ANUARIO DEL OBSERVATORIO ASTRONÓMICO NACIONAL

Edición CXXXV

2016

INSTITUTO DE ASTRONOMÍA

UNIVERSIDAD NACIONAL AUTÓNOMA DE MÉXICO

DR 2016, Universidad Nacional Autónoma de México
Ciudad Universitaria, 04510. México, D.F.
Instituto de Astronomía
Impreso y hecho en México

Índice

Efemérides astronómicas 2016

ÍNDICE 3

PREFACIO 5

CALENDARIO

Día Juliano 7
Eras, ciclos cronológicos y cómputo 9
Fiestas y aniversarios 10
Estaciones del año 11

HORA SIDERAL

Hora sideral 12

SOL, LUNA Y PLANETAS

Sol 15
Luna 23
Mercurio 31
Venus 39
Marte 47
Júpiter 55
Saturno 63
Urano 71
Neptuno 79
Plutón (Planeta enano) 87
Satélites de los planetas 95
Parámetros orbitales y físicos 97
Sistema de constantes y parámetros 98

ESTRELLAS

Nomenclatura de estrellas brillantes 101
Posiciones medias de estrellas brillantes 105
Posiciones aparentes de estrellas brillantes 135
Posiciones aparentes de la estrella Polar 162

CONSTELACIONES

Nombres y significados 168
Diagrama de constelaciones. 170

OBJETOS MESSIER

Objetos brillantes 171

EVENTOS ASTRONÓMICOS

Lluvias de estrellas 173
Eventos planetarios 174
Fases de la Luna 176
Crepúsculos, salidas y puestas de sol 177
Eclipses de sol y luna 180

Tránsito de Mercurio

Tránsito sw Mercurio, el 9 de mayo de 2016 181

POBLACIONES DE LA REPÚBLICA MEXICANA

Poblaciones de la República Mexicana 190

HORA LEGAL EN LA REPÚBLICA MEXICANA

Mapa de zonas horarias. 207
Hora legal 210

CENTROS ASTRONÓMICOS EN LA REPÚBLICA MEXICANA

Observatorios 211

REFRACCIÓN

. 212
Corrección por distancia cenital. 213
Corrección por temperatura. 214
Corrección por presión 215

ABREVIATURAS

. 216

GLOSARIO

Términos astronómicos básicos 217

APÉNDICE

Explicaciones 223

MAPA DE ESTRELLAS PARA EL AÑO 2016

Prefacio, 2016

En el Anuario del Observatorio Astronómico Nacional se publican efemérides astronómicas del Sol, la Luna, planetas y estrellas, sucesos astronómicos como eclipses, ocultaciones y conjunciones; datos astronómicos generales, así como parámetros geométricos y físicos de los planetas y sus satélites.

Para el cálculo de las efemérides y los instantes en que ocurren los sucesos astronómicos, se toma el meridiano efemérico 90º al oeste del meridiano efemérico de Greenwich, y la diferencia entre el tiempo de las efemérides y el Universal se estima en $\Delta T = 68.0s$. Los instantes para los fenómenos astronómicos y las horas del paso por el meridiano 90° W.G., deberán corregirse por el horario de verano que corresponda al lugar geográfico y la época del año. De acuerdo al Decreto Presidencial sobre Husos Horarios (Ver Hora legal en la República mexicana).

Todos los cálculos de las efemérides astronómicas son referidos al Ecuador y Eclíptica de la época J2000.0, de acuerdo a las resoluciones tomadas por la Unión Astronómica Internacional (UAI) en 1976. Nuestros cálculos se fundamentan en los parámetros astronómicos y elementos orbitales medios, utilizados para otros anuarios astronómicos, como: Astronomical Almanac, EUA, National Almanac of Royal Greenwich Observatory, Inglaterra, Jet Propulsion Laboratory, EUA y Service des Calculs Bureau des Longitudes, Francia.

En esta edición, los cálculos son referidos a los fundamentos recomendados por la Unión Astronómica Internacional (2000) para la precesión y nutación, los sistemas de referencia celeste intermedio y el ángulo de rotación de la Tierra CIP, CIO, ICRS, CIRS. La relación entre los orígenes se da a partir de la longitud cero del origen intermedio terrestre y el origen de equinoccio verdadero y del origen del intermedio celeste (CIO), los cuales difieren por el ángulo de rotación de la Tierra (ERA). El ecuador verdadero y el intermedio son coplanares, cuyo polo es el intermedio celeste (CIP)

De acuerdo a las recomendaciones del grupo Working Group on Nomenclature for Fundamental Astronomy de la IAU, las efemérides para los planetas, el Sol y la Luna, se obtuvieron en función de la efemérides JPL Planetary and Lunar Ephemeris DE405/LE405. Para las estrellas se tomaron los parámetros astronómicos del Brigth Star Catalog de la Universidad de Yale, EUA, Catálogo Hiparco (ESU) y de las efemérides fundamentales del Astronomischen Rechen-Institut Heidelberg y del Fifth Fundamental Catalog (FK6).

Para el cálculo de las declinaciones magnéticas se utilizó la décima generación del modelo del campo magnético terrestre adoptado por la "International Association of Geomagnetic and Aeronomy". Los cálculos corresponden a las determinaciones, teóricas y observadas, para la República Mexicana del Departamento de Geomagnetismo y Exploración del Instituto de Geofísica de la Universidad Nacional Autónoma de México.

Se incluye un mapa de estrellas referidas al año 2015, y los números de estrellas NH del Catálogo Hiparco y NY del Catálogo de Estrellas Brillantes de la Universidad de Yale, en la Tabla de Posiciones Medias de Estrellas. En la tabla de posiciones aparentes de la estrella polar se han desglosado las coordenadas ecuatoriales para cada día en sus seis unidades (h,m,s) para asención recta y (°,´,"). Se han incluido la ubicación de los Centros Astronómicos en la República Mexicana.

Todos los cálculos se efectuaron en los sistemas de cómputo del departamento de Astrofísica Computacional del Instituto de Astronomía, de la Universidad Nacional Autónoma de México.

c. Dr. J. Daniel Flores Gutiérrez
Departamento de Efemérides
Instituto de Astronomía
Universidad Nacional Autónoma de México
Ciudad Universitaria
Apartado postal 70-264
México, D.F., 04510

Día Juliano, 2016

A las 0^h del meridiano 90° W.G.

d	ds	dj
enero		
1	vie	2457388.75
2	sab	2457389.75
3	dom	2457390.75
4	lun	2457391.75
5	mar	2457392.75
6	mie	2457393.75
7	jue	2457394.75
8	vie	2457395.75
9	sab	2457396.75
10	dom	2457397.75
11	lun	2457398.75
12	mar	2457399.75
13	mie	2457400.75
14	jue	2457401.75
15	vie	2457402.75
16	sab	2457403.75
17	dom	2457404.75
18	lun	2457405.75
19	mar	2457406.75
20	mie	2457407.75
21	jue	2457408.75
22	vie	2457409.75
23	sab	2457410.75
24	dom	2457411.75
25	lun	2457412.75
26	mar	2457413.75
27	mie	2457414.75
28	jue	2457415.75
29	vie	2457416.75
30	sab	2457417.75
31	dom	2457418.75
febrero		
1	lun	2457419.75
2	mar	2457420.75
3	mie	2457421.75
4	jue	2457422.75
5	vie	2457423.75
6	sab	2457424.75
7	dom	2457425.75
8	lun	2457426.75
9	mar	2457427.75
10	mie	2457428.75
11	jue	2457429.75
12	vie	2457430.75
13	sab	2457431.75
14	dom	2457432.75
15	lun	2457433.75
16	mar	2457434.75
17	mie	2457435.75
18	jue	2457436.75
19	vie	2457437.75
20	sab	2457438.75
21	dom	2457439.75
22	lun	2457440.75
23	mar	2457441.75
24	mie	2457442.75
25	jue	2457443.75
26	vie	2457444.75
27	sab	2457445.75
28	dom	2457446.75
29	lun	2457447.75
marzo		
1	mar	2457448.75
2	mie	2457449.75
3	jue	2457450.75
4	vie	2457451.75
5	sab	2457452.75
6	dom	2457453.75
7	lun	2457454.75
8	mar	2457455.75
9	mie	2457456.75
10	jue	2457457.75
11	vie	2457458.75
12	sab	2457459.75
13	dom	2457460.75
14	lun	2457461.75
15	mar	2457462.75
16	mie	2457463.75
17	jue	2457464.75
18	vie	2457465.75
19	sab	2457466.75
20	dom	2457467.75
21	lun	2457468.75
22	mar	2457469.75
23	mie	2457470.75
24	jue	2457471.75
25	vie	2457472.75
26	sab	2457473.75
27	dom	2457474.75
28	lun	2457475.75
29	mar	2457476.75
30	mie	2457477.75
31	jue	2457478.75
abril		
1	vie	2457479.75
2	sab	2457480.75
3	dom	2457481.75
4	lun	2457482.75
5	mar	2457483.75
6	mie	2457484.75
7	jue	2457485.75
8	vie	2457486.75
9	sab	2457487.75
10	dom	2457488.75
11	lun	2457489.75
12	mar	2457490.75
13	mie	2457491.75
14	jue	2457492.75
15	vie	2457493.75
16	sab	2457494.75
17	dom	2457495.75
18	lun	2457496.75
19	mar	2457497.75
20	mie	2457498.75
21	jue	2457499.75
22	vie	2457500.75
23	sab	2457501.75
24	dom	2457502.75
25	lun	2457503.75
26	mar	2457504.75
27	mie	2457505.75
28	jue	2457506.75
29	vie	2457507.75
30	sab	2457508.75
mayo		
1	dom	2457509.75
2	lun	2457510.75
3	mar	2457511.75
4	mie	2457512.75
5	jue	2457513.75
6	vie	2457514.75
7	sab	2457515.75
8	dom	2457516.75
9	lun	2457517.75
10	mar	2457518.75
11	mie	2457519.75
12	jue	2457520.75
13	vie	2457521.75
14	sab	2457522.75
15	dom	2457523.75
16	lun	2457524.75
17	mar	2457525.75
18	mie	2457526.75
19	jue	2457527.75
20	vie	2457528.75
21	sab	2457529.75
22	dom	2457530.75
23	lun	2457531.75
24	mar	2457532.75
25	mie	2457533.75
26	jue	2457534.75
27	vie	2457535.75
28	sab	2457536.75
29	dom	2457537.75
30	lun	2457538.75
31	mar	2457539.75
junio		
1	mie	2457540.75
2	jue	2457541.75
3	vie	2457542.75
4	sab	2457543.75
5	dom	2457544.75
6	lun	2457545.75
7	mar	2457546.75
8	mie	2457547.75
9	jue	2457548.75
10	vie	2457549.75
11	sab	2457550.75
12	dom	2457551.75
13	lun	2457552.75
14	mar	2457553.75
15	mie	2457554.75
16	jue	2457555.75
17	vie	2457556.75
18	sab	2457557.75
19	dom	2457558.75
20	lun	2457559.75
21	mar	2457560.75
22	mie	2457561.75
23	jue	2457562.75
24	vie	2457563.75
25	sab	2457564.75
26	dom	2457565.75
27	lun	2457566.75
28	mar	2457567.75
29	mie	2457568.75
30	jue	2457569.75
julio		
1	vie	2457570.75
2	sab	2457571.75
3	dom	2457572.75
4	lun	2457573.75
5	mar	2457574.75
6	mie	2457575.75
7	jue	2457576.75
8	vie	2457577.75
9	sab	2457578.75
10	dom	2457579.75
11	lun	2457580.75
12	mar	2457581.75
13	mie	2457582.75
14	jue	2457583.75
15	vie	2457584.75
16	sab	2457585.75
17	dom	2457586.75
18	lun	2457587.75
19	mar	2457588.75
20	mie	2457589.75
21	jue	2457590.75
22	vie	2457591.75
23	sab	2457592.75
24	dom	2457593.75
25	lun	2457594.75
26	mar	2457595.75
27	mie	2457596.75

d	ds	dj
28	jue	2457597.75
29	vie	2457598.75
30	sab	2457599.75
31	dom	2457600.75
agosto		
1	lun	2457601.75
2	mar	2457602.75
3	mie	2457603.75
4	jue	2457604.75
5	vie	2457605.75
6	sab	2457606.75
7	dom	2457607.75
8	lun	2457608.75
9	mar	2457609.75
10	mie	2457610.75
11	jue	2457611.75
12	vie	2457612.75
13	sab	2457613.75
14	dom	2457614.75
15	lun	2457615.75
16	mar	2457616.75
17	mie	2457617.75
18	jue	2457618.75
19	vie	2457619.75
20	sab	2457620.75
21	dom	2457621.75
22	lun	2457622.75
23	mar	2457623.75
24	mie	2457624.75
25	jue	2457625.75
26	vie	2457626.75
27	sab	2457627.75
28	dom	2457628.75
29	lun	2457629.75
30	mar	2457630.75
31	mie	2457631.75
septiembre		
1	jue	2457632.75
2	vie	2457633.75
3	sab	2457634.75
4	dom	2457635.75
5	lun	2457636.75
6	mar	2457637.75
7	mie	2457638.75
8	jue	2457639.75
9	vie	2457640.75
10	sab	2457641.75
11	dom	2457642.75
12	lun	2457643.75
13	mar	2457644.75
14	mie	2457645.75
15	jue	2457646.75
16	vie	2457647.75
17	sab	2457648.75
18	dom	2457649.75
19	lun	2457650.75
20	mar	2457651.75
21	mie	2457652.75
22	jue	2457653.75
23	vie	2457654.75
24	sab	2457655.75
25	dom	2457656.75
26	lun	2457657.75
27	mar	2457658.75
28	mie	2457659.75
29	jue	2457660.75
30	vie	2457661.75
octubre		
1	sab	2457662.75
2	dom	2457663.75
3	lun	2457664.75
4	mar	2457665.75
5	mie	2457666.75
6	jue	2457667.75
7	vie	2457668.75
8	sab	2457669.75
9	dom	2457670.75
10	lun	2457671.75
11	mar	2457672.75
12	mie	2457673.75
13	jue	2457674.75
14	vie	2457675.75
15	sab	2457676.75
16	dom	2457677.75
17	lun	2457678.75
18	mar	2457679.75
19	mie	2457680.75
20	jue	2457681.75
21	vie	2457682.75
22	sab	2457683.75
23	dom	2457684.75
24	lun	2457685.75
25	mar	2457686.75
26	mie	2457687.75
27	jue	2457688.75
28	vie	2457689.75
29	sab	2457690.75
30	dom	2457691.75
31	lun	2457692.75
noviembre		
1	mar	2457693.75
2	mie	2457694.75
3	jue	2457695.75
4	vie	2457696.75
5	sab	2457697.75
6	dom	2457698.75
7	lun	2457699.75
8	mar	2457700.75
9	mie	2457701.75
10	jue	2457702.75
11	vie	2457703.75
12	sab	2457704.75
13	dom	2457705.75
14	lun	2457706.75
15	mar	2457707.75
16	mie	2457708.75
17	jue	2457709.75
18	vie	2457710.75
19	sab	2457711.75
20	dom	2457712.75
21	lun	2457713.75
22	mar	2457714.75
23	mie	2457715.75
24	jue	2457716.75
25	vie	2457717.75
26	sab	2457718.75
27	dom	2457719.75
28	lun	2457720.75
29	mar	2457721.75
30	mie	2457722.75
diciembre		
1	jue	2457723.75
2	vie	2457724.75
3	sab	2457725.75
4	dom	2457726.75
5	lun	2457727.75
6	mar	2457728.75
7	mie	2457729.75
8	jue	2457730.75
9	vie	2457731.75
10	sab	2457732.75
11	dom	2457733.75
12	lun	2457734.75
13	mar	2457735.75
14	mie	2457736.75
15	jue	2457737.75
16	vie	2457738.75
17	sab	2457739.75
18	dom	2457740.75
19	lun	2457741.75
20	mar	2457742.75
21	mie	2457743.75
22	jue	2457744.75
23	vie	2457745.75
24	sab	2457746.75
25	dom	2457747.75
26	lun	2457748.75
27	mar	2457749.75
28	mie	2457750.75
29	jue	2457751.75
30	vie	2457752.75
31	sab	2457753.75
enero		
1	dom	2457754.75
2	lun	2457755.75

Eras y ciclos cronológicos: 2016

Calendario Gregoriano

CÓMPUTO

Letra Dominical	CB
Epacta	21
Número de Oro (ciclo lunar)	III
Indicción Romana	9
Ciclo Solar	9

ERAS

El año 2016 es el undécimo quinto del siglo XXI de la era Cristiana

El 14 de enero del año 2016 corresponde al 1 de enero del año 6729

El 1 de enero del año 2016 del Calendario Juliano corresponde al 14 de enero

Año	Era	inicia	
2769	Romana	enero	14
2676	Japonesa	enero	1
5777	Judía	octubre	2
2328	Griega	septiembre	14
1438	Hégira	octubre	2
7525	Bizantina	septiembre	14
	China	febrero	8

Fiestas y aniversarios para el año 2016

Año Nuevo	viernes	1 de enero
Epifanía	miércoles	6 de enero
Septuagésima	domingo	24 de enero
Proclamación de la Constitución de 1917	viernes	5 de febrero
Quinquagésima	domingo	7 de febrero
Carnaval	martes	9 de febrero
Miércoles de ceniza	miércoles	10 de febrero
Día de la Bandera	miércoles	24 de febrero
Domingo de Ramos	domingo	20 de marzo
Aniversario del Natalicio de Benito Juárez	lunes	21 de marzo
Viernes Santo	viernes	25 de marzo
Pascua	domingo	27 de marzo
Día del Trabajo	domingo	1 de mayo
Aniversario de la Batalla de Puebla	jueves	5 de mayo
Ascensión	jueves	5 de mayo
Pentecostés	domingo	15 de mayo
Trinidad	domingo	22 de mayo
Corpus	jueves	26 de mayo
Domingo de Corpus	domingo	29 de mayo
Aniversario de la Batalla de Puebla	jueves	5 de mayo
Ramadán	martes	7 de junio
San Pedro y San Pablo	miércoles	29 de junio
Aniversario de la Muerte de Benito Juárez	lunes	18 de julio
Aniversario de la Muerte de Miguel Hidalgo	sábado	30 de julio
Aniversario de la Independencia de México	viernes	16 de septiembre
Año Nuevo Islámico	lunes	3 de octubr
Año Nuevo Judío	lunes	3 de octubre
Día de la Raza	miércoles	12 de octubre
Día de la Expiación (Yom Kipur)	miércoles	12 de octubre
Conmemoración de los Difuntos	miércoles	2 de noviembre
Aniversario de la Revolución Mexicana	domingo	20 de noviembre
Adviento	domingo	27 de noviembre
Navidad	domingo	25 de diciembre

Estaciones del año, 2016

Hora del meridiano 90° W.G.

mes	día	h	m	longitud eclíptica (°)	Constelación
invierno					
enero	18	8	11	300	Capricornio
febrero	16	19	38	330	Acuario
primavera					
marzo equinoccio	19	22	30	0	Piscis
abril	21	15	9	30	Aries
mayo	22	12	45	60	Tauro
verano					
junio solsticio	20	16	34	90	Geminis
julio	19	22	56	120	Cáncer
agosto	20	4	17	150	Leo
otoño					
septiembre equinoccio	22	8	22	180	Virgo
octubre	24	22	21	210	Libra
noviembre	23	16	58	240	Escorpión
invierno					
diciembre solsticio	21	4	44	270	Sagitario

Hora sideral, 2016

A las 0^h del meridiano 90º W.G.

d	dj	h	m	s
enero				
1	2457388.75	6	41	21.0
2	2457389.75	6	45	17.5
3	2457390.75	6	49	14.1
4	2457391.75	6	53	10.6
5	2457392.75	6	57	7.2
6	2457393.75	7	1	3.7
7	2457394.75	7	5	0.3
8	2457395.75	7	8	56.9
9	2457396.75	7	12	53.4
10	2457397.75	7	16	50.0
11	2457398.75	7	20	46.5
12	2457399.75	7	24	43.1
13	2457400.75	7	28	39.6
14	2457401.75	7	32	36.2
15	2457402.75	7	36	32.7
16	2457403.75	7	40	29.3
17	2457404.75	7	44	25.8
18	2457405.75	7	48	22.4
19	2457406.75	7	52	18.9
20	2457407.75	7	56	15.5
21	2457408.75	8	0	12.1
22	2457409.75	8	4	8.6
23	2457410.75	8	8	5.2
24	2457411.75	8	12	1.8
25	2457412.75	8	15	58.3
26	2457413.75	8	19	54.9
27	2457414.75	8	23	51.4
28	2457415.75	8	27	48.0
29	2457416.75	8	31	44.5
30	2457417.75	8	35	41.1
31	2457418.75	8	39	37.6
febrero				
1	2457419.75	8	43	34.2
2	2457420.75	8	47	30.7
3	2457421.75	8	51	27.3
4	2457422.75	8	55	23.9
5	2457423.75	8	59	20.4
6	2457424.75	9	3	17.0
7	2457425.75	9	7	13.5
8	2457426.75	9	11	10.1
9	2457427.75	9	15	6.6
10	2457428.75	9	19	3.2
11	2457429.75	9	22	59.7
12	2457430.75	9	26	56.3
13	2457431.75	9	30	52.8
14	2457432.75	9	34	49.4
15	2457433.75	9	38	45.9
16	2457434.75	9	42	42.5
17	2457435.75	9	46	39.1
18	2457436.75	9	50	35.6
19	2457437.75	9	54	32.2
20	2457438.75	9	58	28.7
21	2457439.75	10	2	25.3
22	2457440.75	10	6	21.8
23	2457441.75	10	10	18.4
24	2457442.75	10	14	14.9
25	2457443.75	10	18	11.5
26	2457444.75	10	22	8.0
27	2457445.75	10	26	4.6
28	2457446.75	10	30	1.1
29	2457447.75	10	33	57.7
marzo				
1	2457448.75	10	37	54.2
2	2457449.75	10	41	50.8
3	2457450.75	10	45	47.3
4	2457451.75	10	49	43.9
5	2457452.75	10	53	40.5
6	2457453.75	10	57	37.0
7	2457454.75	11	1	33.6
8	2457455.75	11	5	30.1
9	2457456.75	11	9	26.7
10	2457457.75	11	13	23.2
11	2457458.75	11	17	19.8
12	2457459.75	11	21	16.3
13	2457460.75	11	25	12.9
14	2457461.75	11	29	9.4
15	2457462.75	11	33	6.0
16	2457463.75	11	37	2.5
17	2457464.75	11	40	59.1
18	2457465.75	11	44	55.6
19	2457466.75	11	48	52.2
20	2457467.75	11	52	48.7
21	2457468.75	11	56	45.3
22	2457469.75	12	0	41.8
23	2457470.75	12	4	38.4
24	2457471.75	12	8	34.9
25	2457472.75	12	12	31.5
26	2457473.75	12	16	28.0
27	2457474.75	12	20	24.6
28	2457475.75	12	24	21.1
29	2457476.75	12	28	17.7
30	2457477.75	12	32	14.2
31	2457478.75	12	36	10.8
abril				
1	2457479.75	12	40	7.3
2	2457480.75	12	44	3.9
3	2457481.75	12	48	0.5
4	2457482.75	12	51	57.0
5	2457483.75	12	55	53.6
6	2457484.75	12	59	50.1
7	2457485.75	13	3	46.6
8	2457486.75	13	7	43.2
9	2457487.75	13	11	39.7
10	2457488.75	13	15	36.3
11	2457489.75	13	19	32.9
12	2457490.75	13	23	29.4
13	2457491.75	13	27	26.0
14	2457492.75	13	31	22.5
15	2457493.75	13	35	19.1
16	2457494.75	13	39	15.6
17	2457495.75	13	43	12.2
18	2457496.75	13	47	8.7
19	2457497.75	13	51	5.3
20	2457498.75	13	55	1.8
21	2457499.75	13	58	58.4
22	2457500.75	14	2	54.9
23	2457501.75	14	6	51.5
24	2457502.75	14	10	48.0
25	2457503.75	14	14	44.6
26	2457504.75	14	18	41.2
27	2457505.75	14	22	37.7
28	2457506.75	14	26	34.3
29	2457507.75	14	30	30.8
30	2457508.75	14	34	27.4
mayo				
1	2457509.75	14	38	23.9
2	2457510.75	14	42	20.5
3	2457511.75	14	46	17.0
4	2457512.75	14	50	13.6
5	2457513.75	14	54	10.1
6	2457514.75	14	58	6.7
7	2457515.75	15	2	3.2
8	2457516.75	15	5	59.8
9	2457517.75	15	9	56.4
10	2457518.75	15	13	52.9
11	2457519.75	15	17	49.5
12	2457520.75	15	21	46.0
13	2457521.75	15	25	42.6
14	2457522.75	15	29	39.1
15	2457523.75	15	33	35.7
16	2457524.75	15	37	32.2
17	2457525.75	15	41	28.8
18	2457526.75	15	45	25.3
19	2457527.75	15	49	21.9
20	2457528.75	15	53	18.5
21	2457529.75	15	57	15.0
22	2457530.75	16	1	11.6
23	2457531.75	16	5	8.1

Hora sideral, 2016

A las 0^h del meridiano 90º W.G.

d	dj	h	m	s
24	2457532.75	16	9	4.7
25	2457533.75	16	13	1.3
26	2457534.75	16	16	57.8
27	2457535.75	16	20	54.4
28	2457536.75	16	24	50.9
29	2457537.75	16	28	47.5
30	2457538.75	16	32	44.0
31	2457539.75	16	36	40.6
junio				
1	2457540.75	16	40	37.1
2	2457541.75	16	44	33.7
3	2457542.75	16	48	30.2
4	2457543.75	16	52	26.8
5	2457544.75	16	56	23.4
6	2457545.75	17	0	19.9
7	2457546.75	17	4	16.5
8	2457547.75	17	8	13.0
9	2457548.75	17	12	9.6
10	2457549.75	17	16	6.2
11	2457550.75	17	20	2.7
12	2457551.75	17	23	59.3
13	2457552.75	17	27	55.8
14	2457553.75	17	31	52.4
15	2457554.75	17	35	48.9
16	2457555.75	17	39	45.5
17	2457556.75	17	43	42.0
18	2457557.75	17	47	38.6
19	2457558.75	17	51	35.1
20	2457559.75	17	55	31.7
21	2457560.75	17	59	28.3
22	2457561.75	18	3	24.8
23	2457562.75	18	7	21.4
24	2457563.75	18	11	18.0
25	2457564.75	18	15	14.5
26	2457565.75	18	19	11.1
27	2457566.75	18	23	7.6
28	2457567.75	18	27	4.2
29	2457568.75	18	31	0.7
30	2457569.75	18	34	57.3
julio				
1	2457570.75	18	38	53.8
2	2457571.75	18	42	50.4
3	2457572.75	18	46	47.0
4	2457573.75	18	50	43.5
5	2457574.75	18	54	40.1
6	2457575.75	18	58	36.7
7	2457576.75	19	2	33.2
8	2457577.75	19	6	29.8
9	2457578.75	19	10	26.3
10	2457579.75	19	14	22.9
11	2457580.75	19	18	19.4
12	2457581.75	19	22	16.0
13	2457582.75	19	26	12.5
14	2457583.75	19	30	9.1
15	2457584.75	19	34	5.6
16	2457585.75	19	38	2.2
17	2457586.75	19	41	58.7
18	2457587.75	19	45	55.3
19	2457588.75	19	49	51.9
20	2457589.75	19	53	48.4
21	2457590.75	19	57	45.0
22	2457591.75	20	1	41.5
23	2457592.75	20	5	38.1
24	2457593.75	20	9	34.6
25	2457594.75	20	13	31.2
26	2457595.75	20	17	27.7
27	2457596.75	20	21	24.3
28	2457597.75	20	25	20.9
29	2457598.75	20	29	17.4
30	2457599.75	20	33	14.0
31	2457600.75	20	37	10.5
agosto				
1	2457601.75	20	41	7.1
2	2457602.75	20	45	3.7
3	2457603.75	20	49	0.2
4	2457604.75	20	52	56.8
5	2457605.75	20	56	53.3
6	2457606.75	21	0	49.9
7	2457607.75	21	4	46.4
8	2457608.75	21	8	43.0
9	2457609.75	21	12	39.5
10	2457610.75	21	16	36.1
11	2457611.75	21	20	32.6
12	2457612.75	21	24	29.2
13	2457613.75	21	28	25.7
14	2457614.75	21	32	22.3
15	2457615.75	21	36	18.9
16	2457616.75	21	40	15.4
17	2457617.75	21	44	12.0
18	2457618.75	21	48	8.5
19	2457619.75	21	52	5.1
20	2457620.75	21	56	1.6
21	2457621.75	21	59	58.2
22	2457622.75	22	3	54.7
23	2457623.75	22	7	51.3
24	2457624.75	22	11	47.8
25	2457625.75	22	15	44.4
26	2457626.75	22	19	40.9
27	2457627.75	22	23	37.5
28	2457628.75	22	27	34.0
29	2457629.75	22	31	30.6
30	2457630.75	22	35	27.2
31	2457631.75	22	39	23.7
septiembre				
1	2457632.75	22	43	20.3
2	2457633.75	22	47	16.8
3	2457634.75	22	51	13.3
4	2457635.75	22	55	9.9
5	2457636.75	22	59	6.4
6	2457637.75	23	3	3.0
7	2457638.75	23	6	59.5
8	2457639.75	23	10	56.1
9	2457640.75	23	14	52.7
10	2457641.75	23	18	49.2
11	2457642.75	23	22	45.8
12	2457643.75	23	26	42.3
13	2457644.75	23	30	38.9
14	2457645.75	23	34	35.4
15	2457646.75	23	38	32.0
16	2457647.75	23	42	28.5
17	2457648.75	23	46	25.1
18	2457649.75	23	50	21.6
19	2457650.75	23	54	18.2
20	2457651.75	23	58	14.7
21	2457652.75	0	2	11.3
22	2457653.75	0	6	7.8
23	2457654.75	0	10	4.4
24	2457655.75	0	14	0.9
25	2457656.75	0	17	57.5
26	2457657.75	0	21	54.1
27	2457658.75	0	25	50.6
28	2457659.75	0	29	47.2
29	2457660.75	0	33	43.7
30	2457661.75	0	37	40.2
octubre				
1	2457662.75	0	41	36.8
2	2457663.75	0	45	33.3
3	2457664.75	0	49	29.9
4	2457665.75	0	53	26.4
5	2457666.75	0	57	23.0
6	2457667.75	1	1	19.5
7	2457668.75	1	5	16.1
8	2457669.75	1	9	12.7
9	2457670.75	1	13	9.2
10	2457671.75	1	17	5.8
11	2457672.75	1	21	2.3
12	2457673.75	1	24	58.9
13	2457674.75	1	28	55.4

Hora sideral, 2016

A las 0^h del meridiano 90º W.G.

d	dj	h	m	s
14	2457675.75	1	32	52.0
15	2457676.75	1	36	48.5
16	2457677.75	1	40	45.1
17	2457678.75	1	44	41.6
18	2457679.75	1	48	38.2
19	2457680.75	1	52	34.7
20	2457681.75	1	56	31.3
21	2457682.75	2	0	27.9
22	2457683.75	2	4	24.4
23	2457684.75	2	8	21.0
24	2457685.75	2	12	17.5
25	2457686.75	2	16	14.1
26	2457687.75	2	20	10.6
27	2457688.75	2	24	7.2
28	2457689.75	2	28	3.7
29	2457690.75	2	32	0.3
30	2457691.75	2	35	56.8
31	2457692.75	2	39	53.4
noviembre				
1	2457693.75	2	43	49.9
2	2457694.75	2	47	46.5
3	2457695.75	2	51	43.0
4	2457696.75	2	55	39.6
5	2457697.75	2	59	36.2
6	2457698.75	3	3	32.7
7	2457699.75	3	7	29.3
8	2457700.75	3	11	25.8
9	2457701.75	3	15	22.4
10	2457702.75	3	19	18.9
11	2457703.75	3	23	15.5
12	2457704.75	3	27	12.0
13	2457705.75	3	31	8.6
14	2457706.75	3	35	5.1
15	2457707.75	3	39	1.7
16	2457708.75	3	42	58.2
17	2457709.75	3	46	54.8
18	2457710.75	3	50	51.4
19	2457711.75	3	54	47.9
20	2457712.75	3	58	44.5
21	2457713.75	4	2	41.1
22	2457714.75	4	6	37.6
23	2457715.75	4	10	34.2
24	2457716.75	4	14	30.7
25	2457717.75	4	18	27.3
26	2457718.75	4	22	23.8
27	2457719.75	4	26	20.4
28	2457720.75	4	30	16.9
29	2457721.75	4	34	13.5
30	2457722.75	4	38	10.0
diciembre				
1	2457723.75	4	42	6.6
2	2457724.75	4	46	3.2
3	2457725.75	4	49	59.7
4	2457726.75	4	53	56.3
5	2457727.75	4	57	52.8
6	2457728.75	5	1	49.4
7	2457729.75	5	5	45.9
8	2457730.75	5	9	42.5
9	2457731.75	5	13	39.0
10	2457732.75	5	17	35.6
11	2457733.75	5	21	32.2
12	2457734.75	5	25	28.7
13	2457735.75	5	29	25.3
14	2457736.75	5	33	21.8
15	2457737.75	5	37	18.4
16	2457738.75	5	41	15.0
17	2457739.75	5	45	11.5
18	2457740.75	5	49	8.1
19	2457741.75	5	53	4.6
20	2457742.75	5	57	1.2
21	2457743.75	6	0	57.7
22	2457744.75	6	4	54.3
23	2457745.75	6	8	50.8
24	2457746.75	6	12	47.4
25	2457747.75	6	16	44.0
26	2457748.75	6	20	40.5
27	2457749.75	6	24	37.1
28	2457750.75	6	28	33.6
29	2457751.75	6	32	30.2
30	2457752.75	6	36	26.8
31	2457753.75	6	40	23.3
enero				
1	2457754.75	6	44	19.9
2	2457755.75	6	48	16.4

Sol, 2016

Efemérides a las 0^h del meridiano 90º W.G.

mes	día	dj	h	α m	s	vh s	°	δ `	“	vh ”	dis UA	h	hp m	s
ene	1	2457388.75	18	44	32.3	11.0	-23	2	23.3	12.3	0.983311	12	3	25.4
ene	2	2457389.75	18	48	57.1	11.0	-22	57	27.6	13.5	0.983305	12	3	53.6
ene	3	2457390.75	18	53	21.7	11.0	-22	52	4.5	14.6	0.983304	12	4	21.7
ene	4	2457391.75	18	57	45.9	11.0	-22	46	14.0	15.7	0.983308	12	4	49.3
ene	5	2457392.75	19	2	9.7	11.0	-22	39	56.3	16.9	0.983317	12	5	16.6
ene	6	2457393.75	19	6	33.2	11.0	-22	33	11.7	18.0	0.983329	12	5	43.5
ene	7	2457394.75	19	10	56.2	10.9	-22	26	0.4	19.1	0.983347	12	6	9.9
ene	8	2457395.75	19	15	18.7	10.9	-22	18	22.5	20.2	0.983368	12	6	35.9
ene	9	2457396.75	19	19	40.8	10.9	-22	10	18.3	21.3	0.983393	12	7	1.4
ene	10	2457397.75	19	24	2.3	10.9	-22	1	48.0	22.3	0.983422	12	7	26.4
ene	11	2457398.75	19	28	23.3	10.8	-21	52	52.0	23.4	0.983454	12	7	50.8
ene	12	2457399.75	19	32	43.7	10.8	-21	43	30.3	24.5	0.983490	12	8	14.6
ene	13	2457400.75	19	37	3.5	10.8	-21	33	43.5	25.5	0.983530	12	8	37.8
ene	14	2457401.75	19	41	22.6	10.8	-21	23	31.6	26.5	0.983574	12	9	0.4
ene	15	2457402.75	19	45	41.1	10.7	-21	12	54.9	27.5	0.983621	12	9	22.4
ene	16	2457403.75	19	49	58.9	10.7	-21	1	53.9	28.5	0.983674	12	9	43.6
ene	17	2457404.75	19	54	16.0	10.7	-20	50	28.8	29.5	0.983731	12	10	4.2
ene	18	2457405.75	19	58	32.3	10.7	-20	38	39.9	30.5	0.983793	12	10	23.9
ene	19	2457406.75	20	2	48.0	10.6	-20	26	27.5	31.5	0.983860	12	10	43.1
ene	20	2457407.75	20	7	2.9	10.6	-20	13	52.0	32.4	0.983933	12	11	1.4
ene	21	2457408.75	20	11	17.1	10.6	-20	0	53.7	33.4	0.984012	12	11	19.0
ene	22	2457409.75	20	15	30.5	10.5	-19	47	33.0	34.3	0.984097	12	11	35.9
ene	23	2457410.75	20	19	43.1	10.5	-19	33	50.2	35.2	0.984189	12	11	51.9
ene	24	2457411.75	20	23	54.9	10.5	-19	19	45.7	36.1	0.984286	12	12	7.2
ene	25	2457412.75	20	28	6.0	10.4	-19	5	19.8	37.0	0.984389	12	12	21.7
ene	26	2457413.75	20	32	16.2	10.4	-18	50	32.8	37.8	0.984499	12	12	35.4
ene	27	2457414.75	20	36	25.7	10.4	-18	35	25.2	38.7	0.984614	12	12	48.3
ene	28	2457415.75	20	40	34.4	10.3	-18	19	57.4	39.5	0.984735	12	13	0.5
ene	29	2457416.75	20	44	42.3	10.3	-18	4	9.6	40.3	0.984862	12	13	11.8
ene	30	2457417.75	20	48	49.4	10.3	-17	48	2.3	41.1	0.984994	12	13	22.4
ene	31	2457418.75	20	52	55.7	10.2	-17	31	35.9	41.9	0.985131	12	13	32.1
feb	1	2457419.75	20	57	1.2	10.2	-17	14	50.7	42.6	0.985272	12	13	41.0
feb	2	2457420.75	21	1	5.9	10.2	-16	57	47.2	43.4	0.985418	12	13	49.2
feb	3	2457421.75	21	5	9.8	10.1	-16	40	25.7	44.1	0.985568	12	13	56.5
feb	4	2457422.75	21	9	12.9	10.1	-16	22	46.8	44.8	0.985723	12	14	3.1
feb	5	2457423.75	21	13	15.2	10.1	-16	4	50.7	45.5	0.985880	12	14	8.8
feb	6	2457424.75	21	17	16.7	10.0	-15	46	38.0	46.2	0.986041	12	14	13.8
feb	7	2457425.75	21	21	17.4	10.0	-15	28	9.1	46.9	0.986205	12	14	17.9
feb	8	2457426.75	21	25	17.4	10.0	-15	9	24.3	47.5	0.986372	12	14	21.3
feb	9	2457427.75	21	29	16.5	9.9	-14	50	24.1	48.1	0.986541	12	14	23.9
feb	10	2457428.75	21	33	14.8	9.9	-14	31	9.0	48.7	0.986713	12	14	25.6
feb	11	2457429.75	21	37	12.4	9.9	-14	11	39.4	49.3	0.986888	12	14	26.7
feb	12	2457430.75	21	41	9.2	9.8	-13	51	55.6	49.9	0.987065	12	14	26.9
feb	13	2457431.75	21	45	5.1	9.8	-13	31	58.2	50.4	0.987245	12	14	26.3
feb	14	2457432.75	21	49	0.4	9.8	-13	11	47.5	51.0	0.987428	12	14	25.0
feb	15	2457433.75	21	52	54.8	9.7	-12	51	23.9	51.5	0.987615	12	14	22.9

Sol, 2016

Efemérides a las 0^h del meridiano 90° W.G.

mes	día	dj	h	α m	s	vh s	°	δ `	“	vh ”	dis UA	h	hp m	s
feb	16	2457434.75	21	56	48.5	9.7	-12	30	48.0	52.0	0.987805	12	14	20.0
feb	17	2457435.75	22	0	41.5	9.7	-12	10	0.1	52.5	0.987999	12	14	16.5
feb	18	2457436.75	22	4	33.8	9.6	-11	49	0.5	52.9	0.988198	12	14	12.2
feb	19	2457437.75	22	8	25.3	9.6	-11	27	49.9	53.4	0.988401	12	14	7.2
feb	20	2457438.75	22	12	16.2	9.6	-11	6	28.4	53.8	0.988608	12	14	1.5
feb	21	2457439.75	22	16	6.4	9.6	-10	44	56.6	54.2	0.988820	12	13	55.1
feb	22	2457440.75	22	19	55.9	9.5	-10	23	14.9	54.6	0.989037	12	13	48.1
feb	23	2457441.75	22	23	44.8	9.5	-10	1	23.5	55.0	0.989258	12	13	40.4
feb	24	2457442.75	22	27	33.0	9.5	-9	39	23.0	55.4	0.989484	12	13	32.1
feb	25	2457443.75	22	31	20.7	9.5	-9	17	13.6	55.7	0.989714	12	13	23.3
feb	26	2457444.75	22	35	7.8	9.4	-8	54	55.9	56.1	0.989948	12	13	13.8
feb	27	2457445.75	22	38	54.3	9.4	-8	32	30.1	56.4	0.990186	12	13	3.8
feb	28	2457446.75	22	42	40.3	9.4	-8	9	56.8	56.7	0.990428	12	12	53.2
feb	29	2457447.75	22	46	25.8	9.4	-7	47	16.1	57.0	0.990673	12	12	42.1
mar	1	2457448.75	22	50	10.8	9.4	-7	24	28.6	57.2	0.990921	12	12	30.6
mar	2	2457449.75	22	53	55.3	9.3	-7	1	34.7	57.5	0.991172	12	12	18.5
mar	3	2457450.75	22	57	39.3	9.3	-6	38	34.7	57.7	0.991426	12	12	6.0
mar	4	2457451.75	23	1	22.9	9.3	-6	15	29.1	58.0	0.991682	12	11	53.0
mar	5	2457452.75	23	5	6.1	9.3	-5	52	18.1	58.2	0.991940	12	11	39.7
mar	6	2457453.75	23	8	48.8	9.3	-5	29	2.4	58.3	0.992199	12	11	25.8
mar	7	2457454.75	23	12	31.2	9.2	-5	5	42.1	58.5	0.992460	12	11	11.7
mar	8	2457455.75	23	16	13.2	9.2	-4	42	17.8	58.7	0.992721	12	10	57.1
mar	9	2457456.75	23	19	54.8	9.2	-4	18	49.9	58.8	0.992983	12	10	42.2
mar	10	2457457.75	23	23	36.0	9.2	-3	55	18.7	58.9	0.993246	12	10	26.8
mar	11	2457458.75	23	27	17.0	9.2	-3	31	44.6	59.0	0.993508	12	10	11.3
mar	12	2457459.75	23	30	57.6	9.2	-3	8	8.0	59.1	0.993772	12	9	55.3
mar	13	2457460.75	23	34	37.9	9.2	-2	44	29.4	59.2	0.994036	12	9	39.1
mar	14	2457461.75	23	38	18.0	9.2	-2	20	49.1	59.2	0.994300	12	9	22.6
mar	15	2457462.75	23	41	57.8	9.1	-1	57	7.5	59.3	0.994567	12	9	5.9
mar	16	2457463.75	23	45	37.3	9.1	-1	33	25.0	59.3	0.994834	12	8	48.8
mar	17	2457464.75	23	49	16.6	9.1	-1	9	41.9	59.3	0.995103	12	8	31.5
mar	18	2457465.75	23	52	55.8	9.1	-0	45	58.6	59.3	0.995374	12	8	14.2
mar	19	2457466.75	23	56	34.7	9.1	-0	22	15.5	59.3	0.995647	12	7	56.5
mar	20	2457467.75	0	0	13.5	9.1	+0	1	27.0	59.2	0.995922	12	7	38.8
mar	21	2457468.75	0	3	52.1	9.1	+0	25	8.7	59.2	0.996200	12	7	20.8
mar	22	2457469.75	0	7	30.7	9.1	+0	48	49.1	59.1	0.996479	12	7	2.9
mar	23	2457470.75	0	11	9.1	9.1	+1	12	28.0	59.0	0.996761	12	6	44.7
mar	24	2457471.75	0	14	47.5	9.1	+1	36	4.9	58.9	0.997045	12	6	26.6
mar	25	2457472.75	0	18	25.9	9.1	+1	59	39.6	58.8	0.997331	12	6	8.5
mar	26	2457473.75	0	22	4.2	9.1	+2	23	11.7	58.7	0.997618	12	5	50.2
mar	27	2457474.75	0	25	42.6	9.1	+2	46	40.9	58.6	0.997908	12	5	32.1
mar	28	2457475.75	0	29	20.9	9.1	+3	10	6.8	58.4	0.998199	12	5	13.8
mar	29	2457476.75	0	32	59.4	9.1	+3	33	29.1	58.3	0.998491	12	4	55.7
mar	30	2457477.75	0	36	37.9	9.1	+3	56	47.5	58.1	0.998784	12	4	37.7
mar	31	2457478.75	0	40	16.5	9.1	+4	20	1.5	57.9	0.999078	12	4	19.7
abr	1	2457479.75	0	43	55.2	9.1	+4	43	10.9	57.7	0.999372	12	4	1.9

Sol, 2016

Efemérides a las 0^h del meridiano 90º W.G.

mes	día	dj	h	α m	s	vh s	°	δ `	“	vh ”	dis UA	h	hp m	s
abr	2	2457480.75	0	47	34.1	9.1	+5	6	15.3	57.5	0.999666	12	3	44.2
abr	3	2457481.75	0	51	13.1	9.1	+5	29	14.4	57.2	0.999959	12	3	26.7
abr	4	2457482.75	0	54	52.3	9.1	+5	52	7.7	57.0	1.000252	12	3	9.3
abr	5	2457483.75	0	58	31.6	9.1	+6	14	55.0	56.7	1.000544	12	2	52.1
abr	6	2457484.75	1	2	11.2	9.2	+6	37	35.9	56.4	1.000834	12	2	35.1
abr	7	2457485.75	1	5	51.0	9.2	+7	0	10.0	56.1	1.001122	12	2	18.4
abr	8	2457486.75	1	9	31.0	9.2	+7	22	36.9	55.8	1.001408	12	2	1.8
abr	9	2457487.75	1	13	11.2	9.2	+7	44	56.4	55.5	1.001692	12	1	45.5
abr	10	2457488.75	1	16	51.8	9.2	+8	7	8.0	55.1	1.001974	12	1	29.5
abr	11	2457489.75	1	20	32.5	9.2	+8	29	11.4	54.8	1.002254	12	1	13.7
abr	12	2457490.75	1	24	13.6	9.2	+8	51	6.3	54.4	1.002532	12	0	58.2
abr	13	2457491.75	1	27	54.9	9.2	+9	12	52.2	54.0	1.002809	12	0	42.9
abr	14	2457492.75	1	31	36.6	9.2	+9	34	28.8	53.6	1.003085	12	0	28.1
abr	15	2457493.75	1	35	18.6	9.3	+9	55	55.8	53.2	1.003360	12	0	13.5
abr	16	2457494.75	1	39	0.9	9.3	+10	17	12.9	52.8	1.003634	11	59	59.3
abr	17	2457495.75	1	42	43.6	9.3	+10	38	19.6	52.3	1.003908	11	59	45.4
abr	18	2457496.75	1	46	26.6	9.3	+10	59	15.8	51.9	1.004181	11	59	31.9
abr	19	2457497.75	1	50	10.1	9.3	+11	20	1.0	51.4	1.004454	11	59	18.8
abr	20	2457498.75	1	53	53.9	9.3	+11	40	35.0	50.9	1.004726	11	59	6.1
abr	21	2457499.75	1	57	38.2	9.4	+12	0	57.4	50.4	1.004998	11	58	53.8
abr	22	2457500.75	2	1	22.9	9.4	+12	21	7.9	49.9	1.005270	11	58	42.0
abr	23	2457501.75	2	5	8.1	9.4	+12	41	6.2	49.4	1.005541	11	58	30.6
abr	24	2457502.75	2	8	53.7	9.4	+13	0	52.0	48.9	1.005812	11	58	19.7
abr	25	2457503.75	2	12	39.9	9.4	+13	20	25.0	48.3	1.006082	11	58	9.2
abr	26	2457504.75	2	16	26.5	9.5	+13	39	44.8	47.8	1.006352	11	57	59.4
abr	27	2457505.75	2	20	13.6	9.5	+13	58	51.2	47.2	1.006620	11	57	49.9
abr	28	2457506.75	2	24	1.3	9.5	+14	17	43.9	46.6	1.006887	11	57	41.1
abr	29	2457507.75	2	27	49.5	9.5	+14	36	22.4	46.0	1.007153	11	57	32.7
abr	30	2457508.75	2	31	38.2	9.6	+14	54	46.6	45.4	1.007417	11	57	24.8
may	1	2457509.75	2	35	27.5	9.6	+15	12	56.0	44.8	1.007678	11	57	17.6
may	2	2457510.75	2	39	17.3	9.6	+15	30	50.5	44.1	1.007937	11	57	10.8
may	3	2457511.75	2	43	7.7	9.6	+15	48	29.5	43.5	1.008193	11	57	4.7
may	4	2457512.75	2	46	58.7	9.6	+16	5	52.9	42.8	1.008445	11	56	59.1
may	5	2457513.75	2	50	50.2	9.7	+16	23	0.3	42.1	1.008694	11	56	54.1
may	6	2457514.75	2	54	42.3	9.7	+16	39	51.4	41.4	1.008938	11	56	49.6
may	7	2457515.75	2	58	35.0	9.7	+16	56	25.9	40.7	1.009178	11	56	45.8
may	8	2457516.75	3	2	28.3	9.7	+17	12	43.4	40.0	1.009414	11	56	42.5
may	9	2457517.75	3	6	22.1	9.8	+17	28	43.7	39.3	1.009646	11	56	39.8
may	10	2457518.75	3	10	16.4	9.8	+17	44	26.4	38.5	1.009874	11	56	37.5
may	11	2457519.75	3	14	11.4	9.8	+17	59	51.3	37.8	1.010097	11	56	35.9
may	12	2457520.75	3	18	6.9	9.8	+18	14	57.9	37.0	1.010317	11	56	34.9
may	13	2457521.75	3	22	2.9	9.9	+18	29	46.1	36.2	1.010533	11	56	34.3
may	14	2457522.75	3	25	59.5	9.9	+18	44	15.5	35.4	1.010747	11	56	34.4
may	15	2457523.75	3	29	56.6	9.9	+18	58	25.8	34.6	1.010957	11	56	34.9
may	16	2457524.75	3	33	54.3	9.9	+19	12	16.8	33.8	1.011164	11	56	36.1
may	17	2457525.75	3	37	52.5	9.9	+19	25	48.2	33.0	1.011369	11	56	37.7

Sol, 2016

Efemérides a las 0^h del meridiano 90° W.G.

mes	día	dj	h	α m	s	vh s	°	δ `	“	vh ”	dis UA	h	hp m	s
may	18	2457526.75	3	41	51.2	10.0	+19	38	59.8	32.1	1.011571	11	56	39.9
may	19	2457527.75	3	45	50.5	10.0	+19	51	51.2	31.3	1.011771	11	56	42.6
may	20	2457528.75	3	49	50.4	10.0	+20	4	22.3	30.4	1.011968	11	56	46.0
may	21	2457529.75	3	53	50.7	10.0	+20	16	32.8	29.6	1.012163	11	56	49.7
may	22	2457530.75	3	57	51.6	10.1	+20	28	22.4	28.7	1.012356	11	56	54.1
may	23	2457531.75	4	1	53.1	10.1	+20	39	51.0	27.8	1.012547	11	56	59.0
may	24	2457532.75	4	5	55.0	10.1	+20	50	58.4	26.9	1.012735	11	57	4.3
may	25	2457533.75	4	9	57.4	10.1	+21	1	44.2	26.0	1.012920	11	57	10.2
may	26	2457534.75	4	14	0.4	10.1	+21	12	8.2	25.1	1.013103	11	57	16.6
may	27	2457535.75	4	18	3.8	10.2	+21	22	10.4	24.2	1.013282	11	57	23.5
may	28	2457536.75	4	22	7.7	10.2	+21	31	50.3	23.2	1.013459	11	57	30.8
may	29	2457537.75	4	26	12.1	10.2	+21	41	8.0	22.3	1.013632	11	57	38.6
may	30	2457538.75	4	30	16.9	10.2	+21	50	3.0	21.3	1.013801	11	57	46.9
may	31	2457539.75	4	34	22.2	10.2	+21	58	35.3	20.4	1.013966	11	57	55.6
jun	1	2457540.75	4	38	27.9	10.3	+22	6	44.7	19.4	1.014126	11	58	4.8
jun	2	2457541.75	4	42	34.0	10.3	+22	14	30.9	18.5	1.014281	11	58	14.3
jun	3	2457542.75	4	46	40.5	10.3	+22	21	53.9	17.5	1.014431	11	58	24.3
jun	4	2457543.75	4	50	47.4	10.3	+22	28	53.5	16.5	1.014576	11	58	34.6
jun	5	2457544.75	4	54	54.6	10.3	+22	35	29.5	15.5	1.014714	11	58	45.3
jun	6	2457545.75	4	59	2.2	10.3	+22	41	41.7	14.5	1.014847	11	58	56.3
jun	7	2457546.75	5	3	10.0	10.3	+22	47	30.1	13.5	1.014974	11	59	7.5
jun	8	2457547.75	5	7	18.1	10.3	+22	52	54.5	12.5	1.015095	11	59	19.1
jun	9	2457548.75	5	11	26.4	10.4	+22	57	54.7	11.5	1.015211	11	59	30.8
jun	10	2457549.75	5	15	35.0	10.4	+23	2	30.7	10.5	1.015322	11	59	42.9
jun	11	2457550.75	5	19	43.7	10.4	+23	6	42.3	9.5	1.015428	11	59	55.0
jun	12	2457551.75	5	23	52.6	10.4	+23	10	29.4	8.4	1.015529	12	0	7.4
jun	13	2457552.75	5	28	1.7	10.4	+23	13	52.1	7.4	1.015625	12	0	19.9
jun	14	2457553.75	5	32	10.8	10.4	+23	16	50.1	6.4	1.015718	12	0	32.5
jun	15	2457554.75	5	36	20.1	10.4	+23	19	23.4	5.4	1.015806	12	0	45.2
jun	16	2457555.75	5	40	29.5	10.4	+23	21	32.0	4.3	1.015890	12	0	58.0
jun	17	2457556.75	5	44	39.0	10.4	+23	23	15.9	3.3	1.015971	12	1	11.0
jun	18	2457557.75	5	48	48.5	10.4	+23	24	34.9	2.3	1.016048	12	1	23.9
jun	19	2457558.75	5	52	58.0	10.4	+23	25	29.2	1.2	1.016122	12	1	36.9
jun	20	2457559.75	5	57	7.5	10.4	+23	25	58.7	0.2	1.016192	12	1	49.8
jun	21	2457560.75	6	1	17.0	10.4	+23	26	3.4	-0.8	1.016259	12	2	2.7
jun	22	2457561.75	6	5	26.5	10.4	+23	25	43.4	-1.9	1.016322	12	2	15.7
jun	23	2457562.75	6	9	35.9	10.4	+23	24	58.5	-2.9	1.016382	12	2	28.5
jun	24	2457563.75	6	13	45.3	10.4	+23	23	48.9	-3.9	1.016439	12	2	41.4
jun	25	2457564.75	6	17	54.5	10.4	+23	22	14.6	-5.0	1.016491	12	2	54.0
jun	26	2457565.75	6	22	3.7	10.4	+23	20	15.6	-6.0	1.016540	12	3	6.6
jun	27	2457566.75	6	26	12.6	10.4	+23	17	52.0	-7.0	1.016585	12	3	19.0
jun	28	2457567.75	6	30	21.5	10.4	+23	15	3.8	-8.0	1.016625	12	3	31.4
jun	29	2457568.75	6	34	30.1	10.4	+23	11	51.1	-9.0	1.016660	12	3	43.4
jun	30	2457569.75	6	38	38.6	10.3	+23	8	14.1	-10.1	1.016690	12	3	55.3
jul	1	2457570.75	6	42	46.8	10.3	+23	4	12.7	-11.1	1.016714	12	4	7.0
jul	2	2457571.75	6	46	54.8	10.3	+22	59	47.2	-12.1	1.016732	12	4	18.4

Sol, 2016

Efemérides a las 0^h del meridiano 90º W.G.

mes	día	dj	h	α m	s	vh s	°	δ `	“	vh ”	dis UA	h	hp m	s
jul	3	2457572.75	6	51	2.5	10.3	+22	54	57.6	-13.1	1.016744	12	4	29.6
jul	4	2457573.75	6	55	9.9	10.3	+22	49	44.0	-14.1	1.016750	12	4	40.4
jul	5	2457574.75	6	59	17.0	10.3	+22	44	6.7	-15.0	1.016750	12	4	50.9
jul	6	2457575.75	7	3	23.7	10.3	+22	38	5.7	-16.0	1.016743	12	5	1.1
jul	7	2457576.75	7	7	30.0	10.2	+22	31	41.2	-17.0	1.016731	12	5	10.8
jul	8	2457577.75	7	11	36.0	10.2	+22	24	53.4	-18.0	1.016712	12	5	20.3
jul	9	2457578.75	7	15	41.5	10.2	+22	17	42.3	-18.9	1.016687	12	5	29.2
jul	10	2457579.75	7	19	46.6	10.2	+22	10	8.2	-19.9	1.016658	12	5	37.8
jul	11	2457580.75	7	23	51.2	10.2	+22	2	11.2	-20.8	1.016623	12	5	45.8
jul	12	2457581.75	7	27	55.3	10.2	+21	53	51.6	-21.8	1.016583	12	5	53.4
jul	13	2457582.75	7	31	59.0	10.1	+21	45	9.5	-22.7	1.016538	12	6	0.5
jul	14	2457583.75	7	36	2.2	10.1	+21	36	5.1	-23.6	1.016489	12	6	7.2
jul	15	2457584.75	7	40	4.8	10.1	+21	26	38.6	-24.5	1.016436	12	6	13.2
jul	16	2457585.75	7	44	7.0	10.1	+21	16	50.3	-25.4	1.016378	12	6	18.8
jul	17	2457586.75	7	48	8.6	10.0	+21	6	40.3	-26.3	1.016317	12	6	23.9
jul	18	2457587.75	7	52	9.6	10.0	+20	56	8.9	-27.2	1.016252	12	6	28.3
jul	19	2457588.75	7	56	10.1	10.0	+20	45	16.4	-28.1	1.016184	12	6	32.3
jul	20	2457589.75	8	0	10.1	10.0	+20	34	2.8	-28.9	1.016113	12	6	35.7
jul	21	2457590.75	8	4	9.5	10.0	+20	22	28.6	-29.8	1.016038	12	6	38.5
jul	22	2457591.75	8	8	8.3	9.9	+20	10	33.9	-30.6	1.015960	12	6	40.8
jul	23	2457592.75	8	12	6.5	9.9	+19	58	18.9	-31.5	1.015879	12	6	42.4
jul	24	2457593.75	8	16	4.2	9.9	+19	45	44.0	-32.3	1.015795	12	6	43.6
jul	25	2457594.75	8	20	1.3	9.9	+19	32	49.2	-33.1	1.015706	12	6	44.1
jul	26	2457595.75	8	23	57.9	9.8	+19	19	35.0	-33.9	1.015614	12	6	44.2
jul	27	2457596.75	8	27	53.8	9.8	+19	6	1.5	-34.7	1.015518	12	6	43.5
jul	28	2457597.75	8	31	49.2	9.8	+18	52	9.1	-35.5	1.015417	12	6	42.4
jul	29	2457598.75	8	35	44.0	9.8	+18	37	57.9	-36.2	1.015311	12	6	40.6
jul	30	2457599.75	8	39	38.2	9.7	+18	23	28.4	-37.0	1.015199	12	6	38.3
jul	31	2457600.75	8	43	31.8	9.7	+18	8	40.8	-37.7	1.015083	12	6	35.3
ago	1	2457601.75	8	47	24.9	9.7	+17	53	35.4	-38.5	1.014961	12	6	31.8
ago	2	2457602.75	8	51	17.3	9.7	+17	38	12.5	-39.2	1.014833	12	6	27.7
ago	3	2457603.75	8	55	9.1	9.6	+17	22	32.4	-39.9	1.014700	12	6	22.9
ago	4	2457604.75	8	59	0.3	9.6	+17	6	35.5	-40.6	1.014561	12	6	17.6
ago	5	2457605.75	9	2	50.9	9.6	+16	50	21.9	-41.2	1.014416	12	6	11.6
ago	6	2457606.75	9	6	40.9	9.6	+16	33	52.1	-41.9	1.014266	12	6	5.1
ago	7	2457607.75	9	10	30.3	9.5	+16	17	6.3	-42.6	1.014111	12	5	57.9
ago	8	2457608.75	9	14	19.1	9.5	+16	0	4.8	-43.2	1.013951	12	5	50.2
ago	9	2457609.75	9	18	7.3	9.5	+15	42	47.9	-43.8	1.013787	12	5	41.8
ago	10	2457610.75	9	21	54.9	9.5	+15	25	16.0	-44.4	1.013618	12	5	32.9
ago	11	2457611.75	9	25	41.9	9.4	+15	7	29.4	-45.0	1.013445	12	5	23.3
ago	12	2457612.75	9	29	28.3	9.4	+14	49	28.3	-45.6	1.013268	12	5	13.2
ago	13	2457613.75	9	33	14.1	9.4	+14	31	13.1	-46.2	1.013088	12	5	2.4
ago	14	2457614.75	9	36	59.4	9.4	+14	12	44.1	-46.8	1.012904	12	4	51.1
ago	15	2457615.75	9	40	44.2	9.3	+13	54	1.5	-47.3	1.012718	12	4	39.4
ago	16	2457616.75	9	44	28.4	9.3	+13	35	5.9	-47.9	1.012529	12	4	27.0
ago	17	2457617.75	9	48	12.1	9.3	+13	15	57.3	-48.4	1.012337	12	4	14.2

Sol, 2016

Efemérides a las 0^h del meridiano 90° W.G.

mes	día	dj	h	α m	α s	vh s	δ °	δ `	δ “	vh ”	dis UA	hp h	hp m	hp s
ago	18	2457618.75	9	51	55.3	9.3	+12	56	36.2	-48.9	1.012144	12	4	0.8
ago	19	2457619.75	9	55	37.9	9.3	+12	37	2.7	-49.4	1.011948	12	3	46.9
ago	20	2457620.75	9	59	20.1	9.2	+12	17	17.3	-49.9	1.011750	12	3	32.5
ago	21	2457621.75	10	3	1.8	9.2	+11	57	20.2	-50.4	1.011550	12	3	17.7
ago	22	2457622.75	10	6	43.1	9.2	+11	37	11.8	-50.8	1.011348	12	3	2.4
ago	23	2457623.75	10	10	24.0	9.2	+11	16	52.2	-51.3	1.011144	12	2	46.8
ago	24	2457624.75	10	14	4.4	9.2	+10	56	21.8	-51.7	1.010937	12	2	30.6
ago	25	2457625.75	10	17	44.5	9.2	+10	35	40.9	-52.1	1.010727	12	2	14.2
ago	26	2457626.75	10	21	24.2	9.1	+10	14	49.8	-52.5	1.010514	12	1	57.3
ago	27	2457627.75	10	25	3.5	9.1	+9	53	49.0	-52.9	1.010298	12	1	40.0
ago	28	2457628.75	10	28	42.4	9.1	+9	32	38.6	-53.3	1.010077	12	1	22.4
ago	29	2457629.75	10	32	21.0	9.1	+9	11	19.1	-53.7	1.009853	12	1	4.4
ago	30	2457630.75	10	35	59.3	9.1	+8	49	50.8	-54.0	1.009625	12	0	46.2
ago	31	2457631.75	10	39	37.3	9.1	+8	28	14.0	-54.4	1.009393	12	0	27.6
sep	1	2457632.75	10	43	14.9	9.1	+8	6	29.0	-54.7	1.009157	12	0	8.7
sep	2	2457633.75	10	46	52.3	9.0	+7	44	36.2	-55.0	1.008916	11	59	49.5
sep	3	2457634.75	10	50	29.4	9.0	+7	22	35.9	-55.3	1.008672	11	59	30.1
sep	4	2457635.75	10	54	6.2	9.0	+7	0	28.5	-55.6	1.008424	11	59	10.3
sep	5	2457636.75	10	57	42.8	9.0	+6	38	14.2	-55.9	1.008172	11	58	50.4
sep	6	2457637.75	11	1	19.2	9.0	+6	15	53.5	-56.1	1.007917	11	58	30.2
sep	7	2457638.75	11	4	55.3	9.0	+5	53	26.6	-56.4	1.007659	11	58	9.8
sep	8	2457639.75	11	8	31.2	9.0	+5	30	53.9	-56.6	1.007398	11	57	49.1
sep	9	2457640.75	11	12	7.0	9.0	+5	8	15.7	-56.8	1.007135	11	57	28.4
sep	10	2457641.75	11	15	42.6	9.0	+4	45	32.3	-57.0	1.006869	11	57	7.4
sep	11	2457642.75	11	19	18.1	9.0	+4	22	44.1	-57.2	1.006602	11	56	46.4
sep	12	2457643.75	11	22	53.4	9.0	+3	59	51.5	-57.4	1.006333	11	56	25.1
sep	13	2457644.75	11	26	28.6	9.0	+3	36	54.6	-57.5	1.006063	11	56	3.8
sep	14	2457645.75	11	30	3.8	9.0	+3	13	54.0	-57.7	1.005792	11	55	42.4
sep	15	2457646.75	11	33	38.9	9.0	+2	50	49.8	-57.8	1.005520	11	55	21.0
sep	16	2457647.75	11	37	13.9	9.0	+2	27	42.5	-57.9	1.005248	11	54	59.4
sep	17	2457648.75	11	40	48.9	9.0	+2	4	32.2	-58.0	1.004976	11	54	37.9
sep	18	2457649.75	11	44	24.0	9.0	+1	41	19.4	-58.1	1.004704	11	54	16.4
sep	19	2457650.75	11	47	59.1	9.0	+1	18	4.3	-58.2	1.004432	11	53	55.0
sep	20	2457651.75	11	51	34.2	9.0	+0	54	47.2	-58.3	1.004160	11	53	33.5
sep	21	2457652.75	11	55	9.5	9.0	+0	31	28.5	-58.3	1.003888	11	53	12.3
sep	22	2457653.75	11	58	44.8	9.0	+0	8	8.4	-58.4	1.003615	11	52	51.0
sep	23	2457654.75	12	2	20.3	9.0	-0	15	12.7	-58.4	1.003341	11	52	29.9
sep	24	2457655.75	12	5	56.0	9.0	-0	38	34.5	-58.4	1.003067	11	52	9.1
sep	25	2457656.75	12	9	31.8	9.0	-1	1	56.5	-58.4	1.002791	11	51	48.3
sep	26	2457657.75	12	13	7.8	9.0	-1	25	18.5	-58.4	1.002514	11	51	27.8
sep	27	2457658.75	12	16	44.0	9.0	-1	48	40.1	-58.4	1.002235	11	51	7.4
sep	28	2457659.75	12	20	20.5	9.0	-2	12	0.9	-58.3	1.001954	11	50	47.4
sep	29	2457660.75	12	23	57.2	9.0	-2	35	20.6	-58.3	1.001672	11	50	27.5
sep	30	2457661.75	12	27	34.1	9.1	-2	58	38.8	-58.2	1.001388	11	50	7.9
oct	1	2457662.75	12	31	11.3	9.1	-3	21	55.2	-58.1	1.001102	11	49	48.5
oct	2	2457663.75	12	34	48.9	9.1	-3	45	9.3	-58.0	1.000814	11	49	29.6

Sol, 2016

Efemérides a las 0^h del meridiano 90º W.G.

mes	día	dj	h	α m	s	vh s	°	δ `	“	vh ”	dis UA	h	hp m	s
oct	3	2457664.75	12	38	26.7	9.1	-4	8	20.9	-57.9	1.000525	11	49	10.8
oct	4	2457665.75	12	42	4.9	9.1	-4	31	29.5	-57.7	1.000235	11	48	52.5
oct	5	2457666.75	12	45	43.4	9.1	-4	54	34.8	-57.6	0.999943	11	48	34.4
oct	6	2457667.75	12	49	22.3	9.1	-5	17	36.5	-57.4	0.999651	11	48	16.8
oct	7	2457668.75	12	53	1.6	9.2	-5	40	34.0	-57.2	0.999358	11	47	59.5
oct	8	2457669.75	12	56	41.2	9.2	-6	3	27.1	-57.0	0.999064	11	47	42.6
oct	9	2457670.75	13	0	21.3	9.2	-6	26	15.4	-56.8	0.998771	11	47	26.1
oct	10	2457671.75	13	4	1.9	9.2	-6	48	58.5	-56.6	0.998478	11	47	10.2
oct	11	2457672.75	13	7	42.8	9.2	-7	11	36.0	-56.3	0.998185	11	46	54.5
oct	12	2457673.75	13	11	24.3	9.2	-7	34	7.6	-56.1	0.997893	11	46	39.5
oct	13	2457674.75	13	15	6.3	9.3	-7	56	32.8	-55.8	0.997603	11	46	24.9
oct	14	2457675.75	13	18	48.7	9.3	-8	18	51.3	-55.5	0.997315	11	46	10.8
oct	15	2457676.75	13	22	31.7	9.3	-8	41	2.8	-55.2	0.997029	11	45	57.2
oct	16	2457677.75	13	26	15.3	9.3	-9	3	6.9	-54.8	0.996745	11	45	44.3
oct	17	2457678.75	13	29	59.5	9.4	-9	25	3.2	-54.5	0.996463	11	45	31.9
oct	18	2457679.75	13	33	44.2	9.4	-9	46	51.4	-54.2	0.996185	11	45	20.1
oct	19	2457680.75	13	37	29.6	9.4	-10	8	31.1	-53.8	0.995908	11	45	8.9
oct	20	2457681.75	13	41	15.7	9.4	-10	30	2.0	-53.4	0.995634	11	44	58.4
oct	21	2457682.75	13	45	2.4	9.5	-10	51	23.7	-53.0	0.995362	11	44	48.6
oct	22	2457683.75	13	48	49.8	9.5	-11	12	35.7	-52.6	0.995092	11	44	39.4
oct	23	2457684.75	13	52	37.9	9.5	-11	33	37.8	-52.2	0.994823	11	44	31.0
oct	24	2457685.75	13	56	26.7	9.6	-11	54	29.4	-51.7	0.994555	11	44	23.2
oct	25	2457686.75	14	0	16.3	9.6	-12	15	10.3	-51.2	0.994289	11	44	16.3
oct	26	2457687.75	14	4	6.6	9.6	-12	35	39.9	-50.7	0.994024	11	44	10.0
oct	27	2457688.75	14	7	57.6	9.7	-12	55	57.9	-50.2	0.993760	11	44	4.5
oct	28	2457689.75	14	11	49.4	9.7	-13	16	3.8	-49.7	0.993496	11	43	59.7
oct	29	2457690.75	14	15	41.9	9.7	-13	35	57.3	-49.2	0.993233	11	43	55.7
oct	30	2457691.75	14	19	35.3	9.8	-13	55	38.0	-48.6	0.992971	11	43	52.5
oct	31	2457692.75	14	23	29.4	9.8	-14	15	5.4	-48.1	0.992710	11	43	50.1
nov	1	2457693.75	14	27	24.3	9.8	-14	34	19.1	-47.5	0.992450	11	43	48.4
nov	2	2457694.75	14	31	20.0	9.9	-14	53	18.7	-46.9	0.992190	11	43	47.6
nov	3	2457695.75	14	35	16.5	9.9	-15	12	3.7	-46.3	0.991932	11	43	47.5
nov	4	2457696.75	14	39	13.9	9.9	-15	30	33.9	-45.6	0.991676	11	43	48.3
nov	5	2457697.75	14	43	12.0	10.0	-15	48	48.7	-45.0	0.991420	11	43	49.9
nov	6	2457698.75	14	47	11.0	10.0	-16	6	47.7	-44.3	0.991167	11	43	52.3
nov	7	2457699.75	14	51	10.7	10.0	-16	24	30.5	-43.6	0.990916	11	43	55.5
nov	8	2457700.75	14	55	11.3	10.1	-16	41	56.8	-42.9	0.990668	11	43	59.5
nov	9	2457701.75	14	59	12.7	10.1	-16	59	6.0	-42.2	0.990422	11	44	4.4
nov	10	2457702.75	15	3	15.0	10.1	-17	15	57.8	-41.4	0.990180	11	44	10.1
nov	11	2457703.75	15	7	18.0	10.2	-17	32	31.7	-40.7	0.989941	11	44	16.6
nov	12	2457704.75	15	11	21.9	10.2	-17	48	47.5	-39.9	0.989707	11	44	23.9
nov	13	2457705.75	15	15	26.7	10.2	-18	4	44.6	-39.1	0.989476	11	44	32.2
nov	14	2457706.75	15	19	32.3	10.3	-18	20	22.8	-38.3	0.989251	11	44	41.2
nov	15	2457707.75	15	23	38.7	10.3	-18	35	41.7	-37.5	0.989030	11	44	51.0
nov	16	2457708.75	15	27	46.0	10.3	-18	50	40.8	-36.6	0.988814	11	45	1.8
nov	17	2457709.75	15	31	54.1	10.4	-19	5	20.0	-35.8	0.988603	11	45	13.3

Sol, 2016

Efemérides a las 0^h del meridiano 90° W.G.

mes	día	dj	h	α m	s	vh s	°	δ `	“	vh ”	dis UA	h	hp m	s
nov	18	2457710.75	15	36	3.1	10.4	-19	19	38.7	-34.9	0.988396	11	45	25.8
nov	19	2457711.75	15	40	12.9	10.4	-19	33	36.6	-34.0	0.988194	11	45	39.0
nov	20	2457712.75	15	44	23.5	10.5	-19	47	13.4	-33.1	0.987996	11	45	53.0
nov	21	2457713.75	15	48	35.0	10.5	-20	0	28.6	-32.2	0.987802	11	46	8.0
nov	22	2457714.75	15	52	47.3	10.5	-20	13	21.9	-31.3	0.987611	11	46	23.7
nov	23	2457715.75	15	57	0.4	10.6	-20	25	53.0	-30.4	0.987424	11	46	40.3
nov	24	2457716.75	16	1	14.3	10.6	-20	38	1.5	-29.4	0.987241	11	46	57.6
nov	25	2457717.75	16	5	28.9	10.6	-20	49	47.1	-28.4	0.987060	11	47	15.7
nov	26	2457718.75	16	9	44.4	10.7	-21	1	9.4	-27.4	0.986883	11	47	34.6
nov	27	2457719.75	16	14	0.6	10.7	-21	12	8.0	-26.4	0.986708	11	47	54.3
nov	28	2457720.75	16	18	17.5	10.7	-21	22	42.8	-25.4	0.986537	11	48	14.6
nov	29	2457721.75	16	22	35.1	10.8	-21	32	53.3	-24.4	0.986368	11	48	35.7
nov	30	2457722.75	16	26	53.3	10.8	-21	42	39.2	-23.4	0.986202	11	48	57.3
dic	1	2457723.75	16	31	12.3	10.8	-21	52	0.3	-22.3	0.986039	11	49	19.7
dic	2	2457724.75	16	35	31.9	10.8	-22	0	56.3	-21.3	0.985879	11	49	42.8
dic	3	2457725.75	16	39	52.0	10.9	-22	9	26.8	-20.2	0.985723	11	50	6.3
dic	4	2457726.75	16	44	12.8	10.9	-22	17	31.6	-19.1	0.985570	11	50	30.6
dic	5	2457727.75	16	48	34.1	10.9	-22	25	10.5	-18.0	0.985420	11	50	55.3
dic	6	2457728.75	16	52	55.9	10.9	-22	32	23.2	-16.9	0.985274	11	51	20.5
dic	7	2457729.75	16	57	18.2	10.9	-22	39	9.4	-15.8	0.985132	11	51	46.3
dic	8	2457730.75	17	1	41.0	11.0	-22	45	29.0	-14.7	0.984995	11	52	12.5
dic	9	2457731.75	17	6	4.2	11.0	-22	51	21.7	-13.6	0.984863	11	52	39.2
dic	10	2457732.75	17	10	27.8	11.0	-22	56	47.3	-12.4	0.984736	11	53	6.2
dic	11	2457733.75	17	14	51.9	11.0	-23	1	45.6	-11.3	0.984614	11	53	33.8
dic	12	2457734.75	17	19	16.2	11.0	-23	6	16.6	-10.1	0.984498	11	54	1.5
dic	13	2457735.75	17	23	40.9	11.0	-23	10	20.1	-9.0	0.984389	11	54	29.7
dic	14	2457736.75	17	28	6.0	11.1	-23	13	55.9	-7.8	0.984285	11	54	58.2
dic	15	2457737.75	17	32	31.3	11.1	-23	17	3.9	-6.7	0.984188	11	55	26.9
dic	16	2457738.75	17	36	56.8	11.1	-23	19	44.1	-5.5	0.984098	11	55	55.9
dic	17	2457739.75	17	41	22.6	11.1	-23	21	56.2	-4.3	0.984013	11	56	25.1
dic	18	2457740.75	17	45	48.5	11.1	-23	23	40.4	-3.2	0.983935	11	56	54.5
dic	19	2457741.75	17	50	14.6	11.1	-23	24	56.4	-2.0	0.983862	11	57	24.0
dic	20	2457742.75	17	54	40.9	11.1	-23	25	44.2	-0.8	0.983795	11	57	53.7
dic	21	2457743.75	17	59	7.2	11.1	-23	26	3.8	0.4	0.983732	11	58	23.5
dic	22	2457744.75	18	3	33.6	11.1	-23	25	55.2	1.5	0.983675	11	58	53.3
dic	23	2457745.75	18	8	0.1	11.1	-23	25	18.3	2.7	0.983622	11	59	23.3
dic	24	2457746.75	18	12	26.5	11.1	-23	24	13.2	3.9	0.983574	11	59	53.1
dic	25	2457747.75	18	16	52.9	11.1	-23	22	39.8	5.1	0.983530	12	0	23.0
dic	26	2457748.75	18	21	19.2	11.1	-23	20	38.3	6.2	0.983490	12	0	52.6
dic	27	2457749.75	18	25	45.3	11.1	-23	18	8.7	7.4	0.983455	12	1	22.3
dic	28	2457750.75	18	30	11.4	11.1	-23	15	11.0	8.6	0.983423	12	1	51.8
dic	29	2457751.75	18	34	37.2	11.1	-23	11	45.4	9.7	0.983395	12	2	21.0
dic	30	2457752.75	18	39	2.8	11.1	-23	7	51.9	10.9	0.983371	12	2	50.1
dic	31	2457753.75	18	43	28.2	11.1	-23	3	30.7	12.0	0.983351	12	3	18.9

Luna, 2016

Efemérides a las 0^h del meridiano 90º W.G.

mes	día	dj	h	α m	s	°	δ `	“	dis Rt	sd “	pax “	fas %	hp h
ene	1	2457388.75	11	59	25.05	+0	31	27.95	63.22	14.8	54.4	59.0	5.3
ene	2	2457389.75	12	44	27.05	-3	11	58.30	63.38	14.8	54.2	49.6	6.0
ene	3	2457390.75	13	29	43.95	-6	47	38.95	63.33	14.8	54.3	40.2	6.7
ene	4	2457391.75	14	15	55.84	-10	8	30.62	63.07	14.8	54.5	31.1	7.4
ene	5	2457392.75	15	3	38.02	-13	6	51.92	62.64	14.9	54.9	22.6	8.1
ene	6	2457393.75	15	53	17.11	-15	34	5.99	62.07	15.1	55.4	14.9	8.9
ene	7	2457394.75	16	45	6.18	-17	20	51.94	61.40	15.3	56.0	8.4	9.7
ene	8	2457395.75	17	38	59.98	-18	17	54.68	60.69	15.4	56.6	3.6	10.5
ene	9	2457396.75	18	34	33.05	-18	17	35.31	59.99	15.6	57.3	0.7	11.4
ene	10	2457397.75	19	31	3.99	-17	15	42.24	59.36	15.8	57.9	0.1	12.2
ene	11	2457398.75	20	27	45.98	-15	13	0.14	58.82	15.9	58.5	1.9	13.1
ene	12	2457399.75	21	24	0.05	-12	15	36.49	58.41	16.0	58.9	6.1	14.0
ene	13	2457400.75	22	19	24.99	-8	34	15.79	58.14	16.1	59.1	12.7	14.8
ene	14	2457401.75	23	14	0.30	-4	22	46.50	57.99	16.1	59.3	21.3	15.7
ene	15	2457402.75	0	8	2.95	+0	3	33.51	57.95	16.2	59.3	31.4	16.5
ene	16	2457403.75	1	2	0.51	+4	29	8.91	58.01	16.1	59.3	42.4	17.4
ene	17	2457404.75	1	56	23.06	+8	38	47.02	58.15	16.1	59.1	53.8	18.2
ene	18	2457405.75	2	51	34.82	+12	18	4.44	58.35	16.1	58.9	65.0	19.1
ene	19	2457406.75	3	47	46.29	+15	13	58.69	58.61	16.0	58.7	75.3	19.9
ene	20	2457407.75	4	44	48.25	+17	15	44.77	58.94	15.9	58.3	84.3	20.8
ene	21	2457408.75	5	42	10.57	+18	16	12.36	59.33	15.8	58.0	91.5	21.7
ene	22	2457409.75	6	39	8.11	+18	12	57.53	59.79	15.7	57.5	96.6	22.6
ene	23	2457410.75	7	34	52.73	+17	8	50.48	60.32	15.5	57.0	99.4	23.4
ene	24	2457411.75	8	28	46.41	+15	11	13.92	60.89	15.4	56.5	99.9	....
ene	25	2457412.75	9	20	29.68	+12	30	28.74	61.48	15.2	55.9	98.3	1.1
ene	26	2457413.75	10	10	3.00	+9	18	3.66	62.06	15.1	55.4	94.7	1.8
ene	27	2457414.75	10	57	43.34	+5	45	8.86	62.59	15.0	54.9	89.5	2.6
ene	28	2457415.75	11	43	58.82	+2	1	47.27	63.02	14.9	54.5	82.8	3.3
ene	29	2457416.75	12	29	24.06	-1	43	16.05	63.31	14.8	54.3	75.1	4.0
ene	30	2457417.75	13	14	36.69	-5	22	20.08	63.43	14.8	54.2	66.5	4.6
ene	31	2457418.75	14	0	14.80	-8	48	19.15	63.35	14.8	54.3	57.4	5.3
feb	1	2457419.75	14	46	54.77	-11	54	10.26	63.08	14.8	54.5	47.9	6.1
feb	2	2457420.75	15	35	8.55	-14	32	24.28	62.61	15.0	54.9	38.3	6.8
feb	3	2457421.75	16	25	19.87	-16	34	51.79	61.97	15.1	55.5	29.0	7.6
feb	4	2457422.75	17	17	39.68	-17	52	54.12	61.19	15.3	56.2	20.3	8.4
feb	5	2457423.75	18	12	2.05	-18	18	11.01	60.34	15.5	57.0	12.6	9.2
feb	6	2457424.75	19	8	2.98	-17	44	8.67	59.48	15.8	57.8	6.4	10.1
feb	7	2457425.75	20	5	4.74	-16	7	48.75	58.68	16.0	58.6	2.0	11.0
feb	8	2457426.75	21	2	25.62	-13	31	22.58	58.00	16.1	59.3	0.1	11.9
feb	9	2457427.75	21	59	31.44	-10	2	49.36	57.50	16.3	59.8	0.8	12.7
feb	10	2457428.75	22	56	3.76	-5	55	16.96	57.21	16.4	60.1	4.2	13.6
feb	11	2457429.75	23	52	1.72	-1	25	23.86	57.13	16.4	60.2	10.2	14.5
feb	12	2457430.75	0	47	38.14	+3	8	43.44	57.25	16.4	60.0	18.4	15.3
feb	13	2457431.75	1	43	12.45	+7	29	20.54	57.54	16.3	59.7	28.3	16.2
feb	14	2457432.75	2	39	2.74	+11	20	25.93	57.96	16.2	59.3	39.3	17.1
feb	15	2457433.75	3	35	18.35	+14	28	34.54	58.45	16.0	58.8	50.6	17.9

Luna, 2016

Efemérides a las 0^h del meridiano 90° W.G.

mes	día	dj	α h	α m	α s	δ °	δ `	δ “	dis Rt	sd “	pax “	fas %	hp h
feb	16	2457434.75	4	31	54.85	+16	43	35.88	58.99	15.9	58.3	61.7	18.8
feb	17	2457435.75	5	28	32.61	+17	59	7.36	59.55	15.7	57.7	72.1	19.7
feb	18	2457436.75	6	24	40.46	+18	12	58.60	60.10	15.6	57.2	81.2	20.6
feb	19	2457437.75	7	19	43.58	+17	27	13.18	60.64	15.4	56.7	88.7	21.4
feb	20	2457438.75	8	13	12.68	+15	47	38.54	61.17	15.3	56.2	94.4	22.2
feb	21	2457439.75	9	4	50.75	+13	22	45.61	61.67	15.2	55.7	98.2	23.0
feb	22	2457440.75	9	54	35.45	+10	22	37.12	62.16	15.1	55.3	99.9	23.8
feb	23	2457441.75	10	42	37.60	+6	57	42.22	62.60	15.0	54.9	99.6	....
feb	24	2457442.75	11	29	17.98	+3	18	9.43	62.99	14.9	54.6	97.4	1.3
feb	25	2457443.75	12	15	3.68	-0	26	38.02	63.30	14.8	54.3	93.5	1.9
feb	26	2457444.75	13	0	25.22	-4	8	8.61	63.50	14.8	54.1	88.1	2.6
feb	27	2457445.75	13	45	54.30	-7	38	34.76	63.56	14.7	54.1	81.4	3.3
feb	28	2457446.75	14	32	2.03	-10	50	36.71	63.46	14.8	54.2	73.5	4.0
feb	29	2457447.75	15	19	16.95	-13	37	3.53	63.17	14.8	54.4	64.7	4.8
mar	1	2457448.75	16	8	2.73	-15	50	37.33	62.71	14.9	54.8	55.3	5.5
mar	2	2457449.75	16	58	35.22	-17	23	49.59	62.06	15.1	55.4	45.5	6.3
mar	3	2457450.75	17	50	59.42	-18	9	17.16	61.26	15.3	56.1	35.6	7.1
mar	4	2457451.75	18	45	7.68	-18	0	24.59	60.35	15.5	57.0	26.0	7.9
mar	5	2457452.75	19	40	40.39	-16	52	34.50	59.39	15.8	57.9	17.2	8.8
mar	6	2457453.75	20	37	10.55	-14	44	33.68	58.45	16.0	58.8	9.6	9.7
mar	7	2457454.75	21	34	10.97	-11	39	52.18	57.61	16.3	59.7	4.0	10.5
mar	8	2457455.75	22	31	21.56	-7	47	27.98	56.95	16.4	60.4	0.7	11.4
mar	9	2457456.75	23	28	33.49	-3	21	35.45	56.52	16.6	60.8	0.2	12.3
mar	10	2457457.75	0	25	48.74	+1	19	28.20	56.37	16.6	61.0	2.6	13.2
mar	11	2457458.75	1	23	15.36	+5	55	27.71	56.49	16.6	60.9	7.8	14.1
mar	12	2457459.75	2	21	0.55	+10	6	35.53	56.86	16.5	60.5	15.5	15.0
mar	13	2457460.75	3	19	3.60	+13	35	48.39	57.43	16.3	59.9	25.0	15.9
mar	14	2457461.75	4	17	11.35	+16	10	28.59	58.14	16.1	59.1	35.7	16.8
mar	15	2457462.75	5	14	58.03	+17	43	16.30	58.91	15.9	58.4	46.8	17.7
mar	16	2457463.75	6	11	50.37	+18	12	14.87	59.69	15.7	57.6	57.8	18.6
mar	17	2457464.75	7	7	15.91	+17	40	9.71	60.45	15.5	56.9	68.1	19.4
mar	18	2457465.75	8	0	51.05	+16	13	18.04	61.14	15.3	56.2	77.3	20.3
mar	19	2457466.75	8	52	25.70	+14	0	8.64	61.76	15.2	55.7	85.2	21.1
mar	20	2457467.75	9	42	3.54	+11	10	12.69	62.29	15.0	55.2	91.5	21.8
mar	21	2457468.75	10	29	59.52	+7	53	14.21	62.74	14.9	54.8	96.2	22.6
mar	22	2457469.75	11	16	36.25	+4	18	43.45	63.10	14.8	54.5	99.0	23.3
mar	23	2457470.75	12	2	20.61	+0	35	44.57	63.38	14.8	54.2	100.0	....
mar	24	2457471.75	12	47	41.21	-3	7	5.41	63.57	14.7	54.1	99.2	0.7
mar	25	2457472.75	13	33	6.47	-6	41	34.29	63.67	14.7	54.0	96.6	1.3
mar	26	2457473.75	14	19	3.08	-9	59	50.02	63.65	14.7	54.0	92.4	2.0
mar	27	2457474.75	15	5	54.51	-12	54	15.82	63.50	14.8	54.1	86.6	2.8
mar	28	2457475.75	15	53	59.37	-15	17	28.59	63.21	14.8	54.4	79.5	3.5
mar	29	2457476.75	16	43	29.62	-17	2	21.86	62.77	14.9	54.8	71.2	4.3
mar	30	2457477.75	17	34	29.14	-18	2	18.92	62.16	15.1	55.3	61.9	5.0
mar	31	2457478.75	18	26	53.21	-18	11	35.94	61.41	15.3	56.0	52.0	5.8
abr	1	2457479.75	19	20	29.82	-17	25	59.27	60.54	15.5	56.8	41.7	6.7

Luna, 2016

Efemérides a las 0^h del meridiano 90º W.G.

mes	día	dj	α h	α m	α s	δ °	δ `	δ “	dis Rt	sd “	pax “	fas %	hp h
abr	2	2457480.75	20	15	3.08	-15	43	31.81	59.59	15.7	57.7	31.4	7.5
abr	3	2457481.75	21	10	17.96	-13	5	24.28	58.61	16.0	58.7	21.7	8.4
abr	4	2457482.75	22	6	5.02	-9	36	43.68	57.69	16.2	59.6	13.1	9.2
abr	5	2457483.75	23	2	23.19	-5	27	11.45	56.91	16.5	60.4	6.2	10.1
abr	6	2457484.75	23	59	19.33	-0	51	13.50	56.33	16.6	61.0	1.7	11.0
abr	7	2457485.75	0	57	4.34	+3	52	34.63	56.03	16.7	61.4	0.0	11.9
abr	8	2457486.75	1	55	46.33	+8	23	5.81	56.04	16.7	61.4	1.3	12.8
abr	9	2457487.75	2	55	22.49	+12	19	19.22	56.35	16.6	61.0	5.7	13.7
abr	10	2457488.75	3	55	32.57	+15	23	26.90	56.91	16.5	60.4	12.5	14.7
abr	11	2457489.75	4	55	38.02	+17	23	33.90	57.68	16.2	59.6	21.4	15.6
abr	12	2457490.75	5	54	49.08	+18	14	58.37	58.57	16.0	58.7	31.5	16.5
abr	13	2457491.75	6	52	17.70	+17	59	47.53	59.50	15.7	57.8	42.2	17.4
abr	14	2457492.75	7	47	29.90	+16	45	9.35	60.42	15.5	56.9	52.8	18.3
abr	15	2457493.75	8	40	12.08	+14	40	55.06	61.25	15.3	56.1	63.0	19.1
abr	16	2457494.75	9	30	30.18	+11	57	43.61	61.98	15.1	55.5	72.4	19.9
abr	17	2457495.75	10	18	44.61	+8	45	51.76	62.58	15.0	54.9	80.7	20.6
abr	18	2457496.75	11	5	24.45	+5	14	48.26	63.05	14.9	54.5	87.7	21.3
abr	19	2457497.75	11	51	2.58	+1	33	15.93	63.39	14.8	54.2	93.3	22.0
abr	20	2457498.75	12	36	12.40	-2	10	33.47	63.60	14.7	54.0	97.2	22.7
abr	21	2457499.75	13	21	25.70	-5	48	42.88	63.70	14.7	54.0	99.5	23.4
abr	22	2457500.75	14	7	10.89	-9	13	17.32	63.69	14.7	54.0	100.0	....
abr	23	2457501.75	14	53	51.41	-12	16	20.28	63.58	14.7	54.1	98.7	0.8
abr	24	2457502.75	15	41	44.04	-14	49	58.33	63.37	14.8	54.2	95.6	1.5
abr	25	2457503.75	16	30	57.13	-16	46	37.34	63.05	14.9	54.5	90.8	2.3
abr	26	2457504.75	17	21	29.69	-17	59	27.86	62.61	15.0	54.9	84.4	3.0
abr	27	2457505.75	18	13	11.86	-18	22	56.14	62.07	15.1	55.4	76.6	3.8
abr	28	2457506.75	19	5	47.62	-17	53	17.68	61.40	15.3	56.0	67.6	4.7
abr	29	2457507.75	19	58	59.50	-16	29	4.51	60.64	15.4	56.7	57.6	5.5
abr	30	2457508.75	20	52	33.99	-14	11	25.81	59.79	15.7	57.5	47.1	6.3
may	1	2457509.75	21	46	26.24	-11	4	22.66	58.91	15.9	58.4	36.3	7.1
may	2	2457510.75	22	40	42.16	-7	15	3.80	58.04	16.1	59.2	25.9	8.0
may	3	2457511.75	23	35	37.79	-2	54	6.73	57.26	16.4	60.0	16.5	8.8
may	4	2457512.75	0	31	35.54	+1	44	5.59	56.63	16.5	60.7	8.7	9.7
may	5	2457513.75	1	28	57.54	+6	21	32.94	56.23	16.7	61.1	3.1	10.6
may	6	2457514.75	2	27	56.39	+10	37	42.62	56.10	16.7	61.3	0.3	11.5
may	7	2457515.75	3	28	24.89	+14	11	52.17	56.27	16.6	61.1	0.5	12.4
may	8	2457516.75	4	29	48.99	+16	46	35.30	56.73	16.5	60.6	3.7	13.4
may	9	2457517.75	5	31	9.91	+18	11	4.11	57.43	16.3	59.9	9.6	14.4
may	10	2457518.75	6	31	18.17	+18	22	57.06	58.30	16.1	59.0	17.4	15.3
may	11	2457519.75	7	29	13.74	+17	27	37.05	59.25	15.8	58.0	26.7	16.2
may	12	2457520.75	8	24	21.29	+15	35	32.16	60.23	15.6	57.1	36.7	17.0
may	13	2457521.75	9	16	34.23	+12	59	10.16	61.14	15.3	56.2	46.9	17.8
may	14	2457522.75	10	6	9.27	+9	50	41.56	61.95	15.1	55.5	57.0	18.6
may	15	2457523.75	10	53	37.78	+6	20	54.43	62.61	15.0	54.9	66.5	19.3
may	16	2457524.75	11	39	38.13	+2	39	6.70	63.11	14.8	54.5	75.2	20.0
may	17	2457525.75	12	24	50.41	-1	6	31.55	63.44	14.8	54.2	82.9	20.7

Luna, 2016

Efemérides a las 0^h del meridiano 90° W.G.

mes	día	dj	h	α m	s	°	δ `	“	dis Rt	sd “	pax “	fas %	hp h
may	18	2457526.75	13	9	53.24	-4	48	25.98	63.61	14.7	54.0	89.4	21.4
may	19	2457527.75	13	55	21.63	-8	19	7.99	63.64	14.7	54.0	94.5	22.1
may	20	2457528.75	14	41	44.98	-11	30	55.41	63.53	14.7	54.1	98.0	22.8
may	21	2457529.75	15	29	24.88	-14	15	47.45	63.32	14.8	54.3	99.8	23.5
may	22	2457530.75	16	18	32.65	-16	25	38.50	63.02	14.9	54.5	99.8	....
may	23	2457531.75	17	9	7.40	-17	52	50.72	62.63	15.0	54.9	97.8	1.1
may	24	2457532.75	18	0	55.92	-18	31	1.24	62.18	15.1	55.3	94.0	1.9
may	25	2457533.75	18	53	35.56	-18	15	53.61	61.66	15.2	55.8	88.4	2.7
may	26	2457534.75	19	46	40.27	-17	5	56.86	61.08	15.3	56.3	81.1	3.5
may	27	2457535.75	20	39	48.12	-15	2	41.12	60.45	15.5	56.9	72.3	4.3
may	28	2457536.75	21	32	47.87	-12	10	31.28	59.77	15.7	57.5	62.3	5.1
may	29	2457537.75	22	25	42.33	-8	36	28.99	59.06	15.9	58.2	51.6	5.9
may	30	2457538.75	23	18	48.27	-4	30	0.15	58.37	16.1	58.9	40.5	6.8
may	31	2457539.75	0	12	33.05	-0	2	57.39	57.72	16.2	59.6	29.6	7.6
jun	1	2457540.75	1	7	29.07	+4	30	9.44	57.18	16.4	60.1	19.6	8.4
jun	2	2457541.75	2	4	5.60	+8	52	14.49	56.80	16.5	60.5	11.0	9.3
jun	3	2457542.75	3	2	38.32	+12	44	22.36	56.63	16.5	60.7	4.6	10.2
jun	4	2457543.75	4	2	58.13	+15	47	48.80	56.70	16.5	60.6	0.9	11.2
jun	5	2457544.75	5	4	24.18	+17	47	12.49	57.03	16.4	60.3	0.1	12.1
jun	6	2457545.75	6	5	48.28	+18	33	57.17	57.59	16.3	59.7	2.1	13.1
jun	7	2457546.75	7	5	52.87	+18	8	0.13	58.34	16.1	58.9	6.7	14.0
jun	8	2457547.75	8	3	34.39	+16	37	1.17	59.22	15.8	58.0	13.4	14.9
jun	9	2457548.75	8	58	18.94	+14	13	26.47	60.14	15.6	57.2	21.5	15.8
jun	10	2457549.75	9	50	4.31	+11	11	7.67	61.04	15.3	56.3	30.7	16.6
jun	11	2457550.75	10	39	12.42	+7	43	1.81	61.85	15.1	55.6	40.3	17.3
jun	12	2457551.75	11	26	19.38	+4	0	12.13	62.53	15.0	55.0	50.1	18.0
jun	13	2457552.75	12	12	7.44	+0	11	49.57	63.04	14.9	54.5	59.6	18.7
jun	14	2457553.75	12	57	19.93	-3	34	14.91	63.36	14.8	54.3	68.7	19.4
jun	15	2457554.75	13	42	38.04	-7	10	49.36	63.50	14.8	54.1	77.1	20.1
jun	16	2457555.75	14	28	38.59	-10	30	43.85	63.46	14.8	54.2	84.5	20.8
jun	17	2457556.75	15	15	51.55	-13	26	26.34	63.26	14.8	54.4	90.8	21.5
jun	18	2457557.75	16	4	37.11	-15	49	57.70	62.94	14.9	54.6	95.6	22.3
jun	19	2457558.75	16	55	2.36	-17	33	10.82	62.52	15.0	55.0	98.7	23.1
jun	20	2457559.75	17	46	59.23	-18	28	38.06	62.04	15.1	55.4	100.0	23.9
jun	21	2457560.75	18	40	5.22	-18	30	37.40	61.52	15.2	55.9	99.2	....
jun	22	2457561.75	19	33	48.48	-17	36	19.18	60.98	15.4	56.4	96.4	1.5
jun	23	2457562.75	20	27	36.51	-15	46	29.60	60.44	15.5	56.9	91.5	2.3
jun	24	2457563.75	21	21	5.49	-13	5	35.26	59.91	15.6	57.4	84.7	3.2
jun	25	2457564.75	22	14	6.59	-9	41	12.31	59.40	15.8	57.9	76.1	4.0
jun	26	2457565.75	23	6	47.86	-5	43	22.75	58.90	15.9	58.4	66.2	4.8
jun	27	2457566.75	23	59	31.84	-1	23	57.39	58.44	16.0	58.8	55.3	5.6
jun	28	2457567.75	0	52	50.63	+3	3	41.42	58.03	16.1	59.2	43.9	6.4
jun	29	2457568.75	1	47	18.95	+7	24	43.25	57.69	16.2	59.6	32.7	7.3
jun	30	2457569.75	2	43	25.59	+11	23	0.54	57.47	16.3	59.8	22.3	8.1
jul	1	2457570.75	3	41	23.10	+14	41	54.60	57.38	16.3	59.9	13.3	9.0
jul	2	2457571.75	4	40	58.00	+17	5	58.89	57.46	16.3	59.8	6.4	10.0

Luna, 2016

Efemérides a las 0^h del meridiano 90º W.G.

mes	día	dj	h	α m	s	°	δ `	“	dis Rt	sd “	pax “	fas %	hp h
jul	3	2457572.75	5	41	26.55	+18	23	39.18	57.73	16.2	59.5	1.9	10.9
jul	4	2457573.75	6	41	41.87	+18	29	49.28	58.19	16.1	59.1	0.0	11.8
jul	5	2457574.75	7	40	32.48	+17	27	3.51	58.80	15.9	58.5	0.9	12.8
jul	6	2457575.75	8	37	3.14	+15	24	33.04	59.54	15.7	57.7	4.1	13.6
jul	7	2457576.75	9	30	47.19	+12	35	22.18	60.34	15.5	57.0	9.4	14.5
jul	8	2457577.75	10	21	46.69	+9	13	31.27	61.14	15.3	56.2	16.3	15.3
jul	9	2457578.75	11	10	24.98	+5	31	54.93	61.89	15.1	55.5	24.4	16.0
jul	10	2457579.75	11	57	17.85	+1	41	30.82	62.52	15.0	55.0	33.3	16.7
jul	11	2457580.75	12	43	6.60	-2	8	36.97	63.00	14.9	54.6	42.6	17.4
jul	12	2457581.75	13	28	33.44	-5	50	45.88	63.29	14.8	54.3	52.1	18.1
jul	13	2457582.75	14	14	18.67	-9	17	54.40	63.38	14.8	54.2	61.5	18.8
jul	14	2457583.75	15	0	58.19	-12	23	4.54	63.28	14.8	54.3	70.5	19.5
jul	15	2457584.75	15	49	0.74	-14	58	56.67	63.00	14.9	54.6	78.8	20.2
jul	16	2457585.75	16	38	44.41	-16	57	45.63	62.57	15.0	55.0	86.2	21.0
jul	17	2457586.75	17	30	13.19	-18	11	43.73	62.03	15.1	55.4	92.3	21.8
jul	18	2457587.75	18	23	14.82	-18	33	55.45	61.41	15.2	56.0	96.8	22.6
jul	19	2457588.75	19	17	22.52	-17	59	34.10	60.78	15.4	56.6	99.4	23.5
jul	20	2457589.75	20	12	1.26	-16	27	18.59	60.16	15.6	57.1	99.9	....
jul	21	2457590.75	21	6	37.59	-14	0	0.29	59.59	15.7	57.7	98.1	1.1
jul	22	2457591.75	22	0	48.93	-10	44	42.26	59.10	15.8	58.2	94.0	2.0
jul	23	2457592.75	22	54	29.06	-6	51	56.10	58.69	16.0	58.6	87.6	2.8
jul	24	2457593.75	23	47	48.40	-2	34	37.90	58.38	16.1	58.9	79.3	3.6
jul	25	2457594.75	0	41	10.22	+1	52	50.79	58.16	16.1	59.1	69.4	4.5
jul	26	2457595.75	1	35	4.54	+6	15	25.36	58.02	16.1	59.2	58.4	5.3
jul	27	2457596.75	2	30	0.53	+10	17	47.11	57.96	16.2	59.3	46.9	6.1
jul	28	2457597.75	3	26	18.02	+13	44	53.96	57.98	16.2	59.3	35.6	7.0
jul	29	2457598.75	4	23	58.96	+16	22	55.87	58.09	16.1	59.2	25.0	7.9
jul	30	2457599.75	5	22	41.44	+18	0	44.22	58.30	16.1	59.0	15.8	8.8
jul	31	2457600.75	6	21	40.72	+18	31	41.94	58.62	16.0	58.6	8.4	9.7
ago	1	2457601.75	7	19	59.19	+17	55	8.32	59.04	15.9	58.2	3.3	10.6
ago	2	2457602.75	8	16	42.43	+16	16	29.21	59.57	15.7	57.7	0.5	11.5
ago	3	2457603.75	9	11	13.49	+13	45	57.18	60.18	15.6	57.1	0.1	12.4
ago	4	2457604.75	10	3	18.99	+10	36	18.46	60.84	15.4	56.5	2.0	13.2
ago	5	2457605.75	10	53	7.31	+7	0	44.84	61.51	15.2	55.9	5.9	13.9
ago	6	2457606.75	11	41	2.39	+3	11	25.71	62.13	15.1	55.3	11.5	14.7
ago	7	2457607.75	12	27	37.18	-0	41	8.38	62.68	14.9	54.9	18.4	15.4
ago	8	2457608.75	13	13	28.68	-4	28	4.07	63.08	14.8	54.5	26.4	16.1
ago	9	2457609.75	13	59	14.43	-8	1	41.73	63.33	14.8	54.3	35.2	16.8
ago	10	2457610.75	14	45	30.13	-11	15	1.65	63.38	14.8	54.2	44.5	17.5
ago	11	2457611.75	15	32	47.20	-14	1	14.17	63.23	14.8	54.4	54.0	18.2
ago	12	2457612.75	16	21	30.12	-16	13	18.97	62.88	14.9	54.7	63.4	19.0
ago	13	2457613.75	17	11	53.15	-17	44	3.85	62.36	15.0	55.1	72.5	19.7
ago	14	2457614.75	18	3	57.43	-18	26	28.96	61.70	15.2	55.7	80.9	20.5
ago	15	2457615.75	18	57	29.81	-18	14	40.54	60.95	15.4	56.4	88.3	21.4
ago	16	2457616.75	19	52	5.18	-17	5	5.18	60.17	15.6	57.1	94.2	22.2
ago	17	2457617.75	20	47	12.86	-14	57	45.43	59.42	15.8	57.9	98.2	23.1

Luna, 2016

Efemérides a las 0^h del meridiano 90° W.G.

