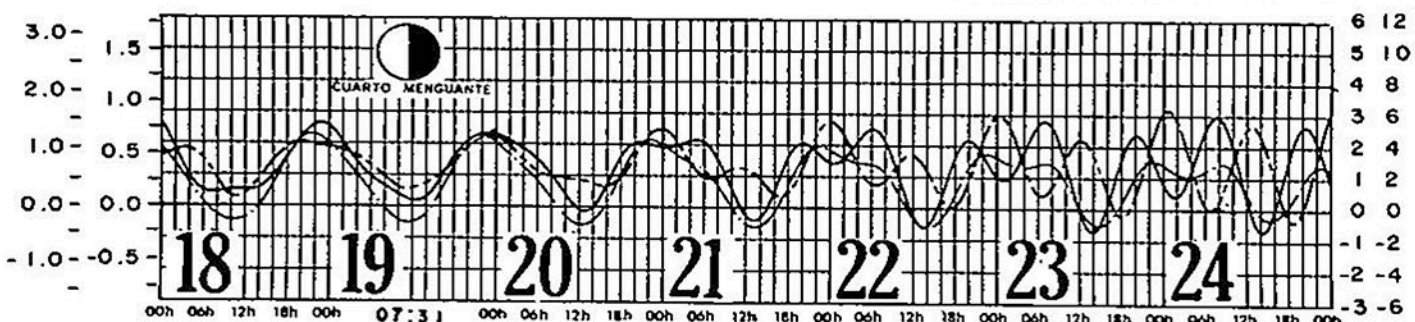
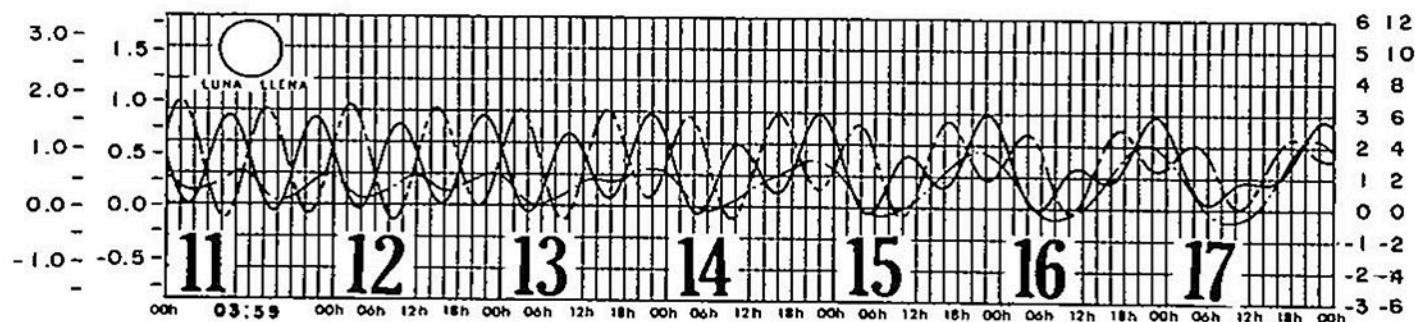
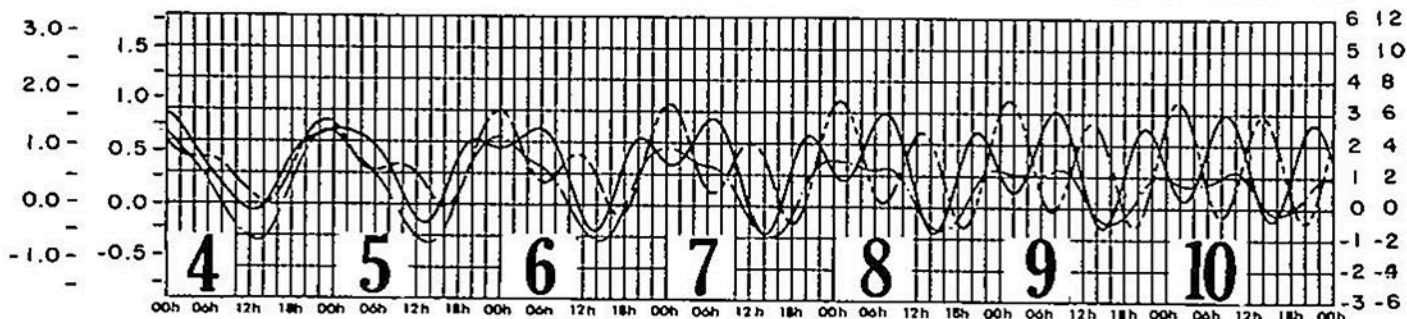
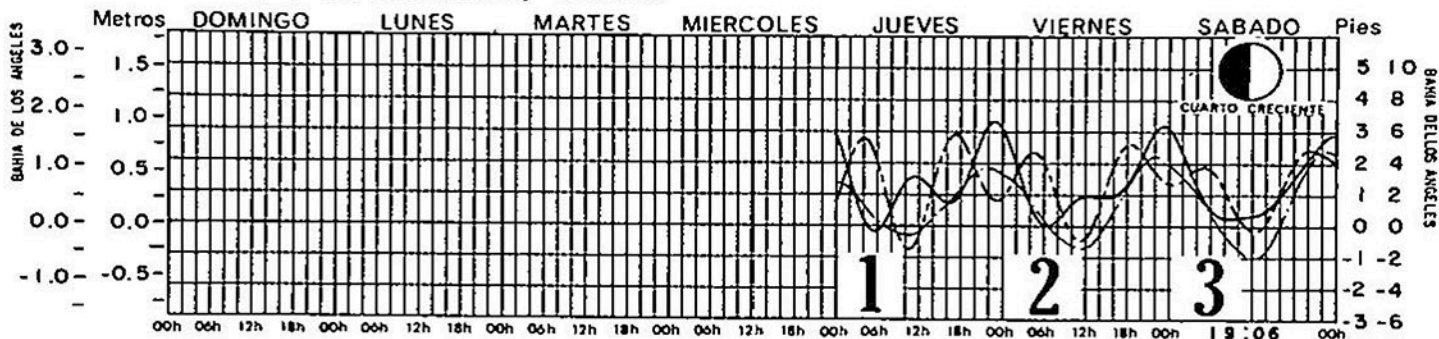
B. DE LOS ANGELES, B.C.S.

STA. ROSALIA, B.C.S.

LA PAZ, B.C.S.



INSTITUTO DE GEOFISICA, U.N.A.M.



HORA DEL MERIDIANO 105° W

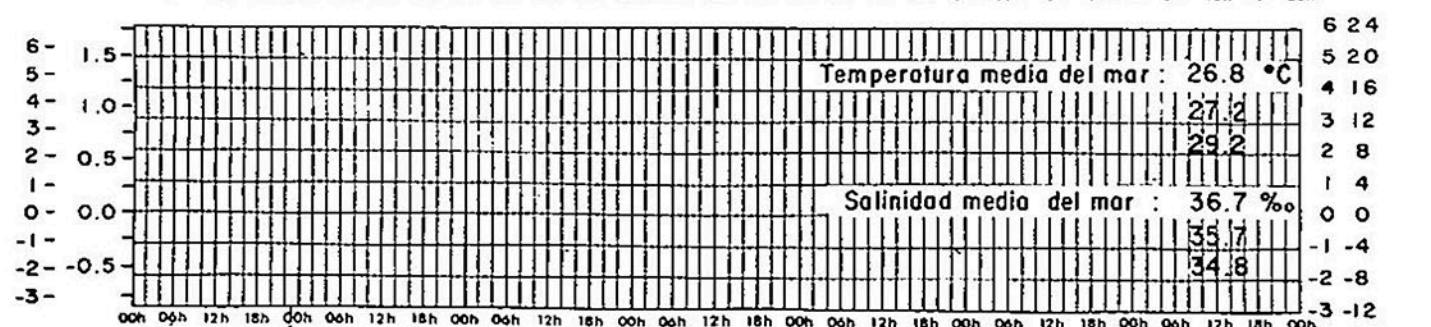
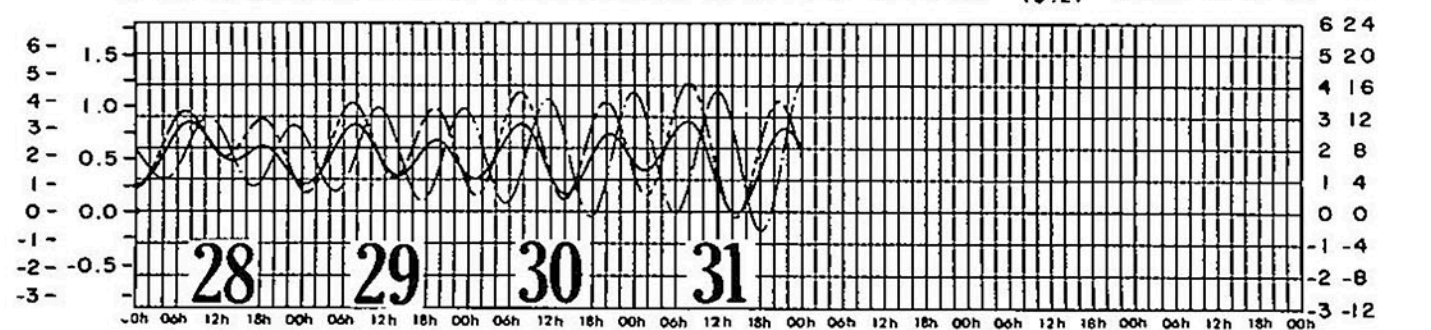
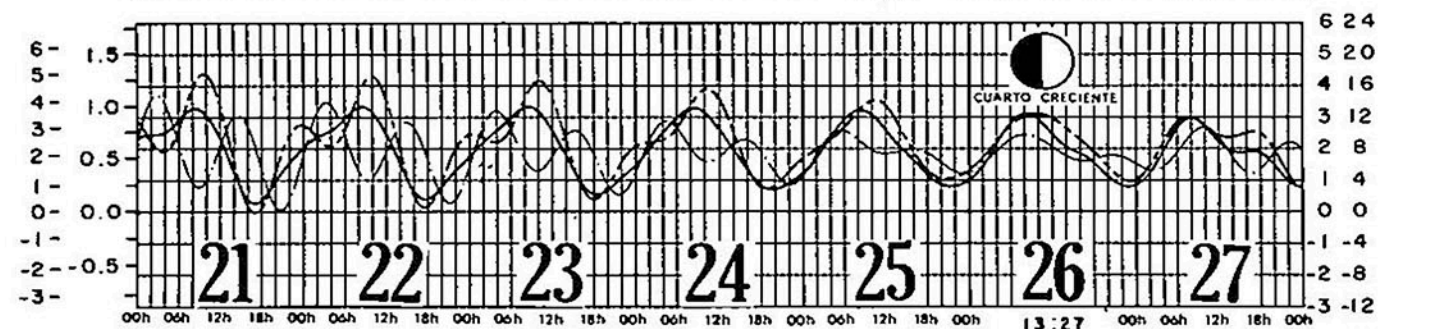
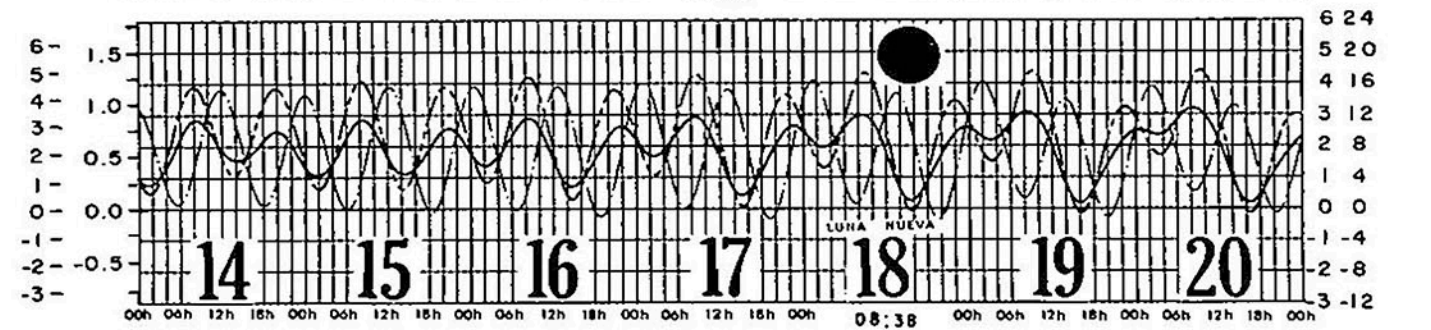
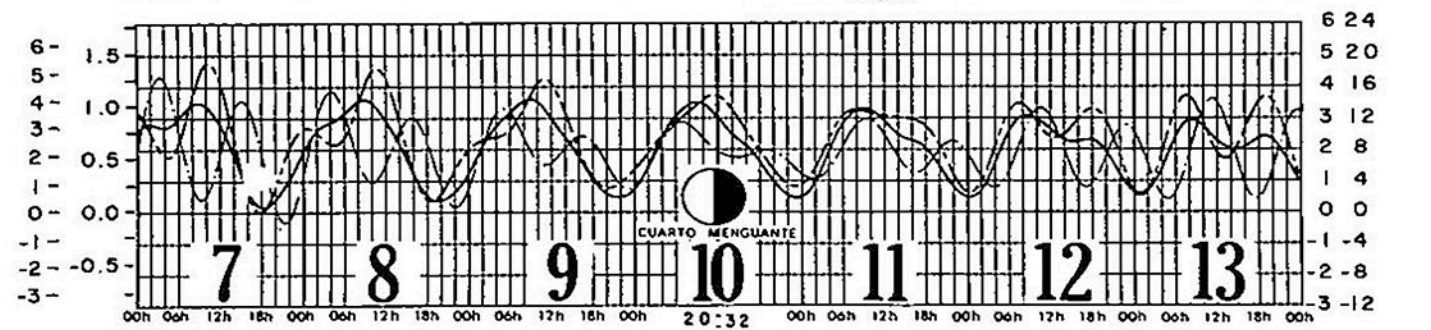
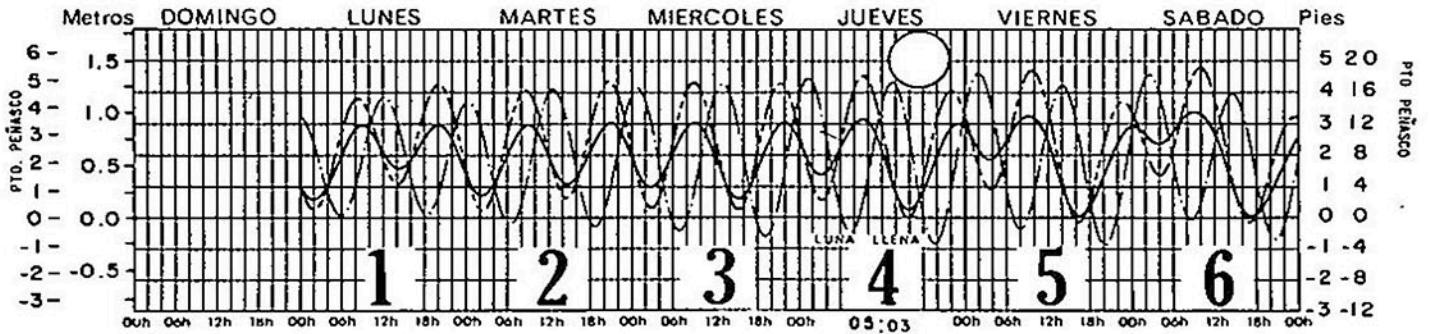
PLANO DE REFERENCIA: N.M.M. I.



OCTUBRE 1990

INSTITUTO DE GEOFISICA, U.N.A.M.

PTO. PEÑASCO, SON.
GUAYMAS, SON.
TOPOLOBAMPO, SIN.



HORA DEL MERIDIANO 105° W

PLANO DE REFERENCIA: N.B.M.I.



ABRIL 1990

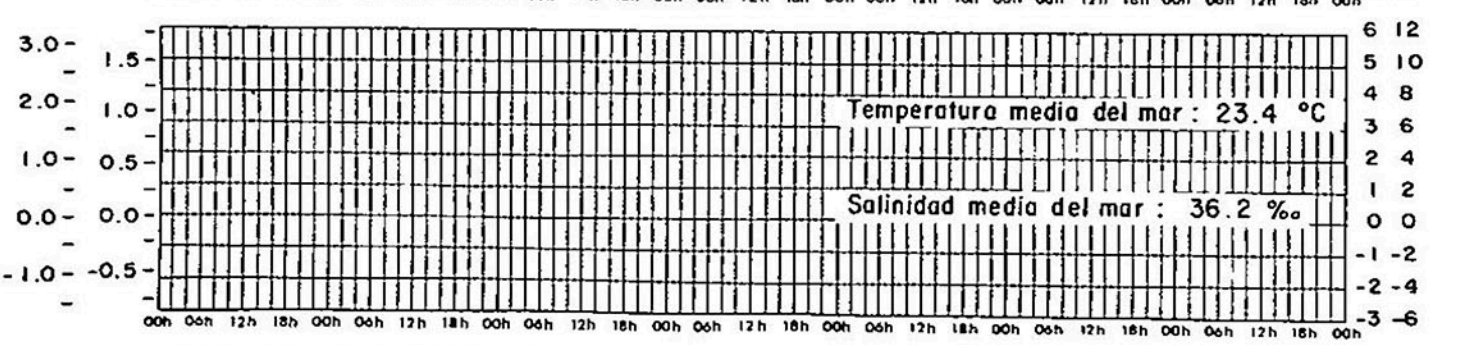
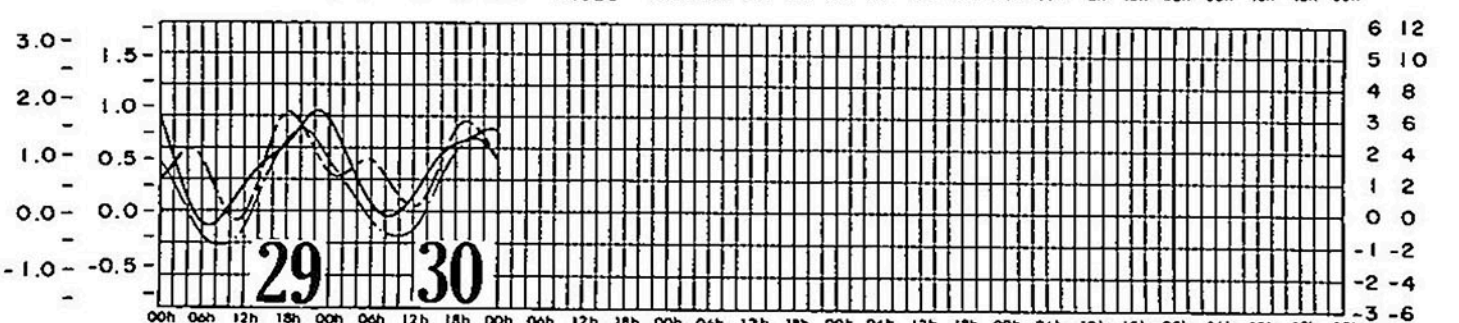
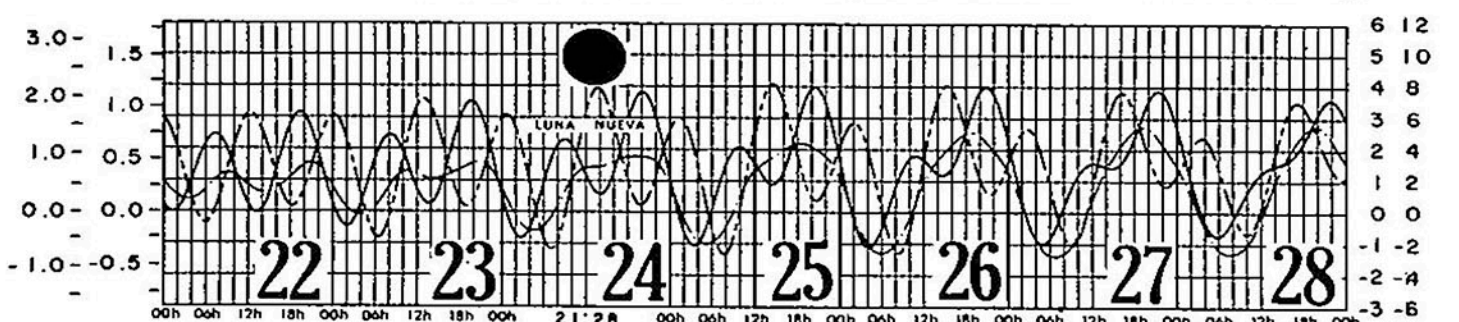
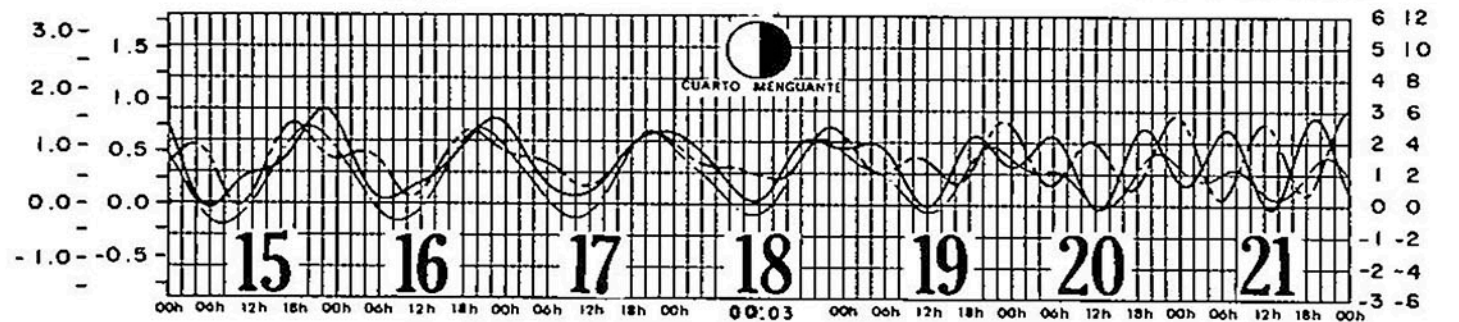
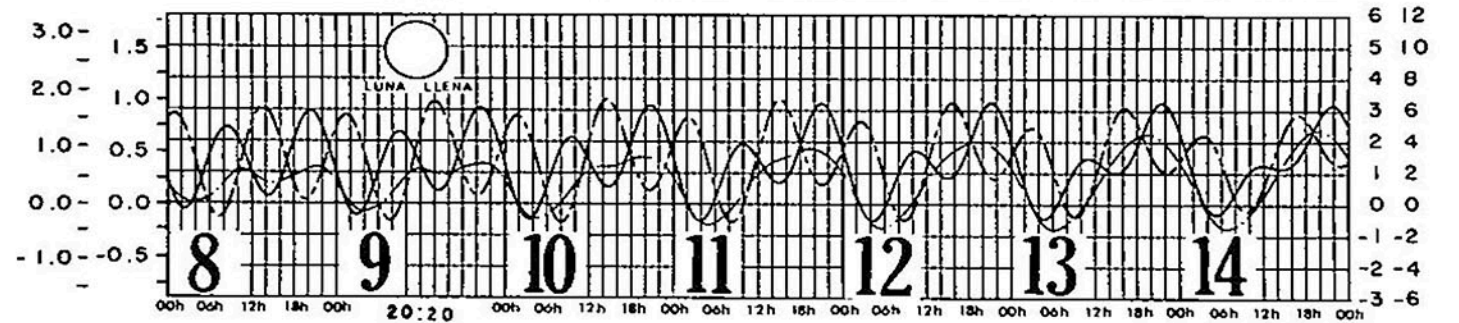
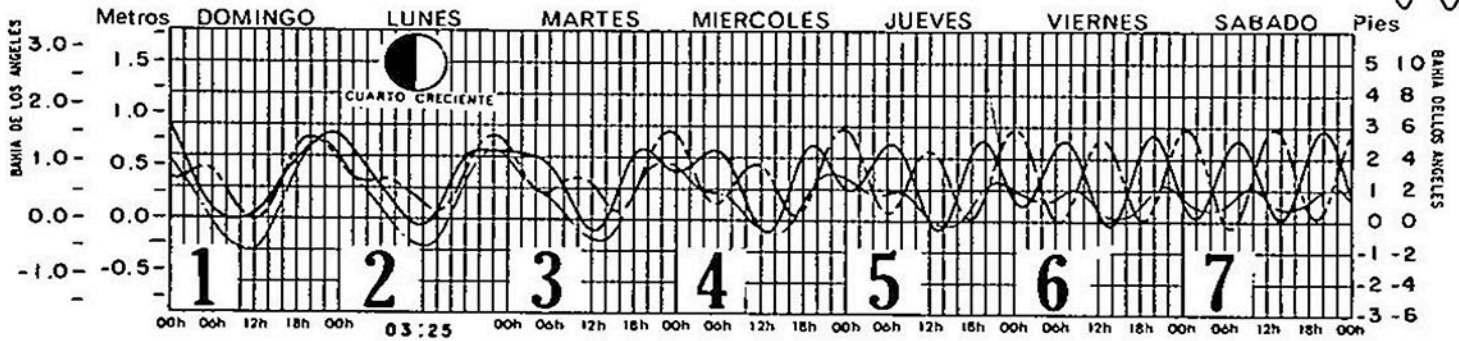
B. DE LOS ANGELES, B.C.S.

STA. ROSALIA, B.C.S.

LA PAZ, B.C.S.



INSTITUTO DE GEOFISICA, U.N.A.M.



HORA DEL MERIDIANO 105° W

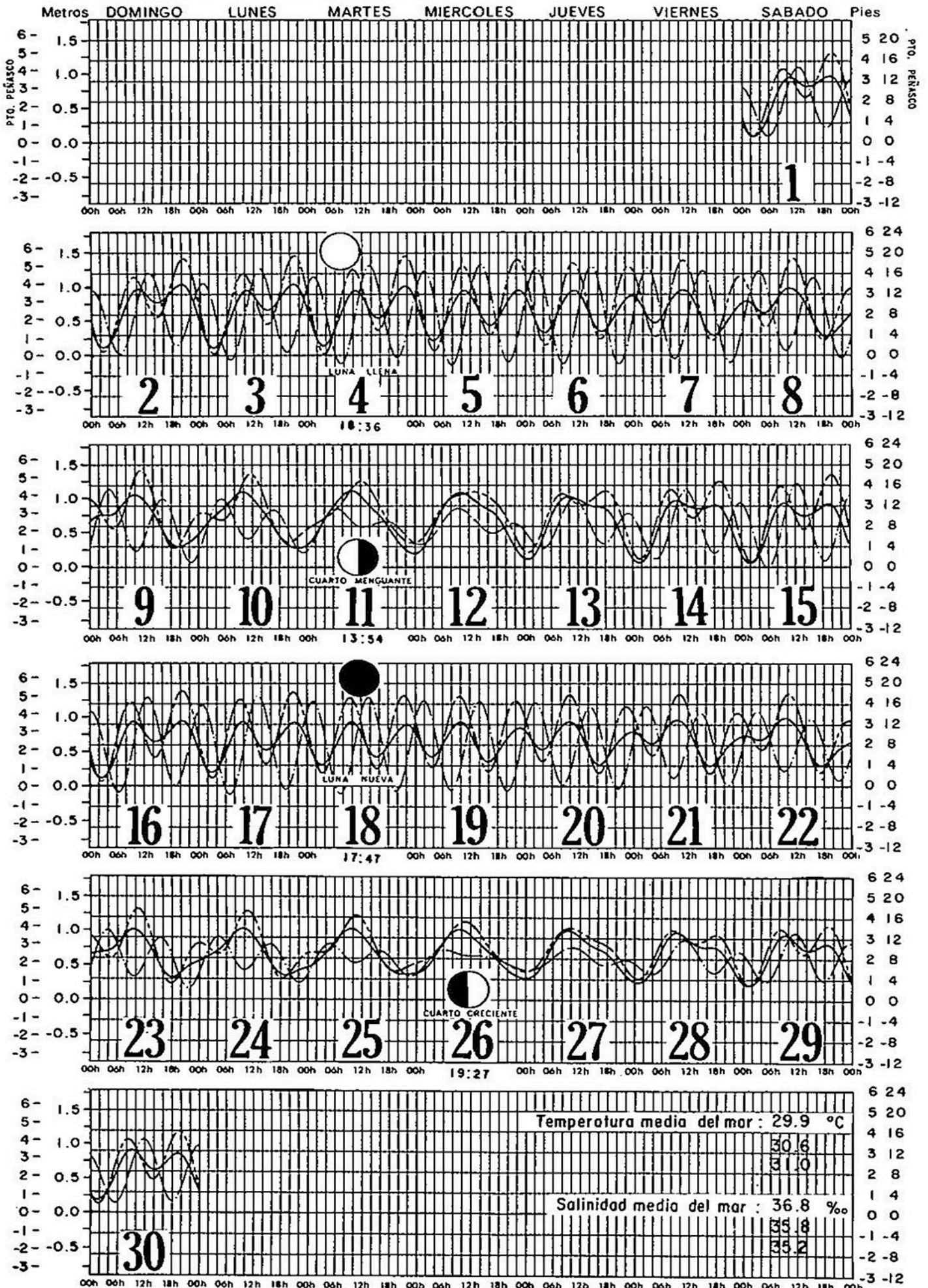
PLANO DE REFERENCIA N.B.M.I.



SEPTIEMBRE 1990

INSTITUTO DE GEOFISICA, U.N.A.M.

PTO. PEÑASCO, SON.
GUAYMAS, SON.
TOPOLOBAMPO, SIN.



HORA DEL MERIDIANO 105° W

PLANO DE REFERENCIA: N.B.M.I.



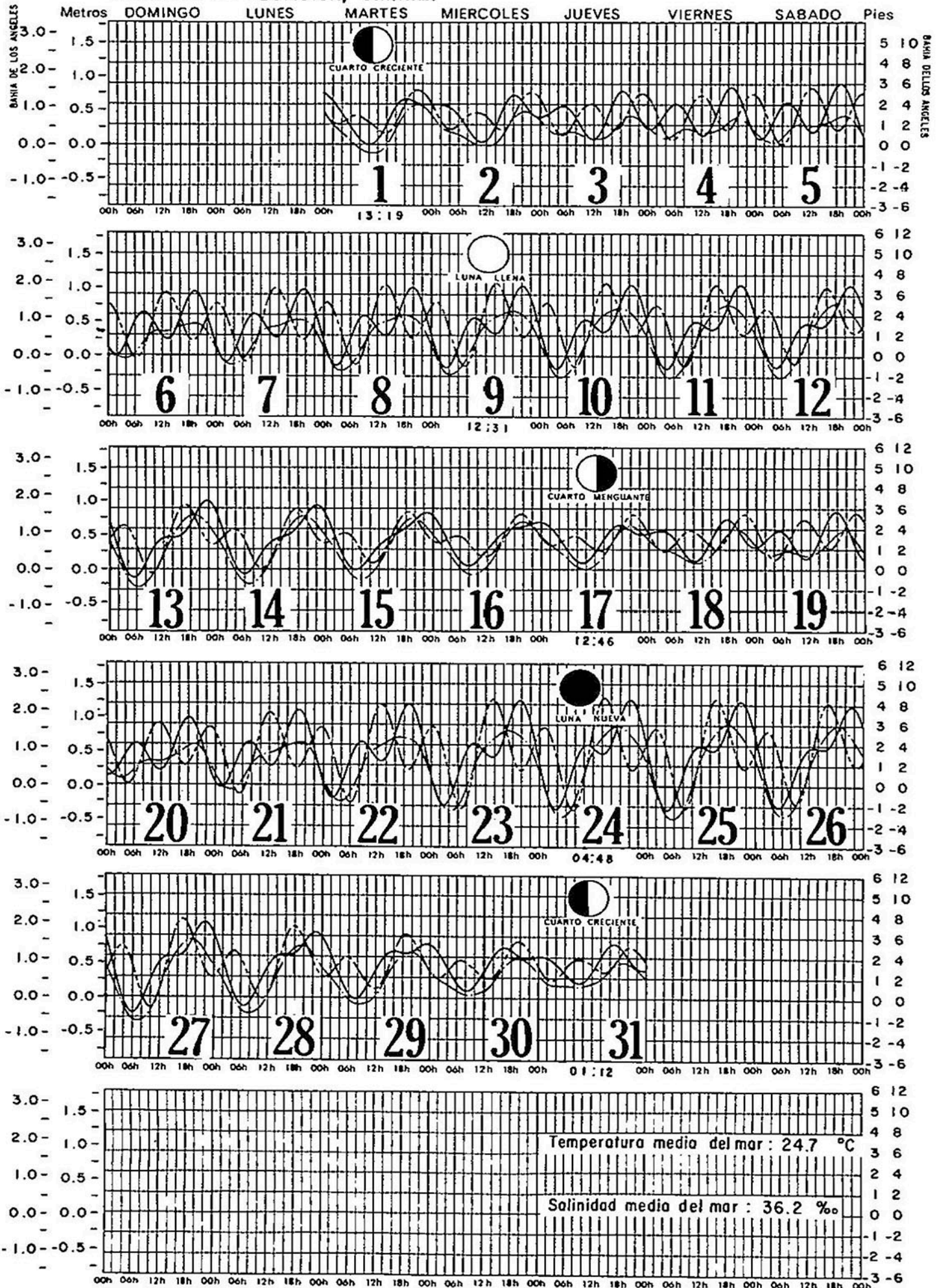
MAY 1990

B. DE LOS ANGELES, B.C.S.

STA. ROSALIA, B.C.S.

LA PAZ, B.C.S.

INSTITUTO DE GEOFISICA, U.N.A.M.



HORA DEL MERIDIANO 105° W

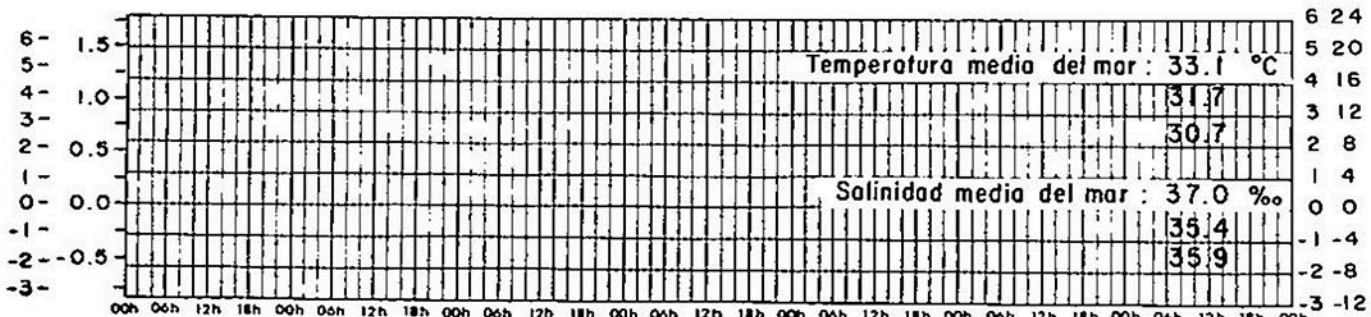
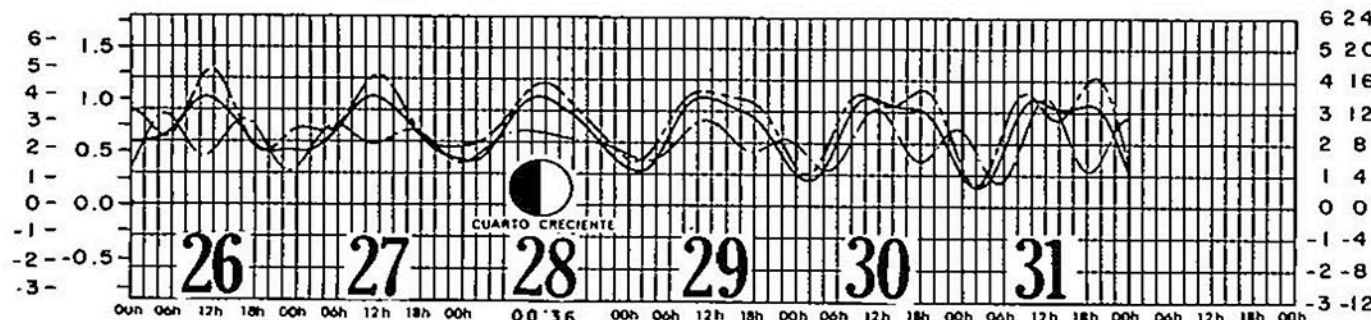
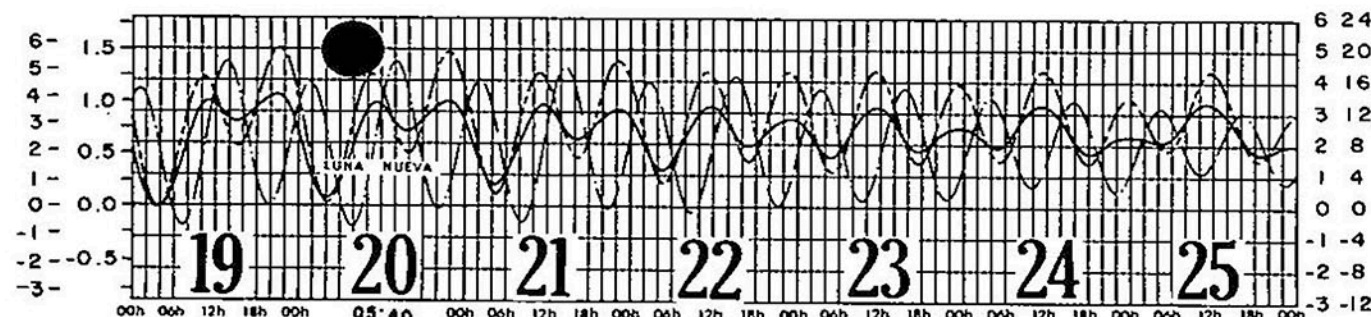
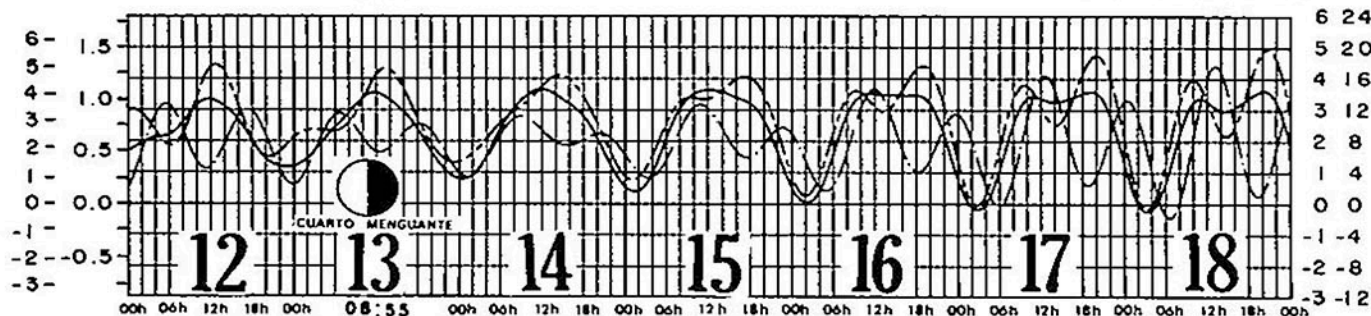
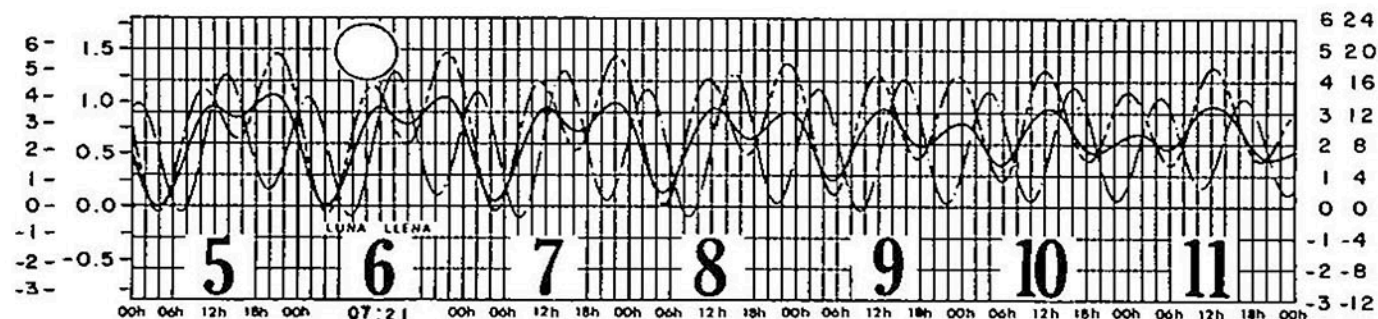
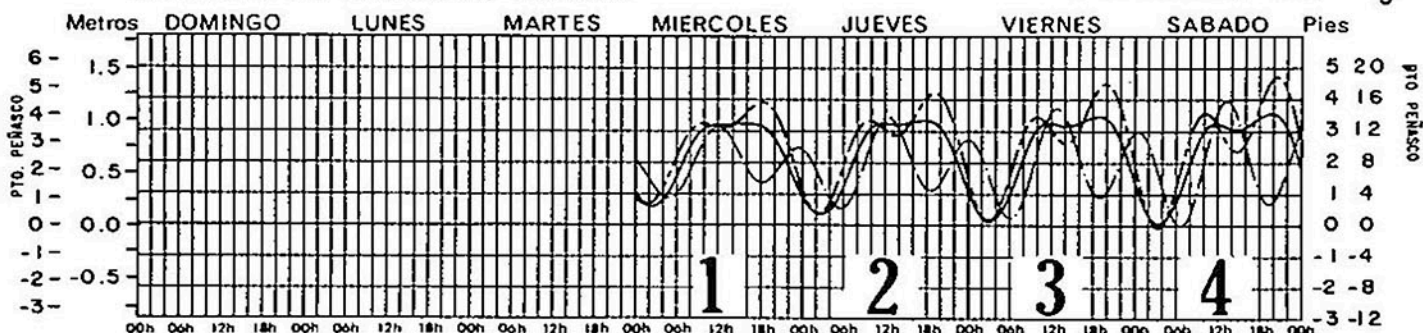
PLANO DE REFERENCIA N.B.M.I.



