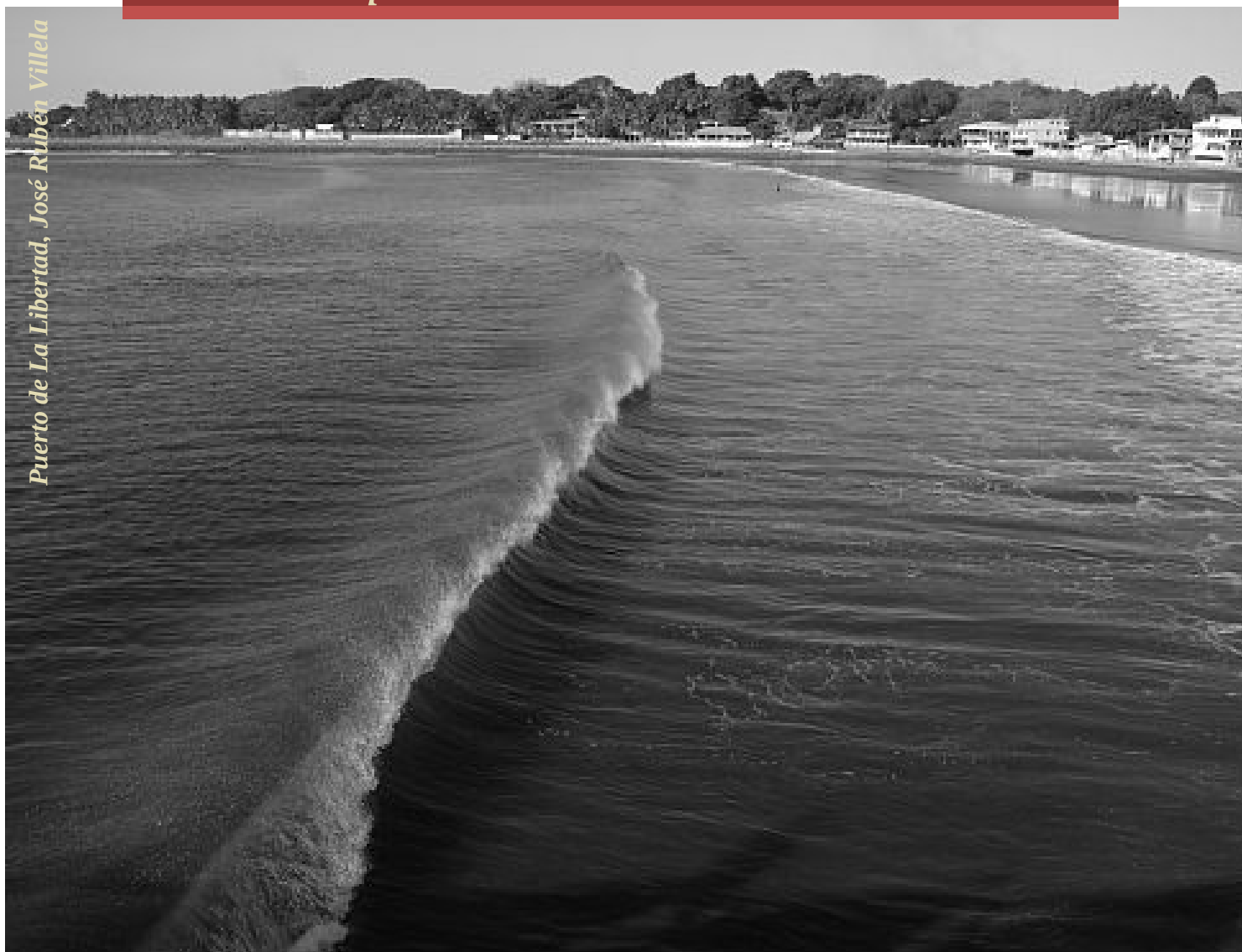


Almanaque Marino-Astronómico 2009

Puerto de La Libertad, José Rubén Villela



MINISTERIO DE MEDIO AMBIENTE Y RECURSOS NATURALES
SERVICIO NACIONAL DE ESTUDIOS TERRITORIALES
SERVICIO OCEANOGRÁFICO NACIONAL

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PRÓLOGO

La oceanografía puede definirse como la rama de las Ciencias de la Tierra que estudia los procesos biológicos, físicos, geológicos y químicos que se dan en los mares y en los océanos.

Según la Constitución Política de la República de El Salvador (Artículo 84) el Estado ejerce soberanía en el espacio aéreo, el mar, lecho marino y subsuelo hasta una distancia de 200 millas marinas o náuticas (370.4 km) desde el nivel de la bajamar media, lo cual corresponde a la anchura de la zona económica exclusiva establecida en la Convención de las Naciones Unidas sobre el Derecho del Mar (Artículo 57).

La oceanografía tiene aplicaciones en diversas actividades como la pesca, navegación, recreación, generación de energía, construcción de infraestructura, etc., que se desarrollan en la zona costero-marina, la cual es definida en la Ley del Medio Ambiente como las franjas terrestres y marinas desde la línea de costa hasta una distancia de 20 km y una profundidad de 100 metros.

El Servicio Oceanográfico Nacional (SON) forma parte de las áreas del Servicio Nacional de Estudios Territoriales (SNET), Dirección General del Ministerio de Medio ambiente y Recursos Naturales (MARN).

La creación del SON tiene como objetivo general ser la instancia encargada de realizar observaciones, interpretaciones, pronósticos e investigaciones de fenómenos oceanográficos que pueden representar riesgos y beneficios a la población de El Salvador.

Como parte de los productos que se realizan en el SON y a partir del presente año elaborará el Almanaque Marino Astronómico que contiene la información referida a pronósticos de mareas para los principales puertos del país, fechas y horas de la salida y puesta del Sol y la Luna, cronología de estaciones astronómicas y eclipses, fiestas nacionales, celebraciones cívico-religiosas y la información complementaria de los términos utilizados en este Almanaque.

I.- LAS ESTACIONES ASTRONÓMICAS EN 2009

(PARA EL HEMISFERIO NORTE DE LA TIERRA)

(Hora oficial salvadoreña)

EQUINOCCIO DE PRIMAVERA

SOLSTICIO DE VERANO

MES	DÍA	HORA	MIN	MES	DÍA	HORA	MIN
Marzo	20	05	44	Junio	20	23	46

EQUINOCCIO DE OTOÑO

SOLSTICIO DE INVIERNO

MES	DÍA	HORA	MIN	MES	DÍA	HORA	MIN
Septiembre	22	15	19	Diciembre	21	11	47

GLOSARIO

- Apogeo Lunar** : Máximo alejamiento de la Luna a la Tierra. Como el perigeo, sucede unas 13 veces por año.
- Crepúsculo (en general)** : Intervalo de tiempo en que el cielo está muy poco iluminado por el sol ya sea antes de su salida (matutino) o después de su puesta (vespertino).
- Crepúsculo Civil** : En El Salvador tiene una duración en promedio de veintitrés minutos. Varía entre veintiuno y veinticuatro minutos durante el año, tanto el crepúsculo matutino como el vespertino.

- Equinoccio** : *Fechas cuyo día natural (entre salida y puesta del Sol) tiene la misma duración que la noche.*
- Perigeo Lunar** : *Máximo acercamiento de la Luna a la Tierra (aproximadamente 13 veces por año).*
- Solsticio** : *Fecha cuyo día natural tiene la máxima duración ó la mínima durante el año.*
- Solsticio de Verano** : *Cuando el día tiene su mayor duración.*
- Solsticio de Invierno** : *Cuando el día tiene su menor duración.*

II.- ECLIPSES 2009

Este año habrá un total de seis eclipses: cuatro serán de Luna y dos de Sol, los cuales se detallan a continuación:

No.	Fenómeno	inicio		final		Observación	Duración máxima del fenómeno
		día	hora	día	hora		
I	Eclipse Anular de Sol	Enero - 25	22:57	Enero - 26	05:01	No será visible en esta área	7min 51 seg
II	Eclipse Penumbral de Luna	Febrero - 9	06:37	Febrero- 9	10:40	No será visible en esta área	
III	Eclipse Penumbral de Luna	Julio -7	02:33	Julio - 7	04:44	Sera visible en esta área	
IV	Eclipse Total de Sol	Julio -21	17:58	Julio - 21	23:12	No será visible en esta área	6 min 44 seg
V	Eclipse Penumbral de Luna	Agosto -5	17:01	Agosto- 5	20:17	No será visible en esta área	
VI	Eclipse Parcial de Luna	Dic - 31	12:52	Dic-31	13:54	No será visible en esta área	

I.-ECLIPSE ANULAR DE SOL

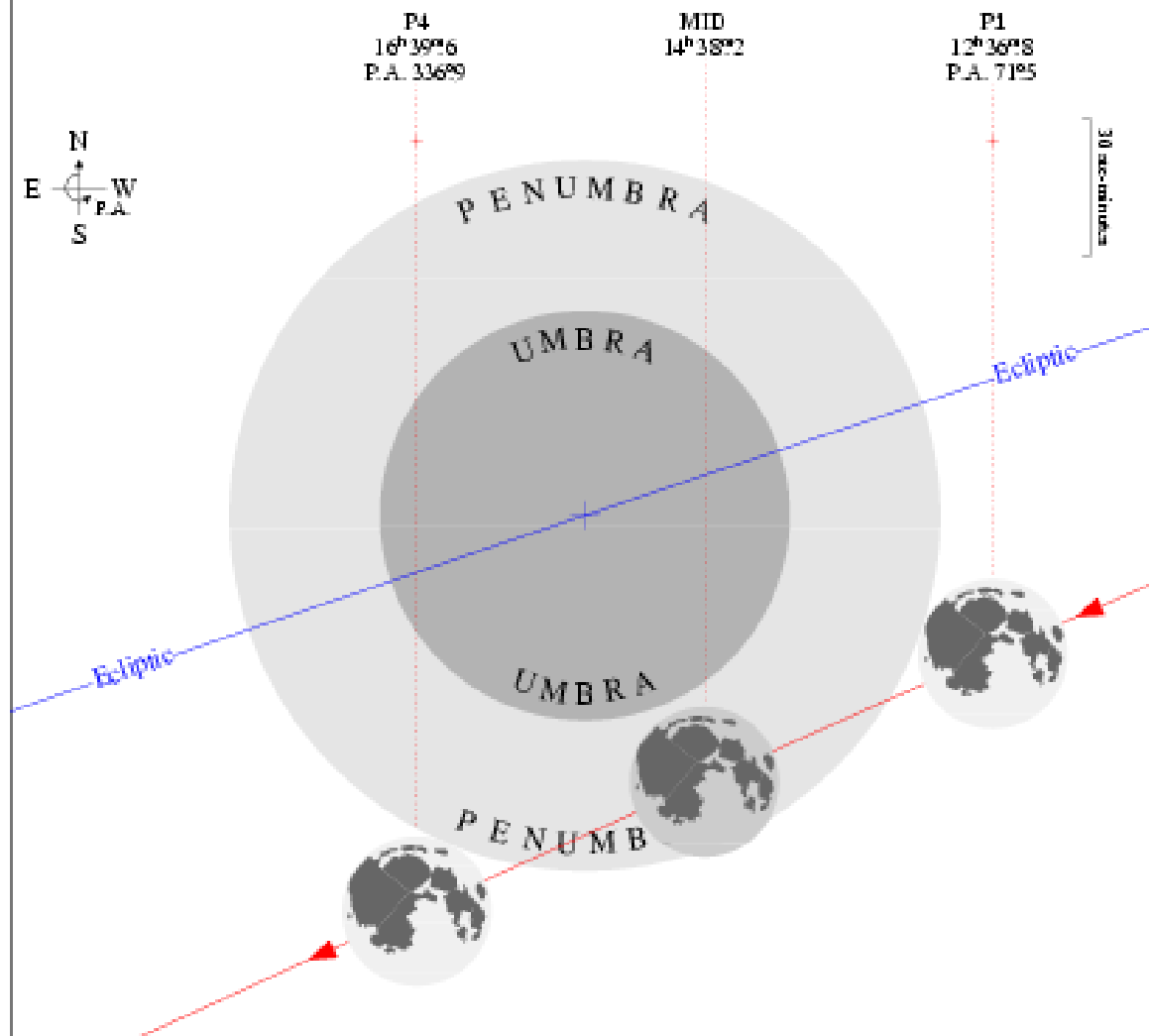
25/01/2009



CIRCUNTANCIAS	HORA UTC			LONGITUD		LATITUD	
	hora	min		grados	min	grados	min
Inicio del Eclipse; primer contacto con la Tierra	4	56.6	E	8	13.5	S	28
Inicio de la penumbra en el extremo norte	5	54.5	E	3	17.2	S	3
Inicio de la umbra en el extremo norte	6	04.5	W	10	44.5	S	33
Inicio en la línea central	6	05.8	W	11	46.0	S	34
Inicio de la umbra en el extremo sur	6	07.2	W	12	50.2	S	35
Inicio de la penumbra en el extremo sur	7	02.7	W	71	21.9	S	68
Centro del eclipse con apariencia de mediodía local	7	46.4	E	66	32.5	S	36
Fin de la penumbra en el extremo sur	8	55.0	E	153	39.3	S	36
Fin de la umbra en el extremo sur	9	50.2	E	124	48.7	N	2
Fin en la línea central	9	51.6	E	123	59.7	N	3
Fin de la umbra en el extremo norte	9	52.9	E	123	11.7	N	5
Fin de la penumbra en el extremo norte	10	02.6	E	109	03.0	N	34
Fin del Eclipse; último contacto con la Tierra	11	00.7	E	104	45.2	N	9

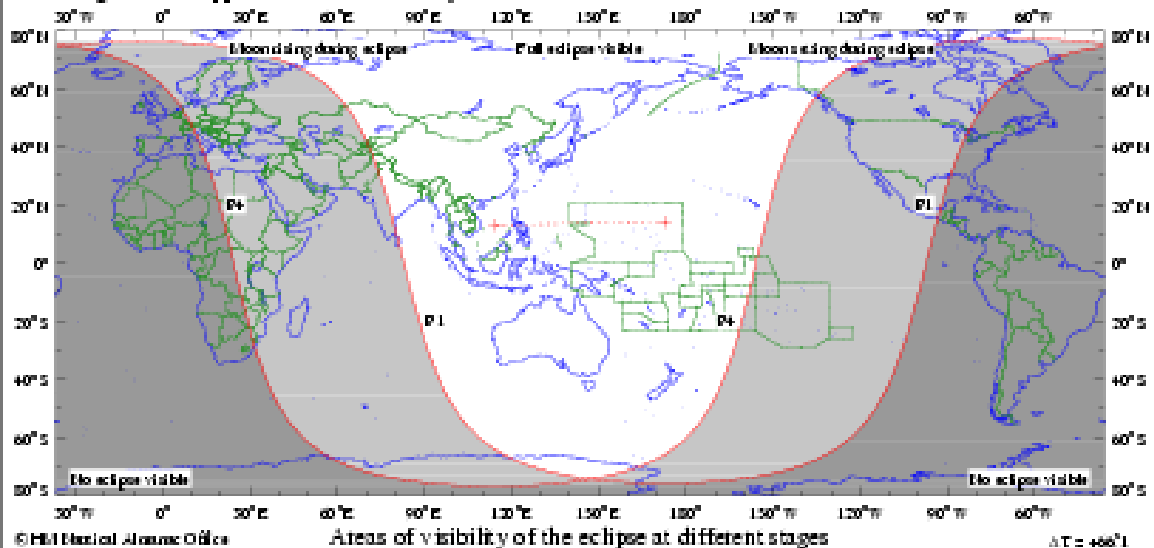
II.-ECLIPSE PENUMBRA DE LUNA

09/02/2009



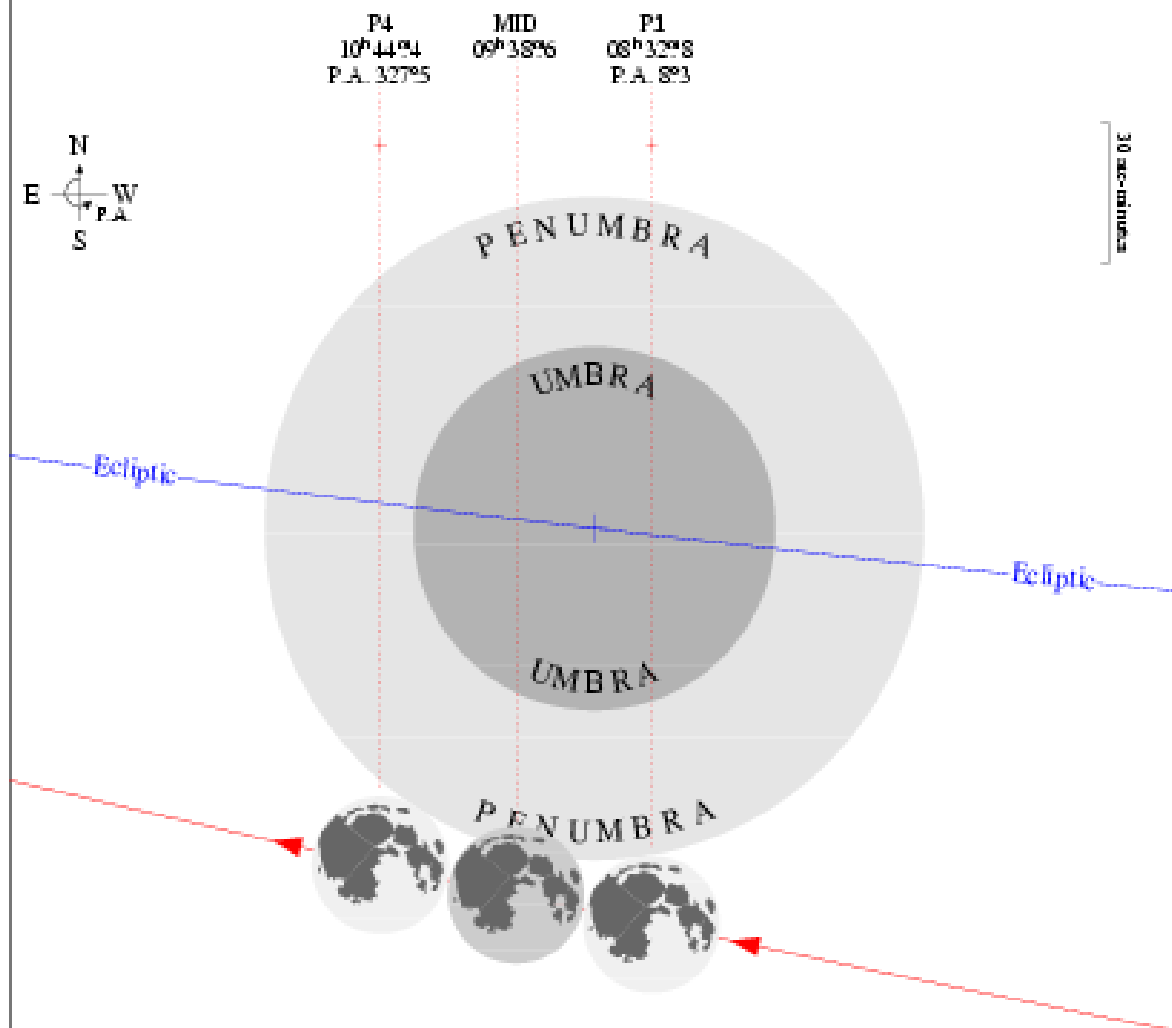
UT of geocentric opposition in R.A.: February 9th $15^h 28^m 36^s 580$

Penumbral magnitude of the eclipse: 0.925



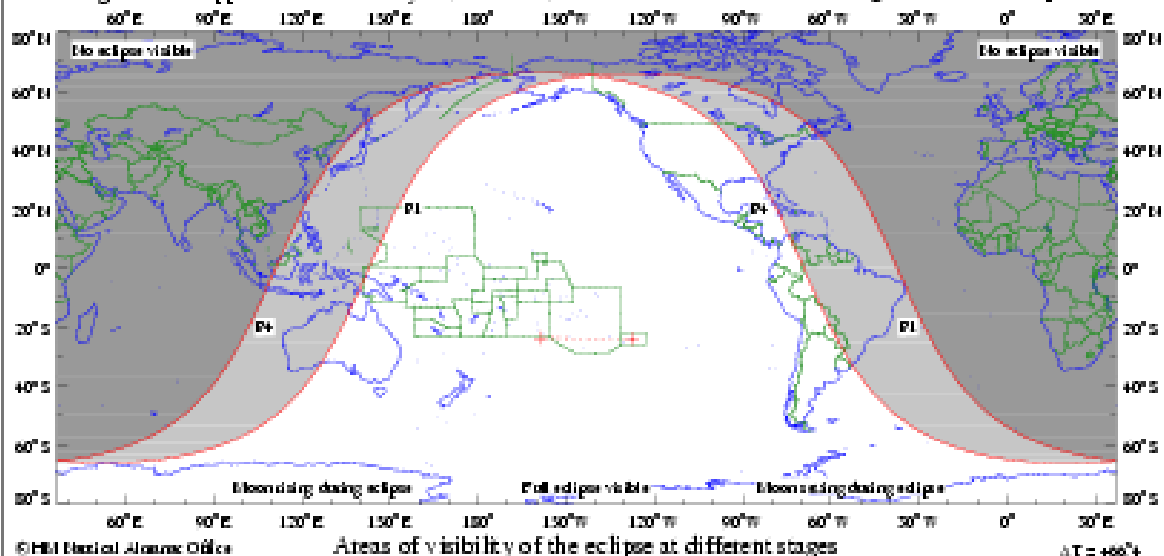
III.-ECLIPSE PENUMBRA DE LUNA

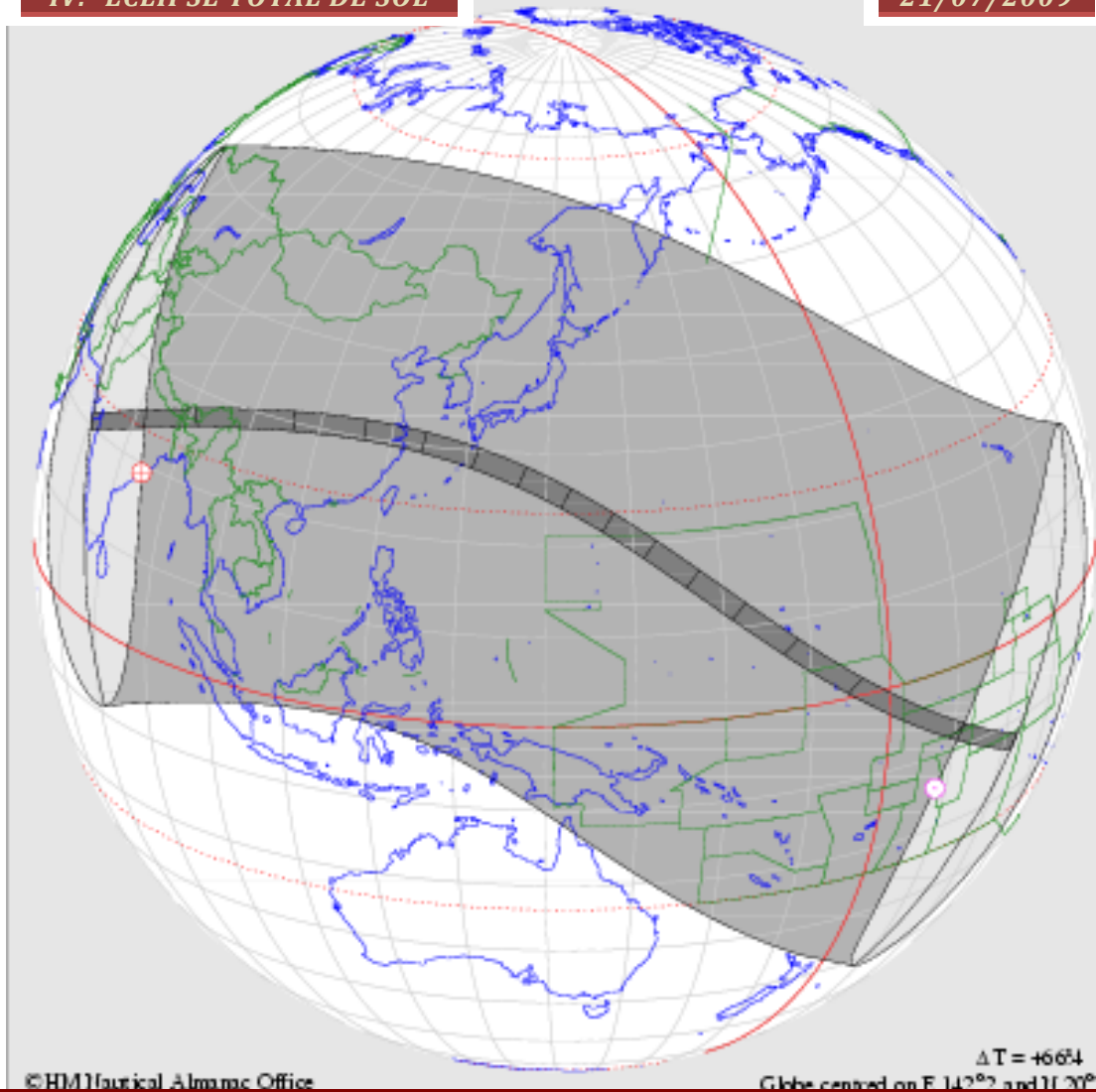
07/07/2009



UT of geocentric opposition in R.A.: July 7^d 9^h 0^m 34^s 390

Penumbral magnitude of the eclipse: 0.182

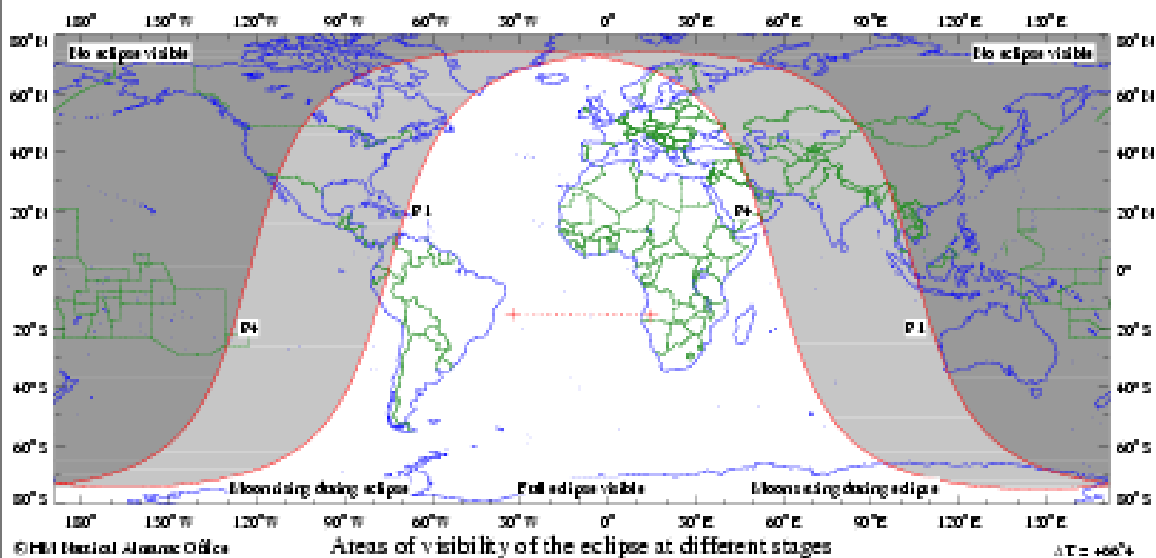
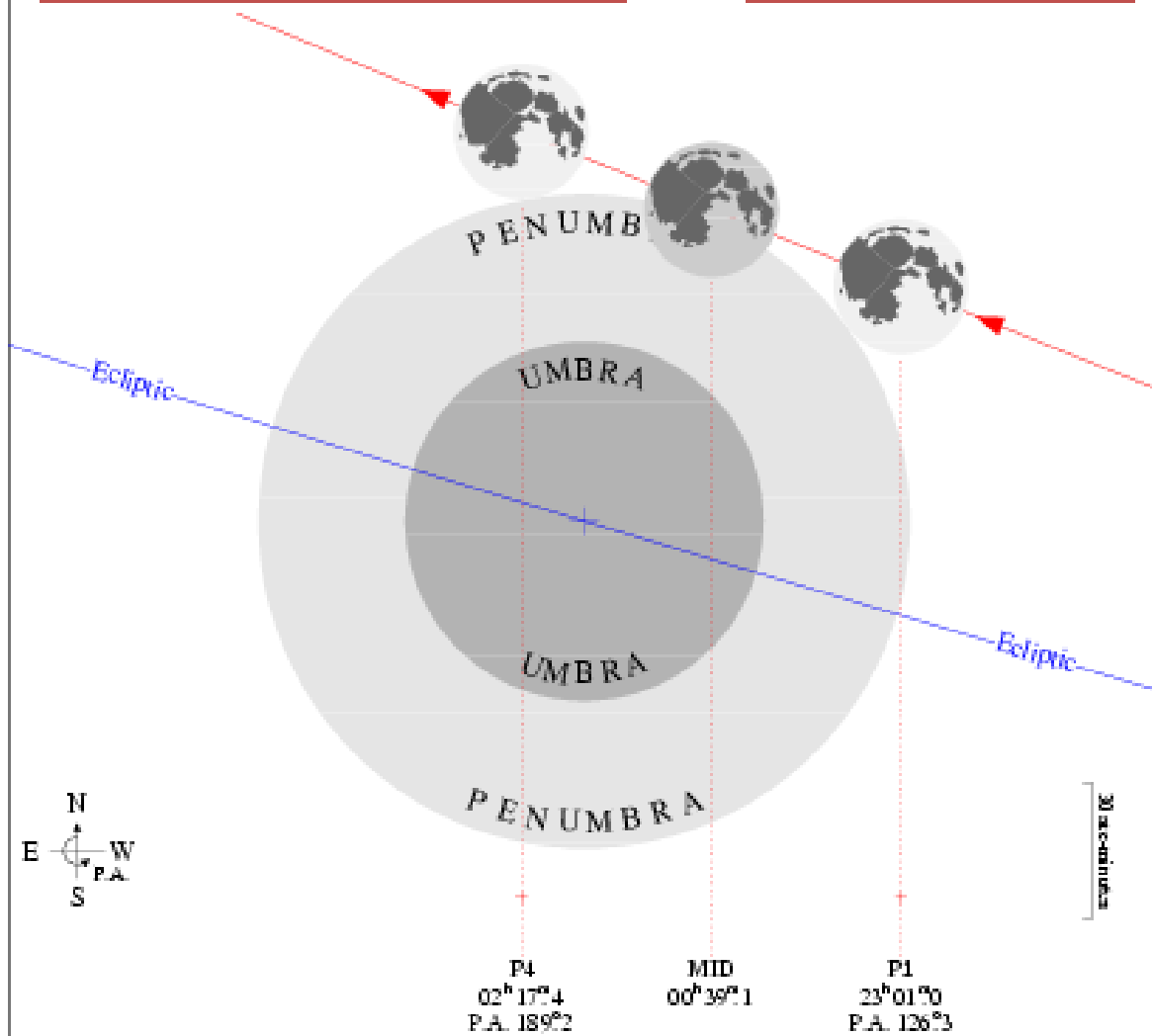




CIRCUNSTANCIAS	HORA UTC			LONGITUD		LATITUD		
	hora	min		grados	min		grados	min
Inicio del Eclipse; primer contacto con la Tierra	23	58.3	E	84	43.2	N	19	02.9
Inicio de la umbra en el extremo sur	0	52.5	E	70	58.1	N	19	30.8
Inicio en la línea central	0	52.8	E	70	31.5	N	20	21.5
Inicio de la umbra en el extremo norte	0	53.2	E	70	04.2	N	21	12.1
Inicio de la penumbra en el extremo sur	0	55.6	E	81	00.4	S	8	51.4
Inicio de la penumbra en el extremo norte	1	19.2	E	45	51.7	N	49	49.4
Centro del eclipse con apariencia de mediodía local	2	33.0	E	143	21.7	N	24	36.7
Fin de la penumbra en el extremo norte	3	51.6	w	139	27.8	N	17	50.6
Fin de la penumbra en el extremo sur	4	14.7	w	171	08.7	S	41	31.8
Fin de la umbra en el extremo norte	4	17.4	w	157	15.7	S	12	04.1
Fin en la línea central	4	17.8	w	157	41.1	S	12	54.9
Fin de la umbra en el extremo sur	4	18.1	w	158	06.1	S	13	45.7
Fin del Eclipse; último contacto con la Tierra	5	12.4	w	171	50.8	S	14	13.9