				α			δ		dis	sd	pax	fas	hp
mes	día	dj	h	m	s	°	`	“	Rt	“	“	%	h
ago	18	2457618.75	21	42	25.22	-11	57	10.81	58.74	15.9	58.5	99.9	23.9
ago	19	2457619.75	22	37	25.23	-8	12	23.62	58.20	16.1	59.1	99.2	....
ago	20	2457620.75	23	32	10.16	-3	56	19.36	57.81	16.2	59.5	95.9	1.6
ago	21	2457621.75	0	26	50.60	+0	35	23.96	57.60	16.3	59.7	90.0	2.4
ago	22	2457622.75	1	21	45.86	+5	5	49.30	57.55	16.3	59.7	82.0	3.3
ago	23	2457623.75	2	17	17.19	+9	17	58.21	57.65	16.2	59.6	72.2	4.2
ago	24	2457624.75	3	13	40.12	+12	55	59.29	57.86	16.2	59.4	61.3	5.0
ago	25	2457625.75	4	10	57.25	+15	46	11.48	58.17	16.1	59.1	49.9	5.9
ago	26	2457626.75	5	8	53.44	+17	38	8.69	58.54	16.0	58.7	38.6	6.8
ago	27	2457627.75	6	6	56.02	+18	25	43.28	58.96	15.9	58.3	28.0	7.7
ago	28	2457628.75	7	4	21.62	+18	7	50.17	59.42	15.8	57.9	18.7	8.6
ago	29	2457629.75	8	0	27.34	+16	48	26.27	59.91	15.6	57.4	11.0	9.5
ago	30	2457630.75	8	54	41.67	+14	35	39.52	60.44	15.5	56.9	5.2	10.3
ago	31	2457631.75	9	46	50.38	+11	40	20.39	60.98	15.4	56.4	1.6	11.1
sep	1	2457632.75	10	36	56.72	+8	14	28.74	61.53	15.2	55.9	0.1	11.9
sep	2	2457633.75	11	25	17.58	+4	29	57.47	62.07	15.1	55.4	0.6	12.6
sep	3	2457634.75	12	12	18.64	+0	37	46.89	62.57	15.0	55.0	3.1	13.4
sep	4	2457635.75	12	58	30.18	-3	12	15.04	62.99	14.9	54.6	7.3	14.1
sep	5	2457636.75	13	44	23.87	-6	51	31.67	63.31	14.8	54.3	13.0	14.8
sep	6	2457637.75	14	30	30.54	-10	12	22.72	63.48	14.8	54.2	20.0	15.5
sep	7	2457638.75	15	17	18.27	-13	7	46.52	63.49	14.8	54.1	28.1	16.2
sep	8	2457639.75	16	5	10.47	-15	31	0.66	63.30	14.8	54.3	37.0	16.9
sep	9	2457640.75	16	54	23.72	-17	15	33.20	62.93	14.9	54.6	46.5	17.7
sep	10	2457641.75	17	45	5.66	-18	15	6.40	62.36	15.0	55.1	56.2	18.4
sep	11	2457642.75	18	37	13.76	-18	24	0.55	61.64	15.2	55.8	65.9	19.2
sep	12	2457643.75	19	30	35.86	-17	37	57.82	60.79	15.4	56.6	75.2	20.1
sep	13	2457644.75	20	24	53.32	-15	55	1.10	59.88	15.7	57.4	83.7	20.9
sep	14	2457645.75	21	19	46.42	-13	16	36.09	58.98	15.9	58.3	90.9	21.8
sep	15	2457646.75	22	15	0.25	-9	48	20.44	58.15	16.1	59.1	96.3	22.6
sep	16	2457647.75	23	10	28.90	-5	40	26.96	57.47	16.3	59.8	99.4	23.5
sep	17	2457648.75	0	6	16.46	-1	7	25.23	57.00	16.4	60.3	99.8	....
sep	18	2457649.75	1	2	34.25	+3	32	57.02	56.77	16.5	60.6	97.4	1.2
sep	19	2457650.75	1	59	35.18	+8	1	14.26	56.77	16.5	60.5	92.2	2.1
sep	20	2457651.75	2	57	26.40	+11	58	25.65	57.01	16.4	60.3	84.6	3.0
sep	21	2457652.75	3	56	2.37	+15	8	3.21	57.42	16.3	59.9	75.1	3.9
sep	22	2457653.75	4	55	0.94	+17	18	0.73	57.97	16.2	59.3	64.4	4.8
sep	23	2457654.75	5	53	45.21	+18	21	45.71	58.60	16.0	58.7	53.2	5.7
sep	24	2457655.75	6	51	31.60	+18	18	35.90	59.27	15.8	58.0	42.1	6.6
sep	25	2457656.75	7	47	41.02	+17	12	57.23	59.93	15.6	57.4	31.6	7.5
sep	26	2457657.75	8	41	48.17	+15	13	1.59	60.56	15.5	56.8	22.2	8.3
sep	27	2457658.75	9	33	45.16	+12	29	9.13	61.16	15.3	56.2	14.3	9.1
sep	28	2457659.75	10	23	40.01	+9	12	28.65	61.71	15.2	55.7	7.9	9.9
sep	29	2457660.75	11	11	52.30	+5	34	3.18	62.22	15.1	55.3	3.4	10.6
sep	30	2457661.75	11	58	48.31	+1	44	22.29	62.66	14.9	54.9	0.8	11.4
oct	1	2457662.75	12	44	57.24	-2	6	48.65	63.05	14.9	54.5	0.0	12.1
oct	2	2457663.75	13	30	48.30	-5	50	29.89	63.36	14.8	54.3	1.1	12.8

Luna, 2016

Efemérides a las 0^h del meridiano 90º W.G.

mes	día	dj	h	α m	s	°	δ `	“	dis Rt	sd “	pax “	fas %	hp h
oct	3	2457664.75	14	16	48.82	-9	18	23.51	63.57	14.7	54.1	4.0	13.5
oct	4	2457665.75	15	3	22.66	-12	22	49.15	63.67	14.7	54.0	8.5	14.2
oct	5	2457666.75	15	50	48.76	-14	56	40.30	63.62	14.7	54.0	14.5	14.9
oct	6	2457667.75	16	39	19.83	-16	53	23.95	63.42	14.8	54.2	21.8	15.6
oct	7	2457668.75	17	29	1.36	-18	7	5.75	63.04	14.9	54.5	30.2	16.4
oct	8	2457669.75	18	19	51.52	-18	32	42.91	62.49	15.0	55.0	39.4	17.2
oct	9	2457670.75	19	11	42.38	-18	6	25.47	61.77	15.2	55.7	49.3	18.0
oct	10	2457671.75	20	4	22.73	-16	46	4.34	60.91	15.4	56.5	59.4	18.8
oct	11	2457672.75	20	57	42.04	-14	31	46.08	59.95	15.6	57.4	69.4	19.6
oct	12	2457673.75	21	51	34.50	-11	26	30.51	58.96	15.9	58.3	78.9	20.4
oct	13	2457674.75	22	46	1.91	-7	36	50.30	58.01	16.1	59.3	87.3	21.3
oct	14	2457675.75	23	41	14.18	-3	13	26.02	57.18	16.4	60.1	94.0	22.1
oct	15	2457676.75	0	37	27.10	+1	28	40.57	56.55	16.6	60.8	98.4	23.0
oct	16	2457677.75	1	34	57.01	+6	10	35.54	56.19	16.7	61.2	100.0	23.9
oct	17	2457678.75	2	33	52.77	+10	31	6.92	56.12	16.7	61.3	98.6	....
oct	18	2457679.75	3	34	6.86	+14	9	26.85	56.34	16.6	61.0	94.2	1.8
oct	19	2457680.75	4	35	9.09	+16	48	29.40	56.82	16.5	60.5	87.2	2.7
oct	20	2457681.75	5	36	8.17	+18	17	43.24	57.50	16.3	59.8	78.3	3.7
oct	21	2457682.75	6	36	3.03	+18	34	30.94	58.31	16.1	59.0	68.1	4.6
oct	22	2457683.75	7	33	59.65	+17	43	25.59	59.18	15.8	58.1	57.3	5.5
oct	23	2457684.75	8	29	24.54	+15	53	54.54	60.04	15.6	57.3	46.5	6.4
oct	24	2457685.75	9	22	9.03	+13	17	42.08	60.85	15.4	56.5	36.2	7.2
oct	25	2457686.75	10	12	25.58	+10	6	49.31	61.57	15.2	55.8	26.7	7.9
oct	26	2457687.75	11	0	40.50	+6	32	30.54	62.19	15.1	55.3	18.4	8.7
oct	27	2457688.75	11	47	26.99	+2	44	56.37	62.71	14.9	54.8	11.5	9.4
oct	28	2457689.75	12	33	20.16	-1	6	37.63	63.12	14.8	54.5	6.1	10.1
oct	29	2457690.75	13	18	53.72	-4	53	33.99	63.42	14.8	54.2	2.3	10.8
oct	30	2457691.75	14	4	37.79	-8	27	38.48	63.63	14.7	54.0	0.3	11.5
oct	31	2457692.75	14	50	57.27	-11	40	53.33	63.74	14.7	53.9	0.1	12.2
nov	1	2457693.75	15	38	10.25	-14	25	39.00	63.75	14.7	53.9	1.7	12.9
nov	2	2457694.75	16	26	26.65	-16	34	45.89	63.64	14.7	54.0	5.1	13.6
nov	3	2457695.75	17	15	47.56	-18	1	54.12	63.41	14.8	54.2	10.0	14.4
nov	4	2457696.75	18	6	5.82	-18	41	56.29	63.05	14.9	54.5	16.5	15.2
nov	5	2457697.75	18	57	8.53	-18	31	20.70	62.54	15.0	55.0	24.3	16.0
nov	6	2457698.75	19	48	41.13	-17	28	29.11	61.89	15.1	55.5	33.2	16.8
nov	7	2457699.75	20	40	32.39	-15	33	45.84	61.10	15.3	56.3	43.0	17.6
nov	8	2457700.75	21	32	38.69	-12	49	45.26	60.21	15.6	57.1	53.4	18.4
nov	9	2457701.75	22	25	6.69	-9	21	22.24	59.25	15.8	58.0	63.9	19.2
nov	10	2457702.75	23	18	13.56	-5	16	14.63	58.28	16.1	59.0	74.2	20.0
nov	11	2457703.75	0	12	24.92	-0	45	17.97	57.39	16.3	59.9	83.5	20.8
nov	12	2457704.75	1	8	10.14	+3	56	40.26	56.65	16.5	60.7	91.4	21.7
nov	13	2457705.75	2	5	54.58	+8	30	58.55	56.13	16.7	61.2	96.9	22.6
nov	14	2457706.75	3	5	48.68	+12	36	9.59	55.90	16.8	61.5	99.7	23.5
nov	15	2457707.75	4	7	36.00	+15	50	49.39	55.99	16.7	61.4	99.4	....
nov	16	2457708.75	5	10	26.61	+17	57	45.37	56.39	16.6	61.0	96.1	1.5
nov	17	2457709.75	6	13	3.61	+18	47	50.94	57.04	16.4	60.3	90.1	2.4

Luna, 2016

Efemérides a las 0^h del meridiano 90° W.G.

mes	día	dj	h	α m	s	°	δ `	“	dis Rt	sd “	pax “	fas %	hp h
nov	18	2457710.75	7	14	4.29	+18	21	43.50	57.89	16.2	59.4	82.0	3.4
nov	19	2457711.75	8	12	25.14	+16	48	12.76	58.84	15.9	58.4	72.5	4.3
nov	20	2457712.75	9	7	36.24	+14	20	44.82	59.83	15.7	57.5	62.3	5.1
nov	21	2457713.75	9	59	40.54	+11	13	47.84	60.77	15.4	56.6	51.9	5.9
nov	22	2457714.75	10	49	4.26	+7	40	39.24	61.62	15.2	55.8	41.8	6.7
nov	23	2457715.75	11	36	25.85	+3	52	38.71	62.34	15.0	55.1	32.3	7.4
nov	24	2457716.75	12	22	27.95	-0	0	40.85	62.91	14.9	54.6	23.6	8.1
nov	25	2457717.75	13	7	52.32	-3	50	59.68	63.32	14.8	54.3	16.0	8.8
nov	26	2457718.75	13	53	16.96	-7	30	34.67	63.59	14.7	54.1	9.7	9.5
nov	27	2457719.75	14	39	13.94	-10	51	52.22	63.72	14.7	54.0	4.8	10.2
nov	28	2457720.75	15	26	7.46	-13	47	16.56	63.73	14.7	53.9	1.6	10.9
nov	29	2457721.75	16	14	11.75	-16	9	15.14	63.64	14.7	54.0	0.1	11.7
nov	30	2457722.75	17	3	29.41	-17	50	42.79	63.44	14.8	54.2	0.4	12.4
dic	1	2457723.75	17	53	51.25	-18	45	39.99	63.16	14.8	54.4	2.6	13.2
dic	2	2457724.75	18	44	58.58	-18	49	54.63	62.78	14.9	54.8	6.5	14.0
dic	3	2457725.75	19	36	28.36	-18	1	34.92	62.31	15.0	55.2	12.1	14.8
dic	4	2457726.75	20	28	0.00	-16	21	23.45	61.75	15.2	55.7	19.4	15.6
dic	5	2457727.75	21	19	21.76	-13	52	28.59	61.09	15.3	56.3	28.0	16.4
dic	6	2457728.75	22	10	34.76	-10	40	6.89	60.35	15.5	57.0	37.7	17.1
dic	7	2457729.75	23	1	54.04	-6	51	28.48	59.54	15.7	57.7	48.2	17.9
dic	8	2457730.75	23	53	46.89	-2	35	41.81	58.71	16.0	58.6	59.1	18.7
dic	9	2457731.75	0	46	49.11	+1	55	42.82	57.90	16.2	59.4	69.9	19.6
dic	10	2457732.75	1	41	39.20	+6	28	19.24	57.18	16.4	60.1	80.0	20.4
dic	11	2457733.75	2	38	49.32	+10	44	30.81	56.62	16.6	60.7	88.7	21.3
dic	12	2457734.75	3	38	32.92	+14	24	17.54	56.28	16.6	61.1	95.2	22.2
dic	13	2457735.75	4	40	31.09	+17	7	45.52	56.21	16.7	61.2	99.1	23.2
dic	14	2457736.75	5	43	45.52	+18	39	13.59	56.44	16.6	60.9	99.9	....
dic	15	2457737.75	6	46	47.68	+18	51	25.05	56.94	16.4	60.4	97.8	1.2
dic	16	2457738.75	7	48	5.05	+17	47	17.00	57.68	16.2	59.6	93.0	2.1
dic	17	2457739.75	8	46	29.97	+15	38	13.96	58.58	16.0	58.7	86.0	3.0
dic	18	2457740.75	9	41	34.03	+12	40	1.58	59.56	15.7	57.7	77.6	3.9
dic	19	2457741.75	10	33	24.89	+9	8	47.28	60.54	15.5	56.8	68.2	4.7
dic	20	2457742.75	11	22	34.00	+5	18	40.48	61.45	15.2	55.9	58.3	5.4
dic	21	2457743.75	12	9	44.44	+1	21	12.62	62.23	15.1	55.2	48.4	6.1
dic	22	2457744.75	12	55	42.54	-2	34	20.08	62.86	14.9	54.7	38.8	6.8
dic	23	2457745.75	13	41	12.95	-6	20	10.33	63.30	14.8	54.3	29.7	7.5
dic	24	2457746.75	14	26	55.76	-9	49	12.46	63.55	14.7	54.1	21.5	8.2
dic	25	2457747.75	15	13	24.20	-12	54	27.52	63.63	14.7	54.0	14.2	8.9
dic	26	2457748.75	16	1	2.20	-15	28	46.99	63.56	14.7	54.1	8.3	9.7
dic	27	2457749.75	16	50	1.73	-17	24	58.53	63.36	14.8	54.3	3.8	10.4
dic	28	2457750.75	17	40	20.85	-18	36	17.84	63.05	14.9	54.5	1.0	11.2
dic	29	2457751.75	18	31	43.78	-18	57	18.76	62.66	14.9	54.9	0.0	12.0
dic	30	2457752.75	19	23	44.63	-18	24	50.35	62.22	15.1	55.2	0.9	12.8

Mercurio, 2016

Efemérides a las 0^h del meridiano 90º W.G.

mes	día	dj	α h	α m	α s	δ °	δ `	δ “	dis UA	hp h
ene	1	2457388.75	20	7	5.75	-20	57	12.23	0.91410	13.4
ene	2	2457389.75	20	9	29.98	-20	35	29.68	0.88796	13.4
ene	3	2457390.75	20	11	16.21	-20	14	27.22	0.86202	13.4
ene	4	2457391.75	20	12	21.05	-19	54	23.83	0.83651	13.3
ene	5	2457392.75	20	12	41.42	-19	35	38.62	0.81172	13.3
ene	6	2457393.75	20	12	14.82	-19	18	30.05	0.78793	13.2
ene	7	2457394.75	20	10	59.59	-19	3	14.98	0.76546	13.1
ene	8	2457395.75	20	8	55.31	-18	50	7.58	0.74463	13.0
ene	9	2457396.75	20	6	3.03	-18	39	18.39	0.72576	12.9
ene	10	2457397.75	20	2	25.65	-18	30	53.48	0.70914	12.8
ene	11	2457398.75	19	58	7.98	-18	24	54.04	0.69504	12.6
ene	12	2457399.75	19	53	16.76	-18	21	16.41	0.68367	12.5
ene	13	2457400.75	19	48	0.44	-18	19	52.65	0.67518	12.3
ene	14	2457401.75	19	42	28.72	-18	20	31.48	0.66965	12.2
ene	15	2457402.75	19	36	51.94	-18	22	59.54	0.66706	12.0
ene	16	2457403.75	19	31	20.37	-18	27	2.58	0.66736	11.8
ene	17	2457404.75	19	26	3.56	-18	32	26.44	0.67039	11.7
ene	18	2457405.75	19	21	9.75	-18	38	57.73	0.67597	11.5
ene	19	2457406.75	19	16	45.60	-18	46	24.09	0.68385	11.4
ene	20	2457407.75	19	12	55.98	-18	54	34.25	0.69379	11.3
ene	21	2457408.75	19	9	44.02	-19	3	17.89	0.70552	11.2
ene	22	2457409.75	19	7	11.35	-19	12	25.49	0.71878	11.1
ene	23	2457410.75	19	5	18.27	-19	21	48.13	0.73331	11.0
ene	24	2457411.75	19	4	4.10	-19	31	17.42	0.74888	10.9
ene	25	2457412.75	19	3	27.41	-19	40	45.42	0.76529	10.8
ene	26	2457413.75	19	3	26.30	-19	50	4.65	0.78234	10.7
ene	27	2457414.75	19	3	58.55	-19	59	8.07	0.79986	10.7
ene	28	2457415.75	19	5	1.80	-20	7	49.14	0.81772	10.6
ene	29	2457416.75	19	6	33.68	-20	16	1.76	0.83578	10.6
ene	30	2457417.75	19	8	31.83	-20	23	40.37	0.85394	10.5
ene	31	2457418.75	19	10	54.01	-20	30	39.87	0.87211	10.5
feb	1	2457419.75	19	13	38.10	-20	36	55.65	0.89022	10.5
feb	2	2457420.75	19	16	42.15	-20	42	23.55	0.90820	10.5
feb	3	2457421.75	19	20	4.33	-20	46	59.84	0.92600	10.5
feb	4	2457422.75	19	23	42.97	-20	50	41.18	0.94359	10.5
feb	5	2457423.75	19	27	36.57	-20	53	24.63	0.96092	10.5
feb	6	2457424.75	19	31	43.74	-20	55	7.57	0.97796	10.5
feb	7	2457425.75	19	36	3.23	-20	55	47.66	0.99470	10.5
feb	8	2457426.75	19	40	33.91	-20	55	22.88	1.01112	10.5
feb	9	2457427.75	19	45	14.75	-20	53	51.42	1.02720	10.5
feb	10	2457428.75	19	50	4.83	-20	51	11.69	1.04294	10.5
feb	11	2457429.75	19	55	3.32	-20	47	22.32	1.05832	10.5
feb	12	2457430.75	20	0	9.46	-20	42	22.09	1.07335	10.6
feb	13	2457431.75	20	5	22.59	-20	36	9.95	1.08801	10.6
feb	14	2457432.75	20	10	42.08	-20	28	44.99	1.10232	10.6
feb	15	2457433.75	20	16	7.40	-20	20	6.45	1.11626	10.6

Mercurio, 2016

Efemérides a las 0^h del meridiano 90° W.G.

mes	día	dj	h	α m	s	°	δ `	“	dis UA	hp h
feb	16	2457434.75	20	21	38.04	-20	10	13.63	1.12983	10.6
feb	17	2457435.75	20	27	13.56	-19	59	5.98	1.14304	10.7
feb	18	2457436.75	20	32	53.55	-19	46	43.01	1.15590	10.7
feb	19	2457437.75	20	38	37.66	-19	33	4.29	1.16839	10.7
feb	20	2457438.75	20	44	25.55	-19	18	9.49	1.18053	10.8
feb	21	2457439.75	20	50	16.93	-19	1	58.32	1.19230	10.8
feb	22	2457440.75	20	56	11.56	-18	44	30.54	1.20373	10.8
feb	23	2457441.75	21	2	9.18	-18	25	45.96	1.21480	10.9
feb	24	2457442.75	21	8	9.61	-18	5	44.46	1.22551	10.9
feb	25	2457443.75	21	14	12.65	-17	44	25.93	1.23587	10.9
feb	26	2457444.75	21	20	18.17	-17	21	50.30	1.24588	11.0
feb	27	2457445.75	21	26	26.01	-16	57	57.55	1.25553	11.0
feb	28	2457446.75	21	32	36.07	-16	32	47.69	1.26482	11.0
feb	29	2457447.75	21	38	48.25	-16	6	20.75	1.27375	11.1
mar	1	2457448.75	21	45	2.48	-15	38	36.80	1.28232	11.1
mar	2	2457449.75	21	51	18.69	-15	9	35.92	1.29051	11.2
mar	3	2457450.75	21	57	36.84	-14	39	18.25	1.29833	11.2
mar	4	2457451.75	22	3	56.91	-14	7	43.94	1.30577	11.2
mar	5	2457452.75	22	10	18.87	-13	34	53.16	1.31281	11.3
mar	6	2457453.75	22	16	42.74	-13	0	46.16	1.31945	11.3
mar	7	2457454.75	22	23	8.52	-12	25	23.18	1.32568	11.4
mar	8	2457455.75	22	29	36.25	-11	48	44.53	1.33148	11.4
mar	9	2457456.75	22	36	5.96	-11	10	50.58	1.33683	11.4
mar	10	2457457.75	22	42	37.70	-10	31	41.73	1.34171	11.5
mar	11	2457458.75	22	49	11.55	-9	51	18.49	1.34611	11.5
mar	12	2457459.75	22	55	47.56	-9	9	41.45	1.35001	11.6
mar	13	2457460.75	23	2	25.83	-8	26	51.31	1.35337	11.6
mar	14	2457461.75	23	9	6.43	-7	42	48.91	1.35618	11.7
mar	15	2457462.75	23	15	49.46	-6	57	35.25	1.35839	11.7
mar	16	2457463.75	23	22	35.00	-6	11	11.54	1.35997	11.8
mar	17	2457464.75	23	29	23.15	-5	23	39.20	1.36090	11.8
mar	18	2457465.75	23	36	14.00	-4	34	59.94	1.36111	11.9
mar	19	2457466.75	23	43	7.61	-3	45	15.78	1.36058	11.9
mar	20	2457467.75	23	50	4.04	-2	54	29.13	1.35925	12.0
mar	21	2457468.75	23	57	3.34	-2	2	42.86	1.35707	12.0
mar	22	2457469.75	0	4	5.53	-1	10	0.34	1.35399	12.1
mar	23	2457470.75	0	11	10.57	-0	16	25.55	1.34996	12.1
mar	24	2457471.75	0	18	18.40	+0	37	56.90	1.34491	12.2
mar	25	2457472.75	0	25	28.90	+1	33	1.60	1.33879	12.2
mar	26	2457473.75	0	32	41.86	+2	28	42.22	1.33154	12.3
mar	27	2457474.75	0	39	57.03	+3	24	51.61	1.32311	12.3
mar	28	2457475.75	0	47	14.06	+4	21	21.65	1.31345	12.4
mar	29	2457476.75	0	54	32.47	+5	18	3.20	1.30252	12.4
mar	30	2457477.75	1	1	51.72	+6	14	46.12	1.29028	12.5
mar	31	2457478.75	1	9	11.11	+7	11	19.34	1.27671	12.6
abr	1	2457479.75	1	16	29.85	+8	7	30.87	1.26180	12.6

Mercurio, 2016

Efemérides a las 0^h del meridiano 90º W.G.

mes	día	dj	h	α m	s	°	δ `	“	dis UA	hp h
abr	2	2457480.75	1	23	47.03	+9	3	8.04	1.24556	12.7
abr	3	2457481.75	1	31	1.60	+9	57	57.60	1.22802	12.7
abr	4	2457482.75	1	38	12.46	+10	51	46.04	1.20922	12.8
abr	5	2457483.75	1	45	18.37	+11	44	19.81	1.18923	12.8
abr	6	2457484.75	1	52	18.05	+12	35	25.67	1.16813	12.9
abr	7	2457485.75	1	59	10.20	+13	24	50.93	1.14602	12.9
abr	8	2457486.75	2	5	53.46	+14	12	23.71	1.12302	13.0
abr	9	2457487.75	2	12	26.50	+14	57	53.23	1.09924	13.0
abr	10	2457488.75	2	18	48.01	+15	41	9.87	1.07484	13.1
abr	11	2457489.75	2	24	56.72	+16	22	5.34	1.04995	13.1
abr	12	2457490.75	2	30	51.42	+17	0	32.66	1.02470	13.1
abr	13	2457491.75	2	36	30.98	+17	36	26.14	0.99924	13.2
abr	14	2457492.75	2	41	54.32	+18	9	41.28	0.97371	13.2
abr	15	2457493.75	2	47	0.45	+18	40	14.67	0.94823	13.2
abr	16	2457494.75	2	51	48.46	+19	8	3.84	0.92292	13.2
abr	17	2457495.75	2	56	17.52	+19	33	7.07	0.89790	13.2
abr	18	2457496.75	3	0	26.86	+19	55	23.27	0.87326	13.2
abr	19	2457497.75	3	4	15.80	+20	14	51.84	0.84910	13.2
abr	20	2457498.75	3	7	43.72	+20	31	32.52	0.82551	13.2
abr	21	2457499.75	3	10	50.09	+20	45	25.35	0.80257	13.2
abr	22	2457500.75	3	13	34.49	+20	56	30.56	0.78034	13.2
abr	23	2457501.75	3	15	56.55	+21	4	48.56	0.75890	13.2
abr	24	2457502.75	3	17	56.06	+21	10	19.96	0.73829	13.1
abr	25	2457503.75	3	19	32.90	+21	13	5.62	0.71858	13.1
abr	26	2457504.75	3	20	47.11	+21	13	6.71	0.69982	13.0
abr	27	2457505.75	3	21	38.89	+21	10	24.85	0.68205	13.0
abr	28	2457506.75	3	22	8.61	+21	5	2.28	0.66531	12.9
abr	29	2457507.75	3	22	16.86	+20	57	2.03	0.64965	12.9
abr	30	2457508.75	3	22	4.43	+20	46	28.13	0.63509	12.8
may	1	2457509.75	3	21	32.34	+20	33	25.84	0.62168	12.7
may	2	2457510.75	3	20	41.87	+20	18	1.89	0.60944	12.6
may	3	2457511.75	3	19	34.49	+20	0	24.61	0.59840	12.6
may	4	2457512.75	3	18	11.95	+19	40	44.18	0.58857	12.5
may	5	2457513.75	3	16	36.19	+19	19	12.63	0.57997	12.4
may	6	2457514.75	3	14	49.32	+18	56	3.92	0.57262	12.3
may	7	2457515.75	3	12	53.64	+18	31	33.80	0.56652	12.2
may	8	2457516.75	3	10	51.51	+18	5	59.66	0.56168	12.1
may	9	2457517.75	3	8	45.41	+17	39	40.23	0.55807	12.0
may	10	2457518.75	3	6	37.78	+17	12	55.22	0.55571	11.9
may	11	2457519.75	3	4	31.05	+16	46	4.84	0.55456	11.8
may	12	2457520.75	3	2	27.58	+16	19	29.37	0.55460	11.7
may	13	2457521.75	3	0	29.56	+15	53	28.65	0.55582	11.6
may	14	2457522.75	2	58	39.03	+15	28	21.58	0.55817	11.5
may	15	2457523.75	2	56	57.85	+15	4	25.74	0.56162	11.4
may	16	2457524.75	2	55	27.63	+14	41	57.02	0.56613	11.3
may	17	2457525.75	2	54	9.77	+14	21	9.36	0.57167	11.2

Mercurio, 2016

Efemérides a las 0^h del meridiano 90° W.G.

mes	día	dj	h	α m	s	°	δ `	“	dis UA	hp h
may	18	2457526.75	2	53	5.45	+14	2	14.64	0.57818	11.1
may	19	2457527.75	2	52	15.59	+13	45	22.54	0.58563	11.0
may	20	2457528.75	2	51	40.95	+13	30	40.60	0.59396	11.0
may	21	2457529.75	2	51	22.06	+13	18	14.34	0.60314	10.9
may	22	2457530.75	2	51	19.29	+13	8	7.30	0.61313	10.8
may	23	2457531.75	2	51	32.86	+13	0	21.33	0.62387	10.8
may	24	2457532.75	2	52	2.87	+12	54	56.69	0.63534	10.7
may	25	2457533.75	2	52	49.31	+12	51	52.33	0.64750	10.7
may	26	2457534.75	2	53	52.06	+12	51	6.03	0.66030	10.6
may	27	2457535.75	2	55	10.99	+12	52	34.63	0.67371	10.6
may	28	2457536.75	2	56	45.86	+12	56	14.18	0.68771	10.5
may	29	2457537.75	2	58	36.46	+13	2	0.12	0.70226	10.5
may	30	2457538.75	3	0	42.51	+13	9	47.40	0.71734	10.5
may	31	2457539.75	3	3	3.75	+13	19	30.59	0.73291	10.4
jun	1	2457540.75	3	5	39.93	+13	31	3.99	0.74896	10.4
jun	2	2457541.75	3	8	30.80	+13	44	21.71	0.76545	10.4
jun	3	2457542.75	3	11	36.11	+13	59	17.69	0.78238	10.4
jun	4	2457543.75	3	14	55.66	+14	15	45.80	0.79970	10.4
jun	5	2457544.75	3	18	29.27	+14	33	39.81	0.81741	10.4
jun	6	2457545.75	3	22	16.80	+14	52	53.42	0.83548	10.4
jun	7	2457546.75	3	26	18.10	+15	13	20.28	0.85389	10.4
jun	8	2457547.75	3	30	33.12	+15	34	53.98	0.87262	10.4
jun	9	2457548.75	3	35	1.79	+15	57	28.04	0.89164	10.4
jun	10	2457549.75	3	39	44.12	+16	20	55.88	0.91093	10.4
jun	11	2457550.75	3	44	40.11	+16	45	10.78	0.93046	10.4
jun	12	2457551.75	3	49	49.82	+17	10	5.89	0.95020	10.4
jun	13	2457552.75	3	55	13.34	+17	35	34.14	0.97012	10.5
jun	14	2457553.75	4	0	50.75	+18	1	28.22	0.99018	10.5
jun	15	2457554.75	4	6	42.18	+18	27	40.53	1.01034	10.5
jun	16	2457555.75	4	12	47.75	+18	54	3.13	1.03055	10.6
jun	17	2457556.75	4	19	7.59	+19	20	27.71	1.05077	10.6
jun	18	2457557.75	4	25	41.81	+19	46	45.51	1.07092	10.6
jun	19	2457558.75	4	32	30.50	+20	12	47.33	1.09096	10.7
jun	20	2457559.75	4	39	33.72	+20	38	23.44	1.11080	10.7
jun	21	2457560.75	4	46	51.48	+21	3	23.64	1.13037	10.8
jun	22	2457561.75	4	54	23.69	+21	27	37.21	1.14958	10.8
jun	23	2457562.75	5	2	10.21	+21	50	52.98	1.16834	10.9
jun	24	2457563.75	5	10	10.74	+22	12	59.37	1.18655	11.0
jun	25	2457564.75	5	18	24.89	+22	33	44.53	1.20412	11.1
jun	26	2457565.75	5	26	52.10	+22	52	56.46	1.22092	11.1
jun	27	2457566.75	5	35	31.63	+23	10	23.21	1.23685	11.2
jun	28	2457567.75	5	44	22.60	+23	25	53.14	1.25181	11.3
jun	29	2457568.75	5	53	23.90	+23	39	15.17	1.26569	11.4
jun	30	2457569.75	6	2	34.28	+23	50	19.07	1.27840	11.5
jul	1	2457570.75	6	11	52.33	+23	58	55.75	1.28985	11.5
jul	2	2457571.75	6	21	16.47	+24	4	57.56	1.29998	11.6

Mercurio, 2016

Efemérides a las 0^h del meridiano 90º W.G.

mes	día	dj	h	α m	s	°	δ `	“	dis UA	hp h
jul	3	2457572.75	6	30	45.05	+24	8	18.48	1.30873	11.7
jul	4	2457573.75	6	40	16.34	+24	8	54.33	1.31606	11.8
jul	5	2457574.75	6	49	48.60	+24	6	42.84	1.32196	11.9
jul	6	2457575.75	6	59	20.12	+24	1	43.66	1.32643	12.0
jul	7	2457576.75	7	8	49.26	+23	53	58.28	1.32949	12.1
jul	8	2457577.75	7	18	14.47	+23	43	29.87	1.33117	12.2
jul	9	2457578.75	7	27	34.37	+23	30	23.23	1.33153	12.3
jul	10	2457579.75	7	36	47.70	+23	14	44.38	1.33062	12.4
jul	11	2457580.75	7	45	53.39	+22	56	40.34	1.32851	12.5
jul	12	2457581.75	7	54	50.54	+22	36	18.89	1.32529	12.5
jul	13	2457582.75	8	3	38.41	+22	13	48.36	1.32102	12.6
jul	14	2457583.75	8	12	16.41	+21	49	17.37	1.31578	12.7
jul	15	2457584.75	8	20	44.10	+21	22	54.67	1.30966	12.8
jul	16	2457585.75	8	29	1.18	+20	54	48.99	1.30273	12.8
jul	17	2457586.75	8	37	7.44	+20	25	8.89	1.29505	12.9
jul	18	2457587.75	8	45	2.79	+19	54	2.70	1.28671	13.0
jul	19	2457588.75	8	52	47.20	+19	21	38.46	1.27776	13.0
jul	20	2457589.75	9	0	20.71	+18	48	3.84	1.26827	13.1
jul	21	2457590.75	9	7	43.41	+18	13	26.15	1.25827	13.2
jul	22	2457591.75	9	14	55.45	+17	37	52.32	1.24783	13.2
jul	23	2457592.75	9	21	57.00	+17	1	28.90	1.23699	13.3
jul	24	2457593.75	9	28	48.23	+16	24	22.07	1.22579	13.3
jul	25	2457594.75	9	35	29.36	+15	46	37.67	1.21426	13.4
jul	26	2457595.75	9	42	0.58	+15	8	21.20	1.20244	13.4
jul	27	2457596.75	9	48	22.12	+14	29	37.89	1.19035	13.4
jul	28	2457597.75	9	54	34.16	+13	50	32.68	1.17802	13.5
jul	29	2457598.75	10	0	36.91	+13	11	10.26	1.16546	13.5
jul	30	2457599.75	10	6	30.55	+12	31	35.11	1.15271	13.6
jul	31	2457600.75	10	12	15.25	+11	51	51.53	1.13977	13.6
ago	1	2457601.75	10	17	51.14	+11	12	3.62	1.12666	13.6
ago	2	2457602.75	10	23	18.35	+10	32	15.37	1.11339	13.6
ago	3	2457603.75	10	28	37.01	+9	52	30.62	1.09997	13.7
ago	4	2457604.75	10	33	47.18	+9	12	53.15	1.08642	13.7
ago	5	2457605.75	10	38	48.93	+8	33	26.63	1.07274	13.7
ago	6	2457606.75	10	43	42.29	+7	54	14.73	1.05895	13.7
ago	7	2457607.75	10	48	27.28	+7	15	21.07	1.04504	13.7
ago	8	2457608.75	10	53	3.86	+6	36	49.29	1.03103	13.7
ago	9	2457609.75	10	57	31.99	+5	58	43.09	1.01692	13.7
ago	10	2457610.75	11	1	51.58	+5	21	6.20	1.00272	13.8
ago	11	2457611.75	11	6	2.51	+4	44	2.47	0.98844	13.8
ago	12	2457612.75	11	10	4.62	+4	7	35.86	0.97408	13.8
ago	13	2457613.75	11	13	57.71	+3	31	50.48	0.95965	13.8
ago	14	2457614.75	11	17	41.56	+2	56	50.65	0.94516	13.8
ago	15	2457615.75	11	21	15.86	+2	22	40.88	0.93062	13.7
ago	16	2457616.75	11	24	40.31	+1	49	25.97	0.91604	13.7
ago	17	2457617.75	11	27	54.52	+1	17	10.97	0.90143	13.7

Mercurio, 2016

Efemérides a las 0^h del meridiano 90° W.G.

mes	día	dj	h	α m	s	°	δ `	“	dis UA	hp h
ago	18	2457618.75	11	30	58.09	+0	46	1.31	0.88680	13.7
ago	19	2457619.75	11	33	50.53	+0	16	2.76	0.87217	13.7
ago	20	2457620.75	11	36	31.33	-0	12	38.48	0.85755	13.7
ago	21	2457621.75	11	38	59.92	-0	39	55.76	0.84298	13.7
ago	22	2457622.75	11	41	15.66	-1	5	41.92	0.82846	13.6
ago	23	2457623.75	11	43	17.90	-1	29	49.25	0.81403	13.6
ago	24	2457624.75	11	45	5.89	-1	52	9.44	0.79972	13.6
ago	25	2457625.75	11	46	38.86	-2	12	33.57	0.78556	13.5
ago	26	2457626.75	11	47	56.02	-2	30	52.10	0.77160	13.5
ago	27	2457627.75	11	48	56.52	-2	46	54.84	0.75788	13.4
ago	28	2457628.75	11	49	39.52	-3	0	31.03	0.74445	13.4
ago	29	2457629.75	11	50	4.18	-3	11	29.44	0.73138	13.3
ago	30	2457630.75	11	50	9.72	-3	19	38.42	0.71872	13.2
ago	31	2457631.75	11	49	55.41	-3	24	46.23	0.70657	13.2
sep	1	2457632.75	11	49	20.67	-3	26	41.24	0.69500	13.1
sep	2	2457633.75	11	48	25.06	-3	25	12.34	0.68411	13.0
sep	3	2457634.75	11	47	8.39	-3	20	9.49	0.67400	12.9
sep	4	2457635.75	11	45	30.76	-3	11	24.33	0.66478	12.8
sep	5	2457636.75	11	43	32.65	-2	58	50.94	0.65658	12.7
sep	6	2457637.75	11	41	14.99	-2	42	26.69	0.64953	12.6
sep	7	2457638.75	11	38	39.20	-2	22	13.17	0.64376	12.5
sep	8	2457639.75	11	35	47.28	-1	58	17.10	0.63940	12.4
sep	9	2457640.75	11	32	41.84	-1	30	51.10	0.63661	12.3
sep	10	2457641.75	11	29	26.10	-1	0	14.29	0.63550	12.2
sep	11	2457642.75	11	26	3.82	-0	26	52.51	0.63622	12.1
sep	12	2457643.75	11	22	39.30	+0	8	41.88	0.63886	11.9
sep	13	2457644.75	11	19	17.22	+0	45	50.68	0.64354	11.8
sep	14	2457645.75	11	16	2.48	+1	23	51.08	0.65032	11.7
sep	15	2457646.75	11	13	0.05	+2	1	57.18	0.65925	11.6
sep	16	2457647.75	11	10	14.77	+2	39	21.94	0.67036	11.5
sep	17	2457648.75	11	7	51.18	+3	15	19.01	0.68363	11.4
sep	18	2457649.75	11	5	53.30	+3	49	4.62	0.69902	11.3
sep	19	2457650.75	11	4	24.58	+4	19	59.08	0.71645	11.2
sep	20	2457651.75	11	3	27.73	+4	47	27.91	0.73582	11.1
sep	21	2457652.75	11	3	4.71	+5	11	2.58	0.75700	11.0
sep	22	2457653.75	11	3	16.71	+5	30	20.86	0.77981	11.0
sep	23	2457654.75	11	4	4.17	+5	45	6.78	0.80408	10.9
sep	24	2457655.75	11	5	26.83	+5	55	10.35	0.82961	10.9
sep	25	2457656.75	11	7	23.80	+6	0	27.20	0.85617	10.8
sep	26	2457657.75	11	9	53.67	+6	0	57.99	0.88353	10.8
sep	27	2457658.75	11	12	54.58	+5	56	47.87	0.91147	10.8
sep	28	2457659.75	11	16	24.35	+5	48	5.82	0.93975	10.8
sep	29	2457660.75	11	20	20.52	+5	35	4.08	0.96814	10.8
sep	30	2457661.75	11	24	40.53	+5	17	57.50	0.99644	10.8
oct	1	2457662.75	11	29	21.74	+4	57	2.93	1.02444	10.8
oct	2	2457663.75	11	34	21.54	+4	32	38.60	1.05196	10.8

Mercurio, 2016

Efemérides a las 0^h del meridiano 90º W.G.

mes	día	dj	h	α m	s	°	δ `	“	dis UA	hp h
oct	3	2457664.75	11	39	37.39	+4	5	3.60	1.07884	10.8
oct	4	2457665.75	11	45	6.92	+3	34	37.32	1.10496	10.9
oct	5	2457666.75	11	50	47.91	+3	1	39.03	1.13019	10.9
oct	6	2457667.75	11	56	38.36	+2	26	27.50	1.15446	10.9
oct	7	2457668.75	12	2	36.47	+1	49	20.69	1.17770	11.0
oct	8	2457669.75	12	8	40.68	+1	10	35.53	1.19986	11.0
oct	9	2457670.75	12	14	49.63	+0	30	27.81	1.22091	11.0
oct	10	2457671.75	12	21	2.14	-0	10	47.97	1.24084	11.1
oct	11	2457672.75	12	27	17.27	-0	52	58.55	1.25965	11.1
oct	12	2457673.75	12	33	34.18	-1	35	51.94	1.27735	11.1
oct	13	2457674.75	12	39	52.25	-2	19	17.36	1.29396	11.2
oct	14	2457675.75	12	46	10.94	-3	3	5.17	1.30950	11.2
oct	15	2457676.75	12	52	29.84	-3	47	6.78	1.32400	11.3
oct	16	2457677.75	12	58	48.65	-4	31	14.60	1.33749	11.3
oct	17	2457678.75	13	5	7.15	-5	15	21.85	1.34999	11.3
oct	18	2457679.75	13	11	25.17	-5	59	22.59	1.36155	11.4
oct	19	2457680.75	13	17	42.61	-6	43	11.49	1.37220	11.4
oct	20	2457681.75	13	23	59.42	-7	26	43.89	1.38196	11.5
oct	21	2457682.75	13	30	15.58	-8	9	55.59	1.39087	11.5
oct	22	2457683.75	13	36	31.10	-8	52	42.88	1.39896	11.5
oct	23	2457684.75	13	42	46.01	-9	35	2.46	1.40626	11.6
oct	24	2457685.75	13	49	0.39	-10	16	51.35	1.41280	11.6
oct	25	2457686.75	13	55	14.30	-10	58	6.88	1.41859	11.7
oct	26	2457687.75	14	1	27.83	-11	38	46.63	1.42367	11.7
oct	27	2457688.75	14	7	41.08	-12	18	48.35	1.42806	11.7
oct	28	2457689.75	14	13	54.15	-12	58	10.33	1.43177	11.8
oct	29	2457690.75	14	20	7.12	-13	36	50.53	1.43483	11.8
oct	30	2457691.75	14	26	20.11	-14	14	47.09	1.43725	11.8
oct	31	2457692.75	14	32	33.24	-14	51	58.48	1.43904	11.9
nov	1	2457693.75	14	38	46.60	-15	28	23.21	1.44023	11.9
nov	2	2457694.75	14	45	0.29	-16	3	59.80	1.44081	12.0
nov	3	2457695.75	14	51	14.42	-16	38	46.86	1.44082	12.0
nov	4	2457696.75	14	57	29.07	-17	12	43.03	1.44024	12.0
nov	5	2457697.75	15	3	44.33	-17	45	46.97	1.43910	12.1
nov	6	2457698.75	15	10	0.28	-18	17	57.40	1.43739	12.1
nov	7	2457699.75	15	16	16.98	-18	49	13.00	1.43513	12.1
nov	8	2457700.75	15	22	34.51	-19	19	32.50	1.43231	12.2
nov	9	2457701.75	15	28	52.92	-19	48	54.61	1.42895	12.2
nov	10	2457702.75	15	35	12.25	-20	17	18.06	1.42504	12.3
nov	11	2457703.75	15	41	32.54	-20	44	41.54	1.42059	12.3
nov	12	2457704.75	15	47	53.82	-21	11	3.76	1.41559	12.3
nov	13	2457705.75	15	54	16.09	-21	36	23.44	1.41004	12.4
nov	14	2457706.75	16	0	39.36	-22	0	39.25	1.40395	12.4
nov	15	2457707.75	16	7	3.60	-22	23	49.89	1.39730	12.5
nov	16	2457708.75	16	13	28.78	-22	45	54.02	1.39010	12.5
nov	17	2457709.75	16	19	54.85	-23	6	50.28	1.38235	12.6

Mercurio, 2016

Efemérides a las 0^h del meridiano 90° W.G.

mes	día	dj	h	α m	s	°	δ `	“	dis UA	hp h
nov	18	2457710.75	16	26	21.72	-23	26	37.32	1.37402	12.6
nov	19	2457711.75	16	32	49.30	-23	45	13.75	1.36513	12.6
nov	20	2457712.75	16	39	17.45	-24	2	38.18	1.35565	12.7
nov	21	2457713.75	16	45	46.03	-24	18	49.22	1.34559	12.7
nov	22	2457714.75	16	52	14.86	-24	33	45.51	1.33493	12.8
nov	23	2457715.75	16	58	43.72	-24	47	25.68	1.32366	12.8
nov	24	2457716.75	17	5	12.35	-24	59	48.40	1.31177	12.8
nov	25	2457717.75	17	11	40.45	-25	10	52.38	1.29926	12.9
nov	26	2457718.75	17	18	7.70	-25	20	36.38	1.28610	12.9
nov	27	2457719.75	17	24	33.68	-25	28	59.23	1.27230	13.0
nov	28	2457720.75	17	30	57.96	-25	35	59.84	1.25783	13.0
nov	29	2457721.75	17	37	20.02	-25	41	37.25	1.24269	13.1
nov	30	2457722.75	17	43	39.26	-25	45	50.61	1.22687	13.1
dic	1	2457723.75	17	49	55.02	-25	48	39.25	1.21036	13.1
dic	2	2457724.75	17	56	6.54	-25	50	2.70	1.19314	13.2
dic	3	2457725.75	18	2	12.95	-25	50	0.73	1.17522	13.2
dic	4	2457726.75	18	8	13.26	-25	48	33.39	1.15659	13.2
dic	5	2457727.75	18	14	6.38	-25	45	41.08	1.13725	13.3
dic	6	2457728.75	18	19	51.02	-25	41	24.60	1.11720	13.3
dic	7	2457729.75	18	25	25.77	-25	35	45.19	1.09645	13.3
dic	8	2457730.75	18	30	49.01	-25	28	44.66	1.07503	13.4
dic	9	2457731.75	18	35	58.93	-25	20	25.42	1.05295	13.4
dic	10	2457732.75	18	40	53.48	-25	10	50.59	1.03024	13.4
dic	11	2457733.75	18	45	30.38	-25	0	4.04	1.00697	13.4
dic	12	2457734.75	18	49	47.08	-24	48	10.53	0.98318	13.4
dic	13	2457735.75	18	53	40.76	-24	35	15.70	0.95897	13.4
dic	14	2457736.75	18	57	8.33	-24	21	26.13	0.93443	13.4
dic	15	2457737.75	19	0	6.47	-24	6	49.33	0.90970	13.4
dic	16	2457738.75	19	2	31.63	-23	51	33.69	0.88492	13.4
dic	17	2457739.75	19	4	20.15	-23	35	48.33	0.86027	13.3
dic	18	2457740.75	19	5	28.36	-23	19	42.94	0.83598	13.3
dic	19	2457741.75	19	5	52.78	-23	3	27.46	0.81228	13.2
dic	20	2457742.75	19	5	30.35	-22	47	11.77	0.78947	13.1
dic	21	2457743.75	19	4	18.74	-22	31	5.34	0.76783	13.1
dic	22	2457744.75	19	2	16.72	-22	15	16.86	0.74770	13.0
dic	23	2457745.75	18	59	24.59	-21	59	54.06	0.72941	12.8
dic	24	2457746.75	18	55	44.51	-21	45	3.77	0.71329	12.7
dic	25	2457747.75	18	51	20.79	-21	30	52.16	0.69965	12.6
dic	26	2457748.75	18	46	20.03	-21	17	25.32	0.68875	12.4
dic	27	2457749.75	18	40	50.92	-21	4	49.91	0.68081	12.3
dic	28	2457750.75	18	35	3.85	-20	53	13.71	0.67596	12.1
dic	29	2457751.75	18	29	10.20	-20	42	45.81	0.67423	11.9
dic	30	2457752.75	18	23	21.52	-20	33	36.28	0.67560	11.8
dic	31	2457753.75	18	17	48.67	-20	25	55.28	0.67993	11.6

Venus, 2016

Efemérides a las 0^h del meridiano 90º W.G.

mes	día	dj	h	α m	s	°	δ `	“	dis UA	hp h
ene	1	2457388.75	16	2	48.33	-18	40	58.16	1.16792	9.4
ene	2	2457389.75	16	7	48.97	-18	56	37.53	1.17426	9.4
ene	3	2457390.75	16	12	50.78	-19	11	48.25	1.18057	9.4
ene	4	2457391.75	16	17	53.75	-19	26	29.63	1.18684	9.4
ene	5	2457392.75	16	22	57.86	-19	40	40.97	1.19309	9.4
ene	6	2457393.75	16	28	3.08	-19	54	21.60	1.19931	9.4
ene	7	2457394.75	16	33	9.38	-20	7	30.87	1.20550	9.5
ene	8	2457395.75	16	38	16.74	-20	20	8.13	1.21166	9.5
ene	9	2457396.75	16	43	25.12	-20	32	12.76	1.21779	9.5
ene	10	2457397.75	16	48	34.48	-20	43	44.15	1.22389	9.5
ene	11	2457398.75	16	53	44.80	-20	54	41.71	1.22996	9.5
ene	12	2457399.75	16	58	56.02	-21	5	4.87	1.23600	9.6
ene	13	2457400.75	17	4	8.12	-21	14	53.07	1.24201	9.6
ene	14	2457401.75	17	9	21.05	-21	24	5.79	1.24799	9.6
ene	15	2457402.75	17	14	34.77	-21	32	42.54	1.25393	9.6
ene	16	2457403.75	17	19	49.24	-21	40	42.83	1.25985	9.7
ene	17	2457404.75	17	25	4.42	-21	48	6.23	1.26574	9.7
ene	18	2457405.75	17	30	20.27	-21	54	52.34	1.27160	9.7
ene	19	2457406.75	17	35	36.75	-22	1	0.76	1.27744	9.7
ene	20	2457407.75	17	40	53.80	-22	6	31.14	1.28324	9.7
ene	21	2457408.75	17	46	11.38	-22	11	23.16	1.28901	9.8
ene	22	2457409.75	17	51	29.45	-22	15	36.49	1.29476	9.8
ene	23	2457410.75	17	56	47.95	-22	19	10.87	1.30047	9.8
ene	24	2457411.75	18	2	6.82	-22	22	6.04	1.30616	9.8
ene	25	2457412.75	18	7	26.02	-22	24	21.77	1.31182	9.9
ene	26	2457413.75	18	12	45.50	-22	25	57.86	1.31744	9.9
ene	27	2457414.75	18	18	5.20	-22	26	54.15	1.32304	9.9
ene	28	2457415.75	18	23	25.06	-22	27	10.51	1.32861	9.9
ene	29	2457416.75	18	28	45.04	-22	26	46.84	1.33415	10.0
ene	30	2457417.75	18	34	5.07	-22	25	43.06	1.33965	10.0
ene	31	2457418.75	18	39	25.10	-22	23	59.16	1.34512	10.0
feb	1	2457419.75	18	44	45.08	-22	21	35.12	1.35057	10.0
feb	2	2457420.75	18	50	4.94	-22	18	30.99	1.35598	10.0
feb	3	2457421.75	18	55	24.63	-22	14	46.81	1.36135	10.1
feb	4	2457422.75	19	0	44.10	-22	10	22.70	1.36670	10.1
feb	5	2457423.75	19	6	3.28	-22	5	18.78	1.37201	10.1
feb	6	2457424.75	19	11	22.13	-21	59	35.21	1.37729	10.1
feb	7	2457425.75	19	16	40.58	-21	53	12.18	1.38254	10.2
feb	8	2457426.75	19	21	58.58	-21	46	9.90	1.38776	10.2
feb	9	2457427.75	19	27	16.08	-21	38	28.61	1.39294	10.2
feb	10	2457428.75	19	32	33.03	-21	30	8.58	1.39809	10.2
feb	11	2457429.75	19	37	49.37	-21	21	10.09	1.40320	10.2
feb	12	2457430.75	19	43	5.07	-21	11	33.46	1.40829	10.3
feb	13	2457431.75	19	48	20.08	-21	1	19.05	1.41334	10.3
feb	14	2457432.75	19	53	34.37	-20	50	27.22	1.41836	10.3
feb	15	2457433.75	19	58	47.89	-20	38	58.39	1.42334	10.3

Venus, 2016

Efemérides a las 0^h del meridiano 90° W.G.

mes	día	dj	h	α m	s	°	δ `	“	dis UA	hp h
feb	16	2457434.75	20	4	0.61	-20	26	52.97	1.42830	10.4
feb	17	2457435.75	20	9	12.50	-20	14	11.40	1.43322	10.4
feb	18	2457436.75	20	14	23.53	-20	0	54.17	1.43812	10.4
feb	19	2457437.75	20	19	33.67	-19	47	1.74	1.44298	10.4
feb	20	2457438.75	20	24	42.89	-19	32	34.61	1.44781	10.4
feb	21	2457439.75	20	29	51.17	-19	17	33.30	1.45261	10.5
feb	22	2457440.75	20	34	58.49	-19	1	58.34	1.45737	10.5
feb	23	2457441.75	20	40	4.83	-18	45	50.27	1.46211	10.5
feb	24	2457442.75	20	45	10.18	-18	29	9.65	1.46681	10.5
feb	25	2457443.75	20	50	14.51	-18	11	57.06	1.47148	10.5
feb	26	2457444.75	20	55	17.83	-17	54	13.09	1.47612	10.6
feb	27	2457445.75	21	0	20.12	-17	35	58.36	1.48073	10.6
feb	28	2457446.75	21	5	21.36	-17	17	13.48	1.48530	10.6
feb	29	2457447.75	21	10	21.57	-16	57	59.08	1.48984	10.6
mar	1	2457448.75	21	15	20.72	-16	38	15.83	1.49435	10.6
mar	2	2457449.75	21	20	18.82	-16	18	4.37	1.49882	10.6
mar	3	2457450.75	21	25	15.87	-15	57	25.37	1.50325	10.7
mar	4	2457451.75	21	30	11.87	-15	36	19.52	1.50766	10.7
mar	5	2457452.75	21	35	6.81	-15	14	47.50	1.51202	10.7
mar	6	2457453.75	21	40	0.70	-14	52	50.01	1.51635	10.7
mar	7	2457454.75	21	44	53.55	-14	30	27.75	1.52065	10.7
mar	8	2457455.75	21	49	45.36	-14	7	41.42	1.52491	10.7
mar	9	2457456.75	21	54	36.14	-13	44	31.72	1.52913	10.8
mar	10	2457457.75	21	59	25.90	-13	20	59.37	1.53331	10.8
mar	11	2457458.75	22	4	14.66	-12	57	5.07	1.53746	10.8
mar	12	2457459.75	22	9	2.42	-12	32	49.53	1.54158	10.8
mar	13	2457460.75	22	13	49.22	-12	8	13.47	1.54565	10.8
mar	14	2457461.75	22	18	35.07	-11	43	17.60	1.54970	10.8
mar	15	2457462.75	22	23	19.98	-11	18	2.66	1.55370	10.8
mar	16	2457463.75	22	28	3.99	-10	52	29.35	1.55767	10.9
mar	17	2457464.75	22	32	47.11	-10	26	38.40	1.56160	10.9
mar	18	2457465.75	22	37	29.37	-10	0	30.51	1.56550	10.9
mar	19	2457466.75	22	42	10.81	-9	34	6.40	1.56936	10.9
mar	20	2457467.75	22	46	51.44	-9	7	26.78	1.57319	10.9
mar	21	2457468.75	22	51	31.31	-8	40	32.34	1.57698	10.9
mar	22	2457469.75	22	56	10.44	-8	13	23.79	1.58074	10.9
mar	23	2457470.75	23	0	48.86	-7	46	1.84	1.58445	10.9
mar	24	2457471.75	23	5	26.62	-7	18	27.17	1.58813	10.9
mar	25	2457472.75	23	10	3.74	-6	50	40.51	1.59178	11.0
mar	26	2457473.75	23	14	40.27	-6	22	42.55	1.59539	11.0
mar	27	2457474.75	23	19	16.23	-5	54	33.99	1.59896	11.0
mar	28	2457475.75	23	23	51.67	-5	26	15.54	1.60249	11.0
mar	29	2457476.75	23	28	26.62	-4	57	47.90	1.60598	11.0
mar	30	2457477.75	23	33	1.12	-4	29	11.79	1.60943	11.0
mar	31	2457478.75	23	37	35.20	-4	0	27.92	1.61285	11.0
abr	1	2457479.75	23	42	8.90	-3	31	36.99	1.61622	11.0

Venus, 2016

Efemérides a las 0^h del meridiano 90º W.G.

mes	día	dj	h	α m	s	°	δ `	“	dis UA	hp h
abr	2	2457480.75	23	46	42.26	-3	2	39.71	1.61955	11.0
abr	3	2457481.75	23	51	15.31	-2	33	36.81	1.62284	11.1
abr	4	2457482.75	23	55	48.09	-2	4	28.99	1.62609	11.1
abr	5	2457483.75	0	0	20.63	-1	35	16.98	1.62930	11.1
abr	6	2457484.75	0	4	52.99	-1	6	1.46	1.63247	11.1
abr	7	2457485.75	0	9	25.18	-0	36	43.17	1.63559	11.1
abr	8	2457486.75	0	13	57.25	-0	7	22.79	1.63867	11.1
abr	9	2457487.75	0	18	29.25	+0	21	58.96	1.64170	11.1
abr	10	2457488.75	0	23	1.20	+0	51	21.37	1.64470	11.1
abr	11	2457489.75	0	27	33.14	+1	20	43.73	1.64764	11.1
abr	12	2457490.75	0	32	5.12	+1	50	5.32	1.65055	11.1
abr	13	2457491.75	0	36	37.16	+2	19	25.44	1.65341	11.2
abr	14	2457492.75	0	41	9.32	+2	48	43.38	1.65623	11.2
abr	15	2457493.75	0	45	41.62	+3	17	58.44	1.65900	11.2
abr	16	2457494.75	0	50	14.12	+3	47	9.91	1.66173	11.2
abr	17	2457495.75	0	54	46.85	+4	16	17.09	1.66442	11.2
abr	18	2457496.75	0	59	19.85	+4	45	19.30	1.66706	11.2
abr	19	2457497.75	1	3	53.16	+5	14	15.83	1.66966	11.2
abr	20	2457498.75	1	8	26.83	+5	43	5.99	1.67222	11.2
abr	21	2457499.75	1	13	0.90	+6	11	49.09	1.67473	11.2
abr	22	2457500.75	1	17	35.41	+6	40	24.41	1.67719	11.2
abr	23	2457501.75	1	22	10.39	+7	8	51.27	1.67961	11.3
abr	24	2457502.75	1	26	45.90	+7	37	8.96	1.68199	11.3
abr	25	2457503.75	1	31	21.95	+8	5	16.78	1.68431	11.3
abr	26	2457504.75	1	35	58.60	+8	33	14.01	1.68660	11.3
abr	27	2457505.75	1	40	35.88	+9	0	59.93	1.68883	11.3
abr	28	2457506.75	1	45	13.82	+9	28	33.83	1.69102	11.3
abr	29	2457507.75	1	49	52.46	+9	55	55.00	1.69316	11.3
abr	30	2457508.75	1	54	31.84	+10	23	2.69	1.69525	11.3
may	1	2457509.75	1	59	11.97	+10	49	56.18	1.69729	11.3
may	2	2457510.75	2	3	52.90	+11	16	34.74	1.69928	11.4
may	3	2457511.75	2	8	34.65	+11	42	57.63	1.70122	11.4
may	4	2457512.75	2	13	17.26	+12	9	4.13	1.70311	11.4
may	5	2457513.75	2	18	0.74	+12	34	53.49	1.70495	11.4
may	6	2457514.75	2	22	45.14	+13	0	25.00	1.70674	11.4
may	7	2457515.75	2	27	30.46	+13	25	37.90	1.70847	11.4
may	8	2457516.75	2	32	16.74	+13	50	31.47	1.71015	11.4
may	9	2457517.75	2	37	3.99	+14	15	4.97	1.71178	11.5
may	10	2457518.75	2	41	52.22	+14	39	17.65	1.71335	11.5
may	11	2457519.75	2	46	41.47	+15	3	8.76	1.71488	11.5
may	12	2457520.75	2	51	31.73	+15	26	37.56	1.71635	11.5
may	13	2457521.75	2	56	23.04	+15	49	43.31	1.71776	11.5
may	14	2457522.75	3	1	15.39	+16	12	25.30	1.71913	11.5
may	15	2457523.75	3	6	8.82	+16	34	42.78	1.72044	11.5
may	16	2457524.75	3	11	3.33	+16	56	35.05	1.72169	11.6
may	17	2457525.75	3	15	58.94	+17	18	1.39	1.72290	11.6

Venus, 2016

Efemérides a las 0^h del meridiano 90° W.G.

mes	día	dj	h	α m	s	°	δ `	“	dis UA	hp h
may	18	2457526.75	3	20	55.64	+17	39	1.09	1.72405	11.6
may	19	2457527.75	3	25	53.46	+17	59	33.45	1.72515	11.6
may	20	2457528.75	3	30	52.39	+18	19	37.77	1.72619	11.6
may	21	2457529.75	3	35	52.45	+18	39	13.37	1.72718	11.6
may	22	2457530.75	3	40	53.62	+18	58	19.56	1.72812	11.7
may	23	2457531.75	3	45	55.91	+19	16	55.65	1.72900	11.7
may	24	2457532.75	3	50	59.32	+19	35	1.00	1.72983	11.7
may	25	2457533.75	3	56	3.83	+19	52	34.91	1.73060	11.7
may	26	2457534.75	4	1	9.44	+20	9	36.75	1.73132	11.7
may	27	2457535.75	4	6	16.14	+20	26	5.87	1.73198	11.8
may	28	2457536.75	4	11	23.91	+20	42	1.63	1.73259	11.8
may	29	2457537.75	4	16	32.73	+20	57	23.39	1.73314	11.8
may	30	2457538.75	4	21	42.59	+21	12	10.56	1.73363	11.8
may	31	2457539.75	4	26	53.46	+21	26	22.53	1.73407	11.8
jun	1	2457540.75	4	32	5.31	+21	39	58.73	1.73444	11.9
jun	2	2457541.75	4	37	18.13	+21	52	58.59	1.73476	11.9
jun	3	2457542.75	4	42	31.88	+22	5	21.59	1.73502	11.9
jun	4	2457543.75	4	47	46.52	+22	17	7.19	1.73522	11.9
jun	5	2457544.75	4	53	2.01	+22	28	14.89	1.73536	11.9
jun	6	2457545.75	4	58	18.29	+22	38	44.06	1.73545	12.0
jun	7	2457546.75	5	3	35.59	+22	48	35.28	1.73547	12.0
jun	8	2457547.75	5	8	53.30	+22	57	46.30	1.73543	12.0
jun	9	2457548.75	5	14	11.78	+23	6	17.82	1.73533	12.0
jun	10	2457549.75	5	19	30.90	+23	14	9.27	1.73518	12.1
jun	11	2457550.75	5	24	50.60	+23	21	20.26	1.73496	12.1
jun	12	2457551.75	5	30	10.84	+23	27	50.44	1.73469	12.1
jun	13	2457552.75	5	35	31.56	+23	33	39.51	1.73435	12.1
jun	14	2457553.75	5	40	52.72	+23	38	47.18	1.73396	12.2
jun	15	2457554.75	5	46	14.25	+23	43	13.21	1.73351	12.2
jun	16	2457555.75	5	51	36.11	+23	46	57.37	1.73300	12.2
jun	17	2457556.75	5	56	58.25	+23	49	59.47	1.73243	12.2
jun	18	2457557.75	6	2	20.59	+23	52	19.35	1.73181	12.2
jun	19	2457558.75	6	7	43.10	+23	53	56.89	1.73112	12.3
jun	20	2457559.75	6	13	5.71	+23	54	51.98	1.73038	12.3
jun	21	2457560.75	6	18	28.37	+23	55	4.55	1.72958	12.3
jun	22	2457561.75	6	23	51.01	+23	54	34.57	1.72872	12.3
jun	23	2457562.75	6	29	13.58	+23	53	22.02	1.72780	12.4
jun	24	2457563.75	6	34	36.02	+23	51	26.92	1.72683	12.4
jun	25	2457564.75	6	39	58.27	+23	48	49.31	1.72580	12.4
jun	26	2457565.75	6	45	20.28	+23	45	29.27	1.72471	12.4
jun	27	2457566.75	6	50	41.99	+23	41	26.91	1.72356	12.5
jun	28	2457567.75	6	56	3.35	+23	36	42.37	1.72235	12.5
jun	29	2457568.75	7	1	24.30	+23	31	15.81	1.72108	12.5
jun	30	2457569.75	7	6	44.79	+23	25	7.45	1.71976	12.5
jul	1	2457570.75	7	12	4.77	+23	18	17.53	1.71837	12.6
jul	2	2457571.75	7	17	24.18	+23	10	46.32	1.71692	12.6

Venus, 2016

Efemérides a las 0^h del meridiano 90º W.G.

mes	día	dj	h	α m	s	°	δ `	“	dis UA	hp h
jul	3	2457572.75	7	22	42.97	+23	2	34.13	1.71542	12.6
jul	4	2457573.75	7	28	1.08	+22	53	41.29	1.71385	12.6
jul	5	2457574.75	7	33	18.46	+22	44	8.13	1.71223	12.6
jul	6	2457575.75	7	38	35.06	+22	33	55.05	1.71055	12.7
jul	7	2457576.75	7	43	50.84	+22	23	2.43	1.70880	12.7
jul	8	2457577.75	7	49	5.76	+22	11	30.68	1.70700	12.7
jul	9	2457578.75	7	54	19.76	+21	59	20.25	1.70514	12.7
jul	10	2457579.75	7	59	32.82	+21	46	31.61	1.70322	12.8
jul	11	2457580.75	8	4	44.90	+21	33	5.23	1.70124	12.8
jul	12	2457581.75	8	9	55.97	+21	19	1.62	1.69921	12.8
jul	13	2457582.75	8	15	5.99	+21	4	21.32	1.69711	12.8
jul	14	2457583.75	8	20	14.95	+20	49	4.87	1.69497	12.8
jul	15	2457584.75	8	25	22.82	+20	33	12.83	1.69276	12.9
jul	16	2457585.75	8	30	29.57	+20	16	45.80	1.69050	12.9
jul	17	2457586.75	8	35	35.19	+19	59	44.35	1.68818	12.9
jul	18	2457587.75	8	40	39.66	+19	42	9.11	1.68581	12.9
jul	19	2457588.75	8	45	42.97	+19	24	0.70	1.68339	12.9
jul	20	2457589.75	8	50	45.10	+19	5	19.74	1.68091	12.9
jul	21	2457590.75	8	55	46.04	+18	46	6.89	1.67838	13.0
jul	22	2457591.75	9	0	45.80	+18	26	22.78	1.67579	13.0
jul	23	2457592.75	9	5	44.36	+18	6	8.07	1.67315	13.0
jul	24	2457593.75	9	10	41.73	+17	45	23.42	1.67046	13.0
jul	25	2457594.75	9	15	37.91	+17	24	9.49	1.66771	13.0
jul	26	2457595.75	9	20	32.90	+17	2	26.98	1.66492	13.1
jul	27	2457596.75	9	25	26.72	+16	40	16.55	1.66207	13.1
jul	28	2457597.75	9	30	19.37	+16	17	38.92	1.65916	13.1
jul	29	2457598.75	9	35	10.86	+15	54	34.81	1.65621	13.1
jul	30	2457599.75	9	40	1.19	+15	31	4.92	1.65320	13.1
jul	31	2457600.75	9	44	50.39	+15	7	9.99	1.65014	13.1
ago	1	2457601.75	9	49	38.45	+14	42	50.74	1.64703	13.1
ago	2	2457602.75	9	54	25.39	+14	18	7.93	1.64386	13.2
ago	3	2457603.75	9	59	11.23	+13	53	2.26	1.64065	13.2
ago	4	2457604.75	10	3	55.97	+13	27	34.48	1.63738	13.2
ago	5	2457605.75	10	8	39.65	+13	1	45.32	1.63406	13.2
ago	6	2457606.75	10	13	22.29	+12	35	35.51	1.63068	13.2
ago	7	2457607.75	10	18	3.89	+12	9	5.77	1.62726	13.2
ago	8	2457608.75	10	22	44.50	+11	42	16.84	1.62379	13.2
ago	9	2457609.75	10	27	24.13	+11	15	9.45	1.62027	13.2
ago	10	2457610.75	10	32	2.81	+10	47	44.33	1.61670	13.3
ago	11	2457611.75	10	36	40.58	+10	20	2.21	1.61308	13.3
ago	12	2457612.75	10	41	17.46	+9	52	3.83	1.60941	13.3
ago	13	2457613.75	10	45	53.48	+9	23	49.91	1.60570	13.3
ago	14	2457614.75	10	50	28.67	+8	55	21.19	1.60194	13.3
ago	15	2457615.75	10	55	3.07	+8	26	38.39	1.59813	13.3
ago	16	2457616.75	10	59	36.71	+7	57	42.24	1.59428	13.3
ago	17	2457617.75	11	4	9.63	+7	28	33.46	1.59038	13.3

Venus, 2016

Efemérides a las 0^h del meridiano 90° W.G.

mes	día	dj	h	α m	s	°	δ `	“	dis UA	hp h
ago	18	2457618.75	11	8	41.86	+6	59	12.77	1.58644	13.3
ago	19	2457619.75	11	13	13.45	+6	29	40.87	1.58246	13.4
ago	20	2457620.75	11	17	44.42	+5	59	58.47	1.57843	13.4
ago	21	2457621.75	11	22	14.83	+5	30	6.26	1.57436	13.4
ago	22	2457622.75	11	26	44.71	+5	0	4.95	1.57025	13.4
ago	23	2457623.75	11	31	14.12	+4	29	55.22	1.56610	13.4
ago	24	2457624.75	11	35	43.09	+3	59	37.77	1.56190	13.4
ago	25	2457625.75	11	40	11.66	+3	29	13.30	1.55767	13.4
ago	26	2457626.75	11	44	39.89	+2	58	42.53	1.55339	13.4
ago	27	2457627.75	11	49	7.79	+2	28	6.17	1.54907	13.4
ago	28	2457628.75	11	53	35.43	+1	57	24.93	1.54471	13.4
ago	29	2457629.75	11	58	2.83	+1	26	39.54	1.54031	13.4
ago	30	2457630.75	12	2	30.04	+0	55	50.71	1.53587	13.5
ago	31	2457631.75	12	6	57.09	+0	24	59.16	1.53138	13.5
sep	1	2457632.75	12	11	24.03	-0	5	54.39	1.52686	13.5
sep	2	2457633.75	12	15	50.90	-0	36	49.24	1.52229	13.5
sep	3	2457634.75	12	20	17.74	-1	7	44.65	1.51769	13.5
sep	4	2457635.75	12	24	44.58	-1	38	39.93	1.51305	13.5
sep	5	2457636.75	12	29	11.48	-2	9	34.35	1.50836	13.5
sep	6	2457637.75	12	33	38.47	-2	40	27.21	1.50364	13.5
sep	7	2457638.75	12	38	5.59	-3	11	17.77	1.49888	13.5
sep	8	2457639.75	12	42	32.89	-3	42	5.32	1.49408	13.5
sep	9	2457640.75	12	47	0.40	-4	12	49.14	1.48924	13.5
sep	10	2457641.75	12	51	28.17	-4	43	28.51	1.48437	13.5
sep	11	2457642.75	12	55	56.23	-5	14	2.69	1.47946	13.6
sep	12	2457643.75	13	0	24.62	-5	44	30.96	1.47452	13.6
sep	13	2457644.75	13	4	53.38	-6	14	52.59	1.46954	13.6
sep	14	2457645.75	13	9	22.56	-6	45	6.85	1.46453	13.6
sep	15	2457646.75	13	13	52.19	-7	15	13.00	1.45948	13.6
sep	16	2457647.75	13	18	22.32	-7	45	10.32	1.45440	13.6
sep	17	2457648.75	13	22	52.98	-8	14	58.10	1.44929	13.6
sep	18	2457649.75	13	27	24.22	-8	44	35.60	1.44414	13.6
sep	19	2457650.75	13	31	56.08	-9	14	2.13	1.43897	13.6
sep	20	2457651.75	13	36	28.60	-9	43	16.96	1.43376	13.6
sep	21	2457652.75	13	41	1.83	-10	12	19.38	1.42852	13.6
sep	22	2457653.75	13	45	35.80	-10	41	8.65	1.42325	13.7
sep	23	2457654.75	13	50	10.55	-11	9	44.03	1.41795	13.7
sep	24	2457655.75	13	54	46.11	-11	38	4.79	1.41262	13.7
sep	25	2457656.75	13	59	22.52	-12	6	10.16	1.40726	13.7
sep	26	2457657.75	14	3	59.80	-12	33	59.39	1.40187	13.7
sep	27	2457658.75	14	8	37.99	-13	1	31.72	1.39645	13.7
sep	28	2457659.75	14	13	17.11	-13	28	46.38	1.39099	13.7
sep	29	2457660.75	14	17	57.20	-13	55	42.62	1.38551	13.7
sep	30	2457661.75	14	22	38.27	-14	22	19.66	1.38000	13.7
oct	1	2457662.75	14	27	20.36	-14	48	36.75	1.37445	13.8
oct	2	2457663.75	14	32	3.49	-15	14	33.11	1.36888	13.8

Venus, 2016

Efemérides a las 0^h del meridiano 90º W.G.

mes	día	dj	h	α m	s	°	δ `	“	dis UA	hp h
oct	3	2457664.75	14	36	47.67	-15	40	7.98	1.36328	13.8
oct	4	2457665.75	14	41	32.93	-16	5	20.59	1.35764	13.8
oct	5	2457666.75	14	46	19.29	-16	30	10.17	1.35198	13.8
oct	6	2457667.75	14	51	6.75	-16	54	35.95	1.34629	13.8
oct	7	2457668.75	14	55	55.33	-17	18	37.16	1.34057	13.8
oct	8	2457669.75	15	0	45.04	-17	42	13.03	1.33482	13.9
oct	9	2457670.75	15	5	35.89	-18	5	22.80	1.32904	13.9
oct	10	2457671.75	15	10	27.88	-18	28	5.69	1.32324	13.9
oct	11	2457672.75	15	15	21.02	-18	50	20.95	1.31741	13.9
oct	12	2457673.75	15	20	15.31	-19	12	7.81	1.31155	13.9
oct	13	2457674.75	15	25	10.75	-19	33	25.53	1.30567	13.9
oct	14	2457675.75	15	30	7.34	-19	54	13.35	1.29976	14.0
oct	15	2457676.75	15	35	5.08	-20	14	30.54	1.29382	14.0
oct	16	2457677.75	15	40	3.97	-20	34	16.39	1.28786	14.0
oct	17	2457678.75	15	45	3.99	-20	53	30.21	1.28188	14.0
oct	18	2457679.75	15	50	5.16	-21	12	11.29	1.27587	14.0
oct	19	2457680.75	15	55	7.45	-21	30	18.99	1.26984	14.0
oct	20	2457681.75	16	0	10.84	-21	47	52.61	1.26379	14.1
oct	21	2457682.75	16	5	15.34	-22	4	51.52	1.25772	14.1
oct	22	2457683.75	16	10	20.90	-22	21	15.05	1.25162	14.1
oct	23	2457684.75	16	15	27.51	-22	37	2.56	1.24550	14.1
oct	24	2457685.75	16	20	35.14	-22	52	13.43	1.23935	14.1
oct	25	2457686.75	16	25	43.77	-23	6	47.06	1.23318	14.2
oct	26	2457687.75	16	30	53.34	-23	20	42.84	1.22699	14.2
oct	27	2457688.75	16	36	3.84	-23	34	0.22	1.22077	14.2
oct	28	2457689.75	16	41	15.22	-23	46	38.64	1.21454	14.2
oct	29	2457690.75	16	46	27.44	-23	58	37.58	1.20827	14.2
oct	30	2457691.75	16	51	40.45	-24	9	56.54	1.20199	14.3
oct	31	2457692.75	16	56	54.20	-24	20	35.05	1.19568	14.3
nov	1	2457693.75	17	2	8.64	-24	30	32.65	1.18935	14.3
nov	2	2457694.75	17	7	23.71	-24	39	48.91	1.18299	14.3
nov	3	2457695.75	17	12	39.35	-24	48	23.44	1.17662	14.3
nov	4	2457696.75	17	17	55.51	-24	56	15.87	1.17021	14.4
nov	5	2457697.75	17	23	12.11	-25	3	25.86	1.16379	14.4
nov	6	2457698.75	17	28	29.10	-25	9	53.09	1.15734	14.4
nov	7	2457699.75	17	33	46.40	-25	15	37.28	1.15087	14.4
nov	8	2457700.75	17	39	3.94	-25	20	38.18	1.14438	14.5
nov	9	2457701.75	17	44	21.65	-25	24	55.56	1.13787	14.5
nov	10	2457702.75	17	49	39.46	-25	28	29.24	1.13133	14.5
nov	11	2457703.75	17	54	57.30	-25	31	19.06	1.12478	14.5
nov	12	2457704.75	18	0	15.10	-25	33	24.90	1.11820	14.6
nov	13	2457705.75	18	5	32.78	-25	34	46.68	1.11161	14.6
nov	14	2457706.75	18	10	50.29	-25	35	24.36	1.10499	14.6
nov	15	2457707.75	18	16	7.54	-25	35	17.96	1.09836	14.6
nov	16	2457708.75	18	21	24.47	-25	34	27.50	1.09170	14.6
nov	17	2457709.75	18	26	41.00	-25	32	53.05	1.08503	14.7

Venus, 2016

Efemérides a las 0^h del meridiano 90° W.G.

mes	día	dj	h	α m	s	°	δ `	“	dis UA	hp h
nov	18	2457710.75	18	31	57.07	-25	30	34.73	1.07834	14.7
nov	19	2457711.75	18	37	12.61	-25	27	32.65	1.07163	14.7
nov	20	2457712.75	18	42	27.55	-25	23	46.98	1.06491	14.7
nov	21	2457713.75	18	47	41.81	-25	19	17.92	1.05817	14.8
nov	22	2457714.75	18	52	55.33	-25	14	5.69	1.05140	14.8
nov	23	2457715.75	18	58	8.05	-25	8	10.56	1.04463	14.8
nov	24	2457716.75	19	3	19.90	-25	1	32.83	1.03783	14.8
nov	25	2457717.75	19	8	30.81	-24	54	12.84	1.03101	14.8
nov	26	2457718.75	19	13	40.72	-24	46	10.93	1.02418	14.9
nov	27	2457719.75	19	18	49.56	-24	37	27.53	1.01733	14.9
nov	28	2457720.75	19	23	57.27	-24	28	3.05	1.01046	14.9
nov	29	2457721.75	19	29	3.78	-24	17	57.95	1.00357	14.9
nov	30	2457722.75	19	34	9.05	-24	7	12.72	0.99666	14.9
dic	1	2457723.75	19	39	13.01	-23	55	47.88	0.98973	15.0
dic	2	2457724.75	19	44	15.59	-23	43	43.96	0.98279	15.0
dic	3	2457725.75	19	49	16.75	-23	31	1.53	0.97583	15.0
dic	4	2457726.75	19	54	16.44	-23	17	41.17	0.96885	15.0
dic	5	2457727.75	19	59	14.59	-23	3	43.50	0.96185	15.0
dic	6	2457728.75	20	4	11.15	-22	49	9.13	0.95483	15.0
dic	7	2457729.75	20	9	6.09	-22	33	58.72	0.94780	15.1
dic	8	2457730.75	20	13	59.36	-22	18	12.92	0.94075	15.1
dic	9	2457731.75	20	18	50.91	-22	1	52.42	0.93368	15.1
dic	10	2457732.75	20	23	40.70	-21	44	57.92	0.92660	15.1
dic	11	2457733.75	20	28	28.71	-21	27	30.12	0.91950	15.1
dic	12	2457734.75	20	33	14.90	-21	9	29.75	0.91238	15.1
dic	13	2457735.75	20	37	59.25	-20	50	57.57	0.90526	15.1
dic	14	2457736.75	20	42	41.71	-20	31	54.32	0.89811	15.2
dic	15	2457737.75	20	47	22.29	-20	12	20.77	0.89096	15.2
dic	16	2457738.75	20	52	0.94	-19	52	17.68	0.88379	15.2
dic	17	2457739.75	20	56	37.66	-19	31	45.82	0.87661	15.2
dic	18	2457740.75	21	1	12.42	-19	10	45.97	0.86942	15.2
dic	19	2457741.75	21	5	45.22	-18	49	18.89	0.86221	15.2
dic	20	2457742.75	21	10	16.05	-18	27	25.38	0.85500	15.2
dic	21	2457743.75	21	14	44.88	-18	5	6.23	0.84777	15.2
dic	22	2457744.75	21	19	11.72	-17	42	22.25	0.84053	15.2
dic	23	2457745.75	21	23	36.55	-17	19	14.23	0.83328	15.2
dic	24	2457746.75	21	27	59.37	-16	55	43.01	0.82602	15.3
dic	25	2457747.75	21	32	20.16	-16	31	49.41	0.81875	15.3
dic	26	2457748.75	21	36	38.92	-16	7	34.24	0.81146	15.3
dic	27	2457749.75	21	40	55.63	-15	42	58.36	0.80417	15.3
dic	28	2457750.75	21	45	10.28	-15	18	2.59	0.79686	15.3
dic	29	2457751.75	21	49	22.87	-14	52	47.79	0.78955	15.3
dic	30	2457752.75	21	53	33.39	-14	27	14.79	0.78222	15.3
dic	31	2457753.75	21	57	41.82	-14	1	24.45	0.77488	15.3

Marte, 2016

Efemérides a las 0^h del meridiano 90º W.G.

mes	día	dj	h	α m	s	°	δ `	“	dis UA	hp h
ene	1	2457388.75	13	48	50.36	-9	36	33.06	1.68151	7.1
ene	2	2457389.75	13	50	56.73	-9	48	16.73	1.67175	7.1
ene	3	2457390.75	13	53	2.93	-9	59	55.46	1.66196	7.1
ene	4	2457391.75	13	55	8.97	-10	11	29.20	1.65214	7.0
ene	5	2457392.75	13	57	14.82	-10	22	57.87	1.64229	7.0
ene	6	2457393.75	13	59	20.50	-10	34	21.41	1.63242	7.0
ene	7	2457394.75	14	1	25.98	-10	45	39.74	1.62252	6.9
ene	8	2457395.75	14	3	31.26	-10	56	52.79	1.61260	6.9
ene	9	2457396.75	14	5	36.32	-11	8	0.50	1.60265	6.9
ene	10	2457397.75	14	7	41.17	-11	19	2.79	1.59268	6.8
ene	11	2457398.75	14	9	45.79	-11	29	59.59	1.58269	6.8
ene	12	2457399.75	14	11	50.17	-11	40	50.83	1.57268	6.8
ene	13	2457400.75	14	13	54.30	-11	51	36.45	1.56264	6.8
ene	14	2457401.75	14	15	58.18	-12	2	16.39	1.55259	6.7
ene	15	2457402.75	14	18	1.81	-12	12	50.62	1.54253	6.7
ene	16	2457403.75	14	20	5.17	-12	23	19.08	1.53244	6.7
ene	17	2457404.75	14	22	8.26	-12	33	41.76	1.52234	6.6
ene	18	2457405.75	14	24	11.09	-12	43	58.62	1.51223	6.6
ene	19	2457406.75	14	26	13.64	-12	54	9.63	1.50211	6.6
ene	20	2457407.75	14	28	15.90	-13	4	14.78	1.49197	6.5
ene	21	2457408.75	14	30	17.87	-13	14	14.01	1.48182	6.5
ene	22	2457409.75	14	32	19.54	-13	24	7.30	1.47166	6.5
ene	23	2457410.75	14	34	20.90	-13	33	54.60	1.46148	6.4
ene	24	2457411.75	14	36	21.95	-13	43	35.88	1.45130	6.4
ene	25	2457412.75	14	38	22.65	-13	53	11.10	1.44111	6.4
ene	26	2457413.75	14	40	23.02	-14	2	40.20	1.43090	6.3
ene	27	2457414.75	14	42	23.03	-14	12	3.16	1.42069	6.3
ene	28	2457415.75	14	44	22.67	-14	21	19.94	1.41048	6.3
ene	29	2457416.75	14	46	21.93	-14	30	30.51	1.40025	6.2
ene	30	2457417.75	14	48	20.80	-14	39	34.83	1.39002	6.2
ene	31	2457418.75	14	50	19.25	-14	48	32.88	1.37978	6.2
feb	1	2457419.75	14	52	17.28	-14	57	24.62	1.36953	6.1
feb	2	2457420.75	14	54	14.86	-15	6	10.03	1.35929	6.1
feb	3	2457421.75	14	56	11.98	-15	14	49.08	1.34904	6.1
feb	4	2457422.75	14	58	8.62	-15	23	21.74	1.33878	6.0
feb	5	2457423.75	15	0	4.77	-15	31	47.98	1.32853	6.0
feb	6	2457424.75	15	2	0.39	-15	40	7.78	1.31827	6.0
feb	7	2457425.75	15	3	55.47	-15	48	21.10	1.30802	5.9
feb	8	2457426.75	15	5	49.99	-15	56	27.92	1.29777	5.9
feb	9	2457427.75	15	7	43.93	-16	4	28.20	1.28752	5.9
feb	10	2457428.75	15	9	37.27	-16	12	21.94	1.27728	5.8
feb	11	2457429.75	15	11	29.99	-16	20	9.12	1.26704	5.8
feb	12	2457430.75	15	13	22.08	-16	27	49.74	1.25681	5.8
feb	13	2457431.75	15	15	13.52	-16	35	23.82	1.24659	5.7
feb	14	2457432.75	15	17	4.30	-16	42	51.38	1.23638	5.7
feb	15	2457433.75	15	18	54.40	-16	50	12.45	1.22619	5.7

Marte, 2016

Efemérides a las 0^h del meridiano 90° W.G.

mes	día	dj	h	α m	s	°	δ `	“	dis UA	hp h
feb	16	2457434.75	15	20	43.81	-16	57	27.05	1.21600	5.6
feb	17	2457435.75	15	22	32.50	-17	4	35.19	1.20583	5.6
feb	18	2457436.75	15	24	20.45	-17	11	36.91	1.19567	5.6
feb	19	2457437.75	15	26	7.65	-17	18	32.22	1.18553	5.5
feb	20	2457438.75	15	27	54.07	-17	25	21.13	1.17540	5.5
feb	21	2457439.75	15	29	39.70	-17	32	3.67	1.16529	5.5
feb	22	2457440.75	15	31	24.50	-17	38	39.85	1.15520	5.4
feb	23	2457441.75	15	33	8.45	-17	45	9.70	1.14512	5.4
feb	24	2457442.75	15	34	51.52	-17	51	33.23	1.13506	5.3
feb	25	2457443.75	15	36	33.70	-17	57	50.49	1.12503	5.3
feb	26	2457444.75	15	38	14.95	-18	4	1.48	1.11501	5.3
feb	27	2457445.75	15	39	55.24	-18	10	6.25	1.10502	5.2
feb	28	2457446.75	15	41	34.55	-18	16	4.83	1.09505	5.2
feb	29	2457447.75	15	43	12.83	-18	21	57.26	1.08510	5.2
mar	1	2457448.75	15	44	50.06	-18	27	43.56	1.07518	5.1
mar	2	2457449.75	15	46	26.21	-18	33	23.77	1.06528	5.1
mar	3	2457450.75	15	48	1.23	-18	38	57.93	1.05541	5.0
mar	4	2457451.75	15	49	35.08	-18	44	26.07	1.04557	5.0
mar	5	2457452.75	15	51	7.75	-18	49	48.23	1.03576	5.0
mar	6	2457453.75	15	52	39.17	-18	55	4.44	1.02598	4.9
mar	7	2457454.75	15	54	9.31	-19	0	14.73	1.01623	4.9
mar	8	2457455.75	15	55	38.14	-19	5	19.13	1.00652	4.8
mar	9	2457456.75	15	57	5.62	-19	10	17.70	0.99684	4.8
mar	10	2457457.75	15	58	31.72	-19	15	10.47	0.98720	4.8
mar	11	2457458.75	15	59	56.39	-19	19	57.52	0.97761	4.7
mar	12	2457459.75	16	1	19.61	-19	24	38.92	0.96805	4.7
mar	13	2457460.75	16	2	41.35	-19	29	14.76	0.95854	4.6
mar	14	2457461.75	16	4	1.57	-19	33	45.11	0.94907	4.6
mar	15	2457462.75	16	5	20.23	-19	38	10.07	0.93965	4.5
mar	16	2457463.75	16	6	37.30	-19	42	29.72	0.93027	4.5
mar	17	2457464.75	16	7	52.75	-19	46	44.13	0.92095	4.4
mar	18	2457465.75	16	9	6.52	-19	50	53.38	0.91167	4.4
mar	19	2457466.75	16	10	18.59	-19	54	57.55	0.90245	4.4
mar	20	2457467.75	16	11	28.91	-19	58	56.70	0.89328	4.3
mar	21	2457468.75	16	12	37.43	-20	2	50.92	0.88416	4.3
mar	22	2457469.75	16	13	44.11	-20	6	40.27	0.87510	4.2
mar	23	2457470.75	16	14	48.92	-20	10	24.84	0.86610	4.2
mar	24	2457471.75	16	15	51.79	-20	14	4.69	0.85715	4.1
mar	25	2457472.75	16	16	52.68	-20	17	39.91	0.84826	4.1
mar	26	2457473.75	16	17	51.54	-20	21	10.56	0.83943	4.0
mar	27	2457474.75	16	18	48.31	-20	24	36.72	0.83067	4.0
mar	28	2457475.75	16	19	42.96	-20	27	58.45	0.82197	3.9
mar	29	2457476.75	16	20	35.41	-20	31	15.81	0.81334	3.9
mar	30	2457477.75	16	21	25.61	-20	34	28.88	0.80477	3.8
mar	31	2457478.75	16	22	13.52	-20	37	37.70	0.79627	3.8
abr	1	2457479.75	16	22	59.06	-20	40	42.32	0.78785	3.7

Marte, 2016

Efemérides a las 0^h del meridiano 90º W.G.

mes	día	dj	h	α m	s	°	δ `	“	dis UA	hp h
abr	2	2457480.75	16	23	42.18	-20	43	42.78	0.77950	3.7
abr	3	2457481.75	16	24	22.82	-20	46	39.12	0.77123	3.6
abr	4	2457482.75	16	25	0.93	-20	49	31.36	0.76303	3.6
abr	5	2457483.75	16	25	36.44	-20	52	19.54	0.75492	3.5
abr	6	2457484.75	16	26	9.32	-20	55	3.66	0.74688	3.4
abr	7	2457485.75	16	26	39.50	-20	57	43.78	0.73894	3.4
abr	8	2457486.75	16	27	6.95	-21	0	19.91	0.73108	3.3
abr	9	2457487.75	16	27	31.62	-21	2	52.10	0.72332	3.3
abr	10	2457488.75	16	27	53.47	-21	5	20.39	0.71565	3.2
abr	11	2457489.75	16	28	12.46	-21	7	44.82	0.70807	3.1
abr	12	2457490.75	16	28	28.55	-21	10	5.42	0.70060	3.1
abr	13	2457491.75	16	28	41.71	-21	12	22.20	0.69322	3.0
abr	14	2457492.75	16	28	51.90	-21	14	35.16	0.68595	3.0
abr	15	2457493.75	16	28	59.07	-21	16	44.29	0.67879	2.9
abr	16	2457494.75	16	29	3.20	-21	18	49.59	0.67173	2.8
abr	17	2457495.75	16	29	4.24	-21	20	51.03	0.66478	2.8
abr	18	2457496.75	16	29	2.18	-21	22	48.58	0.65794	2.7
abr	19	2457497.75	16	28	56.97	-21	24	42.19	0.65122	2.6
abr	20	2457498.75	16	28	48.59	-21	26	31.81	0.64461	2.6
abr	21	2457499.75	16	28	37.01	-21	28	17.39	0.63812	2.5
abr	22	2457500.75	16	28	22.21	-21	29	58.85	0.63175	2.4
abr	23	2457501.75	16	28	4.16	-21	31	36.11	0.62551	2.4
abr	24	2457502.75	16	27	42.86	-21	33	9.09	0.61939	2.3
abr	25	2457503.75	16	27	18.27	-21	34	37.67	0.61340	2.2
abr	26	2457504.75	16	26	50.39	-21	36	1.74	0.60755	2.1
abr	27	2457505.75	16	26	19.22	-21	37	21.17	0.60182	2.1
abr	28	2457506.75	16	25	44.76	-21	38	35.83	0.59624	2.0
abr	29	2457507.75	16	25	7.01	-21	39	45.56	0.59079	1.9
abr	30	2457508.75	16	24	25.98	-21	40	50.20	0.58548	1.8
may	1	2457509.75	16	23	41.70	-21	41	49.60	0.58032	1.8
may	2	2457510.75	16	22	54.20	-21	42	43.57	0.57531	1.7
may	3	2457511.75	16	22	3.51	-21	43	31.96	0.57045	1.6
may	4	2457512.75	16	21	9.70	-21	44	14.60	0.56574	1.5
may	5	2457513.75	16	20	12.82	-21	44	51.35	0.56119	1.4
may	6	2457514.75	16	19	12.96	-21	45	22.08	0.55681	1.4
may	7	2457515.75	16	18	10.20	-21	45	46.70	0.55258	1.3
may	8	2457516.75	16	17	4.64	-21	46	5.12	0.54852	1.2
may	9	2457517.75	16	15	56.39	-21	46	17.27	0.54462	1.1
may	10	2457518.75	16	14	45.57	-21	46	23.10	0.54089	1.0
may	11	2457519.75	16	13	32.30	-21	46	22.54	0.53734	0.9
may	12	2457520.75	16	12	16.70	-21	46	15.59	0.53395	0.8
may	13	2457521.75	16	10	58.92	-21	46	2.22	0.53074	0.8
may	14	2457522.75	16	9	39.09	-21	45	42.45	0.52770	0.7
may	15	2457523.75	16	8	17.38	-21	45	16.30	0.52484	0.6
may	16	2457524.75	16	6	53.92	-21	44	43.85	0.52216	0.5
may	17	2457525.75	16	5	28.89	-21	44	5.17	0.51965	0.4

Marte, 2016

Efemérides a las 0^h del meridiano 90° W.G.

mes	día	dj	h	α m	s	°	δ `	“	dis UA	hp h
may	18	2457526.75	16	4	2.45	-21	43	20.37	0.51732	0.3
may	19	2457527.75	16	2	34.76	-21	42	29.60	0.51517	0.2
may	20	2457528.75	16	1	6.01	-21	41	33.03	0.51319	0.1
may	21	2457529.75	15	59	36.37	-21	40	30.86	0.51140	0.0
may	22	2457530.75	15	58	6.01	-21	39	23.30	0.50978	23.9
may	23	2457531.75	15	56	35.14	-21	38	10.62	0.50834	23.9
may	24	2457532.75	15	55	3.92	-21	36	53.10	0.50709	23.8
may	25	2457533.75	15	53	32.55	-21	35	31.04	0.50600	23.7
may	26	2457534.75	15	52	1.21	-21	34	4.78	0.50510	23.6
may	27	2457535.75	15	50	30.10	-21	32	34.68	0.50437	23.5
may	28	2457536.75	15	48	59.41	-21	31	1.13	0.50382	23.4
may	29	2457537.75	15	47	29.33	-21	29	24.56	0.50345	23.3
may	30	2457538.75	15	46	0.05	-21	27	45.41	0.50325	23.2
may	31	2457539.75	15	44	31.77	-21	26	4.18	0.50322	23.1
jun	1	2457540.75	15	43	4.68	-21	24	21.37	0.50337	23.0
jun	2	2457541.75	15	41	38.97	-21	22	37.55	0.50369	23.0
jun	3	2457542.75	15	40	14.85	-21	20	53.29	0.50417	22.9
jun	4	2457543.75	15	38	52.49	-21	19	9.21	0.50483	22.8
jun	5	2457544.75	15	37	32.06	-21	17	25.92	0.50564	22.7
jun	6	2457545.75	15	36	13.75	-21	15	44.05	0.50662	22.6
jun	7	2457546.75	15	34	57.70	-21	14	4.21	0.50776	22.5
jun	8	2457547.75	15	33	44.08	-21	12	27.00	0.50905	22.4
jun	9	2457548.75	15	32	33.01	-21	10	53.02	0.51050	22.3
jun	10	2457549.75	15	31	24.62	-21	9	22.83	0.51210	22.3
jun	11	2457550.75	15	30	19.04	-21	7	57.00	0.51384	22.2
jun	12	2457551.75	15	29	16.35	-21	6	36.04	0.51572	22.1
jun	13	2457552.75	15	28	16.67	-21	5	20.47	0.51774	22.0
jun	14	2457553.75	15	27	20.07	-21	4	10.77	0.51990	21.9
jun	15	2457554.75	15	26	26.64	-21	3	7.39	0.52219	21.8
jun	16	2457555.75	15	25	36.42	-21	2	10.75	0.52461	21.8
jun	17	2457556.75	15	24	49.49	-21	1	21.24	0.52715	21.7
jun	18	2457557.75	15	24	5.90	-21	0	39.22	0.52981	21.6
jun	19	2457558.75	15	23	25.67	-21	0	5.01	0.53259	21.5
jun	20	2457559.75	15	22	48.85	-20	59	38.91	0.53549	21.5
jun	21	2457560.75	15	22	15.45	-20	59	21.16	0.53850	21.4
jun	22	2457561.75	15	21	45.50	-20	59	12.01	0.54161	21.3
jun	23	2457562.75	15	21	19.02	-20	59	11.62	0.54483	21.2
jun	24	2457563.75	15	20	56.01	-20	59	20.18	0.54815	21.2
jun	25	2457564.75	15	20	36.48	-20	59	37.82	0.55157	21.1
jun	26	2457565.75	15	20	20.44	-21	0	4.65	0.55509	21.0
jun	27	2457566.75	15	20	7.88	-21	0	40.78	0.55870	21.0
jun	28	2457567.75	15	19	58.82	-21	1	26.30	0.56241	20.9
jun	29	2457568.75	15	19	53.24	-21	2	21.29	0.56620	20.8
jun	30	2457569.75	15	19	51.15	-21	3	25.80	0.57007	20.7
jul	1	2457570.75	15	19	52.54	-21	4	39.88	0.57403	20.7
jul	2	2457571.75	15	19	57.40	-21	6	3.56	0.57807	20.6

Marte, 2016

Efemérides a las 0^h del meridiano 90º W.G.

mes	día	dj	h	α m	s	°	δ `	“	dis UA	hp h
jul	3	2457572.75	15	20	5.71	-21	7	36.83	0.58218	20.6
jul	4	2457573.75	15	20	17.45	-21	9	19.68	0.58637	20.5
jul	5	2457574.75	15	20	32.60	-21	11	12.06	0.59063	20.4
jul	6	2457575.75	15	20	51.14	-21	13	13.86	0.59496	20.4
jul	7	2457576.75	15	21	13.01	-21	15	25.00	0.59935	20.3
jul	8	2457577.75	15	21	38.20	-21	17	45.33	0.60380	20.3
jul	9	2457578.75	15	22	6.66	-21	20	14.71	0.60831	20.2
jul	10	2457579.75	15	22	38.35	-21	22	52.96	0.61288	20.1
jul	11	2457580.75	15	23	13.22	-21	25	39.89	0.61750	20.1
jul	12	2457581.75	15	23	51.24	-21	28	35.29	0.62217	20.0
jul	13	2457582.75	15	24	32.34	-21	31	38.95	0.62690	20.0
jul	14	2457583.75	15	25	16.49	-21	34	50.62	0.63167	19.9
jul	15	2457584.75	15	26	3.64	-21	38	10.04	0.63648	19.9
jul	16	2457585.75	15	26	53.73	-21	41	36.97	0.64134	19.8
jul	17	2457586.75	15	27	46.72	-21	45	11.12	0.64623	19.8
jul	18	2457587.75	15	28	42.56	-21	48	52.21	0.65117	19.7
jul	19	2457588.75	15	29	41.19	-21	52	39.92	0.65614	19.7
jul	20	2457589.75	15	30	42.57	-21	56	33.97	0.66115	19.6
jul	21	2457590.75	15	31	46.65	-22	0	34.04	0.66620	19.6
jul	22	2457591.75	15	32	53.38	-22	4	39.80	0.67128	19.5
jul	23	2457592.75	15	34	2.73	-22	8	50.95	0.67639	19.5
jul	24	2457593.75	15	35	14.65	-22	13	7.17	0.68153	19.4
jul	25	2457594.75	15	36	29.11	-22	17	28.16	0.68670	19.4
jul	26	2457595.75	15	37	46.07	-22	21	53.62	0.69190	19.3
jul	27	2457596.75	15	39	5.51	-22	26	23.27	0.69713	19.3
jul	28	2457597.75	15	40	27.39	-22	30	56.81	0.70239	19.3
jul	29	2457598.75	15	41	51.68	-22	35	33.97	0.70767	19.2
jul	30	2457599.75	15	43	18.35	-22	40	14.47	0.71298	19.2
jul	31	2457600.75	15	44	47.36	-22	44	58.01	0.71831	19.1
ago	1	2457601.75	15	46	18.69	-22	49	44.30	0.72367	19.1
ago	2	2457602.75	15	47	52.30	-22	54	33.03	0.72904	19.0
ago	3	2457603.75	15	49	28.15	-22	59	23.90	0.73444	19.0
ago	4	2457604.75	15	51	6.22	-23	4	16.59	0.73985	19.0
ago	5	2457605.75	15	52	46.46	-23	9	10.79	0.74528	18.9
ago	6	2457606.75	15	54	28.85	-23	14	6.18	0.75073	18.9
ago	7	2457607.75	15	56	13.34	-23	19	2.45	0.75619	18.9
ago	8	2457608.75	15	57	59.89	-23	23	59.28	0.76166	18.8
ago	9	2457609.75	15	59	48.48	-23	28	56.34	0.76715	18.8
ago	10	2457610.75	16	1	39.06	-23	33	53.32	0.77265	18.8
ago	11	2457611.75	16	3	31.60	-23	38	49.89	0.77817	18.7
ago	12	2457612.75	16	5	26.07	-23	43	45.73	0.78369	18.7
ago	13	2457613.75	16	7	22.42	-23	48	40.52	0.78923	18.6
ago	14	2457614.75	16	9	20.62	-23	53	33.93	0.79477	18.6
ago	15	2457615.75	16	11	20.63	-23	58	25.63	0.80032	18.6
ago	16	2457616.75	16	13	22.42	-24	3	15.31	0.80588	18.6
ago	17	2457617.75	16	15	25.95	-24	8	2.61	0.81145	18.5

Marte, 2016

Efemérides a las 0^h del meridiano 90° W.G.

mes	día	dj	h	α m	s	°	δ `	“	dis UA	hp h
ago	18	2457618.75	16	17	31.19	-24	12	47.23	0.81703	18.5
ago	19	2457619.75	16	19	38.11	-24	17	28.82	0.82262	18.5
ago	20	2457620.75	16	21	46.69	-24	22	7.08	0.82822	18.4
ago	21	2457621.75	16	23	56.89	-24	26	41.69	0.83382	18.4
ago	22	2457622.75	16	26	8.69	-24	31	12.35	0.83943	18.4
ago	23	2457623.75	16	28	22.08	-24	35	38.77	0.84505	18.3
ago	24	2457624.75	16	30	37.03	-24	40	0.68	0.85068	18.3
ago	25	2457625.75	16	32	53.52	-24	44	17.81	0.85632	18.3
ago	26	2457626.75	16	35	11.54	-24	48	29.90	0.86196	18.3
ago	27	2457627.75	16	37	31.06	-24	52	36.66	0.86762	18.2
ago	28	2457628.75	16	39	52.06	-24	56	37.84	0.87328	18.2
ago	29	2457629.75	16	42	14.51	-25	0	33.17	0.87894	18.2
ago	30	2457630.75	16	44	38.41	-25	4	22.38	0.88462	18.2
ago	31	2457631.75	16	47	3.72	-25	8	5.20	0.89030	18.1
sep	1	2457632.75	16	49	30.41	-25	11	41.37	0.89598	18.1
sep	2	2457633.75	16	51	58.48	-25	15	10.63	0.90167	18.1
sep	3	2457634.75	16	54	27.88	-25	18	32.71	0.90737	18.1
sep	4	2457635.75	16	56	58.60	-25	21	47.37	0.91307	18.0
sep	5	2457636.75	16	59	30.61	-25	24	54.34	0.91877	18.0
sep	6	2457637.75	17	2	3.88	-25	27	53.39	0.92448	18.0
sep	7	2457638.75	17	4	38.39	-25	30	44.28	0.93019	18.0
sep	8	2457639.75	17	7	14.10	-25	33	26.74	0.93591	17.9
sep	9	2457640.75	17	9	50.99	-25	36	0.56	0.94163	17.9
sep	10	2457641.75	17	12	29.03	-25	38	25.48	0.94735	17.9
sep	11	2457642.75	17	15	8.19	-25	40	41.28	0.95307	17.9
sep	12	2457643.75	17	17	48.44	-25	42	47.73	0.95880	17.9
sep	13	2457644.75	17	20	29.75	-25	44	44.58	0.96453	17.8
sep	14	2457645.75	17	23	12.09	-25	46	31.62	0.97027	17.8
sep	15	2457646.75	17	25	55.43	-25	48	8.60	0.97600	17.8
sep	16	2457647.75	17	28	39.75	-25	49	35.31	0.98174	17.8
sep	17	2457648.75	17	31	25.02	-25	50	51.52	0.98749	17.8
sep	18	2457649.75	17	34	11.22	-25	51	57.03	0.99324	17.7
sep	19	2457650.75	17	36	58.32	-25	52	51.64	0.99900	17.7
sep	20	2457651.75	17	39	46.31	-25	53	35.16	1.00476	17.7
sep	21	2457652.75	17	42	35.17	-25	54	7.42	1.01053	17.7
sep	22	2457653.75	17	45	24.88	-25	54	28.26	1.01630	17.7
sep	23	2457654.75	17	48	15.42	-25	54	37.51	1.02208	17.6
sep	24	2457655.75	17	51	6.76	-25	54	35.01	1.02787	17.6
sep	25	2457656.75	17	53	58.90	-25	54	20.61	1.03366	17.6
sep	26	2457657.75	17	56	51.80	-25	53	54.14	1.03946	17.6
sep	27	2457658.75	17	59	45.45	-25	53	15.46	1.04527	17.6
sep	28	2457659.75	18	2	39.82	-25	52	24.42	1.05108	17.5
sep	29	2457660.75	18	5	34.90	-25	51	20.89	1.05690	17.5
sep	30	2457661.75	18	8	30.65	-25	50	4.73	1.06272	17.5
oct	1	2457662.75	18	11	27.06	-25	48	35.81	1.06855	17.5
oct	2	2457663.75	18	14	24.11	-25	46	54.03	1.07439	17.5

Marte, 2016

Efemérides a las 0^h del meridiano 90º W.G.

mes	día	dj	h	α m	s	°	δ `	“	dis UA	hp h
oct	3	2457664.75	18	17	21.76	-25	44	59.27	1.08023	17.5
oct	4	2457665.75	18	20	20.00	-25	42	51.44	1.08608	17.4
oct	5	2457666.75	18	23	18.79	-25	40	30.43	1.09193	17.4
oct	6	2457667.75	18	26	18.11	-25	37	56.15	1.09778	17.4
oct	7	2457668.75	18	29	17.94	-25	35	8.52	1.10365	17.4
oct	8	2457669.75	18	32	18.24	-25	32	7.47	1.10951	17.4
oct	9	2457670.75	18	35	18.99	-25	28	52.91	1.11539	17.4
oct	10	2457671.75	18	38	20.15	-25	25	24.78	1.12127	17.4
oct	11	2457672.75	18	41	21.71	-25	21	43.02	1.12715	17.3
oct	12	2457673.75	18	44	23.64	-25	17	47.55	1.13304	17.3
oct	13	2457674.75	18	47	25.90	-25	13	38.32	1.13894	17.3
oct	14	2457675.75	18	50	28.47	-25	9	15.27	1.14484	17.3
oct	15	2457676.75	18	53	31.33	-25	4	38.36	1.15075	17.3
oct	16	2457677.75	18	56	34.46	-24	59	47.53	1.15666	17.3
oct	17	2457678.75	18	59	37.84	-24	54	42.77	1.16259	17.2
oct	18	2457679.75	19	2	41.44	-24	49	24.06	1.16852	17.2
oct	19	2457680.75	19	5	45.26	-24	43	51.38	1.17447	17.2
oct	20	2457681.75	19	8	49.27	-24	38	4.73	1.18042	17.2
oct	21	2457682.75	19	11	53.46	-24	32	4.12	1.18638	17.2
oct	22	2457683.75	19	14	57.80	-24	25	49.54	1.19235	17.2
oct	23	2457684.75	19	18	2.29	-24	19	21.00	1.19833	17.2
oct	24	2457685.75	19	21	6.90	-24	12	38.52	1.20433	17.1
oct	25	2457686.75	19	24	11.62	-24	5	42.09	1.21033	17.1
oct	26	2457687.75	19	27	16.43	-23	58	31.76	1.21634	17.1
oct	27	2457688.75	19	30	21.31	-23	51	7.54	1.22236	17.1
oct	28	2457689.75	19	33	26.26	-23	43	29.48	1.22840	17.1
oct	29	2457690.75	19	36	31.24	-23	35	37.62	1.23444	17.1
oct	30	2457691.75	19	39	36.26	-23	27	32.02	1.24049	17.1
oct	31	2457692.75	19	42	41.28	-23	19	12.74	1.24655	17.0
nov	1	2457693.75	19	45	46.29	-23	10	39.84	1.25262	17.0
nov	2	2457694.75	19	48	51.28	-23	1	53.40	1.25870	17.0
nov	3	2457695.75	19	51	56.21	-22	52	53.50	1.26478	17.0
nov	4	2457696.75	19	55	1.09	-22	43	40.23	1.27088	17.0
nov	5	2457697.75	19	58	5.88	-22	34	13.69	1.27698	17.0
nov	6	2457698.75	20	1	10.57	-22	24	33.96	1.28310	17.0
nov	7	2457699.75	20	4	15.14	-22	14	41.14	1.28922	16.9
nov	8	2457700.75	20	7	19.57	-22	4	35.34	1.29535	16.9
nov	9	2457701.75	20	10	23.85	-21	54	16.66	1.30149	16.9
nov	10	2457702.75	20	13	27.95	-21	43	45.20	1.30764	16.9
nov	11	2457703.75	20	16	31.87	-21	33	1.07	1.31380	16.9
nov	12	2457704.75	20	19	35.59	-21	22	4.39	1.31997	16.9
nov	13	2457705.75	20	22	39.09	-21	10	55.27	1.32615	16.9
nov	14	2457706.75	20	25	42.38	-20	59	33.82	1.33234	16.8
nov	15	2457707.75	20	28	45.43	-20	48	0.19	1.33854	16.8
nov	16	2457708.75	20	31	48.24	-20	36	14.50	1.34475	16.8
nov	17	2457709.75	20	34	50.80	-20	24	16.90	1.35097	16.8

Marte, 2016

Efemérides a las 0^h del meridiano 90° W.G.

mes	día	dj	h	α m	s	°	δ `	“	dis UA	hp h
nov	18	2457710.75	20	37	53.11	-20	12	7.52	1.35721	16.8
nov	19	2457711.75	20	40	55.15	-19	59	46.49	1.36346	16.8
nov	20	2457712.75	20	43	56.93	-19	47	13.95	1.36972	16.8
nov	21	2457713.75	20	46	58.43	-19	34	30.02	1.37599	16.7
nov	22	2457714.75	20	49	59.66	-19	21	34.85	1.38228	16.7
nov	23	2457715.75	20	53	0.60	-19	8	28.57	1.38858	16.7
nov	24	2457716.75	20	56	1.26	-18	55	11.34	1.39488	16.7
nov	25	2457717.75	20	59	1.63	-18	41	43.30	1.40121	16.7
nov	26	2457718.75	21	2	1.71	-18	28	4.62	1.40754	16.7
nov	27	2457719.75	21	5	1.49	-18	14	15.45	1.41388	16.6
nov	28	2457720.75	21	8	0.96	-18	0	15.96	1.42024	16.6
nov	29	2457721.75	21	11	0.14	-17	46	6.33	1.42660	16.6
nov	30	2457722.75	21	13	59.00	-17	31	46.72	1.43298	16.6
dic	1	2457723.75	21	16	57.54	-17	17	17.33	1.43937	16.6
dic	2	2457724.75	21	19	55.76	-17	2	38.33	1.44576	16.6
dic	3	2457725.75	21	22	53.65	-16	47	49.90	1.45217	16.5
dic	4	2457726.75	21	25	51.21	-16	32	52.24	1.45859	16.5
dic	5	2457727.75	21	28	48.43	-16	17	45.53	1.46501	16.5
dic	6	2457728.75	21	31	45.31	-16	2	29.95	1.47144	16.5
dic	7	2457729.75	21	34	41.84	-15	47	5.69	1.47789	16.5
dic	8	2457730.75	21	37	38.01	-15	31	32.94	1.48434	16.5
dic	9	2457731.75	21	40	33.83	-15	15	51.87	1.49080	16.4
dic	10	2457732.75	21	43	29.30	-15	0	2.68	1.49727	16.4
dic	11	2457733.75	21	46	24.41	-14	44	5.55	1.50375	16.4
dic	12	2457734.75	21	49	19.16	-14	28	0.68	1.51024	16.4
dic	13	2457735.75	21	52	13.55	-14	11	48.24	1.51674	16.4
dic	14	2457736.75	21	55	7.60	-13	55	28.45	1.52325	16.4
dic	15	2457737.75	21	58	1.28	-13	39	1.48	1.52977	16.3
dic	16	2457738.75	22	0	54.62	-13	22	27.53	1.53630	16.3
dic	17	2457739.75	22	3	47.60	-13	5	46.78	1.54284	16.3
dic	18	2457740.75	22	6	40.25	-12	48	59.41	1.54939	16.3
dic	19	2457741.75	22	9	32.55	-12	32	5.58	1.55596	16.3
dic	20	2457742.75	22	12	24.52	-12	15	5.46	1.56253	16.3
dic	21	2457743.75	22	15	16.17	-11	57	59.23	1.56912	16.2
dic	22	2457744.75	22	18	7.50	-11	40	47.07	1.57571	16.2
dic	23	2457745.75	22	20	58.51	-11	23	29.15	1.58231	16.2
dic	24	2457746.75	22	23	49.21	-11	6	5.67	1.58893	16.2
dic	25	2457747.75	22	26	39.62	-10	48	36.79	1.59555	16.2
dic	26	2457748.75	22	29	29.72	-10	31	2.72	1.60218	16.1
dic	27	2457749.75	22	32	19.53	-10	13	23.64	1.60882	16.1
dic	28	2457750.75	22	35	9.05	-9	55	39.74	1.61546	16.1
dic	29	2457751.75	22	37	58.28	-9	37	51.21	1.62212	16.1
dic	30	2457752.75	22	40	47.22	-9	19	58.26	1.62878	16.1
dic	31	2457753.75	22	43	35.89	-9	2	1.08	1.63544	16.1

Júpiter, 2016

Efemérides a las 0^h del meridiano 90º W.G.