AGOSTO 1990

INSTITUTO DE GEOFISICA, U.N.A.M.

PTO. PEÑASCO, SON.
GUAYMAS, SON.
TOPOLOBAMPO, SIN.



HORA DEL MERIDIANO 105° W

PLANO DE REFERENCIA: N.B.M.I.



JUNIO 1990

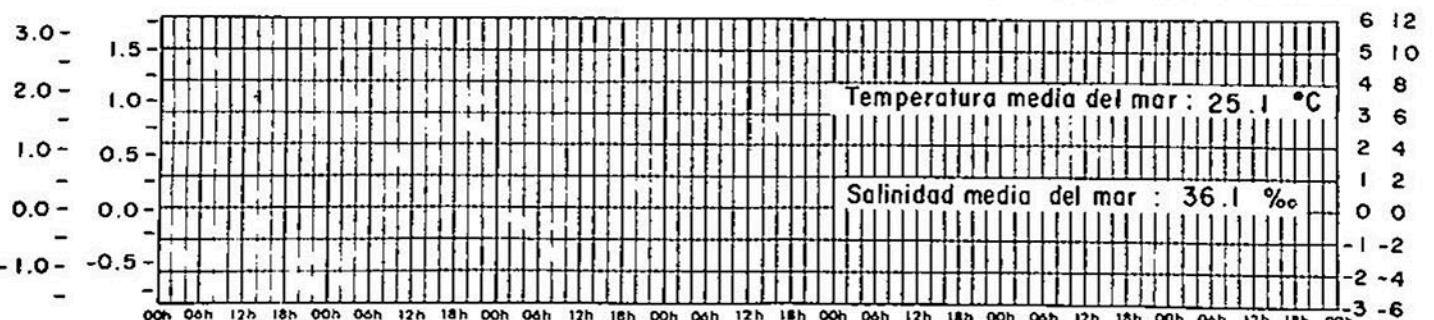
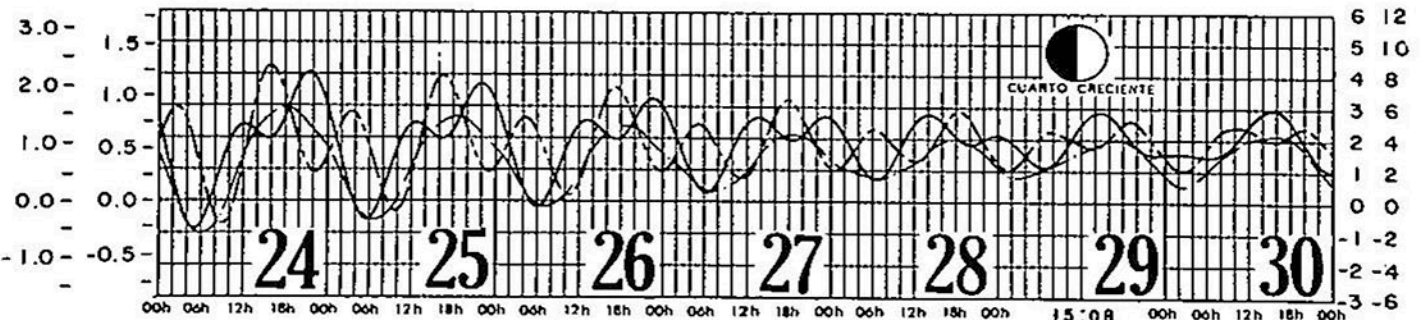
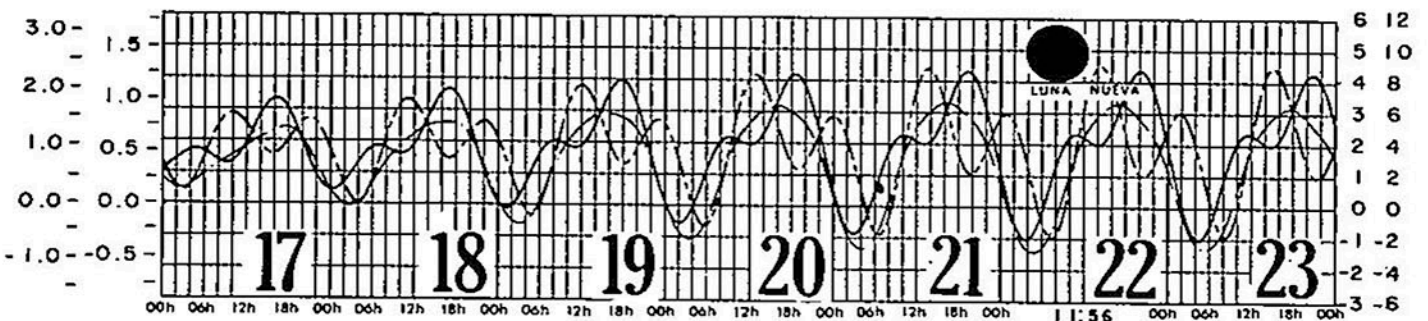
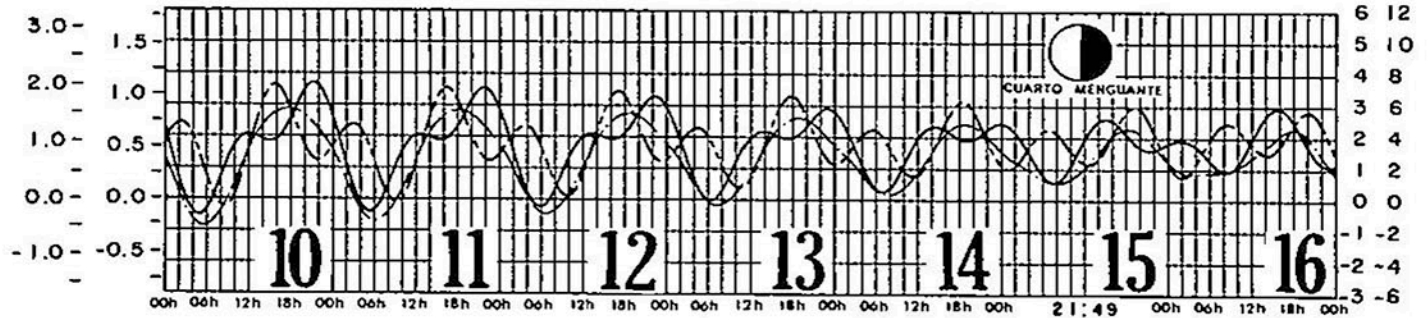
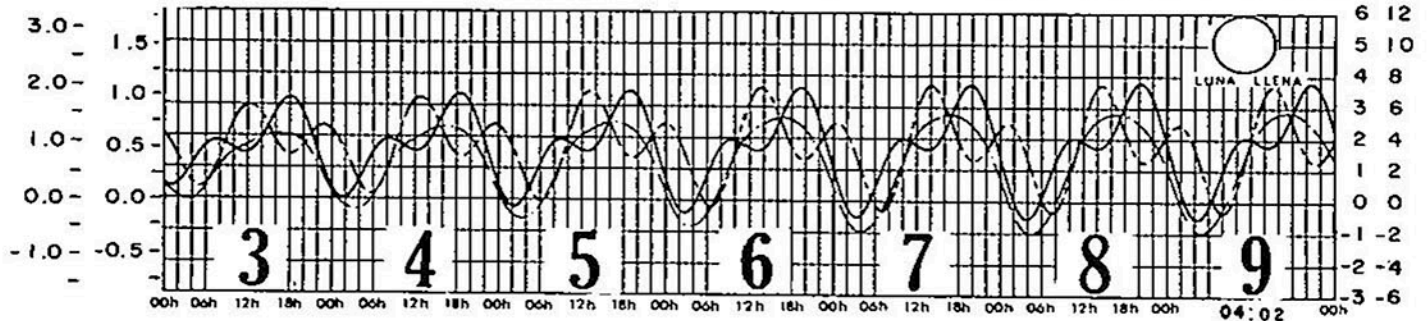
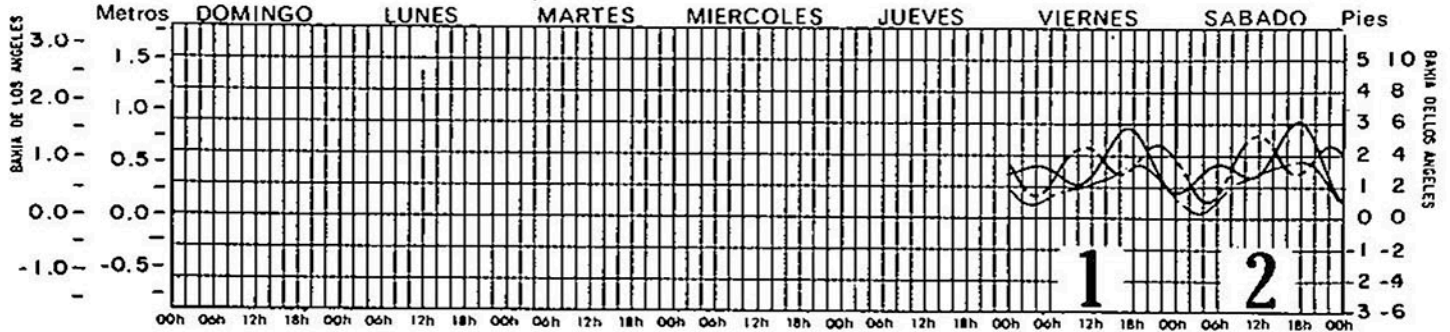
B. DE LOS ANGELES, B.C.S.

STA. ROSALIA, B.C.S.

LA PAZ, B.C.S.



INSTITUTO DE GEOFISICA, U.N.A.M.



HORA DEL MERIDIANO 105° W

PLANO DE REFERENCIA N.B.M.I.

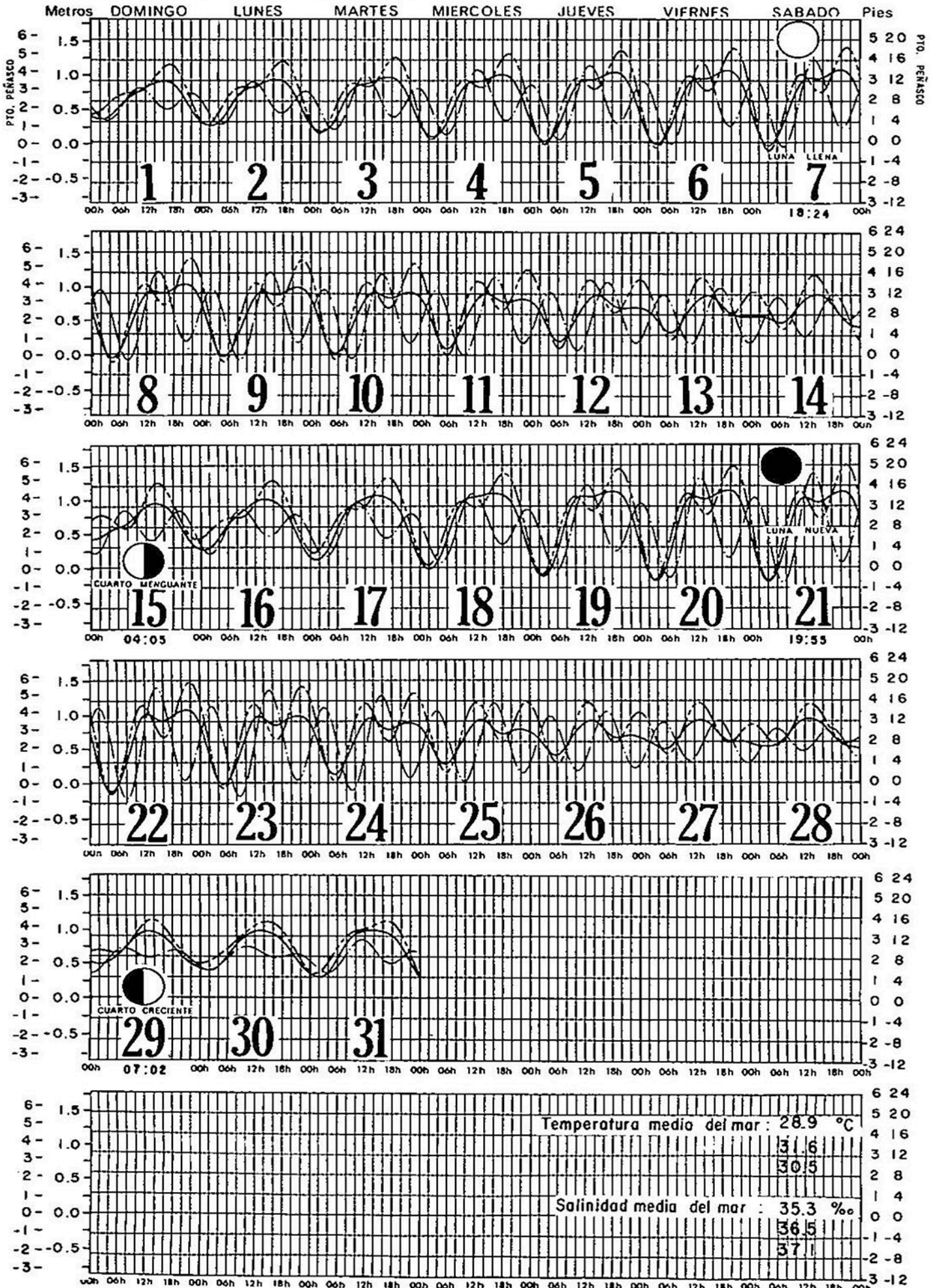


JULIO 1990

PTO. PEÑASCO, SON.
GUAYMAS, SON.
TOPOLOBAMPO, SIN.



INSTITUTO DE GEOFISICA, U.N.A.M.



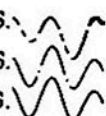


JULIO 1990

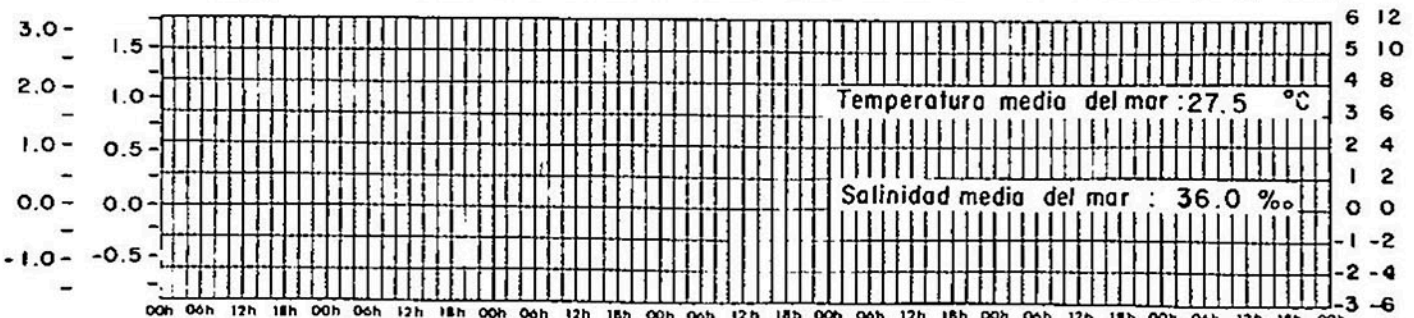
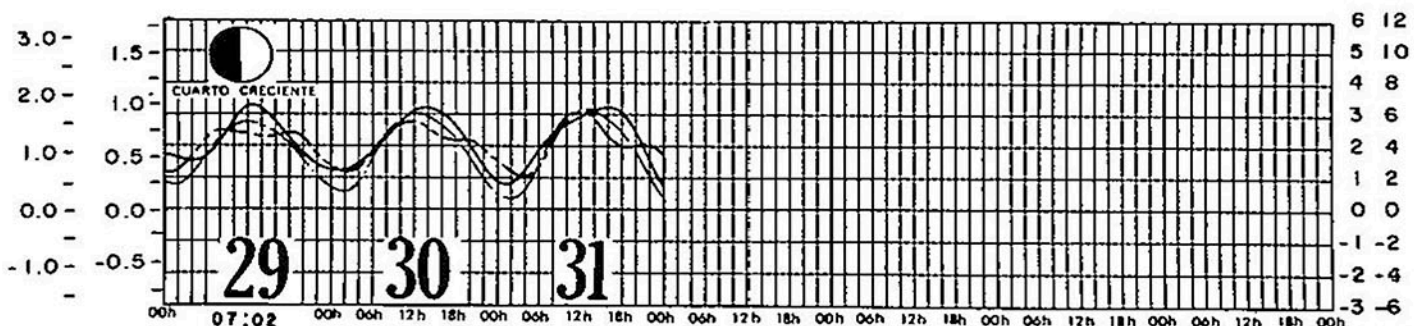
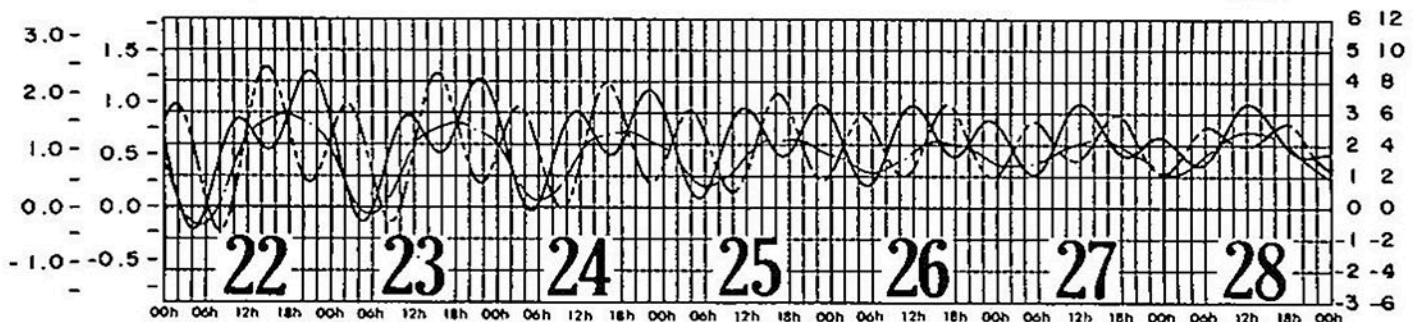
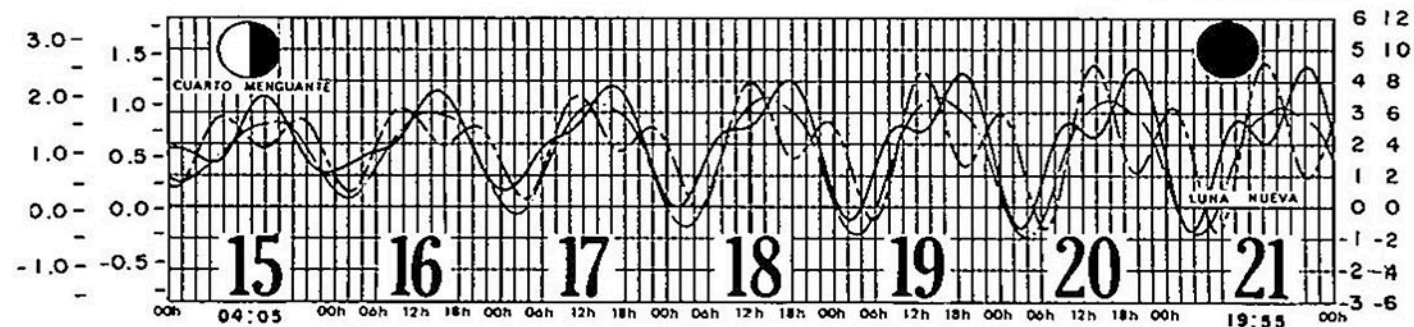
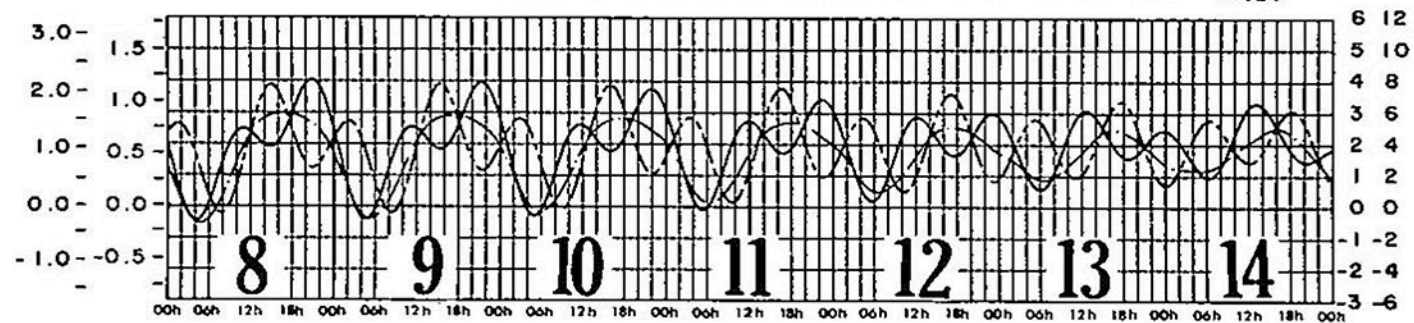
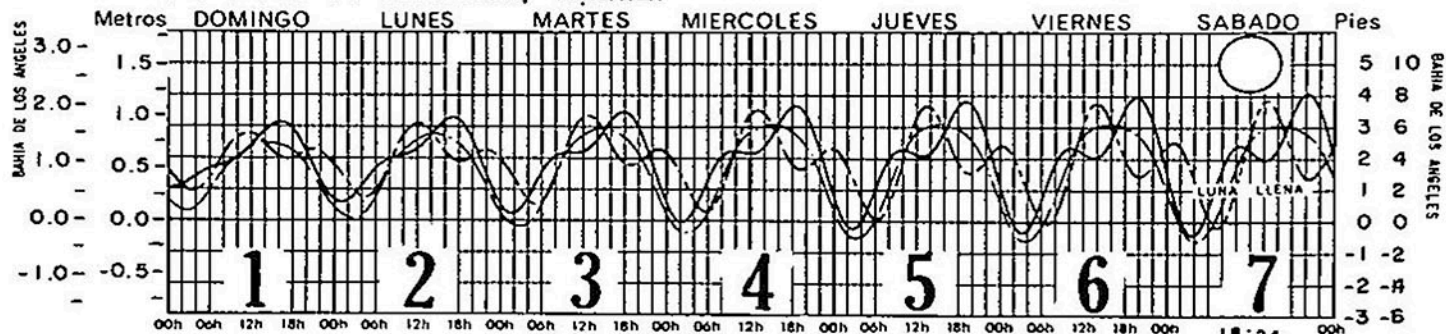
B. DE LOS ANGELES, B.C.S.

STA. ROSALIA, B.C.S.

LA PAZ, B.C.S.



INSTITUTO DE GEOFISICA, U.N.A.M.



HORA DEL MERIDIANO 105° W

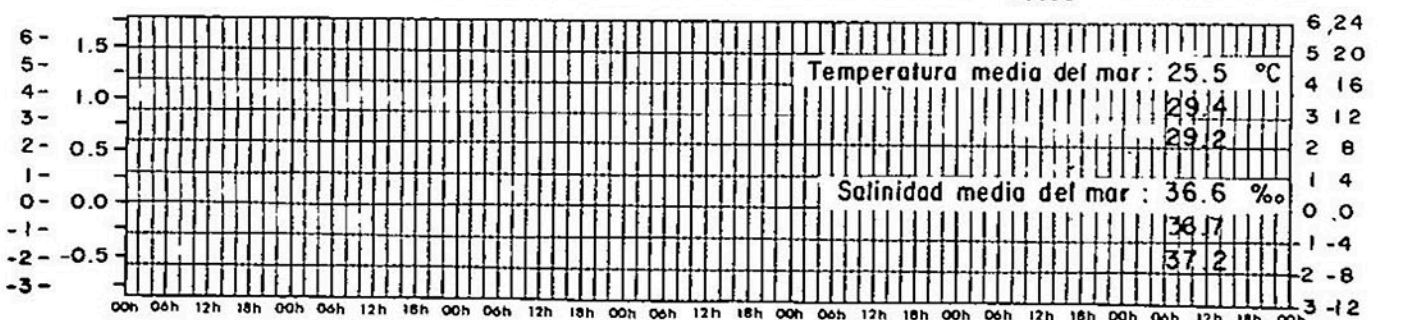
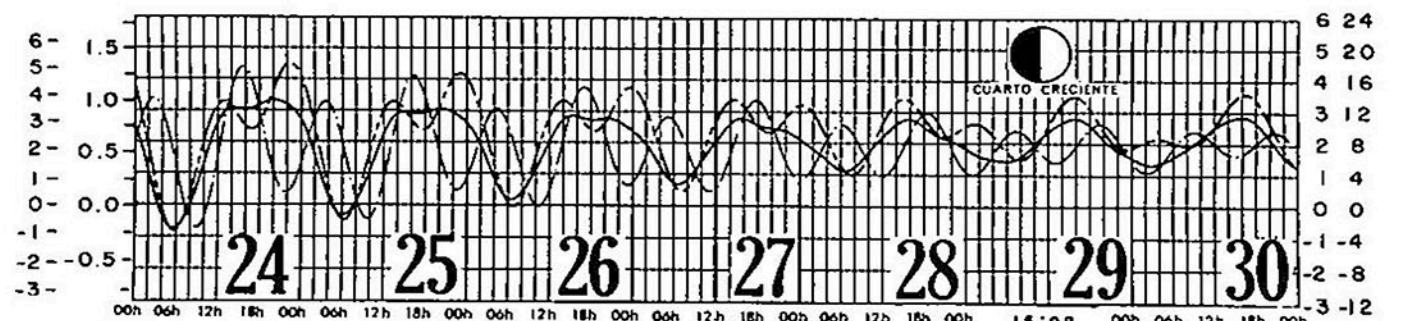
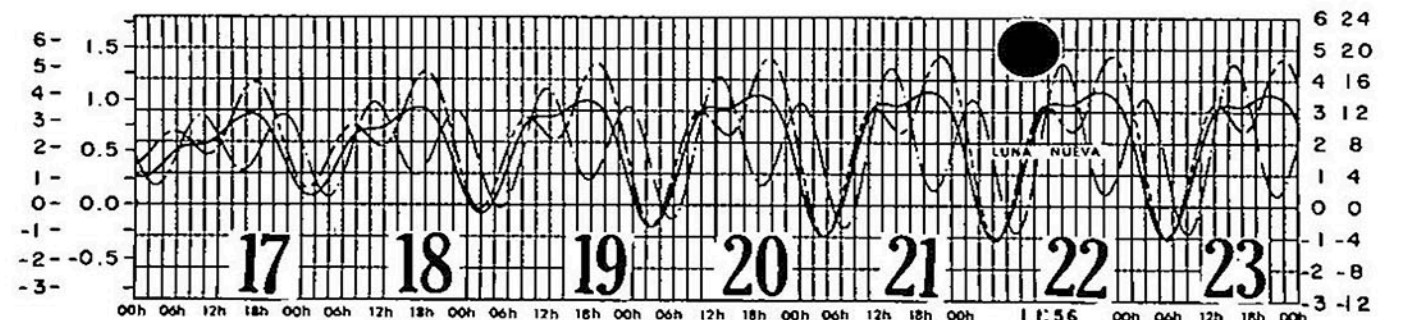
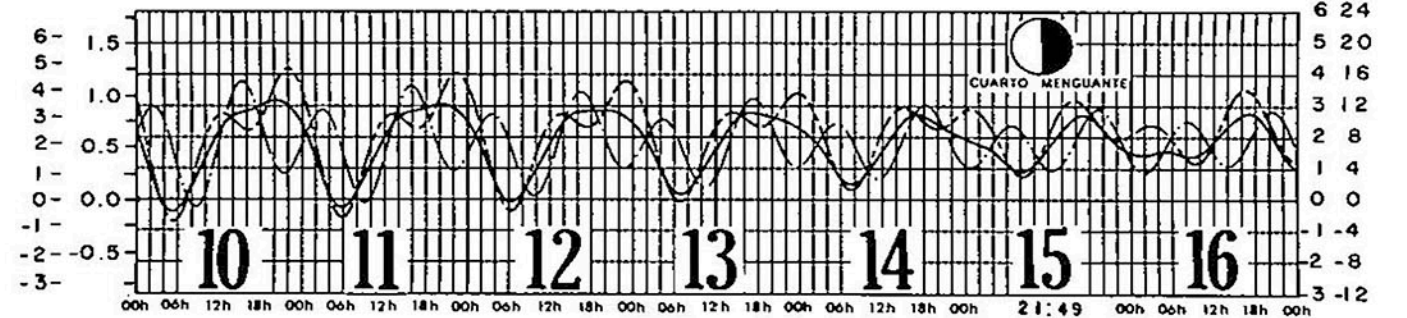
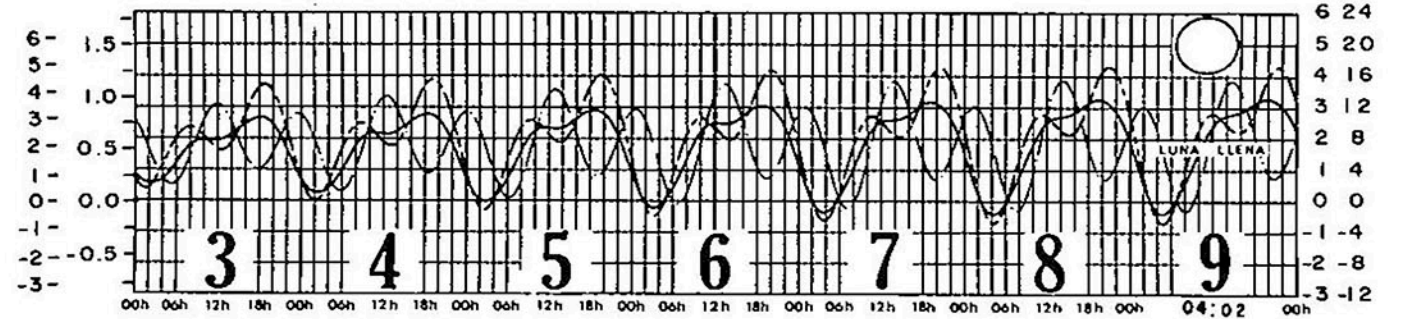
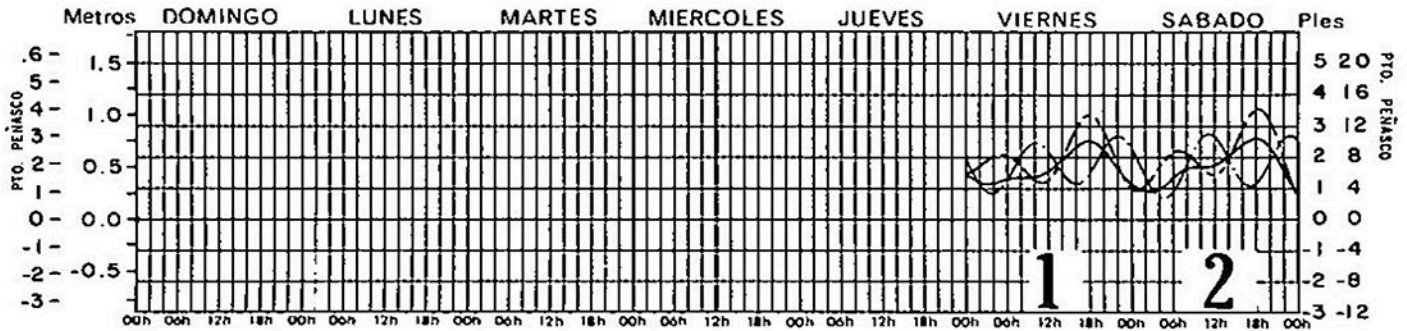
PLANO DE REFERENCIA N.B.M.I.



JUNIO 1990

INSTITUTO DE GEOFISICA, U.N.A.M.

PTO. PEÑASCO, SON.
GUAYMAS, SON.
TOPOLOBAMPO, SIN.



HORA DEL MERIDIANO 105° W

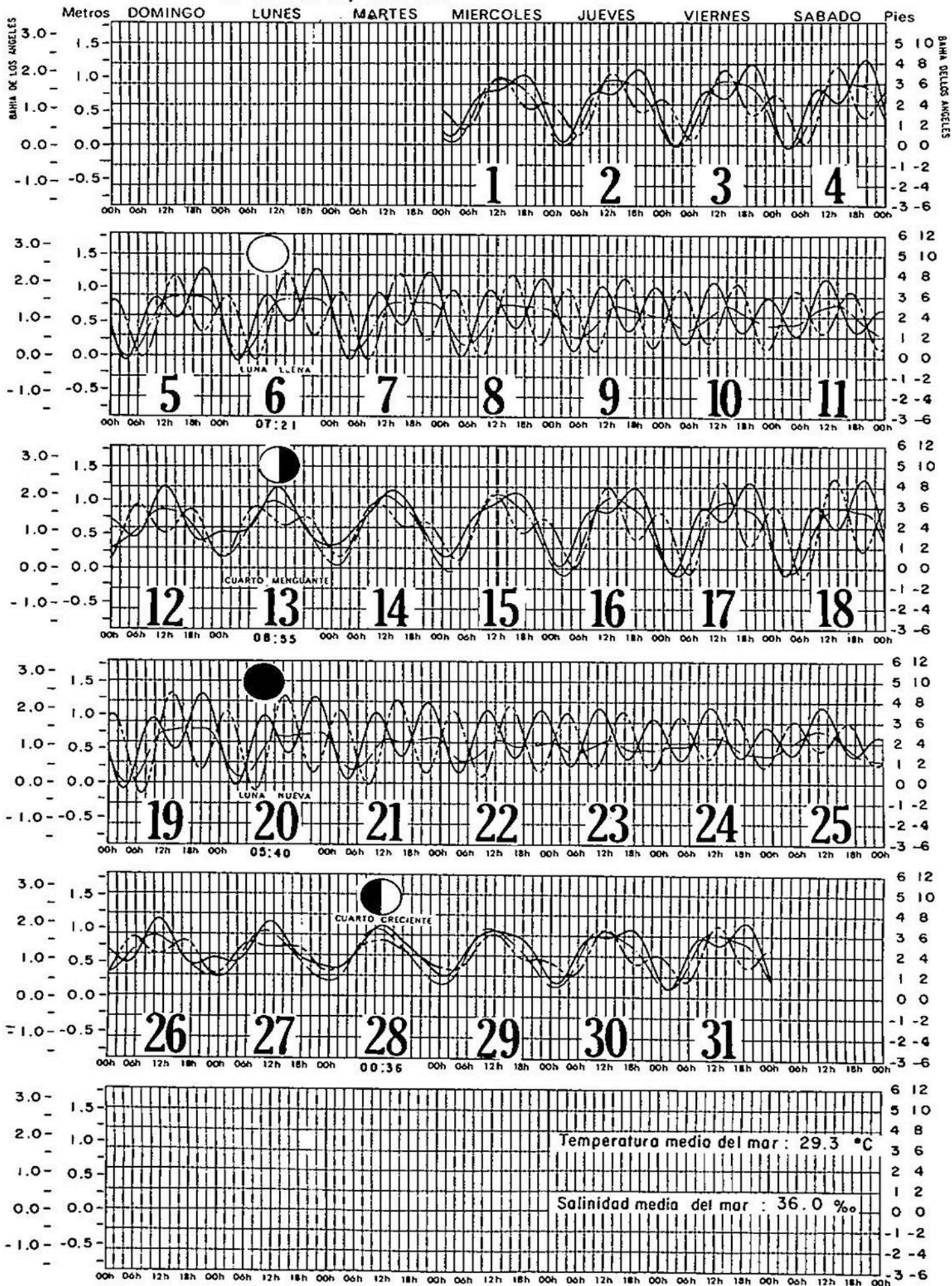
PLANO DE REFERENCIA: N.B.M.I.



AGOSTO 1990

B. DE LOS ANGELES, B.C.S.
STA. ROSALIA, B.C.S.
LA PAZ, B.C.S.

INSTITUTO DE GEOFISICA, U.N.A.M.