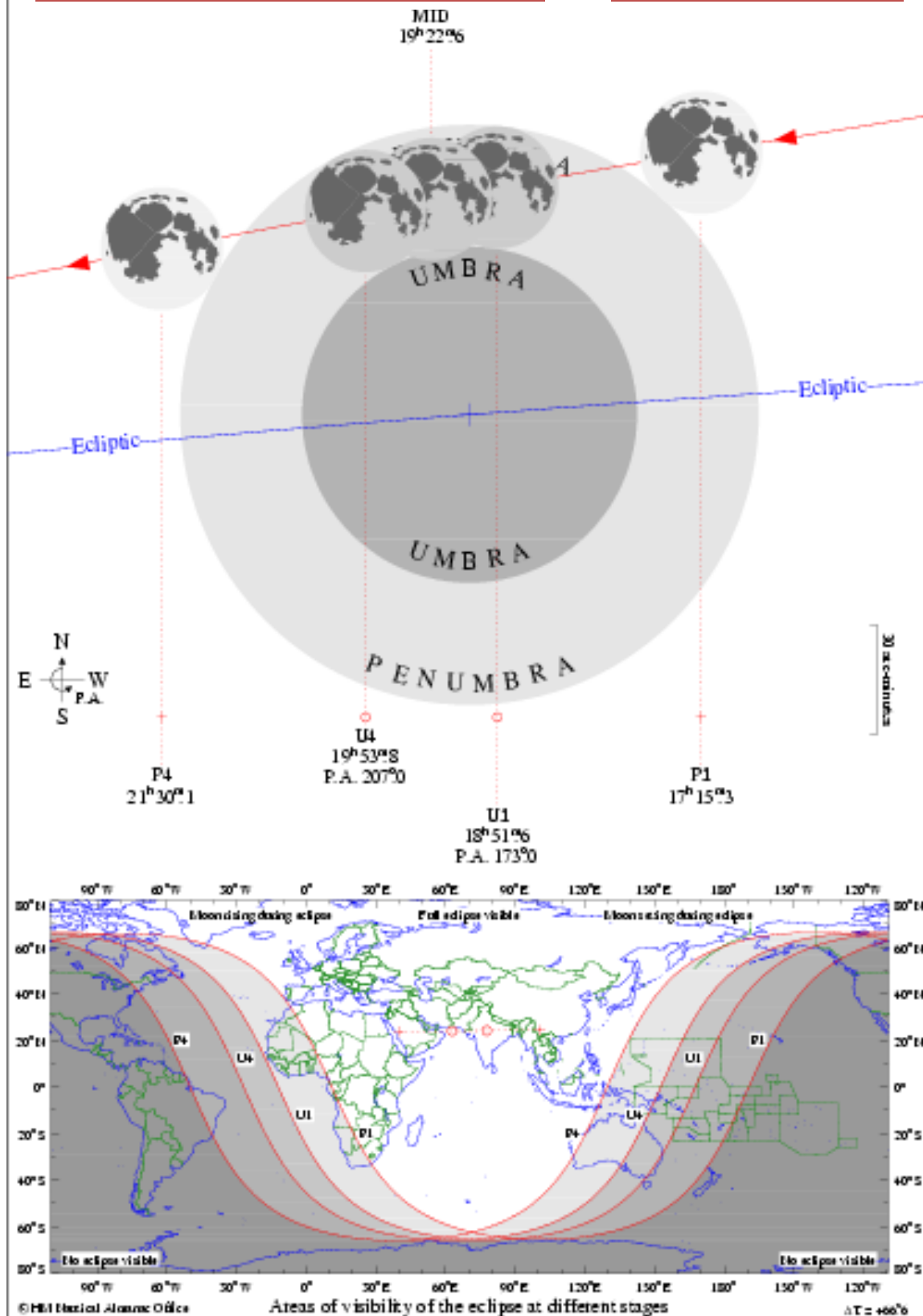
V.-ECLIPSE PENUMBRAL DE LUNA

05/08/2009



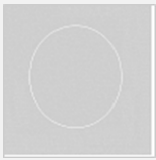
ECLIPSE PARCIAL DE LUNA

31/12/2009



III.- CALENDARIO LUNAR DURANTE EL AÑO 2009

FASES LUNARES

	LUNA NUEVA			CUARTO CRECIENTE			LUNA LLENA			CUARTO MENGUANTE		
												
MES	Día	Hora	Min	Día	Hora	Min	Día	Hora	Min	Día	Hora	Min
ENERO	26	1	55	4	5	56	10	21	27	17	20	46
FEBRERO	24	19	35	2	17	13	9	8	49	16	15	37
MARZO	26	10	6	4	1	46	10	20	38	18	11	47
ABRIL	24	21	23	2	8	34	9	8	56	17	7	36
MAYO	24	6	11	1	14	44	8	22	1	17	1	26
				30	21	22						
JUNIO	22	13	35	29	5	28	7	12	12	15	16	15
JULIO	21	20	35	28	16	0	7	3	21	15	3	53
AGOSTO	20	4	2	27	5	42	5	18	55	13	12	55
SEPTIEMBRE	18	12	44	25	22	50	4	10	3	11	20	16
OCTUBRE	17	23	33	25	18	42	4	0	10	11	2	56
NOVIEMBRE	16	13	14	24	15	39	2	13	14	9	9	56
DICIEMBRE	16	6	2	24	11	36	2	1	30	8	18	13
							31	13	13			

Apogeo y Perigeo de la Luna

PERIGEO			APOGEO	
MES	DIA	HORA	DIA	HORA
ENERO	10	5	22	18
FEBRERO	7	14	19	11
MARZO	7	9	19	7
ABRIL	1	20	16	3
ABRIL	28			
MAYO	25	22	13	21
JUNIO	23	5	10	10
JULIO	21	14	7	16
AGOSTO	18	23	3	19
AGOSTO			31	5
SEPTIEMBRE	16	2	27	22
OCTUBRE	13	6	25	17
NOVIEMBRE	7	1	22	14
DICIEMBRE	4	8	20	9

Salida y Puesta del Sol y la Luna

Enero

Día	Sol		Luna	
	Salida	Puesta	Salida	Puesta
1	06:23	17:44	09:52	22:02
2	06:24	17:45	10:28	22:51
3	06:24	17:45	11:06	23:41
4	06:24	17:45	11:45	—
5	06:25	17:46	12:29	00:34
6	06:25	17:46	13:18	01:32
7	06:25	17:47	14:13	02:34
8	06:26	17:48	15:16	03:40
9	06:26	17:48	16:23	04:47
10	06:26	17:49	17:32	05:51
11	06:26	17:49	18:38	06:51
12	06:27	17:50	19:41	07:43
13	06:27	17:50	20:39	08:31
14	06:27	17:51	21:33	09:13
15	06:27	17:52	22:25	09:54
16	06:27	17:52	23:16	10:32
17	06:27	17:53	—	11:11
18	06:28	17:53	00:06	11:52
19	06:28	17:54	00:57	12:34
20	06:28	17:54	01:49	13:19
21	06:28	17:55	02:41	14:07
22	06:28	17:55	03:33	14:58
23	06:28	17:56	04:23	15:50
24	06:28	17:56	05:11	16:42
25	06:28	17:57	05:55	17:33
26	06:28	17:57	06:37	18:23
27	06:28	17:58	07:16	19:12
28	06:28	17:58	07:53	20:00
29	06:28	17:59	08:30	20:48
30	06:27	17:59	09:07	21:38
31	06:27	18:00	09:45	22:29

Día	Sol		Luna	
	Salida	Puesta	Salida	Puesta
1	06:27	18:00	10:26	23:24
2	06:27	18:00	11:11	—
3	06:27	18:01	12:02	00:22
4	06:27	18:01	13:00	01:24
5	06:26	18:02	14:03	02:28
6	06:26	18:02	15:09	03:32
7	06:26	18:02	16:15	04:32
8	06:26	18:03	17:19	05:28
9	06:25	18:03	18:20	06:17
10	06:25	18:04	19:17	07:03
11	06:25	18:04	20:11	07:45
12	06:24	18:04	21:04	08:25
13	06:24	18:05	21:56	09:06
14	06:24	18:05	22:48	09:46
15	06:23	18:05	23:41	10:29
16	06:23	18:05	—	11:14
17	06:23	18:06	00:34	12:01
18	06:22	18:06	01:26	12:51
19	06:22	18:06	02:17	13:43
20	06:21	18:07	03:06	14:35
21	06:21	18:07	03:51	15:26
22	06:20	18:07	04:34	16:17
23	06:20	18:07	05:14	17:07
24	06:19	18:07	05:53	17:56
25	06:19	18:05	06:30	18:45
26	06:18	18:05	07:07	19:34
27	06:18	18:05	07:46	20:26
28	06:17	18:05	08:26	21:20

Día	Sol		Luna	
	Salida	Puesta	Salida	Puesta
1	06:16	18:09	09:10	22:17
2	06:15	18:09	09:59	23:17
3	06:15	18:09	10:53	—
4	06:14	18:09	11:53	00:19
5	06:14	18:09	12:56	01:21
6	06:13	18:09	14:00	02:21
7	06:12	18:10	15:03	03:16
8	06:12	18:10	16:03	04:07
9	06:11	18:10	17:01	04:53
10	06:11	18:10	17:56	05:36
11	06:10	18:10	18:50	06:17
12	06:09	18:10	19:43	06:58
13	06:09	18:10	20:36	07:39
14	06:08	18:10	21:29	08:21
15	06:07	18:10	22:23	09:06
16	06:07	18:11	23:16	09:54
17	06:06	18:11	—	10:43
18	06:05	18:11	00:09	11:34
19	06:05	18:11	00:58	12:26
20	06:04	18:11	01:45	13:18
21	06:03	18:11	02:29	14:09
22	06:03	18:11	03:10	14:58
23	06:02	18:11	03:49	15:48
24	06:01	18:11	04:27	16:37
25	06:00	18:11	05:04	17:27
26	06:00	18:11	05:43	18:18
27	05:59	18:12	06:23	19:13
28	05:58	18:12	07:07	20:10
29	05:58	18:12	07:56	21:11
30	05:57	18:12	08:49	22:13
31	05:56	18:12	09:48	23:16

Día	Sol		Luna	
	Salida	Puesta	Salida	Puesta
1	05:56	18:12	10:50	—
2	05:55	18:12	11:53	00:16
3	05:54	18:12	12:55	01:11
4	05:54	18:12	13:54	02:02
5	05:53	18:12	14:51	02:48
6	05:52	18:12	15:46	03:31
7	05:52	18:12	16:39	04:12
8	05:51	18:13	17:31	04:52
9	05:50	18:13	18:24	05:33
10	05:50	18:13	19:17	06:14
11	05:49	18:13	20:11	06:58
12	05:48	18:13	21:06	07:45
13	05:48	18:13	21:59	08:34
14	05:47	18:13	22:50	09:25
15	05:47	18:13	23:38	10:17
16	05:46	18:13	—	11:09
17	05:45	18:14	00:23	12:00
18	05:45	18:14	01:05	12:49
19	05:44	18:14	01:44	13:38
20	05:44	18:14	02:22	14:27
21	05:43	18:14	02:59	15:16
22	05:43	18:14	03:37	16:07
23	05:42	18:14	04:17	17:00
24	05:42	18:15	05:00	17:57
25	05:41	18:15	05:47	18:58
26	05:41	18:15	06:40	20:01
27	05:40	18:15	07:39	21:06
28	05:40	18:15	08:41	22:09
29	05:39	18:16	09:46	23:07
30	05:39	18:16	10:49	24:00

Día	Sol		Luna	
	Salida	Puesta	Salida	Puesta
1	05:38	18:16	11:50	—
2	05:38	18:16	12:47	00:47
3	05:37	18:16	13:41	01:31
4	05:37	18:17	14:33	02:11
5	05:37	18:17	15:25	02:50
6	05:36	18:17	16:16	03:30
7	05:36	18:17	17:09	04:10
8	05:36	18:18	18:02	04:53
9	05:35	18:18	18:56	05:39
10	05:35	18:18	19:50	06:27
11	05:35	18:18	20:42	07:17
12	05:34	18:19	21:31	08:09
13	05:34	18:19	22:18	09:01
14	05:34	18:19	23:00	09:52
15	05:33	18:19	23:40	10:42
16	05:33	18:20	—	11:30
17	05:33	18:20	00:18	12:18
18	05:33	18:20	00:55	13:06
19	05:33	18:20	01:31	13:55
20	05:32	18:21	02:09	14:46
21	05:32	18:21	02:50	15:41
22	05:32	18:21	03:35	16:39
23	05:32	18:22	04:26	17:43
24	05:32	18:22	05:23	18:48
25	05:32	18:22	06:25	19:54
26	05:32	18:23	07:31	20:56
27	05:32	18:23	08:38	21:53
28	05:32	18:23	09:42	22:44
29	05:32	18:24	10:41	23:29
30	05:31	18:24	11:37	—
31	05:31	18:24	12:30	00:11

Día	Sol		Luna	
	Salida	Puesta	Salida	Puesta
1	05:31	18:24	13:22	00:51
2	05:31	18:25	14:13	01:30
3	05:31	18:25	15:04	02:10
4	05:32	18:25	15:57	02:51
5	05:32	18:26	16:50	03:35
6	05:32	18:26	17:43	04:22
7	05:32	18:26	18:36	05:12
8	05:32	18:27	19:26	06:03
9	05:32	18:27	20:13	06:55
10	05:32	18:27	20:57	07:46
11	05:32	18:27	21:38	08:37
12	05:32	18:28	22:16	09:25
13	05:32	18:28	22:52	10:13
14	05:33	18:28	23:28	10:59
15	05:33	18:29	—	11:47
16	05:33	18:29	00:05	12:35
17	05:33	18:29	00:43	13:27
18	05:33	18:29	01:25	14:22
19	05:33	18:29	02:12	15:22
20	05:34	18:30	03:05	16:27
21	05:34	18:30	04:04	17:33
22	05:34	18:30	05:10	18:38
23	05:34	18:30	06:18	19:39
24	05:35	18:31	07:25	20:34
25	05:35	18:31	08:28	21:23
26	05:35	18:31	09:28	22:08
27	05:35	18:31	10:24	22:49
28	05:36	18:31	11:17	23:29
29	05:36	18:31	12:09	—
30	05:36	18:31	13:01	00:09

Día	Sol		Luna	
	Salida	Puesta	Salida	Puesta
1	05:36	18:31	13:53	00:51
2	05:37	18:32	14:46	01:34
3	05:37	18:32	15:39	02:19
4	05:37	18:32	16:32	03:08
5	05:38	18:32	17:23	03:58
6	05:38	18:32	18:11	04:50
7	05:38	18:32	18:56	05:42
8	05:38	18:32	19:37	06:33
9	05:39	18:32	20:16	07:22
10	05:39	18:32	20:53	08:09
11	05:39	18:32	21:28	08:56
12	05:40	18:32	22:04	09:43
13	05:40	18:32	22:41	10:30
14	05:40	18:32	23:20	11:19
15	05:40	18:32	—	12:11
16	05:41	18:31	00:03	13:08
17	05:41	18:31	00:51	14:08
18	05:41	18:31	01:46	15:12
19	05:42	18:31	02:48	16:17
20	05:42	18:31	03:54	17:20
21	05:42	18:31	05:02	18:18
22	05:42	18:31	06:08	19:11
23	05:43	18:30	07:11	19:59
24	05:43	18:30	08:11	20:43
25	05:43	18:30	09:07	21:25
26	05:43	18:30	10:01	22:06
27	05:44	18:29	10:54	22:48
28	05:44	18:29	11:48	23:31
29	05:44	18:29	12:41	—
30	05:44	18:28	13:34	00:17
31	05:44	18:28	14:27	01:04

Día	Sol		Luna	
	Salida	Puesta	Salida	Puesta
1	05:45	18:28	15:19	01:54
2	05:45	18:27	16:08	02:46
3	05:45	18:27	16:54	03:38
4	05:45	18:27	17:36	04:29
5	05:46	18:26	18:16	05:18
6	05:46	18:26	18:54	06:07
7	05:46	18:25	19:30	06:54
8	05:46	18:25	20:05	07:41
9	05:46	18:24	20:42	08:28
10	05:46	18:24	21:19	09:16
11	05:47	18:23	22:00	10:06
12	05:47	18:23	22:46	11:00
13	05:47	18:22	23:36	11:57
14	05:47	18:22	—	12:58
15	05:47	18:21	00:33	14:00
16	05:47	18:21	01:35	15:02
17	05:47	18:20	02:41	16:01
18	05:47	18:20	03:47	16:56
19	05:48	18:19	04:51	17:46
20	05:48	18:19	05:52	18:33
21	05:48	18:18	06:51	19:17
22	05:48	18:17	07:47	19:59
23	05:48	18:17	08:42	20:42
24	05:48	18:16	09:37	21:26
25	05:48	18:16	10:32	22:11
26	05:48	18:15	11:27	22:59
27	05:48	18:14	12:21	23:49
28	05:48	18:14	13:13	—
29	05:48	18:13	14:03	00:40
30	05:48	18:12	14:51	01:32
31	05:48	18:12	15:34	02:23

Día	Sol		Luna	
	Salida	Puesta	Salida	Puesta
1	05:49	18:11	16:15	03:14
2	05:49	18:10	16:54	04:03
3	05:49	18:09	17:30	04:51
4	05:49	18:09	18:06	05:38
5	05:49	18:08	18:43	06:25
6	05:49	18:07	19:20	07:13
7	05:49	18:07	20:01	08:04
8	05:49	18:06	20:45	08:56
9	05:49	18:05	21:33	09:52
10	05:49	18:05	22:27	10:51
11	05:49	18:04	23:26	11:51
12	05:49	18:03	—	12:52
13	05:49	18:02	00:28	13:50
14	05:49	18:02	01:32	14:45
15	05:49	18:01	02:34	15:35
16	05:49	18:00	03:35	16:22
17	05:49	17:59	04:34	17:07
18	05:49	17:59	05:31	17:50
19	05:49	17:58	06:27	18:33
20	05:49	17:57	07:23	19:17
21	05:49	17:56	08:18	20:03
22	05:49	17:56	09:15	20:51
23	05:49	17:55	10:10	21:41
24	05:49	17:54	11:04	22:32
25	05:49	17:54	11:56	23:25
26	05:49	17:53	12:45	—
27	05:49	17:52	13:30	00:16
28	05:49	17:51	14:12	01:07
29	05:49	17:51	14:51	01:56
30	05:49	17:50	15:28	02:44

Día	Sol		Luna	
	Salida	Puesta	Salida	Puesta
1	05:49	17:49	16:05	03:32
2	05:50	17:49	16:41	04:19
3	05:50	17:48	17:19	05:08
4	05:50	17:47	17:59	05:58
5	05:50	17:47	18:42	06:51
6	05:50	17:46	19:30	07:46
7	05:50	17:45	20:23	08:45
8	05:50	17:48	21:21	09:46
9	05:50	17:44	22:22	10:46
10	05:50	17:43	23:24	11:45
11	05:50	17:43	—	12:39
12	05:50	17:42	00:26	13:30
13	05:51	17:42	01:25	14:16
14	05:51	17:41	02:23	15:00
15	05:51	17:40	03:18	15:43
16	05:51	17:40	04:13	16:25
17	05:51	17:39	05:08	17:08
18	05:51	17:39	06:04	17:53
19	05:51	17:38	07:00	18:40
20	05:52	17:38	07:57	19:30
21	05:52	17:37	08:53	20:22
22	05:52	17:37	09:46	21:15
23	05:52	17:36	10:37	22:07
24	05:52	17:36	11:23	22:59
25	05:53	17:35	12:07	23:48
26	05:53	17:35	12:47	—
27	05:53	17:34	13:24	00:37
28	05:53	17:34	14:01	01:24
29	05:54	17:34	14:37	02:11
30	05:54	17:33	15:14	02:59
31	05:54	17:33	15:53	03:48

Día	Sol		Luna	
	Salida	Puesta	Salida	Puesta
1	05:55	17:32	16:36	04:40
2	05:55	17:32	17:23	05:35
3	05:55	17:32	18:15	06:34
4	05:56	17:31	19:13	07:36
5	05:56	17:31	20:15	08:38
6	05:56	17:31	21:18	09:39
7	07:57	17:31	22:20	10:36
8	07:57	17:31	23:20	11:28
9	07:57	17:30	—	12:15
10	05:58	17:30	00:18	12:59
11	05:58	17:30	01:13	13:40
12	05:59	17:30	02:06	14:21
13	05:59	17:30	03:00	15:03
14	05:59	17:30	03:54	15:46
15	06:00	17:29	04:49	16:32
16	06:00	17:29	05:45	17:21
17	06:01	17:29	06:41	18:12
18	06:02	17:29	07:35	19:05
19	06:02	17:29	08:28	19:58
20	06:03	17:29	09:16	20:50
21	06:03	17:29	10:01	21:40
22	06:04	17:29	10:42	22:29
23	06:04	17:29	11:21	23:16
24	06:05	17:29	11:57	—
25	06:05	17:30	12:33	00:03
26	06:05	17:30	13:09	00:49
27	06:06	17:30	13:46	01:37
28	06:06	17:30	14:27	02:27
29	06:07	17:30	15:11	03:20
30	06:07	17:30	16:01	04:17

Día	Sol		Luna	
	Salida	Puesta	Salida	Puesta
1	06:08	17:31	16:57	05:18
2	06:08	17:31	17:59	06:22
3	06:09	17:31	19:04	07:25
4	06:10	17:31	20:09	08:26
5	06:10	17:32	21:12	09:21
6	06:11	17:32	22:12	10:12
7	06:11	17:32	23:09	10:58
8	06:12	17:33	—	11:40
9	06:12	17:33	00:03	12:21
10	06:13	17:33	00:56	13:02
11	06:13	17:34	01:49	13:44
12	06:14	17:34	02:43	14:28
13	06:15	17:35	03:37	15:15
14	06:15	17:35	04:33	16:05
15	06:16	17:36	05:27	16:57
16	06:16	17:36	06:20	17:50
17	06:17	17:37	07:10	18:42
18	06:17	17:37	07:56	19:33
19	06:18	17:38	08:39	20:23
20	06:18	17:38	09:18	21:10
21	06:19	17:39	09:55	21:57
22	06:19	17:39	10:30	22:42
23	06:20	17:40	11:06	23:28
24	06:20	17:40	11:41	—
25	06:21	17:41	12:19	00:16
26	06:21	17:41	13:01	01:06
27	06:22	17:42	13:47	02:00
28	06:22	17:42	14:39	02:58
29	06:22	17:42	15:38	04:00
30	06:23	17:43	16:42	05:04
31	06:23	17:43	17:48	06:07

IV.- Escala Beaufort de Vientos

Fuerza del viento en la superficie basada en el estado del mar
Equivalencia de la Velocidad del viento a una altura aproximada de 10 metros sobre terreno llano descubierto.

Fuerza Beaufort	Nombre	Km/h.	Características para la estimación de la velocidad en tierra.
0	Calma	< 1	El humo se eleva verticalmente
1	Ventolina	1 - 6	La dirección del viento se revela por el movimiento del humo, pero no por las veletas.
2	Brisa muy débil	8 - 11	El viento se percibe en el rostro, las hojas se agitan, la veleta se mueve.
3	Brisa débil	12 - 19	Hojas y ramitas agitadas constantemente, el viento despliega las banderolas.
4	Brisa moderada	20 - 28	El viento levanta polvo y hojitas de papel; ramitas agitadas.
5	Brisa fresca	29 - 38	Los arbustos con hojas se balancean; se forman olitas con crestas en las aguas interiores.
6	Viento fresco	39 - 49	Las grandes ramas se agitan; los hilos telegráficos silban; el uso del paraguas se hace difícil.
7	Viento fuerte	50 - 61	Los árboles enteros se agitan; la marcha en contra del viento es penosa.
8	Viento duro	62 - 74	El viento rompe las ramas; es imposible la marcha contra el viento.
9	Viento muy duro	75 - 88	El viento ocasiona ligeros daños en las viviendas (arranca cañerías, chimeneas, tejados).
10	Temporal	89 - 102	Raro en los continentes; árboles arrancados; importantes daños en las viviendas.
11	Borrasca	103 - 117	Observado muy raramente; acompañado de extensos destrozos.
12	Huracán	118 o más	Estragos graves y extensos.

V.- MAREAS

Marea es el cambio periódico del nivel del mar, producido principalmente por las fuerzas gravitacionales que ejercen la Luna y el Sol. Otros fenómenos pueden producir variaciones del nivel del mar. Uno de los más importantes es la variación de la presión atmosférica. La presión atmosférica varía corrientemente entre 990 y 1040 hectopascales y aún más en algunas ocasiones. Una variación de la presión de 1 hectopascal provoca una variación de 1 cm del nivel del océano, así que la variación del nivel del mar debido a la presión atmosférica es del orden de 50 cm.

La siguiente tabla nos muestra una clasificación del estado del mar.

	ESTADO	ESCALA KT (nudos)
0	Calma	0
1	Rizada	5
2	Marejadilla	10
3	Marejada	15
4	Fuerte marejada	20
5	Gruesa	25
6	Muy gruesa	30
7	Arbolada	35
8	Montañosa	50
9	Enorme	60

Predicción de Mareas

Enero

PUERTO	LA UNION		LA LIBERTAD		ACAJUTLA		PUERTO EL TRIUNFO		FASE LUNAR
	HORA	ALTURA metros	HORA	ALTURA metros	HORA	ALTURA metros	HORA	ALTURA metros	
01/01/2009									
Alta	05:57 a.m.	2.71	05:31 a.m.	1.82	05:32 a.m.	1.73	05:47 a.m.	2.30	
Baja	11:50 a.m.	0.2	11:50 a.m.	0.13	11:47 a.m.	0.13	11:40 a.m.	0.17	
Alta	06:26 p.m.	2.73	06:00 p.m.	1.83	06:01 p.m.	1.75	06:16 p.m.	2.32	
02/01/2009									
Baja	12:17 a.m.	0.36	12:17 a.m.	0.24	12:14 a.m.	0.23	12:07 a.m.	0.31	
Alta	06:35 a.m.	2.64	06:09 a.m.	1.77	06:10 a.m.	1.69	06:25 a.m.	2.24	
Baja	12:27 p.m.	0.24	12:27 p.m.	0.16	12:24 p.m.	0.15	12:17 p.m.	0.20	
Alta	07:04 p.m.	2.74	06:38 p.m.	1.84	06:39 p.m.	1.75	06:54 p.m.	2.33	
03/01/2009									
Baja	12:58 a.m.	0.37	12:58 a.m.	0.25	12:55 a.m.	0.24	12:48 a.m.	0.31	
Alta	07:15 a.m.	2.55	06:49 a.m.	1.71	06:50 a.m.	1.63	07:05 a.m.	2.17	
Baja	01:07 p.m.	0.29	01:07 p.m.	0.19	01:04 p.m.	0.19	12:57 p.m.	0.25	
Alta	07:45 p.m.	2.75	07:19 p.m.	1.84	07:20 p.m.	1.76	07:35 p.m.	2.34	
04/01/2009									
Baja	01:44 a.m.	0.4	01:44 a.m.	0.27	01:41 a.m.	0.26	01:34 a.m.	0.34	CUARTO CRECIENTE
Alta	07:59 a.m.	2.47	07:33 a.m.	1.65	07:34 a.m.	1.58	07:49 a.m.	2.10	
Baja	01:51 p.m.	0.35	01:51 p.m.	0.23	01:48 p.m.	0.22	01:41 p.m.	0.30	
Alta	08:30 p.m.	2.75	08:04 p.m.	1.84	08:05 p.m.	1.76	08:20 p.m.	2.34	
05/01/2009									
Baja	02:35 a.m.	0.42	02:35 a.m.	0.28	02:32 a.m.	0.27	02:25 a.m.	0.36	
Alta	08:49 a.m.	2.39	08:23 a.m.	1.60	08:24 a.m.	1.53	08:39 a.m.	2.03	
Baja	02:42 p.m.	0.41	02:42 p.m.	0.27	02:39 p.m.	0.26	02:32 p.m.	0.35	
Alta	09:23 p.m.	2.76	08:57 p.m.	1.85	08:58 p.m.	1.77	09:13 p.m.	2.35	
06/01/2009									
Baja	03:33 a.m.	0.43	03:33 a.m.	0.29	03:30 a.m.	0.28	03:23 a.m.	0.37	
Alta	09:46 a.m.	2.35	09:20 a.m.	1.57	09:21 a.m.	1.50	09:36 a.m.	2.00	
Baja	03:41 p.m.	0.46	03:41 p.m.	0.31	03:38 p.m.	0.29	03:31 p.m.	0.39	
Alta	10:21 p.m.	2.79	09:55 p.m.	1.87	09:56 p.m.	1.79	10:11 p.m.	2.37	
07/01/2009									
Baja	04:37 a.m.	0.39	04:37 a.m.	0.26	04:34 a.m.	0.25	04:27 a.m.	0.33	
Alta	10:51 a.m.	2.35	10:25 a.m.	1.57	10:26 a.m.	1.50	10:41 a.m.	2.00	
Baja	04:48 p.m.	0.46	04:48 p.m.	0.31	04:45 p.m.	0.29	04:38 p.m.	0.39	
Alta	11:25 p.m.	2.84	10:59 p.m.	1.90	11:00 p.m.	1.82	11:15 p.m.	2.41	
08/01/2009									
Baja	05:43 a.m.	0.3	05:43 a.m.	0.20	05:40 a.m.	0.19	05:33 a.m.	0.26	
Alta	12:01 p.m.	2.42	11:35 a.m.	1.62	11:36 a.m.	1.55	11:51 a.m.	2.06	
Baja	05:58 p.m.	0.4	05:58 p.m.	0.27	05:55 p.m.	0.26	05:48 p.m.	0.34	
09/01/2009									
Alta	12:32 a.m.	2.92	12:06 a.m.	1.96	12:07 a.m.	1.87	12:22 a.m.	2.48	
Baja	06:47 a.m.	0.14	06:47 a.m.	0.09	06:44 a.m.	0.09	06:37 a.m.	0.12	
Alta	01:12 p.m.	2.56	12:46 p.m.	1.72	12:47 p.m.	1.64	01:02 p.m.	2.18	
Baja	07:06 p.m.	0.26	07:06 p.m.	0.17	07:03 p.m.	0.17	06:56 p.m.	0.22	
10/01/2009									
Alta	01:37 a.m.	3.04	01:11 a.m.	2.04	01:12 a.m.	1.95	01:27 a.m.	2.58	LUNA LLENA
Baja	07:47 a.m.	-0.02	07:47 a.m.	-0.01	07:44 a.m.	-0.01	07:37 a.m.	-0.02	
Alta	02:18 p.m.	2.76	01:52 p.m.	1.85	01:53 p.m.	1.77	02:08 p.m.	2.35	
Baja	08:08 p.m.	0.1	08:08 p.m.	0.07	08:05 p.m.	0.06	07:58 p.m.	0.09	

PUERTO	LA UNION		LA LIBERTAD		ACAJUTLA		PUERTO EL TRIUNFO		FASE LUNAR
	HORA	ALTURA metros	HORA	ALTURA metros	HORA	ALTURA metros	HORA	ALTURA metros	
11/01/2009									
Alta	02:38 a.m.	3.15	02:12 a.m.	2.11	02:13 a.m.	2.02	02:28 a.m.	2.68	
Baja	08:42 a.m.	-0.19	08:42 a.m.	-0.13	08:39 a.m.	-0.12	08:32 a.m.	-0.16	
Alta	03:18 p.m.	2.96	02:52 p.m.	1.98	02:53 p.m.	1.89	03:08 p.m.	2.52	
Baja	09:05 p.m.	-0.05	09:05 p.m.	-0.03	09:02 p.m.	-0.03	08:55 p.m.	-0.04	
12/01/2009									
Alta	03:34 a.m.	3.24	03:08 a.m.	2.17	03:09 a.m.	2.07	03:24 a.m.	2.75	
Baja	09:33 a.m.	-0.31	09:33 a.m.	-0.21	09:30 a.m.	-0.20	09:23 a.m.	-0.26	
Alta	04:12 p.m.	3.12	03:46 p.m.	2.09	03:47 p.m.	2.00	04:02 p.m.	2.65	
Baja	09:58 p.m.	-0.16	09:58 p.m.	-0.11	09:55 p.m.	-0.10	09:48 p.m.	-0.14	
13/01/2009									
Alta	04:27 a.m.	3.26	04:01 a.m.	2.18	04:02 a.m.	2.09	04:17 a.m.	2.77	
Baja	10:21 a.m.	-0.36	10:21 a.m.	-0.24	10:18 a.m.	-0.23	10:11 a.m.	-0.31	
Alta	05:02 p.m.	3.22	04:36 p.m.	2.16	04:37 p.m.	2.06	04:52 p.m.	2.74	
Baja	10:48 p.m.	-0.2	10:48 p.m.	-0.13	10:45 p.m.	-0.13	10:38 p.m.	-0.17	
14/01/2009									
Alta	05:16 a.m.	3.22	04:50 a.m.	2.16	04:51 a.m.	2.06	05:06 a.m.	2.74	
Baja	11:08 a.m.	-0.34	11:08 a.m.	-0.23	11:05 a.m.	-0.22	10:58 a.m.	-0.29	
Alta	05:50 p.m.	3.25	05:24 p.m.	2.18	05:25 p.m.	2.08	05:40 p.m.	2.76	
Baja	11:38 p.m.	-0.16	11:38 p.m.	-0.11	11:35 p.m.	-0.10	11:28 p.m.	-0.14	
15/01/2009									
Alta	06:04 a.m.	3.11	05:38 a.m.	2.08	05:39 a.m.	1.99	05:54 a.m.	2.64	
Baja	11:54 a.m.	-0.23	11:54 a.m.	-0.15	11:51 a.m.	-0.15	11:44 a.m.	-0.20	
Alta	06:36 p.m.	3.19	06:10 p.m.	2.14	06:11 p.m.	2.04	06:26 p.m.	2.71	
16/01/2009									
Baja	12:26 a.m.	-0.05	12:26 a.m.	-0.03	12:23 a.m.	-0.03	12:16 a.m.	-0.04	
Alta	06:50 a.m.	2.94	06:24 a.m.	1.97	06:25 a.m.	1.88	06:40 a.m.	2.50	
Baja	12:39 p.m.	-0.07	12:39 p.m.	-0.05	12:36 p.m.	-0.04	12:29 p.m.	-0.06	
Alta	07:22 p.m.	3.08	06:56 p.m.	2.06	06:57 p.m.	1.97	07:12 p.m.	2.62	
17/01/2009									
Baja	01:14 a.m.	0.1	01:14 a.m.	0.07	01:11 a.m.	0.06	01:04 a.m.	0.09	CUARTO MENGUANTE
Alta	07:35 a.m.	2.73	07:09 a.m.	1.83	07:10 a.m.	1.75	07:25 a.m.	2.32	
Baja	01:24 p.m.	0.13	01:24 p.m.	0.09	01:21 p.m.	0.08	01:14 p.m.	0.11	
Alta	08:07 p.m.	2.92	07:41 p.m.	1.96	07:42 p.m.	1.87	07:57 p.m.	2.48	
18/01/2009									
Baja	02:03 a.m.	0.29	02:03 a.m.	0.19	02:00 a.m.	0.19	01:53 a.m.	0.25	
Alta	08:21 a.m.	2.52	07:55 a.m.	1.69	07:56 a.m.	1.61	08:11 a.m.	2.14	
Baja	02:11 p.m.	0.36	02:11 p.m.	0.24	02:08 p.m.	0.23	02:01 p.m.	0.31	
Alta	08:54 p.m.	2.76	08:28 p.m.	1.85	08:29 p.m.	1.77	08:44 p.m.	2.35	
19/01/2009									
Baja	02:56 a.m.	0.47	02:56 a.m.	0.31	02:53 a.m.	0.30	02:46 a.m.	0.40	
Alta	09:10 a.m.	2.32	08:44 a.m.	1.55	08:45 a.m.	1.48	09:00 a.m.	1.97	
Baja	03:02 p.m.	0.57	03:02 p.m.	0.38	02:59 p.m.	0.36	02:52 p.m.	0.48	
Alta	09:43 p.m.	2.6	09:17 p.m.	1.74	09:18 p.m.	1.66	09:33 p.m.	2.21	
20/01/2009									
Baja	03:54 a.m.	0.61	03:54 a.m.	0.41	03:51 a.m.	0.39	03:44 a.m.	0.52	
Alta	10:05 a.m.	2.16	09:39 a.m.	1.45	09:40 a.m.	1.38	09:55 a.m.	1.84	
Baja	03:59 p.m.	0.75	03:59 p.m.	0.50	03:56 p.m.	0.48	03:49 p.m.	0.64	
Alta	10:37 p.m.	2.49	10:11 p.m.	1.67	10:12 p.m.	1.59	10:27 p.m.	2.12	