mes	día	dj	h	α m	s	°	δ `	“	dis UA	hp h
ene	1	2457388.75	11	36	51.27	+3	51	13.01	5.04498	4.9
ene	2	2457389.75	11	36	56.28	+3	50	58.99	5.02975	4.9
ene	3	2457390.75	11	37	0.59	+3	50	49.53	5.01461	4.8
ene	4	2457391.75	11	37	4.20	+3	50	44.62	4.99956	4.7
ene	5	2457392.75	11	37	7.10	+3	50	44.27	4.98460	4.7
ene	6	2457393.75	11	37	9.29	+3	50	48.51	4.96974	4.6
ene	7	2457394.75	11	37	10.76	+3	50	57.32	4.95499	4.5
ene	8	2457395.75	11	37	11.53	+3	51	10.72	4.94034	4.5
ene	9	2457396.75	11	37	11.57	+3	51	28.71	4.92581	4.4
ene	10	2457397.75	11	37	10.90	+3	51	51.30	4.91140	4.3
ene	11	2457398.75	11	37	9.52	+3	52	18.49	4.89712	4.3
ene	12	2457399.75	11	37	7.41	+3	52	50.28	4.88297	4.2
ene	13	2457400.75	11	37	4.58	+3	53	26.64	4.86896	4.1
ene	14	2457401.75	11	37	1.04	+3	54	7.57	4.85508	4.1
ene	15	2457402.75	11	36	56.79	+3	54	53.02	4.84136	4.0
ene	16	2457403.75	11	36	51.83	+3	55	42.98	4.82778	3.9
ene	17	2457404.75	11	36	46.16	+3	56	37.40	4.81436	3.9
ene	18	2457405.75	11	36	39.80	+3	57	36.25	4.80111	3.8
ene	19	2457406.75	11	36	32.73	+3	58	39.50	4.78802	3.7
ene	20	2457407.75	11	36	24.98	+3	59	47.12	4.77509	3.7
ene	21	2457408.75	11	36	16.54	+4	0	59.08	4.76235	3.6
ene	22	2457409.75	11	36	7.40	+4	2	15.37	4.74978	3.5
ene	23	2457410.75	11	35	57.59	+4	3	35.94	4.73740	3.5
ene	24	2457411.75	11	35	47.09	+4	5	0.77	4.72520	3.4
ene	25	2457412.75	11	35	35.92	+4	6	29.82	4.71320	3.3
ene	26	2457413.75	11	35	24.08	+4	8	3.04	4.70139	3.3
ene	27	2457414.75	11	35	11.57	+4	9	40.39	4.68979	3.2
ene	28	2457415.75	11	34	58.40	+4	11	21.81	4.67839	3.1
ene	29	2457416.75	11	34	44.58	+4	13	7.24	4.66720	3.1
ene	30	2457417.75	11	34	30.12	+4	14	56.62	4.65623	3.0
ene	31	2457418.75	11	34	15.01	+4	16	49.90	4.64548	2.9
feb	1	2457419.75	11	33	59.28	+4	18	47.00	4.63495	2.8
feb	2	2457420.75	11	33	42.93	+4	20	47.86	4.62464	2.8
feb	3	2457421.75	11	33	25.97	+4	22	52.41	4.61458	2.7
feb	4	2457422.75	11	33	8.41	+4	25	0.57	4.60475	2.6
feb	5	2457423.75	11	32	50.26	+4	27	12.27	4.59516	2.6
feb	6	2457424.75	11	32	31.52	+4	29	27.44	4.58581	2.5
feb	7	2457425.75	11	32	12.21	+4	31	45.99	4.57672	2.4
feb	8	2457426.75	11	31	52.34	+4	34	7.85	4.56788	2.3
feb	9	2457427.75	11	31	31.93	+4	36	32.92	4.55931	2.3
feb	10	2457428.75	11	31	10.98	+4	39	1.10	4.55099	2.2
feb	11	2457429.75	11	30	49.51	+4	41	32.28	4.54294	2.1
feb	12	2457430.75	11	30	27.54	+4	44	6.34	4.53516	2.1
feb	13	2457431.75	11	30	5.09	+4	46	43.16	4.52765	2.0
feb	14	2457432.75	11	29	42.17	+4	49	22.63	4.52042	1.9
feb	15	2457433.75	11	29	18.80	+4	52	4.62	4.51347	1.8

Júpiter, 2016

Efemérides a las 0^h del meridiano 90° W.G.

mes	día	dj	h	α m	s	°	δ `	“	dis UA	hp h
feb	16	2457434.75	11	28	54.99	+4	54	49.04	4.50680	1.8
feb	17	2457435.75	11	28	30.77	+4	57	35.77	4.50042	1.7
feb	18	2457436.75	11	28	6.14	+5	0	24.71	4.49432	1.6
feb	19	2457437.75	11	27	41.12	+5	3	15.74	4.48851	1.6
feb	20	2457438.75	11	27	15.73	+5	6	8.76	4.48299	1.5
feb	21	2457439.75	11	26	49.98	+5	9	3.64	4.47776	1.4
feb	22	2457440.75	11	26	23.89	+5	12	0.27	4.47283	1.3
feb	23	2457441.75	11	25	57.49	+5	14	58.53	4.46819	1.3
feb	24	2457442.75	11	25	30.77	+5	17	58.28	4.46386	1.2
feb	25	2457443.75	11	25	3.78	+5	20	59.40	4.45982	1.1
feb	26	2457444.75	11	24	36.51	+5	24	1.76	4.45609	1.0
feb	27	2457445.75	11	24	9.00	+5	27	5.23	4.45266	1.0
feb	28	2457446.75	11	23	41.26	+5	30	9.66	4.44953	0.9
feb	29	2457447.75	11	23	13.32	+5	33	14.94	4.44672	0.8
mar	1	2457448.75	11	22	45.19	+5	36	20.92	4.44421	0.7
mar	2	2457449.75	11	22	16.88	+5	39	27.48	4.44201	0.7
mar	3	2457450.75	11	21	48.43	+5	42	34.49	4.44013	0.6
mar	4	2457451.75	11	21	19.85	+5	45	41.81	4.43855	0.5
mar	5	2457452.75	11	20	51.16	+5	48	49.32	4.43729	0.5
mar	6	2457453.75	11	20	22.38	+5	51	56.87	4.43634	0.4
mar	7	2457454.75	11	19	53.54	+5	55	4.35	4.43571	0.3
mar	8	2457455.75	11	19	24.64	+5	58	11.60	4.43539	0.2
mar	9	2457456.75	11	18	55.72	+6	1	18.49	4.43539	0.2
mar	10	2457457.75	11	18	26.80	+6	4	24.85	4.43570	0.1
mar	11	2457458.75	11	17	57.91	+6	7	30.54	4.43632	0.0
mar	12	2457459.75	11	17	29.06	+6	10	35.41	4.43726	23.9
mar	13	2457460.75	11	17	0.28	+6	13	39.33	4.43852	23.9
mar	14	2457461.75	11	16	31.59	+6	16	42.15	4.44008	23.8
mar	15	2457462.75	11	16	3.01	+6	19	43.77	4.44195	23.7
mar	16	2457463.75	11	15	34.57	+6	22	44.05	4.44413	23.6
mar	17	2457464.75	11	15	6.27	+6	25	42.89	4.44662	23.6
mar	18	2457465.75	11	14	38.14	+6	28	40.17	4.44942	23.5
mar	19	2457466.75	11	14	10.20	+6	31	35.77	4.45252	23.4
mar	20	2457467.75	11	13	42.46	+6	34	29.58	4.45591	23.3
mar	21	2457468.75	11	13	14.94	+6	37	21.48	4.45961	23.3
mar	22	2457469.75	11	12	47.67	+6	40	11.36	4.46361	23.2
mar	23	2457470.75	11	12	20.66	+6	42	59.10	4.46790	23.1
mar	24	2457471.75	11	11	53.93	+6	45	44.60	4.47249	23.1
mar	25	2457472.75	11	11	27.50	+6	48	27.73	4.47737	23.0
mar	26	2457473.75	11	11	1.38	+6	51	8.41	4.48253	22.9
mar	27	2457474.75	11	10	35.59	+6	53	46.53	4.48799	22.8
mar	28	2457475.75	11	10	10.16	+6	56	21.98	4.49372	22.8
mar	29	2457476.75	11	9	45.09	+6	58	54.67	4.49974	22.7
mar	30	2457477.75	11	9	20.40	+7	1	24.52	4.50604	22.6
mar	31	2457478.75	11	8	56.12	+7	3	51.44	4.51262	22.5
abr	1	2457479.75	11	8	32.24	+7	6	15.34	4.51947	22.5

Júpiter, 2016

Efemérides a las 0^h del meridiano 90º W.G.

mes	día	dj	h	α m	s	°	δ `	“	dis UA	hp h
abr	2	2457480.75	11	8	8.79	+7	8	36.14	4.52659	22.4
abr	3	2457481.75	11	7	45.79	+7	10	53.76	4.53398	22.3
abr	4	2457482.75	11	7	23.24	+7	13	8.12	4.54163	22.3
abr	5	2457483.75	11	7	1.16	+7	15	19.14	4.54955	22.2
abr	6	2457484.75	11	6	39.58	+7	17	26.72	4.55772	22.1
abr	7	2457485.75	11	6	18.49	+7	19	30.78	4.56615	22.0
abr	8	2457486.75	11	5	57.92	+7	21	31.23	4.57483	22.0
abr	9	2457487.75	11	5	37.89	+7	23	28.01	4.58376	21.9
abr	10	2457488.75	11	5	18.41	+7	25	21.05	4.59293	21.8
abr	11	2457489.75	11	4	59.48	+7	27	10.29	4.60234	21.8
abr	12	2457490.75	11	4	41.12	+7	28	55.70	4.61198	21.7
abr	13	2457491.75	11	4	23.34	+7	30	37.23	4.62185	21.6
abr	14	2457492.75	11	4	6.14	+7	32	14.84	4.63194	21.5
abr	15	2457493.75	11	3	49.53	+7	33	48.51	4.64226	21.5
abr	16	2457494.75	11	3	33.52	+7	35	18.18	4.65279	21.4
abr	17	2457495.75	11	3	18.12	+7	36	43.82	4.66354	21.3
abr	18	2457496.75	11	3	3.33	+7	38	5.40	4.67449	21.3
abr	19	2457497.75	11	2	49.16	+7	39	22.88	4.68564	21.2
abr	20	2457498.75	11	2	35.62	+7	40	36.23	4.69699	21.1
abr	21	2457499.75	11	2	22.72	+7	41	45.41	4.70854	21.1
abr	22	2457500.75	11	2	10.46	+7	42	50.41	4.72028	21.0
abr	23	2457501.75	11	1	58.84	+7	43	51.21	4.73220	20.9
abr	24	2457502.75	11	1	47.87	+7	44	47.77	4.74430	20.8
abr	25	2457503.75	11	1	37.56	+7	45	40.09	4.75658	20.8
abr	26	2457504.75	11	1	27.91	+7	46	28.15	4.76903	20.7
abr	27	2457505.75	11	1	18.92	+7	47	11.96	4.78166	20.6
abr	28	2457506.75	11	1	10.59	+7	47	51.48	4.79444	20.6
abr	29	2457507.75	11	1	2.94	+7	48	26.74	4.80739	20.5
abr	30	2457508.75	11	0	55.95	+7	48	57.71	4.82049	20.4
may	1	2457509.75	11	0	49.64	+7	49	24.39	4.83375	20.4
may	2	2457510.75	11	0	44.00	+7	49	46.78	4.84715	20.3
may	3	2457511.75	11	0	39.03	+7	50	4.86	4.86070	20.2
may	4	2457512.75	11	0	34.75	+7	50	18.62	4.87438	20.2
may	5	2457513.75	11	0	31.16	+7	50	28.05	4.88820	20.1
may	6	2457514.75	11	0	28.25	+7	50	33.14	4.90214	20.0
may	7	2457515.75	11	0	26.04	+7	50	33.88	4.91621	20.0
may	8	2457516.75	11	0	24.51	+7	50	30.29	4.93040	19.9
may	9	2457517.75	11	0	23.67	+7	50	22.39	4.94471	19.8
may	10	2457518.75	11	0	23.53	+7	50	10.21	4.95912	19.8
may	11	2457519.75	11	0	24.06	+7	49	53.75	4.97363	19.7
may	12	2457520.75	11	0	25.28	+7	49	33.06	4.98825	19.6
may	13	2457521.75	11	0	27.17	+7	49	8.15	5.00295	19.6
may	14	2457522.75	11	0	29.74	+7	48	39.04	5.01775	19.5
may	15	2457523.75	11	0	32.98	+7	48	5.74	5.03264	19.4
may	16	2457524.75	11	0	36.89	+7	47	28.27	5.04760	19.4
may	17	2457525.75	11	0	41.46	+7	46	46.66	5.06264	19.3

Júpiter, 2016

Efemérides a las 0^h del meridiano 90° W.G.

mes	día	dj	h	α m	s	°	δ `	“	dis UA	hp h
may	18	2457526.75	11	0	46.71	+7	46	0.92	5.07775	19.3
may	19	2457527.75	11	0	52.61	+7	45	11.07	5.09294	19.2
may	20	2457528.75	11	0	59.17	+7	44	17.14	5.10818	19.1
may	21	2457529.75	11	1	6.38	+7	43	19.15	5.12348	19.1
may	22	2457530.75	11	1	14.25	+7	42	17.13	5.13884	19.0
may	23	2457531.75	11	1	22.76	+7	41	11.11	5.15426	18.9
may	24	2457532.75	11	1	31.92	+7	40	1.11	5.16972	18.9
may	25	2457533.75	11	1	41.71	+7	38	47.18	5.18522	18.8
may	26	2457534.75	11	1	52.13	+7	37	29.33	5.20077	18.7
may	27	2457535.75	11	2	3.18	+7	36	7.61	5.21635	18.7
may	28	2457536.75	11	2	14.85	+7	34	42.04	5.23196	18.6
may	29	2457537.75	11	2	27.14	+7	33	12.65	5.24760	18.6
may	30	2457538.75	11	2	40.05	+7	31	39.45	5.26327	18.5
may	31	2457539.75	11	2	53.56	+7	30	2.47	5.27896	18.4
jun	1	2457540.75	11	3	7.69	+7	28	21.72	5.29466	18.4
jun	2	2457541.75	11	3	22.42	+7	26	37.23	5.31038	18.3
jun	3	2457542.75	11	3	37.76	+7	24	49.00	5.32611	18.3
jun	4	2457543.75	11	3	53.69	+7	22	57.08	5.34184	18.2
jun	5	2457544.75	11	4	10.22	+7	21	1.50	5.35757	18.1
jun	6	2457545.75	11	4	27.33	+7	19	2.31	5.37330	18.1
jun	7	2457546.75	11	4	45.02	+7	16	59.54	5.38902	18.0
jun	8	2457547.75	11	5	3.29	+7	14	53.25	5.40473	17.9
jun	9	2457548.75	11	5	22.11	+7	12	43.47	5.42043	17.9
jun	10	2457549.75	11	5	41.50	+7	10	30.24	5.43610	17.8
jun	11	2457550.75	11	6	1.44	+7	8	13.60	5.45175	17.8
jun	12	2457551.75	11	6	21.92	+7	5	53.57	5.46737	17.7
jun	13	2457552.75	11	6	42.94	+7	3	30.19	5.48296	17.6
jun	14	2457553.75	11	7	4.49	+7	1	3.50	5.49852	17.6
jun	15	2457554.75	11	7	26.57	+6	58	33.52	5.51404	17.5
jun	16	2457555.75	11	7	49.17	+6	56	0.29	5.52952	17.5
jun	17	2457556.75	11	8	12.29	+6	53	23.84	5.54496	17.4
jun	18	2457557.75	11	8	35.92	+6	50	44.21	5.56035	17.3
jun	19	2457558.75	11	9	0.05	+6	48	1.45	5.57570	17.3
jun	20	2457559.75	11	9	24.67	+6	45	15.58	5.59098	17.2
jun	21	2457560.75	11	9	49.79	+6	42	26.65	5.60622	17.2
jun	22	2457561.75	11	10	15.39	+6	39	34.69	5.62140	17.1
jun	23	2457562.75	11	10	41.46	+6	36	39.75	5.63651	17.1
jun	24	2457563.75	11	11	8.01	+6	33	41.87	5.65156	17.0
jun	25	2457564.75	11	11	35.02	+6	30	41.06	5.66655	16.9
jun	26	2457565.75	11	12	2.48	+6	27	37.37	5.68146	16.9
jun	27	2457566.75	11	12	30.41	+6	24	30.82	5.69631	16.8
jun	28	2457567.75	11	12	58.78	+6	21	21.42	5.71108	16.8
jun	29	2457568.75	11	13	27.60	+6	18	9.21	5.72577	16.7
jun	30	2457569.75	11	13	56.86	+6	14	54.20	5.74038	16.6
jul	1	2457570.75	11	14	26.56	+6	11	36.42	5.75490	16.6
jul	2	2457571.75	11	14	56.69	+6	8	15.92	5.76934	16.5

Júpiter, 2016

Efemérides a las 0^h del meridiano 90º W.G.

mes	día	dj	h	α m	s	°	δ `	“	dis UA	hp h
jul	3	2457572.75	11	15	27.25	+6	4	52.72	5.78369	16.5
jul	4	2457573.75	11	15	58.23	+6	1	26.89	5.79794	16.4
jul	5	2457574.75	11	16	29.62	+5	57	58.46	5.81210	16.4
jul	6	2457575.75	11	17	1.41	+5	54	27.47	5.82616	16.3
jul	7	2457576.75	11	17	33.60	+5	50	53.97	5.84011	16.3
jul	8	2457577.75	11	18	6.18	+5	47	18.00	5.85396	16.2
jul	9	2457578.75	11	18	39.14	+5	43	39.58	5.86770	16.1
jul	10	2457579.75	11	19	12.48	+5	39	58.74	5.88133	16.1
jul	11	2457580.75	11	19	46.20	+5	36	15.53	5.89484	16.0
jul	12	2457581.75	11	20	20.27	+5	32	29.96	5.90825	16.0
jul	13	2457582.75	11	20	54.72	+5	28	42.08	5.92153	15.9
jul	14	2457583.75	11	21	29.51	+5	24	51.92	5.93469	15.9
jul	15	2457584.75	11	22	4.66	+5	20	59.52	5.94774	15.8
jul	16	2457585.75	11	22	40.15	+5	17	4.90	5.96065	15.7
jul	17	2457586.75	11	23	15.98	+5	13	8.11	5.97345	15.7
jul	18	2457587.75	11	23	52.14	+5	9	9.18	5.98611	15.6
jul	19	2457588.75	11	24	28.62	+5	5	8.16	5.99864	15.6
jul	20	2457589.75	11	25	5.43	+5	1	5.08	6.01105	15.5
jul	21	2457590.75	11	25	42.55	+4	56	59.98	6.02332	15.5
jul	22	2457591.75	11	26	19.98	+4	52	52.89	6.03545	15.4
jul	23	2457592.75	11	26	57.71	+4	48	43.85	6.04745	15.4
jul	24	2457593.75	11	27	35.74	+4	44	32.87	6.05930	15.3
jul	25	2457594.75	11	28	14.06	+4	40	19.97	6.07102	15.2
jul	26	2457595.75	11	28	52.68	+4	36	5.18	6.08259	15.2
jul	27	2457596.75	11	29	31.59	+4	31	48.52	6.09402	15.1
jul	28	2457597.75	11	30	10.79	+4	27	30.01	6.10530	15.1
jul	29	2457598.75	11	30	50.27	+4	23	9.69	6.11643	15.0
jul	30	2457599.75	11	31	30.02	+4	18	47.59	6.12741	15.0
jul	31	2457600.75	11	32	10.05	+4	14	23.75	6.13824	14.9
ago	1	2457601.75	11	32	50.34	+4	9	58.22	6.14890	14.9
ago	2	2457602.75	11	33	30.88	+4	5	31.04	6.15941	14.8
ago	3	2457603.75	11	34	11.68	+4	1	2.24	6.16976	14.8
ago	4	2457604.75	11	34	52.72	+3	56	31.86	6.17995	14.7
ago	5	2457605.75	11	35	34.01	+3	51	59.94	6.18997	14.6
ago	6	2457606.75	11	36	15.53	+3	47	26.51	6.19983	14.6
ago	7	2457607.75	11	36	57.27	+3	42	51.59	6.20951	14.5
ago	8	2457608.75	11	37	39.25	+3	38	15.22	6.21903	14.5
ago	9	2457609.75	11	38	21.45	+3	33	37.42	6.22838	14.4
ago	10	2457610.75	11	39	3.86	+3	28	58.23	6.23755	14.4
ago	11	2457611.75	11	39	46.48	+3	24	17.68	6.24655	14.3
ago	12	2457612.75	11	40	29.32	+3	19	35.81	6.25538	14.3
ago	13	2457613.75	11	41	12.35	+3	14	52.65	6.26403	14.2
ago	14	2457614.75	11	41	55.58	+3	10	8.23	6.27250	14.2
ago	15	2457615.75	11	42	39.00	+3	5	22.60	6.28080	14.1
ago	16	2457616.75	11	43	22.61	+3	0	35.79	6.28891	14.1
ago	17	2457617.75	11	44	6.40	+2	55	47.84	6.29685	14.0

Júpiter, 2016

Efemérides a las 0^h del meridiano 90° W.G.

mes	día	dj	h	α m	s	°	δ `	“	dis UA	hp h
ago	18	2457618.75	11	44	50.36	+2	50	58.78	6.30460	13.9
ago	19	2457619.75	11	45	34.49	+2	46	8.65	6.31217	13.9
ago	20	2457620.75	11	46	18.80	+2	41	17.46	6.31956	13.8
ago	21	2457621.75	11	47	3.26	+2	36	25.25	6.32676	13.8
ago	22	2457622.75	11	47	47.90	+2	31	32.02	6.33378	13.7
ago	23	2457623.75	11	48	32.69	+2	26	37.80	6.34061	13.7
ago	24	2457624.75	11	49	17.64	+2	21	42.61	6.34725	13.6
ago	25	2457625.75	11	50	2.75	+2	16	46.48	6.35370	13.6
ago	26	2457626.75	11	50	48.00	+2	11	49.44	6.35996	13.5
ago	27	2457627.75	11	51	33.40	+2	6	51.54	6.36603	13.5
ago	28	2457628.75	11	52	18.94	+2	1	52.80	6.37190	13.4
ago	29	2457629.75	11	53	4.62	+1	56	53.28	6.37758	13.4
ago	30	2457630.75	11	53	50.42	+1	51	53.01	6.38306	13.3
ago	31	2457631.75	11	54	36.35	+1	46	52.02	6.38834	13.3
sep	1	2457632.75	11	55	22.39	+1	41	50.36	6.39342	13.2
sep	2	2457633.75	11	56	8.55	+1	36	48.05	6.39830	13.1
sep	3	2457634.75	11	56	54.82	+1	31	45.12	6.40298	13.1
sep	4	2457635.75	11	57	41.19	+1	26	41.60	6.40746	13.0
sep	5	2457636.75	11	58	27.67	+1	21	37.53	6.41173	13.0
sep	6	2457637.75	11	59	14.24	+1	16	32.92	6.41580	12.9
sep	7	2457638.75	12	0	0.91	+1	11	27.83	6.41967	12.9
sep	8	2457639.75	12	0	47.67	+1	6	22.27	6.42333	12.8
sep	9	2457640.75	12	1	34.51	+1	1	16.28	6.42679	12.8
sep	10	2457641.75	12	2	21.43	+0	56	9.91	6.43004	12.7
sep	11	2457642.75	12	3	8.43	+0	51	3.18	6.43308	12.7
sep	12	2457643.75	12	3	55.49	+0	45	56.14	6.43592	12.6
sep	13	2457644.75	12	4	42.62	+0	40	48.82	6.43855	12.6
sep	14	2457645.75	12	5	29.81	+0	35	41.26	6.44097	12.5
sep	15	2457646.75	12	6	17.05	+0	30	33.49	6.44319	12.5
sep	16	2457647.75	12	7	4.35	+0	25	25.54	6.44520	12.4
sep	17	2457648.75	12	7	51.69	+0	20	17.45	6.44700	12.4
sep	18	2457649.75	12	8	39.08	+0	15	9.22	6.44859	12.3
sep	19	2457650.75	12	9	26.52	+0	10	0.87	6.44998	12.3
sep	20	2457651.75	12	10	14.00	+0	4	52.43	6.45116	12.2
sep	21	2457652.75	12	11	1.53	-0	0	16.08	6.45212	12.1
sep	22	2457653.75	12	11	49.09	-0	5	24.62	6.45288	12.1
sep	23	2457654.75	12	12	36.68	-0	10	33.16	6.45342	12.0
sep	24	2457655.75	12	13	24.30	-0	15	41.63	6.45376	12.0
sep	25	2457656.75	12	14	11.93	-0	20	49.94	6.45388	11.9
sep	26	2457657.75	12	14	59.58	-0	25	58.06	6.45378	11.9
sep	27	2457658.75	12	15	47.22	-0	31	6.23	6.45348	11.8
sep	28	2457659.75	12	16	34.88	-0	36	14.28	6.45296	11.8
sep	29	2457660.75	12	17	22.54	-0	41	22.05	6.45223	11.7
sep	30	2457661.75	12	18	10.21	-0	46	29.54	6.45128	11.7
oct	1	2457662.75	12	18	57.86	-0	51	36.72	6.45012	11.6
oct	2	2457663.75	12	19	45.50	-0	56	43.57	6.44874	11.6

Júpiter, 2016

Efemérides a las 0^h del meridiano 90º W.G.

mes	día	dj	h	α m	s	°	δ `	“	dis UA	hp h
oct	3	2457664.75	12	20	33.12	-1	1	50.05	6.44715	11.5
oct	4	2457665.75	12	21	20.73	-1	6	56.15	6.44535	11.5
oct	5	2457666.75	12	22	8.31	-1	12	1.82	6.44333	11.4
oct	6	2457667.75	12	22	55.86	-1	17	7.04	6.44110	11.4
oct	7	2457668.75	12	23	43.37	-1	22	11.75	6.43865	11.3
oct	8	2457669.75	12	24	30.84	-1	27	15.93	6.43599	11.3
oct	9	2457670.75	12	25	18.27	-1	32	19.54	6.43312	11.2
oct	10	2457671.75	12	26	5.64	-1	37	22.53	6.43004	11.1
oct	11	2457672.75	12	26	52.96	-1	42	24.88	6.42675	11.1
oct	12	2457673.75	12	27	40.22	-1	47	26.53	6.42325	11.0
oct	13	2457674.75	12	28	27.41	-1	52	27.46	6.41954	11.0
oct	14	2457675.75	12	29	14.53	-1	57	27.63	6.41562	10.9
oct	15	2457676.75	12	30	1.57	-2	2	27.03	6.41149	10.9
oct	16	2457677.75	12	30	48.55	-2	7	25.63	6.40715	10.8
oct	17	2457678.75	12	31	35.45	-2	12	23.41	6.40261	10.8
oct	18	2457679.75	12	32	22.26	-2	17	20.35	6.39786	10.7
oct	19	2457680.75	12	33	9.00	-2	22	16.43	6.39290	10.7
oct	20	2457681.75	12	33	55.64	-2	27	11.59	6.38773	10.6
oct	21	2457682.75	12	34	42.19	-2	32	5.81	6.38236	10.6
oct	22	2457683.75	12	35	28.64	-2	36	59.04	6.37679	10.5
oct	23	2457684.75	12	36	14.98	-2	41	51.23	6.37100	10.5
oct	24	2457685.75	12	37	1.21	-2	46	42.34	6.36502	10.4
oct	25	2457686.75	12	37	47.32	-2	51	32.34	6.35882	10.4
oct	26	2457687.75	12	38	33.30	-2	56	21.19	6.35243	10.3
oct	27	2457688.75	12	39	19.16	-3	1	8.86	6.34583	10.3
oct	28	2457689.75	12	40	4.88	-3	5	55.32	6.33902	10.2
oct	29	2457690.75	12	40	50.47	-3	10	40.52	6.33202	10.1
oct	30	2457691.75	12	41	35.91	-3	15	24.45	6.32481	10.1
oct	31	2457692.75	12	42	21.20	-3	20	7.05	6.31741	10.0
nov	1	2457693.75	12	43	6.34	-3	24	48.31	6.30981	10.0
nov	2	2457694.75	12	43	51.32	-3	29	28.17	6.30201	9.9
nov	3	2457695.75	12	44	36.13	-3	34	6.61	6.29401	9.9
nov	4	2457696.75	12	45	20.77	-3	38	43.58	6.28582	9.8
nov	5	2457697.75	12	46	5.23	-3	43	19.04	6.27744	9.8
nov	6	2457698.75	12	46	49.50	-3	47	52.95	6.26887	9.7
nov	7	2457699.75	12	47	33.59	-3	52	25.27	6.26010	9.7
nov	8	2457700.75	12	48	17.48	-3	56	55.95	6.25115	9.6
nov	9	2457701.75	12	49	1.16	-4	1	24.97	6.24201	9.6
nov	10	2457702.75	12	49	44.64	-4	5	52.28	6.23269	9.5
nov	11	2457703.75	12	50	27.90	-4	10	17.86	6.22319	9.5
nov	12	2457704.75	12	51	10.95	-4	14	41.67	6.21350	9.4
nov	13	2457705.75	12	51	53.78	-4	19	3.71	6.20364	9.3
nov	14	2457706.75	12	52	36.39	-4	23	23.95	6.19359	9.3
nov	15	2457707.75	12	53	18.77	-4	27	42.36	6.18338	9.2
nov	16	2457708.75	12	54	0.91	-4	31	58.91	6.17298	9.2
nov	17	2457709.75	12	54	42.82	-4	36	13.57	6.16241	9.1

Júpiter, 2016

Efemérides a las 0^h del meridiano 90° W.G.

mes	día	dj	h	α m	s	°	δ `	“	dis UA	hp h
nov	18	2457710.75	12	55	24.49	-4	40	26.27	6.15167	9.1
nov	19	2457711.75	12	56	5.89	-4	44	36.99	6.14076	9.0
nov	20	2457712.75	12	56	47.04	-4	48	45.66	6.12968	9.0
nov	21	2457713.75	12	57	27.92	-4	52	52.27	6.11843	8.9
nov	22	2457714.75	12	58	8.52	-4	56	56.76	6.10702	8.9
nov	23	2457715.75	12	58	48.84	-5	0	59.10	6.09544	8.8
nov	24	2457716.75	12	59	28.88	-5	4	59.26	6.08370	8.7
nov	25	2457717.75	13	0	8.62	-5	8	57.20	6.07179	8.7
nov	26	2457718.75	13	0	48.07	-5	12	52.89	6.05973	8.6
nov	27	2457719.75	13	1	27.21	-5	16	46.29	6.04752	8.6
nov	28	2457720.75	13	2	6.04	-5	20	37.37	6.03514	8.5
nov	29	2457721.75	13	2	44.55	-5	24	26.09	6.02262	8.5
nov	30	2457722.75	13	3	22.73	-5	28	12.42	6.00995	8.4
dic	1	2457723.75	13	4	0.58	-5	31	56.30	5.99713	8.4
dic	2	2457724.75	13	4	38.09	-5	35	37.70	5.98417	8.3
dic	3	2457725.75	13	5	15.25	-5	39	16.58	5.97107	8.3
dic	4	2457726.75	13	5	52.06	-5	42	52.89	5.95783	8.2
dic	5	2457727.75	13	6	28.50	-5	46	26.59	5.94446	8.1
dic	6	2457728.75	13	7	4.57	-5	49	57.65	5.93095	8.1
dic	7	2457729.75	13	7	40.26	-5	53	26.02	5.91731	8.0
dic	8	2457730.75	13	8	15.57	-5	56	51.68	5.90355	8.0
dic	9	2457731.75	13	8	50.50	-6	0	14.60	5.88966	7.9
dic	10	2457732.75	13	9	25.03	-6	3	34.75	5.87566	7.9
dic	11	2457733.75	13	9	59.17	-6	6	52.11	5.86153	7.8
dic	12	2457734.75	13	10	32.90	-6	10	6.66	5.84730	7.8
dic	13	2457735.75	13	11	6.23	-6	13	18.38	5.83294	7.7
dic	14	2457736.75	13	11	39.15	-6	16	27.23	5.81848	7.6
dic	15	2457737.75	13	12	11.64	-6	19	33.16	5.80392	7.6
dic	16	2457738.75	13	12	43.70	-6	22	36.14	5.78925	7.5
dic	17	2457739.75	13	13	15.31	-6	25	36.12	5.77447	7.5
dic	18	2457740.75	13	13	46.49	-6	28	33.05	5.75960	7.4
dic	19	2457741.75	13	14	17.20	-6	31	26.90	5.74464	7.4
dic	20	2457742.75	13	14	47.46	-6	34	17.64	5.72957	7.3
dic	21	2457743.75	13	15	17.25	-6	37	5.23	5.71442	7.2
dic	22	2457744.75	13	15	46.56	-6	39	49.64	5.69919	7.2
dic	23	2457745.75	13	16	15.39	-6	42	30.84	5.68387	7.1
dic	24	2457746.75	13	16	43.73	-6	45	8.80	5.66847	7.1
dic	25	2457747.75	13	17	11.58	-6	47	43.47	5.65299	7.0
dic	26	2457748.75	13	17	38.92	-6	50	14.84	5.63745	6.9
dic	27	2457749.75	13	18	5.75	-6	52	42.86	5.62183	6.9
dic	28	2457750.75	13	18	32.06	-6	55	7.50	5.60615	6.8
dic	29	2457751.75	13	18	57.85	-6	57	28.71	5.59041	6.8
dic	30	2457752.75	13	19	23.10	-6	59	46.47	5.57461	6.7
dic	31	2457753.75	13	19	47.80	-7	2	0.72	5.55875	6.7

Saturno, 2016

Efemérides a las 0^h del meridiano 90º W.G.

mes	día	dj	h	α m	s	°	δ `	“	dis UA	hp h
ene	1	2457388.75	16	39	25.01	-20	29	49.72	10.85844	10.0
ene	2	2457389.75	16	39	52.52	-20	30	41.57	10.85021	9.9
ene	3	2457390.75	16	40	19.87	-20	31	32.68	10.84175	9.9
ene	4	2457391.75	16	40	47.07	-20	32	23.06	10.83305	9.8
ene	5	2457392.75	16	41	14.11	-20	33	12.72	10.82413	9.7
ene	6	2457393.75	16	41	40.97	-20	34	1.64	10.81499	9.7
ene	7	2457394.75	16	42	7.67	-20	34	49.83	10.80562	9.6
ene	8	2457395.75	16	42	34.18	-20	35	37.29	10.79603	9.6
ene	9	2457396.75	16	43	0.52	-20	36	24.02	10.78623	9.5
ene	10	2457397.75	16	43	26.65	-20	37	10.02	10.77621	9.4
ene	11	2457398.75	16	43	52.59	-20	37	55.28	10.76597	9.4
ene	12	2457399.75	16	44	18.33	-20	38	39.79	10.75553	9.3
ene	13	2457400.75	16	44	43.85	-20	39	23.53	10.74487	9.3
ene	14	2457401.75	16	45	9.16	-20	40	6.49	10.73401	9.2
ene	15	2457402.75	16	45	34.25	-20	40	48.67	10.72295	9.2
ene	16	2457403.75	16	45	59.11	-20	41	30.07	10.71170	9.1
ene	17	2457404.75	16	46	23.75	-20	42	10.70	10.70024	9.0
ene	18	2457405.75	16	46	48.17	-20	42	50.55	10.68860	9.0
ene	19	2457406.75	16	47	12.35	-20	43	29.64	10.67676	8.9
ene	20	2457407.75	16	47	36.29	-20	44	7.98	10.66474	8.9
ene	21	2457408.75	16	47	59.99	-20	44	45.57	10.65253	8.8
ene	22	2457409.75	16	48	23.44	-20	45	22.41	10.64015	8.7
ene	23	2457410.75	16	48	46.63	-20	45	58.50	10.62759	8.7
ene	24	2457411.75	16	49	9.57	-20	46	33.84	10.61485	8.6
ene	25	2457412.75	16	49	32.24	-20	47	8.41	10.60194	8.6
ene	26	2457413.75	16	49	54.65	-20	47	42.21	10.58886	8.5
ene	27	2457414.75	16	50	16.78	-20	48	15.25	10.57562	8.4
ene	28	2457415.75	16	50	38.63	-20	48	47.51	10.56221	8.4
ene	29	2457416.75	16	51	0.21	-20	49	19.01	10.54865	8.3
ene	30	2457417.75	16	51	21.50	-20	49	49.73	10.53492	8.3
ene	31	2457418.75	16	51	42.50	-20	50	19.70	10.52105	8.2
feb	1	2457419.75	16	52	3.21	-20	50	48.91	10.50702	8.1
feb	2	2457420.75	16	52	23.63	-20	51	17.37	10.49285	8.1
feb	3	2457421.75	16	52	43.74	-20	51	45.08	10.47854	8.0
feb	4	2457422.75	16	53	3.55	-20	52	12.06	10.46408	8.0
feb	5	2457423.75	16	53	23.04	-20	52	38.31	10.44949	7.9
feb	6	2457424.75	16	53	42.22	-20	53	3.82	10.43477	7.8
feb	7	2457425.75	16	54	1.08	-20	53	28.61	10.41992	7.8
feb	8	2457426.75	16	54	19.61	-20	53	52.65	10.40494	7.7
feb	9	2457427.75	16	54	37.80	-20	54	15.95	10.38985	7.7
feb	10	2457428.75	16	54	55.65	-20	54	38.50	10.37464	7.6
feb	11	2457429.75	16	55	13.16	-20	55	0.30	10.35931	7.5
feb	12	2457430.75	16	55	30.33	-20	55	21.33	10.34389	7.5
feb	13	2457431.75	16	55	47.15	-20	55	41.62	10.32836	7.4
feb	14	2457432.75	16	56	3.62	-20	56	1.16	10.31273	7.4
feb	15	2457433.75	16	56	19.74	-20	56	19.98	10.29701	7.3

Saturno, 2016

Efemérides a las 0^h del meridiano 90° W.G.

mes	día	dj	h	α m	s	°	δ `	“	dis UA	hp h
feb	16	2457434.75	16	56	35.51	-20	56	38.09	10.28120	7.2
feb	17	2457435.75	16	56	50.92	-20	56	55.50	10.26531	7.2
feb	18	2457436.75	16	57	5.96	-20	57	12.20	10.24933	7.1
feb	19	2457437.75	16	57	20.64	-20	57	28.21	10.23328	7.0
feb	20	2457438.75	16	57	34.94	-20	57	43.53	10.21716	7.0
feb	21	2457439.75	16	57	48.88	-20	57	58.14	10.20097	6.9
feb	22	2457440.75	16	58	2.43	-20	58	12.05	10.18472	6.9
feb	23	2457441.75	16	58	15.60	-20	58	25.25	10.16840	6.8
feb	24	2457442.75	16	58	28.39	-20	58	37.75	10.15204	6.7
feb	25	2457443.75	16	58	40.79	-20	58	49.56	10.13562	6.7
feb	26	2457444.75	16	58	52.81	-20	59	0.67	10.11915	6.6
feb	27	2457445.75	16	59	4.44	-20	59	11.09	10.10264	6.5
feb	28	2457446.75	16	59	15.67	-20	59	20.84	10.08609	6.5
feb	29	2457447.75	16	59	26.52	-20	59	29.91	10.06951	6.4
mar	1	2457448.75	16	59	36.96	-20	59	38.32	10.05290	6.4
mar	2	2457449.75	16	59	47.00	-20	59	46.08	10.03626	6.3
mar	3	2457450.75	16	59	56.64	-20	59	53.19	10.01961	6.2
mar	4	2457451.75	17	0	5.88	-20	59	59.66	10.00294	6.2
mar	5	2457452.75	17	0	14.70	-21	0	5.50	9.98625	6.1
mar	6	2457453.75	17	0	23.10	-21	0	10.69	9.96957	6.0
mar	7	2457454.75	17	0	31.09	-21	0	15.24	9.95288	6.0
mar	8	2457455.75	17	0	38.66	-21	0	19.14	9.93619	5.9
mar	9	2457456.75	17	0	45.80	-21	0	22.39	9.91951	5.9
mar	10	2457457.75	17	0	52.52	-21	0	24.97	9.90285	5.8
mar	11	2457458.75	17	0	58.82	-21	0	26.91	9.88621	5.7
mar	12	2457459.75	17	1	4.69	-21	0	28.20	9.86960	5.7
mar	13	2457460.75	17	1	10.15	-21	0	28.87	9.85301	5.6
mar	14	2457461.75	17	1	15.18	-21	0	28.93	9.83646	5.5
mar	15	2457462.75	17	1	19.79	-21	0	28.39	9.81995	5.5
mar	16	2457463.75	17	1	23.97	-21	0	27.25	9.80348	5.4
mar	17	2457464.75	17	1	27.73	-21	0	25.53	9.78707	5.3
mar	18	2457465.75	17	1	31.05	-21	0	23.22	9.77071	5.3
mar	19	2457466.75	17	1	33.95	-21	0	20.32	9.75441	5.2
mar	20	2457467.75	17	1	36.42	-21	0	16.83	9.73817	5.1
mar	21	2457468.75	17	1	38.46	-21	0	12.75	9.72200	5.1
mar	22	2457469.75	17	1	40.07	-21	0	8.07	9.70591	5.0
mar	23	2457470.75	17	1	41.25	-21	0	2.81	9.68989	5.0
mar	24	2457471.75	17	1	42.01	-20	59	56.97	9.67395	4.9
mar	25	2457472.75	17	1	42.34	-20	59	50.56	9.65810	4.8
mar	26	2457473.75	17	1	42.25	-20	59	43.58	9.64235	4.8
mar	27	2457474.75	17	1	41.73	-20	59	36.04	9.62668	4.7
mar	28	2457475.75	17	1	40.80	-20	59	27.96	9.61112	4.6
mar	29	2457476.75	17	1	39.44	-20	59	19.33	9.59566	4.6
mar	30	2457477.75	17	1	37.65	-20	59	10.17	9.58032	4.5
mar	31	2457478.75	17	1	35.45	-20	59	0.49	9.56508	4.4
abr	1	2457479.75	17	1	32.82	-20	58	50.29	9.54997	4.4

Saturno, 2016

Efemérides a las 0^h del meridiano 90º W.G.

mes	día	dj	h	α m	s	°	δ `	“	dis UA	hp h
abr	2	2457480.75	17	1	29.78	-20	58	39.57	9.53498	4.3
abr	3	2457481.75	17	1	26.31	-20	58	28.33	9.52012	4.2
abr	4	2457482.75	17	1	22.42	-20	58	16.56	9.50539	4.2
abr	5	2457483.75	17	1	18.11	-20	58	4.26	9.49080	4.1
abr	6	2457484.75	17	1	13.38	-20	57	51.43	9.47636	4.0
abr	7	2457485.75	17	1	8.25	-20	57	38.06	9.46206	4.0
abr	8	2457486.75	17	1	2.71	-20	57	24.17	9.44792	3.9
abr	9	2457487.75	17	0	56.76	-20	57	9.77	9.43393	3.8
abr	10	2457488.75	17	0	50.42	-20	56	54.88	9.42011	3.8
abr	11	2457489.75	17	0	43.69	-20	56	39.51	9.40646	3.7
abr	12	2457490.75	17	0	36.56	-20	56	23.68	9.39298	3.6
abr	13	2457491.75	17	0	29.04	-20	56	7.39	9.37968	3.6
abr	14	2457492.75	17	0	21.14	-20	55	50.65	9.36656	3.5
abr	15	2457493.75	17	0	12.85	-20	55	33.44	9.35362	3.4
abr	16	2457494.75	17	0	4.18	-20	55	15.78	9.34087	3.3
abr	17	2457495.75	16	59	55.14	-20	54	57.66	9.32831	3.3
abr	18	2457496.75	16	59	45.74	-20	54	39.08	9.31595	3.2
abr	19	2457497.75	16	59	35.97	-20	54	20.06	9.30379	3.1
abr	20	2457498.75	16	59	25.84	-20	54	0.59	9.29184	3.1
abr	21	2457499.75	16	59	15.36	-20	53	40.69	9.28009	3.0
abr	22	2457500.75	16	59	4.53	-20	53	20.37	9.26855	2.9
abr	23	2457501.75	16	58	53.36	-20	52	59.63	9.25723	2.9
abr	24	2457502.75	16	58	41.86	-20	52	38.49	9.24612	2.8
abr	25	2457503.75	16	58	30.03	-20	52	16.96	9.23524	2.7
abr	26	2457504.75	16	58	17.87	-20	51	55.06	9.22458	2.7
abr	27	2457505.75	16	58	5.40	-20	51	32.78	9.21415	2.6
abr	28	2457506.75	16	57	52.60	-20	51	10.15	9.20395	2.5
abr	29	2457507.75	16	57	39.50	-20	50	47.16	9.19399	2.5
abr	30	2457508.75	16	57	26.09	-20	50	23.81	9.18427	2.4
may	1	2457509.75	16	57	12.38	-20	50	0.11	9.17479	2.3
may	2	2457510.75	16	56	58.38	-20	49	36.06	9.16555	2.2
may	3	2457511.75	16	56	44.09	-20	49	11.65	9.15657	2.2
may	4	2457512.75	16	56	29.52	-20	48	46.89	9.14784	2.1
may	5	2457513.75	16	56	14.68	-20	48	21.79	9.13936	2.0
may	6	2457514.75	16	55	59.59	-20	47	56.37	9.13115	2.0
may	7	2457515.75	16	55	44.24	-20	47	30.64	9.12319	1.9
may	8	2457516.75	16	55	28.66	-20	47	4.64	9.11551	1.8
may	9	2457517.75	16	55	12.83	-20	46	38.37	9.10809	1.8
may	10	2457518.75	16	54	56.78	-20	46	11.86	9.10094	1.7
may	11	2457519.75	16	54	40.51	-20	45	45.11	9.09407	1.6
may	12	2457520.75	16	54	24.03	-20	45	18.12	9.08747	1.5
may	13	2457521.75	16	54	7.34	-20	44	50.90	9.08114	1.5
may	14	2457522.75	16	53	50.46	-20	44	23.45	9.07510	1.4
may	15	2457523.75	16	53	33.39	-20	43	55.78	9.06934	1.3
may	16	2457524.75	16	53	16.14	-20	43	27.91	9.06386	1.3
may	17	2457525.75	16	52	58.73	-20	42	59.85	9.05866	1.2

Saturno, 2016

Efemérides a las 0^h del meridiano 90° W.G.

mes	día	dj	h	α m	s	°	δ `	“	dis UA	hp h
may	18	2457526.75	16	52	41.15	-20	42	31.60	9.05375	1.1
may	19	2457527.75	16	52	23.43	-20	42	3.19	9.04912	1.1
may	20	2457528.75	16	52	5.58	-20	41	34.63	9.04479	1.0
may	21	2457529.75	16	51	47.59	-20	41	5.94	9.04074	0.9
may	22	2457530.75	16	51	29.48	-20	40	37.15	9.03698	0.8
may	23	2457531.75	16	51	11.25	-20	40	8.26	9.03351	0.8
may	24	2457532.75	16	50	52.93	-20	39	39.29	9.03034	0.7
may	25	2457533.75	16	50	34.50	-20	39	10.26	9.02746	0.6
may	26	2457534.75	16	50	15.99	-20	38	41.18	9.02487	0.6
may	27	2457535.75	16	49	57.40	-20	38	12.06	9.02258	0.5
may	28	2457536.75	16	49	38.73	-20	37	42.90	9.02059	0.4
may	29	2457537.75	16	49	20.01	-20	37	13.71	9.01890	0.3
may	30	2457538.75	16	49	1.22	-20	36	44.51	9.01750	0.3
may	31	2457539.75	16	48	42.40	-20	36	15.29	9.01640	0.2
jun	1	2457540.75	16	48	23.54	-20	35	46.08	9.01560	0.1
jun	2	2457541.75	16	48	4.66	-20	35	16.89	9.01510	0.1
jun	3	2457542.75	16	47	45.78	-20	34	47.75	9.01491	24.0
jun	4	2457543.75	16	47	26.89	-20	34	18.69	9.01501	23.9
jun	5	2457544.75	16	47	8.02	-20	33	49.74	9.01542	23.8
jun	6	2457545.75	16	46	49.17	-20	33	20.91	9.01612	23.8
jun	7	2457546.75	16	46	30.35	-20	32	52.23	9.01713	23.7
jun	8	2457547.75	16	46	11.56	-20	32	23.71	9.01844	23.6
jun	9	2457548.75	16	45	52.82	-20	31	55.35	9.02004	23.6
jun	10	2457549.75	16	45	34.13	-20	31	27.17	9.02195	23.5
jun	11	2457550.75	16	45	15.51	-20	30	59.17	9.02415	23.4
jun	12	2457551.75	16	44	56.97	-20	30	31.37	9.02664	23.3
jun	13	2457552.75	16	44	38.52	-20	30	3.80	9.02943	23.3
jun	14	2457553.75	16	44	20.16	-20	29	36.46	9.03252	23.2
jun	15	2457554.75	16	44	1.90	-20	29	9.38	9.03589	23.1
jun	16	2457555.75	16	43	43.77	-20	28	42.58	9.03956	23.1
jun	17	2457556.75	16	43	25.75	-20	28	16.09	9.04351	23.0
jun	18	2457557.75	16	43	7.88	-20	27	49.91	9.04775	22.9
jun	19	2457558.75	16	42	50.14	-20	27	24.09	9.05228	22.9
jun	20	2457559.75	16	42	32.55	-20	26	58.63	9.05709	22.8
jun	21	2457560.75	16	42	15.12	-20	26	33.55	9.06218	22.7
jun	22	2457561.75	16	41	57.85	-20	26	8.87	9.06755	22.6
jun	23	2457562.75	16	41	40.75	-20	25	44.59	9.07320	22.6
jun	24	2457563.75	16	41	23.83	-20	25	20.74	9.07913	22.5
jun	25	2457564.75	16	41	7.09	-20	24	57.31	9.08533	22.4
jun	26	2457565.75	16	40	50.55	-20	24	34.31	9.09180	22.4
jun	27	2457566.75	16	40	34.21	-20	24	11.76	9.09855	22.3
jun	28	2457567.75	16	40	18.08	-20	23	49.67	9.10556	22.2
jun	29	2457568.75	16	40	2.17	-20	23	28.06	9.11284	22.2
jun	30	2457569.75	16	39	46.49	-20	23	6.96	9.12039	22.1
jul	1	2457570.75	16	39	31.05	-20	22	46.38	9.12820	22.0
jul	2	2457571.75	16	39	15.85	-20	22	26.36	9.13627	21.9

Saturno, 2016

Efemérides a las 0^h del meridiano 90º W.G.

mes	día	dj	h	α m	s	°	δ `	“	dis UA	hp h
jul	3	2457572.75	16	39	0.91	-20	22	6.92	9.14459	21.9
jul	4	2457573.75	16	38	46.23	-20	21	48.08	9.15317	21.8
jul	5	2457574.75	16	38	31.81	-20	21	29.85	9.16200	21.7
jul	6	2457575.75	16	38	17.67	-20	21	12.23	9.17108	21.7
jul	7	2457576.75	16	38	3.80	-20	20	55.23	9.18041	21.6
jul	8	2457577.75	16	37	50.21	-20	20	38.86	9.18997	21.5
jul	9	2457578.75	16	37	36.92	-20	20	23.13	9.19977	21.5
jul	10	2457579.75	16	37	23.93	-20	20	8.05	9.20981	21.4
jul	11	2457580.75	16	37	11.24	-20	19	53.64	9.22007	21.3
jul	12	2457581.75	16	36	58.86	-20	19	39.92	9.23056	21.2
jul	13	2457582.75	16	36	46.80	-20	19	26.89	9.24128	21.2
jul	14	2457583.75	16	36	35.06	-20	19	14.57	9.25221	21.1
jul	15	2457584.75	16	36	23.66	-20	19	2.99	9.26336	21.0
jul	16	2457585.75	16	36	12.58	-20	18	52.15	9.27471	21.0
jul	17	2457586.75	16	36	1.84	-20	18	42.07	9.28628	20.9
jul	18	2457587.75	16	35	51.45	-20	18	32.76	9.29805	20.8
jul	19	2457588.75	16	35	41.39	-20	18	24.23	9.31002	20.8
jul	20	2457589.75	16	35	31.68	-20	18	16.48	9.32219	20.7
jul	21	2457590.75	16	35	22.32	-20	18	9.52	9.33455	20.6
jul	22	2457591.75	16	35	13.32	-20	18	3.35	9.34710	20.6
jul	23	2457592.75	16	35	4.67	-20	17	57.96	9.35983	20.5
jul	24	2457593.75	16	34	56.38	-20	17	53.35	9.37274	20.4
jul	25	2457594.75	16	34	48.45	-20	17	49.54	9.38584	20.4
jul	26	2457595.75	16	34	40.90	-20	17	46.52	9.39911	20.3
jul	27	2457596.75	16	34	33.73	-20	17	44.32	9.41255	20.2
jul	28	2457597.75	16	34	26.93	-20	17	42.95	9.42615	20.2
jul	29	2457598.75	16	34	20.52	-20	17	42.43	9.43992	20.1
jul	30	2457599.75	16	34	14.49	-20	17	42.77	9.45385	20.0
jul	31	2457600.75	16	34	8.86	-20	17	43.97	9.46793	19.9
ago	1	2457601.75	16	34	3.61	-20	17	46.05	9.48216	19.9
ago	2	2457602.75	16	33	58.76	-20	17	48.99	9.49653	19.8
ago	3	2457603.75	16	33	54.30	-20	17	52.80	9.51105	19.7
ago	4	2457604.75	16	33	50.24	-20	17	57.46	9.52570	19.7
ago	5	2457605.75	16	33	46.57	-20	18	2.99	9.54049	19.6
ago	6	2457606.75	16	33	43.31	-20	18	9.37	9.55540	19.5
ago	7	2457607.75	16	33	40.44	-20	18	16.61	9.57043	19.5
ago	8	2457608.75	16	33	37.99	-20	18	24.72	9.58557	19.4
ago	9	2457609.75	16	33	35.94	-20	18	33.69	9.60083	19.3
ago	10	2457610.75	16	33	34.30	-20	18	43.53	9.61620	19.3
ago	11	2457611.75	16	33	33.07	-20	18	54.26	9.63167	19.2
ago	12	2457612.75	16	33	32.25	-20	19	5.85	9.64723	19.2
ago	13	2457613.75	16	33	31.85	-20	19	18.33	9.66289	19.1
ago	14	2457614.75	16	33	31.85	-20	19	31.70	9.67864	19.0
ago	15	2457615.75	16	33	32.26	-20	19	45.93	9.69448	19.0
ago	16	2457616.75	16	33	33.08	-20	20	1.05	9.71039	18.9
ago	17	2457617.75	16	33	34.30	-20	20	17.02	9.72638	18.8

Saturno, 2016

Efemérides a las 0^h del meridiano 90° W.G.

mes	día	dj	h	α m	s	°	δ `	“	dis UA	hp h
ago	18	2457618.75	16	33	35.93	-20	20	33.85	9.74244	18.8
ago	19	2457619.75	16	33	37.97	-20	20	51.51	9.75856	18.7
ago	20	2457620.75	16	33	40.41	-20	21	10.00	9.77475	18.6
ago	21	2457621.75	16	33	43.25	-20	21	29.30	9.79100	18.6
ago	22	2457622.75	16	33	46.51	-20	21	49.41	9.80730	18.5
ago	23	2457623.75	16	33	50.17	-20	22	10.34	9.82366	18.4
ago	24	2457624.75	16	33	54.24	-20	22	32.09	9.84006	18.4
ago	25	2457625.75	16	33	58.73	-20	22	54.66	9.85650	18.3
ago	26	2457626.75	16	34	3.62	-20	23	18.06	9.87298	18.2
ago	27	2457627.75	16	34	8.92	-20	23	42.27	9.88949	18.2
ago	28	2457628.75	16	34	14.62	-20	24	7.31	9.90603	18.1
ago	29	2457629.75	16	34	20.73	-20	24	33.14	9.92259	18.0
ago	30	2457630.75	16	34	27.24	-20	24	59.76	9.93917	18.0
ago	31	2457631.75	16	34	34.15	-20	25	27.15	9.95577	17.9
sep	1	2457632.75	16	34	41.46	-20	25	55.30	9.97237	17.9
sep	2	2457633.75	16	34	49.17	-20	26	24.19	9.98898	17.8
sep	3	2457634.75	16	34	57.28	-20	26	53.83	10.00559	17.7
sep	4	2457635.75	16	35	5.78	-20	27	24.19	10.02219	17.7
sep	5	2457636.75	16	35	14.68	-20	27	55.27	10.03878	17.6
sep	6	2457637.75	16	35	23.98	-20	28	27.07	10.05536	17.5
sep	7	2457638.75	16	35	33.66	-20	28	59.58	10.07192	17.5
sep	8	2457639.75	16	35	43.74	-20	29	32.80	10.08845	17.4
sep	9	2457640.75	16	35	54.20	-20	30	6.71	10.10496	17.4
sep	10	2457641.75	16	36	5.05	-20	30	41.30	10.12143	17.3
sep	11	2457642.75	16	36	16.28	-20	31	16.58	10.13787	17.2
sep	12	2457643.75	16	36	27.89	-20	31	52.51	10.15427	17.2
sep	13	2457644.75	16	36	39.87	-20	32	29.09	10.17062	17.1
sep	14	2457645.75	16	36	52.22	-20	33	6.30	10.18692	17.0
sep	15	2457646.75	16	37	4.93	-20	33	44.11	10.20317	17.0
sep	16	2457647.75	16	37	18.01	-20	34	22.51	10.21936	16.9
sep	17	2457648.75	16	37	31.45	-20	35	1.47	10.23550	16.9
sep	18	2457649.75	16	37	45.25	-20	35	40.97	10.25156	16.8
sep	19	2457650.75	16	37	59.41	-20	36	21.02	10.26757	16.7
sep	20	2457651.75	16	38	13.93	-20	37	1.61	10.28349	16.7
sep	21	2457652.75	16	38	28.80	-20	37	42.73	10.29935	16.6
sep	22	2457653.75	16	38	44.03	-20	38	24.38	10.31512	16.5
sep	23	2457654.75	16	38	59.61	-20	39	6.56	10.33081	16.5
sep	24	2457655.75	16	39	15.54	-20	39	49.25	10.34642	16.4
sep	25	2457656.75	16	39	31.80	-20	40	32.43	10.36193	16.4
sep	26	2457657.75	16	39	48.41	-20	41	16.08	10.37735	16.3
sep	27	2457658.75	16	40	5.35	-20	42	0.19	10.39266	16.2
sep	28	2457659.75	16	40	22.62	-20	42	44.72	10.40788	16.2
sep	29	2457660.75	16	40	40.22	-20	43	29.67	10.42298	16.1
sep	30	2457661.75	16	40	58.15	-20	44	15.01	10.43798	16.1
oct	1	2457662.75	16	41	16.40	-20	45	0.74	10.45285	16.0
oct	2	2457663.75	16	41	34.97	-20	45	46.83	10.46761	15.9

Saturno, 2016

Efemérides a las 0^h del meridiano 90º W.G.

mes	día	dj	h	α m	s	°	δ `	“	dis UA	hp h
oct	3	2457664.75	16	41	53.86	-20	46	33.29	10.48224	15.9
oct	4	2457665.75	16	42	13.06	-20	47	20.10	10.49675	15.8
oct	5	2457666.75	16	42	32.58	-20	48	7.25	10.51112	15.8
oct	6	2457667.75	16	42	52.40	-20	48	54.73	10.52536	15.7
oct	7	2457668.75	16	43	12.52	-20	49	42.52	10.53946	15.6
oct	8	2457669.75	16	43	32.95	-20	50	30.62	10.55342	15.6
oct	9	2457670.75	16	43	53.66	-20	51	19.00	10.56723	15.5
oct	10	2457671.75	16	44	14.66	-20	52	7.65	10.58090	15.5
oct	11	2457672.75	16	44	35.94	-20	52	56.55	10.59441	15.4
oct	12	2457673.75	16	44	57.50	-20	53	45.68	10.60777	15.3
oct	13	2457674.75	16	45	19.34	-20	54	35.00	10.62096	15.3
oct	14	2457675.75	16	45	41.44	-20	55	24.50	10.63400	15.2
oct	15	2457676.75	16	46	3.81	-20	56	14.16	10.64688	15.2
oct	16	2457677.75	16	46	26.44	-20	57	3.96	10.65959	15.1
oct	17	2457678.75	16	46	49.33	-20	57	53.90	10.67213	15.0
oct	18	2457679.75	16	47	12.49	-20	58	43.97	10.68450	15.0
oct	19	2457680.75	16	47	35.90	-20	59	34.18	10.69669	14.9
oct	20	2457681.75	16	47	59.56	-21	0	24.51	10.70871	14.9
oct	21	2457682.75	16	48	23.47	-21	1	14.95	10.72055	14.8
oct	22	2457683.75	16	48	47.62	-21	2	5.48	10.73220	14.7
oct	23	2457684.75	16	49	12.01	-21	2	56.09	10.74367	14.7
oct	24	2457685.75	16	49	36.63	-21	3	46.75	10.75495	14.6
oct	25	2457686.75	16	50	1.47	-21	4	37.44	10.76604	14.6
oct	26	2457687.75	16	50	26.54	-21	5	28.14	10.77693	14.5
oct	27	2457688.75	16	50	51.83	-21	6	18.83	10.78762	14.4
oct	28	2457689.75	16	51	17.33	-21	7	9.51	10.79811	14.4
oct	29	2457690.75	16	51	43.05	-21	8	0.16	10.80840	14.3
oct	30	2457691.75	16	52	8.98	-21	8	50.77	10.81848	14.3
oct	31	2457692.75	16	52	35.12	-21	9	41.32	10.82836	14.2
nov	1	2457693.75	16	53	1.45	-21	10	31.82	10.83802	14.2
nov	2	2457694.75	16	53	27.98	-21	11	22.25	10.84746	14.1
nov	3	2457695.75	16	53	54.71	-21	12	12.60	10.85669	14.0
nov	4	2457696.75	16	54	21.61	-21	13	2.86	10.86570	14.0
nov	5	2457697.75	16	54	48.70	-21	13	53.02	10.87449	13.9
nov	6	2457698.75	16	55	15.96	-21	14	43.05	10.88306	13.9
nov	7	2457699.75	16	55	43.39	-21	15	32.95	10.89140	13.8
nov	8	2457700.75	16	56	10.98	-21	16	22.69	10.89951	13.7
nov	9	2457701.75	16	56	38.73	-21	17	12.26	10.90740	13.7
nov	10	2457702.75	16	57	6.63	-21	18	1.63	10.91505	13.6
nov	11	2457703.75	16	57	34.68	-21	18	50.78	10.92247	13.6
nov	12	2457704.75	16	58	2.88	-21	19	39.71	10.92967	13.5
nov	13	2457705.75	16	58	31.22	-21	20	28.39	10.93662	13.5
nov	14	2457706.75	16	58	59.70	-21	21	16.83	10.94334	13.4
nov	15	2457707.75	16	59	28.31	-21	22	5.03	10.94983	13.3
nov	16	2457708.75	16	59	57.06	-21	22	52.99	10.95607	13.3
nov	17	2457709.75	17	0	25.94	-21	23	40.71	10.96208	13.2

Saturno, 2016

Efemérides a las 0^h del meridiano 90° W.G.

mes	día	dj	h	α m	s	°	δ `	“	dis UA	hp h
nov	18	2457710.75	17	0	54.93	-21	24	28.17	10.96784	13.2
nov	19	2457711.75	17	1	24.04	-21	25	15.35	10.97336	13.1
nov	20	2457712.75	17	1	53.25	-21	26	2.25	10.97864	13.1
nov	21	2457713.75	17	2	22.57	-21	26	48.83	10.98367	13.0
nov	22	2457714.75	17	2	51.99	-21	27	35.08	10.98845	12.9
nov	23	2457715.75	17	3	21.51	-21	28	21.00	10.99299	12.9
nov	24	2457716.75	17	3	51.12	-21	29	6.57	10.99727	12.8
nov	25	2457717.75	17	4	20.81	-21	29	51.78	11.00130	12.8
nov	26	2457718.75	17	4	50.60	-21	30	36.62	11.00507	12.7
nov	27	2457719.75	17	5	20.46	-21	31	21.10	11.00859	12.7
nov	28	2457720.75	17	5	50.39	-21	32	5.20	11.01186	12.6
nov	29	2457721.75	17	6	20.40	-21	32	48.93	11.01486	12.5
nov	30	2457722.75	17	6	50.47	-21	33	32.28	11.01761	12.5
dic	1	2457723.75	17	7	20.59	-21	34	15.23	11.02011	12.4
dic	2	2457724.75	17	7	50.77	-21	34	57.80	11.02234	12.4
dic	3	2457725.75	17	8	21.00	-21	35	39.95	11.02431	12.3
dic	4	2457726.75	17	8	51.26	-21	36	21.69	11.02602	12.2
dic	5	2457727.75	17	9	21.56	-21	37	3.00	11.02748	12.2
dic	6	2457728.75	17	9	51.89	-21	37	43.86	11.02867	12.1
dic	7	2457729.75	17	10	22.24	-21	38	24.25	11.02960	12.1
dic	8	2457730.75	17	10	52.61	-21	39	4.16	11.03027	12.0
dic	9	2457731.75	17	11	22.99	-21	39	43.53	11.03068	12.0
dic	10	2457732.75	17	11	53.38	-21	40	22.37	11.03082	11.9
dic	11	2457733.75	17	12	23.76	-21	41	0.89	11.03071	11.8
dic	12	2457734.75	17	12	54.16	-21	41	39.02	11.03034	11.8
dic	13	2457735.75	17	13	24.57	-21	42	16.61	11.02971	11.7
dic	14	2457736.75	17	13	54.97	-21	42	53.69	11.02882	11.7
dic	15	2457737.75	17	14	25.36	-21	43	30.29	11.02768	11.6
dic	16	2457738.75	17	14	55.73	-21	44	6.40	11.02627	11.6
dic	17	2457739.75	17	15	26.07	-21	44	42.02	11.02460	11.5
dic	18	2457740.75	17	15	56.39	-21	45	17.13	11.02268	11.4
dic	19	2457741.75	17	16	26.67	-21	45	51.71	11.02049	11.4
dic	20	2457742.75	17	16	56.91	-21	46	25.78	11.01805	11.3
dic	21	2457743.75	17	17	27.11	-21	46	59.31	11.01534	11.3
dic	22	2457744.75	17	17	57.26	-21	47	32.31	11.01238	11.2
dic	23	2457745.75	17	18	27.36	-21	48	4.78	11.00916	11.2
dic	24	2457746.75	17	18	57.41	-21	48	36.71	11.00569	11.1
dic	25	2457747.75	17	19	27.39	-21	49	8.12	11.00195	11.0
dic	26	2457748.75	17	19	57.31	-21	49	39.00	10.99796	11.0
dic	27	2457749.75	17	20	27.16	-21	50	9.36	10.99371	10.9
dic	28	2457750.75	17	20	56.94	-21	50	39.20	10.98921	10.9
dic	29	2457751.75	17	21	26.63	-21	51	8.51	10.98445	10.8
dic	30	2457752.75	17	21	56.23	-21	51	37.30	10.97945	10.8
dic	31	2457753.75	17	22	25.73	-21	52	5.56	10.97418	10.7

Urano, 2016

Efemérides a las 0^h del meridiano 90º W.G.

mes	día	dj	h	α m	s	°	δ `	“	dis UA	hp h
ene	1	2457388.75	1	2	4.67	+5	55	43.03	19.84282	18.3
ene	2	2457389.75	1	2	5.87	+5	55	52.95	19.85994	18.3
ene	3	2457390.75	1	2	7.26	+5	56	4.06	19.87710	18.2
ene	4	2457391.75	1	2	8.85	+5	56	16.37	19.89428	18.1
ene	5	2457392.75	1	2	10.64	+5	56	29.89	19.91147	18.1
ene	6	2457393.75	1	2	12.62	+5	56	44.61	19.92869	18.0
ene	7	2457394.75	1	2	14.79	+5	57	0.53	19.94590	18.0
ene	8	2457395.75	1	2	17.16	+5	57	17.66	19.96312	17.9
ene	9	2457396.75	1	2	19.73	+5	57	35.98	19.98034	17.8
ene	10	2457397.75	1	2	22.48	+5	57	55.48	19.99755	17.8
ene	11	2457398.75	1	2	25.42	+5	58	16.15	20.01474	17.7
ene	12	2457399.75	1	2	28.56	+5	58	37.98	20.03192	17.6
ene	13	2457400.75	1	2	31.88	+5	59	0.96	20.04906	17.6
ene	14	2457401.75	1	2	35.38	+5	59	25.08	20.06618	17.5
ene	15	2457402.75	1	2	39.08	+5	59	50.33	20.08326	17.4
ene	16	2457403.75	1	2	42.96	+6	0	16.73	20.10030	17.4
ene	17	2457404.75	1	2	47.02	+6	0	44.26	20.11729	17.3
ene	18	2457405.75	1	2	51.28	+6	1	12.94	20.13423	17.2
ene	19	2457406.75	1	2	55.72	+6	1	42.75	20.15111	17.2
ene	20	2457407.75	1	3	0.34	+6	2	13.69	20.16793	17.1
ene	21	2457408.75	1	3	5.15	+6	2	45.75	20.18468	17.0
ene	22	2457409.75	1	3	10.13	+6	3	18.90	20.20136	17.0
ene	23	2457410.75	1	3	15.29	+6	3	53.13	20.21797	16.9
ene	24	2457411.75	1	3	20.63	+6	4	28.43	20.23449	16.9
ene	25	2457412.75	1	3	26.14	+6	5	4.78	20.25094	16.8
ene	26	2457413.75	1	3	31.82	+6	5	42.17	20.26729	16.7
ene	27	2457414.75	1	3	37.67	+6	6	20.60	20.28355	16.7
ene	28	2457415.75	1	3	43.69	+6	7	0.05	20.29971	16.6
ene	29	2457416.75	1	3	49.89	+6	7	40.52	20.31577	16.5
ene	30	2457417.75	1	3	56.25	+6	8	22.02	20.33172	16.5
ene	31	2457418.75	1	4	2.78	+6	9	4.52	20.34756	16.4
feb	1	2457419.75	1	4	9.48	+6	9	48.04	20.36328	16.3
feb	2	2457420.75	1	4	16.34	+6	10	32.55	20.37889	16.3
feb	3	2457421.75	1	4	23.37	+6	11	18.06	20.39437	16.2
feb	4	2457422.75	1	4	30.56	+6	12	4.54	20.40972	16.2
feb	5	2457423.75	1	4	37.91	+6	12	52.00	20.42493	16.1
feb	6	2457424.75	1	4	45.43	+6	13	40.40	20.44000	16.0
feb	7	2457425.75	1	4	53.09	+6	14	29.74	20.45494	16.0
feb	8	2457426.75	1	5	0.91	+6	15	19.98	20.46972	15.9
feb	9	2457427.75	1	5	8.88	+6	16	11.12	20.48435	15.8
feb	10	2457428.75	1	5	17.00	+6	17	3.13	20.49882	15.8
feb	11	2457429.75	1	5	25.26	+6	17	56.01	20.51314	15.7
feb	12	2457430.75	1	5	33.67	+6	18	49.74	20.52728	15.6
feb	13	2457431.75	1	5	42.23	+6	19	44.33	20.54126	15.6
feb	14	2457432.75	1	5	50.93	+6	20	39.76	20.55507	15.5
feb	15	2457433.75	1	5	59.77	+6	21	36.03	20.56869	15.5

Urano, 2016

Efemérides a las 0^h del meridiano 90° W.G.

mes	día	dj	h	α m	s	°	δ `	“	dis UA	hp h
feb	16	2457434.75	1	6	8.74	+6	22	33.12	20.58214	15.4
feb	17	2457435.75	1	6	17.86	+6	23	31.01	20.59541	15.3
feb	18	2457436.75	1	6	27.11	+6	24	29.69	20.60848	15.3
feb	19	2457437.75	1	6	36.49	+6	25	29.13	20.62137	15.2
feb	20	2457438.75	1	6	45.99	+6	26	29.31	20.63406	15.1
feb	21	2457439.75	1	6	55.61	+6	27	30.20	20.64656	15.1
feb	22	2457440.75	1	7	5.36	+6	28	31.80	20.65886	15.0
feb	23	2457441.75	1	7	15.23	+6	29	34.09	20.67096	14.9
feb	24	2457442.75	1	7	25.21	+6	30	37.06	20.68286	14.9
feb	25	2457443.75	1	7	35.32	+6	31	40.70	20.69454	14.8
feb	26	2457444.75	1	7	45.53	+6	32	44.99	20.70602	14.8
feb	27	2457445.75	1	7	55.86	+6	33	49.93	20.71728	14.7
feb	28	2457446.75	1	8	6.30	+6	34	55.51	20.72832	14.6
feb	29	2457447.75	1	8	16.86	+6	36	1.71	20.73915	14.6
mar	1	2457448.75	1	8	27.52	+6	37	8.53	20.74975	14.5
mar	2	2457449.75	1	8	38.28	+6	38	15.95	20.76013	14.4
mar	3	2457450.75	1	8	49.15	+6	39	23.95	20.77028	14.4
mar	4	2457451.75	1	9	0.12	+6	40	32.52	20.78021	14.3
mar	5	2457452.75	1	9	11.19	+6	41	41.64	20.78989	14.3
mar	6	2457453.75	1	9	22.35	+6	42	51.28	20.79934	14.2
mar	7	2457454.75	1	9	33.60	+6	44	1.41	20.80856	14.1
mar	8	2457455.75	1	9	44.93	+6	45	12.02	20.81753	14.1
mar	9	2457456.75	1	9	56.35	+6	46	23.10	20.82625	14.0
mar	10	2457457.75	1	10	7.86	+6	47	34.62	20.83473	13.9
mar	11	2457458.75	1	10	19.44	+6	48	46.58	20.84296	13.9
mar	12	2457459.75	1	10	31.11	+6	49	58.97	20.85095	13.8
mar	13	2457460.75	1	10	42.86	+6	51	11.79	20.85867	13.8
mar	14	2457461.75	1	10	54.68	+6	52	25.02	20.86615	13.7
mar	15	2457462.75	1	11	6.57	+6	53	38.64	20.87337	13.6
mar	16	2457463.75	1	11	18.53	+6	54	52.62	20.88033	13.6
mar	17	2457464.75	1	11	30.56	+6	56	6.95	20.88703	13.5
mar	18	2457465.75	1	11	42.64	+6	57	21.59	20.89347	13.4
mar	19	2457466.75	1	11	54.79	+6	58	36.54	20.89966	13.4
mar	20	2457467.75	1	12	6.99	+6	59	51.76	20.90558	13.3
mar	21	2457468.75	1	12	19.24	+7	1	7.24	20.91124	13.3
mar	22	2457469.75	1	12	31.54	+7	2	22.97	20.91664	13.2
mar	23	2457470.75	1	12	43.89	+7	3	38.94	20.92177	13.1
mar	24	2457471.75	1	12	56.29	+7	4	55.13	20.92664	13.1
mar	25	2457472.75	1	13	8.74	+7	6	11.54	20.93124	13.0
mar	26	2457473.75	1	13	21.23	+7	7	28.16	20.93557	12.9
mar	27	2457474.75	1	13	33.76	+7	8	44.96	20.93963	12.9
mar	28	2457475.75	1	13	46.33	+7	10	1.95	20.94343	12.8
mar	29	2457476.75	1	13	58.94	+7	11	19.10	20.94696	12.8
mar	30	2457477.75	1	14	11.58	+7	12	36.40	20.95021	12.7
mar	31	2457478.75	1	14	24.26	+7	13	53.83	20.95319	12.6
abr	1	2457479.75	1	14	36.96	+7	15	11.38	20.95590	12.6

Urano, 2016

Efemérides a las 0^h del meridiano 90º W.G.

mes	día	dj	h	α m	s	°	δ `	“	dis UA	hp h
abr	2	2457480.75	1	14	49.69	+7	16	29.01	20.95834	12.5
abr	3	2457481.75	1	15	2.44	+7	17	46.71	20.96050	12.5
abr	4	2457482.75	1	15	15.20	+7	19	4.46	20.96239	12.4
abr	5	2457483.75	1	15	27.99	+7	20	22.24	20.96400	12.3
abr	6	2457484.75	1	15	40.78	+7	21	40.02	20.96533	12.3
abr	7	2457485.75	1	15	53.59	+7	22	57.80	20.96639	12.2
abr	8	2457486.75	1	16	6.42	+7	24	15.56	20.96717	12.1
abr	9	2457487.75	1	16	19.26	+7	25	33.12	20.96768	12.1
abr	10	2457488.75	1	16	32.05	+7	26	50.41	20.96791	12.0
abr	11	2457489.75	1	16	44.88	+7	28	8.54	20.96786	12.0
abr	12	2457490.75	1	16	57.72	+7	29	26.30	20.96754	11.9
abr	13	2457491.75	1	17	10.55	+7	30	43.90	20.96694	11.8
abr	14	2457492.75	1	17	23.37	+7	32	1.37	20.96607	11.8
abr	15	2457493.75	1	17	36.18	+7	33	18.70	20.96493	11.7
abr	16	2457494.75	1	17	48.98	+7	34	35.87	20.96351	11.6
abr	17	2457495.75	1	18	1.75	+7	35	52.87	20.96182	11.6
abr	18	2457496.75	1	18	14.51	+7	37	9.69	20.95986	11.5
abr	19	2457497.75	1	18	27.25	+7	38	26.32	20.95763	11.5
abr	20	2457498.75	1	18	39.96	+7	39	42.75	20.95514	11.4
abr	21	2457499.75	1	18	52.65	+7	40	58.96	20.95237	11.3
abr	22	2457500.75	1	19	5.32	+7	42	14.96	20.94934	11.3
abr	23	2457501.75	1	19	17.96	+7	43	30.73	20.94604	11.2
abr	24	2457502.75	1	19	30.57	+7	44	46.25	20.94248	11.1
abr	25	2457503.75	1	19	43.14	+7	46	1.53	20.93865	11.1
abr	26	2457504.75	1	19	55.68	+7	47	16.53	20.93456	11.0
abr	27	2457505.75	1	20	8.19	+7	48	31.25	20.93021	11.0
abr	28	2457506.75	1	20	20.65	+7	49	45.67	20.92559	10.9
abr	29	2457507.75	1	20	33.07	+7	50	59.77	20.92072	10.8
abr	30	2457508.75	1	20	45.44	+7	52	13.53	20.91558	10.8
may	1	2457509.75	1	20	57.76	+7	53	26.93	20.91019	10.7
may	2	2457510.75	1	21	10.03	+7	54	39.95	20.90454	10.6
may	3	2457511.75	1	21	22.25	+7	55	52.57	20.89864	10.6
may	4	2457512.75	1	21	34.40	+7	57	4.79	20.89248	10.5
may	5	2457513.75	1	21	46.50	+7	58	16.60	20.88606	10.5
may	6	2457514.75	1	21	58.54	+7	59	28.00	20.87940	10.4
may	7	2457515.75	1	22	10.52	+8	0	38.98	20.87248	10.3
may	8	2457516.75	1	22	22.44	+8	1	49.52	20.86532	10.3
may	9	2457517.75	1	22	34.29	+8	2	59.61	20.85791	10.2
may	10	2457518.75	1	22	46.07	+8	4	9.24	20.85026	10.1
may	11	2457519.75	1	22	57.77	+8	5	18.36	20.84237	10.1
may	12	2457520.75	1	23	9.40	+8	6	26.97	20.83425	10.0
may	13	2457521.75	1	23	20.94	+8	7	35.04	20.82588	10.0
may	14	2457522.75	1	23	32.40	+8	8	42.57	20.81728	9.9
may	15	2457523.75	1	23	43.78	+8	9	49.53	20.80846	9.8
may	16	2457524.75	1	23	55.06	+8	10	55.92	20.79940	9.8
may	17	2457525.75	1	24	6.27	+8	12	1.73	20.79012	9.7

Urano, 2016

Efemérides a las 0^h del meridiano 90° W.G.

mes	día	dj	h	α m	s	°	δ `	“	dis UA	hp h
may	18	2457526.75	1	24	17.38	+8	13	6.96	20.78062	9.6
may	19	2457527.75	1	24	28.40	+8	14	11.60	20.77089	9.6
may	20	2457528.75	1	24	39.33	+8	15	15.64	20.76095	9.5
may	21	2457529.75	1	24	50.17	+8	16	19.07	20.75080	9.5
may	22	2457530.75	1	25	0.91	+8	17	21.88	20.74043	9.4
may	23	2457531.75	1	25	11.55	+8	18	24.07	20.72985	9.3
may	24	2457532.75	1	25	22.09	+8	19	25.62	20.71906	9.3
may	25	2457533.75	1	25	32.53	+8	20	26.52	20.70806	9.2
may	26	2457534.75	1	25	42.87	+8	21	26.74	20.69687	9.1
may	27	2457535.75	1	25	53.09	+8	22	26.28	20.68547	9.1
may	28	2457536.75	1	26	3.20	+8	23	25.11	20.67388	9.0
may	29	2457537.75	1	26	13.20	+8	24	23.22	20.66209	9.0
may	30	2457538.75	1	26	23.08	+8	25	20.59	20.65010	8.9
may	31	2457539.75	1	26	32.85	+8	26	17.23	20.63793	8.8
jun	1	2457540.75	1	26	42.50	+8	27	13.11	20.62557	8.8
jun	2	2457541.75	1	26	52.03	+8	28	8.25	20.61303	8.7
jun	3	2457542.75	1	27	1.43	+8	29	2.63	20.60031	8.6
jun	4	2457543.75	1	27	10.72	+8	29	56.26	20.58741	8.6
jun	5	2457544.75	1	27	19.88	+8	30	49.12	20.57433	8.5
jun	6	2457545.75	1	27	28.92	+8	31	41.19	20.56109	8.5
jun	7	2457546.75	1	27	37.82	+8	32	32.46	20.54768	8.4
jun	8	2457547.75	1	27	46.59	+8	33	22.90	20.53410	8.3
jun	9	2457548.75	1	27	55.21	+8	34	12.50	20.52037	8.3
jun	10	2457549.75	1	28	3.70	+8	35	1.24	20.50648	8.2
jun	11	2457550.75	1	28	12.05	+8	35	49.11	20.49245	8.1
jun	12	2457551.75	1	28	20.26	+8	36	36.12	20.47826	8.1
jun	13	2457552.75	1	28	28.32	+8	37	22.25	20.46394	8.0
jun	14	2457553.75	1	28	36.24	+8	38	7.49	20.44947	7.9
jun	15	2457554.75	1	28	44.02	+8	38	51.86	20.43487	7.9
jun	16	2457555.75	1	28	51.65	+8	39	35.34	20.42013	7.8
jun	17	2457556.75	1	28	59.13	+8	40	17.93	20.40527	7.8
jun	18	2457557.75	1	29	6.47	+8	40	59.63	20.39029	7.7
jun	19	2457558.75	1	29	13.66	+8	41	40.43	20.37518	7.6
jun	20	2457559.75	1	29	20.70	+8	42	20.32	20.35996	7.6
jun	21	2457560.75	1	29	27.59	+8	42	59.30	20.34462	7.5
jun	22	2457561.75	1	29	34.32	+8	43	37.34	20.32917	7.4
jun	23	2457562.75	1	29	40.89	+8	44	14.43	20.31362	7.4
jun	24	2457563.75	1	29	47.30	+8	44	50.57	20.29797	7.3
jun	25	2457564.75	1	29	53.55	+8	45	25.74	20.28221	7.2
jun	26	2457565.75	1	29	59.64	+8	45	59.93	20.26637	7.2
jun	27	2457566.75	1	30	5.57	+8	46	33.14	20.25043	7.1
jun	28	2457567.75	1	30	11.33	+8	47	5.36	20.23440	7.1
jun	29	2457568.75	1	30	16.92	+8	47	36.59	20.21829	7.0
jun	30	2457569.75	1	30	22.36	+8	48	6.84	20.20210	6.9
jul	1	2457570.75	1	30	27.63	+8	48	36.11	20.18584	6.9
jul	2	2457571.75	1	30	32.73	+8	49	4.39	20.16951	6.8

Urano, 2016

Efemérides a las 0^h del meridiano 90º W.G.

mes	día	dj	h	α m	s	°	δ `	“	dis UA	hp h
jul	3	2457572.75	1	30	37.66	+8	49	31.68	20.15311	6.7
jul	4	2457573.75	1	30	42.42	+8	49	57.95	20.13665	6.7
jul	5	2457574.75	1	30	47.01	+8	50	23.20	20.12014	6.6
jul	6	2457575.75	1	30	51.42	+8	50	47.40	20.10357	6.5
jul	7	2457576.75	1	30	55.65	+8	51	10.56	20.08696	6.5
jul	8	2457577.75	1	30	59.70	+8	51	32.66	20.07031	6.4
jul	9	2457578.75	1	31	3.57	+8	51	53.70	20.05362	6.3
jul	10	2457579.75	1	31	7.27	+8	52	13.68	20.03690	6.3
jul	11	2457580.75	1	31	10.78	+8	52	32.61	20.02015	6.2
jul	12	2457581.75	1	31	14.12	+8	52	50.48	20.00337	6.1
jul	13	2457582.75	1	31	17.28	+8	53	7.29	19.98658	6.1
jul	14	2457583.75	1	31	20.26	+8	53	23.06	19.96978	6.0
jul	15	2457584.75	1	31	23.07	+8	53	37.78	19.95297	6.0
jul	16	2457585.75	1	31	25.69	+8	53	51.46	19.93615	5.9
jul	17	2457586.75	1	31	28.14	+8	54	4.08	19.91933	5.8
jul	18	2457587.75	1	31	30.40	+8	54	15.65	19.90251	5.8
jul	19	2457588.75	1	31	32.48	+8	54	26.16	19.88571	5.7
jul	20	2457589.75	1	31	34.38	+8	54	35.60	19.86891	5.6
jul	21	2457590.75	1	31	36.10	+8	54	43.97	19.85213	5.6
jul	22	2457591.75	1	31	37.63	+8	54	51.26	19.83538	5.5
jul	23	2457592.75	1	31	38.97	+8	54	57.46	19.81865	5.4
jul	24	2457593.75	1	31	40.13	+8	55	2.58	19.80195	5.4
jul	25	2457594.75	1	31	41.10	+8	55	6.61	19.78528	5.3
jul	26	2457595.75	1	31	41.90	+8	55	9.57	19.76865	5.2
jul	27	2457596.75	1	31	42.50	+8	55	11.46	19.75207	5.2
jul	28	2457597.75	1	31	42.93	+8	55	12.29	19.73553	5.1
jul	29	2457598.75	1	31	43.18	+8	55	12.07	19.71905	5.0
jul	30	2457599.75	1	31	43.24	+8	55	10.79	19.70262	5.0
jul	31	2457600.75	1	31	43.11	+8	55	8.45	19.68626	4.9
ago	1	2457601.75	1	31	42.81	+8	55	5.04	19.66996	4.8
ago	2	2457602.75	1	31	42.31	+8	55	0.55	19.65374	4.8
ago	3	2457603.75	1	31	41.63	+8	54	54.98	19.63759	4.7
ago	4	2457604.75	1	31	40.76	+8	54	48.33	19.62153	4.6
ago	5	2457605.75	1	31	39.70	+8	54	40.61	19.60556	4.6
ago	6	2457606.75	1	31	38.46	+8	54	31.81	19.58968	4.5
ago	7	2457607.75	1	31	37.04	+8	54	21.94	19.57390	4.4
ago	8	2457608.75	1	31	35.44	+8	54	11.03	19.55822	4.4
ago	9	2457609.75	1	31	33.65	+8	53	59.07	19.54265	4.3
ago	10	2457610.75	1	31	31.69	+8	53	46.08	19.52719	4.2
ago	11	2457611.75	1	31	29.56	+8	53	32.07	19.51185	4.2
ago	12	2457612.75	1	31	27.24	+8	53	17.05	19.49662	4.1
ago	13	2457613.75	1	31	24.76	+8	53	1.02	19.48153	4.0
ago	14	2457614.75	1	31	22.09	+8	52	43.99	19.46656	4.0
ago	15	2457615.75	1	31	19.26	+8	52	25.97	19.45173	3.9
ago	16	2457616.75	1	31	16.25	+8	52	6.94	19.43703	3.9
ago	17	2457617.75	1	31	13.07	+8	51	46.93	19.42248	3.8

Urano, 2016

Efemérides a las 0^h del meridiano 90° W.G.

mes	día	dj	h	α m	s	°	δ `	“	dis UA	hp h
ago	18	2457618.75	1	31	9.71	+8	51	25.92	19.40807	3.7
ago	19	2457619.75	1	31	6.19	+8	51	3.92	19.39381	3.7
ago	20	2457620.75	1	31	2.49	+8	50	40.93	19.37971	3.6
ago	21	2457621.75	1	30	58.63	+8	50	16.97	19.36577	3.5
ago	22	2457622.75	1	30	54.60	+8	49	52.06	19.35198	3.4
ago	23	2457623.75	1	30	50.41	+8	49	26.20	19.33837	3.4
ago	24	2457624.75	1	30	46.06	+8	48	59.42	19.32492	3.3
ago	25	2457625.75	1	30	41.55	+8	48	31.73	19.31165	3.2
ago	26	2457626.75	1	30	36.88	+8	48	3.14	19.29856	3.2
ago	27	2457627.75	1	30	32.05	+8	47	33.66	19.28566	3.1
ago	28	2457628.75	1	30	27.07	+8	47	3.28	19.27294	3.0
ago	29	2457629.75	1	30	21.93	+8	46	32.01	19.26042	3.0
ago	30	2457630.75	1	30	16.64	+8	45	59.85	19.24809	2.9
ago	31	2457631.75	1	30	11.19	+8	45	26.81	19.23597	2.8
sep	1	2457632.75	1	30	5.59	+8	44	52.91	19.22405	2.8
sep	2	2457633.75	1	29	59.84	+8	44	18.15	19.21234	2.7
sep	3	2457634.75	1	29	53.95	+8	43	42.56	19.20085	2.6
sep	4	2457635.75	1	29	47.92	+8	43	6.15	19.18957	2.6
sep	5	2457636.75	1	29	41.75	+8	42	28.95	19.17851	2.5
sep	6	2457637.75	1	29	35.44	+8	41	50.97	19.16769	2.4
sep	7	2457638.75	1	29	29.01	+8	41	12.24	19.15709	2.4
sep	8	2457639.75	1	29	22.44	+8	40	32.76	19.14672	2.3
sep	9	2457640.75	1	29	15.75	+8	39	52.57	19.13659	2.2
sep	10	2457641.75	1	29	8.93	+8	39	11.67	19.12669	2.2
sep	11	2457642.75	1	29	2.00	+8	38	30.08	19.11704	2.1
sep	12	2457643.75	1	28	54.94	+8	37	47.82	19.10764	2.0
sep	13	2457644.75	1	28	47.77	+8	37	4.88	19.09848	2.0
sep	14	2457645.75	1	28	40.48	+8	36	21.29	19.08957	1.9
sep	15	2457646.75	1	28	33.07	+8	35	37.05	19.08092	1.8
sep	16	2457647.75	1	28	25.56	+8	34	52.17	19.07252	1.8
sep	17	2457648.75	1	28	17.94	+8	34	6.69	19.06438	1.7
sep	18	2457649.75	1	28	10.21	+8	33	20.61	19.05650	1.6
sep	19	2457650.75	1	28	2.39	+8	32	33.97	19.04888	1.6
sep	20	2457651.75	1	27	54.48	+8	31	46.80	19.04154	1.5
sep	21	2457652.75	1	27	46.47	+8	30	59.11	19.03446	1.4
sep	22	2457653.75	1	27	38.38	+8	30	10.93	19.02765	1.4
sep	23	2457654.75	1	27	30.20	+8	29	22.27	19.02111	1.3
sep	24	2457655.75	1	27	21.94	+8	28	33.14	19.01486	1.2
sep	25	2457656.75	1	27	13.59	+8	27	43.56	19.00888	1.2
sep	26	2457657.75	1	27	5.16	+8	26	53.53	19.00319	1.1
sep	27	2457658.75	1	26	56.66	+8	26	3.07	18.99778	1.0
sep	28	2457659.75	1	26	48.09	+8	25	12.20	18.99266	1.0
sep	29	2457660.75	1	26	39.44	+8	24	20.95	18.98783	0.9
sep	30	2457661.75	1	26	30.73	+8	23	29.33	18.98329	0.8
oct	1	2457662.75	1	26	21.97	+8	22	37.38	18.97904	0.7
oct	2	2457663.75	1	26	13.15	+8	21	45.13	18.97509	0.7

Urano, 2016

Efemérides a las 0^h del meridiano 90º W.G.

mes	día	dj	h	α m	s	°	δ `	“	dis UA	hp h
oct	3	2457664.75	1	26	4.27	+8	20	52.59	18.97144	0.6
oct	4	2457665.75	1	25	55.36	+8	19	59.81	18.96808	0.5
oct	5	2457666.75	1	25	46.40	+8	19	6.80	18.96503	0.5
oct	6	2457667.75	1	25	37.40	+8	18	13.58	18.96227	0.4
oct	7	2457668.75	1	25	28.37	+8	17	20.19	18.95982	0.3
oct	8	2457669.75	1	25	19.31	+8	16	26.65	18.95767	0.3
oct	9	2457670.75	1	25	10.23	+8	15	32.96	18.95582	0.2
oct	10	2457671.75	1	25	1.11	+8	14	39.16	18.95428	0.1
oct	11	2457672.75	1	24	51.98	+8	13	45.26	18.95304	0.1
oct	12	2457673.75	1	24	42.83	+8	12	51.27	18.95210	24.0
oct	13	2457674.75	1	24	33.66	+8	11	57.21	18.95147	23.9
oct	14	2457675.75	1	24	24.49	+8	11	3.12	18.95114	23.9
oct	15	2457676.75	1	24	15.30	+8	10	9.00	18.95112	23.8
oct	16	2457677.75	1	24	6.12	+8	9	14.90	18.95140	23.7
oct	17	2457678.75	1	23	56.95	+8	8	20.85	18.95199	23.7
oct	18	2457679.75	1	23	47.78	+8	7	26.88	18.95288	23.6
oct	19	2457680.75	1	23	38.63	+8	6	33.01	18.95408	23.5
oct	20	2457681.75	1	23	29.49	+8	5	39.26	18.95558	23.4
oct	21	2457682.75	1	23	20.37	+8	4	45.65	18.95739	23.4
oct	22	2457683.75	1	23	11.28	+8	3	52.19	18.95950	23.3
oct	23	2457684.75	1	23	2.20	+8	2	58.90	18.96192	23.2
oct	24	2457685.75	1	22	53.15	+8	2	5.79	18.96464	23.2
oct	25	2457686.75	1	22	44.13	+8	1	12.89	18.96767	23.1
oct	26	2457687.75	1	22	35.15	+8	0	20.22	18.97100	23.0
oct	27	2457688.75	1	22	26.21	+7	59	27.80	18.97463	23.0
oct	28	2457689.75	1	22	17.31	+7	58	35.67	18.97857	22.9
oct	29	2457690.75	1	22	8.46	+7	57	43.86	18.98281	22.8
oct	30	2457691.75	1	21	59.67	+7	56	52.39	18.98735	22.8
oct	31	2457692.75	1	21	50.94	+7	56	1.29	18.99219	22.7
nov	1	2457693.75	1	21	42.27	+7	55	10.59	18.99732	22.6
nov	2	2457694.75	1	21	33.67	+7	54	20.32	19.00275	22.6
nov	3	2457695.75	1	21	25.14	+7	53	30.50	19.00848	22.5
nov	4	2457696.75	1	21	16.68	+7	52	41.15	19.01449	22.4
nov	5	2457697.75	1	21	8.30	+7	51	52.28	19.02080	22.4
nov	6	2457698.75	1	21	0.01	+7	51	3.92	19.02739	22.3
nov	7	2457699.75	1	20	51.79	+7	50	16.09	19.03427	22.2
nov	8	2457700.75	1	20	43.66	+7	49	28.79	19.04143	22.2
nov	9	2457701.75	1	20	35.62	+7	48	42.05	19.04887	22.1
nov	10	2457702.75	1	20	27.68	+7	47	55.88	19.05659	22.0
nov	11	2457703.75	1	20	19.83	+7	47	10.31	19.06458	22.0
nov	12	2457704.75	1	20	12.08	+7	46	25.37	19.07285	21.9
nov	13	2457705.75	1	20	4.44	+7	45	41.07	19.08138	21.8
nov	14	2457706.75	1	19	56.91	+7	44	57.46	19.09018	21.7
nov	15	2457707.75	1	19	49.50	+7	44	14.55	19.09924	21.7
nov	16	2457708.75	1	19	42.20	+7	43	32.37	19.10856	21.6
nov	17	2457709.75	1	19	35.02	+7	42	50.93	19.11814	21.5

Urano, 2016

Efemérides a las 0^h del meridiano 90° W.G.

mes	día	dj	h	α m	s	°	δ `	“	dis UA	hp h
nov	18	2457710.75	1	19	27.96	+7	42	10.23	19.12797	21.5
nov	19	2457711.75	1	19	21.02	+7	41	30.28	19.13806	21.4
nov	20	2457712.75	1	19	14.20	+7	40	51.09	19.14840	21.3
nov	21	2457713.75	1	19	7.51	+7	40	12.67	19.15898	21.3
nov	22	2457714.75	1	19	0.94	+7	39	35.05	19.16981	21.2
nov	23	2457715.75	1	18	54.51	+7	38	58.25	19.18088	21.1
nov	24	2457716.75	1	18	48.22	+7	38	22.29	19.19218	21.1
nov	25	2457717.75	1	18	42.07	+7	37	47.19	19.20372	21.0
nov	26	2457718.75	1	18	36.06	+7	37	12.97	19.21549	20.9
nov	27	2457719.75	1	18	30.20	+7	36	39.65	19.22748	20.9
nov	28	2457720.75	1	18	24.50	+7	36	7.27	19.23970	20.8
nov	29	2457721.75	1	18	18.94	+7	35	35.82	19.25213	20.7
nov	30	2457722.75	1	18	13.54	+7	35	5.34	19.26477	20.7
dic	1	2457723.75	1	18	8.31	+7	34	35.82	19.27762	20.6
dic	2	2457724.75	1	18	3.23	+7	34	7.29	19.29068	20.5
dic	3	2457725.75	1	17	58.31	+7	33	39.75	19.30394	20.5
dic	4	2457726.75	1	17	53.55	+7	33	13.20	19.31739	20.4
dic	5	2457727.75	1	17	48.96	+7	32	47.67	19.33103	20.3
dic	6	2457728.75	1	17	44.54	+7	32	23.15	19.34486	20.3
dic	7	2457729.75	1	17	40.28	+7	31	59.65	19.35887	20.2
dic	8	2457730.75	1	17	36.19	+7	31	37.19	19.37305	20.1
dic	9	2457731.75	1	17	32.28	+7	31	15.78	19.38740	20.1
dic	10	2457732.75	1	17	28.54	+7	30	55.43	19.40192	20.0
dic	11	2457733.75	1	17	24.98	+7	30	36.17	19.41660	19.9
dic	12	2457734.75	1	17	21.60	+7	30	18.01	19.43144	19.9
dic	13	2457735.75	1	17	18.41	+7	30	0.97	19.44643	19.8
dic	14	2457736.75	1	17	15.39	+7	29	45.04	19.46157	19.7
dic	15	2457737.75	1	17	12.56	+7	29	30.23	19.47685	19.7
dic	16	2457738.75	1	17	9.91	+7	29	16.53	19.49226	19.6
dic	17	2457739.75	1	17	7.44	+7	29	3.94	19.50781	19.5
dic	18	2457740.75	1	17	5.15	+7	28	52.45	19.52349	19.5
dic	19	2457741.75	1	17	3.04	+7	28	42.08	19.53930	19.4
dic	20	2457742.75	1	17	1.12	+7	28	32.83	19.55522	19.3
dic	21	2457743.75	1	16	59.39	+7	28	24.72	19.57126	19.3
dic	22	2457744.75	1	16	57.84	+7	28	17.75	19.58741	19.2
dic	23	2457745.75	1	16	56.49	+7	28	11.94	19.60366	19.1
dic	24	2457746.75	1	16	55.33	+7	28	7.30	19.62001	19.1
dic	25	2457747.75	1	16	54.37	+7	28	3.83	19.63646	19.0
dic	26	2457748.75	1	16	53.60	+7	28	1.55	19.65299	18.9
dic	27	2457749.75	1	16	53.03	+7	28	0.45	19.66961	18.9
dic	28	2457750.75	1	16	52.65	+7	28	0.54	19.68630	18.8
dic	29	2457751.75	1	16	52.47	+7	28	1.82	19.70307	18.7
dic	30	2457752.75	1	16	52.48	+7	28	4.29	19.71990	18.7
dic	31	2457753.75	1	16	52.69	+7	28	7.93	19.73679	18.6

Neptuno, 2016

Efemérides a las 0^h del meridiano 90º W.G.

mes	día	dj	h	α m	s	°	δ `	“	dis UA	hp h
ene	1	2457388.75	22	38	9.55	-9	28	18.03	30.47922	15.9
ene	2	2457389.75	22	38	14.91	-9	27	45.31	30.49375	15.9
ene	3	2457390.75	22	38	20.38	-9	27	11.98	30.50811	15.8
ene	4	2457391.75	22	38	25.95	-9	26	38.05	30.52230	15.8
ene	5	2457392.75	22	38	31.62	-9	26	3.51	30.53632	15.7
ene	6	2457393.75	22	38	37.40	-9	25	28.38	30.55016	15.6
ene	7	2457394.75	22	38	43.28	-9	24	52.66	30.56383	15.6
ene	8	2457395.75	22	38	49.25	-9	24	16.38	30.57731	15.5
ene	9	2457396.75	22	38	55.32	-9	23	39.54	30.59059	15.4
ene	10	2457397.75	22	39	1.49	-9	23	2.17	30.60369	15.4
ene	11	2457398.75	22	39	7.75	-9	22	24.27	30.61659	15.3
ene	12	2457399.75	22	39	14.09	-9	21	45.86	30.62928	15.2
ene	13	2457400.75	22	39	20.52	-9	21	6.96	30.64177	15.2
ene	14	2457401.75	22	39	27.03	-9	20	27.56	30.65405	15.1
ene	15	2457402.75	22	39	33.63	-9	19	47.66	30.66612	15.1
ene	16	2457403.75	22	39	40.32	-9	19	7.28	30.67798	15.0
ene	17	2457404.75	22	39	47.08	-9	18	26.40	30.68961	14.9
ene	18	2457405.75	22	39	53.93	-9	17	45.04	30.70102	14.9
ene	19	2457406.75	22	40	0.86	-9	17	3.22	30.71221	14.8
ene	20	2457407.75	22	40	7.86	-9	16	20.93	30.72317	14.7
ene	21	2457408.75	22	40	14.95	-9	15	38.21	30.73390	14.7
ene	22	2457409.75	22	40	22.10	-9	14	55.08	30.74439	14.6
ene	23	2457410.75	22	40	29.33	-9	14	11.54	30.75465	14.5
ene	24	2457411.75	22	40	36.62	-9	13	27.61	30.76468	14.5
ene	25	2457412.75	22	40	43.98	-9	12	43.30	30.77446	14.4
ene	26	2457413.75	22	40	51.41	-9	11	58.63	30.78400	14.3
ene	27	2457414.75	22	40	58.89	-9	11	13.59	30.79329	14.3
ene	28	2457415.75	22	41	6.44	-9	10	28.18	30.80233	14.2
ene	29	2457416.75	22	41	14.05	-9	9	42.43	30.81113	14.2
ene	30	2457417.75	22	41	21.72	-9	8	56.32	30.81967	14.1
ene	31	2457418.75	22	41	29.45	-9	8	9.88	30.82795	14.0
feb	1	2457419.75	22	41	37.23	-9	7	23.10	30.83598	14.0
feb	2	2457420.75	22	41	45.07	-9	6	35.99	30.84374	13.9
feb	3	2457421.75	22	41	52.97	-9	5	48.58	30.85125	13.8
feb	4	2457422.75	22	42	0.92	-9	5	0.87	30.85848	13.8
feb	5	2457423.75	22	42	8.91	-9	4	12.88	30.86545	13.7
feb	6	2457424.75	22	42	16.96	-9	3	24.63	30.87215	13.7
feb	7	2457425.75	22	42	25.05	-9	2	36.14	30.87858	13.6
feb	8	2457426.75	22	42	33.18	-9	1	47.42	30.88473	13.5
feb	9	2457427.75	22	42	41.34	-9	0	58.48	30.89061	13.5
feb	10	2457428.75	22	42	49.55	-9	0	9.35	30.89621	13.4
feb	11	2457429.75	22	42	57.79	-8	59	20.02	30.90154	13.3
feb	12	2457430.75	22	43	6.06	-8	58	30.49	30.90658	13.3
feb	13	2457431.75	22	43	14.36	-8	57	40.77	30.91134	13.2
feb	14	2457432.75	22	43	22.70	-8	56	50.86	30.91582	13.1
feb	15	2457433.75	22	43	31.07	-8	56	0.78	30.92001	13.1

Neptuno, 2016

Efemérides a las 0^h del meridiano 90° W.G.

mes	día	dj	h	α m	s	°	δ `	“	dis UA	hp h
feb	16	2457434.75	22	43	39.46	-8	55	10.55	30.92393	13.0
feb	17	2457435.75	22	43	47.88	-8	54	20.18	30.92756	13.0
feb	18	2457436.75	22	43	56.33	-8	53	29.69	30.93090	12.9
feb	19	2457437.75	22	44	4.79	-8	52	39.10	30.93396	12.8
feb	20	2457438.75	22	44	13.27	-8	51	48.43	30.93674	12.8
feb	21	2457439.75	22	44	21.76	-8	50	57.69	30.93923	12.7
feb	22	2457440.75	22	44	30.27	-8	50	6.89	30.94143	12.6
feb	23	2457441.75	22	44	38.79	-8	49	16.03	30.94335	12.6
feb	24	2457442.75	22	44	47.32	-8	48	25.13	30.94498	12.5
feb	25	2457443.75	22	44	55.85	-8	47	34.19	30.94633	12.4
feb	26	2457444.75	22	45	4.40	-8	46	43.23	30.94738	12.4
feb	27	2457445.75	22	45	12.95	-8	45	52.28	30.94816	12.3
feb	28	2457446.75	22	45	21.51	-8	45	1.55	30.94864	12.3
feb	29	2457447.75	22	45	30.03	-8	44	10.64	30.94883	12.2
mar	1	2457448.75	22	45	38.59	-8	43	19.37	30.94874	12.1
mar	2	2457449.75	22	45	47.15	-8	42	28.28	30.94836	12.1
mar	3	2457450.75	22	45	55.70	-8	41	37.27	30.94770	12.0
mar	4	2457451.75	22	46	4.25	-8	40	46.34	30.94674	11.9
mar	5	2457452.75	22	46	12.80	-8	39	55.49	30.94550	11.9
mar	6	2457453.75	22	46	21.33	-8	39	4.72	30.94397	11.8
mar	7	2457454.75	22	46	29.84	-8	38	14.07	30.94215	11.7
mar	8	2457455.75	22	46	38.34	-8	37	23.53	30.94005	11.7
mar	9	2457456.75	22	46	46.82	-8	36	33.12	30.93766	11.6
mar	10	2457457.75	22	46	55.28	-8	35	42.84	30.93498	11.6
mar	11	2457458.75	22	47	3.72	-8	34	52.68	30.93202	11.5
mar	12	2457459.75	22	47	12.14	-8	34	2.65	30.92878	11.4
mar	13	2457460.75	22	47	20.54	-8	33	12.77	30.92526	11.4
mar	14	2457461.75	22	47	28.91	-8	32	23.05	30.92146	11.3
mar	15	2457462.75	22	47	37.26	-8	31	33.50	30.91738	11.2
mar	16	2457463.75	22	47	45.57	-8	30	44.15	30.91302	11.2
mar	17	2457464.75	22	47	53.86	-8	29	55.02	30.90839	11.1
mar	18	2457465.75	22	48	2.11	-8	29	6.12	30.90349	11.1
mar	19	2457466.75	22	48	10.32	-8	28	17.47	30.89832	11.0
mar	20	2457467.75	22	48	18.49	-8	27	29.07	30.89287	10.9
mar	21	2457468.75	22	48	26.62	-8	26	40.93	30.88716	10.9
mar	22	2457469.75	22	48	34.71	-8	25	53.06	30.88119	10.8
mar	23	2457470.75	22	48	42.76	-8	25	5.46	30.87495	10.7
mar	24	2457471.75	22	48	50.76	-8	24	18.13	30.86845	10.7
mar	25	2457472.75	22	48	58.72	-8	23	31.09	30.86169	10.6
mar	26	2457473.75	22	49	6.63	-8	22	44.34	30.85467	10.5
mar	27	2457474.75	22	49	14.49	-8	21	57.90	30.84739	10.5
mar	28	2457475.75	22	49	22.31	-8	21	11.76	30.83987	10.4
mar	29	2457476.75	22	49	30.07	-8	20	25.94	30.83208	10.4
mar	30	2457477.75	22	49	37.79	-8	19	40.46	30.82405	10.3
mar	31	2457478.75	22	49	45.44	-8	18	55.34	30.81577	10.2
abr	1	2457479.75	22	49	53.05	-8	18	10.58	30.80724	10.2

Neptuno, 2016

Efemérides a las 0^h del meridiano 90º W.G.

mes	día	dj	h	α m	s	°	δ `	“	dis UA	hp h
abr	2	2457480.75	22	50	0.59	-8	17	26.20	30.79847	10.1
abr	3	2457481.75	22	50	8.07	-8	16	42.23	30.78946	10.0
abr	4	2457482.75	22	50	15.48	-8	15	58.66	30.78021	10.0
abr	5	2457483.75	22	50	22.83	-8	15	15.51	30.77072	9.9
abr	6	2457484.75	22	50	30.11	-8	14	32.79	30.76100	9.8
abr	7	2457485.75	22	50	37.32	-8	13	50.49	30.75104	9.8
abr	8	2457486.75	22	50	44.46	-8	13	8.60	30.74086	9.7
abr	9	2457487.75	22	50	51.54	-8	12	27.15	30.73045	9.7
abr	10	2457488.75	22	50	58.54	-8	11	46.13	30.71983	9.6
abr	11	2457489.75	22	51	5.47	-8	11	5.57	30.70898	9.5
abr	12	2457490.75	22	51	12.33	-8	10	25.48	30.69792	9.5
abr	13	2457491.75	22	51	19.11	-8	9	45.88	30.68664	9.4
abr	14	2457492.75	22	51	25.82	-8	9	6.79	30.67516	9.3
abr	15	2457493.75	22	51	32.44	-8	8	28.22	30.66348	9.3
abr	16	2457494.75	22	51	38.97	-8	7	50.17	30.65159	9.2
abr	17	2457495.75	22	51	45.42	-8	7	12.65	30.63951	9.1
abr	18	2457496.75	22	51	51.79	-8	6	35.67	30.62724	9.1
abr	19	2457497.75	22	51	58.07	-8	5	59.22	30.61477	9.0
abr	20	2457498.75	22	52	4.26	-8	5	23.31	30.60212	9.0
abr	21	2457499.75	22	52	10.36	-8	4	47.94	30.58929	8.9
abr	22	2457500.75	22	52	16.38	-8	4	13.11	30.57627	8.8
abr	23	2457501.75	22	52	22.31	-8	3	38.84	30.56308	8.8
abr	24	2457502.75	22	52	28.15	-8	3	5.13	30.54972	8.7
abr	25	2457503.75	22	52	33.90	-8	2	31.98	30.53619	8.6
abr	26	2457504.75	22	52	39.56	-8	1	59.41	30.52249	8.6
abr	27	2457505.75	22	52	45.12	-8	1	27.43	30.50863	8.5
abr	28	2457506.75	22	52	50.59	-8	0	56.06	30.49461	8.4
abr	29	2457507.75	22	52	55.96	-8	0	25.30	30.48043	8.4
abr	30	2457508.75	22	53	1.23	-7	59	55.16	30.46611	8.3
may	1	2457509.75	22	53	6.40	-7	59	25.67	30.45163	8.2
may	2	2457510.75	22	53	11.47	-7	58	56.81	30.43701	8.2
may	3	2457511.75	22	53	16.44	-7	58	28.60	30.42225	8.1
may	4	2457512.75	22	53	21.29	-7	58	1.03	30.40736	8.1
may	5	2457513.75	22	53	26.05	-7	57	34.11	30.39233	8.0
may	6	2457514.75	22	53	30.70	-7	57	7.81	30.37718	7.9
may	7	2457515.75	22	53	35.25	-7	56	42.16	30.36190	7.9
may	8	2457516.75	22	53	39.70	-7	56	17.16	30.34651	7.8
may	9	2457517.75	22	53	44.03	-7	55	52.83	30.33100	7.7
may	10	2457518.75	22	53	48.26	-7	55	29.18	30.31539	7.7
may	11	2457519.75	22	53	52.38	-7	55	6.23	30.29967	7.6
may	12	2457520.75	22	53	56.39	-7	54	43.98	30.28385	7.5
may	13	2457521.75	22	54	0.28	-7	54	22.44	30.26794	7.5
may	14	2457522.75	22	54	4.05	-7	54	1.62	30.25193	7.4
may	15	2457523.75	22	54	7.72	-7	53	41.50	30.23584	7.3
may	16	2457524.75	22	54	11.26	-7	53	22.09	30.21967	7.3
may	17	2457525.75	22	54	14.70	-7	53	3.39	30.20343	7.2