HORA DEL MERIDIANO 105° W

PLANO DE REFERENCIA N.B.M.I.

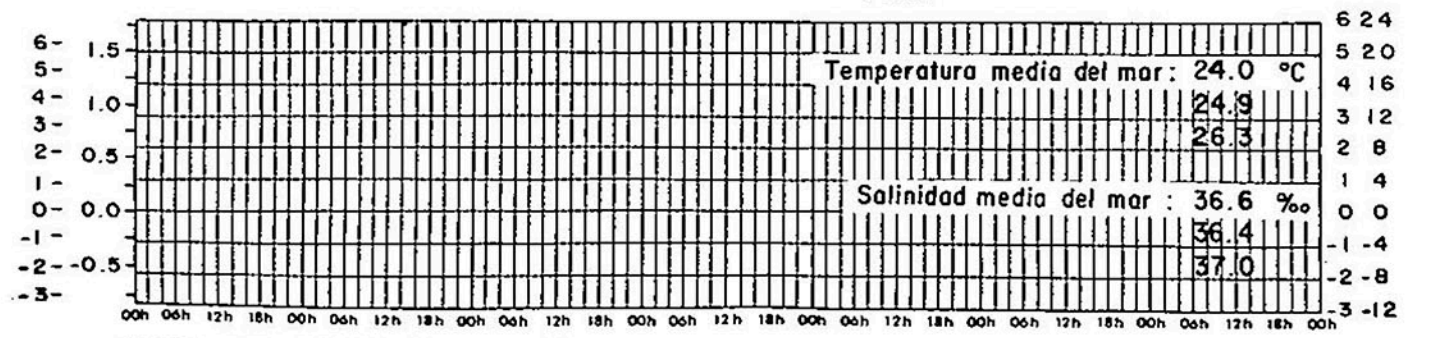
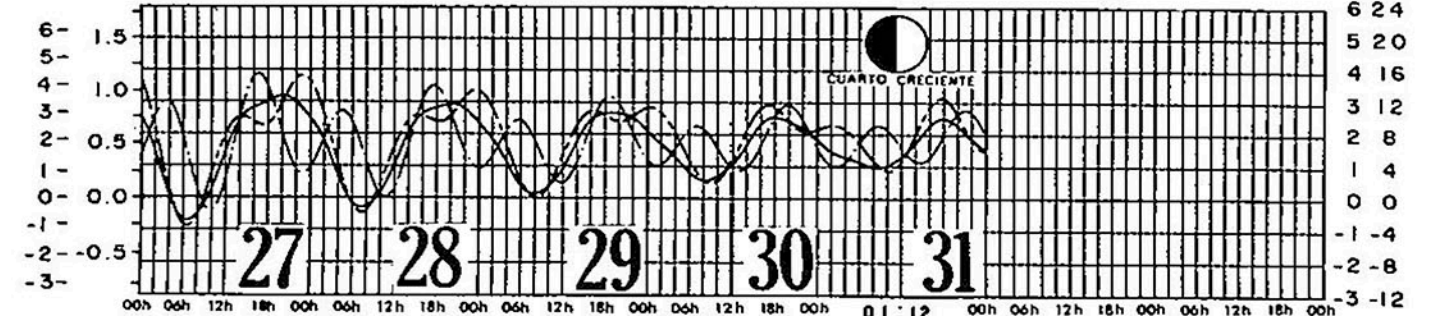
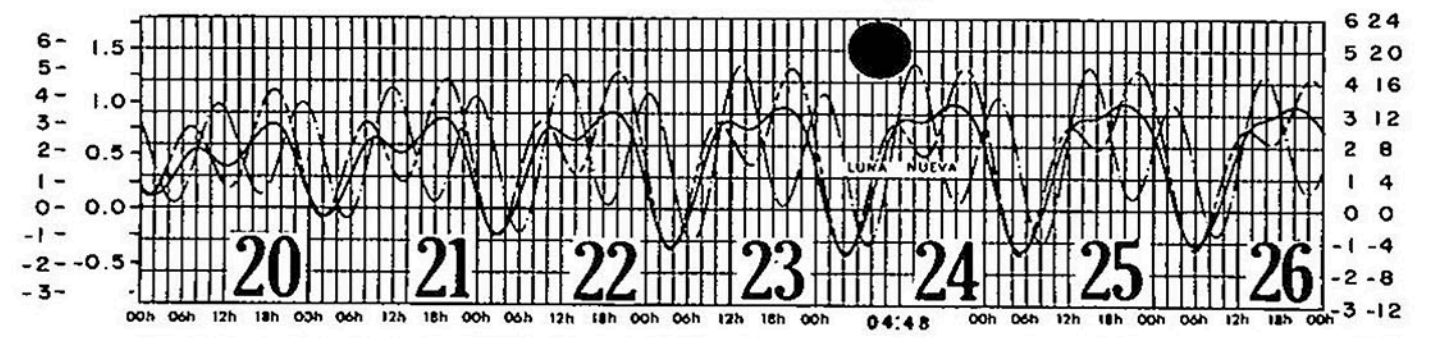
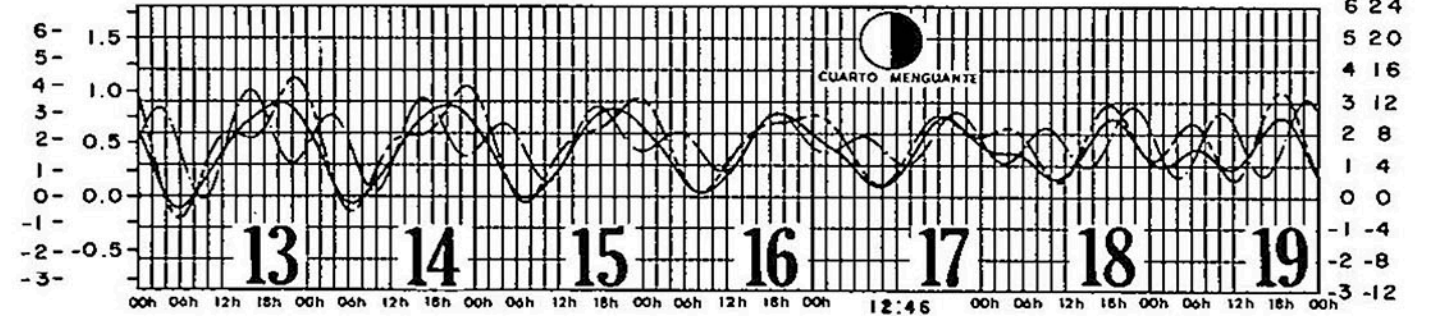
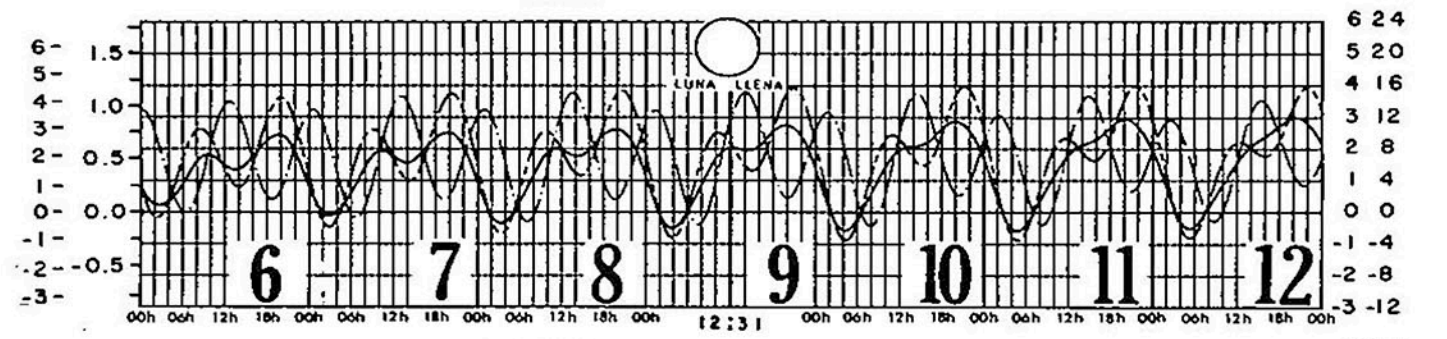
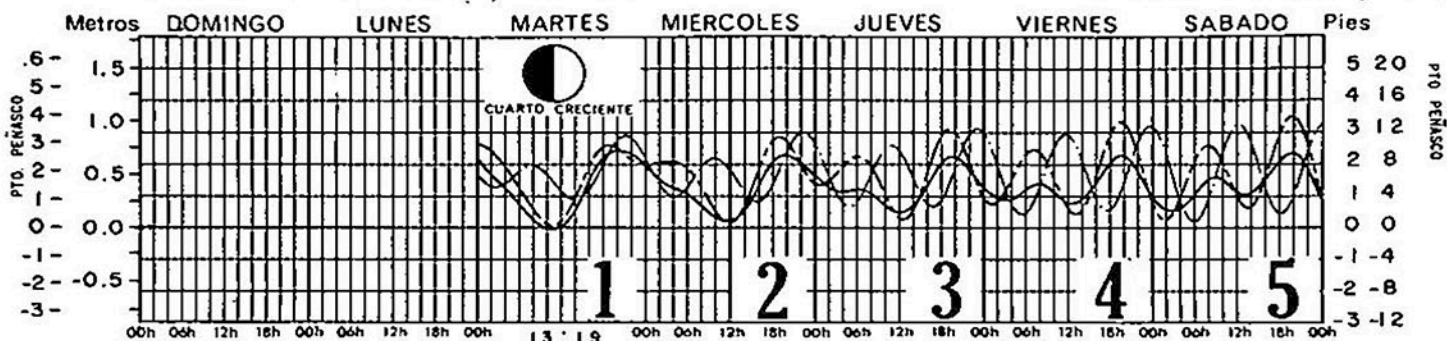


MAYO 1990

PTO. PEÑASCO, SON.
GUAYMAS, SON.
TOPOLOBAMPO, SIN.



INSTITUTO DE GEOFISICA, U.N.A.M.



HORA DEL MERIDIANO 105° W

PLANO DE REFERENCIA: N.B.M.I.



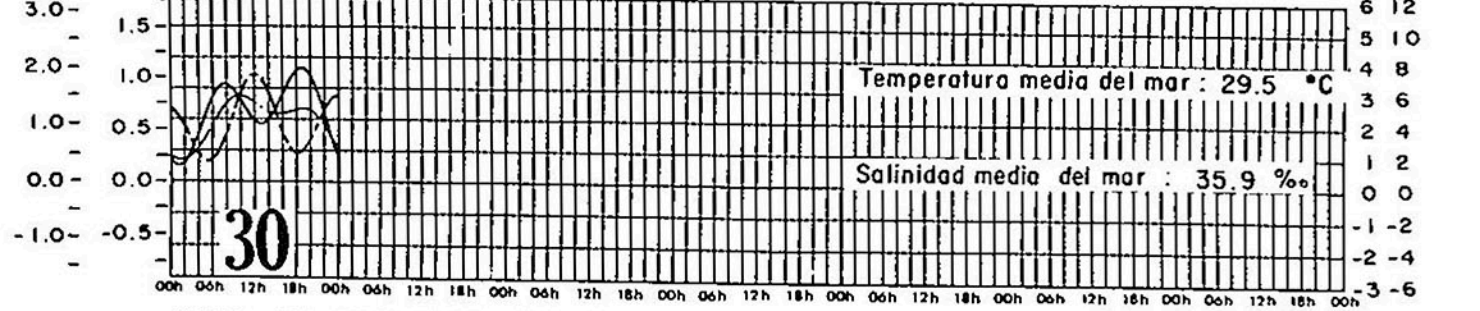
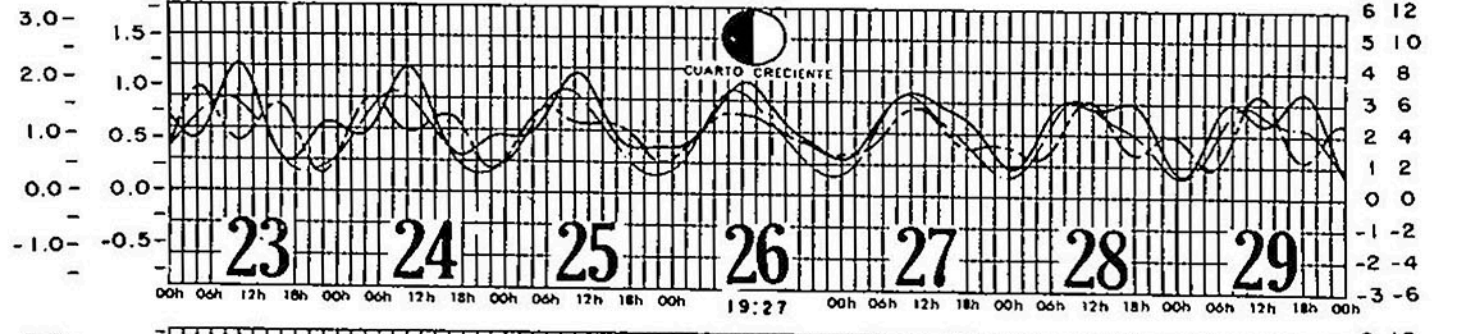
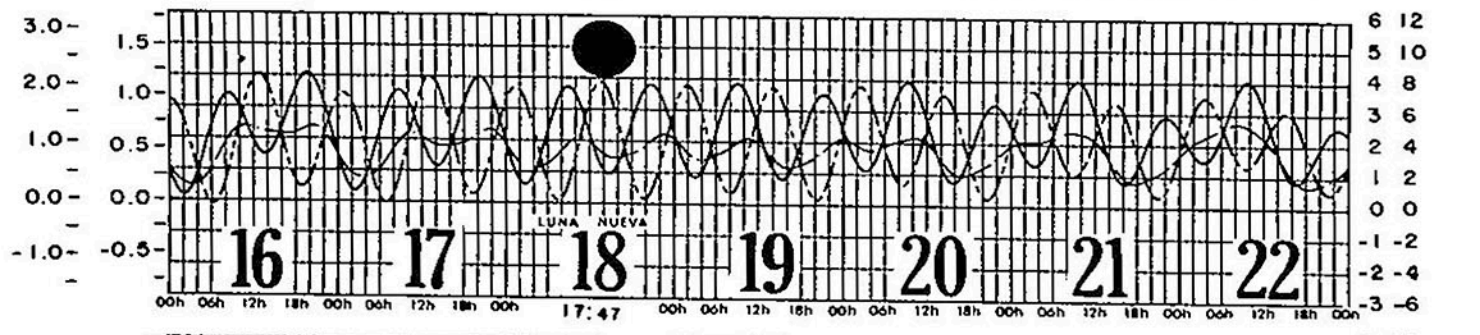
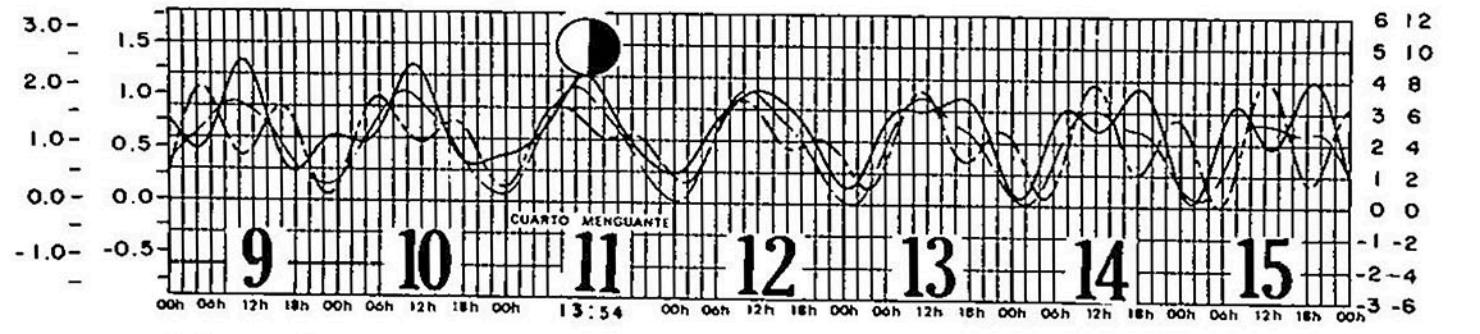
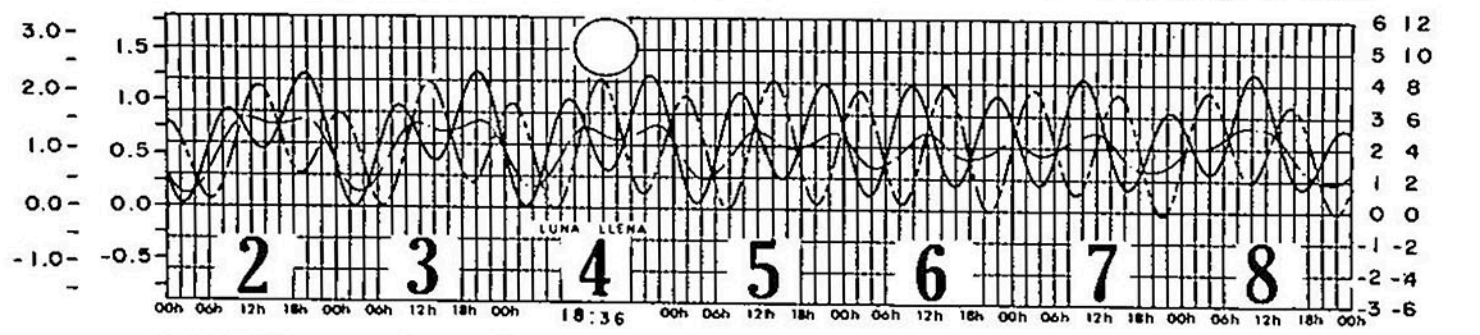
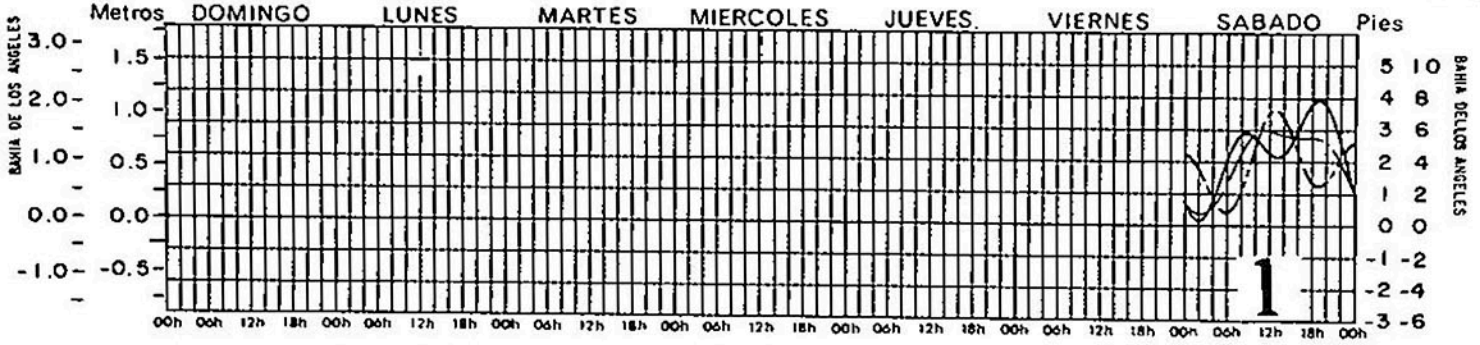
SEPTIEMBRE 1990

B. DE LOS ANGELES, B.C.S.

STA. ROSALIA, B.C.S.

LA PAZ, B.C.S.

INSTITUTO DE GEOFISICA, U.N.A.M.



HORA DEL MERIDIANO 105° W

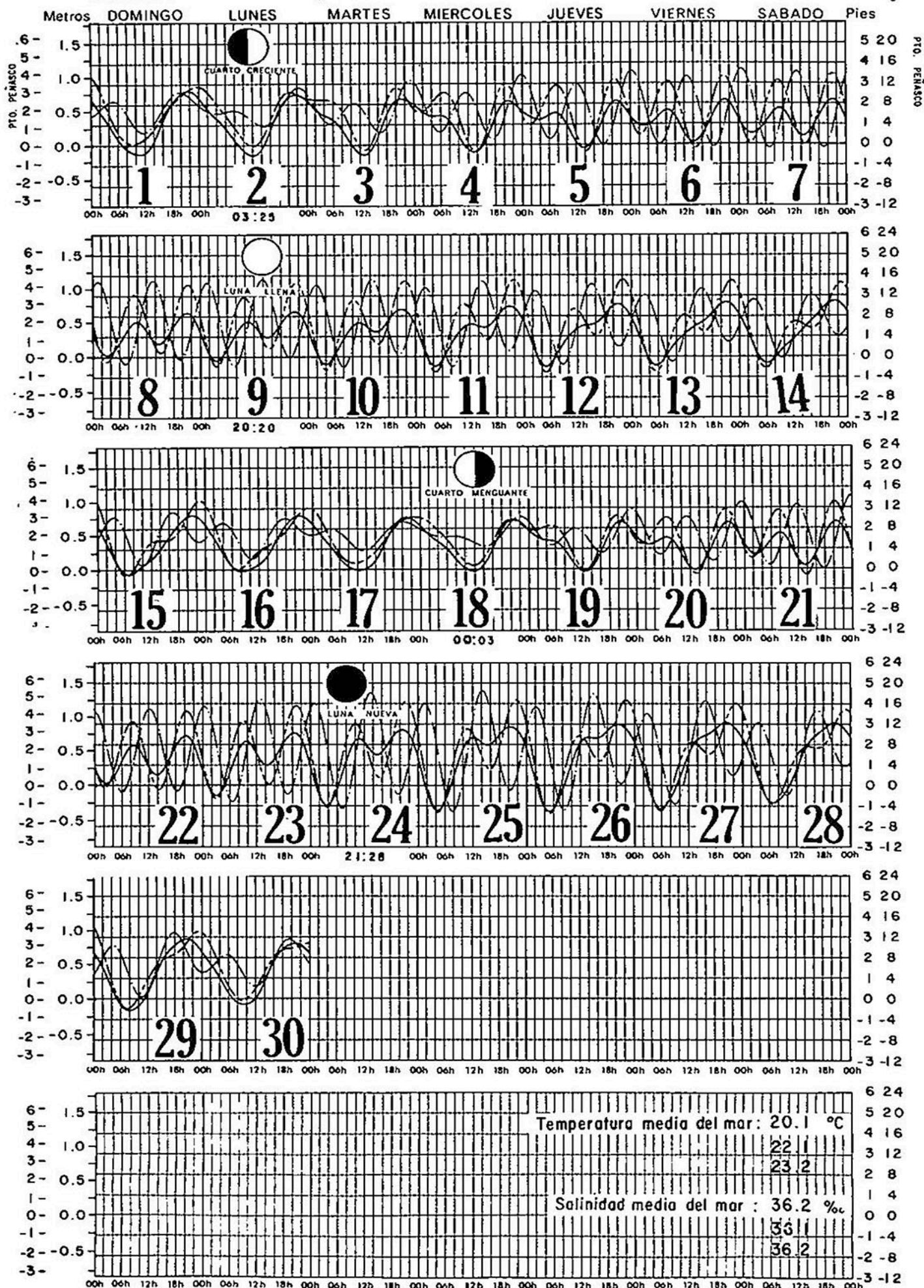
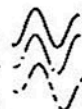
PLANO DE REFERENCIA N.B.M.I.



ABRIL 1990

INSTITUTO DE GEOFISICA, U.N.A.M.

PTO. PEÑASCO, SON.
GUAYMAS, SON.
TOPOLOBAMPO, SIN.





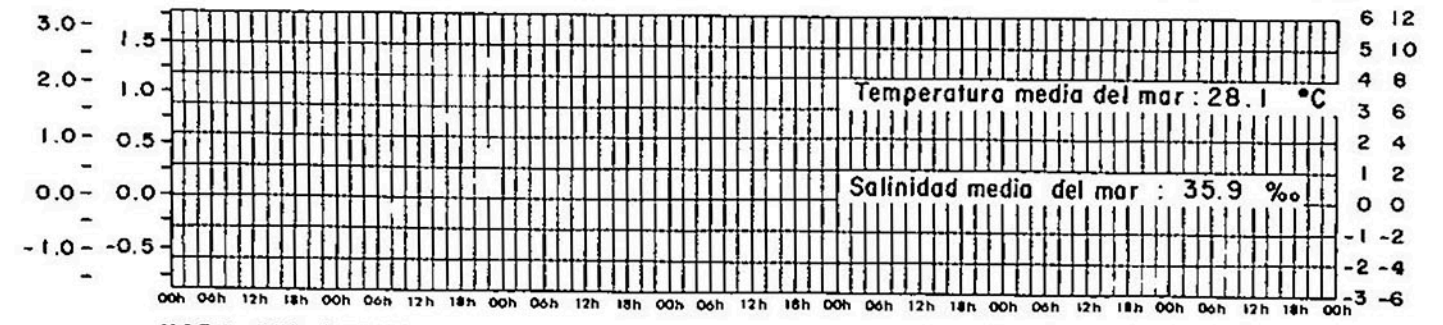
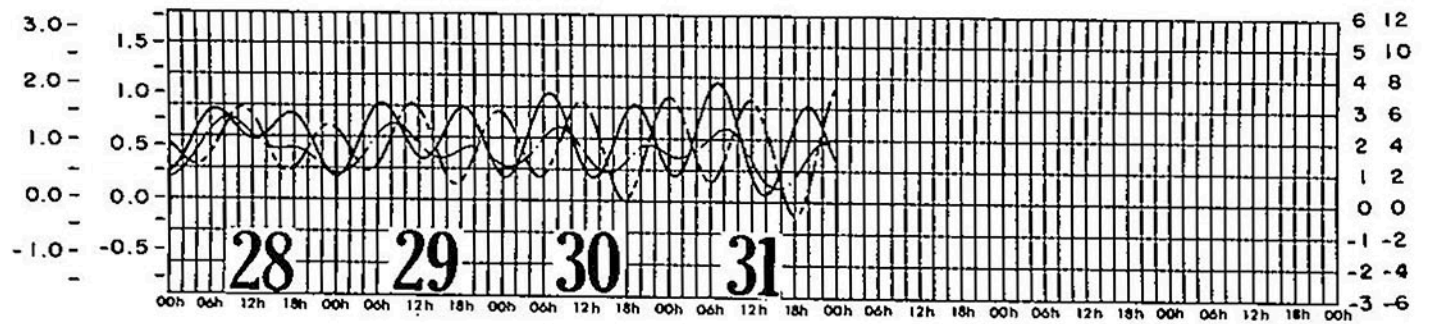
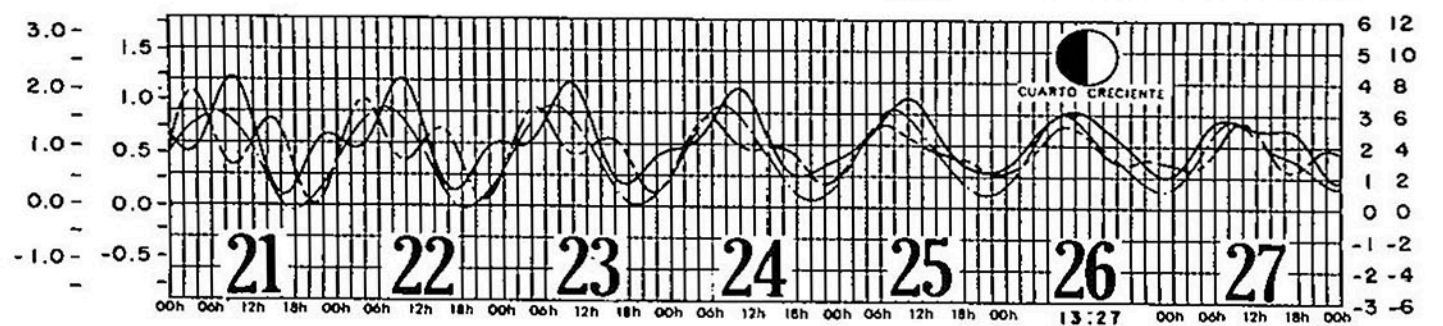
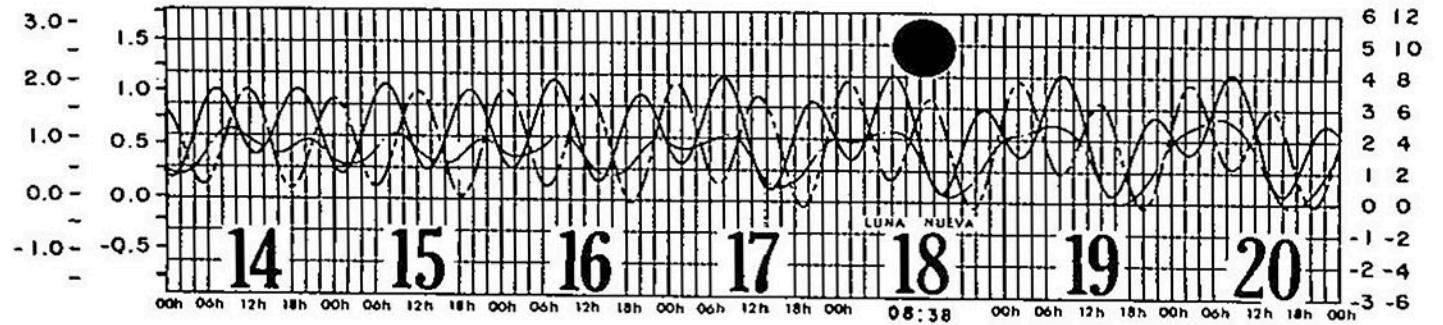
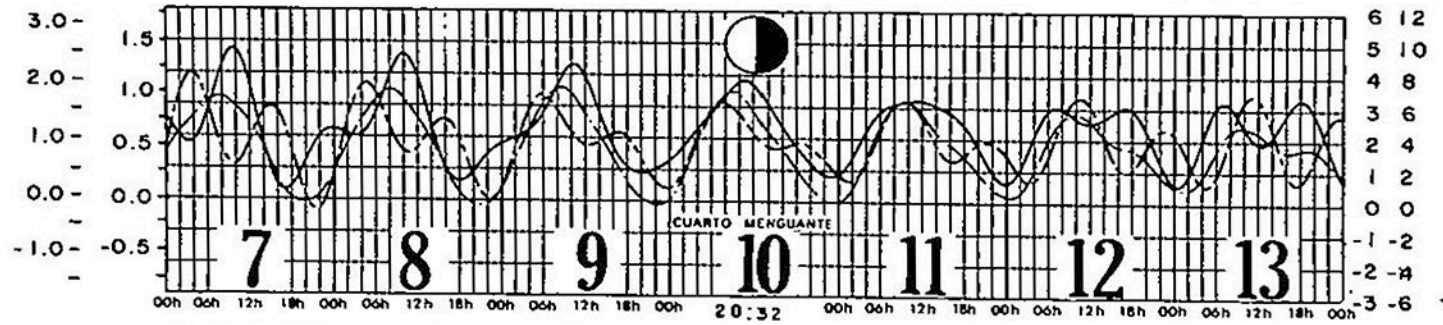
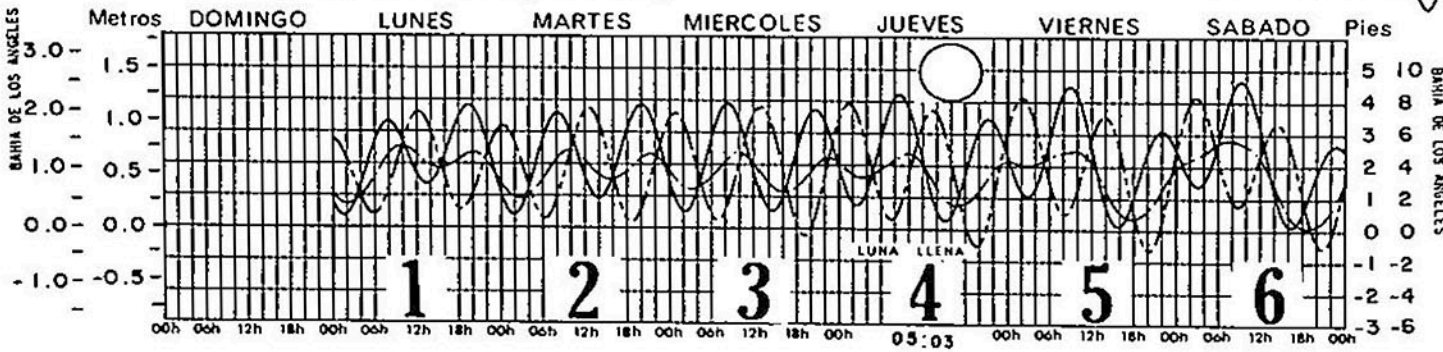
OCTUBRE 1990

INSTITUTO DE GEOFISICA, U.N.A.M.

B. DE LOS ANGELES, B.C.S.

STA. ROSALIA, B.C.S.

LA PAZ, B.C.S.



HORA DEL MERIDIANO 105° W

PLANO DE REFERENCIA N.B.M.I.

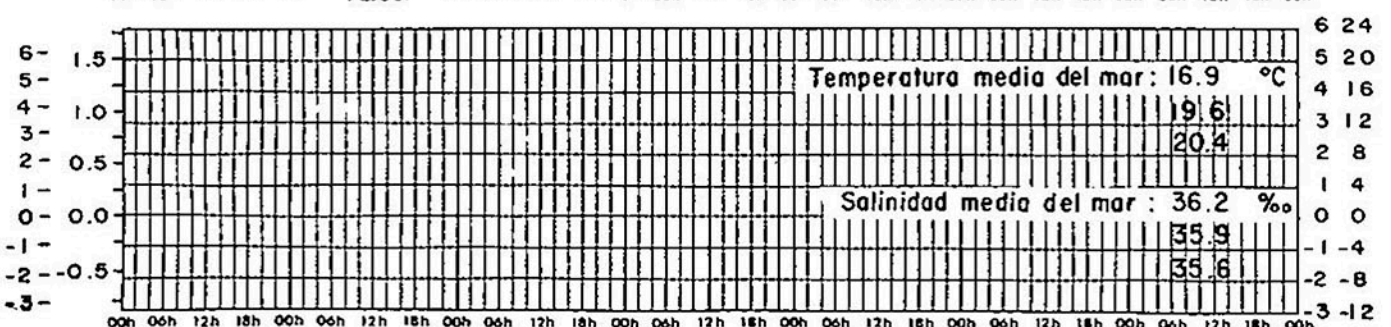
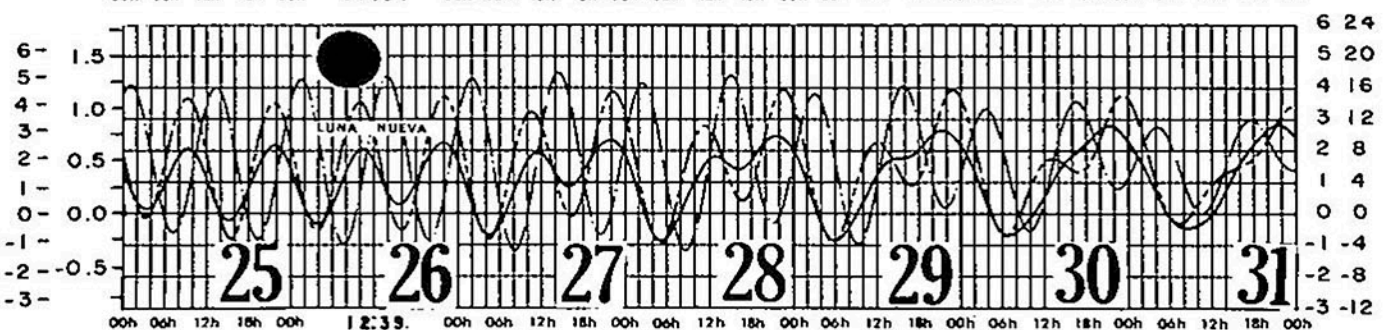
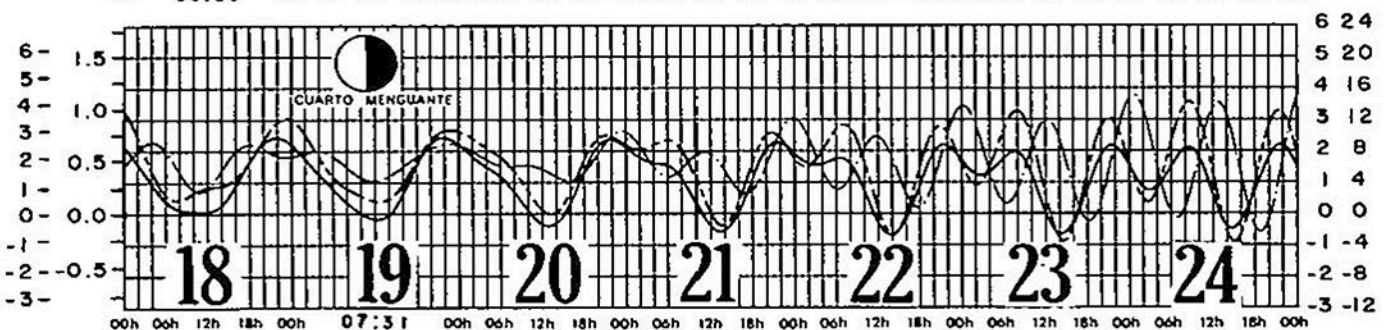
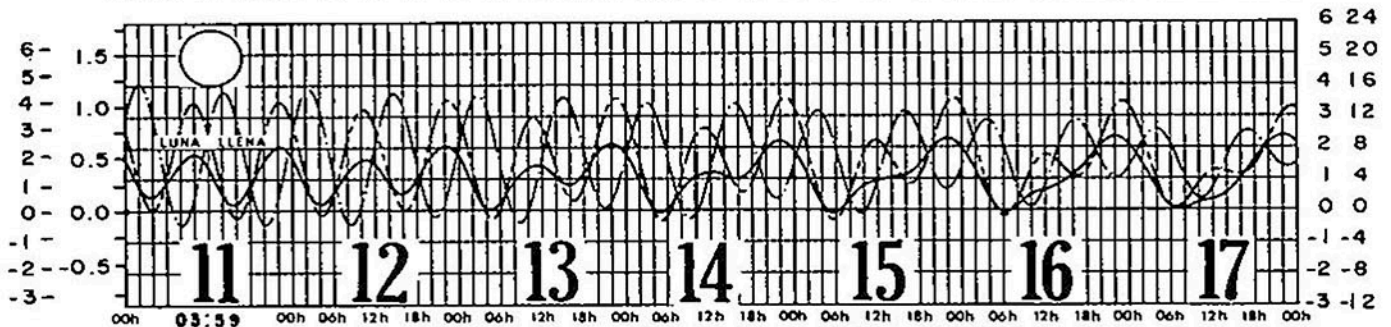
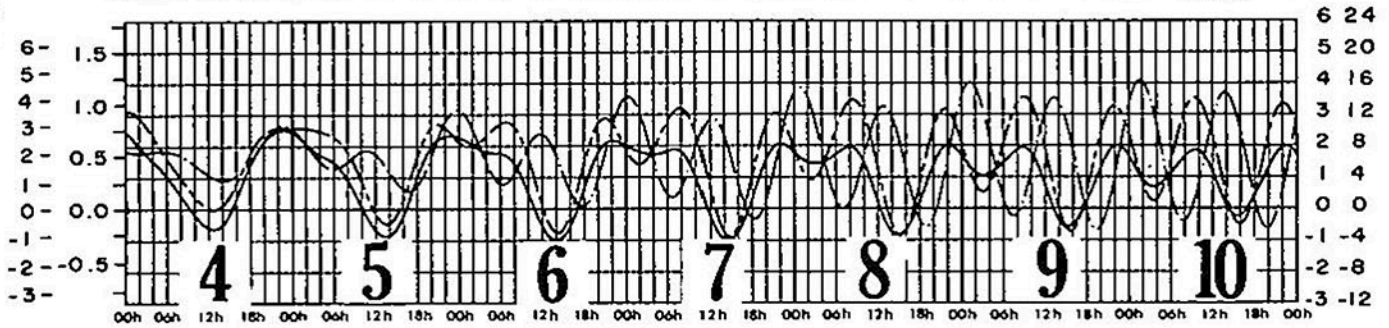
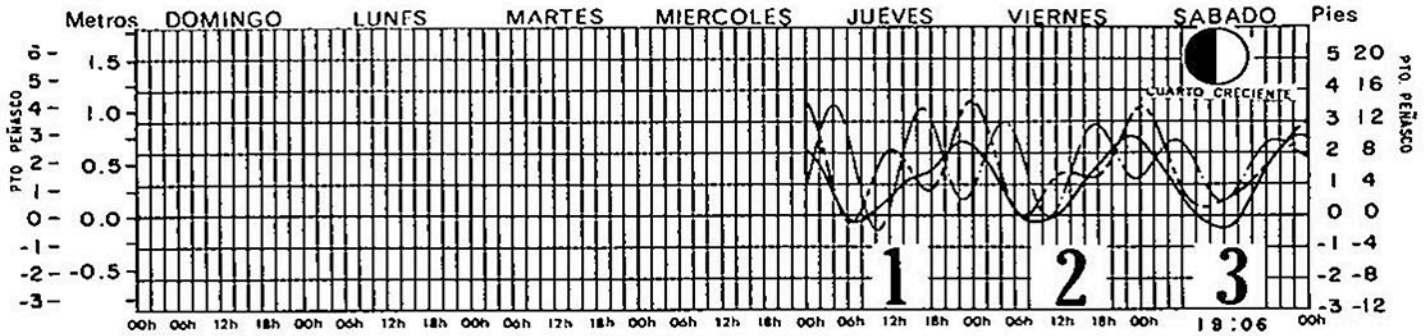


MARZO 1990

PTO. PEÑASCO, SON.
GUAYMAS, SON.
TOPOLOBAMPO, SIN.