PUERTO	LA UNION		LA LIBERTAD		ACAJUTLA		PUERTO EL TRIUNFO		FASE LUNAR
	HORA	ALTURA metros	HORA	ALTURA metros	HORA	ALTURA metros	HORA	ALTURA metros	
21/01/2009									
Baja	04:57 a.m.	0.69	04:57 a.m.	0.46	04:54 a.m.	0.44	04:47 a.m.	0.59	
Alta	11:09 a.m.	2.08	10:43 a.m.	1.39	10:44 a.m.	1.33	10:59 a.m.	1.77	
Baja	05:06 p.m.	0.84	05:06 p.m.	0.56	05:03 p.m.	0.54	04:56 p.m.	0.71	
Alta	11:36 p.m.	2.43	11:10 p.m.	1.63	11:11 p.m.	1.56	11:26 p.m.	2.07	
22/01/2009									
Baja	06:02 a.m.	0.68	06:02 a.m.	0.46	05:59 a.m.	0.44	05:52 a.m.	0.58	
Alta	12:21 p.m.	2.08	11:55 a.m.	1.39	11:56 a.m.	1.33	12:11 p.m.	1.77	
Baja	06:14 p.m.	0.85	06:14 p.m.	0.57	06:11 p.m.	0.54	06:04 p.m.	0.72	
23/01/2009									
Alta	12:36 a.m.	2.44	12:10 a.m.	1.63	12:11 a.m.	1.56	12:26 a.m.	2.07	
Baja	07:00 a.m.	0.61	07:00 a.m.	0.41	06:57 a.m.	0.39	06:50 a.m.	0.52	
Alta	01:28 p.m.	2.16	01:02 p.m.	1.45	01:03 p.m.	1.38	01:18 p.m.	1.84	
Baja	07:14 p.m.	0.78	07:14 p.m.	0.52	07:11 p.m.	0.50	07:04 p.m.	0.66	
24/01/2009									
Alta	01:32 a.m.	2.5	01:06 a.m.	1.68	01:07 a.m.	1.60	01:22 a.m.	2.13	
Baja	07:49 a.m.	0.5	07:49 a.m.	0.34	07:46 a.m.	0.32	07:39 a.m.	0.43	
Alta	02:21 p.m.	2.29	01:55 p.m.	1.53	01:56 p.m.	1.47	02:11 p.m.	1.95	
Baja	08:04 p.m.	0.67	08:04 p.m.	0.45	08:01 p.m.	0.43	07:54 p.m.	0.57	
25/01/2009									
Alta	02:21 a.m.	2.59	01:55 a.m.	1.74	01:56 a.m.	1.66	02:11 a.m.	2.20	
Baja	08:31 a.m.	0.38	08:31 a.m.	0.25	08:28 a.m.	0.24	08:21 a.m.	0.32	
Alta	03:04 p.m.	2.43	02:38 p.m.	1.63	02:39 p.m.	1.56	02:54 p.m.	2.07	
Baja	08:47 p.m.	0.54	08:47 p.m.	0.36	08:44 p.m.	0.35	08:37 p.m.	0.46	
26/01/2009									
Alta	03:05 a.m.	2.68	02:39 a.m.	1.80	02:40 a.m.	1.72	02:55 a.m.	2.28	LUNA NUEVA
Baja	09:09 a.m.	0.27	09:09 a.m.	0.18	09:06 a.m.	0.17	08:59 a.m.	0.23	
Alta	03:42 p.m.	2.58	03:16 p.m.	1.73	03:17 p.m.	1.65	03:32 p.m.	2.19	
Baja	09:26 p.m.	0.41	09:26 p.m.	0.27	09:23 p.m.	0.26	09:16 p.m.	0.35	
27/01/2009									
Alta	03:45 a.m.	2.75	03:19 a.m.	1.84	03:20 a.m.	1.76	03:35 a.m.	2.34	
Baja	09:43 a.m.	0.18	09:43 a.m.	0.12	09:40 a.m.	0.12	09:33 a.m.	0.15	
Alta	04:18 p.m.	2.7	03:52 p.m.	1.81	03:53 p.m.	1.73	04:08 p.m.	2.30	
Baja	10:03 p.m.	0.3	10:03 p.m.	0.20	10:00 p.m.	0.19	09:53 p.m.	0.26	
28/01/2009									
Alta	04:22 a.m.	2.79	03:56 a.m.	1.87	03:57 a.m.	1.79	04:12 a.m.	2.37	
Baja	10:17 a.m.	0.11	10:17 a.m.	0.07	10:14 a.m.	0.07	10:07 a.m.	0.09	
Alta	04:52 p.m.	2.8	04:26 p.m.	1.88	04:27 p.m.	1.79	04:42 p.m.	2.38	
Baja	10:39 p.m.	0.22	10:39 p.m.	0.15	10:36 p.m.	0.14	10:29 p.m.	0.19	
29/01/2009									
Alta	04:59 a.m.	2.8	04:33 a.m.	1.88	04:34 a.m.	1.79	04:49 a.m.	2.38	
Baja	10:51 a.m.	0.08	10:51 a.m.	0.05	10:48 a.m.	0.05	10:41 a.m.	0.07	
Alta	05:26 p.m.	2.87	05:00 p.m.	1.92	05:01 p.m.	1.84	05:16 p.m.	2.44	
Baja	11:16 p.m.	0.16	11:16 p.m.	0.11	11:13 p.m.	0.10	11:06 p.m.	0.14	
30/01/2009									
Alta	05:35 a.m.	2.77	05:09 a.m.	1.86	05:10 a.m.	1.77	05:25 a.m.	2.35	
Baja	11:25 a.m.	0.07	11:25 a.m.	0.05	11:22 a.m.	0.04	11:15 a.m.	0.06	
Alta	06:00 p.m.	2.91	05:34 p.m.	1.95	05:35 p.m.	1.86	05:50 p.m.	2.47	
Baja	11:54 p.m.	0.14	11:54 p.m.	0.09	11:51 p.m.	0.09	11:44 p.m.	0.12	
31/01/2009									
Alta	06:11 a.m.	2.71	05:45 a.m.	1.82	05:46 a.m.	1.73	06:01 a.m.	2.30	
Baja	12:02 p.m.	0.08	12:02 p.m.	0.05	11:59 a.m.	0.05	11:52 a.m.	0.07	
Alta	06:36 p.m.	2.92	06:10 p.m.	1.96	06:11 p.m.	1.87	06:26 p.m.	2.48	

Febrero

PUERTO	LA UNION		LA LIBERTAD		ACAJUTLA		PUERTO EL TRIUNFO		FASE LUNAR
	HORA	ALTURA metros	HORA	ALTURA metros	HORA	ALTURA metros	HORA	ALTURA metros	
01/02/2009									
Baja	12:34 a.m.	0.15	12:34 a.m.	0.10	12:31 a.m.	0.10	12:24 a.m.	0.13	
Alta	06:49 a.m.	2.62	06:23 a.m.	1.76	06:24 a.m.	1.68	06:39 a.m.	2.23	
Baja	12:41 p.m.	0.13	12:41 p.m.	0.09	12:38 p.m.	0.08	12:31 p.m.	0.11	
Alta	07:16 p.m.	2.9	06:50 p.m.	1.94	06:51 p.m.	1.86	07:06 p.m.	2.47	
02/02/2009									
Baja	01:18 a.m.	0.2	01:18 a.m.	0.13	01:15 a.m.	0.13	01:08 a.m.	0.17	CUARTO CRECIENTE
Alta	07:31 a.m.	2.53	07:05 a.m.	1.70	07:06 a.m.	1.62	07:21 a.m.	2.15	
Baja	01:24 p.m.	0.21	01:24 p.m.	0.14	01:21 p.m.	0.13	01:14 p.m.	0.18	
Alta	08:01 p.m.	2.86	07:35 p.m.	1.92	07:36 p.m.	1.83	07:51 p.m.	2.43	
03/02/2009									
Baja	02:07 a.m.	0.26	02:07 a.m.	0.17	02:04 a.m.	0.17	01:57 a.m.	0.22	
Alta	08:20 a.m.	2.43	07:54 a.m.	1.63	07:55 a.m.	1.56	08:10 a.m.	2.07	
Baja	02:15 p.m.	0.32	02:15 p.m.	0.21	02:12 p.m.	0.20	02:05 p.m.	0.27	
Alta	08:53 p.m.	2.81	08:27 p.m.	1.88	08:28 p.m.	1.80	08:43 p.m.	2.39	
04/02/2009									
Baja	03:03 a.m.	0.33	03:03 a.m.	0.22	03:00 a.m.	0.21	02:53 a.m.	0.28	
Alta	09:18 a.m.	2.34	08:52 a.m.	1.57	08:53 a.m.	1.50	09:08 a.m.	1.99	
Baja	03:14 p.m.	0.42	03:14 p.m.	0.28	03:11 p.m.	0.27	03:04 p.m.	0.36	
Alta	09:53 p.m.	2.75	09:27 p.m.	1.84	09:28 p.m.	1.76	09:43 p.m.	2.34	
05/02/2009									
Baja	04:07 a.m.	0.37	04:07 a.m.	0.25	04:04 a.m.	0.24	03:57 a.m.	0.31	
Alta	10:26 a.m.	2.31	10:00 a.m.	1.55	10:01 a.m.	1.48	10:16 a.m.	1.96	
Baja	04:24 p.m.	0.48	04:24 p.m.	0.32	04:21 p.m.	0.31	04:14 p.m.	0.41	
Alta	11:02 p.m.	2.74	10:36 p.m.	1.84	10:37 p.m.	1.75	10:52 p.m.	2.33	
06/02/2009									
Baja	05:17 a.m.	0.34	05:17 a.m.	0.23	05:14 a.m.	0.22	05:07 a.m.	0.29	
Alta	11:43 a.m.	2.37	11:17 a.m.	1.59	11:18 a.m.	1.52	11:33 a.m.	2.01	
Baja	05:40 p.m.	0.44	05:40 p.m.	0.29	05:37 p.m.	0.28	05:30 p.m.	0.37	
Alta			11:49 p.m.	1.86	11:50 p.m.	1.78			
07/02/2009									
Alta	12:15 a.m.	2.78					12:05 a.m.	2.36	
Baja	06:27 a.m.	0.22	06:27 a.m.	0.15	06:24 a.m.	0.14	06:17 a.m.	0.19	
Alta	01:01 p.m.	2.53	12:35 p.m.	1.70	12:36 p.m.	1.62	12:51 p.m.	2.15	
Baja	06:53 p.m.	0.31	06:53 p.m.	0.21	06:50 p.m.	0.20	06:43 p.m.	0.26	
08/02/2009									
Alta	01:24 a.m.	2.89	12:58 a.m.	1.94	12:59 a.m.	1.85	01:14 a.m.	2.46	
Baja	07:29 a.m.	0.05	07:29 a.m.	0.03	07:26 a.m.	0.03	07:19 a.m.	0.04	
Alta	02:08 p.m.	2.75	01:42 p.m.	1.84	01:43 p.m.	1.76	01:58 p.m.	2.34	
Baja	07:57 p.m.	0.12	07:57 p.m.	0.08	07:54 p.m.	0.08	07:47 p.m.	0.10	
09/02/2009									
Alta	02:26 a.m.	3.01	02:00 a.m.	2.02	02:01 a.m.	1.93	02:16 a.m.	2.56	LUNA LLENA
Baja	08:25 a.m.	-0.12	08:25 a.m.	-0.08	08:22 a.m.	-0.08	08:15 a.m.	-0.10	
Alta	03:06 p.m.	2.98	02:40 p.m.	2.00	02:41 p.m.	1.91	02:56 p.m.	2.53	
Baja	08:53 p.m.	-0.06	08:53 p.m.	-0.04	08:50 p.m.	-0.04	08:43 p.m.	-0.05	
10/02/2009									
Alta	03:21 a.m.	3.11	02:55 a.m.	2.08	02:56 a.m.	1.99	03:11 a.m.	2.64	
Baja	09:16 a.m.	-0.25	09:16 a.m.	-0.17	09:13 a.m.	-0.16	09:06 a.m.	-0.21	
Alta	03:56 p.m.	3.15	03:30 p.m.	2.11	03:31 p.m.	2.02	03:46 p.m.	2.68	
Baja	09:44 p.m.	-0.19	09:44 p.m.	-0.13	09:41 p.m.	-0.12	09:34 p.m.	-0.16	

PUERTO	LA UNION		LA LIBERTAD		ACAJUTLA		PUERTO EL TRIUNFO		FASE LUNAR
	HORA	ALTURA metros	HORA	ALTURA metros	HORA	ALTURA metros	HORA	ALTURA metros	
11/02/2009									
Alta	04:11 a.m.	3.16	03:45 a.m.	2.12	03:46 a.m.	2.02	04:01 a.m.	2.69	
Baja	10:02 a.m.	-0.32	10:02 a.m.	-0.21	09:59 a.m.	-0.20	09:52 a.m.	-0.27	
Alta	04:43 p.m.	3.26	04:17 p.m.	2.18	04:18 p.m.	2.09	04:33 p.m.	2.77	
Baja	10:31 p.m.	-0.25	10:31 p.m.	-0.17	10:28 p.m.	-0.16	10:21 p.m.	-0.21	
12/02/2009									
Alta	04:57 a.m.	3.13	04:31 a.m.	2.10	04:32 a.m.	2.00	04:47 a.m.	2.66	
Baja	10:47 a.m.	-0.31	10:47 a.m.	-0.21	10:44 a.m.	-0.20	10:37 a.m.	-0.26	
Alta	05:26 p.m.	3.27	05:00 p.m.	2.19	05:01 p.m.	2.09	05:16 p.m.	2.78	
Baja	11:16 p.m.	-0.22	11:16 p.m.	-0.15	11:13 p.m.	-0.14	11:06 p.m.	-0.19	
13/02/2009									
Alta	05:40 a.m.	3.03	05:14 a.m.	2.03	05:15 a.m.	1.94	05:30 a.m.	2.58	
Baja	11:29 a.m.	-0.22	11:29 a.m.	-0.15	11:26 a.m.	-0.14	11:19 a.m.	-0.19	
Alta	06:08 p.m.	3.21	05:42 p.m.	2.15	05:43 p.m.	2.05	05:58 p.m.	2.73	
Baja					11:35 p.m.	-0.07	11:50 p.m.	-0.09	
14/02/2009									
Baja	12:00 a.m.	-0.11	12:00 a.m.	-0.07					
Alta	06:21 a.m.	2.88	05:55 a.m.	1.93	05:56 a.m.	1.84	06:11 a.m.	2.45	
Baja	12:11 p.m.	-0.06	12:11 p.m.	-0.04	12:08 p.m.	-0.04	12:01 p.m.	-0.05	
Alta	06:48 p.m.	3.08	06:22 p.m.	2.06	06:23 p.m.	1.97	06:38 p.m.	2.62	
15/02/2009									
Baja	12:43 a.m.	0.04	12:43 a.m.	0.03	12:40 a.m.	0.03	12:33 a.m.	0.03	
Alta	07:02 a.m.	2.69	06:36 a.m.	1.80	06:37 a.m.	1.72	06:52 a.m.	2.29	
Baja	12:52 p.m.	0.13	12:52 p.m.	0.09	12:49 p.m.	0.08	12:42 p.m.	0.11	
Alta	07:29 p.m.	2.9	07:03 p.m.	1.94	07:04 p.m.	1.86	07:19 p.m.	2.47	
16/02/2009									
Baja	01:27 a.m.	0.23	01:27 a.m.	0.15	01:24 a.m.	0.15	01:17 a.m.	0.20	CUARTO MENGUANTE
Alta	07:43 a.m.	2.48	07:17 a.m.	1.66	07:18 a.m.	1.59	07:33 a.m.	2.11	
Baja	01:34 p.m.	0.36	01:34 p.m.	0.24	01:31 p.m.	0.23	01:24 p.m.	0.31	
Alta	08:10 p.m.	2.71	07:44 p.m.	1.82	07:45 p.m.	1.73	08:00 p.m.	2.30	
17/02/2009									
Baja	02:13 a.m.	0.43	02:13 a.m.	0.29	02:10 a.m.	0.28	02:03 a.m.	0.37	
Alta	08:27 a.m.	2.28	08:01 a.m.	1.53	08:02 a.m.	1.46	08:17 a.m.	1.94	
Baja	02:19 p.m.	0.58	02:19 p.m.	0.39	02:16 p.m.	0.37	02:09 p.m.	0.49	
Alta	08:55 p.m.	2.54	08:29 p.m.	1.70	08:30 p.m.	1.63	08:45 p.m.	2.16	
18/02/2009									
Baja	03:05 a.m.	0.61	03:05 a.m.	0.41	03:02 a.m.	0.39	02:55 a.m.	0.52	
Alta	09:18 a.m.	2.12	08:52 a.m.	1.42	08:53 a.m.	1.36	09:08 a.m.	1.80	
Baja	03:13 p.m.	0.78	03:13 p.m.	0.52	03:10 p.m.	0.50	03:03 p.m.	0.66	
Alta	09:47 p.m.	2.39	09:21 p.m.	1.60	09:22 p.m.	1.53	09:37 p.m.	2.03	
19/02/2009									
Baja	04:05 a.m.	0.73	04:05 a.m.	0.49	04:02 a.m.	0.47	03:55 a.m.	0.62	
Alta	10:20 a.m.	2.02	09:54 a.m.	1.35	09:55 a.m.	1.29	10:10 a.m.	1.72	
Baja	04:19 p.m.	0.9	04:19 p.m.	0.60	04:16 p.m.	0.58	04:09 p.m.	0.77	
Alta	10:48 p.m.	2.31	10:22 p.m.	1.55	10:23 p.m.	1.48	10:38 p.m.	1.96	
20/02/2009									
Baja	05:14 a.m.	0.76	05:14 a.m.	0.51	05:11 a.m.	0.49	05:04 a.m.	0.65	
Alta	11:36 a.m.	2.01	11:10 a.m.	1.35	11:11 a.m.	1.29	11:26 a.m.	1.71	
Baja	05:36 p.m.	0.92	05:36 p.m.	0.62	05:33 p.m.	0.59	05:26 p.m.	0.78	
Alta	11:54 p.m.	2.3	11:28 p.m.	1.54	11:29 p.m.	1.47	11:44 p.m.	1.96	

PUERTO	LA UNION		LA LIBERTAD		ACAUTLA		PUERTO EL TRIUNFO		FASE LUNAR
	HORA	ALTUR A metro s	HORA	ALTUR A metros	HORA	ALTURA metros	HORA	ALTURA metros	
21/02/2009									
Baja	06:22 a.m.	0.7	06:22 a.m.	0.47	06:19 a.m.	0.45	06:12 a.m.	0.60	
Alta	12:50 p.m.	2.11	12:24 p.m.	1.41	12:25 p.m.	1.35	12:40 p.m.	1.79	
Baja	06:45 p.m.	0.83	06:45 p.m.	0.56	06:42 p.m.	0.53	06:35 p.m.	0.71	
22/02/2009									
Alta	12:57 a.m.	2.37	12:31 a.m.	1.59	12:32 a.m.	1.52	12:47 a.m.	2.01	
Baja	07:16 a.m.	0.58	07:16 a.m.	0.39	07:13 a.m.	0.37	07:06 a.m.	0.49	
Alta	01:48 p.m.	2.26	01:22 p.m.	1.51	01:23 p.m.	1.45	01:38 p.m.	1.92	
Baja	07:38 p.m.	0.68	07:38 p.m.	0.46	07:35 p.m.	0.44	07:28 p.m.	0.58	
23/02/2009									
Alta	01:51 a.m.	2.48	01:25 a.m.	1.66	01:26 a.m.	1.59	01:41 a.m.	2.11	
Baja	08:00 a.m.	0.44	08:00 a.m.	0.29	07:57 a.m.	0.28	07:50 a.m.	0.37	
Alta	02:32 p.m.	2.45	02:06 p.m.	1.64	02:07 p.m.	1.57	02:22 p.m.	2.08	
Baja	08:22 p.m.	0.5	08:22 p.m.	0.34	08:19 p.m.	0.32	08:12 p.m.	0.43	
24/02/2009									
Alta	02:37 a.m.	2.6	02:11 a.m.	1.74	02:12 a.m.	1.66	02:27 a.m.	2.21	LUNA NUEVA
Baja	08:39 a.m.	0.3	08:39 a.m.	0.20	08:36 a.m.	0.19	08:29 a.m.	0.26	
Alta	03:11 p.m.	2.63	02:45 p.m.	1.76	02:46 p.m.	1.68	03:01 p.m.	2.24	
Baja	09:01 p.m.	0.32	09:01 p.m.	0.21	08:58 p.m.	0.20	08:51 p.m.	0.27	
25/02/2009									
Alta	03:18 a.m.	2.7	02:52 a.m.	1.81	02:53 a.m.	1.73	03:08 a.m.	2.30	
Baja	09:14 a.m.	0.17	09:14 a.m.	0.11	09:11 a.m.	0.11	09:04 a.m.	0.14	
Alta	03:47 p.m.	2.79	03:21 p.m.	1.87	03:22 p.m.	1.79	03:37 p.m.	2.37	
Baja	09:38 p.m.	0.17	09:38 p.m.	0.11	09:35 p.m.	0.11	09:28 p.m.	0.14	
26/02/2009									
Alta	03:57 a.m.	2.78	03:31 a.m.	1.86	03:32 a.m.	1.78	03:47 a.m.	2.36	
Baja	09:49 a.m.	0.07	09:49 a.m.	0.05	09:46 a.m.	0.04	09:39 a.m.	0.06	
Alta	04:22 p.m.	2.92	03:56 p.m.	1.96	03:57 p.m.	1.87	04:12 p.m.	2.48	
Baja	10:15 p.m.	0.05	10:15 p.m.	0.03	10:12 p.m.	0.03	10:05 p.m.	0.04	
27/02/2009									
Alta	04:34 a.m.	2.81	04:08 a.m.	1.88	04:09 a.m.	1.80	04:24 a.m.	2.39	
Baja	10:24 a.m.	0	10:24 a.m.	0.00	10:21 a.m.	0.00	10:14 a.m.	0.00	
Alta	04:57 p.m.	3.01	04:31 p.m.	2.02	04:32 p.m.	1.93	04:47 p.m.	2.56	
Baja	10:52 p.m.	-0.02	10:52 p.m.	-0.01	10:49 p.m.	-0.01	10:42 p.m.	-0.02	
28/02/2009									
Alta	05:11 a.m.	2.8	04:45 a.m.	1.88	04:46 a.m.	1.79	05:01 a.m.	2.38	
Baja	11:00 a.m.	-0.03	11:00 a.m.	-0.02	10:57 a.m.	-0.02	10:50 a.m.	-0.03	
Alta	05:33 p.m.	3.05	05:07 p.m.	2.04	05:08 p.m.	1.95	05:23 p.m.	2.59	
Baja	11:31 p.m.	-0.05	11:31 p.m.	-0.03	11:28 p.m.	-0.03	11:21 p.m.	-0.04	

PUERTO	LA UNION		LA LIBERTAD		ACAJUTLA		PUERTO EL TRIUNFO		FASE LUNAR
	HORA	ALTURA metros	HORA	ALTURA metros	HORA	ALTURA metros	HORA	ALTURA metros	
01/03/2009									
Alta	05:48 a.m.	2.75	05:22 a.m.	1.84	05:23 a.m.	1.76	05:38 a.m.	2.34	
Baja	11:38 a.m.	-0.02	11:38 a.m.	-0.01	11:35 a.m.	-0.01	11:28 a.m.	-0.02	
Alta	06:11 p.m.	3.05	05:45 p.m.	2.04	05:46 p.m.	1.95	06:01 p.m.	2.59	
02/03/2009									
Baja	12:12 a.m.	-0.02	12:12 a.m.	-0.01	12:09 a.m.	-0.01	12:02 a.m.	-0.02	
Alta	06:28 a.m.	2.67	06:02 a.m.	1.79	06:03 a.m.	1.71	06:18 a.m.	2.27	
Baja	12:19 p.m.	0.04	12:19 p.m.	0.03	12:16 p.m.	0.03	12:09 p.m.	0.03	
Alta	06:53 p.m.	3	06:27 p.m.	2.01	06:28 p.m.	1.92	06:43 p.m.	2.55	
03/03/2009									
Baja	12:56 a.m.	0.04	12:56 a.m.	0.03	12:53 a.m.	0.03	12:46 a.m.	0.03	
Alta	07:12 a.m.	2.57	06:46 a.m.	1.72	06:47 a.m.	1.64	07:02 a.m.	2.18	
Baja	01:04 p.m.	0.14	01:04 p.m.	0.09	01:01 p.m.	0.09	12:54 p.m.	0.12	
Alta	07:39 p.m.	2.91	07:13 p.m.	1.95	07:14 p.m.	1.86	07:29 p.m.	2.47	
04/03/2009									
Baja	01:45 a.m.	0.15	01:45 a.m.	0.10	01:42 a.m.	0.10	01:35 a.m.	0.13	CUARTO CRECIENTE
Alta	08:02 a.m.	2.45	07:36 a.m.	1.64	07:37 a.m.	1.57	07:52 a.m.	2.08	
Baja	01:56 p.m.	0.28	01:56 p.m.	0.19	01:53 p.m.	0.18	01:46 p.m.	0.24	
Alta	08:33 p.m.	2.79	08:07 p.m.	1.87	08:08 p.m.	1.79	08:23 p.m.	2.37	
05/03/2009									
Baja	02:41 a.m.	0.27	02:41 a.m.	0.18	02:38 a.m.	0.17	02:31 a.m.	0.23	
Alta	09:03 a.m.	2.36	08:37 a.m.	1.58	08:38 a.m.	1.51	08:53 a.m.	2.01	
Baja	02:58 p.m.	0.42	02:58 p.m.	0.28	02:55 p.m.	0.27	02:48 p.m.	0.36	
Alta	09:36 p.m.	2.68	09:10 p.m.	1.80	09:11 p.m.	1.72	09:26 p.m.	2.28	
06/03/2009									
Baja	03:45 a.m.	0.35	03:45 a.m.	0.23	03:42 a.m.	0.22	03:35 a.m.	0.30	
Alta	10:15 a.m.	2.33	09:49 a.m.	1.56	09:50 a.m.	1.49	10:05 a.m.	1.98	
Baja	04:11 p.m.	0.5	04:11 p.m.	0.34	04:08 p.m.	0.32	04:01 p.m.	0.43	
Alta	10:47 p.m.	2.63	10:21 p.m.	1.76	10:22 p.m.	1.68	10:37 p.m.	2.24	
07/03/2009									
Baja	04:57 a.m.	0.36	04:57 a.m.	0.24	04:54 a.m.	0.23	04:47 a.m.	0.31	
Alta	11:35 a.m.	2.4	11:09 a.m.	1.61	11:10 a.m.	1.54	11:25 a.m.	2.04	
Baja	05:30 p.m.	0.46	05:30 p.m.	0.31	05:27 p.m.	0.29	05:20 p.m.	0.39	
Alta			11:36 p.m.	1.78	11:37 p.m.	1.70	11:52 p.m.	2.25	
08/03/2009									
Alta	12:02 a.m.	2.65							
Baja	06:08 a.m.	0.27	06:08 a.m.	0.18	06:05 a.m.	0.17	05:58 a.m.	0.23	
Alta	12:51 p.m.	2.57	12:25 p.m.	1.72	12:26 p.m.	1.64	12:41 p.m.	2.18	
Baja	06:43 p.m.	0.31	06:43 p.m.	0.21	06:40 p.m.	0.20	06:33 p.m.	0.26	
09/03/2009									
Alta	01:12 a.m.	2.74	12:46 a.m.	1.84	12:47 a.m.	1.75	01:02 a.m.	2.33	
Baja	07:12 a.m.	0.12	07:12 a.m.	0.08	07:09 a.m.	0.08	07:02 a.m.	0.10	
Alta	01:54 p.m.	2.79	01:28 p.m.	1.87	01:29 p.m.	1.79	01:44 p.m.	2.37	
Baja	07:45 p.m.	0.12	07:45 p.m.	0.08	07:42 p.m.	0.08	07:35 p.m.	0.10	
10/03/2009									
Alta	02:12 a.m.	2.86	01:46 a.m.	1.92	01:47 a.m.	1.83	02:02 a.m.	2.43	LUNA LLENA
Baja	08:06 a.m.	-0.03	08:06 a.m.	-0.02	08:03 a.m.	-0.02	07:56 a.m.	-0.03	
Alta	02:48 p.m.	2.99	02:22 p.m.	2.00	02:23 p.m.	1.91	02:38 p.m.	2.54	
Baja	08:38 p.m.	-0.05	08:38 p.m.	-0.03	08:35 p.m.	-0.03	08:28 p.m.	-0.04	

PUERTO	LA UNION		LA LIBERTAD		ACAJUTLA		PUERTO EL TRIUNFO		FASE LUNAR
	HORA	ALTURA metros	HORA	ALTURA metros	HORA	ALTURA metros	HORA	ALTURA metros	
11/03/2009									
Alta	03:04 a.m.	2.95	02:38 a.m.	1.98	02:39 a.m.	1.89	02:54 a.m.	2.51	
Baja	08:55 a.m.	-0.15	08:55 a.m.	-0.10	08:52 a.m.	-0.10	08:45 a.m.	-0.13	
Alta	03:35 p.m.	3.14	03:09 p.m.	2.10	03:10 p.m.	2.01	03:25 p.m.	2.67	
Baja	09:26 p.m.	-0.17	09:26 p.m.	-0.11	09:23 p.m.	-0.11	09:16 p.m.	-0.14	
12/03/2009									
Alta	03:51 a.m.	2.99	03:25 a.m.	2.00	03:26 a.m.	1.91	03:41 a.m.	2.54	
Baja	09:40 a.m.	-0.21	09:40 a.m.	-0.14	09:37 a.m.	-0.13	09:30 a.m.	-0.18	
Baja	04:18 p.m.	3.22	03:52 p.m.	2.16	03:53 p.m.	2.06	04:08 p.m.	2.74	
Baja	10:10 p.m.	-0.23	10:10 p.m.	-0.15	10:07 p.m.	-0.15	10:00 p.m.	-0.20	
13/03/2009									
Alta	04:34 a.m.	2.98	04:08 a.m.	2.00	04:09 a.m.	1.91	04:24 a.m.	2.53	
Baja	10:22 a.m.	-0.2	10:22 a.m.	-0.13	10:19 a.m.	-0.13	10:12 a.m.	-0.17	
Alta	04:59 p.m.	3.22	04:33 p.m.	2.16	04:34 p.m.	2.06	04:49 p.m.	2.74	
Baja	10:52 p.m.	-0.2	10:52 p.m.	-0.13	10:49 p.m.	-0.13	10:42 p.m.	-0.17	
14/03/2009									
Alta	05:14 a.m.	2.9	04:48 a.m.	1.94	04:49 a.m.	1.86	05:04 a.m.	2.47	
Baja	11:02 a.m.	-0.12	11:02 a.m.	-0.08	10:59 a.m.	-0.08	10:52 a.m.	-0.10	
Alta	05:37 p.m.	3.14	05:11 p.m.	2.10	05:12 p.m.	2.01	05:27 p.m.	2.67	
Baja	11:33 p.m.	-0.11	11:33 p.m.	-0.07	11:30 p.m.	-0.07	11:23 p.m.	-0.09	
15/03/2009									
Alta	05:52 a.m.	2.77	05:26 a.m.	1.86	05:27 a.m.	1.77	05:42 a.m.	2.35	
Baja	11:41 a.m.	0.01	11:41 a.m.	0.01	11:38 a.m.	0.01	11:31 a.m.	0.01	
Alta	06:14 p.m.	3.01	05:48 p.m.	2.02	05:49 p.m.	1.93	06:04 p.m.	2.56	
16/03/2009									
Baja	12:12 a.m.	0.03	12:12 a.m.	0.02	12:09 a.m.	0.02	12:02 a.m.	0.03	
Alta	06:30 a.m.	2.62	06:04 a.m.	1.76	06:05 a.m.	1.68	06:20 a.m.	2.23	
Baja	12:20 p.m.	0.19	12:20 p.m.	0.13	12:17 p.m.	0.12	12:10 p.m.	0.16	
Alta	06:51 p.m.	2.85	06:25 p.m.	1.91	06:26 p.m.	1.82	06:41 p.m.	2.42	
17/03/2009									
Baja	12:53 a.m.	0.21	12:53 a.m.	0.14	12:50 a.m.	0.13	12:43 a.m.	0.18	
Alta	07:09 a.m.	2.45	06:43 a.m.	1.64	06:44 a.m.	1.57	06:59 a.m.	2.08	
Baja	01:00 p.m.	0.4	01:00 p.m.	0.27	12:57 p.m.	0.26	12:50 p.m.	0.34	
Alta	07:30 p.m.	2.67	07:04 p.m.	1.79	07:05 p.m.	1.71	07:20 p.m.	2.27	
18/03/2009									
Baja	01:35 a.m.	0.39	01:35 a.m.	0.26	01:32 a.m.	0.25	01:25 a.m.	0.33	CUARTO MENGUANTE
Alta	07:51 a.m.	2.28	07:25 a.m.	1.53	07:26 a.m.	1.46	07:41 a.m.	1.94	
Baja	01:44 p.m.	0.6	01:44 p.m.	0.40	01:41 p.m.	0.38	01:34 p.m.	0.51	
Alta	08:14 p.m.	2.5	07:48 p.m.	1.68	07:49 p.m.	1.60	08:04 p.m.	2.13	
19/03/2009									
Baja	02:21 a.m.	0.56	02:21 a.m.	0.38	02:18 a.m.	0.36	02:11 a.m.	0.48	
Alta	08:41 a.m.	2.15	08:15 a.m.	1.44	08:16 a.m.	1.38	08:31 a.m.	1.83	
Baja	02:34 p.m.	0.78	02:34 p.m.	0.52	02:31 p.m.	0.50	02:24 p.m.	0.66	
Alta	09:05 p.m.	2.35	08:39 p.m.	1.57	08:40 p.m.	1.50	08:55 p.m.	2.00	
20/03/2009									
Baja	03:16 a.m.	0.7	03:16 a.m.	0.47	03:13 a.m.	0.45	03:06 a.m.	0.60	
Alta	09:41 a.m.	2.06	09:15 a.m.	1.38	09:16 a.m.	1.32	09:31 a.m.	1.75	
Baja	03:37 p.m.	0.9	03:37 p.m.	0.60	03:34 p.m.	0.58	03:27 p.m.	0.77	
Alta	10:04 p.m.	2.26	09:38 p.m.	1.51	09:39 p.m.	1.45	09:54 p.m.	1.92	