Neptuno, 2016

Efemérides a las 0^h del meridiano 90° W.G.

mes	día	dj	h	α m	s	°	δ `	“	dis UA	hp h
may	18	2457526.75	22	54	18.01	-7	52	45.40	30.18711	7.1
may	19	2457527.75	22	54	21.22	-7	52	28.11	30.17072	7.1
may	20	2457528.75	22	54	24.31	-7	52	11.53	30.15427	7.0
may	21	2457529.75	22	54	27.28	-7	51	55.65	30.13777	7.0
may	22	2457530.75	22	54	30.14	-7	51	40.49	30.12120	6.9
may	23	2457531.75	22	54	32.89	-7	51	26.04	30.10459	6.8
may	24	2457532.75	22	54	35.52	-7	51	12.32	30.08793	6.8
may	25	2457533.75	22	54	38.03	-7	50	59.33	30.07123	6.7
may	26	2457534.75	22	54	40.42	-7	50	47.09	30.05449	6.6
may	27	2457535.75	22	54	42.69	-7	50	35.59	30.03772	6.6
may	28	2457536.75	22	54	44.84	-7	50	24.85	30.02091	6.5
may	29	2457537.75	22	54	46.87	-7	50	14.86	30.00409	6.4
may	30	2457538.75	22	54	48.78	-7	50	5.63	29.98724	6.4
may	31	2457539.75	22	54	50.56	-7	49	57.15	29.97038	6.3
jun	1	2457540.75	22	54	52.22	-7	49	49.40	29.95351	6.2
jun	2	2457541.75	22	54	53.76	-7	49	42.40	29.93663	6.2
jun	3	2457542.75	22	54	55.19	-7	49	36.12	29.91976	6.1
jun	4	2457543.75	22	54	56.49	-7	49	30.58	29.90288	6.0
jun	5	2457544.75	22	54	57.67	-7	49	25.77	29.88602	6.0
jun	6	2457545.75	22	54	58.74	-7	49	21.72	29.86917	5.9
jun	7	2457546.75	22	54	59.67	-7	49	18.43	29.85234	5.8
jun	8	2457547.75	22	55	0.49	-7	49	15.91	29.83554	5.8
jun	9	2457548.75	22	55	1.18	-7	49	14.15	29.81877	5.7
jun	10	2457549.75	22	55	1.74	-7	49	13.17	29.80203	5.6
jun	11	2457550.75	22	55	2.18	-7	49	12.94	29.78534	5.6
jun	12	2457551.75	22	55	2.50	-7	49	13.47	29.76868	5.5
jun	13	2457552.75	22	55	2.69	-7	49	14.75	29.75208	5.5
jun	14	2457553.75	22	55	2.76	-7	49	16.76	29.73553	5.4
jun	15	2457554.75	22	55	2.72	-7	49	19.51	29.71904	5.3
jun	16	2457555.75	22	55	2.55	-7	49	22.98	29.70262	5.3
jun	17	2457556.75	22	55	2.26	-7	49	27.18	29.68626	5.2
jun	18	2457557.75	22	55	1.86	-7	49	32.09	29.66997	5.1
jun	19	2457558.75	22	55	1.34	-7	49	37.73	29.65376	5.1
jun	20	2457559.75	22	55	0.70	-7	49	44.09	29.63762	5.0
jun	21	2457560.75	22	54	59.94	-7	49	51.17	29.62158	4.9
jun	22	2457561.75	22	54	59.06	-7	49	58.98	29.60562	4.9
jun	23	2457562.75	22	54	58.07	-7	50	7.52	29.58976	4.8
jun	24	2457563.75	22	54	56.95	-7	50	16.79	29.57399	4.7
jun	25	2457564.75	22	54	55.72	-7	50	26.79	29.55832	4.7
jun	26	2457565.75	22	54	54.36	-7	50	37.51	29.54276	4.6
jun	27	2457566.75	22	54	52.89	-7	50	48.93	29.52731	4.5
jun	28	2457567.75	22	54	51.30	-7	51	1.05	29.51198	4.5
jun	29	2457568.75	22	54	49.60	-7	51	13.86	29.49677	4.4
jun	30	2457569.75	22	54	47.78	-7	51	27.34	29.48168	4.3
jul	1	2457570.75	22	54	45.86	-7	51	41.48	29.46672	4.3
jul	2	2457571.75	22	54	43.82	-7	51	56.30	29.45189	4.2

Neptuno, 2016

Efemérides a las 0^h del meridiano 90º W.G.

mes	día	dj	h	α m	s	°	δ `	“	dis UA	hp h
jul	3	2457572.75	22	54	41.67	-7	52	11.78	29.43720	4.1
jul	4	2457573.75	22	54	39.41	-7	52	27.94	29.42266	4.1
jul	5	2457574.75	22	54	37.04	-7	52	44.77	29.40826	4.0
jul	6	2457575.75	22	54	34.56	-7	53	2.28	29.39402	3.9
jul	7	2457576.75	22	54	31.96	-7	53	20.45	29.37993	3.9
jul	8	2457577.75	22	54	29.26	-7	53	39.29	29.36600	3.8
jul	9	2457578.75	22	54	26.44	-7	53	58.76	29.35224	3.7
jul	10	2457579.75	22	54	23.52	-7	54	18.87	29.33865	3.7
jul	11	2457580.75	22	54	20.50	-7	54	39.60	29.32523	3.6
jul	12	2457581.75	22	54	17.37	-7	55	0.92	29.31199	3.5
jul	13	2457582.75	22	54	14.15	-7	55	22.84	29.29893	3.5
jul	14	2457583.75	22	54	10.82	-7	55	45.34	29.28605	3.4
jul	15	2457584.75	22	54	7.40	-7	56	8.41	29.27337	3.3
jul	16	2457585.75	22	54	3.88	-7	56	32.05	29.26087	3.3
jul	17	2457586.75	22	54	0.27	-7	56	56.25	29.24857	3.2
jul	18	2457587.75	22	53	56.57	-7	57	21.01	29.23647	3.1
jul	19	2457588.75	22	53	52.77	-7	57	46.32	29.22457	3.1
jul	20	2457589.75	22	53	48.88	-7	58	12.17	29.21287	3.0
jul	21	2457590.75	22	53	44.89	-7	58	38.58	29.20138	2.9
jul	22	2457591.75	22	53	40.82	-7	59	5.52	29.19011	2.9
jul	23	2457592.75	22	53	36.65	-7	59	33.00	29.17905	2.8
jul	24	2457593.75	22	53	32.40	-8	0	0.98	29.16821	2.7
jul	25	2457594.75	22	53	28.05	-8	0	29.45	29.15758	2.7
jul	26	2457595.75	22	53	23.63	-8	0	58.40	29.14719	2.6
jul	27	2457596.75	22	53	19.13	-8	1	27.81	29.13702	2.5
jul	28	2457597.75	22	53	14.54	-8	1	57.66	29.12708	2.5
jul	29	2457598.75	22	53	9.88	-8	2	27.96	29.11738	2.4
jul	30	2457599.75	22	53	5.15	-8	2	58.68	29.10792	2.3
jul	31	2457600.75	22	53	0.34	-8	3	29.84	29.09870	2.3
ago	1	2457601.75	22	52	55.45	-8	4	1.43	29.08973	2.2
ago	2	2457602.75	22	52	50.50	-8	4	33.44	29.08100	2.1
ago	3	2457603.75	22	52	45.47	-8	5	5.86	29.07253	2.1
ago	4	2457604.75	22	52	40.36	-8	5	38.69	29.06431	2.0
ago	5	2457605.75	22	52	35.19	-8	6	11.89	29.05634	1.9
ago	6	2457606.75	22	52	29.96	-8	6	45.46	29.04864	1.9
ago	7	2457607.75	22	52	24.66	-8	7	19.37	29.04120	1.8
ago	8	2457608.75	22	52	19.30	-8	7	53.61	29.03402	1.7
ago	9	2457609.75	22	52	13.89	-8	8	28.15	29.02711	1.7
ago	10	2457610.75	22	52	8.42	-8	9	2.99	29.02047	1.6
ago	11	2457611.75	22	52	2.90	-8	9	38.11	29.01410	1.5
ago	12	2457612.75	22	51	57.33	-8	10	13.49	29.00800	1.5
ago	13	2457613.75	22	51	51.71	-8	10	49.13	29.00218	1.4
ago	14	2457614.75	22	51	46.05	-8	11	25.02	28.99663	1.3
ago	15	2457615.75	22	51	40.34	-8	12	1.15	28.99136	1.3
ago	16	2457616.75	22	51	34.59	-8	12	37.51	28.98637	1.2
ago	17	2457617.75	22	51	28.80	-8	13	14.09	28.98165	1.1

Neptuno, 2016

Efemérides a las 0^h del meridiano 90° W.G.

mes	día	dj	h	α m	s	°	δ `	“	dis UA	hp h
ago	18	2457618.75	22	51	22.96	-8	13	50.89	28.97722	1.1
ago	19	2457619.75	22	51	17.09	-8	14	27.89	28.97307	1.0
ago	20	2457620.75	22	51	11.18	-8	15	5.07	28.96921	0.9
ago	21	2457621.75	22	51	5.23	-8	15	42.42	28.96563	0.9
ago	22	2457622.75	22	50	59.25	-8	16	19.90	28.96234	0.8
ago	23	2457623.75	22	50	53.25	-8	16	57.50	28.95933	0.7
ago	24	2457624.75	22	50	47.23	-8	17	35.19	28.95662	0.6
ago	25	2457625.75	22	50	41.18	-8	18	12.98	28.95419	0.6
ago	26	2457626.75	22	50	35.11	-8	18	50.85	28.95206	0.5
ago	27	2457627.75	22	50	29.02	-8	19	28.79	28.95022	0.4
ago	28	2457628.75	22	50	22.92	-8	20	6.81	28.94868	0.4
ago	29	2457629.75	22	50	16.80	-8	20	44.88	28.94744	0.3
ago	30	2457630.75	22	50	10.67	-8	21	23.01	28.94649	0.2
ago	31	2457631.75	22	50	4.52	-8	22	1.17	28.94583	0.2
sep	1	2457632.75	22	49	58.36	-8	22	39.34	28.94548	0.1
sep	2	2457633.75	22	49	52.20	-8	23	17.51	28.94542	0.0
sep	3	2457634.75	22	49	46.03	-8	23	55.65	28.94567	24.0
sep	4	2457635.75	22	49	39.87	-8	24	33.75	28.94621	23.9
sep	5	2457636.75	22	49	33.70	-8	25	11.78	28.94705	23.8
sep	6	2457637.75	22	49	27.55	-8	25	49.72	28.94818	23.8
sep	7	2457638.75	22	49	21.40	-8	26	27.57	28.94962	23.7
sep	8	2457639.75	22	49	15.26	-8	27	5.30	28.95135	23.6
sep	9	2457640.75	22	49	9.14	-8	27	42.90	28.95338	23.6
sep	10	2457641.75	22	49	3.03	-8	28	20.37	28.95571	23.5
sep	11	2457642.75	22	48	56.95	-8	28	57.70	28.95833	23.4
sep	12	2457643.75	22	48	50.88	-8	29	34.86	28.96124	23.4
sep	13	2457644.75	22	48	44.83	-8	30	11.87	28.96445	23.3
sep	14	2457645.75	22	48	38.81	-8	30	48.70	28.96795	23.2
sep	15	2457646.75	22	48	32.81	-8	31	25.35	28.97174	23.2
sep	16	2457647.75	22	48	26.83	-8	32	1.79	28.97582	23.1
sep	17	2457648.75	22	48	20.89	-8	32	38.02	28.98019	23.0
sep	18	2457649.75	22	48	14.97	-8	33	13.99	28.98485	23.0
sep	19	2457650.75	22	48	9.09	-8	33	49.70	28.98980	22.9
sep	20	2457651.75	22	48	3.26	-8	34	25.12	28.99502	22.8
sep	21	2457652.75	22	47	57.46	-8	35	0.25	29.00054	22.8
sep	22	2457653.75	22	47	51.71	-8	35	35.06	29.00634	22.7
sep	23	2457654.75	22	47	46.00	-8	36	9.57	29.01242	22.6
sep	24	2457655.75	22	47	40.35	-8	36	43.77	29.01878	22.6
sep	25	2457656.75	22	47	34.73	-8	37	17.64	29.02542	22.5
sep	26	2457657.75	22	47	29.17	-8	37	51.18	29.03234	22.4
sep	27	2457658.75	22	47	23.66	-8	38	24.38	29.03953	22.4
sep	28	2457659.75	22	47	18.20	-8	38	57.21	29.04700	22.3
sep	29	2457660.75	22	47	12.79	-8	39	29.67	29.05474	22.2
sep	30	2457661.75	22	47	7.45	-8	40	1.72	29.06275	22.2
oct	1	2457662.75	22	47	2.17	-8	40	33.36	29.07103	22.1
oct	2	2457663.75	22	46	56.95	-8	41	4.56	29.07958	22.0

Neptuno, 2016

Efemérides a las 0^h del meridiano 90º W.G.

mes	día	dj	h	α m	s	°	δ `	“	dis UA	hp h
oct	3	2457664.75	22	46	51.80	-8	41	35.31	29.08838	22.0
oct	4	2457665.75	22	46	46.72	-8	42	5.60	29.09745	21.9
oct	5	2457666.75	22	46	41.71	-8	42	35.41	29.10677	21.8
oct	6	2457667.75	22	46	36.78	-8	43	4.74	29.11634	21.8
oct	7	2457668.75	22	46	31.93	-8	43	33.57	29.12617	21.7
oct	8	2457669.75	22	46	27.16	-8	44	1.90	29.13624	21.6
oct	9	2457670.75	22	46	22.46	-8	44	29.72	29.14656	21.6
oct	10	2457671.75	22	46	17.84	-8	44	57.03	29.15711	21.5
oct	11	2457672.75	22	46	13.31	-8	45	23.82	29.16791	21.4
oct	12	2457673.75	22	46	8.86	-8	45	50.08	29.17893	21.4
oct	13	2457674.75	22	46	4.49	-8	46	15.80	29.19019	21.3
oct	14	2457675.75	22	46	0.21	-8	46	40.97	29.20167	21.2
oct	15	2457676.75	22	45	56.02	-8	47	5.57	29.21338	21.2
oct	16	2457677.75	22	45	51.92	-8	47	29.58	29.22531	21.1
oct	17	2457678.75	22	45	47.91	-8	47	52.98	29.23745	21.0
oct	18	2457679.75	22	45	44.00	-8	48	15.77	29.24980	21.0
oct	19	2457680.75	22	45	40.19	-8	48	37.92	29.26237	20.9
oct	20	2457681.75	22	45	36.48	-8	48	59.46	29.27514	20.8
oct	21	2457682.75	22	45	32.87	-8	49	20.38	29.28812	20.8
oct	22	2457683.75	22	45	29.36	-8	49	40.68	29.30129	20.7
oct	23	2457684.75	22	45	25.95	-8	50	0.35	29.31466	20.6
oct	24	2457685.75	22	45	22.64	-8	50	19.39	29.32822	20.6
oct	25	2457686.75	22	45	19.43	-8	50	37.79	29.34197	20.5
oct	26	2457687.75	22	45	16.33	-8	50	55.53	29.35591	20.4
oct	27	2457688.75	22	45	13.33	-8	51	12.59	29.37002	20.4
oct	28	2457689.75	22	45	10.44	-8	51	28.98	29.38431	20.3
oct	29	2457690.75	22	45	7.67	-8	51	44.66	29.39876	20.2
oct	30	2457691.75	22	45	5.01	-8	51	59.64	29.41339	20.2
oct	31	2457692.75	22	45	2.46	-8	52	13.90	29.42818	20.1
nov	1	2457693.75	22	45	0.03	-8	52	27.44	29.44312	20.0
nov	2	2457694.75	22	44	57.72	-8	52	40.25	29.45821	20.0
nov	3	2457695.75	22	44	55.53	-8	52	52.33	29.47345	19.9
nov	4	2457696.75	22	44	53.46	-8	53	3.68	29.48883	19.8
nov	5	2457697.75	22	44	51.51	-8	53	14.29	29.50435	19.8
nov	6	2457698.75	22	44	49.67	-8	53	24.18	29.52000	19.7
nov	7	2457699.75	22	44	47.96	-8	53	33.34	29.53578	19.6
nov	8	2457700.75	22	44	46.37	-8	53	41.76	29.55168	19.6
nov	9	2457701.75	22	44	44.90	-8	53	49.44	29.56769	19.5
nov	10	2457702.75	22	44	43.55	-8	53	56.38	29.58382	19.4
nov	11	2457703.75	22	44	42.32	-8	54	2.57	29.60005	19.4
nov	12	2457704.75	22	44	41.21	-8	54	7.99	29.61639	19.3
nov	13	2457705.75	22	44	40.23	-8	54	12.63	29.63282	19.2
nov	14	2457706.75	22	44	39.38	-8	54	16.49	29.64934	19.2
nov	15	2457707.75	22	44	38.66	-8	54	19.55	29.66595	19.1
nov	16	2457708.75	22	44	38.07	-8	54	21.84	29.68264	19.0
nov	17	2457709.75	22	44	37.61	-8	54	23.35	29.69941	19.0

Neptuno, 2016

Efemérides a las 0^h del meridiano 90° W.G.

mes	día	dj	h	α m	s	°	δ `	“	dis UA	hp h
nov	18	2457710.75	22	44	37.27	-8	54	24.10	29.71625	18.9
nov	19	2457711.75	22	44	37.06	-8	54	24.09	29.73317	18.8
nov	20	2457712.75	22	44	36.97	-8	54	23.32	29.75014	18.8
nov	21	2457713.75	22	44	37.01	-8	54	21.79	29.76718	18.7
nov	22	2457714.75	22	44	37.18	-8	54	19.49	29.78426	18.6
nov	23	2457715.75	22	44	37.47	-8	54	16.42	29.80140	18.6
nov	24	2457716.75	22	44	37.90	-8	54	12.55	29.81858	18.5
nov	25	2457717.75	22	44	38.45	-8	54	7.90	29.83579	18.4
nov	26	2457718.75	22	44	39.13	-8	54	2.46	29.85304	18.4
nov	27	2457719.75	22	44	39.95	-8	53	56.21	29.87031	18.3
nov	28	2457720.75	22	44	40.90	-8	53	49.17	29.88761	18.2
nov	29	2457721.75	22	44	41.98	-8	53	41.33	29.90492	18.2
nov	30	2457722.75	22	44	43.19	-8	53	32.70	29.92223	18.1
dic	1	2457723.75	22	44	44.53	-8	53	23.29	29.93956	18.0
dic	2	2457724.75	22	44	46.01	-8	53	13.09	29.95688	18.0
dic	3	2457725.75	22	44	47.61	-8	53	2.12	29.97419	17.9
dic	4	2457726.75	22	44	49.35	-8	52	50.39	29.99150	17.8
dic	5	2457727.75	22	44	51.21	-8	52	37.89	30.00878	17.8
dic	6	2457728.75	22	44	53.19	-8	52	24.64	30.02604	17.7
dic	7	2457729.75	22	44	55.31	-8	52	10.63	30.04327	17.7
dic	8	2457730.75	22	44	57.55	-8	51	55.85	30.06047	17.6
dic	9	2457731.75	22	44	59.91	-8	51	40.32	30.07763	17.5
dic	10	2457732.75	22	45	2.40	-8	51	24.01	30.09474	17.5
dic	11	2457733.75	22	45	5.02	-8	51	6.94	30.11180	17.4
dic	12	2457734.75	22	45	7.77	-8	50	49.09	30.12881	17.3
dic	13	2457735.75	22	45	10.65	-8	50	30.48	30.14576	17.3
dic	14	2457736.75	22	45	13.65	-8	50	11.12	30.16265	17.2
dic	15	2457737.75	22	45	16.78	-8	49	51.02	30.17947	17.1
dic	16	2457738.75	22	45	20.03	-8	49	30.21	30.19622	17.1
dic	17	2457739.75	22	45	23.40	-8	49	8.70	30.21288	17.0
dic	18	2457740.75	22	45	26.88	-8	48	46.48	30.22947	16.9
dic	19	2457741.75	22	45	30.49	-8	48	23.56	30.24597	16.9
dic	20	2457742.75	22	45	34.21	-8	47	59.93	30.26238	16.8
dic	21	2457743.75	22	45	38.05	-8	47	35.59	30.27869	16.7
dic	22	2457744.75	22	45	42.00	-8	47	10.55	30.29490	16.7
dic	23	2457745.75	22	45	46.08	-8	46	44.79	30.31100	16.6
dic	24	2457746.75	22	45	50.27	-8	46	18.34	30.32699	16.6
dic	25	2457747.75	22	45	54.58	-8	45	51.18	30.34286	16.5
dic	26	2457748.75	22	45	59.01	-8	45	23.33	30.35861	16.4
dic	27	2457749.75	22	46	3.55	-8	44	54.80	30.37423	16.4
dic	28	2457750.75	22	46	8.21	-8	44	25.60	30.38972	16.3
dic	29	2457751.75	22	46	12.98	-8	43	55.73	30.40507	16.2
dic	30	2457752.75	22	46	17.86	-8	43	25.22	30.42029	16.2
dic	31	2457753.75	22	46	22.85	-8	42	54.07	30.43535	16.1

Plutón (planeta enano), 2016

Efemérides a las 0^h del meridiano 90º W.G.

mes	día	dj	h	α m	s	°	δ `	“	dis UA	hp h
ene	1	2457388.75	19	4	36.52	-21	0	29.22	33.99303	12.4
ene	2	2457389.75	19	4	45.39	-21	0	21.27	33.99496	12.3
ene	3	2457390.75	19	4	54.27	-21	0	13.21	33.99659	12.3
ene	4	2457391.75	19	5	3.15	-21	0	5.02	33.99794	12.2
ene	5	2457392.75	19	5	12.04	-20	59	56.69	33.99898	12.1
ene	6	2457393.75	19	5	20.93	-20	59	48.32	33.99974	12.1
ene	7	2457394.75	19	5	29.82	-20	59	40.03	34.00019	12.0
ene	8	2457395.75	19	5	38.71	-20	59	31.65	34.00036	11.9
ene	9	2457396.75	19	5	47.61	-20	59	23.17	34.00022	11.9
ene	10	2457397.75	19	5	56.49	-20	59	14.61	33.99980	11.8
ene	11	2457398.75	19	6	5.37	-20	59	6.00	33.99907	11.8
ene	12	2457399.75	19	6	14.23	-20	58	57.34	33.99806	11.7
ene	13	2457400.75	19	6	23.07	-20	58	48.62	33.99675	11.6
ene	14	2457401.75	19	6	31.89	-20	58	39.84	33.99515	11.6
ene	15	2457402.75	19	6	40.70	-20	58	30.99	33.99325	11.5
ene	16	2457403.75	19	6	49.48	-20	58	22.08	33.99107	11.4
ene	17	2457404.75	19	6	58.24	-20	58	13.11	33.98859	11.4
ene	18	2457405.75	19	7	6.98	-20	58	4.09	33.98583	11.3
ene	19	2457406.75	19	7	15.70	-20	57	55.03	33.98278	11.2
ene	20	2457407.75	19	7	24.39	-20	57	45.94	33.97945	11.2
ene	21	2457408.75	19	7	33.05	-20	57	36.84	33.97583	11.1
ene	22	2457409.75	19	7	41.68	-20	57	27.73	33.97193	11.1
ene	23	2457410.75	19	7	50.27	-20	57	18.61	33.96775	11.0
ene	24	2457411.75	19	7	58.83	-20	57	9.50	33.96329	10.9
ene	25	2457412.75	19	8	7.34	-20	57	0.38	33.95856	10.9
ene	26	2457413.75	19	8	15.82	-20	56	51.26	33.95354	10.8
ene	27	2457414.75	19	8	24.24	-20	56	42.13	33.94825	10.7
ene	28	2457415.75	19	8	32.63	-20	56	32.99	33.94269	10.7
ene	29	2457416.75	19	8	40.96	-20	56	23.84	33.93685	10.6
ene	30	2457417.75	19	8	49.25	-20	56	14.70	33.93075	10.6
ene	31	2457418.75	19	8	57.49	-20	56	5.55	33.92438	10.5
feb	1	2457419.75	19	9	5.69	-20	55	56.41	33.91773	10.4
feb	2	2457420.75	19	9	13.83	-20	55	47.28	33.91083	10.4
feb	3	2457421.75	19	9	21.91	-20	55	38.18	33.90366	10.3
feb	4	2457422.75	19	9	29.94	-20	55	29.12	33.89623	10.2
feb	5	2457423.75	19	9	37.92	-20	55	20.10	33.88854	10.2
feb	6	2457424.75	19	9	45.83	-20	55	11.13	33.88059	10.1
feb	7	2457425.75	19	9	53.68	-20	55	2.23	33.87239	10.0
feb	8	2457426.75	19	10	1.46	-20	54	53.38	33.86394	10.0
feb	9	2457427.75	19	10	9.17	-20	54	44.60	33.85524	9.9
feb	10	2457428.75	19	10	16.81	-20	54	35.87	33.84630	9.9
feb	11	2457429.75	19	10	24.37	-20	54	27.19	33.83711	9.8
feb	12	2457430.75	19	10	31.86	-20	54	18.55	33.82768	9.7
feb	13	2457431.75	19	10	39.28	-20	54	9.96	33.81802	9.7
feb	14	2457432.75	19	10	46.62	-20	54	1.43	33.80812	9.6
feb	15	2457433.75	19	10	53.89	-20	53	52.97	33.79800	9.5

Plutón (planeta enano), 2016

Efemérides a las 0^h del meridiano 90° W.G.

mes	día	dj	h	α m	s	°	δ `	“	dis UA	hp h
feb	16	2457434.75	19	11	1.08	-20	53	44.58	33.78765	9.5
feb	17	2457435.75	19	11	8.19	-20	53	36.29	33.77708	9.4
feb	18	2457436.75	19	11	15.22	-20	53	28.11	33.76629	9.3
feb	19	2457437.75	19	11	22.16	-20	53	20.03	33.75529	9.3
feb	20	2457438.75	19	11	29.02	-20	53	12.07	33.74407	9.2
feb	21	2457439.75	19	11	35.78	-20	53	4.21	33.73265	9.2
feb	22	2457440.75	19	11	42.46	-20	52	56.46	33.72102	9.1
feb	23	2457441.75	19	11	49.04	-20	52	48.82	33.70919	9.0
feb	24	2457442.75	19	11	55.53	-20	52	41.28	33.69716	9.0
feb	25	2457443.75	19	12	1.92	-20	52	33.84	33.68494	8.9
feb	26	2457444.75	19	12	8.23	-20	52	26.51	33.67253	8.8
feb	27	2457445.75	19	12	14.43	-20	52	19.29	33.65993	8.8
feb	28	2457446.75	19	12	20.54	-20	52	12.19	33.64715	8.7
feb	29	2457447.75	19	12	26.56	-20	52	5.21	33.63419	8.6
mar	1	2457448.75	19	12	32.48	-20	51	58.37	33.62105	8.6
mar	2	2457449.75	19	12	38.29	-20	51	51.66	33.60774	8.5
mar	3	2457450.75	19	12	44.01	-20	51	45.11	33.59426	8.4
mar	4	2457451.75	19	12	49.63	-20	51	38.71	33.58062	8.4
mar	5	2457452.75	19	12	55.13	-20	51	32.48	33.56682	8.3
mar	6	2457453.75	19	13	0.53	-20	51	26.42	33.55286	8.3
mar	7	2457454.75	19	13	5.82	-20	51	20.53	33.53874	8.2
mar	8	2457455.75	19	13	11.00	-20	51	14.80	33.52448	8.1
mar	9	2457456.75	19	13	16.06	-20	51	9.23	33.51008	8.1
mar	10	2457457.75	19	13	21.01	-20	51	3.80	33.49554	8.0
mar	11	2457458.75	19	13	25.85	-20	50	58.53	33.48087	7.9
mar	12	2457459.75	19	13	30.57	-20	50	53.41	33.46607	7.9
mar	13	2457460.75	19	13	35.19	-20	50	48.46	33.45114	7.8
mar	14	2457461.75	19	13	39.69	-20	50	43.68	33.43610	7.7
mar	15	2457462.75	19	13	44.07	-20	50	39.10	33.42094	7.7
mar	16	2457463.75	19	13	48.34	-20	50	34.71	33.40568	7.6
mar	17	2457464.75	19	13	52.49	-20	50	30.53	33.39031	7.5
mar	18	2457465.75	19	13	56.52	-20	50	26.56	33.37485	7.5
mar	19	2457466.75	19	14	0.43	-20	50	22.79	33.35928	7.4
mar	20	2457467.75	19	14	4.21	-20	50	19.22	33.34363	7.4
mar	21	2457468.75	19	14	7.87	-20	50	15.85	33.32790	7.3
mar	22	2457469.75	19	14	11.41	-20	50	12.68	33.31208	7.2
mar	23	2457470.75	19	14	14.83	-20	50	9.70	33.29619	7.2
mar	24	2457471.75	19	14	18.12	-20	50	6.92	33.28022	7.1
mar	25	2457472.75	19	14	21.29	-20	50	4.33	33.26419	7.0
mar	26	2457473.75	19	14	24.33	-20	50	1.94	33.24810	7.0
mar	27	2457474.75	19	14	27.26	-20	49	59.75	33.23195	6.9
mar	28	2457475.75	19	14	30.06	-20	49	57.78	33.21574	6.8
mar	29	2457476.75	19	14	32.74	-20	49	56.03	33.19949	6.8
mar	30	2457477.75	19	14	35.29	-20	49	54.50	33.18319	6.7
mar	31	2457478.75	19	14	37.72	-20	49	53.21	33.16686	6.6
abr	1	2457479.75	19	14	40.02	-20	49	52.15	33.15049	6.6

Plutón (planeta enano), 2016

Efemérides a las 0^h del meridiano 90º W.G.

mes	día	dj	h	α m	s	°	δ `	“	dis UA	hp h
abr	2	2457480.75	19	14	42.19	-20	49	51.34	33.13409	6.5
abr	3	2457481.75	19	14	44.23	-20	49	50.77	33.11766	6.4
abr	4	2457482.75	19	14	46.14	-20	49	50.43	33.10122	6.4
abr	5	2457483.75	19	14	47.92	-20	49	50.32	33.08476	6.3
abr	6	2457484.75	19	14	49.57	-20	49	50.43	33.06830	6.2
abr	7	2457485.75	19	14	51.09	-20	49	50.76	33.05183	6.2
abr	8	2457486.75	19	14	52.48	-20	49	51.30	33.03536	6.1
abr	9	2457487.75	19	14	53.74	-20	49	52.06	33.01890	6.1
abr	10	2457488.75	19	14	54.88	-20	49	53.05	33.00245	6.0
abr	11	2457489.75	19	14	55.89	-20	49	54.28	32.98602	5.9
abr	12	2457490.75	19	14	56.77	-20	49	55.77	32.96962	5.9
abr	13	2457491.75	19	14	57.52	-20	49	57.51	32.95324	5.8
abr	14	2457492.75	19	14	58.15	-20	49	59.51	32.93690	5.7
abr	15	2457493.75	19	14	58.64	-20	50	1.76	32.92059	5.7
abr	16	2457494.75	19	14	59.00	-20	50	4.27	32.90433	5.6
abr	17	2457495.75	19	14	59.23	-20	50	7.01	32.88812	5.5
abr	18	2457496.75	19	14	59.33	-20	50	9.99	32.87196	5.5
abr	19	2457497.75	19	14	59.30	-20	50	13.21	32.85585	5.4
abr	20	2457498.75	19	14	59.15	-20	50	16.65	32.83981	5.3
abr	21	2457499.75	19	14	58.87	-20	50	20.33	32.82384	5.3
abr	22	2457500.75	19	14	58.46	-20	50	24.23	32.80793	5.2
abr	23	2457501.75	19	14	57.93	-20	50	28.37	32.79210	5.1
abr	24	2457502.75	19	14	57.28	-20	50	32.75	32.77636	5.1
abr	25	2457503.75	19	14	56.51	-20	50	37.36	32.76069	5.0
abr	26	2457504.75	19	14	55.61	-20	50	42.23	32.74512	4.9
abr	27	2457505.75	19	14	54.59	-20	50	47.35	32.72963	4.9
abr	28	2457506.75	19	14	53.45	-20	50	52.72	32.71425	4.8
abr	29	2457507.75	19	14	52.18	-20	50	58.35	32.69897	4.7
abr	30	2457508.75	19	14	50.79	-20	51	4.23	32.68380	4.7
may	1	2457509.75	19	14	49.28	-20	51	10.36	32.66873	4.6
may	2	2457510.75	19	14	47.64	-20	51	16.73	32.65379	4.5
may	3	2457511.75	19	14	45.88	-20	51	23.33	32.63896	4.5
may	4	2457512.75	19	14	44.00	-20	51	30.15	32.62427	4.4
may	5	2457513.75	19	14	42.01	-20	51	37.18	32.60970	4.3
may	6	2457514.75	19	14	39.89	-20	51	44.43	32.59527	4.3
may	7	2457515.75	19	14	37.67	-20	51	51.90	32.58098	4.2
may	8	2457516.75	19	14	35.33	-20	51	59.60	32.56684	4.1
may	9	2457517.75	19	14	32.88	-20	52	7.54	32.55284	4.1
may	10	2457518.75	19	14	30.31	-20	52	15.73	32.53900	4.0
may	11	2457519.75	19	14	27.64	-20	52	24.17	32.52532	3.9
may	12	2457520.75	19	14	24.85	-20	52	32.84	32.51181	3.9
may	13	2457521.75	19	14	21.95	-20	52	41.75	32.49846	3.8
may	14	2457522.75	19	14	18.93	-20	52	50.88	32.48528	3.7
may	15	2457523.75	19	14	15.81	-20	53	0.22	32.47228	3.7
may	16	2457524.75	19	14	12.58	-20	53	9.78	32.45945	3.6
may	17	2457525.75	19	14	9.25	-20	53	19.53	32.44681	3.5

Plutón (planeta enano), 2016

Efemérides a las 0^h del meridiano 90° W.G.

mes	día	dj	h	α m	s	°	δ `	“	dis UA	hp h
may	18	2457526.75	19	14	5.82	-20	53	29.49	32.43435	3.5
may	19	2457527.75	19	14	2.28	-20	53	39.64	32.42209	3.4
may	20	2457528.75	19	13	58.65	-20	53	49.99	32.41001	3.3
may	21	2457529.75	19	13	54.92	-20	54	0.54	32.39813	3.3
may	22	2457530.75	19	13	51.10	-20	54	11.29	32.38645	3.2
may	23	2457531.75	19	13	47.18	-20	54	22.24	32.37498	3.1
may	24	2457532.75	19	13	43.17	-20	54	33.40	32.36371	3.1
may	25	2457533.75	19	13	39.07	-20	54	44.77	32.35264	3.0
may	26	2457534.75	19	13	34.87	-20	54	56.35	32.34180	2.9
may	27	2457535.75	19	13	30.59	-20	55	8.13	32.33116	2.9
may	28	2457536.75	19	13	26.21	-20	55	20.11	32.32075	2.8
may	29	2457537.75	19	13	21.75	-20	55	32.27	32.31056	2.7
may	30	2457538.75	19	13	17.20	-20	55	44.62	32.30060	2.7
may	31	2457539.75	19	13	12.56	-20	55	57.12	32.29086	2.6
jun	1	2457540.75	19	13	7.84	-20	56	9.79	32.28136	2.5
jun	2	2457541.75	19	13	3.05	-20	56	22.60	32.27210	2.5
jun	3	2457542.75	19	12	58.17	-20	56	35.57	32.26307	2.4
jun	4	2457543.75	19	12	53.23	-20	56	48.70	32.25429	2.3
jun	5	2457544.75	19	12	48.21	-20	57	1.99	32.24576	2.3
jun	6	2457545.75	19	12	43.13	-20	57	15.46	32.23747	2.2
jun	7	2457546.75	19	12	37.97	-20	57	29.10	32.22943	2.1
jun	8	2457547.75	19	12	32.74	-20	57	42.91	32.22165	2.1
jun	9	2457548.75	19	12	27.45	-20	57	56.88	32.21413	2.0
jun	10	2457549.75	19	12	22.09	-20	58	11.00	32.20687	1.9
jun	11	2457550.75	19	12	16.66	-20	58	25.26	32.19986	1.9
jun	12	2457551.75	19	12	11.17	-20	58	39.64	32.19312	1.8
jun	13	2457552.75	19	12	5.63	-20	58	54.15	32.18664	1.7
jun	14	2457553.75	19	12	0.03	-20	59	8.77	32.18044	1.7
jun	15	2457554.75	19	11	54.38	-20	59	23.51	32.17449	1.6
jun	16	2457555.75	19	11	48.67	-20	59	38.35	32.16882	1.5
jun	17	2457556.75	19	11	42.93	-20	59	53.31	32.16342	1.5
jun	18	2457557.75	19	11	37.13	-21	0	8.37	32.15830	1.4
jun	19	2457558.75	19	11	31.30	-21	0	23.55	32.15345	1.3
jun	20	2457559.75	19	11	25.42	-21	0	38.84	32.14887	1.3
jun	21	2457560.75	19	11	19.51	-21	0	54.25	32.14457	1.2
jun	22	2457561.75	19	11	13.55	-21	1	9.76	32.14055	1.1
jun	23	2457562.75	19	11	7.56	-21	1	25.39	32.13681	1.1
jun	24	2457563.75	19	11	1.53	-21	1	41.12	32.13335	1.0
jun	25	2457564.75	19	10	55.47	-21	1	56.94	32.13017	0.9
jun	26	2457565.75	19	10	49.37	-21	2	12.84	32.12728	0.9
jun	27	2457566.75	19	10	43.24	-21	2	28.81	32.12467	0.8
jun	28	2457567.75	19	10	37.09	-21	2	44.83	32.12235	0.7
jun	29	2457568.75	19	10	30.92	-21	3	0.91	32.12031	0.7
jun	30	2457569.75	19	10	24.72	-21	3	17.03	32.11857	0.6
jul	1	2457570.75	19	10	18.52	-21	3	33.21	32.11712	0.5
jul	2	2457571.75	19	10	12.29	-21	3	49.45	32.11595	0.5

Plutón (planeta enano), 2016

Efemérides a las 0^h del meridiano 90º W.G.

mes	día	dj	h	α m	s	°	δ `	“	dis UA	hp h
jul	3	2457572.75	19	10	6.06	-21	4	5.75	32.11508	0.4
jul	4	2457573.75	19	9	59.82	-21	4	22.11	32.11450	0.3
jul	5	2457574.75	19	9	53.56	-21	4	38.55	32.11422	0.3
jul	6	2457575.75	19	9	47.30	-21	4	55.04	32.11422	0.2
jul	7	2457576.75	19	9	41.03	-21	5	11.57	32.11452	0.1
jul	8	2457577.75	19	9	34.76	-21	5	28.14	32.11512	0.1
jul	9	2457578.75	19	9	28.48	-21	5	44.73	32.11601	24.0
jul	10	2457579.75	19	9	22.21	-21	6	1.33	32.11719	23.9
jul	11	2457580.75	19	9	15.94	-21	6	17.94	32.11866	23.8
jul	12	2457581.75	19	9	9.68	-21	6	34.55	32.12042	23.8
jul	13	2457582.75	19	9	3.43	-21	6	51.17	32.12248	23.7
jul	14	2457583.75	19	8	57.20	-21	7	7.78	32.12482	23.6
jul	15	2457584.75	19	8	50.99	-21	7	24.39	32.12746	23.6
jul	16	2457585.75	19	8	44.79	-21	7	41.00	32.13038	23.5
jul	17	2457586.75	19	8	38.62	-21	7	57.62	32.13359	23.4
jul	18	2457587.75	19	8	32.47	-21	8	14.24	32.13709	23.4
jul	19	2457588.75	19	8	26.34	-21	8	30.86	32.14087	23.3
jul	20	2457589.75	19	8	20.24	-21	8	47.48	32.14494	23.2
jul	21	2457590.75	19	8	14.16	-21	9	4.09	32.14930	23.2
jul	22	2457591.75	19	8	8.11	-21	9	20.69	32.15393	23.1
jul	23	2457592.75	19	8	2.09	-21	9	37.27	32.15885	23.0
jul	24	2457593.75	19	7	56.11	-21	9	53.80	32.16405	23.0
jul	25	2457594.75	19	7	50.16	-21	10	10.28	32.16953	22.9
jul	26	2457595.75	19	7	44.25	-21	10	26.70	32.17529	22.8
jul	27	2457596.75	19	7	38.38	-21	10	43.07	32.18133	22.8
jul	28	2457597.75	19	7	32.56	-21	10	59.37	32.18764	22.7
jul	29	2457598.75	19	7	26.78	-21	11	15.63	32.19423	22.6
jul	30	2457599.75	19	7	21.06	-21	11	31.84	32.20110	22.6
jul	31	2457600.75	19	7	15.39	-21	11	48.01	32.20824	22.5
ago	1	2457601.75	19	7	9.77	-21	12	4.13	32.21564	22.4
ago	2	2457602.75	19	7	4.21	-21	12	20.21	32.22332	22.4
ago	3	2457603.75	19	6	58.70	-21	12	36.23	32.23127	22.3
ago	4	2457604.75	19	6	53.24	-21	12	52.18	32.23947	22.2
ago	5	2457605.75	19	6	47.85	-21	13	8.06	32.24795	22.2
ago	6	2457606.75	19	6	42.51	-21	13	23.84	32.25668	22.1
ago	7	2457607.75	19	6	37.24	-21	13	39.53	32.26566	22.0
ago	8	2457608.75	19	6	32.04	-21	13	55.12	32.27491	22.0
ago	9	2457609.75	19	6	26.91	-21	14	10.61	32.28440	21.9
ago	10	2457610.75	19	6	21.86	-21	14	26.00	32.29414	21.8
ago	11	2457611.75	19	6	16.88	-21	14	41.29	32.30413	21.8
ago	12	2457612.75	19	6	11.98	-21	14	56.47	32.31436	21.7
ago	13	2457613.75	19	6	7.15	-21	15	11.56	32.32482	21.6
ago	14	2457614.75	19	6	2.41	-21	15	26.56	32.33553	21.6
ago	15	2457615.75	19	5	57.75	-21	15	41.46	32.34647	21.5
ago	16	2457616.75	19	5	53.17	-21	15	56.26	32.35764	21.4
ago	17	2457617.75	19	5	48.67	-21	16	10.96	32.36903	21.4

Plutón (planeta enano), 2016

Efemérides a las 0^h del meridiano 90° W.G.

mes	día	dj	h	α m	s	°	δ `	“	dis UA	hp h
ago	18	2457618.75	19	5	44.26	-21	16	25.56	32.38065	21.3
ago	19	2457619.75	19	5	39.93	-21	16	40.04	32.39250	21.2
ago	20	2457620.75	19	5	35.68	-21	16	54.40	32.40455	21.2
ago	21	2457621.75	19	5	31.53	-21	17	8.61	32.41683	21.1
ago	22	2457622.75	19	5	27.47	-21	17	22.67	32.42932	21.0
ago	23	2457623.75	19	5	23.50	-21	17	36.58	32.44201	21.0
ago	24	2457624.75	19	5	19.63	-21	17	50.35	32.45492	20.9
ago	25	2457625.75	19	5	15.86	-21	18	3.98	32.46802	20.8
ago	26	2457626.75	19	5	12.19	-21	18	17.48	32.48133	20.8
ago	27	2457627.75	19	5	8.62	-21	18	30.84	32.49483	20.7
ago	28	2457628.75	19	5	5.16	-21	18	44.08	32.50852	20.6
ago	29	2457629.75	19	5	1.80	-21	18	57.19	32.52240	20.6
ago	30	2457630.75	19	4	58.53	-21	19	10.17	32.53647	20.5
ago	31	2457631.75	19	4	55.38	-21	19	23.00	32.55072	20.4
sep	1	2457632.75	19	4	52.32	-21	19	35.67	32.56514	20.4
sep	2	2457633.75	19	4	49.38	-21	19	48.17	32.57974	20.3
sep	3	2457634.75	19	4	46.54	-21	20	0.51	32.59450	20.2
sep	4	2457635.75	19	4	43.81	-21	20	12.67	32.60943	20.2
sep	5	2457636.75	19	4	41.20	-21	20	24.66	32.62452	20.1
sep	6	2457637.75	19	4	38.70	-21	20	36.47	32.63976	20.0
sep	7	2457638.75	19	4	36.32	-21	20	48.10	32.65515	20.0
sep	8	2457639.75	19	4	34.06	-21	20	59.56	32.67069	19.9
sep	9	2457640.75	19	4	31.92	-21	21	10.86	32.68637	19.8
sep	10	2457641.75	19	4	29.90	-21	21	21.99	32.70218	19.8
sep	11	2457642.75	19	4	27.99	-21	21	32.95	32.71813	19.7
sep	12	2457643.75	19	4	26.21	-21	21	43.75	32.73420	19.6
sep	13	2457644.75	19	4	24.55	-21	21	54.39	32.75039	19.6
sep	14	2457645.75	19	4	23.00	-21	22	4.86	32.76670	19.5
sep	15	2457646.75	19	4	21.57	-21	22	15.16	32.78313	19.4
sep	16	2457647.75	19	4	20.26	-21	22	25.26	32.79967	19.4
sep	17	2457648.75	19	4	19.08	-21	22	35.17	32.81631	19.3
sep	18	2457649.75	19	4	18.01	-21	22	44.87	32.83305	19.2
sep	19	2457650.75	19	4	17.07	-21	22	54.37	32.84988	19.2
sep	20	2457651.75	19	4	16.26	-21	23	3.65	32.86681	19.1
sep	21	2457652.75	19	4	15.58	-21	23	12.74	32.88383	19.0
sep	22	2457653.75	19	4	15.02	-21	23	21.64	32.90093	19.0
sep	23	2457654.75	19	4	14.59	-21	23	30.35	32.91810	18.9
sep	24	2457655.75	19	4	14.30	-21	23	38.89	32.93536	18.8
sep	25	2457656.75	19	4	14.12	-21	23	47.25	32.95268	18.8
sep	26	2457657.75	19	4	14.08	-21	23	55.42	32.97006	18.7
sep	27	2457658.75	19	4	14.15	-21	24	3.40	32.98751	18.6
sep	28	2457659.75	19	4	14.36	-21	24	11.18	33.00501	18.6
sep	29	2457660.75	19	4	14.69	-21	24	18.75	33.02256	18.5
sep	30	2457661.75	19	4	15.15	-21	24	26.11	33.04015	18.4
oct	1	2457662.75	19	4	15.75	-21	24	33.25	33.05778	18.4
oct	2	2457663.75	19	4	16.47	-21	24	40.17	33.07544	18.3

Plutón (planeta enano), 2016

Efemérides a las 0^h del meridiano 90º W.G.

mes	día	dj	h	α m	s	°	δ `	“	dis UA	hp h
oct	3	2457664.75	19	4	17.32	-21	24	46.87	33.09313	18.2
oct	4	2457665.75	19	4	18.31	-21	24	53.36	33.11084	18.2
oct	5	2457666.75	19	4	19.43	-21	24	59.63	33.12857	18.1
oct	6	2457667.75	19	4	20.68	-21	25	5.70	33.14631	18.1
oct	7	2457668.75	19	4	22.06	-21	25	11.56	33.16406	18.0
oct	8	2457669.75	19	4	23.57	-21	25	17.22	33.18181	17.9
oct	9	2457670.75	19	4	25.22	-21	25	22.69	33.19956	17.9
oct	10	2457671.75	19	4	26.99	-21	25	27.96	33.21730	17.8
oct	11	2457672.75	19	4	28.89	-21	25	33.03	33.23502	17.7
oct	12	2457673.75	19	4	30.91	-21	25	37.90	33.25273	17.7
oct	13	2457674.75	19	4	33.07	-21	25	42.55	33.27041	17.6
oct	14	2457675.75	19	4	35.34	-21	25	46.99	33.28806	17.5
oct	15	2457676.75	19	4	37.75	-21	25	51.19	33.30569	17.5
oct	16	2457677.75	19	4	40.28	-21	25	55.16	33.32327	17.4
oct	17	2457678.75	19	4	42.94	-21	25	58.89	33.34081	17.3
oct	18	2457679.75	19	4	45.72	-21	26	2.40	33.35831	17.3
oct	19	2457680.75	19	4	48.64	-21	26	5.69	33.37575	17.2
oct	20	2457681.75	19	4	51.69	-21	26	8.78	33.39314	17.1
oct	21	2457682.75	19	4	54.86	-21	26	11.67	33.41047	17.1
oct	22	2457683.75	19	4	58.16	-21	26	14.37	33.42774	17.0
oct	23	2457684.75	19	5	1.57	-21	26	16.87	33.44493	16.9
oct	24	2457685.75	19	5	5.11	-21	26	19.16	33.46205	16.9
oct	25	2457686.75	19	5	8.77	-21	26	21.23	33.47909	16.8
oct	26	2457687.75	19	5	12.55	-21	26	23.09	33.49604	16.8
oct	27	2457688.75	19	5	16.44	-21	26	24.72	33.51291	16.7
oct	28	2457689.75	19	5	20.46	-21	26	26.13	33.52968	16.6
oct	29	2457690.75	19	5	24.60	-21	26	27.30	33.54635	16.6
oct	30	2457691.75	19	5	28.86	-21	26	28.25	33.56291	16.5
oct	31	2457692.75	19	5	33.23	-21	26	28.98	33.57936	16.4
nov	1	2457693.75	19	5	37.73	-21	26	29.49	33.59570	16.4
nov	2	2457694.75	19	5	42.35	-21	26	29.79	33.61192	16.3
nov	3	2457695.75	19	5	47.08	-21	26	29.88	33.62801	16.2
nov	4	2457696.75	19	5	51.93	-21	26	29.76	33.64397	16.2
nov	5	2457697.75	19	5	56.89	-21	26	29.45	33.65980	16.1
nov	6	2457698.75	19	6	1.96	-21	26	28.94	33.67549	16.0
nov	7	2457699.75	19	6	7.14	-21	26	28.24	33.69103	16.0
nov	8	2457700.75	19	6	12.43	-21	26	27.34	33.70643	15.9
nov	9	2457701.75	19	6	17.82	-21	26	26.23	33.72168	15.8
nov	10	2457702.75	19	6	23.32	-21	26	24.92	33.73677	15.8
nov	11	2457703.75	19	6	28.92	-21	26	23.39	33.75170	15.7
nov	12	2457704.75	19	6	34.62	-21	26	21.63	33.76646	15.7
nov	13	2457705.75	19	6	40.43	-21	26	19.64	33.78106	15.6
nov	14	2457706.75	19	6	46.34	-21	26	17.44	33.79549	15.5
nov	15	2457707.75	19	6	52.35	-21	26	15.03	33.80974	15.5
nov	16	2457708.75	19	6	58.47	-21	26	12.42	33.82382	15.4
nov	17	2457709.75	19	7	4.69	-21	26	9.64	33.83771	15.3

Plutón (planeta enano), 2016

Efemérides a las 0^h del meridiano 90° W.G.

mes	día	dj	h	α m	s	°	δ `	“	dis UA	hp h
nov	18	2457710.75	19	7	11.00	-21	26	6.68	33.85142	15.3
nov	19	2457711.75	19	7	17.40	-21	26	3.54	33.86493	15.2
nov	20	2457712.75	19	7	23.89	-21	26	0.21	33.87826	15.1
nov	21	2457713.75	19	7	30.47	-21	25	56.70	33.89138	15.1
nov	22	2457714.75	19	7	37.14	-21	25	52.99	33.90431	15.0
nov	23	2457715.75	19	7	43.90	-21	25	49.09	33.91702	15.0
nov	24	2457716.75	19	7	50.74	-21	25	44.98	33.92953	14.9
nov	25	2457717.75	19	7	57.67	-21	25	40.67	33.94183	14.8
nov	26	2457718.75	19	8	4.69	-21	25	36.16	33.95391	14.8
nov	27	2457719.75	19	8	11.78	-21	25	31.46	33.96577	14.7
nov	28	2457720.75	19	8	18.96	-21	25	26.57	33.97740	14.6
nov	29	2457721.75	19	8	26.23	-21	25	21.50	33.98881	14.6
nov	30	2457722.75	19	8	33.57	-21	25	16.25	33.99998	14.5
dic	1	2457723.75	19	8	40.99	-21	25	10.84	34.01092	14.4
dic	2	2457724.75	19	8	48.48	-21	25	5.27	34.02162	14.4
dic	3	2457725.75	19	8	56.04	-21	24	59.53	34.03209	14.3
dic	4	2457726.75	19	9	3.68	-21	24	53.65	34.04230	14.3
dic	5	2457727.75	19	9	11.37	-21	24	47.60	34.05228	14.2
dic	6	2457728.75	19	9	19.14	-21	24	41.40	34.06200	14.1
dic	7	2457729.75	19	9	26.96	-21	24	35.04	34.07147	14.1
dic	8	2457730.75	19	9	34.84	-21	24	28.50	34.08069	14.0
dic	9	2457731.75	19	9	42.78	-21	24	21.80	34.08965	13.9
dic	10	2457732.75	19	9	50.79	-21	24	14.91	34.09835	13.9
dic	11	2457733.75	19	9	58.84	-21	24	7.86	34.10679	13.8
dic	12	2457734.75	19	10	6.96	-21	24	0.64	34.11497	13.7
dic	13	2457735.75	19	10	15.14	-21	23	53.28	34.12289	13.7
dic	14	2457736.75	19	10	23.36	-21	23	45.78	34.13054	13.6
dic	15	2457737.75	19	10	31.64	-21	23	38.17	34.13792	13.6
dic	16	2457738.75	19	10	39.96	-21	23	30.43	34.14504	13.5
dic	17	2457739.75	19	10	48.33	-21	23	22.58	34.15188	13.4
dic	18	2457740.75	19	10	56.73	-21	23	14.60	34.15845	13.4
dic	19	2457741.75	19	11	5.17	-21	23	6.50	34.16474	13.3
dic	20	2457742.75	19	11	13.65	-21	22	58.25	34.17076	13.2
dic	21	2457743.75	19	11	22.17	-21	22	49.88	34.17650	13.2
dic	22	2457744.75	19	11	30.72	-21	22	41.36	34.18195	13.1
dic	23	2457745.75	19	11	39.30	-21	22	32.72	34.18713	13.0
dic	24	2457746.75	19	11	47.92	-21	22	23.95	34.19202	13.0
dic	25	2457747.75	19	11	56.57	-21	22	15.06	34.19662	12.9
dic	26	2457748.75	19	12	5.25	-21	22	6.05	34.20093	12.9
dic	27	2457749.75	19	12	13.96	-21	21	56.95	34.20496	12.8
dic	28	2457750.75	19	12	22.69	-21	21	47.75	34.20870	12.7
dic	29	2457751.75	19	12	31.44	-21	21	38.46	34.21214	12.7
dic	30	2457752.75	19	12	40.21	-21	21	29.10	34.21530	12.6
dic	31	2457753.75	19	12	49.00	-21	21	19.65	34.21816	12.5

Satélite de los planetas, 2016

Planeta		Satélite	Periodo orbital (días)	Semi eje mayor (10^3 km)	Excentri-cidad de la órbita	Inclinación de la orbita	Masa (kg)	Radio (km)	Albedo
Tie	1	Luna	27.321661	384.4	0.054900489	18.2-28.58 p	7.34571E+22	1737.4	0.11
									0.07
Mar	1	Fobos	0.31891011	9.376	0.0151	1.075 p	1.07291E+16	7.807094138 i	0.07
Mar	2	Deimos	1.2624408	23.458	0.0002	1.788 p	1.55931E+15	10.34921826 i	
Júp	1	Io	1.769137761	421.8	0.0041	0.036 p	8.92866E+22	1821.350302 i	0.62
Júp	2	Europa	3.551181055	671.1	0.0094	0.466 p	4.7984E+22	1562.001281 i	0.68
Júp	3	Ganímedes	7.15455325	1070.4	0.0013	0.177 p	1.48147E+23	2632.3	0.44
Júp	4	Calixto	16.889017	1882.7	0.0074	0.192 p	1.07565E+23	2409.3	0.19
Júp	5	Amaltea	0.49817908	181.4	0.0032	0.38 p	2.08791E+18	92.08992321 i	0.09
Júp	6	Himalia	250.56	11461	0.1623	27.496 p	4.17582E+18	85	0.04
Júp	7	Elara	259.64	11471	0.2174	26.627 p	8.6933E+17	40	0.04
Júp	8	Pasifae	743.63	23624	0.409	151.431 p	2.999E+17	18	0.04
Júp	9	Sínope	758.9	23939	0.2495	158.109 p	7.4975E+16	14	0.04
Júp	10	Lisistea	259.2	11717	0.1124	28.302 p	6.28271E+16	12	0.04
Júp	11	Carmé	734.14	23404	0.2533	164.907 p	1.31728E+17	15	0.04
Júp	12	Ananque	629.77	21276	0.2435	148.889 p	2.999E+16	10	0.04
Júp	13	Leda	240.92	11165	0.1636	27.457 p	1.09331E+16	5	0.04
Júp	14	Tebe	0.675	221.9	0.0176	1.08 p	1.4976E+18	50.52117096 i	0.05
Júp	15	Adrastea	0.298	129	0.0018	0.054 p	7.4975E+15	8.519371429 i	0.1
Júp	16	Metis	0.295	128	0.0012	0.019 p	1.1977E+17	23.6954179 i	0.06
Júp	17	Calie	736	24596.24	0.206	143 e		4.3	0.04
Júp	18	Temixto	130	7450	0.2	46 e		4	0.04
Júp	19	Megaclito	734.1	23439.08	0.5277	151.7 e		2.7	0.04
Júp	20	Taiguet	650.1	21671.85	0.246	163.545 e		2.5	0.04
Júp	21	Caldena	591.7	20299.46	0.1553	165.62 e		1.9	0.04
Júp	22	Harpalika	617.3	20917.72	0.2003	149.288 e		2.2	0.04
Júp	23	Kalica	767 r	24135.61	0.3177	165.792 e		2.6	0.04
Júp	24	Iocasta	606.3 r	20642.86	0.2686	149.906 e		2.6	0.04
Júp	25	Erinoma	661.1 r	21867.75	0.3465	160.909 e		1.6	0.04
Júp	26	Isunoa	704.9 r	22804.7	0.2809	165.039 e		1.9	0.04
Júp	27	Praxiodica	624.6 r	21098.1	0.1458	146.353 e		3.4	0.04
Júp	28	Autonoa	778 r	24413.09	0.4586	153.056 e		2	0.04
Júp	29	Tiona	610 r	20769.9	0.2883	148.286 e		2	0.04
Júp	30	Hermipe	624.6 r	21047.99	0.2479	149.785 e		2	0.04
Júp	31	Gitna	679.3 r	22274.41	0.3112	164.343 e		1.5	0.04
Júp	32	Euridome	752.4 r	23830.94	0.3255	150.43 e		1.5	0.04
Júp	33	Euanda	620.9 r	20983.14	0.1427	146.03 e		1.5	0.04
Júp	36	Esponda	690.3 r	22548.24	0.5189	155.22 e		1	0.04
Júp	37	Kala	679.4 r	22300.64	0.325	164.794 e		1	0.04
Júp	39	Egémona	715 r	23006.33	0.2494	152.33 e		1.5	0.04
Júp	41	Oda	747 r	23743.83	0.4051	159.408 e		2	0.04
Júp	43	Arca	748.7 r	23765.12	0.2237	163.254 e		1.5	0.04
Júp	45	Élica	601.4 r	20540.27	0.1375	154.587 e		2	0.04
Júp	46	Carpo	455.07 r	17056.04	0.2949	55.147 e		1.5	0.04
Júp	47	Euquelade	735.27 r	23485.28	0.2828	164 e		2	0.04
Sat	1	Mimas	0.942421958	185.539	0.0196	1.574 p	3.75653E+19	198.6229347 i	0.6
Sat	2	Encélado	1.370218092	238.042	0	0.003 p	1.07979E+20	252.1465701 i	1
Sat	3	Tetis	1.887802533	294.672	0.0001	1.091 p	6.19458E+20	531.0529243 i	0.8
Sat	4	Dione	2.736915569	377.415	0.0022	0.0258 p	1.09684E+21	560.4477439 i	0.6
Sat	5	Rea	4.51750273	527.068	0.0002	0.333 p	2.30734E+21	763.5015808 i	0.6
Sat	6	Titán	15.9454484	1221.865	0.0288	0.306 p	1.34462E+23	2574.73	0.2
Sat	7	Hiperión	21.2766582	1500.933	0.0232	0.615 p	5.6831E+18	145.6926516 i	0.25
Sat	8	Iapetos	79.331122	3560.854	0.0293	8.298 p	1.80552E+21	734.8396725 i	0.2
Sat	9	Febe	546.414 r	12893.24	0.1756	173.73 e	8.26323E+18	106.6736648 i	0.08
Sat	10	Jano	0.695	151.46	0.0068	0.163 p	1.89702E+18	91.27574649 i	0.71
Sat	11	Epimeteo	0.694	151.41	0.0098	0.351 p	5.26426E+17	58.74793482 i	0.73
Sat	12	Elena	2.74	377.4	0	0.212 p	2.54603E+16	18.62521471 i	1.67

Satélite de los planetas, 2016

Planeta		Satélite	Periodo orbital (días)	Semi eje mayor (10^3 km)	Excentricidad de la órbita	Inclinación de la orbita	Masa (kg)	Radio (km)	Albedo
Sat	13	Telesto	1.888	294.66	0.001	1.158 p	7.18912E+15	13.24694222 i	1
Sat	14	Calipso	1.888	294.66	0.001	1.473 p	3.59456E+15	12.09403435 i	0.7
Sat	15	Atlas	0.602	137.67	0.0012	0.003 p	6.59808E+15	17.0484894 i	0.4
Sat	16	Prometeo	0.613	139.38	0.0022	0.008 p	1.59468E+17	51.10579083 i	0.6
Sat	17	Pandora	0.629	141.72	0.0042	0.05 p	1.37076E+17	43.07708815 i	0.5
Sat	18	Pan	0.575	133.585	0	0 p	4.94828E+15	14.97933203 i	0.5
Sat	19	Aimi	1315.13 r	23128	0.3338	173.496 p		10	0.08
Sat	20	Paalia	686.95	15204	0.3325	46.23 p		13	0.08
Sat	21	Tarrus	926.35	18243	0.5282	33.725 p		7	0.08
Sat	22	Ijia	451.42	11408	0.2721	47.483 p		6	0.08
Sat	24	Quivio	449.22	11384	0.3325	46.766 p		8	0.08
Sat	26	Alborer	783.46	16393	0.4797	34.059 p		16	0.08
Sat	29	Sarmac	895.51	18182	0.2801	45.809 p		21	0.08
Ura	1	Ariel	2.520379052	190.9	0.0012	0.041 p	1.35422E+21	578.9041945 i	0.39
Ura	2	Umbriel	4.14417646	266	0.0039	0.128 p	1.17192E+21	584.7	0.21
Ura	3	Titania	8.70586693	436.3	0.0011	0.079 p	3.52445E+21	788.9	0.27
Ura	4	Oberón	13.4632342	583.5	0.0014	0.068 p	3.01227E+21	761.4	0.23
Ura	5	Mianda	1.413479408	129.9	0.0013	4.338 p	6.94472E+20	235.8788644 i	0.32
Ura	7	Ofelia	0.376400393	53.8	0.0099	0.104 p	5.39084E+16	21.4	0.07
Ura	8	Bianca	0.434578986	59.2	0.0009	0.193 p	9.28856E+16	25.7	0.07
Ura	9	Crésida	0.463569601	61.8	0.0004	0.006 p	3.42896E+17	39.8	0.07
Ura	10	Desdémona	0.473649597	62.7	0.0001	0.113 p	1.77958E+17	32	0.07
Ura	11	Julieta	0.493065489	64.4	0.0007	0.065 p	5.57314E+17	46.8	0.07
Ura	12	Porcia	0.51319592	66.1	0.0001	0.059 p	1.66673E+18	67.6	0.07
Ura	13	Rosalinda	0.558459529	69.9	0.0001	0.279 p	2.5435E+17	36	0.07
Ura	14	Belinda	0.62352747	75.3	0.0001	0.031 p	3.56785E+17	40.3	0.07
Ura	15	Pucle	0.761832871	86	0.18	0.319 p	2.89074E+18	81	0.07
Ura	16	Calibán	579.73 r	7231	0.52	141.53 e	7.33536E+17	36	0.04
Ura	17	Sícorax	1288.33 r	12179		159.42 e	5.37348E+18	75	0.04
Nep	1	Tritón	5.87685407 r	354.759	0	156.865 p	2.13934E+22	1353	0.719
Nep	2	Nereida	360.13	5513.818	0.7507	7.09 p	3.08254E+19	170	0.155
Nep	5	Despina	0.33466	52.526	0.00014	0.07 p	2.09941E+18	74	0.09
Nep	6	Galatea	0.42875	61.953	0.00012	0.05 p	3.74821E+18	79	0.079
Nep	7	Larisa	0.55465	73.548	0.00139	0.2 p	4.9464E+18	96	0.091
Nep	8	Proteo	1.122	117.646	0.0005	0.075 p	5.03243E+19	209.2331441 i	0.096
Plu	1	Caronte	6.38723	19.571	0	96.145 t	1.51928E+21	606	0.372

r movimiento retrogrado
i forma irregular
p inclinación de la orbita relativa al ecuador del planeta
e inclinación de la orbita relativa a la eclíptica
t inclinación de la orbita relativa al ecuador terrestre

Parámetros orbitales y físicos, 2016

Parámetros de las órbitas de los planetas

(a las 0h del meridiano 90° W.G. del 16 de agosto del 2013)

Planetas	Distancia media al Sol. en UA	Revolución en años trópicos	Excentricidad	Inclinación °	‘	“	Aplanamiento geométrico ($x10^{-3}$)
Mercurio	0.387098	0.251	0.205645	07	00	15	0
Venus	0.723325	0.615	0.006784	03	23	41	0
Tierra	0.999996	1.000	0.016679				3.354
Marte	1.523759	1.881	0.093364	01	50	56	6.772
Júpiter	5.202438	11.862	0.048894	01	18	14	5.000
Saturno	9.525018	29.458	0.055785	02	29	15	64.874
Urano	19.218037	84.013	0.047952	00	46	20	97.462
Neptuno	29.984442	164.749	0.009925	01	46	9	22.927

Parámetros físicos de la Luna y los planetas

	radio	masa	densidad	período de rotación	semidiámetro mínimo
	km	kg	g/cm3	días	“
Luna	1737.4	7.3458×10^{22}	3.34	+ 27.32166	2010.7
Mercurio	2439.7	3.3010×10^{23}	5.43	+ 58.6462	12.3
Venus	6051.8	4.8673×10^{24}	5.24	- 243.0185	63.0
Tierra	6378.1	5.9721×10^{24}	5.513	+ 0.99726963	
Marte	3396.2	6.4169×10^{23}	3.93	+ 1.02595676	25.1
Júpiter	71492.0	1.8981×10^{27}	1.33	+ 0.41354	49.9
Saturno	60268.0	5.6831×10^{26}	0.69	+ 0.44401	20.7
Urano	25559.0	8.6890×10^{25}	1.27	- 0.71833	4.1
Neptuno	24764.0	1.0241×10^{26}	1.64	+ 0.67125	2.4
Plutón	1195.0	1.3041×10^{22}	1.82	- 6.3872	0.11

* Movimiento de rotación retrógrado

Sistema de constantes y parámetros, 2016

Unión Astronómica Internacional (IAU 1976)

Tiempos y épocas de referencia

Duración del año en 1990

Año	d	d	h	m	s
Trópico (equinoccio a equinoccio)	365.242190	365	05	48	45.19
Sideral (estrella fija a estrella fija)	365.256363	365	06	09	10
Anomalístico (perihelio a perihelio)	365.259636	365	06	13	53
Eclipsar (nodo lunar a nodo lunar)	346.620078	346	14	52	52
Juliano	365.25	365	06	00	00

Duración del mes

Sinódico (luna nueva a luna nueva)	29.53059	29	12	44	03
Trópico (equinoccio a equinoccio)	27.32158	27	07	43	05
Sideral (estrella fija a estrella fija)	27.32166	27	07	43	12
Anomalístico (perigeo a perigeo)	27.55455	27	13	18	33
Draconítico (nodo a nodo)	27.21222	27	05	36	

Duración del día

	Día sideral medio				segundos siderales
	d	h	m	s	s
Un día del tiempo solar medio	1.00273790935	24	03	56.555367	86636.555367

	Día solar medio				segundos solares
	d	h	m	s	s
Un día del tiempo sideral medio	0.99726956633	23	56	04.09054	86164.09054

Épocas de referencia para los años Juliano (J) y Beseliano (B)

Año Juliano	DJ
J1900.0	2415020.0
J1950.0	2433282.5
J2000.0	2451545.0
J2050.0	2469807.5
J2100.0	2488070.0
B1850.0	2396758.203
B1900.0	2415020.313
B1950.0	2433282.423
B1975.0	2442413.478
B2000.0	2451544.533
B2025.0	2460675.588
B2050.0	2469806.643
B2100.0	2488068.753
1900 enero 0.5	2415020.0
1925 enero 0.5	2424151.0
1950 enero 0.5	2433282.0
2000 enero 0.5	2451544.0
2050 enero 0.5	2469807.0
2100 enero 0.5	2488069.0

Sistema de constantes y parámetros, 2016

Unión Astronómica Internacional (IAU 1976)

Parámetros del Sol, la Tierra y la Luna

Sol	
Radio	$6.96x10^{8}$ m
Semidiámetro a la distancia media	15' 59.63",=959.63"
Masa	$1.9891x10^{33}$ g
Densidad media	1.41 g cm-3
Gravedad superficial	29,398 cm s-2
Inclinación del ecuador solar (respecto de la eclíptica)	7° 15'
Longitud del Nodo Ascendente (T en siglos desde J2000.0)	75° 46' + 84' T
Período sinódico de rotación (f: latitud en el Sol)	(26.90 + 5.2 sen2f) días
Período sideral de rotación(para longitudes heliográficas)	25.38 días
Apex	a = 18h 10' δ = +37°
Rapidez en el sistema local de reposo	1.94x104 m/s,(0.0112 au/d)

Tierra

Órbita	
Paralaje solar	8.794148"
Constante de Aberración (J2000)	20.49552"
Tiempo luz a 1 AU	499.004782 s
Unidad astronómica de longitud (AU)	$1.49597870x10^{11}$ m
Proporciones entre las masas:	
Sol/Tierra	332946.0
Sol/(Tierra más Luna)	328900.5
Tierra/Luna	0.0123002
Excentricidad media	0.016708617
Oblicuidad media de la Eclíptica	23° 26' 21.448"
Variación anual en rotación en la Eclíptica	0.4704"
Distancia media de la Tierra al Sol	1.0000010178 UA
Rapidez orbital media	29.7859 km/s
Aceleración centrípeta media	0.00594 m/s2

Período de rotación respecto a estrellas fijas:

En tiempo solar medio	24 h	0 m 0.0084 s
En tiempo sideral medio	23 h	56 m 4.0989 s
Variación de la rotación	15.04106717866910 " /s = 7.29211510x10-5 rad s-1	

Precesión ("/año)
(T dado en siglos desde J2000)

Precesión general en longitud	50.290966" + 0.0222226" T
Precesión lunisolar en longitud	50.387784" + 0.0049263" T
Precesión planetaria	-0.0188626" - 0.0476128" T

Sistema de constantes y parámetros, 2016

Unión Astronómica Internacional (IAU 1976)

Figura y campo de gravedad	
Radio ecuatorial (a)	6378140 m
Radio polar (b)	6356755 m
Masa	5.9742 10^{24}g
Densidad media	5.52 g/cm3
Factor dinámico (J2)	0.00108263x10^{-11} años-1
Gravedad normal (g)	g = 9.80621-0.02593 cos(2f)+0.00003 cos(4f) m/s2
Constante de gravitación geocéntrica	3.986005x10^{14} m3s-2

Luna

Radio medio	1738 km
Semidiámetro a la distancia media	15' 32.6"
Masa	7.3483x10^{22} kg
Densidad media	3.34 g/cm2
Gravedad superficial	1.62 m/s2 = 0.17g

Orbita de la Luna en torno a la Tierra

Movimiento sideral medio	2.661699489x10^{-6} rad/s
Distancia media de la Tierra a la Luna	3.844x105 km = 60.27 radios terrestres = 0.002570 UA
Paralaje horizontal ecuatorial (a la distancia media)	57' 02.608" = 3422.608"
Distancia media del centro de la Tierra al baricentro Tierra-Luna	4.671x10^{3} km
Excentricidad media	0.05490
Inclinación media(respecto de la Eclíptica)	5.145396º
Inclinación media (respecto del ecuador de la Luna)	6º 41'
Límites de la declinación geocéntrica	+29º - 29º
Período de revolución del nodo	6798d
Período de revolución del perigeo	3232d
Período Saros	223 lunaciones = 19 pasos del Sol por el Nodo 6585 1/3 días
Rapidez orbital media	1023 m/s = 0.000591 UA/día
Aceleración centrípeta media	0.00272 m/s2 = 0.0003 g

Nomenclatura de las estrellas brillantes, 2016

Nombres de estrellas		
Propios	Clasificación Bayer	NY
Acamar	θ Eri	897
Achernar	α Eri	472
Achird	η Cas	219
Acrux	α Cru	4730
Acubens	α Cnc	3572
Adhafera	ζ Leo	4031
Adhara	ε CMa	2618
Adhil	ξ And	390
Adib	α Dra	5291
Agena	ß Cen	5267
Ain	ε Tau	1409
Ain al Rami	ν Sgr	7116
Ak	α UMa	4301
Akrab	ß Sco	5984
Aladfar	η Lyr	7298
Alamak	γ And	603
Al Anchatal Nahr	τ Eri	850
Al Anf	ε Peg	8308
Al Anz	ε Aur	1605
Alaraph	α Vir	5056
Alaraph	ß Vir	4540
Alascha	λ Sco	6527
Al Athfar	μ Lyr	6903
Al Atik	o Per	1131
Al Baldah	π Sgr	7264
Al Bali	ε Aqr	7950
Albireo	ß Cyg	7417
Al Chiba	α Crv	4623
Alcor	80 UMa	5062
Alcyone	ν Tau	1165
Aldebarán	α Tau	1457
Alderamín	α Cep	8162
Aldhafara	ζ Leo	4031
Al Dhiba	ι Dra	5744
Aldhibah	ζ Dra	6396
Al Dihi	ι Dra	5744
Aldib	δ Dra	7310
Al Dibah	ζ Dra	6396
Alfard	α Hya	3748
Alfecca	α CrA	7254
Alfirk	ß Cep	8238
Alga	θ Ser	7141
Algebar	ß Ori	1713
Algedi Prima	α Cap	7747
Algedi Secunda	α Cap	7754
Algeiba	γ Leo	4057
Algenib	γ Peg	39
Algenib	α Per	1017
Algenubi	ε Leo	3873

Nombres de estrellas		
Propios	Clasificación Bayer	NY
Algieba	γ Leo	4058
Algol	ß Per	936
Algomeyla	ß CMi	2845
Algomeysa	α CMi	2943
Algorab	δ Crv	4757
Alhajoth	α Aur	1708
Al Hammam	ζ Peg	8634
Alhena	γ Gem	2421
Alioth	ε UMa	4905
Al Kaffal Jidmah	γ Cet	804
Alkaid	η UMa	5191
Al Kalbal Asad	α Leo	3982
Alkalurops	μ Boo	5733
Al Kaphrab	χ UMa	4518
Alkes	α Crt	4287
Alkhiba	α Crv	4623
Al Kirdah	ξ Cep	8417
Almaak	γ And	603
Almaaz	ε Aur	1605
Al Minliar al Asad	κ Leo	3731
Al Minliar al Shuja	σ Hya	3418
Almuredin	ε Vir	4932
Alnair	α Gru	8425
Al Nasl	γ Sgr	6746
Alnath	α Ari	617
Alnilam	ε Ori	1903
Alnitak	ζ Ori	1948
Al Niyat	σ Sco	6084
Al Niyat	τ Sco	6165
Alphard	α Hya	3748
Alphecca	α CrB	5793
Alpheratz	α And	15
Alphirk	ß Cep	8238
Alrai	γ Cep	8974
Alrami	α Sgr	7348
Al Rescha	α Psc	595
Alruccabah	α UMi	424
Al Rukbahal Daj	ω Cyg	7851
Alsafi	σ Dra	7462
Alsah	α Sge	7479
Al Sanamal Nakah	ß Cas	21
Alsciaukat	31 Lyn	3275
Alshain	ß Aql	7602
Alshat	ν Cap	7773
Alshemali	μ leo	3905
Al Sheratain	ß Ari	553
Alsuhail	λ Vel	3634
Al Suhailal Muhlif	γ Vel	3206
Altair	α Aql	7557

Nomenclatura de las estrellas brillantes, 2016

Nombres de estrellas			
Propios	Clasificación Bayer		NY
Altais	δ	Dra	7310
AlTarf	ß	Cnc	3249
Alterf	λ	Leo	3773
Aludra	η	CMa	2827
Alula Australia	ξ	UMa	4374
Alula Borealis	ν	UMa	4377
Alwaid	ß	Dra	6536
Al Wazor	δ	CMa	2693
Alya	θ	Ser	7141
Alzirr	ξ	Gem	2484
Ancha	θ	Aqr	8499
Angetenar	τ	Eri	850
Ankaa	α	Phe	99
Anser	α	Vul	7405
Antares	α	Sco	6134
Arcturus	α	Boo	5340
Arich	γ	Vir	4825
Arietis	α	Ari	617
Arkab Posterior	ß	Sgr	7343
Arkab Prior	ß	Sgr	7337
Arneb	α	Lep	1865
Arnai	γ	Cep	8974
Ascella	ζ	Sgr	7194
Asellus Australis	δ	Cnc	3461
Asellus Borealis	γ	Cnc	3449
Asellus Primus	θ	Boo	5404
Asellus Secundus	ι	Boo	5350
Asellus Tertius	κ	Boo	5329
Asmidiske	ι	Car	3699
Asmidiske	ξ	Pup	3045
Asuia	ψ	Dra	6636
Atik	ο	Per	1131
Atlas	27	Tau	1178
Atria	α	Tri	544
Auva	δ	Vir	4910
Avior	ε	Car	3307
Azelfafage	π	Cyg	8301
Azha	η	Eri	874
Baham	θ	Peg	8450
Baten Kaitos	ζ	Cet	539
Becrux	ß	Cru	4853
Beid	ο	Eri	1298
Bellatrix	γ	Ori	1790
Benetnash	η	UMa	5191
Betelgeuse	α	Ori	2061
Botein	δ	Ari	951
Brachiu	γ	Sco	1809
Bunda	ξ	Agr	8264
Caja	ω	Her	6117

Nombres de estrellas			
Propios	Clasificación Bayer		NY
Calx	μ	Gem	2298
Canopus	α	Car	2326
Capella	α	Aur	1708
Castor	α	Gem	2890
Castula	υ	Cas	253
Castula	υ	Cas	265
Cebalrai	ß	Oph	6603
Ceginus	γ	Boo	5435
Celaeno	16	Tau	1140
Chara	ß	CVn	4785
Chertan	θ	Leo	4359
Cor Caroli	α	CVn	4915
Cor Tauri	α	Tau	1457
Cursa	ß	Eri	1666
Dabih Major	ß	Cap	7776
Demon Star	ß	per	936
Deneb	α	Cyg	7924
Deneb	ε	Aql	7176
Deneb	ε	Del	7852
Deneb	η	Cet	334
Deneb	ζ	Aql	7235
Deneb Algedi	δ	Cap	8322
Denebkaitos	ι	Cet	74
Denebola	ß	Leo	4534
Dhur	δ	Leo	4357
Diadem	α	Com	4968
Diphda	ß	Cet	188
Dschubba	δ	Sco	5953
Dubhe	α	UMa	4301
Ed Asich	ι	Dra	5744
El Acola	ξ	UMa	4374
Elacrab	ß	Sco	5984
El Kaprah	κ	UMa	3594
El Karidab	δ	Sgr	6859
El Khereb	τ	Peg	8880
Elkhiffa Australis	α	Lib	5530
Elkhiffa Borealis	ß	Lib	5685
El Koprah	χ	UMa	4518
El Nath	ß	Tau	1791
El Phekrab	μ	UMa	4069
Enif	ε	Peg	8308
Erakis	μ	Cep	8316
Etamin	γ	Dra	6705
Fomalhaut	α	Psa	8728
Fornacis	α	For	963
Fumal Samakah	ß	Psc	8773
Furud	ζ	CMa	2282
Gacrux	γ	Cru	4763
Gemma	α	CrB	5793

Nomenclatura de las estrellas brillantes, 2016

Nombres de estrellas		
Propios	Clasificación Bayer	NY
Genam	ξ Dra	6688
Gianfar	λ Dra	4434
Giedi Prima	α Cap	7747
Giedi Secunda	α Cap	7754
Gienah	γ Crv	4662
Gienah	ε Cyg	7949
Gildun	δ UMi	6789
Gomeisa	ß CMi	2845
Gorgonea Quarta	ω Per	947
Gorgonea Tertia	ρ Per	921
Hadar	ß Cen	5267
Haedus	ζ Aur	1612
Hamal	α Ari	617
Hassaleh	ι Aur	1577
Hatysa	ι Ori	1895
Head of Hydrus	α Hyi	691
Heka	λ Ori	1879
Hércules	ß Gem	2990
Heze	ζ Vir	5107
Hoedus II	ν Aur	1641
Homam	ζ Peg	8634
Hyadum I	γ Tau	1346
Hyadum II	δ Tau	1373
Isis	γ CMa	2657
Izar	ε Boo	5506
Jabbah	ν Sco	6027
Jed	δ Oph	6056
Jugum	γ Lyr	7178
Kaffaljidhma	γ Cet	804
Kaus Australis	ε Sgr	6879
Kaus Borealis	λ Sgr	6913
Keid	o Eri	1325
Kitalphar	α Equ	8131
Kocab	ß UMi	5563
Kornephoros	ß Her	6148
Kraz	ß Crv	4786
Ksora	δ Cas	403
Kuma	ν Dra	6555
Lesath	υ Sco	6508
Maasym	λ Her	6526
Maia	20 Tau	1149
Maiaplacidus	ß Car	3685
Marfak	θ Cas	343
Marfak	κ Her	6008
Marfak	μ Cas	321
Marfic	λ Oph	6149
Markab	α Peg	8781
Matar	η Peg	8650
Mebsuta	ε Gem	2473

Nombres de estrellas		
Propios	Clasificación Bayer	NY
Megrez	δ UMa	4660
Mekbuda	ζ Gem	2650
Menchib	ξ Per	1228
Menkalinan	ß Aur	2088
Menkar	α Cet	911
Menkar	λ Cet	896
Menkent	θ Cen	5288
Merak	ß UMa	4295
Meres	ß Boo	5602
Meridiana	β CrA	7259
Merope	23 Tau	1156
Mesartim	γ Ari	545
Minelauva	ß Vir	4540
Minkar	ε Crv	4630
Mintaka	δ Ori	1852
Mira	o Cet	681
Mirach	ß And	337
Miram	η Per	834
Mirphak	α Per	2294
Mirza	ß CMa	2286
Misam	κ Per	941
Mizar	ζ UMa	5055
Mufrid	η Boo	5235
Muscida	o UMa	3323
Muscida	π UMa	3403
Naos	ζ Pup	3165
Nashira	γ Cap	8278
Nicolaus	α Del	7906
Nihal	ß Lep	1829
Nodus I	ζ Dra	6396
Nunki	σ Sgr	7121
Nusakan	ß CrB	5747
Oculus Boreus	ε Tau	1409
Peacok	α Pav	7790
Phact	α Col	1956
Phad	γ UMa	4554
Pherkad	γ UMi	5735
Pherkad Minor	λ UMi	5714
Pleione	28 Tau	1180
Polaris	α UMi	424
Pullux	ß Gem	2990
Praecipua	46 LMi	4247
Praepes	η Gem	2216
Praesaepe	ε Cnc	3429
Prima Giedi	α Cap	7747
Procyon	α CMi	2943
Propus	ι Gem	2821
Rana	δ Eri	1136
Rasalgethi	α Her	6406

Nomenclatura de las estrellas brillantes, 2016

Nombres de estrellas			
Propios	Clasificación Bayer		NY
Rasalhague	α	Oph	6556
Ras Elased Austral	ε	Leo	3873
Regulus	α	Leo	3982
Rigel	ß	Ori	1713
Rigil Kent	α	Cen	5459
Rijilal Awwa	μ	Vir	5487
Rotanev	ß	Del	7882
Ruchbah	ε	Cas	542
Saad el Sund	ß	Aqr	8232
Sabik	η	Oph	6378
Sadalachbia	γ	Aqr	8518
Sadalbari	μ	Peg	8684
Sadalmelik	α	Aqr	8414
Sadir	γ	Cyg	7796
Saidak	80	UMa	5062
Saiph	κ	Ori	2004
Saiph	η	Ori	1788
Sargas	θ	Sco	6553
Sarin	δ	Her	6410
Sartan	α	Cnc	3572
Sceptrum	53	Eri	1481
Scheat	β	Peg	8775
Scheat	δ	Aqr	8709
Segin	ε	Cas	542
Shaula	λ	Sco	6527
Schedir	α	Cas	168
Sheliak	β	Lyr	7106
Sirius	α	CMa	2491
Situla	κ	Aqr	8610

Nombres de estrellas			
Propios	Clasificación Bayer		NY
Spica	α	Vir	5056
Subra	o	Leo	3852
Superba	λ	CVn	4846
Syrma	ι	Vir	5338
Tabit	π	Ori	1543
Tabit	υ	Ori	1855
Talitha	ι	UMa	3569
Tarazed	γ	Aql	7525
Tayeta	19	Tau	1845
Tegmen	ζ	Cnc	3208
Terebellum	β	Sgr	7604
Theemim	υ	Eri	1464
Thuban	α	Dra	5291
Torcularis Septentr.	o	Psc	510
Tyl	ε	Dra	7582
Unukalhai	α	Ser	5854
Vega	α	Lyr	7001
Vindemiatrix	ε	Vir	4932
Wasat	δ	Gem	2777
Wazn	ß	Col	2040
Yed Posterior	ε	Oph	5985
Zaniah	η	Vir	4689
Zaurak	γ	Eri	1231
Zibal	ζ	Eri	984
Zuben Elakrab	γ	Lib	5787
Zuben Elakribi	δ	Lib	5586
Zuben Hakrabi	ζ	Lib	5848
Zuben Hakrabi	υ	Lib	5794

Posiciones medias de estrellas brillantes, 2016

Estrella				α			δ						
NH	NY		nom	h	m	s	°	‘	“	V	U-B	B-V	Esp
118268	9072	28	Psc	00	00	09.6	+06	57	16.8	4.03	0.419	0.49	F4IV
118322	9076	ε	Tuc	00	00	45.8	-65	29	07.4	4.49	-0.075	-0.04	B9IV
122	9084	θ	Oct	00	02	25.3	-76	58	28.9	4.78	1.254	1.26	K2III
154	9089	30	Psc	00	02	48.4	-05	55	20.7	4.37	1.631	2.35	M3III
301	9098	2	Cet	00	04	35.0	-17	14	39.1	4.55	-0.047	-0.03	B9IVn
355	9103	3	Cet	00	05	20.8	-10	25	03.9	4.99	1.619	1.64	K3Ib-var
443	3	33	Psc	00	06	10.8	-05	36	55.4	4.61	1.029	1.04	K1III
677	15	α	And	00	09	14.6	+29	10	53.3	2.07	-0.038	-0.10	B9p
746	21	β	Cas	00	10	04.1	+59	14	26.6	2.28	0.380	0.40	F2III-IV
765	25	ε	Phe	00	10	14.6	-45	39	23.4	3.88	1.013	1.00	K0III
910	33	6	Cet	00	12	06.2	-15	22	38.9	4.89	0.487	0.59	F5V
1067	39	γ	Peg	00	14	05.2	+15	16	30.9	2.83	-0.190	-0.22	B2IV
1168	45	χ	Peg	00	15	27.5	+20	17	54.1	4.79	1.572	1.93	M2III
1170	48	AE	Cet	00	15	28.6	-18	50	29.6	4.44	1.640	1.96	M1III
1366	63	θ	And	00	17	57.5	+38	46	23.3	4.61	0.059	0.07	A2V
1473	68	σ	And	00	19	11.6	+36	52	35.6	4.51	0.054	0.06	A2V
1562	74	ι	Cet	00	20	16.1	-08	43	57.3	3.56	1.214	1.13	K2III
1599	77	ζ	Tuc	00	20	55.2	-64	46	40.7	4.23	0.576	0.65	F9V
2021	98	β	Hyi	00	26	35.8	-77	09	41.4	2.82	0.618	0.68	G2IV
2072	100	κ	Phe	00	27	00.7	-43	35	18.4	3.93	0.175	0.20	A7V
2081	99	α	Phe	00	27	05.8	-42	12	59.0	2.40	1.083	1.11	K0III...
2210	105	η	Scl	00	28	44.6	-32	54	58.5	4.86	1.634	2.32	M2/M3III
2472	125	λ^1	Phe	00	32	12.5	-48	42	44.9	4.76	0.018	0.01	A0V
2484	126	β^1	Tuc	00	32	17.6	-62	52	03.0	4.36	-0.064	-0.02	B9V
2487	127	β^2	Tuc	00	32	18.4	-62	52	29.3	4.53	0.147	0.14	A2V
2505	123	λ	Cas	00	32	41.5	+54	36	47.4	4.74	-0.098	-0.08	B8Vn
2599	130	κ	Cas	00	33	57.0	+63	01	21.5	4.17	0.130	0.17	B1Ia
2912	154	π	And	00	37	46.0	+33	48	35.8	4.34	-0.123	-0.08	B5V
2920	153	ζ	Cas	00	37	54.0	+53	59	15.0	3.69	-0.196	-0.23	B2IV
3031	163	ε	And	00	39	25.9	+29	24	04.0	4.34	0.871	0.92	G5III...
3092	165	δ	And	00	40	12.8	+30	57	04.0	3.27	1.268	1.23	K3III...
3179	168	α	Cas	00	41	27.2	+56	37	39.2	2.24	1.170	1.13	K0II-III-var
3245	180	μ	Phe	00	42	06.1	-45	59	40.8	4.59	0.953	0.95	G8III
3300	179	ξ	Cas	00	42	59.6	+50	36	10.0	4.80	-0.105	-0.10	B2.5V
3405	191	η	Phe	00	44	05.4	-57	22	22.1	4.36	0.024	0.02	A0IV
3414	184	π	Cas	00	44	23.3	+47	06	52.3	4.95	0.170	0.19	A5V
3419	188	β	Cet	00	44	25.0	-17	53	46.7	2.04	1.019	1.00	K0III
3455	194	φ^1	Cet	00	45	01.3	-10	31	11.9	4.77	0.998	0.98	K0III-var
3504	193	o	Cas	00	45	39.1	+48	22	27.8	4.48	-0.069	0.00	B5III
3693	215	ζ	And	00	48	13.0	+24	21	24.0	4.08	1.100	1.06	K1II
3786	224	δ	Psc	00	49	32.4	+07	40	28.5	4.44	1.500	1.58	K5III
3801	223	ν	Cas	00	49	46.6	+51	03	28.3	4.90	-0.091	-0.07	B9III
3821	219	η	Cas	00	50	06.8	+57	54	08.4	3.46	0.587	0.66	G0V
3881	226	ν	And	00	50	43.8	+41	10	06.5	4.53	-0.136	-0.14	B5V
4147	248	20	Cet	00	53	51.1	-01	03	17.9	4.78	1.550	1.66	M0III
4151	244	***	***	00	54	04.0	+61	12	50.7	4.80	0.540	0.61	F8V
4292	253	υ^1	Cas	00	55	59.6	+59	03	42.0	4.83	1.216	1.19	K2III
4422	265	υ^2	Cas	00	57	39.6	+59	16	11.5	4.62	0.957	1.01	G8III-IV
4436	269	37	And	00	57	40.5	+38	35	18.6	3.86	0.130	0.14	A5V
4427	264	γ	Cas	00	57	43.0	+60	48	20.6	2.15	-0.046	-0.02	B0IV:e-var
4463	271	η	And	00	58	05.5	+23	30	23.0	4.40	0.940	0.94	G8III-IV
4577	280	α	Scl	00	59	24.0	-29	16	07.0	4.30	-0.154	-0.12	B7IIIp
4906	294	ε	Psc	01	03	48.1	+07	58	43.0	4.27	0.952	0.98	K0III
5165	322	β	Phe	01	06	49.0	-46	37	48.9	3.32	0.885	0.90	G8III-var
5348	338	ζ	Phe	01	09	04.5	-55	09	28.4	3.94	-0.120	-0.08	B6V

Posiciones medias de estrellas brillantes, 2016

Estrella				α			δ						
NH	NY	nom		h	m	s	º	‘	“	V	U-B	B-V	Esp
5364	334	η	Cet	01	09	25.2	-10	05	42.7	3.46	1.161	1.11	K2III
5434	335	φ	And	01	10	28.0	+47	19	45.6	4.26	0.012	-0.02	B7III
5447	337	β	And	01	10	39.7	+35	42	27.4	2.07	1.576	1.74	M0III-var
5372	285	***	***	01	11	19.6	+86	20	40.7	4.24	1.213	1.16	K2II-III
5542	343	θ	Cas	01	12	07.1	+55	14	14.0	4.34	0.170	0.19	A7V-var
5571	351	χ	Psc	01	12	20.6	+21	07	19.1	4.66	1.024	0.99	K0III
5586	352	τ	Psc	01	12	34.4	+30	10	36.5	4.51	1.092	1.05	K0III-IV...
5742	360	φ	Psc	01	14	38.9	+24	40	14.5	4.67	1.047	1.02	K0III...
5862	370	ν	Phe	01	15	55.6	-45	26	38.2	4.97	0.571	0.62	F8V
5896	377	κ	Tuc	01	16	19.6	-68	47	18.6	4.25	0.480	0.55	F6IV
6193	383	υ	Psc	01	20	22.6	+27	21	01.2	4.74	0.032	0.10	A3V
6242	382	φ	Cas	01	21	07.9	+58	19	04.2	4.95	0.683	0.93	F0Ia
6411	390	ξ	And	01	23	19.2	+45	36	53.0	4.87	1.077	1.04	K0III-IV
6537	402	θ	Cet	01	24	50.9	-08	05	54.7	3.60	1.065	1.05	K0III
6670	412	46	Cet	01	26	25.9	-14	30	48.3	4.90	1.231	1.29	K2III
6686	403	δ	Cas	01	26	54.6	+60	19	13.6	2.66	0.160	0.19	A5Vv
6692	399	ψ	Cas	01	27	07.3	+68	12	55.8	4.72	1.047	1.01	K0III
6813	417	ω	And	01	28	39.1	+45	29	28.8	4.83	0.421	0.49	F5IV
6867	429	γ	Phe	01	29	04.8	-43	14	02.9	3.41	1.542	1.73	K5II-III
7007	434	μ	Psc	01	31	03.1	+06	13	42.1	4.84	1.372	1.42	K4III
7083	440	δ	Phe	01	31	56.2	-48	59	14.6	3.93	0.972	1.00	K0III-IV
7097	437	η	Psc	01	32	22.1	+15	25	49.3	3.62	0.974	0.94	G8III
7294	442	χ	Cas	01	35	01.4	+59	18	57.9	4.68	0.991	1.01	K0III
7513	458	υ	And	01	37	46.3	+41	29	14.7	4.10	0.536	0.58	F8V
7588	472	α	Eri	01	38	19.6	-57	09	12.1	0.45	-0.158	-0.17	B3Vp
7607	464	υ	Per	01	39	00.8	+48	42	40.3	3.59	1.275	1.23	K3III
7818	477	τ	And	01	41	33.6	+40	39	36.0	4.96	-0.068	-0.06	B8III
7884	489	ν	Psc	01	42	17.5	+05	34	14.0	4.45	1.347	1.37	K3III
7918	483	***	***	01	42	47.8	+42	41	43.4	4.96	0.618	0.67	G2V
7999	500	***	***	01	43	33.6	-03	36	27.6	4.98	1.378	1.26	K3II-III
8068	496	φ	Per	01	44	42.2	+50	46	16.3	4.01	-0.098	-0.08	B2Vpe
8102	509	τ	Cet	01	44	50.1	-15	51	03.9	3.49	0.727	0.82	G8V
8198	510	ο	Psc	01	46	16.0	+09	14	24.5	4.26	0.942	0.93	K0III
8497	531	χ	Cet	01	50	23.8	-10	36	19.3	4.66	0.333	0.38	F3III
8645	539	ζ	Cet	01	52	16.5	-10	15	14.7	3.74	1.136	1.07	K2III
8796	544	α	Tri	01	54	01.6	+29	39	30.8	3.42	0.488	0.55	F6IV
8837	555	ψ	Phe	01	54	18.3	-46	13	20.5	4.39	1.597	2.49	M4III
8833	549	ξ	Psc	01	54	24.7	+03	16	06.1	4.61	0.928	0.93	K0III
8832	545	γ^1	Ari	01	54	26.3	+19	22	26.8	3.88	-0.047	-0.03	A1p
8928	570	η^2	Hyi	01	55	21.3	-67	33	59.3	4.68	0.931	0.95	G5III
8903	553	β	Ari	01	55	33.3	+20	53	16.9	2.64	0.165	0.18	A5V...
8886	542	ε	Cas	01	55	36.0	+63	45	01.9	3.35	-0.150	-0.12	B2p-var
9007	566	χ	Eri	01	56	35.9	-51	31	38.3	3.69	0.844	0.90	G5IV
9009	548	ω	Cas	01	57	18.4	+68	45	55.4	4.97	-0.084	-0.06	B8III
9061	565	56	Cet	01	57	26.5	-22	26	48.5	4.92	1.434	1.45	K3III
9095	574	***	***	01	57	49.2	-47	18	18.7	4.82	0.864	0.89	G8III
9153	569	λ	Ari	01	58	51.1	+23	40	33.1	4.79	0.290	0.33	F0V
9236	591	α	Hyi	01	59	17.4	-61	29	24.0	2.86	0.290	0.34	F0V
9347	585	υ	Cet	02	00	46.9	-20	59	54.5	3.99	1.554	1.79	K5/M0III
9487	595	α	Psc	02	02	54.1	+02	50	34.1	3.82	0.024	0.05	A2
9480	575	48	Cas	02	03	20.5	+70	59	09.5	4.49	0.164	0.20	A3IV
9505	590	g	Per	02	03	24.7	+54	33	59.4	4.99	-0.071	-0.02	B8III
9598	580	50	Cas	02	04	52.6	+72	30	00.3	3.95	-0.002	0.03	A2V
9640	603	57	And	02	04	55.1	+42	24	29.3	2.10	1.370	1.37	B8V
9677	612	ν	For	02	05	13.8	-29	13	05.6	4.68	-0.156	-0.12	B9.5p

Posiciones medias de estrellas brillantes, 2016

Estrella				α			δ						
NH	NY		nom	h	m	s	º	‘	“	V	U-B	B-V	Esp
9884	617	α	Ari	02	08	06.4	+23	32	23.0	2.01	1.151	1.13	K2III
9977	620	58	And	02	09	29.4	+37	56	11.6	4.78	0.120	0.16	A5IV-V
10053	623	14	Ari	02	10	21.9	+26	01	02.0	4.98	0.339	0.40	F2III
10064	622	4	Tri	02	10	31.9	+35	03	52.5	3.00	0.140	0.17	A5III
10280	642	TZ	Tri	02	13	20.0	+30	22	46.7	4.94	0.770	0.81	F5V
10324	649	65	Cet	02	13	52.6	+08	55	24.1	4.36	0.878	0.90	G8II:
10340	643	60	And	02	14	15.9	+44	18	29.6	4.84	1.476	1.49	K4III
10602	674	φ	Eri	02	17	05.9	-51	26	10.7	3.56	-0.120	-0.11	B8IV-V
10644	660	8	Tri	02	18	04.0	+34	17	56.0	4.84	0.607	0.76	G0V
10670	664	γ	Tri	02	18	18.0	+33	55	21.7	4.03	0.019	-0.02	A1Vnn
11001	705	δ	Hyi	02	22	02.8	-68	35	04.6	4.08	0.034	0.04	A3V
11313	699	65	And	02	26	44.0	+50	21	08.5	4.73	1.532	1.58	K4III
11345	708	ρ	Cet	02	26	44.9	-12	13	00.4	4.88	-0.027	-0.01	A0V
11407	721	κ	Eri	02	27	35.4	-47	37	49.2	4.24	-0.136	-0.11	B5IV
11484	718	73	Cet	02	29	02.3	+08	31	59.5	4.30	-0.053	-0.06	B9III
11569	707	ι	Cas	02	30	26.9	+67	28	32.0	4.46	0.153	0.17	A5p
11783	740	σ	Cet	02	32	52.2	-15	10	23.1	4.74	0.454	0.55	F5V
11918	749	ω	For	02	34	34.1	-28	09	37.9	4.96	-0.050	-0.04	B9V
12093	754	78	Cet	02	36	44.5	+05	39	52.0	4.87	0.880	0.89	G8III
12394	806	ε	Hyi	02	39	50.9	-68	11	47.5	4.12	-0.061	-0.07	B9III
12387	779	δ	Cet	02	40	19.8	+00	23	56.0	4.08	-0.212	-0.22	B2IV
12390	781	ε	Cet	02	40	21.8	-11	48	10.3	4.83	0.447	0.53	F5V
12413	789	s	Eri	02	40	25.7	-42	49	17.1	4.74	0.061	0.09	A2V
12486	794	ι	Eri	02	41	19.1	-39	47	07.4	4.11	1.006	1.05	K0III
12623	788	12	Per	02	43	17.8	+40	15	45.9	4.91	0.582	0.62	F9V
12706	804	86	Cet	02	44	09.4	+03	18	16.3	3.47	0.093	0.10	A3V
12719	801	35	Ari	02	44	25.5	+27	46	35.2	4.65	-0.122	-0.12	B3V
12770	811	π	Cet	02	44	54.5	-13	47	22.4	4.24	-0.122	-0.11	B7IV
12777	799	13	Per	02	45	20.1	+49	17	49.7	4.10	0.514	0.59	F7V
12876	837	ζ	Hyi	02	45	48.2	-67	32	51.1	4.83	0.058	0.08	A2IV/V
12828	813	μ	Cet	02	45	50.2	+10	10	58.6	4.27	0.311	0.37	F1III-IV
12843	818	τ^1	Eri	02	45	52.4	-18	30	12.5	4.47	0.481	0.54	F5/F6V
13061	824	39	Ari	02	48	53.7	+29	18	52.9	4.52	1.112	1.04	K1III
13147	841	β	For	02	49	46.8	-32	20	14.3	4.45	0.981	1.00	G8III
13244	872	ν	Hyi	02	50	23.2	-74	59	58.1	4.76	1.337	1.27	K3III
13209	838	41	Ari	02	50	57.5	+27	19	39.2	3.61	-0.100	-0.08	B8Vn
13254	840	16	Per	02	51	37.9	+38	23	08.0	4.22	0.343	0.41	F2III
13288	850	τ^2	Eri	02	51	47.3	-20	56	12.4	4.76	0.906	0.91	K0III
13268	834	η	Per	02	51	54.7	+55	57	46.1	3.77	1.690	1.64	K3Ib
11767	424	α	UMi	02	52	14.4	+89	20	02.2	1.97	0.636	0.70	F7:Ib-IIv
13328	843	17	Per	02	52	32.1	+35	07	35.8	4.56	1.554	1.67	K5III
13531	854	18	Per	02	55	26.3	+52	49	43.8	3.93	0.758	0.80	G4III...
13701	874	3	Eri	02	57	14.1	-08	49	59.9	3.89	1.088	1.08	K1III-IV
13847	897	θ^2	Eri	02	58	53.2	-40	14	21.1	2.88	0.128	0.17	A4III+...
13884	909	β	Hor	02	59	06.7	-64	00	21.7	4.98	0.126	0.14	A5III
13879	879	π	Per	02	59	49.3	+39	43	39.7	4.68	0.065	0.11	A2Vn
13905	882	24	Per	03	00	05.3	+35	14	53.6	4.94	1.235	1.19	K2III
13914	887	48	Ari	03	00	09.5	+21	24	19.6	4.63	0.048	0.05	A2Vs
13954	896	91	Cet	03	00	36.1	+08	58	19.9	4.71	-0.109	-0.09	B6III
14146	919	τ^3	Eri	03	03	07.2	-23	33	38.0	4.08	0.163	0.18	A4V
14135	911	α	Cet	03	03	08.6	+04	09	12.8	2.54	1.630	1.97	M2III
14328	915	γ	Per	03	06	00.1	+53	34	11.3	2.91	0.716	0.77	G8III+...
14354	921	25	Per	03	06	14.4	+38	54	11.1	3.32	1.528	2.76	M3III-var
14382	918	k	Per	03	06	47.5	+56	46	09.2	4.77	1.018	0.99	K0II-III
14576	936	β	Per	03	09	14.9	+41	01	05.1	2.09	-0.003	0.02	B8V

Posiciones medias de estrellas brillantes, 2016

Estrella				α			δ						
NH	NY		nom	h	m	s	º	‘	“	V	U-B	B-V	Esp
14632	937	ι	Per	03	10	16.0	+49	40	30.0	4.05	0.595	0.65	G0V
14668	941	27	Per	03	10	37.0	+44	55	08.1	3.79	0.980	0.94	K0III
14817	947	ω	Per	03	12	21.6	+39	40	23.2	4.61	1.115	1.09	K1III
14838	951	57	Ari	03	12	34.6	+19	47	17.0	4.35	1.033	0.96	K2III-var
14879	963	α	For	03	12	46.6	-28	55	24.5	3.80	0.543	0.63	F8V
14862	932	***	***	03	13	46.0	+74	27	16.1	4.85	0.035	0.05	A2Vnn
15110	972	58	Ari	03	15	51.2	+21	06	16.3	4.87	-0.007	0.02	A1V
15197	984	ζ	Eri	03	16	38.2	-08	45	33.6	4.80	0.232	0.28	A5m
15382	994	15	Eri	03	19	05.9	-22	27	05.9	4.86	0.904	0.91	K0III
15416	991	***	***	03	19	46.0	+34	16	54.8	4.85	1.491	1.41	K2II
15457	996	κ^1	Cet	03	20	13.7	+03	25	47.0	4.84	0.681	0.73	G5V-var
15474	1003	τ^4	Eri	03	20	15.1	-21	41	55.1	3.70	1.614	2.42	M3/M4III
15510	1008	e	Eri	03	20	35.2	-43	00	27.0	4.26	0.711	0.79	G8V
15549	999	***	***	03	21	20.5	+29	06	25.8	4.47	1.555	1.61	K2II-III
15520	985	BK	Cam	03	21	27.5	+65	42	39.7	4.74	-0.108	-0.12	B2.5Vne
15648	1002	32	Per	03	22	33.3	+43	23	17.1	4.96	0.051	0.06	A3V
15863	1017	33	Per	03	25	30.5	+49	55	06.9	1.79	0.481	0.63	F5Ib
15900	1030	o	Tau	03	25	42.2	+09	05	09.3	3.61	0.887	0.90	G8III
16083	1038	2	Tau	03	28	03.9	+09	47	21.0	3.73	-0.082	-0.07	B9Vn
16147	1034	***	***	03	29	13.9	+49	07	08.7	4.99	-0.091	-0.07	B5V
16245	1083	κ	Ret	03	29	40.2	-62	52	47.1	4.71	0.410	0.49	F5IV-V
16228	1035	CS	Cam	03	30	25.1	+59	59	46.7	4.21	0.419	0.58	B9Ia
16244	1044	34	Per	03	30	33.3	+49	33	53.1	4.67	-0.096	-0.07	B3V
16281	1040	CE	Cam	03	31	14.5	+58	56	04.1	4.55	0.489	0.79	A0Ia
16341	1070	ν	Eri	03	31	26.3	-05	01	10.3	4.74	-0.092	-0.07	B9Vs
16335	1052	σ	Per	03	31	44.7	+48	03	03.0	4.36	1.367	1.42	K3III
16369	1066	5	Tau	03	31	47.2	+12	59	31.8	4.14	1.112	1.01	K0II-III...
16537	1084	18	Eri	03	33	42.5	-09	24	12.0	3.72	0.881	0.94	K2V
16611	1088	τ^5	Eri	03	34	31.0	-21	34	42.3	4.26	-0.106	-0.09	B9V
16826	1087	ψ	Per	03	37	40.2	+48	14	46.1	4.32	-0.058	0.07	B5Ve
16870	1106	y	Eri	03	37	41.3	-40	13	15.9	4.57	1.023	1.07	K0III
16852	1101	10	Tau	03	37	43.0	+00	27	10.9	4.29	0.575	0.66	F9V
17304	1134	δ	For	03	42	54.3	-31	53	11.3	4.99	-0.159	-0.15	B5III
17313	1123	o	Per	03	43	25.7	+34	01	00.2	4.97	-0.048	-0.03	B0.5V
17351	1143	h	Eri	03	43	26.8	-37	15	43.9	4.59	1.191	1.12	K2IIICN...
17378	1136	δ	Eri	03	44	02.4	-09	42	30.7	3.52	0.915	0.94	K0IV
17358	1122	δ	Per	03	44	06.4	+47	50	20.0	3.01	-0.125	-0.07	B5III
17440	1175	β	Ret	03	44	24.7	-64	45	19.0	3.84	1.133	1.11	K0IV
17448	1131	o	Per	03	45	21.5	+32	20	21.4	3.84	0.022	0.12	B1III
17499	1142	17	Tau	03	45	51.5	+24	09	50.5	3.72	-0.105	-0.09	B6III
17531	1145	19	Tau	03	46	11.6	+24	31	04.4	4.30	-0.110	-0.08	B6V
17529	1135	ν	Per	03	46	19.2	+42	37	45.6	3.77	0.425	0.52	F5II-var
17573	1149	20	Tau	03	46	48.7	+24	25	05.3	3.87	-0.063	-0.02	B8III
17593	1162	π	Eri	03	46	55.4	-12	03	02.9	4.43	1.604	1.89	M1III
17678	1208	γ	Hyi	03	47	00.1	-74	11	17.2	3.26	1.590	1.94	M2III
17608	1156	23	Tau	03	47	18.5	+23	59	54.9	4.14	-0.051	0.02	B6IV
17587	1129	***	***	03	47	29.8	+63	23	43.6	4.78	0.747	0.79	A3V...
17651	1173	27	Eri	03	47	33.5	-23	12	06.7	4.22	0.434	0.51	F3/F5V
17702	1165	η	Tau	03	48	28.1	+24	09	17.9	2.85	-0.086	-0.01	B7III
17797	1189	***	***	03	49	12.4	-37	34	13.7	4.30	-0.038	-0.02	A+...
17874	1195	g	Eri	03	50	04.3	-36	09	03.9	4.17	0.927	0.92	G8III
17847	1178	27	Tau	03	50	08.8	+24	06	09.6	3.62	-0.070	-0.03	B8III
17884	1155	BE	Cam	03	51	02.9	+65	34	30.6	4.39	1.870	2.58	M1III
17959	1148	γ	Cam	03	52	07.6	+71	22	51.6	4.59	0.064	0.13	A2IVn
18216	1213	τ^8	Eri	03	54	24.9	-24	33	51.5	4.64	-0.136	-0.13	B5V