INSTITUTO DE GEOFISICA, U.N.A.M.



HORA DEL MERIDIANO 105° W

PLANO DE REFERENCIA: N.B.M.I.

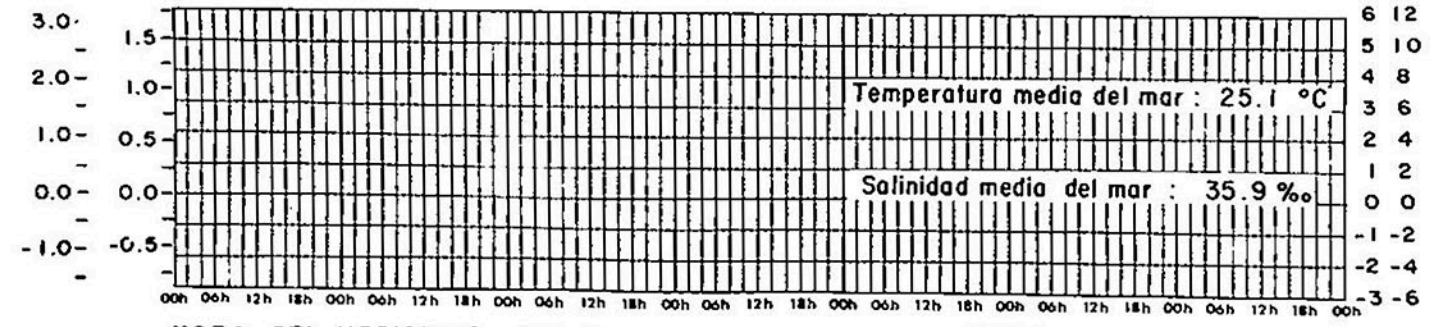
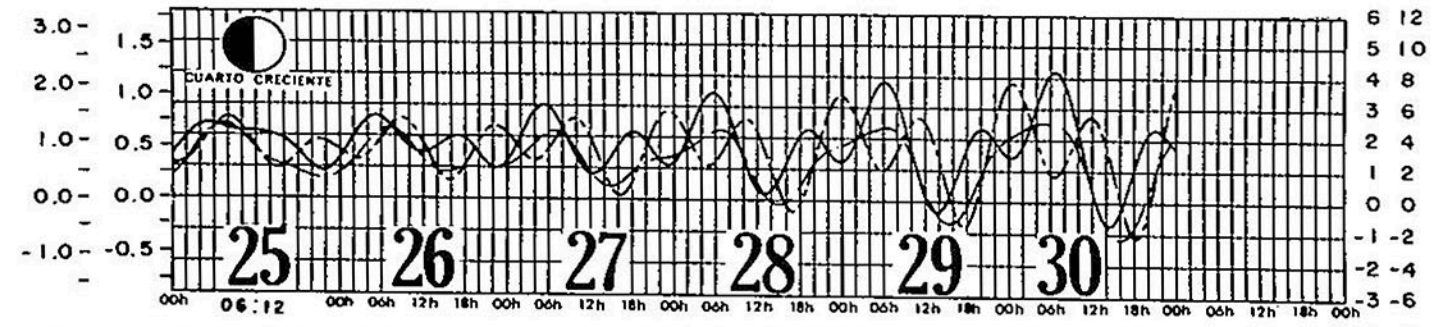
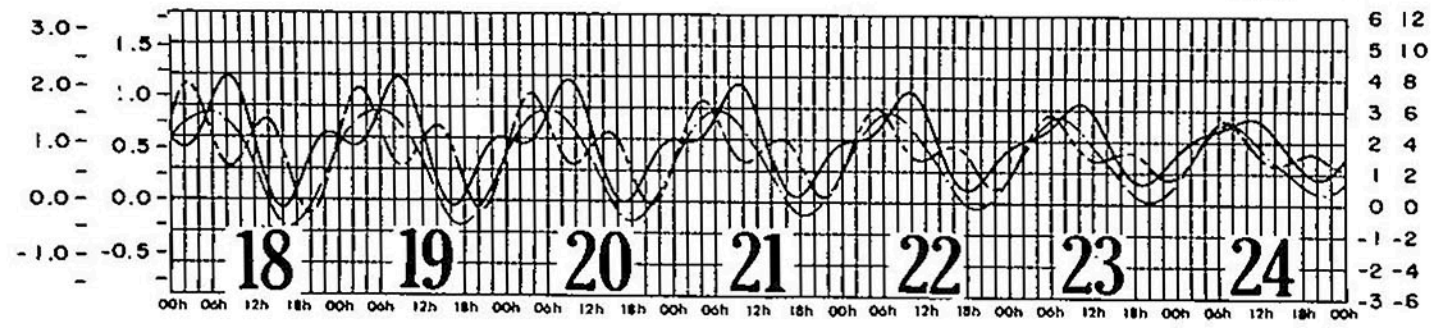
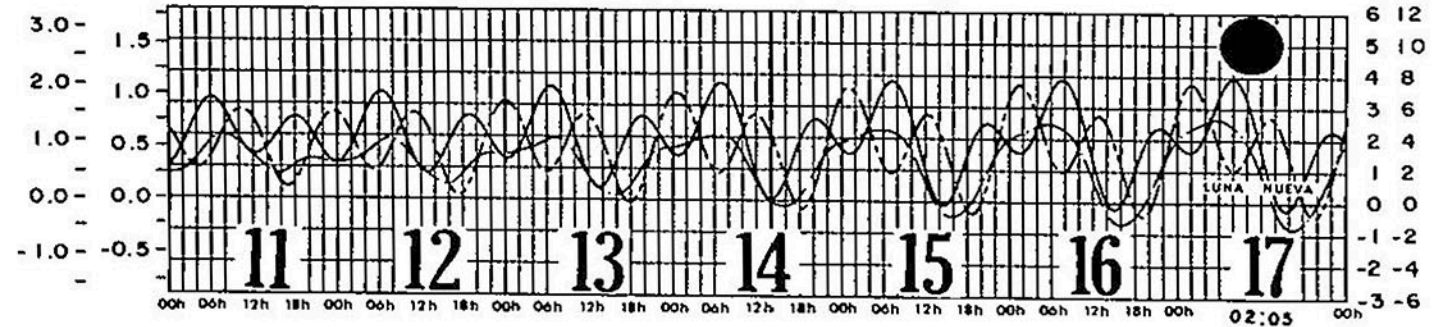
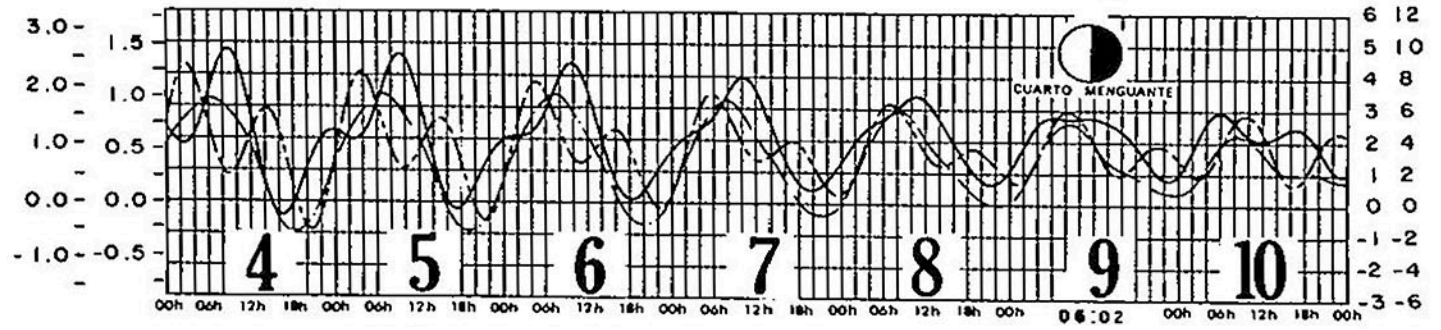
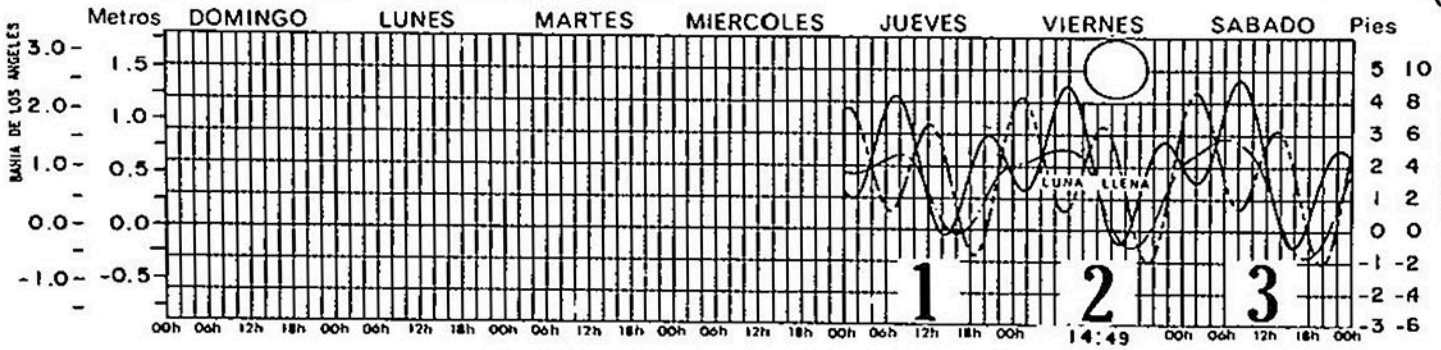


NOVIEMBRE 1990

B. DE LOS ANGELES, B.C.S.
STA. ROSALIA, B.C.S.
LA PAZ, B.C.S.



INSTITUTO DE GEOFISICA, U.N.A.M.



HORA DEL MERIDIANO 105° W

PLANO DE REFERENCIA N.B.M.I.

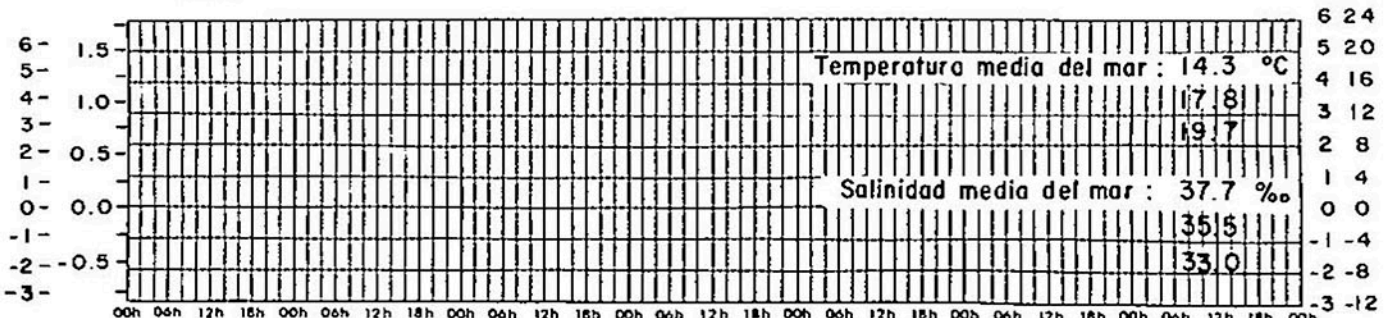
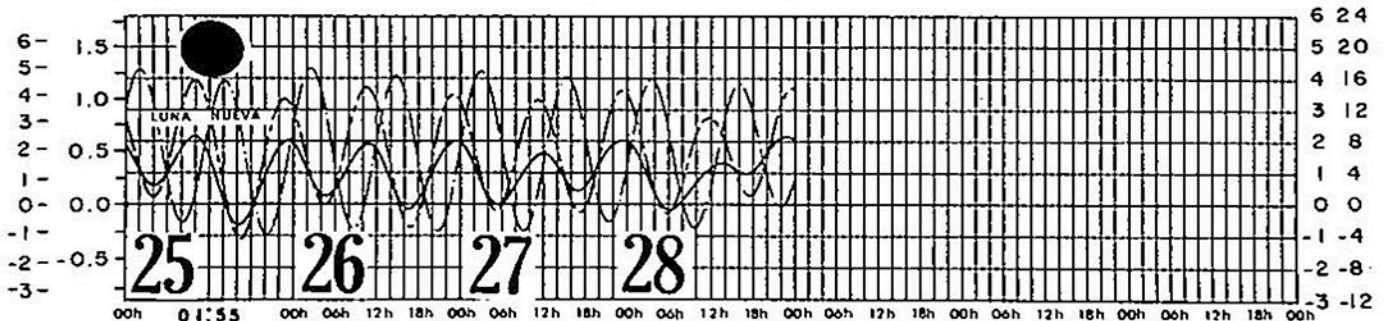
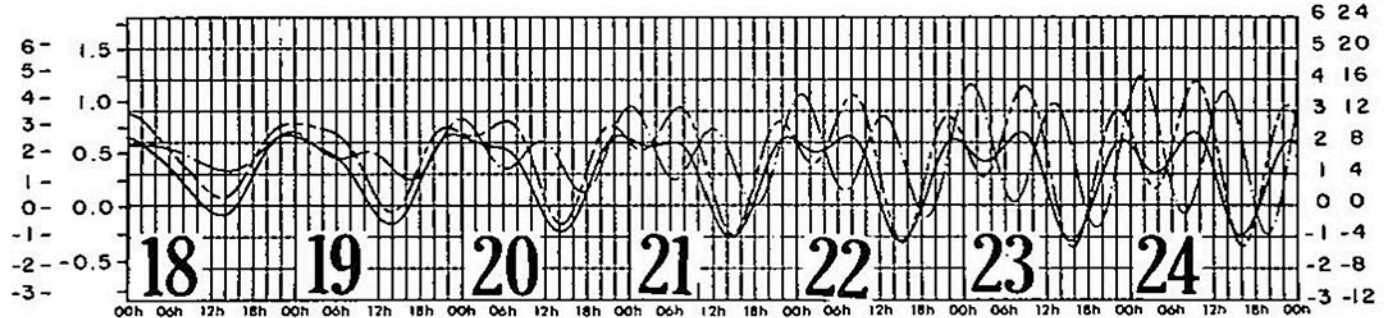
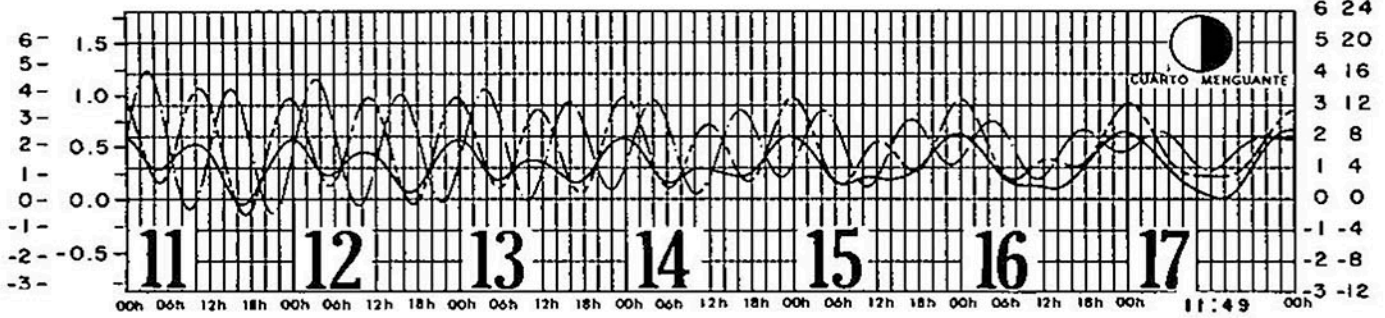
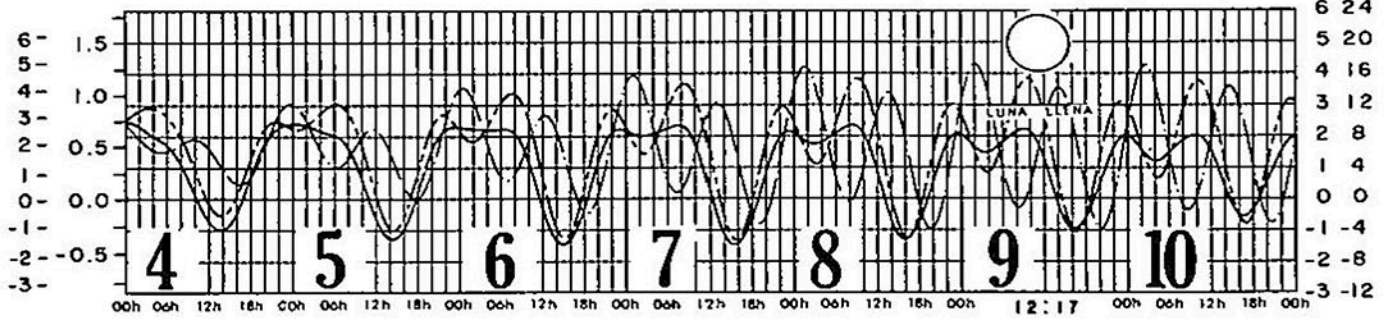
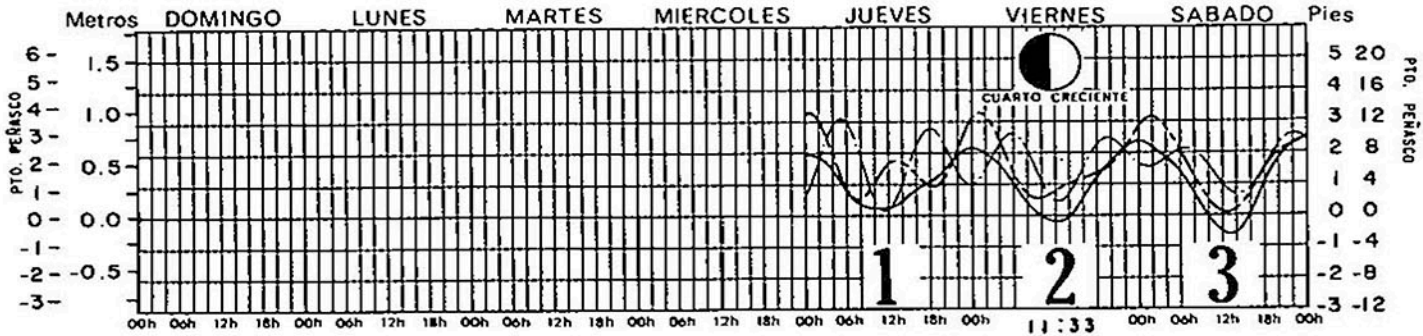


FEBRERO 1990

PTO. PEÑASCO, SON.
GUAYMAS, SON.
TOPOLOBAMPO, SIN.



INSTITUTO DE GEOFISICA, U.N.A.M.



HORA DEL MERIDIANO 105° W

PLANO DE REFERENCIA: N.B.M.I.



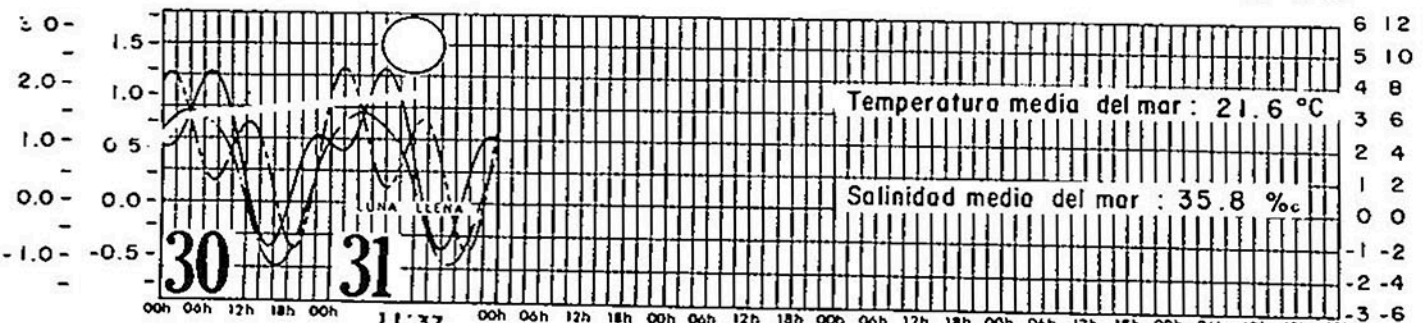
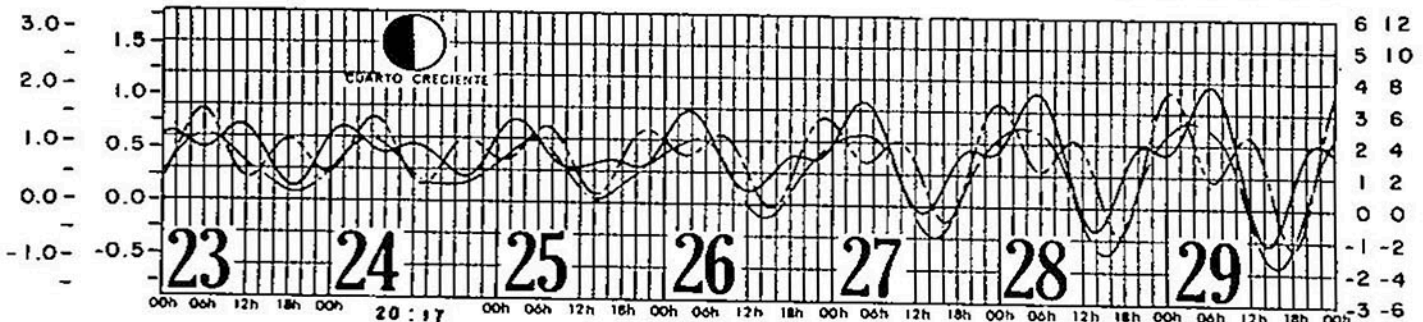
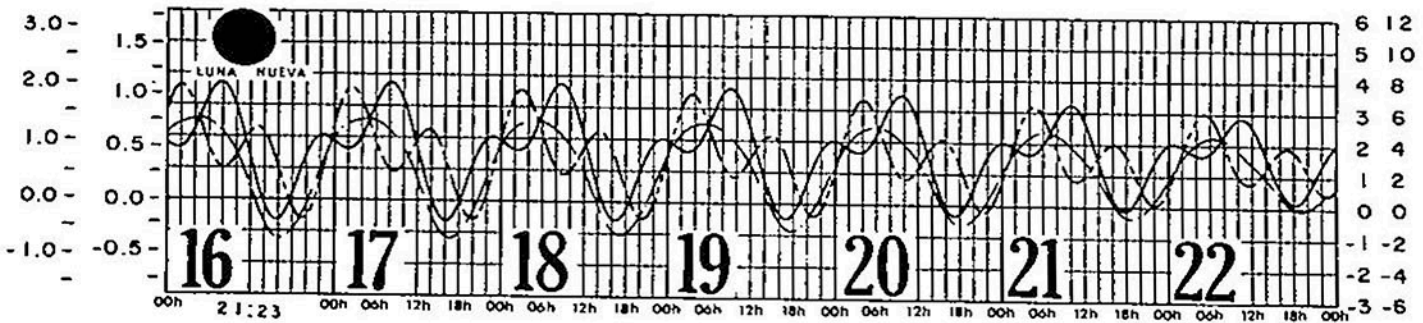
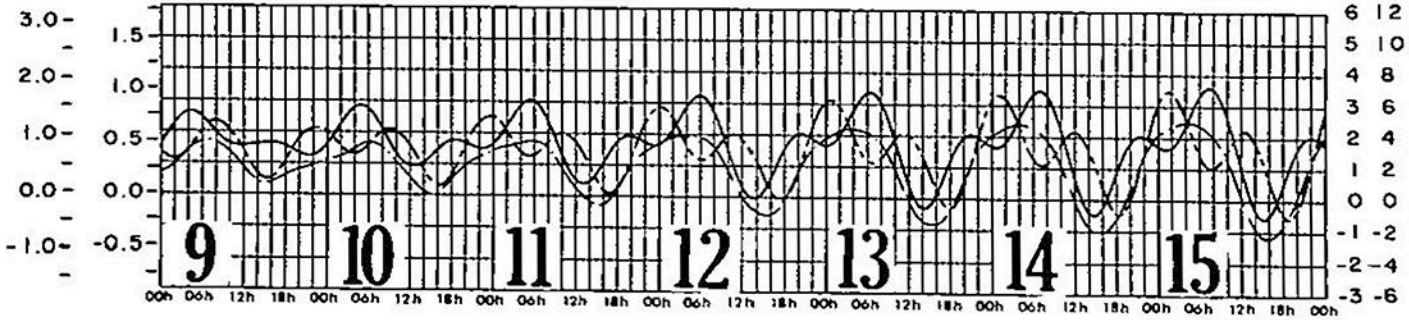
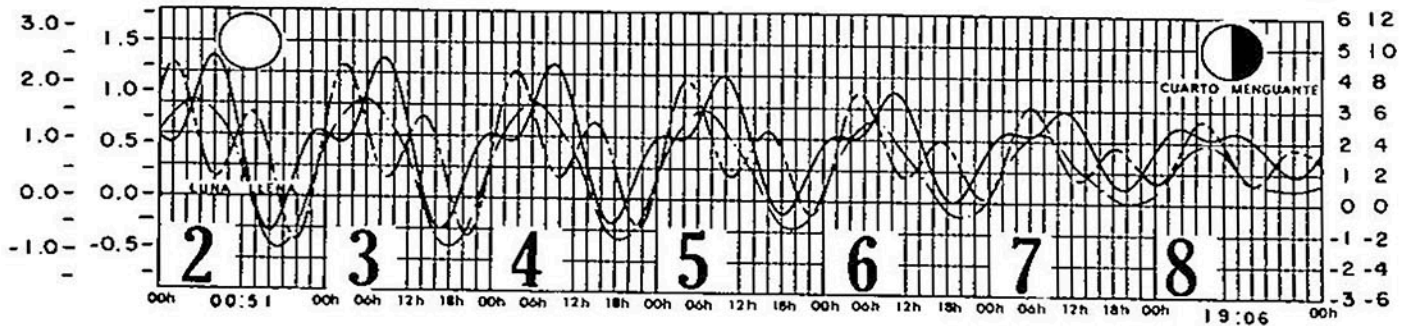
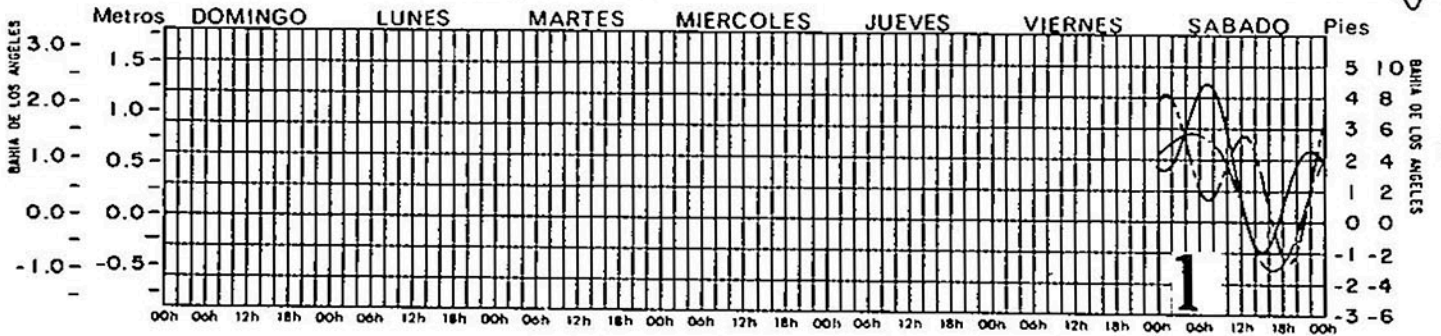
DICIEMBRE 1990

INSTITUTO DE GEOFISICA, U.N.A.M.

B. DE LOS ANGELES, B.C.S.

STA. ROSALIA, B.C.S.

LA PAZ, B.C.S.



Temperatura media del mar : 21.6 °C

Salinidad medio del mar : 35.8 ‰

HORA DEL MERIDIANO 105° W

PLANO DE REFERENCIA N.B.M.I.

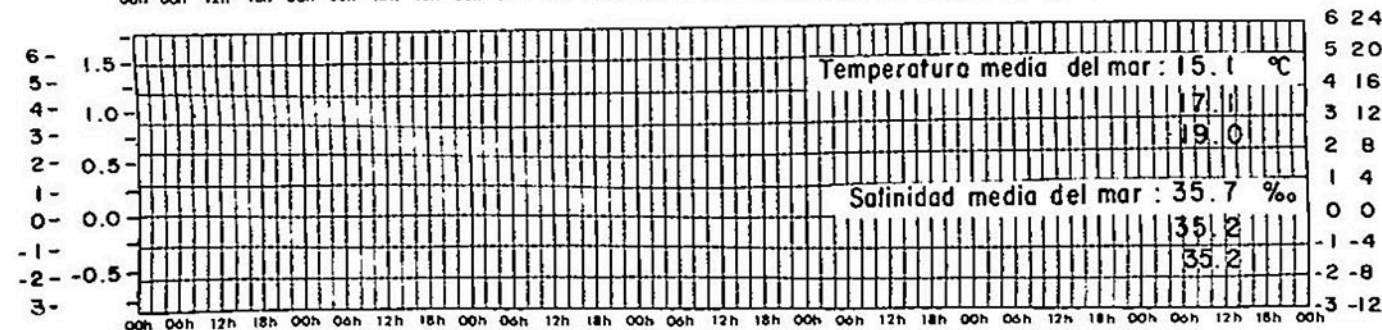
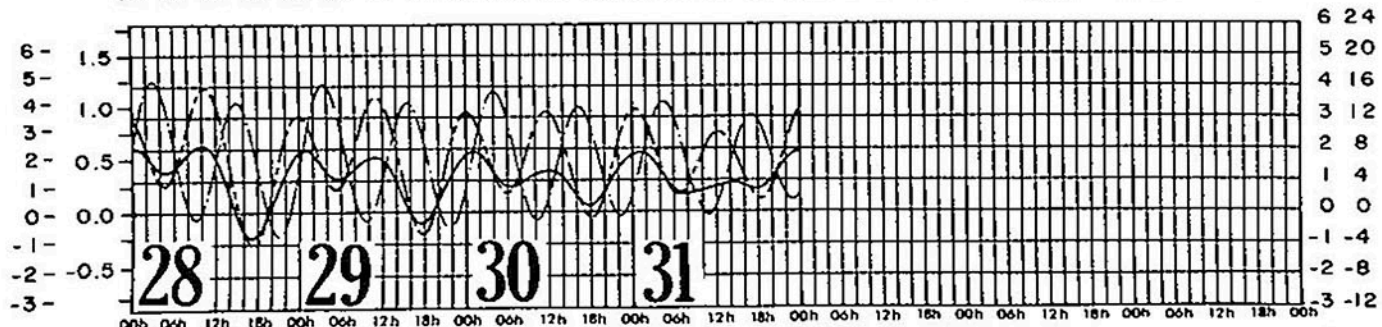
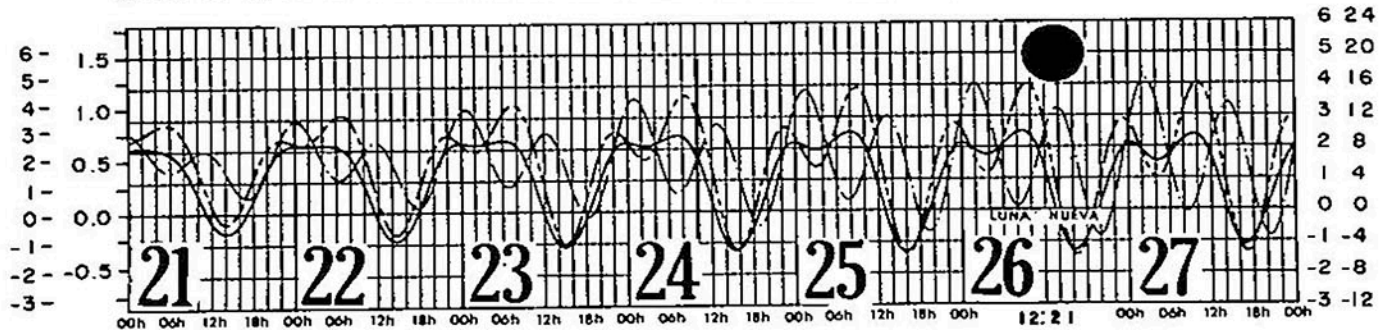
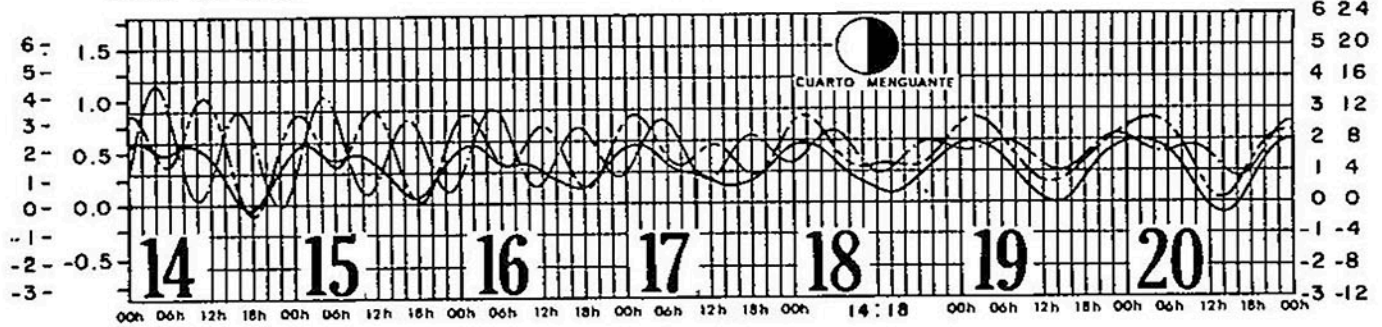
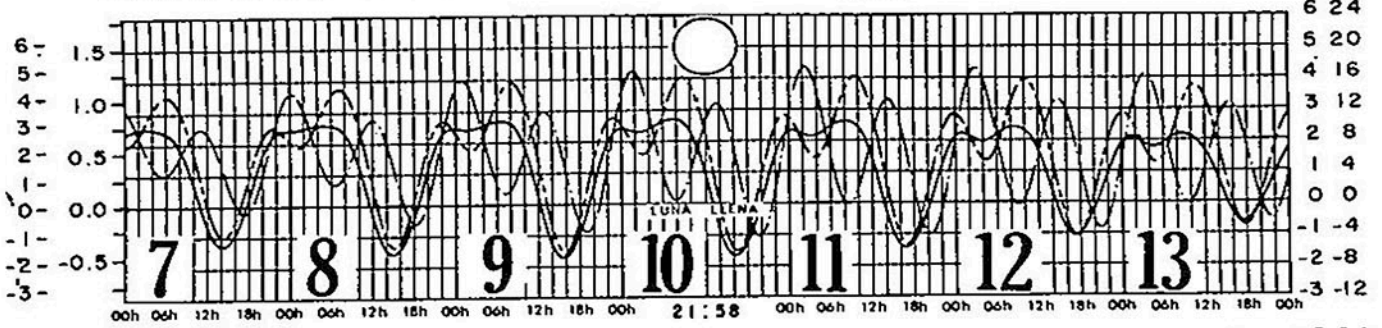
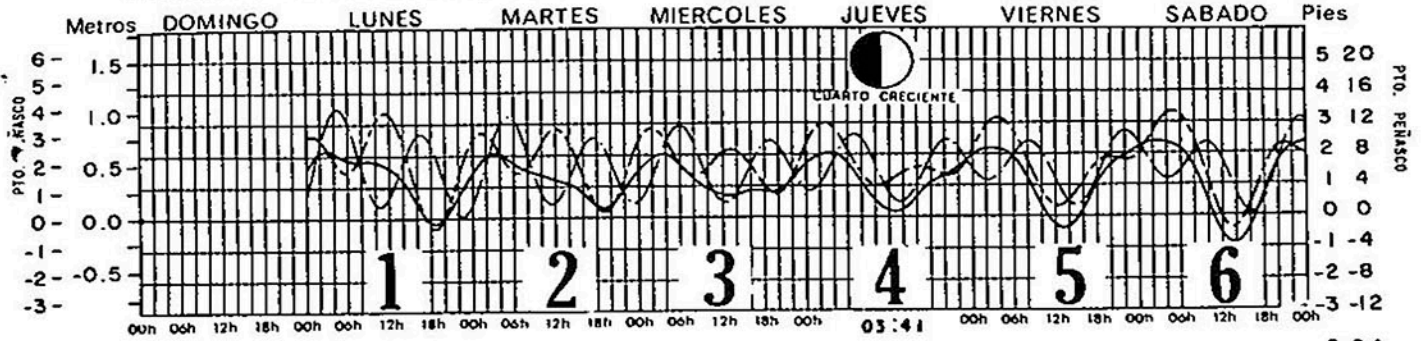


ENERO 1990

PTO. PEÑASCO, SON.
GUAYMAS, SON.
TOPOLOBAMPO, SIN.