PUERTO	LA UNION		LA LIBERTAD		ACAJUTLA		PUERTO EL TRIUNFO		FASE LUNAR
	HORA	ALTURA metros	HORA	ALTURA metros	HORA	ALTURA metros	HORA	ALTURA metros	
21/03/2009									
Baja	04:20 a.m.	0.76	04:20 a.m.	0.51	04:17 a.m.	0.49	04:10 a.m.	0.65	
Alta	10:51 a.m.	2.06	10:25 a.m.	1.38	10:26 a.m.	1.32	10:41 a.m.	1.75	
Baja	04:52 p.m.	0.92	04:52 p.m.	0.62	04:49 p.m.	0.59	04:42 p.m.	0.78	
Alta	11:10 p.m.	2.24	10:44 p.m.	1.50	10:45 p.m.	1.43	11:00 p.m.	1.90	
22/03/2009									
Baja	05:29 a.m.	0.73	05:29 a.m.	0.49	05:26 a.m.	0.47	05:19 a.m.	0.62	
Alta	12:02 p.m.	2.15	11:36 a.m.	1.44	11:37 a.m.	1.38	11:52 a.m.	1.83	
Baja	06:05 p.m.	0.82	06:05 p.m.	0.55	06:02 p.m.	0.52	05:55 p.m.	0.70	
Alta			11:48 p.m.	1.53	11:51 p.m.	1.47			
23/03/2009									
Alta	12:14 a.m.	2.29					12:04 a.m.	1.95	
Baja	06:29 a.m.	0.63	06:29 a.m.	0.42	06:26 a.m.	0.40	06:19 a.m.	0.54	
Alta	01:01 p.m.	2.31	12:35 p.m.	1.55	12:36 p.m.	1.48	12:51 p.m.	1.96	
Baja	07:02 p.m.	0.65	07:02 p.m.	0.44	06:59 p.m.	0.42	06:52 p.m.	0.55	
24/03/2009									
Alta	01:12 a.m.	2.4	12:46 a.m.	1.61	12:47 a.m.	1.54	01:02 a.m.	2.04	
Baja	07:17 a.m.	0.49	07:17 a.m.	0.33	07:14 a.m.	0.31	07:07 a.m.	0.42	
Alta	01:49 p.m.	2.5	01:23 p.m.	1.68	01:24 p.m.	1.60	01:39 p.m.	2.13	
Baja	07:48 p.m.	0.45	07:48 p.m.	0.30	07:45 p.m.	0.29	07:38 p.m.	0.38	
25/03/2009									
Alta	02:01 a.m.	2.53	01:35 a.m.	1.70	01:36 a.m.	1.62	01:51 a.m.	2.15	
Baja	07:59 a.m.	0.33	07:59 a.m.	0.22	07:56 a.m.	0.21	07:49 a.m.	0.28	
Alta	02:31 p.m.	2.71	02:05 p.m.	1.82	02:06 p.m.	1.73	02:21 p.m.	2.30	
Baja	08:29 p.m.	0.25	08:29 p.m.	0.17	08:26 p.m.	0.16	08:19 p.m.	0.21	
26/03/2009									
Alta	02:45 a.m.	2.64	02:19 a.m.	1.77	02:20 a.m.	1.69	02:35 a.m.	2.24	LUNA NUEVA
Baja	08:38 a.m.	0.18	08:38 a.m.	0.12	08:35 a.m.	0.12	08:28 a.m.	0.15	
Alta	03:11 p.m.	2.89	02:45 p.m.	1.94	02:46 p.m.	1.85	03:01 p.m.	2.46	
Baja	09:09 p.m.	0.06	09:09 p.m.	0.04	09:06 p.m.	0.04	08:59 p.m.	0.05	
27/03/2009									
Alta	03:27 a.m.	2.74	03:01 a.m.	1.84	03:02 a.m.	1.75	03:17 a.m.	2.33	
Baja	09:17 a.m.	0.05	09:17 a.m.	0.03	09:14 a.m.	0.03	09:07 a.m.	0.04	
Alta	03:49 p.m.	3.04	03:23 p.m.	2.04	03:24 p.m.	1.95	03:39 p.m.	2.58	
Baja	09:48 p.m.	-0.07	09:48 p.m.	-0.05	09:45 p.m.	-0.04	09:38 p.m.	-0.06	
28/03/2009									
Alta	04:07 a.m.	2.79	03:41 a.m.	1.87	03:42 a.m.	1.79	03:57 a.m.	2.37	
Baja	09:55 a.m.	-0.03	09:55 a.m.	-0.02	09:52 a.m.	-0.02	09:45 a.m.	-0.03	
Alta	04:28 p.m.	3.13	04:02 p.m.	2.10	04:03 p.m.	2.00	04:18 p.m.	2.66	
Baja	10:28 p.m.	-0.16	10:28 p.m.	-0.11	10:25 p.m.	-0.10	10:18 p.m.	-0.14	
29/03/2009									
Alta	04:47 a.m.	2.81	04:21 a.m.	1.88	04:22 a.m.	1.80	04:37 a.m.	2.39	
Baja	10:35 a.m.	-0.07	10:35 a.m.	-0.05	10:32 a.m.	-0.04	10:25 a.m.	-0.06	
Alta	05:08 p.m.	3.17	04:42 p.m.	2.12	04:43 p.m.	2.03	04:58 p.m.	2.69	
Baja	11:09 p.m.	-0.19	11:09 p.m.	-0.13	11:06 p.m.	-0.12	10:59 p.m.	-0.16	
30/03/2009									
Alta	05:28 a.m.	2.78	05:02 a.m.	1.86	05:03 a.m.	1.78	05:18 a.m.	2.36	
Baja	11:17 a.m.	-0.06	11:17 a.m.	-0.04	11:14 a.m.	-0.04	11:07 a.m.	-0.05	
Alta	05:50 p.m.	3.14	05:24 p.m.	2.10	05:25 p.m.	2.01	05:40 p.m.	2.67	
Baja	11:52 p.m.	-0.15	11:52 p.m.	-0.10	11:49 p.m.	-0.10	11:42 p.m.	-0.13	
31/03/2009									
Alta	06:12 a.m.	2.71	05:46 a.m.	1.82	05:47 a.m.	1.73	06:02 a.m.	2.30	
Baja	12:02 p.m.	0.01	12:02 p.m.	0.01	11:59 a.m.	0.01	11:52 a.m.	0.01	
Alta	06:35 p.m.	3.06	06:09 p.m.	2.05	06:10 p.m.	1.96	06:25 p.m.	2.60	

PUERTO	LA UNION		LA LIBERTAD		ACAJUTLA		PUERTO EL TRIUNFO		FASE LUNAR
	HORA	ALTURA metros	HORA	ALTURA metros	HORA	ALTURA metros	HORA	ALTURA metros	
01/04/2009									
Baja	12:38 a.m.	-0.05	12:38 a.m.	-0.03	12:35 a.m.	-0.03	12:28 a.m.	-0.04	
Alta	07:01 a.m.	2.62	06:35 a.m.	1.76	06:36 a.m.	1.68	06:51 a.m.	2.23	
Baja	12:51 p.m.	0.13	12:51 p.m.	0.09	12:48 p.m.	0.08	12:41 p.m.	0.11	
Alta	07:25 p.m.	2.93	06:59 p.m.	1.96	07:00 p.m.	1.88	07:15 p.m.	2.49	
02/04/2009									
Baja	01:28 a.m.	0.07	01:28 a.m.	0.05	01:25 a.m.	0.04	01:18 a.m.	0.06	CUARTO CRECIENTE
Alta	07:56 a.m.	2.53	07:30 a.m.	1.70	07:31 a.m.	1.62	07:46 a.m.	2.15	
Baja	01:46 p.m.	0.28	01:46 p.m.	0.19	01:43 p.m.	0.18	01:36 p.m.	0.24	
Alta	08:22 p.m.	2.78	07:56 p.m.	1.86	07:57 p.m.	1.78	08:12 p.m.	2.36	
03/04/2009									
Baja	02:24 a.m.	0.21	02:24 a.m.	0.14	02:21 a.m.	0.13	02:14 a.m.	0.18	
Alta	08:59 a.m.	2.46	08:33 a.m.	1.65	08:34 a.m.	1.57	08:49 a.m.	2.09	
Baja	02:50 p.m.	0.42	02:50 p.m.	0.28	02:47 p.m.	0.27	02:40 p.m.	0.36	
Alta	09:26 p.m.	2.64	09:00 p.m.	1.77	09:01 p.m.	1.69	09:16 p.m.	2.24	
04/04/2009									
Baja	03:28 a.m.	0.32	03:28 a.m.	0.21	03:25 a.m.	0.20	03:18 a.m.	0.27	
Alta	10:11 a.m.	2.45	09:45 a.m.	1.64	09:46 a.m.	1.57	10:01 a.m.	2.08	
Baja	04:03 p.m.	0.49	04:03 p.m.	0.33	04:00 p.m.	0.31	03:53 p.m.	0.42	
Alta	10:37 p.m.	2.56	10:11 p.m.	1.72	10:12 p.m.	1.64	10:27 p.m.	2.18	
05/04/2009									
Baja	05:38 a.m.	0.36	05:38 a.m.	0.24	05:35 a.m.	0.23	05:28 a.m.	0.31	
Alta	12:26 p.m.	2.52	12:00 p.m.	1.69	12:01 p.m.	1.61	12:16 p.m.	2.14	
Baja	06:21 p.m.	0.45	06:21 p.m.	0.30	06:18 p.m.	0.29	06:11 p.m.	0.38	
06/04/2009									
Alta	12:49 a.m.	2.56	12:23 a.m.	1.72	12:24 a.m.	1.64	12:39 a.m.	2.18	
Baja	06:48 a.m.	0.31	06:48 a.m.	0.21	06:45 a.m.	0.20	06:38 a.m.	0.26	
Alta	01:35 p.m.	2.66	01:09 p.m.	1.78	01:10 p.m.	1.70	01:25 p.m.	2.26	
Baja	07:30 p.m.	0.32	07:30 p.m.	0.21	07:27 p.m.	0.20	07:20 p.m.	0.27	
07/04/2009									
Alta	01:55 a.m.	2.62	01:29 a.m.	1.76	01:30 a.m.	1.68	01:45 a.m.	2.23	
Baja	07:50 a.m.	0.21	07:50 a.m.	0.14	07:47 a.m.	0.13	07:40 a.m.	0.18	
Alta	02:34 p.m.	2.83	02:08 p.m.	1.90	02:09 p.m.	1.81	02:24 p.m.	2.41	
Baja	08:29 p.m.	0.16	08:29 p.m.	0.11	08:26 p.m.	0.10	08:19 p.m.	0.14	
08/04/2009									
Alta	02:53 a.m.	2.7	02:27 a.m.	1.81	02:28 a.m.	1.73	02:43 a.m.	2.30	
Baja	08:43 a.m.	0.1	08:43 a.m.	0.07	08:40 a.m.	0.06	08:33 a.m.	0.09	
Alta	03:25 p.m.	2.98	02:59 p.m.	2.00	03:00 p.m.	1.91	03:15 p.m.	2.53	
Baja	09:19 p.m.	0.02	09:19 p.m.	0.01	09:16 p.m.	0.01	09:09 p.m.	0.02	
09/04/2009									
Alta	03:44 a.m.	2.77	03:18 a.m.	1.86	03:19 a.m.	1.77	03:34 a.m.	2.35	LUNA LLENA
Baja	09:31 a.m.	0.01	09:31 a.m.	0.01	09:28 a.m.	0.01	09:21 a.m.	0.01	
Alta	04:10 p.m.	3.08	03:44 p.m.	2.06	03:45 p.m.	1.97	04:00 p.m.	2.62	
Baja	10:05 p.m.	-0.07	10:05 p.m.	-0.05	10:02 p.m.	-0.04	09:55 p.m.	-0.06	
10/04/2009									
Alta	04:28 a.m.	2.8	04:02 a.m.	1.88	04:03 a.m.	1.79	04:18 a.m.	2.38	
Baja	10:15 a.m.	-0.02	10:15 a.m.	-0.01	10:12 a.m.	-0.01	10:05 a.m.	-0.02	
Alta	04:51 p.m.	3.12	04:25 p.m.	2.09	04:26 p.m.	2.00	04:41 p.m.	2.65	
Baja	10:47 p.m.	-0.11	10:47 p.m.	-0.07	10:44 p.m.	-0.07	10:37 p.m.	-0.09	

PUERTO	LA UNION		LA LIBERTAD		ACAJUTLA		PUERTO EL TRIUNFO		FASE LUNAR
	HORA	ALTURA metros	HORA	ALTURA metros	HORA	ALTURA metros	HORA	ALTURA metros	
11/04/2009									
Alta	05:09 a.m.	2.79	04:43 a.m.	1.87	04:44 a.m.	1.79	04:59 a.m.	2.37	
Baja	10:56 a.m.	-0.01	10:56 a.m.	-0.01	10:53 a.m.	-0.01	10:46 a.m.	-0.01	
Alta	05:29 p.m.	3.11	05:03 p.m.	2.08	05:04 p.m.	1.99	05:19 p.m.	2.64	
Baja	11:27 p.m.	-0.09	11:27 p.m.	-0.06	11:24 p.m.	-0.06	11:17 p.m.	-0.08	
12/04/2009									
Alta	05:48 a.m.	2.74	05:22 a.m.	1.84	05:23 a.m.	1.75	05:38 a.m.	2.33	
Baja	11:35 a.m.	0.05	11:35 a.m.	0.03	11:32 a.m.	0.03	11:25 a.m.	0.04	
Alta	06:06 p.m.	3.04	05:40 p.m.	2.04	05:41 p.m.	1.95	05:56 p.m.	2.58	
Baja							11:55 p.m.	-0.02	
13/04/2009									
Baja	12:05 a.m.	-0.02	12:05 a.m.	-0.01	12:02 a.m.	-0.01			
Alta	06:25 a.m.	2.66	05:59 a.m.	1.78	06:00 a.m.	1.70	06:15 a.m.	2.26	
Baja	12:14 p.m.	0.16	12:14 p.m.	0.11	12:11 p.m.	0.10	12:04 p.m.	0.14	
Alta	06:42 p.m.	2.93	06:16 p.m.	1.96	06:17 p.m.	1.88	06:32 p.m.	2.49	
14/04/2009									
Baja	12:43 a.m.	0.08	12:43 a.m.	0.05	12:40 a.m.	0.05	12:33 a.m.	0.07	
Alta	07:03 a.m.	2.56	06:37 a.m.	1.72	06:38 a.m.	1.64	06:53 a.m.	2.18	
Baja	12:52 p.m.	0.31	12:52 p.m.	0.21	12:49 p.m.	0.20	12:42 p.m.	0.26	
Alta	07:18 p.m.	2.8	06:52 p.m.	1.88	06:53 p.m.	1.79	07:08 p.m.	2.38	
15/04/2009									
Baja	01:22 a.m.	0.22	01:22 a.m.	0.15	01:19 a.m.	0.14	01:12 a.m.	0.19	
Alta	07:42 a.m.	2.44	07:16 a.m.	1.63	07:17 a.m.	1.56	07:32 a.m.	2.07	
Baja	01:32 p.m.	0.46	01:32 p.m.	0.31	01:29 p.m.	0.29	01:22 p.m.	0.39	
Alta	07:58 p.m.	2.65	07:32 p.m.	1.78	07:33 p.m.	1.70	07:48 p.m.	2.25	
16/04/2009									
Baja	02:02 a.m.	0.37	02:02 a.m.	0.25	01:59 a.m.	0.24	01:52 a.m.	0.31	
Alta	08:25 a.m.	2.33	07:59 a.m.	1.56	08:00 a.m.	1.49	08:15 a.m.	1.98	
Baja	02:15 p.m.	0.62	02:15 p.m.	0.42	02:12 p.m.	0.40	02:05 p.m.	0.53	
Alta	08:41 p.m.	2.51	08:15 p.m.	1.68	08:16 p.m.	1.61	08:31 p.m.	2.13	
17/04/2009									
Baja	02:45 a.m.	0.51	02:45 a.m.	0.34	02:42 a.m.	0.33	02:35 a.m.	0.43	CUARTO MENGUANTE
Alta	09:14 a.m.	2.24	08:48 a.m.	1.50	08:49 a.m.	1.43	09:04 a.m.	1.90	
Baja	03:03 p.m.	0.76	03:03 p.m.	0.51	03:00 p.m.	0.49	02:53 p.m.	0.65	
Alta	09:30 p.m.	2.38	09:04 p.m.	1.59	09:05 p.m.	1.52	09:20 p.m.	2.02	
18/04/2009									
Baja	03:34 a.m.	0.63	03:34 a.m.	0.42	03:31 a.m.	0.40	03:24 a.m.	0.54	
Alta	10:09 a.m.	2.19	09:43 a.m.	1.47	09:44 a.m.	1.40	09:59 a.m.	1.86	
Baja	04:01 p.m.	0.85	04:01 p.m.	0.57	03:58 p.m.	0.54	03:51 p.m.	0.72	
Alta	10:26 p.m.	2.29	10:00 p.m.	1.53	10:01 p.m.	1.47	10:16 p.m.	1.95	
19/04/2009									
Baja	04:30 a.m.	0.7	04:30 a.m.	0.47	04:27 a.m.	0.45	04:20 a.m.	0.60	
Alta	11:09 a.m.	2.2	10:43 a.m.	1.47	10:44 a.m.	1.41	10:59 a.m.	1.87	
Baja	05:07 p.m.	0.86	05:07 p.m.	0.58	05:04 p.m.	0.55	04:57 p.m.	0.73	
Alta	11:26 p.m.	2.26	11:00 p.m.	1.51	11:01 p.m.	1.45	11:16 p.m.	1.92	
20/04/2009									
Baja	05:31 a.m.	0.71	05:31 a.m.	0.48	05:28 a.m.	0.45	05:21 a.m.	0.60	
Alta	12:10 p.m.	2.28	11:44 a.m.	1.53	11:45 a.m.	1.46	12:00 p.m.	1.94	
Baja	06:16 p.m.	0.78	06:16 p.m.	0.52	06:13 p.m.	0.50	06:06 p.m.	0.66	

PUERTO	LA UNION		LA LIBERTAD		ACAJUTLA		PUERTO EL TRIUNFO		FASE LUNAR
	HORA	ALTURA metros	HORA	ALTURA metros	HORA	ALTURA metros	HORA	ALTURA metros	
21/04/2009									
Alta	12:27 a.m.	2.28	12:01 a.m.	1.53	12:02 a.m.	1.46	12:17 a.m.	1.94	
Baja	06:31 a.m.	0.64	06:31 a.m.	0.43	06:28 a.m.	0.41	06:21 a.m.	0.54	
Alta	01:08 p.m.	2.43	12:42 p.m.	1.63	12:43 p.m.	1.56	12:58 p.m.	2.07	
Baja	07:16 p.m.	0.63	07:16 p.m.	0.42	07:13 p.m.	0.40	07:06 p.m.	0.54	
22/04/2009									
Alta	01:25 a.m.	2.36	12:59 a.m.	1.58	01:00 a.m.	1.51	01:15 a.m.	2.01	
Baja	07:26 a.m.	0.52	07:26 a.m.	0.35	07:23 a.m.	0.33	07:16 a.m.	0.44	
Alta	02:00 p.m.	2.61	01:34 p.m.	1.75	01:35 p.m.	1.67	01:50 p.m.	2.22	
Baja	08:07 p.m.	0.43	08:07 p.m.	0.29	08:04 p.m.	0.28	07:57 p.m.	0.37	
23/04/2009									
Alta	02:18 a.m.	2.47	01:52 a.m.	1.65	01:53 a.m.	1.58	02:08 a.m.	2.10	
Baja	08:14 a.m.	0.37	08:14 a.m.	0.25	08:11 a.m.	0.24	08:04 a.m.	0.31	
Alta	02:47 p.m.	2.8	02:21 p.m.	1.88	02:22 p.m.	1.79	02:37 p.m.	2.38	
Baja	08:53 p.m.	0.22	08:53 p.m.	0.15	08:50 p.m.	0.14	08:43 p.m.	0.19	
24/04/2009									
Alta	03:07 a.m.	2.59	02:41 a.m.	1.74	02:42 a.m.	1.66	02:57 a.m.	2.20	LUNA NUEVA
Baja	09:00 a.m.	0.21	09:00 a.m.	0.14	08:57 a.m.	0.13	08:50 a.m.	0.18	
Alta	03:32 p.m.	2.99	03:06 p.m.	2.00	03:07 p.m.	1.91	03:22 p.m.	2.54	
Baja	09:37 p.m.	0.02	09:37 p.m.	0.01	09:34 p.m.	0.01	09:27 p.m.	0.02	
25/04/2009									
Alta	03:54 a.m.	2.7	03:28 a.m.	1.81	03:29 a.m.	1.73	03:44 a.m.	2.30	
Baja	09:44 a.m.	0.08	09:44 a.m.	0.05	09:41 a.m.	0.05	09:34 a.m.	0.07	
Alta	04:16 p.m.	3.14	03:50 p.m.	2.10	03:51 p.m.	2.01	04:06 p.m.	2.67	
Baja	10:20 p.m.	-0.12	10:20 p.m.	-0.08	10:17 p.m.	-0.08	10:10 p.m.	-0.10	
26/04/2009									
Alta	04:40 a.m.	2.78	04:14 a.m.	1.86	04:15 a.m.	1.78	04:30 a.m.	2.36	
Baja	10:29 a.m.	-0.02	10:29 a.m.	-0.01	10:26 a.m.	-0.01	10:19 a.m.	-0.02	
Alta	05:01 p.m.	3.23	04:35 p.m.	2.16	04:36 p.m.	2.07	04:51 p.m.	2.75	
Baja	11:04 p.m.	-0.22	11:04 p.m.	-0.15	11:01 p.m.	-0.14	10:54 p.m.	-0.19	
27/04/2009									
Alta	05:26 a.m.	2.83	05:00 a.m.	1.90	05:01 a.m.	1.81	05:16 a.m.	2.41	
Baja	11:14 a.m.	-0.06	11:14 a.m.	-0.04	11:11 a.m.	-0.04	11:04 a.m.	-0.05	
Alta	05:46 p.m.	3.26	05:20 p.m.	2.18	05:21 p.m.	2.09	05:36 p.m.	2.77	
Baja	11:49 p.m.	-0.25	11:49 p.m.	-0.17	11:46 p.m.	-0.16	11:39 p.m.	-0.21	
28/04/2009									
Alta	06:13 a.m.	2.84	05:47 a.m.	1.90	05:48 a.m.	1.82	06:03 a.m.	2.41	
Baja	12:01 p.m.	-0.05	12:01 p.m.	-0.03	11:58 a.m.	-0.03	11:51 a.m.	-0.04	
Alta	06:33 p.m.	3.22	06:07 p.m.	2.16	06:08 p.m.	2.06	06:23 p.m.	2.74	
29/04/2009									
Baja	12:35 a.m.	-0.21	12:35 a.m.	-0.14	12:32 a.m.	-0.13	12:25 a.m.	-0.18	
Alta	07:03 a.m.	2.81	06:37 a.m.	1.88	06:38 a.m.	1.80	06:53 a.m.	2.39	
Baja	12:50 p.m.	0.01	12:50 p.m.	0.01	12:47 p.m.	0.01	12:40 p.m.	0.01	
Alta	07:23 p.m.	3.12	06:57 p.m.	2.09	06:58 p.m.	2.00	07:13 p.m.	2.65	
30/04/2009									
Baja	01:23 a.m.	-0.12	01:23 a.m.	-0.08	01:20 a.m.	-0.08	01:13 a.m.	-0.10	
Alta	07:56 a.m.	2.75	07:30 a.m.	1.84	07:31 a.m.	1.76	07:46 a.m.	2.34	
Baja	01:42 p.m.	0.13	01:42 p.m.	0.09	01:39 p.m.	0.08	01:32 p.m.	0.11	
Alta	08:16 p.m.	2.97	07:50 p.m.	1.99	07:51 p.m.	1.90	08:06 p.m.	2.52	

PUERTO	LA UNION		LA LIBERTAD		ACAJUTLA		PUERTO EL TRIUNFO		FASE LUNAR
	HORA	ALTURA metros	HORA	ALTURA metros	HORA	ALTURA metros	HORA	ALTURA metros	
01/05/2009									
Baja	02:15 a.m.	0.01	02:15 a.m.	0.01	02:12 a.m.	0.01	02:05 a.m.	0.01	CUARTO CRECIENTE
Alta	08:54 a.m.	2.69	08:28 a.m.	1.80	08:29 a.m.	1.72	08:44 a.m.	2.29	
Baja	02:40 p.m.	0.27	02:40 p.m.	0.18	02:37 p.m.	0.17	02:30 p.m.	0.23	
Alta	09:14 p.m.	2.81	08:48 p.m.	1.88	08:49 p.m.	1.80	09:04 p.m.	2.39	
02/05/2009									
Baja	03:10 a.m.	0.15	03:10 a.m.	0.10	03:07 a.m.	0.10	03:00 a.m.	0.13	
Alta	09:56 a.m.	2.65	09:30 a.m.	1.78	09:31 a.m.	1.70	09:46 a.m.	2.25	
Baja	03:43 p.m.	0.39	03:43 p.m.	0.26	03:40 p.m.	0.25	03:33 p.m.	0.33	
Alta	10:16 p.m.	2.67	09:50 p.m.	1.79	09:51 p.m.	1.71	10:06 p.m.	2.27	
03/05/2009									
Baja	04:12 a.m.	0.28	04:12 a.m.	0.19	04:09 a.m.	0.18	04:02 a.m.	0.24	
Alta	11:02 a.m.	2.64	10:36 a.m.	1.77	10:37 a.m.	1.69	10:52 a.m.	2.24	
Baja	04:54 p.m.	0.46	04:54 p.m.	0.31	04:51 p.m.	0.29	04:44 p.m.	0.39	
Alta	11:21 p.m.	2.56	10:55 p.m.	1.72	10:56 p.m.	1.64	11:11 p.m.	2.18	
04/05/2009									
Baja	05:17 a.m.	0.35	05:17 a.m.	0.23	05:14 a.m.	0.22	05:07 a.m.	0.30	
Alta	12:08 p.m.	2.68	11:42 a.m.	1.80	11:43 a.m.	1.72	11:58 a.m.	2.28	
Baja	06:05 p.m.	0.45	06:05 p.m.	0.30	06:02 p.m.	0.29	05:55 p.m.	0.38	
05/05/2009									
Alta	12:28 a.m.	2.51	12:02 a.m.	1.68	12:03 a.m.	1.61	12:18 a.m.	2.13	
Baja	06:23 a.m.	0.36	06:23 a.m.	0.24	06:20 a.m.	0.23	06:13 a.m.	0.31	
Alta	01:11 p.m.	2.76	12:45 p.m.	1.85	12:46 p.m.	1.77	01:01 p.m.	2.35	
Baja	07:11 p.m.	0.37	07:11 p.m.	0.25	07:08 p.m.	0.24	07:01 p.m.	0.31	
06/05/2009									
Alta	01:32 a.m.	2.51	01:06 a.m.	1.68	01:07 a.m.	1.61	01:22 a.m.	2.13	
Baja	07:24 a.m.	0.33	07:24 a.m.	0.22	07:21 a.m.	0.21	07:14 a.m.	0.28	
Alta	02:07 p.m.	2.85	01:41 p.m.	1.91	01:42 p.m.	1.82	01:57 p.m.	2.42	
Baja	08:08 p.m.	0.27	08:08 p.m.	0.18	08:05 p.m.	0.17	07:58 p.m.	0.23	
07/05/2009									
Alta	02:29 a.m.	2.55	02:03 a.m.	1.71	02:04 a.m.	1.63	02:19 a.m.	2.17	
Baja	08:17 a.m.	0.28	08:17 a.m.	0.19	08:14 a.m.	0.18	08:07 a.m.	0.24	
Alta	02:57 p.m.	2.93	02:31 p.m.	1.96	02:32 p.m.	1.88	02:47 p.m.	2.49	
Baja	08:57 p.m.	0.17	08:57 p.m.	0.11	08:54 p.m.	0.11	08:47 p.m.	0.14	
08/05/2009									
Alta	03:20 a.m.	2.58	02:54 a.m.	1.73	02:55 a.m.	1.65	03:10 a.m.	2.19	LUNA LLENA
Baja	09:05 a.m.	0.24	09:05 a.m.	0.16	09:02 a.m.	0.15	08:55 a.m.	0.20	
Alta	03:42 p.m.	2.98	03:16 p.m.	2.00	03:17 p.m.	1.91	03:32 p.m.	2.53	
Baja	09:41 p.m.	0.1	09:41 p.m.	0.07	09:38 p.m.	0.06	09:31 p.m.	0.09	
09/05/2009									
Alta	04:05 a.m.	2.61	03:39 a.m.	1.75	03:40 a.m.	1.67	03:55 a.m.	2.22	
Baja	09:49 a.m.	0.22	09:49 a.m.	0.15	09:46 a.m.	0.14	09:39 a.m.	0.19	
Alta	04:23 p.m.	3	03:57 p.m.	2.01	03:58 p.m.	1.92	04:13 p.m.	2.55	
Baja	10:23 p.m.	0.07	10:23 p.m.	0.05	10:20 p.m.	0.04	10:13 p.m.	0.06	
10/05/2009									
Alta	04:46 a.m.	2.62	04:20 a.m.	1.76	04:21 a.m.	1.68	04:36 a.m.	2.23	
Baja	10:30 a.m.	0.22	10:30 a.m.	0.15	10:27 a.m.	0.14	10:20 a.m.	0.19	
Alta	05:01 p.m.	2.99	04:35 p.m.	2.00	04:36 p.m.	1.91	04:51 p.m.	2.54	
Baja	11:02 p.m.	0.06	11:02 p.m.	0.04	10:59 p.m.	0.04	10:52 p.m.	0.05	

PUERTO	LA UNION		LA LIBERTAD		ACAJUTLA		PUERTO EL TRIUNFO		FASE LUNAR
	HORA	ALTURA metros	HORA	ALTURA metros	HORA	ALTURA metros	HORA	ALTURA metros	
11/05/2009									
Alta	05:25 a.m.	2.61	04:59 a.m.	1.75	05:00 a.m.	1.67	05:15 a.m.	2.22	
Baja	11:10 a.m.	0.26	11:10 a.m.	0.17	11:07 a.m.	0.17	11:00 a.m.	0.22	
Alta	05:37 p.m.	2.95	05:11 p.m.	1.98	05:12 p.m.	1.89	05:27 p.m.	2.51	
Baja	11:40 p.m.	0.1	11:40 p.m.	0.07	11:37 p.m.	0.06	11:30 p.m.	0.09	
12/05/2009									
Alta	06:03 a.m.	2.58	05:37 a.m.	1.73	05:38 a.m.	1.65	05:53 a.m.	2.19	
Baja	11:49 a.m.	0.33	11:49 a.m.	0.22	11:46 a.m.	0.21	11:39 a.m.	0.28	
Alta	06:14 p.m.	2.88	05:48 p.m.	1.93	05:49 p.m.	1.84	06:04 p.m.	2.45	
13/05/2009									
Baja	12:18 a.m.	0.16	12:18 a.m.	0.11	12:15 a.m.	0.10	12:08 a.m.	0.14	
Alta	06:42 a.m.	2.54	06:16 a.m.	1.70	06:17 a.m.	1.63	06:32 a.m.	2.16	
Baja	12:28 p.m.	0.42	12:28 p.m.	0.28	12:25 p.m.	0.27	12:18 p.m.	0.36	
Alta	06:52 p.m.	2.79	06:26 p.m.	1.87	06:27 p.m.	1.79	06:42 p.m.	2.37	
14/05/2009									
Baja	12:55 a.m.	0.25	12:55 a.m.	0.17	12:52 a.m.	0.16	12:45 a.m.	0.21	
Alta	07:22 a.m.	2.48	06:56 a.m.	1.66	06:57 a.m.	1.59	07:12 a.m.	2.11	
Baja	01:08 p.m.	0.52	01:08 p.m.	0.35	01:05 p.m.	0.33	12:58 p.m.	0.44	
Alta	07:32 p.m.	2.68	07:06 p.m.	1.80	07:07 p.m.	1.72	07:22 p.m.	2.28	
15/05/2009									
Baja	01:34 a.m.	0.35	01:34 a.m.	0.23	01:31 a.m.	0.22	01:24 a.m.	0.30	
Alta	08:04 a.m.	2.43	07:38 a.m.	1.63	07:39 a.m.	1.56	07:54 a.m.	2.07	
Baja	01:50 p.m.	0.62	01:50 p.m.	0.42	01:47 p.m.	0.40	01:40 p.m.	0.53	
Alta	08:14 p.m.	2.57	07:48 p.m.	1.72	07:49 p.m.	1.64	08:04 p.m.	2.18	
16/05/2009									
Baja	02:14 a.m.	0.45	02:14 a.m.	0.30	02:11 a.m.	0.29	02:04 a.m.	0.38	
Alta	08:49 a.m.	2.39	08:23 a.m.	1.60	08:24 a.m.	1.53	08:39 a.m.	2.03	
Baja	02:36 p.m.	0.71	02:36 p.m.	0.48	02:33 p.m.	0.45	02:26 p.m.	0.60	
Alta	09:00 p.m.	2.47	08:34 p.m.	1.65	08:35 p.m.	1.58	08:50 p.m.	2.10	
17/05/2009									
Baja	02:58 a.m.	0.54	02:58 a.m.	0.36	02:55 a.m.	0.35	02:48 a.m.	0.46	CUARTO MENGUANTE
Alta	09:37 a.m.	2.37	09:11 a.m.	1.59	09:12 a.m.	1.52	09:27 a.m.	2.01	
Baja	03:27 p.m.	0.76	03:27 p.m.	0.51	03:24 p.m.	0.49	03:17 p.m.	0.65	
Alta	09:49 p.m.	2.38	09:23 p.m.	1.59	09:24 p.m.	1.52	09:39 p.m.	2.02	
18/05/2009									
Baja	03:46 a.m.	0.6	03:46 a.m.	0.40	03:43 a.m.	0.38	03:36 a.m.	0.51	
Alta	10:29 a.m.	2.4	10:03 a.m.	1.61	10:04 a.m.	1.54	10:19 a.m.	2.04	
Baja	04:25 p.m.	0.77	04:25 p.m.	0.52	04:22 p.m.	0.49	04:15 p.m.	0.65	
Alta	10:43 p.m.	2.33	10:17 p.m.	1.56	10:18 p.m.	1.49	10:33 p.m.	1.98	
19/05/2009									
Baja	04:39 a.m.	0.63	04:39 a.m.	0.42	04:36 a.m.	0.40	04:29 a.m.	0.54	
Alta	11:23 a.m.	2.47	10:57 a.m.	1.65	10:58 a.m.	1.58	11:13 a.m.	2.10	
Baja	05:26 p.m.	0.72	05:26 p.m.	0.48	05:23 p.m.	0.46	05:16 p.m.	0.61	
Alta	11:39 p.m.	2.32	11:13 p.m.	1.55	11:14 p.m.	1.48	11:29 p.m.	1.97	
20/05/2009									
Baja	05:36 a.m.	0.61	05:36 a.m.	0.41	05:33 a.m.	0.39	05:26 a.m.	0.52	
Alta	12:17 p.m.	2.58	11:51 a.m.	1.73	11:52 a.m.	1.65	12:07 p.m.	2.19	
Baja	06:27 p.m.	0.6	06:27 p.m.	0.40	06:24 p.m.	0.38	06:17 p.m.	0.51	