Posiciones medias de estrellas brillantes, 2016

Estrella				α			δ						
NH	NY	nom		h	m	s	º	‘	“	V	U-B	B-V	Esp
18255	1211	32	Eri	03	55	07.3	-02	54	25.1	4.46	0.672	0.73	G8III
18246	1203	ζ	Per	03	55	10.4	+31	55	52.9	2.84	0.271	0.18	B1Ib
18488	1205	***	***	03	58	33.4	+61	09	19.7	4.99	1.435	1.53	K3I-II
18543	1231	γ	Eri	03	58	48.0	-13	27	45.2	2.97	1.588	1.78	M1IIIb
18505	1204	***	***	03	58	53.6	+63	07	07.9	4.95	-0.074	-0.01	B9.5V
18532	1220	45	Per	03	58	58.0	+40	03	23.7	2.90	-0.199	-0.19	B0.5V
18597	1247	δ	Ret	03	59	00.6	-61	21	14.2	4.56	1.590	1.85	M2III
18614	1228	ξ	Per	04	00	02.4	+35	50	13.7	3.98	0.016	0.16	O7.5Iab:
18673	1240	36	Eri	04	00	37.7	-23	58	13.1	4.62	-0.121	-0.07	Ap
18744	1264	γ	Ret	04	01	08.3	-62	06	48.8	4.48	1.500	2.42	M4III
18772	1266	ι	Ret	04	01	34.4	-61	01	58.7	4.97	1.386	1.41	K4III
18724	1239	35	Tau	04	01	35.8	+12	32	08.9	3.41	-0.099	-0.08	B3V
18907	1251	38	Tau	04	04	02.1	+06	02	02.3	3.91	0.032	0.03	A1V
19038	1256	37	Tau	04	05	40.4	+22	07	32.8	4.36	1.064	1.02	K0III
19018	1242	***	***	04	05	50.3	+59	11	58.7	5.00	0.495	0.69	F0II
19167	1261	λ	Per	04	07	49.2	+50	23	40.2	4.25	-0.011	0.08	A0IVn
19343	1273	48	Per	04	09	51.9	+47	45	18.1	3.96	-0.025	0.08	B3Ve
19515	1302	δ	Hor	04	11	24.0	-41	57	04.5	4.93	0.334	0.41	A9V
19587	1298	o^1	Eri	04	12	40.3	-06	47	44.2	4.04	0.327	0.38	F2II-III
19747	1326	α	Hor	04	14	33.0	-42	15	15.9	3.85	1.085	1.09	K1III
19780	1336	α	Ret	04	14	38.4	-62	25	58.2	3.33	0.915	0.91	G7III
19740	1311	47	Tau	04	14	50.3	+09	18	16.3	4.84	0.799	0.86	G5III
19777	1318	39	Eri	04	15	10.8	-10	12	58.8	4.87	1.156	1.12	K3III
19811	1306	f	Per	04	16	01.0	+40	31	26.5	4.67	1.007	1.07	G5II
19849	1325	40	Eri	04	16	01.9	-07	37	41.3	4.43	0.820	0.89	K1V
19812	1303	51	Per	04	16	06.9	+48	26	58.9	4.12	0.935	0.93	G0Ib...
19860	1320	μ	Tau	04	16	25.9	+08	55	57.1	4.27	-0.054	-0.02	B3IV
19893	1338	γ	Dor	04	16	27.6	-51	26	44.3	4.26	0.312	0.37	F4III
19921	1355	ε	Ret	04	16	46.3	-59	15	46.4	4.44	1.078	1.05	K2IV
19990	1329	ω^2	Tau	04	18	13.8	+20	37	04.6	4.93	0.259	0.30	A3m
20042	1347	υ^4	Eri	04	18	31.2	-33	45	32.1	3.55	-0.108	-0.09	B9V
20070	1324	b	Per	04	19	29.4	+50	20	04.1	4.60	0.043	0.16	A2V
20205	1346	γ	Tau	04	20	44.1	+15	39	58.5	3.65	0.981	0.95	G8III
20250	1348	φ	Tau	04	21	22.3	+27	23	20.0	4.97	1.150	1.35	K1III
20252	1343	54	Per	04	21	29.1	+34	36	18.6	4.93	0.950	0.94	G8III
20354	1350	V469	Per	04	22	45.1	+46	32	12.3	4.80	-0.022	0.03	B4IV
20455	1373	δ^1	Tau	04	23	53.3	+17	34	47.8	3.77	0.983	0.93	G8III
20535	1393	d	Eri	04	24	39.5	-33	58	45.7	3.97	1.468	1.53	K4III
20542	1380	64	Tau	04	25	03.0	+17	28	52.0	4.80	0.154	0.18	A7V
20635	1387	κ^1	Tau	04	26	21.3	+22	19	49.2	4.21	0.136	0.16	A7IV-V
20648	1389	68	Tau	04	26	26.8	+17	57	51.8	4.30	0.049	0.08	A2IV
20713	1394	71	Tau	04	27	17.3	+15	39	16.0	4.48	0.262	0.33	F0V...
20711	1392	υ	Tau	04	27	17.8	+22	50	58.9	4.28	0.263	0.32	A8Vn
20732	1396	π	Tau	04	27	32.4	+14	44	59.5	4.69	0.979	0.96	G8III
20877	1407	75	Tau	04	29	23.1	+16	23	43.1	4.96	1.137	1.12	K2III-var
20885	1411	θ^1	Tau	04	29	31.2	+15	59	51.4	3.84	0.952	1.02	G7III
20889	1409	ε	Tau	04	29	34.9	+19	12	56.7	3.53	1.014	1.04	K0III
20894	1412	78	Tau	04	29	36.4	+15	54	22.4	3.40	0.179	0.21	A7III
21029	1427	***	***	04	31	30.4	+16	13	43.2	4.78	0.170	0.19	A6IV
21139	1437	45	Eri	04	32	43.4	+00	00	35.1	4.91	1.320	1.25	K3II-III
21248	1453	υ^1	Eri	04	34	09.4	-29	44	02.4	4.49	0.972	1.00	K0III
21281	1465	α	Dor	04	34	21.3	-55	00	40.8	3.30	-0.079	-0.08	A0V:
21273	1444	ρ	Tau	04	34	47.2	+14	52	40.3	4.65	0.255	0.28	A8V
21393	1464	52	Eri	04	36	11.6	-30	31	46.0	3.81	0.957	0.93	G8III
21402	1458	88	Tau	04	36	33.7	+10	11	36.3	4.25	0.184	0.21	A5m

Posiciones medias de estrellas brillantes, 2016

Estrella				α			δ						
NH	NY	nom		h	m	s	º	‘	“	V	U-B	B-V	Esp
21421	1457	87	Tau	04	36	52.2	+16	32	28.3	0.87	1.538	1.67	K5III
21444	1463	ν	Eri	04	37	08.7	-03	19	11.4	3.93	-0.210	-0.20	B2III
21476	1454	58	Per	04	37	50.3	+41	17	49.8	4.25	1.171	1.13	G8II
21594	1481	53	Eri	04	38	56.2	-14	16	22.4	3.86	1.082	1.09	K1III
21589	1473	c	Tau	04	39	04.9	+12	32	33.7	4.27	0.122	0.15	A6V
21644	1483	***	***	04	39	39.8	-12	05	29.5	4.99	0.074	0.13	A0V
21683	1479	σ^2	Tau	04	40	13.2	+15	56	57.8	4.67	0.147	0.19	A5Vn
21770	1502	α	Cae	04	41	05.7	-41	49	58.8	4.44	0.342	0.40	F2V
21763	1496	54	Eri	04	41	09.9	-19	38	27.0	4.32	1.599	2.27	M3/M4III
21881	1497	94	Tau	04	43	14.2	+22	59	14.0	4.27	-0.112	-0.10	B3V
22109	1520	μ	Eri	04	46	19.7	-03	13	32.0	4.01	-0.148	-0.13	B5IV
22449	1543	π^3	Ori	04	50	44.2	+06	59	19.8	3.19	0.484	0.53	F6V
22453	1533	1	Aur	04	51	01.5	+37	30	57.2	4.89	1.447	1.51	K4II
22509	1544	2	Ori	04	51	30.8	+08	55	38.1	4.35	0.010	0.04	A1Vn
22549	1552	3	Ori	04	52	05.2	+05	37	55.5	3.68	-0.157	-0.16	B2III
22667	1556	o^1	Ori	04	53	28.1	+14	16	36.7	4.71	1.773	2.63	M3Sv
22701	1560	61	Eri	04	53	42.4	-05	25	34.4	4.36	0.257	0.33	A9IV
22678	1551	2	Aur	04	53	44.4	+36	43	46.4	4.79	1.414	1.46	K3III
22797	1567	π^5	Ori	04	55	06.7	+02	27	59.4	3.71	-0.179	-0.18	B2III
22783	1542	9	Cam	04	55	42.1	+66	22	06.5	4.26	-0.008	0.09	O9.5Ia
22845	1570	π^1	Ori	04	55	48.3	+10	10	32.9	4.64	0.085	0.11	A0V
22957	1580	o^2	Ori	04	57	18.0	+13	32	21.3	4.06	1.158	1.16	K2III
23015	1577	ι	Aur	04	58	04.2	+33	11	26.6	2.69	1.490	1.46	K3II-var
23040	1568	7	Cam	04	58	36.9	+53	46	36.1	4.43	-0.017	0.06	A1V
23123	1601	10	Ori	04	59	24.3	+01	44	17.3	4.47	1.369	1.32	K2II-var
23179	1592	4	Aur	05	00	22.8	+37	54	49.1	4.93	0.037	0.06	A1V
23231	1611	64	Eri	05	00	41.8	-12	30	51.0	4.78	0.267	0.33	F0V
23362	1621	***	***	05	02	08.6	-20	01	44.1	4.91	-0.047	-0.04	B9V
23364	1617	ψ	Eri	05	02	14.4	-07	09	03.2	4.80	-0.164	-0.18	B3V
23416	1605	ε	Aur	05	03	09.4	+43	50	45.9	3.03	0.537	0.61	F0Ia
23453	1612	8	Aur	05	03	38.1	+41	05	54.0	3.69	1.154	1.12	K4II
23497	1620	ι	Tau	05	04	05.0	+21	36	43.8	4.62	0.155	0.19	A7V
23522	1603	10	Cam	05	04	53.5	+60	27	51.6	4.03	0.921	0.89	G0Ib
23595	1652	γ^1	Cae	05	05	00.1	-35	27	40.5	4.55	1.177	1.19	K2III
23607	1638	V1032	Ori	05	05	30.8	+15	25	32.8	4.65	-0.064	0.02	A0p
23693	1674	ζ	Dor	05	05	47.7	-57	27	02.1	4.71	0.526	0.60	F7V
23685	1654	ε	Lep	05	06	09.6	-22	20	59.5	3.19	1.460	1.50	K4III
23767	1641	10	Aur	05	07	40.5	+41	15	18.6	3.18	-0.148	-0.17	B3V
23783	1637	9	Aur	05	07	58.4	+51	37	04.2	4.98	0.343	0.40	F0V
23835	1656	104	Tau	05	08	25.6	+18	39	56.9	4.91	0.657	0.74	G4V
23875	1666	β	Eri	05	08	39.7	-05	03	58.4	2.78	0.161	0.16	A3III-var
23972	1679	λ	Eri	05	09	56.2	-08	44	02.5	4.25	-0.187	-0.16	B2IVn
24010	1676	15	Ori	05	10	38.7	+15	37	01.1	4.81	0.313	0.40	F2IV
24244	1696	ι	Lep	05	13	04.1	-11	51	01.9	4.45	-0.099	-0.08	B8V
24305	1702	μ	Lep	05	13	40.4	-16	11	13.1	3.29	-0.110	-0.09	B9IV:
24372	1744	θ	Dor	05	13	44.9	-67	10	00.0	4.81	1.274	1.22	K2III
24327	1705	κ	Lep	05	13	59.6	-12	55	22.2	4.36	-0.094	-0.07	B7V
24331	1698	ρ	Ori	05	14	09.3	+02	52	46.9	4.46	1.166	1.12	K3III...
24340	1689	μ	Aur	05	14	33.6	+38	30	08.9	4.82	0.189	0.23	A4m
24436	1713	β	Ori	05	15	19.9	-08	11	01.3	0.18	-0.030	0.03	B8Ia
24608	1708	13	Aur	05	17	54.6	+46	00	47.0	0.08	0.795	0.83	M1:
24659	1743	o	Col	05	18	04.8	-34	52	47.7	4.81	0.987	1.00	K0/K1III/IV
24674	1735	20	Ori	05	18	24.5	-06	49	39.8	3.59	-0.115	-0.10	B5III
24727	1726	16	Aur	05	19	15.6	+33	23	14.4	4.54	1.252	1.32	K3III...
24822	1739	n	Tau	05	20	16.2	+22	06	43.8	4.96	0.937	0.92	G8III

Posiciones medias de estrellas brillantes, 2016

Estrella				α			δ						
NH	NY	nom		h	m	s	º	‘	“	V	U-B	B-V	Esp
24813	1729	λ	Aur	05	20	18.2	+40	06	43.4	4.69	0.630	0.70	G0V
24845	1756	λ	Lep	05	20	20.2	-13	09	39.0	4.29	-0.235	-0.26	B0.5IV
24927	1762	***	***	05	21	09.2	-21	13	27.0	4.70	-0.048	-0.03	A0V
25044	1765	22	Ori	05	22	36.3	+00	22	02.5	4.72	-0.168	-0.17	B2IV-V
25142	1770	23	Ori	05	23	42.1	+03	33	32.8	4.99	-0.096	-0.14	B1V
25247	1784	29	Ori	05	24	44.6	-07	47	38.5	4.13	0.943	0.97	G8III
25281	1788	η	Ori	05	25	18.4	-02	22	59.3	3.35	-0.240	-0.16	B1V
25278	1780	V1119	Tau	05	25	23.3	+17	23	51.0	5.00	0.544	0.62	F8V
25302	1789	V1086	Ori	05	25	36.3	+01	51	37.2	4.89	-0.200	-0.19	B1V:pe
25336	1790	24	Ori	05	26	01.0	+06	21	48.2	1.64	-0.224	-0.22	B2III
25428	1791	β	Tau	05	27	20.2	+28	37	11.7	1.65	-0.130	-0.09	B7III
25473	1811	ψ	Ori	05	27	42.1	+03	06	31.5	4.59	-0.199	-0.21	B2IV
25539	1810	ο	Tau	05	28	37.6	+21	56	58.8	4.88	-0.140	-0.13	B2.5IV
25606	1829	β	Lep	05	28	57.2	-20	44	50.2	2.81	0.807	0.86	G5II
25737	1834	31	Ori	05	30	34.3	-01	04	49.6	4.71	1.592	1.70	K5III
25813	1839	32	Ori	05	31	40.1	+05	57	34.2	4.20	-0.143	-0.14	B5V
25859	1862	ε	Col	05	31	47.9	-35	27	33.4	3.86	1.130	1.09	K1II/III
25923	1855	υ	Ori	05	32	43.8	-07	17	25.8	4.62	-0.261	-0.28	B0V
25930	1852	δ	Ori	05	32	51.0	+00	17	17.0	2.25	-0.175	-0.21	O9.5II
25945	1845	119	Tau	05	33	10.8	+18	36	18.5	4.32	2.060	2.54	M2Ib
25985	1865	11	Lep	05	33	27.5	-17	48	41.5	2.58	0.211	0.32	F0Ib
26069	1922	β	Dor	05	33	46.2	-62	28	45.3	3.76	0.640	0.69	F6Ia
25984	1843	χ	Aur	05	33	48.2	+32	12	09.7	4.71	0.281	0.51	B5Iab
26176	1876	37	Ori	05	35	43.6	+09	29	58.0	4.39	-0.157	-0.13	B0IV...
26199	1887	***	***	05	35	51.1	-05	59	31.9	4.78	-0.248	-0.27	B0.5V
26207	1879	λ	Ori	05	36	02.8	+09	56	38.1	3.39	-0.160	-0.13	O...
26220	1893	41	Ori	05	36	04.5	-05	22	39.3	4.98	0.000	0.00	O7
26235	1897	θ^2	Ori	05	36	11.6	-05	24	22.9	4.98	-0.097	0.03	O9.5Vpe
26237	1892	c	Ori	05	36	12.0	-04	49	43.4	4.58	-0.183	-0.19	B2III...
26241	1899	44	Ori	05	36	14.4	-05	54	00.9	2.75	-0.210	-0.22	O9III
26311	1903	ε	Ori	05	37	03.1	-01	11	33.3	1.69	-0.184	-0.16	B0Ia
26366	1907	40	Ori	05	37	48.8	+09	17	54.0	4.09	0.951	1.02	G8III-IV
26451	1910	ζ	Tau	05	38	37.9	+21	09	04.4	2.97	-0.148	-0.15	B4IIIp
26549	1931	σ	Ori	05	39	34.5	-02	35	30.2	3.77	-0.190	-0.25	O9.5V...
26563	1937	d	Ori	05	39	41.0	-07	12	17.2	4.77	0.139	0.16	A4V
26594	1934	47	Ori	05	40	03.5	+04	07	46.6	4.50	-0.098	-0.02	B3IIIe
26634	1956	α	Col	05	40	14.8	-34	03	58.3	2.65	-0.120	-0.07	B7IV
26727	1948	ζ	Ori	05	41	35.5	-01	56	06.1	1.74	-0.199	-0.18	O9.5Ib
26736	1952	***	***	05	41	41.0	-01	07	16.6	4.95	-0.197	-0.21	B2IV-V
26777	1946	126	Tau	05	42	15.0	+16	32	29.0	4.84	-0.125	-0.10	B3IV...
26885	1963	51	Ori	05	43	19.9	+01	28	53.1	4.90	1.144	1.17	K1III
27100	2015	δ	Dor	05	44	48.2	-65	43	45.9	4.34	0.217	0.27	A7V
27072	1983	γ	Lep	05	45	09.1	-22	26	38.4	3.59	0.481	0.57	F7V
27321	2020	β	πc	05	47	40.6	-51	03	40.0	3.85	0.171	0.18	A3V
27288	1998	ζ	Lep	05	47	42.2	-14	49	00.8	3.55	0.104	0.11	A2Vann
27366	2004	κ	Ori	05	48	32.4	-09	39	53.5	2.07	-0.168	-0.14	B0.5Ia-var
27468	2002	132	Tau	05	50	01.8	+24	34	18.1	4.88	1.021	1.04	G8III-var
27530	2042	γ	πc	05	50	07.7	-56	09	46.7	4.50	1.075	1.06	K1III
27483	1995	29	Aur	05	50	19.1	+39	11	06.2	4.51	0.949	0.95	G8III
27511	2010	134	Tau	05	50	28.6	+12	39	18.9	4.89	-0.068	-0.05	B9IV
27628	2040	β	Col	05	51	32.5	-35	45	46.6	3.12	1.146	1.10	K1.5III
27654	2035	δ	Lep	05	52	01.9	-20	52	43.4	3.76	0.984	1.05	G8III/IV
27639	2011	31	Aur	05	52	10.0	+37	18	31.4	4.72	1.621	1.90	M1III
27673	2012	32	Aur	05	52	38.1	+39	09	06.0	3.97	1.132	1.07	K0III
27750	2037	56	Ori	05	53	17.9	+01	51	28.6	4.76	1.382	1.31	K2II-var

Posiciones medias de estrellas brillantes, 2016

Estrella				α			δ						
NH	NY	nom		h	m	s	º	‘	“	V	U-B	B-V	Esp
27810	2056	λ	Col	05	53	42.9	-33	47	54.9	4.88	-0.154	-0.14	B5V
27890	2102	***	***	05	54	13.7	-63	05	04.8	4.65	1.022	1.03	K1III/IV
27830	2034	136	Tau	05	54	21.9	+27	36	52.9	4.56	-0.008	0.00	A0V
27913	2047	χ^1	Ori	05	55	21.7	+20	16	40.0	4.39	0.594	0.66	G0V
27989	2061	ξ	Ori	05	56	03.9	+07	24	31.9	0.45	1.500	2.32	M2Ib
28010	2087	η	Col	05	56	04.0	-37	07	08.7	4.97	1.102	1.03	K1IIICN...
27949	2029	α	Aur	05	56	13.8	+55	42	31.7	4.96	0.052	0.09	A2V
28103	2085	γ	Lep	05	57	09.4	-14	09	56.8	3.71	0.337	0.39	F1V
28199	2106	139	Col	05	58	07.3	-35	16	56.5	4.36	-0.165	-0.16	B2.5IV
28237	2084	η	Tau	05	59	01.1	+25	57	16.2	4.81	-0.088	-0.04	B1Ib
28328	2120	δ	Col	05	59	39.1	-42	48	53.8	3.96	1.146	1.06	K0III
28360	2088	37	Aur	06	00	44.4	+44	56	50.5	1.90	0.077	0.05	A2V
28380	2095	35	Aur	06	00	50.8	+37	12	43.7	2.65	-0.083	-0.06	A0p
28413	2113	***	***	06	00	52.9	-03	04	29.2	4.53	1.202	1.26	K2III-var
28358	2077	β	Aur	06	00	53.2	+54	17	02.2	3.72	1.010	0.99	K0III
28404	2091	3	Aur	06	01	09.6	+45	56	11.3	4.30	1.701	2.51	M3II-var
28574	2128	μ	Mon	06	02	37.0	-10	35	55.7	4.92	-0.128	-0.08	B5III
28614	2124	χ^2	Ori	06	03	17.5	+09	38	45.5	4.12	0.170	0.19	Am...
28716	2135	1	Ori	06	04	54.0	+20	08	12.0	4.64	0.236	0.41	B2Ia-var
28734	2134	SS	Gem	06	05	07.4	+23	15	39.4	4.16	0.835	0.88	G7III
28816	2148	θ	Lep	06	05	43.3	-16	29	11.7	4.92	0.196	0.21	Ap
28910	2155	θ	Lep	06	06	54.2	-14	56	16.1	4.67	0.046	0.04	A0V
29034	2177	ν	Col	06	08	05.6	-37	15	21.8	5.00	-0.095	-0.08	B8:IV
29038	2159	δ	Ori	06	08	30.9	+14	45	54.5	4.42	-0.164	-0.17	B3IV
29276	2212	ξ	πc	06	10	37.2	-54	58	22.1	4.72	-0.229	-0.24	B0.5IV
29426	2199	f^1	Ori	06	12	52.7	+14	12	13.3	4.45	-0.180	-0.16	B3IV
29434	2198	ν^1	Ori	06	13	00.4	+16	07	31.1	4.95	-0.149	-0.12	B5Vn
29651	2227	γ	Mon	06	15	39.6	-06	16	51.5	3.99	1.319	1.27	K3III
29655	2216	η	Gem	06	15	52.4	+22	30	02.1	3.31	1.600	2.70	M3III
29696	2219	κ	Aur	06	16	25.8	+29	29	25.8	4.32	1.021	1.04	G8III-var
29735	2244	***	***	06	16	30.3	-13	43	29.7	5.00	-0.078	-0.05	B9V
29807	2256	κ	Col	06	17	08.4	-35	08	48.7	4.37	0.978	0.94	G8II
29997	2209	***	***	06	20	39.7	+69	18	41.1	4.76	0.025	0.05	A0Vn
30093	2275	***	***	06	20	49.2	-02	57	09.6	4.91	1.613	1.90	M1III
30122	2282	δ	CMa	06	20	56.8	-30	04	17.8	3.02	-0.160	-0.20	B2.5V
30060	2238	ζ	Lyn	06	21	04.7	+59	00	10.6	4.44	0.032	0.05	A2Vs
30277	2296	β	Col	06	22	43.0	-33	26	44.2	3.85	0.858	0.88	G7II
30324	2294	μ	CMa	06	23	25.6	-17	57	54.5	1.98	-0.240	-0.24	B1II/III
30343	2286	μ	Gem	06	23	57.5	+22	30	13.3	2.87	1.621	2.30	M3III-var
30438	2326	***	***	06	24	19.1	-52	42	18.7	-0.62	0.164	0.23	F0Ib
30419	2298	α	Mon	06	24	38.6	+04	34	59.6	4.39	0.215	0.25	A5IV
30520	2289	ψ^1	Aur	06	26	10.1	+49	16	39.6	4.92	1.905	1.94	K5Iab--var
30788	2361	λ	CMa	06	28	46.9	-32	35	28.8	4.47	-0.169	-0.16	B4V
30867	2356	β	Mon	06	29	37.1	-07	02	41.2	3.76	-0.113	-0.11	B3Ve
30883	2343	ν	Gem	06	29	56.6	+20	12	01.1	4.13	-0.115	-0.10	B6III
31125	2387	4	CMa	06	32	32.6	-23	25	52.5	4.34	-0.245	-0.24	B1III
31216	2385	13	Mon	06	33	47.8	+07	19	10.6	4.47	0.023	0.09	A0Ib
31407	2435	***	***	06	35	20.4	-52	59	22.5	4.35	-0.021	0.06	B9III
31416	2414	ξ^2	CMa	06	35	44.9	-22	58	43.9	4.54	-0.035	-0.01	A0III
31592	2429	ν^2	CMa	06	37	24.2	-19	16	15.5	3.95	1.037	1.02	K1III+...
31685	2451	ν	Pup	06	38	16.0	-43	12	40.0	3.17	-0.103	-0.07	B8III
31700	2443	ν^3	CMa	06	38	37.0	-18	15	10.0	4.42	1.137	1.12	K0II/III
31681	2421	γ	Gem	06	38	39.8	+16	23	01.4	1.93	0.001	0.04	A0IV
31827	2450	***	***	06	40	02.0	-14	09	41.8	4.82	1.459	1.45	K2III
31832	2427	ψ^2	Aur	06	40	30.4	+42	28	21.7	4.80	1.236	1.17	K3III

Posiciones medias de estrellas brillantes, 2016

Estrella				α			δ						
NH	NY		nom	h	m	s	º	‘	“	V	U-B	B-V	Esp
31978	2456	S	Mon	06	41	53.2	+09	52	45.2	4.66	-0.233	-0.22	O7
32249	2478	30	Gem	06	44	55.1	+13	12	36.3	4.49	1.167	1.11	K1III
32246	2473	ε	Gem	06	44	56.8	+25	06	48.1	3.06	1.377	1.22	A3mA6-A9
32349	2491	9	CMa	06	45	52.5	-16	44	23.4	-1.44	0.009	-0.02	A0m...
32362	2484	ξ	Gem	06	46	12.9	+12	52	35.4	3.35	0.443	0.48	F5IV
32438	2470	12	Lyn	06	47	41.4	+59	25	22.6	4.86	0.084	0.10	A3V
32533	2503	17	Mon	06	48	13.6	+08	01	05.5	4.77	1.396	1.36	K4III
32607	2550	α	πc	06	48	21.6	-61	57	34.2	3.24	0.225	0.28	A7IV
32578	2506	18	Mon	06	48	43.3	+02	23	34.4	4.48	1.099	1.06	K0III
32761	2554	***	***	06	50	12.8	-53	38	32.1	4.41	0.899	0.92	G6II
32768	2553	τ	Pup	06	50	20.7	-50	38	05.3	2.94	1.207	1.14	K0III...
32759	2538	κ	CMa	06	50	27.5	-32	31	42.2	3.50	-0.116	-0.10	B1.5IVne
32855	2549	***	***	06	51	28.4	-34	23	15.6	4.99	1.379	1.28	K2/K3III
32844	2516	ψ^7	Aur	06	51	55.8	+41	45	36.7	4.99	1.256	1.23	K3III
33018	2540	θ	Gem	06	53	52.5	+33	56	23.5	3.60	0.102	0.14	A3III
33092	2571	EY	CMa	06	54	15.7	-20	14	44.3	4.82	-0.212	-0.21	B1Ib
33152	2580	o^1	CMa	06	54	49.1	-24	12	20.9	3.89	1.740	1.58	K3Iab
33160	2574	θ	CMa	06	54	57.4	-12	03	37.3	4.08	1.418	1.49	K4III
33202	2564	e	Gem	06	55	34.5	+13	09	20.1	4.73	0.321	0.36	F0Vp
33302	2590	π	CMa	06	56	20.4	-20	09	30.7	4.66	0.374	0.46	F2IV/V
33357	2608	***	***	06	56	42.4	-48	44	36.7	4.94	1.668	2.05	M1III
33345	2593	μ	CMa	06	56	52.0	-14	03	56.9	5.00	1.182	1.30	B9.5V
33347	2596	ι	CMa	06	56	52.4	-17	04	35.9	4.36	-0.063	0.01	B3Ib/II
33449	2560	15	Lyn	06	58	42.1	+58	23	57.1	4.35	0.850	0.85	G5III-IV
33485	2585	ψ	Aur	06	58	49.2	+45	04	15.6	4.90	0.027	0.05	A2Vn
33579	2618	ε	CMa	06	59	16.5	-28	59	43.6	1.50	-0.211	-0.20	B2II
33856	2646	σ	CMa	07	02	22.6	-27	57	33.7	3.49	1.729	1.82	K4III
33694	2527	***	***	07	02	27.0	+76	57	11.1	4.55	1.365	1.35	K4III
33977	2653	o^2	CMa	07	03	42.8	-23	51	30.0	3.02	-0.077	-0.03	B3Ia
33971	2648	19	Mon	07	03	43.9	-04	15	51.4	4.99	-0.195	-0.19	B1V
34059	2672	H	Pup	07	04	19.4	-49	36	31.1	4.92	0.140	0.15	A4IV
34045	2657	γ	CMa	07	04	30.3	-15	39	31.3	4.11	-0.112	-0.09	B8II
34088	2650	43	Gem	07	05	05.2	+20	32	41.1	4.01	0.899	0.90	G3Ibv
34481	2736	γ^2	Vol	07	08	36.2	-70	31	32.0	3.78	1.006	0.94	G8III-var
34444	2693	δ	CMa	07	09	03.8	-26	25	13.1	1.83	0.671	0.67	F8Ia
34495	2702	A	Pup	07	09	24.3	-39	40	58.5	4.83	-0.179	-0.17	B3IV/V
34622	2701	20	Mon	07	11	02.9	-04	15	50.3	4.91	1.020	1.03	K0III
34693	2697	46	Gem	07	12	11.3	+30	13	00.1	4.41	1.261	1.25	K2III
34769	2714	22	Mon	07	12	42.4	+00	31	16.4	4.15	-0.005	0.02	A2V
34752	2696	63	Aur	07	12	47.3	+39	17	31.5	4.91	1.451	1.48	K4II-III
34834	2740	QW	Pup	07	13	01.9	-46	47	15.0	4.49	0.324	0.40	F0IV
34899	2746	OU	Pup	07	13	43.0	-45	12	43.5	4.87	-0.003	0.02	Ap
34922	2748	L^2	Pup	07	14	02.6	-44	40	02.3	4.42	1.331	3.46	M5e
34981	2745	27	CMa	07	14	55.6	-26	22	54.7	4.42	-0.170	-0.12	B3III
35020	2762	***	***	07	15	05.4	-48	18	05.0	4.75	-0.091	-0.07	B8/B9V
35037	2749	ω	CMa	07	15	28.8	-26	48	08.0	4.01	-0.150	-0.08	B2IV/Ve
35228	2803	δ	Vol	07	16	49.1	-67	59	14.4	3.97	0.760	0.78	F6II
35205	2766	***	***	07	17	14.7	-27	54	40.5	4.66	1.589	2.11	M2III
35210	2764	145	CMa	07	17	18.6	-23	20	45.1	4.83	1.601	1.77	K4III
35264	2773	π	Pup	07	17	43.5	-37	07	40.4	2.71	1.616	1.65	K3Ib
35363	2787	NV	Pup	07	18	53.6	-36	45	53.4	4.65	-0.099	0.11	B2V+...
35350	2763	λ	Gem	07	19	02.4	+16	30	33.6	3.58	0.106	0.12	A3V...
35412	2781	29	CMa	07	19	21.6	-24	35	23.0	4.88	-0.160	-0.06	O7f
35415	2782	30	CMa	07	19	23.6	-24	59	07.5	4.37	-0.132	-0.10	O9Ib
35384	2751	***	***	07	19	46.9	+49	26	01.2	5.00	0.087	0.16	A4IIIn

Posiciones medias de estrellas brillantes, 2016

Estrella				α			δ						
NH	NY	nom		h	m	s	º	‘	“	V	U-B	B-V	Esp
35550	2777	δ	Gem	07	21	06.4	+21	57	02.3	3.50	0.374	0.44	F0IV...
35727	2812	***	***	07	22	57.1	-19	02	56.5	4.94	-0.039	0.01	B5II/III
35904	2827	η	CMa	07	24	44.9	-29	20	10.1	2.45	-0.083	0.01	B5Ia
36041	2828	2	CMi	07	26	33.0	+09	14	32.5	4.99	0.991	0.96	G8III
36046	2821	60	Gem	07	26	45.0	+27	45	50.2	3.78	1.024	1.01	G9III+...
36145	2818	21	Lyn	07	27	57.3	+49	10	37.7	4.61	-0.001	0.02	A1V
36188	2845	3	CMi	07	28	02.7	+08	15	17.6	2.89	-0.097	-0.07	B8V-var
36284	2854	γ	CMi	07	29	03.7	+08	53	27.4	4.33	1.425	1.48	K3III
36377	2878	σ	Pup	07	29	45.3	-43	20	07.9	3.25	1.509	1.54	K5III
36366	2852	62	Gem	07	30	10.3	+31	45	01.5	4.16	0.320	0.40	F0V...
36431	2874	***	***	07	30	33.5	-23	03	34.2	4.85	0.243	0.35	A6Ib/II
36425	2864	6	CMi	07	30	42.8	+11	58	16.4	4.55	1.276	1.21	K2III
36514	2881	***	***	07	31	21.1	-30	59	52.1	4.65	0.904	0.89	G2Ib...
36547	2742	VZ	Cam	07	34	26.9	+82	22	30.4	4.92	1.633	2.66	M4IIIa
36773	2902	KQ	Pup	07	34	33.4	-14	33	38.0	4.82	1.362	1.37	A4Ia
36795	2906	***	***	07	34	45.6	-22	19	57.5	4.44	0.521	0.60	F6V
36850	2890	α	Gem	07	35	38.9	+31	51	02.0	1.58	0.034	0.05	A2Vm
36917	2922	***	***	07	36	02.7	-28	24	24.0	4.65	-0.111	-0.12	B8V
36942	2934	***	***	07	36	04.2	-52	34	16.3	4.93	1.373	1.39	K3III
36962	2905	υ	Gem	07	36	56.2	+26	51	27.8	4.06	1.540	1.66	K5III
37096	2937	f	Pup	07	37	58.8	-35	00	23.1	4.53	-0.081	-0.08	B8IV/V
37173	2944	PU	Pup	07	38	59.3	-25	24	11.4	4.69	-0.100	-0.07	B8IV
37229	2948	***	***	07	39	30.5	-26	50	32.1	3.80	-0.159	-0.15	B5IV
37297	2961	n^1	Pup	07	40	02.2	-38	20	48.0	4.84	-0.189	-0.17	B3V
37279	2943	α	CMi	07	40	09.9	+05	10	53.5	0.40	0.432	0.49	F5IV-V
37265	2930	71	Gem	07	40	14.4	+34	32	42.3	4.89	0.413	0.47	F3III
37379	2959	***	***	07	41	08.5	-15	18	11.3	4.98	1.543	1.49	K3III
37504	3024	ζ	Vol	07	41	36.5	-72	38	43.7	3.93	1.033	1.02	K0III
37447	2970	26	Mon	07	42	02.1	-09	35	26.3	3.94	1.022	1.01	K0III
37648	2993	1	Pup	07	44	12.4	-28	27	03.5	4.63	1.632	1.76	K5III
37629	2973	75	Gem	07	44	20.5	+28	50	32.1	4.23	1.118	1.12	K1III
37609	2946	24	Lyn	07	44	23.7	+58	40	11.9	4.93	0.104	0.17	A3IVn
37677	2996	3	Pup	07	44	28.2	-28	59	42.4	3.94	0.160	0.34	A2Iab
37740	2985	κ	Gem	07	45	26.5	+24	21	25.7	3.57	0.932	0.90	G8III
37819	3017	c	Pup	07	45	50.6	-38	00	33.8	3.62	1.706	1.82	K4III
37826	2990	β	Gem	07	46	19.4	+27	59	06.3	1.16	0.991	0.97	K0III-var
37908	3003	g	Gem	07	47	04.7	+18	28	07.0	4.89	1.425	1.54	K5III
38070	3034	o	Pup	07	48	46.3	-25	58	44.4	4.40	-0.070	0.13	B1IV:nne
38089	3046	Q	Pup	07	48	49.6	-47	07	12.0	4.69	1.039	1.03	K0III
38164	3055	P	Pup	07	49	44.5	-46	24	55.4	4.10	-0.160	-0.17	B0III
38170	3045	ξ	Pup	07	49	59.3	-24	54	07.5	3.34	1.218	1.08	G6Ia
38414	3080	a	Pup	07	52	47.1	-40	37	08.6	3.71	1.012	1.04	G5III...
38455	3084	b	Pup	07	53	13.7	-38	54	22.5	4.49	-0.188	-0.18	B2V
38500	3089	***	***	07	53	31.5	-49	39	23.6	4.63	-0.228	-0.24	B1.5Vp
38518	3090	J	Pup	07	53	47.2	-48	08	47.7	4.22	-0.130	-0.11	B0.5Ib
38538	3067	φ	Gem	07	54	30.3	+26	43	18.5	4.97	0.098	0.14	A3V
38827	3117	x	Car	07	57	11.9	-53	01	37.8	3.46	-0.177	-0.17	B3IVp
38835	3102	11	Pup	07	57	34.1	-22	55	30.1	4.20	0.718	0.75	F7/F8II
38901	3113	***	***	07	58	19.6	-30	22	47.2	4.76	0.151	0.24	A7III
38957	3129	V	Pup	07	58	42.9	-49	17	25.0	4.47	-0.180	-0.14	B1Vp
39138	3159	***	***	08	00	32.3	-63	36	48.4	4.81	-0.173	-0.16	B3V
39079	3122	27	Mon	08	00	33.6	-03	43	32.0	4.93	1.205	1.22	K2III
39095	3131	***	***	08	00	36.4	-18	26	43.4	4.61	0.087	0.11	A1V
39211	3141	28	Mon	08	02	03.7	-01	26	22.0	4.69	1.475	1.54	K4III
39311	3145	***	***	08	03	07.4	+02	17	17.5	4.39	1.252	1.27	K2III

Posiciones medias de estrellas brillantes, 2016

Estrella				α			δ						
NH	NY		nom	h	m	s	°	‘	“	V	U-B	B-V	Esp
39429	3165	ζ	Pup	08	04	09.9	-40	03	01.2	2.21	-0.269	-0.22	O5IAf
39424	3149	x	Gem	08	04	31.7	+27	44	48.7	4.94	1.130	1.09	K2III
39794	3223	ε	Vol	08	07	58.6	-68	39	56.1	4.35	-0.113	-0.10	B6IV
39757	3185	ρ	Pup	08	08	14.8	-24	21	09.9	2.83	0.458	0.42	F2mF5IIp
39903	3220	***	***	08	09	17.0	-61	21	10.3	4.74	0.437	0.53	F5V
39863	3188	ζ	Mon	08	09	25.4	-03	01	58.1	4.36	0.970	0.92	G2Ib
39847	3173	27	Lyn	08	09	41.5	+51	27	27.4	4.78	0.048	0.10	A2V
39906	3192	16	Pup	08	09	45.8	-19	17	39.1	4.40	-0.160	-0.14	B5V
39953	3207	γ^2	Vel	08	10	02.5	-47	23	09.0	1.75	-0.145	-0.14	WC8
40091	3225	NS	Pup	08	11	56.9	-39	40	06.4	4.44	1.590	1.62	K4III
40096	3226	***	***	08	11	59.4	-43	02	13.9	4.73	0.164	0.30	A7Ib
40084	3211	19	Pup	08	12	02.8	-12	58	36.7	4.72	0.939	0.93	K0III
40167	3208	ζ	Cnc	08	13	09.4	+17	35	48.6	4.67	0.531	0.60	G0V
40259	3229	20	Pup	08	14	05.5	-15	50	19.8	4.99	1.066	1.02	G5Ib/II
40274	3237	MX	Pup	08	14	06.9	-35	57	00.4	4.78	-0.110	-0.01	B2ne
40326	3243	h^2	Pup	08	14	38.1	-40	23	56.4	4.42	1.170	1.15	K1II/III
40526	3249	β	Cnc	08	17	24.5	+09	08	01.1	3.53	1.481	1.47	K4III
40702	3318	α	Cha	08	18	04.5	-76	58	16.9	4.05	0.413	0.49	F5III
40706	3270	q	Pup	08	19	10.4	-36	42	40.1	4.44	0.222	0.25	A4m...
40888	3340	θ	Cha	08	20	07.2	-77	32	13.5	4.34	1.161	1.10	K0III-IV
40945	3282	w	Pup	08	22	02.0	-33	06	27.3	4.83	1.419	1.35	K2/K3III
41037	3307	ε	Car	08	22	51.1	-59	33	46.6	1.86	1.196	1.16	K3III+B2V
41039	3294	B	Vel	08	23	02.2	-48	32	38.2	4.79	-0.146	-0.12	B1V
41075	3275	31	Lyn	08	23	57.6	+43	08	02.0	4.25	1.550	1.61	K5III
41312	3347	β	Vol	08	25	54.7	-66	11	31.8	3.77	1.132	1.10	K2III-var
41307	3314	C	Hya	08	26	29.1	-03	57	40.3	3.91	-0.012	-0.02	A0V
41704	3323	o	UMa	08	31	37.4	+60	39	41.3	3.35	0.856	0.87	G4II-III
42134	3414	e^2	Car	08	35	43.0	-58	04	00.3	4.84	0.981	0.98	K0III
42312	3426	e	Vel	08	38	13.5	-43	02	50.8	4.11	0.109	0.20	A6II
42313	3410	4	Hya	08	38	31.7	+05	38	43.1	4.14	0.003	0.02	A1Vnn
42402	3418	σ	Hya	08	39	37.1	+03	16	57.3	4.45	1.216	1.12	K2III
42483	3433	ζ	Pyx	08	40	23.6	-29	37	14.0	4.86	0.900	0.99	G5III
42515	3438	β	Pyx	08	40	44.9	-35	22	03.4	3.97	0.936	0.91	G5II/III
42536	3447	o	Vel	08	40	45.9	-52	58	51.3	3.60	-0.168	-0.16	B3IV
42509	3431	a	Hya	08	40	48.4	-12	32	04.3	4.98	1.415	1.40	K3III
42568	3457	V343	Car	08	40	58.8	-59	49	12.9	4.31	-0.117	-0.08	B1.5III
42570	3445	b	Vel	08	41	10.4	-46	42	28.9	3.77	0.670	0.92	F3Ia
42527	3403	π^2	UMa	08	41	38.4	+64	16	07.4	4.59	1.179	1.18	K2III
42624	3452	n	Vel	08	41	45.6	-47	22	35.7	4.74	0.137	0.25	A5II
42662	3441	9	Hya	08	42	29.3	-16	00	12.6	4.87	1.063	1.04	K0IIICN...
42726	3467	HY	Vel	08	42	53.8	-53	10	25.4	4.83	-0.173	-0.18	B3IV
42799	3454	η	Hya	08	44	05.2	+03	20	18.6	4.30	-0.192	-0.20	B3V...
42806	3449	43	Cnc	08	44	14.3	+21	24	29.3	4.66	0.010	0.03	A1IV
42828	3468	α	Pyx	08	44	15.4	-33	14	47.7	3.68	-0.180	-0.17	B1.5III
42835	3459	F	Hya	08	44	29.0	-07	17	38.5	4.63	0.840	0.85	G2Ib
42884	3477	d	Vel	08	44	59.3	-42	42	34.8	4.05	0.874	0.89	G5III
42913	3485	δ	Vel	08	45	09.6	-54	46	11.4	1.93	0.043	0.05	A1V
42911	3461	δ	Cnc	08	45	37.2	+18	05	33.6	3.94	1.083	1.01	K0III
43023	3487	a	Vel	08	46	35.2	-46	06	08.8	3.87	0.015	0.09	A1III
43105	3498	V344	Car	08	47	08.1	-56	49	51.1	4.50	-0.169	-0.16	B3Vne
43067	3484	D	Hya	08	47	09.3	-13	36	31.8	4.32	0.900	0.91	G8III
43109	3482	ε	Hya	08	47	38.8	+06	21	26.7	3.38	0.685	0.78	G0III-IV
43103	3475	48	Cnc	08	47	41.5	+28	41	54.5	4.03	1.007	0.96	G8Iab:
43234	3492	ρ	Hya	08	49	18.3	+05	46	33.5	4.35	-0.044	-0.03	A0Vn
43347	3520	g	Vel	08	50	21.9	-45	22	11.6	4.94	0.043	0.06	A2III

Posiciones medias de estrellas brillantes, 2016

Estrella				α			δ						
NH	NY	nom		h	m	s	º	‘	“	V	U-B	B-V	Esp
43409	3518	γ	Pyx	08	51	14.0	-27	46	18.3	4.02	1.272	1.24	K3III
43783	3571	c	Car	08	55	25.2	-60	42	28.8	3.84	-0.104	-0.08	B8III
43825	3556	δ	Pyx	08	56	14.1	-27	44	46.0	4.87	0.142	0.16	A3IV
43813	3547	ζ	Hya	08	56	15.9	+05	52	54.8	3.11	0.978	0.96	G8III-IV
43878	3574	H	Vel	08	56	49.2	-52	47	14.5	4.68	-0.115	-0.11	B5V
43937	3582	V376	Car	08	57	22.6	-59	17	36.4	4.93	-0.182	-0.21	B2IV-V
44066	3572	α	Cnc	08	59	23.3	+11	47	34.5	4.26	0.141	0.14	A5m
44127	3569	ι	UMa	09	00	19.8	+47	58	33.5	3.12	0.223	0.25	A7IV
44191	3591	w	Vel	09	00	42.4	-41	19	06.3	4.45	0.646	0.75	Fp
44248	3579	10	UMa	09	01	42.2	+41	42	59.9	3.96	0.463	0.53	F5V
44382	3615	α	Vol	09	02	42.2	-66	27	43.9	4.00	0.145	0.15	Am
44390	3576	8	UMa	09	04	00.6	+67	33	49.8	4.74	1.542	2.15	M3III
44511	3614	c	Vel	09	04	43.5	-47	09	50.3	3.75	1.174	1.11	K2III
44471	3594	κ	UMa	09	04	44.7	+47	05	24.5	3.57	0.007	0.03	A1Vn
44599	3643	***	***	09	05	10.8	-72	40	08.8	4.47	0.607	0.67	F6II-III
44626	3642	V345	Car	09	05	46.0	-70	36	18.0	4.66	-0.149	-0.13	B2IVe
44659	3613	18	Hya	09	06	50.4	+05	01	31.9	4.99	1.189	1.17	K2II-III
44700	3612	***	***	09	07	34.4	+38	23	06.9	4.56	1.037	0.97	G8Ib-II
44816	3634	λ	Vel	09	08	36.2	-43	29	59.2	2.23	1.665	1.69	K4Ib-II
44824	3628	κ	Pyx	09	08	46.4	-25	55	32.9	4.62	1.594	1.66	K4/K5III
44901	3619	15	UMa	09	10	01.6	+51	32	13.0	4.46	0.288	0.30	Am
45080	3659	V357	Car	09	11	24.1	-59	02	05.5	3.43	-0.190	-0.17	B2IV
45101	3663	i	Car	09	11	39.1	-62	23	06.1	3.96	-0.180	-0.18	B3IV
45085	3654	GX	Vel	09	11	40.4	-44	56	09.5	4.99	0.222	0.36	B5Ia
45038	3616	13	UMa	09	11	49.4	+67	03	56.1	4.80	0.489	0.57	F7IV-V
45075	3624	τ	UMa	09	12	15.7	+63	26	42.7	4.67	0.381	0.45	Am
45238	3685	β	Car	09	13	22.5	-69	47	07.1	1.67	0.070	0.02	A2IV
45336	3665	22	Hya	09	15	13.3	+02	14	38.0	3.89	-0.060	-0.07	B9.5V
45439	3682	l	Vel	09	16	15.8	-38	38	21.4	4.92	1.084	1.06	K1III
45448	3684	k	Vel	09	16	24.8	-37	28	57.1	4.63	0.473	0.52	F3/F5V
45496	3696	g	Car	09	16	40.0	-57	36	39.5	4.34	1.602	1.83	M1III
45493	3662	DD	UMa	09	17	22.0	+53	57	09.4	4.80	0.199	0.26	A5V
45556	3699	ι	Car	09	17	31.9	-59	20	41.4	2.21	0.189	0.28	A8Ib
45688	3690	38	Lyn	09	19	52.0	+36	43	54.6	3.82	0.066	0.12	A1V
45751	3706	26	Hya	09	20	34.1	-12	02	42.7	4.77	0.927	0.91	G8III
45811	3709	27	Hya	09	21	17.4	-09	37	35.1	4.80	0.913	0.92	F5V+...
45856	3728	k	Car	09	21	20.5	-62	28	31.0	4.79	0.926	0.96	G6III
45860	3705	40	Lyn	09	22	03.3	+34	19	18.7	3.14	1.550	1.65	M0III-var
45902	3718	θ	Pyx	09	22	13.5	-26	02	10.7	4.71	1.633	1.91	M0III
45941	3734	κ	Vel	09	22	37.5	-55	04	53.7	2.47	-0.141	-0.17	B2IV
46026	3733	λ	Pyx	09	23	55.2	-28	54	18.2	4.71	0.892	0.91	G8III
46146	3731	κ	Leo	09	25	36.7	+26	06	37.6	4.47	1.222	1.20	K2III
46371	3749	G	Hya	09	28	03.7	-22	25	00.4	4.72	1.154	1.11	K1III
46390	3748	α	Hya	09	28	23.9	-08	43	51.0	1.99	1.440	1.39	K3III
46515	3765	ε	Ant	09	29	55.6	-36	01	26.7	4.51	1.408	1.37	K3III
46509	3759	τ^1	Hya	09	29	59.1	-02	50	30.3	4.59	0.411	0.52	F6V
46651	3786	ψ	Vel	09	31	21.1	-40	32	22.8	3.60	0.371	0.43	F2IV
46701	3803	N	Vel	09	31	43.4	-57	06	27.3	3.16	1.538	1.59	K5III
46750	3773	4	Leo	09	32	39.5	+22	53	39.8	4.32	1.541	1.63	K5III-var
46733	3757	23	UMa	09	32	48.7	+62	59	18.9	3.65	0.360	0.41	F0IV
46776	3787	32	Hya	09	32	49.4	-01	15	29.3	4.54	0.109	0.16	A3V
46771	3782	ξ	Leo	09	32	50.0	+11	13	33.6	4.99	1.046	0.89	K0III-var
46853	3775	25	UMa	09	33	57.1	+51	36	04.2	3.17	0.475	0.56	F6IV
46974	3825	h	Car	09	34	55.4	-59	18	13.4	4.08	-0.013	0.01	B5II
46952	3800	10	LMi	09	35	13.7	+36	19	24.4	4.54	0.914	0.91	G8III

Posiciones medias de estrellas brillantes, 2016

Estrella				α			δ						
NH	NY	nom		h	m	s	°	‘	“	V	U-B	B-V	Esp
46977	3771	d	UMa	09	35	54.8	+69	45	23.7	4.54	0.781	0.83	G4III-IV
47006	3799	26	UMa	09	35	56.7	+51	58	37.7	4.47	0.027	0.08	A2V
47029	3809	***	***	09	36	05.3	+39	32	50.6	4.81	0.992	1.00	K0III
47175	3836	M	Vel	09	37	25.0	-49	25	45.8	4.34	0.173	0.18	A5V
47205	3827	10	Leo	09	38	04.8	+06	45	40.2	5.00	1.051	1.03	K1III-var
47310	3834	2	Sex	09	39	18.9	+04	34	26.7	4.68	1.310	1.35	K3III
47193	3751	***	***	09	39	19.3	+81	15	05.4	4.28	1.488	1.46	K3III
47391	3856	m	Car	09	39	48.4	-61	24	11.2	4.51	-0.070	-0.06	B9V
47431	3845	ι	Hya	09	40	41.9	-01	13	06.2	3.90	1.313	1.29	K3III-var
47508	3852	14	Leo	09	42	01.8	+09	48	59.5	3.52	0.516	0.59	A5V+...
47522	3858	I	Hya	09	42	02.2	-23	40	01.6	4.76	-0.117	-0.10	B5V
47592	3862	***	***	09	42	59.1	-23	59	24.7	4.93	0.534	0.58	G0V
47758	3871	θ	Ant	09	44	56.3	-27	50	44.1	4.78	0.516	0.61	A7V+...
47854	3884	l	Car	09	45	42.0	-62	35	03.6	3.69	1.010	1.03	G5Iab/Ib
47908	3873	ε	Leo	09	46	47.1	+23	41	51.2	2.97	0.808	0.81	G0II
48002	3890	υ	Car	09	47	30.8	-65	08	55.9	2.92	0.273	0.42	A9
48319	3888	υ	UMa	09	52	09.0	+58	57	36.9	3.78	0.291	0.39	F0IV
48356	3903	υ^1	Hya	09	52	16.3	-14	55	28.4	4.11	0.918	0.92	G6/G8III
48374	3912	m	Vel	09	52	19.0	-46	37	31.7	4.58	1.172	1.10	G5Ib
48402	3894	φ	UMa	09	53	13.1	+53	59	11.0	4.55	0.038	0.09	A3IV
48455	3905	μ	Leo	09	53	41.9	+25	55	42.8	3.88	1.222	1.13	K0III
48559	3919	***	***	09	54	57.2	-26	00	37.9	4.87	1.199	1.19	K2III
48615	3923	***	***	09	55	38.9	-19	05	17.2	4.94	1.559	1.75	K5III
48774	3940	φ	Vel	09	57	26.6	-54	38	48.3	3.52	-0.067	-0.04	B5Ib
49029	3950	π	Leo	10	01	05.0	+07	57	52.0	4.68	1.589	1.96	M2III
49402	3970	υ^2	Hya	10	05	55.7	-13	08	42.6	4.60	-0.087	-0.07	B8V
49583	3975	η	Leo	10	08	13.8	+16	40	53.8	3.48	-0.031	0.06	A0Ib
49593	3974	21	LMi	10	08	23.9	+35	09	49.0	4.49	0.190	0.19	A7V
49637	3980	31	Leo	10	08	46.7	+09	54	57.8	4.39	1.448	1.51	K4III
49641	3981	α	Sex	10	08	46.9	+00	27	10.1	4.48	-0.032	-0.01	A0III
49669	3982	α	Leo	10	09	14.9	+11	53	09.5	1.36	-0.087	-0.10	B7V
49712	3990	Q	Vel	10	09	33.9	-51	53	33.3	4.85	-0.120	-0.10	B3IV
49841	3994	41	Hya	10	11	23.6	-12	26	10.3	3.61	1.007	0.96	K0III
50099	4037	ω	Car	10	14	07.7	-70	07	12.2	3.29	-0.074	-0.03	B8III
50191	4023	q	Vel	10	15	25.8	-42	12	14.8	3.85	0.051	0.03	A2V
50335	4031	ζ	Leo	10	17	36.3	+23	20	04.3	3.43	0.307	0.39	F0III
50371	4050	V337	Car	10	17	38.2	-61	24	54.2	3.39	1.541	1.45	K3II
50372	4033	33	UMa	10	18	05.1	+42	49	52.8	3.45	0.029	0.05	A2IV
50555	4063	GZ	Vel	10	20	14.1	-55	06	45.1	4.59	1.600	1.50	K3II
50564	4054	40	Leo	10	20	37.9	+19	23	12.0	4.78	0.452	0.53	F6IV
50583	4057	41	Leo	10	20	52.8	+19	45	26.9	2.01	1.128	1.17	K0III
50676	4074	J	Vel	10	21	31.8	-56	07	36.0	4.50	-0.102	-0.08	B3III
50799	4080	r	Vel	10	23	02.2	-41	44	00.1	4.82	1.095	1.06	K1III-var
50801	4069	μ	UMa	10	23	18.4	+41	24	57.5	3.06	1.603	1.77	M0III
50847	4089	***	***	10	23	27.6	-66	59	06.8	4.97	-0.128	-0.12	B8V
50954	4102	***	***	10	24	43.1	-74	06	56.6	3.99	0.369	0.43	F2IV
50933	4072	ET	UMa	10	25	18.1	+65	28	56.3	4.94	-0.052	-0.02	A0sp...
51056	4090	30	LMi	10	26	51.3	+33	42	41.6	4.72	0.260	0.31	F0V
51069	4094	μ	Hya	10	26	53.4	-16	55	15.5	3.83	1.456	1.47	K4III
51172	4104	α	Ant	10	27	54.5	-31	09	07.9	4.28	1.429	1.47	K4III
51192	4110	V399	Car	10	28	01.5	-57	43	23.8	4.65	0.474	0.69	A6Ia
51232	4114	s	Car	10	28	29.2	-58	49	26.3	3.81	0.317	0.41	F2II
51233	4100	31	LMi	10	28	49.9	+36	37	19.6	4.20	0.908	0.89	G8III-IV
51438	4138	***	***	10	30	45.1	-72	04	40.3	4.72	0.042	0.06	A2III
51495	4142	***	***	10	31	25.1	-73	18	23.4	4.94	1.677	1.71	K4/K5III

Posiciones medias de estrellas brillantes, 2016

Estrella				α			δ						
NH	NY	nom		h	m	s	º	‘	“	V	U-B	B-V	Esp
51459	4112	36	UMa	10	31	40.3	+55	53	43.3	4.82	0.541	0.58	F8V
51523	4134	***	***	10	32	00.5	-53	47	58.7	4.89	0.500	0.58	F6V
51576	4140	p	Car	10	32	36.9	-61	46	13.8	3.30	-0.089	0.02	B4Vne
51624	4133	ρ	Leo	10	33	40.7	+09	13	16.4	3.84	-0.148	-0.13	B1Ib
51658	4132	***	***	10	34	11.3	+40	20	24.7	4.72	0.222	0.23	A7IV
51839	4174	γ	Cha	10	35	39.1	-78	41	36.3	4.11	1.580	1.71	M0III
51849	4159	r	Car	10	36	13.5	-57	38	36.1	4.45	1.604	1.62	K3/K4II
51808	4126	***	***	10	36	27.0	+75	37	37.8	4.86	0.957	0.94	K0III
51986	4167	p	Vel	10	37	60.0	-48	18	41.8	3.84	0.300	0.35	A3m+...
51979	4162	***	***	10	38	00.3	-27	29	54.6	4.87	1.626	1.89	M1III
52009	4163	U	Hya	10	38	22.2	-13	28	14.7	4.89	2.800	2.27	C
52102	4177	***	***	10	39	22.9	-59	16	09.0	4.69	1.562	1.63	K4/K5III:
52085	4171	φ^3	Hya	10	39	23.2	-16	57	45.4	4.91	0.922	0.85	G8III
52098	4166	37	LMi	10	39	38.7	+31	53	24.3	4.68	0.823	0.82	G0II
52154	4180	x	Vel	10	39	58.0	-55	41	22.2	4.29	1.025	0.96	G2II
52370	4196	V518	Car	10	42	49.5	-64	33	10.9	4.76	-0.139	-0.13	B3V
52419	4199	θ	Car	10	43	32.9	-64	28	52.1	2.74	-0.220	-0.24	B0Vp
52468	4200	w	Car	10	44	10.2	-60	39	12.3	4.58	1.700	1.79	K3Ib
52502	4205	***	***	10	44	43.0	-64	02	52.5	4.80	-0.134	-0.12	B5Vn
52633	4234	δ^2	Cha	10	45	55.2	-80	37	38.1	4.45	-0.188	-0.19	B2.5IV
52736	4222	***	***	10	47	27.5	-64	28	14.4	4.87	-0.149	-0.18	B3IV
52727	4216	μ	Vel	10	47	29.0	-49	30	27.9	2.69	0.901	0.91	G5III
52943	4232	ν	Hya	10	50	26.4	-16	16	49.2	3.11	1.232	1.22	K0/K1III
53253	4257	u	Car	10	54	10.2	-58	56	27.7	3.78	0.945	0.96	K0III-IV...
53229	4247	46	LMi	10	54	13.8	+34	07	31.9	3.79	1.040	1.07	K0III-IV
53295	4248	45	UMa	10	54	55.4	+43	06	06.2	4.66	-0.039	0.01	A1Vs
53417	4259	54	Leo	10	56	30.2	+24	39	40.9	4.30	0.016	0.07	A1
53502	4273	ι	Ant	10	57	29.4	-37	13	36.3	4.60	1.006	0.99	K0III
53740	4287	7	Crt	11	00	34.8	-18	23	12.9	4.08	1.079	1.06	K1III
53773	4293	i	Vel	11	00	54.9	-42	18	52.6	4.37	0.116	0.13	A3IV
53807	4291	58	Leo	11	01	24.7	+03	31	43.0	4.84	1.144	1.13	K1III
53824	4294	59	Leo	11	01	36.1	+06	00	45.0	4.98	0.166	0.18	A5III
53907	4299	61	Leo	11	02	40.2	-02	34	25.3	4.73	1.593	1.77	K5III
53910	4295	β	UMa	11	02	49.6	+56	17	37.1	2.34	0.033	0.02	A1V
53954	4300	60	Leo	11	03	12.5	+20	05	27.7	4.42	0.053	0.03	A1m
54061	4301	50	UMa	11	04	43.9	+61	39	42.2	1.81	1.061	1.03	F7V
54182	4310	63	Leo	11	05	52.0	+07	14	47.5	4.62	0.332	0.39	F2III-IV-var
54204	4314	x^1	Hya	11	06	07.7	-27	22	58.5	4.92	0.369	0.43	F3IV/V
54301	4325	z	Car	11	07	13.4	-62	30	48.5	4.62	0.988	0.97	G8III
54463	4337	x	Car	11	09	18.0	-59	03	52.6	3.93	1.225	1.19	G0Ia0
54539	4335	ψ	UMa	11	10	35.1	+44	24	31.3	3.00	1.144	1.09	K1III
54682	4343	β	Crt	11	12	28.3	-22	54	58.1	4.46	0.025	0.04	A1V
54751	4352	V533	Car	11	13	18.8	-60	24	27.1	4.59	0.541	0.70	A6Ia
54872	4357	68	Leo	11	14	59.0	+20	25	59.1	2.56	0.128	0.12	A4V
54879	4359	70	Leo	11	15	06.3	+15	20	20.9	3.33	-0.003	0.01	A2V
54951	4362	FN	Leo	11	16	04.7	+23	00	19.2	4.56	1.657	2.27	M3III
55084	4368	φ	Leo	11	17	30.0	-03	44	31.2	4.45	0.210	0.25	A7IVn
55219	4377	ν	UMa	11	19	22.0	+33	00	14.6	3.49	1.400	1.37	K3III
55266	4380	55	UMa	11	20	01.6	+38	05	41.4	4.76	0.113	0.11	A2V
55282	4382	δ	Crt	11	20	10.0	-14	52	04.9	3.56	1.112	1.12	K0III
55425	4390	π	Cen	11	21	45.9	-54	34	53.7	3.90	-0.157	-0.16	B5Vn
55434	4386	σ	Leo	11	21	59.2	+05	56	19.3	4.05	-0.058	-0.06	B9.5Vs
55560	4392	56	UMa	11	23	43.6	+43	23	31.1	4.99	0.998	0.94	G8II
55588	4396	***	***	11	24	00.8	-36	15	19.7	5.00	1.464	1.47	K4III
55642	4399	78	Leo	11	24	47.0	+10	26	18.3	4.00	0.423	0.47	F2IV

Posiciones medias de estrellas brillantes, 2016

Estrella				α			δ						
NH	NY	nom		h	m	s	°	‘	“	V	U-B	B-V	Esp
55687	4402	14	Crt	11	25	26.6	-10	56	60.0	4.81	1.556	1.67	K5III
55705	4405	γ	Crt	11	25	42.5	-17	46	29.2	4.06	0.216	0.24	A9V
55945	4418	τ	Leo	11	28	47.1	+02	45	54.9	4.95	1.000	0.95	G8II-III
56127	4432	87	Leo	11	31	09.5	-03	05	40.8	4.77	1.529	1.62	K4III
56211	4434	λ	Dra	11	32	22.0	+69	14	23.4	3.82	1.613	1.79	M0III-var
56280	4443	17	Crt	11	33	05.6	-29	21	05.6	4.93	0.540	0.61	F8V
56343	4450	ξ	Hya	11	33	49.0	-31	56	56.6	3.54	0.947	0.92	G8III
56480	4460	A	Cen	11	35	33.0	-54	21	19.2	4.62	-0.077	-0.06	B9V
56561	4467	λ	Cen	11	36	33.0	-63	06	40.4	3.11	-0.044	-0.01	B9II:
56633	4468	21	Crt	11	37	31.2	-09	53	37.0	4.70	-0.073	-0.06	B9.5Vn
56647	4471	91	Leo	11	37	47.6	+00	54	53.8	4.30	0.983	0.98	G9III
56922	4494	o	Hya	11	41	02.2	-34	50	10.3	4.70	-0.070	-0.05	B9V
56986	4499	***	***	11	41	40.9	-62	10	53.9	4.93	1.111	1.11	G3Ib
57175	4511	V810	Cen	11	44	18.9	-62	34	51.6	5.00	0.784	0.87	F9Ia
57283	4514	27	Crt	11	45	36.1	-18	26	32.8	4.71	0.958	0.94	G8III
57328	4515	2	Vir	11	46	08.0	+08	09	58.9	4.84	0.174	0.19	A4V
57363	4520	λ	Mus	11	46	23.7	-66	49	13.0	3.63	0.160	0.17	A7III
57380	4517	ν	Vir	11	46	42.4	+06	26	12.7	4.04	1.501	1.79	M0III
57399	4518	χ	UMa	11	46	54.9	+47	41	16.3	3.69	1.181	1.15	K0III
57443	4523	***	***	11	47	18.5	-40	35	24.7	4.89	0.664	0.73	G3/G5V
57439	4522	***	***	11	47	19.2	-61	16	12.6	4.11	0.895	0.88	G0II
57565	4527	93	Leo	11	48	50.1	+20	07	37.9	4.50	0.547	0.69	A
57581	4530	μ	Mus	11	49	02.8	-66	54	24.2	4.75	1.522	1.62	K4III
57632	4534	94	Leo	11	49	54.0	+14	28	47.2	2.14	0.090	0.10	A3V-var
57669	4537	j	Cen	11	50	29.8	-63	52	48.8	4.30	-0.149	-0.09	B3V
57696	4538	***	***	11	50	44.7	-70	19	03.2	4.98	1.360	1.31	G5Ib
57757	4540	5	Vir	11	51	33.3	+01	40	18.1	3.59	0.518	0.61	F8V
57803	4546	B	Cen	11	51	58.5	-45	15	55.1	4.47	1.283	1.24	K4III
57851	4549	***	***	11	52	40.3	-65	17	51.8	4.89	-0.123	-0.11	B4V
57936	4552	β	Hya	11	53	44.7	-33	59	59.7	4.29	-0.100	-0.07	Ap
58001	4554	γ	UMa	11	54	41.5	+53	36	10.8	2.41	0.044	0.06	A0V
58484	4583	ε	Cha	12	00	28.1	-78	18	49.4	4.88	-0.054	-0.02	B9Vn
58590	4589	8	Vir	12	01	43.1	+06	31	20.4	4.65	0.122	0.14	A5V
58758	4599	θ^1	Cru	12	03	52.5	-63	24	17.1	4.32	0.280	0.36	Am
58867	4603	θ^2	Cru	12	05	10.8	-63	15	27.1	4.72	-0.081	-0.06	B2IV
58948	4608	9	Vir	12	06	02.9	+08	38	29.2	4.12	0.967	0.96	G8III
59072	4616	η	Cru	12	07	45.2	-64	42	20.5	4.14	0.353	0.41	F2III
59173	4618	V863	Cen	12	08	56.9	-50	45	11.2	4.46	-0.163	-0.16	B2IIIne
59196	4621	δ	Cen	12	09	13.2	-50	48	51.2	2.58	-0.128	-0.12	B2IVne
59199	4623	α	Crv	12	09	16.1	-24	49	15.0	4.02	0.334	0.40	F0IV/V
59316	4630	2	Crv	12	10	58.6	-22	42	41.3	3.02	1.326	1.23	K2III
59449	4638	ρ	Cen	12	12	31.3	-52	27	36.9	3.97	-0.156	-0.17	B3V
59747	4656	δ	Cru	12	16	01.8	-58	50	26.2	2.79	-0.193	-0.25	B2IV
59774	4660	69	UMa	12	16	14.2	+56	56	27.7	3.32	0.077	0.03	A3V-var
59803	4662	γ	Crv	12	16	39.4	-17	38	00.4	2.58	-0.107	-0.10	B8III
59847	4667	7	Com	12	17	10.5	+23	51	13.6	4.93	0.957	0.94	K0III
59856	4668	***	***	12	17	19.7	+32	58	09.9	4.99	1.140	1.12	K1III
59929	4671	ε	Mus	12	18	28.6	-68	03	08.7	4.06	1.603	2.82	M5III
60009	4679	ζ	Cru	12	19	20.6	-64	05	40.7	4.06	-0.168	-0.18	B2.5V
60000	4674	β	Cha	12	19	21.0	-79	24	13.4	4.24	-0.123	-0.11	B5Vn
60129	4689	η	Vir	12	20	45.0	+00	45	30.2	3.89	0.026	0.03	A2IV
60172	4695	c	Vir	12	21	11.3	+03	13	14.9	4.97	1.172	1.19	K1III
60202	4697	11	Com	12	21	33.0	+17	42	06.5	4.72	1.010	1.02	G8III
60260	4700	ε	Cru	12	22	15.7	-60	29	31.8	3.59	1.389	1.39	K3/K4III
60351	4707	12	Com	12	23	20.0	+25	45	17.0	4.78	0.515	0.61	F8:p...

Posiciones medias de estrellas brillantes, 2016

Estrella				α			δ						
NH	NY		nom	h	m	s	º	‘	“	V	U-B	B-V	Esp
60485	4716	5	CVn	12	24	49.3	+51	28	15.5	4.76	0.877	0.89	G7III
60697	4733	14	Com	12	27	13.5	+27	10	37.1	4.92	0.277	0.28	F0p
60710	4732	G	Cen	12	27	25.7	-51	32	30.8	4.82	-0.141	-0.16	B3Vn
60718	4730	α^1	Cru	12	27	31.7	-63	11	25.3	0.77	-0.243	-0.26	B0.5IV
60742	4737	γ	Com	12	27	45.5	+28	10	36.7	4.35	1.128	1.04	K2IIICN+...
60746	4738	16	Com	12	27	48.7	+26	44	04.1	4.98	0.088	0.05	A4V
60823	4743	σ	Cen	12	28	56.3	-50	19	18.6	3.91	-0.192	-0.20	B3V
60965	4757	7	Crv	12	30	43.2	-16	36	25.6	2.94	-0.012	-0.04	B9.5V
61084	4763	γ	Cru	12	32	05.4	-57	12	19.4	1.59	1.600	2.37	M4III
61174	4775	η	Crv	12	32	55.4	-16	17	13.9	4.30	0.388	0.44	F2V
61199	4773	γ	Mus	12	33	28.4	-72	13	26.1	3.84	-0.157	-0.14	B5V
61281	4787	κ	Dra	12	34	10.7	+69	41	50.8	3.85	-0.116	-0.02	B6IIIp
61317	4785	8	CVn	12	34	31.4	+41	16	04.8	4.24	0.588	0.67	G0V
61359	4786	β	Crv	12	35	15.4	-23	29	16.1	2.65	0.893	0.88	G5II
61384	4795	6	Dra	12	35	25.4	+69	55	51.6	4.95	1.312	1.27	K2III
61394	4789	23	Com	12	35	40.3	+22	32	19.1	4.80	0.012	0.03	A0IV
61585	4798	α	Mus	12	38	11.1	-69	13	34.4	2.69	-0.176	-0.23	B2IV-V
61622	4802	τ	Cen	12	38	36.7	-48	37	54.9	3.85	0.049	0.06	A2V
61740	4813	26	Vir	12	40	05.9	-08	05	10.1	4.66	1.240	1.15	K2III
61789	4817	l	Cen	12	40	46.4	-40	04	40.2	4.63	-0.082	-0.06	B8II/III
61932	4819	γ	Cen	12	42	26.1	-49	03	00.7	2.20	-0.023	-0.01	A1IV
61941	4825	γ	Vir	12	42	29.8	-01	32	21.8	2.74	0.368	0.43	F0V+...
61960	4828	ρ	Vir	12	42	43.2	+10	08	41.7	4.88	0.076	0.08	A0V
61966	4823	CH	Cru	12	42	54.2	-59	46	34.0	4.91	-0.044	-0.02	B6IV
62012	4831	w	Cen	12	43	30.7	-48	54	12.5	4.66	1.075	1.03	K0III
62268	4842	ι	Cru	12	46	37.0	-61	04	17.8	4.69	1.049	1.03	K1III
62322	4844	β	Mus	12	47	18.6	-68	11	53.2	3.04	-0.178	-0.19	B2V
62327	4848	***	***	12	47	20.2	-56	34	43.7	4.62	-0.150	-0.16	B3V
62434	4853	β	Cru	12	48	41.8	-59	46	43.1	1.25	-0.238	-0.27	B0.5III
62683	4874	p	Cen	12	51	35.2	-34	05	20.2	4.90	-0.031	-0.01	B9V
62763	4883	31	Com	12	52	30.1	+27	27	04.3	4.93	0.681	0.70	G0III
62867	4888	e	Cen	12	54	03.4	-49	01	58.0	4.33	1.344	1.33	K3/K4III
62886	4894	35	Com	12	54	06.4	+21	09	19.7	4.89	0.904	0.91	G8III
62896	4889	n	Cen	12	54	21.4	-40	16	05.8	4.25	0.224	0.27	A4IV
62956	4905	ε	UMa	12	54	45.0	+55	52	13.8	1.76	-0.022	-0.04	A0p
62985	4902	ψ	Vir	12	55	12.8	-09	37	41.9	4.77	1.590	2.18	M3III-var
63003	4898	μ^1	Cru	12	55	34.4	-57	16	01.9	4.03	-0.180	-0.26	B2IV-V
63007	4897	λ	Cru	12	55	38.7	-59	14	09.5	4.62	-0.153	-0.15	B4Vn
63090	4910	δ	Vir	12	56	26.1	+03	18	29.2	3.39	1.571	2.24	M3III
63125	4915	α^2	CVn	12	56	47.8	+38	13	46.4	2.89	-0.115	-0.13	A0spe...
63355	4920	36	Com	12	59	44.4	+17	19	15.0	4.76	1.568	1.79	M0III
63462	4924	37	Com	13	01	03.7	+30	41	46.8	4.88	1.165	1.13	K1IIIp
63503	4931	78	UMa	13	01	25.9	+56	16	39.9	4.93	0.368	0.45	F2V
63608	4932	ε	Vir	13	02	59.9	+10	52	14.9	2.85	0.934	0.83	G8III-var
63613	4923	δ	Mus	13	03	25.9	-71	38	14.5	3.61	1.190	1.17	K2III
63724	4933	ξ^1	Cen	13	04	31.1	-49	36	56.2	4.83	0.029	0.05	A0V
63945	4940	f	Cen	13	07	14.5	-48	33	04.8	4.71	-0.148	-0.14	B5V
64004	4942	ξ^2	Cen	13	07	52.9	-49	59	39.1	4.27	-0.182	-0.18	B1.5V
64022	4954	41	Com	13	07	58.2	+27	32	11.6	4.80	1.482	1.55	K5III
64166	4958	45	Hya	13	09	56.8	-23	12	21.3	4.94	1.048	1.02	K0III
64241	4968	42	Com	13	10	47.4	+17	26	32.9	4.32	0.455	0.53	F5V
64238	4963	51	Vir	13	10	48.3	-05	37	36.2	4.38	-0.008	0.01	A1V
64394	4983	β	Com	13	12	38.5	+27	47	41.7	4.23	0.572	0.67	G0V
64408	4979	***	***	13	12	58.7	-37	53	24.3	4.85	0.693	0.73	G3V
64425	4975	V831	Cen	13	13	20.2	-60	00	28.5	4.58	-0.073	-0.07	B8V

Posiciones medias de estrellas brillantes, 2016

Estrella				α			δ						
NH	NY	nom		h	m	s	º	‘	“	V	U-B	B-V	Esp
64540	4997	***	***	13	14	27.7	+40	03	57.1	4.94	1.061	1.03	K0III
64583	4989	***	***	13	15	17.2	-59	11	27.4	4.90	0.489	0.56	F7IV
64661	4993	η	Mus	13	16	23.2	-67	58	53.4	4.79	-0.078	-0.09	B8V
64844	5017	20	CVn	13	18	16.8	+40	29	10.0	4.72	0.306	0.31	F3III
64820	5002	***	***	13	18	20.8	-66	52	12.3	4.86	1.480	1.50	K2Ib/II
64852	5015	σ	Vir	13	18	26.3	+05	23	00.0	4.78	1.638	1.97	M2III
64924	5019	61	Vir	13	19	16.3	-18	24	09.1	4.74	0.709	0.75	G5V
64962	5020	γ	Hya	13	19	49.3	-23	15	29.1	2.99	0.920	0.90	G8III
65109	5028	ι	Cen	13	21	31.8	-36	47	55.9	2.75	0.068	0.02	A2V
65271	5035	J	Cen	13	23	42.7	-61	04	27.6	4.52	-0.141	-0.13	B3V
65378	5054	79	UMa	13	24	35.2	+54	50	22.4	2.23	0.057	0.07	A2V
65387	5041	m	Cen	13	25	08.0	-64	37	17.1	4.52	0.822	0.87	G5III-IV
65477	5062	80	UMa	13	25	53.0	+54	54	08.5	3.99	0.169	0.19	A5V
65474	5056	α	Vir	13	26	03.9	-11	14	49.1	0.98	-0.235	-0.25	B1V
65639	5068	69	Vir	13	28	20.1	-16	03	31.2	4.76	1.096	1.02	K1IIICN...
65721	5072	70	Vir	13	29	14.2	+13	41	28.0	4.97	0.714	0.77	G5V
65936	5089	d	Cen	13	32	00.4	-39	29	31.1	3.90	1.186	1.10	G8II/III
66006	5095	l	Vir	13	32	49.5	-06	20	25.8	4.68	1.606	2.06	M3III
66200	5105	78	Vir	13	34	58.2	+03	34	29.0	4.92	0.029	0.03	A1p
66234	5112	24	CVn	13	35	07.6	+48	55	55.2	4.68	0.132	0.10	A5V
66257	5110	BH	CVn	13	35	31.9	+37	05	54.0	4.91	0.404	0.55	F2IV
66249	5107	ζ	Vir	13	35	32.1	+00	40	46.7	3.38	0.114	0.12	A3V
66458	5127	25	CVn	13	38	11.5	+36	12	41.0	4.82	0.239	0.31	A7III
66657	5132	ε	Cen	13	40	56.6	-53	32	58.6	2.29	-0.171	-0.23	B1III
66738	5154	83	UMa	13	41	21.7	+54	35	54.7	4.63	1.630	1.97	M2III-var
66821	5141	Q	Cen	13	42	48.8	-54	38	32.6	4.99	-0.055	-0.03	B8Vn+...
67153	5168	1	Cen	13	46	37.8	-33	07	35.6	4.23	0.390	0.44	F3V
67234	5172	M	Cen	13	47	42.6	-51	30	53.6	4.64	0.955	0.93	G8/K0III
67275	5185	τ	Boo	13	48	02.8	+17	22	30.9	4.50	0.508	0.51	F7V
67301	5191	η	UMa	13	48	11.4	+49	13	52.8	1.85	-0.099	-0.08	B3V
67459	5200	υ	Boo	13	50	16.4	+15	42	59.8	4.05	1.520	1.60	K5III-var
67457	5192	2	Cen	13	50	24.4	-34	31	57.1	4.19	1.520	3.00	M5III
67480	5201	e	Boo	13	50	29.6	+21	10	57.8	4.92	1.432	1.38	K4III
67464	5190	ν	Cen	13	50	30.0	-41	46	09.4	3.41	-0.225	-0.24	B2IV
67472	5193	μ	Cen	13	50	37.0	-42	33	19.0	3.47	-0.170	-0.21	B2IV-Ve
67494	5196	89	Vir	13	50	46.3	-18	12	56.7	4.96	1.059	1.09	K0III
67627	5226	i	Dra	13	51	54.9	+64	38	31.5	4.58	1.572	2.35	M3III
67665	5219	AW	CVn	13	52	31.1	+34	21	46.9	4.76	1.611	1.63	K5III
67669	5210	V983	Cen	13	52	47.0	-33	04	31.0	4.32	-0.146	-0.12	B5
67786	5221	h	Cen	13	54	09.8	-32	00	30.4	4.75	-0.111	-0.10	B4IV
67927	5235	η	Boo	13	55	28.2	+18	18	56.0	2.68	0.580	0.65	G0IV
68002	5231	ζ	Cen	13	56	34.6	-47	22	08.0	2.55	-0.176	-0.18	B2.5IV
68191	5241	***	***	13	58	51.5	-63	46	00.2	4.71	1.075	1.05	K4III
68245	5248	φ	Cen	13	59	16.8	-42	10	50.3	3.83	-0.224	-0.23	B2IV
68282	5249	υ^1	Cen	13	59	42.3	-44	53	00.2	3.87	-0.208	-0.22	B2IV-V
68520	5264	τ	Vir	14	02	29.2	+01	27	55.1	4.23	0.121	0.14	A3V
68523	5260	υ^2	Cen	14	02	45.7	-45	40	57.4	4.34	0.598	0.65	F6II
68756	5291	α	Dra	14	04	50.2	+64	17	50.4	3.67	-0.049	-0.08	A0III
68702	5267	β	Cen	14	05	00.1	-60	27	06.5	0.61	-0.231	-0.25	B1III
68862	5285	x	Cen	14	07	03.6	-41	15	28.5	4.36	-0.198	-0.21	B2V
68895	5287	π	Hya	14	07	18.9	-26	45	40.1	3.25	1.091	1.10	K2III
68933	5288	5	Cen	14	07	39.5	-36	27	01.4	2.06	1.011	1.01	K0IIIb
69112	5321	4	UMi	14	08	48.5	+77	28	11.8	4.80	1.368	1.34	K3III
69191	5297	***	***	14	11	01.3	-53	31	00.2	4.74	0.938	0.92	G8III
69226	5304	12	Boo	14	11	09.1	+25	00	50.8	4.82	0.541	0.57	F9IVw

Posiciones medias de estrellas brillantes, 2016

Estrella				α			δ						
NH	NY	nom		h	m	s	º	‘	“	V	U-B	B-V	Esp
69269	5301	ET	Vir	14	11	44.7	-16	22	45.3	4.93	1.684	1.94	M1III
69389	5313	CU	Vir	14	13	06.0	+02	19	56.8	4.99	-0.118	-0.11	B9p
69427	5315	κ	Vir	14	13	46.7	-10	20	59.2	4.18	1.323	1.35	K3III
69483	5329	κ^2	Boo	14	14	04.4	+51	42	47.8	4.53	0.233	0.23	A8IV
69673	5340	16	Boo	14	16	24.9	+19	05	49.6	-0.05	1.239	1.22	K2IIIp
69713	5350	21	Boo	14	16	44.9	+51	17	29.8	4.75	0.236	0.19	A9V
69701	5338	99	Vir	14	16	52.9	-06	04	42.6	4.07	0.511	0.59	F7V
69732	5351	19	Boo	14	17	00.6	+46	00	47.0	4.18	0.087	0.04	A0sh
69879	5361	A	Boo	14	18	41.6	+35	26	02.2	4.80	1.057	1.00	K1III
69974	5359	100	Vir	14	20	00.3	-13	26	46.7	4.52	0.128	0.11	A1V
69896	5303	η	Aps	14	20	24.4	-81	05	00.4	4.89	0.243	0.24	A2m...
69996	5354	ι	Lup	14	20	28.1	-46	08	00.1	3.55	-0.184	-0.18	B2.5IV
70027	5370	20	Boo	14	20	32.1	+16	13	55.3	4.84	1.228	1.16	K3III
70069	5358	ν	Cen	14	21	29.4	-56	27	41.6	4.30	0.082	0.21	B6Ib
70090	5367	ψ	Cen	14	21	34.0	-37	57	37.2	4.05	-0.030	-0.02	A0IV
70104	5364	***	***	14	21	46.2	-45	15	44.4	4.78	0.310	0.36	F0IV
70264	5371	***	***	14	23	48.7	-58	32	00.7	4.76	0.795	0.83	G8/K1
70306	5381	51	Hya	14	24	03.1	-27	49	44.2	4.78	1.300	1.31	K3III
70300	5378	V761	Cen	14	24	03.6	-39	35	10.8	4.41	-0.185	-0.20	B2V
70327	5385	***	***	14	24	11.4	+08	22	20.0	4.86	0.010	0.07	A0V
70497	5404	θ	Boo	14	25	45.5	+51	46	29.9	4.04	0.497	0.59	F7V
70574	5395	τ^1	Lup	14	27	12.2	-45	17	42.6	4.56	-0.147	-0.14	B2IV
70576	5396	τ^2	Lup	14	27	14.9	-45	27	10.7	4.33	0.434	0.58	A7:+...
70692	5430	5	UMi	14	27	30.6	+75	37	21.5	4.25	1.431	1.42	K4III
70755	5409	105	Vir	14	29	03.2	-02	18	04.2	4.81	0.693	0.73	G2III
70753	5407	52	Hya	14	29	08.7	-29	33	53.8	4.97	-0.074	-0.05	B7/B8V
70638	5339	δ	Oct	14	29	45.5	-83	44	28.4	4.31	1.300	1.30	K2III
71053	5429	ρ	Boo	14	32	32.4	+30	17	58.8	3.57	1.298	1.22	K3III
71075	5435	γ	Boo	14	32	44.5	+38	14	12.0	3.04	0.191	0.17	A7III-var
71121	5425	σ	Lup	14	33	44.3	-50	31	45.5	4.44	-0.177	-0.18	B2III
71284	5447	σ	Boo	14	35	23.9	+29	40	26.8	4.47	0.364	0.41	F3Vw-var
71352	5440	η	Cen	14	36	33.7	-42	13	45.6	2.33	-0.157	-0.17	B1Vn
71536	5453	ρ	Lup	14	39	00.3	-49	29	48.2	4.05	-0.152	-0.16	B5V
71681	5460	α^2	Cen	14	40	43.1	-60	54	11.2	1.35	0.900	0.88	K1V
71683	5459	α^1	Cen	14	40	44.4	-60	54	07.5	-0.01	0.710	0.69	G2V
71762	5475	29	Boo	14	41	30.1	+16	20	53.9	4.49	-0.002	0.02	B9p
71795	5477	ζ	Boo	14	41	56.3	+13	39	29.8	3.78	0.044	0.06	A3IVn
71832	5480	31	Boo	14	42	27.4	+08	05	31.0	4.86	0.992	0.96	G8III-var
71865	5471	***	***	14	42	59.4	-37	51	48.1	4.01	-0.157	-0.18	B2.5V
71860	5469	α	Lup	14	43	02.1	-47	27	28.9	2.30	-0.154	-0.21	B1.5III
71908	5463	α	Cir	14	43	51.6	-65	02	44.7	3.18	0.256	0.26	F1Vp
71957	5487	μ	Vir	14	43	55.9	-05	43	44.8	3.87	0.385	0.47	F2III
71995	5490	W	Boo	14	44	08.9	+26	27	30.2	4.80	1.672	2.13	M3III
72010	5485	c^1	Cen	14	44	40.3	-35	14	37.5	4.06	1.356	1.35	K3III
72105	5505	36	Boo	14	45	42.5	+27	00	19.3	2.35	0.966	0.95	A0
72104	5489	c^2	Cen	14	46	00.2	-35	15	38.7	4.92	0.013	0.02	A0V
72125	5502	ο	Boo	14	46	00.7	+16	53	42.6	4.60	0.972	0.94	K0III
72220	5511	109	Vir	14	47	05.1	+01	49	27.0	3.73	-0.005	0.01	A0V
72370	5470	α	Aps	14	49	59.2	-79	06	46.2	3.83	1.433	1.42	K5III
72607	5563	β	UMi	14	50	40.4	+74	05	16.9	2.07	1.465	1.46	K4III-var
72571	5526	58	Hya	14	51	15.7	-28	01	41.4	4.42	1.366	1.43	K3III
72622	5531	9	Lib	14	51	47.6	-16	06	34.0	2.75	0.147	0.16	A3IV
72631	5535	11	Lib	14	51	52.5	-02	22	01.3	4.93	0.988	0.97	G8...
72659	5544	ξ	Boo	14	52	09.1	+19	01	58.4	4.54	0.720	0.82	G8V

Posiciones medias de estrellas brillantes, 2016

Estrella				α			δ						
NH	NY	nom		h	m	s	º	‘	“	V	U-B	B-V	Esp
72683	5528	o	Lup	14	52	43.3	-43	38	33.4	4.32	-0.154	-0.14	B5IV
73199	5589	RR	UMi	14	57	51.0	+65	52	01.3	4.63	1.590	2.85	M5III
73165	5570	16	Lib	14	58	02.8	-04	24	46.0	4.47	0.318	0.38	F0V
73273	5571	β	Lup	14	59	37.2	-43	11	57.6	2.68	-0.184	-0.23	B2III
73334	5576	κ	Cen	15	00	14.5	-42	10	09.6	3.13	-0.208	-0.21	B2IV
73473	5586	δ	Lib	15	01	51.4	-08	35	00.6	4.91	0.000	0.07	B9.5V
73555	5602	β	Boo	15	02	34.1	+40	19	34.1	3.49	0.956	0.89	G8III
73568	5600	ω	Boo	15	02	49.9	+24	56	37.2	4.80	1.506	1.54	K4III
73620	5601	110	Vir	15	03	44.1	+02	01	38.5	4.39	1.026	1.04	K0III
73695	5618	44	Boo	15	04	19.9	+47	35	25.3	4.83	0.647	0.71	G2V
73714	5603	γ	Sco	15	05	02.4	-25	20	44.9	3.25	1.674	2.23	M3/M4III
73745	5616	ψ	Boo	15	05	09.2	+26	53	02.6	4.52	1.240	1.23	K2III
73807	5605	π	Lup	15	06	15.0	-47	06	52.8	3.91	-0.144	-0.15	B5
73996	5634	45	Boo	15	08	01.6	+24	48	20.6	4.93	0.429	0.51	F5V
74117	5626	λ	Lup	15	09	57.7	-45	20	31.9	4.07	-0.162	-0.18	B3V
74376	5646	κ^1	Lup	15	13	05.4	-48	47	57.6	3.88	-0.029	-0.02	B9V
74392	5652	ι^1	Lib	15	13	09.9	-19	51	11.2	4.54	-0.071	-0.06	Asp...
74395	5649	ζ	Lup	15	13	28.8	-52	09	38.8	3.41	0.918	0.91	G8III
74449	5651	e	Lup	15	13	56.5	-44	33	41.6	4.83	-0.177	-0.19	B3IV
74604	5660	1	Lup	15	15	38.2	-31	34	46.7	4.91	0.374	0.48	F3III
74666	5681	49	Boo	15	16	10.1	+33	15	14.5	3.46	0.961	0.96	G8III
74785	5685	β	Lib	15	17	53.8	-09	26	34.2	2.61	-0.071	-0.08	B8V
74824	5670	β	Cir	15	18	49.1	-58	51	41.1	4.07	0.088	0.08	A3V
74857	5686	2	Lup	15	18	50.3	-30	12	29.7	4.35	1.100	1.03	K1II/III
74837	5666	ε	Cir	15	19	03.5	-63	40	11.9	4.85	1.260	1.20	K2.5III
74911	5683	μ	Lup	15	19	41.3	-47	56	05.0	4.27	-0.086	-0.07	B8V
74946	5671	γ	TrA	15	20	28.4	-68	44	19.8	2.87	0.014	0.04	A1V
75097	5735	γ	UMi	15	20	42.9	+71	46	31.0	3.00	0.058	0.12	A3II-III
75141	5695	δ	Lup	15	22	27.6	-40	42	21.9	3.22	-0.227	-0.23	B1.5IV
75177	5705	φ^1	Lup	15	22	51.5	-36	19	12.3	3.57	1.534	1.59	K5III
75206	5698	ν^1	Lup	15	23	17.7	-47	59	11.8	4.99	0.515	0.59	F8V
75264	5708	ε	Lup	15	23	48.5	-44	44	51.9	3.37	-0.191	-0.20	B2IV-V
75312	5727	η	CrB	15	23	53.2	+30	13	44.6	4.99	0.577	0.65	G2V
75304	5712	φ^2	Lup	15	24	12.9	-36	54	59.3	4.54	-0.155	-0.16	B4V
75323	5704	γ	Cir	15	24	42.3	-59	22	43.5	4.48	0.169	0.18	B5III
75379	5723	ε	Lib	15	25	05.7	-10	22	50.0	4.92	0.453	0.52	F5IV
75411	5733	μ^1	Boo	15	25	06.8	+37	19	12.0	4.31	0.309	0.35	F0V
75458	5744	ι	Dra	15	25	17.9	+58	54	31.3	3.29	1.166	1.07	K2III
75501	5724	k	Lup	15	26	24.7	-38	47	27.2	4.60	0.000	0.02	A0V
75695	5747	3	CrB	15	28	30.6	+29	02	58.6	3.66	0.319	0.37	F0p
76008	5826	15	UMi	15	30	57.4	+77	17	37.8	5.00	1.545	1.61	K5III
76041	5774	53	Boo	15	32	22.5	+40	50	38.5	4.98	0.086	0.15	A5V
76127	5778	θ	CrB	15	33	35.7	+31	18	15.2	4.14	-0.127	-0.12	B6Vnn
76219	5777	37	Lib	15	35	04.9	-10	07	12.1	4.61	1.000	1.02	K1IV
76267	5793	α	CrB	15	35	23.2	+26	39	36.0	2.22	0.032	0.05	A0V
76276	5788	δ	Ser	15	35	35.5	+10	29	04.7	3.80	0.268	0.30	F0IV
76297	5776	γ	Lup	15	36	14.7	-41	13	15.4	2.80	-0.216	-0.22	B2IV
76333	5787	38	Lib	15	36	27.1	-14	50	36.6	3.91	1.007	1.02	K0III
76371	5781	d	Lup	15	37	01.8	-45	00	44.4	4.55	-0.175	-0.20	B3IVp
76470	5794	υ	Lib	15	38	01.8	-28	11	18.9	3.60	1.361	1.36	K3III
76440	5771	ε	TrA	15	38	14.9	-66	22	14.8	4.11	1.161	1.12	K0III
76552	5797	ω	Lup	15	39	10.2	-42	37	12.8	4.34	1.412	1.42	K4.5III
76600	5812	τ	Lib	15	39	40.4	-29	49	51.0	3.66	-0.177	-0.18	B2.5V
76669	5833	ζ^1	CrB	15	39	60.0	+36	34	58.8	4.64	-0.103	-0.09	B7V+...