INSTITUTO DE GEOPISICA, U.N.A.M.



HORA DEL MERIDIANO 105° W

PLANO DE REFERENCIA: N.B.M.I.

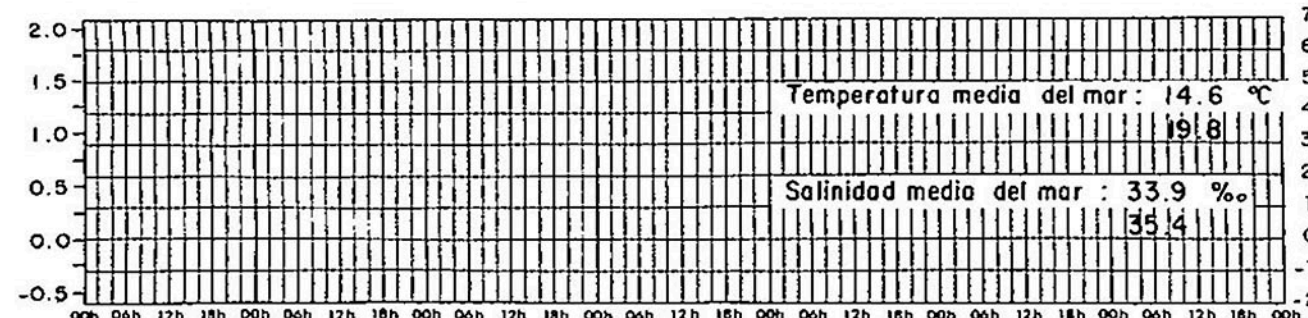
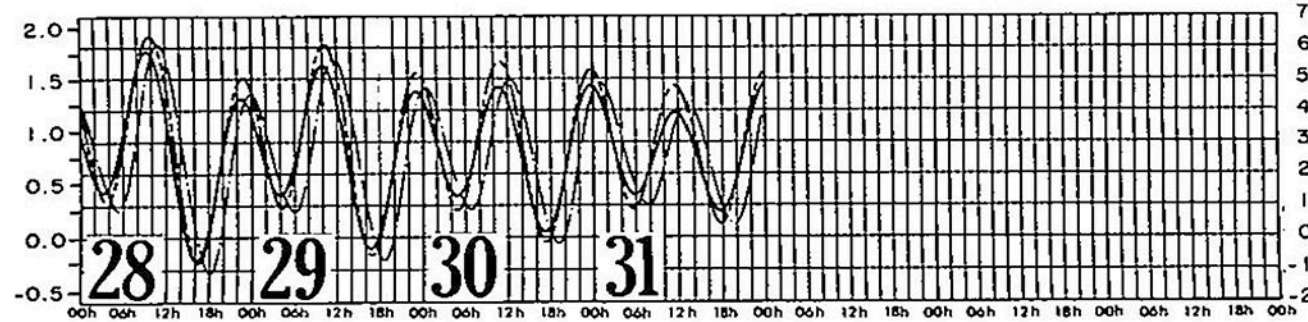
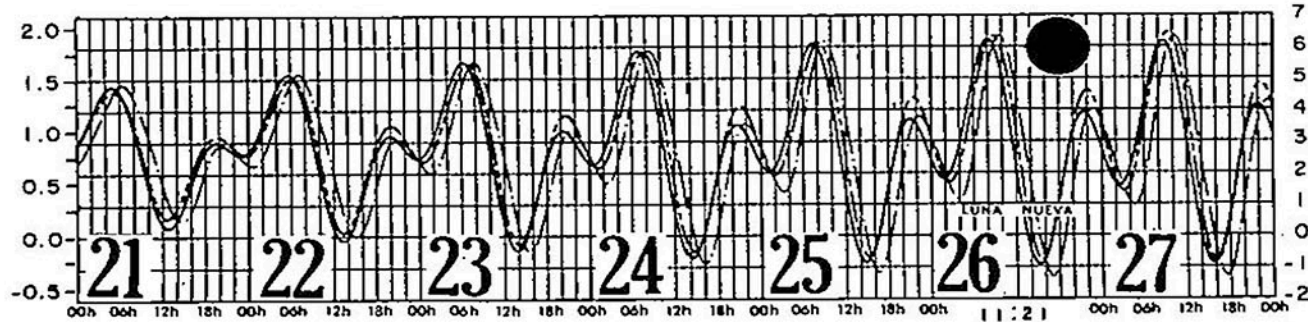
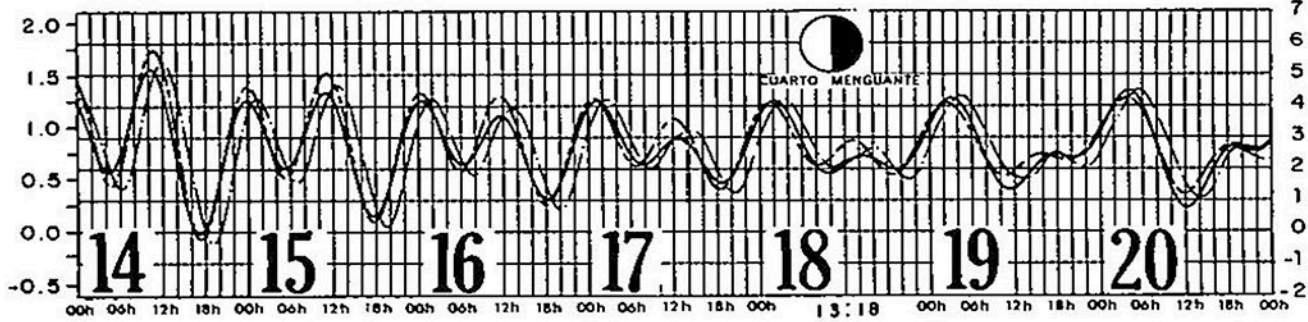
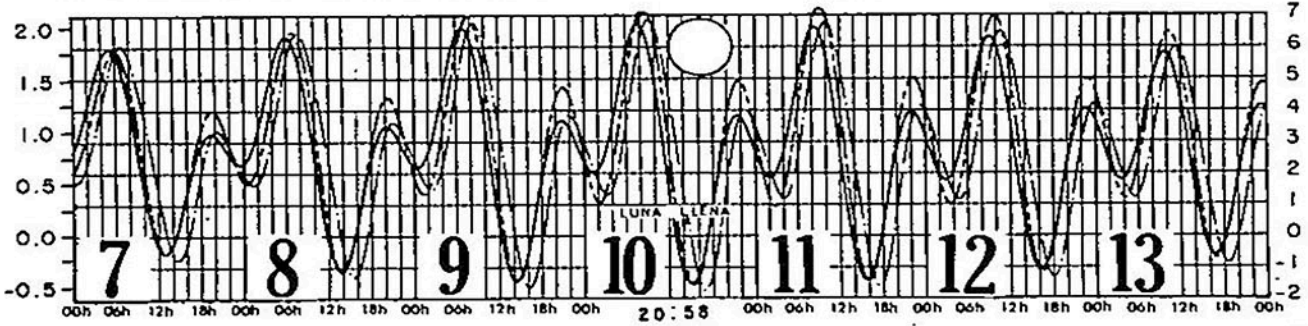
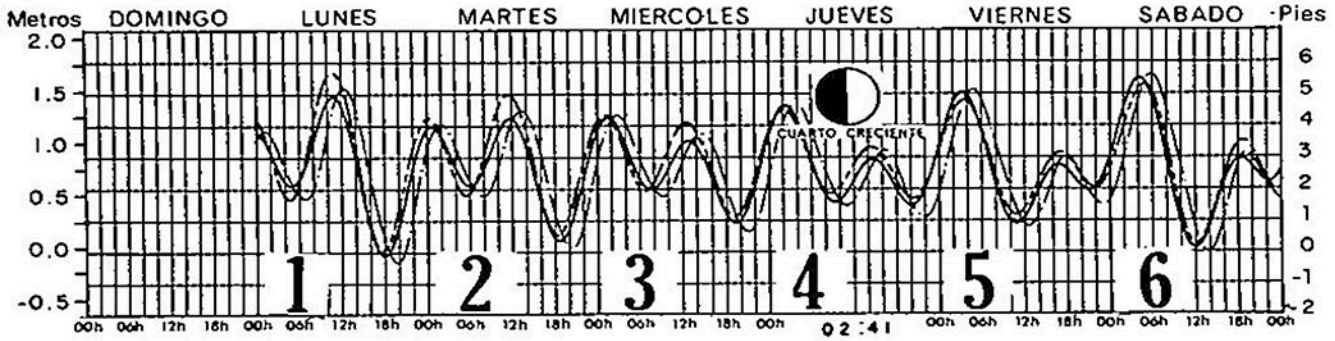


EN R 1990

ENSENADA, B.C.
GRO. NEGRO, B.C.S.
SAN. CARLOS, B.C.S.



INSTITUTO DE GEOFISICA, U.N.A.M.



HORA DEL MERIDIANO 120° W
HORA DEL MERIDIANO 105° W

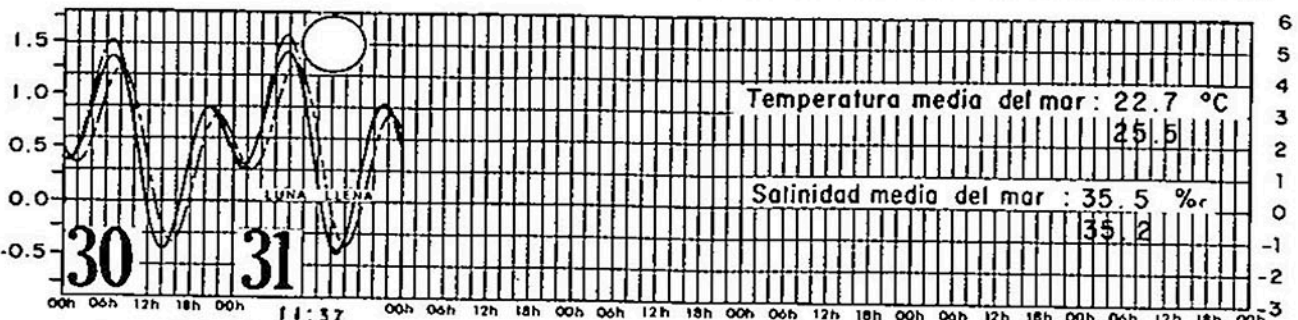
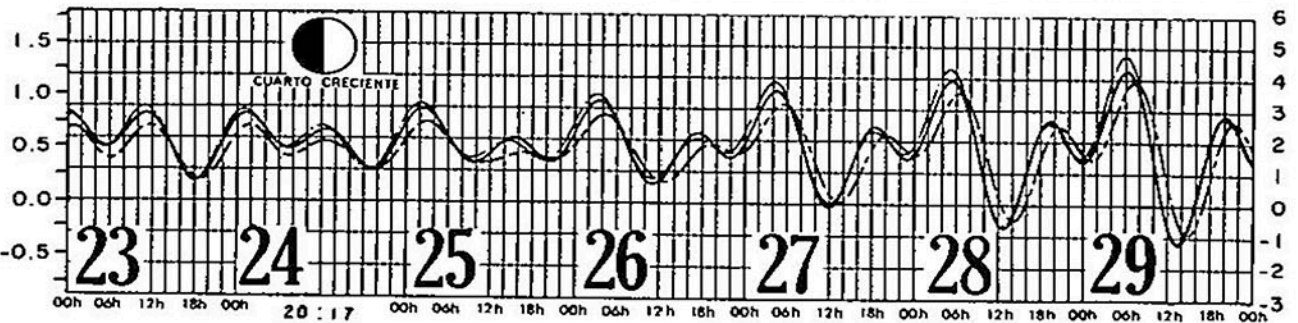
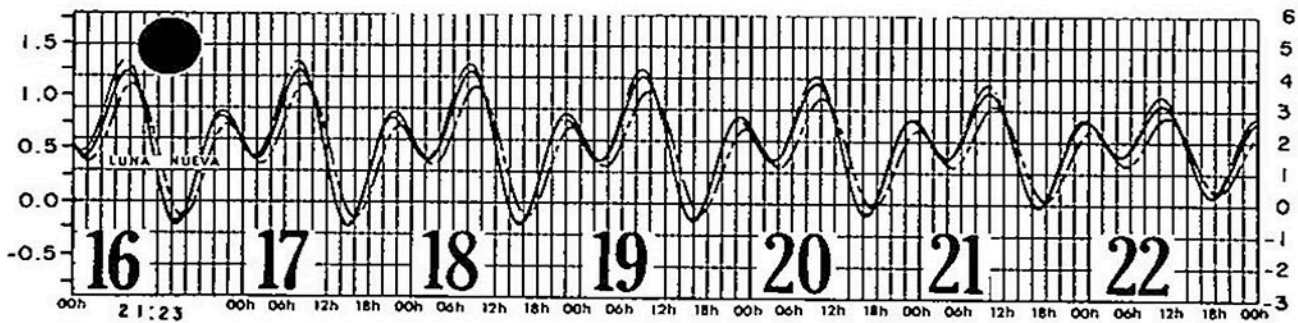
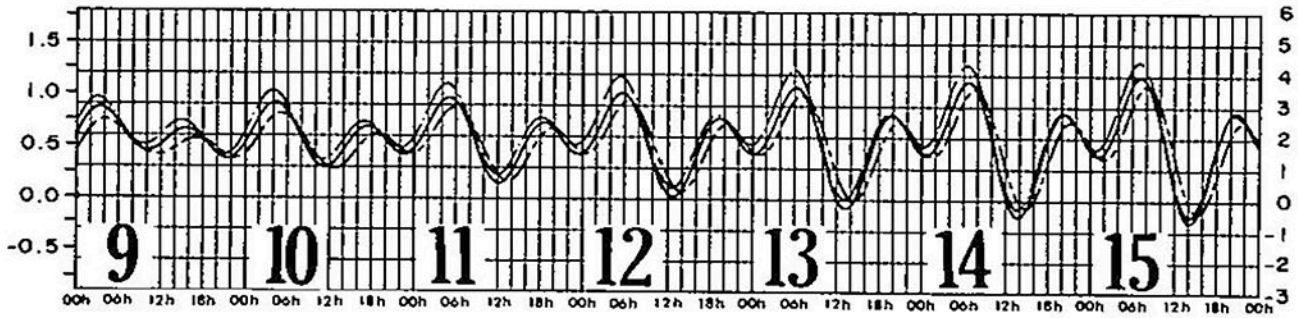
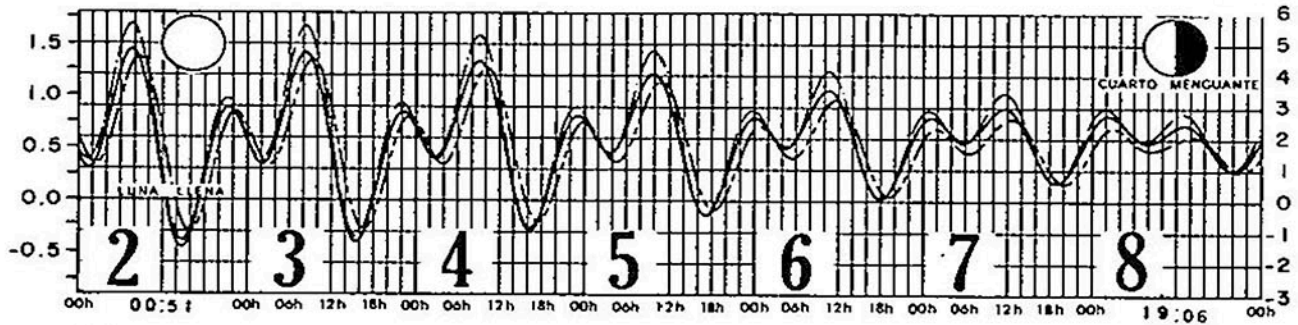
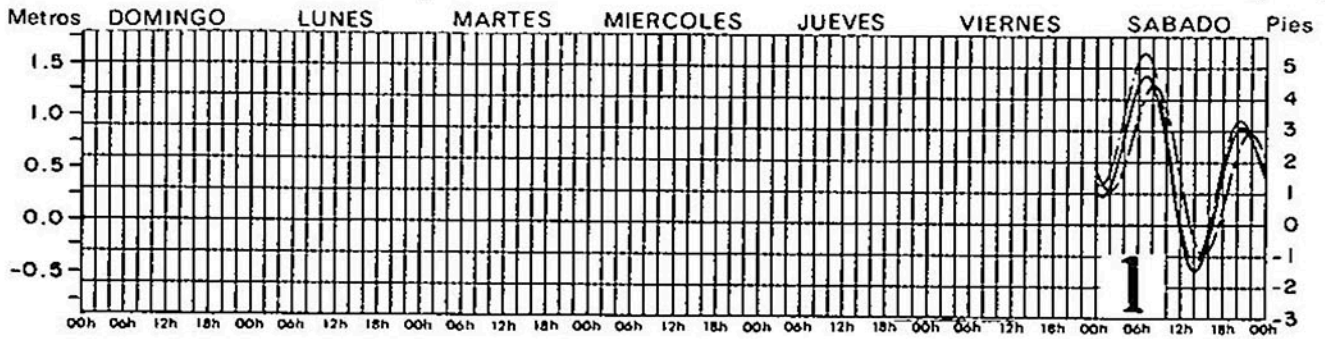
PLANO DE REFERENCIA N.B.M.I.



DICIEMBRE 1990

CABO SAN LUCAS, B.C.S.
MAZATLAN, SIN.
PTO. VALLARTA, JAL.

INSTITUTO DE GEOFISICA, U.N.A.M.



Temperatura media del mar : 22.7 °C
25.5

Salinidad media del mar : 35.5 ‰
35.2

HORA DEL MERIDIANO 105° W
HORA DEL MERIDIANO 90° W

PLANO DE REFERENCIA : N.B.M.I.

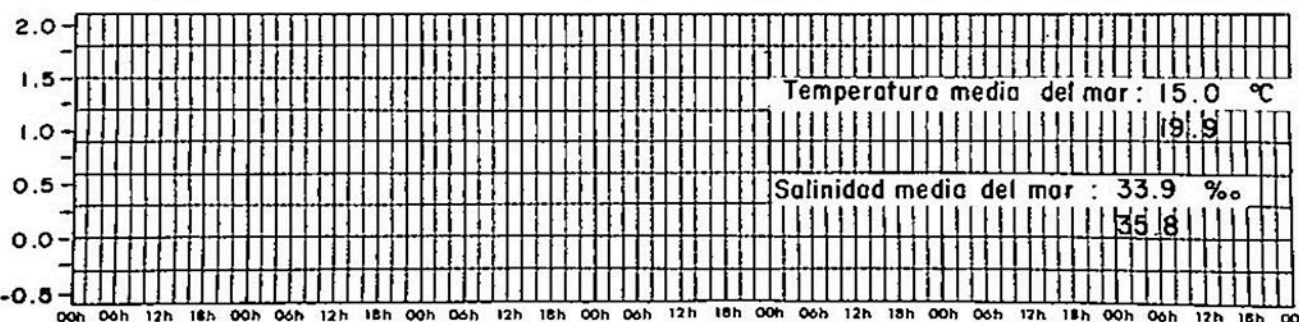
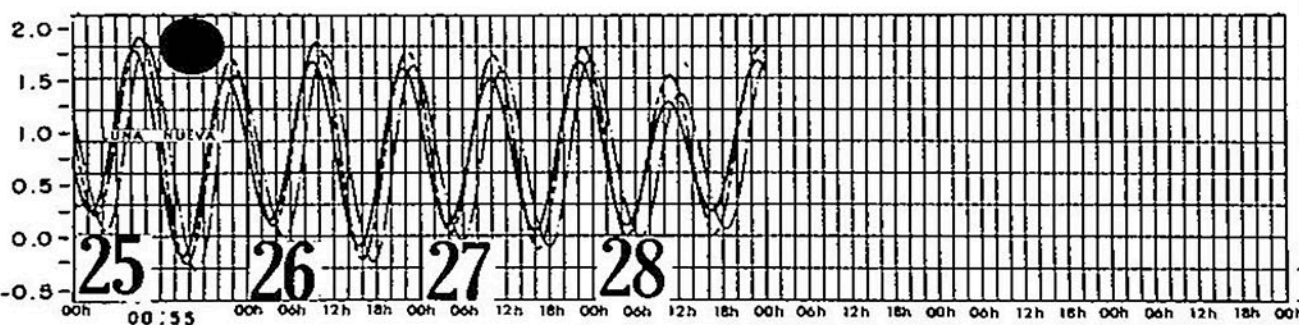
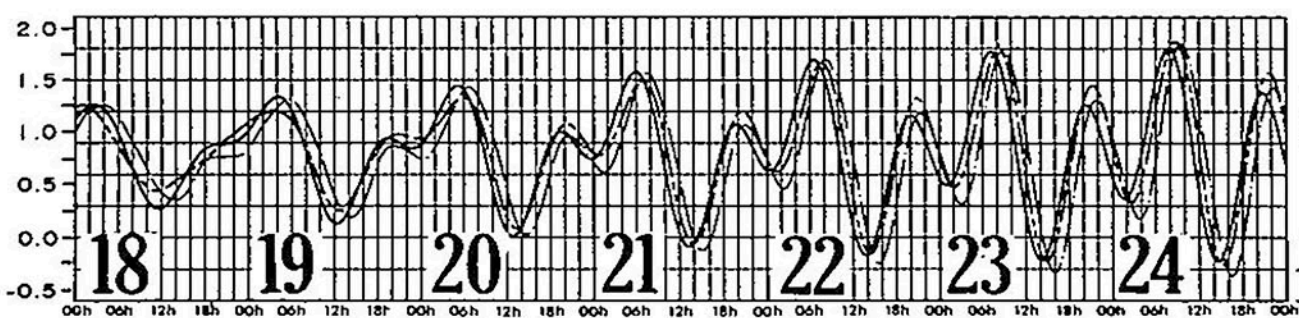
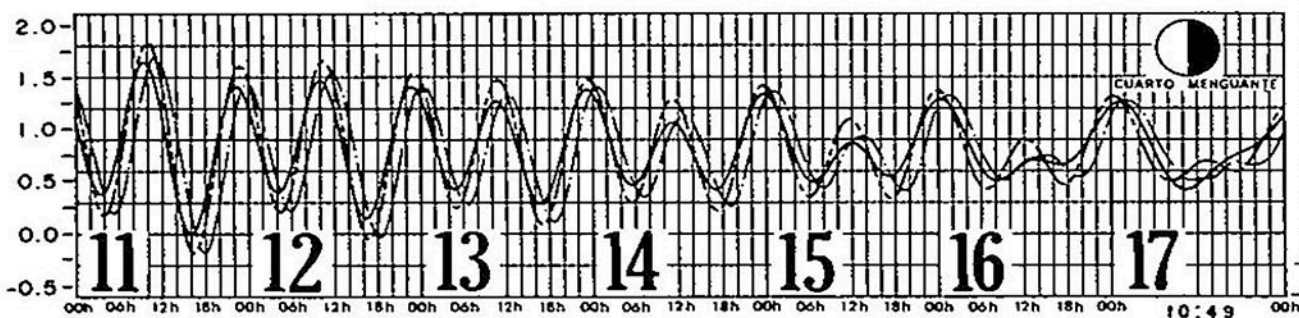
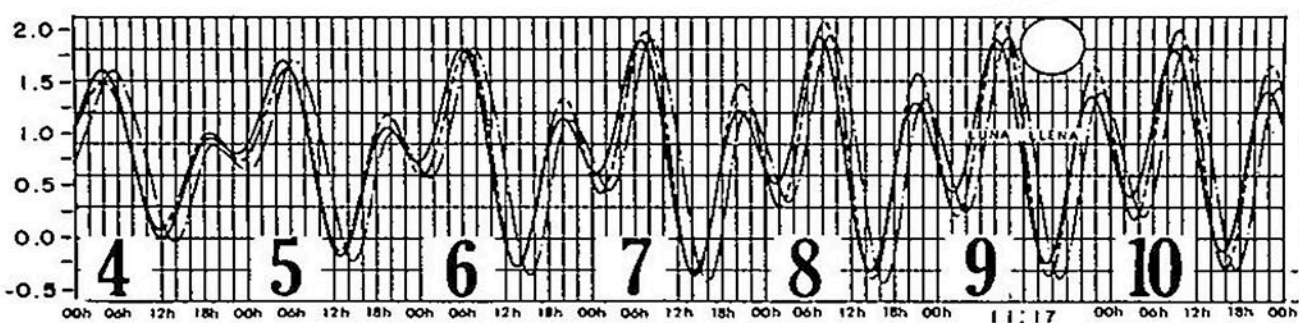
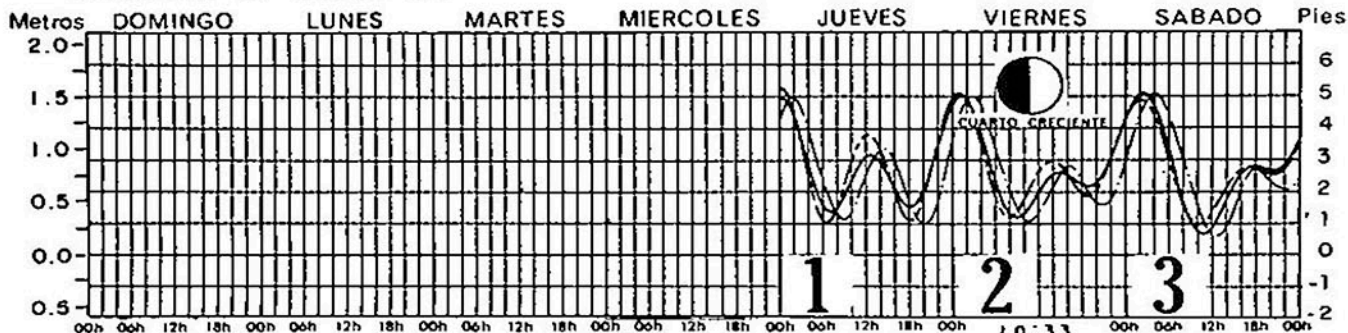


FEBRERO 1990

ENSENADA, B.C.
GRO. NEGRO, B.C.S.
SAN CARLOS, B.C.S.



INSTITUTO DE GEOFISICA, U.N.A.M.



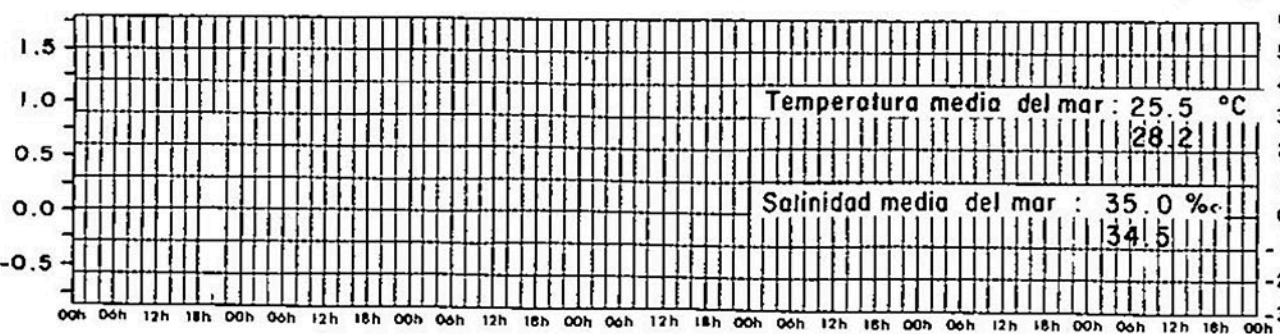
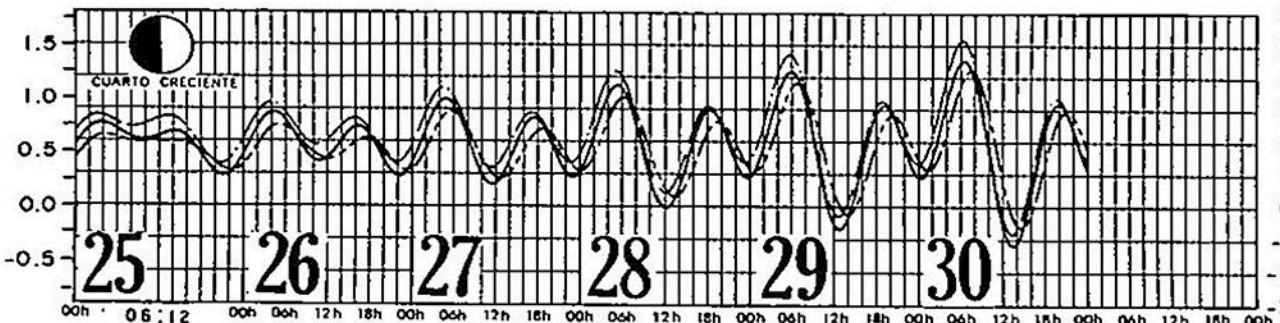
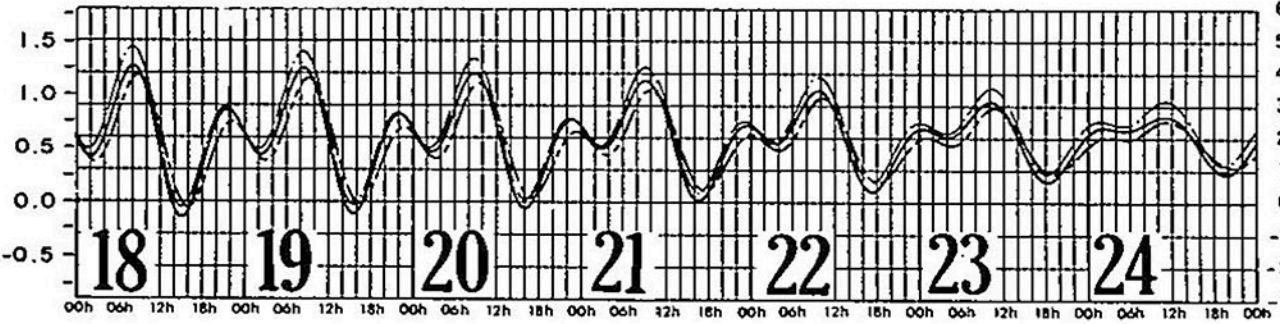
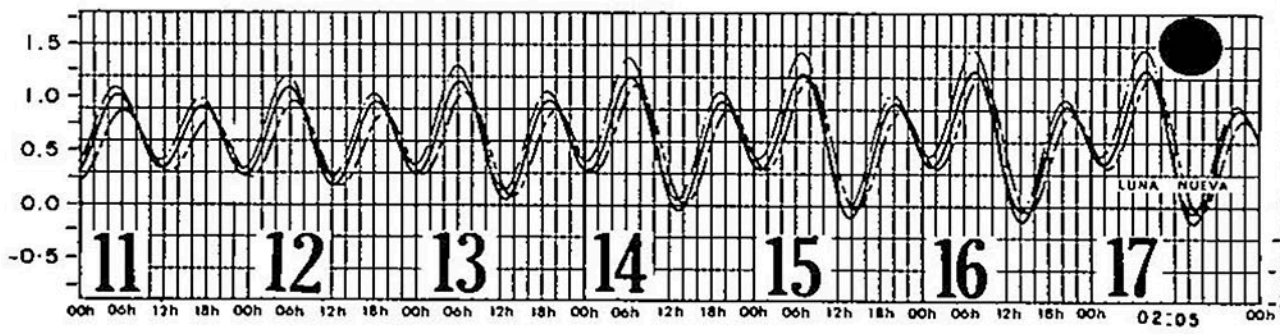
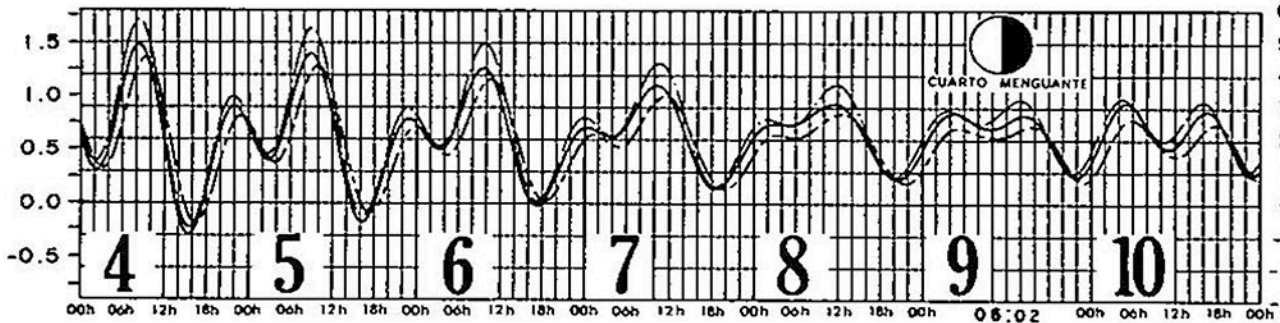
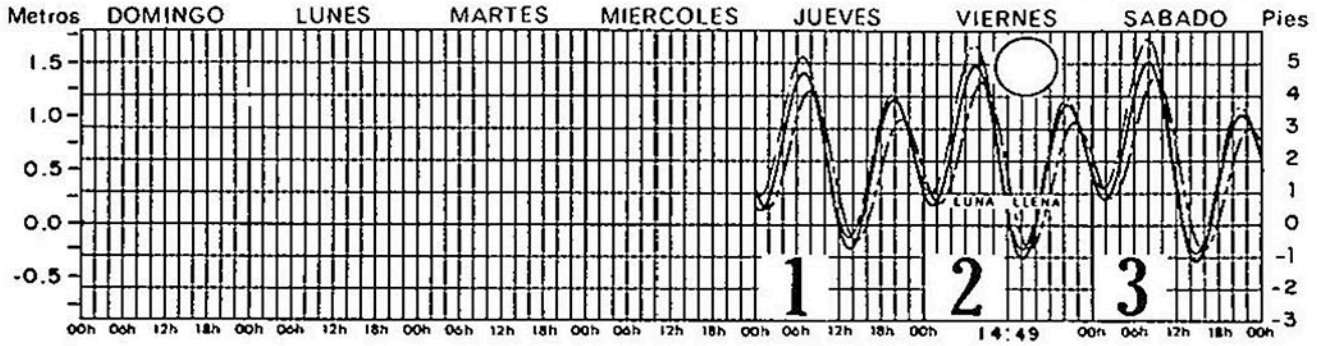
HORA DEL MERIDIANO 120° W
HORA DEL MERIDIANO 105° W

PLANO DE REFERENCIA N.B.M.I.

NOVIEMBRE 1990

CABO SAN LUCAS, B.C.S.
MAZATLAN, SIN.
PTO. VALLARTA, JAL.

INSTITUTO DE GEOFISICA, U.N.A.M.



HORA DEL MERIDIANO 105° W
HORA DEL MERIDIANO 90° W

PLANO DE REFERENCIA: N.B.M.I.