PUERTO	LA UNION		LA LIBERTAD		ACAJUTLA		PUERTO EL TRIUNFO		FASE LUNAR
	HORA	ALTURA metros	HORA	ALTURA metros	HORA	ALTURA metros	HORA	ALTURA metros	
21/05/2009									
Alta	12:36 a.m.	2.36	12:10 a.m.	1.58	12:11 a.m.	1.51	12:26 a.m.	2.01	
Baja	06:34 a.m.	0.53	06:34 a.m.	0.36	06:31 a.m.	0.34	06:24 a.m.	0.45	
Alta	01:11 p.m.	2.73	12:45 p.m.	1.83	12:46 p.m.	1.75	01:01 p.m.	2.32	
Baja	07:24 p.m.	0.43	07:24 p.m.	0.29	07:21 p.m.	0.28	07:14 p.m.	0.37	
22/05/2009									
Alta	01:33 a.m.	2.44	01:07 a.m.	1.63	01:08 a.m.	1.56	01:23 a.m.	2.07	
Baja	07:30 a.m.	0.41	07:30 a.m.	0.27	07:27 a.m.	0.26	07:20 a.m.	0.35	
Alta	02:04 p.m.	2.9	01:38 p.m.	1.94	01:39 p.m.	1.86	01:54 p.m.	2.47	
Baja	08:16 p.m.	0.24	08:16 p.m.	0.16	08:13 p.m.	0.15	08:06 p.m.	0.20	
23/05/2009									
Alta	02:29 a.m.	2.55	02:03 a.m.	1.71	02:04 a.m.	1.63	02:19 a.m.	2.17	
Baja	08:23 a.m.	0.27	08:23 a.m.	0.18	08:20 a.m.	0.17	08:13 a.m.	0.23	
Alta	02:56 p.m.	3.06	02:30 p.m.	2.05	02:31 p.m.	1.96	02:46 p.m.	2.60	
Baja	09:06 p.m.	0.05	09:06 p.m.	0.03	09:03 p.m.	0.03	08:56 p.m.	0.04	
24/05/2009									
Alta	03:23 a.m.	2.67	02:57 a.m.	1.79	02:58 a.m.	1.71	03:13 a.m.	2.27	LUNA NUEVA
Baja	09:15 a.m.	0.13	09:15 a.m.	0.09	09:12 a.m.	0.08	09:05 a.m.	0.11	
Alta	03:47 p.m.	3.2	03:21 p.m.	2.14	03:22 p.m.	2.05	03:37 p.m.	2.72	
Baja	09:55 p.m.	-0.1	09:55 p.m.	-0.07	09:52 p.m.	-0.06	09:45 p.m.	-0.09	
25/05/2009									
Alta	04:16 a.m.	2.79	03:50 a.m.	1.87	03:51 a.m.	1.79	04:06 a.m.	2.37	
Baja	10:06 a.m.	0.02	10:06 a.m.	0.01	10:03 a.m.	0.01	09:56 a.m.	0.02	
Alta	04:38 p.m.	3.29	04:12 p.m.	2.20	04:13 p.m.	2.11	04:28 p.m.	2.80	
Baja	10:43 p.m.	-0.21	10:43 p.m.	-0.14	10:40 p.m.	-0.13	10:33 p.m.	-0.18	
26/05/2009									
Alta	05:09 a.m.	2.88	04:43 a.m.	1.93	04:44 a.m.	1.84	04:59 a.m.	2.45	
Baja	10:56 a.m.	-0.04	10:56 a.m.	-0.03	10:53 a.m.	-0.03	10:46 a.m.	-0.03	
Alta	05:29 p.m.	3.32	05:03 p.m.	2.22	05:04 p.m.	2.12	05:19 p.m.	2.82	
Baja	11:31 p.m.	-0.26	11:31 p.m.	-0.17	11:28 p.m.	-0.17	11:21 p.m.	-0.22	
27/05/2009									
Alta	06:02 a.m.	2.94	05:36 a.m.	1.97	05:37 a.m.	1.88	05:52 a.m.	2.50	
Baja	11:47 a.m.	-0.05	11:47 a.m.	-0.03	11:44 a.m.	-0.03	11:37 a.m.	-0.04	
Alta	06:20 p.m.	3.29	05:54 p.m.	2.20	05:55 p.m.	2.11	06:10 p.m.	2.80	
28/05/2009									
Baja	12:19 a.m.	-0.24	12:19 a.m.	-0.16	12:16 a.m.	-0.15	12:09 a.m.	-0.20	
Alta	06:55 a.m.	2.96	06:29 a.m.	1.98	06:30 a.m.	1.89	06:45 a.m.	2.52	
Baja	12:40 p.m.	0	12:40 p.m.	0.00	12:37 p.m.	0.00	12:30 p.m.	0.00	
Alta	07:12 p.m.	3.19	06:46 p.m.	2.14	06:47 p.m.	2.04	07:02 p.m.	2.71	
29/05/2009									
Baja	01:09 a.m.	-0.17	01:09 a.m.	-0.11	01:06 a.m.	-0.11	12:59 a.m.	-0.14	
Alta	07:50 a.m.	2.95	07:24 a.m.	1.98	07:25 a.m.	1.89	07:40 a.m.	2.51	
Baja	01:33 p.m.	0.09	01:33 p.m.	0.06	01:30 p.m.	0.06	01:23 p.m.	0.08	
Alta	08:06 p.m.	3.05	07:40 p.m.	2.04	07:41 p.m.	1.95	07:56 p.m.	2.59	
30/05/2009									
Baja	02:00 a.m.	-0.04	02:00 a.m.	-0.03	01:57 a.m.	-0.03	01:50 a.m.	-0.03	CUARTO CRECIENTE
Alta	08:45 a.m.	2.92	08:19 a.m.	1.96	08:20 a.m.	1.87	08:35 a.m.	2.48	
Baja	02:30 p.m.	0.21	02:30 p.m.	0.14	02:27 p.m.	0.13	02:20 p.m.	0.18	
Alta	09:01 p.m.	2.89	08:35 p.m.	1.94	08:36 p.m.	1.85	08:51 p.m.	2.46	
31/05/2009									
Baja	02:54 a.m.	0.09	02:54 a.m.	0.06	02:51 a.m.	0.06	02:44 a.m.	0.08	
Alta	09:43 a.m.	2.87	09:17 a.m.	1.92	09:18 a.m.	1.84	09:33 a.m.	2.44	
Baja	03:31 p.m.	0.34	03:31 p.m.	0.23	03:28 p.m.	0.22	03:21 p.m.	0.29	
Alta	09:58 p.m.	2.72	09:32 p.m.	1.82	09:33 p.m.	1.74	09:48 p.m.	2.31	

PUERTO	LA UNION		LA LIBERTAD		ACAJUTLA		PUERTO EL TRIUNFO		FASE LUNAR
	HORA	ALTURA metros	HORA	ALTURA metros	HORA	ALTURA metros	HORA	ALTURA metros	
01/06/2009									
Baja	03:50 a.m.	0.24	03:50 a.m.	0.16	03:47 a.m.	0.15	03:40 a.m.	0.20	
Alta	10:42 a.m.	2.83	10:16 a.m.	1.90	10:17 a.m.	1.81	10:32 a.m.	2.41	
Baja	04:35 p.m.	0.43	04:35 p.m.	0.29	04:32 p.m.	0.28	04:25 p.m.	0.37	
Alta	10:58 p.m.	2.58	10:32 p.m.	1.73	10:33 p.m.	1.65	10:48 p.m.	2.19	
02/06/2009									
Baja	04:51 a.m.	0.37	04:51 a.m.	0.25	04:48 a.m.	0.24	04:41 a.m.	0.31	
Alta	11:41 a.m.	2.8	11:15 a.m.	1.88	11:16 a.m.	1.79	11:31 a.m.	2.38	
Baja	05:41 p.m.	0.48	05:41 p.m.	0.32	05:38 p.m.	0.31	05:31 p.m.	0.41	
Alta	11:59 p.m.	2.47	11:33 p.m.	1.65	11:34 p.m.	1.58	11:49 p.m.	2.10	
03/06/2009									
Baja	05:53 a.m.	0.45	05:53 a.m.	0.30	05:50 a.m.	0.29	05:43 a.m.	0.38	
Alta	12:40 p.m.	2.79	12:14 p.m.	1.87	12:15 p.m.	1.79	12:30 p.m.	2.37	
Baja	06:45 p.m.	0.48	06:45 p.m.	0.32	06:42 p.m.	0.31	06:35 p.m.	0.41	
04/06/2009									
Alta	01:01 a.m.	2.41	12:35 a.m.	1.61	12:36 a.m.	1.54	12:51 a.m.	2.05	
Baja	06:53 a.m.	0.49	06:53 a.m.	0.33	06:50 a.m.	0.31	06:43 a.m.	0.42	
Alta	01:36 p.m.	2.8	01:10 p.m.	1.88	01:11 p.m.	1.79	01:26 p.m.	2.38	
Baja	07:42 p.m.	0.44	07:42 p.m.	0.29	07:39 p.m.	0.28	07:32 p.m.	0.37	
05/06/2009									
Alta	02:00 a.m.	2.4	01:34 a.m.	1.61	01:35 a.m.	1.54	01:50 a.m.	2.04	
Baja	07:49 a.m.	0.5	07:49 a.m.	0.34	07:46 a.m.	0.32	07:39 a.m.	0.43	
Alta	02:27 p.m.	2.83	02:01 p.m.	1.90	02:02 p.m.	1.81	02:17 p.m.	2.41	
Baja	08:33 p.m.	0.38	08:33 p.m.	0.25	08:30 p.m.	0.24	08:23 p.m.	0.32	
06/06/2009									
Alta	02:55 a.m.	2.42	02:29 a.m.	1.62	02:30 a.m.	1.55	02:45 a.m.	2.06	
Baja	08:39 a.m.	0.48	08:39 a.m.	0.32	08:36 a.m.	0.31	08:29 a.m.	0.41	
Alta	03:14 p.m.	2.85	02:48 p.m.	1.91	02:49 p.m.	1.82	03:04 p.m.	2.42	
Baja	09:18 p.m.	0.32	09:18 p.m.	0.21	09:15 p.m.	0.20	09:08 p.m.	0.27	
07/06/2009									
Alta	03:43 a.m.	2.46	03:17 a.m.	1.65	03:18 a.m.	1.57	03:33 a.m.	2.09	LUNA LLENA
Baja	09:25 a.m.	0.46	09:25 a.m.	0.31	09:22 a.m.	0.29	09:15 a.m.	0.39	
Alta	03:56 p.m.	2.88	03:30 p.m.	1.93	03:31 p.m.	1.84	03:46 p.m.	2.45	
Baja	10:00 p.m.	0.27	10:00 p.m.	0.18	09:57 p.m.	0.17	09:50 p.m.	0.23	
08/06/2009									
Alta	04:27 a.m.	2.5	04:01 a.m.	1.68	04:02 a.m.	1.60	04:17 a.m.	2.13	
Baja	10:08 a.m.	0.44	10:08 a.m.	0.29	10:05 a.m.	0.28	09:58 a.m.	0.37	
Alta	04:36 p.m.	2.89	04:10 p.m.	1.94	04:11 p.m.	1.85	04:26 p.m.	2.46	
Baja	10:40 p.m.	0.23	10:40 p.m.	0.15	10:37 p.m.	0.15	10:30 p.m.	0.20	
09/06/2009									
Alta	05:07 a.m.	2.54	04:41 a.m.	1.70	04:42 a.m.	1.63	04:57 a.m.	2.16	
Baja	10:49 a.m.	0.44	10:49 a.m.	0.29	10:46 a.m.	0.28	10:39 a.m.	0.37	
Alta	05:14 p.m.	2.89	04:48 p.m.	1.94	04:49 p.m.	1.85	05:04 p.m.	2.46	
Baja	11:18 p.m.	0.22	11:18 p.m.	0.15	11:15 p.m.	0.14	11:08 p.m.	0.19	
10/06/2009									
Alta	05:46 a.m.	2.57	05:20 a.m.	1.72	05:21 a.m.	1.64	05:36 a.m.	2.18	
Baja	11:29 a.m.	0.45	11:29 a.m.	0.30	11:26 a.m.	0.29	11:19 a.m.	0.38	
Alta	05:51 p.m.	2.86	05:25 p.m.	1.92	05:26 p.m.	1.83	05:41 p.m.	2.43	
Baja	11:55 p.m.	0.23	11:55 p.m.	0.15	11:52 p.m.	0.15	11:45 p.m.	0.20	

PUERTO	LA UNION		LA LIBERTAD		ACAJUTLA		PUERTO EL TRIUNFO		FASE LUNAR
	HORA	ALTURA metros	HORA	ALTURA metros	HORA	ALTURA metros	HORA	ALTURA metros	
11/06/2009									
Alta	06:24 a.m.	2.58	05:58 a.m.	1.73	05:59 a.m.	1.65	06:14 a.m.	2.19	
Baja	12:08 p.m.	0.48	12:08 p.m.	0.32	12:05 p.m.	0.31	11:58 a.m.	0.41	
Alta	06:29 p.m.	2.81	06:03 p.m.	1.88	06:04 p.m.	1.80	06:19 p.m.	2.39	
12/06/2009									
Baja	12:31 a.m.	0.27	12:31 a.m.	0.18	12:28 a.m.	0.17	12:21 a.m.	0.23	
Alta	07:03 a.m.	2.58	06:37 a.m.	1.73	06:38 a.m.	1.65	06:53 a.m.	2.19	
Baja	12:47 p.m.	0.52	12:47 p.m.	0.35	12:44 p.m.	0.33	12:37 p.m.	0.44	
Alta	07:08 p.m.	2.74	06:42 p.m.	1.84	06:43 p.m.	1.75	06:58 p.m.	2.33	
13/06/2009									
Baja	01:07 a.m.	0.32	01:07 a.m.	0.21	01:04 a.m.	0.20	12:57 a.m.	0.27	
Alta	07:41 a.m.	2.58	07:15 a.m.	1.73	07:16 a.m.	1.65	07:31 a.m.	2.19	
Baja	01:27 p.m.	0.56	01:27 p.m.	0.38	01:24 p.m.	0.36	01:17 p.m.	0.48	
Alta	07:48 p.m.	2.66	07:22 p.m.	1.78	07:23 p.m.	1.70	07:38 p.m.	2.26	
14/06/2009									
Baja	01:45 a.m.	0.38	01:45 a.m.	0.25	01:42 a.m.	0.24	01:35 a.m.	0.32	
Alta	08:22 a.m.	2.57	07:56 a.m.	1.72	07:57 a.m.	1.64	08:12 a.m.	2.18	
Baja	02:09 p.m.	0.61	02:09 p.m.	0.41	02:06 p.m.	0.39	01:59 p.m.	0.52	
Alta	08:29 p.m.	2.57	08:03 p.m.	1.72	08:04 p.m.	1.64	08:19 p.m.	2.18	
15/06/2009									
Baja	02:24 a.m.	0.44	02:24 a.m.	0.29	02:21 a.m.	0.28	02:14 a.m.	0.37	CUARTO MENGUANTE
Alta	09:04 a.m.	2.58	08:38 a.m.	1.73	08:39 a.m.	1.65	08:54 a.m.	2.19	
Baja	02:55 p.m.	0.64	02:55 p.m.	0.43	02:52 p.m.	0.41	02:45 p.m.	0.54	
Alta	09:13 p.m.	2.49	08:47 p.m.	1.67	08:48 p.m.	1.59	09:03 p.m.	2.12	
16/06/2009									
Baja	03:07 a.m.	0.5	03:07 a.m.	0.34	03:04 a.m.	0.32	02:57 a.m.	0.43	
Alta	09:50 a.m.	2.6	09:24 a.m.	1.74	09:25 a.m.	1.66	09:40 a.m.	2.21	
Baja	03:45 p.m.	0.66	03:45 p.m.	0.44	03:42 p.m.	0.42	03:35 p.m.	0.56	
Alta	10:01 p.m.	2.42	09:35 p.m.	1.62	09:36 p.m.	1.55	09:51 p.m.	2.06	
17/06/2009									
Baja	03:55 a.m.	0.53	03:55 a.m.	0.36	03:52 a.m.	0.34	03:45 a.m.	0.45	
Alta	10:39 a.m.	2.65	10:13 a.m.	1.78	10:14 a.m.	1.70	10:29 a.m.	2.25	
Baja	04:41 p.m.	0.64	04:41 p.m.	0.43	04:38 p.m.	0.41	04:31 p.m.	0.54	
Alta	10:54 p.m.	2.38	10:28 p.m.	1.59	10:29 p.m.	1.52	10:44 p.m.	2.02	
18/06/2009									
Baja	04:49 a.m.	0.55	04:49 a.m.	0.37	04:46 a.m.	0.35	04:39 a.m.	0.47	
Alta	11:32 a.m.	2.72	11:06 a.m.	1.82	11:07 a.m.	1.74	11:22 a.m.	2.31	
Baja	05:42 p.m.	0.58	05:42 p.m.	0.39	05:39 p.m.	0.37	05:32 p.m.	0.49	
Alta	11:52 p.m.	2.38	11:26 p.m.	1.59	11:27 p.m.	1.52	11:42 p.m.	2.02	
19/06/2009									
Baja	05:49 a.m.	0.52	05:49 a.m.	0.35	05:46 a.m.	0.33	05:39 a.m.	0.44	
Alta	12:29 p.m.	2.82	12:03 p.m.	1.89	12:04 p.m.	1.80	12:19 p.m.	2.40	
Baja	06:43 p.m.	0.46	06:43 p.m.	0.31	06:40 p.m.	0.29	06:33 p.m.	0.39	
20/06/2009									
Alta	12:53 a.m.	2.43	12:27 a.m.	1.63	12:28 a.m.	1.56	12:43 a.m.	2.07	
Baja	06:51 a.m.	0.44	06:51 a.m.	0.29	06:48 a.m.	0.28	06:41 a.m.	0.37	
Alta	01:27 p.m.	2.95	01:01 p.m.	1.98	01:02 p.m.	1.89	01:17 p.m.	2.51	
Baja	07:43 p.m.	0.3	07:43 p.m.	0.20	07:40 p.m.	0.19	07:33 p.m.	0.26	

PUERTO	LA UNION		LA LIBERTAD		ACAJUTLA		PUERTO EL TRIUNFO		FASE LUNAR
	HORA	ALTURA metros	HORA	ALTURA metros	HORA	ALTURA metros	HORA	ALTURA metros	
21/06/2009									
Alta	01:56 a.m.	2.53	01:30 a.m.	1.70	01:31 a.m.	1.62	01:46 a.m.	2.15	
Baja	07:53 a.m.	0.33	07:53 a.m.	0.22	07:50 a.m.	0.21	07:43 a.m.	0.28	
Alta	02:26 p.m.	3.08	02:00 p.m.	2.06	02:01 p.m.	1.97	02:16 p.m.	2.62	
Baja	08:39 p.m.	0.12	08:39 p.m.	0.08	08:36 p.m.	0.08	08:29 p.m.	0.10	
22/06/2009									
Alta	02:58 a.m.	2.67	02:32 a.m.	1.79	02:33 a.m.	1.71	02:48 a.m.	2.27	LUNA NUEVA
Baja	08:52 a.m.	0.19	08:52 a.m.	0.13	08:49 a.m.	0.12	08:42 a.m.	0.16	
Alta	03:24 p.m.	3.21	02:58 p.m.	2.15	02:59 p.m.	2.05	03:14 p.m.	2.73	
Baja	09:33 p.m.	-0.04	09:33 p.m.	-0.03	09:30 p.m.	-0.03	09:23 p.m.	-0.03	
23/06/2009									
Alta	03:58 a.m.	2.82	03:32 a.m.	1.89	03:33 a.m.	1.80	03:48 a.m.	2.40	
Baja	09:48 a.m.	0.06	09:48 a.m.	0.04	09:45 a.m.	0.04	09:38 a.m.	0.05	
Alta	04:20 p.m.	3.31	03:54 p.m.	2.22	03:55 p.m.	2.12	04:10 p.m.	2.81	
Baja	10:24 p.m.	-0.17	10:24 p.m.	-0.11	10:21 p.m.	-0.11	10:14 p.m.	-0.14	
24/06/2009									
Alta	04:55 a.m.	2.97	04:29 a.m.	1.99	04:30 a.m.	1.90	04:45 a.m.	2.52	
Baja	10:42 a.m.	-0.03	10:42 a.m.	-0.02	10:39 a.m.	-0.02	10:32 a.m.	-0.03	
Alta	05:14 p.m.	3.36	04:48 p.m.	2.25	04:49 p.m.	2.15	05:04 p.m.	2.86	
Baja	11:14 p.m.	-0.25	11:14 p.m.	-0.17	11:11 p.m.	-0.16	11:04 p.m.	-0.21	
25/06/2009									
Alta	05:50 a.m.	3.09	05:24 a.m.	2.07	05:25 a.m.	1.98	05:40 a.m.	2.63	
Baja	11:35 a.m.	-0.08	11:35 a.m.	-0.05	11:32 a.m.	-0.05	11:25 a.m.	-0.07	
Alta	06:07 p.m.	3.34	05:41 p.m.	2.24	05:42 p.m.	2.14	05:57 p.m.	2.84	
Baja							11:53 p.m.	-0.23	
26/06/2009									
Baja	12:03 a.m.	-0.27	12:03 a.m.	-0.18	12:00 a.m.	-0.17			
Alta	06:43 a.m.	3.15	06:17 a.m.	2.11	06:18 a.m.	2.02	06:33 a.m.	2.68	
Baja	12:28 p.m.	-0.06	12:28 p.m.	-0.04	12:25 p.m.	-0.04	12:18 p.m.	-0.05	
Alta	06:59 p.m.	3.27	06:33 p.m.	2.19	06:34 p.m.	2.09	06:49 p.m.	2.78	
27/06/2009									
Baja	12:52 a.m.	-0.21	12:52 a.m.	-0.14	12:49 a.m.	-0.13	12:42 a.m.	-0.18	
Alta	07:35 a.m.	3.16	07:09 a.m.	2.12	07:10 a.m.	2.02	07:25 a.m.	2.69	
Baja	01:20 p.m.	0	01:20 p.m.	0.00	01:17 p.m.	0.00	01:10 p.m.	0.00	
Alta	07:50 p.m.	3.13	07:24 p.m.	2.10	07:25 p.m.	2.00	07:40 p.m.	2.66	
28/06/2009									
Baja	01:42 a.m.	-0.1	01:42 a.m.	-0.07	01:39 a.m.	-0.06	01:32 a.m.	-0.09	
Alta	08:27 a.m.	3.12	08:01 a.m.	2.09	08:02 a.m.	2.00	08:17 a.m.	2.65	
Baja	02:13 p.m.	0.13	02:13 p.m.	0.09	02:10 p.m.	0.08	02:03 p.m.	0.11	
Alta	08:41 p.m.	2.95	08:15 p.m.	1.98	08:16 p.m.	1.89	08:31 p.m.	2.51	
29/06/2009									
Baja	02:32 a.m.	0.06	02:32 a.m.	0.04	02:29 a.m.	0.04	02:22 a.m.	0.05	CUARTO CRECIENTE
Alta	09:19 a.m.	3.03	08:53 a.m.	2.03	08:54 a.m.	1.94	09:09 a.m.	2.58	
Baja	03:09 p.m.	0.28	03:09 p.m.	0.19	03:06 p.m.	0.18	02:59 p.m.	0.24	
Alta	09:33 p.m.	2.76	09:07 p.m.	1.85	09:08 p.m.	1.77	09:23 p.m.	2.35	
30/06/2009									
Baja	03:24 a.m.	0.24	03:24 a.m.	0.16	03:21 a.m.	0.15	03:14 a.m.	0.20	
Alta	10:13 a.m.	2.93	09:47 a.m.	1.96	09:48 a.m.	1.88	10:03 a.m.	2.49	
Baja	04:07 p.m.	0.43	04:07 p.m.	0.29	04:04 p.m.	0.28	03:57 p.m.	0.37	
Alta	10:27 p.m.	2.57	10:01 p.m.	1.72	10:02 p.m.	1.64	10:17 p.m.	2.18	

PUERTO	LA UNION		LA LIBERTAD		ACAJUTLA		PUERTO EL TRIUNFO		FASE LUNAR
	HORA	ALTURA metros	HORA	ALTURA metros	HORA	ALTURA metros	HORA	ALTURA metros	
01/07/2009									
Baja	04:19 a.m.	0.42	04:19 a.m.	0.28	04:16 a.m.	0.27	04:09 a.m.	0.36	
Alta	11:07 a.m.	2.82	10:41 a.m.	1.89	10:42 a.m.	1.80	10:57 a.m.	2.40	
Baja	05:08 p.m.	0.55	05:08 p.m.	0.37	05:05 p.m.	0.35	04:58 p.m.	0.47	
Alta	11:24 p.m.	2.41	10:58 p.m.	1.61	10:59 p.m.	1.54	11:14 p.m.	2.05	
02/07/2009									
Baja	05:18 a.m.	0.57	05:18 a.m.	0.38	05:15 a.m.	0.36	05:08 a.m.	0.48	
Alta	12:04 p.m.	2.74	11:38 a.m.	1.84	11:39 a.m.	1.75	11:54 a.m.	2.33	
Baja	06:12 p.m.	0.62	06:12 p.m.	0.42	06:09 p.m.	0.40	06:02 p.m.	0.53	
Alta			11:59 p.m.	1.55					
03/07/2009									
Alta	12:25 a.m.	2.31			12:00 a.m.	1.48	12:15 a.m.	1.96	
Baja	06:20 a.m.	0.66	06:20 a.m.	0.44	06:17 a.m.	0.42	06:10 a.m.	0.56	
Alta	01:01 p.m.	2.69	12:35 p.m.	1.80	12:36 p.m.	1.72	12:51 p.m.	2.29	
Baja	07:13 p.m.	0.62	07:13 p.m.	0.42	07:10 p.m.	0.40	07:03 p.m.	0.53	
04/07/2009									
Alta	01:29 a.m.	2.27	01:03 a.m.	1.52	01:04 a.m.	1.45	01:19 a.m.	1.93	
Baja	07:20 a.m.	0.7	07:20 a.m.	0.47	07:17 a.m.	0.45	07:10 a.m.	0.60	
Alta	01:56 p.m.	2.69	01:30 p.m.	1.80	01:31 p.m.	1.72	01:46 p.m.	2.29	
Baja	08:08 p.m.	0.58	08:08 p.m.	0.39	08:05 p.m.	0.37	07:58 p.m.	0.49	
05/07/2009									
Alta	02:30 a.m.	2.29	02:04 a.m.	1.53	02:05 a.m.	1.47	02:20 a.m.	1.95	
Baja	08:15 a.m.	0.68	08:15 a.m.	0.46	08:12 a.m.	0.44	08:05 a.m.	0.58	
Alta	02:47 p.m.	2.71	02:21 p.m.	1.82	02:22 p.m.	1.73	02:37 p.m.	2.30	
Baja	08:56 p.m.	0.51	08:56 p.m.	0.34	08:53 p.m.	0.33	08:46 p.m.	0.43	
06/07/2009									
Alta	03:23 a.m.	2.36	02:57 a.m.	1.58	02:58 a.m.	1.51	03:13 a.m.	2.01	
Baja	09:05 a.m.	0.63	09:05 a.m.	0.42	09:02 a.m.	0.40	08:55 a.m.	0.54	
Alta	03:32 p.m.	2.76	03:06 p.m.	1.85	03:07 p.m.	1.77	03:22 p.m.	2.35	
Baja	09:40 p.m.	0.43	09:40 p.m.	0.29	09:37 p.m.	0.28	09:30 p.m.	0.37	
07/07/2009									
Alta	04:09 a.m.	2.45	03:43 a.m.	1.64	03:44 a.m.	1.57	03:59 a.m.	2.08	LUNA LLENA
Baja	09:49 a.m.	0.57	09:49 a.m.	0.38	09:46 a.m.	0.36	09:39 a.m.	0.48	
Alta	04:14 p.m.	2.81	03:48 p.m.	1.88	03:49 p.m.	1.80	04:04 p.m.	2.39	
Baja	10:19 p.m.	0.36	10:19 p.m.	0.24	10:16 p.m.	0.23	10:09 p.m.	0.31	
08/07/2009									
Alta	04:49 a.m.	2.54	04:23 a.m.	1.70	04:24 a.m.	1.63	04:39 a.m.	2.16	
Baja	10:30 a.m.	0.51	10:30 a.m.	0.34	10:27 a.m.	0.33	10:20 a.m.	0.43	
Alta	04:53 p.m.	2.85	04:27 p.m.	1.91	04:28 p.m.	1.82	04:43 p.m.	2.42	
Baja	10:56 p.m.	0.3	10:56 p.m.	0.20	10:53 p.m.	0.19	10:46 p.m.	0.26	
09/07/2009									
Alta	05:27 a.m.	2.62	05:01 a.m.	1.76	05:02 a.m.	1.68	05:17 a.m.	2.23	
Baja	11:09 a.m.	0.46	11:09 a.m.	0.31	11:06 a.m.	0.29	10:59 a.m.	0.39	
Alta	05:31 p.m.	2.87	05:05 p.m.	1.92	05:06 p.m.	1.84	05:21 p.m.	2.44	
Baja	11:31 p.m.	0.26	11:31 p.m.	0.17	11:28 p.m.	0.17	11:21 p.m.	0.22	
10/07/2009									
Alta	06:03 a.m.	2.68	05:37 a.m.	1.80	05:38 a.m.	1.72	05:53 a.m.	2.28	
Baja	11:47 a.m.	0.44	11:47 a.m.	0.29	11:44 a.m.	0.28	11:37 a.m.	0.37	
Alta	06:08 p.m.	2.86	05:42 p.m.	1.92	05:43 p.m.	1.83	05:58 p.m.	2.43	
Baja							11:56 p.m.	0.22	