Posiciones medias de estrellas brillantes, 2016

Estrella				α			δ						
NH	NY	nom		h	m	s	º	‘	“	V	U-B	B-V	Esp
76705	5820	3	Lup	15	40	49.1	-34	27	52.5	4.66	0.964	0.97	G8/K0III
76742	5824	42	Lib	15	41	15.6	-23	52	14.0	4.97	1.302	1.25	K3III
76852	5842	ι	Ser	15	42	17.2	+19	37	05.4	4.51	0.062	0.07	A1V
76829	5825	g	Lup	15	42	19.8	-44	42	52.3	4.64	0.413	0.47	F5IV-V
76880	5838	43	Lib	15	42	54.0	-19	43	52.3	4.75	1.574	1.74	K5III
76952	5849	γ	CrB	15	43	26.2	+26	14	39.2	3.81	0.020	0.04	A1Vs
77055	5903	16	UMi	15	43	30.1	+77	44	35.0	4.29	0.038	0.05	A3Vn
76945	5839	4	Lup	15	43	44.4	-34	45	43.8	4.75	-0.151	-0.15	B5V
77070	5854	α	Ser	15	45	04.9	+06	22	28.9	2.63	1.167	1.09	K2III
77233	5867	β	Ser	15	46	57.0	+15	22	16.1	3.65	0.073	0.09	A3V
77257	5868	λ	Ser	15	47	14.7	+07	18	08.5	4.42	0.604	0.66	G0V-var
77450	5879	35	Ser	15	49	29.0	+18	05	29.4	4.09	1.616	1.73	M1III
77512	5889	10	CrB	15	50	17.2	+26	01	07.4	4.59	0.794	0.82	G5III-IV
77516	5881	μ	Ser	15	50	29.0	-03	28	46.8	3.54	-0.036	-0.03	A0V
77622	5892	ε	Ser	15	51	38.4	+04	25	44.7	3.71	0.147	0.13	A2m
77655	5901	11	CrB	15	51	51.3	+35	36	25.1	4.79	0.996	0.97	K0III-IV
77635	5885	1	Sco	15	51	58.5	-25	48	00.9	4.63	-0.072	-0.04	B1.5Vn
77661	5899	38	Ser	15	51	59.4	+20	55	45.1	4.74	1.534	1.60	K5III
77634	5883	χ	Lup	15	52	00.7	-33	40	34.0	3.97	-0.045	-0.05	B9.5III-IV
77760	5914	χ	Her	15	53	14.8	+42	24	21.8	4.60	0.563	0.63	F9V
77840	5904	2	Sco	15	54	36.3	-25	22	30.8	4.59	-0.073	-0.06	B2.5Vn
77853	5908	46	Lib	15	54	46.0	-16	46	35.6	4.13	1.003	1.02	K0III
77952	5897	β	TrA	15	56	36.6	-63	28	47.7	2.83	0.315	0.36	F2III
78072	5933	41	Ser	15	57	13.0	+15	36	31.4	3.85	0.478	0.54	F6V
78104	5928	5	Sco	15	57	54.4	-29	15	39.6	3.87	-0.199	-0.18	B2IV/V
78180	5960	CL	Dra	15	58	11.0	+54	42	13.1	4.96	0.269	0.29	F0IV
78159	5947	ε	CrB	15	58	16.3	+26	49	51.5	4.14	1.231	1.17	K3III
78207	5941	48	Lib	15	59	06.9	-14	19	33.0	4.95	-0.080	-0.06	B8Ia/Iab
78265	5944	π	Sco	15	59	51.2	-26	09	37.3	2.89	-0.180	-0.18	B1V
78323	5943	***	***	16	00	38.0	-41	47	25.5	4.99	0.988	0.97	G8III
78384	5948	η	Lup	16	01	13.2	-38	26	33.1	3.42	-0.206	-0.23	B2.5IV
78401	5953	7	Sco	16	01	18.7	-22	40	03.1	2.29	-0.117	-0.09	B0.2IV
78493	5971	ι	CrB	16	02	06.3	+29	48	20.6	4.98	-0.050	-0.03	A0p...
78527	5986	13	Dra	16	02	12.0	+58	31	17.7	4.01	0.528	0.55	F8IV-V
78554	5972	π	Ser	16	03	00.4	+22	45	34.4	4.82	0.066	0.09	A3V
78592	5982	υ	Her	16	03	18.8	+45	59	29.6	4.72	-0.094	-0.06	B9III
78650	5969	***	***	16	04	20.6	-25	54	36.0	4.96	1.234	1.25	K3III
78639	5962	η	Nor	16	04	26.1	-49	16	27.2	4.65	0.902	0.91	G8III
78655	5967	***	***	16	04	30.3	-38	38	50.0	4.90	-0.146	-0.15	B6III/IV
78662	5961	ι^1	Nor	16	04	53.2	-57	49	11.6	4.63	0.252	0.30	A7IV
78820	5984	8	Sco	16	06	23.9	-19	50	57.9	2.56	-0.065	-0.04	B0.5V
78821	5985	8	Sco	16	06	24.2	-19	50	44.7	4.90	-0.024	0.00	B2V
78914	5980	δ	Nor	16	07	39.7	-45	12	59.3	4.73	0.230	0.20	Am
78918	5987	θ	Lup	16	07	40.8	-36	50	45.1	4.22	-0.184	-0.19	B2.5Vn
78933	5993	9	Sco	16	07	46.5	-20	42	45.6	3.93	-0.046	0.01	B1V
78990	5997	ω^2	Sco	16	08	22.5	-20	54	43.7	4.31	0.831	0.85	G6/G8III
79043	6008	7	Her	16	08	49.3	+17	00	14.4	5.00	0.931	0.93	G8III
79101	6023	φ	Her	16	09	17.4	+44	53	32.3	4.23	-0.045	-0.02	B9MNp...
79119	6018	16	CrB	16	09	34.5	+36	26	59.5	4.73	1.015	1.00	K0III-IV
79375	6031	ψ	Sco	16	12	54.2	-10	06	21.3	4.93	0.087	0.09	A3IV
79374	6027	ν	Sco	16	12	57.4	-19	30	08.5	4.00	0.076	0.14	B2IV
79404	6028	13	Sco	16	13	19.4	-27	58	04.4	4.58	-0.172	-0.15	B2V
79509	6024	κ	Nor	16	14	47.3	-54	40	17.4	4.95	1.017	0.99	G4III
79593	6056	δ	Oph	16	15	12.7	-03	44	08.4	2.73	1.584	1.82	M1III
79664	6030	δ	TrA	16	16	57.1	-63	43	33.4	3.86	1.105	1.03	G5II

Posiciones medias de estrellas brillantes, 2016

Estrella				α			δ						
NH	NY	nom		h	m	s	º	‘	“	V	U-B	B-V	Esp
79822	6116	η	UMi	16	17	02.5	+75	43	00.1	4.95	0.393	0.46	F5V
79790	6058	γ^1	Nor	16	18	15.4	-50	06	28.1	4.97	0.788	0.88	F9Ia
79882	6075	ε	Oph	16	19	11.8	-04	43	53.7	3.23	0.966	0.96	G8III
79881	6070	d	Sco	16	19	19.5	-28	39	13.4	4.80	0.008	-0.01	A0V:
79992	6092	22	Her	16	20	14.2	+46	16	29.0	3.91	-0.151	-0.19	B5IV
80000	6072	γ^2	Nor	16	21	04.9	-50	11	39.8	4.01	1.080	1.03	G8III
80079	6081	o	Sco	16	21	37.9	-24	12	28.0	4.55	0.758	0.80	A4II/III
80112	6084	σ	Sco	16	22	11.6	-25	37	51.9	2.90	0.299	0.31	B1III
80170	6095	20	Her	16	22	38.9	+19	06	55.3	3.74	0.299	0.34	A9III
80181	6103	19	CrB	16	22	44.4	+30	51	16.4	4.86	0.970	0.93	K0III
80047	6020	δ^1	Aps	16	22	51.9	-78	44	02.9	4.68	1.680	2.67	M5III
80179	6093	50	Ser	16	22	54.6	+00	59	28.9	4.82	0.338	0.39	F0V
80331	6132	η	Dra	16	24	13.1	+61	28	37.8	2.73	0.910	0.84	G8III
80343	6104	ψ	Oph	16	25	04.2	-20	04	28.9	4.48	0.996	0.99	K0III
80463	6117	24	Her	16	26	10.7	+13	59	46.7	4.57	0.002	0.02	B9p
80473	6112	5	Oph	16	26	34.6	-23	29	02.0	4.57	0.227	0.25	B2V
80650	6161	15	Dra	16	27	57.5	+68	43	56.6	4.94	-0.051	0.02	A0III
80569	6118	x	Oph	16	27	58.9	-18	29	32.7	4.22	0.217	0.24	B2Vne
80582	6115	ε	Nor	16	28	23.9	-47	35	27.0	4.46	-0.070	-0.04	B4V
80628	6129	3	Oph	16	28	41.8	-08	24	27.3	4.62	0.185	0.20	A3m
80704	6146	30	Her	16	29	11.1	+41	50	46.0	4.83	1.289	3.61	M6III:-var
80686	6098	ζ	TrA	16	30	15.7	-70	07	09.4	4.90	0.555	0.64	F9V
80763	6134	α	Sco	16	30	25.3	-26	28	02.2	1.06	1.865	2.90	M1Ib
80816	6148	27	Her	16	30	55.8	+21	27	16.6	2.78	0.947	0.94	G8III
80815	6141	i	Sco	16	31	12.8	-25	09	00.8	4.79	-0.116	-0.12	B3V
80883	6149	10	Oph	16	31	44.8	+01	56	56.2	3.82	0.022	0.03	A2V
80894	6147	φ	Oph	16	32	05.1	-16	38	50.8	4.29	0.924	0.89	G8/K0III
80911	6143	***	***	16	32	27.8	-34	44	20.0	4.24	-0.168	-0.17	B2III-IV
80975	6153	ω	Oph	16	33	07.0	-21	30	01.4	4.45	0.130	0.12	Ap
81008	6159	h	Her	16	33	22.7	+11	27	13.1	4.84	1.495	1.58	K4III
81126	6168	35	Her	16	34	38.1	+42	24	13.7	4.20	-0.013	0.02	B9V-var
81122	6155	μ	Nor	16	35	15.6	-44	04	43.5	4.86	0.045	0.18	B0Ia
81065	6102	γ	Aps	16	36	01.9	-78	55	51.2	3.86	0.923	0.92	K0IV
81266	6165	τ	Sco	16	36	54.7	-28	14	56.0	2.82	-0.206	-0.24	B0V
81304	6166	***	***	16	37	27.8	-35	17	16.2	4.18	1.535	1.72	K5III
81377	6175	ζ	Oph	16	38	04.1	-10	35	57.4	2.54	0.038	0.10	O9.5V
81497	6200	42	Her	16	39	11.8	+48	53	48.0	4.86	1.562	2.03	M2.5III
81660	6223	g	Dra	16	41	02.2	+64	33	28.5	4.84	1.212	1.19	K1p
81693	6212	40	Her	16	41	54.5	+31	34	24.6	2.81	0.650	0.70	F9IV
81724	6196	***	***	16	42	31.7	-17	46	22.1	4.91	1.095	1.13	G8II/III
81833	6220	44	Her	16	43	27.7	+38	53	30.0	3.48	0.916	0.89	G8III-IV
82080	6322	ε	UMi	16	44	20.1	+82	00	28.2	4.21	0.897	0.91	G5III-var
81852	6163	β	Aps	16	45	28.3	-77	32	55.9	4.23	1.060	1.04	K0III
82020	6237	***	***	16	45	36.7	+56	45	10.2	4.84	0.375	0.44	F2V
82321	6254	52	Her	16	49	43.3	+45	57	19.0	4.82	0.087	0.10	A2p...
82273	6217	α	TrA	16	50	25.5	-69	03	20.4	1.91	1.447	1.45	K2IIb-IIIa
82369	6243	20	Oph	16	50	44.9	-10	48	39.2	4.64	0.478	0.55	F7IV
82363	6229	η	Ara	16	51	13.1	-59	04	08.1	3.77	1.562	1.67	K5III
82396	6241	ε	Sco	16	51	14.1	-34	19	18.3	2.29	1.144	1.10	K2IIIb
82514	6247	μ^1	Sco	16	52	59.5	-38	04	27.0	3.00	-0.200	-0.20	B1.5IV
82545	6252	μ^2	Sco	16	53	27.4	-38	02	39.0	3.56	-0.210	-0.21	B2IV
82673	6281	ι	Oph	16	54	47.4	+10	08	21.4	4.39	-0.088	-0.13	B8V
82671	6262	ζ^1	Sco	16	55	09.8	-42	23	16.4	4.70	0.444	0.71	B1Iae
82729	6271	ζ^2	Sco	16	55	44.9	-42	23	16.8	3.62	1.393	1.37	K4III
82860	6315	h	Dra	16	56	07.3	+65	06	35.1	4.88	0.481	0.56	F6V-var

Posiciones medias de estrellas brillantes, 2016

Estrella				α			δ						
NH	NY	nom		h	m	s	º	‘	“	V	U-B	B-V	Esp
83000	6299	27	Oph	16	58	27.0	+09	21	01.7	3.19	1.160	1.10	K2III-var
83081	6285	ζ	Ara	16	59	59.5	-56	00	51.6	3.12	1.552	1.60	K5III
83153	6295	ε^1	Ara	17	00	54.2	-53	11	02.5	4.06	1.452	1.42	K4III
83207	6324	ε	Her	17	00	55.3	+30	54	10.8	3.92	-0.018	-0.04	A0V
83262	6318	30	Oph	17	01	55.9	-04	14	46.3	4.82	1.483	1.49	K4III
83430	6337	***	***	17	03	53.3	+14	04	09.3	4.97	1.600	2.08	M3III
83608	6369	21	Dra	17	05	40.7	+54	26	55.5	4.91	0.471	0.54	F5
83574	6334	k	Sco	17	05	54.6	-34	08	40.7	4.83	0.257	0.38	B2Iab
83613	6355	60	Her	17	06	08.6	+12	43	09.3	4.89	0.125	0.11	A4IV
83895	6396	22	Dra	17	08	50.3	+65	41	39.9	3.17	-0.120	-0.14	B6III
84012	6378	η	Oph	17	11	19.5	-15	44	38.4	2.43	0.059	0.06	A2.5Va
84143	6380	η	Sco	17	13	20.3	-43	15	33.5	3.32	0.441	0.47	F3p
84345	6406	64	Her	17	15	24.0	+14	22	21.3	2.78	1.164	1.13	M5II-var
84380	6418	67	Her	17	15	37.3	+36	47	29.0	3.16	1.437	1.31	K3II-var
84379	6410	65	Her	17	15	42.6	+24	49	14.6	3.12	0.080	0.06	A3IVv
84405	6401	36	Oph	17	16	22.0	-26	37	32.4	4.33	0.855	0.92	K2:III:
84514	6415	41	Oph	17	17	27.6	+00	27	45.7	4.72	1.119	1.09	K2III
84573	6431	u	Her	17	17	56.2	+33	04	59.5	4.80	-0.166	-0.17	B1.5Vp
84606	6436	e	Her	17	18	14.4	+37	16	30.1	4.64	0.043	0.07	A2V
84880	6446	53	Ser	17	21	45.4	-12	51	44.3	4.32	0.037	0.07	A0/A1V
84893	6445	40	Oph	17	21	59.8	-21	07	45.2	4.39	0.394	0.47	F2/F3V
84970	6453	θ	Oph	17	23	01.4	-25	00	52.6	3.27	-0.186	-0.21	B2IV
84969	6417	ζ	Aps	17	23	43.3	-67	47	07.9	4.76	1.194	1.18	K1III
85112	6484	ρ	Her	17	24	15.1	+37	07	53.8	4.15	-0.011	0.01	B9.5III
85258	6461	β	Ara	17	26	40.5	-55	32	36.9	2.84	1.479	1.50	K3Ib-II
85267	6462	γ	Ara	17	26	47.2	-56	23	28.8	3.31	-0.150	-0.12	B1Ib
85822	6789	23	UMi	17	26	58.2	+86	34	28.4	4.35	0.021	0.04	A1Vn
85355	6498	σ	Oph	17	27	20.0	+04	07	37.9	4.34	1.480	1.44	K3II-var
85340	6486	b	Oph	17	27	22.7	-24	11	20.7	4.16	0.283	0.30	A3IV:m
85365	6493	***	***	17	27	30.5	-05	05	59.8	4.53	0.385	0.46	F3V
85423	6492	d	Oph	17	28	24.6	-29	52	49.8	4.28	0.402	0.45	F3III
85670	6536	β	Dra	17	30	48.4	+52	17	22.9	2.79	0.954	0.93	G2II
85693	6526	76	Her	17	31	24.3	+26	05	57.0	4.41	1.434	1.39	K3III-var
85696	6508	34	Sco	17	31	53.2	-37	18	26.7	2.70	-0.179	-0.23	B2IV
85755	6519	c	Oph	17	32	25.4	-23	58	26.3	4.78	0.016	0.08	A0V
85819	6554	24	Dra	17	32	30.1	+55	10	24.4	4.89	0.251	0.28	Am...
85727	6500	δ	Ara	17	32	35.5	-60	41	44.0	3.60	-0.104	-0.10	B8V
85829	6555	ν^2	Dra	17	32	35.6	+55	09	44.0	4.86	0.279	0.30	Am
85792	6510	α	Ara	17	33	07.1	-49	53	14.8	2.84	-0.136	-0.15	B2Vne
85927	6527	λ	Sco	17	34	43.8	-37	06	51.4	1.62	-0.231	-0.24	B1.5IV+...
86032	6556	55	Oph	17	35	42.0	+12	32	56.9	2.08	0.155	0.17	A5III
86201	6596	ω	Dra	17	36	51.4	+68	45	00.7	4.77	0.430	0.49	F5V
86092	6537	σ	Ara	17	36	53.4	-46	30	55.3	4.56	-0.020	0.01	A0V
86170	6546	***	***	17	37	41.1	-38	38	43.1	4.26	1.075	1.09	G8/K0III/IV
86228	6553	θ	Sco	17	38	30.3	-43	00	24.0	1.86	0.406	0.48	F1II
86263	6561	ξ	Ser	17	38	31.9	-15	24	27.4	3.54	0.262	0.29	F0IIIp
86284	6567	μ	Oph	17	38	44.6	-08	07	39.2	4.58	0.132	0.22	B8II-IIIMNp
86414	6588	ι	Her	17	39	55.9	+45	59	53.6	3.82	-0.179	-0.21	B3V
86614	6636	ψ^1	Dra	17	41	39.0	+72	08	25.2	4.57	0.434	0.50	F5IV-V
86486	6569	λ	Ara	17	41	40.4	-49	25	26.4	4.76	0.415	0.49	F3IV
86565	6581	o	Ser	17	42	20.5	-12	52	58.1	4.24	0.086	0.10	A2Va
86670	6580	κ	Sco	17	43	37.8	-39	02	12.8	2.39	-0.171	-0.22	B1.5III
86742	6603	60	Oph	17	44	17.3	+04	33	41.7	2.76	1.168	1.10	K2III
86736	6595	58	Oph	17	44	25.2	-21	41	23.4	4.86	0.469	0.54	F6/F7V
86974	6623	μ	Her	17	47	06.3	+27	42	43.0	3.42	0.750	0.71	G5IV

Posiciones medias de estrellas brillantes, 2016

Estrella				α			δ						
NH	NY	nom		h	m	s	º	‘	“	V	U-B	B-V	Esp
86929	6582	η	Pav	17	47	21.3	-64	43	46.3	3.61	1.161	1.09	K1III
87072	6616	X	Sgr	17	48	36.0	-27	50	08.2	4.53	0.600	0.76	F7II
87108	6629	62	Oph	17	48	43.2	+02	42	08.1	3.75	0.043	0.05	A0V
87073	6615	ι	Sco	17	48	44.4	-40	07	54.4	2.99	0.509	0.64	F3Ia
87220	6628	***	***	17	50	14.8	-31	42	26.5	4.79	-0.028	0.01	B8Ib/II
87261	6630	***	***	17	50	58.9	-37	02	49.2	3.19	1.192	1.15	K0/K1III
87294	6631	ι	Sco	17	51	20.4	-40	05	38.9	4.78	0.259	0.41	A6Ib
87585	6688	32	Dra	17	53	48.9	+56	52	13.7	3.73	1.177	1.11	K2III
87808	6695	θ	Her	17	56	49.2	+37	14	57.1	3.86	1.350	1.17	K1II-var
87833	6705	33	Dra	17	56	59.4	+51	29	15.0	2.24	1.521	1.54	K5III
87846	6675	***	***	17	57	59.7	-44	20	36.2	4.85	1.176	1.15	K2III
87933	6703	ξ	Her	17	58	24.4	+29	14	49.3	3.70	0.935	0.89	K0III
87936	6682	***	***	17	58	58.2	-41	43	01.2	4.88	1.617	1.88	M0III
87998	6707	94	Her	17	59	08.1	+30	11	19.7	4.41	0.380	0.51	F2II
88048	6698	64	Oph	17	59	56.1	-09	46	27.7	3.32	0.987	0.95	K0III
88060	6693	***	***	18	00	08.9	-30	15	11.6	5.00	1.654	2.00	K5/M0III
88128	6713	93	Her	18	00	47.5	+16	45	03.7	4.67	1.254	1.12	K0II-III
88116	6700	4	Sgr	18	00	48.0	-23	48	58.5	4.74	-0.030	-0.01	B9V
88149	6712	66	Oph	18	01	04.8	+04	22	07.8	4.79	-0.100	-0.08	B2Ve
88175	6710	ζ	Ser	18	01	21.3	-03	41	24.4	4.62	0.390	0.45	F3V
88192	6714	67	Oph	18	01	28.3	+02	55	55.0	3.93	0.029	0.10	B5Ib
88267	6729	95	Her	18	02	12.4	+21	35	48.1	4.26	0.406	0.47	G5
88290	6723	68	Oph	18	02	35.4	+01	18	21.2	4.42	0.046	0.06	A2Vn
88404	6733	τ	Oph	18	03	58.8	-08	10	44.8	4.77	0.410	0.45	F5V+...
88567	6742	γ^1	Sgr	18	06	04.5	-29	34	40.4	4.66	0.774	0.81	G0Ib/II
88601	6752	V2391	Oph	18	06	17.2	+02	29	52.9	4.03	0.860	0.96	K0V
88657	6765	98	Her	18	06	43.6	+22	13	17.1	4.96	1.656	2.18	M3IIIa+...
88635	6746	10	Sgr	18	06	52.1	-30	25	20.6	2.98	0.981	0.99	K0III
88714	6743	θ	Ara	18	07	54.9	-50	05	19.0	3.65	-0.101	-0.06	B2Ib
88788	6791	***	***	18	07	58.6	+43	27	53.0	5.00	0.913	0.91	G8III...
88726	6749	***	***	18	08	01.5	-43	25	21.8	4.92	0.255	0.29	A5V
88765	6770	71	Oph	18	08	05.7	+08	44	13.5	4.64	0.951	0.92	G8III-IV
88771	6771	72	Oph	18	08	07.9	+09	34	02.3	3.71	0.159	0.18	A4IVs
88794	6779	o	Her	18	08	11.2	+28	45	56.4	3.84	-0.018	-0.02	B9.5V
88839	6766	***	***	18	09	07.7	-28	27	13.6	4.55	0.938	1.00	K0IIICNp-var
88886	6787	102	Her	18	09	27.8	+20	49	05.4	4.37	-0.164	-0.19	B2IV
88866	6745	π	Pav	18	10	10.1	-63	39	56.7	4.33	0.228	0.23	Am
89112	6783	ε	Tel	18	12	27.2	-45	56	59.4	4.52	1.009	0.95	G5III
89172	6815	104	Her	18	12	31.4	+31	24	37.3	4.96	1.643	2.16	M3III
89153	6801	***	***	18	12	43.7	-23	41	47.3	4.96	1.055	1.02	K0III
89348	6850	36	Dra	18	13	59.5	+64	24	10.9	4.99	0.440	0.51	F5V
89341	6812	μ	Sgr	18	14	45.0	-21	03	11.3	3.84	0.195	0.21	B2III:
89642	6832	η	Sgr	18	18	44.6	-36	45	18.6	3.10	1.582	2.24	M2III
89678	6842	***	***	18	19	05.1	-27	02	06.8	4.66	1.629	1.62	K3III
89826	6872	1	Lyr	18	20	26.4	+36	04	22.1	4.33	1.162	1.10	K2III-var
89908	6920	43	Dra	18	20	31.1	+71	20	46.5	4.22	-0.093	-0.11	A0p
89937	6927	x	Dra	18	20	45.5	+72	44	22.6	3.55	0.489	0.62	F7V-var
89861	6868	106	Her	18	20	59.8	+21	58	09.4	4.92	1.594	1.82	M1III
89918	6866	74	Oph	18	21	41.5	+03	23	08.6	4.85	0.911	0.90	G8III
89931	6859	19	Sgr	18	22	03.0	-29	49	10.6	2.72	1.380	1.35	K3III
89962	6869	58	Ser	18	22	09.8	-02	53	36.0	3.23	0.941	0.96	K0III-IV
90156	6923	b	Dra	18	24	09.1	+58	48	38.3	4.98	0.082	0.05	A3V
90139	6895	109	Her	18	24	24.1	+21	46	41.7	3.85	1.168	1.13	K2III
90135	6884	ζ	Sct	18	24	33.8	-08	55	28.2	4.66	0.932	0.94	K0III
90098	6855	ξ	Pav	18	24	44.7	-61	29	03.5	4.35	1.462	1.50	M1III

Posiciones medias de estrellas brillantes, 2016

Estrella				α			δ						
NH	NY	nom		h	m	s	º	‘	“	V	U-B	B-V	Esp
90185	6879	20	Sgr	18	25	16.0	-34	22	31.1	1.79	-0.031	0.01	B9.5III
90344	6945	42	Dra	18	26	01.9	+65	34	25.5	4.82	1.179	1.16	K2III
90289	6896	21	Sgr	18	26	20.0	-20	31	53.3	4.81	1.310	1.27	A1/A2V
90422	6897	α	Tel	18	28	11.8	-45	57	27.6	3.49	-0.179	-0.18	B3IV
90496	6913	22	Sgr	18	28	59.3	-25	24	40.2	2.82	1.025	1.04	K1IIIb
90568	6905	ζ	Tel	18	30	06.0	-49	03	35.5	4.10	0.995	1.02	G8/K0III
90595	6930	γ	Sct	18	30	08.3	-14	33	14.3	4.67	0.076	0.10	A1IV/V
90905	6978	d	Dra	18	32	51.6	+57	03	31.1	4.77	0.611	0.67	F7Ib
90797	6916	ν	Pav	18	32	54.7	-62	15	56.4	4.63	-0.116	-0.11	B8III
90830	6934	δ^1	Tel	18	32	58.7	-45	54	07.3	4.92	-0.101	-0.08	B6IV
90982	6951	θ	CrA	18	34	40.8	-42	17	56.4	4.62	0.994	0.95	G5III
91117	6973	α	Sct	18	36	06.3	-08	13	52.6	3.85	1.317	1.28	K2III
91262	7001	3	Lyr	18	37	29.9	+38	47	59.5	0.03	-0.001	-0.01	A0V-var
91726	7020	δ	Sct	18	43	10.6	-09	02	07.9	4.70	0.358	0.40	F2IIIp
91845	7032	ε	Sct	18	44	25.2	-08	15	27.5	4.88	1.112	1.07	G8II
91919	7051	4	Lyr	18	44	53.1	+39	41	17.4	4.67	0.170	0.19	F1V
91926	7053	ε^2	Lyr	18	44	55.6	+39	37	50.7	4.59	0.180	0.20	A8Vn
91792	6982	ζ	Pav	18	44	57.2	-71	24	40.7	4.01	1.134	1.14	K2III
91971	7056	ζ^1	Lyr	18	45	20.5	+37	37	23.4	4.34	0.192	0.18	Am
91918	7029	***	***	18	45	25.6	-35	37	27.3	4.86	-0.168	-0.19	B2V
92043	7061	110	Her	18	46	22.3	+20	33	47.1	4.19	0.483	0.55	F6V
92041	7039	27	Sgr	18	46	41.2	-26	58	20.6	3.17	-0.107	-0.10	B8.5III
92088	7064	***	***	18	46	44.4	+26	40	50.6	4.83	1.199	1.16	K3III
92024	7012	***	***	18	47	03.7	-64	51	12.7	4.78	0.199	0.21	A7V
92161	7069	111	Her	18	47	45.0	+18	12	03.3	4.34	0.148	0.16	A5III
92175	7063	β	Sct	18	48	03.0	-04	43	44.4	4.22	1.087	1.09	G5II...
92420	7106	β	Lyr	18	50	41.4	+33	22	57.6	3.52	0.003	0.02	A8:V
92512	7125	o	Dra	18	51	26.7	+59	24	31.9	4.63	1.185	1.20	K0II-III
92689	7137	***	***	18	53	38.1	+50	43	45.5	4.92	0.903	0.88	G8III
92609	7074	λ	Pav	18	53	44.4	-62	09	59.8	4.22	-0.150	-0.14	B2II-III
92782	7180	υ	Dra	18	54	11.4	+71	19	08.2	4.82	1.151	1.10	K0III
92791	7139	12	Lyr	18	55	04.9	+36	55	13.4	4.22	1.575	2.60	M4II-var
92761	7116	ν^1	Sgr	18	55	09.9	-22	43	23.4	4.86	1.412	1.35	K1II
92818	7133	113	Her	18	55	26.7	+22	40	01.0	4.57	0.782	0.86	G4III+...
92862	7157	R	Lyr	18	55	50.2	+43	58	06.7	4.08	1.397	3.14	M5III-var
92845	7120	ν^2	Sgr	18	56	06.9	-22	38	57.8	5.00	1.348	1.25	K1Ib/II
92855	7121	34	Sgr	18	56	17.2	-26	16	29.4	2.05	-0.134	-0.13	B2.5V
92946	7141	θ^1	Ser	18	57	02.4	+04	13	34.3	4.62	0.161	0.20	A5V
92951	7142	θ^2	Ser	18	57	03.9	+04	13	29.1	4.98	0.204	0.22	A5Vn
93026	7149	η	Sct	18	57	56.7	-05	49	25.3	4.83	1.057	1.03	K1III
93015	7107	κ	Pav	18	58	38.6	-67	12	37.8	4.40	0.530	0.59	F5Ib-II:
93085	7150	37	Sgr	18	58	42.8	-21	05	01.1	3.52	1.151	1.09	G8/K0II/III
93194	7178	14	Lyr	18	59	33.7	+32	42	47.0	3.25	-0.049	-0.03	B9III
93148	7134	λ	Tel	18	59	46.7	-52	54	54.9	4.85	-0.051	-0.03	A0V
93174	7152	ε	CrA	18	59	50.0	-37	05	03.7	4.83	0.396	0.44	F3IV/V
93244	7176	13	Aql	19	00	22.3	+15	05	30.2	4.02	1.082	1.00	K2III
93279	7192	λ	Lyr	19	00	38.2	+32	10	10.0	4.94	1.465	1.32	K3III
93408	7215	16	Lyr	19	01	54.4	+46	57	31.8	5.00	0.186	0.23	A7V
93429	7193	i	Aql	19	02	33.7	-05	42	52.9	4.02	1.079	1.08	K1III-var
93506	7194	38	Sgr	19	03	39.6	-29	51	18.4	2.60	0.062	0.06	A3IV
93542	7188	ζ	CrA	19	04	16.8	-42	04	12.4	4.74	-0.027	-0.02	A0Vn
93683	7217	39	Sgr	19	05	40.2	-21	42	57.6	3.76	1.012	0.98	K0III
93747	7235	17	Aql	19	06	10.1	+13	53	20.6	2.99	0.014	-0.01	A0Vn
93805	7236	16	Aql	19	07	07.4	-04	51	23.8	3.43	-0.096	-0.09	B9Vn
93825	7226	γ	CrA	19	07	31.9	-37	02	17.7	4.23	0.523	0.59	F7IV-V

Posiciones medias de estrellas brillantes, 2016

Estrella				α			δ						
NH	NY	nom		h	m	s	º	‘	“	V	U-B	B-V	Esp
93864	7234	40	Sgr	19	07	58.1	-27	38	41.7	3.32	1.169	1.15	K1/K2III
94005	7242	δ	CrA	19	09	29.7	-40	28	10.6	4.57	1.070	1.06	K1III
94114	7254	α	CrA	19	10	35.6	-37	52	38.2	4.11	0.042	0.03	A0/A1V
94141	7264	π	Sgr	19	10	44.6	-20	59	45.8	2.88	0.377	0.44	F2II/III
94160	7259	β	CrA	19	11	09.7	-39	18	47.2	4.10	1.163	1.11	K0II/IIICN.
94376	7310	57	Dra	19	12	33.3	+67	41	26.0	3.07	0.990	0.94	G9III
94490	7309	54	Dra	19	14	12.8	+57	44	02.3	5.00	1.156	1.12	K2III
94481	7298	η	Lyr	19	14	19.2	+39	10	30.4	4.43	-0.150	-0.19	B2.5IV
94648	7352	τ	Dra	19	15	13.5	+73	23	08.2	4.45	1.257	1.15	K3III
94643	7292	42	Sgr	19	16	33.0	-25	13	36.9	4.86	0.569	0.67	K0/K1III+..
94703	7306	1	Vul	19	16	55.6	+21	25	13.9	4.76	-0.058	-0.05	B4IV
94713	7314	21	Lyr	19	16	56.5	+38	09	50.0	4.35	1.258	1.13	K0II
94779	7328	κ	Cyg	19	17	29.0	+53	23	57.9	3.80	0.950	0.85	K0III
94820	7304	43	Sgr	19	18	35.9	-18	55	20.1	4.88	1.013	0.99	K0III
95081	7371	58	Dra	19	20	45.0	+65	44	47.1	4.60	0.033	0.01	A2IIIs
95066	7333	26	Aql	19	21	25.7	-05	23	01.6	4.98	0.937	0.93	G8III-IV...
95168	7340	ρ^1	Sgr	19	22	37.7	-17	48	53.5	3.92	0.228	0.25	F0III/IV
95176	7342	46	Sgr	19	22	40.3	-15	55	22.1	4.52	0.079	0.34	F2p
95241	7337	β^1	Sgr	19	23	49.2	-44	25	35.2	3.96	-0.085	-0.07	B9V
95294	7343	β^2	Sgr	19	24	24.4	-44	46	01.8	4.27	0.350	0.42	F2III
95372	7372	2	Cyg	19	24	46.6	+29	39	16.1	4.99	-0.120	-0.11	B3IV
95347	7348	α	Sgr	19	25	01.6	-40	35	00.3	3.96	-0.105	-0.10	B8V
95501	7377	30	Aql	19	26	19.8	+03	08	55.6	3.36	0.319	0.38	F0IV
95585	7387	ν	Aql	19	27	21.7	+00	22	21.3	4.64	0.576	0.75	F2Ib
95771	7405	α	Vul	19	29	23.5	+24	41	57.2	4.44	1.502	1.68	M0
95853	7420	ι^2	Cyg	19	30	07.3	+51	45	55.7	3.76	0.148	0.18	A5Vn
95947	7417	6	Cyg	19	31	23.2	+27	59	42.7	3.05	1.088	1.05	K3II+...
96100	7462	61	Dra	19	32	19.5	+69	41	21.2	4.67	0.786	0.85	K0V
96052	7426	8	Cyg	19	32	23.1	+34	29	19.9	4.74	-0.150	-0.12	B3IV
96229	7429	μ	Aql	19	34	53.7	+07	24	54.1	4.45	1.176	1.14	K3III
96275	7437	9	Vul	19	35	18.4	+19	48	37.4	5.00	-0.093	-0.08	B8IIIn
96341	7424	ι	Tel	19	36	26.1	-48	03	43.5	4.88	1.096	1.06	G9III
96441	7469	13	Cyg	19	36	53.1	+50	15	35.7	4.49	0.395	0.44	F4V
96468	7447	41	Aql	19	37	34.5	-01	14	56.1	4.36	-0.079	-0.06	B5III
96465	7440	52	Sgr	19	37	42.6	-24	50	45.3	4.59	-0.075	-0.06	B8/B9V
96483	7446	κ	Aql	19	37	46.7	-06	59	22.7	4.93	-0.046	0.03	B0.5III
96683	7478	12	Cyg	19	40	01.7	+30	11	31.9	4.68	0.971	0.89	G8III-IV...
96757	7479	α	Sge	19	40	50.0	+18	03	10.0	4.39	0.777	0.77	G0II
96837	7488	β	Sge	19	41	47.4	+17	30	54.8	4.39	1.041	0.96	G8II
97118	7517	15	Cyg	19	44	52.3	+37	23	42.0	4.89	0.948	0.94	G8III
97165	7528	δ	Cyg	19	45	29.4	+45	10	18.3	2.86	-0.002	-0.02	B9.5III
97278	7525	50	Aql	19	47	02.6	+10	39	16.1	2.72	1.507	1.44	K3II
97295	7534	17	Cyg	19	47	03.2	+33	46	00.4	5.00	0.476	0.55	F5
97290	7515	f	Sgr	19	47	19.4	-19	43	12.9	4.87	1.061	1.03	K0III
97433	7582	63	Dra	19	48	06.5	+70	18	35.5	3.84	0.888	0.88	G8III
97365	7536	7	Sge	19	48	07.4	+18	34	33.4	3.68	1.313	1.27	M2II
97649	7557	53	Aql	19	51	35.3	+08	54	46.5	0.76	0.221	0.27	A7IV-V
97679	7565	V395	Vul	19	51	46.7	+22	39	10.4	4.90	-0.153	-0.12	B2.5V
97804	7570	η	Aql	19	53	18.8	+01	02	56.6	3.87	0.630	0.73	F6Ibv
97886	7592	13	Vul	19	54	09.8	+24	07	24.7	4.57	-0.047	-0.02	B9.5III
97938	7595	ξ	Aql	19	55	02.8	+08	30	18.5	4.71	1.023	1.03	K0III
98055	7619	24	Cyg	19	56	03.4	+52	28	59.8	4.91	0.124	0.12	A4Vn
98036	7602	60	Aql	19	56	07.4	+06	26	56.4	3.71	0.855	0.89	G8IV-var
98073	7633	***	***	19	56	14.2	+58	53	25.5	4.98	1.584	1.56	K5II-III

Posiciones medias de estrellas brillantes, 2016

Estrella				α			δ						
NH	NY	nom		h	m	s	º	‘	“	V	U-B	B-V	Esp
98032	7581	ι	Sgr	19	56	23.7	-41	49	24.9	4.12	1.063	1.09	K0III
98068	7613	22	Cyg	19	56	27.2	+38	31	52.7	4.95	-0.086	-0.07	B5IV
98066	7597	ω	Sgr	19	56	50.8	-26	15	16.3	4.70	0.748	0.79	G3/G5III
98110	7615	η	Cyg	19	56	55.5	+35	07	40.9	3.89	1.019	0.98	K0III-var
98162	7604	59	Sgr	19	57	57.4	-27	07	29.7	4.54	1.462	1.39	K3III
98337	7635	12	Sge	19	59	29.5	+19	32	16.3	3.51	1.571	1.65	K5III
98353	7618	60	Sgr	19	59	57.4	-26	08	59.7	4.84	0.882	0.91	G8II/III
98412	7623	θ^1	Sgr	20	00	48.4	-35	13	49.4	4.37	-0.150	-0.15	B2.5IV
98543	7653	15	Vul	20	01	46.8	+27	48	00.0	4.66	0.184	0.19	A4III
98495	7590	ε	Pav	20	02	28.3	-72	51	52.7	3.97	-0.032	-0.04	A0V
98702	7685	ρ	Dra	20	02	53.2	+67	55	14.5	4.51	1.313	1.23	K3III
98608	7625	ν	Pav	20	03	07.5	-59	19	45.3	4.95	1.356	3.25	M6III
98688	7650	V3872	Sgr	20	03	40.2	-27	39	45.9	4.43	1.640	2.50	M4III
98761	7652	***	***	20	04	39.0	-37	53	37.5	4.77	1.417	1.40	K4III
98842	7659	***	***	20	05	22.2	-32	00	31.5	4.99	1.208	1.17	K1III/IV
99255	7750	1	Cep	20	08	18.3	+77	45	37.5	4.38	-0.046	-0.06	B9III
99120	7673	ξ	Tel	20	08	38.5	-52	49	55.5	4.93	1.591	1.83	M1II
99303	7708	b^2	Cyg	20	10	02.4	+36	53	20.2	4.93	-0.139	-0.13	B2.5V
99240	7665	δ	Pav	20	10	19.8	-66	08	17.0	3.55	0.751	0.76	G5IV-V-var
99473	7710	θ	Aql	20	12	09.3	+00	46	17.4	3.24	-0.066	-0.06	B9.5III
99655	7740	33	Cyg	20	13	46.8	+56	37	07.2	4.28	0.114	0.14	A3IV-Vn
99639	7730	30	Cyg	20	13	49.2	+46	51	58.4	4.80	0.100	0.19	A5IIIn
99675	7735	31	Cyg	20	14	09.1	+46	47	31.2	3.80	1.270	1.15	K2II+...
99742	7724	67	Aql	20	15	02.4	+15	14	55.6	4.94	0.072	0.09	A2V
99770	7736	V1644	Cyg	20	15	09.1	+36	51	27.3	4.93	0.151	0.21	A2V
99824	7739	QR	Vul	20	15	57.9	+25	38	35.4	4.79	-0.181	-0.22	B3V
99848	7751	V1488	Cyg	20	15	58.9	+47	45	55.7	3.96	1.451	1.45	K3Ib-II
99874	7744	23	Vul	20	16	27.2	+27	51	56.4	4.50	1.258	1.30	K3III
100044	7763	P	Cyg	20	18	23.7	+38	05	05.8	4.77	0.377	0.44	B2pe
100027	7747	5	Cap	20	18	33.6	-12	27	22.1	4.30	0.928	1.05	G3Ib
100064	7754	6	Cap	20	18	58.1	-12	29	33.5	3.58	0.883	0.92	G6/G8III
100310	7773	ν	Cap	20	21	34.6	-12	42	22.0	4.77	-0.047	-0.06	B9IV
100345	7776	9	Cap	20	21	56.2	-14	43	41.3	3.05	0.790	0.90	A5:n
100453	7796	37	Cyg	20	22	49.3	+40	18	36.7	2.23	0.673	0.65	F8Ib
100587	7806	39	Cyg	20	24	31.2	+32	14	39.1	4.43	1.331	1.31	K3III
100751	7790	α	Pav	20	26	56.6	-56	40	50.7	1.94	-0.118	-0.10	B2IV
101027	7822	11	Cap	20	29	47.9	-17	45	28.9	4.77	0.386	0.44	F3V
101093	7850	2	Cep	20	29	51.3	+63	02	59.5	4.21	0.199	0.20	A7III
101076	7834	41	Cyg	20	30	04.2	+30	25	27.8	4.01	0.404	0.46	F5II
101101	7831	69	Aql	20	30	30.7	-02	49	46.9	4.91	1.160	1.12	K2III
101138	7844	V2014	Cyg	20	30	34.2	+49	00	27.4	4.94	-0.087	-0.06	B2.5IV
101421	7852	2	δ	20	34	00.1	+11	21	36.7	4.03	-0.123	-0.10	B6III
101474	7866	V2125	Cyg	20	34	32.7	+35	18	29.1	4.61	1.593	1.78	K2Ib
101589	7871	ζ	δ	20	36	04.8	+14	43	55.1	4.64	0.120	0.14	A3V
101612	7848	φ^1	Pav	20	36	56.1	-60	31	29.0	4.75	0.291	0.34	F1III
101692	7873	70	Aql	20	37	35.1	-02	29	30.7	4.91	1.606	1.66	K5II
101769	7882	β	δ	20	38	19.4	+14	39	11.8	3.64	0.425	0.50	F5IV
101772	7869	α	Ind	20	38	43.2	-47	13	57.8	3.11	0.998	0.98	K0III
101773	7859	ρ	Pav	20	38	57.5	-61	28	18.3	4.86	0.447	0.52	Fm
101847	7884	l	Aql	20	39	11.3	-01	02	47.5	4.31	0.949	0.91	G8III
101867	7891	29	Vul	20	39	15.6	+21	15	35.5	4.81	-0.030	-0.01	A0V
101958	7906	α	δ	20	40	24.3	+15	58	16.2	3.77	-0.057	-0.01	B9V
102098	7924	50	Cyg	20	41	59.7	+45	20	23.7	1.25	0.092	0.16	A2Ia
102281	7928	δ	δ	20	44	13.7	+15	08	04.6	4.43	0.302	0.34	A7IIIp
102333	7920	η	Ind	20	45	14.5	-51	51	38.8	4.51	0.278	0.30	A6:-var

Posiciones medias de estrellas brillantes, 2016

Estrella				α			δ						
NH	NY	nom		h	m	s	º	‘	“	V	U-B	B-V	Esp
102388	7939	30	Vul	20	45	35.4	+25	19	49.6	4.92	1.183	1.11	K2III
102422	7957	η	Cep	20	45	37.4	+61	54	11.6	3.41	0.912	0.94	K0IV
102431	7955	***	***	20	45	45.7	+57	38	21.7	4.52	0.535	0.58	F8IV-V
102453	7942	52	Cyg	20	46	20.7	+30	46	50.5	4.22	1.051	1.01	K0III
102395	7913	β	Pav	20	46	25.5	-66	08	32.6	3.42	0.163	0.20	A5IV
102488	7949	53	Cyg	20	46	52.8	+34	01	58.1	2.48	1.021	1.00	K0III
102485	7936	xsi	Cap	20	47	04.2	-25	12	38.1	4.13	0.426	0.49	F5V
102532	7948	12	δ	20	47	25.4	+16	11	04.4	4.27	1.042	1.03	K1IV
102571	7956	T	Cyg	20	47	50.3	+34	26	07.7	4.93	1.294	1.25	K3III-var
102589	7963	54	Cyg	20	48	03.1	+36	33	07.4	4.53	-0.083	-0.12	B6IV
102618	7950	2	Aqr	20	48	34.0	-09	26	04.0	3.78	0.000	-0.01	A1V
102624	7951	3	Aqr	20	48	36.4	-04	57	59.0	4.43	1.639	2.21	M3III-var
102724	7977	V1661	Cyg	20	49	30.1	+46	10	33.4	4.81	0.571	0.59	B3Ia
102790	7952	ζ	Ind	20	50	36.7	-46	09	52.7	4.90	1.494	1.57	K5III
102831	7965	α	Mic	20	50	59.7	-33	43	03.4	4.89	1.004	0.97	G8III
102978	7980	18	Cap	20	52	48.2	-26	51	23.1	4.12	1.633	1.76	K4III
103004	7995	31	Vul	20	52	50.1	+27	09	34.1	4.56	0.835	0.87	G8III
103045	7990	6	Aqr	20	53	32.5	-08	55	13.8	4.73	0.325	0.36	A3m
103089	8001	57	Cyg	20	53	49.8	+44	27	01.2	4.80	-0.134	-0.16	B5V
103227	7986	β	Ind	20	56	05.2	-58	23	26.2	3.67	1.250	1.11	K0III
103413	8028	ν	Cyg	20	57	47.4	+41	13	52.5	3.94	0.027	0.01	A1Vn
103632	8047	f^1	Cyg	21	00	23.3	+47	35	09.4	4.74	-0.084	-0.06	B1ne
103738	8039	γ	Mic	21	02	17.9	-32	11	32.3	4.67	0.890	0.90	G8III
104019	8060	η	Cap	21	05	20.5	-19	47	19.6	4.82	0.169	0.18	A5V
104060	8079	ξ	Cyg	21	05	31.9	+43	59	39.4	3.72	1.609	1.63	K5Ibv
104139	8075	23	Cap	21	06	52.3	-17	09	59.1	4.08	-0.010	0.00	A1V
104194	8089	f^2	Cyg	21	07	10.2	+47	42	55.0	4.56	1.569	1.54	K4II
104234	8080	24	Cap	21	08	05.4	-24	56	20.4	4.49	1.604	1.81	K5/M0III
104459	8093	ν	Aqr	21	10	29.5	-11	18	14.5	4.50	0.926	0.92	G8III
104521	8097	γ	Equ	21	11	08.6	+10	11	55.7	4.70	0.262	0.26	F0p
104732	8115	ζ	Cyg	21	13	38.4	+30	17	42.7	3.21	0.990	0.97	G8II
104858	8123	δ	Equ	21	15	17.0	+10	04	28.6	4.47	0.529	0.57	F5V+...
104887	8130	65	Cyg	21	15	27.1	+38	06	58.6	3.74	0.393	0.46	F1IV
104987	8131	α	Equ	21	16	38.9	+05	19	00.5	3.92	0.549	0.62	G0III+...
105102	8143	67	Cyg	21	18	03.9	+39	27	52.0	4.22	0.098	0.25	B9Iab
105138	8146	υ	Cyg	21	18	35.8	+34	58	00.6	4.41	-0.103	-0.09	B2Vne
105140	8135	ε	Mic	21	18	56.1	-32	06	09.7	4.71	0.070	0.09	A0V
105199	8162	α	Cep	21	18	58.3	+62	39	21.0	2.45	0.257	0.26	A7IV-V
105319	8140	θ	Ind	21	21	02.0	-53	22	45.3	4.39	0.191	0.21	A5V
105382	8151	θ^1	Mic	21	21	48.6	-40	44	19.3	4.80	0.029	0.07	A2p
105502	8173	1	Peg	21	22	51.0	+19	52	32.8	4.08	1.108	1.05	K1III
105515	8167	ι	Cap	21	23	09.8	-16	45	48.5	4.28	0.888	0.89	G8III
105881	8204	34	Cap	21	27	36.4	-22	20	20.7	3.77	1.002	0.88	G4Ibp...
105858	8181	γ	Pav	21	27	47.2	-65	17	25.3	4.21	0.494	0.61	F6V
106032	8238	8	Cep	21	28	52.0	+70	37	60.0	3.23	-0.201	-0.25	B2IIIv
106039	8213	b	Cap	21	29	39.7	-21	44	04.3	4.50	0.889	0.89	K0III
106140	8225	2	Peg	21	30	41.8	+23	42	42.5	4.52	1.618	1.82	M1III
106278	8232	22	Aqr	21	32	25.6	-05	29	52.3	2.90	0.828	0.82	G0Ib
106481	8252	ρ	Cyg	21	34	36.2	+45	39	55.1	3.98	0.885	0.94	G8III
106551	8255	72	Cyg	21	35	27.1	+38	36	30.9	4.87	1.085	1.06	K1III
106723	8260	39	Cap	21	38	00.1	-19	23	28.8	4.51	-0.180	-0.17	B3V:p
106801	8279	V337	Cep	21	38	21.8	+62	09	24.2	4.76	0.246	0.38	B2Ib
106786	8264	ξ	Aqr	21	38	37.7	-07	46	46.2	4.68	0.175	0.19	A7V
106985	8278	40	Cap	21	41	00.2	-16	35	13.4	3.69	0.320	0.32	A7III:mp...
107119	8317	11	Cep	21	42	09.5	+71	23	15.2	4.55	1.108	1.07	K0III

Posiciones medias de estrellas brillantes, 2016

Estrella				α			δ						
NH	NY	nom		h	m	s	º	‘	“	V	U-B	B-V	Esp
107136	8301	π[1]	Cyg	21	42	40.9	+51	15	55.4	4.69	-0.119	-0.12	B3IV
107089	8254	ν	Oct	21	43	15.2	-77	18	55.3	3.73	1.008	0.98	K0III
107188	8288	43	Cap	21	43	34.6	-18	47	25.5	4.72	0.868	0.91	G8III
107259	8316	μ	Cep	21	44	00.8	+58	51	22.0	4.23	2.242	3.57	M2Ia
107310	8309	78	Cyg	21	44	52.9	+28	49	04.0	4.49	0.512	0.58	F6V
107315	8308	ε	Peg	21	44	59.8	+09	57	04.7	2.38	1.520	1.42	K2Ib-var
107348	8313	9	Peg	21	45	17.6	+17	25	34.7	4.34	1.161	1.05	G5Ib
107354	8315	10	Peg	21	45	23.6	+25	43	17.3	4.14	0.425	0.48	F5IV
107380	8305	9	PsA	21	45	55.5	-32	56	59.1	4.35	-0.053	-0.05	B9.5V
107418	8334	ν	Cep	21	45	55.5	+61	11	50.3	4.25	0.474	0.73	A2Ia-var
107533	8335	81	Cyg	21	47	24.3	+49	23	11.0	4.23	-0.120	-0.13	B3III
107556	8322	49	Cap	21	47	57.0	-16	03	06.2	2.85	0.180	0.35	A5mF2
108085	8353	γ	Gru	21	54	55.3	-37	17	11.4	3.00	-0.084	-0.10	B8III
108431	8368	δ	Ind	21	59	01.8	-54	54	48.1	4.40	0.297	0.35	F0IV
108874	8402	ο	Aqr	22	04	10.0	-02	04	30.5	4.74	-0.100	-0.03	B7IVe
108917	8417	17	Cep	22	04	16.2	+64	42	31.4	4.26	0.379	0.44	Am
108870	8387	ε	Ind	22	04	36.6	-56	43	02.1	4.69	1.056	1.15	K5V
109068	8413	ν	Peg	22	06	30.7	+05	08	23.0	4.86	1.443	1.45	K4III
109074	8414	α	Aqr	22	06	37.8	+00	14	20.9	2.95	0.969	0.92	G2Ib
109111	8411	λ	Gru	22	07	06.2	-39	27	47.1	4.47	1.349	1.31	M0III
109139	8418	33	Aqr	22	07	19.6	-13	47	20.6	4.29	-0.075	-0.06	B8V
109176	8430	24	Peg	22	07	46.8	+25	25	34.4	3.77	0.435	0.51	F5V
109268	8425	α	Gru	22	09	15.9	-46	52	49.5	1.73	-0.070	-0.05	B7IV
109285	8431	μ	PsA	22	09	20.5	-32	54	26.4	4.50	0.054	0.06	A2V
109289	8433	υ	PsA	22	09	23.6	-33	57	46.1	4.99	1.499	1.50	K4III
109400	8468	24	Cep	22	10	07.2	+72	25	21.7	4.79	0.919	0.91	G8III
109410	8454	π	Peg	22	10	43.3	+33	15	34.8	4.28	0.471	0.52	F5III
109427	8450	26	Peg	22	11	01.9	+06	16	46.5	3.52	0.086	0.09	A2V
109422	8447	τ	PsA	22	11	06.5	-32	28	00.3	4.94	0.489	0.54	F6V
109492	8465	ζ	Cep	22	11	25.8	+58	16	58.7	3.39	1.558	1.58	K1Ibv
109754	8485	***	***	22	14	35.3	+39	47	50.1	4.50	1.385	1.36	K3III
109857	8494	23	Cep	22	15	38.9	+57	07	34.5	4.18	0.278	0.33	F0IV
109908	8486	μ[1]	Gru	22	16	36.2	-41	15	50.5	4.79	0.790	0.83	G8III+...
109937	8498	1	Lac	22	16	41.4	+37	49	52.9	4.14	1.447	1.33	K3III
110003	8499	43	Aqr	22	17	42.2	-07	42	02.2	4.17	0.979	0.95	G8III-IV
110130	8502	α	Tuc	22	19	37.1	-60	10	36.1	2.87	1.390	1.37	K3III
110351	8523	2	Lac	22	21	42.6	+46	37	12.2	4.55	-0.100	-0.10	B6V
110371	8522	32	Peg	22	22	05.1	+28	24	50.7	4.78	-0.010	0.06	B9III
110386	8520	31	Peg	22	22	19.8	+12	17	19.6	4.82	-0.132	-0.16	B2IV-V
110395	8518	48	Aqr	22	22	30.5	-01	18	13.3	3.86	-0.057	-0.06	A0V
110538	8538	3	Lac	22	24	12.7	+52	18	43.5	4.42	1.015	1.03	G9III
110609	8541	4	Lac	22	25	11.3	+49	33	37.5	4.55	0.092	0.18	B9Iab
110672	8539	π	Aqr	22	26	07.2	+01	27	41.7	4.80	-0.171	-0.18	B1Ve
110838	8540	δ	Tuc	22	28	29.3	-64	52	54.4	4.51	-0.029	-0.01	B8V
110882	8551	35	Peg	22	28	41.6	+04	46	43.8	4.78	1.039	1.07	K0III
110960	8558	ζ[1]	Aqr	22	29	40.9	+00	03	53.8	3.65	0.406	0.50	F3III-IV
110991	8571	δ	Cep	22	29	47.2	+58	29	60.0	4.07	0.778	0.81	G2Ib-var
111022	8572	V412	Lac	22	30	13.3	+47	47	30.1	4.34	1.679	1.90	M0II
110997	8556	δ[1]	Gru	22	30	15.0	-43	24	38.8	3.97	1.022	0.98	G6/G8III
111043	8560	δ[2]	Gru	22	30	44.2	-43	39	51.6	4.12	1.570	2.49	M4.5IIIa
111104	8579	6	Lac	22	31	12.1	+43	12	30.0	4.52	-0.086	-0.09	B2IV
111123	8573	57	Aqr	22	31	31.1	-10	35	35.0	4.82	-0.053	-0.04	A0IVs
111169	8585	7	Lac	22	31	58.5	+50	22	03.6	3.76	0.031	0.05	A1V
111188	8576	β	PsA	22	32	26.4	-32	15	39.6	4.29	0.011	0.03	A1V
111310	8582	ν	Tuc	22	34	06.1	-61	53	48.6	4.91	1.612	2.50	M4III

Posiciones medias de estrellas brillantes, 2016

Estrella				α			δ						
NH	NY	nom		h	m	s	º	‘	“	V	U-B	B-V	Esp
111497	8597	62	Aqr	22	36	12.2	+00	01	55.3	4.04	-0.083	-0.07	B9IV-Vn
111674	8613	9	Lac	22	38	03.3	+51	37	50.3	4.64	0.254	0.28	A8IV
111841	8622	10	Lac	22	40	00.3	+39	08	11.4	4.89	-0.207	-0.23	O9V
111944	8632	11	Lac	22	41	14.5	+44	21	46.0	4.50	1.318	1.25	K3III
111954	8628	ε	PsA	22	41	33.9	-26	57	25.8	4.18	-0.105	-0.07	B8V
112029	8634	ζ	Peg	22	42	17.1	+10	55	04.4	3.41	-0.086	-0.06	B8.5V
112051	8641	o	Peg	22	42	32.0	+29	23	38.9	4.80	-0.013	0.02	A1IV
112122	8636	β	Gru	22	43	38.7	-46	47	52.3	2.07	1.610	2.60	M5III
112158	8650	η	Peg	22	43	46.7	+30	18	28.4	2.93	0.852	0.87	G2II-III..
112203	8644	ρ	Gru	22	44	27.0	-41	19	40.6	4.84	1.027	1.01	K0III
112211	8649	g	Aqr	22	44	28.4	-18	44	37.2	4.68	1.358	1.35	K3III
112374	8655	η	Gru	22	46	38.1	-53	24	46.5	4.84	1.180	1.21	K2IIICNIV
112440	8667	47	Peg	22	47	19.7	+23	39	10.2	3.97	1.070	0.99	G8II-III
112519	8702	***	***	22	47	22.5	+83	14	28.8	4.77	1.257	1.25	K3III
112447	8665	46	Peg	22	47	31.1	+12	15	28.3	4.20	0.502	0.60	F7V
112405	8630	β	Oct	22	47	39.2	-81	17	39.9	4.13	0.208	0.24	A9IV/V
112623	8675	ε	Gru	22	49	32.6	-51	13	46.9	3.49	0.083	0.10	A3V
112724	8694	32	Cep	22	50	16.3	+66	17	14.7	3.50	1.053	1.06	K0III
112716	8679	τ	Aqr	22	50	27.8	-13	30	18.8	4.05	1.570	1.72	K5III
112748	8684	μ	Peg	22	50	48.1	+24	41	20.5	3.51	0.933	0.89	M2III
112917	8699	15	Lac	22	52	46.9	+43	24	01.4	4.95	1.559	1.71	M0III
112948	8695	22	PsA	22	53	26.3	-32	47	15.6	4.46	-0.037	-0.01	A0III
112961	8698	λ	Aqr	22	53	28.5	-07	29	29.4	3.73	1.626	2.07	M2III-var
113116	8748	***	***	22	54	13.4	+84	26	03.8	4.70	1.418	1.38	K4III
113136	8709	δ	Aqr	22	55	31.4	-15	43	57.9	3.27	0.066	0.08	A3V
113186	8717	ρ	Peg	22	56	03.5	+08	54	16.4	4.91	-0.003	0.00	A1V
113246	8720	δ	PsA	22	56	51.5	-32	27	04.2	4.20	0.952	0.96	G8III
113288	8726	V424	Lac	22	57	09.6	+49	49	18.9	4.99	1.778	1.87	K5Ib-var
113368	8728	α	PsA	22	58	33.5	-29	32	04.1	1.17	0.145	0.16	A3V
113638	8747	ζ	Gru	23	01	50.7	-52	39	55.2	4.11	0.960	1.01	G8III
113726	8762	1	And	23	02	41.0	+42	24	53.8	3.62	-0.099	-0.05	B6pv
113881	8775	53	Peg	23	04	34.6	+28	10	21.2	2.44	1.655	2.31	M2II-III-var
113889	8773	4	Psc	23	04	43.0	+03	54	32.9	4.48	-0.115	-0.09	B6Ve
113919	8780	3	And	23	04	55.7	+50	08	31.3	4.64	1.058	1.02	K0III
113963	8781	54	Peg	23	05	35.0	+15	17	39.5	2.49	-0.002	0.00	B9.5III
114104	8797	1	Cas	23	07	19.0	+59	30	32.9	4.84	-0.060	-0.02	B0.5IV
114119	8789	86	Aqr	23	07	33.9	-23	39	13.3	4.48	0.892	0.92	G8III
114131	8787	θ	Gru	23	07	48.1	-43	25	51.6	4.28	0.423	0.44	F5me...
114144	8795	55	Peg	23	07	50.2	+09	29	55.9	4.54	1.559	1.79	M2III
114155	8796	56	Peg	23	07	55.1	+25	33	27.2	4.76	1.285	1.30	K0IIp
114222	8819	33	Cep	23	08	25.6	+75	28	36.6	4.41	0.802	0.84	G2III
114341	8812	c^2	Aqr	23	10	19.4	-21	04	57.4	3.68	1.202	1.16	K1III
114375	8817	89	Aqr	23	10	47.6	-22	22	04.6	4.71	0.674	0.75	A3IV:
114421	8820	ι	Gru	23	11	17.2	-45	09	25.5	3.88	0.998	0.95	K0III
114570	8830	7	And	23	13	18.6	+49	29	47.6	4.53	0.302	0.35	F0V
114724	8834	90	Aqr	23	15	10.6	-05	57	35.4	4.22	1.545	1.89	M2III
114855	8841	ψ^1	Aqr	23	16	45.3	-08	59	51.5	4.24	1.107	1.06	K0III
114939	8850	92	Aqr	23	17	42.2	-07	38	10.8	4.93	1.613	2.56	M3III
114971	8852	6	Psc	23	18	01.3	+03	22	21.5	3.70	0.916	0.97	G7III
114996	8848	γ	Tuc	23	18	22.9	-58	08	42.2	3.99	0.410	0.50	F1III
115022	8860	8	And	23	18	30.8	+49	06	20.3	4.82	1.668	2.14	M2III
115033	8858	ψ^2	Aqr	23	18	45.6	-09	05	32.0	4.41	-0.144	-0.14	B5Vn
115088	8872	34	Cep	23	19	18.6	+68	12	06.7	4.75	0.836	0.86	K0III
115102	8863	γ	Scl	23	19	42.7	-32	26	31.2	4.41	1.109	1.08	K1III
115115	8865	ψ^3	Aqr	23	19	49.1	-09	31	13.4	4.99	-0.022	0.00	A0V

Posiciones medias de estrellas brillantes, 2016

Estrella				α			δ						
NH	NY	nom		h	m	s	º	‘	“	V	U-B	B-V	Esp
115250	8880	τ	Peg	23	21	27.4	+23	49	50.9	4.58	0.180	0.23	A5V
115438	8892	b^1	Aqr	23	23	50.1	-20	00	37.2	3.96	1.082	1.10	K0III
115590	8904	4	Cas	23	25	34.7	+62	22	24.7	4.96	1.676	1.94	M1III
115623	8905	υ	Peg	23	26	12.3	+23	29	42.3	4.42	0.617	0.67	F8IV
115669	8906	b^2	Aqr	23	26	54.7	-20	33	05.2	4.38	1.460	1.52	K4III
115738	8911	8	Psc	23	27	46.7	+01	20	45.9	4.95	0.036	0.01	A0p
115830	8916	10	Psc	23	28	48.3	+06	28	11.2	4.27	1.062	1.03	K1III
115919	8923	70	Peg	23	29	59.4	+12	51	06.1	4.54	0.939	0.93	G8III
115990	8926	AR	Cas	23	30	48.1	+58	38	24.1	4.89	-0.122	-0.11	B3IV
116231	8937	β	Scl	23	33	51.1	-37	43	36.7	4.38	-0.095	-0.09	B9.5IVMNpe.
116247	8939	101	Aqr	23	34	08.3	-20	49	23.6	4.70	0.020	0.03	A0V
116310	8943	72	Peg	23	34	46.5	+31	24	59.3	4.97	1.383	1.36	K4III
116389	8949	ι	Phe	23	35	57.5	-42	31	25.3	4.69	0.078	0.10	A2V
116584	8961	λ	And	23	38	22.6	+46	32	51.5	3.81	0.984	0.96	G8III-IV
116602	8959	***	***	23	38	44.0	-45	24	03.5	4.74	0.082	0.08	A2V
116631	8965	17	And	23	38	57.0	+43	21	34.2	4.29	-0.083	-0.06	B8V
116727	8974	35	Cep	23	40	02.4	+77	43	27.6	3.21	1.031	0.99	K1IV
116758	8968	102	Aqr	23	40	38.3	-14	07	51.3	4.97	0.257	0.29	A7IV
116771	8969	17	Psc	23	40	48.0	+05	42	56.9	4.13	0.507	0.59	F7V
116805	8976	19	And	23	41	13.6	+44	25	31.3	4.15	-0.071	-0.06	B9IVn
116901	8982	104	Aqr	23	42	37.1	-17	43	29.9	4.82	0.822	0.81	G2Ib/II
116928	8984	λ	Psc	23	42	53.3	+01	52	15.3	4.49	0.200	0.22	A7V
116971	8988	105	Aqr	23	43	34.6	-14	27	13.0	4.49	-0.032	-0.04	B9V
117073	8997	78	Peg	23	44	49.5	+29	27	10.4	4.93	0.935	0.93	K0III
117221	9003	ψ	And	23	46	51.4	+46	30	43.0	4.97	1.086	1.05	G5Ib
117245	9004	TX	Psc	23	47	14.1	+03	34	42.2	4.95	2.508	2.57	C5II
117301	9008	τ	Cas	23	47	52.3	+58	44	38.2	4.88	1.122	1.08	K1III
117452	9016	δ	Scl	23	49	46.9	-28	02	20.4	4.59	0.001	-0.01	A0V
117863	9045	7	Cas	23	55	13.0	+57	35	28.3	4.51	1.190	1.15	F8Ia-var
118121	9062	η	Tuc	23	58	26.4	-64	12	24.0	5.00	0.060	0.07	A1V
118131	9064	ψ	Peg	23	58	36.1	+25	13	59.1	4.63	1.584	2.21	M3III
118209	9067	27	Psc	23	59	31.1	-03	27	52.1	4.88	0.930	0.92	G9III
118243	9071	σ	Cas	23	59	51.2	+55	50	48.3	4.88	-0.071	-0.05	B1V...

Notas

NH: número de catálogo Hipparco.

NY: número de catálogo Bright Star Catalog, U. Yale.

Posiciones aparentes de estrellas brillantes, 2016

θ SCL

5.25 F4V

α α_c δ

h m h m ° ′

00 12 00 11 -35 02 hp

mes	d	s	s	“	h
ene	1	31.94	42.79	51.2	17.5
ene	7	31.82	42.63	51.3	17.1
ene	13	31.75	42.48	51.1	16.7
ene	19	31.64	42.33	51.0	16.3
ene	25	31.58	42.19	50.5	15.9
ene	31	31.48	42.07	50.2	15.5
feb	6	31.41	41.94	49.5	15.2
feb	12	31.35	41.84	48.8	14.8
feb	18	31.30	41.74	47.9	14.4
feb	24	31.26	41.67	46.9	14.0
mar	1	31.20	41.60	45.9	13.6
mar	7	31.21	41.55	44.6	13.2
mar	13	31.18	41.51	43.5	12.8
mar	19	31.21	41.49	42.0	12.4
mar	25	31.22	41.49	40.7	12.0
mar	31	31.26	41.50	39.2	11.6
abr	6	31.32	41.53	37.6	11.2
abr	12	31.39	41.57	36.0	10.8
abr	18	31.49	41.63	34.3	10.4
abr	24	31.58	41.69	32.8	10.0
abr	30	31.72	41.77	31.0	9.6
may	6	31.84	41.87	29.5	9.2
may	12	32.01	41.97	27.7	8.8
may	18	32.16	42.09	26.2	8.5
may	24	32.33	42.21	24.6	8.1
may	30	32.53	42.35	23.1	7.7
jun	5	32.72	42.49	21.7	7.3
jun	11	32.94	42.64	20.3	6.9
jun	17	33.13	42.78	19.2	6.5
jun	23	33.36	42.93	17.9	6.1
jun	29	33.56	43.09	17.0	5.7
jul	5	33.78	43.24	16.0	5.3
jul	11	33.99	43.40	15.3	4.9
jul	17	34.18	43.54	14.8	4.5
jul	23	34.39	43.69	14.3	4.1
jul	29	34.56	43.82	14.1	3.7
ago	4	34.76	43.95	13.8	3.3
ago	10	34.90	44.07	14.0	2.9
ago	16	35.07	44.18	14.1	2.5
ago	22	35.19	44.28	14.5	2.1
ago	28	35.32	44.36	14.9	1.8
sep	3	35.43	44.44	15.5	1.4
sep	9	35.49	44.49	16.3	1.0
sep	15	35.58	44.53	17.1	0.6
sep	21	35.61	44.55	18.1	0.2
sep	27	35.67	44.56	19.0	23.8
oct	3	35.67	44.55	20.3	23.4
oct	9	35.67	44.51	21.4	23.0
oct	15	35.66	44.47	22.6	22.6
oct	21	35.63	44.40	23.7	22.2
oct	27	35.60	44.33	24.9	21.8
nov	2	35.52	44.23	26.2	21.4
nov	8	35.48	44.12	27.3	21.0
nov	14	35.39	44.00	28.5	20.6
nov	20	35.33	43.87	29.3	20.2
nov	26	35.23	43.73	30.3	19.8
dic	2	35.14	43.57	31.1	19.4
dic	8	35.05	43.42	31.8	19.0
dic	14	34.94	43.26	32.4	18.7
dic	20	34.86	43.10	32.8	18.3
dic	26	34.74	42.94	33.2	17.9

ζ TUC

4.23 F4V

α α_c δ

h m h m ° ′

00 20 00 20 -64 46 hp

mes	d	s	s	“	h
ene	1	52.01	2.87	71.9	17.7
ene	7	51.74	2.54	71.6	17.3
ene	13	51.53	2.26	70.9	16.9
ene	19	51.28	1.97	70.2	16.5
ene	25	51.10	1.71	69.1	16.1
ene	31	50.88	1.47	68.1	15.7
feb	6	50.70	1.23	66.8	15.3
feb	12	50.55	1.04	65.3	14.9
feb	18	50.40	0.84	63.7	14.5
feb	24	50.30	0.71	61.9	14.1
mar	1	50.17	0.57	60.2	13.7
mar	7	50.13	0.47	58.1	13.3
mar	13	50.06	0.39	56.2	12.9
mar	19	50.07	0.35	54.0	12.5
mar	25	50.07	0.34	52.0	12.1
mar	31	50.10	0.34	49.8	11.7
abr	6	50.19	0.40	47.6	11.4
abr	12	50.27	0.44	45.4	11.0
abr	18	50.42	0.56	43.2	10.6
abr	24	50.55	0.67	41.2	10.2
abr	30	50.75	0.81	39.0	9.8
may	6	50.95	0.98	37.1	9.4
may	12	51.20	1.17	35.0	9.0
may	18	51.46	1.39	33.3	8.6
may	24	51.73	1.60	31.6	8.2
may	30	52.05	1.87	30.0	7.8
jun	5	52.35	2.12	28.6	7.4
jun	11	52.72	2.41	27.2	7.0
jun	17	53.03	2.69	26.3	6.6
jun	23	53.40	2.97	25.3	6.2
jun	29	53.75	3.28	24.6	5.8
jul	5	54.11	3.57	24.0	5.4
jul	11	54.48	3.89	23.7	5.0
jul	17	54.80	4.16	23.6	4.6
jul	23	55.17	4.46	23.6	4.3
jul	29	55.47	4.73	23.9	3.9
ago	4	55.81	5.00	24.2	3.5
ago	10	56.08	5.25	25.0	3.1
ago	16	56.35	5.46	25.8	2.7
ago	22	56.59	5.68	26.8	2.3
ago	28	56.80	5.84	27.9	1.9
sep	3	57.00	6.02	29.2	1.5
sep	9	57.13	6.12	30.8	1.1
sep	15	57.27	6.22	32.2	0.7
sep	21	57.33	6.27	34.0	0.3
sep	27	57.41	6.30	35.5	23.9
oct	3	57.41	6.29	37.4	23.5
oct	9	57.39	6.23	39.1	23.1
oct	15	57.36	6.17	40.9	22.7
oct	21	57.27	6.04	42.6	22.3
oct	27	57.19	5.92	44.2	21.9
nov	2	57.02	5.73	45.9	21.6
nov	8	56.88	5.53	47.3	21.2
nov	14	56.68	5.30	48.7	20.8
nov	20	56.51	5.05	49.7	20.4
nov	26	56.28	4.79	50.9	20.0
dic	2	56.04	4.48	51.7	19.6
dic	8	55.83	4.21	52.4	19.2
dic	14	55.56	3.88	52.8	18.8
dic	20	55.35	3.59	53.0	18.4
dic	26	55.07	3.27	53.2	18.0

β HYI

2.7 G2 IV

α α_c δ

h m h m ° ′

00 26 00 25 -77 09 hp

mes	d	s	s	“	h
ene	1	31.04	41.90	73.6	17.8
ene	7	30.47	41.27	73.2	17.4
ene	13	30.00	40.73	72.3	17.0
ene	19	29.48	40.17	71.5	16.6
ene	25	29.05	39.66	70.2	16.2
ene	31	28.61	39.20	69.1	15.8
feb	6	28.19	38.72	67.5	15.4
feb	12	27.87	38.36	65.9	15.0
feb	18	27.52	37.96	64.1	14.6
feb	24	27.29	37.70	62.2	14.2
mar	1	27.02	37.42	60.3	13.8
mar	7	26.88	37.22	58.0	13.4
mar	13	26.73	37.06	56.0	13.0
mar	19	26.68	36.96	53.6	12.6
mar	25	26.67	36.94	51.5	12.2
mar	31	26.67	36.91	49.2	11.8
abr	6	26.80	37.01	46.9	11.4
abr	12	26.90	37.08	44.6	11.0
abr	18	27.15	37.29	42.3	10.7
abr	24	27.36	37.48	40.3	10.3
abr	30	27.68	37.74	38.1	9.9
may	6	28.03	38.07	36.2	9.5
may	12	28.43	38.40	34.1	9.1
may	18	28.89	38.83	32.4	8.7
may	24	29.34	39.21	30.8	8.3
may	30	29.90	39.72	29.2	7.9
jun	5	30.41	40.18	27.9	7.5
jun	11	31.04	40.73	26.6	7.1
jun	17	31.61	41.27	25.8	6.7
jun	23	32.23	41.81	24.9	6.3
jun	29	32.87	42.41	24.4	5.9
jul	5	33.49	42.95	23.9	5.5
jul	11	34.16	43.57	23.8	5.1
jul	17	34.74	44.10	23.8	4.7
jul	23	35.39	44.69	24.0	4.3
jul	29	35.94	45.20	24.5	4.0
ago	4	36.54	45.73	25.0	3.6
ago	10	37.05	46.22	26.0	3.2
ago	16	37.53	46.64	26.9	2.8
ago	22	37.99	47.08	28.2	2.4
ago	28	38.36	47.40	29.5	2.0
sep	3	38.74	47.75	31.0	1.6
sep	9	38.97	47.97	32.7	1.2
sep	15	39.23	48.18	34.3	0.8
sep	21	39.35	48.29	36.2	0.4
sep	27	39.48	48.36	37.9	0.0
oct	3	39.49	48.37	39.9	23.6
oct	9	39.42	48.26	41.8	23.2
oct	15	39.36	48.17	43.7	22.8
oct	21	39.15	47.92	45.4	22.4
oct	27	38.97	47.70	47.2	22.0
nov	2	38.64	47.34	48.9	21.6
nov	8	38.33	46.97	50.3	21.3
nov	14	37.93	46.55	51.8	20.9
nov	20	37.53	46.07	52.8	20.5
nov	26	37.08	45.58	54.0	20.1
dic	2	36.56	45.00	54.8	19.7
dic	8	36.09	44.47	55.3	19.3
dic	14	35.53	43.84	55.7	18.9
dic	20	35.05	43.30	55.8	18.5
dic	26	34.48	42.68	55.9	18.1

Posiciones aparentes de estrellas brillantes, 2016

β CET

2.0 K1 LLE

α α_c δ

h m h m ° ′

00 44 00 43 -17 53 hp

mes	d	s	s	“	h
ene	1	23.29	34.15	66.5	18.1
ene	7	23.20	34.01	67.0	17.7
ene	13	23.14	33.87	67.1	17.3
ene	19	23.04	33.73	67.4	16.9
ene	25	22.99	33.60	67.4	16.5
ene	31	22.89	33.48	67.5	16.1
feb	6	22.83	33.36	67.4	15.7
feb	12	22.76	33.25	67.2	15.3
feb	18	22.70	33.15	66.9	14.9
feb	24	22.65	33.06	66.5	14.5
mar	1	22.59	32.99	66.1	14.1
mar	7	22.58	32.92	65.4	13.7
mar	13	22.54	32.87	64.9	13.3
mar	19	22.55	32.83	63.9	12.9
mar	25	22.53	32.81	63.2	12.5
mar	31	22.55	32.79	62.3	12.1
abr	6	22.59	32.80	61.2	11.7
abr	12	22.64	32.81	60.1	11.3
abr	18	22.71	32.85	58.9	11.0
abr	24	22.77	32.89	57.8	10.6
abr	30	22.88	32.94	56.4	10.2
may	6	22.97	33.01	55.2	9.8
may	12	23.12	33.08	53.6	9.4
may	18	23.24	33.17	52.4	9.0
may	24	23.39	33.27	51.0	8.6
may	30	23.56	33.37	49.5	8.2
jun	5	23.72	33.48	48.2	7.8
jun	11	23.91	33.61	46.7	7.4
jun	17	24.07	33.73	45.5	7.0
jun	23	24.28	33.86	44.1	6.6
jun	29	24.45	33.99	43.0	6.2
jul	5	24.66	34.12	41.8	5.8
jul	11	24.84	34.25	40.8	5.4
jul	17	25.02	34.38	39.9	5.0
jul	23	25.21	34.51	38.9	4.6
jul	29	25.37	34.63	38.3	4.3
ago	4	25.56	34.75	37.5	3.9
ago	10	25.70	34.87	37.2	3.5
ago	16	25.86	34.97	36.7	3.1
ago	22	25.98	35.07	36.5	2.7
ago	28	26.11	35.15	36.4	2.3
sep	3	26.22	35.23	36.4	1.9
sep	9	26.30	35.29	36.6	1.5
sep	15	26.40	35.35	36.8	1.1
sep	21	26.45	35.38	37.3	0.7
sep	27	26.52	35.41	37.6	0.3
oct	3	26.54	35.42	38.3	23.9
oct	9	26.57	35.41	38.9	23.5
oct	15	26.58	35.40	39.6	23.1
oct	21	26.59	35.36	40.4	22.7
oct	27	26.59	35.32	41.1	22.3
nov	2	26.55	35.25	42.1	21.9
nov	8	26.53	35.18	42.8	21.6
nov	14	26.47	35.09	43.8	21.2
nov	20	26.46	34.99	44.4	20.8
nov	26	26.38	34.88	45.4	20.4
dic	2	26.33	34.76	46.1	20.0
dic	8	26.26	34.64	46.8	19.6
dic	14	26.19	34.51	47.5	19.2
dic	20	26.13	34.37	48.0	18.8
dic	26	26.03	34.23	48.6	18.4

ϕ^2 CET

5.1 F7 IV-V

α α_c δ

h m h m ° ′

00 50 00 50 -10 33 hp

mes	d	s	s	“	h
ene	1	55.58	6.44	38.1	18.2
ene	7	55.49	6.30	38.6	17.8
ene	13	55.43	6.16	38.9	17.4
ene	19	55.34	6.03	39.3	17.0
ene	25	55.28	5.90	39.4	16.6
ene	31	55.19	5.77	39.7	16.2
feb	6	55.13	5.66	39.7	15.8
feb	12	55.06	5.55	39.7	15.4
feb	18	55.00	5.45	39.6	15.0
feb	24	54.95	5.36	39.4	14.6
mar	1	54.89	5.28	39.3	14.2
mar	7	54.87	5.21	38.9	13.8
mar	13	54.83	5.16	38.6	13.4
mar	19	54.84	5.12	37.9	13.0
mar	25	54.82	5.09	37.5	12.6
mar	31	54.83	5.07	36.8	12.2
abr	6	54.86	5.07	36.0	11.9
abr	12	54.91	5.08	35.2	11.5
abr	18	54.98	5.11	34.1	11.1
abr	24	55.03	5.15	33.3	10.7
abr	30	55.14	5.20	32.1	10.3
may	6	55.23	5.26	31.1	9.9
may	12	55.37	5.33	29.7	9.5
may	18	55.49	5.42	28.6	9.1
may	24	55.63	5.51	27.4	8.7
may	30	55.79	5.61	26.0	8.3
jun	5	55.95	5.71	24.8	7.9
jun	11	56.14	5.83	23.4	7.5
jun	17	56.29	5.95	22.3	7.1
jun	23	56.49	6.07	20.9	6.7
jun	29	56.66	6.20	19.8	6.3
jul	5	56.87	6.32	18.5	5.9
jul	11	57.04	6.45	17.4	5.5
jul	17	57.22	6.58	16.4	5.1
jul	23	57.41	6.70	15.4	4.8
jul	29	57.56	6.82	14.6	4.4
ago	4	57.75	6.94	13.7	4.0
ago	10	57.88	7.05	13.2	3.6
ago	16	58.04	7.15	12.6	3.2
ago	22	58.16	7.25	12.2	2.8
ago	28	58.29	7.33	11.8	2.4
sep	3	58.40	7.41	11.6	2.0
sep	9	58.48	7.47	11.6	1.6
sep	15	58.58	7.53	11.5	1.2
sep	21	58.63	7.56	11.7	0.8
sep	27	58.71	7.59	11.8	0.4
oct	3	58.73	7.61	12.2	0.0
oct	9	58.77	7.60	12.6	23.6
oct	15	58.78	7.59	13.1	23.2
oct	21	58.79	7.56	13.6	22.8
oct	27	58.79	7.52	14.1	22.4
nov	2	58.76	7.47	14.9	22.1
nov	8	58.75	7.40	15.4	21.7
nov	14	58.70	7.32	16.2	21.3
nov	20	58.69	7.22	16.7	20.9
nov	26	58.62	7.12	17.5	20.5
dic	2	58.57	7.01	18.2	20.1
dic	8	58.51	6.89	18.8	19.7
dic	14	58.45	6.76	19.4	19.3
dic	20	58.39	6.64	19.9	18.9
dic	26	58.30	6.50	20.5	18.5

η CET

3.4 K1.5 III

α α_c δ

h m h m ° ′

01 09 01 08 -10 05 hp

mes	d	s	s	“	h
ene	1	23.72	34.58	60.4	18.5
ene	7	23.63	34.44	61.0	18.1
ene	13	23.57	34.30	61.3	17.7
ene	19	23.48	34.17	61.7	17.3
ene	25	23.42	34.03	61.8	16.9
ene	31	23.32	33.91	62.2	16.5
feb	6	23.25	33.78	62.2	16.1
feb	12	23.17	33.67	62.3	15.7
feb	18	23.11	33.56	62.2	15.3
feb	24	23.05	33.46	62.0	14.9
mar	1	22.98	33.37	62.0	14.5
mar	7	22.95	33.30	61.5	14.1
mar	13	22.90	33.23	61.3	13.7
mar	19	22.90	33.18	60.7	13.3
mar	25	22.87	33.14	60.2	12.9
mar	31	22.87	33.12	59.6	12.6
abr	6	22.89	33.10	58.8	12.2
abr	12	22.93	33.10	58.0	11.8
abr	18	22.98	33.12	57.0	11.4
abr	24	23.03	33.15	56.2	11.0
abr	30	23.12	33.18	55.0	10.6
may	6	23.20	33.24	54.0	10.2
may	12	23.34	33.30	52.7	9.8
may	18	23.44	33.38	51.6	9.4
may	24	23.58	33.46	50.3	9.0
may	30	23.73	33.55	49.0	8.6
jun	5	23.88	33.65	47.8	8.2
jun	11	24.07	33.76	46.3	7.8
jun	17	24.22	33.88	45.2	7.4
jun	23	24.42	34.00	43.8	7.0
jun	29	24.58	34.12	42.6	6.6
jul	5	24.79	34.25	41.3	6.2
jul	11	24.97	34.38	40.2	5.9
jul	17	25.14	34.50	39.2	5.5
jul	23	25.33	34.63	38.1	5.1
jul	29	25.49	34.75	37.3	4.7
ago	4	25.68	34.88	36.4	4.3
ago	10	25.82	34.99	35.8	3.9
ago	16	25.99	35.10	35.2	3.5
ago	22	26.12	35.20	34.7	3.1
ago	28	26.26	35.30	34.3	2.7
sep	3	26.37	35.39	34.0	2.3
sep	9	26.47	35.46	34.0	1.9
sep	15	26.57	35.52	33.9	1.5
sep	21	26.64	35.57	34.1	1.1
sep	27	26.73	35.61	34.1	0.7
oct	3	26.76	35.64	34.6	0.3
oct	9	26.81	35.65	34.9	23.9
oct	15	26.83	35.65	35.4	23.5
oct	21	26.86	35.63	35.9	23.1
oct	27	26.87	35.60	36.5	22.8
nov	2	26.85	35.56	37.2	22.4
nov	8	26.85	35.50	37.8	22.0
nov	14	26.81	35.43	38.6	21.6
nov	20	26.81	35.35	39.1	21.2
nov	26	26.75	35.25	39.9	20.8
dic	2	26.71	35.15	40.6	20.4
dic	8	26.66	35.04	41.2	20.0
dic	14	26.60	34.91	41.9	19.6
dic	20	26.55	34.79	42.4	19.2
dic	26	26.46	34.66	43.1	18.8

Posiciones aparentes de estrellas brillantes, 2016

θ CET					
		3.61		K0 IIIB	
		α	α_c	δ	
		h m	h m	° ′	
		01 24	01 23	-08 05	hp
mes	d	s	s	″	h
ene	1	49.57	60.42	72.1	18.7
ene	7	49.48	60.28	72.7	18.3
ene	13	49.42	60.15	73.0	17.9
ene	19	49.32	60.01	73.5	17.5
ene	25	49.26	59.88	73.6	17.1
ene	31	49.16	59.74	74.0	16.8
feb	6	49.09	59.62	74.1	16.4
feb	12	49.00	59.50	74.2	16.0
feb	18	48.93	59.38	74.2	15.6
feb	24	48.87	59.28	74.1	15.2
mar	1	48.79	59.18	74.1	14.8
mar	7	48.75	59.10	73.8	14.4
mar	13	48.69	59.02	73.6	14.0
mar	19	48.68	58.96	73.1	13.6
mar	25	48.64	58.92	72.7	13.2
mar	31	48.64	58.88	72.2	12.8
abr	6	48.65	58.86	71.4	12.4
abr	12	48.67	58.85	70.7	12.0
abr	18	48.72	58.85	69.8	11.6
abr	24	48.75	58.87	69.1	11.2
abr	30	48.84	58.90	68.0	10.8
may	6	48.91	58.94	67.0	10.4
may	12	49.04	59.00	65.8	10.1
may	18	49.14	59.07	64.7	9.7
may	24	49.26	59.14	63.5	9.3
may	30	49.41	59.23	62.2	8.9
jun	5	49.56	59.32	61.0	8.5
jun	11	49.74	59.43	59.6	8.1
jun	17	49.88	59.54	58.5	7.7
jun	23	50.08	59.65	57.1	7.3
jun	29	50.24	59.77	55.9	6.9
jul	5	50.44	59.90	54.6	6.5
jul	11	50.62	60.03	53.5	6.1
jul	17	50.79	60.15	52.5	5.7
jul	23	50.98	60.28	51.3	5.3
jul	29	51.15	60.41	50.5	4.9
ago	4	51.34	60.53	49.5	4.5
ago	10	51.48	60.65	48.9	4.1
ago	16	51.65	60.76	48.2	3.7
ago	22	51.78	60.87	47.7	3.3
ago	28	51.93	60.97	47.2	3.0
sep	3	52.05	61.06	46.8	2.6
sep	9	52.15	61.14	46.8	2.2
sep	15	52.27	61.21	46.6	1.8
sep	21	52.34	61.27	46.7	1.4
sep	27	52.44	61.32	46.7	1.0
oct	3	52.48	61.36	47.0	0.6
oct	9	52.54	61.37	47.3	0.2
oct	15	52.57	61.38	47.7	23.8
oct	21	52.61	61.37	48.2	23.4
oct	27	52.63	61.36	48.7	23.0
nov	2	52.61	61.32	49.4	22.6
nov	8	52.63	61.27	49.9	22.2
nov	14	52.59	61.21	50.7	21.8
nov	20	52.60	61.13	51.2	21.4
nov	26	52.55	61.05	51.9	21.0
dic	2	52.51	60.95	52.6	20.6
dic	8	52.47	60.84	53.2	20.3
dic	14	52.41	60.73	53.9	19.9
dic	20	52.37	60.61	54.4	19.5
dic	26	52.28	60.48	55.1	19.1

δ CAS					
		2.6		A5 III-IV	
		α	α_c	δ	
		h m	h m	° ′	
		01 26	01 26	+60 18	hp
mes	d	s	s	″	h
ene	1	54.15	5.01	77.3	18.8
ene	7	53.96	4.76	77.4	18.4
ene	13	53.76	4.49	77.6	18.0
ene	19	53.53	4.22	77.3	17.6
ene	25	53.35	3.96	77.0	17.2
ene	31	53.10	3.69	76.3	16.8
feb	6	52.92	3.45	75.7	16.4
feb	12	52.69	3.18	74.8	16.0
feb	18	52.53	2.97	73.7	15.6
feb	24	52.34	2.75	72.6	15.2
mar	1	52.17	2.56	71.1	14.8
mar	7	52.05	2.39	69.9	14.4
mar	13	51.91	2.24	68.3	14.0
mar	19	51.85	2.13	66.9	13.6
mar	25	51.76	2.03	65.2	13.2
mar	31	51.75	1.99	63.7	12.8
abr	6	51.73	1.94	62.2	12.5
abr	12	51.78	1.96	60.6	12.1
abr	18	51.84	1.98	59.3	11.7
abr	24	51.92	2.04	57.8	11.3
abr	30	52.07	2.13	56.6	10.9
may	6	52.19	2.23	55.4	10.5
may	12	52.42	2.38	54.5	10.1
may	18	52.59	2.52	53.6	9.7
may	24	52.84	2.72	52.8	9.3
may	30	53.09	2.90	52.4	8.9
jun	5	53.37	3.13	51.9	8.5
jun	11	53.66	3.36	51.8	8.1
jun	17	53.94	3.60	51.6	7.7
jun	23	54.28	3.85	51.9	7.3
jun	29	54.56	4.10	52.1	6.9
jul	5	54.92	4.38	52.7	6.5
jul	11	55.21	4.62	53.3	6.1
jul	17	55.54	4.90	54.0	5.7
jul	23	55.85	5.14	55.1	5.4
jul	29	56.15	5.41	56.1	5.0
ago	4	56.46	5.65	57.5	4.6
ago	10	56.71	5.89	58.7	4.2
ago	16	57.01	6.12	60.2	3.8
ago	22	57.23	6.32	61.7	3.4
ago	28	57.50	6.54	63.4	3.0
sep	3	57.70	6.71	65.1	2.6
sep	9	57.89	6.89	66.8	2.2
sep	15	58.08	7.03	68.7	1.8
sep	21	58.22	7.15	70.4	1.4
sep	27	58.38	7.26	72.5	1.0
oct	3	58.46	7.34	74.2	0.6
oct	9	58.57	7.41	76.1	0.2
oct	15	58.61	7.43	78.0	23.8
oct	21	58.69	7.46	79.8	23.4
oct	27	58.70	7.43	81.7	23.0
nov	2	58.69	7.40	83.2	22.7
nov	8	58.68	7.33	85.0	22.3
nov	14	58.61	7.23	86.4	21.9
nov	20	58.59	7.12	88.0	21.5
nov	26	58.47	6.97	89.3	21.1
dic	2	58.38	6.82	90.5	20.7
dic	8	58.24	6.62	91.6	20.3
dic	14	58.11	6.43	92.4	19.9
dic	20	57.95	6.19	93.2	19.5
dic	26	57.76	5.96	93.7	19.1

ν PSC					
		4.4		K3 IIIB	
		α	α_c	δ	
		h m	h m	° ′	
		01 42	01 41	+05 33	hp
mes	d	s	s	″	h
ene	1	16.35	27.20	60.9	19.0
ene	7	16.27	27.07	60.4	18.6
ene	13	16.21	26.94	60.1	18.2
ene	19	16.11	26.80	59.6	17.8
ene	25	16.05	26.67	59.3	17.4
ene	31	15.94	26.53	58.8	17.0
feb	6	15.87	26.40	58.5	16.6
feb	12	15.78	26.28	58.1	16.3
feb	18	15.71	26.16	57.8	15.9
feb	24	15.64	26.05	57.6	15.5
mar	1	15.55	25.94	57.2	15.1
mar	7	15.51	25.85	57.2	14.7
mar	13	15.44	25.77	56.9	14.3
mar	19	15.42	25.70	57.0	13.9
mar	25	15.37	25.64	56.9	13.5
mar	31	15.36	25.60	57.0	13.1
abr	6	15.36	25.57	57.2	12.7
abr	12	15.38	25.56	57.3	12.3
abr	18	15.41	25.55	57.7	11.9
abr	24	15.44	25.56	58.0	11.5
abr	30	15.52	25.58	58.7	11.1
may	6	15.58	25.61	59.1	10.7
may	12	15.70	25.67	59.9	10.3
may	18	15.79	25.73	60.6	9.9
may	24	15.92	25.80	61.4	9.6
may	30	16.06	25.88	62.4	9.2
jun	5	16.20	25.97	63.2	8.8
jun	11	16.38	26.07	64.4	8.4
jun	17	16.52	26.18	65.3	8.0
jun	23	16.72	26.29	66.5	7.6
jun	29	16.87	26.41	67.5	7.2
jul	5	17.08	26.53	68.7	6.8
jul	11	17.25	26.66	69.8	6.4
jul	17	17.43	26.79	70.8	6.0
jul	23	17.62	26.92	72.1	5.6
jul	29	17.78	27.04	73.0	5.2
ago	4	17.98	27.17	74.2	4.8
ago	10	18.12	27.29	75.0	4.4
ago	16	18.30	27.41	75.9	4.0
ago	22	18.43	27.52	76.7	3.6
ago	28	18.59	27.63	77.5	3.2
sep	3	18.72	27.73	78.2	2.9
sep	9	18.83	27.82	78.7	2.5
sep	15	18.95	27.90	79.3	2.1
sep	21	19.03	27.97	79.6	1.7
sep	27	19.14	28.03	80.1	1.3
oct	3	19.19	28.07	80.3	0.9
oct	9	19.27	28.11	80.4	0.5
oct	15	19.31	28.12	80.5	0.1
oct	21	19.36	28.13	80.6	23.7
oct	27	19.39	28.12	80.6	23.3
nov	2	19.40	28.10	80.3	22.9
nov	8	19.42	28.07	80.3	22.5
nov	14	19.40	28.02	79.9	22.1
nov	20	19.42	27.96	79.8	21.7
nov	26	19.38	27.89	79.4	21.3
dic	2	19.36	27.80	79.1	20.9
dic	8	19.32	27.70	78.8	20.5
dic	14	19.28	27.60	78.3	20.1
dic	20	19.24	27.48	78.1	19.8
dic	26	19.16	27.36	77.5	19.4

Posiciones aparentes de estrellas brillantes, 2016

τ CET

3.4 G8 V

α α_c δ

h m h m ° ′

01 44 01 43 -15 50 hp

mes	d	s	s	″	h
ene	1	48.88	59.73	84.9	19.1
ene	7	48.79	59.59	85.6	18.7
ene	13	48.72	59.45	85.8	18.3
ene	19	48.61	59.30	86.3	17.9
ene	25	48.54	59.16	86.4	17.5
ene	31	48.43	59.02	86.7	17.1
feb	6	48.35	58.88	86.7	16.7
feb	12	48.26	58.75	86.6	16.3
feb	18	48.17	58.62	86.5	15.9
feb	24	48.10	58.51	86.2	15.5
mar	1	48.00	58.40	86.0	15.1
mar	7	47.96	58.30	85.4	14.7
mar	13	47.88	58.21	85.0	14.3
mar	19	47.85	58.14	84.2	13.9
mar	25	47.80	58.08	83.5	13.5
mar	31	47.78	58.02	82.7	13.1
abr	6	47.78	57.99	81.7	12.7
abr	12	47.79	57.96	80.8	12.4
abr	18	47.82	57.95	79.5	12.0
abr	24	47.84	57.96	78.5	11.6
abr	30	47.91	57.97	77.2	11.2
may	6	47.97	58.00	76.0	10.8
may	12	48.08	58.05	74.5	10.4
may	18	48.17	58.10	73.2	10.0
may	24	48.29	58.17	71.8	9.6
may	30	48.43	58.25	70.3	9.2
jun	5	48.56	58.33	68.9	8.8
jun	11	48.74	58.43	67.3	8.4
jun	17	48.88	58.54	66.1	8.0
jun	23	49.07	58.65	64.6	7.6
jun	29	49.23	58.77	63.4	7.2
jul	5	49.43	58.89	62.0	6.8
jul	11	49.60	59.01	60.8	6.4
jul	17	49.78	59.14	59.8	6.0
jul	23	49.98	59.27	58.7	5.7
jul	29	50.14	59.40	57.9	5.3
ago	4	50.34	59.53	56.9	4.9
ago	10	50.48	59.65	56.4	4.5
ago	16	50.66	59.77	55.8	4.1
ago	22	50.80	59.89	55.4	3.7
ago	28	50.95	59.99	55.1	3.3
sep	3	51.08	60.10	54.9	2.9
sep	9	51.19	60.19	55.0	2.5
sep	15	51.32	60.27	55.0	2.1
sep	21	51.40	60.33	55.4	1.7
sep	27	51.51	60.39	55.6	1.3
oct	3	51.56	60.44	56.2	0.9
oct	9	51.62	60.46	56.8	0.5
oct	15	51.67	60.48	57.4	0.1
oct	21	51.71	60.48	58.2	23.7
oct	27	51.73	60.47	58.9	23.3
nov	2	51.73	60.44	59.9	23.0
nov	8	51.75	60.39	60.7	22.6
nov	14	51.72	60.33	61.7	22.2
nov	20	51.73	60.26	62.5	21.8
nov	26	51.68	60.18	63.5	21.4
dic	2	51.64	60.08	64.4	21.0
dic	8	51.60	59.97	65.1	20.6
dic	14	51.54	59.85	66.0	20.2
dic	20	51.49	59.73	66.6	19.8
dic	26	51.40	59.60	67.4	19.4

α ARI

2.0 A2 IIIAB

α α_c δ

h m h m ° ′

02 08 02 07 +23 32 hp

mes	d	s	s	″	h
ene	1	5.50	16.36	15.4	19.4
ene	7	5.42	16.22	15.1	19.1
ene	13	5.35	16.08	15.0	18.7
ene	19	5.25	15.94	14.6	18.3
ene	25	5.18	15.79	14.4	17.9
ene	31	5.06	15.64	13.9	17.5
feb	6	4.97	15.50	13.5	17.1
feb	12	4.86	15.36	13.0	16.7
feb	18	4.78	15.22	12.4	16.3
feb	24	4.68	15.09	11.9	15.9
mar	1	4.58	14.97	11.2	15.5
mar	7	4.52	14.86	10.7	15.1
mar	13	4.42	14.76	10.0	14.7
mar	19	4.39	14.67	9.6	14.3
mar	25	4.32	14.59	8.9	13.9
mar	31	4.30	14.54	8.4	13.5
abr	6	4.28	14.49	8.0	13.1
abr	12	4.28	14.46	7.5	12.7
abr	18	4.31	14.44	7.3	12.3
abr	24	4.32	14.44	6.9	12.0
abr	30	4.40	14.46	6.8	11.6
may	6	4.45	14.48	6.6	11.2
may	12	4.57	14.53	6.7	10.8
may	18	4.65	14.58	6.8	10.4
may	24	4.78	14.66	6.9	10.0
may	30	4.92	14.74	7.3	9.6
jun	5	5.06	14.83	7.6	9.2
jun	11	5.24	14.94	8.3	8.8
jun	17	5.39	15.05	8.7	8.4
jun	23	5.59	15.17	9.5	8.0
jun	29	5.76	15.30	10.2	7.6
jul	5	5.98	15.43	11.0	7.2
jul	11	6.16	15.57	11.9	6.8
jul	17	6.35	15.71	12.8	6.4
jul	23	6.55	15.85	13.9	6.0
jul	29	6.73	15.99	14.8	5.6
ago	4	6.95	16.14	16.0	5.3
ago	10	7.10	16.28	16.9	4.9
ago	16	7.30	16.41	18.0	4.5
ago	22	7.45	16.54	19.0	4.1
ago	28	7.63	16.67	20.1	3.7
sep	3	7.77	16.79	21.1	3.3
sep	9	7.91	16.90	22.0	2.9
sep	15	8.05	17.00	23.1	2.5
sep	21	8.15	17.09	23.8	2.1
sep	27	8.29	17.17	24.8	1.7
oct	3	8.36	17.24	25.5	1.3
oct	9	8.46	17.30	26.3	0.9
oct	15	8.52	17.34	27.0	0.5
oct	21	8.60	17.37	27.7	0.1
oct	27	8.65	17.38	28.3	23.7
nov	2	8.67	17.38	28.7	23.3
nov	8	8.72	17.37	29.3	22.9
nov	14	8.72	17.33	29.6	22.6
nov	20	8.76	17.29	30.1	22.2
nov	26	8.72	17.23	30.3	21.8
dic	2	8.72	17.16	30.5	21.4
dic	8	8.69	17.07	30.7	21.0
dic	14	8.65	16.97	30.7	20.6
dic	20	8.62	16.86	30.9	20.2
dic	26	8.54	16.74	30.7	19.8

μ FOR

5.2 A2 VN

α α_c δ

h m h m ° ′

02 13 02 12 -30 38 hp

mes	d	s	s	″	h
ene	1	37.01	47.87	74.3	19.5
ene	7	36.90	47.71	75.1	19.1
ene	13	36.82	47.55	75.6	18.7
ene	19	36.70	47.39	76.1	18.4
ene	25	36.61	47.22	76.2	18.0
ene	31	36.48	47.07	76.5	17.6
feb	6	36.37	46.90	76.5	17.2
feb	12	36.26	46.75	76.2	16.8
feb	18	36.15	46.59	76.0	16.4
feb	24	36.05	46.46	75.4	16.0
mar	1	35.93	46.32	75.0	15.6
mar	7	35.85	46.19	74.1	15.2
mar	13	35.75	46.08	73.4	14.8
mar	19	35.69	45.97	72.3	14.4
mar	25	35.61	45.89	71.2	14.0
mar	31	35.57	45.81	70.1	13.6
abr	6	35.54	45.75	68.7	13.2
abr	12	35.52	45.69	67.3	12.8
abr	18	35.53	45.66	65.7	12.4
abr	24	35.53	45.64	64.3	12.0
abr	30	35.58	45.64	62.6	11.7
may	6	35.61	45.65	61.0	11.3
may	12	35.71	45.67	59.2	10.9
may	18	35.78	45.71	57.5	10.5
may	24	35.88	45.76	55.8	10.1
may	30	36.01	45.83	54.0	9.7
jun	5	36.14	45.91	52.4	9.3
jun	11	36.31	46.00	50.5	8.9
jun	17	36.45	46.10	49.0	8.5
jun	23	36.63	46.21	47.4	8.1
jun	29	36.80	46.34	45.9	7.7
jul	5	37.00	46.46	44.5	7.3
jul	11	37.19	46.60	43.2	6.9
jul	17	37.38	46.74	42.1	6.5
jul	23	37.59	46.89	41.0	6.1
jul	29	37.77	47.03	40.2	5.7
ago	4	37.99	47.18	39.3	5.3
ago	10	38.16	47.33	38.9	5.0
ago	16	38.35	47.47	38.5	4.6
ago	22	38.52	47.61	38.3	4.2
ago	28	38.70	47.74	38.2	3.8
sep	3	38.86	47.87	38.3	3.4
sep	9	38.99	47.99	38.7	3.0
sep	15	39.15	48.09	39.1	2.6
sep	21	39.25	48.19	39.8	2.2
sep	27	39.39	48.27	40.4	1.8
oct	3	39.46	48.34	41.4	1.4
oct	9	39.55	48.39	42.5	1.0
oct	15	39.62	48.44	43.5	0.6
oct	21	39.68	48.45	44.8	0.2
oct	27	39.73	48.46	46.0	23.8
nov	2	39.74	48.45	47.5	23.4
nov	8	39.77	48.41	48.7	23.0
nov	14	39.75	48.37	50.2	22.6
nov	20	39.77	48.30	51.4	22.2
nov	26	39.73	48.23	52.8	21.9
dic	2	39.69	48.13	54.1	21.5
dic	8	39.65	48.03	55.3	21.1
dic	14	39.58	47.90	56.5	20.7
dic	20	39.53	47.77	57.4	20.3
dic	26	39.44	47.63	58.5	19.9

Posiciones aparentes de estrellas brillantes, 2016

γ TRI

4.0 A1 VNN

α α_c δ

h m h m ° ′

02 18 02 17 +33 55 hp

mes	d	s	s	“	h
ene	1	17.25	28.11	16.9	19.6
ene	7	17.16	27.97	16.8	19.2
ene	13	17.08	27.81	16.9	18.8
ene	19	16.97	27.66	16.6	18.4
ene	25	16.88	27.50	16.5	18.0
ene	31	16.74	27.33	16.1	17.6
feb	6	16.65	27.18	15.7	17.2
feb	12	16.52	27.01	15.2	16.9
feb	18	16.42	26.86	14.5	16.5
feb	24	16.30	26.71	14.0	16.1
mar	1	16.18	26.58	13.1	15.7
mar	7	16.11	26.45	12.5	15.3
mar	13	16.00	26.33	11.6	14.9
mar	19	15.95	26.23	10.9	14.5
mar	25	15.87	26.14	10.0	14.1
mar	31	15.83	26.07	9.1	13.7
abr	6	15.80	26.01	8.4	13.3
abr	12	15.80	25.98	7.6	12.9
abr	18	15.82	25.95	7.0	12.5
abr	24	15.83	25.95	6.2	12.1
abr	30	15.90	25.96	5.8	11.7
may	6	15.95	25.98	5.2	11.3
may	12	16.07	26.04	4.9	10.9
may	18	16.16	26.09	4.6	10.5
may	24	16.29	26.17	4.4	10.2
may	30	16.44	26.25	4.4	9.8
jun	5	16.59	26.36	4.4	9.4
jun	11	16.78	26.47	4.7	9.0
jun	17	16.94	26.59	4.8	8.6
jun	23	17.15	26.73	5.3	8.2
jun	29	17.33	26.86	5.8	7.8
jul	5	17.56	27.02	6.4	7.4
jul	11	17.75	27.16	7.1	7.0
jul	17	17.97	27.33	7.8	6.6
jul	23	18.18	27.48	8.8	6.2
jul	29	18.38	27.64	9.6	5.8
ago	4	18.61	27.80	10.7	5.4
ago	10	18.78	27.96	11.6	5.0
ago	16	19.00	28.11	12.7	4.6
ago	22	19.17	28.26	13.8	4.2
ago	28	19.37	28.41	15.0	3.8
sep	3	19.53	28.54	16.2	3.5
sep	9	19.68	28.67	17.2	3.1
sep	15	19.84	28.79	18.5	2.7
sep	21	19.96	28.89	19.5	2.3
sep	27	20.11	28.99	20.7	1.9
oct	3	20.19	29.07	21.7	1.5
oct	9	20.31	29.15	22.8	1.1
oct	15	20.38	29.20	23.9	0.7
oct	21	20.48	29.25	24.8	0.3
oct	27	20.54	29.27	25.9	23.9
nov	2	20.57	29.28	26.6	23.5
nov	8	20.63	29.27	27.6	23.1
nov	14	20.63	29.25	28.2	22.7
nov	20	20.68	29.21	29.1	22.3
nov	26	20.65	29.15	29.7	21.9
dic	2	20.65	29.09	30.2	21.5
dic	8	20.61	28.99	30.8	21.1
dic	14	20.58	28.90	31.1	20.7
dic	20	20.54	28.78	31.6	20.4
dic	26	20.46	28.66	31.7	20.0

ι PER

4.05 G0 V

α α_c δ

h m h m ° ′

03 10 03 09 +49 40 hp

mes	d	s	s	“	h
ene	1	15.58	26.43	27.4	20.5
ene	7	15.48	26.28	27.8	20.1
ene	13	15.39	26.12	28.5	19.7
ene	19	15.24	25.93	28.7	19.3
ene	25	15.14	25.75	29.0	18.9
ene	31	14.96	25.55	29.0	18.5
feb	6	14.82	25.35	28.9	18.1
feb	12	14.65	25.14	28.8	17.7
feb	18	14.50	24.95	28.3	17.3
feb	24	14.33	24.74	27.9	16.9
mar	1	14.15	24.55	27.2	16.5
mar	7	14.02	24.37	26.6	16.1
mar	13	13.85	24.19	25.7	15.8
mar	19	13.76	24.04	24.8	15.4
mar	25	13.61	23.88	23.8	15.0
mar	31	13.52	23.76	22.7	14.6
abr	6	13.44	23.65	21.7	14.2
abr	12	13.39	23.57	20.5	13.8
abr	18	13.37	23.50	19.5	13.4
abr	24	13.34	23.45	18.2	13.0
abr	30	13.38	23.44	17.2	12.6
may	6	13.39	23.43	16.1	12.2
may	12	13.50	23.46	15.2	11.8
may	18	13.56	23.50	14.3	11.4
may	24	13.69	23.57	13.4	11.0
may	30	13.83	23.65	12.8	10.6
jun	5	13.99	23.75	12.0	10.2
jun	11	14.18	23.88	11.7	9.8
jun	17	14.35	24.01	11.2	9.4
jun	23	14.59	24.17	11.0	9.0
jun	29	14.79	24.33	10.8	8.7
jul	5	15.06	24.52	10.8	8.3
jul	11	15.29	24.70	10.9	7.9
jul	17	15.54	24.90	11.0	7.5
jul	23	15.81	25.10	11.5	7.1
jul	29	16.05	25.31	11.8	6.7
ago	4	16.34	25.53	12.5	6.3
ago	10	16.57	25.74	13.1	5.9
ago	16	16.85	25.96	13.9	5.5
ago	22	17.08	26.16	14.7	5.1
ago	28	17.35	26.39	15.6	4.7
sep	3	17.57	26.58	16.7	4.3
sep	9	17.79	26.78	17.7	3.9
sep	15	18.03	26.97	18.9	3.5
sep	21	18.21	27.15	20.0	3.1
sep	27	18.44	27.33	21.3	2.7
oct	3	18.59	27.47	22.5	2.3
oct	9	18.78	27.62	23.8	2.0
oct	15	18.92	27.73	25.2	1.6
oct	21	19.08	27.85	26.4	1.2
oct	27	19.20	27.93	27.9	0.8
nov	2	19.30	28.00	29.0	0.4
nov	8	19.41	28.06	30.4	24.0
nov	14	19.46	28.08	31.6	23.6
nov	20	19.56	28.10	33.0	23.2
nov	26	19.57	28.07	34.1	22.8
dic	2	19.60	28.04	35.2	22.4
dic	8	19.59	27.97	36.4	22.0
dic	14	19.58	27.90	37.3	21.6
dic	20	19.55	27.80	38.4	21.2
dic	26	19.48	27.67	39.1	20.8

82G. ERI

4.16 G5 V

α α_c δ

h m h m ° ′

03 20 03 19 -43 00 hp

mes	d	s	s	“	h
ene	1	34.78	45.64	53.4	20.7
ene	7	34.67	45.47	54.7	20.3
ene	13	34.57	45.30	55.5	19.9
ene	19	34.43	45.12	56.4	19.5
ene	25	34.31	44.93	56.8	19.1
ene	31	34.16	44.75	57.3	18.7
feb	6	34.01	44.54	57.6	18.3
feb	12	33.86	44.35	57.6	17.9
feb	18	33.71	44.15	57.5	17.5
feb	24	33.56	43.97	57.1	17.1
mar	1	33.39	43.78	56.8	16.7
mar	7	33.26	43.60	56.0	16.3
mar	13	33.10	43.44	55.3	15.9
mar	19	32.99	43.27	54.2	15.5
mar	25	32.86	43.13	53.1	15.1
mar	31	32.75	42.99	51.9	14.7
abr	6	32.66	42.87	50.4	14.3
abr	12	32.58	42.76	49.0	14.0
abr	18	32.53	42.67	47.2	13.6
abr	24	32.48	42.60	45.6	13.2
abr	30	32.47	42.53	43.8	12.8
may	6	32.46	42.50	41.9	12.4
may	12	32.50	42.46	39.9	12.0
may	18	32.53	42.47	38.0	11.6
may	24	32.59	42.47	36.1	11.2
may	30	32.69	42.50	34.0	10.8
jun	5	32.78	42.55	32.1	10.4
jun	11	32.92	42.61	30.0	10.0
jun	17	33.04	42.70	28.2	9.6
jun	23	33.21	42.78	26.3	9.2
jun	29	33.37	42.90	24.5	8.8
jul	5	33.56	43.01	22.8	8.4
jul	11	33.75	43.16	21.2	8.0
jul	17	33.94	43.30	19.9	7.6
jul	23	34.17	43.46	18.5	7.2
jul	29	34.37	43.63	17.5	6.9
ago	4	34.60	43.79	16.4	6.5
ago	10	34.81	43.98	15.8	6.1
ago	16	35.03	44.15	15.2	5.7
ago	22	35.25	44.34	14.8	5.3
ago	28	35.46	44.50	14.6	4.9
sep	3	35.67	44.69	14.6	4.5
sep	9	35.86	44.85	15.0	4.1
sep	15	36.06	45.01	15.3	3.7
sep	21	36.23	45.16	16.1	3.3
sep	27	36.41	45.30	16.8	2.9
oct	3	36.55	45.43	17.9	2.5
oct	9	36.70	45.54	19.1	2.1
oct	15	36.82	45.64	20.3	1.7
oct	21	36.93	45.70	21.8	1.3
oct	27	37.04	45.77	23.3	0.9
nov	2	37.10	45.80	25.1	0.5
nov	8	37.17	45.82	26.7	0.2
nov	14	37.20	45.82	28.5	23.8
nov	20	37.25	45.78	30.2	23.4
nov	26	37.24	45.75	31.9	23.0
dic	2	37.23	45.67	33.7	22.6
dic	8	37.21	45.59	35.3	22.2
dic	14	37.16	45.48	37.0	21.8
dic	20	37.12	45.36	38.3	21.4
dic	26	37.03	45.23	39.8	21.0

Posiciones aparentes de estrellas brillantes, 2016

δ ERI

3.52 K0 IV

α = h m 03 44 | α_c = h m 03 43 | δ = ° ′ -09 42 | hp

mes	d	s	s	“	h
ene	1	1.87	12.72	48.8	21.0
ene	7	1.81	12.62	49.7	20.7
ene	13	1.77	12.50	50.3	20.3
ene	19	1.69	12.38	51.0	19.9
ene	25	1.63	12.25	51.5	19.5
ene	31	1.52	12.11	52.0	19.1
feb	6	1.44	11.97	52.4	18.7
feb	12	1.33	11.83	52.6	18.3
feb	18	1.23	11.68	52.9	17.9
feb	24	1.13	11.54	52.9	17.5
mar	1	1.00	11.40	53.1	17.1
mar	7	0.91	11.26	52.9	16.7
mar	13	0.79	11.12	52.8	16.3
mar	19	0.72	11.00	52.5	15.9
mar	25	0.61	10.88	52.1	15.5
mar	31	0.53	10.77	51.8	15.1
abr	6	0.46	10.67	51.1	14.7
abr	12	0.41	10.58	50.6	14.3
abr	18	0.37	10.51	49.7	13.9
abr	24	0.33	10.44	49.1	13.6
abr	30	0.33	10.39	48.1	13.2
may	6	0.32	10.35	47.2	12.8
may	12	0.36	10.32	46.1	12.4
may	18	0.38	10.32	45.0	12.0
may	24	0.44	10.32	43.9	11.6
may	30	0.51	10.33	42.6	11.2
jun	5	0.59	10.36	41.5	10.8
jun	11	0.71	10.40	40.0	10.4
jun	17	0.80	10.46	38.8	10.0
jun	23	0.95	10.52	37.5	9.6
jun	29	1.07	10.60	36.2	9.2
jul	5	1.23	10.69	34.9	8.8
jul	11	1.38	10.79	33.6	8.4
jul	17	1.53	10.89	32.5	8.0
jul	23	1.71	11.01	31.3	7.6
jul	29	1.87	11.13	30.3	7.2
ago	4	2.06	11.25	29.2	6.9
ago	10	2.21	11.39	28.4	6.5
ago	16	2.40	11.52	27.6	6.1
ago	22	2.56	11.65	26.9	5.7
ago	28	2.75	11.79	26.4	5.3
sep	3	2.91	11.92	25.9	4.9
sep	9	3.06	12.05	25.7	4.5
sep	15	3.23	12.18	25.4	4.1
sep	21	3.36	12.30	25.5	3.7
sep	27	3.53	12.41	25.5	3.3
oct	3	3.64	12.52	25.8	2.9
oct	9	3.77	12.61	26.2	2.5
oct	15	3.88	12.70	26.6	2.1
oct	21	4.00	12.77	27.3	1.7
oct	27	4.10	12.83	27.8	1.3
nov	2	4.17	12.88	28.7	0.9
nov	8	4.27	12.91	29.5	0.5
nov	14	4.31	12.93	30.4	0.1
nov	20	4.40	12.93	31.2	23.8
nov	26	4.42	12.92	32.2	23.4
dic	2	4.45	12.89	33.3	23.0
dic	8	4.47	12.85	34.1	22.6
dic	14	4.48	12.79	35.2	22.2
dic	20	4.48	12.72	35.9	21.8
dic	26	4.44	12.64	36.9	21.4

γ DOR

4.26 FI V

α = h m 04 16 | α_c = h m 04 15 | δ = ° ′ -51 26 | hp

mes	d	s	s	“	h
ene	1	28.25	39.11	68.0	21.6
ene	7	28.13	38.94	69.6	21.2
ene	13	28.02	38.75	70.8	20.8
ene	19	27.87	38.56	72.1	20.4
ene	25	27.72	38.34	73.0	20.0
ene	31	27.54	38.13	73.9	19.6
feb	6	27.36	37.89	74.6	19.2
feb	12	27.17	37.66	74.9	18.8
feb	18	26.96	37.41	75.3	18.4
feb	24	26.76	37.17	75.2	18.0
mar	1	26.55	36.94	75.2	17.6
mar	7	26.35	36.70	74.8	17.2
mar	13	26.14	36.47	74.3	16.9
mar	19	25.95	36.24	73.6	16.5
mar	25	25.76	36.03	72.7	16.1
mar	31	25.58	35.82	71.7	15.7
abr	6	25.43	35.64	70.4	15.3
abr	12	25.27	35.45	69.2	14.9
abr	18	25.15	35.29	67.5	14.5
abr	24	25.03	35.15	66.1	14.1
abr	30	24.95	35.01	64.3	13.7
may	6	24.88	34.91	62.5	13.3
may	12	24.85	34.81	60.6	12.9
may	18	24.82	34.75	58.6	12.5
may	24	24.82	34.70	56.7	12.1
may	30	24.85	34.67	54.5	11.7
jun	5	24.89	34.66	52.5	11.3
jun	11	24.98	34.67	50.3	10.9
jun	17	25.06	34.72	48.3	10.5
jun	23	25.19	34.77	46.3	10.2
jun	29	25.32	34.85	44.3	9.8
jul	5	25.48	34.94	42.5	9.4
jul	11	25.65	35.06	40.6	9.0
jul	17	25.83	35.19	39.1	8.6
jul	23	26.04	35.34	37.4	8.2
jul	29	26.24	35.50	36.1	7.8
ago	4	26.48	35.67	34.8	7.4
ago	10	26.70	35.87	33.8	7.0
ago	16	26.94	36.05	33.0	6.6
ago	22	27.17	36.26	32.3	6.2
ago	28	27.42	36.46	31.9	5.8
sep	3	27.66	36.67	31.6	5.4
sep	9	27.88	36.88	31.8	5.0
sep	15	28.12	37.07	31.9	4.6
sep	21	28.34	37.27	32.4	4.2
sep	27	28.57	37.45	33.0	3.8
oct	3	28.76	37.64	33.9	3.4
oct	9	28.95	37.79	35.1	3.1
oct	15	29.13	37.94	36.2	2.7
oct	21	29.29	38.06	37.8	2.3
oct	27	29.44	38.17	39.2	1.9
nov	2	29.55	38.26	41.1	1.5
nov	8	29.67	38.32	42.8	1.1
nov	14	29.75	38.36	44.8	0.7
nov	20	29.83	38.36	46.6	0.3
nov	26	29.86	38.37	48.6	23.9
dic	2	29.88	38.32	50.7	23.5
dic	8	29.89	38.27	52.5	23.1
dic	14	29.86	38.17	54.5	22.7
dic	20	29.82	38.07	56.2	22.3
dic	26	29.74	37.94	58.1	21.9

β ERI

2.79 A3 III

α = h m 05 08 | α_c = h m 05 07 | δ = ° ′ -05 03 | hp

mes	d	s	s	“	h
ene	1	39.47	50.32	72.4	22.5
ene	7	39.45	50.26	73.4	22.1
ene	13	39.45	50.18	74.0	21.7
ene	19	39.40	50.09	74.9	21.3
ene	25	39.37	49.99	75.5	20.9
ene	31	39.29	49.88	76.1	20.5
feb	6	39.23	49.75	76.7	20.1
feb	12	39.13	49.62	77.0	19.7
feb	18	39.04	49.49	77.5	19.3
feb	24	38.94	49.35	77.7	18.9
mar	1	38.81	49.21	78.0	18.5
mar	7	38.72	49.06	78.0	18.1
mar	13	38.59	48.92	78.1	17.7
mar	19	38.50	48.78	78.1	17.3
mar	25	38.36	48.64	77.9	16.9
mar	31	38.26	48.50	77.8	16.5
abr	6	38.17	48.38	77.4	16.1
abr	12	38.08	48.25	77.2	15.8
abr	18	38.01	48.14	76.6	15.4
abr	24	37.92	48.04	76.2	15.0
abr	30	37.89	47.95	75.6	14.6
may	6	37.83	47.86	74.9	14.2
may	12	37.83	47.79	74.2	13.8
may	18	37.81	47.74	73.3	13.4
may	24	37.82	47.70	72.6	13.0
may	30	37.85	47.66	71.6	12.6
jun	5	37.88	47.65	70.7	12.2
jun	11	37.95	47.64	69.6	11.8
jun	17	38.00	47.66	68.6	11.4
jun	23	38.10	47.68	67.6	11.0
jun	29	38.18	47.72	66.4	10.6
jul	5	38.31	47.76	65.4	10.2
jul	11	38.42	47.83	64.2	9.8
jul	17	38.54	47.90	63.3	9.4
jul	23	38.69	47.99	62.1	9.1
jul	29	38.82	48.08	61.3	8.7
ago	4	39.00	48.19	60.3	8.3
ago	10	39.13	48.30	59.5	7.9
ago	16	39.31	48.42	58.7	7.5
ago	22	39.46	48.55	58.0	7.1
ago	28	39.64	48.68	57.5	6.7
sep	3	39.80	48.82	56.9	6.3
sep	9	39.96	48.95	56.7	5.9
sep	15	40.14	49.09	56.3	5.5
sep	21	40.29	49.23	56.3	5.1
sep	27	40.48	49.36	56.3	4.7
oct	3	40.62	49.50	56.4	4.3
oct	9	40.78	49.62	56.8	3.9
oct	15	40.93	49.74	57.0	3.5
oct	21	41.08	49.85	57.7	3.1
oct	27	41.23	49.96	58.1	2.7
nov	2	41.34	50.05	58.9	2.3
nov	8	41.48	50.13	59.6	2.0
nov	14	41.58	50.20	60.5	1.6
nov	20	41.71	50.25	61.4	1.2
nov	26	41.79	50.29	62.3	0.8
dic	2	41.88	50.31	63.3	0.4
dic	8	41.94	50.32	64.1	24.0
dic	14	42.00	50.32	65.3	23.6
dic	20	42.05	50.30	66.0	23.2
dic	26	42.06	50.26	67.1	22.8

Posiciones aparentes de estrellas brillantes, 2016

ζ DOR

4.7 F7 V

α α_c δ

h m h m ° ′

05 05 05 04 -57 26 hp

mes	d	s	s	″	h
ene	1	49.34	60.19	81.7	22.4
ene	7	49.24	60.04	83.7	22.0
ene	13	49.12	59.85	85.3	21.6
ene	19	48.97	59.66	86.9	21.2
ene	25	48.81	59.42	88.2	20.8
ene	31	48.62	59.21	89.4	20.4
feb	6	48.41	58.94	90.5	20.0
feb	12	48.19	58.69	91.2	19.6
feb	18	47.96	58.41	91.9	19.3
feb	24	47.72	58.13	92.2	18.9
mar	1	47.46	57.86	92.6	18.5
mar	7	47.22	57.56	92.6	18.1
mar	13	46.96	57.29	92.5	17.7
mar	19	46.72	57.00	92.1	17.3
mar	25	46.47	56.74	91.5	16.9
mar	31	46.23	56.47	90.9	16.5
abr	6	46.01	56.22	89.8	16.1
abr	12	45.79	55.97	88.9	15.7
abr	18	45.61	55.74	87.5	15.3
abr	24	45.42	55.54	86.3	14.9
abr	30	45.27	55.33	84.7	14.5
may	6	45.14	55.17	83.1	14.1
may	12	45.03	55.00	81.3	13.7
may	18	44.95	54.88	79.4	13.3
may	24	44.89	54.77	77.6	12.9
may	30	44.86	54.68	75.5	12.5
jun	5	44.85	54.62	73.6	12.2
jun	11	44.88	54.57	71.3	11.8
jun	17	44.92	54.57	69.3	11.4
jun	23	44.99	54.57	67.3	11.0
jun	29	45.09	54.62	65.1	10.6
jul	5	45.21	54.67	63.2	10.2
jul	11	45.36	54.77	61.2	9.8
jul	17	45.52	54.88	59.5	9.4
jul	23	45.71	55.00	57.6	9.0
jul	29	45.90	55.16	56.1	8.6
ago	4	46.13	55.32	54.5	8.2
ago	10	46.36	55.53	53.2	7.8
ago	16	46.60	55.72	52.2	7.4
ago	22	46.86	55.95	51.2	7.0
ago	28	47.12	56.16	50.5	6.6
sep	3	47.39	56.40	49.9	6.2
sep	9	47.65	56.64	49.8	5.8
sep	15	47.92	56.87	49.6	5.5
sep	21	48.18	57.12	49.9	5.1
sep	27	48.45	57.34	50.2	4.7
oct	3	48.70	57.58	50.9	4.3
oct	9	48.94	57.78	51.9	3.9
oct	15	49.18	57.99	52.8	3.5
oct	21	49.39	58.16	54.2	3.1
oct	27	49.60	58.33	55.5	2.7
nov	2	49.77	58.48	57.3	2.3
nov	8	49.94	58.59	59.0	1.9
nov	14	50.07	58.69	60.9	1.5
nov	20	50.20	58.73	62.8	1.1
nov	26	50.28	58.79	64.9	0.7
dic	2	50.35	58.78	67.1	0.3
dic	8	50.39	58.77	69.0	23.9
dic	14	50.39	58.71	71.2	23.5
dic	20	50.38	58.62	73.1	23.1
dic	26	50.33	58.53	75.2	22.8