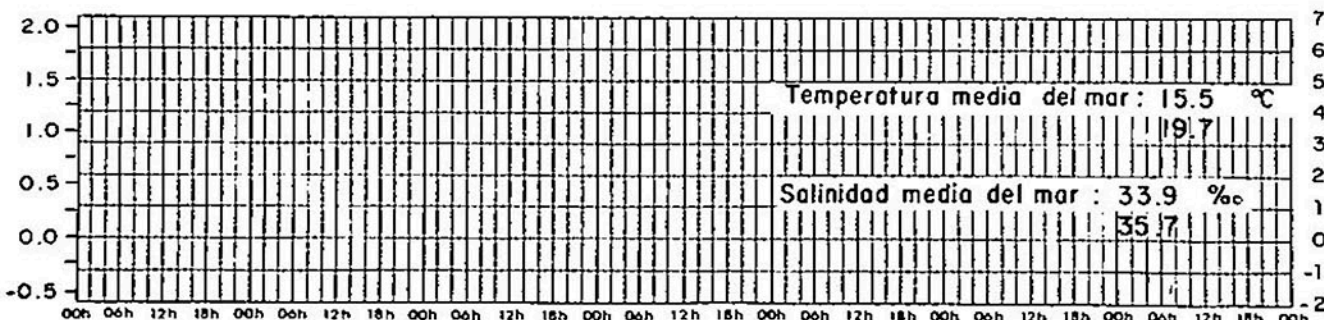
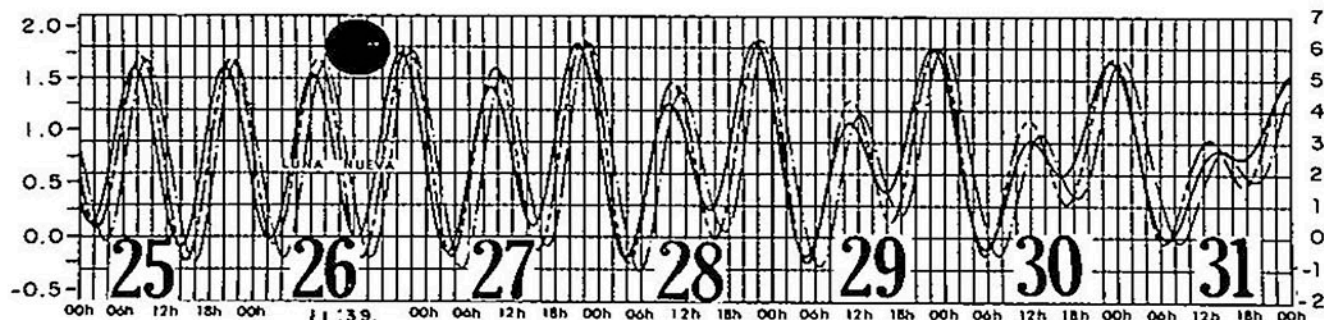
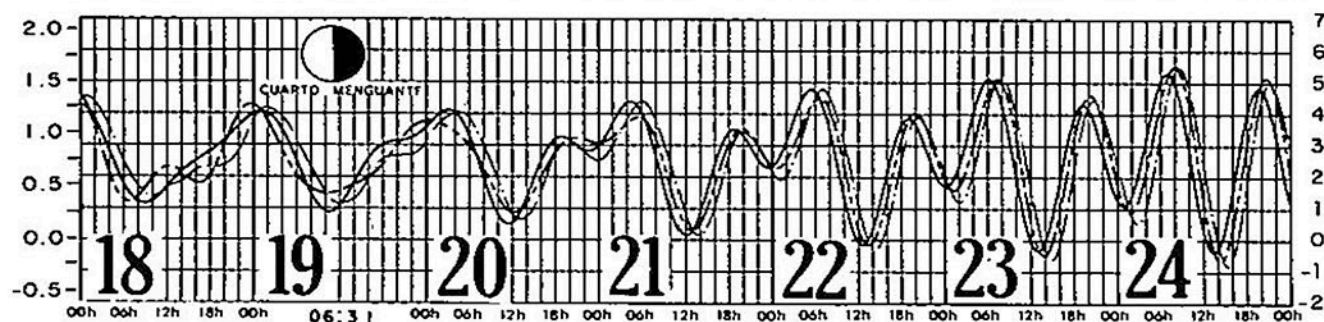
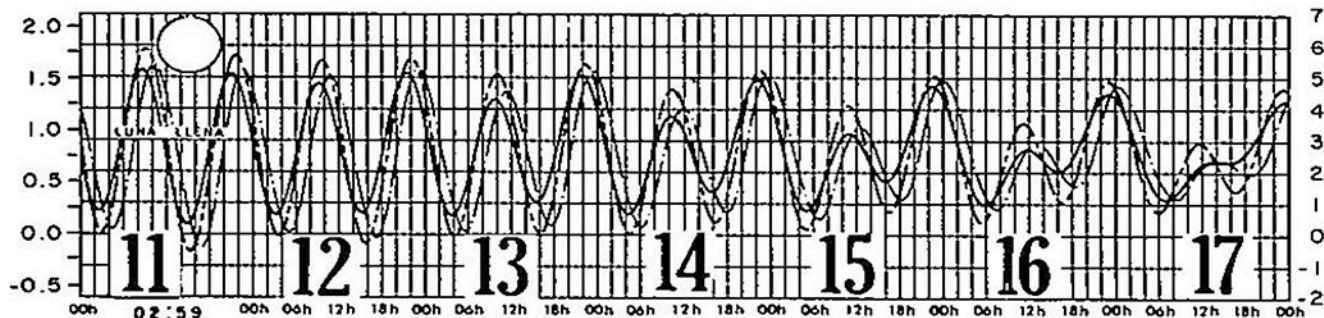
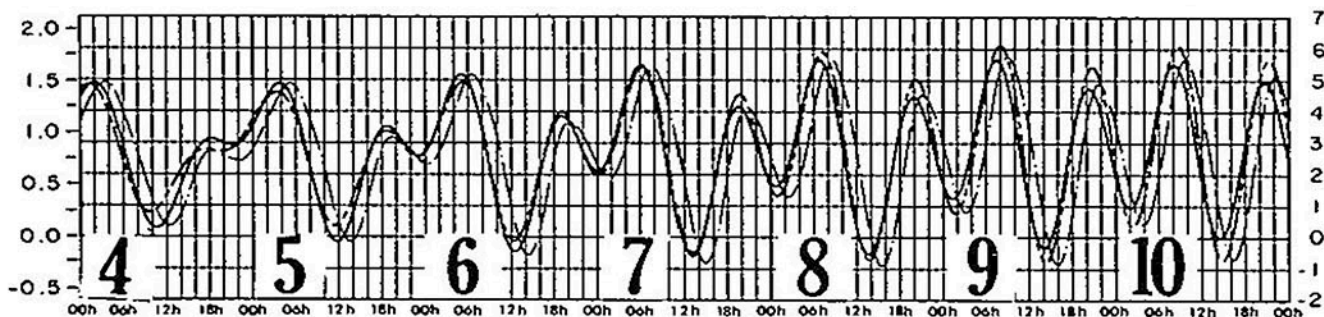
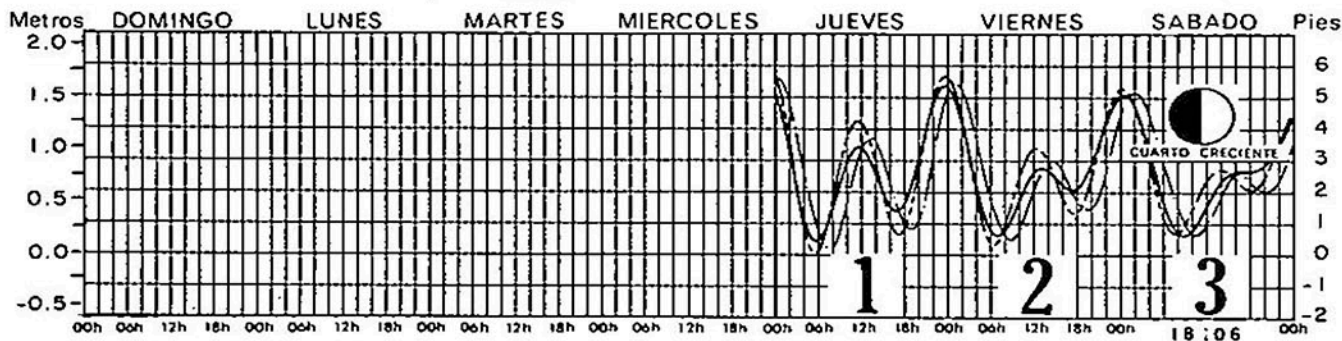


MARZO 1990

ENSENADA, B.C.
GRO. NEGRO, B.C.S.
SAN. CARLOS, B.C.S.



INSTITUTO DE GEOFISICA, U.N.A.M.



HORA DEL MERIDIANO 120° W
HORA DEL MERIDIANO 105° W

PLANO DE REFERENCIA N.B.M.I.

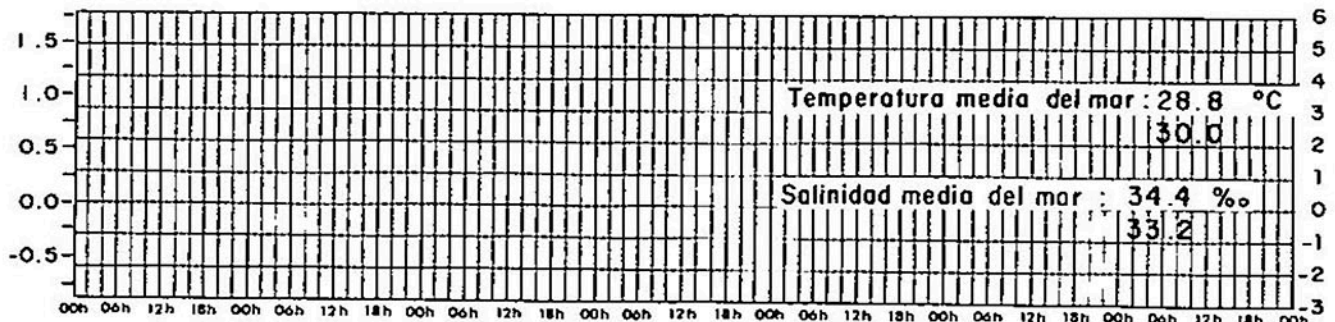
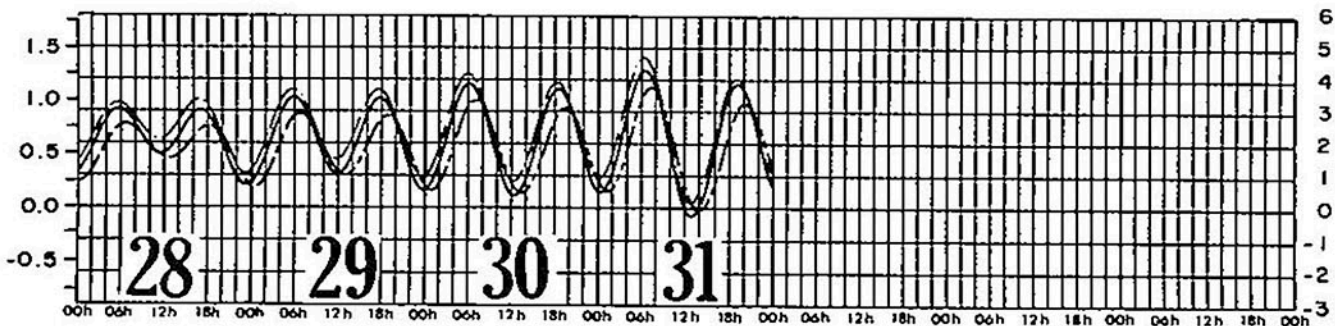
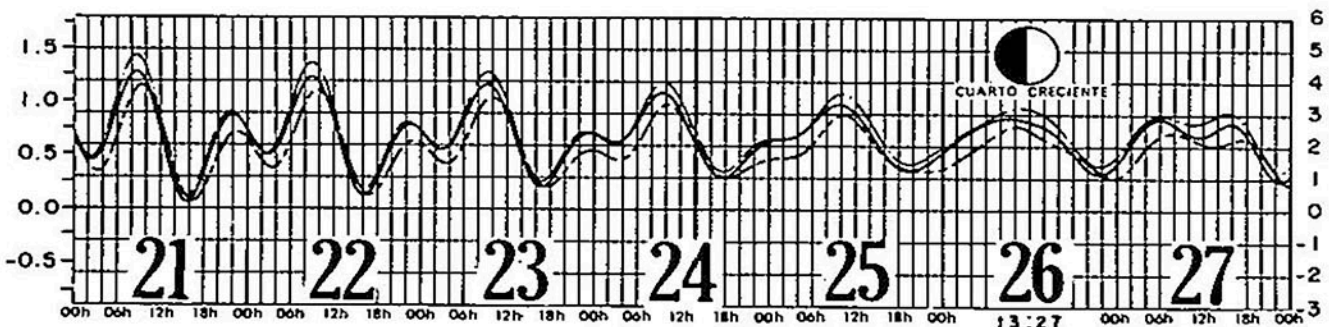
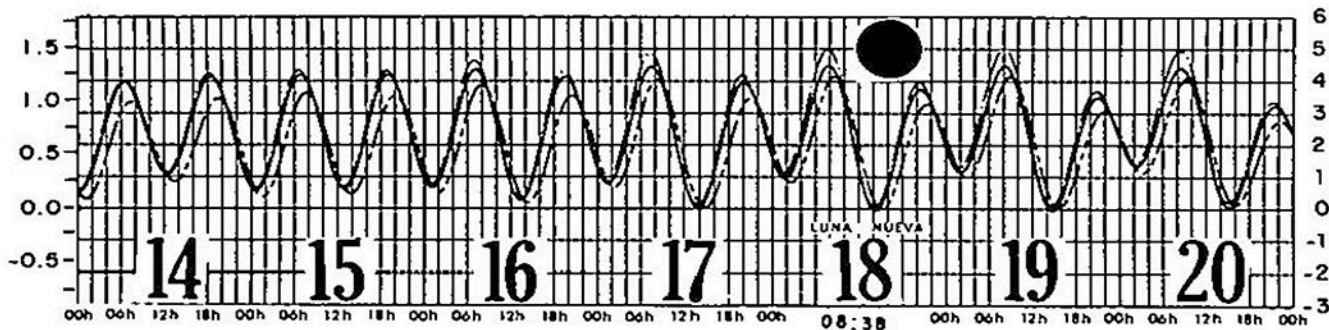
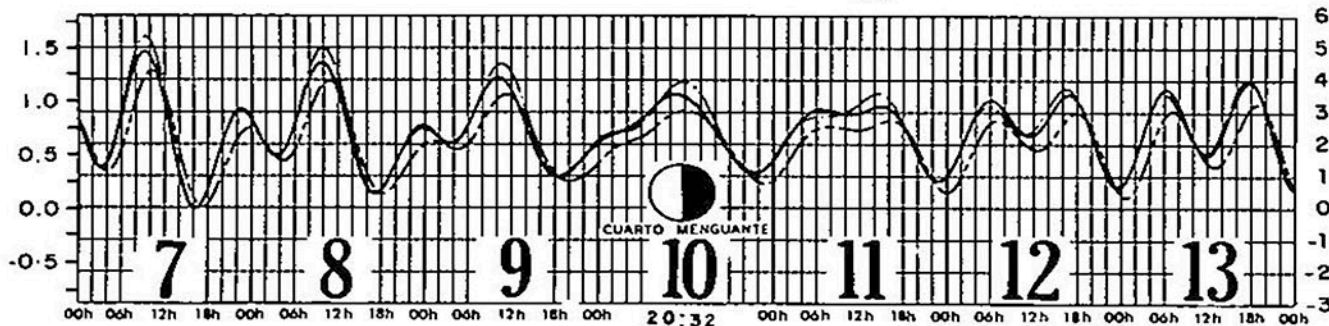
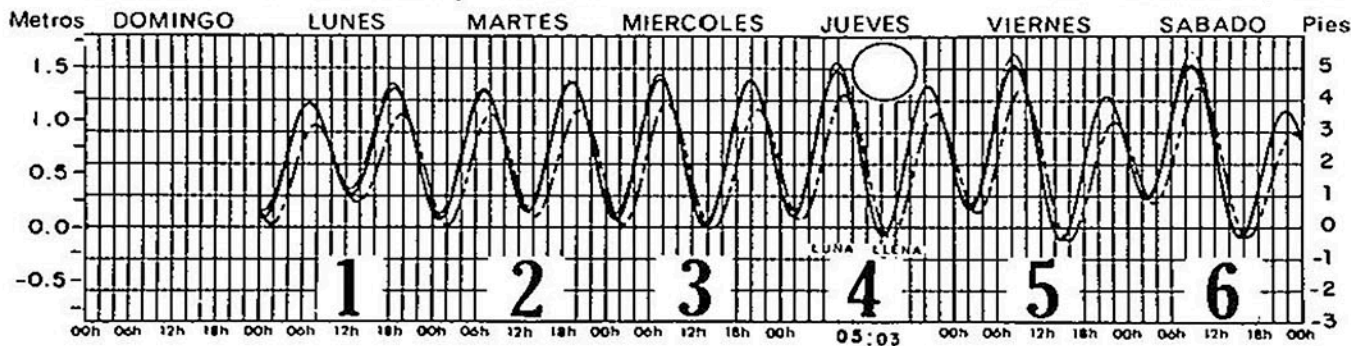


OCTUBRE 1990

CABO SN. LUCAS, B.C.S.
MAZATLAN, SIN.
PTO. VALLARTA, JAL.



INSTITUTO DE GEOFISICA, U.N.A.M.



HORA DEL MERIDIANO 105° W
HORA DEL MERIDIANO 90° W

PLANO DE REFERENCIA: N.B.M.I.

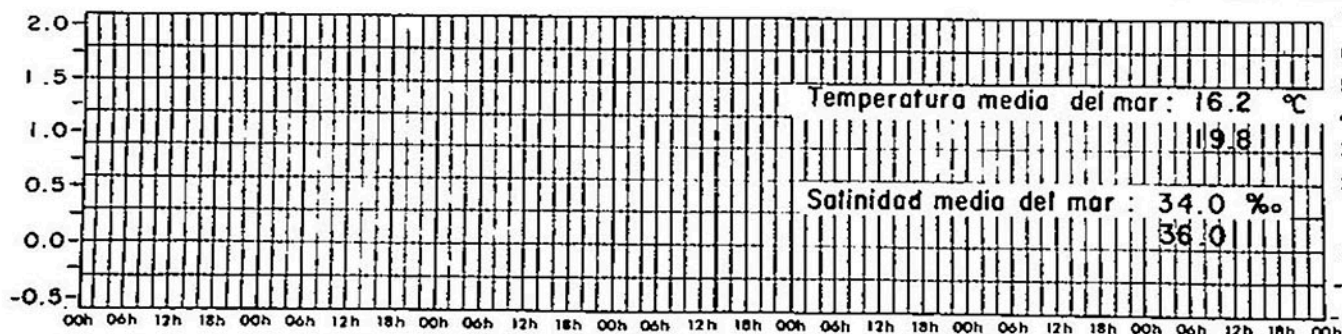
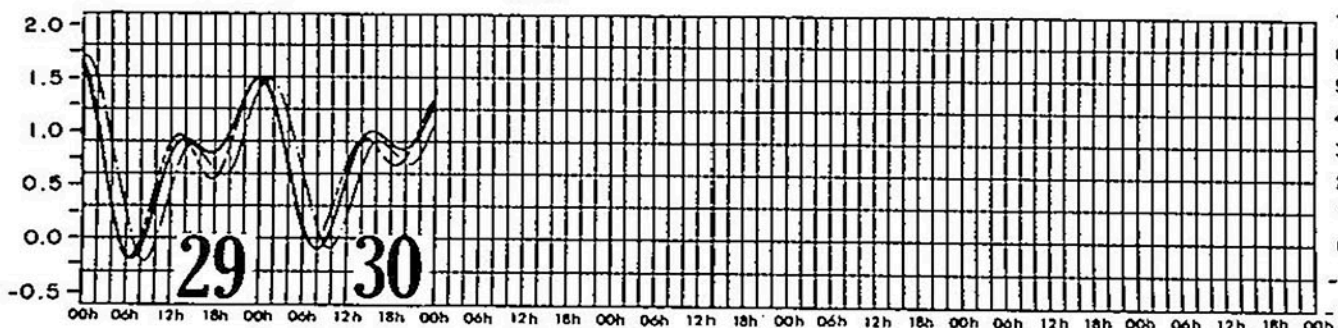
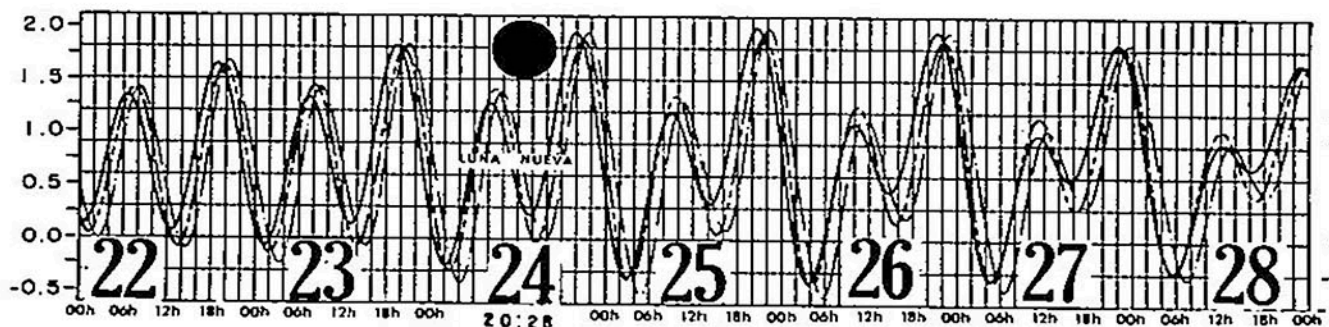
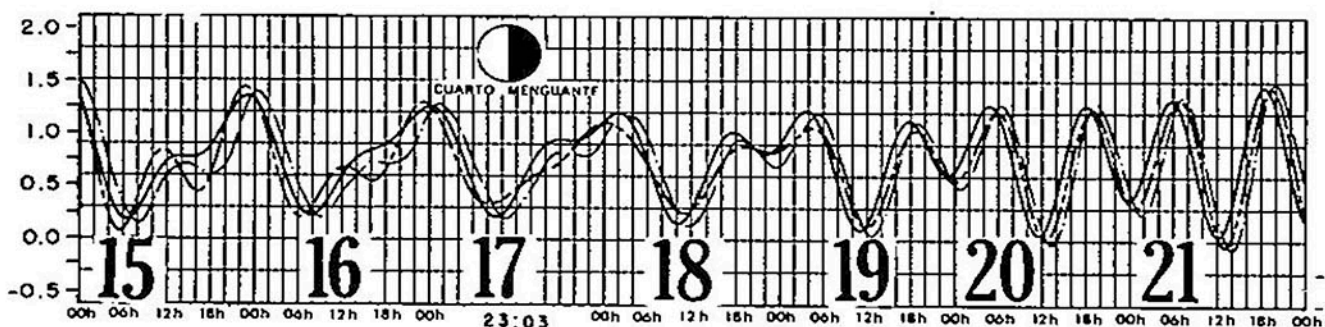
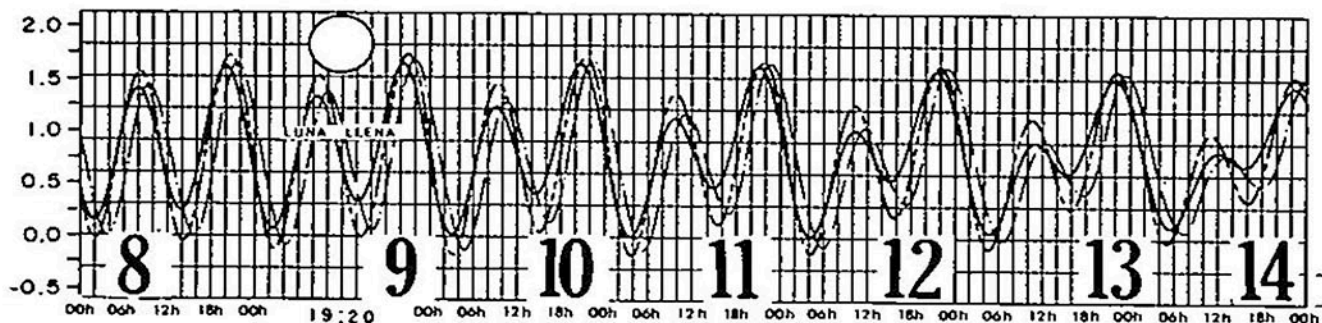
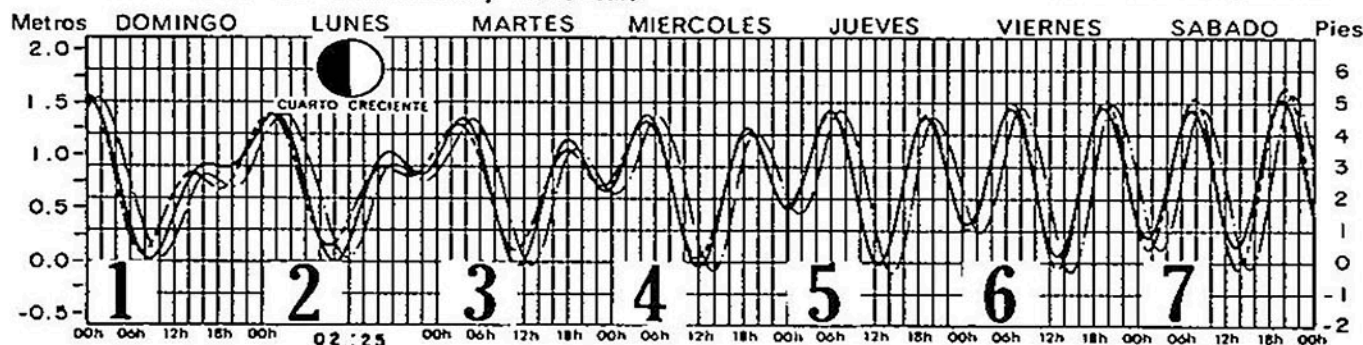


ABRIL 1990

ENSENADA, B.C.
GRO. NEGRO, B.C.S.
SAN. CARLOS, B.C.S.



INSTITUTO DE GEOFISICA, U.N.A.M.



HORA DEL MERIDIANO 120° W
HORA DEL MERIDIANO 105° W

PLANO DE REFERENCIA N.B.M.I.

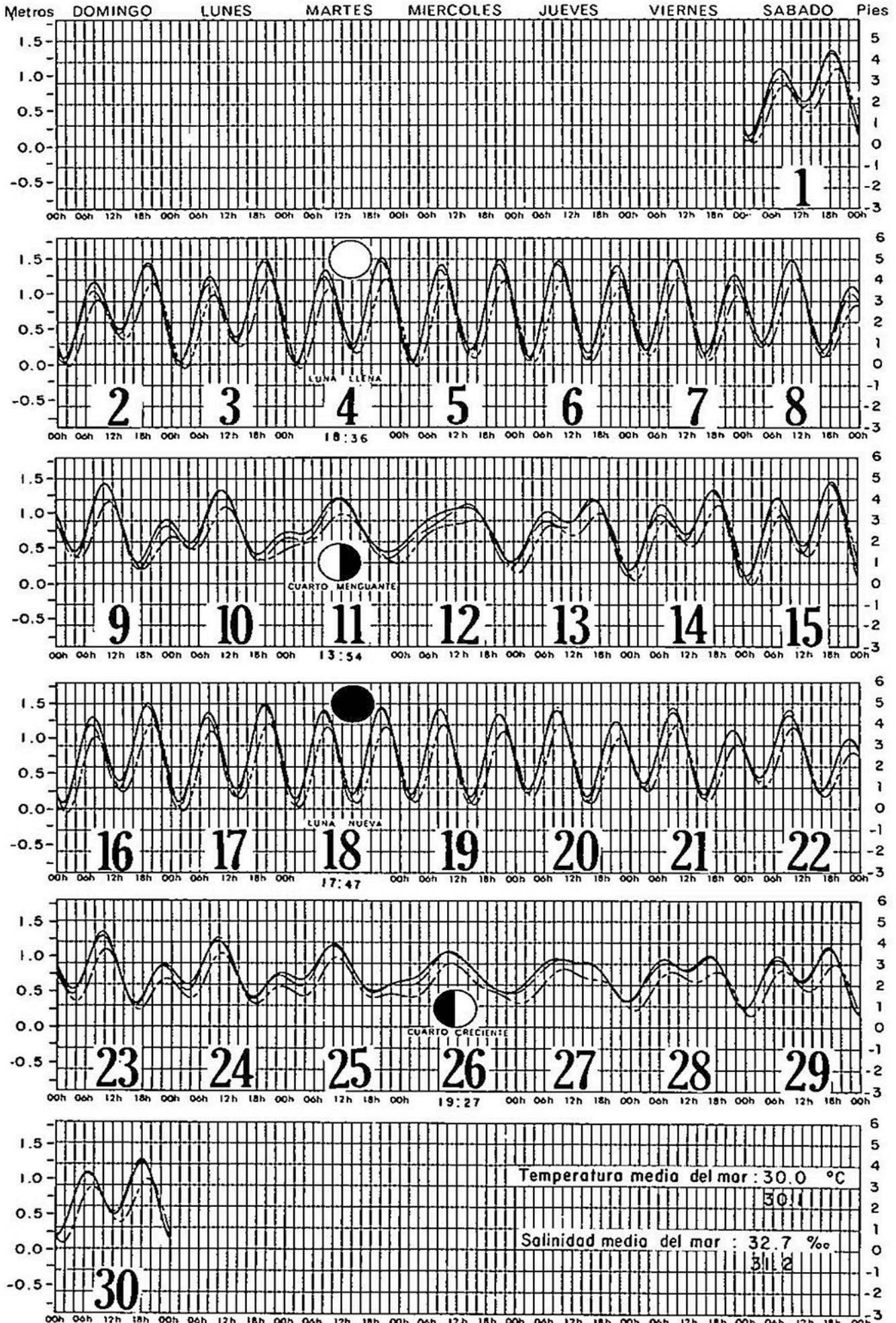


SEPTIEMBRE 1990

CABO SN. LUCAS, B.C.S.
MAZATLAN, SIN.
PTO. VALLARTA, JAL.



INSTITUTO DE GEOFISICA, U.N.A.M.



HORA DEL MERIDIANO 105° W
HORA DEL MERIDIANO 90° W

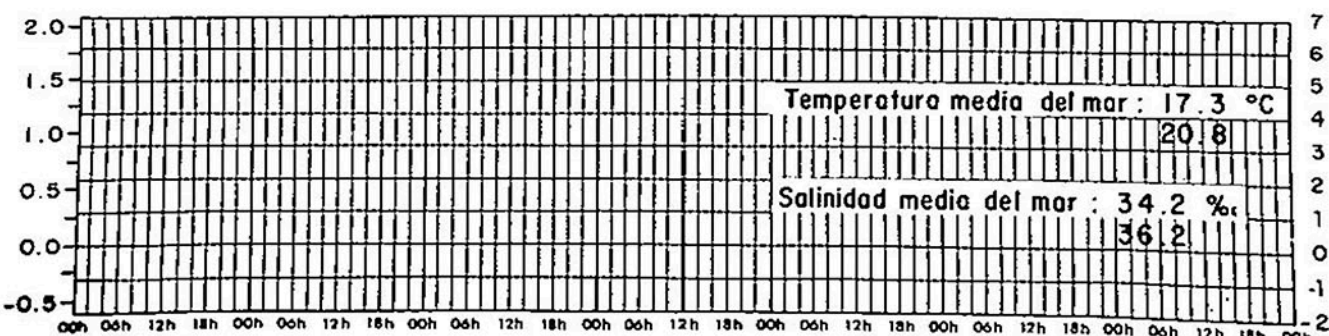
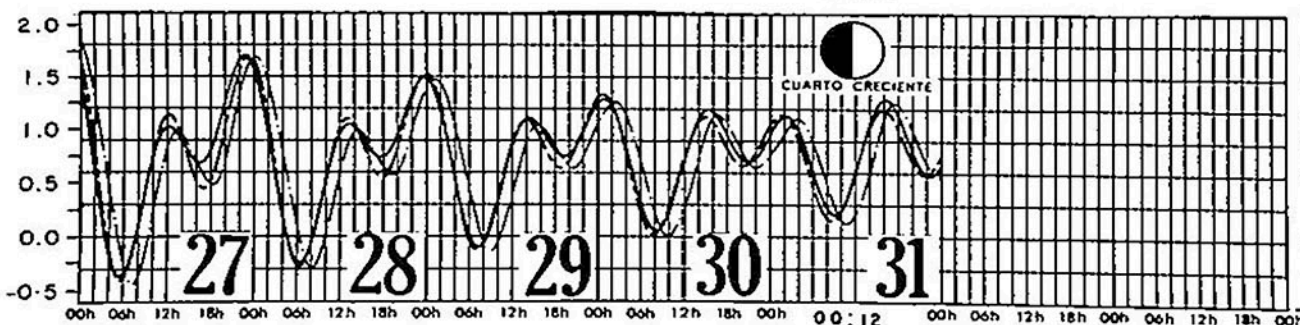
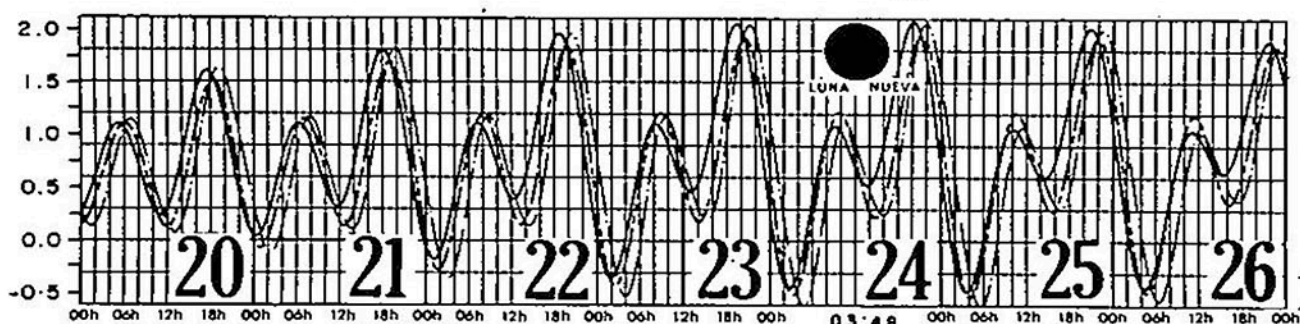
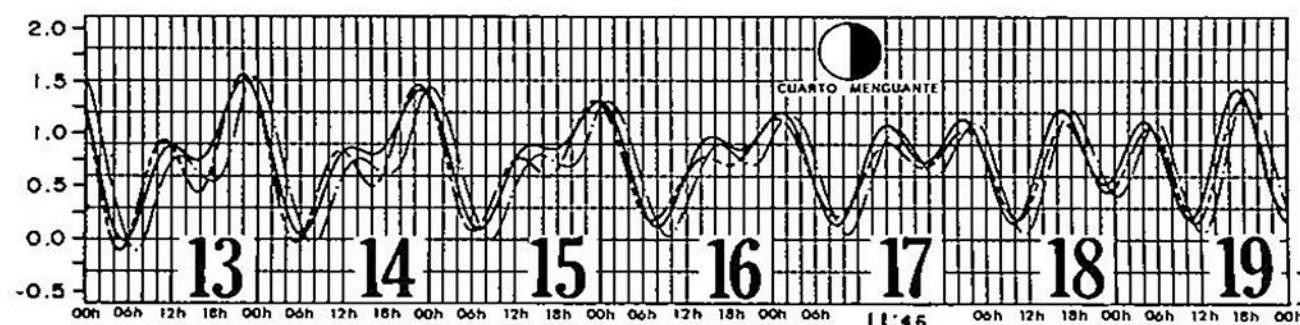
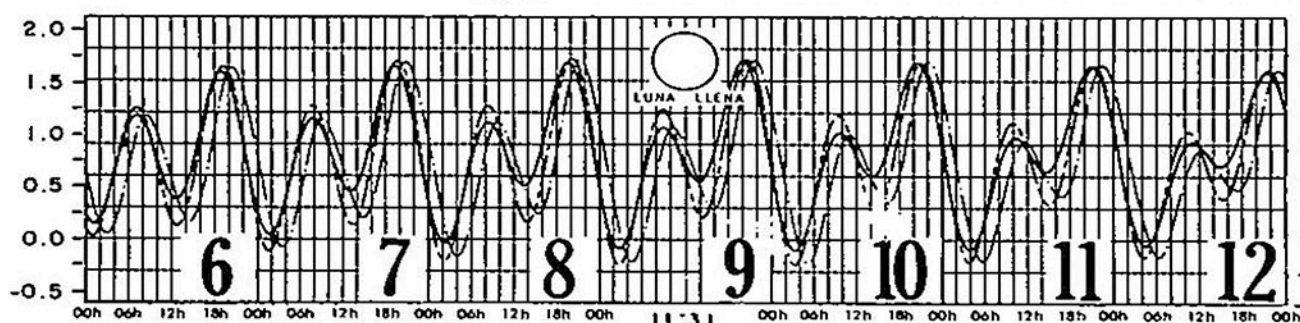
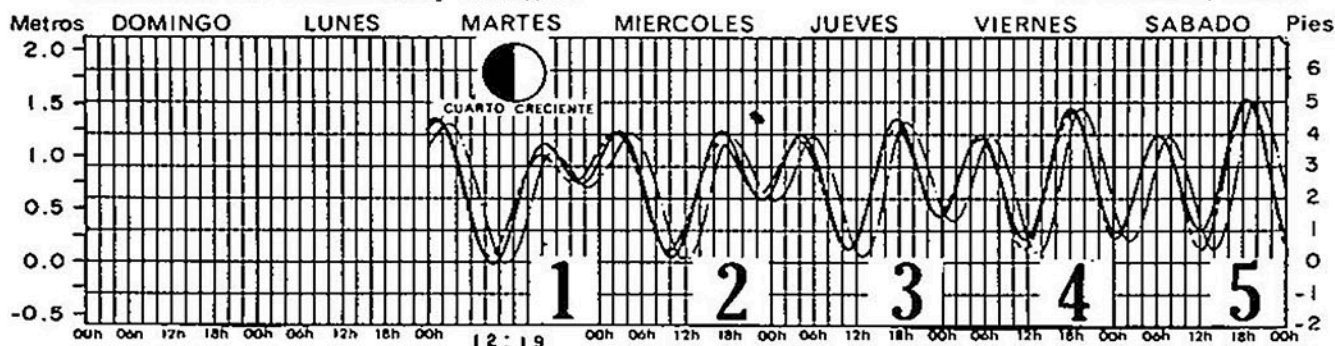
PLANO DE REFERENCIA: N.B.M.I.



MAYO 1990

INSTITUTO DE GEOFISICA, U.N.A.M.

ENSENADA, B.C.
GRO. NEGRO, B.C.S.
SAN. CARLOS, B.C.S.