PUERTO	LA UNION		LA LIBERTAD		ACAJUTLA		PUERTO EL TRIUNFO		FASE LUNAR
	HORA	ALTURA metros	HORA	ALTURA metros	HORA	ALTURA metros	HORA	ALTURA metros	
11/07/2009									
Baja	12:06 a.m.	0.26	12:06 a.m.	0.17	12:03 a.m.	0.17			
Alta	06:39 a.m.	2.72	06:13 a.m.	1.82	06:14 a.m.	1.74	06:29 a.m.	2.31	
Baja	12:24 p.m.	0.43	12:24 p.m.	0.29	12:21 p.m.	0.28	12:14 p.m.	0.37	
Alta	06:44 p.m.	2.81	06:18 p.m.	1.88	06:19 p.m.	1.80	06:34 p.m.	2.39	
12/07/2009									
Baja	12:40 a.m.	0.27	12:40 a.m.	0.18	12:37 a.m.	0.17	12:30 a.m.	0.23	
Alta	07:14 a.m.	2.74	06:48 a.m.	1.84	06:49 a.m.	1.75	07:04 a.m.	2.33	
Baja	01:02 p.m.	0.44	01:02 p.m.	0.29	12:59 p.m.	0.28	12:52 p.m.	0.37	
Alta	07:21 p.m.	2.75	06:55 p.m.	1.84	06:56 p.m.	1.76	07:11 p.m.	2.34	
13/07/2009									
Baja	01:15 a.m.	0.3	01:15 a.m.	0.20	01:12 a.m.	0.19	01:05 a.m.	0.26	
Alta	07:51 a.m.	2.75	07:25 a.m.	1.84	07:26 a.m.	1.76	07:41 a.m.	2.34	
Baja	01:41 p.m.	0.46	01:41 p.m.	0.31	01:38 p.m.	0.29	01:31 p.m.	0.39	
Alta	07:59 p.m.	2.66	07:33 p.m.	1.78	07:34 p.m.	1.70	07:49 p.m.	2.26	
14/07/2009									
Baja	01:52 a.m.	0.35	01:52 a.m.	0.23	01:49 a.m.	0.22	01:42 a.m.	0.30	
Alta	08:30 a.m.	2.76	08:04 a.m.	1.85	08:05 a.m.	1.77	08:20 a.m.	2.35	
Baja	02:23 p.m.	0.49	02:23 p.m.	0.33	02:20 p.m.	0.31	02:13 p.m.	0.42	
Alta	08:39 p.m.	2.57	08:13 p.m.	1.72	08:14 p.m.	1.64	08:29 p.m.	2.18	
15/07/2009									
Baja	02:32 a.m.	0.39	02:32 a.m.	0.26	02:29 a.m.	0.25	02:22 a.m.	0.33	CUARTO MENGUANTE
Alta	09:12 a.m.	2.76	08:46 a.m.	1.85	08:47 a.m.	1.77	09:02 a.m.	2.35	
Baja	03:10 p.m.	0.53	03:10 p.m.	0.36	03:07 p.m.	0.34	03:00 p.m.	0.45	
Alta	09:24 p.m.	2.49	08:58 p.m.	1.67	08:59 p.m.	1.59	09:14 p.m.	2.12	
16/07/2009									
Baja	03:18 a.m.	0.45	03:18 a.m.	0.30	03:15 a.m.	0.29	03:08 a.m.	0.38	
Alta	10:00 a.m.	2.77	09:34 a.m.	1.86	09:35 a.m.	1.77	09:50 a.m.	2.35	
Baja	04:03 p.m.	0.56	04:03 p.m.	0.38	04:00 p.m.	0.36	03:53 p.m.	0.48	
Alta	10:16 p.m.	2.42	09:50 p.m.	1.62	09:51 p.m.	1.55	10:06 p.m.	2.06	
17/07/2009									
Baja	04:12 a.m.	0.5	04:12 a.m.	0.34	04:09 a.m.	0.32	04:02 a.m.	0.43	
Alta	10:54 a.m.	2.79	10:28 a.m.	1.87	10:29 a.m.	1.79	10:44 a.m.	2.37	
Baja	05:04 p.m.	0.55	05:04 p.m.	0.37	05:01 p.m.	0.35	04:54 p.m.	0.47	
Alta	11:15 p.m.	2.39	10:49 p.m.	1.60	10:50 p.m.	1.53	11:05 p.m.	2.03	
18/07/2009									
Baja	05:14 a.m.	0.52	05:14 a.m.	0.35	05:11 a.m.	0.33	05:04 a.m.	0.44	
Alta	11:55 a.m.	2.83	11:29 a.m.	1.90	11:30 a.m.	1.81	11:45 a.m.	2.41	
Baja	06:09 p.m.	0.49	06:09 p.m.	0.33	06:06 p.m.	0.31	05:59 p.m.	0.42	
Alta			11:55 p.m.	1.62	11:56 p.m.	1.55			
19/07/2009									
Alta	12:21 a.m.	2.42					12:11 a.m.	2.06	
Baja	06:22 a.m.	0.48	06:22 a.m.	0.32	06:19 a.m.	0.31	06:12 a.m.	0.41	
Alta	01:00 p.m.	2.91	12:34 p.m.	1.95	12:35 p.m.	1.86	12:50 p.m.	2.47	
Baja	07:14 p.m.	0.37	07:14 p.m.	0.25	07:11 p.m.	0.24	07:04 p.m.	0.31	
20/07/2009									
Alta	01:32 a.m.	2.52	01:06 a.m.	1.69	01:07 a.m.	1.61	01:22 a.m.	2.14	
Baja	07:31 a.m.	0.37	07:31 a.m.	0.25	07:28 a.m.	0.24	07:21 a.m.	0.31	
Alta	02:05 p.m.	3.03	01:39 p.m.	2.03	01:40 p.m.	1.94	01:55 p.m.	2.58	
Baja	08:16 p.m.	0.2	08:16 p.m.	0.13	08:13 p.m.	0.13	08:06 p.m.	0.17	

PUERTO	LA UNION		LA LIBERTAD		ACAJUTLA		PUERTO EL TRIUNFO		FASE LUNAR
	HORA	ALTURA metros	HORA	ALTURA metros	HORA	ALTURA metros	HORA	ALTURA metros	
21/07/2009									
Alta	02:41 a.m.	2.69	02:15 a.m.	1.80	02:16 a.m.	1.72	02:31 a.m.	2.29	LUNA NUEVA
Baja	08:35 a.m.	0.22	08:35 a.m.	0.15	08:32 a.m.	0.14	08:25 a.m.	0.19	
Alta	03:07 p.m.	3.16	02:41 p.m.	2.12	02:42 p.m.	2.02	02:57 p.m.	2.69	
Baja	09:13 p.m.	0.01	09:13 p.m.	0.01	09:10 p.m.	0.01	09:03 p.m.	0.01	
22/07/2009									
Alta	03:44 a.m.	2.89	03:18 a.m.	1.94	03:19 a.m.	1.85	03:34 a.m.	2.46	
Baja	09:34 a.m.	0.05	09:34 a.m.	0.03	09:31 a.m.	0.03	09:24 a.m.	0.04	
Alta	04:05 p.m.	3.28	03:39 p.m.	2.20	03:40 p.m.	2.10	03:55 p.m.	2.79	
Baja	10:06 p.m.	-0.14	10:06 p.m.	-0.09	10:03 p.m.	-0.09	09:56 p.m.	-0.12	
23/07/2009									
Alta	04:41 a.m.	3.08	04:15 a.m.	2.06	04:16 a.m.	1.97	04:31 a.m.	2.62	
Baja	10:29 a.m.	-0.08	10:29 a.m.	-0.05	10:26 a.m.	-0.05	10:19 a.m.	-0.07	
Alta	05:00 p.m.	3.35	04:34 p.m.	2.24	04:35 p.m.	2.14	04:50 p.m.	2.85	
Baja	10:56 p.m.	-0.25	10:56 p.m.	-0.17	10:53 p.m.	-0.16	10:46 p.m.	-0.21	
24/07/2009									
Alta	05:34 a.m.	3.23	05:08 a.m.	2.16	05:09 a.m.	2.07	05:24 a.m.	2.75	
Baja	11:21 a.m.	-0.16	11:21 a.m.	-0.11	11:18 a.m.	-0.10	11:11 a.m.	-0.14	
Alta	05:51 p.m.	3.35	05:25 p.m.	2.24	05:26 p.m.	2.14	05:41 p.m.	2.85	
Baja	11:45 p.m.	-0.29	11:45 p.m.	-0.19	11:42 p.m.	-0.19	11:35 p.m.	-0.25	
25/07/2009									
Alta	06:24 a.m.	3.3	05:58 a.m.	2.21	05:59 a.m.	2.11	06:14 a.m.	2.81	
Baja	12:11 p.m.	-0.16	12:11 p.m.	-0.11	12:08 p.m.	-0.10	12:01 p.m.	-0.14	
Alta	06:40 p.m.	3.29	06:14 p.m.	2.20	06:15 p.m.	2.11	06:30 p.m.	2.80	
26/07/2009									
Baja	12:32 a.m.	-0.24	12:32 a.m.	-0.16	12:29 a.m.	-0.15	12:22 a.m.	-0.20	
Alta	07:13 a.m.	3.3	06:47 a.m.	2.21	06:48 a.m.	2.11	07:03 a.m.	2.81	
Baja	01:00 p.m.	-0.08	01:00 p.m.	-0.05	12:57 p.m.	-0.05	12:50 p.m.	-0.07	
Alta	07:27 p.m.	3.15	07:01 p.m.	2.11	07:02 p.m.	2.02	07:17 p.m.	2.68	
27/07/2009									
Baja	01:18 a.m.	-0.12	01:18 a.m.	-0.08	01:15 a.m.	-0.08	01:08 a.m.	-0.10	
Alta	08:01 a.m.	3.22	07:35 a.m.	2.16	07:36 a.m.	2.06	07:51 a.m.	2.74	
Baja	01:50 p.m.	0.06	01:50 p.m.	0.04	01:47 p.m.	0.04	01:40 p.m.	0.05	
Alta	08:14 p.m.	2.96	07:48 p.m.	1.98	07:49 p.m.	1.89	08:04 p.m.	2.52	
28/07/2009									
Baja	02:05 a.m.	0.06	02:05 a.m.	0.04	02:02 a.m.	0.04	01:55 a.m.	0.05	CUARTO CRECIENTE
Alta	08:48 a.m.	3.08	08:22 a.m.	2.06	08:23 a.m.	1.97	08:38 a.m.	2.62	
Baja	02:40 p.m.	0.25	02:40 p.m.	0.17	02:37 p.m.	0.16	02:30 p.m.	0.21	
Alta	09:01 p.m.	2.74	08:35 p.m.	1.84	08:36 p.m.	1.75	08:51 p.m.	2.33	
29/07/2009									
Baja	02:53 a.m.	0.27	02:53 a.m.	0.18	02:50 a.m.	0.17	02:43 a.m.	0.23	
Alta	09:37 a.m.	2.92	09:11 a.m.	1.96	09:12 a.m.	1.87	09:27 a.m.	2.48	
Baja	03:32 p.m.	0.45	03:32 p.m.	0.30	03:29 p.m.	0.29	03:22 p.m.	0.38	
Alta	09:51 p.m.	2.53	09:25 p.m.	1.70	09:26 p.m.	1.62	09:41 p.m.	2.15	
30/07/2009									
Baja	03:44 a.m.	0.49	03:44 a.m.	0.33	03:41 a.m.	0.31	03:34 a.m.	0.42	
Alta	10:28 a.m.	2.76	10:02 a.m.	1.85	10:03 a.m.	1.77	10:18 a.m.	2.35	
Baja	04:29 p.m.	0.62	04:29 p.m.	0.42	04:26 p.m.	0.40	04:19 p.m.	0.53	
Alta	10:45 p.m.	2.34	10:19 p.m.	1.57	10:20 p.m.	1.50	10:35 p.m.	1.99	
31/07/2009									
Baja	04:41 a.m.	0.68	04:41 a.m.	0.46	04:38 a.m.	0.44	04:31 a.m.	0.58	
Alta	11:23 a.m.	2.62	10:57 a.m.	1.76	10:58 a.m.	1.68	11:13 a.m.	2.23	
Baja	05:32 p.m.	0.74	05:32 p.m.	0.50	05:29 p.m.	0.47	05:22 p.m.	0.63	
Alta	11:46 p.m.	2.22	11:20 p.m.	1.49	11:21 p.m.	1.42	11:36 p.m.	1.89	

PUERTO	LA UNION		LA LIBERTAD		ACAJUTLA		PUERTO EL TRIUNFO		FASE LUNAR
	HORA	ALTURA metros	HORA	ALTURA metros	HORA	ALTURA metros	HORA	ALTURA metros	
01/08/2009									
Baja	05:45 a.m.	0.8	05:45 a.m.	0.54	05:42 a.m.	0.51	05:35 a.m.	0.68	
Alta	12:23 p.m.	2.55	11:57 a.m.	1.71	11:58 a.m.	1.63	12:13 p.m.	2.17	
Baja	06:39 p.m.	0.78	06:39 p.m.	0.52	06:36 p.m.	0.50	06:29 p.m.	0.66	
02/08/2009									
Alta	12:56 a.m.	2.18	12:30 a.m.	1.46	12:31 a.m.	1.40	12:46 a.m.	1.85	
Baja	06:53 a.m.	0.84	06:53 a.m.	0.56	06:50 a.m.	0.54	06:43 a.m.	0.71	
Alta	01:23 p.m.	2.53	12:57 p.m.	1.70	12:58 p.m.	1.62	01:13 p.m.	2.15	
Baja	07:41 p.m.	0.73	07:41 p.m.	0.49	07:38 p.m.	0.47	07:31 p.m.	0.62	
03/08/2009									
Alta	02:04 a.m.	2.22	01:38 a.m.	1.49	01:39 a.m.	1.42	01:54 a.m.	1.89	
Baja	07:54 a.m.	0.8	07:54 a.m.	0.54	07:51 a.m.	0.51	07:44 a.m.	0.68	
Alta	02:19 p.m.	2.58	01:53 p.m.	1.73	01:54 p.m.	1.65	02:09 p.m.	2.19	
Baja	08:33 p.m.	0.64	08:33 p.m.	0.43	08:30 p.m.	0.41	08:23 p.m.	0.54	
04/08/2009									
Alta	03:00 a.m.	2.32	02:34 a.m.	1.55	02:35 a.m.	1.48	02:50 a.m.	1.97	
Baja	08:46 a.m.	0.71	08:46 a.m.	0.48	08:43 a.m.	0.45	08:36 a.m.	0.60	
Alta	03:08 p.m.	2.66	02:42 p.m.	1.78	02:43 p.m.	1.70	02:58 p.m.	2.26	
Baja	09:17 p.m.	0.53	09:17 p.m.	0.36	09:14 p.m.	0.34	09:07 p.m.	0.45	
05/08/2009									
Alta	03:46 a.m.	2.45	03:20 a.m.	1.64	03:21 a.m.	1.57	03:36 a.m.	2.08	LUNA LLENA
Baja	09:30 a.m.	0.59	09:30 a.m.	0.40	09:27 a.m.	0.38	09:20 a.m.	0.50	
Alta	03:51 p.m.	2.75	03:25 p.m.	1.84	03:26 p.m.	1.76	03:41 p.m.	2.34	
Baja	09:56 p.m.	0.42	09:56 p.m.	0.28	09:53 p.m.	0.27	09:46 p.m.	0.36	
06/08/2009									
Alta	04:25 a.m.	2.58	03:59 a.m.	1.73	04:00 a.m.	1.65	04:15 a.m.	2.19	
Baja	10:10 a.m.	0.48	10:10 a.m.	0.32	10:07 a.m.	0.31	10:00 a.m.	0.41	
Alta	04:30 p.m.	2.82	04:04 p.m.	1.89	04:05 p.m.	1.80	04:20 p.m.	2.40	
Baja	10:31 p.m.	0.32	10:31 p.m.	0.21	10:28 p.m.	0.20	10:21 p.m.	0.27	
07/08/2009									
Alta	05:01 a.m.	2.7	04:35 a.m.	1.81	04:36 a.m.	1.73	04:51 a.m.	2.30	
Baja	10:47 a.m.	0.39	10:47 a.m.	0.26	10:44 a.m.	0.25	10:37 a.m.	0.33	
Alta	05:07 p.m.	2.87	04:41 p.m.	1.92	04:42 p.m.	1.84	04:57 p.m.	2.44	
Baja	11:05 p.m.	0.26	11:05 p.m.	0.17	11:02 p.m.	0.17	10:55 p.m.	0.22	
08/08/2009									
Alta	05:35 a.m.	2.79	05:09 a.m.	1.87	05:10 a.m.	1.79	05:25 a.m.	2.37	
Baja	11:23 a.m.	0.31	11:23 a.m.	0.21	11:20 a.m.	0.20	11:13 a.m.	0.26	
Alta	05:43 p.m.	2.88	05:17 p.m.	1.93	05:18 p.m.	1.84	05:33 p.m.	2.45	
Baja	11:38 p.m.	0.22	11:38 p.m.	0.15	11:35 p.m.	0.14	11:28 p.m.	0.19	
09/08/2009									
Alta	06:09 a.m.	2.86	05:43 a.m.	1.92	05:44 a.m.	1.83	05:59 a.m.	2.43	
Baja	11:59 a.m.	0.27	11:59 a.m.	0.18	11:56 a.m.	0.17	11:49 a.m.	0.23	
Alta	06:18 p.m.	2.86	05:52 p.m.	1.92	05:53 p.m.	1.83	06:08 p.m.	2.43	
10/08/2009									
Baja	12:11 a.m.	0.2	12:11 a.m.	0.13	12:08 a.m.	0.13	12:01 a.m.	0.17	
Alta	06:44 a.m.	2.89	06:18 a.m.	1.94	06:19 a.m.	1.85	06:34 a.m.	2.46	
Baja	12:35 p.m.	0.26	12:35 p.m.	0.17	12:32 p.m.	0.17	12:25 p.m.	0.22	
Alta	06:53 p.m.	2.8	06:27 p.m.	1.88	06:28 p.m.	1.79	06:43 p.m.	2.38	

PUERTO	LA UNION		LA LIBERTAD		ACAJUTLA		PUERTO EL TRIUNFO		FASE LUNAR
	HORA	ALTURA metros	HORA	ALTURA metros	HORA	ALTURA metros	HORA	ALTURA metros	
11/08/2009									
Baja	12:45 a.m.	0.22	12:45 a.m.	0.15	12:42 a.m.	0.14	12:35 a.m.	0.19	
Alta	07:19 a.m.	2.9	06:53 a.m.	1.94	06:54 a.m.	1.86	07:09 a.m.	2.47	
Baja	01:13 p.m.	0.28	01:13 p.m.	0.19	01:10 p.m.	0.18	01:03 p.m.	0.24	
Alta	07:29 p.m.	2.72	07:03 p.m.	1.82	07:04 p.m.	1.74	07:19 p.m.	2.31	
12/08/2009									
Baja	01:22 a.m.	0.25	01:22 a.m.	0.17	01:19 a.m.	0.16	01:12 a.m.	0.21	
Alta	07:57 a.m.	2.89	07:31 a.m.	1.94	07:32 a.m.	1.85	07:47 a.m.	2.46	
Baja	01:54 p.m.	0.33	01:54 p.m.	0.22	01:51 p.m.	0.21	01:44 p.m.	0.28	
Alta	08:09 p.m.	2.62	07:43 p.m.	1.76	07:44 p.m.	1.68	07:59 p.m.	2.23	
13/08/2009									
Baja	02:03 a.m.	0.31	02:03 a.m.	0.21	02:00 a.m.	0.20	01:53 a.m.	0.26	CUARTO MENGUANTE
Alta	08:39 a.m.	2.86	08:13 a.m.	1.92	08:14 a.m.	1.83	08:29 a.m.	2.43	
Baja	02:40 p.m.	0.4	02:40 p.m.	0.27	02:37 p.m.	0.26	02:30 p.m.	0.34	
Alta	08:53 p.m.	2.53	08:27 p.m.	1.70	08:28 p.m.	1.62	08:43 p.m.	2.15	
14/08/2009									
Baja	02:50 a.m.	0.39	02:50 a.m.	0.26	02:47 a.m.	0.25	02:40 a.m.	0.33	
Alta	09:28 a.m.	2.81	09:02 a.m.	1.88	09:03 a.m.	1.80	09:18 a.m.	2.39	
Baja	03:32 p.m.	0.47	03:32 p.m.	0.31	03:29 p.m.	0.30	03:22 p.m.	0.40	
Alta	09:46 p.m.	2.44	09:20 p.m.	1.63	09:21 p.m.	1.56	09:36 p.m.	2.07	
15/08/2009									
Baja	03:45 a.m.	0.47	03:45 a.m.	0.31	03:42 a.m.	0.30	03:35 a.m.	0.40	
Alta	10:25 a.m.	2.77	09:59 a.m.	1.86	10:00 a.m.	1.77	10:15 a.m.	2.35	
Baja	04:33 p.m.	0.52	04:33 p.m.	0.35	04:30 p.m.	0.33	04:23 p.m.	0.44	
Alta	10:49 p.m.	2.4	10:23 p.m.	1.61	10:24 p.m.	1.54	10:39 p.m.	2.04	
16/08/2009									
Baja	04:50 a.m.	0.53	04:50 a.m.	0.36	04:47 a.m.	0.34	04:40 a.m.	0.45	
Alta	11:31 a.m.	2.77	11:05 a.m.	1.86	11:06 a.m.	1.77	11:21 a.m.	2.35	
Baja	05:41 p.m.	0.51	05:41 p.m.	0.34	05:38 p.m.	0.33	05:31 p.m.	0.43	
Alta			11:36 p.m.	1.62	11:37 p.m.	1.55	11:52 p.m.	2.06	
17/08/2009									
Alta	12:02 a.m.	2.42							
Baja	06:04 a.m.	0.51	06:04 a.m.	0.34	06:01 a.m.	0.33	05:54 a.m.	0.43	
Alta	12:41 p.m.	2.82	12:15 p.m.	1.89	12:16 p.m.	1.80	12:31 p.m.	2.40	
Baja	06:51 p.m.	0.41	06:51 p.m.	0.27	06:48 p.m.	0.26	06:41 p.m.	0.35	
18/08/2009									
Alta	01:18 a.m.	2.54	12:52 a.m.	1.70	12:53 a.m.	1.63	01:08 a.m.	2.16	
Baja	07:17 a.m.	0.39	07:17 a.m.	0.26	07:14 a.m.	0.25	07:07 a.m.	0.33	
Alta	01:50 p.m.	2.92	01:24 p.m.	1.96	01:25 p.m.	1.87	01:40 p.m.	2.48	
Baja	07:57 p.m.	0.24	07:57 p.m.	0.16	07:54 p.m.	0.15	07:47 p.m.	0.20	
19/08/2009									
Alta	02:28 a.m.	2.75	02:02 a.m.	1.84	02:03 a.m.	1.76	02:18 a.m.	2.34	
Baja	08:23 a.m.	0.2	08:23 a.m.	0.13	08:20 a.m.	0.13	08:13 a.m.	0.17	
Alta	02:54 p.m.	3.07	02:28 p.m.	2.06	02:29 p.m.	1.96	02:44 p.m.	2.61	
Baja	08:55 p.m.	0.05	08:55 p.m.	0.03	08:52 p.m.	0.03	08:45 p.m.	0.04	
20/08/2009									
Alta	03:30 a.m.	2.98	03:04 a.m.	2.00	03:05 a.m.	1.91	03:20 a.m.	2.53	LUNA NUEVA
Baja	09:21 a.m.	0	09:21 a.m.	0.00	09:18 a.m.	0.00	09:11 a.m.	0.00	
Alta	03:51 p.m.	3.2	03:25 p.m.	2.14	03:26 p.m.	2.05	03:41 p.m.	2.72	
Baja	09:47 p.m.	-0.11	09:47 p.m.	-0.07	09:44 p.m.	-0.07	09:37 p.m.	-0.09	

PUERTO	LA UNION		LA LIBERTAD		ACAJUTLA		PUERTO EL TRIUNFO		FASE LUNAR
	HORA	ALTURA metros	HORA	ALTURA metros	HORA	ALTURA metros	HORA	ALTURA metros	
21/08/2009									
Alta	04:24 a.m.	3.18	03:58 a.m.	2.13	03:59 a.m.	2.04	04:14 a.m.	2.70	
Baja	10:14 a.m.	-0.15	10:14 a.m.	-0.10	10:11 a.m.	-0.10	10:04 a.m.	-0.13	
Alta	04:43 p.m.	3.28	04:17 p.m.	2.20	04:18 p.m.	2.10	04:33 p.m.	2.79	
Baja	10:36 p.m.	-0.23	10:36 p.m.	-0.15	10:33 p.m.	-0.15	10:26 p.m.	-0.20	
22/08/2009									
Alta	05:13 a.m.	3.31	04:47 a.m.	2.22	04:48 a.m.	2.12	05:03 a.m.	2.81	
Baja	11:04 a.m.	-0.23	11:04 a.m.	-0.15	11:01 a.m.	-0.15	10:54 a.m.	-0.20	
Alta	05:31 p.m.	3.29	05:05 p.m.	2.20	05:06 p.m.	2.11	05:21 p.m.	2.80	
Baja	11:23 p.m.	-0.26	11:23 p.m.	-0.17	11:20 p.m.	-0.17	11:13 p.m.	-0.22	
23/08/2009									
Alta	06:00 a.m.	3.36	05:34 a.m.	2.25	05:35 a.m.	2.15	05:50 a.m.	2.86	
Baja	11:51 a.m.	-0.23	11:51 a.m.	-0.15	11:48 a.m.	-0.15	11:41 a.m.	-0.20	
Alta	06:17 p.m.	3.22	05:51 p.m.	2.16	05:52 p.m.	2.06	06:07 p.m.	2.74	
Baja							11:57 p.m.	-0.18	
24/08/2009									
Baja	12:07 a.m.	-0.21	12:07 a.m.	-0.14	12:04 a.m.	-0.13			
Alta	06:45 a.m.	3.32	06:19 a.m.	2.22	06:20 a.m.	2.12	06:35 a.m.	2.82	
Baja	12:36 p.m.	-0.14	12:36 p.m.	-0.09	12:33 p.m.	-0.09	12:26 p.m.	-0.12	
Alta	07:01 p.m.	3.09	06:35 p.m.	2.07	06:36 p.m.	1.98	06:51 p.m.	2.63	
25/08/2009									
Baja	12:51 a.m.	-0.08	12:51 a.m.	-0.05	12:48 a.m.	-0.05	12:41 a.m.	-0.07	
Alta	07:29 a.m.	3.21	07:03 a.m.	2.15	07:04 a.m.	2.05	07:19 a.m.	2.73	
Baja	01:21 p.m.	0.02	01:21 p.m.	0.01	01:18 p.m.	0.01	01:11 p.m.	0.02	
Alta	07:44 p.m.	2.9	07:18 p.m.	1.94	07:19 p.m.	1.86	07:34 p.m.	2.47	
26/08/2009									
Baja	01:35 a.m.	0.1	01:35 a.m.	0.07	01:32 a.m.	0.06	01:25 a.m.	0.09	
Alta	08:13 a.m.	3.03	07:47 a.m.	2.03	07:48 a.m.	1.94	08:03 a.m.	2.58	
Baja	02:07 p.m.	0.23	02:07 p.m.	0.15	02:04 p.m.	0.15	01:57 p.m.	0.20	
Alta	08:28 p.m.	2.69	08:02 p.m.	1.80	08:03 p.m.	1.72	08:18 p.m.	2.29	
27/08/2009									
Baja	02:20 a.m.	0.33	02:20 a.m.	0.22	02:17 a.m.	0.21	02:10 a.m.	0.28	CUARTO CRECIENTE
Alta	08:58 a.m.	2.84	08:32 a.m.	1.90	08:33 a.m.	1.82	08:48 a.m.	2.41	
Baja	02:54 p.m.	0.45	02:54 p.m.	0.30	02:51 p.m.	0.29	02:44 p.m.	0.38	
Alta	09:14 p.m.	2.47	08:48 p.m.	1.65	08:49 p.m.	1.58	09:04 p.m.	2.10	
28/08/2009									
Baja	03:08 a.m.	0.56	03:08 a.m.	0.38	03:05 a.m.	0.36	02:58 a.m.	0.48	
Alta	09:46 a.m.	2.65	09:20 a.m.	1.78	09:21 a.m.	1.70	09:36 a.m.	2.25	
Baja	03:47 p.m.	0.65	03:47 p.m.	0.44	03:44 p.m.	0.42	03:37 p.m.	0.55	
Alta	10:05 p.m.	2.29	09:39 p.m.	1.53	09:40 p.m.	1.47	09:55 p.m.	1.95	
29/08/2009									
Baja	04:03 a.m.	0.76	04:03 a.m.	0.51	04:00 a.m.	0.49	03:53 a.m.	0.65	
Alta	10:40 a.m.	2.49	10:14 a.m.	1.67	10:15 a.m.	1.59	10:30 a.m.	2.12	
Baja	04:47 p.m.	0.8	04:47 p.m.	0.54	04:44 p.m.	0.51	04:37 p.m.	0.68	
Alta	11:07 p.m.	2.17	10:41 p.m.	1.45	10:42 p.m.	1.39	10:57 p.m.	1.84	
30/08/2009									
Baja	05:09 a.m.	0.89	05:09 a.m.	0.60	05:06 a.m.	0.57	04:59 a.m.	0.76	
Alta	11:41 a.m.	2.4	11:15 a.m.	1.61	11:16 a.m.	1.54	11:31 a.m.	2.04	
Baja	05:58 p.m.	0.86	05:58 p.m.	0.58	05:55 p.m.	0.55	05:48 p.m.	0.73	
Alta			11:53 p.m.	1.43	11:54 p.m.	1.37			
31/08/2009									
Alta	12:19 a.m.	2.14					12:09 a.m.	1.82	
Baja	06:23 a.m.	0.91	06:23 a.m.	0.61	06:20 a.m.	0.58	06:13 a.m.	0.77	
Alta	12:46 p.m.	2.39	12:20 p.m.	1.60	12:21 p.m.	1.53	12:36 p.m.	2.03	
Baja	07:06 p.m.	0.82	07:06 p.m.	0.55	07:03 p.m.	0.52	06:56 p.m.	0.70	

Septiembre

PUERTO	LA UNION		LA LIBERTAD		ACAJUTLA		PUERTO EL TRIUNFO		FASE LUNAR
	HORA	ALTURA metros	HORA	ALTURA metros	HORA	ALTURA metros	HORA	ALTURA metros	
01/09/2009									
Alta	01:31 a.m.	2.2	01:05 a.m.	1.47	01:06 a.m.	1.41	01:21 a.m.	1.87	
Baja	07:30 a.m.	0.84	07:30 a.m.	0.56	07:27 a.m.	0.54	07:20 a.m.	0.71	
Alta	01:47 p.m.	2.46	01:21 p.m.	1.65	01:22 p.m.	1.57	01:37 p.m.	2.09	
Baja	08:02 p.m.	0.72	08:02 p.m.	0.48	07:59 p.m.	0.46	07:52 p.m.	0.61	
02/09/2009									
Alta	02:27 a.m.	2.33	02:01 a.m.	1.56	02:02 a.m.	1.49	02:17 a.m.	1.98	
Baja	08:23 a.m.	0.71	08:23 a.m.	0.48	08:20 a.m.	0.45	08:13 a.m.	0.60	
Alta	02:38 p.m.	2.56	02:12 p.m.	1.72	02:13 p.m.	1.64	02:28 p.m.	2.18	
Baja	08:47 p.m.	0.59	08:47 p.m.	0.40	08:44 p.m.	0.38	08:37 p.m.	0.50	
03/09/2009									
Alta	03:13 a.m.	2.49	02:47 a.m.	1.67	02:48 a.m.	1.59	03:03 a.m.	2.12	
Baja	09:06 a.m.	0.55	09:06 a.m.	0.37	09:03 a.m.	0.35	08:56 a.m.	0.47	
Alta	03:22 p.m.	2.68	02:56 p.m.	1.80	02:57 p.m.	1.72	03:12 p.m.	2.28	
Baja	09:25 p.m.	0.45	09:25 p.m.	0.30	09:22 p.m.	0.29	09:15 p.m.	0.38	
04/09/2009									
Alta	03:51 a.m.	2.65	03:25 a.m.	1.78	03:26 a.m.	1.70	03:41 a.m.	2.25	LUNA LLENA
Baja	09:44 a.m.	0.4	09:44 a.m.	0.27	09:41 a.m.	0.26	09:34 a.m.	0.34	
Alta	04:02 p.m.	2.78	03:36 p.m.	1.86	03:37 p.m.	1.78	03:52 p.m.	2.36	
Baja	10:00 p.m.	0.33	10:00 p.m.	0.22	09:57 p.m.	0.21	09:50 p.m.	0.28	
05/09/2009									
Alta	04:27 a.m.	2.79	04:01 a.m.	1.87	04:02 a.m.	1.79	04:17 a.m.	2.37	
Baja	10:21 a.m.	0.26	10:21 a.m.	0.17	10:18 a.m.	0.17	10:11 a.m.	0.22	
Alta	04:39 p.m.	2.85	04:13 p.m.	1.91	04:14 p.m.	1.82	04:29 p.m.	2.42	
Baja	10:34 p.m.	0.24	10:34 p.m.	0.16	10:31 p.m.	0.15	10:24 p.m.	0.20	
06/09/2009									
Alta	05:02 a.m.	2.9	04:36 a.m.	1.94	04:37 a.m.	1.86	04:52 a.m.	2.47	
Baja	10:56 a.m.	0.16	10:56 a.m.	0.11	10:53 a.m.	0.10	10:46 a.m.	0.14	
Alta	05:15 p.m.	2.88	04:49 p.m.	1.93	04:50 p.m.	1.84	05:05 p.m.	2.45	
Baja	11:07 p.m.	0.17	11:07 p.m.	0.11	11:04 p.m.	0.11	10:57 p.m.	0.14	
07/09/2009									
Alta	05:37 a.m.	2.98	05:11 a.m.	2.00	05:12 a.m.	1.91	05:27 a.m.	2.53	
Baja	11:32 a.m.	0.1	11:32 a.m.	0.07	11:29 a.m.	0.06	11:22 a.m.	0.09	
Alta	05:51 p.m.	2.86	05:25 p.m.	1.92	05:26 p.m.	1.83	05:41 p.m.	2.43	
Baja	11:42 p.m.	0.14	11:42 p.m.	0.09	11:39 p.m.	0.09	11:32 p.m.	0.12	
08/09/2009									
Alta	06:12 a.m.	3.02	05:46 a.m.	2.02	05:47 a.m.	1.93	06:02 a.m.	2.57	
Baja	12:09 p.m.	0.08	12:09 p.m.	0.05	12:06 p.m.	0.05	11:59 a.m.	0.07	
Alta	06:27 p.m.	2.82	06:01 p.m.	1.89	06:02 p.m.	1.80	06:17 p.m.	2.40	
09/09/2009									
Baja	12:18 a.m.	0.14	12:18 a.m.	0.09	12:15 a.m.	0.09	12:08 a.m.	0.12	
Alta	06:49 a.m.	3.01	06:23 a.m.	2.02	06:24 a.m.	1.93	06:39 a.m.	2.56	
Baja	12:47 p.m.	0.11	12:47 p.m.	0.07	12:44 p.m.	0.07	12:37 p.m.	0.09	
Alta	07:04 p.m.	2.74	06:38 p.m.	1.84	06:39 p.m.	1.75	06:54 p.m.	2.33	
10/09/2009									
Baja	12:57 a.m.	0.18	12:57 a.m.	0.12	12:54 a.m.	0.12	12:47 a.m.	0.15	
Alta	07:29 a.m.	2.97	07:03 a.m.	1.99	07:04 a.m.	1.90	07:19 a.m.	2.52	
Baja	01:29 p.m.	0.18	01:29 p.m.	0.12	01:26 p.m.	0.12	01:19 p.m.	0.15	
Alta	07:46 p.m.	2.65	07:20 p.m.	1.78	07:21 p.m.	1.70	07:36 p.m.	2.25	