ζ LEP

3.55 A3 V

α α_c δ

h m h m ° ′

05 47 05 46 -14 48 hp

mes	d	s	s	″	h
ene	1	42.22	53.07	73.6	23.1
ene	7	42.22	53.03	75.0	22.7
ene	13	42.23	52.96	76.1	22.3
ene	19	42.19	52.88	77.2	21.9
ene	25	42.18	52.79	78.2	21.5
ene	31	42.10	52.69	79.1	21.1
feb	6	42.05	52.58	80.0	20.7
feb	12	41.96	52.45	80.5	20.3
feb	18	41.87	52.32	81.3	20.0
feb	24	41.77	52.18	81.6	19.6
mar	1	41.64	52.04	82.1	19.2
mar	7	41.54	51.89	82.3	18.8
mar	13	41.41	51.74	82.4	18.4
mar	19	41.30	51.59	82.5	18.0
mar	25	41.16	51.44	82.3	17.6
mar	31	41.05	51.29	82.3	17.2
abr	6	40.94	51.15	81.8	16.8
abr	12	40.83	51.01	81.5	16.4
abr	18	40.74	50.88	80.9	16.0
abr	24	40.64	50.76	80.4	15.6
abr	30	40.58	50.64	79.6	15.2
may	6	40.50	50.54	78.8	14.8
may	12	40.48	50.44	77.9	14.4
may	18	40.43	50.36	76.9	14.0
may	24	40.41	50.29	75.9	13.6
may	30	40.42	50.23	74.7	13.2
jun	5	40.42	50.19	73.6	12.9
jun	11	40.47	50.16	72.3	12.5
jun	17	40.49	50.15	71.1	12.1
jun	23	40.57	50.14	69.8	11.7
jun	29	40.62	50.16	68.4	11.3
jul	5	40.72	50.18	67.2	10.9
jul	11	40.81	50.22	65.8	10.5
jul	17	40.92	50.28	64.6	10.1
jul	23	41.05	50.34	63.3	9.7
jul	29	41.16	50.42	62.2	9.3
ago	4	41.32	50.51	61.0	8.9
ago	10	41.44	50.61	60.0	8.5
ago	16	41.61	50.72	59.1	8.1
ago	22	41.75	50.84	58.2	7.7
ago	28	41.92	50.96	57.7	7.3
sep	3	42.08	51.10	57.0	6.9
sep	9	42.24	51.24	56.7	6.5
sep	15	42.42	51.37	56.3	6.2
sep	21	42.58	51.52	56.3	5.8
sep	27	42.77	51.65	56.3	5.4
oct	3	42.92	51.80	56.5	5.0
oct	9	43.09	51.93	56.9	4.6
oct	15	43.25	52.06	57.3	4.2
oct	21	43.42	52.19	58.1	3.8
oct	27	43.58	52.31	58.7	3.4
nov	2	43.71	52.42	59.8	3.0
nov	8	43.87	52.51	60.7	2.6
nov	14	43.98	52.60	61.8	2.2
nov	20	44.13	52.67	63.0	1.8
nov	26	44.23	52.73	64.2	1.4
dic	2	44.34	52.77	65.7	1.0
dic	8	44.42	52.80	66.9	0.6
dic	14	44.50	52.81	68.3	0.2
dic	20	44.57	52.81	69.5	23.8
dic	26	44.60	52.79	70.9	23.5

δ LEP

3.8 K0 IIICN

α α_c δ

h m h m ° ′

05 52 05 51 -20 52 hp

mes	d	s	s	″	h
ene	1	2.01	12.86	56.0	23.2
ene	7	2.01	12.81	57.6	22.8
ene	13	2.02	12.75	58.8	22.4
ene	19	1.98	12.67	60.2	22.0
ene	25	1.95	12.57	61.3	21.6
ene	31	1.88	12.47	62.3	21.2
feb	6	1.82	12.35	63.4	20.8
feb	12	1.73	12.22	64.1	20.4
feb	18	1.63	12.08	64.9	20.0
feb	24	1.53	11.94	65.3	19.6
mar	1	1.40	11.79	65.9	19.2
mar	7	1.29	11.63	66.2	18.8
mar	13	1.15	11.48	66.4	18.4
mar	19	1.04	11.32	66.4	18.1
mar	25	0.89	11.17	66.3	17.7
mar	31	0.77	11.01	66.2	17.3
abr	6	0.65	10.86	65.8	16.9
abr	12	0.54	10.72	65.5	16.5
abr	18	0.44	10.58	64.7	16.1
abr	24	0.33	10.45	64.1	15.7
abr	30	0.27	10.33	63.3	15.3
may	6	0.18	10.22	62.4	14.9
may	12	0.15	10.11	61.4	14.5
may	18	0.09	10.03	60.2	14.1
may	24	0.07	9.95	59.2	13.7
may	30	0.07	9.88	57.8	13.3
jun	5	0.07	9.84	56.6	12.9
jun	11	0.10	9.80	55.1	12.5
jun	17	0.12	9.78	53.8	12.1
jun	23	0.19	9.77	52.4	11.7
jun	29	0.24	9.78	50.8	11.3
jul	5	0.34	9.80	49.5	11.0
jul	11	0.43	9.84	47.9	10.6
jul	17	0.53	9.89	46.6	10.2
jul	23	0.66	9.95	45.1	9.8
jul	29	0.77	10.03	44.0	9.4
ago	4	0.92	10.12	42.7	9.0
ago	10	1.05	10.22	41.5	8.6
ago	16	1.21	10.33	40.6	8.2
ago	22	1.36	10.45	39.6	7.8
ago	28	1.53	10.58	39.0	7.4
sep	3	1.70	10.71	38.2	7.0
sep	9	1.86	10.85	37.9	6.6
sep	15	2.04	10.99	37.5	6.2
sep	21	2.20	11.14	37.5	5.8
sep	27	2.40	11.28	37.5	5.4
oct	3	2.55	11.43	37.7	5.0
oct	9	2.73	11.57	38.2	4.6
oct	15	2.89	11.71	38.6	4.3
oct	21	3.06	11.83	39.5	3.9
oct	27	3.22	11.96	40.3	3.5
nov	2	3.36	12.07	41.4	3.1
nov	8	3.52	12.17	42.5	2.7
nov	14	3.64	12.26	43.8	2.3
nov	20	3.79	12.33	45.1	1.9
nov	26	3.89	12.40	46.5	1.5
dic	2	4.00	12.44	48.1	1.1
dic	8	4.09	12.47	49.5	0.7
dic	14	4.16	12.48	51.2	0.3
dic	20	4.24	12.48	52.5	23.9
dic	26	4.26	12.46	54.1	23.5

Posiciones aparentes de estrellas brillantes, 2016

η LEP

3.71 F1 V

α α_c δ

h m h m ° ′

05 57 05 56 -14 09 hp

mes	d	s	s	″	h
ene	1	9.41	20.26	69.1	23.3
ene	7	9.41	20.22	70.4	22.9
ene	13	9.43	20.16	71.5	22.5
ene	19	9.40	20.09	72.7	22.1
ene	25	9.39	20.00	73.6	21.7
ene	31	9.32	19.90	74.5	21.3
feb	6	9.26	19.79	75.4	20.9
feb	12	9.18	19.67	76.0	20.5
feb	18	9.10	19.54	76.8	20.1
feb	24	9.00	19.41	77.1	19.7
mar	1	8.87	19.27	77.6	19.3
mar	7	8.78	19.12	77.8	18.9
mar	13	8.64	18.97	78.0	18.5
mar	19	8.54	18.82	78.1	18.1
mar	25	8.40	18.67	78.0	17.7
mar	31	8.29	18.53	77.9	17.3
abr	6	8.17	18.38	77.5	17.0
abr	12	8.07	18.24	77.3	16.6
abr	18	7.97	18.11	76.6	16.2
abr	24	7.87	17.98	76.1	15.8
abr	30	7.81	17.87	75.5	15.4
may	6	7.72	17.76	74.6	15.0
may	12	7.70	17.66	73.8	14.6
may	18	7.65	17.58	72.8	14.2
may	24	7.62	17.50	71.9	13.8
may	30	7.62	17.44	70.7	13.4
jun	5	7.62	17.39	69.7	13.0
jun	11	7.66	17.36	68.4	12.6
jun	17	7.68	17.34	67.2	12.2
jun	23	7.75	17.33	66.0	11.8
jun	29	7.80	17.34	64.6	11.4
jul	5	7.90	17.36	63.4	11.0
jul	11	7.99	17.39	62.0	10.6
jul	17	8.09	17.44	60.9	10.3
jul	23	8.21	17.50	59.5	9.9
jul	29	8.32	17.58	58.5	9.5
ago	4	8.47	17.66	57.3	9.1
ago	10	8.59	17.76	56.3	8.7
ago	16	8.75	17.87	55.5	8.3
ago	22	8.90	17.98	54.5	7.9
ago	28	9.07	18.11	54.0	7.5
sep	3	9.22	18.24	53.3	7.1
sep	9	9.38	18.37	53.0	6.7
sep	15	9.56	18.51	52.6	6.3
sep	21	9.71	18.65	52.5	5.9
sep	27	9.91	18.79	52.5	5.5
oct	3	10.05	18.93	52.7	5.1
oct	9	10.23	19.07	53.1	4.7
oct	15	10.39	19.20	53.5	4.3
oct	21	10.56	19.33	54.3	3.9
oct	27	10.72	19.45	54.9	3.6
nov	2	10.86	19.56	55.9	3.2
nov	8	11.02	19.66	56.8	2.8
nov	14	11.14	19.76	57.9	2.4
nov	20	11.29	19.83	59.1	2.0
nov	26	11.39	19.90	60.3	1.6
dic	2	11.51	19.94	61.7	1.2
dic	8	11.60	19.98	62.9	0.8
dic	14	11.68	20.00	64.4	0.4
dic	20	11.76	20.00	65.5	0.0
dic	26	11.79	19.99	66.9	23.6

α MEN

5.0 G5 V

α α_c δ

h m h m ° ′

06 09 06 08 -74 45 hp

mes	d	s	s	″	h
ene	1	51.17	62.02	41.0	23.5
ene	7	51.03	61.84	43.2	23.1
ene	13	50.82	61.55	45.1	22.7
ene	19	50.58	61.27	47.1	22.3
ene	25	50.26	60.87	48.8	21.9
ene	31	49.92	60.51	50.4	21.5
feb	6	49.52	60.05	52.0	21.1
feb	12	49.08	59.58	53.2	20.7
feb	18	48.61	59.06	54.5	20.3
feb	24	48.12	58.53	55.4	19.9
mar	1	47.61	58.00	56.3	19.5
mar	7	47.06	57.40	56.8	19.1
mar	13	46.52	56.85	57.3	18.7
mar	19	45.95	56.23	57.5	18.3
mar	25	45.41	55.68	57.4	18.0
mar	31	44.86	55.10	57.4	17.6
abr	6	44.31	54.52	56.9	17.2
abr	12	43.78	53.96	56.5	16.8
abr	18	43.27	53.40	55.6	16.4
abr	24	42.80	52.92	54.8	16.0
abr	30	42.34	52.40	53.7	15.6
may	6	41.92	51.96	52.4	15.2
may	12	41.52	51.48	51.1	14.8
may	18	41.19	51.12	49.5	14.4
may	24	40.89	50.77	48.0	14.0
may	30	40.62	50.44	46.1	13.6
jun	5	40.42	50.19	44.4	13.2
jun	11	40.25	49.94	42.4	12.8
jun	17	40.15	49.81	40.5	12.4
jun	23	40.08	49.66	38.5	12.0
jun	29	40.08	49.62	36.4	11.6
jul	5	40.11	49.57	34.4	11.3
jul	11	40.21	49.63	32.3	10.9
jul	17	40.37	49.73	30.5	10.5
jul	23	40.55	49.85	28.4	10.1
jul	29	40.80	50.06	26.7	9.7
ago	4	41.07	50.27	24.9	9.3
ago	10	41.42	50.59	23.3	8.9
ago	16	41.78	50.90	21.9	8.5
ago	22	42.19	51.28	20.5	8.1
ago	28	42.61	51.66	19.5	7.7
sep	3	43.08	52.09	18.4	7.3
sep	9	43.57	52.57	17.9	6.9
sep	15	44.06	53.01	17.3	6.5
sep	21	44.58	53.52	17.1	6.1
sep	27	45.08	53.97	17.0	5.7
oct	3	45.61	54.49	17.2	5.3
oct	9	46.12	54.96	17.8	4.9
oct	15	46.61	55.43	18.3	4.5
oct	21	47.09	55.85	19.4	4.2
oct	27	47.54	56.27	20.4	3.8
nov	2	47.97	56.68	21.8	3.4
nov	8	48.35	56.99	23.3	3.0
nov	14	48.70	57.32	25.0	2.6
nov	20	48.98	57.52	26.8	2.2
nov	26	49.25	57.75	28.7	1.8
dic	2	49.44	57.88	30.9	1.4
dic	8	49.58	57.96	32.8	1.0
dic	14	49.66	57.98	35.1	0.6
dic	20	49.68	57.92	37.1	0.2
dic	26	49.66	57.86	39.4	23.8

ξ GEM

3.35 F5 III

α α_c δ

h m h m ° ′

06 46 06 45 +12 52 hp

mes	d	s	s	″	h
ene	1	12.56	23.42	26.4	0.1
ene	7	12.61	23.41	25.9	23.7
ene	13	12.67	23.40	25.6	23.3
ene	19	12.68	23.36	25.3	22.9
ene	25	12.71	23.32	25.0	22.5
ene	31	12.67	23.25	24.9	22.1
feb	6	12.65	23.18	24.6	21.7
feb	12	12.60	23.09	24.6	21.3
feb	18	12.54	22.99	24.4	20.9
feb	24	12.47	22.88	24.5	20.5
mar	1	12.36	22.76	24.4	20.1
mar	7	12.29	22.63	24.4	19.7
mar	13	12.16	22.49	24.4	19.4
mar	19	12.08	22.36	24.5	19.0
mar	25	11.94	22.21	24.6	18.6
mar	31	11.83	22.07	24.6	18.2
abr	6	11.72	21.93	24.8	17.8
abr	12	11.62	21.79	24.8	17.4
abr	18	11.52	21.66	25.0	17.0
abr	24	11.41	21.53	25.1	16.6
abr	30	11.35	21.40	25.2	16.2
may	6	11.25	21.29	25.5	15.8
may	12	11.22	21.18	25.6	15.4
may	18	11.15	21.08	25.9	15.0
may	24	11.12	21.00	26.0	14.6
may	30	11.11	20.93	26.4	14.2
jun	5	11.10	20.86	26.5	13.8
jun	11	11.13	20.82	26.9	13.4
jun	17	11.13	20.78	27.1	13.0
jun	23	11.18	20.76	27.4	12.6
jun	29	11.22	20.75	27.8	12.3
jul	5	11.30	20.76	28.0	11.9
jul	11	11.37	20.78	28.5	11.5
jul	17	11.45	20.81	28.7	11.1
jul	23	11.56	20.86	29.2	10.7
jul	29	11.66	20.91	29.4	10.3
ago	4	11.80	20.99	29.7	9.9
ago	10	11.90	21.07	30.0	9.5
ago	16	12.06	21.17	30.2	9.1
ago	22	12.18	21.27	30.5	8.7
ago	28	12.35	21.39	30.5	8.3
sep	3	12.50	21.51	30.8	7.9
sep	9	12.65	21.64	30.7	7.5
sep	15	12.83	21.78	30.8	7.1
sep	21	12.98	21.92	30.7	6.7
sep	27	13.18	22.06	30.5	6.3
oct	3	13.33	22.21	30.4	5.9
oct	9	13.52	22.36	30.0	5.6
oct	15	13.69	22.50	29.9	5.2
oct	21	13.88	22.64	29.3	4.8
oct	27	14.06	22.78	29.0	4.4
nov	2	14.21	22.92	28.5	4.0
nov	8	14.40	23.05	28.0	3.6
nov	14	14.55	23.16	27.5	3.2
nov	20	14.74	23.28	26.9	2.8
nov	26	14.87	23.37	26.4	2.4
dic	2	15.02	23.46	25.7	2.0
dic	8	15.15	23.53	25.3	1.6
dic	14	15.27	23.59	24.6	1.2
dic	20	15.40	23.64	24.2	0.8
dic	26	15.47	23.66	23.7	0.4

Posiciones aparentes de estrellas brillantes, 2016

I PUP

4.49 F0 IV

α = h m 07 13 ; α_c = h m 07 12 ; δ = ° ′ -46 47 ; hp

mes	d	s	s	“	h
ene	1	3.19	14.05	19.7	0.5
ene	7	3.24	14.04	22.0	0.1
ene	13	3.27	14.00	24.0	23.7
ene	19	3.26	13.95	26.0	23.3
ene	25	3.24	13.86	28.0	23.0
ene	31	3.18	13.77	29.8	22.6
feb	6	3.11	13.64	31.6	22.2
feb	12	3.01	13.51	33.1	21.8
feb	18	2.91	13.35	34.7	21.4
feb	24	2.77	13.18	35.9	21.0
mar	1	2.62	13.02	37.1	20.6
mar	7	2.47	12.82	38.1	20.2
mar	13	2.29	12.62	39.0	19.8
mar	19	2.13	12.41	39.7	19.4
mar	25	1.93	12.21	40.0	19.0
mar	31	1.75	11.99	40.4	18.6
abr	6	1.56	11.77	40.4	18.2
abr	12	1.38	11.56	40.5	17.8
abr	18	1.20	11.34	40.1	17.4
abr	24	1.02	11.14	39.7	17.0
abr	30	0.87	10.93	39.2	16.6
may	6	0.70	10.74	38.4	16.2
may	12	0.57	10.54	37.5	15.9
may	18	0.43	10.37	36.3	15.5
may	24	0.33	10.21	35.3	15.1
may	30	0.23	10.05	33.8	14.7
jun	5	0.15	9.92	32.5	14.3
jun	11	0.09	9.78	30.8	13.9
jun	17	0.04	9.69	29.1	13.5
jun	23	0.02	9.60	27.5	13.1
jun	29	0.00	9.54	25.6	12.7
jul	5	0.02	9.48	23.9	12.3
jul	11	0.05	9.46	21.8	11.9
jul	17	0.09	9.45	20.1	11.5
jul	23	0.16	9.46	18.1	11.1
jul	29	0.24	9.50	16.4	10.7
ago	4	0.35	9.54	14.6	10.3
ago	10	0.45	9.62	12.9	9.9
ago	16	0.59	9.71	11.4	9.5
ago	22	0.73	9.82	9.8	9.2
ago	28	0.90	9.94	8.6	8.8
sep	3	1.07	10.08	7.3	8.4
sep	9	1.25	10.24	6.4	8.0
sep	15	1.45	10.40	5.6	7.6
sep	21	1.64	10.58	5.0	7.2
sep	27	1.87	10.75	4.6	6.8
oct	3	2.07	10.95	4.4	6.4
oct	9	2.30	11.14	4.6	6.0
oct	15	2.52	11.33	4.7	5.6
oct	21	2.75	11.52	5.4	5.2
oct	27	2.97	11.70	6.0	4.8
nov	2	3.18	11.89	7.1	4.4
nov	8	3.41	12.05	8.2	4.0
nov	14	3.60	12.22	9.6	3.6
nov	20	3.81	12.35	11.2	3.2
nov	26	3.98	12.48	12.7	2.8
dic	2	4.15	12.59	14.7	2.4
dic	8	4.30	12.68	16.5	2.1
dic	14	4.43	12.75	18.6	1.7
dic	20	4.55	12.79	20.5	1.3
dic	26	4.63	12.83	22.7	0.9

108 G PUP

4.43 F6 IV

α = h m 07 34 ; α_c = h m 07 33 ; δ = ° ′ -22 19 ; hp

mes	d	s	s	“	h
ene	1	45.81	56.66	61.6	0.9
ene	7	45.87	56.68	63.4	0.5
ene	13	45.94	56.67	65.0	0.1
ene	19	45.96	56.65	66.5	23.7
ene	25	46.00	56.61	68.0	23.3
ene	31	45.98	56.57	69.3	22.9
feb	6	45.97	56.50	70.8	22.5
feb	12	45.92	56.42	71.8	22.1
feb	18	45.88	56.32	73.1	21.7
feb	24	45.81	56.21	73.9	21.3
mar	1	45.71	56.10	74.9	20.9
mar	7	45.63	55.97	75.6	20.6
mar	13	45.51	55.84	76.2	20.2
mar	19	45.41	55.69	76.7	19.8
mar	25	45.28	55.55	77.0	19.4
mar	31	45.16	55.40	77.3	19.0
abr	6	45.04	55.24	77.3	18.6
abr	12	44.92	55.09	77.4	18.2
abr	18	44.80	54.93	77.1	17.8
abr	24	44.67	54.79	76.8	17.4
abr	30	44.58	54.64	76.4	17.0
may	6	44.46	54.49	75.8	16.6
may	12	44.39	54.35	75.3	16.2
may	18	44.29	54.22	74.4	15.8
may	24	44.23	54.10	73.6	15.4
may	30	44.17	53.99	72.6	15.0
jun	5	44.12	53.89	71.6	14.6
jun	11	44.10	53.79	70.4	14.2
jun	17	44.06	53.72	69.2	13.9
jun	23	44.07	53.65	68.1	13.5
jun	29	44.06	53.60	66.6	13.1
jul	5	44.10	53.56	65.4	12.7
jul	11	44.13	53.54	63.9	12.3
jul	17	44.17	53.53	62.7	11.9
jul	23	44.24	53.53	61.3	11.5
jul	29	44.29	53.55	60.0	11.1
ago	4	44.39	53.58	58.7	10.7
ago	10	44.47	53.64	57.4	10.3
ago	16	44.59	53.70	56.4	9.9
ago	22	44.69	53.78	55.2	9.5
ago	28	44.82	53.86	54.4	9.1
sep	3	44.95	53.96	53.4	8.7
sep	9	45.09	54.08	52.8	8.3
sep	15	45.25	54.19	52.2	7.9
sep	21	45.39	54.33	51.9	7.5
sep	27	45.57	54.46	51.7	7.1
oct	3	45.72	54.60	51.5	6.8
oct	9	45.91	54.75	51.8	6.4
oct	15	46.08	54.89	52.0	6.0
oct	21	46.27	55.04	52.6	5.6
oct	27	46.45	55.18	53.1	5.2
nov	2	46.62	55.33	54.0	4.8
nov	8	46.82	55.46	55.0	4.4
nov	14	46.98	55.59	56.1	4.0
nov	20	47.17	55.71	57.4	3.6
nov	26	47.32	55.82	58.7	3.2
dic	2	47.49	55.92	60.3	2.8
dic	8	47.63	56.01	61.7	2.4
dic	14	47.77	56.08	63.4	2.0
dic	20	47.90	56.14	65.0	1.6
dic	26	47.99	56.18	66.6	1.2

289 G PUP

4.45 A7 III

α = h m 08 19 ; α_c = h m 08 18 ; δ = ° ′ -36 42 ; hp

mes	d	s	s	“	h
ene	1	11.07	21.93	38.1	1.6
ene	7	11.17	21.97	40.1	1.2
ene	13	11.26	21.99	42.1	0.8
ene	19	11.31	22.00	44.1	0.4
ene	25	11.36	21.98	46.0	0.1
ene	31	11.36	21.95	47.8	23.7
feb	6	11.37	21.90	49.7	23.3
feb	12	11.34	21.83	51.3	22.9
feb	18	11.30	21.75	53.0	22.5
feb	24	11.23	21.64	54.3	22.1
mar	1	11.15	21.54	55.7	21.7
mar	7	11.06	21.41	57.0	21.3
mar	13	10.94	21.27	58.0	20.9
mar	19	10.84	21.12	59.0	20.5
mar	25	10.69	20.97	59.6	20.1
mar	31	10.57	20.81	60.4	19.7
abr	6	10.42	20.63	60.7	19.3
abr	12	10.29	20.46	61.2	18.9
abr	18	10.15	20.28	61.2	18.5
abr	24	10.00	20.11	61.2	18.1
abr	30	9.87	19.93	61.1	17.7
may	6	9.73	19.76	60.6	17.4
may	12	9.62	19.58	60.3	17.0
may	18	9.49	19.42	59.5	16.6
may	24	9.39	19.27	58.9	16.2
may	30	9.29	19.11	57.9	15.8
jun	5	9.21	18.97	56.9	15.4
jun	11	9.14	18.83	55.7	15.0
jun	17	9.07	18.72	54.4	14.6
jun	23	9.04	18.61	53.2	14.2
jun	29	8.98	18.52	51.6	13.8
jul	5	8.98	18.44	50.3	13.4
jul	11	8.96	18.37	48.5	13.0
jul	17	8.97	18.33	47.1	12.6
jul	23	9.00	18.30	45.4	12.2
jul	29	9.03	18.29	43.8	11.8
ago	4	9.09	18.28	42.2	11.4
ago	10	9.14	18.31	40.6	11.0
ago	16	9.23	18.35	39.2	10.6
ago	22	9.31	18.40	37.6	10.3
ago	28	9.43	18.47	36.5	9.9
sep	3	9.55	18.56	35.1	9.5
sep	9	9.67	18.67	34.1	9.1
sep	15	9.83	18.77	33.2	8.7
sep	21	9.97	18.91	32.4	8.3
sep	27	10.15	19.04	31.9	7.9
oct	3	10.31	19.19	31.4	7.5
oct	9	10.51	19.35	31.3	7.1
oct	15	10.69	19.50	31.2	6.7
oct	21	10.90	19.67	31.6	6.3
oct	27	11.10	19.83	31.9	5.9
nov	2	11.30	20.00	32.6	5.5
nov	8	11.52	20.16	33.5	5.1
nov	14	11.70	20.32	34.5	4.7
nov	20	11.93	20.46	35.8	4.3
nov	26	12.11	20.61	37.0	3.9
dic	2	12.31	20.74	38.7	3.6
dic	8	12.48	20.86	40.2	3.2
dic	14	12.65	20.96	42.1	2.8
dic	20	12.81	21.05	43.9	2.4
dic	26	12.93	21.13	45.8	2.0

Posiciones aparentes de estrellas brillantes, 2016

β VOL					
		3.76		K2 III	
		α	α_c	δ	
		h m	h m	° ′	
		08 25	08 25	-66 11	hp
mes	d	s	s	″	h
ene	1	58.30	9.16	25.3	1.7
ene	7	58.45	9.25	27.6	1.3
ene	13	58.53	9.26	29.9	1.0
ene	19	58.59	9.28	32.2	0.6
ene	25	58.61	9.22	34.5	0.2
ene	31	58.58	9.17	36.7	23.8
feb	6	58.53	9.06	39.0	23.4
feb	12	58.42	8.91	41.0	23.0
feb	18	58.30	8.75	43.2	22.6
feb	24	58.12	8.53	45.0	22.2
mar	1	57.94	8.33	46.9	21.8
mar	7	57.72	8.06	48.6	21.4
mar	13	57.47	7.80	50.1	21.0
mar	19	57.21	7.49	51.6	20.6
mar	25	56.91	7.19	52.6	20.2
mar	31	56.63	6.87	53.8	19.8
abr	6	56.31	6.52	54.5	19.4
abr	12	56.01	6.18	55.3	19.0
abr	18	55.68	5.81	55.7	18.6
abr	24	55.36	5.48	56.0	18.3
abr	30	55.05	5.11	56.1	17.9
may	6	54.73	4.76	55.9	17.5
may	12	54.44	4.40	55.7	17.1
may	18	54.13	4.06	55.1	16.7
may	24	53.87	3.75	54.5	16.3
may	30	53.59	3.41	53.6	15.9
jun	5	53.36	3.13	52.7	15.5
jun	11	53.13	2.82	51.4	15.1
jun	17	52.93	2.59	50.1	14.7
jun	23	52.76	2.34	48.7	14.3
jun	29	52.60	2.13	47.0	13.9
jul	5	52.49	1.95	45.4	13.5
jul	11	52.38	1.79	43.5	13.1
jul	17	52.33	1.69	41.7	12.7
jul	23	52.29	1.58	39.8	12.3
jul	29	52.29	1.55	37.8	11.9
ago	4	52.31	1.50	35.9	11.5
ago	10	52.37	1.54	33.9	11.2
ago	16	52.47	1.59	32.1	10.8
ago	22	52.58	1.67	30.1	10.4
ago	28	52.75	1.79	28.6	10.0
sep	3	52.92	1.93	26.8	9.6
sep	9	53.15	2.14	25.3	9.2
sep	15	53.38	2.33	24.0	8.8
sep	21	53.65	2.59	22.8	8.4
sep	27	53.94	2.82	21.8	8.0
oct	3	54.24	3.12	20.9	7.6
oct	9	54.58	3.42	20.5	7.2
oct	15	54.91	3.72	20.0	6.8
oct	21	55.27	4.04	20.1	6.4
oct	27	55.62	4.35	20.1	6.0
nov	2	55.99	4.69	20.6	5.6
nov	8	56.35	4.99	21.2	5.2
nov	14	56.69	5.31	22.0	4.8
nov	20	57.04	5.58	23.2	4.5
nov	26	57.36	5.87	24.4	4.1
dic	2	57.69	6.12	26.0	3.7
dic	8	57.96	6.34	27.6	3.3
dic	14	58.23	6.55	29.6	2.9
dic	20	58.45	6.69	31.4	2.5
dic	26	58.66	6.85	33.5	2.1

α VOL					
		4.0		A5 V	
		α	α_c	δ	
		h m	h m	° ′	
		09 02	09 01	-66 27	hp
mes	d	s	s	″	h
ene	1	45.58	56.44	32.5	2.4
ene	7	45.78	56.59	34.7	2.0
ene	13	45.93	56.66	37.0	1.6
ene	19	46.04	56.73	39.2	1.2
ene	25	46.12	56.73	41.6	0.8
ene	31	46.14	56.73	43.8	0.4
feb	6	46.15	56.69	46.2	24.0
feb	12	46.09	56.59	48.3	23.6
feb	18	46.03	56.48	50.7	23.2
feb	24	45.91	56.32	52.7	22.8
mar	1	45.77	56.17	54.7	22.4
mar	7	45.60	55.94	56.6	22.0
mar	13	45.39	55.72	58.3	21.6
mar	19	45.17	55.45	60.1	21.2
mar	25	44.91	55.19	61.4	20.8
mar	31	44.66	54.90	62.8	20.4
abr	6	44.36	54.57	63.8	20.0
abr	12	44.09	54.26	64.9	19.7
abr	18	43.77	53.91	65.6	19.3
abr	24	43.47	53.59	66.2	18.9
abr	30	43.17	53.23	66.7	18.5
may	6	42.85	52.88	66.8	18.1
may	12	42.56	52.52	67.0	17.7
may	18	42.24	52.18	66.6	17.3
may	24	41.97	51.85	66.4	16.9
may	30	41.68	51.50	65.7	16.5
jun	5	41.42	51.19	65.1	16.1
jun	11	41.17	50.86	64.1	15.7
jun	17	40.94	50.59	63.0	15.3
jun	23	40.74	50.32	61.9	14.9
jun	29	40.53	50.07	60.3	14.5
jul	5	40.39	49.84	59.0	14.1
jul	11	40.23	49.64	57.2	13.7
jul	17	40.13	49.50	55.6	13.3
jul	23	40.04	49.34	53.7	13.0
jul	29	39.99	49.26	51.9	12.6
ago	4	39.97	49.16	50.0	12.2
ago	10	39.98	49.15	48.0	11.8
ago	16	40.03	49.15	46.2	11.4
ago	22	40.09	49.18	44.2	11.0
ago	28	40.21	49.26	42.5	10.6
sep	3	40.34	49.35	40.6	10.2
sep	9	40.52	49.52	39.0	9.8
sep	15	40.72	49.67	37.5	9.4
sep	21	40.95	49.89	36.1	9.0
sep	27	41.21	50.10	35.0	8.6
oct	3	41.48	50.37	33.8	8.2
oct	9	41.81	50.65	33.1	7.8
oct	15	42.11	50.93	32.4	7.4
oct	21	42.48	51.25	32.2	7.0
oct	27	42.82	51.55	31.9	6.6
nov	2	43.19	51.90	32.0	6.2
nov	8	43.56	52.21	32.4	5.9
nov	14	43.92	52.54	32.9	5.5
nov	20	44.29	52.83	33.9	5.1
nov	26	44.64	53.14	34.8	4.7
dic	2	45.00	53.44	36.2	4.3
dic	8	45.30	53.69	37.6	3.9
dic	14	45.62	53.94	39.3	3.5
dic	20	45.89	54.13	41.1	3.1
dic	26	46.14	54.34	43.0	2.7

β CAR					
		1.67		A2 IV	
		α	α_c	δ	
		h m	h m	° ′	
		09 13	09 12	-69 46	hp
mes	d	s	s	″	h
ene	1	26.58	37.44	54.1	2.5
ene	7	26.82	37.63	56.3	2.1
ene	13	27.00	37.72	58.5	1.7
ene	19	27.14	37.83	60.7	1.4
ene	25	27.23	37.85	63.1	1.0
ene	31	27.27	37.86	65.3	0.6
feb	6	27.30	37.83	67.7	0.2
feb	12	27.24	37.73	69.9	23.8
feb	18	27.18	37.63	72.3	23.4
feb	24	27.05	37.46	74.3	23.0
mar	1	26.90	37.30	76.4	22.6
mar	7	26.71	37.05	78.4	22.2
mar	13	26.49	36.82	80.2	21.8
mar	19	26.24	36.52	82.0	21.4
mar	25	25.95	36.22	83.4	21.0
mar	31	25.67	35.91	85.0	20.6
abr	6	25.33	35.54	86.1	20.2
abr	12	25.02	35.19	87.3	19.8
abr	18	24.66	34.79	88.2	19.4
abr	24	24.31	34.43	88.8	19.0
abr	30	23.96	34.02	89.5	18.6
may	6	23.59	33.62	89.7	18.3
may	12	23.24	33.20	90.0	17.9
may	18	22.87	32.80	89.8	17.5
may	24	22.55	32.43	89.6	17.1
may	30	22.20	32.01	89.1	16.7
jun	5	21.89	31.66	88.5	16.3
jun	11	21.57	31.26	87.7	15.9
jun	17	21.29	30.95	86.6	15.5
jun	23	21.04	30.62	85.6	15.1
jun	29	20.78	30.32	84.2	14.7
jul	5	20.59	30.05	82.9	14.3
jul	11	20.39	29.80	81.2	13.9
jul	17	20.25	29.61	79.6	13.5
jul	23	20.12	29.41	77.8	13.1
jul	29	20.04	29.30	75.9	12.7
ago	4	19.99	29.18	74.1	12.3
ago	10	19.97	29.14	72.0	11.9
ago	16	20.01	29.12	70.2	11.6
ago	22	20.05	29.14	68.2	11.2
ago	28	20.17	29.21	66.5	10.8
sep	3	20.29	29.30	64.5	10.4
sep	9	20.48	29.48	62.9	10.0
sep	15	20.69	29.64	61.3	9.6
sep	21	20.94	29.88	59.8	9.2
sep	27	21.22	30.10	58.6	8.8
oct	3	21.52	30.40	57.3	8.4
oct	9	21.88	30.72	56.5	8.0
oct	15	22.22	31.04	55.7	7.6
oct	21	22.63	31.40	55.3	7.2
oct	27	23.01	31.74	55.0	6.8
nov	2	23.43	32.14	55.0	6.4
nov	8	23.85	32.50	55.2	6.0
nov	14	24.27	32.88	55.6	5.6
nov	20	24.69	33.22	56.5	5.2
nov	26	25.09	33.59	57.3	4.9
dic	2	25.50	33.94	58.5	4.5
dic	8	25.85	34.23	59.8	4.1
dic	14	26.22	34.54	61.5	3.7
dic	20	26.53	34.77	63.2	3.3
dic	26	26.83	35.02	65.0	2.9

Posiciones aparentes de estrellas brillantes, 2016

24 UMA						I CAR						37 UMA					
		4.54		G4 III-IV				3.99		F2 V				5.16		F1 V	
		α	α_c	δ				α	α_c	δ				α	α_c	δ	
		h m	h m	° ′				h m	h m	° ′				h m	h m	° ′	
		09 35	09 34	+69 44	hp			10 24	10 23	-74 06	hp			10 36	10 35	+56 59	hp
mes	d	s	s	″	h	mes	d	s	s	″	h	mes	d	s	s	″	h
ene	1	53.50	64.36	72.1	2.9	ene	1	47.39	58.24	34.8	3.7	ene	1	11.16	22.02	39.9	3.9
ene	7	53.83	64.63	73.0	2.5	ene	7	47.81	58.61	36.5	3.3	ene	7	11.42	22.23	40.1	3.5
ene	13	54.20	64.93	74.0	2.1	ene	13	48.15	58.88	38.5	2.9	ene	13	11.72	22.45	40.4	3.1
ene	19	54.44	65.13	75.3	1.7	ene	19	48.47	59.16	40.5	2.5	ene	19	11.93	22.62	41.0	2.7
ene	25	54.73	65.34	76.5	1.3	ene	25	48.73	59.34	42.8	2.1	ene	25	12.18	22.80	41.6	2.3
ene	31	54.89	65.48	78.1	0.9	ene	31	48.93	59.51	44.8	1.8	ene	31	12.36	22.95	42.7	1.9
feb	6	55.05	65.58	79.5	0.5	feb	6	49.12	59.65	47.2	1.4	feb	6	12.53	23.06	43.6	1.5
feb	12	55.16	65.65	81.3	0.1	feb	12	49.20	59.69	49.5	1.0	feb	12	12.68	23.17	44.8	1.2
feb	18	55.20	65.65	82.8	23.8	feb	18	49.29	59.74	51.9	0.6	feb	18	12.78	23.23	46.0	0.8
feb	24	55.23	65.64	84.6	23.4	feb	24	49.27	59.68	54.2	0.2	feb	24	12.87	23.28	47.4	0.4
mar	1	55.15	65.54	86.3	23.0	mar	1	49.25	59.64	56.4	23.8	mar	1	12.89	23.28	49.0	24.0
mar	7	55.10	65.44	87.9	22.6	mar	7	49.16	59.50	58.7	23.4	mar	7	12.93	23.28	50.3	23.6
mar	13	54.94	65.27	89.6	22.2	mar	13	49.02	59.35	60.8	23.0	mar	13	12.90	23.23	52.0	23.2
mar	19	54.80	65.08	91.0	21.8	mar	19	48.86	59.14	63.1	22.6	mar	19	12.88	23.17	53.3	22.8
mar	25	54.57	64.85	92.6	21.4	mar	25	48.62	58.89	64.9	22.2	mar	25	12.80	23.07	55.0	22.4
mar	31	54.33	64.57	93.8	21.0	mar	31	48.40	58.64	66.9	21.8	mar	31	12.70	22.95	56.3	22.0
abr	6	54.09	64.30	95.1	20.6	abr	6	48.08	58.29	68.6	21.4	abr	6	12.61	22.82	57.8	21.6
abr	12	53.79	63.96	96.0	20.2	abr	12	47.80	57.98	70.3	21.0	abr	12	12.47	22.64	59.0	21.2
abr	18	53.52	63.65	97.0	19.8	abr	18	47.43	57.57	71.8	20.6	abr	18	12.34	22.48	60.2	20.8
abr	24	53.16	63.28	97.7	19.4	abr	24	47.08	57.20	73.0	20.2	abr	24	12.15	22.28	61.4	20.4
abr	30	52.88	62.94	98.1	19.0	abr	30	46.70	56.76	74.3	19.8	abr	30	12.01	22.08	62.2	20.0
may	6	52.54	62.57	98.6	18.6	may	6	46.28	56.32	75.1	19.4	may	6	11.82	21.86	63.1	19.6
may	12	52.26	62.22	98.6	18.2	may	12	45.89	55.85	76.1	19.0	may	12	11.67	21.64	63.6	19.2
may	18	51.93	61.86	98.7	17.8	may	18	45.44	55.37	76.5	18.7	may	18	11.48	21.41	64.3	18.8
may	24	51.62	61.50	98.4	17.4	may	24	45.04	54.92	77.0	18.3	may	24	11.29	21.17	64.5	18.5
may	30	51.37	61.19	98.1	17.1	may	30	44.58	54.40	77.2	17.9	may	30	11.14	20.96	64.7	18.1
jun	5	51.07	60.84	97.4	16.7	jun	5	44.18	53.95	77.2	17.5	jun	5	10.95	20.72	64.7	17.7
jun	11	50.87	60.57	96.7	16.3	jun	11	43.74	53.43	77.0	17.1	jun	11	10.82	20.52	64.5	17.3
jun	17	50.61	60.26	95.9	15.9	jun	17	43.33	52.98	76.5	16.7	jun	17	10.64	20.30	64.3	16.9
jun	23	50.45	60.02	94.7	15.5	jun	23	42.95	52.52	76.1	16.3	jun	23	10.52	20.10	63.8	16.5
jun	29	50.26	59.80	93.7	15.1	jun	29	42.54	52.07	75.2	15.9	jun	29	10.38	19.91	63.3	16.1
jul	5	50.14	59.60	92.2	14.7	jul	5	42.20	51.66	74.4	15.5	jul	5	10.27	19.73	62.4	15.7
jul	11	50.03	59.44	90.9	14.3	jul	11	41.83	51.24	73.1	15.1	jul	11	10.17	19.58	61.6	15.3
jul	17	49.93	59.29	89.3	13.9	jul	17	41.55	50.91	71.9	14.7	jul	17	10.06	19.43	60.6	14.9
jul	23	49.93	59.22	87.7	13.5	jul	23	41.25	50.55	70.5	14.3	jul	23	10.02	19.32	59.4	14.5
jul	29	49.87	59.13	86.1	13.1	jul	29	41.03	50.29	68.9	13.9	jul	29	9.94	19.20	58.2	14.1
ago	4	49.94	59.13	84.3	12.7	ago	4	40.81	50.00	67.4	13.5	ago	4	9.93	19.12	56.7	13.7
ago	10	49.94	59.12	82.6	12.3	ago	10	40.64	49.81	65.5	13.1	ago	10	9.88	19.05	55.4	13.3
ago	16	50.05	59.16	80.6	11.9	ago	16	40.55	49.66	63.8	12.7	ago	16	9.89	19.01	53.8	12.9
ago	22	50.16	59.25	78.9	11.5	ago	22	40.44	49.53	61.8	12.3	ago	22	9.90	18.99	52.3	12.5
ago	28	50.30	59.34	76.9	11.1	ago	28	40.45	49.49	60.0	12.0	ago	28	9.94	18.98	50.5	12.1
sep	3	50.50	59.51	75.1	10.7	sep	3	40.44	49.45	58.0	11.6	sep	3	10.00	19.01	48.9	11.7
sep	9	50.67	59.66	73.3	10.3	sep	9	40.54	49.54	56.2	11.2	sep	9	10.04	19.04	47.1	11.4
sep	15	50.95	59.89	71.4	10.0	sep	15	40.66	49.60	54.4	10.8	sep	15	10.17	19.12	45.3	11.0
sep	21	51.17	60.11	69.7	9.6	sep	21	40.84	49.78	52.6	10.4	sep	21	10.25	19.19	43.6	10.6
sep	27	51.51	60.40	67.9	9.2	sep	27	41.07	49.95	51.0	10.0	sep	27	10.42	19.31	41.6	10.2
oct	3	51.80	60.68	66.4	8.8	oct	3	41.33	50.21	49.3	9.6	oct	3	10.55	19.43	40.0	9.8
oct	9	52.15	60.99	64.7	8.4	oct	9	41.68	50.52	48.1	9.2	oct	9	10.73	19.57	38.1	9.4
oct	15	52.54	61.35	63.4	8.0	oct	15	42.01	50.82	46.8	8.8	oct	15	10.93	19.75	36.4	9.0
oct	21	52.92	61.69	61.9	7.6	oct	21	42.45	51.22	45.9	8.4	oct	21	11.14	19.91	34.6	8.6
oct	27	53.36	62.09	60.7	7.2	oct	27	42.86	51.59	45.0	8.0	oct	27	11.39	20.12	33.0	8.2
nov	2	53.75	62.46	59.7	6.8	nov	2	43.35	52.05	44.3	7.6	nov	2	11.61	20.32	31.5	7.8
nov	8	54.24	62.88	58.7	6.4	nov	8	43.84	52.48	44.0	7.2	nov	8	11.91	20.55	30.0	7.4
nov	14	54.66	63.28	58.0	6.0	nov	14	44.35	52.96	43.7	6.8	nov	14	12.16	20.78	28.8	7.0
nov	20	55.18	63.71	57.2	5.6	nov	20	44.88	53.42	44.0	6.4	nov	20	12.49	21.03	27.4	6.6
nov	26	55.62	64.12	56.9	5.2	nov	26	45.39	53.89	44.2	6.0	nov	26	12.78	21.28	26.5	6.2
dic	2	56.08	64.52	56.6	4.8	dic	2	45.95	54.39	44.8	5.6	dic	2	13.09	21.53	25.5	5.8
dic	8	56.57	64.94	56.7	4.4	dic	8	46.44	54.82	45.6	5.3	dic	8	13.42	21.80	24.8	5.4
dic	14	56.99	65.31	56.7	4.0	dic	14	46.98	55.29	46.7	4.9	dic	14	13.72	22.04	24.2	5.0
dic	20	57.47	65.71	57.1	3.6	dic	20	47.43	55.67	47.9	4.5	dic	20	14.06	22.30	23.8	4.7
dic	26	57.84	66.04	57.7	3.3	dic	26	47.91	56.10	49.3	4.1	dic	26	14.33	22.54	23.7	4.3

Posiciones aparentes de estrellas brillantes, 2016

β UMA

2.34 A1 V

α = h m 11 02 | α_c = h m 11 01 | δ = ° ′ +56 17

mes	d	s	s	″	h
ene	1	47.82	58.68	28.0	4.4
ene	7	48.08	58.89	28.0	4.0
ene	13	48.39	59.12	28.1	3.6
ene	19	48.62	59.32	28.6	3.2
ene	25	48.89	59.51	29.0	2.8
ene	31	49.08	59.67	29.9	2.4
feb	6	49.27	59.81	30.7	2.0
feb	12	49.44	59.94	31.8	1.6
feb	18	49.57	60.02	32.9	1.2
feb	24	49.69	60.10	34.3	0.8
mar	1	49.73	60.13	35.7	0.4
mar	7	49.81	60.15	37.1	0.0
mar	13	49.80	60.13	38.7	23.6
mar	19	49.81	60.09	40.1	23.2
mar	25	49.75	60.03	41.8	22.8
mar	31	49.69	59.93	43.3	22.4
abr	6	49.62	59.83	44.8	22.1
abr	12	49.50	59.68	46.1	21.7
abr	18	49.40	59.54	47.4	21.3
abr	24	49.23	59.35	48.8	20.9
abr	30	49.11	59.17	49.7	20.5
may	6	48.93	58.97	50.8	20.1
may	12	48.79	58.76	51.5	19.7
may	18	48.61	58.54	52.3	19.3
may	24	48.43	58.31	52.8	18.9
may	30	48.28	58.10	53.2	18.5
jun	5	48.09	57.86	53.4	18.1
jun	11	47.96	57.66	53.3	17.7
jun	17	47.77	57.43	53.3	17.3
jun	23	47.64	57.22	52.9	16.9
jun	29	47.49	57.03	52.6	16.5
jul	5	47.37	56.83	51.8	16.1
jul	11	47.25	56.67	51.2	15.7
jul	17	47.13	56.49	50.3	15.3
jul	23	47.06	56.36	49.2	15.0
jul	29	46.96	56.22	48.2	14.6
ago	4	46.93	56.12	46.8	14.2
ago	10	46.85	56.02	45.5	13.8
ago	16	46.83	55.95	44.0	13.4
ago	22	46.81	55.91	42.5	13.0
ago	28	46.82	55.86	40.7	12.6
sep	3	46.85	55.86	39.1	12.2
sep	9	46.87	55.86	37.4	11.8
sep	15	46.96	55.91	35.5	11.4
sep	21	47.01	55.95	33.7	11.0
sep	27	47.14	56.03	31.7	10.6
oct	3	47.24	56.12	30.0	10.2
oct	9	47.39	56.23	28.0	9.8
oct	15	47.56	56.38	26.2	9.4
oct	21	47.75	56.52	24.3	9.0
oct	27	47.97	56.70	22.6	8.6
nov	2	48.17	56.88	21.0	8.3
nov	8	48.44	57.09	19.2	7.9
nov	14	48.68	57.30	17.9	7.5
nov	20	48.99	57.52	16.3	7.1
nov	26	49.26	57.76	15.2	6.7
dic	2	49.55	57.99	14.0	6.3
dic	8	49.87	58.25	13.1	5.9
dic	14	50.17	58.49	12.2	5.5
dic	20	50.51	58.75	11.6	5.1
dic	26	50.78	58.98	11.3	4.7

δ LEO

2.56 A4 V

α = h m 11 14 | α_c = h m 11 14 | δ = ° ′ +20 25

mes	d	s	s	″	h
ene	1	57.66	8.52	59.2	4.6
ene	7	57.84	8.65	58.4	4.2
ene	13	58.05	8.78	57.5	3.8
ene	19	58.20	8.89	57.0	3.4
ene	25	58.39	9.00	56.4	3.0
ene	31	58.51	9.10	56.2	2.6
feb	6	58.65	9.18	55.8	2.2
feb	12	58.76	9.26	55.8	1.8
feb	18	58.86	9.31	55.7	1.4
feb	24	58.95	9.36	55.9	1.0
mar	1	58.99	9.38	56.2	0.6
mar	7	59.05	9.39	56.4	0.2
mar	13	59.06	9.39	57.0	23.8
mar	19	59.09	9.37	57.3	23.4
mar	25	59.06	9.34	58.0	23.0
mar	31	59.05	9.29	58.6	22.6
abr	6	59.02	9.23	59.3	22.3
abr	12	58.98	9.15	59.9	21.9
abr	18	58.94	9.07	60.6	21.5
abr	24	58.85	8.97	61.4	21.1
abr	30	58.81	8.87	62.0	20.7
may	6	58.72	8.76	62.7	20.3
may	12	58.67	8.63	63.2	19.9
may	18	58.58	8.51	63.9	19.5
may	24	58.50	8.38	64.4	19.1
may	30	58.43	8.25	64.9	18.7
jun	5	58.34	8.11	65.4	18.3
jun	11	58.29	7.98	65.7	17.9
jun	17	58.19	7.85	66.2	17.5
jun	23	58.14	7.72	66.3	17.1
jun	29	58.06	7.60	66.6	16.7
jul	5	58.02	7.47	66.6	16.3
jul	11	57.95	7.36	66.8	15.9
jul	17	57.89	7.25	66.7	15.5
jul	23	57.86	7.16	66.6	15.2
jul	29	57.81	7.07	66.5	14.8
ago	4	57.80	6.99	66.2	14.4
ago	10	57.75	6.92	66.0	14.0
ago	16	57.75	6.87	65.5	13.6
ago	22	57.74	6.82	65.2	13.2
ago	28	57.75	6.79	64.5	12.8
sep	3	57.76	6.77	64.0	12.4
sep	9	57.77	6.76	63.3	12.0
sep	15	57.83	6.77	62.5	11.6
sep	21	57.86	6.79	61.7	11.2
sep	27	57.94	6.83	60.6	10.8
oct	3	58.00	6.88	59.8	10.4
oct	9	58.10	6.93	58.7	10.0
oct	15	58.20	7.01	57.6	9.6
oct	21	58.32	7.09	56.3	9.2
oct	27	58.46	7.19	55.1	8.8
nov	2	58.59	7.29	53.9	8.5
nov	8	58.77	7.41	52.5	8.1
nov	14	58.92	7.53	51.3	7.7
nov	20	59.13	7.66	49.8	7.3
nov	26	59.30	7.80	48.7	6.9
dic	2	59.50	7.94	47.3	6.5
dic	8	59.71	8.09	46.1	6.1
dic	14	59.91	8.23	44.9	5.7
dic	20	60.13	8.37	43.7	5.3
dic	26	60.31	8.51	42.7	4.9

β VIR

3.6 F9 V

α = h m 11 51 | α_c = h m 11 50 | δ = ° ′ +01 40

mes	d	s	s	″	h
ene	1	31.94	42.80	26.2	5.2
ene	7	32.12	42.93	25.0	4.8
ene	13	32.32	43.05	23.7	4.4
ene	19	32.48	43.17	22.7	4.0
ene	25	32.67	43.28	21.5	3.6
ene	31	32.79	43.38	20.7	3.2
feb	6	32.95	43.48	19.7	2.8
feb	12	33.07	43.56	19.0	2.4
feb	18	33.18	43.63	18.2	2.0
feb	24	33.28	43.69	17.7	1.6
mar	1	33.34	43.73	17.3	1.2
mar	7	33.42	43.77	16.8	0.8
mar	13	33.45	43.78	16.6	0.4
mar	19	33.50	43.79	16.3	0.0
mar	25	33.50	43.78	16.4	23.7
mar	31	33.51	43.76	16.3	23.3
abr	6	33.51	43.72	16.4	22.9
abr	12	33.49	43.67	16.5	22.5
abr	18	33.48	43.61	16.6	22.1
abr	24	33.42	43.54	17.0	21.7
abr	30	33.40	43.46	17.2	21.3
may	6	33.33	43.37	17.6	20.9
may	12	33.31	43.27	17.8	20.5
may	18	33.23	43.16	18.3	20.1
may	24	33.17	43.05	18.7	19.7
may	30	33.12	42.94	19.0	19.3
jun	5	33.05	42.82	19.5	18.9
jun	11	33.00	42.69	19.8	18.5
jun	17	32.91	42.57	20.4	18.1
jun	23	32.86	42.44	20.7	17.7
jun	29	32.78	42.32	21.2	17.3
jul	5	32.74	42.20	21.5	16.9
jul	11	32.67	42.08	21.9	16.6
jul	17	32.61	41.97	22.3	16.2
jul	23	32.57	41.86	22.6	15.8
jul	29	32.50	41.76	23.0	15.4
ago	4	32.48	41.67	23.2	15.0
ago	10	32.41	41.59	23.6	14.6
ago	16	32.40	41.51	23.6	14.2
ago	22	32.36	41.45	23.9	13.8
ago	28	32.35	41.40	23.9	13.4
sep	3	32.34	41.36	24.0	13.0
sep	9	32.33	41.33	24.0	12.6
sep	15	32.37	41.32	23.8	12.2
sep	21	32.35	41.29	24.0	11.8
sep	27	32.43	41.31	23.3	11.4
oct	3	32.46	41.34	23.1	11.0
oct	9	32.53	41.37	22.5	10.6
oct	15	32.61	41.42	22.0	10.2
oct	21	32.71	41.49	21.3	9.9
oct	27	32.83	41.56	20.6	9.5
nov	2	32.93	41.64	19.8	9.1
nov	8	33.09	41.74	18.8	8.7
nov	14	33.22	41.84	17.9	8.3
nov	20	33.42	41.95	16.6	7.9
nov	26	33.57	42.07	15.6	7.5
dic	2	33.76	42.20	14.4	7.1
dic	8	33.95	42.33	13.1	6.7
dic	14	34.14	42.46	11.9	6.3
dic	20	34.35	42.60	10.5	5.9
dic	26	34.53	42.73	9.3	5.5

Posiciones aparentes de estrellas brillantes, 2016

γ UMA

2.41 A0 VE

α α_c δ

h m h m ° ′

11 54 11 53 +53 35

mes	d	s	s	″	h	hp
ene	1	39.47	50.32	63.6	5.2	
ene	7	39.73	50.54	63.2	4.8	
ene	13	40.04	50.77	62.8	4.4	
ene	19	40.28	50.97	62.9	4.0	
ene	25	40.56	51.17	62.9	3.6	
ene	31	40.77	51.36	63.5	3.3	
feb	6	40.99	51.52	64.0	2.9	
feb	12	41.20	51.69	64.8	2.5	
feb	18	41.36	51.81	65.6	2.1	
feb	24	41.52	51.93	66.7	1.7	
mar	1	41.61	52.01	68.0	1.3	
mar	7	41.73	52.07	69.2	0.9	
mar	13	41.78	52.11	70.8	0.5	
mar	19	41.84	52.12	72.2	0.1	
mar	25	41.84	52.11	73.8	23.7	
mar	31	41.83	52.07	75.4	23.3	
abr	6	41.81	52.02	76.9	22.9	
abr	12	41.75	51.92	78.5	22.5	
abr	18	41.69	51.83	79.9	22.1	
abr	24	41.58	51.69	81.5	21.7	
abr	30	41.49	51.55	82.7	21.3	
may	6	41.36	51.40	84.1	20.9	
may	12	41.25	51.21	85.0	20.5	
may	18	41.11	51.04	86.2	20.2	
may	24	40.95	50.83	87.0	19.8	
may	30	40.83	50.64	87.7	19.4	
jun	5	40.66	50.42	88.3	19.0	
jun	11	40.53	50.22	88.6	18.6	
jun	17	40.35	50.01	89.0	18.2	
jun	23	40.22	49.80	88.9	17.8	
jun	29	40.06	49.60	89.0	17.4	
jul	5	39.93	49.39	88.6	17.0	
jul	11	39.80	49.21	88.3	16.6	
jul	17	39.65	49.01	87.7	16.2	
jul	23	39.55	48.85	86.9	15.8	
jul	29	39.42	48.68	86.2	15.4	
ago	4	39.35	48.54	85.0	15.0	
ago	10	39.23	48.40	84.0	14.6	
ago	16	39.17	48.28	82.7	14.2	
ago	22	39.10	48.19	81.4	13.8	
ago	28	39.05	48.09	79.8	13.5	
sep	3	39.03	48.04	78.2	13.1	
sep	9	38.99	47.98	76.6	12.7	
sep	15	39.02	47.97	74.8	12.3	
sep	21	39.02	47.95	73.0	11.9	
sep	27	39.09	47.97	71.0	11.5	
oct	3	39.12	48.00	69.2	11.1	
oct	9	39.21	48.05	67.2	10.7	
oct	15	39.32	48.14	65.3	10.3	
oct	21	39.44	48.21	63.2	9.9	
oct	27	39.61	48.34	61.3	9.5	
nov	2	39.75	48.46	59.4	9.1	
nov	8	39.97	48.61	57.4	8.7	
nov	14	40.16	48.77	55.8	8.3	
nov	20	40.42	48.95	53.9	7.9	
nov	26	40.65	49.15	52.4	7.5	
dic	2	40.90	49.34	50.8	7.1	
dic	8	41.19	49.57	49.5	6.7	
dic	14	41.46	49.77	48.3	6.4	
dic	20	41.77	50.01	47.2	6.0	
dic	26	42.04	50.23	46.5	5.6	

88 G CEN

5.25 F6 V

α α_c δ

h m h m ° ′

12 04 12 03 -42 31

mes	d	s	s	″	h	hp
ene	1	30.40	41.25	11.6	5.4	
ene	7	30.63	41.44	12.9	5.0	
ene	13	30.87	41.60	14.4	4.6	
ene	19	31.07	41.76	15.9	4.2	
ene	25	31.30	41.91	17.7	3.8	
ene	31	31.46	42.05	19.2	3.4	
feb	6	31.65	42.18	21.1	3.0	
feb	12	31.79	42.28	22.9	2.6	
feb	18	31.94	42.39	24.7	2.2	
feb	24	32.05	42.46	26.5	1.8	
mar	1	32.14	42.53	28.2	1.4	
mar	7	32.24	42.58	30.1	1.0	
mar	13	32.28	42.61	31.7	0.7	
mar	19	32.35	42.63	33.5	0.3	
mar	25	32.35	42.62	35.0	23.9	
mar	31	32.37	42.61	36.5	23.5	
abr	6	32.36	42.57	38.0	23.1	
abr	12	32.35	42.53	39.4	22.7	
abr	18	32.32	42.45	40.7	22.3	
abr	24	32.26	42.38	41.7	21.9	
abr	30	32.22	42.28	42.8	21.5	
may	6	32.14	42.17	43.6	21.1	
may	12	32.09	42.05	44.5	20.7	
may	18	31.99	41.92	45.1	20.3	
may	24	31.91	41.78	45.6	19.9	
may	30	31.81	41.63	46.0	19.5	
jun	5	31.71	41.48	46.2	19.1	
jun	11	31.62	41.31	46.4	18.7	
jun	17	31.49	41.14	46.3	18.3	
jun	23	31.40	40.98	46.2	18.0	
jun	29	31.27	40.80	45.8	17.6	
jul	5	31.18	40.64	45.5	17.2	
jul	11	31.05	40.46	44.9	16.8	
jul	17	30.95	40.31	44.1	16.4	
jul	23	30.85	40.14	43.4	16.0	
jul	29	30.74	40.00	42.4	15.6	
ago	4	30.66	39.85	41.5	15.2	
ago	10	30.55	39.72	40.3	14.8	
ago	16	30.50	39.61	39.2	14.4	
ago	22	30.41	39.50	37.9	14.0	
ago	28	30.38	39.42	36.7	13.6	
sep	3	30.32	39.34	35.4	13.2	
sep	9	30.30	39.29	34.0	12.8	
sep	15	30.30	39.25	32.8	12.4	
sep	21	30.30	39.23	31.4	12.0	
sep	27	30.35	39.23	30.3	11.6	
oct	3	30.37	39.25	29.0	11.3	
oct	9	30.46	39.30	28.0	10.9	
oct	15	30.53	39.35	27.1	10.5	
oct	21	30.67	39.43	26.3	10.1	
oct	27	30.79	39.52	25.6	9.7	
nov	2	30.93	39.64	25.0	9.3	
nov	8	31.12	39.76	24.8	8.9	
nov	14	31.29	39.90	24.4	8.5	
nov	20	31.52	40.05	24.6	8.1	
nov	26	31.71	40.21	24.7	7.7	
dic	2	31.95	40.39	25.1	7.3	
dic	8	32.18	40.56	25.7	6.9	
dic	14	32.43	40.75	26.4	6.5	
dic	20	32.68	40.92	27.4	6.1	
dic	26	32.91	41.11	28.3	5.7	

o VIR

4.12 G8 III

α α_c δ

h m h m ° ′

12 06 12 05 +08 38

mes	d	s	s	″	h	hp
ene	1	1.46	12.32	35.2	5.4	
ene	7	1.64	12.45	34.1	5.0	
ene	13	1.85	12.58	32.9	4.6	
ene	19	2.01	12.70	32.0	4.2	
ene	25	2.20	12.82	30.9	3.8	
ene	31	2.34	12.93	30.3	3.4	
feb	6	2.50	13.03	29.5	3.0	
feb	12	2.63	13.12	28.9	2.7	
feb	18	2.75	13.20	28.4	2.3	
feb	24	2.86	13.27	28.1	1.9	
mar	1	2.92	13.32	27.9	1.5	
mar	7	3.02	13.36	27.7	1.1	
mar	13	3.05	13.39	27.8	0.7	
mar	19	3.12	13.40	27.7	0.3	
mar	25	3.12	13.40	28.0	23.9	
mar	31	3.14	13.39	28.2	23.5	
abr	6	3.15	13.36	28.5	23.1	
abr	12	3.14	13.32	28.9	22.7	
abr	18	3.13	13.26	29.3	22.3	
abr	24	3.08	13.20	29.9	21.9	
abr	30	3.06	13.12	30.2	21.5	
may	6	3.00	13.03	30.9	21.1	
may	12	2.97	12.94	31.2	20.7	
may	18	2.90	12.83	31.9	20.3	
may	24	2.84	12.72	32.4	19.9	
may	30	2.79	12.61	32.9	19.6	
jun	5	2.72	12.49	33.5	19.2	
jun	11	2.67	12.36	33.8	18.8	
jun	17	2.58	12.24	34.4	18.4	
jun	23	2.53	12.11	34.7	18.0	
jun	29	2.45	11.98	35.2	17.6	
jul	5	2.40	11.86	35.5	17.2	
jul	11	2.32	11.74	35.9	16.8	
jul	17	2.26	11.62	36.2	16.4	
jul	23	2.21	11.51	36.3	16.0	
jul	29	2.14	11.40	36.6	15.6	
ago	4	2.11	11.30	36.6	15.2	
ago	10	2.03	11.21	36.8	14.8	
ago	16	2.01	11.13	36.7	14.4	
ago	22	1.96	11.06	36.7	14.0	
ago	28	1.95	10.99	36.5	13.6	
sep	3	1.93	10.94	36.3	13.2	
sep	9	1.91	10.90	36.2	12.9	
sep	15	1.93	10.88	35.7	12.5	
sep	21	1.92	10.86	35.4	12.1	
sep	27	1.97	10.86	34.7	11.7	
oct	3	1.99	10.87	34.3	11.3	
oct	9	2.06	10.90	33.5	10.9	
oct	15	2.12	10.94	32.7	10.5	
oct	21	2.22	10.99	31.8	10.1	
oct	27	2.32	11.06	30.8	9.7	
nov	2	2.42	11.13	29.9	9.3	
nov	8	2.57	11.22	28.7	8.9	
nov	14	2.70	11.32	27.6	8.5	
nov	20	2.88	11.42	26.2	8.1	
nov	26	3.03	11.54	25.1	7.7	
dic	2	3.22	11.66	23.8	7.3	
dic	8	3.40	11.79	22.5	6.9	
dic	14	3.60	11.92	21.2	6.5	
dic	20	3.81	12.05	19.8	6.2	
dic	26	3.98	12.18	18.6	5.8	

Posiciones aparentes de estrellas brillantes, 2016

δ UMA

3.31 A3 V

α α_c δ

h m h m ° ′

12 16 12 15 +56 56 hp

mes	d	s	s	“	h
ene	1	11.88	22.74	20.6	5.6
ene	7	12.16	22.97	20.1	5.2
ene	13	12.50	23.22	19.6	4.8
ene	19	12.76	23.45	19.6	4.4
ene	25	13.07	23.68	19.6	4.0
ene	31	13.31	23.90	20.0	3.6
feb	6	13.56	24.09	20.5	3.2
feb	12	13.80	24.29	21.2	2.8
feb	18	13.99	24.43	22.1	2.4
feb	24	14.18	24.59	23.2	2.0
mar	1	14.30	24.69	24.5	1.6
mar	7	14.45	24.79	25.7	1.2
mar	13	14.52	24.85	27.4	0.9
mar	19	14.60	24.88	28.8	0.5
mar	25	14.63	24.90	30.5	0.1
mar	31	14.63	24.87	32.1	23.7
abr	6	14.63	24.84	33.8	23.3
abr	12	14.58	24.75	35.4	22.9
abr	18	14.54	24.67	37.0	22.5
abr	24	14.43	24.54	38.7	22.1
abr	30	14.35	24.41	40.0	21.7
may	6	14.22	24.25	41.5	21.3
may	12	14.11	24.07	42.6	20.9
may	18	13.96	23.89	43.9	20.5
may	24	13.79	23.67	44.9	20.1
may	30	13.66	23.47	45.7	19.7
jun	5	13.47	23.24	46.5	19.3
jun	11	13.33	23.02	46.9	18.9
jun	17	13.13	22.78	47.4	18.5
jun	23	12.98	22.55	47.4	18.1
jun	29	12.80	22.33	47.6	17.8
jul	5	12.64	22.09	47.3	17.4
jul	11	12.48	21.89	47.0	17.0
jul	17	12.30	21.66	46.5	16.6
jul	23	12.18	21.48	45.8	16.2
jul	29	12.02	21.27	45.1	15.8
ago	4	11.91	21.10	44.0	15.4
ago	10	11.77	20.94	43.0	15.0
ago	16	11.67	20.78	41.6	14.6
ago	22	11.58	20.67	40.3	14.2
ago	28	11.50	20.54	38.7	13.8
sep	3	11.45	20.46	37.1	13.4
sep	9	11.38	20.37	35.5	13.0
sep	15	11.38	20.33	33.6	12.6
sep	21	11.35	20.29	31.8	12.2
sep	27	11.39	20.28	29.7	11.8
oct	3	11.41	20.29	27.8	11.4
oct	9	11.48	20.31	25.7	11.1
oct	15	11.57	20.38	23.7	10.7
oct	21	11.67	20.44	21.6	10.3
oct	27	11.82	20.55	19.5	9.9
nov	2	11.96	20.66	17.5	9.5
nov	8	12.16	20.81	15.4	9.1
nov	14	12.35	20.97	13.6	8.7
nov	20	12.60	21.14	11.6	8.3
nov	26	12.84	21.34	10.0	7.9
dic	2	13.10	21.53	8.4	7.5
dic	8	13.39	21.77	6.9	7.1
dic	14	13.67	21.98	5.6	6.7
dic	20	14.00	22.24	4.4	6.3
dic	26	14.28	22.47	3.5	5.9

γ CRU

1.63 M3.5 III

α α_c δ

h m h m ° ′

12 32 12 31 -57 11 hp

mes	d	s	s	“	h
ene	1	4.77	15.62	51.0	5.8
ene	7	5.07	15.88	52.0	5.5
ene	13	5.38	16.12	53.3	5.1
ene	19	5.66	16.35	54.6	4.7
ene	25	5.95	16.57	56.2	4.3
ene	31	6.18	16.77	57.7	3.9
feb	6	6.45	16.98	59.5	3.5
feb	12	6.64	17.14	61.4	3.1
feb	18	6.86	17.31	63.3	2.7
feb	24	7.02	17.44	65.3	2.3
mar	1	7.17	17.56	67.1	1.9
mar	7	7.31	17.66	69.2	1.5
mar	13	7.40	17.73	71.1	1.1
mar	19	7.51	17.79	73.2	0.7
mar	25	7.53	17.81	75.1	0.3
mar	31	7.59	17.83	77.0	23.9
abr	6	7.59	17.81	78.9	23.5
abr	12	7.61	17.79	80.6	23.1
abr	18	7.58	17.71	82.4	22.7
abr	24	7.52	17.64	83.8	22.4
abr	30	7.48	17.55	85.4	22.0
may	6	7.38	17.42	86.7	21.6
may	12	7.33	17.29	88.1	21.2
may	18	7.19	17.13	89.1	20.8
may	24	7.09	16.97	90.1	20.4
may	30	6.95	16.77	91.0	20.0
jun	5	6.82	16.59	91.6	19.6
jun	11	6.68	16.37	92.2	19.2
jun	17	6.50	16.16	92.4	18.8
jun	23	6.36	15.94	92.7	18.4
jun	29	6.16	15.70	92.7	18.0
jul	5	6.02	15.48	92.7	17.6
jul	11	5.82	15.24	92.3	17.2
jul	17	5.66	15.02	91.7	16.8
jul	23	5.49	14.79	91.2	16.4
jul	29	5.31	14.58	90.3	16.0
ago	4	5.17	14.36	89.5	15.7
ago	10	4.99	14.16	88.3	15.3
ago	16	4.88	13.99	87.2	14.9
ago	22	4.72	13.81	85.9	14.5
ago	28	4.64	13.68	84.6	14.1
sep	3	4.52	13.54	83.1	13.7
sep	9	4.45	13.45	81.5	13.3
sep	15	4.41	13.36	80.1	12.9
sep	21	4.37	13.31	78.4	12.5
sep	27	4.40	13.28	77.0	12.1
oct	3	4.39	13.28	75.3	11.7
oct	9	4.47	13.32	73.9	11.3
oct	15	4.54	13.35	72.5	10.9
oct	21	4.68	13.45	71.2	10.5
oct	27	4.80	13.54	70.1	10.1
nov	2	4.97	13.68	68.9	9.7
nov	8	5.18	13.83	68.2	9.3
nov	14	5.38	14.00	67.4	8.9
nov	20	5.66	14.20	67.1	8.6
nov	26	5.89	14.40	66.6	8.2
dic	2	6.19	14.63	66.5	7.8
dic	8	6.47	14.85	66.6	7.4
dic	14	6.79	15.11	66.9	7.0
dic	20	7.10	15.34	67.5	6.6
dic	26	7.40	15.60	68.1	6.2

150 G CEN

4.25 A7 III

α α_c δ

h m h m ° ′

12 54 12 53 -40 15 hp

mes	d	s	s	“	h
ene	1	20.05	30.90	41.2	6.2
ene	7	20.28	31.09	42.1	5.8
ene	13	20.53	31.26	43.5	5.4
ene	19	20.75	31.44	44.6	5.0
ene	25	20.99	31.60	46.2	4.6
ene	31	21.17	31.76	47.5	4.2
feb	6	21.39	31.92	49.1	3.9
feb	12	21.56	32.05	50.7	3.5
feb	18	21.74	32.19	52.3	3.1
feb	24	21.88	32.29	53.9	2.7
mar	1	22.01	32.40	55.4	2.3
mar	7	22.14	32.49	57.2	1.9
mar	13	22.23	32.56	58.6	1.5
mar	19	22.34	32.62	60.3	1.1
mar	25	22.38	32.65	61.7	0.7
mar	31	22.44	32.68	63.1	0.3
abr	6	22.47	32.68	64.6	23.9
abr	12	22.51	32.68	65.9	23.5
abr	18	22.52	32.65	67.2	23.1
abr	24	22.50	32.61	68.2	22.7
abr	30	22.50	32.56	69.4	22.3
may	6	22.45	32.49	70.2	21.9
may	12	22.45	32.41	71.3	21.5
may	18	22.37	32.30	71.9	21.1
may	24	22.32	32.20	72.5	20.8
may	30	22.26	32.07	73.2	20.4
jun	5	22.18	31.95	73.5	20.0
jun	11	22.11	31.80	74.0	19.6
jun	17	22.00	31.66	74.0	19.2
jun	23	21.93	31.51	74.1	18.8
jun	29	21.81	31.34	74.0	18.4
jul	5	21.73	31.19	73.9	18.0
jul	11	21.60	31.01	73.6	17.6
jul	17	21.50	30.86	73.1	17.2
jul	23	21.40	30.69	72.6	16.8
jul	29	21.28	30.54	71.9	16.4
ago	4	21.19	30.38	71.3	16.0
ago	10	21.06	30.23	70.3	15.6
ago	16	20.99	30.10	69.4	15.2
ago	22	20.88	29.97	68.4	14.8
ago	28	20.82	29.86	67.4	14.4
sep	3	20.74	29.75	66.3	14.1
sep	9	20.68	29.67	65.0	13.7
sep	15	20.65	29.59	64.0	13.3
sep	21	20.60	29.54	62.8	12.9
sep	27	20.62	29.50	61.8	12.5
oct	3	20.60	29.48	60.5	12.1
oct	9	20.65	29.49	59.6	11.7
oct	15	20.69	29.50	58.6	11.3
oct	21	20.78	29.55	57.8	10.9
oct	27	20.86	29.59	57.1	10.5
nov	2	20.97	29.67	56.3	10.1
nov	8	21.12	29.77	55.9	9.7
nov	14	21.26	29.87	55.5	9.3
nov	20	21.46	30.00	55.5	8.9
nov	26	21.63	30.13	55.3	8.5
dic	2	21.85	30.29	55.5	8.1
dic	8	22.06	30.44	55.8	7.7
dic	14	22.29	30.61	56.3	7.4
dic	20	22.53	30.77	57.1	7.0
dic	26	22.76	30.95	57.7	6.6

Posiciones aparentes de estrellas brillantes, 2016

ε VIR					
		2.81		G8	
		α	α_c	δ	
		h m	h m	° ′	
		13 02	13 02	+10 52	hp
mes	d	s	s	″	h
ene	1	58.05	8.91	22.1	6.4
ene	7	58.24	9.04	21.0	6.0
ene	13	58.45	9.18	19.7	5.6
ene	19	58.63	9.32	18.8	5.2
ene	25	58.83	9.45	17.6	4.8
ene	31	58.99	9.58	16.9	4.4
feb	6	59.17	9.70	16.1	4.0
feb	12	59.32	9.82	15.5	3.6
feb	18	59.47	9.92	15.0	3.2
feb	24	59.61	10.02	14.6	2.8
mar	1	59.71	10.10	14.6	2.4
mar	7	59.83	10.18	14.3	2.0
mar	13	59.90	10.24	14.5	1.6
mar	19	60.00	10.28	14.5	1.2
mar	25	60.04	10.32	14.8	0.8
mar	31	60.10	10.34	15.2	0.4
abr	6	60.14	10.34	15.5	0.1
abr	12	60.16	10.33	16.0	23.7
abr	18	60.18	10.31	16.5	23.3
abr	24	60.16	10.28	17.3	22.9
abr	30	60.17	10.23	17.8	22.5
may	6	60.14	10.17	18.5	22.1
may	12	60.14	10.10	19.1	21.7
may	18	60.09	10.02	19.8	21.3
may	24	60.05	9.92	20.5	20.9
may	30	60.01	9.83	21.1	20.5
jun	5	59.95	9.72	21.8	20.1
jun	11	59.91	9.60	22.3	19.7
jun	17	59.83	9.48	23.0	19.3
jun	23	59.78	9.36	23.4	18.9
jun	29	59.70	9.23	24.0	18.5
jul	5	59.65	9.10	24.3	18.1
jul	11	59.57	8.98	24.7	17.7
jul	17	59.49	8.85	25.1	17.3
jul	23	59.43	8.72	25.2	17.0
jul	29	59.34	8.60	25.6	16.6
ago	4	59.29	8.48	25.5	16.2
ago	10	59.19	8.37	25.8	15.8
ago	16	59.14	8.26	25.7	15.4
ago	22	59.07	8.16	25.6	15.0
ago	28	59.03	8.07	25.4	14.6
sep	3	58.97	7.99	25.2	14.2
sep	9	58.92	7.91	24.9	13.8
sep	15	58.91	7.86	24.4	13.4
sep	21	58.87	7.81	24.0	13.0
sep	27	58.89	7.77	23.3	12.6
oct	3	58.87	7.75	22.8	12.2
oct	9	58.90	7.74	22.0	11.8
oct	15	58.93	7.74	21.1	11.4
oct	21	58.99	7.76	20.1	11.0
oct	27	59.06	7.79	19.1	10.6
nov	2	59.12	7.83	18.1	10.3
nov	8	59.24	7.89	16.8	9.9
nov	14	59.34	7.96	15.7	9.5
nov	20	59.50	8.04	14.2	9.1
nov	26	59.63	8.13	13.0	8.7
dic	2	59.79	8.23	11.6	8.3
dic	8	59.97	8.35	10.1	7.9
dic	14	60.15	8.46	8.8	7.5
dic	20	60.35	8.59	7.3	7.1
dic	26	60.52	8.72	6.1	6.7

β COM					
		4.26		G0	
		a	a_c	d	
		h m	h m	° ′	
		13 12	13 11	+27 47	hp
mes	d	s	s	″	h
ene	1	36.52	47.37	43.2	6.5
ene	7	36.71	47.52	42.1	6.1
ene	13	36.94	47.67	40.9	5.7
ene	19	37.13	47.82	40.2	5.3
ene	25	37.35	47.96	39.3	4.9
ene	31	37.52	48.11	38.8	4.6
feb	6	37.72	48.25	38.4	4.2
feb	12	37.89	48.38	38.1	3.8
feb	18	38.05	48.50	38.1	3.4
feb	24	38.20	48.61	38.2	3.0
mar	1	38.32	48.71	38.6	2.6
mar	7	38.46	48.80	38.9	2.2
mar	13	38.54	48.87	39.6	1.8
mar	19	38.64	48.92	40.2	1.4
mar	25	38.70	48.97	41.1	1.0
mar	31	38.75	48.99	42.0	0.6
abr	6	38.80	49.01	43.0	0.2
abr	12	38.82	48.99	44.1	23.8
abr	18	38.84	48.98	45.1	23.4
abr	24	38.82	48.94	46.4	23.0
abr	30	38.83	48.88	47.4	22.6
may	6	38.79	48.82	48.7	22.2
may	12	38.78	48.74	49.6	21.8
may	18	38.72	48.65	50.8	21.5
may	24	38.67	48.54	51.9	21.1
may	30	38.62	48.44	52.8	20.7
jun	5	38.54	48.31	53.8	20.3
jun	11	38.49	48.18	54.5	19.9
jun	17	38.40	48.05	55.4	19.5
jun	23	38.33	47.91	55.9	19.1
jun	29	38.24	47.77	56.5	18.7
jul	5	38.17	47.62	56.9	18.3
jul	11	38.07	47.48	57.2	17.9
jul	17	37.97	47.33	57.5	17.5
jul	23	37.90	47.19	57.5	17.1
jul	29	37.79	47.05	57.6	16.7
ago	4	37.73	46.92	57.3	16.3
ago	10	37.62	46.79	57.2	15.9
ago	16	37.55	46.67	56.8	15.5
ago	22	37.47	46.56	56.3	15.1
ago	28	37.41	46.44	55.7	14.8
sep	3	37.34	46.35	55.0	14.4
sep	9	37.27	46.27	54.3	14.0
sep	15	37.25	46.20	53.2	13.6
sep	21	37.20	46.13	52.4	13.2
sep	27	37.20	46.08	51.1	12.8
oct	3	37.17	46.05	50.0	12.4
oct	9	37.19	46.03	48.6	12.0
oct	15	37.22	46.03	47.2	11.6
oct	21	37.26	46.03	45.8	11.2
oct	27	37.33	46.06	44.2	10.8
nov	2	37.39	46.10	42.7	10.4
nov	8	37.51	46.15	40.9	10.0
nov	14	37.60	46.22	39.4	9.6
nov	20	37.76	46.30	37.5	9.2
nov	26	37.89	46.39	36.0	8.8
dic	2	38.06	46.49	34.3	8.4
dic	8	38.24	46.61	32.6	8.0
dic	14	38.42	46.73	31.1	7.7
dic	20	38.63	46.87	29.5	7.3
dic	26	38.81	47.01	28.2	6.9

ι CEN					
		2.76		A2	
		α	α_c	δ	
		h m	h m	° ′	
		13 21	13 20	-36 47	hp
mes	d	s	s	″	h
ene	1	30.16	41.02	31.7	6.7
ene	7	30.38	41.19	32.5	6.3
ene	13	30.63	41.36	33.7	5.9
ene	19	30.84	41.53	34.8	5.5
ene	25	31.08	41.70	36.2	5.1
ene	31	31.26	41.85	37.4	4.7
feb	6	31.48	42.02	38.8	4.3
feb	12	31.66	42.16	40.2	3.9
feb	18	31.85	42.30	41.6	3.5
feb	24	32.01	42.42	43.2	3.1
mar	1	32.14	42.54	44.5	2.7
mar	7	32.29	42.64	46.1	2.3
mar	13	32.39	42.73	47.4	1.9
mar	19	32.52	42.80	48.9	1.5
mar	25	32.58	42.86	50.2	1.2
mar	31	32.66	42.91	51.4	0.8
abr	6	32.72	42.93	52.8	0.4
abr	12	32.77	42.95	53.9	24.0
abr	18	32.80	42.94	55.1	23.6
abr	24	32.80	42.92	56.0	23.2
abr	30	32.83	42.89	57.1	22.8
may	6	32.80	42.84	57.9	22.4
may	12	32.82	42.78	58.9	22.0
may	18	32.76	42.70	59.5	21.6
may	24	32.73	42.61	60.1	21.2
may	30	32.69	42.51	60.7	20.8
jun	5	32.63	42.40	61.1	20.4
jun	11	32.58	42.27	61.6	20.0
jun	17	32.48	42.14	61.6	19.6
jun	23	32.42	42.00	61.8	19.2
jun	29	32.31	41.85	61.8	18.8
jul	5	32.25	41.71	61.8	18.4
jul	11	32.13	41.54	61.6	18.1
jul	17	32.03	41.39	61.2	17.7
jul	23	31.93	41.23	60.9	17.3
jul	29	31.82	41.08	60.3	16.9
ago	4	31.73	40.93	59.8	16.5
ago	10	31.60	40.78	59.0	16.1
ago	16	31.52	40.64	58.3	15.7
ago	22	31.41	40.50	57.4	15.3
ago	28	31.34	40.38	56.6	14.9
sep	3	31.25	40.26	55.6	14.5
sep	9	31.17	40.17	54.5	14.1
sep	15	31.13	40.08	53.7	13.7
sep	21	31.07	40.01	52.5	13.3
sep	27	31.07	39.96	51.7	12.9
oct	3	31.04	39.92	50.6	12.5
oct	9	31.06	39.90	49.7	12.1
oct	15	31.08	39.90	48.9	11.7
oct	21	31.15	39.92	48.1	11.4
oct	27	31.21	39.95	47.5	11.0
nov	2	31.29	40.00	46.7	10.6
nov	8	31.42	40.07	46.4	10.2
nov	14	31.54	40.16	46.0	9.8
nov	20	31.72	40.26	46.0	9.4
nov	26	31.87	40.37	45.8	9.0
dic	2	32.07	40.51	45.9	8.6
dic	8	32.26	40.64	46.2	8.2
dic	14	32.48	40.80	46.6	7.8
dic	20	32.71	40.95	47.3	7.4
dic	26	32.91	41.12	47.9	7.0

Posiciones aparentes de estrellas brillantes, 2016

ζ VIR

3.35 A3

α α_c δ

h m h m ° ′

13 35 13 34 -00 40 hp

mes	d	s	s	″	h
ene	1	30.20	41.05	34.6	6.9
ene	7	30.38	41.18	35.7	6.5
ene	13	30.59	41.32	37.0	6.1
ene	19	30.77	41.45	38.1	5.7
ene	25	30.98	41.59	39.3	5.3
ene	31	31.13	41.72	40.2	4.9
feb	6	31.32	41.85	41.2	4.5
feb	12	31.48	41.97	42.1	4.1
feb	18	31.64	42.09	42.9	3.7
feb	24	31.79	42.20	43.6	3.4
mar	1	31.90	42.29	44.0	3.0
mar	7	32.04	42.38	44.6	2.6
mar	13	32.13	42.46	44.9	2.2
mar	19	32.25	42.53	45.3	1.8
mar	25	32.30	42.58	45.3	1.4
mar	31	32.38	42.62	45.4	1.0
abr	6	32.44	42.65	45.4	0.6
abr	12	32.48	42.66	45.3	0.2
abr	18	32.53	42.66	45.2	23.8
abr	24	32.53	42.65	44.8	23.4
abr	30	32.56	42.62	44.7	23.0
may	6	32.55	42.58	44.2	22.6
may	12	32.57	42.53	44.0	22.2
may	18	32.54	42.47	43.5	21.8
may	24	32.52	42.39	43.1	21.4
may	30	32.49	42.31	42.7	21.0
jun	5	32.45	42.22	42.2	20.7
jun	11	32.43	42.12	41.9	20.3
jun	17	32.35	42.01	41.3	19.9
jun	23	32.32	41.89	40.9	19.5
jun	29	32.24	41.78	40.4	19.1
jul	5	32.20	41.65	40.1	18.7
jul	11	32.12	41.53	39.6	18.3
jul	17	32.04	41.40	39.2	17.9
jul	23	31.98	41.27	38.9	17.5
jul	29	31.89	41.15	38.5	17.1
ago	4	31.83	41.02	38.3	16.7
ago	10	31.73	40.90	37.9	16.3
ago	16	31.67	40.79	37.7	15.9
ago	22	31.59	40.68	37.5	15.5
ago	28	31.53	40.57	37.4	15.1
sep	3	31.46	40.48	37.3	14.7
sep	9	31.40	40.39	37.2	14.3
sep	15	31.37	40.31	37.3	14.0
sep	21	31.31	40.25	37.3	13.6
sep	27	31.31	40.20	37.6	13.2
oct	3	31.28	40.15	37.7	12.8
oct	9	31.29	40.13	38.1	12.4
oct	15	31.30	40.11	38.5	12.0
oct	21	31.34	40.11	39.0	11.6
oct	27	31.39	40.12	39.7	11.2
nov	2	31.44	40.15	40.3	10.8
nov	8	31.54	40.19	41.2	10.4
nov	14	31.63	40.24	41.9	10.0
nov	20	31.77	40.31	43.1	9.6
nov	26	31.88	40.38	44.0	9.2
dic	2	32.04	40.47	45.1	8.8
dic	8	32.20	40.58	46.3	8.4
dic	14	32.37	40.68	47.4	8.0
dic	20	32.56	40.80	48.8	7.6
dic	26	32.73	40.92	49.9	7.2

89 VIR

4.98 K1

α α_c δ

h m h m ° ′

13 50 13 49 -18 12 hp

mes	d	s	s	″	h
ene	1	44.29	55.15	38.2	7.2
ene	7	44.48	55.29	39.1	6.8
ene	13	44.70	55.43	40.3	6.4
ene	19	44.89	55.58	41.3	6.0
ene	25	45.11	55.72	42.6	5.6
ene	31	45.28	55.86	43.6	5.2
feb	6	45.48	56.01	44.8	4.8
feb	12	45.65	56.14	45.9	4.4
feb	18	45.82	56.27	47.0	4.0
feb	24	45.98	56.38	48.1	3.6
mar	1	46.10	56.50	48.9	3.2
mar	7	46.26	56.60	50.0	2.8
mar	13	46.36	56.69	50.7	2.4
mar	19	46.49	56.77	51.7	2.0
mar	25	46.56	56.83	52.3	1.6
mar	31	46.65	56.89	52.9	1.2
abr	6	46.72	56.93	53.6	0.8
abr	12	46.79	56.96	54.1	0.5
abr	18	46.84	56.97	54.6	0.1
abr	24	46.86	56.97	54.9	23.7
abr	30	46.90	56.96	55.3	23.3
may	6	46.90	56.93	55.5	22.9
may	12	46.93	56.89	55.8	22.5
may	18	46.91	56.84	55.9	22.1
may	24	46.90	56.78	56.0	21.7
may	30	46.88	56.70	56.1	21.3
jun	5	46.85	56.62	56.0	20.9
jun	11	46.83	56.52	56.1	20.5
jun	17	46.76	56.41	55.9	20.1
jun	23	46.73	56.30	55.8	19.7
jun	29	46.65	56.18	55.6	19.3
jul	5	46.61	56.06	55.4	18.9
jul	11	46.52	55.93	55.1	18.5
jul	17	46.44	55.80	54.7	18.1
jul	23	46.37	55.67	54.5	17.8
jul	29	46.27	55.53	54.0	17.4
ago	4	46.21	55.40	53.7	17.0
ago	10	46.10	55.27	53.1	16.6
ago	16	46.03	55.15	52.7	16.2
ago	22	45.93	55.02	52.2	15.8
ago	28	45.87	54.91	51.8	15.4
sep	3	45.79	54.80	51.3	15.0
sep	9	45.71	54.71	50.7	14.6
sep	15	45.67	54.62	50.4	14.2
sep	21	45.61	54.54	49.8	13.8
sep	27	45.60	54.48	49.6	13.4
oct	3	45.55	54.43	49.1	13.0
oct	9	45.55	54.39	48.8	12.6
oct	15	45.56	54.37	48.7	12.2
oct	21	45.60	54.36	48.5	11.8
oct	27	45.63	54.36	48.5	11.4
nov	2	45.68	54.39	48.4	11.1
nov	8	45.78	54.43	48.6	10.7
nov	14	45.86	54.48	48.7	10.3
nov	20	46.01	54.55	49.2	9.9
nov	26	46.12	54.62	49.6	9.5
dic	2	46.28	54.72	50.1	9.1
dic	8	46.44	54.82	50.9	8.7
dic	14	46.62	54.94	51.6	8.3
dic	20	46.82	55.06	52.6	7.9
dic	26	46.99	55.19	53.3	7.5

π HYA

3.27 K2

α α_c δ

h m h m ° ′

14 07 14 06 -26 45 hp

mes	d	s	s	″	h
ene	1	16.83	27.68	18.8	7.4
ene	7	17.03	27.83	19.5	7.0
ene	13	17.26	27.99	20.6	6.6
ene	19	17.45	28.14	21.4	6.2
ene	25	17.69	28.30	22.6	5.9
ene	31	17.86	28.45	23.6	5.5
feb	6	18.08	28.61	24.7	5.1
feb	12	18.26	28.75	25.9	4.7
feb	18	18.45	28.90	27.0	4.3
feb	24	18.62	29.03	28.2	3.9
mar	1	18.76	29.16	29.2	3.5
mar	7	18.93	29.28	30.4	3.1
mar	13	19.05	29.38	31.3	2.7
mar	19	19.20	29.48	32.5	2.3
mar	25	19.28	29.56	33.3	1.9
mar	31	19.39	29.63	34.2	1.5
abr	6	19.48	29.68	35.2	1.1
abr	12	19.56	29.73	35.9	0.7
abr	18	19.62	29.76	36.7	0.3
abr	24	19.65	29.77	37.3	23.9
abr	30	19.71	29.77	38.0	23.5
may	6	19.72	29.75	38.5	23.2
may	12	19.77	29.73	39.1	22.8
may	18	19.75	29.68	39.5	22.4
may	24	19.75	29.63	39.8	22.0
may	30	19.74	29.56	40.3	21.6
jun	5	19.71	29.48	40.4	21.2
jun	11	19.69	29.38	40.8	20.8
jun	17	19.63	29.28	40.7	20.4
jun	23	19.60	29.17	40.9	20.0
jun	29	19.51	29.05	40.9	19.6
jul	5	19.47	28.93	40.8	19.2
jul	11	19.38	28.79	40.7	18.8
jul	17	19.30	28.66	40.4	18.4
jul	23	19.22	28.51	40.3	18.0
jul	29	19.12	28.37	39.8	17.6
ago	4	19.04	28.23	39.6	17.2
ago	10	18.92	28.09	39.0	16.8
ago	16	18.84	27.96	38.6	16.5
ago	22	18.73	27.82	38.0	16.1
ago	28	18.66	27.70	37.5	15.7
sep	3	18.56	27.57	36.9	15.3
sep	9	18.47	27.46	36.1	14.9
sep	15	18.42	27.36	35.6	14.5
sep	21	18.34	27.28	34.9	14.1
sep	27	18.32	27.20	34.4	13.7
oct	3	18.25	27.13	33.7	13.3
oct	9	18.25	27.09	33.1	12.9
oct	15	18.24	27.05	32.6	12.5
oct	21	18.27	27.04	32.1	12.1
oct	27	18.31	27.04	31.9	11.7
nov	2	18.35	27.05	31.4	11.3
nov	8	18.44	27.08	31.3	10.9
nov	14	18.51	27.13	31.1	10.5
nov	20	18.66	27.20	31.2	10.1
nov	26	18.77	27.27	31.3	9.7
dic	2	18.93	27.37	31.5	9.4
dic	8	19.09	27.47	31.9	9.0
dic	14	19.28	27.59	32.3	8.6
dic	20	19.48	27.72	33.1	8.2
dic	26	19.66	27.85	33.6	7.8

Posiciones aparentes de estrellas brillantes, 2016

θ CEN					
		2.06		K0	
		α	α_c	δ	
		h m	h m	° ′	
		14 07	14 06	-36 26	hp
mes	d	s	s	″	h
ene	1	37.45	48.30	37.0	7.4
ene	7	37.67	48.47	37.5	7.0
ene	13	37.92	48.64	38.5	6.6
ene	19	38.13	48.82	39.3	6.3
ene	25	38.38	48.99	40.4	5.9
ene	31	38.57	49.16	41.4	5.5
feb	6	38.81	49.34	42.6	5.1
feb	12	39.00	49.49	43.8	4.7
feb	18	39.21	49.66	45.0	4.3
feb	24	39.39	49.80	46.3	3.9
mar	1	39.55	49.94	47.4	3.5
mar	7	39.73	50.08	48.9	3.1
mar	13	39.86	50.19	50.0	2.7
mar	19	40.02	50.30	51.4	2.3
mar	25	40.11	50.39	52.6	1.9
mar	31	40.23	50.47	53.7	1.5
abr	6	40.32	50.53	55.0	1.1
abr	12	40.41	50.59	56.0	0.7
abr	18	40.48	50.61	57.2	0.3
abr	24	40.51	50.63	58.1	23.9
abr	30	40.58	50.63	59.2	23.6
may	6	40.58	50.61	60.0	23.2
may	12	40.63	50.59	61.0	22.8
may	18	40.61	50.54	61.7	22.4
may	24	40.61	50.48	62.3	22.0
may	30	40.59	50.41	63.1	21.6
jun	5	40.56	50.32	63.5	21.2
jun	11	40.53	50.22	64.1	20.8
jun	17	40.45	50.11	64.3	20.4
jun	23	40.41	49.99	64.7	20.0
jun	29	40.32	49.85	64.9	19.6
jul	5	40.27	49.72	65.0	19.2
jul	11	40.16	49.57	65.0	18.8
jul	17	40.06	49.42	64.8	18.4
jul	23	39.97	49.26	64.8	18.0
jul	29	39.85	49.11	64.4	17.6
ago	4	39.76	48.95	64.2	17.2
ago	10	39.62	48.79	63.6	16.9
ago	16	39.53	48.64	63.1	16.5
ago	22	39.40	48.49	62.5	16.1
ago	28	39.32	48.35	61.8	15.7
sep	3	39.20	48.21	61.1	15.3
sep	9	39.10	48.09	60.1	14.9
sep	15	39.04	47.98	59.4	14.5
sep	21	38.95	47.88	58.4	14.1
sep	27	38.92	47.80	57.7	13.7
oct	3	38.85	47.73	56.7	13.3
oct	9	38.84	47.68	55.8	12.9
oct	15	38.83	47.64	55.0	12.5
oct	21	38.86	47.63	54.2	12.1
oct	27	38.89	47.62	53.6	11.7
nov	2	38.94	47.64	52.8	11.3
nov	8	39.04	47.68	52.4	10.9
nov	14	39.12	47.74	51.8	10.5
nov	20	39.28	47.81	51.7	10.1
nov	26	39.39	47.90	51.4	9.8
dic	2	39.57	48.01	51.3	9.4
dic	8	39.74	48.12	51.4	9.0
dic	14	39.94	48.26	51.5	8.6
dic	20	40.16	48.40	52.0	8.2
dic	26	40.35	48.55	52.3	7.8

μ VIR					
		3.88		F2 V	
		α	α_c	δ	
		h m	h m	° ′	
		14 43	14 43	-05 43	hp
mes	d	s	s	″	h
ene	1	53.59	4.45	30.2	8.0
ene	7	53.77	4.57	31.1	7.6
ene	13	53.97	4.70	32.4	7.3
ene	19	54.15	4.84	33.3	6.9
ene	25	54.36	4.97	34.5	6.5
ene	31	54.53	5.11	35.4	6.1
feb	6	54.72	5.25	36.4	5.7
feb	12	54.90	5.39	37.3	5.3
feb	18	55.08	5.53	38.1	4.9
feb	24	55.25	5.66	38.9	4.5
mar	1	55.39	5.78	39.4	4.1
mar	7	55.56	5.90	40.1	3.7
mar	13	55.68	6.02	40.5	3.3
mar	19	55.84	6.12	40.9	2.9
mar	25	55.93	6.21	41.2	2.5
mar	31	56.05	6.29	41.3	2.1
abr	6	56.14	6.35	41.5	1.7
abr	12	56.24	6.41	41.4	1.3
abr	18	56.32	6.45	41.5	0.9
abr	24	56.36	6.48	41.3	0.6
abr	30	56.44	6.50	41.2	0.2
may	6	56.46	6.50	40.9	23.8
may	12	56.53	6.49	40.7	23.4
may	18	56.53	6.46	40.4	23.0
may	24	56.55	6.43	40.0	22.6
may	30	56.56	6.38	39.8	22.2
jun	5	56.55	6.32	39.3	21.8
jun	11	56.55	6.24	39.1	21.4
jun	17	56.50	6.16	38.6	21.0
jun	23	56.49	6.07	38.2	20.6
jun	29	56.43	5.97	37.8	20.2
jul	5	56.40	5.86	37.5	19.8
jul	11	56.33	5.74	37.2	19.4
jul	17	56.26	5.62	36.7	19.0
jul	23	56.20	5.50	36.5	18.6
jul	29	56.11	5.37	36.0	18.2
ago	4	56.05	5.24	35.9	17.9
ago	10	55.94	5.11	35.4	17.5
ago	16	55.87	4.98	35.2	17.1
ago	22	55.76	4.85	35.0	16.7
ago	28	55.69	4.73	34.8	16.3
sep	3	55.60	4.61	34.7	15.9
sep	9	55.50	4.49	34.4	15.5
sep	15	55.44	4.39	34.4	15.1
sep	21	55.35	4.29	34.3	14.7
sep	27	55.32	4.20	34.4	14.3
oct	3	55.24	4.12	34.4	13.9
oct	9	55.22	4.06	34.5	13.5
oct	15	55.19	4.00	34.8	13.1
oct	21	55.20	3.96	35.0	12.7
oct	27	55.21	3.94	35.5	12.3
nov	2	55.22	3.92	35.7	11.9
nov	8	55.28	3.92	36.4	11.5
nov	14	55.32	3.94	36.9	11.1
nov	20	55.43	3.97	37.8	10.8
nov	26	55.51	4.01	38.5	10.4
dic	2	55.63	4.07	39.3	10.0
dic	8	55.77	4.14	40.3	9.6
dic	14	55.91	4.23	41.2	9.2
dic	20	56.08	4.32	42.4	8.8
dic	26	56.23	4.43	43.3	8.4

β UMI					
		2.08		K4	
		α	α_c	δ	
		h m	h m	° ′	
		14 50	14 49	+74 05	hp
mes	d	s	s	″	h
ene	1	36.01	46.87	14.0	8.2
ene	7	36.43	47.23	12.7	7.8
ene	13	36.92	47.65	11.2	7.4
ene	19	37.40	48.09	10.3	7.0
ene	25	37.91	48.53	9.3	6.6
ene	31	38.44	49.03	8.8	6.2
feb	6	38.95	49.48	8.5	5.8
feb	12	39.50	50.00	8.3	5.4
feb	18	39.99	50.44	8.5	5.0
feb	24	40.51	50.92	8.8	4.6
mar	1	40.97	51.36	9.6	4.2
mar	7	41.43	51.77	10.3	3.8
mar	13	41.84	52.18	11.4	3.4
mar	19	42.22	52.50	12.6	3.0
mar	25	42.57	52.84	14.1	2.6
mar	31	42.84	53.08	15.7	2.2
abr	6	43.11	53.32	17.3	1.8
abr	12	43.28	53.46	19.2	1.5
abr	18	43.45	53.58	20.9	1.1
abr	24	43.53	53.65	23.0	0.7
abr	30	43.58	53.64	24.8	0.3
may	6	43.59	53.62	26.9	23.9
may	12	43.52	53.48	28.7	23.5
may	18	43.44	53.37	30.6	23.1
may	24	43.27	53.15	32.5	22.7
may	30	43.11	52.93	34.0	22.3
jun	5	42.86	52.63	35.8	21.9
jun	11	42.61	52.30	37.1	21.5
jun	17	42.30	51.96	38.6	21.1
jun	23	41.96	51.54	39.7	20.7
jun	29	41.62	51.16	40.7	20.3
jul	5	41.21	50.67	41.5	19.9
jul	11	40.83	50.24	42.1	19.5
jul	17	40.38	49.74	42.7	19.1
jul	23	39.97	49.26	42.8	18.8
jul	29	39.50	48.76	43.1	18.4
ago	4	39.06	48.25	42.8	18.0
ago	10	38.60	47.77	42.6	17.6
ago	16	38.13	47.24	42.1	17.2
ago	22	37.70	46.79	41.4	16.8
ago	28	37.23	46.27	40.6	16.4
sep	3	36.83	45.84	39.5	16.0
sep	9	36.39	45.39	38.4	15.6
sep	15	36.02	44.97	36.9	15.2
sep	21	35.65	44.58	35.5	14.8
sep	27	35.31	44.20	33.7	14.4
oct	3	35.01	43.89	32.0	14.0
oct	9	34.73	43.57	30.1	13.6
oct	15	34.53	43.35	28.0	13.2
oct	21	34.32	43.09	25.9	12.8
oct	27	34.21	42.94	23.6	12.4
nov	2	34.10	42.81	21.5	12.0
nov	8	34.08	42.72	19.1	11.7
nov	14	34.10	42.71	16.9	11.3
nov	20	34.16	42.70	14.4	10.9
nov	26	34.29	42.80	12.2	10.5
dic	2	34.45	42.89	10.0	10.1
dic	8	34.71	43.09	7.8	9.7
dic	14	34.96	43.28	5.8	9.3
dic	20	35.32	43.56	3.7	8.9
dic	26	35.67	43.87	2.0	8.5

Posiciones aparentes de estrellas brillantes, 2016

σ LIB

3.28 M2.5 III

α = h m 15 04 | α_c = h m 15 04 | δ = ° ′ -25 20 | hp

mes	d	s	s	″	h
ene	1	59.85	10.70	24.9	8.4
ene	7	60.03	10.84	25.4	8.0
ene	13	60.25	10.98	26.2	7.6
ene	19	60.44	11.13	26.9	7.2
ene	25	60.67	11.29	27.8	6.8
ene	31	60.85	11.44	28.5	6.4
feb	6	61.07	11.60	29.4	6.0
feb	12	61.26	11.75	30.4	5.6
feb	18	61.47	11.91	31.2	5.2
feb	24	61.65	12.06	32.2	4.8
mar	1	61.81	12.21	32.9	4.5
mar	7	62.01	12.35	33.8	4.1
mar	13	62.15	12.48	34.6	3.7
mar	19	62.33	12.61	35.4	3.3
mar	25	62.44	12.72	36.1	2.9
mar	31	62.58	12.83	36.8	2.5
abr	6	62.70	12.91	37.6	2.1
abr	12	62.82	13.00	38.1	1.7
abr	18	62.93	13.06	38.8	1.3
abr	24	62.99	13.11	39.2	0.9
abr	30	63.09	13.15	39.8	0.5
may	6	63.13	13.17	40.2	0.1
may	12	63.22	13.18	40.7	23.7
may	18	63.24	13.17	41.1	23.3
may	24	63.28	13.15	41.3	22.9
may	30	63.30	13.12	41.7	22.5
jun	5	63.30	13.07	41.9	22.1
jun	11	63.32	13.01	42.2	21.8
jun	17	63.28	12.93	42.3	21.4
jun	23	63.27	12.85	42.5	21.0
jun	29	63.22	12.75	42.5	20.6
jul	5	63.19	12.65	42.6	20.2
jul	11	63.12	12.53	42.6	19.8
jul	17	63.05	12.41	42.4	19.4
jul	23	62.98	12.28	42.5	19.0
jul	29	62.88	12.14	42.2	18.6
ago	4	62.81	12.00	42.1	18.2
ago	10	62.69	11.86	41.8	17.8
ago	16	62.60	11.72	41.5	17.4
ago	22	62.48	11.57	41.2	17.0
ago	28	62.40	11.44	40.8	16.6
sep	3	62.28	11.30	40.5	16.2
sep	9	62.17	11.17	39.9	15.8
sep	15	62.10	11.04	39.5	15.4
sep	21	61.99	10.93	38.9	15.0
sep	27	61.94	10.83	38.6	14.7
oct	3	61.85	10.73	38.0	14.3
oct	9	61.81	10.65	37.5	13.9
oct	15	61.76	10.58	37.2	13.5
oct	21	61.76	10.53	36.7	13.1
oct	27	61.76	10.49	36.5	12.7
nov	2	61.76	10.47	36.0	12.3
nov	8	61.82	10.46	36.0	11.9
nov	14	61.85	10.47	35.7	11.5
nov	20	61.96	10.50	35.7	11.1
nov	26	62.03	10.53	35.7	10.7
dic	2	62.16	10.60	35.7	10.3
dic	8	62.29	10.67	36.1	9.9
dic	14	62.45	10.76	36.3	9.5
dic	20	62.62	10.86	36.8	9.1
dic	26	62.78	10.98	37.1	8.7

1 H UMI

5.15 F8

α = h m 15 14 | α_c = h m 15 13 | δ = ° ′ +67 16 | hp

mes	d	s	s	″	h
ene	1	46.43	57.29	62.4	8.6
ene	7	46.72	57.53	60.8	8.2
ene	13	47.07	57.80	59.2	7.8
ene	19	47.41	58.10	58.0	7.4
ene	25	47.79	58.40	56.8	7.0
ene	31	48.16	58.75	56.0	6.6
feb	6	48.54	59.07	55.4	6.2
feb	12	48.94	59.43	54.9	5.8
feb	18	49.31	59.75	54.9	5.4
feb	24	49.69	60.10	54.9	5.0
mar	1	50.04	60.43	55.4	4.6
mar	7	50.39	60.74	55.9	4.2
mar	13	50.71	61.05	56.8	3.8
mar	19	51.02	61.30	57.8	3.4
mar	25	51.29	61.57	59.0	3.0
mar	31	51.53	61.77	60.5	2.6
abr	6	51.76	61.97	61.9	2.3
abr	12	51.93	62.11	63.7	1.9
abr	18	52.09	62.23	65.4	1.5
abr	24	52.19	62.31	67.4	1.1
abr	30	52.28	62.34	69.2	0.7
may	6	52.33	62.37	71.2	0.3
may	12	52.34	62.31	73.0	23.9
may	18	52.32	62.26	75.0	23.5
may	24	52.26	62.14	76.9	23.1
may	30	52.19	62.01	78.6	22.7
jun	5	52.06	61.83	80.5	22.3
jun	11	51.93	61.62	81.9	21.9
jun	17	51.75	61.40	83.5	21.5
jun	23	51.55	61.13	84.8	21.1
jun	29	51.34	60.88	86.1	20.7
jul	5	51.09	60.55	87.1	20.3
jul	11	50.84	60.26	88.0	19.9
jul	17	50.55	59.91	88.8	19.5
jul	23	50.28	59.58	89.2	19.2
jul	29	49.96	59.23	89.7	18.8
ago	4	49.66	58.86	89.7	18.4
ago	10	49.34	58.51	89.7	18.0
ago	16	49.02	58.13	89.5	17.6
ago	22	48.71	57.80	89.0	17.2
ago	28	48.38	57.42	88.5	16.8
sep	3	48.08	57.09	87.6	16.4
sep	9	47.76	56.75	86.8	16.0
sep	15	47.48	56.43	85.5	15.6
sep	21	47.19	56.13	84.3	15.2
sep	27	46.94	55.83	82.8	14.8
oct	3	46.70	55.58	81.2	14.4
oct	9	46.48	55.32	79.5	14.0
oct	15	46.31	55.13	77.5	13.6
oct	21	46.14	54.92	75.6	13.2
oct	27	46.04	54.77	73.4	12.8
nov	2	45.93	54.64	71.4	12.5
nov	8	45.89	54.54	69.1	12.1
nov	14	45.88	54.50	66.9	11.7
nov	20	45.91	54.45	64.5	11.3
nov	26	45.98	54.49	62.2	10.9
dic	2	46.08	54.52	59.9	10.5
dic	8	46.24	54.62	57.6	10.1
dic	14	46.41	54.73	55.5	9.7
dic	20	46.65	54.89	53.3	9.3
dic	26	46.89	55.09	51.4	8.9