HORA DEL MERIDIANO 120° W
DEL MERIDIANO 105° W

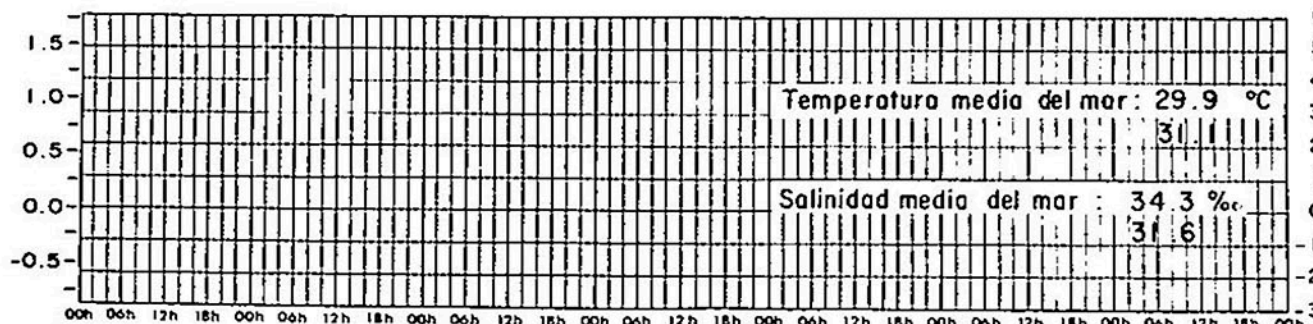
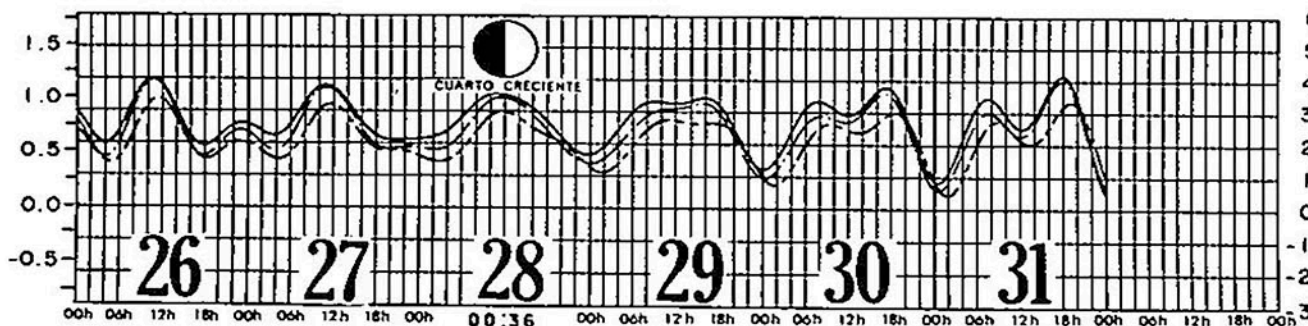
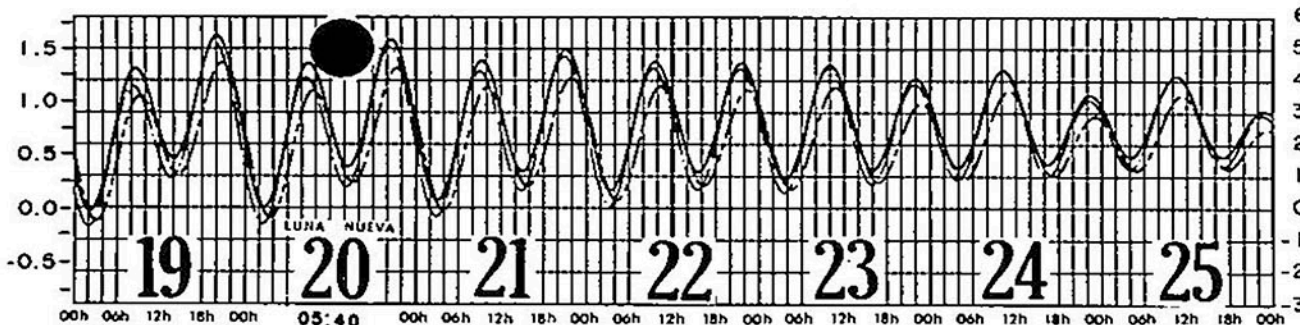
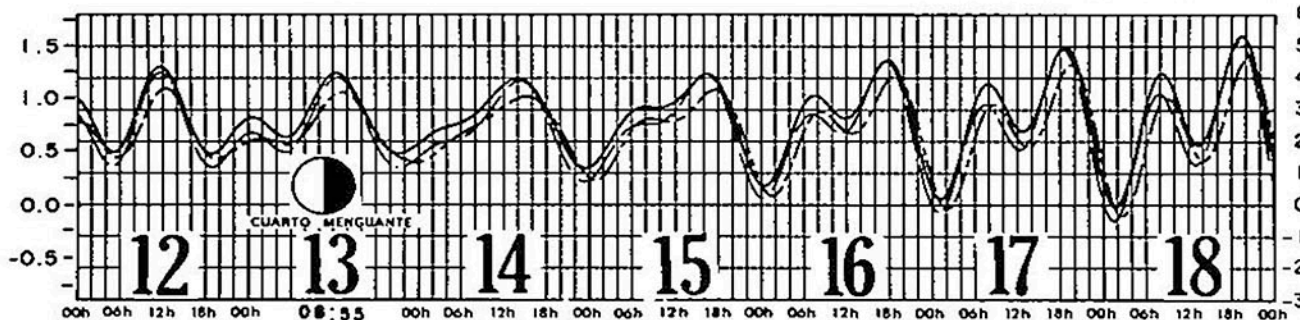
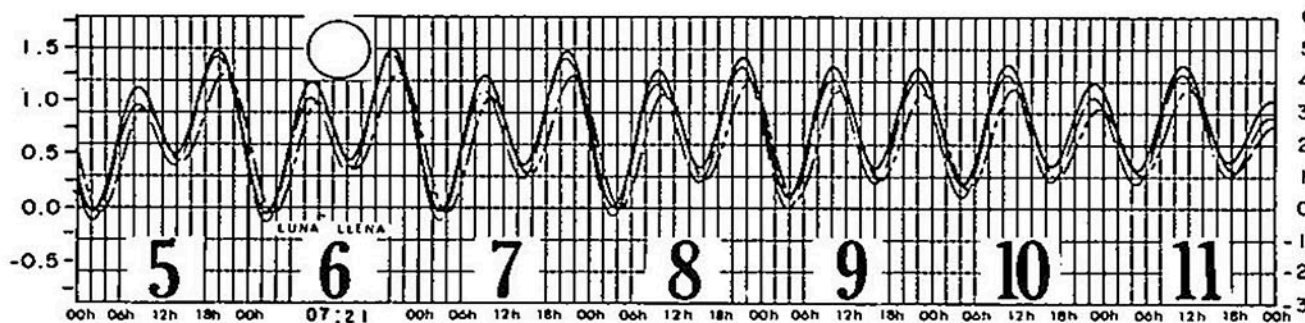
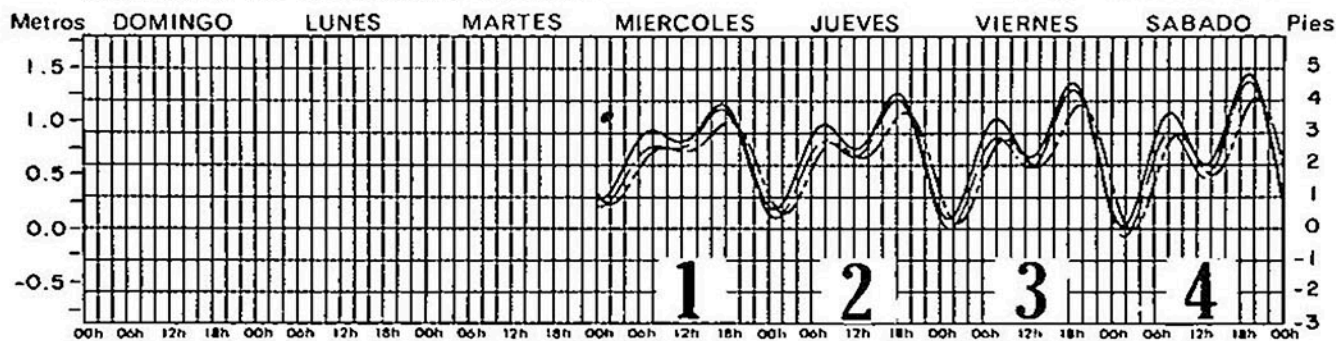
PLANO DE REFERENCIA N.B.M.I.



AGOSTO 1990

CABO SN. LUCAS, B.C.S.
MAZATLAN, SIN.
PTO. VALLARTA, JAL.

INSTITUTO DE GEOFISICA, U.N.A.M.



HORA DEL MERIDIANO 105° W
HORA DEL MERIDIANO 90° W

PLANO DE REFERENCIA: N.B.M.I.

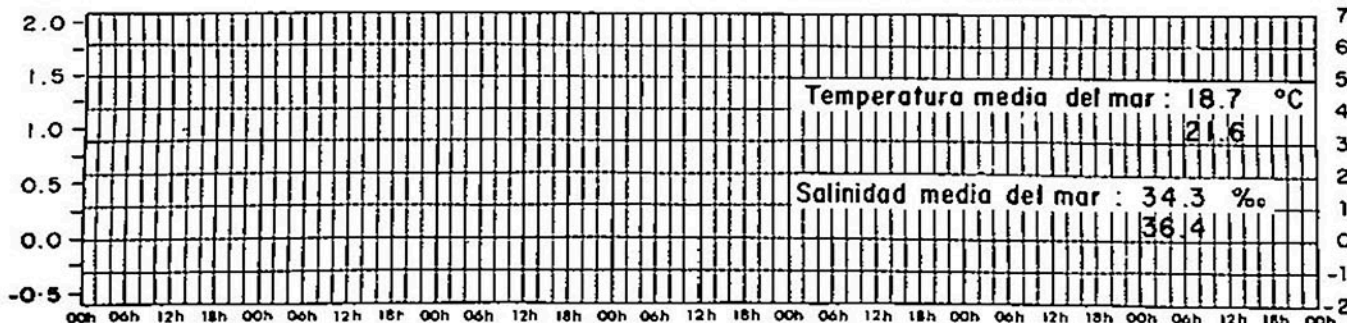
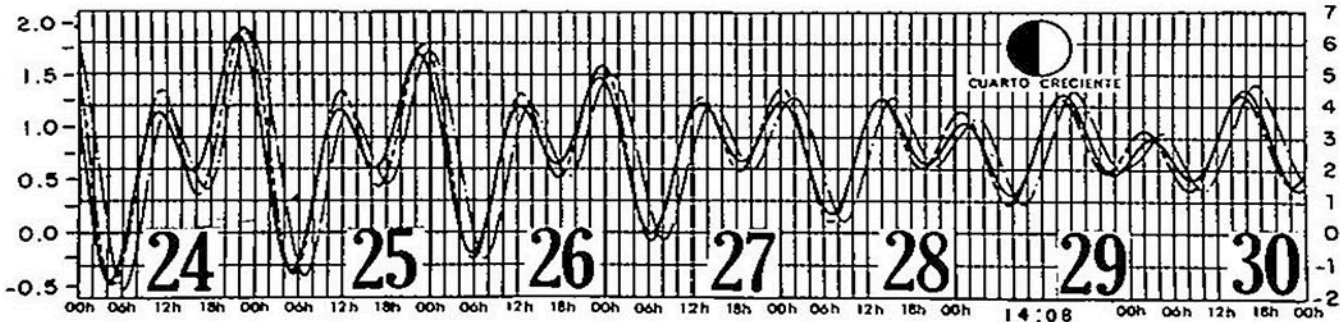
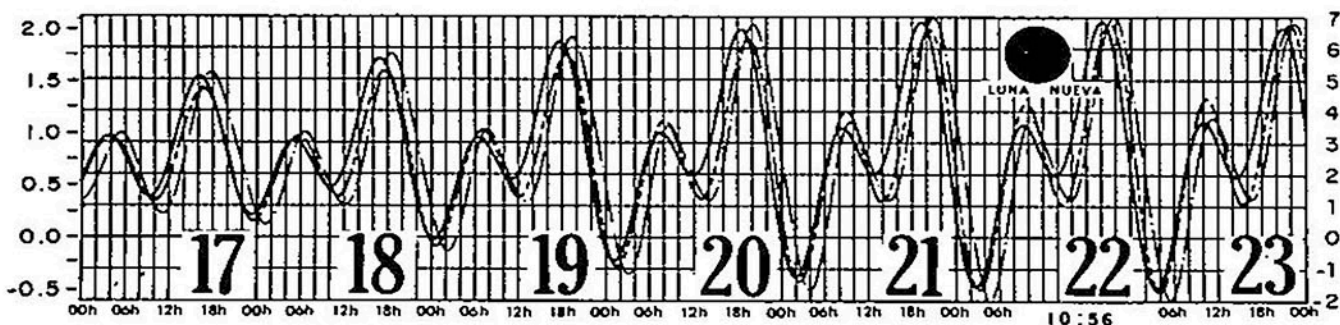
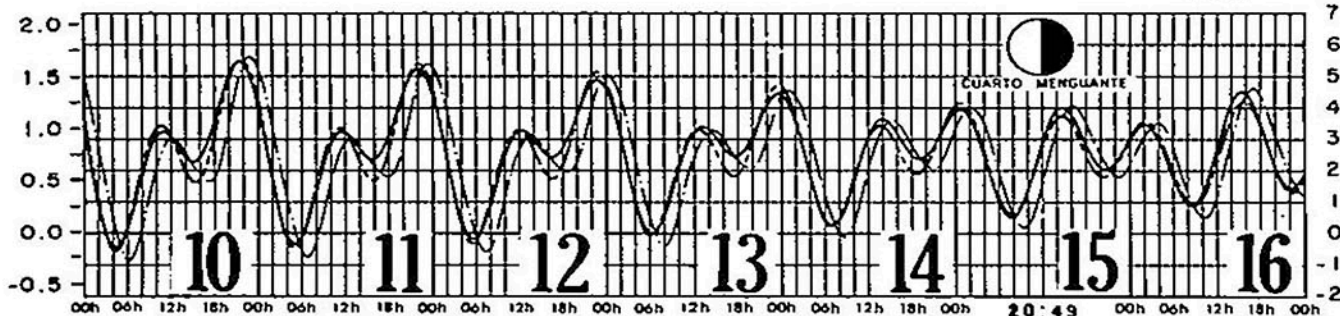
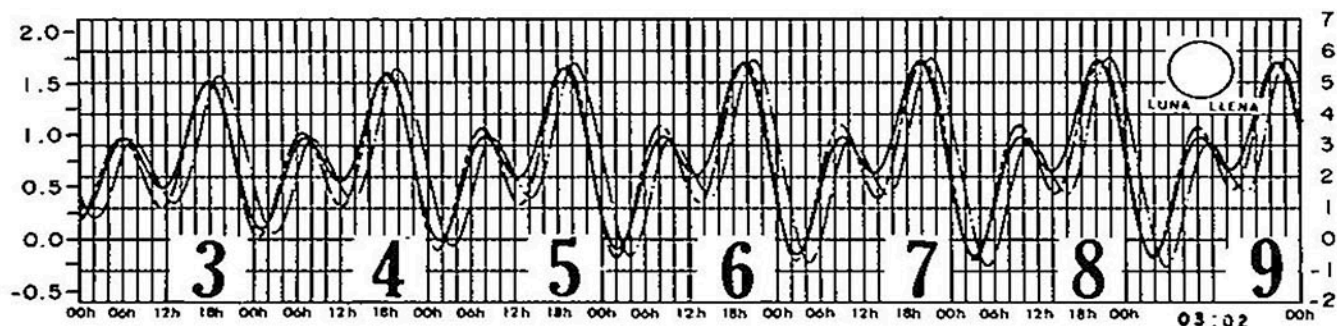
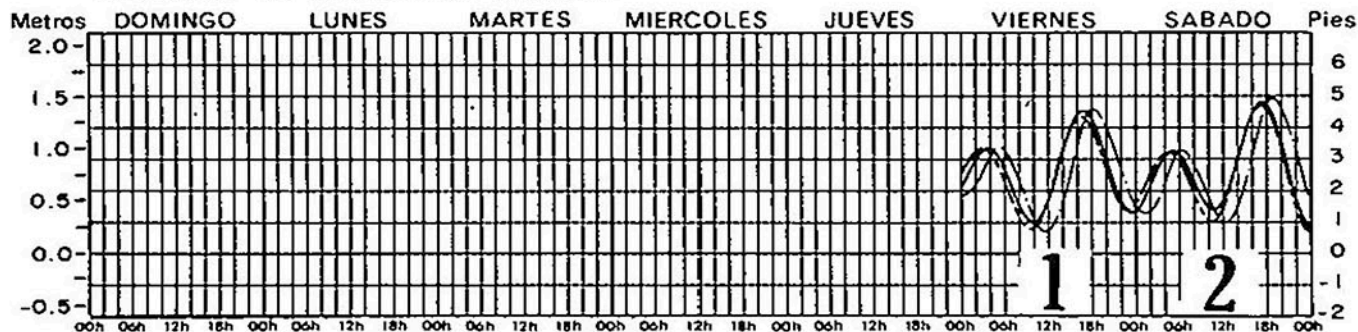


JUNIO 1990

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SAN CARLOS, B.C.S.



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HORA DEL MERIDIANO 120° W
HORA DEL MERIDIANO 105° W

PLANO DE REFERENCIA N.B.M.I.

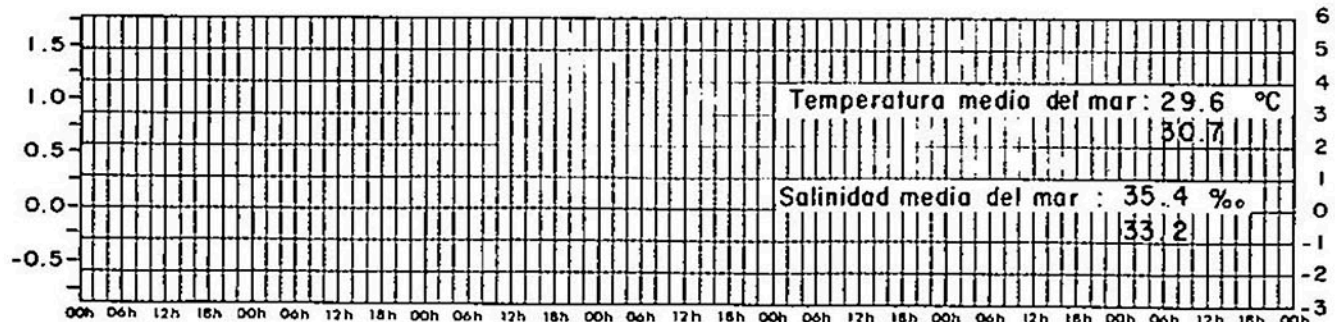
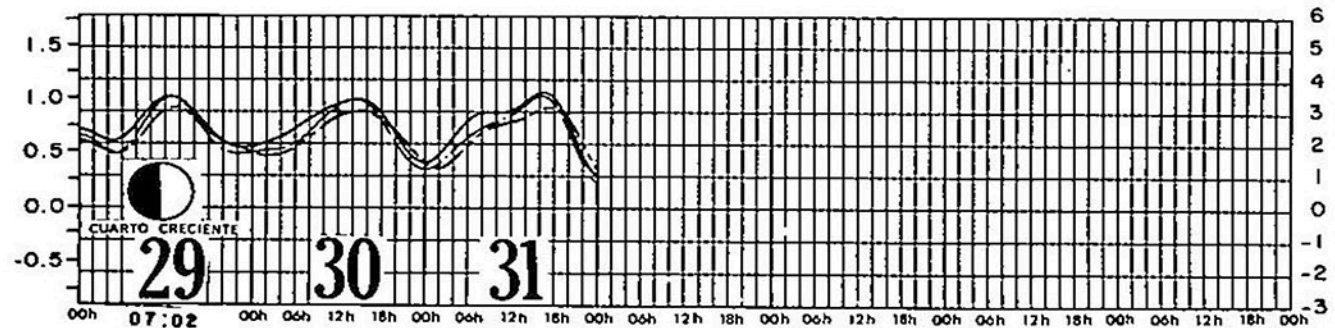
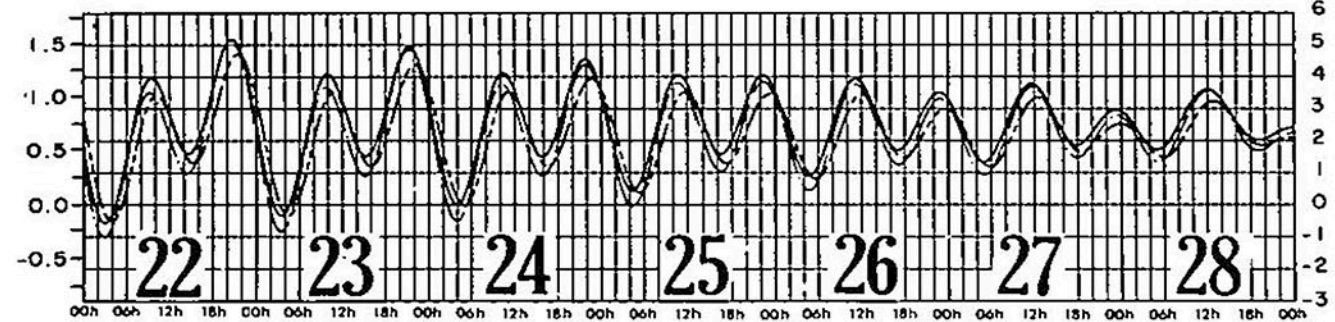
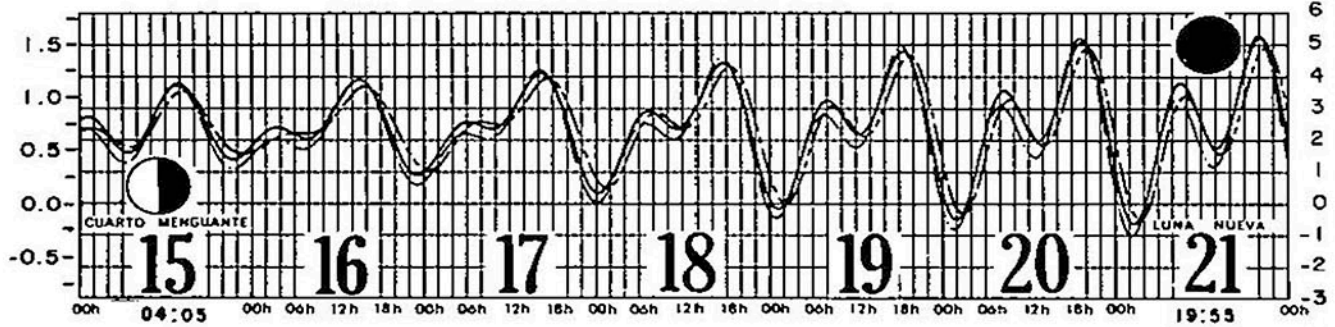
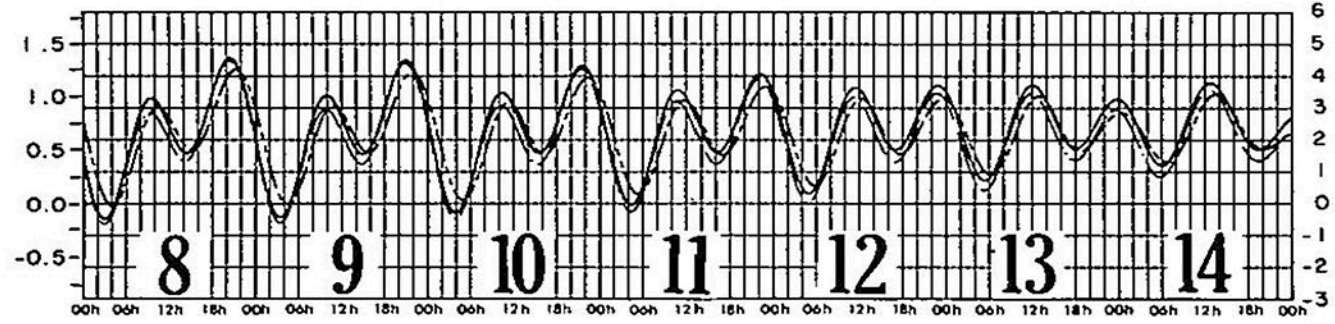
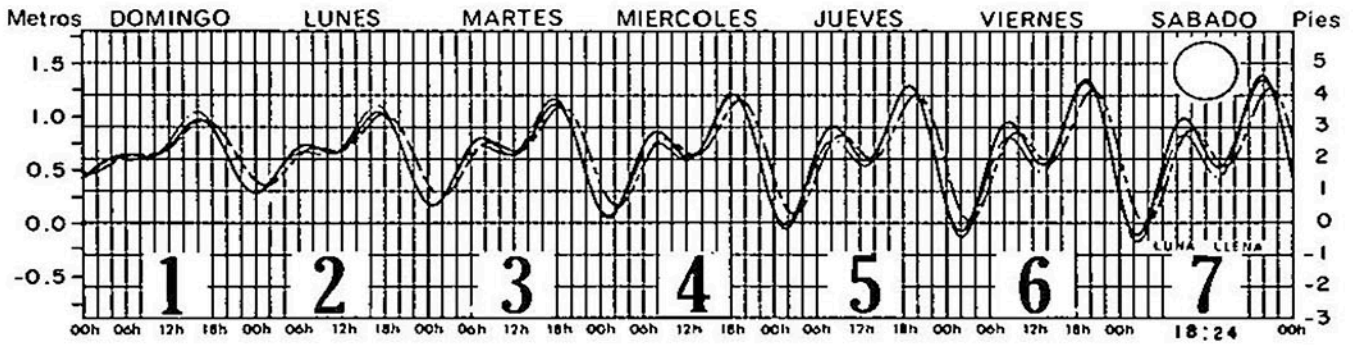


JULIO 1990

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HORA DEL MERIDIANO 105° W
HORA DEL MERIDIANO 90° W

PLANO DE REFERENCIA : N.B.M.I.

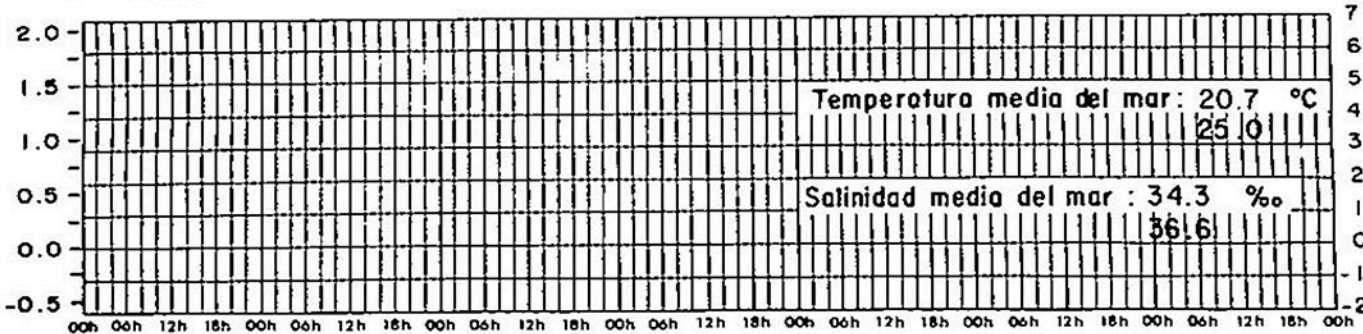
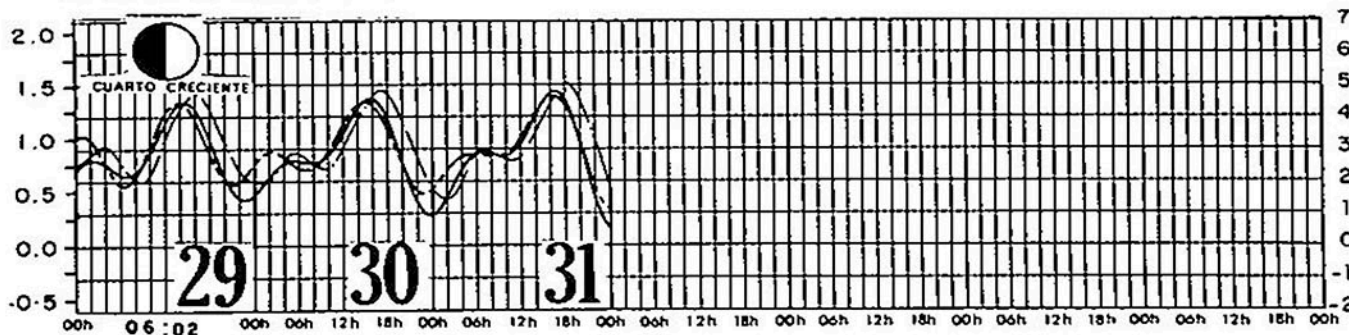
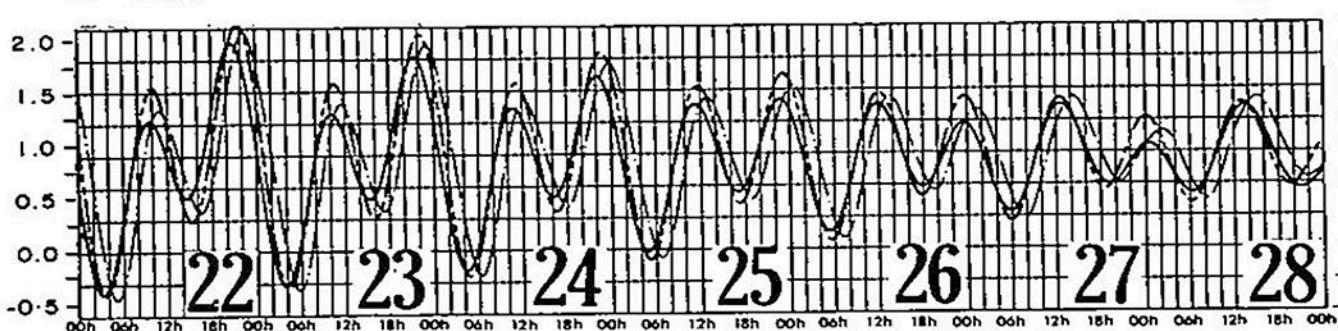
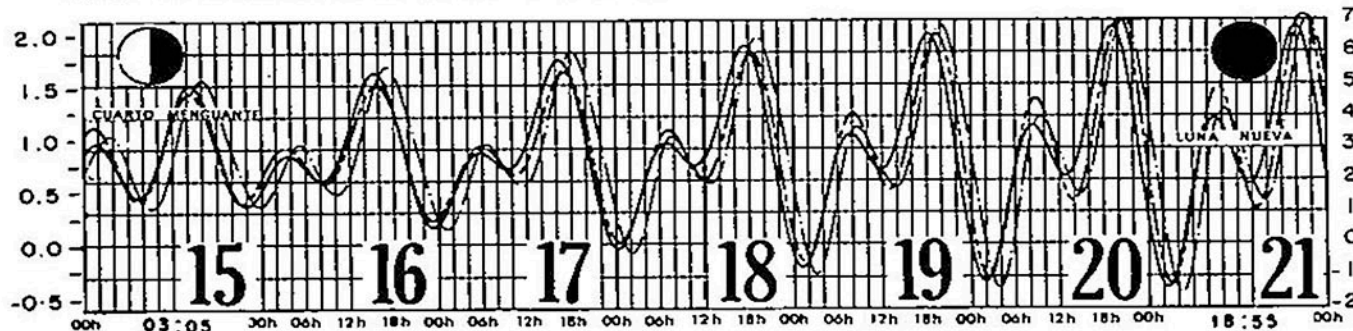
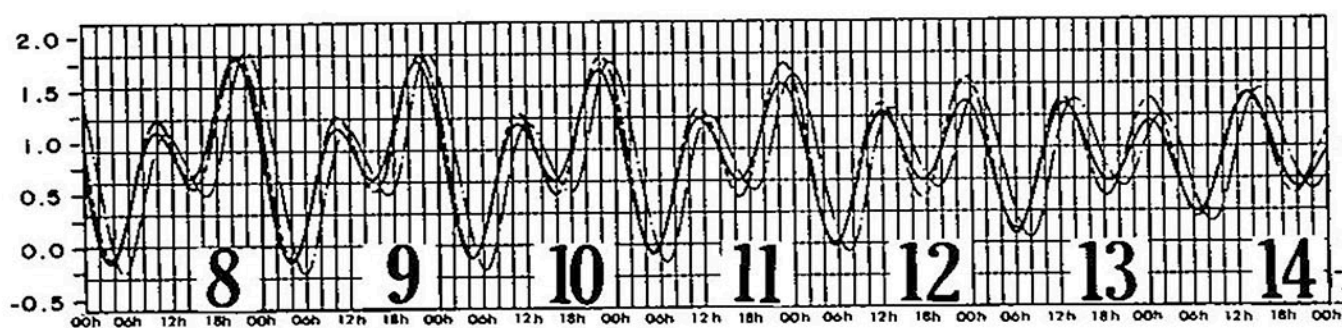
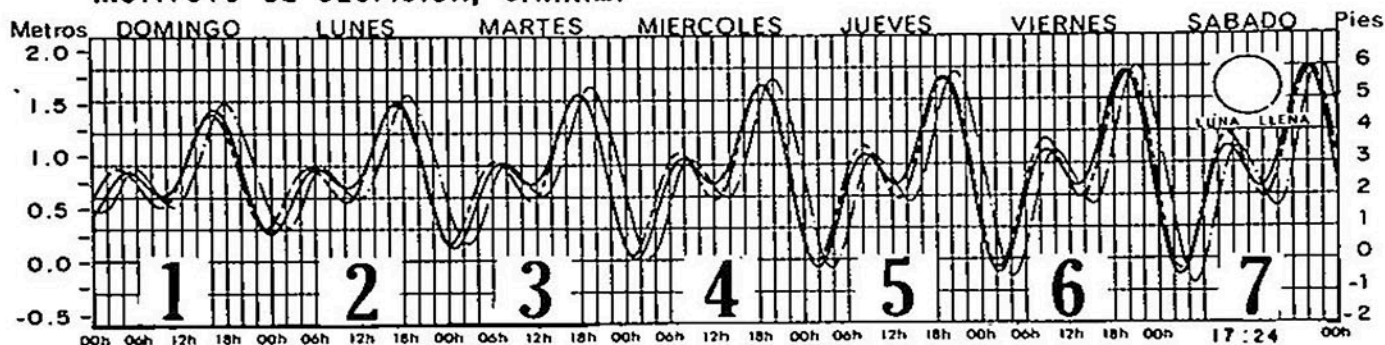


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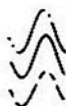
HORA DEL MERIDIANO: 120° W
HORA DEL MERIDIANO 105° W

PLANO DE REFERENCIA N.B.M.I.



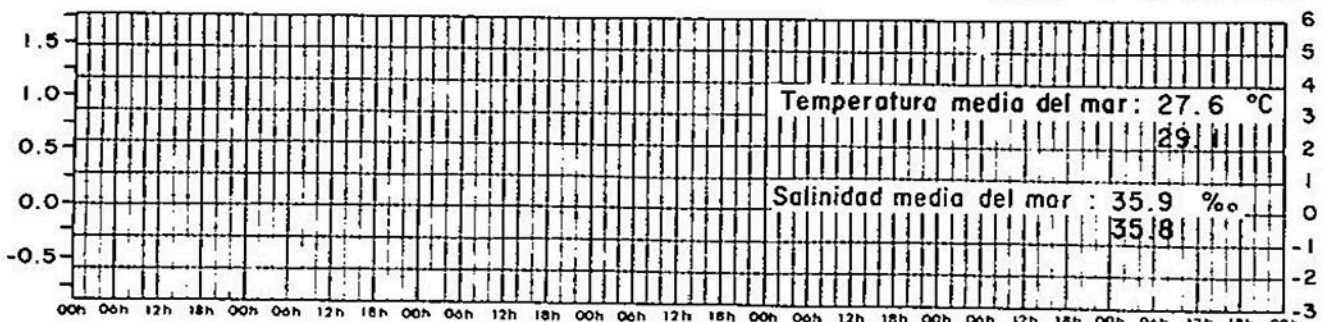
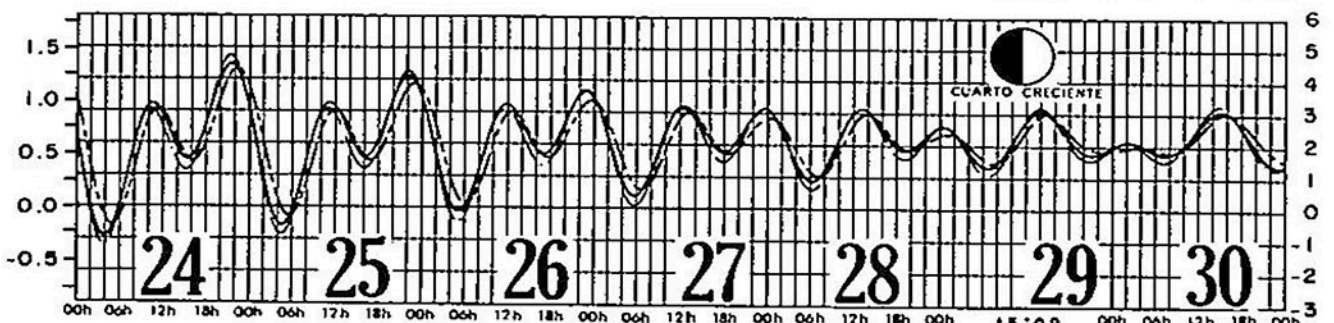
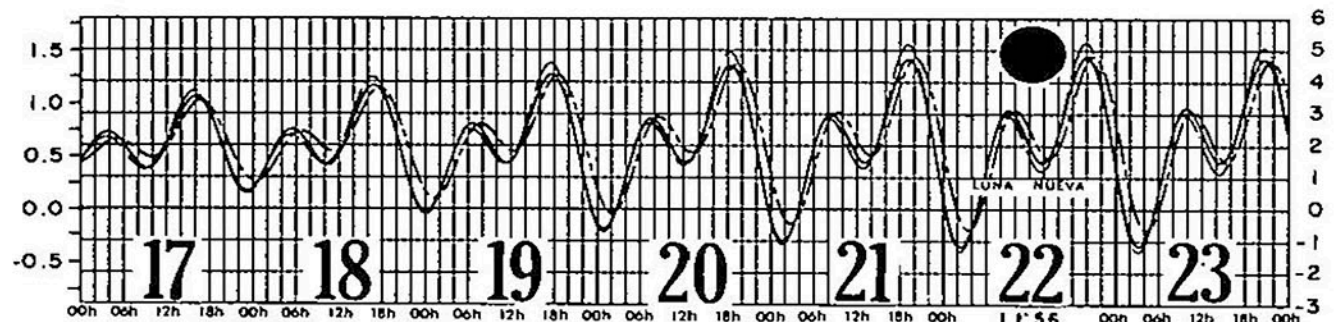
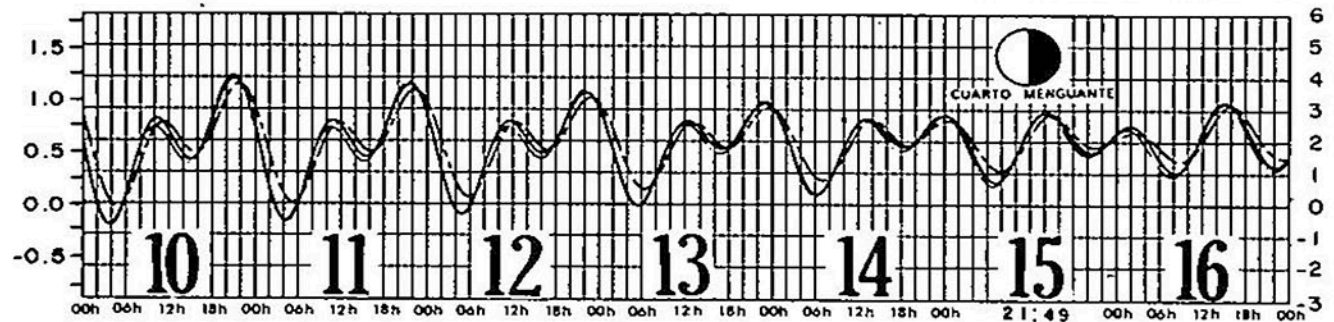
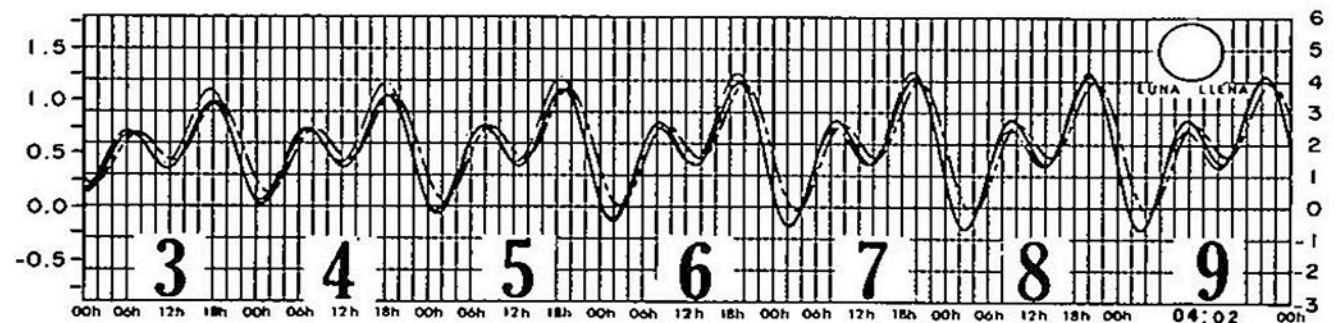
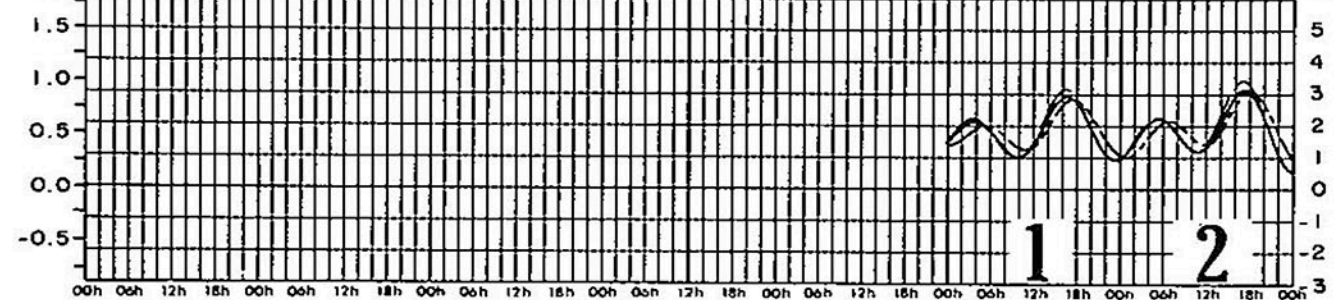
JUNIO 1990

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Metros DOMINGO LUNES MARTES MIERCOLES JUEVES VIERNES SABADO Pies



HORA DEL MERIDIANO 105° W
HORA DEL MERIDIANO 90° W

PLANO DE REFERENCIA: N.B.M.I.