PUERTO	LA UNION		LA LIBERTAD		ACAJUTLA		PUERTO EL TRIUNFO		FASE LUNAR
	HORA	ALTURA metros	HORA	ALTURA metros	HORA	ALTURA metros	HORA	ALTURA metros	
11/09/2009									
Baja	01:40 a.m.	0.26	01:40 a.m.	0.17	01:37 a.m.	0.17	01:30 a.m.	0.22	CUARTO MENGUANTE
Alta	08:14 a.m.	2.89	07:48 a.m.	1.94	07:49 a.m.	1.85	08:04 a.m.	2.46	
Baja	02:16 p.m.	0.28	02:16 p.m.	0.19	02:13 p.m.	0.18	02:06 p.m.	0.24	
Alta	08:33 p.m.	2.55	08:07 p.m.	1.71	08:08 p.m.	1.63	08:23 p.m.	2.17	
12/09/2009									
Baja	02:30 a.m.	0.36	02:30 a.m.	0.24	02:27 a.m.	0.23	02:20 a.m.	0.31	
Alta	09:05 a.m.	2.8	08:39 a.m.	1.88	08:40 a.m.	1.79	08:55 a.m.	2.38	
Baja	03:09 p.m.	0.39	03:09 p.m.	0.26	03:06 p.m.	0.25	02:59 p.m.	0.33	
Alta	09:29 p.m.	2.47	09:03 p.m.	1.65	09:04 p.m.	1.58	09:19 p.m.	2.10	
13/09/2009									
Baja	03:28 a.m.	0.47	03:28 a.m.	0.31	03:25 a.m.	0.30	03:18 a.m.	0.40	
Alta	10:06 a.m.	2.71	09:40 a.m.	1.82	09:41 a.m.	1.73	09:56 a.m.	2.30	
Baja	04:10 p.m.	0.48	04:10 p.m.	0.32	04:07 p.m.	0.31	04:00 p.m.	0.41	
Alta	10:37 p.m.	2.43	10:11 p.m.	1.63	10:12 p.m.	1.56	10:27 p.m.	2.07	
14/09/2009									
Baja	04:37 a.m.	0.54	04:37 a.m.	0.36	04:34 a.m.	0.35	04:27 a.m.	0.46	
Alta	11:15 a.m.	2.67	10:49 a.m.	1.79	10:50 a.m.	1.71	11:05 a.m.	2.27	
Baja	05:19 p.m.	0.5	05:19 p.m.	0.34	05:16 p.m.	0.32	05:09 p.m.	0.43	
Alta	11:52 p.m.	2.48	11:26 p.m.	1.66	11:27 p.m.	1.59	11:42 p.m.	2.11	
15/09/2009									
Baja	05:53 a.m.	0.51	05:53 a.m.	0.34	05:50 a.m.	0.33	05:43 a.m.	0.43	
Alta	12:28 p.m.	2.7	12:02 p.m.	1.81	12:03 p.m.	1.73	12:18 p.m.	2.30	
Baja	06:31 p.m.	0.43	06:31 p.m.	0.29	06:28 p.m.	0.28	06:21 p.m.	0.37	
16/09/2009									
Alta	01:08 a.m.	2.62	12:42 a.m.	1.76	12:43 a.m.	1.68	12:58 a.m.	2.23	
Baja	07:07 a.m.	0.36	07:07 a.m.	0.24	07:04 a.m.	0.23	06:57 a.m.	0.31	
Alta	01:38 p.m.	2.81	01:12 p.m.	1.88	01:13 p.m.	1.80	01:28 p.m.	2.39	
Baja	07:38 p.m.	0.27	07:38 p.m.	0.18	07:35 p.m.	0.17	07:28 p.m.	0.23	
17/09/2009									
Alta	02:15 a.m.	2.83	01:49 a.m.	1.90	01:50 a.m.	1.81	02:05 a.m.	2.41	
Baja	08:11 a.m.	0.16	08:11 a.m.	0.11	08:08 a.m.	0.10	08:01 a.m.	0.14	
Alta	02:40 p.m.	2.94	02:14 p.m.	1.97	02:15 p.m.	1.88	02:30 p.m.	2.50	
Baja	08:35 p.m.	0.1	08:35 p.m.	0.07	08:32 p.m.	0.06	08:25 p.m.	0.09	
18/09/2009									
Alta	03:12 a.m.	3.04	02:46 a.m.	2.04	02:47 a.m.	1.95	03:02 a.m.	2.58	LUNA NUEVA
Baja	09:07 a.m.	-0.02	09:07 a.m.	-0.01	09:04 a.m.	-0.01	08:57 a.m.	-0.02	
Alta	03:34 p.m.	3.06	03:08 p.m.	2.05	03:09 p.m.	1.96	03:24 p.m.	2.60	
Baja	09:27 p.m.	-0.05	09:27 p.m.	-0.03	09:24 p.m.	-0.03	09:17 p.m.	-0.04	
19/09/2009									
Alta	04:03 a.m.	3.21	03:37 a.m.	2.15	03:38 a.m.	2.05	03:53 a.m.	2.73	
Baja	09:57 a.m.	-0.17	09:57 a.m.	-0.11	09:54 a.m.	-0.11	09:47 a.m.	-0.14	
Alta	04:24 p.m.	3.13	03:58 p.m.	2.10	03:59 p.m.	2.00	04:14 p.m.	2.66	
Baja	10:14 p.m.	-0.15	10:14 p.m.	-0.10	10:11 p.m.	-0.10	10:04 p.m.	-0.13	
20/09/2009									
Alta	04:49 a.m.	3.31	04:23 a.m.	2.22	04:24 a.m.	2.12	04:39 a.m.	2.81	
Baja	10:43 a.m.	-0.24	10:43 a.m.	-0.16	10:40 a.m.	-0.15	10:33 a.m.	-0.20	
Alta	05:09 p.m.	3.14	04:43 p.m.	2.10	04:44 p.m.	2.01	04:59 p.m.	2.67	
Baja	10:59 p.m.	-0.17	10:59 p.m.	-0.11	10:56 p.m.	-0.11	10:49 p.m.	-0.14	

PUERTO	LA UNION		LA LIBERTAD		ACAJUTLA		PUERTO EL TRIUNFO		FASE LUNAR
	HORA	ALTURA metros	HORA	ALTURA metros	HORA	ALTURA metros	HORA	ALTURA metros	
21/09/2009									
Alta	05:33 a.m.	3.32	05:07 a.m.	2.22	05:08 a.m.	2.12	05:23 a.m.	2.82	
Baja	11:27 a.m.	-0.23	11:27 a.m.	-0.15	11:24 a.m.	-0.15	11:17 a.m.	-0.20	
Alta	05:52 p.m.	3.08	05:26 p.m.	2.06	05:27 p.m.	1.97	05:42 p.m.	2.62	
Baja	11:42 p.m.	-0.11	11:42 p.m.	-0.07	11:39 p.m.	-0.07	11:32 p.m.	-0.09	
22/09/2009									
Alta	06:15 a.m.	3.25	05:49 a.m.	2.18	05:50 a.m.	2.08	06:05 a.m.	2.76	
Baja	12:10 p.m.	-0.13	12:10 p.m.	-0.09	12:07 p.m.	-0.08	12:00 p.m.	-0.11	
Alta	06:33 p.m.	2.97	06:07 p.m.	1.99	06:08 p.m.	1.90	06:23 p.m.	2.52	
23/09/2009									
Baja	12:24 a.m.	0.01	12:24 a.m.	0.01	12:21 a.m.	0.01	12:14 a.m.	0.01	
Alta	06:56 a.m.	3.12	06:30 a.m.	2.09	06:31 a.m.	2.00	06:46 a.m.	2.65	
Baja	12:52 p.m.	0.02	12:52 p.m.	0.01	12:49 p.m.	0.01	12:42 p.m.	0.02	
Alta	07:14 p.m.	2.8	06:48 p.m.	1.88	06:49 p.m.	1.79	07:04 p.m.	2.38	
24/09/2009									
Baja	01:06 a.m.	0.19	01:06 a.m.	0.13	01:03 a.m.	0.12	12:56 a.m.	0.16	
Alta	07:37 a.m.	2.94	07:11 a.m.	1.97	07:12 a.m.	1.88	07:27 a.m.	2.50	
Baja	01:34 p.m.	0.22	01:34 p.m.	0.15	01:31 p.m.	0.14	01:24 p.m.	0.19	
Alta	07:56 p.m.	2.62	07:30 p.m.	1.76	07:31 p.m.	1.68	07:46 p.m.	2.23	
25/09/2009									
Baja	01:48 a.m.	0.4	01:48 a.m.	0.27	01:45 a.m.	0.26	01:38 a.m.	0.34	CUARTO CRECIENTE
Alta	08:19 a.m.	2.75	07:53 a.m.	1.84	07:54 a.m.	1.76	08:09 a.m.	2.34	
Baja	02:18 p.m.	0.43	02:18 p.m.	0.29	02:15 p.m.	0.28	02:08 p.m.	0.37	
Alta	08:40 p.m.	2.44	08:14 p.m.	1.63	08:15 p.m.	1.56	08:30 p.m.	2.07	
26/09/2009									
Baja	02:34 a.m.	0.61	02:34 a.m.	0.41	02:31 a.m.	0.39	02:24 a.m.	0.52	
Alta	09:05 a.m.	2.56	08:39 a.m.	1.72	08:40 a.m.	1.64	08:55 a.m.	2.18	
Baja	03:06 p.m.	0.62	03:06 p.m.	0.42	03:03 p.m.	0.40	02:56 p.m.	0.53	
Alta	09:30 p.m.	2.29	09:04 p.m.	1.53	09:05 p.m.	1.47	09:20 p.m.	1.95	
27/09/2009									
Baja	03:27 a.m.	0.79	03:27 a.m.	0.53	03:24 a.m.	0.51	03:17 a.m.	0.67	
Alta	09:58 a.m.	2.41	09:32 a.m.	1.61	09:33 a.m.	1.54	09:48 a.m.	2.05	
Baja	04:01 p.m.	0.78	04:01 p.m.	0.52	03:58 p.m.	0.50	03:51 p.m.	0.66	
Alta	10:30 p.m.	2.19	10:04 p.m.	1.47	10:05 p.m.	1.40	10:20 p.m.	1.86	
28/09/2009									
Baja	04:31 a.m.	0.91	04:31 a.m.	0.61	04:28 a.m.	0.58	04:21 a.m.	0.77	
Alta	10:58 a.m.	2.31	10:32 a.m.	1.55	10:33 a.m.	1.48	10:48 a.m.	1.96	
Baja	05:06 p.m.	0.86	05:06 p.m.	0.58	05:03 p.m.	0.55	04:56 p.m.	0.73	
Alta	11:37 p.m.	2.17	11:11 p.m.	1.45	11:12 p.m.	1.39	11:27 p.m.	1.84	
29/09/2009									
Baja	05:45 a.m.	0.92	05:45 a.m.	0.62	05:42 a.m.	0.59	05:35 a.m.	0.78	
Alta	12:03 p.m.	2.3	11:37 a.m.	1.54	11:38 a.m.	1.47	11:53 a.m.	1.96	
Baja	06:16 p.m.	0.85	06:16 p.m.	0.57	06:13 p.m.	0.54	06:06 p.m.	0.72	
30/09/2009									
Alta	12:45 a.m.	2.24	12:19 a.m.	1.50	12:20 a.m.	1.43	12:35 a.m.	1.90	
Baja	06:55 a.m.	0.84	06:55 a.m.	0.56	06:52 a.m.	0.54	06:45 a.m.	0.71	
Alta	01:05 p.m.	2.35	12:39 p.m.	1.57	12:40 p.m.	1.50	12:55 p.m.	2.00	
Baja	07:17 p.m.	0.76	07:17 p.m.	0.51	07:14 p.m.	0.49	07:07 p.m.	0.65	

PUERTO	LA UNION		LA LIBERTAD		ACAJUTLA		PUERTO EL TRIUNFO		FASE LUNAR
	HORA	ALTURA metros	HORA	ALTURA metros	HORA	ALTURA metros	HORA	ALTURA metros	
01/10/2009									
Alta	01:42 a.m.	2.37	01:16 a.m.	1.59	01:17 a.m.	1.52	01:32 a.m.	2.01	
Baja	07:49 a.m.	0.68	07:49 a.m.	0.46	07:46 a.m.	0.44	07:39 a.m.	0.58	
Alta	01:59 p.m.	2.46	01:33 p.m.	1.65	01:34 p.m.	1.57	01:49 p.m.	2.09	
Baja	08:05 p.m.	0.64	08:05 p.m.	0.43	08:02 p.m.	0.41	07:55 p.m.	0.54	
02/10/2009									
Alta	02:29 a.m.	2.54	02:03 a.m.	1.70	02:04 a.m.	1.63	02:19 a.m.	2.16	
Baja	08:33 a.m.	0.5	08:33 a.m.	0.34	08:30 a.m.	0.32	08:23 a.m.	0.43	
Alta	02:46 p.m.	2.58	02:20 p.m.	1.73	02:21 p.m.	1.65	02:36 p.m.	2.19	
Baja	08:46 p.m.	0.49	08:46 p.m.	0.33	08:43 p.m.	0.31	08:36 p.m.	0.42	
03/10/2009									
Alta	03:11 a.m.	2.71	02:45 a.m.	1.82	02:46 a.m.	1.73	03:01 a.m.	2.30	
Baja	09:13 a.m.	0.32	09:13 a.m.	0.21	09:10 a.m.	0.20	09:03 a.m.	0.27	
Alta	03:29 p.m.	2.69	03:03 p.m.	1.80	03:04 p.m.	1.72	03:19 p.m.	2.29	
Baja	09:23 p.m.	0.36	09:23 p.m.	0.24	09:20 p.m.	0.23	09:13 p.m.	0.31	
04/10/2009									
Alta	03:50 a.m.	2.87	03:24 a.m.	1.92	03:25 a.m.	1.84	03:40 a.m.	2.44	LUNA LLENA
Baja	09:50 a.m.	0.17	09:50 a.m.	0.11	09:47 a.m.	0.11	09:40 a.m.	0.14	
Alta	04:08 p.m.	2.78	03:42 p.m.	1.86	03:43 p.m.	1.78	03:58 p.m.	2.36	
Baja	10:00 p.m.	0.24	10:00 p.m.	0.16	09:57 p.m.	0.15	09:50 p.m.	0.20	
05/10/2009									
Alta	04:27 a.m.	3	04:01 a.m.	2.01	04:02 a.m.	1.92	04:17 a.m.	2.55	
Baja	10:27 a.m.	0.04	10:27 a.m.	0.03	10:24 a.m.	0.03	10:17 a.m.	0.03	
Alta	04:47 p.m.	2.83	04:21 p.m.	1.90	04:22 p.m.	1.81	04:37 p.m.	2.41	
Baja	10:37 p.m.	0.15	10:37 p.m.	0.10	10:34 p.m.	0.10	10:27 p.m.	0.13	
06/10/2009									
Alta	05:05 a.m.	3.08	04:39 a.m.	2.06	04:40 a.m.	1.97	04:55 a.m.	2.62	
Baja	11:05 a.m.	-0.03	11:05 a.m.	-0.02	11:02 a.m.	-0.02	10:55 a.m.	-0.03	
Alta	05:25 p.m.	2.85	04:59 p.m.	1.91	05:00 p.m.	1.82	05:15 p.m.	2.42	
Baja	11:15 p.m.	0.09	11:15 p.m.	0.06	11:12 p.m.	0.06	11:05 p.m.	0.08	
07/10/2009									
Alta	05:44 a.m.	3.11	05:18 a.m.	2.08	05:19 a.m.	1.99	05:34 a.m.	2.64	
Baja	11:44 a.m.	-0.06	11:44 a.m.	-0.04	11:41 a.m.	-0.04	11:34 a.m.	-0.05	
Alta	06:05 p.m.	2.83	05:39 p.m.	1.90	05:40 p.m.	1.81	05:55 p.m.	2.41	
Baja	11:55 p.m.	0.09	11:55 p.m.	0.06	11:52 p.m.	0.06	11:45 p.m.	0.08	
08/10/2009									
Alta	06:24 a.m.	3.09	05:58 a.m.	2.07	05:59 a.m.	1.98	06:14 a.m.	2.63	
Baja	12:26 p.m.	-0.03	12:26 p.m.	-0.02	12:23 p.m.	-0.02	12:16 p.m.	-0.03	
Alta	06:46 p.m.	2.78	06:20 p.m.	1.86	06:21 p.m.	1.78	06:36 p.m.	2.36	
09/10/2009									
Baja	12:38 a.m.	0.13	12:38 a.m.	0.09	12:35 a.m.	0.08	12:28 a.m.	0.11	
Alta	07:08 a.m.	3.02	06:42 a.m.	2.02	06:43 a.m.	1.93	06:58 a.m.	2.57	
Baja	01:09 p.m.	0.04	01:09 p.m.	0.03	01:06 p.m.	0.03	12:59 p.m.	0.03	
Alta	07:32 p.m.	2.7	07:06 p.m.	1.81	07:07 p.m.	1.73	07:22 p.m.	2.30	
10/10/2009									
Baja	01:25 a.m.	0.22	01:25 a.m.	0.15	01:22 a.m.	0.14	01:15 a.m.	0.19	
Alta	07:57 a.m.	2.91	07:31 a.m.	1.95	07:32 a.m.	1.86	07:47 a.m.	2.47	
Baja	01:57 p.m.	0.16	01:57 p.m.	0.11	01:54 p.m.	0.10	01:47 p.m.	0.14	
Alta	08:23 p.m.	2.62	07:57 p.m.	1.76	07:58 p.m.	1.68	08:13 p.m.	2.23	

PUERTO	LA UNION		LA LIBERTAD		ACAJUTLA		PUERTO EL TRIUNFO		FASE LUNAR
	HORA	ALTURA metros	HORA	ALTURA metros	HORA	ALTURA metros	HORA	ALTURA metros	
11/10/2009									
Baja	02:18 a.m.	0.33	02:18 a.m.	0.22	02:15 a.m.	0.21	02:08 a.m.	0.28	CUARTO MENGUANTE
Alta	08:52 a.m.	2.79	08:26 a.m.	1.87	08:27 a.m.	1.79	08:42 a.m.	2.37	
Baja	02:51 p.m.	0.29	02:51 p.m.	0.19	02:48 p.m.	0.19	02:41 p.m.	0.25	
Alta	09:23 p.m.	2.56	08:57 p.m.	1.72	08:58 p.m.	1.64	09:13 p.m.	2.18	
12/10/2009									
Baja	03:18 a.m.	0.44	03:18 a.m.	0.29	03:15 a.m.	0.28	03:08 a.m.	0.37	
Alta	09:54 a.m.	2.67	09:28 a.m.	1.79	09:29 a.m.	1.71	09:44 a.m.	2.27	
Baja	03:52 p.m.	0.4	03:52 p.m.	0.27	03:49 p.m.	0.26	03:42 p.m.	0.34	
Alta	10:31 p.m.	2.54	10:05 p.m.	1.70	10:06 p.m.	1.63	10:21 p.m.	2.16	
13/10/2009									
Baja	04:28 a.m.	0.5	04:28 a.m.	0.34	04:25 a.m.	0.32	04:18 a.m.	0.43	
Alta	11:04 a.m.	2.61	10:38 a.m.	1.75	10:39 a.m.	1.67	10:54 a.m.	2.22	
Baja	05:00 p.m.	0.46	05:00 p.m.	0.31	04:57 p.m.	0.29	04:50 p.m.	0.39	
Alta	11:44 p.m.	2.6	11:18 p.m.	1.74	11:19 p.m.	1.66	11:34 p.m.	2.21	
14/10/2009									
Baja	05:44 a.m.	0.46	05:44 a.m.	0.31	05:41 a.m.	0.29	05:34 a.m.	0.39	
Alta	12:15 p.m.	2.61	11:49 a.m.	1.75	11:50 a.m.	1.67	12:05 p.m.	2.22	
Baja	06:11 p.m.	0.42	06:11 p.m.	0.28	06:08 p.m.	0.27	06:01 p.m.	0.36	
15/10/2009									
Alta	12:54 a.m.	2.72	12:28 a.m.	1.82	12:29 a.m.	1.74	12:44 a.m.	2.31	
Baja	06:55 a.m.	0.33	06:55 a.m.	0.22	06:52 a.m.	0.21	06:45 a.m.	0.28	
Alta	01:23 p.m.	2.68	12:57 p.m.	1.80	12:58 p.m.	1.72	01:13 p.m.	2.28	
Baja	07:16 p.m.	0.32	07:16 p.m.	0.21	07:13 p.m.	0.20	07:06 p.m.	0.27	
16/10/2009									
Alta	01:56 a.m.	2.89	01:30 a.m.	1.94	01:31 a.m.	1.85	01:46 a.m.	2.46	
Baja	07:57 a.m.	0.16	07:57 a.m.	0.11	07:54 a.m.	0.10	07:47 a.m.	0.14	
Alta	02:23 p.m.	2.78	01:57 p.m.	1.86	01:58 p.m.	1.78	02:13 p.m.	2.36	
Baja	08:14 p.m.	0.19	08:14 p.m.	0.13	08:11 p.m.	0.12	08:04 p.m.	0.16	
17/10/2009									
Alta	02:51 a.m.	3.04	02:25 a.m.	2.04	02:26 a.m.	1.95	02:41 a.m.	2.58	
Baja	08:50 a.m.	0	08:50 a.m.	0.00	08:47 a.m.	0.00	08:40 a.m.	0.00	
Alta	03:16 p.m.	2.88	02:50 p.m.	1.93	02:51 p.m.	1.84	03:06 p.m.	2.45	
Baja	09:04 p.m.	0.08	09:04 p.m.	0.05	09:01 p.m.	0.05	08:54 p.m.	0.07	
18/10/2009									
Alta	03:40 a.m.	3.16	03:14 a.m.	2.12	03:15 a.m.	2.02	03:30 a.m.	2.69	LUNA NUEVA
Baja	09:38 a.m.	-0.1	09:38 a.m.	-0.07	09:35 a.m.	-0.06	09:28 a.m.	-0.09	
Alta	04:04 p.m.	2.93	03:38 p.m.	1.96	03:39 p.m.	1.88	03:54 p.m.	2.49	
Baja	09:51 p.m.	0.01	09:51 p.m.	0.01	09:48 p.m.	0.01	09:41 p.m.	0.01	
19/10/2009									
Alta	04:24 a.m.	3.21	03:58 a.m.	2.15	03:59 a.m.	2.05	04:14 a.m.	2.73	
Baja	10:22 a.m.	-0.15	10:22 a.m.	-0.10	10:19 a.m.	-0.10	10:12 a.m.	-0.13	
Alta	04:48 p.m.	2.94	04:22 p.m.	1.97	04:23 p.m.	1.88	04:38 p.m.	2.50	
Baja	10:35 p.m.	0	10:35 p.m.	0.00	10:32 p.m.	0.00	10:25 p.m.	0.00	
20/10/2009									
Alta	05:06 a.m.	3.2	04:40 a.m.	2.14	04:41 a.m.	2.05	04:56 a.m.	2.72	
Baja	11:04 a.m.	-0.14	11:04 a.m.	-0.09	11:01 a.m.	-0.09	10:54 a.m.	-0.12	
Alta	05:29 p.m.	2.91	05:03 p.m.	1.95	05:04 p.m.	1.86	05:19 p.m.	2.47	
Baja	11:17 p.m.	0.05	11:17 p.m.	0.03	11:14 p.m.	0.03	11:07 p.m.	0.04	

PUERTO	LA UNION		LA LIBERTAD		ACAJUTLA		PUERTO EL TRIUNFO		FASE LUNAR
	HORA	ALTURA metros	HORA	ALTURA metros	HORA	ALTURA metros	HORA	ALTURA metros	
21/10/2009									
Alta	05:46 a.m.	3.13	05:20 a.m.	2.10	05:21 a.m.	2.00	05:36 a.m.	2.66	
Baja	11:45 a.m.	-0.06	11:45 a.m.	-0.04	11:42 a.m.	-0.04	11:35 a.m.	-0.05	
Alta	06:09 p.m.	2.83	05:43 p.m.	1.90	05:44 p.m.	1.81	05:59 p.m.	2.41	
Baja	11:58 p.m.	0.15	11:58 p.m.	0.10	11:55 p.m.	0.10	11:48 p.m.	0.13	
22/10/2009									
Alta	06:25 a.m.	3.01	05:59 a.m.	2.02	06:00 a.m.	1.93	06:15 a.m.	2.56	
Baja	12:25 p.m.	0.05	12:25 p.m.	0.03	12:22 p.m.	0.03	12:15 p.m.	0.04	
Alta	06:49 p.m.	2.72	06:23 p.m.	1.82	06:24 p.m.	1.74	06:39 p.m.	2.31	
23/10/2009									
Baja	12:39 a.m.	0.29	12:39 a.m.	0.19	12:36 a.m.	0.19	12:29 a.m.	0.25	
Alta	07:04 a.m.	2.86	06:38 a.m.	1.92	06:39 a.m.	1.83	06:54 a.m.	2.43	
Baja	01:04 p.m.	0.21	01:04 p.m.	0.14	01:01 p.m.	0.13	12:54 p.m.	0.18	
Alta	07:29 p.m.	2.59	07:03 p.m.	1.74	07:04 p.m.	1.66	07:19 p.m.	2.20	
24/10/2009									
Baja	01:21 a.m.	0.46	01:21 a.m.	0.31	01:18 a.m.	0.29	01:11 a.m.	0.39	
Alta	07:45 a.m.	2.69	07:19 a.m.	1.80	07:20 a.m.	1.72	07:35 a.m.	2.29	
Baja	01:45 p.m.	0.38	01:45 p.m.	0.25	01:42 p.m.	0.24	01:35 p.m.	0.32	
Alta	08:12 p.m.	2.46	07:46 p.m.	1.65	07:47 p.m.	1.57	08:02 p.m.	2.09	
25/10/2009									
Baja	01:05 a.m.	0.62	01:05 a.m.	0.42	01:02 a.m.	0.40	12:55 a.m.	0.53	CUARTO CRESCIENTE
Alta	07:30 a.m.	2.53	07:04 a.m.	1.70	07:05 a.m.	1.62	07:20 a.m.	2.15	
Baja	01:29 p.m.	0.55	01:29 p.m.	0.37	01:26 p.m.	0.35	01:19 p.m.	0.47	
Alta	08:00 p.m.	2.36	07:34 p.m.	1.58	07:35 p.m.	1.51	07:50 p.m.	2.01	
26/10/2009									
Baja	01:54 a.m.	0.76	01:54 a.m.	0.51	01:51 a.m.	0.49	01:44 a.m.	0.65	
Alta	08:19 a.m.	2.4	07:53 a.m.	1.61	07:54 a.m.	1.54	08:09 a.m.	2.04	
Baja	02:18 p.m.	0.69	02:18 p.m.	0.46	02:15 p.m.	0.44	02:08 p.m.	0.59	
Alta	08:54 p.m.	2.29	08:28 p.m.	1.53	08:29 p.m.	1.47	08:44 p.m.	1.95	
27/10/2009									
Baja	02:51 a.m.	0.85	02:51 a.m.	0.57	02:48 a.m.	0.54	02:41 a.m.	0.72	
Alta	09:14 a.m.	2.3	08:48 a.m.	1.54	08:49 a.m.	1.47	09:04 a.m.	1.96	
Baja	03:13 p.m.	0.79	03:13 p.m.	0.53	03:10 p.m.	0.51	03:03 p.m.	0.67	
Alta	09:52 p.m.	2.28	09:26 p.m.	1.53	09:27 p.m.	1.46	09:42 p.m.	1.94	
28/10/2009									
Baja	03:57 a.m.	0.87	03:57 a.m.	0.58	03:54 a.m.	0.56	03:47 a.m.	0.74	
Alta	10:14 a.m.	2.26	09:48 a.m.	1.51	09:49 a.m.	1.45	10:04 a.m.	1.92	
Baja	04:15 p.m.	0.82	04:15 p.m.	0.55	04:12 p.m.	0.52	04:05 p.m.	0.70	
Alta	10:52 p.m.	2.33	10:26 p.m.	1.56	10:27 p.m.	1.49	10:42 p.m.	1.98	
29/10/2009									
Baja	05:04 a.m.	0.81	05:04 a.m.	0.54	05:01 a.m.	0.52	04:54 a.m.	0.69	
Alta	11:15 a.m.	2.28	10:49 a.m.	1.53	10:50 a.m.	1.46	11:05 a.m.	1.94	
Baja	05:16 p.m.	0.78	05:16 p.m.	0.52	05:13 p.m.	0.50	05:06 p.m.	0.66	
Alta	11:49 p.m.	2.44	11:23 p.m.	1.63	11:24 p.m.	1.56	11:39 p.m.	2.07	
30/10/2009									
Baja	06:03 a.m.	0.67	06:03 a.m.	0.45	06:00 a.m.	0.43	05:53 a.m.	0.57	
Alta	12:12 p.m.	2.36	11:46 a.m.	1.58	11:47 a.m.	1.51	12:02 p.m.	2.01	
Baja	06:11 p.m.	0.68	06:11 p.m.	0.46	06:08 p.m.	0.44	06:01 p.m.	0.58	
31/10/2009									
Alta	12:40 a.m.	2.59	12:14 a.m.	1.74	12:15 a.m.	1.66	12:30 a.m.	2.20	
Baja	06:52 a.m.	0.49	06:26 a.m.	0.33	06:49 a.m.	0.31	06:42 a.m.	0.42	
Alta	01:03 p.m.	2.46	01:03 p.m.	1.65	12:38 p.m.	1.57	12:53 p.m.	2.09	
Baja	06:59 p.m.	0.55	06:33 p.m.	0.37	06:56 p.m.	0.35	06:49 p.m.	0.47	

Noviembre

PUERTO	LA UNION		LA LIBERTAD		ACAJUTLA		PUERTO EL TRIUNFO		FASE LUNAR
	HORA	ALTURA metros	HORA	ALTURA metros	HORA	ALTURA metros	HORA	ALTURA metros	
01/11/2009									
Alta	01:26 a.m.	2.76	01:26 a.m.	1.85	01:01 a.m.	1.77	01:16 a.m.	2.35	
Baja	07:36 a.m.	0.3	07:10 a.m.	0.20	07:33 a.m.	0.19	07:26 a.m.	0.26	
Alta	01:51 p.m.	2.58	01:51 p.m.	1.73	01:26 p.m.	1.65	01:41 p.m.	2.19	
Baja	07:43 p.m.	0.4	07:17 p.m.	0.27	07:40 p.m.	0.26	07:33 p.m.	0.34	
02/11/2009									
Alta	02:10 a.m.	2.92	02:10 a.m.	1.96	01:45 a.m.	1.87	02:00 a.m.	2.48	LUNA LLENA
Baja	08:18 a.m.	0.13	07:52 a.m.	0.09	08:15 a.m.	0.08	08:08 a.m.	0.11	
Alta	02:36 p.m.	2.69	02:36 p.m.	1.80	02:11 p.m.	1.72	02:26 p.m.	2.29	
Baja	08:26 p.m.	0.26	08:00 p.m.	0.17	08:23 p.m.	0.17	08:16 p.m.	0.22	
03/11/2009									
Alta	02:53 a.m.	3.05	02:53 a.m.	2.04	02:28 a.m.	1.95	02:43 a.m.	2.59	
Baja	08:59 a.m.	-0.01	08:33 a.m.	-0.01	08:56 a.m.	-0.01	08:49 a.m.	-0.01	
Alta	03:20 p.m.	2.78	03:20 p.m.	1.86	02:55 p.m.	1.78	03:10 p.m.	2.36	
Baja	09:09 p.m.	0.15	08:43 p.m.	0.10	09:06 p.m.	0.10	08:59 p.m.	0.13	
04/11/2009									
Alta	03:37 a.m.	3.14	03:37 a.m.	2.10	03:12 a.m.	2.01	03:27 a.m.	2.67	
Baja	09:41 a.m.	-0.11	09:15 a.m.	-0.07	09:38 a.m.	-0.07	09:31 a.m.	-0.09	
Alta	04:03 p.m.	2.84	04:03 p.m.	1.90	03:38 p.m.	1.82	03:53 p.m.	2.41	
Baja	09:52 p.m.	0.07	09:26 p.m.	0.05	09:49 p.m.	0.04	09:42 p.m.	0.06	
05/11/2009									
Alta	04:21 a.m.	3.18	04:21 a.m.	2.13	03:56 a.m.	2.04	04:11 a.m.	2.70	
Baja	10:23 a.m.	-0.16	09:57 a.m.	-0.11	10:20 a.m.	-0.10	10:13 a.m.	-0.14	
Alta	04:48 p.m.	2.86	04:48 p.m.	1.92	04:23 p.m.	1.83	04:38 p.m.	2.43	
Baja	10:37 p.m.	0.05	10:11 p.m.	0.03	10:34 p.m.	0.03	10:27 p.m.	0.04	
06/11/2009									
Alta	05:06 a.m.	3.16	05:06 a.m.	2.12	04:41 a.m.	2.02	04:56 a.m.	2.69	
Baja	11:08 a.m.	-0.14	10:42 a.m.	-0.09	11:05 a.m.	-0.09	10:58 a.m.	-0.12	
Alta	05:35 p.m.	2.86	05:35 p.m.	1.92	05:10 p.m.	1.83	05:25 p.m.	2.43	
Baja	11:25 p.m.	0.07	10:59 p.m.	0.05	11:22 p.m.	0.04	11:15 p.m.	0.06	
07/11/2009									
Alta	05:54 a.m.	3.08	05:54 a.m.	2.06	05:29 a.m.	1.97	05:44 a.m.	2.62	
Baja	11:54 a.m.	-0.07	11:28 a.m.	-0.05	11:51 a.m.	-0.04	11:44 a.m.	-0.06	
Alta	06:25 p.m.	2.82	06:25 p.m.	1.89	06:00 p.m.	1.80	06:15 p.m.	2.40	
Baja			11:49 p.m.	0.10					
08/11/2009									
Baja	12:15 a.m.	0.15			12:12 a.m.	0.10	12:05 a.m.	0.13	
Alta	06:46 a.m.	2.96	06:46 a.m.	1.98	06:21 a.m.	1.89	06:36 a.m.	2.52	
Baja	12:43 p.m.	0.03	12:17 p.m.	0.02	12:40 p.m.	0.02	12:33 p.m.	0.03	
Alta	07:19 p.m.	2.78	07:19 p.m.	1.86	06:54 p.m.	1.78	07:09 p.m.	2.36	
09/11/2009									
Baja	01:10 a.m.	0.25	12:44 a.m.	0.17	01:07 a.m.	0.16	01:00 a.m.	0.21	CUARTO MENGUANTE
Alta	07:42 a.m.	2.82	07:42 a.m.	1.89	07:17 a.m.	1.80	07:32 a.m.	2.40	
Baja	01:36 p.m.	0.17	01:10 p.m.	0.11	01:33 p.m.	0.11	01:26 p.m.	0.14	
Alta	08:18 p.m.	2.74	08:18 p.m.	1.84	07:53 p.m.	1.75	08:08 p.m.	2.33	
10/11/2009									
Baja	02:10 a.m.	0.35	01:44 a.m.	0.23	02:07 a.m.	0.22	02:00 a.m.	0.30	
Alta	08:43 a.m.	2.69	08:43 a.m.	1.80	08:18 a.m.	1.72	08:33 a.m.	2.29	
Baja	02:34 p.m.	0.3	02:08 p.m.	0.20	02:31 p.m.	0.19	02:24 p.m.	0.26	
Alta	09:22 p.m.	2.72	09:22 p.m.	1.82	08:57 p.m.	1.74	09:12 p.m.	2.31	

PUERTO	LA UNION		LA LIBERTAD		ACAJUTLA		PUERTO EL TRIUNFO		FASE LUNAR
	HORA	ALTURA metros	HORA	ALTURA metros	HORA	ALTURA metros	HORA	ALTURA metros	
11/11/2009									
Baja	03:17 a.m.	0.42	02:51 a.m.	0.28	03:14 a.m.	0.27	03:07 a.m.	0.36	
Alta	09:48 a.m.	2.59	09:48 a.m.	1.74	09:23 a.m.	1.66	09:38 a.m.	2.20	
Baja	03:38 p.m.	0.39	03:12 p.m.	0.26	03:35 p.m.	0.25	03:28 p.m.	0.33	
Alta	10:28 p.m.	2.74	10:28 p.m.	1.84	10:03 p.m.	1.75	10:18 p.m.	2.33	
12/11/2009									
Baja	04:28 a.m.	0.41	04:02 a.m.	0.27	04:25 a.m.	0.26	04:18 a.m.	0.35	
Alta	10:55 a.m.	2.54	10:55 a.m.	1.70	10:30 a.m.	1.63	10:45 a.m.	2.16	
Baja	04:46 p.m.	0.42	04:20 p.m.	0.28	04:43 p.m.	0.27	04:36 p.m.	0.36	
Alta	11:33 p.m.	2.8	11:33 p.m.	1.88	11:08 p.m.	1.79	11:23 p.m.	2.38	
13/11/2009									
Baja	05:37 a.m.	0.34	05:11 a.m.	0.23	05:34 a.m.	0.22	05:27 a.m.	0.29	
Alta	12:01 p.m.	2.55	12:01 p.m.	1.71	11:36 a.m.	1.63	11:51 a.m.	2.17	
Baja	05:51 p.m.	0.4	05:25 p.m.	0.27	05:48 p.m.	0.26	05:41 p.m.	0.34	
14/11/2009									
Alta	12:33 a.m.	2.88	12:33 a.m.	1.93	12:08 a.m.	1.84	12:23 a.m.	2.45	
Baja	06:37 a.m.	0.24	06:11 a.m.	0.16	06:34 a.m.	0.15	06:27 a.m.	0.20	
Alta	01:02 p.m.	2.6	01:02 p.m.	1.74	12:37 p.m.	1.66	12:52 p.m.	2.21	
Baja	06:49 p.m.	0.34	06:23 p.m.	0.23	06:46 p.m.	0.22	06:39 p.m.	0.29	
15/11/2009									
Alta	01:27 a.m.	2.96	01:27 a.m.	1.98	01:02 a.m.	1.89	01:17 a.m.	2.52	
Baja	07:30 a.m.	0.13	07:04 a.m.	0.09	07:27 a.m.	0.08	07:20 a.m.	0.11	
Alta	01:57 p.m.	2.66	01:57 p.m.	1.78	01:32 p.m.	1.70	01:47 p.m.	2.26	
Baja	07:41 p.m.	0.27	07:15 p.m.	0.18	07:38 p.m.	0.17	07:31 p.m.	0.23	
16/11/2009									
Alta	02:16 a.m.	3.02	02:16 a.m.	2.02	01:51 a.m.	1.93	02:06 a.m.	2.57	LUNA NUEVA
Baja	08:18 a.m.	0.05	07:52 a.m.	0.03	08:15 a.m.	0.03	08:08 a.m.	0.04	
Alta	02:46 p.m.	2.71	02:46 p.m.	1.82	02:21 p.m.	1.73	02:36 p.m.	2.30	
Baja	08:29 p.m.	0.23	08:03 p.m.	0.15	08:26 p.m.	0.15	08:19 p.m.	0.20	
17/11/2009									
Alta	03:01 a.m.	3.05	03:01 a.m.	2.04	02:36 a.m.	1.95	02:51 a.m.	2.59	
Baja	09:01 a.m.	0	08:35 a.m.	0.00	08:58 a.m.	0.00	08:51 a.m.	0.00	
Alta	03:30 p.m.	2.73	03:30 p.m.	1.83	03:05 p.m.	1.75	03:20 p.m.	2.32	
Baja	09:13 p.m.	0.21	08:47 p.m.	0.14	09:10 p.m.	0.13	09:03 p.m.	0.18	
18/11/2009									
Alta	03:42 a.m.	3.04	03:42 a.m.	2.04	03:17 a.m.	1.95	03:32 a.m.	2.58	
Baja	09:43 a.m.	0	09:17 a.m.	0.00	09:40 a.m.	0.00	09:33 a.m.	0.00	
Alta	04:11 p.m.	2.74	04:11 p.m.	1.84	03:46 p.m.	1.75	04:01 p.m.	2.33	
Baja	09:56 p.m.	0.23	09:30 p.m.	0.15	09:53 p.m.	0.15	09:46 p.m.	0.20	
19/11/2009									
Alta	04:21 a.m.	2.99	04:21 a.m.	2.00	03:56 a.m.	1.91	04:11 a.m.	2.54	
Baja	10:22 a.m.	0.03	09:56 a.m.	0.02	10:19 a.m.	0.02	10:12 a.m.	0.03	
Alta	04:50 p.m.	2.71	04:50 p.m.	1.82	04:25 p.m.	1.73	04:40 p.m.	2.30	
Baja	10:36 p.m.	0.29	10:10 p.m.	0.19	10:33 p.m.	0.19	10:26 p.m.	0.25	
20/11/2009									
Alta	05:00 a.m.	2.91	05:00 a.m.	1.95	04:35 a.m.	1.86	04:50 a.m.	2.47	
Baja	11:01 a.m.	0.1	10:35 a.m.	0.07	10:58 a.m.	0.06	10:51 a.m.	0.09	
Alta	05:29 p.m.	2.67	05:29 p.m.	1.79	05:04 p.m.	1.71	05:19 p.m.	2.27	
Baja	11:17 p.m.	0.37	10:51 p.m.	0.25	11:14 p.m.	0.24	11:07 p.m.	0.31	

PUERTO	LA UNION		LA LIBERTAD		ACAJUTLA		PUERTO EL TRIUNFO		FASE LUNAR
	HORA	ALTURA metros	HORA	ALTURA metros	HORA	ALTURA metros	HORA	ALTURA metros	
21/11/2009									
Alta	05:38 a.m.	2.81	05:38 a.m.	1.88	05:13 a.m.	1.80	05:28 a.m.	2.39	
Baja	11:39 a.m.	0.2	11:13 a.m.	0.13	11:36 a.m.	0.13	11:29 a.m.	0.17	
Alta	06:08 p.m.	2.61	06:08 p.m.	1.75	05:43 p.m.	1.67	05:58 p.m.	2.22	
Baja	11:58 p.m.	0.47	11:32 p.m.	0.31	11:55 p.m.	0.30	11:48 p.m.	0.40	
22/11/2009									
Alta	06:17 a.m.	2.69	06:17 a.m.	1.80	05:52 a.m.	1.72	06:07 a.m.	2.29	
Baja	12:17 p.m.	0.32	11:51 a.m.	0.21	12:14 p.m.	0.20	12:07 p.m.	0.27	
Alta	06:49 p.m.	2.54	06:49 p.m.	1.70	06:24 p.m.	1.63	06:39 p.m.	2.16	
23/11/2009									
Baja	12:39 a.m.	0.57	12:13 a.m.	0.38	12:36 a.m.	0.36	12:29 a.m.	0.48	
Alta	06:59 a.m.	2.57	06:59 a.m.	1.72	06:34 a.m.	1.64	06:49 a.m.	2.18	
Baja	12:57 p.m.	0.44	12:31 p.m.	0.29	12:54 p.m.	0.28	12:47 p.m.	0.37	
Alta	07:32 p.m.	2.49	07:32 p.m.	1.67	07:07 p.m.	1.59	07:22 p.m.	2.12	
24/11/2009									
Baja	01:24 a.m.	0.66	12:58 a.m.	0.44	01:21 a.m.	0.42	01:14 a.m.	0.56	CUARTO CRECIENTE
Alta	07:44 a.m.	2.45	07:44 a.m.	1.64	07:19 a.m.	1.57	07:34 a.m.	2.08	
Baja	01:39 p.m.	0.56	01:13 p.m.	0.38	01:36 p.m.	0.36	01:29 p.m.	0.48	
Alta	08:18 p.m.	2.44	08:18 p.m.	1.63	07:53 p.m.	1.56	08:08 p.m.	2.07	
25/11/2009									
Baja	02:13 a.m.	0.73	01:47 a.m.	0.49	02:10 a.m.	0.47	02:03 a.m.	0.62	
Alta	08:33 a.m.	2.35	08:33 a.m.	1.57	08:08 a.m.	1.50	08:23 a.m.	2.00	
Baja	02:25 p.m.	0.65	01:59 p.m.	0.44	02:22 p.m.	0.42	02:15 p.m.	0.55	
Alta	09:08 p.m.	2.43	09:08 p.m.	1.63	08:43 p.m.	1.56	08:58 p.m.	2.07	
26/11/2009									
Baja	03:08 a.m.	0.76	02:42 a.m.	0.51	03:05 a.m.	0.49	02:58 a.m.	0.65	
Alta	09:25 a.m.	2.28	09:25 a.m.	1.53	09:00 a.m.	1.46	09:15 a.m.	1.94	
Baja	03:17 p.m.	0.72	02:51 p.m.	0.48	03:14 p.m.	0.46	03:07 p.m.	0.61	
Alta	10:00 p.m.	2.46	10:00 p.m.	1.65	09:35 p.m.	1.57	09:50 p.m.	2.09	
27/11/2009									
Baja	04:07 a.m.	0.74	03:41 a.m.	0.50	04:04 a.m.	0.47	03:57 a.m.	0.63	
Alta	10:21 a.m.	2.25	10:21 a.m.	1.51	09:56 a.m.	1.44	10:11 a.m.	1.91	
Baja	04:13 p.m.	0.73	03:47 p.m.	0.49	04:10 p.m.	0.47	04:03 p.m.	0.62	
Alta	10:54 p.m.	2.53	10:54 p.m.	1.70	10:29 p.m.	1.62	10:44 p.m.	2.15	
28/11/2009									
Baja	05:08 a.m.	0.65	04:42 a.m.	0.44	05:05 a.m.	0.42	04:58 a.m.	0.55	
Alta	11:19 a.m.	2.28	11:19 a.m.	1.53	10:54 a.m.	1.46	11:09 a.m.	1.94	
Baja	05:12 p.m.	0.69	04:46 p.m.	0.46	05:09 p.m.	0.44	05:02 p.m.	0.59	
Alta	11:48 p.m.	2.64	11:48 p.m.	1.77	11:23 p.m.	1.69	11:38 p.m.	2.24	
29/11/2009									
Baja	06:05 a.m.	0.51	05:39 a.m.	0.34	06:02 a.m.	0.33	05:55 a.m.	0.43	
Alta	12:16 p.m.	2.35	12:16 p.m.	1.57	11:51 a.m.	1.50	12:06 p.m.	2.00	
Baja	06:09 p.m.	0.59	05:43 p.m.	0.40	06:06 p.m.	0.38	05:59 p.m.	0.50	
30/11/2009									
Alta	12:41 a.m.	2.78	12:41 a.m.	1.86	12:16 a.m.	1.78	12:31 a.m.	2.36	
Baja	06:57 a.m.	0.33	06:31 a.m.	0.22	06:54 a.m.	0.21	06:47 a.m.	0.28	
Alta	01:12 p.m.	2.46	12:46 p.m.	1.65	12:47 p.m.	1.57	01:02 p.m.	2.09	
Baja	07:04 p.m.	0.45	07:04 p.m.	0.30	07:01 p.m.	0.29	06:54 p.m.	0.38	

Diciembre

PUERTO	LA UNION		LA LIBERTAD		ACAJUTLA		PUERTO EL TRIUNFO		FASE LUNAR
	HORA	ALTURA metros	HORA	ALTURA metros	HORA	ALTURA metros	HORA	ALTURA metros	
01/12/2009									
Alta	01:33 a.m.	2.92	01:07 a.m.	1.96	01:08 a.m.	1.87	01:23 a.m.	2.48	
Baja	07:46 a.m.	0.15	07:46 a.m.	0.10	07:43 a.m.	0.10	07:36 a.m.	0.13	
Alta	02:05 p.m.	2.59	01:39 p.m.	1.74	01:40 p.m.	1.66	01:55 p.m.	2.20	
Baja	07:55 p.m.	0.3	07:55 p.m.	0.20	07:52 p.m.	0.19	07:45 p.m.	0.26	
02/12/2009									
Alta	02:24 a.m.	3.06	01:58 a.m.	2.05	01:59 a.m.	1.96	02:14 a.m.	2.60	LUNA LLENA
Baja	08:33 a.m.	-0.01	08:33 a.m.	-0.01	08:30 a.m.	-0.01	08:23 a.m.	-0.01	
Alta	02:56 p.m.	2.73	02:30 p.m.	1.83	02:31 p.m.	1.75	02:46 p.m.	2.32	
Baja	08:45 p.m.	0.16	08:45 p.m.	0.11	08:42 p.m.	0.10	08:35 p.m.	0.14	
03/12/2009									
Alta	03:13 a.m.	3.16	02:47 a.m.	2.12	02:48 a.m.	2.02	03:03 a.m.	2.69	
Baja	09:19 a.m.	-0.14	09:19 a.m.	-0.09	09:16 a.m.	-0.09	09:09 a.m.	-0.12	
Alta	03:46 p.m.	2.85	03:20 p.m.	1.91	03:21 p.m.	1.82	03:36 p.m.	2.42	
Baja	09:34 p.m.	0.05	09:34 p.m.	0.03	09:31 p.m.	0.03	09:24 p.m.	0.04	
04/12/2009									
Alta	04:03 a.m.	3.22	03:37 a.m.	2.16	03:38 a.m.	2.06	03:53 a.m.	2.74	
Baja	10:05 a.m.	-0.23	10:05 a.m.	-0.15	10:02 a.m.	-0.15	09:55 a.m.	-0.20	
Alta	04:36 p.m.	2.95	04:10 p.m.	1.98	04:11 p.m.	1.89	04:26 p.m.	2.51	
Baja	10:24 p.m.	-0.01	10:24 p.m.	-0.01	10:21 p.m.	-0.01	10:14 p.m.	-0.01	
05/12/2009									
Alta	04:53 a.m.	3.22	04:27 a.m.	2.16	04:28 a.m.	2.06	04:43 a.m.	2.74	
Baja	10:52 a.m.	-0.25	10:52 a.m.	-0.17	10:49 a.m.	-0.16	10:42 a.m.	-0.21	
Alta	05:27 p.m.	3	05:01 p.m.	2.01	05:02 p.m.	1.92	05:17 p.m.	2.55	
Baja	11:14 p.m.	-0.02	11:14 p.m.	-0.01	11:11 p.m.	-0.01	11:04 p.m.	-0.02	
06/12/2009									
Alta	05:43 a.m.	3.15	05:17 a.m.	2.11	05:18 a.m.	2.02	05:33 a.m.	2.68	
Baja	11:39 a.m.	-0.2	11:39 a.m.	-0.13	11:36 a.m.	-0.13	11:29 a.m.	-0.17	
Alta	06:18 p.m.	3.02	05:52 p.m.	2.02	05:53 p.m.	1.93	06:08 p.m.	2.57	
Baja							11:56 p.m.	0.02	
07/12/2009									
Baja	12:06 a.m.	0.02	12:06 a.m.	0.01	12:03 a.m.	0.01			
Alta	06:35 a.m.	3.04	06:09 a.m.	2.04	06:10 a.m.	1.95	06:25 a.m.	2.58	
Baja	12:28 p.m.	-0.11	12:28 p.m.	-0.07	12:25 p.m.	-0.07	12:18 p.m.	-0.09	
Alta	07:11 p.m.	3	06:45 p.m.	2.01	06:46 p.m.	1.92	07:01 p.m.	2.55	
08/12/2009									
Baja	01:00 a.m.	0.1	01:00 a.m.	0.07	12:57 a.m.	0.06	12:50 a.m.	0.09	CUARTO Menguante
Alta	07:29 a.m.	2.9	07:03 a.m.	1.94	07:04 a.m.	1.86	07:19 a.m.	2.47	
Baja	01:20 p.m.	0.02	01:20 p.m.	0.01	01:17 p.m.	0.01	01:10 p.m.	0.02	
Alta	08:06 p.m.	2.95	07:40 p.m.	1.98	07:41 p.m.	1.89	07:56 p.m.	2.51	
09/12/2009									
Baja	01:57 a.m.	0.21	01:57 a.m.	0.14	01:54 a.m.	0.13	01:47 a.m.	0.18	
Alta	08:25 a.m.	2.73	07:59 a.m.	1.83	08:00 a.m.	1.75	08:15 a.m.	2.32	
Baja	02:14 p.m.	0.18	02:14 p.m.	0.12	02:11 p.m.	0.12	02:04 p.m.	0.15	
Alta	09:03 p.m.	2.89	08:37 p.m.	1.94	08:38 p.m.	1.85	08:53 p.m.	2.46	
10/12/2009									
Baja	02:59 a.m.	0.32	02:59 a.m.	0.21	02:56 a.m.	0.20	02:49 a.m.	0.27	
Alta	09:25 a.m.	2.58	08:59 a.m.	1.73	09:00 a.m.	1.65	09:15 a.m.	2.19	
Baja	03:13 p.m.	0.34	03:13 p.m.	0.23	03:10 p.m.	0.22	03:03 p.m.	0.29	
Alta	10:03 p.m.	2.84	09:37 p.m.	1.90	09:38 p.m.	1.82	09:53 p.m.	2.41	

PUERTO	LA UNION		LA LIBERTAD		ACAJUTLA		PUERTO EL TRIUNFO		FASE LUNAR
	HORA	ALTURA metros	HORA	ALTURA metros	HORA	ALTURA metros	HORA	ALTURA metros	
11/12/2009									
Baja	04:05 a.m.	0.39	04:05 a.m.	0.26	04:02 a.m.	0.25	03:55 a.m.	0.33	
Alta	10:28 a.m.	2.47	10:02 a.m.	1.65	10:03 a.m.	1.58	10:18 a.m.	2.10	
Baja	04:16 p.m.	0.45	04:16 p.m.	0.30	04:13 p.m.	0.29	04:06 p.m.	0.38	
Alta	11:04 p.m.	2.81	10:38 p.m.	1.88	10:39 p.m.	1.80	10:54 p.m.	2.39	
12/12/2009									
Baja	05:11 a.m.	0.4	05:11 a.m.	0.27	05:08 a.m.	0.26	05:01 a.m.	0.34	
Alta	11:34 a.m.	2.41	11:08 a.m.	1.61	11:09 a.m.	1.54	11:24 a.m.	2.05	
Baja	05:21 p.m.	0.51	05:21 p.m.	0.34	05:18 p.m.	0.33	05:11 p.m.	0.43	
Alta					11:39 p.m.	1.79	11:54 p.m.	2.38	
13/12/2009									
Alta	12:04 a.m.	2.8	12:38 p.m.	1.88					
Baja	06:14 a.m.	0.37	06:14 a.m.	0.25	06:11 a.m.	0.24	06:04 a.m.	0.31	
Alta	12:39 p.m.	2.4	12:13 p.m.	1.61	12:14 p.m.	1.54	12:29 p.m.	2.04	
Baja	06:23 p.m.	0.52	06:23 p.m.	0.35	06:20 p.m.	0.33	06:13 p.m.	0.44	
14/12/2009									
Alta	01:01 a.m.	2.81	12:35 a.m.	1.88	12:36 a.m.	1.80	12:51 a.m.	2.39	
Baja	07:09 a.m.	0.31	07:09 a.m.	0.21	07:06 a.m.	0.20	06:59 a.m.	0.26	
Alta	01:38 p.m.	2.44	01:12 p.m.	1.63	01:13 p.m.	1.56	01:28 p.m.	2.07	
Baja	07:20 p.m.	0.49	07:20 p.m.	0.33	07:17 p.m.	0.31	07:10 p.m.	0.42	
15/12/2009									
Alta	01:53 a.m.	2.83	01:27 a.m.	1.90	01:28 a.m.	1.81	01:43 a.m.	2.41	
Baja	07:58 a.m.	0.24	07:58 a.m.	0.16	07:55 a.m.	0.15	07:48 a.m.	0.20	
Alta	02:31 p.m.	2.5	02:05 p.m.	1.68	02:06 p.m.	1.60	02:21 p.m.	2.13	
Baja	08:10 p.m.	0.45	08:10 p.m.	0.30	08:07 p.m.	0.29	08:00 p.m.	0.38	
16/12/2009									
Alta	02:40 a.m.	2.85	02:14 a.m.	1.91	02:15 a.m.	1.82	02:30 a.m.	2.42	LUNA NUEVA
Baja	08:43 a.m.	0.18	08:43 a.m.	0.12	08:40 a.m.	0.12	08:33 a.m.	0.15	
Alta	03:17 p.m.	2.56	02:51 p.m.	1.72	02:52 p.m.	1.64	03:07 p.m.	2.18	
Baja	08:56 p.m.	0.41	08:56 p.m.	0.27	08:53 p.m.	0.26	08:46 p.m.	0.35	
17/12/2009									
Alta	03:22 a.m.	2.86	02:56 a.m.	1.92	02:57 a.m.	1.83	03:12 a.m.	2.43	
Baja	09:24 a.m.	0.14	09:24 a.m.	0.09	09:21 a.m.	0.09	09:14 a.m.	0.12	
Alta	03:58 p.m.	2.61	03:32 p.m.	1.75	03:33 p.m.	1.67	03:48 p.m.	2.22	
Baja	09:38 p.m.	0.38	09:38 p.m.	0.25	09:35 p.m.	0.24	09:28 p.m.	0.32	
18/12/2009									
Alta	04:01 a.m.	2.86	03:35 a.m.	1.92	03:36 a.m.	1.83	03:51 a.m.	2.43	
Baja	10:02 a.m.	0.12	10:02 a.m.	0.08	09:59 a.m.	0.08	09:52 a.m.	0.10	
Alta	04:36 p.m.	2.65	04:10 p.m.	1.78	04:11 p.m.	1.70	04:26 p.m.	2.25	
Baja	10:19 p.m.	0.37	10:19 p.m.	0.25	10:16 p.m.	0.24	10:09 p.m.	0.31	
19/12/2009									
Alta	04:39 a.m.	2.84	04:13 a.m.	1.90	04:14 a.m.	1.82	04:29 a.m.	2.41	
Baja	10:39 a.m.	0.14	10:39 a.m.	0.09	10:36 a.m.	0.09	10:29 a.m.	0.12	
Alta	05:12 p.m.	2.68	04:46 p.m.	1.80	04:47 p.m.	1.72	05:02 p.m.	2.28	
Baja	10:58 p.m.	0.38	10:58 p.m.	0.25	10:55 p.m.	0.24	10:48 p.m.	0.32	
20/12/2009									
Alta	05:16 a.m.	2.79	04:50 a.m.	1.87	04:51 a.m.	1.79	05:06 a.m.	2.37	
Baja	11:15 a.m.	0.17	11:15 a.m.	0.11	11:12 a.m.	0.11	11:05 a.m.	0.14	
Alta	05:48 p.m.	2.68	05:22 p.m.	1.80	05:23 p.m.	1.72	05:38 p.m.	2.28	
Baja	11:36 p.m.	0.41	11:36 p.m.	0.27	11:33 p.m.	0.26	11:26 p.m.	0.35	

PUERTO	LA UNION		LA LIBERTAD		ACAJUTLA		PUERTO EL TRIUNFO		FASE LUNAR
	HORA	ALTURA metros	HORA	ALTURA metros	HORA	ALTURA metros	HORA	ALTURA metros	
21/12/2009									
Alta	05:53 a.m.	2.72	05:27 a.m.	1.82	05:28 a.m.	1.74	05:43 a.m.	2.31	
Baja	11:51 a.m.	0.24	11:51 a.m.	0.16	11:48 a.m.	0.15	11:41 a.m.	0.20	
Alta	06:25 p.m.	2.66	05:59 p.m.	1.78	06:00 p.m.	1.70	06:15 p.m.	2.26	
22/12/2009									
Baja	12:15 a.m.	0.46	12:15 a.m.	0.31	12:12 a.m.	0.29	12:05 a.m.	0.39	
Alta	06:31 a.m.	2.63	06:05 a.m.	1.76	06:06 a.m.	1.68	06:21 a.m.	2.24	
Baja	12:27 p.m.	0.32	12:27 p.m.	0.21	12:24 p.m.	0.20	12:17 p.m.	0.27	
Alta	07:02 p.m.	2.64	06:36 p.m.	1.77	06:37 p.m.	1.69	06:52 p.m.	2.24	
23/12/2009									
Baja	12:55 a.m.	0.51	12:55 a.m.	0.34	12:52 a.m.	0.33	12:45 a.m.	0.43	
Alta	07:11 a.m.	2.53	06:45 a.m.	1.70	06:46 a.m.	1.62	07:01 a.m.	2.15	
Baja	01:04 p.m.	0.4	01:04 p.m.	0.27	01:01 p.m.	0.26	12:54 p.m.	0.34	
Alta	07:42 p.m.	2.61	07:16 p.m.	1.75	07:17 p.m.	1.67	07:32 p.m.	2.22	
24/12/2009									
Baja	01:37 a.m.	0.56	01:37 a.m.	0.38	01:34 a.m.	0.36	01:27 a.m.	0.48	CUARTO CRECIENTE
Alta	07:54 a.m.	2.42	07:28 a.m.	1.62	07:29 a.m.	1.55	07:44 a.m.	2.06	
Baja	01:44 p.m.	0.49	01:44 p.m.	0.33	01:41 p.m.	0.31	01:34 p.m.	0.42	
Alta	08:25 p.m.	2.59	07:59 p.m.	1.74	08:00 p.m.	1.66	08:15 p.m.	2.20	
25/12/2009									
Baja	02:24 a.m.	0.61	02:24 a.m.	0.41	02:21 a.m.	0.39	02:14 a.m.	0.52	
Alta	08:40 a.m.	2.33	08:14 a.m.	1.56	08:15 a.m.	1.49	08:30 a.m.	1.98	
Baja	02:29 p.m.	0.57	02:29 p.m.	0.38	02:26 p.m.	0.36	02:19 p.m.	0.48	
Alta	09:12 p.m.	2.59	08:46 p.m.	1.74	08:47 p.m.	1.66	09:02 p.m.	2.20	
26/12/2009									
Baja	03:17 a.m.	0.62	03:17 a.m.	0.42	03:14 a.m.	0.40	03:07 a.m.	0.53	
Alta	09:31 a.m.	2.26	09:05 a.m.	1.51	09:06 a.m.	1.45	09:21 a.m.	1.92	
Baja	03:20 p.m.	0.63	03:20 p.m.	0.42	03:17 p.m.	0.40	03:10 p.m.	0.54	
Alta	10:04 p.m.	2.61	09:38 p.m.	1.75	09:39 p.m.	1.67	09:54 p.m.	2.22	
27/12/2009									
Baja	04:15 a.m.	0.6	04:15 a.m.	0.40	04:12 a.m.	0.38	04:05 a.m.	0.51	
Alta	10:28 a.m.	2.24	10:02 a.m.	1.50	10:03 a.m.	1.43	10:18 a.m.	1.90	
Baja	04:20 p.m.	0.65	04:20 p.m.	0.44	04:17 p.m.	0.42	04:10 p.m.	0.55	
Alta	11:00 p.m.	2.66	10:34 p.m.	1.78	10:35 p.m.	1.70	10:50 p.m.	2.26	
28/12/2009									
Baja	05:17 a.m.	0.52	05:17 a.m.	0.35	05:14 a.m.	0.33	05:07 a.m.	0.44	
Alta	11:30 a.m.	2.27	11:04 a.m.	1.52	11:05 a.m.	1.45	11:20 a.m.	1.93	
Baja	05:24 p.m.	0.6	05:24 p.m.	0.40	05:21 p.m.	0.38	05:14 p.m.	0.51	
Alta			11:34 p.m.	1.84	11:35 p.m.	1.76	11:50 p.m.	2.34	
29/12/2009									
Alta	12:00 a.m.	2.75							
Baja	06:18 a.m.	0.38	06:18 a.m.	0.25	06:15 a.m.	0.24	06:08 a.m.	0.32	
Alta	12:35 p.m.	2.37	12:09 p.m.	1.59	12:10 p.m.	1.52	12:25 p.m.	2.01	
Baja	06:29 p.m.	0.49	06:29 p.m.	0.33	06:26 p.m.	0.31	06:19 p.m.	0.42	
30/12/2009									
Alta	01:00 a.m.	2.87	12:34 a.m.	1.92	12:35 a.m.	1.84	12:50 a.m.	2.44	
Baja	07:15 a.m.	0.2	06:49 a.m.	0.13	07:12 a.m.	0.13	07:05 a.m.	0.17	
Alta	01:38 p.m.	2.53	01:12 p.m.	1.70	01:13 p.m.	1.62	01:28 p.m.	2.15	
Baja	07:29 p.m.	0.33	07:03 p.m.	0.22	07:26 p.m.	0.21	07:19 p.m.	0.28	
31/12/2009									
Alta	01:59 a.m.	3.01	01:59 a.m.	2.02	01:34 a.m.	1.93	01:49 a.m.	2.56	LUNA LLENA
Baja	08:09 a.m.	0.01	07:43 a.m.	0.01	08:06 a.m.	0.01	07:59 a.m.	0.01	
Alta	02:37 p.m.	2.72	02:37 p.m.	1.82	02:12 p.m.	1.74	02:27 p.m.	2.31	
Baja	08:26 p.m.	0.15	08:00 p.m.	0.10	08:23 p.m.	0.10	08:16 p.m.	0.13	



CALMA	<i>La superficie es como un espejo.</i>
LLANA	<i>Pequeñas ondulaciones de la superficie.</i>
RIZADA	<i>Se forman olas pequeñas que no rompen.</i>
MAREJADILLA	<i>Olas que logran mover embarcaciones menores sin cubierta.</i>
MAREJADA	<i>El oleaje es de cuidado para las embarcaciones sin cubierta</i>
GRUESA	<i>Riesgos en la navegación para las embarcaciones sin cubierta.</i>
MUY GRUESA	<i>Peligrosa la navegación para las embarcaciones sin cubierta.</i>
ARBOLADA	<i>Peligrosa para buques mayores.</i>
MONTAÑOSA	<i>Imposible para todo tipo de navegación.</i>
CONFUSA (ENORME)	<i>Oleaje enorme, irregular y en todas direcciones.</i>

VI.- FIESTAS MOVILES Y FIESTAS NACIONALES

1°	ENERO	JUEVES	AÑO NUEVO
6	ENERO	MARTES	EPIFANIA DEL SEÑOR
25	FEBRERO	MIÉRCOLES	MIÉRCOLES DE CENIZA
5	ABRIL	DOMINGO	DOMINGO DE RAMOS
6	ABRIL	LUNES	LUNES SANTO
7	ABRIL	MARTES	MARTES SANTO
8	ABRIL	MIÉRCOLES	MIÉRCOLES SANTO
9	ABRIL	JUEVES	JUEVES SANTO
10	ABRIL	VIERNES	VIERNES SANTO
11	ABRIL	SABADO	SABADO DE GLORIA
12	ABRIL	DOMINGO	DOMINGO DE RESURRECCIÓN
1°	MAYO	VIERNES	DÍA DEL TRABAJO *
31	MAYO	DOMINGO	PENTECOSTES
7	JUNIO	DOMINGO	DÍA DE LA SANTÍSIMA TRINIDAD
11	JUNIO	JUEVES	CORPUS CHRISTI
3	AGOSTO	LUNES	DÍA DEL EMPLEADO (EMPRESA PRIVADA) *
5	AGOSTO	MIÉRCOLES	FERIADO EN SAN SALVADOR *
6	AGOSTO	JUEVES	TRANSFIGURACION DÍA DEL DIVINO SALVADOR DEL MUNDO *
15	SEPTIEMBRE	MARTES	ANIVERSARIO DE LA INDEPENDENCIA NACIONAL
12	OCTUBRE	LUNES	DÍA DE LA RAZA Y EL CAMINO (CÍVICA)
2	NOVIEMBRE	LUNES	DÍA LOS FIELES DIFUNTOS
5	NOVIEMBRE	JUEVES	ANIVERSARIO PRIMER GRITO DE INDEPENDENCIA NACIONAL (CÍVICA)
29	NOVIEMBRE	DOMINGO	PRIMER DOMINGO DE ADVIENTO
24	DICIEMBRE	JUEVES	NOCHE BUENA, DÍA DEL NIÑO JESÚS
25	DICIEMBRE	VIERNES	DÍA DE LA NATIVIDAD DEL SEÑOR

DÍAS FESTIVOS PARA LA INDUSTRIA Y EL COMERCIO

(*) Esta lista abarca los días recomendados por la Cámara de Comercio e Industria de El Salvador y los comprendidos en el Código de Trabajo.

Fuente: Decreto Legislativo No. 15 Diario Oficial No. 236, Julio 1996.

VII. Otras Informaciones

VACACIONES DE LOS EMPLEADOS PUBLICOS

Según el Artículo 1 Inciso 2° de la Ley de Asuetos, Vacaciones y Licencias de los Empleados Públicos, estos gozarán de licencia a título de vacaciones durante tres períodos del año.

Semana Santa (6 al13 de abril de 2009)

Fiestas Agostinas (1° al 6 de agosto de 2009)

Navidad y Año Nuevo (24 Dic/2009 al 2 Ene/2010)

Créditos

- ✘ Parte de la información para la elaboración de este Almanaque así como las ilustraciones, han sido tomadas de la publicación **The Astronomical Almanac for the year 2009 del U.S. naval Observatory Astronomical Applications Department Nautical Almanac Office** y que también puede consultarse en las siguientes direcciones:

<http://asa.usno.navy.mil>

<http://asa.hmnao.com>

- ✘ Las fotografías han sido tomadas del banco de fotografías de la página del boletín de la Embajada de Alemania.