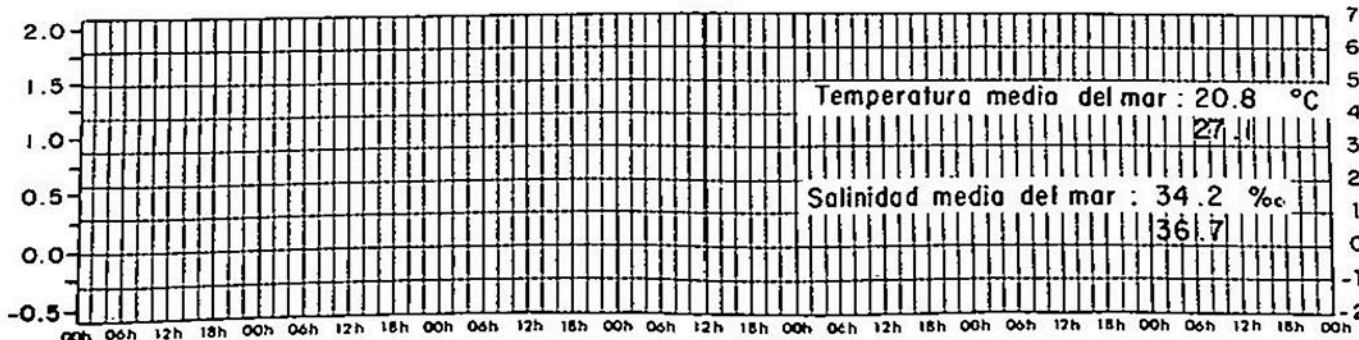
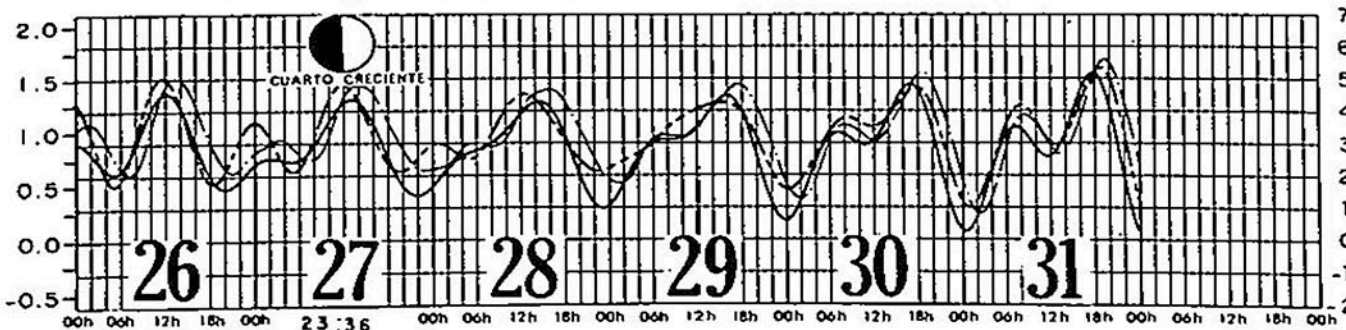
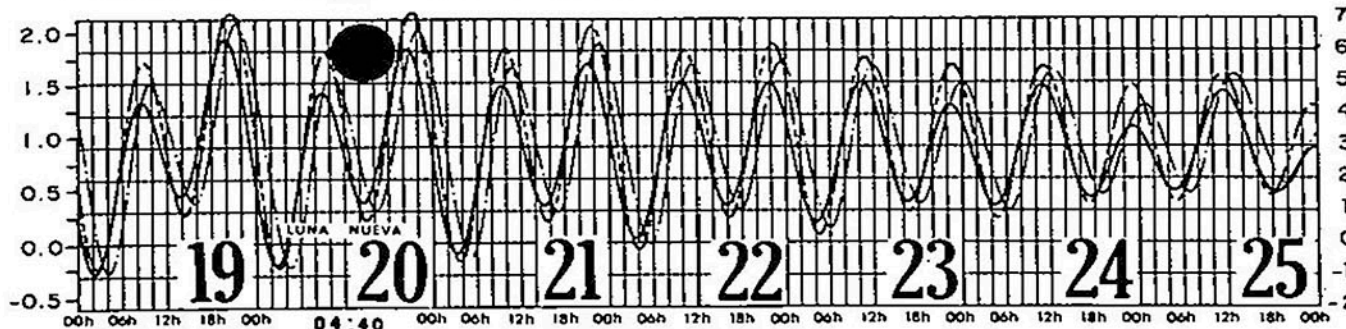
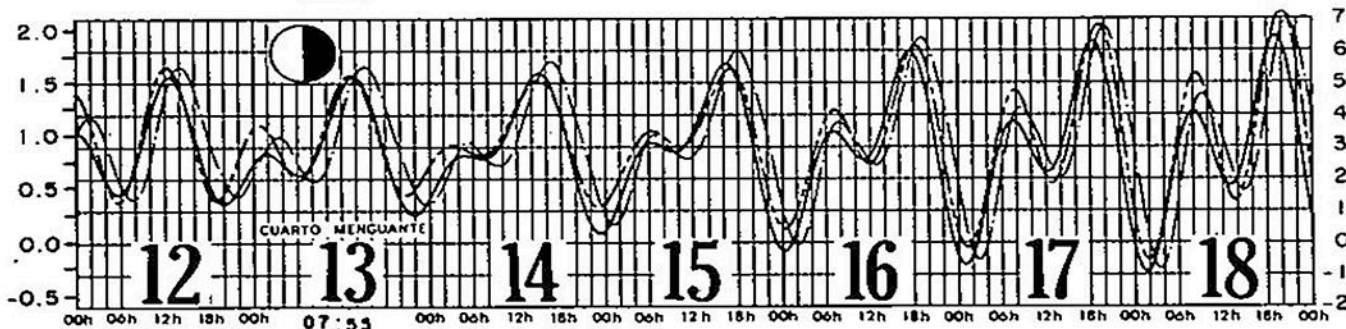
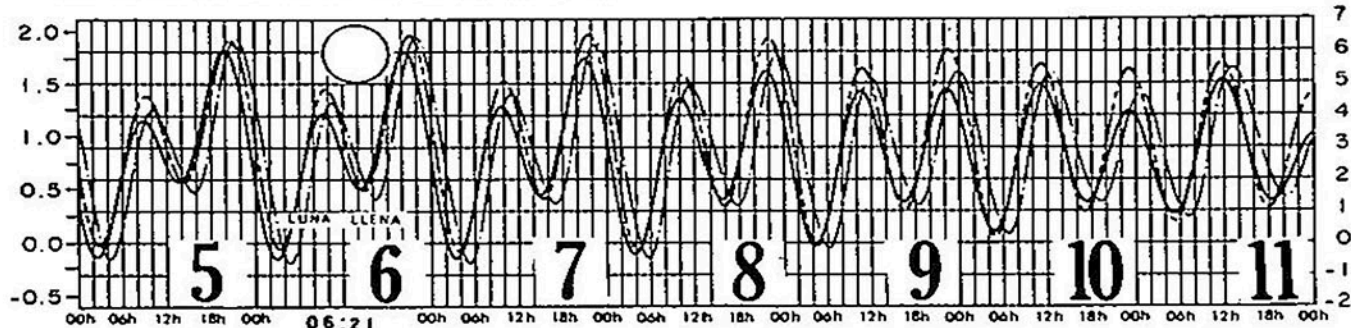
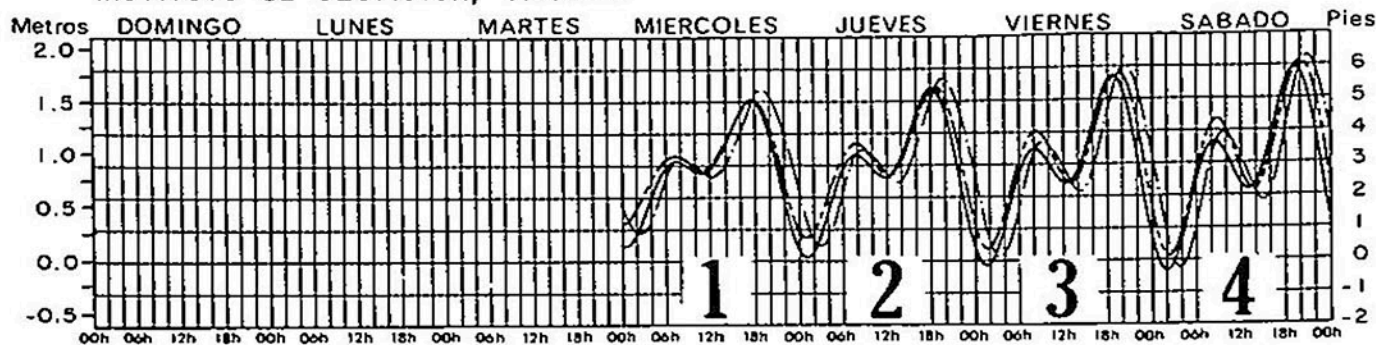


AGOSTO 1990

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INSTITUTO DE GEOFISICA, U.N.A.M.



HORA DEL MERIDIANO 120° W
HORA DEL MERIDIANO 105° W

PLANO DE REFERENCIA N.B.M.1.

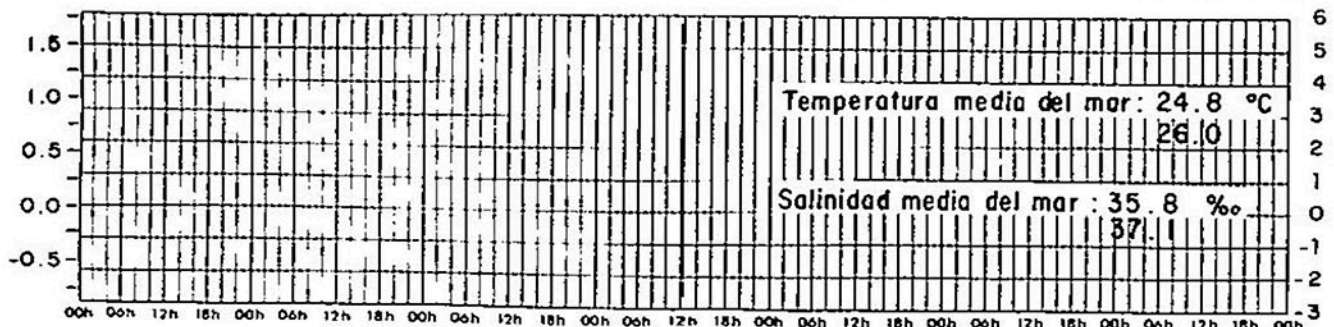
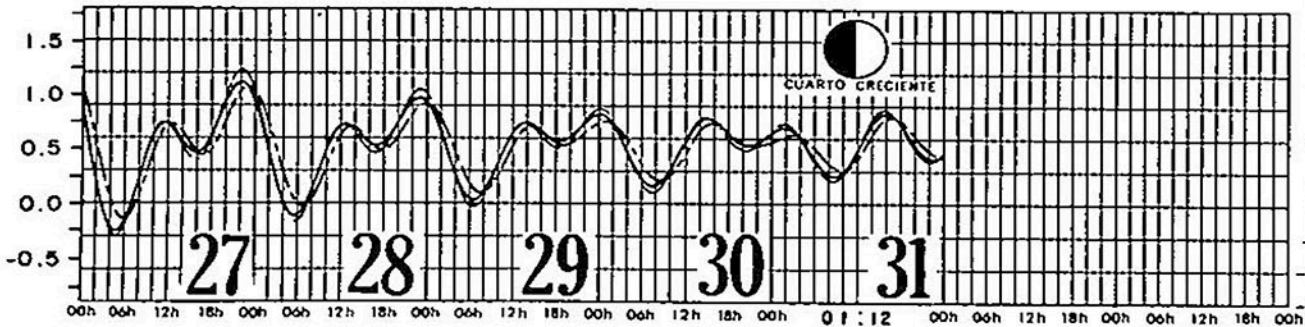
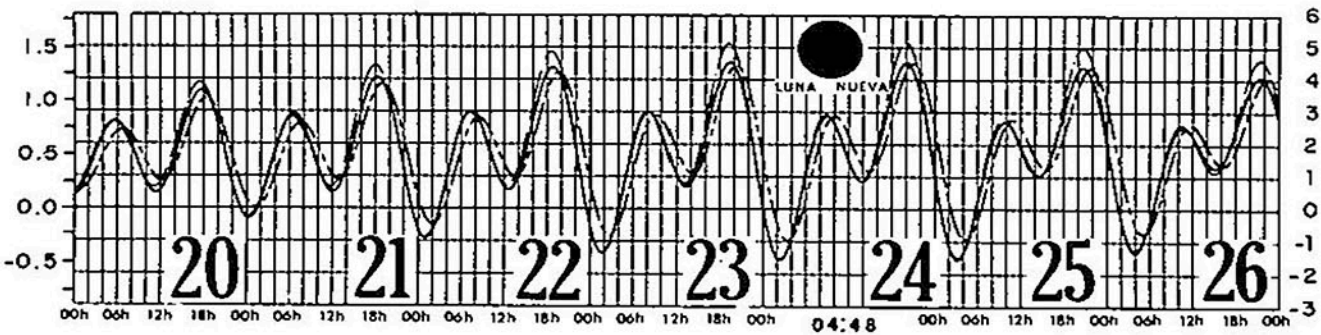
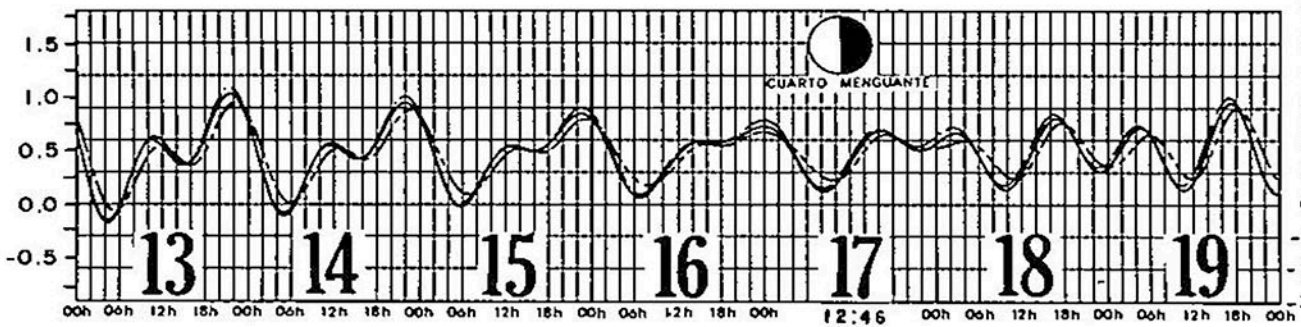
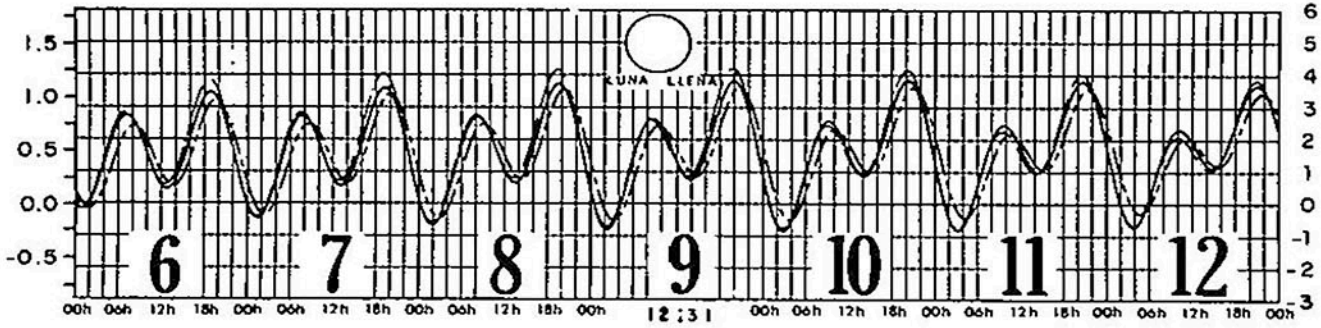
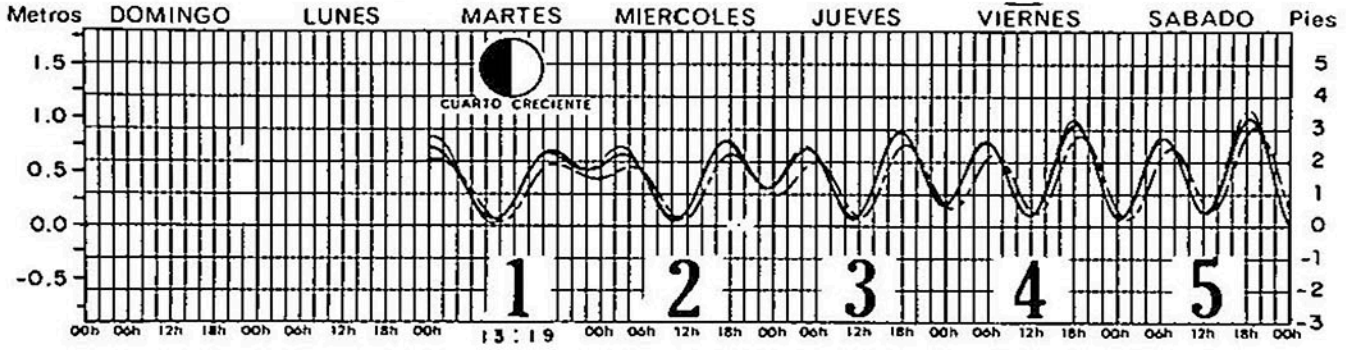


MAYO 1990

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INSTITUTO DE GEOFISICA, U.N.A.M.



HORA DEL MERIDIANO 105° W
HORA DEL MERIDIANO 90° W

PLANO DE REFERENCIA: N.B.M.I.

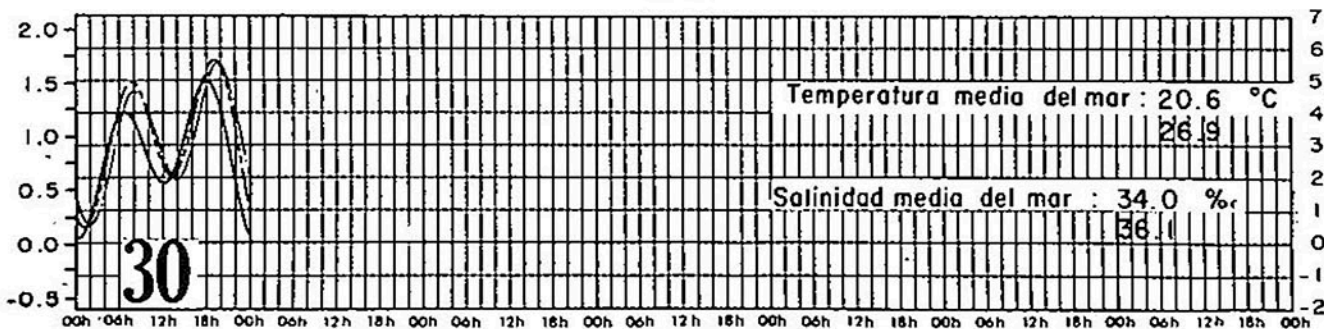
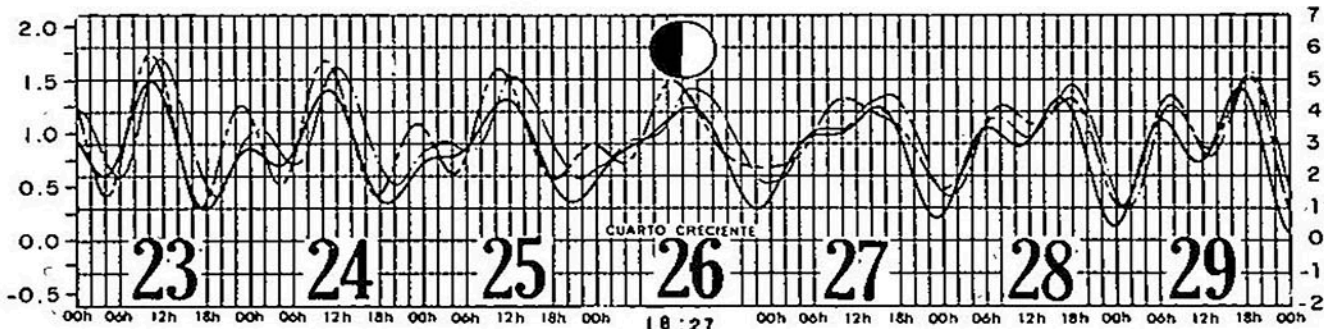
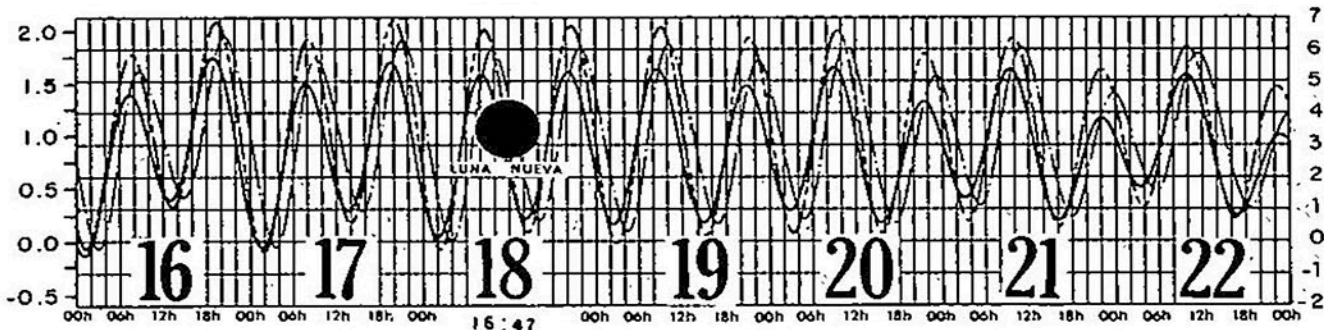
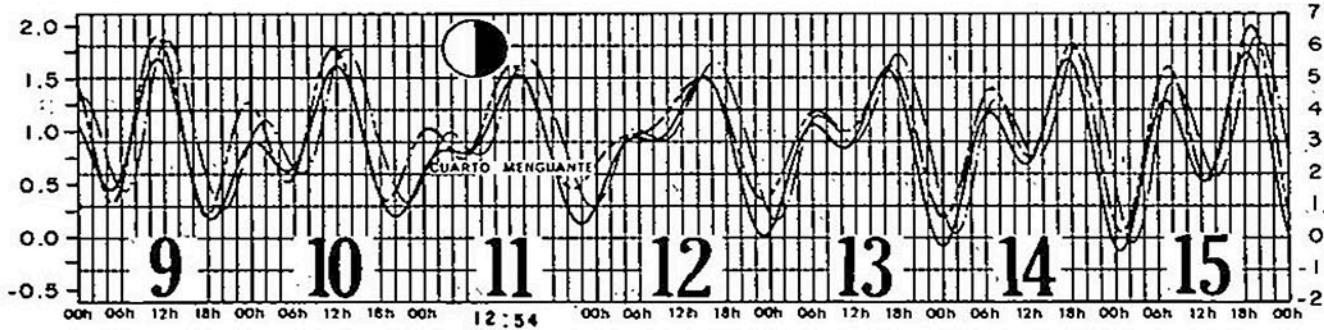
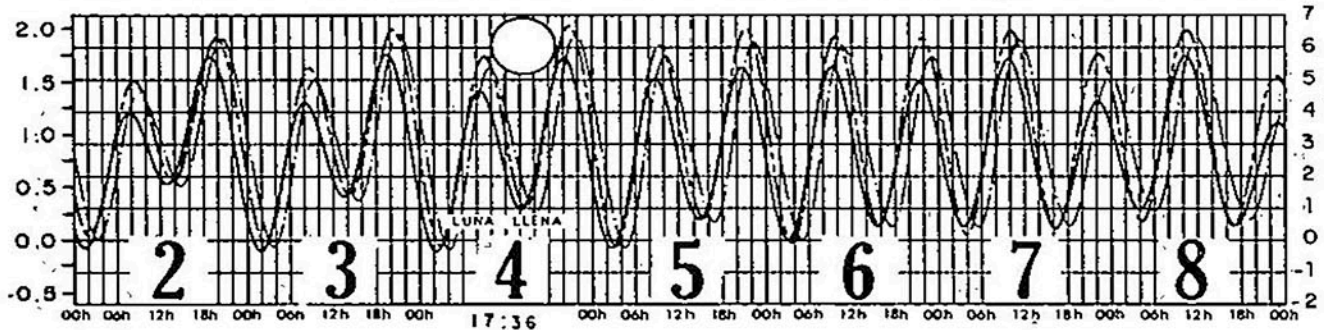
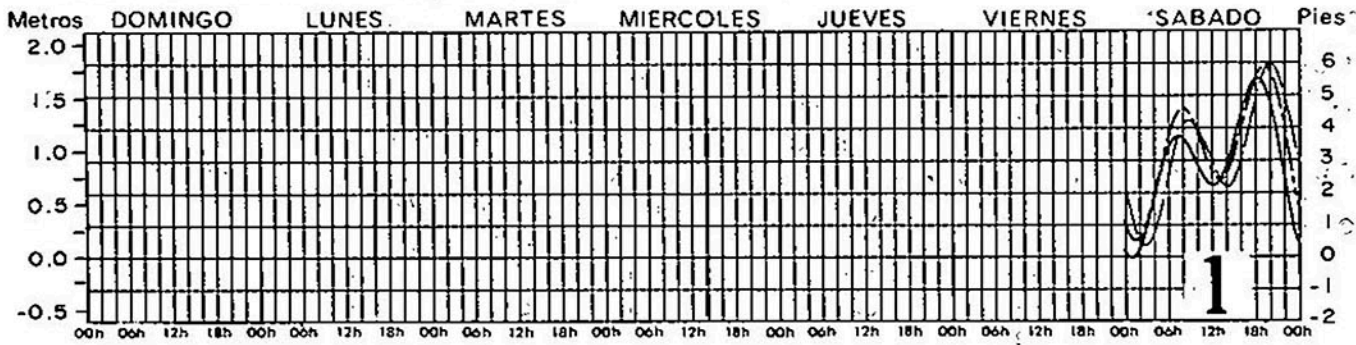


SEPTIEMBRE 1990

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HORA DEL MERIDIANO 120° W
HORA DEL MERIDIANO 105° W

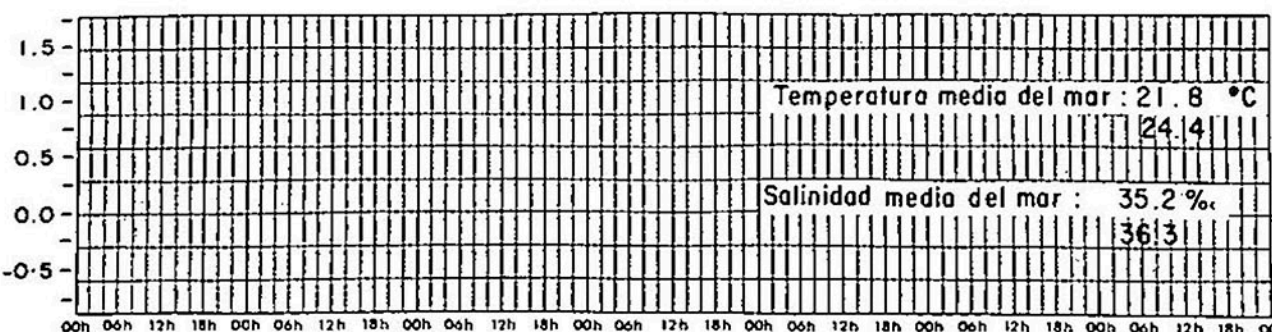
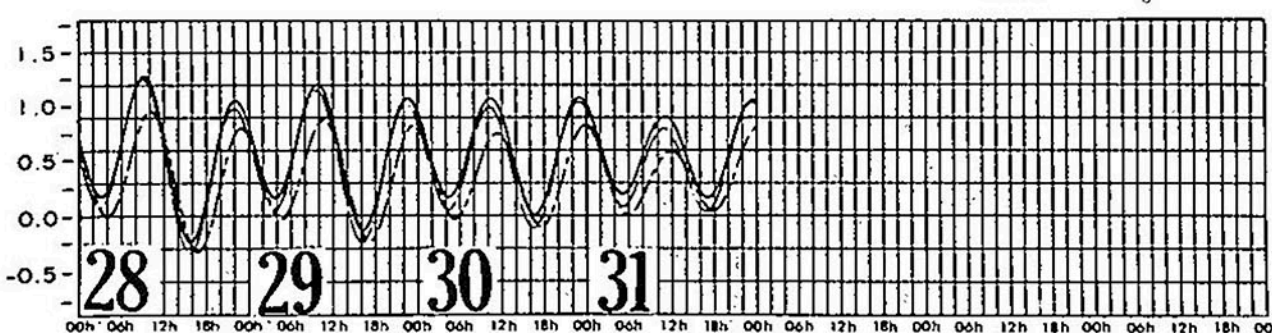
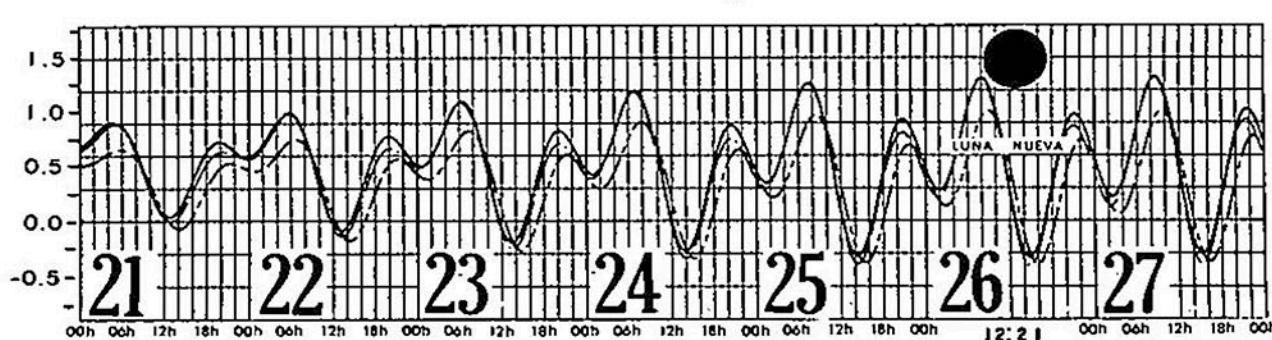
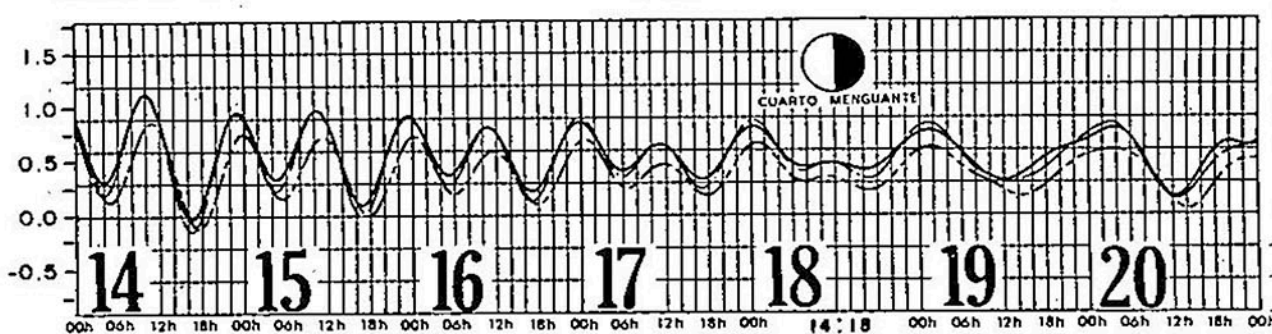
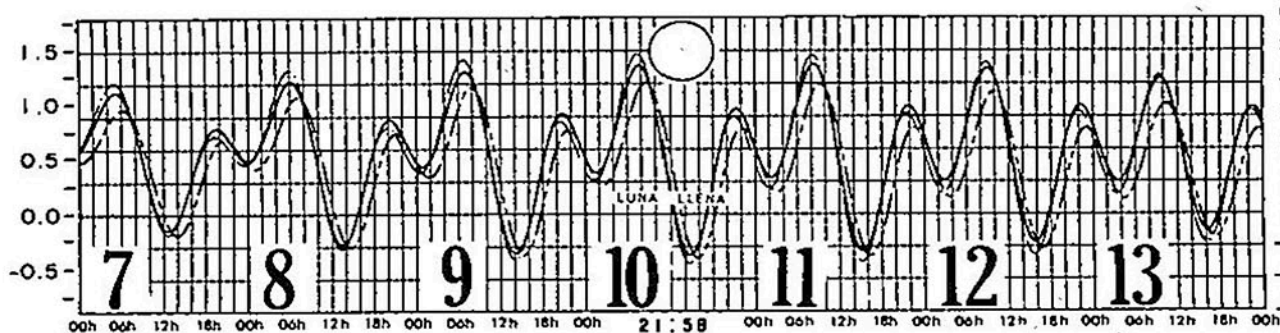
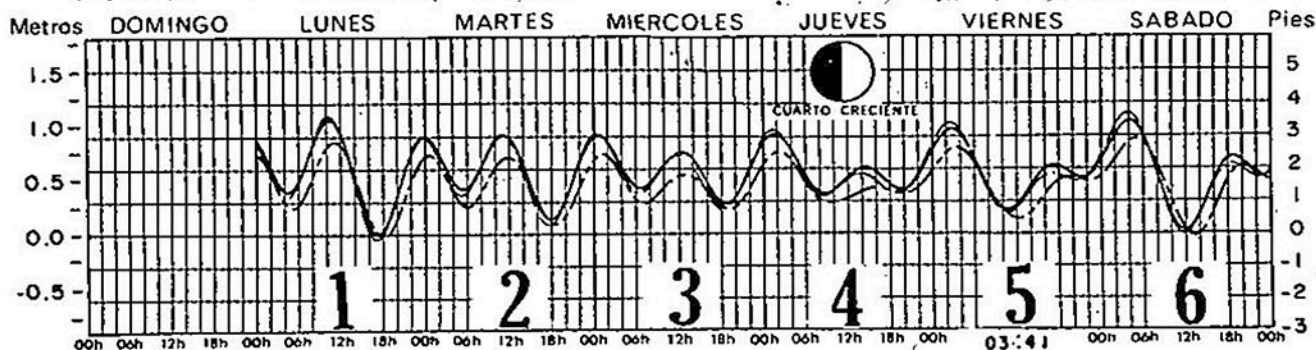
PLANO DE REFERENCIA N.B.M.I.



ENERO 1990

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HORA DEL MERIDIANO 105° W
HORA DEL MERIDIANO 90° W

PLANO DE REFERENCIA: N.B.M.I.

4213-45

CALENDARIO GRAFICO DE MAREAS 1989

Océano Pacífico

El pronóstico de mareas de Salina Cruz, Oax., prácticamente puede ser utilizado en todos los lugares de la costa comprendidos desde Salina Cruz hasta Balboa, Panamá, mediante la aplicación de ciertas correcciones al tiempo y a la altura de las pleamares y bajamares (puntos máximos y mínimos de la gráfica de mareas). El progreso total de la marea se dirige hacia el Sur aumentando de amplitud rápidamente hasta alcanzar su valor máximo en el Golfo de Panamá, en cambio la fase varía muy lentamente, o sea que las horas de las pleamares y bajamares en toda esta zona casi ocurre simultáneamente.

DIFERENCIAS:

Las diferencias en tiempo y altura se aplicarán según su signo a las pleamares y bajamares de la gráfica de Salina Cruz, para obtener las del lugar deseado. Las horas encontradas estarán referidas al meridiano en uso del lugar.

DIFERENCIAS DE TIEMPO

ESTACIONES	PLEAMAR SUP.		PLEAMAR INF.		BAJAMAR INF.		BAJAMAR SUP.	
	Hora	Min.	Hora	Min.	Hora	Min.	Hora	Min.
Champerico, Guatemala	00	00	00	00	00	00	00	00
San José, Guatemala	00	00	00	00	00	00	00	00
La Unión, El Salvador	+ 00	20	+ 00	30	00	00	+ 00	20
Puntarenas, Costa Rica	+ 00	20	00	00	-00	10	+ 00	10
Balboa, Zona del Canal de Panamá	+ 01	20	+ 01	00	+ 01	00	+ 01	30

DIFERENCIAS DE ALTURA

ESTACIONES	PLEAMAR SUP.		PLEAMAR INF.		BAJAMAR INF.		BAJAMAR SUP.	
	Pies	m	Pies	m	Pies	m	Pies	m
Champerico, Guatemala	+ 1.1	+ 0.34	+ 1.1	+ 0.34	0.0	0.00	0.0	0.00
San José, Guatemala	+ 1.6	+ 0.49	+ 1.7	+ 0.52	+ 0.1	+ 0.03	+ 0.1	+ 0.03
La Unión, El Salvador	+ 5.0	+ 1.52	+ 5.1	+ 1.55	0.0	0.00	+ 0.4	+ 0.12
Puntaneras, Costa Rica	+ 4.4	+ 1.34	+ 4.5	+ 1.37	-0.1	-0.03	+ 0.3	+ 0.09
Balboa, Zona del Canal de Panamá	+ 10.5	+ 3.20	+ 10.4	+ 3.17	+ 0.4	+ 0.12	+ 1.2	+ 0.36

Dr. Gerardo Suárez
Director

Instituto de Geofísica

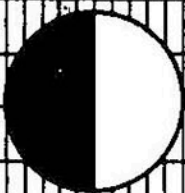
Francisco Graffé Schmit
Responsable editorial

Ing. Francisco Grivel Piña
Jefe del Servicio Mareográfico
Instituto de Geofísica de la U.N.A.M.

Colaboraron en la elaboración de los originales
Heriberto Ornelas
Pablo Aguilar
Lorenzo Pérez

Circuito Exterior, Ciudad Universitaria.
04510 México, D.F.
Teléfono: 550-52-15 Ext. 4362.

INSTITUTO DE GEOFISICA



Calendario Gráfico de Mareas 1990



Océano Pacífico



Cabo San Lucas, B.C.S.
Mazatlán, Sin.
Pto. Vallarta, Jal.

Pto. Peñasco, Son.
Guaymas, Son.
Topolobampo, Sin.

Pto. Angel, Oax.
Salina Cruz, Oax.
Pto. Madero, Chis.