β CIR

4.07 A3 Vb

α = h m 15 18 | α_c = h m 15 17 | δ = ° ′ -58 51 | hp

mes	d	s	s	″	h
ene	1	45.61	56.46	14.1	8.6
ene	7	45.90	56.71	13.7	8.2
ene	13	46.24	56.97	13.8	7.8
ene	19	46.54	57.23	13.7	7.4
ene	25	46.90	57.51	14.1	7.0
ene	31	47.19	57.78	14.4	6.7
feb	6	47.55	58.08	14.8	6.3
feb	12	47.86	58.35	15.6	5.9
feb	18	48.20	58.65	16.3	5.5
feb	24	48.50	58.91	17.3	5.1
mar	1	48.79	59.18	18.1	4.7
mar	7	49.11	59.45	19.3	4.3
mar	13	49.36	59.69	20.4	3.9
mar	19	49.66	59.94	21.8	3.5
mar	25	49.86	60.14	23.1	3.1
mar	31	50.11	60.35	24.4	2.7
abr	6	50.32	60.52	25.9	2.3
abr	12	50.53	60.70	27.3	1.9
abr	18	50.70	60.83	28.9	1.5
abr	24	50.83	60.95	30.3	1.1
abr	30	50.99	61.05	31.8	0.7
may	6	51.08	61.11	33.3	0.3
may	12	51.22	61.18	34.9	24.0
may	18	51.25	61.18	36.3	23.6
may	24	51.31	61.19	37.6	23.2
may	30	51.34	61.15	39.1	22.8
jun	5	51.34	61.11	40.3	22.4
jun	11	51.34	61.03	41.7	22.0
jun	17	51.27	60.92	42.8	21.6
jun	23	51.23	60.81	43.9	21.2
jun	29	51.12	60.65	44.9	20.8
jul	5	51.05	60.51	45.8	20.4
jul	11	50.90	60.31	46.6	20.0
jul	17	50.76	60.12	47.0	19.6
jul	23	50.61	59.91	47.7	19.2
jul	29	50.42	59.68	47.9	18.8
ago	4	50.27	59.46	48.2	18.4
ago	10	50.03	59.20	48.2	18.0
ago	16	49.86	58.97	48.1	17.6
ago	22	49.63	58.72	47.9	17.2
ago	28	49.45	58.49	47.4	16.9
sep	3	49.23	58.24	47.0	16.5
sep	9	49.02	58.01	46.1	16.1
sep	15	48.85	57.80	45.4	15.7
sep	21	48.65	57.59	44.4	15.3
sep	27	48.53	57.41	43.5	14.9
oct	3	48.35	57.23	42.2	14.5
oct	9	48.26	57.09	40.9	14.1
oct	15	48.15	56.96	39.7	13.7
oct	21	48.11	56.88	38.3	13.3
oct	27	48.07	56.80	37.1	12.9
nov	2	48.06	56.76	35.6	12.5
nov	8	48.11	56.76	34.4	12.1
nov	14	48.15	56.77	33.0	11.7
nov	20	48.30	56.83	31.9	11.3
nov	26	48.39	56.89	30.7	10.9
dic	2	48.58	57.02	29.5	10.5
dic	8	48.76	57.14	28.7	10.2
dic	14	49.00	57.31	27.8	9.8
dic	20	49.25	57.49	27.3	9.4
dic	26	49.50	57.69	26.6	9.0

Posiciones aparentes de estrellas brillantes, 2016

ι DRA					
		3.29		K2	
		α	α_c	δ	
		h m	h m	° ′	
		15 25	15 24	+58 54	hp
mes	d	s	s	″	h
ene	1	14.78	25.64	31.4	8.7
ene	7	15.00	25.81	29.7	8.3
ene	13	15.27	26.01	28.0	7.9
ene	19	15.54	26.23	26.7	7.5
ene	25	15.83	26.45	25.4	7.2
ene	31	16.11	26.70	24.4	6.8
feb	6	16.41	26.94	23.7	6.4
feb	12	16.72	27.21	23.1	6.0
feb	18	17.01	27.45	22.9	5.6
feb	24	17.31	27.72	22.7	5.2
mar	1	17.57	27.97	23.1	4.8
mar	7	17.86	28.20	23.4	4.4
mar	13	18.10	28.44	24.2	4.0
mar	19	18.35	28.64	25.0	3.6
mar	25	18.57	28.84	26.1	3.2
mar	31	18.76	29.01	27.4	2.8
abr	6	18.95	29.17	28.7	2.4
abr	12	19.10	29.28	30.4	2.0
abr	18	19.24	29.38	32.0	1.6
abr	24	19.34	29.46	33.9	1.2
abr	30	19.43	29.49	35.6	0.8
may	6	19.49	29.52	37.6	0.5
may	12	19.53	29.49	39.4	0.1
may	18	19.53	29.47	41.3	23.7
may	24	19.51	29.39	43.3	23.3
may	30	19.49	29.31	45.0	22.9
jun	5	19.41	29.18	46.9	22.5
jun	11	19.35	29.04	48.4	22.1
jun	17	19.23	28.89	50.1	21.7
jun	23	19.11	28.69	51.4	21.3
jun	29	18.97	28.51	52.7	20.9
jul	5	18.82	28.27	53.9	20.5
jul	11	18.65	28.06	54.9	20.1
jul	17	18.45	27.81	55.8	19.7
jul	23	18.26	27.56	56.3	19.3
jul	29	18.04	27.30	57.0	18.9
ago	4	17.83	27.03	57.2	18.5
ago	10	17.59	26.77	57.4	18.1
ago	16	17.37	26.48	57.3	17.8
ago	22	17.14	26.23	57.0	17.4
ago	28	16.90	25.94	56.7	17.0
sep	3	16.68	25.69	56.0	16.6
sep	9	16.44	25.43	55.3	16.2
sep	15	16.23	25.18	54.2	15.8
sep	21	16.02	24.95	53.2	15.4
sep	27	15.83	24.72	51.8	15.0
oct	3	15.64	24.53	50.4	14.6
oct	9	15.48	24.32	48.8	14.2
oct	15	15.35	24.17	47.0	13.8
oct	21	15.23	24.00	45.3	13.4
oct	27	15.14	23.88	43.2	13.0
nov	2	15.06	23.77	41.3	12.6
nov	8	15.04	23.69	39.0	12.2
nov	14	15.02	23.64	36.9	11.8
nov	20	15.06	23.60	34.5	11.4
nov	26	15.11	23.61	32.3	11.0
dic	2	15.19	23.63	30.1	10.7
dic	8	15.31	23.69	27.7	10.3
dic	14	15.45	23.77	25.7	9.9
dic	20	15.63	23.88	23.4	9.5
dic	26	15.82	24.02	21.5	9.1

ε TRA					
		4.11		K0	
		α	α_c	δ	
		h m	h m	° ′	
		15 38	15 37	-66 21	hp
mes	d	s	s	″	h
ene	1	10.45	21.31	48.1	8.9
ene	7	10.81	21.61	47.3	8.6
ene	13	11.21	21.94	47.1	8.2
ene	19	11.58	22.27	46.7	7.8
ene	25	12.03	22.64	46.7	7.4
ene	31	12.39	22.98	46.8	7.0
feb	6	12.84	23.37	47.0	6.6
feb	12	13.23	23.72	47.5	6.2
feb	18	13.67	24.11	48.0	5.8
feb	24	14.06	24.47	48.8	5.4
mar	1	14.43	24.82	49.5	5.0
mar	7	14.84	25.19	50.5	4.6
mar	13	15.18	25.51	51.5	4.2
mar	19	15.58	25.86	52.8	3.8
mar	25	15.86	26.13	54.1	3.4
mar	31	16.19	26.43	55.3	3.0
abr	6	16.48	26.69	56.9	2.6
abr	12	16.77	26.94	58.3	2.2
abr	18	17.01	27.14	59.9	1.9
abr	24	17.20	27.32	61.4	1.5
abr	30	17.43	27.49	63.1	1.1
may	6	17.56	27.59	64.7	0.7
may	12	17.75	27.71	66.4	0.3
may	18	17.82	27.75	68.0	23.9
may	24	17.91	27.79	69.5	23.5
may	30	17.96	27.78	71.2	23.1
jun	5	17.98	27.75	72.6	22.7
jun	11	17.99	27.68	74.2	22.3
jun	17	17.92	27.57	75.5	21.9
jun	23	17.88	27.46	76.9	21.5
jun	29	17.74	27.28	78.1	21.1
jul	5	17.66	27.12	79.2	20.7
jul	11	17.47	26.88	80.3	20.3
jul	17	17.30	26.66	81.0	19.9
jul	23	17.10	26.40	81.9	19.5
jul	29	16.86	26.12	82.4	19.2
ago	4	16.65	25.84	82.9	18.8
ago	10	16.35	25.52	83.1	18.4
ago	16	16.12	25.23	83.2	18.0
ago	22	15.81	24.90	83.2	17.6
ago	28	15.57	24.61	82.9	17.2
sep	3	15.27	24.28	82.5	16.8
sep	9	14.98	23.98	81.8	16.4
sep	15	14.74	23.69	81.2	16.0
sep	21	14.47	23.41	80.2	15.6
sep	27	14.28	23.16	79.3	15.2
oct	3	14.03	22.91	78.1	14.8
oct	9	13.88	22.72	76.7	14.4
oct	15	13.71	22.52	75.5	14.0
oct	21	13.63	22.40	74.0	13.6
oct	27	13.54	22.27	72.6	13.2
nov	2	13.49	22.19	70.9	12.8
nov	8	13.52	22.16	69.5	12.4
nov	14	13.54	22.15	67.9	12.1
nov	20	13.68	22.22	66.6	11.7
nov	26	13.77	22.27	65.1	11.3
dic	2	13.97	22.40	63.7	10.9
dic	8	14.17	22.54	62.6	10.5
dic	14	14.43	22.75	61.3	10.1
dic	20	14.72	22.96	60.5	9.7
dic	26	15.01	23.21	59.5	9.3

ε SER					
		3.71		A2	
		α	α_c	δ	
		h m	h m	° ′	
		15 51	15 50	+04 25	hp
mes	d	s	s	″	h
ene	1	35.77	46.63	55.9	9.2
ene	7	35.92	46.73	54.8	8.8
ene	13	36.10	46.83	53.5	8.4
ene	19	36.26	46.95	52.5	8.0
ene	25	36.46	47.07	51.3	7.6
ene	31	36.61	47.20	50.3	7.2
feb	6	36.81	47.34	49.5	6.8
feb	12	36.98	47.48	48.5	6.4
feb	18	37.17	47.62	47.9	6.0
feb	24	37.35	47.76	47.2	5.6
mar	1	37.50	47.90	46.9	5.2
mar	7	37.69	48.04	46.4	4.8
mar	13	37.83	48.17	46.3	4.4
mar	19	38.01	48.29	46.1	4.0
mar	25	38.13	48.41	46.1	3.7
mar	31	38.27	48.52	46.4	3.3
abr	6	38.40	48.62	46.5	2.9
abr	12	38.53	48.70	47.0	2.5
abr	18	38.64	48.78	47.3	2.1
abr	24	38.72	48.84	47.9	1.7
abr	30	38.83	48.90	48.5	1.3
may	6	38.90	48.94	49.1	0.9
may	12	38.99	48.96	49.8	0.5
may	18	39.04	48.97	50.5	0.1
may	24	39.09	48.97	51.4	23.7
may	30	39.13	48.95	52.0	23.3
jun	5	39.15	48.92	52.9	22.9
jun	11	39.18	48.88	53.5	22.5
jun	17	39.16	48.82	54.4	22.1
jun	23	39.18	48.76	55.1	21.7
jun	29	39.14	48.68	55.8	21.3
jul	5	39.13	48.59	56.5	20.9
jul	11	39.08	48.49	57.0	20.6
jul	17	39.02	48.38	57.7	20.2
jul	23	38.97	48.27	58.0	19.8
jul	29	38.89	48.15	58.7	19.4
ago	4	38.83	48.02	58.9	19.0
ago	10	38.72	47.89	59.3	18.6
ago	16	38.64	47.76	59.6	18.2
ago	22	38.53	47.62	59.8	17.8
ago	28	38.44	47.49	60.0	17.4
sep	3	38.34	47.35	60.0	17.0
sep	9	38.22	47.22	60.1	16.6
sep	15	38.14	47.09	59.9	16.2
sep	21	38.03	46.97	59.9	15.8
sep	27	37.96	46.85	59.6	15.4
oct	3	37.86	46.74	59.3	15.0
oct	9	37.80	46.64	59.0	14.6
oct	15	37.73	46.55	58.4	14.2
oct	21	37.70	46.47	58.0	13.9
oct	27	37.66	46.40	57.2	13.5
nov	2	37.63	46.34	56.7	13.1
nov	8	37.65	46.30	55.8	12.7
nov	14	37.65	46.27	55.0	12.3
nov	20	37.72	46.26	53.9	11.9
nov	26	37.75	46.26	52.9	11.5
dic	2	37.83	46.28	51.9	11.1
dic	8	37.93	46.31	50.6	10.7
dic	14	38.03	46.35	49.6	10.3
dic	20	38.17	46.41	48.2	9.9
dic	26	38.29	46.49	47.1	9.5

Posiciones aparentes de estrellas brillantes, 2016

γ SER

3.85 F6

α α_c δ

h m h m ° ′

15 57 15 56 +15 36 hp

mes	d	s	s	″	h
ene	1	10.35	21.20	40.7	9.3
ene	7	10.49	21.30	39.4	8.9
ene	13	10.67	21.40	37.8	8.5
ene	19	10.83	21.52	36.6	8.1
ene	25	11.03	21.64	35.2	7.7
ene	31	11.19	21.78	34.1	7.3
feb	6	11.38	21.91	33.2	6.9
feb	12	11.56	22.05	32.2	6.5
feb	18	11.75	22.20	31.6	6.1
feb	24	11.93	22.34	30.9	5.7
mar	1	12.09	22.48	30.6	5.3
mar	7	12.28	22.62	30.2	4.9
mar	13	12.43	22.76	30.2	4.5
mar	19	12.61	22.89	30.2	4.1
mar	25	12.74	23.01	30.5	3.7
mar	31	12.88	23.12	30.9	3.4
abr	6	13.02	23.23	31.3	3.0
abr	12	13.14	23.32	32.1	2.6
abr	18	13.26	23.39	32.7	2.2
abr	24	13.34	23.46	33.7	1.8
abr	30	13.45	23.51	34.5	1.4
may	6	13.52	23.55	35.5	1.0
may	12	13.61	23.57	36.5	0.6
may	18	13.66	23.59	37.6	0.2
may	24	13.70	23.58	38.8	23.8
may	30	13.75	23.56	39.7	23.4
jun	5	13.76	23.53	41.0	23.0
jun	11	13.79	23.48	41.9	22.6
jun	17	13.77	23.43	43.0	22.2
jun	23	13.78	23.35	44.0	21.8
jun	29	13.74	23.27	44.9	21.4
jul	5	13.72	23.18	45.8	21.0
jul	11	13.67	23.08	46.6	20.6
jul	17	13.60	22.96	47.4	20.3
jul	23	13.55	22.84	47.9	19.9
jul	29	13.46	22.72	48.6	19.5
ago	4	13.39	22.58	49.0	19.1
ago	10	13.28	22.45	49.5	18.7
ago	16	13.19	22.31	49.7	18.3
ago	22	13.08	22.17	49.9	17.9
ago	28	12.98	22.02	50.0	17.5
sep	3	12.87	21.88	49.9	17.1
sep	9	12.75	21.74	49.9	16.7
sep	15	12.66	21.61	49.5	16.3
sep	21	12.54	21.48	49.3	15.9
sep	27	12.46	21.35	48.8	15.5
oct	3	12.35	21.23	48.2	15.1
oct	9	12.28	21.12	47.6	14.7
oct	15	12.21	21.02	46.7	14.3
oct	21	12.16	20.93	46.0	13.9
oct	27	12.13	20.86	44.9	13.6
nov	2	12.09	20.79	43.9	13.2
nov	8	12.10	20.74	42.7	12.8
nov	14	12.09	20.71	41.5	12.4
nov	20	12.15	20.68	40.1	12.0
nov	26	12.18	20.68	38.7	11.6
dic	2	12.25	20.69	37.3	11.2
dic	8	12.33	20.71	35.6	10.8
dic	14	12.44	20.75	34.2	10.4
dic	20	12.57	20.81	32.5	10.0
dic	26	12.68	20.88	31.1	9.6

γ APS

3.88 K0

α α_c δ

h m h m ° ′

16 35 16 35 -78 55 hp

mes	d	s	s	″	h
ene	1	52.00	2.86	28.3	9.9
ene	7	52.57	3.37	26.9	9.5
ene	13	53.26	3.98	26.0	9.1
ene	19	53.90	4.59	24.9	8.7
ene	25	54.70	5.31	24.2	8.3
ene	31	55.38	5.97	23.6	7.9
feb	6	56.23	6.76	23.0	7.5
feb	12	57.01	7.50	22.9	7.2
feb	18	57.87	8.32	22.7	6.8
feb	24	58.69	9.10	22.9	6.4
mar	1	59.47	9.87	23.0	6.0
mar	7	60.35	10.70	23.5	5.6
mar	13	61.11	11.44	24.0	5.2
mar	19	61.97	12.25	24.8	4.8
mar	25	62.66	12.94	25.7	4.4
mar	31	63.43	13.67	26.6	4.0
abr	6	64.12	14.33	27.9	3.6
abr	12	64.82	14.99	29.0	3.2
abr	18	65.45	15.58	30.5	2.8
abr	24	65.97	16.08	31.8	2.4
abr	30	66.55	16.61	33.4	2.0
may	6	66.97	17.00	35.0	1.6
may	12	67.47	17.44	36.7	1.2
may	18	67.76	17.69	38.5	0.8
may	24	68.07	17.95	40.2	0.5
may	30	68.31	18.12	42.1	0.1
jun	5	68.47	18.23	43.8	23.7
jun	11	68.60	18.29	45.7	23.3
jun	17	68.56	18.21	47.4	22.9
jun	23	68.57	18.15	49.1	22.5
jun	29	68.40	17.94	50.8	22.1
jul	5	68.30	17.76	52.3	21.7
jul	11	68.00	17.41	53.9	21.3
jul	17	67.69	17.05	55.2	20.9
jul	23	67.34	16.64	56.6	20.5
jul	29	66.89	16.15	57.6	20.1
ago	4	66.47	15.67	58.7	19.7
ago	10	65.88	15.05	59.5	19.3
ago	16	65.38	14.49	60.1	18.9
ago	22	64.74	13.83	60.6	18.5
ago	28	64.19	13.23	60.8	18.1
sep	3	63.53	12.54	61.0	17.7
sep	9	62.88	11.87	60.7	17.4
sep	15	62.29	11.24	60.6	17.0
sep	21	61.64	10.58	59.9	16.6
sep	27	61.12	10.00	59.3	16.2
oct	3	60.48	9.36	58.4	15.8
oct	9	60.01	8.85	57.3	15.4
oct	15	59.51	8.32	56.2	15.0
oct	21	59.16	7.93	54.7	14.6
oct	27	58.80	7.53	53.4	14.2
nov	2	58.49	7.20	51.6	13.8
nov	8	58.35	6.99	50.0	13.4
nov	14	58.18	6.79	48.3	13.0
nov	20	58.24	6.78	46.6	12.6
nov	26	58.22	6.72	44.8	12.2
dic	2	58.40	6.84	42.9	11.8
dic	8	58.61	6.99	41.4	11.4
dic	14	58.94	7.25	39.6	11.0
dic	20	59.34	7.58	38.2	10.6
dic	26	59.75	7.95	36.6	10.3

Br 2114 OPH

4.91 G7.5

α α_c δ

h m h m ° ′

16 42 16 41 -17 46 hp

mes	d	s	s	″	h
ene	1	28.74	39.60	7.8	10.0
ene	7	28.87	39.68	8.2	9.6
ene	13	29.05	39.79	8.8	9.2
ene	19	29.20	39.90	9.2	8.8
ene	25	29.40	40.02	9.9	8.4
ene	31	29.55	40.15	10.4	8.0
feb	6	29.75	40.29	10.9	7.7
feb	12	29.93	40.43	11.6	7.3
feb	18	30.13	40.58	12.0	6.9
feb	24	30.31	40.73	12.6	6.5
mar	1	30.48	40.88	12.9	6.1
mar	7	30.69	41.04	13.4	5.7
mar	13	30.85	41.19	13.7	5.3
mar	19	31.05	41.34	14.1	4.9
mar	25	31.19	41.47	14.4	4.5
mar	31	31.37	41.61	14.5	4.1
abr	6	31.53	41.74	14.8	3.7
abr	12	31.68	41.86	14.8	3.3
abr	18	31.83	41.97	15.0	2.9
abr	24	31.95	42.07	14.9	2.5
abr	30	32.10	42.16	15.0	2.1
may	6	32.20	42.24	15.0	1.7
may	12	32.34	42.30	14.9	1.3
may	18	32.41	42.35	14.9	1.0
may	24	32.50	42.39	14.7	0.6
may	30	32.59	42.41	14.8	0.2
jun	5	32.65	42.42	14.5	23.8
jun	11	32.72	42.41	14.6	23.4
jun	17	32.73	42.39	14.4	23.0
jun	23	32.78	42.36	14.3	22.6
jun	29	32.77	42.31	14.3	22.2
jul	5	32.79	42.25	14.1	21.8
jul	11	32.76	42.18	14.1	21.4
jul	17	32.73	42.09	13.9	21.0
jul	23	32.70	42.00	13.9	20.6
jul	29	32.62	41.89	13.7	20.2
ago	4	32.58	41.78	13.8	19.8
ago	10	32.48	41.65	13.6	19.4
ago	16	32.41	41.53	13.5	19.0
ago	22	32.30	41.39	13.4	18.6
ago	28	32.21	41.26	13.2	18.2
sep	3	32.10	41.11	13.2	17.9
sep	9	31.97	40.97	12.9	17.5
sep	15	31.88	40.83	12.9	17.1
sep	21	31.75	40.69	12.7	16.7
sep	27	31.67	40.56	12.7	16.3
oct	3	31.55	40.43	12.5	15.9
oct	9	31.47	40.31	12.3	15.5
oct	15	31.38	40.20	12.3	15.1
oct	21	31.32	40.10	12.1	14.7
oct	27	31.27	40.00	12.2	14.3
nov	2	31.21	39.92	12.0	13.9
nov	8	31.21	39.86	12.1	13.5
nov	14	31.18	39.81	12.1	13.1
nov	20	31.23	39.78	12.3	12.7
nov	26	31.24	39.75	12.4	12.3
dic	2	31.30	39.75	12.4	11.9
dic	8	31.37	39.75	12.9	11.5
dic	14	31.46	39.78	13.1	11.2
dic	20	31.58	39.83	13.6	10.8
dic	26	31.68	39.89	13.9	10.4

Posiciones aparentes de estrellas brillantes, 2016

η HER					
		3.51		G7	
		α	α_c	δ	
		h m	h m	° ′	
		16 43	16 42	+38 53	hp
mes	d	s	s	″	h
ene	1	24.95	35.80	35.2	10.0
ene	7	25.07	35.88	33.5	9.6
ene	13	25.24	35.97	31.5	9.2
ene	19	25.39	36.08	29.9	8.9
ene	25	25.59	36.20	28.3	8.5
ene	31	25.76	36.35	26.8	8.1
feb	6	25.96	36.49	25.7	7.7
feb	12	26.16	36.65	24.5	7.3
feb	18	26.37	36.82	23.7	6.9
feb	24	26.58	36.99	22.9	6.5
mar	1	26.77	37.16	22.6	6.1
mar	7	26.99	37.33	22.3	5.7
mar	13	27.18	37.51	22.4	5.3
mar	19	27.39	37.67	22.6	4.9
mar	25	27.56	37.84	23.0	4.5
mar	31	27.75	37.99	23.8	4.1
abr	6	27.92	38.13	24.4	3.7
abr	12	28.09	38.26	25.6	3.3
abr	18	28.24	38.38	26.6	2.9
abr	24	28.37	38.48	28.1	2.5
abr	30	28.51	38.56	29.4	2.2
may	6	28.61	38.64	31.0	1.8
may	12	28.72	38.68	32.6	1.4
may	18	28.80	38.73	34.2	1.0
may	24	28.86	38.74	36.1	0.6
may	30	28.92	38.74	37.6	0.2
jun	5	28.96	38.72	39.5	23.8
jun	11	28.99	38.68	41.1	23.4
jun	17	28.98	38.63	42.9	23.0
jun	23	28.98	38.56	44.5	22.6
jun	29	28.94	38.48	46.0	22.2
jul	5	28.91	38.37	47.5	21.8
jul	11	28.85	38.26	48.8	21.4
jul	17	28.77	38.13	50.1	21.0
jul	23	28.70	37.99	51.1	20.6
jul	29	28.58	37.84	52.3	20.2
ago	4	28.49	37.68	53.0	19.8
ago	10	28.35	37.52	53.8	19.4
ago	16	28.22	37.34	54.4	19.1
ago	22	28.08	37.16	54.7	18.7
ago	28	27.94	36.97	55.1	18.3
sep	3	27.78	36.79	55.1	17.9
sep	9	27.62	36.61	55.1	17.5
sep	15	27.47	36.42	54.8	17.1
sep	21	27.31	36.24	54.5	16.7
sep	27	27.18	36.06	53.9	16.3
oct	3	27.02	35.90	53.2	15.9
oct	9	26.89	35.73	52.4	15.5
oct	15	26.76	35.58	51.2	15.1
oct	21	26.66	35.42	50.2	14.7
oct	27	26.56	35.29	48.7	14.3
nov	2	26.47	35.18	47.4	13.9
nov	8	26.42	35.07	45.7	13.5
nov	14	26.37	34.98	44.1	13.1
nov	20	26.37	34.90	42.3	12.7
nov	26	26.35	34.85	40.4	12.4
dic	2	26.38	34.81	38.5	12.0
dic	8	26.42	34.80	36.4	11.6
dic	14	26.48	34.80	34.5	11.2
dic	20	26.58	34.82	32.3	10.8
dic	26	26.67	34.86	30.4	10.4

ε SCO					
		2.29		K2.5	
		α	α_c	δ	
		h m	h m	° ′	
		16 51	16 50	-34 19	hp
mes	d	s	s	″	h
ene	1	10.70	21.56	1.8	10.2
ene	7	10.85	21.66	1.6	9.8
ene	13	11.05	21.78	1.7	9.4
ene	19	11.22	21.91	1.6	9.0
ene	25	11.44	22.05	1.8	8.6
ene	31	11.61	22.20	1.9	8.2
feb	6	11.84	22.36	2.1	7.8
feb	12	12.04	22.53	2.4	7.4
feb	18	12.26	22.71	2.6	7.0
feb	24	12.47	22.88	3.1	6.6
mar	1	12.66	23.06	3.3	6.2
mar	7	12.90	23.24	3.7	5.8
mar	13	13.08	23.42	4.1	5.4
mar	19	13.32	23.60	4.5	5.0
mar	25	13.48	23.76	5.0	4.6
mar	31	13.68	23.92	5.3	4.3
abr	6	13.87	24.08	5.9	3.9
abr	12	14.05	24.23	6.2	3.5
abr	18	14.23	24.36	6.8	3.1
abr	24	14.37	24.48	7.2	2.7
abr	30	14.54	24.60	7.7	2.3
may	6	14.66	24.69	8.1	1.9
may	12	14.83	24.79	8.6	1.5
may	18	14.92	24.85	9.2	1.1
may	24	15.03	24.90	9.5	0.7
may	30	15.13	24.94	10.2	0.3
jun	5	15.20	24.97	10.5	23.9
jun	11	15.28	24.97	11.1	23.5
jun	17	15.30	24.96	11.5	23.1
jun	23	15.36	24.93	12.0	22.7
jun	29	15.35	24.89	12.5	22.3
jul	5	15.38	24.84	12.9	21.9
jul	11	15.35	24.76	13.4	21.5
jul	17	15.31	24.67	13.6	21.2
jul	23	15.28	24.57	14.1	20.8
jul	29	15.20	24.45	14.3	20.4
ago	4	15.15	24.34	14.7	20.0
ago	10	15.02	24.19	14.8	19.6
ago	16	14.94	24.06	14.9	19.2
ago	22	14.81	23.90	15.1	18.8
ago	28	14.71	23.75	15.1	18.4
sep	3	14.58	23.59	15.2	18.0
sep	9	14.44	23.43	14.9	17.6
sep	15	14.33	23.27	14.9	17.2
sep	21	14.18	23.11	14.5	16.8
sep	27	14.08	22.96	14.3	16.4
oct	3	13.93	22.81	14.0	16.0
oct	9	13.84	22.67	13.5	15.6
oct	15	13.73	22.54	13.2	15.2
oct	21	13.66	22.43	12.6	14.8
oct	27	13.59	22.32	12.2	14.5
nov	2	13.52	22.23	11.6	14.1
nov	8	13.51	22.15	11.1	13.7
nov	14	13.48	22.09	10.6	13.3
nov	20	13.52	22.06	10.1	12.9
nov	26	13.53	22.03	9.7	12.5
dic	2	13.59	22.03	9.2	12.1
dic	8	13.66	22.04	9.0	11.7
dic	14	13.76	22.08	8.5	11.3
dic	20	13.89	22.13	8.4	10.9
dic	26	14.00	22.19	8.0	10.5

ζ ARA					
		3.13		K5	
		α	α_c	δ	
		h m	h m	° ′	
		16 59	16 59	-56 00	hp
mes	d	s	s	″	h
ene	1	54.86	5.72	33.2	10.3
ene	7	55.06	5.87	32.3	9.9
ene	13	55.33	6.06	31.7	9.5
ene	19	55.55	6.24	31.0	9.1
ene	25	55.86	6.47	30.5	8.7
ene	31	56.10	6.68	30.1	8.3
feb	6	56.41	6.94	29.8	7.9
feb	12	56.69	7.19	29.7	7.6
feb	18	57.01	7.46	29.5	7.2
feb	24	57.31	7.72	29.7	6.8
mar	1	57.59	7.98	29.8	6.4
mar	7	57.92	8.27	30.1	6.0
mar	13	58.20	8.53	30.4	5.6
mar	19	58.53	8.81	30.9	5.2
mar	25	58.78	9.05	31.5	4.8
mar	31	59.07	9.31	32.0	4.4
abr	6	59.34	9.55	32.8	4.0
abr	12	59.61	9.79	33.5	3.6
abr	18	59.87	10.00	34.5	3.2
abr	24	60.07	10.19	35.2	2.8
abr	30	60.33	10.39	36.3	2.4
may	6	60.51	10.54	37.3	2.0
may	12	60.74	10.70	38.3	1.6
may	18	60.88	10.81	39.5	1.2
may	24	61.04	10.91	40.5	0.8
may	30	61.18	10.99	41.8	0.5
jun	5	61.28	11.05	42.9	0.1
jun	11	61.39	11.09	44.2	23.7
jun	17	61.42	11.08	45.3	23.3
jun	23	61.49	11.07	46.5	22.9
jun	29	61.48	11.02	47.7	22.5
jul	5	61.51	10.97	48.7	22.1
jul	11	61.46	10.87	49.9	21.7
jul	17	61.40	10.76	50.7	21.3
jul	23	61.34	10.63	51.7	20.9
jul	29	61.22	10.48	52.5	20.5
ago	4	61.13	10.32	53.3	20.1
ago	10	60.95	10.12	53.9	19.7
ago	16	60.82	9.93	54.4	19.3
ago	22	60.62	9.71	54.9	18.9
ago	28	60.46	9.50	55.0	18.5
sep	3	60.26	9.27	55.3	18.1
sep	9	60.04	9.04	55.1	17.8
sep	15	59.87	8.81	55.1	17.4
sep	21	59.64	8.58	54.7	17.0
sep	27	59.48	8.37	54.4	16.6
oct	3	59.26	8.14	53.8	16.2
oct	9	59.10	7.94	53.0	15.8
oct	15	58.93	7.75	52.4	15.4
oct	21	58.81	7.58	51.4	15.0
oct	27	58.69	7.43	50.5	14.6
nov	2	58.58	7.29	49.3	14.2
nov	8	58.54	7.19	48.3	13.8
nov	14	58.47	7.09	47.1	13.4
nov	20	58.52	7.05	46.0	13.0
nov	26	58.50	7.01	44.8	12.6
dic	2	58.57	7.01	43.5	12.2
dic	8	58.65	7.03	42.5	11.8
dic	14	58.77	7.09	41.3	11.4
dic	20	58.93	7.18	40.4	11.0
dic	26	59.08	7.27	39.3	10.7

Posiciones aparentes de estrellas brillantes, 2016

η SCO

3.32 F2

α α_c δ

h m h m ° ′

17 13 17 12 -43 15 hp

mes	d	s	s	“	h
ene	1	16.38	27.23	17.7	10.5
ene	7	16.53	27.33	17.1	10.1
ene	13	16.73	27.46	16.8	9.7
ene	19	16.91	27.60	16.3	9.3
ene	25	17.15	27.76	16.1	9.0
ene	31	17.33	27.92	16.0	8.6
feb	6	17.57	28.10	15.8	8.2
feb	12	17.79	28.28	15.9	7.8
feb	18	18.04	28.49	15.7	7.4
feb	24	18.28	28.69	16.0	7.0
mar	1	18.49	28.88	16.0	6.6
mar	7	18.76	29.10	16.3	6.2
mar	13	18.97	29.30	16.5	5.8
mar	19	19.23	29.51	16.8	5.4
mar	25	19.43	29.70	17.2	5.0
mar	31	19.66	29.90	17.5	4.6
abr	6	19.88	30.09	18.1	4.2
abr	12	20.10	30.27	18.5	3.8
abr	18	20.31	30.44	19.1	3.4
abr	24	20.47	30.59	19.6	3.0
abr	30	20.68	30.74	20.2	2.6
may	6	20.83	30.87	20.9	2.3
may	12	21.03	30.99	21.5	1.9
may	18	21.15	31.08	22.3	1.5
may	24	21.29	31.17	22.8	1.1
may	30	21.42	31.23	23.7	0.7
jun	5	21.51	31.28	24.3	0.3
jun	11	21.62	31.31	25.2	23.9
jun	17	21.66	31.31	25.9	23.5
jun	23	21.74	31.31	26.7	23.1
jun	29	21.74	31.28	27.5	22.7
jul	5	21.79	31.24	28.2	22.3
jul	11	21.76	31.17	29.0	21.9
jul	17	21.73	31.09	29.5	21.5
jul	23	21.70	31.00	30.3	21.1
jul	29	21.62	30.88	30.8	20.7
ago	4	21.57	30.76	31.4	20.3
ago	10	21.44	30.61	31.8	19.9
ago	16	21.35	30.47	32.1	19.6
ago	22	21.21	30.30	32.5	19.2
ago	28	21.10	30.14	32.6	18.8
sep	3	20.95	29.96	32.9	18.4
sep	9	20.79	29.78	32.8	18.0
sep	15	20.66	29.61	32.8	17.6
sep	21	20.49	29.42	32.6	17.2
sep	27	20.37	29.26	32.4	16.8
oct	3	20.20	29.08	32.0	16.4
oct	9	20.08	28.92	31.5	16.0
oct	15	19.95	28.76	31.1	15.6
oct	21	19.86	28.62	30.4	15.2
oct	27	19.76	28.49	29.9	14.8
nov	2	19.67	28.37	29.1	14.4
nov	8	19.64	28.28	28.4	14.0
nov	14	19.58	28.20	27.6	13.6
nov	20	19.62	28.15	26.9	13.2
nov	26	19.60	28.10	26.2	12.8
dic	2	19.65	28.09	25.3	12.5
dic	8	19.72	28.09	24.7	12.1
dic	14	19.81	28.12	23.9	11.7
dic	20	19.93	28.17	23.4	11.3
dic	26	20.04	28.23	22.7	10.9

β OPH

2.77 K2

α α_c δ

h m h m ° ′

17 44 17 43 +04 33 hp

mes	d	s	s	“	h
ene	1	14.40	25.25	50.2	11.0
ene	7	14.49	25.29	49.2	10.7
ene	13	14.62	25.35	48.1	10.3
ene	19	14.73	25.42	47.1	9.9
ene	25	14.88	25.50	46.1	9.5
ene	31	15.01	25.59	45.1	9.1
feb	6	15.17	25.70	44.3	8.7
feb	12	15.32	25.81	43.4	8.3
feb	18	15.49	25.94	42.8	7.9
feb	24	15.66	26.07	42.1	7.5
mar	1	15.81	26.20	41.7	7.1
mar	7	16.00	26.34	41.3	6.7
mar	13	16.15	26.48	41.1	6.3
mar	19	16.35	26.63	41.0	5.9
mar	25	16.49	26.77	41.0	5.5
mar	31	16.66	26.90	41.3	5.1
abr	6	16.83	27.04	41.4	4.7
abr	12	16.99	27.17	42.0	4.3
abr	18	17.15	27.29	42.4	4.0
abr	24	17.28	27.40	43.1	3.6
abr	30	17.45	27.50	43.7	3.2
may	6	17.56	27.60	44.5	2.8
may	12	17.72	27.68	45.4	2.4
may	18	17.82	27.75	46.1	2.0
may	24	17.93	27.81	47.2	1.6
may	30	18.04	27.85	48.0	1.2
jun	5	18.12	27.89	49.1	0.8
jun	11	18.21	27.90	49.9	0.4
jun	17	18.25	27.91	50.9	0.0
jun	23	18.32	27.90	51.9	23.6
jun	29	18.34	27.88	52.7	23.2
jul	5	18.39	27.84	53.7	22.8
jul	11	18.38	27.79	54.4	22.4
jul	17	18.37	27.73	55.3	22.0
jul	23	18.36	27.66	55.8	21.6
jul	29	18.31	27.57	56.6	21.3
ago	4	18.29	27.48	57.1	20.9
ago	10	18.20	27.37	57.7	20.5
ago	16	18.14	27.26	58.2	20.1
ago	22	18.05	27.14	58.5	19.7
ago	28	17.97	27.01	58.9	19.3
sep	3	17.87	26.88	59.0	18.9
sep	9	17.75	26.74	59.3	18.5
sep	15	17.65	26.60	59.3	18.1
sep	21	17.52	26.46	59.4	17.7
sep	27	17.43	26.32	59.3	17.3
oct	3	17.30	26.18	59.1	16.9
oct	9	17.20	26.04	59.0	16.5
oct	15	17.10	25.91	58.6	16.1
oct	21	17.02	25.79	58.4	15.7
oct	27	16.94	25.67	57.8	15.3
nov	2	16.85	25.56	57.3	14.9
nov	8	16.81	25.46	56.7	14.5
nov	14	16.75	25.37	56.0	14.2
nov	20	16.76	25.29	55.2	13.8
nov	26	16.73	25.23	54.3	13.4
dic	2	16.74	25.18	53.6	13.0
dic	8	16.77	25.14	52.5	12.6
dic	14	16.81	25.12	51.6	12.2
dic	20	16.88	25.12	50.4	11.8
dic	26	16.93	25.13	49.4	11.4

μ ARA

5.12 G5

α α_c δ

h m h m ° ′

17 45 17 44 -51 50 hp

mes	d	s	s	“	h
ene	1	22.80	33.66	14.4	11.1
ene	7	22.94	33.75	13.4	10.7
ene	13	23.16	33.88	12.6	10.3
ene	19	23.33	34.02	11.8	9.9
ene	25	23.58	34.20	11.2	9.5
ene	31	23.78	34.36	10.6	9.1
feb	6	24.04	34.57	10.0	8.7
feb	12	24.28	34.77	9.7	8.3
feb	18	24.56	35.00	9.2	7.9
feb	24	24.82	35.23	9.1	7.5
mar	1	25.07	35.46	8.8	7.1
mar	7	25.37	35.71	8.7	6.7
mar	13	25.62	35.95	8.7	6.3
mar	19	25.93	36.21	8.8	5.9
mar	25	26.17	36.44	9.0	5.5
mar	31	26.44	36.68	9.1	5.2
abr	6	26.71	36.92	9.6	4.8
abr	12	26.98	37.15	9.8	4.4
abr	18	27.24	37.37	10.4	4.0
abr	24	27.45	37.56	10.9	3.6
abr	30	27.71	37.77	11.5	3.2
may	6	27.90	37.94	12.2	2.8
may	12	28.15	38.11	12.9	2.4
may	18	28.32	38.25	13.7	2.0
may	24	28.50	38.37	14.4	1.6
may	30	28.67	38.48	15.5	1.2
jun	5	28.80	38.57	16.3	0.8
jun	11	28.95	38.64	17.4	0.4
jun	17	29.02	38.67	18.3	0.0
jun	23	29.13	38.71	19.3	23.6
jun	29	29.16	38.70	20.4	23.2
jul	5	29.23	38.69	21.3	22.8
jul	11	29.23	38.64	22.4	22.5
jul	17	29.21	38.57	23.2	22.1
jul	23	29.19	38.49	24.3	21.7
jul	29	29.12	38.38	25.1	21.3
ago	4	29.07	38.26	26.0	20.9
ago	10	28.93	38.10	26.8	20.5
ago	16	28.84	37.96	27.4	20.1
ago	22	28.69	37.78	28.1	19.7
ago	28	28.56	37.60	28.4	19.3
sep	3	28.39	37.40	29.0	18.9
sep	9	28.20	37.19	29.1	18.5
sep	15	28.05	36.99	29.3	18.1
sep	21	27.84	36.77	29.3	17.7
sep	27	27.69	36.58	29.2	17.3
oct	3	27.48	36.36	29.0	16.9
oct	9	27.32	36.16	28.5	16.5
oct	15	27.15	35.96	28.2	16.1
oct	21	27.02	35.79	27.5	15.7
oct	27	26.89	35.62	26.9	15.4
nov	2	26.75	35.46	26.0	15.0
nov	8	26.69	35.33	25.2	14.6
nov	14	26.59	35.21	24.3	14.2
nov	20	26.60	35.13	23.3	13.8
nov	26	26.55	35.05	22.4	13.4
dic	2	26.57	35.01	21.2	13.0
dic	8	26.61	34.99	20.3	12.6
dic	14	26.68	35.00	19.1	12.2
dic	20	26.79	35.03	18.3	11.8
dic	26	26.88	35.08	17.2	11.4

Posiciones aparentes de estrellas brillantes, 2016

α LYR					
		0.03		A0	
		α	α_c	δ	
		h m	h m	° ′	
		18 37	18 36	+38 47	hp
mes	d	s	s	″	h
ene	1	27.13	37.98	66.1	11.9
ene	7	27.17	37.98	64.3	11.5
ene	13	27.26	37.99	62.3	11.1
ene	19	27.34	38.03	60.5	10.8
ene	25	27.46	38.08	58.7	10.4
ene	31	27.57	38.16	56.9	10.0
feb	6	27.72	38.24	55.4	9.6
feb	12	27.86	38.35	53.8	9.2
feb	18	28.03	38.47	52.6	8.8
feb	24	28.20	38.61	51.4	8.4
mar	1	28.37	38.76	50.5	8.0
mar	7	28.57	38.91	49.7	7.6
mar	13	28.75	39.08	49.2	7.2
mar	19	28.96	39.24	48.9	6.8
mar	25	29.15	39.42	48.7	6.4
mar	31	29.35	39.59	48.9	6.0
abr	6	29.55	39.76	49.1	5.6
abr	12	29.75	39.93	49.8	5.2
abr	18	29.95	40.08	50.4	4.8
abr	24	30.13	40.24	51.4	4.4
abr	30	30.32	40.38	52.5	4.1
may	6	30.48	40.52	53.7	3.7
may	12	30.67	40.63	55.2	3.3
may	18	30.81	40.74	56.6	2.9
may	24	30.95	40.83	58.3	2.5
may	30	31.09	40.90	59.9	2.1
jun	5	31.20	40.97	61.8	1.7
jun	11	31.31	41.00	63.6	1.3
jun	17	31.38	41.03	65.4	0.9
jun	23	31.46	41.03	67.3	0.5
jun	29	31.50	41.03	69.1	0.1
jul	5	31.54	41.00	71.0	23.7
jul	11	31.54	40.95	72.6	23.3
jul	17	31.54	40.89	74.5	22.9
jul	23	31.52	40.81	76.0	22.5
jul	29	31.47	40.73	77.6	22.1
ago	4	31.42	40.61	79.0	21.7
ago	10	31.33	40.50	80.4	21.3
ago	16	31.24	40.36	81.7	21.0
ago	22	31.13	40.22	82.6	20.6
ago	28	31.02	40.06	83.7	20.2
sep	3	30.88	39.89	84.4	19.8
sep	9	30.73	39.72	85.2	19.4
sep	15	30.59	39.54	85.6	19.0
sep	21	30.43	39.36	86.0	18.6
sep	27	30.28	39.17	86.2	18.2
oct	3	30.10	38.98	86.1	17.8
oct	9	29.95	38.79	86.1	17.4
oct	15	29.79	38.60	85.6	17.0
oct	21	29.65	38.42	85.3	16.6
oct	27	29.51	38.24	84.5	16.2
nov	2	29.36	38.07	83.7	15.8
nov	8	29.25	37.90	82.7	15.4
nov	14	29.13	37.75	81.5	15.0
nov	20	29.06	37.60	80.3	14.6
nov	26	28.97	37.48	78.8	14.3
dic	2	28.92	37.36	77.4	13.9
dic	8	28.88	37.26	75.6	13.5
dic	14	28.87	37.18	74.0	13.1
dic	20	28.87	37.11	72.0	12.7
dic	26	28.88	37.08	70.2	12.3

δ PAV					
		3.55		G8	
		α	α_c	δ	
		h m	h m	° ′	
		20 10	20 09	-66 07	hp
mes	d	s	s	″	h
ene	1	12.82	23.67	81.8	13.5
ene	7	12.80	23.61	80.1	13.1
ene	13	12.90	23.63	78.5	12.7
ene	19	12.95	23.64	76.9	12.3
ene	25	13.11	23.73	75.2	11.9
ene	31	13.22	23.81	73.7	11.5
feb	6	13.42	23.95	71.9	11.1
feb	12	13.63	24.12	70.4	10.7
feb	18	13.87	24.31	68.7	10.3
feb	24	14.14	24.55	67.3	9.9
mar	1	14.39	24.78	65.9	9.5
mar	7	14.73	25.08	64.5	9.1
mar	13	15.02	25.36	63.2	8.8
mar	19	15.41	25.69	62.0	8.4
mar	25	15.73	26.01	61.0	8.0
mar	31	16.10	26.34	59.9	7.6
abr	6	16.50	26.70	59.2	7.2
abr	12	16.88	27.05	58.3	6.8
abr	18	17.30	27.43	57.8	6.4
abr	24	17.65	27.77	57.4	6.0
abr	30	18.09	28.15	57.0	5.6
may	6	18.46	28.49	56.9	5.2
may	12	18.90	28.86	56.7	4.8
may	18	19.26	29.19	57.0	4.4
may	24	19.62	29.50	57.1	4.0
may	30	20.01	29.83	57.6	3.6
jun	5	20.34	30.10	58.1	3.2
jun	11	20.71	30.40	58.8	2.8
jun	17	20.97	30.62	59.6	2.4
jun	23	21.28	30.85	60.5	2.0
jun	29	21.51	31.04	61.6	1.7
jul	5	21.76	31.22	62.6	1.3
jul	11	21.94	31.35	64.0	0.9
jul	17	22.08	31.44	65.2	0.5
jul	23	22.23	31.52	66.7	0.1
jul	29	22.28	31.54	68.1	23.7
ago	4	22.37	31.56	69.5	23.3
ago	10	22.33	31.50	71.1	22.9
ago	16	22.33	31.44	72.5	22.5
ago	22	22.25	31.33	74.0	22.1
ago	28	22.16	31.20	75.3	21.7
sep	3	22.03	31.04	76.8	21.3
sep	9	21.83	30.82	78.0	20.9
sep	15	21.67	30.61	79.2	20.5
sep	21	21.41	30.35	80.2	20.1
sep	27	21.22	30.10	81.1	19.7
oct	3	20.92	29.80	82.0	19.3
oct	9	20.66	29.49	82.5	19.0
oct	15	20.38	29.19	83.1	18.6
oct	21	20.10	28.87	83.2	18.2
oct	27	19.84	28.57	83.4	17.8
nov	2	19.52	28.23	83.3	17.4
nov	8	19.30	27.94	83.0	17.0
nov	14	19.02	27.63	82.6	16.6
nov	20	18.85	27.38	81.9	16.2
nov	26	18.61	27.11	81.3	15.8
dic	2	18.44	26.87	80.2	15.4
dic	8	18.30	26.68	79.2	15.0
dic	14	18.18	26.49	77.9	14.6
dic	20	18.13	26.37	76.7	14.2
dic	26	18.04	26.24	75.3	13.8

ψ CAP					
		4.13		F5	
		α	α_c	δ	
		h m	h m	° ′	
		20 47	20 46	-25 12	hp
mes	d	s	s	″	h
ene	1	0.84	11.70	43.7	14.1
ene	7	0.83	11.64	43.5	13.7
ene	13	0.87	11.60	43.2	13.3
ene	19	0.88	11.57	42.9	12.9
ene	25	0.95	11.57	42.5	12.5
ene	31	0.98	11.56	42.3	12.1
feb	6	1.06	11.58	41.7	11.7
feb	12	1.13	11.62	41.4	11.3
feb	18	1.23	11.68	40.7	10.9
feb	24	1.34	11.75	40.3	10.5
mar	1	1.43	11.82	39.7	10.2
mar	7	1.58	11.92	39.0	9.8
mar	13	1.69	12.02	38.4	9.4
mar	19	1.86	12.14	37.6	9.0
mar	25	1.99	12.26	37.0	8.6
mar	31	2.15	12.39	36.2	8.2
abr	6	2.33	12.54	35.5	7.8
abr	12	2.51	12.68	34.5	7.4
abr	18	2.70	12.83	33.8	7.0
abr	24	2.86	12.98	33.0	6.6
abr	30	3.07	13.13	32.2	6.2
may	6	3.25	13.28	31.5	5.8
may	12	3.47	13.44	30.5	5.4
may	18	3.65	13.58	30.0	5.0
may	24	3.84	13.72	29.2	4.6
may	30	4.05	13.86	28.6	4.2
jun	5	4.22	13.99	27.9	3.8
jun	11	4.43	14.12	27.4	3.5
jun	17	4.57	14.22	27.0	3.1
jun	23	4.75	14.33	26.5	2.7
jun	29	4.88	14.42	26.3	2.3
jul	5	5.04	14.50	25.9	1.9
jul	11	5.16	14.57	25.9	1.5
jul	17	5.26	14.62	25.7	1.1
jul	23	5.36	14.66	25.8	0.7
jul	29	5.42	14.68	25.8	0.3
ago	4	5.50	14.69	25.9	23.9
ago	10	5.51	14.68	26.3	23.5
ago	16	5.55	14.66	26.4	23.1
ago	22	5.54	14.63	26.9	22.7
ago	28	5.54	14.58	27.1	22.3
sep	3	5.50	14.52	27.7	21.9
sep	9	5.44	14.43	28.1	21.5
sep	15	5.40	14.35	28.6	21.1
sep	21	5.30	14.24	29.1	20.7
sep	27	5.25	14.13	29.5	20.4
oct	3	5.12	14.00	30.1	20.0
oct	9	5.03	13.87	30.5	19.6
oct	15	4.92	13.74	31.0	19.2
oct	21	4.82	13.59	31.3	18.8
oct	27	4.72	13.45	31.8	18.4
nov	2	4.59	13.29	32.1	18.0
nov	8	4.51	13.15	32.3	17.6
nov	14	4.39	13.00	32.6	17.2
nov	20	4.33	12.86	32.6	16.8
nov	26	4.22	12.73	32.9	16.4
dic	2	4.16	12.59	32.9	16.0
dic	8	4.10	12.48	33.0	15.6
dic	14	4.05	12.37	32.9	15.2
dic	20	4.03	12.27	32.8	14.8
dic	26	3.99	12.18	32.7	14.4

Posiciones aparentes de estrellas brillantes, 2016

α CEP

2.45 A7

α α_c δ

h m h m ° ′

21 18 21 18 +62 39 hp

mes	d	s	s	″	h
ene	1	56.25	7.11	30.6	14.6
ene	7	56.11	6.92	29.1	14.2
ene	13	55.99	6.72	27.4	13.8
ene	19	55.90	6.59	25.5	13.4
ene	25	55.84	6.45	23.7	13.0
ene	31	55.78	6.37	21.6	12.7
feb	6	55.79	6.32	19.7	12.3
feb	12	55.79	6.28	17.6	11.9
feb	18	55.86	6.31	15.8	11.5
feb	24	55.93	6.34	13.8	11.1
mar	1	56.05	6.44	12.0	10.7
mar	7	56.19	6.53	10.3	10.3
mar	13	56.35	6.69	8.7	9.9
mar	19	56.56	6.84	7.4	9.5
mar	25	56.77	7.04	6.0	9.1
mar	31	57.02	7.26	5.0	8.7
abr	6	57.27	7.48	4.1	8.3
abr	12	57.57	7.75	3.6	7.9
abr	18	57.85	7.99	3.1	7.5
abr	24	58.16	8.28	2.9	7.1
abr	30	58.48	8.54	3.0	6.7
may	6	58.78	8.82	3.1	6.3
may	12	59.12	9.08	3.8	6.0
may	18	59.42	9.35	4.4	5.6
may	24	59.74	9.62	5.4	5.2
may	30	60.03	9.85	6.4	4.8
jun	5	60.33	10.10	7.7	4.4
jun	11	60.61	10.30	9.2	4.0
jun	17	60.86	10.51	10.7	3.6
jun	23	61.10	10.68	12.6	3.2
jun	29	61.30	10.84	14.2	2.8
jul	5	61.51	10.97	16.4	2.4
jul	11	61.66	11.07	18.3	2.0
jul	17	61.81	11.17	20.4	1.6
jul	23	61.90	11.20	22.5	1.2
jul	29	61.99	11.25	24.7	0.8
ago	4	62.04	11.23	26.9	0.4
ago	10	62.05	11.22	28.9	0.0
ago	16	62.05	11.16	31.2	23.6
ago	22	61.99	11.08	33.1	23.3
ago	28	61.94	10.98	35.3	22.9
sep	3	61.83	10.84	37.1	22.5
sep	9	61.71	10.70	39.0	22.1
sep	15	61.56	10.51	40.8	21.7
sep	21	61.39	10.33	42.4	21.3
sep	27	61.21	10.09	44.0	20.9
oct	3	60.98	9.86	45.3	20.5
oct	9	60.77	9.61	46.6	20.1
oct	15	60.51	9.33	47.5	19.7
oct	21	60.29	9.06	48.5	19.3
oct	27	60.01	8.75	49.2	18.9
nov	2	59.75	8.46	49.7	18.5
nov	8	59.49	8.13	50.0	18.1
nov	14	59.22	7.83	50.0	17.7
nov	20	58.97	7.51	50.1	17.3
nov	26	58.70	7.20	49.6	16.9
dic	2	58.46	6.90	49.2	16.5
dic	8	58.21	6.59	48.3	16.2
dic	14	58.00	6.32	47.5	15.8
dic	20	57.79	6.03	46.3	15.4
dic	26	57.60	5.79	45.0	15.0

γ PAV

4.21 F8

α α_c δ

h m h m ° ′

21 27 21 26 -65 17 hp

mes	d	s	s	″	h
ene	1	41.16	52.02	41.2	14.8
ene	7	41.03	51.84	39.8	14.4
ene	13	41.01	51.74	38.3	14.0
ene	19	40.94	51.64	36.7	13.6
ene	25	40.98	51.60	34.9	13.2
ene	31	40.97	51.56	33.4	12.8
feb	6	41.03	51.57	31.4	12.4
feb	12	41.13	51.62	29.7	12.0
feb	18	41.23	51.69	27.7	11.6
feb	24	41.39	51.81	26.0	11.2
mar	1	41.52	51.92	24.2	10.8
mar	7	41.75	52.10	22.3	10.4
mar	13	41.94	52.28	20.6	10.0
mar	19	42.22	52.50	18.7	9.6
mar	25	42.45	52.73	17.3	9.3
mar	31	42.73	52.98	15.6	8.9
abr	6	43.05	53.27	14.2	8.5
abr	12	43.36	53.54	12.7	8.1
abr	18	43.72	53.86	11.5	7.7
abr	24	44.03	54.15	10.4	7.3
abr	30	44.42	54.48	9.2	6.9
may	6	44.76	54.81	8.5	6.5
may	12	45.18	55.14	7.6	6.1
may	18	45.54	55.47	7.1	5.7
may	24	45.90	55.78	6.6	5.3
may	30	46.30	56.13	6.4	4.9
jun	5	46.65	56.42	6.2	4.5
jun	11	47.05	56.75	6.3	4.1
jun	17	47.36	57.02	6.6	3.7
jun	23	47.71	57.30	6.9	3.3
jun	29	48.01	57.55	7.6	2.9
jul	5	48.32	57.79	8.1	2.6
jul	11	48.59	58.01	9.1	2.2
jul	17	48.80	58.17	10.0	1.8
jul	23	49.04	58.35	11.1	1.4
jul	29	49.19	58.45	12.3	1.0
ago	4	49.38	58.57	13.6	0.6
ago	10	49.44	58.62	15.1	0.2
ago	16	49.53	58.65	16.4	23.8
ago	22	49.56	58.65	18.0	23.4
ago	28	49.56	58.61	19.4	23.0
sep	3	49.53	58.55	21.0	22.6
sep	9	49.42	58.42	22.5	22.2
sep	15	49.35	58.30	24.0	21.8
sep	21	49.18	58.12	25.4	21.4
sep	27	49.05	57.94	26.6	21.0
oct	3	48.82	57.71	28.0	20.6
oct	9	48.61	57.46	29.0	20.2
oct	15	48.39	57.20	30.1	19.9
oct	21	48.14	56.91	30.8	19.5
oct	27	47.90	56.63	31.5	19.1
nov	2	47.59	56.30	32.0	18.7
nov	8	47.36	56.01	32.3	18.3
nov	14	47.07	55.69	32.5	17.9
nov	20	46.86	55.40	32.2	17.5
nov	26	46.58	55.09	32.1	17.1
dic	2	46.35	54.80	31.5	16.7
dic	8	46.16	54.54	31.0	16.3
dic	14	45.95	54.27	30.1	15.9
dic	20	45.82	54.07	29.1	15.5
dic	26	45.64	53.84	28.0	15.1

ε IND

4.69 K5

α α_c δ

h m h m ° ′

22 04 22 03 -56 42 hp

mes	d	s	s	″	h
ene	1	31.85	42.71	79.6	15.4
ene	7	31.74	42.55	78.7	15.0
ene	13	31.71	42.45	77.5	14.6
ene	19	31.64	42.33	76.3	14.2
ene	25	31.65	42.27	74.9	13.8
ene	31	31.62	42.21	73.6	13.4
feb	6	31.64	42.18	71.9	13.0
feb	12	31.69	42.18	70.5	12.6
feb	18	31.74	42.19	68.7	12.2
feb	24	31.84	42.25	67.1	11.8
mar	1	31.90	42.30	65.5	11.4
mar	7	32.06	42.41	63.7	11.0
mar	13	32.17	42.51	62.1	10.7
mar	19	32.36	42.65	60.2	10.3
mar	25	32.52	42.80	58.7	9.9
mar	31	32.71	42.96	57.0	9.5
abr	6	32.94	43.16	55.5	9.1
abr	12	33.16	43.35	53.9	8.7
abr	18	33.43	43.57	52.5	8.3
abr	24	33.66	43.78	51.3	7.9
abr	30	33.96	44.02	49.9	7.5
may	6	34.22	44.26	48.9	7.1
may	12	34.54	44.51	47.7	6.7
may	18	34.83	44.76	47.0	6.3
may	24	35.12	45.00	46.2	5.9
may	30	35.44	45.27	45.6	5.5
jun	5	35.73	45.50	45.1	5.1
jun	11	36.07	45.76	44.7	4.7
jun	17	36.32	45.99	44.7	4.3
jun	23	36.63	46.22	44.6	4.0
jun	29	36.89	46.44	44.9	3.6
jul	5	37.17	46.64	45.1	3.2
jul	11	37.42	46.83	45.7	2.8
jul	17	37.62	46.99	46.3	2.4
jul	23	37.85	47.16	47.1	2.0
jul	29	38.01	47.28	48.0	1.6
ago	4	38.20	47.40	49.0	1.2
ago	10	38.30	47.48	50.3	0.8
ago	16	38.42	47.54	51.4	0.4
ago	22	38.49	47.58	52.8	0.0
ago	28	38.54	47.59	54.1	23.6
sep	3	38.57	47.59	55.6	23.2
sep	9	38.53	47.53	57.1	22.8
sep	15	38.52	47.48	58.5	22.4
sep	21	38.44	47.38	60.0	22.0
sep	27	38.39	47.28	61.3	21.6
oct	3	38.25	47.14	62.8	21.3
oct	9	38.13	46.97	64.0	20.9
oct	15	37.99	46.81	65.3	20.5
oct	21	37.83	46.61	66.2	20.1
oct	27	37.68	46.42	67.2	19.7
nov	2	37.47	46.19	68.0	19.3
nov	8	37.32	45.97	68.6	18.9
nov	14	37.11	45.74	69.2	18.5
nov	20	36.97	45.52	69.3	18.1
nov	26	36.78	45.29	69.6	17.7
dic	2	36.61	45.05	69.5	17.3
dic	8	36.46	44.85	69.4	16.9
dic	14	36.31	44.63	68.9	16.5
dic	20	36.21	44.45	68.4	16.1
dic	26	36.06	44.26	67.7	15.7

Posiciones aparentes de estrellas brillantes, 2016

υ AQR					
		5.18		F3	
		α	α_c	δ	
		h m	h m	° ′	
		22 35	22 34	-20 37	hp
mes	d	s	s	″	h
ene	1	32.97	43.82	37.5	15.9
ene	7	32.90	43.71	37.6	15.5
ene	13	32.88	43.61	37.5	15.1
ene	19	32.83	43.52	37.4	14.7
ene	25	32.83	43.44	37.1	14.3
ene	31	32.79	43.38	37.0	13.9
feb	6	32.79	43.32	36.6	13.5
feb	12	32.80	43.29	36.3	13.1
feb	18	32.82	43.26	35.7	12.7
feb	24	32.85	43.26	35.3	12.4
mar	1	32.87	43.26	34.7	12.0
mar	7	32.94	43.28	33.9	11.6
mar	13	32.98	43.32	33.2	11.2
mar	19	33.09	43.37	32.3	10.8
mar	25	33.15	43.43	31.5	10.4
mar	31	33.26	43.50	30.5	10.0
abr	6	33.38	43.58	29.6	9.6
abr	12	33.50	43.68	28.4	9.2
abr	18	33.65	43.79	27.3	8.8
abr	24	33.78	43.89	26.3	8.4
abr	30	33.96	44.02	25.1	8.0
may	6	34.11	44.14	24.0	7.6
may	12	34.31	44.27	22.7	7.2
may	18	34.48	44.41	21.7	6.8
may	24	34.67	44.54	20.5	6.4
may	30	34.87	44.68	19.4	6.0
jun	5	35.05	44.82	18.3	5.7
jun	11	35.27	44.96	17.2	5.3
jun	17	35.43	45.09	16.4	4.9
jun	23	35.64	45.22	15.4	4.5
jun	29	35.81	45.34	14.7	4.1
jul	5	36.01	45.46	13.8	3.7
jul	11	36.16	45.57	13.3	3.3
jul	17	36.31	45.67	12.7	2.9
jul	23	36.47	45.77	12.3	2.5
jul	29	36.58	45.84	12.0	2.1
ago	4	36.73	45.92	11.7	1.7
ago	10	36.80	45.97	11.7	1.3
ago	16	36.90	46.01	11.6	0.9
ago	22	36.96	46.05	11.8	0.5
ago	28	37.02	46.06	11.9	0.1
sep	3	37.05	46.07	12.2	23.7
sep	9	37.06	46.05	12.6	23.3
sep	15	37.08	46.02	13.0	23.0
sep	21	37.04	45.98	13.5	22.6
sep	27	37.04	45.93	13.9	22.2
oct	3	36.98	45.86	14.7	21.8
oct	9	36.94	45.77	15.2	21.4
oct	15	36.87	45.68	15.9	21.0
oct	21	36.81	45.58	16.4	20.6
oct	27	36.74	45.47	17.1	20.2
nov	2	36.64	45.34	17.8	19.8
nov	8	36.57	45.21	18.3	19.4
nov	14	36.46	45.08	18.9	19.0
nov	20	36.41	44.94	19.3	18.6
nov	26	36.30	44.80	19.9	18.2
dic	2	36.22	44.65	20.2	17.8
dic	8	36.14	44.52	20.6	17.4
dic	14	36.06	44.38	20.9	17.0
dic	20	36.01	44.25	21.1	16.6
dic	26	35.92	44.12	21.3	16.2

λ PEG					
		3.94		G8	
		α	α_c	δ	
		h m	h m	° ′	
		22 47	22 46	+23 38	hp
mes	d	s	s	″	h
ene	1	17.74	28.59	69.4	16.1
ene	7	17.66	28.47	68.5	15.7
ene	13	17.62	28.34	67.7	15.3
ene	19	17.55	28.24	66.6	14.9
ene	25	17.52	28.14	65.7	14.5
ene	31	17.46	28.05	64.5	14.1
feb	6	17.45	27.98	63.5	13.7
feb	12	17.43	27.92	62.4	13.3
feb	18	17.44	27.88	61.4	12.9
feb	24	17.44	27.85	60.3	12.6
mar	1	17.45	27.84	59.3	12.2
mar	7	17.50	27.85	58.5	11.8
mar	13	17.54	27.87	57.6	11.4
mar	19	17.63	27.91	57.0	11.0
mar	25	17.68	27.96	56.2	10.6
mar	31	17.78	28.02	55.8	10.2
abr	6	17.89	28.10	55.4	9.8
abr	12	18.02	28.19	55.3	9.4
abr	18	18.16	28.29	55.3	9.0
abr	24	18.29	28.40	55.3	8.6
abr	30	18.46	28.52	55.6	8.2
may	6	18.61	28.65	55.9	7.8
may	12	18.82	28.78	56.6	7.4
may	18	18.98	28.91	57.2	7.0
may	24	19.17	29.05	58.1	6.6
may	30	19.37	29.18	59.0	6.2
jun	5	19.56	29.32	60.1	5.8
jun	11	19.76	29.45	61.3	5.5
jun	17	19.93	29.59	62.4	5.1
jun	23	20.14	29.71	63.9	4.7
jun	29	20.30	29.83	65.1	4.3
jul	5	20.50	29.95	66.8	3.9
jul	11	20.64	30.05	68.2	3.5
jul	17	20.79	30.15	69.7	3.1
jul	23	20.94	30.24	71.2	2.7
jul	29	21.06	30.32	72.7	2.3
ago	4	21.19	30.38	74.3	1.9
ago	10	21.26	30.43	75.7	1.5
ago	16	21.36	30.47	77.2	1.1
ago	22	21.41	30.50	78.5	0.7
ago	28	21.48	30.52	80.0	0.3
sep	3	21.50	30.51	81.2	23.9
sep	9	21.51	30.51	82.4	23.5
sep	15	21.53	30.47	83.5	23.1
sep	21	21.50	30.44	84.5	22.8
sep	27	21.50	30.38	85.6	22.4
oct	3	21.44	30.32	86.3	22.0
oct	9	21.40	30.24	87.1	21.6
oct	15	21.33	30.15	87.7	21.2
oct	21	21.28	30.05	88.3	20.8
oct	27	21.21	29.94	88.7	20.4
nov	2	21.11	29.82	89.0	20.0
nov	8	21.04	29.69	89.3	19.6
nov	14	20.94	29.55	89.2	19.2
nov	20	20.88	29.41	89.4	18.8
nov	26	20.76	29.27	89.1	18.4
dic	2	20.68	29.12	88.9	18.0
dic	8	20.59	28.97	88.5	17.6
dic	14	20.51	28.82	88.0	17.2
dic	20	20.43	28.67	87.5	16.8
dic	26	20.34	28.54	86.7	16.4

ε GRU					
		3.48		A2	
		α	α_c	δ	
		h m	h m	° ′	
		22 49	22 48	-51 13	hp
mes	d	s	s	″	h
ene	1	28.96	39.83	69.1	16.1
ene	7	28.83	39.65	68.5	15.7
ene	13	28.77	39.50	67.6	15.3
ene	19	28.66	39.36	66.7	15.0
ene	25	28.63	39.25	65.5	14.6
ene	31	28.55	39.15	64.5	14.2
feb	6	28.53	39.06	63.1	13.8
feb	12	28.51	39.01	61.7	13.4
feb	18	28.51	38.96	60.1	13.0
feb	24	28.54	38.96	58.6	12.6
mar	1	28.55	38.95	57.0	12.2
mar	7	28.63	38.97	55.2	11.8
mar	13	28.67	39.01	53.6	11.4
mar	19	28.79	39.08	51.7	11.0
mar	25	28.88	39.16	50.1	10.6
mar	31	29.00	39.25	48.3	10.2
abr	6	29.16	39.37	46.6	9.8
abr	12	29.31	39.49	44.8	9.4
abr	18	29.51	39.65	43.1	9.0
abr	24	29.67	39.80	41.6	8.6
abr	30	29.91	39.97	40.0	8.3
may	6	30.11	40.15	38.6	7.9
may	12	30.37	40.34	37.0	7.5
may	18	30.61	40.54	35.9	7.1
may	24	30.85	40.73	34.7	6.7
may	30	31.13	40.95	33.7	6.3
jun	5	31.37	41.15	32.8	5.9
jun	11	31.67	41.37	31.9	5.5
jun	17	31.90	41.56	31.5	5.1
jun	23	32.18	41.77	30.9	4.7
jun	29	32.42	41.97	30.7	4.3
jul	5	32.69	42.15	30.4	3.9
jul	11	32.92	42.34	30.6	3.5
jul	17	33.13	42.49	30.8	3.1
jul	23	33.36	42.66	31.1	2.7
jul	29	33.52	42.79	31.7	2.3
ago	4	33.73	42.93	32.2	1.9
ago	10	33.85	43.03	33.2	1.5
ago	16	33.99	43.11	34.0	1.2
ago	22	34.09	43.18	35.1	0.8
ago	28	34.17	43.22	36.2	0.4
sep	3	34.23	43.25	37.5	24.0
sep	9	34.24	43.24	38.8	23.6
sep	15	34.27	43.23	40.1	23.2
sep	21	34.23	43.17	41.5	22.8
sep	27	34.22	43.11	42.8	22.4
oct	3	34.14	43.02	44.3	22.0
oct	9	34.06	42.91	45.6	21.6
oct	15	33.97	42.79	47.0	21.2
oct	21	33.86	42.63	48.1	20.8
oct	27	33.75	42.48	49.3	20.4
nov	2	33.58	42.29	50.4	20.0
nov	8	33.46	42.11	51.2	19.6
nov	14	33.29	41.91	52.1	19.2
nov	20	33.17	41.71	52.5	18.8
nov	26	32.99	41.50	53.1	18.5
dic	2	32.84	41.28	53.4	18.1
dic	8	32.70	41.09	53.6	17.7
dic	14	32.55	40.87	53.5	17.3
dic	20	32.44	40.69	53.3	16.9
dic	26	32.29	40.49	53.0	16.5

Posiciones aparentes de estrellas brillantes, 2016

ι CEP

3.53 K0

α α_c δ

h m h m ° ′

22 50 22 49 +66 16 hp

mes	d	s	s	″	h
ene	1	15.05	25.90	84.2	16.1
ene	7	14.81	25.61	83.2	15.8
ene	13	14.57	25.30	82.2	15.4
ene	19	14.36	25.04	80.8	15.0
ene	25	14.18	24.79	79.4	14.6
ene	31	13.99	24.57	77.7	14.2
feb	6	13.87	24.40	76.1	13.8
feb	12	13.73	24.22	74.2	13.4
feb	18	13.69	24.13	72.4	13.0
feb	24	13.62	24.03	70.5	12.6
mar	1	13.62	24.01	68.5	12.2
mar	7	13.65	23.99	66.7	11.8
mar	13	13.70	24.04	64.8	11.4
mar	19	13.83	24.10	63.2	11.0
mar	25	13.94	24.21	61.4	10.6
mar	31	14.13	24.37	59.9	10.2
abr	6	14.31	24.52	58.5	9.8
abr	12	14.57	24.74	57.3	9.4
abr	18	14.82	24.95	56.3	9.1
abr	24	15.10	25.22	55.3	8.7
abr	30	15.42	25.48	54.8	8.3
may	6	15.73	25.76	54.2	7.9
may	12	16.10	26.06	54.2	7.5
may	18	16.43	26.36	54.0	7.1
may	24	16.80	26.68	54.3	6.7
may	30	17.15	26.97	54.7	6.3
jun	5	17.53	27.30	55.3	5.9
jun	11	17.89	27.58	56.2	5.5
jun	17	18.23	27.88	57.1	5.1
jun	23	18.58	28.16	58.4	4.7
jun	29	18.88	28.41	59.6	4.3
jul	5	19.22	28.67	61.3	3.9
jul	11	19.48	28.89	62.8	3.5
jul	17	19.75	29.11	64.6	3.1
jul	23	19.98	29.27	66.5	2.7
jul	29	20.19	29.45	68.4	2.4
ago	4	20.38	29.57	70.5	2.0
ago	10	20.52	29.69	72.5	1.6
ago	16	20.65	29.77	74.8	1.2
ago	22	20.72	29.80	76.8	0.8
ago	28	20.80	29.84	79.1	0.4
sep	3	20.80	29.82	81.2	24.0
sep	9	20.81	29.80	83.4	23.6
sep	15	20.77	29.72	85.5	23.2
sep	21	20.70	29.64	87.5	22.8
sep	27	20.62	29.50	89.6	22.4
oct	3	20.48	29.36	91.4	22.0
oct	9	20.35	29.19	93.2	21.6
oct	15	20.15	28.97	94.8	21.2
oct	21	19.99	28.76	96.5	20.8
oct	27	19.76	28.49	97.8	20.4
nov	2	19.53	28.24	99.0	20.0
nov	8	19.29	27.94	100.2	19.6
nov	14	19.02	27.64	100.9	19.3
nov	20	18.78	27.31	101.8	18.9
nov	26	18.47	26.98	102.2	18.5
dic	2	18.21	26.65	102.5	18.1
dic	8	17.90	26.28	102.5	17.7
dic	14	17.65	25.96	102.4	17.3
dic	20	17.35	25.59	102.1	16.9
dic	26	17.08	25.28	101.4	16.5

μ PEG

3.48 G8

α α_c δ

h m h m ° ′

22 50 22 49 +24 41 hp

mes	d	s	s	″	h
ene	1	46.18	57.03	19.9	16.2
ene	7	46.10	56.90	19.1	15.8
ene	13	46.05	56.78	18.2	15.4
ene	19	45.98	56.67	17.1	15.0
ene	25	45.95	56.56	16.2	14.6
ene	31	45.89	56.48	15.0	14.2
feb	6	45.88	56.40	14.0	13.8
feb	12	45.85	56.34	12.8	13.4
feb	18	45.85	56.30	11.8	13.0
feb	24	45.86	56.27	10.7	12.6
mar	1	45.86	56.26	9.7	12.2
mar	7	45.92	56.26	8.8	11.8
mar	13	45.95	56.28	7.9	11.4
mar	19	46.03	56.31	7.3	11.0
mar	25	46.09	56.36	6.5	10.6
mar	31	46.19	56.43	6.0	10.2
abr	6	46.29	56.50	5.6	9.8
abr	12	46.42	56.60	5.4	9.5
abr	18	46.56	56.69	5.3	9.1
abr	24	46.69	56.81	5.3	8.7
abr	30	46.86	56.92	5.6	8.3
may	6	47.01	57.05	5.9	7.9
may	12	47.22	57.18	6.6	7.5
may	18	47.38	57.31	7.1	7.1
may	24	47.58	57.45	8.0	6.7
may	30	47.77	57.59	8.9	6.3
jun	5	47.96	57.73	9.9	5.9
jun	11	48.17	57.86	11.1	5.5
jun	17	48.34	58.00	12.3	5.1
jun	23	48.55	58.12	13.7	4.7
jun	29	48.71	58.25	15.0	4.3
jul	5	48.91	58.36	16.6	3.9
jul	11	49.06	58.47	18.0	3.5
jul	17	49.21	58.57	19.5	3.1
jul	23	49.36	58.66	21.1	2.8
jul	29	49.48	58.74	22.6	2.4
ago	4	49.61	58.80	24.2	2.0
ago	10	49.69	58.86	25.6	1.6
ago	16	49.79	58.90	27.2	1.2
ago	22	49.84	58.93	28.5	0.8
ago	28	49.91	58.95	30.0	0.4
sep	3	49.94	58.95	31.2	24.0
sep	9	49.95	58.94	32.4	23.6
sep	15	49.97	58.92	33.6	23.2
sep	21	49.94	58.88	34.6	22.8
sep	27	49.94	58.83	35.8	22.4
oct	3	49.88	58.76	36.5	22.0
oct	9	49.85	58.69	37.4	21.6
oct	15	49.78	58.60	38.0	21.2
oct	21	49.73	58.50	38.6	20.8
oct	27	49.66	58.39	39.1	20.4
nov	2	49.56	58.27	39.4	20.1
nov	8	49.49	58.14	39.7	19.7
nov	14	49.39	58.00	39.7	19.3
nov	20	49.33	57.86	39.8	18.9
nov	26	49.21	57.72	39.6	18.5
dic	2	49.13	57.57	39.4	18.1
dic	8	49.04	57.42	39.0	17.7
dic	14	48.96	57.27	38.6	17.3
dic	20	48.88	57.12	38.0	16.9
dic	26	48.78	56.98	37.3	16.5

α PEG

2.48 B9

α α_c δ

h m h m ° ′

23 05 23 04 +15 17 hp

mes	d	s	s	″	h
ene	1	33.10	43.95	35.4	16.4
ene	7	33.02	43.83	34.6	16.0
ene	13	32.98	43.71	34.0	15.6
ene	19	32.91	43.60	33.1	15.2
ene	25	32.89	43.50	32.4	14.8
ene	31	32.82	43.41	31.5	14.4
feb	6	32.81	43.34	30.7	14.0
feb	12	32.78	43.27	29.9	13.6
feb	18	32.78	43.22	29.2	13.2
feb	24	32.78	43.19	28.4	12.9
mar	1	32.78	43.17	27.7	12.5
mar	7	32.82	43.16	27.2	12.1
mar	13	32.84	43.17	26.5	11.7
mar	19	32.92	43.20	26.2	11.3
mar	25	32.96	43.23	25.7	10.9
mar	31	33.05	43.29	25.6	10.5
abr	6	33.14	43.35	25.4	10.1
abr	12	33.26	43.43	25.5	9.7
abr	18	33.38	43.52	25.7	9.3
abr	24	33.50	43.61	25.8	8.9
abr	30	33.66	43.72	26.4	8.5
may	6	33.80	43.83	26.8	8.1
may	12	33.99	43.95	27.6	7.7
may	18	34.15	44.08	28.2	7.3
may	24	34.33	44.20	29.2	6.9
may	30	34.51	44.33	30.1	6.5
jun	5	34.70	44.46	31.2	6.2
jun	11	34.90	44.59	32.4	5.8
jun	17	35.07	44.72	33.5	5.4
jun	23	35.27	44.85	34.9	5.0
jun	29	35.43	44.97	36.1	4.6
jul	5	35.63	45.08	37.6	4.2
jul	11	35.78	45.19	38.9	3.8
jul	17	35.93	45.29	40.2	3.4
jul	23	36.09	45.38	41.6	3.0
jul	29	36.21	45.47	42.9	2.6
ago	4	36.35	45.54	44.3	2.2
ago	10	36.43	45.60	45.4	1.8
ago	16	36.54	45.65	46.7	1.4
ago	22	36.60	45.69	47.8	1.0
ago	28	36.68	45.72	49.0	0.6
sep	3	36.72	45.73	49.9	0.2
sep	9	36.74	45.73	50.8	23.8
sep	15	36.77	45.72	51.8	23.5
sep	21	36.76	45.70	52.5	23.1
sep	27	36.77	45.66	53.3	22.7
oct	3	36.73	45.61	53.7	22.3
oct	9	36.70	45.54	54.3	21.9
oct	15	36.65	45.46	54.7	21.5
oct	21	36.61	45.38	55.1	21.1
oct	27	36.55	45.28	55.3	20.7
nov	2	36.47	45.18	55.4	20.3
nov	8	36.41	45.06	55.5	19.9
nov	14	36.32	44.94	55.4	19.5
nov	20	36.27	44.81	55.5	19.1
nov	26	36.17	44.67	55.1	18.7
dic	2	36.10	44.54	54.9	18.3
dic	8	36.02	44.39	54.5	17.9
dic	14	35.94	44.26	54.1	17.5
dic	20	35.88	44.12	53.6	17.1
dic	26	35.79	43.98	52.9	16.7

Posiciones aparentes de estrellas brillantes, 2016

γ SCL

4.41 G8

α = 23 19 h m; α_c = 23 18 h m; δ = -32 26 ° ′; hp

mes	d	s	s	“	h
ene	1	40.06	50.92	51.4	16.6
ene	7	39.96	50.77	51.3	16.2
ene	13	39.91	50.65	51.0	15.8
ene	19	39.83	50.52	50.7	15.5
ene	25	39.80	50.42	50.1	15.1
ene	31	39.73	50.32	49.7	14.7
feb	6	39.70	50.23	48.9	14.3
feb	12	39.67	50.17	48.2	13.9
feb	18	39.66	50.11	47.3	13.5
feb	24	39.66	50.07	46.3	13.1
mar	1	39.64	50.04	45.4	12.7
mar	7	39.69	50.04	44.1	12.3
mar	13	39.70	50.04	43.1	11.9
mar	19	39.78	50.06	41.6	11.5
mar	25	39.82	50.10	40.5	11.1
mar	31	39.90	50.15	39.0	10.7
abr	6	40.00	50.22	37.7	10.3
abr	12	40.11	50.29	36.2	9.9
abr	18	40.24	50.38	34.7	9.5
abr	24	40.36	50.48	33.3	9.1
abr	30	40.53	50.59	31.8	8.8
may	6	40.67	50.71	30.4	8.4
may	12	40.87	50.84	28.8	8.0
may	18	41.04	50.98	27.6	7.6
may	24	41.23	51.11	26.2	7.2
may	30	41.44	51.26	24.9	6.8
jun	5	41.63	51.41	23.7	6.4
jun	11	41.87	51.56	22.5	6.0
jun	17	42.05	51.71	21.7	5.6
jun	23	42.28	51.86	20.7	5.2
jun	29	42.47	52.01	20.0	4.8
jul	5	42.69	52.15	19.2	4.4
jul	11	42.88	52.29	18.7	4.0
jul	17	43.05	52.42	18.3	3.6
jul	23	43.25	52.55	18.0	3.2
jul	29	43.39	52.66	18.0	2.8
ago	4	43.57	52.76	17.8	2.4
ago	10	43.68	52.85	18.2	2.1
ago	16	43.81	52.93	18.3	1.7
ago	22	43.90	53.00	18.8	1.3
ago	28	44.00	53.04	19.2	0.9
sep	3	44.06	53.08	19.9	0.5
sep	9	44.09	53.09	20.7	0.1
sep	15	44.14	53.10	21.4	23.7
sep	21	44.14	53.08	22.4	23.3
sep	27	44.16	53.05	23.2	22.9
oct	3	44.12	53.01	24.4	22.5
oct	9	44.09	52.94	25.3	22.1
oct	15	44.05	52.86	26.4	21.7
oct	21	43.99	52.77	27.3	21.3
oct	27	43.93	52.67	28.3	20.9
nov	2	43.83	52.54	29.3	20.5
nov	8	43.77	52.42	30.1	20.1
nov	14	43.65	52.28	31.1	19.7
nov	20	43.59	52.13	31.6	19.3
nov	26	43.48	51.98	32.5	19.0
dic	2	43.38	51.82	33.0	18.6
dic	8	43.29	51.67	33.4	18.2
dic	14	43.19	51.51	33.8	17.8
dic	20	43.12	51.36	33.9	17.4
dic	26	43.00	51.21	34.2	17.0

υ PEG

4.40 F8

α = 23 26 h m; α_c = 23 25 h m; δ = +23 29 ° ′; hp

mes	d	s	s	“	h
ene	1	10.60	21.45	40.0	16.7
ene	7	10.51	21.32	39.3	16.4
ene	13	10.45	21.18	38.6	16.0
ene	19	10.37	21.06	37.7	15.6
ene	25	10.33	20.94	36.9	15.2
ene	31	10.25	20.84	35.8	14.8
feb	6	10.22	20.75	34.9	14.4
feb	12	10.17	20.66	33.9	14.0
feb	18	10.16	20.60	33.0	13.6
feb	24	10.14	20.55	32.0	13.2
mar	1	10.12	20.52	31.0	12.8
mar	7	10.15	20.49	30.2	12.4
mar	13	10.16	20.49	29.3	12.0
mar	19	10.22	20.50	28.7	11.6
mar	25	10.26	20.53	28.0	11.2
mar	31	10.33	20.57	27.5	10.8
abr	6	10.42	20.62	27.1	10.4
abr	12	10.53	20.70	26.8	10.0
abr	18	10.64	20.78	26.7	9.7
abr	24	10.76	20.87	26.6	9.3
abr	30	10.92	20.98	26.9	8.9
may	6	11.05	21.09	27.0	8.5
may	12	11.25	21.21	27.7	8.1
may	18	11.40	21.33	28.1	7.7
may	24	11.59	21.47	28.8	7.3
may	30	11.78	21.60	29.7	6.9
jun	5	11.97	21.74	30.6	6.5
jun	11	12.18	21.87	31.7	6.1
jun	17	12.35	22.01	32.7	5.7
jun	23	12.56	22.14	34.1	5.3
jun	29	12.73	22.27	35.3	4.9
jul	5	12.94	22.40	36.8	4.5
jul	11	13.11	22.51	38.1	4.1
jul	17	13.27	22.63	39.5	3.7
jul	23	13.44	22.73	41.0	3.3
jul	29	13.57	22.83	42.4	2.9
ago	4	13.73	22.92	44.0	2.6
ago	10	13.82	22.99	45.3	2.2
ago	16	13.94	23.06	46.8	1.8
ago	22	14.02	23.11	48.1	1.4
ago	28	14.11	23.15	49.6	1.0
sep	3	14.16	23.17	50.8	0.6
sep	9	14.20	23.19	52.0	0.2
sep	15	14.24	23.19	53.2	23.8
sep	21	14.24	23.18	54.2	23.4
sep	27	14.26	23.15	55.3	23.0
oct	3	14.23	23.11	56.0	22.6
oct	9	14.22	23.06	56.9	22.2
oct	15	14.17	22.98	57.6	21.8
oct	21	14.14	22.91	58.3	21.4
oct	27	14.09	22.82	58.8	21.0
nov	2	14.01	22.72	59.1	20.6
nov	8	13.96	22.60	59.5	20.2
nov	14	13.87	22.48	59.6	19.9
nov	20	13.82	22.35	59.9	19.5
nov	26	13.72	22.22	59.7	19.1
dic	2	13.64	22.08	59.6	18.7
dic	8	13.55	21.93	59.4	18.3
dic	14	13.47	21.79	59.0	17.9
dic	20	13.40	21.64	58.7	17.5
dic	26	13.30	21.50	58.0	17.1

κ PSC

4.94 A0

α = 23 27 h m; α_c = 23 26 h m; δ = +01 20 ° ′; hp

mes	d	s	s	“	h
ene	1	44.72	55.58	36.1	16.8
ene	7	44.65	55.46	35.5	16.4
ene	13	44.60	55.34	35.2	16.0
ene	19	44.53	55.23	34.6	15.6
ene	25	44.51	55.13	34.3	15.2
ene	31	44.44	55.03	33.7	14.8
feb	6	44.42	54.95	33.4	14.4
feb	12	44.38	54.88	33.0	14.0
feb	18	44.37	54.83	32.8	13.6
feb	24	44.37	54.78	32.6	13.2
mar	1	44.35	54.75	32.3	12.8
mar	7	44.39	54.74	32.4	12.4
mar	13	44.39	54.73	32.3	12.0
mar	19	44.45	54.74	32.4	11.6
mar	25	44.48	54.77	32.4	11.3
mar	31	44.56	54.80	32.7	10.9
abr	6	44.64	54.85	33.0	10.5
abr	12	44.73	54.92	33.5	10.1
abr	18	44.85	54.99	34.1	9.7
abr	24	44.95	55.07	34.6	9.3
abr	30	45.10	55.16	35.5	8.9
may	6	45.22	55.26	36.2	8.5
may	12	45.41	55.37	37.3	8.1
may	18	45.55	55.49	38.1	7.7
may	24	45.72	55.61	39.2	7.3
may	30	45.90	55.73	40.3	6.9
jun	5	46.08	55.85	41.4	6.5
jun	11	46.28	55.98	42.7	6.1
jun	17	46.44	56.10	43.8	5.7
jun	23	46.64	56.23	45.1	5.3
jun	29	46.81	56.35	46.1	4.9
jul	5	47.01	56.47	47.5	4.6
jul	11	47.16	56.58	48.6	4.2
jul	17	47.32	56.69	49.7	3.8
jul	23	47.49	56.79	50.8	3.4
jul	29	47.61	56.88	51.7	3.0
ago	4	47.77	56.97	52.8	2.6
ago	10	47.86	57.04	53.5	2.2
ago	16	47.98	57.10	54.4	1.8
ago	22	48.06	57.15	55.1	1.4
ago	28	48.15	57.20	55.8	1.0
sep	3	48.21	57.23	56.3	0.6
sep	9	48.24	57.24	56.7	0.2
sep	15	48.29	57.24	57.2	23.8
sep	21	48.29	57.23	57.4	23.4
sep	27	48.32	57.21	57.7	23.0
oct	3	48.29	57.18	57.7	22.6
oct	9	48.28	57.13	57.8	22.2
oct	15	48.24	57.06	57.7	21.9
oct	21	48.22	56.99	57.7	21.5
oct	27	48.17	56.91	57.6	21.1
nov	2	48.10	56.81	57.3	20.7
nov	8	48.06	56.71	57.1	20.3
nov	14	47.98	56.60	56.7	19.9
nov	20	47.94	56.48	56.6	19.5
nov	26	47.85	56.35	56.0	19.1
dic	2	47.78	56.23	55.7	18.7
dic	8	47.71	56.09	55.2	18.3
dic	14	47.64	55.96	54.8	17.9
dic	20	47.58	55.83	54.4	17.5
dic	26	47.49	55.69	53.8	17.1

Posiciones aparentes de la estrella Polar, 2016

		α_c			α			δ			hp
mes	día	h	m	s	h	m	s	°	’	”	h
ene	1	2	53	19.4	2	52	30.2	89	20	05.2	20.2
ene	2	2	53	18.6	2	52	29.5	89	20	05.3	20.1
ene	3	2	53	17.9	2	52	28.7	89	20	05.4	20.1
ene	4	2	53	17.1	2	52	28.0	89	20	05.5	20.0
ene	5	2	53	16.4	2	52	27.2	89	20	05.6	19.9
ene	6	2	53	15.7	2	52	26.5	89	20	05.7	19.9
ene	7	2	53	15.0	2	52	25.8	89	20	05.8	19.8
ene	8	2	53	14.3	2	52	25.1	89	20	05.9	19.7
ene	9	2	53	13.6	2	52	24.4	89	20	06.0	19.7
ene	10	2	53	12.9	2	52	23.7	89	20	06.1	19.6
ene	11	2	53	12.2	2	52	23.0	89	20	06.1	19.5
ene	12	2	53	11.6	2	52	22.4	89	20	06.2	19.5
ene	13	2	53	10.9	2	52	21.7	89	20	06.3	19.4
ene	14	2	53	10.2	2	52	21.0	89	20	06.4	19.3
ene	15	2	53	09.5	2	52	20.3	89	20	06.6	19.3
ene	16	2	53	08.8	2	52	19.6	89	20	06.7	19.2
ene	17	2	53	08.1	2	52	18.9	89	20	06.8	19.1
ene	18	2	53	07.4	2	52	18.2	89	20	06.9	19.1
ene	19	2	53	06.6	2	52	17.4	89	20	07.0	19.0
ene	20	2	53	05.8	2	52	16.6	89	20	07.1	18.9
ene	21	2	53	05.0	2	52	15.7	89	20	07.2	18.9
ene	22	2	53	04.1	2	52	14.9	89	20	07.3	18.8
ene	23	2	53	03.3	2	52	14.0	89	20	07.4	18.7
ene	24	2	53	02.3	2	52	13.1	89	20	07.5	18.7
ene	25	2	53	01.4	2	52	12.1	89	20	07.6	18.6
ene	26	2	53	00.5	2	52	11.2	89	20	07.7	18.6
ene	27	2	52	59.5	2	52	10.3	89	20	07.8	18.5
ene	28	2	52	58.6	2	52	09.3	89	20	07.9	18.4
ene	29	2	52	57.7	2	52	08.4	89	20	07.9	18.4
ene	30	2	52	56.8	2	52	07.5	89	20	08.0	18.3
ene	31	2	52	55.9	2	52	06.6	89	20	08.0	18.2
feb	1	2	52	55.0	2	52	05.7	89	20	08.1	18.2
feb	2	2	52	54.1	2	52	04.8	89	20	08.1	18.1
feb	3	2	52	53.3	2	52	04.0	89	20	08.2	18.0
feb	4	2	52	52.5	2	52	03.2	89	20	08.3	18.0
feb	5	2	52	51.7	2	52	02.4	89	20	08.3	17.9
feb	6	2	52	51.0	2	52	01.7	89	20	08.4	17.8
feb	7	2	52	50.2	2	52	00.9	89	20	08.4	17.8
feb	8	2	52	49.5	2	52	00.1	89	20	08.5	17.7
feb	9	2	52	48.7	2	51	59.4	89	20	08.5	17.6
feb	10	2	52	47.9	2	51	58.6	89	20	08.6	17.6
feb	11	2	52	47.1	2	51	57.8	89	20	08.7	17.5
feb	12	2	52	46.3	2	51	57.0	89	20	08.7	17.4
feb	13	2	52	45.5	2	51	56.1	89	20	08.8	17.4
feb	14	2	52	44.6	2	51	55.2	89	20	08.9	17.3
feb	15	2	52	43.7	2	51	54.3	89	20	09.0	17.2
feb	16	2	52	42.8	2	51	53.4	89	20	09.0	17.2
feb	17	2	52	41.8	2	51	52.4	89	20	09.1	17.1
feb	18	2	52	40.9	2	51	51.5	89	20	09.1	17.0
feb	19	2	52	39.9	2	51	50.5	89	20	09.2	17.0
feb	20	2	52	38.9	2	51	49.5	89	20	09.2	16.9
feb	21	2	52	37.9	2	51	48.5	89	20	09.3	16.8
feb	22	2	52	36.8	2	51	47.4	89	20	09.3	16.8
feb	23	2	52	35.8	2	51	46.4	89	20	09.4	16.7
feb	24	2	52	34.8	2	51	45.4	89	20	09.4	16.6
feb	25	2	52	33.8	2	51	44.4	89	20	09.4	16.6
feb	26	2	52	32.8	2	51	43.4	89	20	09.4	16.5
feb	27	2	52	31.9	2	51	42.4	89	20	09.5	16.4
feb	28	2	52	30.9	2	51	41.5	89	20	09.5	16.4
feb	29	2	52	29.9	2	51	40.5	89	20	09.5	16.3
mar	1	2	52	29.0	2	51	39.6	89	20	09.5	16.2
mar	2	2	52	28.1	2	51	38.7	89	20	09.5	16.2

Posiciones aparentes de la estrella Polar, 2016

		α_c			α			δ			hp
mes	día	h	m	s	h	m	s	°	’	”	h
mar	3	2	52	27.2	2	51	37.8	89	20	09.5	16.1
mar	4	2	52	26.3	2	51	36.9	89	20	09.5	16.0
mar	5	2	52	25.4	2	51	36.0	89	20	09.5	16.0
mar	6	2	52	24.6	2	51	35.1	89	20	09.6	15.9
mar	7	2	52	23.7	2	51	34.3	89	20	09.6	15.8
mar	8	2	52	22.9	2	51	33.4	89	20	09.6	15.8
mar	9	2	52	22.0	2	51	32.6	89	20	09.6	15.7
mar	10	2	52	21.1	2	51	31.7	89	20	09.6	15.6
mar	11	2	52	20.3	2	51	30.8	89	20	09.6	15.6
mar	12	2	52	19.4	2	51	29.9	89	20	09.7	15.5
mar	13	2	52	18.5	2	51	29.0	89	20	09.7	15.5
mar	14	2	52	17.6	2	51	28.1	89	20	09.7	15.4
mar	15	2	52	16.6	2	51	27.1	89	20	09.7	15.3
mar	16	2	52	15.6	2	51	26.2	89	20	09.8	15.3
mar	17	2	52	14.6	2	51	25.1	89	20	09.8	15.2
mar	18	2	52	13.6	2	51	24.1	89	20	09.8	15.1
mar	19	2	52	12.6	2	51	23.1	89	20	09.8	15.1
mar	20	2	52	11.5	2	51	22.0	89	20	09.8	15.0
mar	21	2	52	10.5	2	51	21.0	89	20	09.8	14.9
mar	22	2	52	09.4	2	51	19.9	89	20	09.8	14.9
mar	23	2	52	08.4	2	51	18.9	89	20	09.8	14.8
mar	24	2	52	07.3	2	51	17.8	89	20	09.7	14.7
mar	25	2	52	06.3	2	51	16.8	89	20	09.7	14.7
mar	26	2	52	05.3	2	51	15.8	89	20	09.7	14.6
mar	27	2	52	04.4	2	51	14.9	89	20	09.6	14.5
mar	28	2	52	03.5	2	51	14.0	89	20	09.6	14.5
mar	29	2	52	02.6	2	51	13.1	89	20	09.6	14.4
mar	30	2	52	01.7	2	51	12.2	89	20	09.5	14.3
mar	31	2	52	00.9	2	51	11.4	89	20	09.5	14.3
abr	1	2	52	00.1	2	51	10.6	89	20	09.5	14.2
abr	2	2	51	59.3	2	51	09.7	89	20	09.4	14.1
abr	3	2	51	58.4	2	51	08.9	89	20	09.4	14.1
abr	4	2	51	57.6	2	51	08.1	89	20	09.4	14.0
abr	5	2	51	56.8	2	51	07.3	89	20	09.4	13.9
abr	6	2	51	56.0	2	51	06.4	89	20	09.3	13.9
abr	7	2	51	55.1	2	51	05.5	89	20	09.3	13.8
abr	8	2	51	54.2	2	51	04.6	89	20	09.3	13.7
abr	9	2	51	53.3	2	51	03.7	89	20	09.3	13.7
abr	10	2	51	52.4	2	51	02.8	89	20	09.3	13.6
abr	11	2	51	51.4	2	51	01.9	89	20	09.2	13.5
abr	12	2	51	50.5	2	51	00.9	89	20	09.2	13.5
abr	13	2	51	49.5	2	50	59.9	89	20	09.2	13.4
abr	14	2	51	48.5	2	50	58.9	89	20	09.1	13.3
abr	15	2	51	47.5	2	50	57.9	89	20	09.1	13.3
abr	16	2	51	46.5	2	50	56.9	89	20	09.0	13.2
abr	17	2	51	45.5	2	50	55.9	89	20	09.0	13.1
abr	18	2	51	44.5	2	50	55.0	89	20	08.9	13.1
abr	19	2	51	43.6	2	50	54.0	89	20	08.9	13.0
abr	20	2	51	42.6	2	50	53.0	89	20	08.8	12.9
abr	21	2	51	41.7	2	50	52.1	89	20	08.7	12.9
abr	22	2	51	40.7	2	50	51.1	89	20	08.7	12.8
abr	23	2	51	39.8	2	50	50.2	89	20	08.6	12.7
abr	24	2	51	38.9	2	50	49.4	89	20	08.5	12.7
abr	25	2	51	38.1	2	50	48.5	89	20	08.4	12.6
abr	26	2	51	37.2	2	50	47.6	89	20	08.4	12.5
abr	27	2	51	36.4	2	50	46.8	89	20	08.3	12.5
abr	28	2	51	35.6	2	50	46.0	89	20	08.2	12.4
abr	29	2	51	34.8	2	50	45.2	89	20	08.1	12.4
abr	30	2	51	34.0	2	50	44.4	89	20	08.0	12.3
may	1	2	51	33.3	2	50	43.7	89	20	08.0	12.2
may	2	2	51	32.5	2	50	42.9	89	20	07.9	12.2
may	3	2	51	31.8	2	50	42.1	89	20	07.8	12.1

Posiciones aparentes de la estrella Polar, 2016

		α_c			α			δ			hp
mes	día	h	m	s	h	m	s	°	’	”	h
may	4	2	51	31.0	2	50	41.4	89	20	07.8	12.0
may	5	2	51	30.2	2	50	40.6	89	20	07.7	12.0
may	6	2	51	29.5	2	50	39.8	89	20	07.6	11.9
may	7	2	51	28.7	2	50	39.0	89	20	07.6	11.8
may	8	2	51	27.9	2	50	38.2	89	20	07.5	11.8
may	9	2	51	27.1	2	50	37.4	89	20	07.4	11.7
may	10	2	51	26.2	2	50	36.6	89	20	07.4	11.6
may	11	2	51	25.4	2	50	35.7	89	20	07.3	11.6
may	12	2	51	24.5	2	50	34.8	89	20	07.2	11.5
may	13	2	51	23.6	2	50	33.9	89	20	07.2	11.4
may	14	2	51	22.7	2	50	33.0	89	20	07.1	11.4
may	15	2	51	21.8	2	50	32.1	89	20	07.0	11.3
may	16	2	51	20.9	2	50	31.2	89	20	06.9	11.2
may	17	2	51	20.0	2	50	30.4	89	20	06.8	11.2
may	18	2	51	19.2	2	50	29.5	89	20	06.7	11.1
may	19	2	51	18.4	2	50	28.7	89	20	06.6	11.0
may	20	2	51	17.6	2	50	27.9	89	20	06.5	11.0
may	21	2	51	16.9	2	50	27.2	89	20	06.3	10.9
may	22	2	51	16.1	2	50	26.5	89	20	06.2	10.8
may	23	2	51	15.5	2	50	25.8	89	20	06.1	10.8
may	24	2	51	14.8	2	50	25.2	89	20	06.0	10.7
may	25	2	51	14.2	2	50	24.6	89	20	05.9	10.6
may	26	2	51	13.6	2	50	24.0	89	20	05.8	10.6
may	27	2	51	13.0	2	50	23.4	89	20	05.7	10.5
may	28	2	51	12.5	2	50	22.8	89	20	05.6	10.4
may	29	2	51	11.9	2	50	22.2	89	20	05.5	10.4
may	30	2	51	11.3	2	50	21.6	89	20	05.4	10.3
may	31	2	51	10.7	2	50	21.0	89	20	05.3	10.2
jun	1	2	51	10.0	2	50	20.3	89	20	05.2	10.2
jun	2	2	51	09.4	2	50	19.7	89	20	05.1	10.1
jun	3	2	51	08.7	2	50	19.0	89	20	05.0	10.0
jun	4	2	51	08.0	2	50	18.3	89	20	04.9	10.0
jun	5	2	51	07.3	2	50	17.6	89	20	04.8	09.9
jun	6	2	51	06.6	2	50	16.9	89	20	04.7	09.8
jun	7	2	51	05.9	2	50	16.2	89	20	04.6	09.8
jun	8	2	51	05.2	2	50	15.5	89	20	04.4	09.7
jun	9	2	51	04.5	2	50	14.8	89	20	04.3	09.6
jun	10	2	51	03.8	2	50	14.1	89	20	04.2	09.6
jun	11	2	51	03.1	2	50	13.3	89	20	04.1	09.5
jun	12	2	51	02.4	2	50	12.7	89	20	03.9	09.5
jun	13	2	51	01.7	2	50	12.0	89	20	03.8	09.4
jun	14	2	51	01.1	2	50	11.3	89	20	03.7	09.3
jun	15	2	51	00.4	2	50	10.7	89	20	03.5	09.3
jun	16	2	50	59.8	2	50	10.1	89	20	03.4	09.2
jun	17	2	50	59.2	2	50	09.5	89	20	03.3	09.1
jun	18	2	50	58.7	2	50	08.9	89	20	03.1	09.1
jun	19	2	50	58.1	2	50	08.4	89	20	03.0	09.0
jun	20	2	50	57.6	2	50	07.9	89	20	02.8	08.9
jun	21	2	50	57.1	2	50	07.4	89	20	02.7	08.9
jun	22	2	50	56.6	2	50	06.9	89	20	02.5	08.8
jun	23	2	50	56.2	2	50	06.4	89	20	02.4	08.7
jun	24	2	50	55.7	2	50	06.0	89	20	02.3	08.7
jun	25	2	50	55.3	2	50	05.6	89	20	02.1	08.6
jun	26	2	50	54.9	2	50	05.2	89	20	02.0	08.5
jun	27	2	50	54.5	2	50	04.7	89	20	01.8	08.5
jun	28	2	50	54.1	2	50	04.3	89	20	01.7	08.4
jun	29	2	50	53.7	2	50	03.9	89	20	01.6	08.3
jun	30	2	50	53.2	2	50	03.5	89	20	01.5	08.3
jul	1	2	50	52.8	2	50	03.0	89	20	01.3	08.2
jul	2	2	50	52.4	2	50	02.6	89	20	01.2	08.1
jul	3	2	50	51.9	2	50	02.1	89	20	01.1	08.1
jul	4	2	50	51.4	2	50	01.6	89	20	01.0	08.0

Posiciones aparentes de la estrella Polar, 2016

		α_c			α			δ			hp
mes	día	h	m	s	h	m	s	°	’	”	h
jul	5	2	50	50.9	2	50	01.1	89	20	00.8	07.9
jul	6	2	50	50.4	2	50	00.6	89	20	00.7	07.9
jul	7	2	50	49.9	2	50	00.1	89	20	00.6	07.8
jul	8	2	50	49.4	2	49	59.6	89	20	00.4	07.7
jul	9	2	50	48.9	2	49	59.1	89	20	00.3	07.7
jul	10	2	50	48.4	2	49	58.6	89	20	00.2	07.6
jul	11	2	50	47.9	2	49	58.1	89	20	00.0	07.5
jul	12	2	50	47.5	2	49	57.7	89	19	59.8	07.5
jul	13	2	50	47.1	2	49	57.3	89	19	59.7	07.4
jul	14	2	50	46.7	2	49	56.9	89	19	59.5	07.3
jul	15	2	50	46.4	2	49	56.6	89	19	59.3	07.3
jul	16	2	50	46.1	2	49	56.3	89	19	59.2	07.2
jul	17	2	50	45.8	2	49	56.0	89	19	59.0	07.1
jul	18	2	50	45.6	2	49	55.8	89	19	58.8	07.1
jul	19	2	50	45.4	2	49	55.6	89	19	58.7	07.0
jul	20	2	50	45.3	2	49	55.4	89	19	58.5	06.9
jul	21	2	50	45.1	2	49	55.3	89	19	58.4	06.9
jul	22	2	50	44.9	2	49	55.1	89	19	58.2	06.8
jul	23	2	50	44.8	2	49	54.9	89	19	58.1	06.8
jul	24	2	50	44.6	2	49	54.8	89	19	58.0	06.7
jul	25	2	50	44.4	2	49	54.6	89	19	57.8	06.6
jul	26	2	50	44.2	2	49	54.4	89	19	57.7	06.6
jul	27	2	50	44.0	2	49	54.1	89	19	57.6	06.5
jul	28	2	50	43.7	2	49	53.9	89	19	57.4	06.4
jul	29	2	50	43.5	2	49	53.6	89	19	57.3	06.4
jul	30	2	50	43.2	2	49	53.4	89	19	57.1	06.3
jul	31	2	50	42.9	2	49	53.1	89	19	57.0	06.2
ago	1	2	50	42.7	2	49	52.8	89	19	56.8	06.2
ago	2	2	50	42.4	2	49	52.5	89	19	56.7	06.1
ago	3	2	50	42.1	2	49	52.3	89	19	56.5	06.0
ago	4	2	50	41.9	2	49	52.0	89	19	56.4	06.0
ago	5	2	50	41.6	2	49	51.7	89	19	56.2	05.9
ago	6	2	50	41.4	2	49	51.5	89	19	56.1	05.8
ago	7	2	50	41.2	2	49	51.3	89	19	55.9	05.8
ago	8	2	50	41.0	2	49	51.1	89	19	55.7	05.7
ago	9	2	50	40.8	2	49	50.9	89	19	55.6	05.6
ago	10	2	50	40.6	2	49	50.8	89	19	55.4	05.6
ago	11	2	50	40.5	2	49	50.6	89	19	55.2	05.5
ago	12	2	50	40.4	2	49	50.6	89	19	55.0	05.4
ago	13	2	50	40.4	2	49	50.5	89	19	54.9	05.4
ago	14	2	50	40.3	2	49	50.4	89	19	54.7	05.3
ago	15	2	50	40.3	2	49	50.4	89	19	54.5	05.2
ago	16	2	50	40.3	2	49	50.4	89	19	54.4	05.2
ago	17	2	50	40.3	2	49	50.4	89	19	54.2	05.1
ago	18	2	50	40.3	2	49	50.4	89	19	54.0	05.0
ago	19	2	50	40.4	2	49	50.5	89	19	53.9	05.0
ago	20	2	50	40.4	2	49	50.5	89	19	53.7	04.9
ago	21	2	50	40.5	2	49	50.6	89	19	53.6	04.8
ago	22	2	50	40.5	2	49	50.6	89	19	53.4	04.8
ago	23	2	50	40.6	2	49	50.7	89	19	53.3	04.7
ago	24	2	50	40.6	2	49	50.7	89	19	53.1	04.6
ago	25	2	50	40.6	2	49	50.7	89	19	53.0	04.6
ago	26	2	50	40.7	2	49	50.7	89	19	52.9	04.5
ago	27	2	50	40.7	2	49	50.7	89	19	52.7	04.5
ago	28	2	50	40.7	2	49	50.7	89	19	52.6	04.4
ago	29	2	50	40.6	2	49	50.7	89	19	52.4	04.3
ago	30	2	50	40.6	2	49	50.7	89	19	52.3	04.3
ago	31	2	50	40.6	2	49	50.6	89	19	52.1	04.2
sep	1	2	50	40.5	2	49	50.6	89	19	52.0	04.1
sep	2	2	50	40.5	2	49	50.6	89	19	51.8	04.1
sep	3	2	50	40.5	2	49	50.5	89	19	51.7	04.0
sep	4	2	50	40.5	2	49	50.5	89	19	51.5	03.9

Posiciones aparentes de la estrella Polar, 2016

		α_c			α			δ			hp
mes	día	h	m	s	h	m	s	°	’	”	h
sep	5	2	50	40.5	2	49	50.6	89	19	51.4	03.9
sep	6	2	50	40.6	2	49	50.6	89	19	51.2	03.8
sep	7	2	50	40.7	2	49	50.7	89	19	51.0	03.7
sep	8	2	50	40.8	2	49	50.9	89	19	50.8	03.7
sep	9	2	50	41.0	2	49	51.1	89	19	50.7	03.6
sep	10	2	50	41.3	2	49	51.3	89	19	50.5	03.5
sep	11	2	50	41.5	2	49	51.6	89	19	50.3	03.5
sep	12	2	50	41.8	2	49	51.9	89	19	50.2	03.4
sep	13	2	50	42.2	2	49	52.2	89	19	50.0	03.3
sep	14	2	50	42.5	2	49	52.5	89	19	49.9	03.3
sep	15	2	50	42.8	2	49	52.8	89	19	49.7	03.2
sep	16	2	50	43.1	2	49	53.1	89	19	49.6	03.1
sep	17	2	50	43.4	2	49	53.4	89	19	49.4	03.1
sep	18	2	50	43.7	2	49	53.7	89	19	49.3	03.0
sep	19	2	50	44.0	2	49	54.0	89	19	49.2	02.9
sep	20	2	50	44.2	2	49	54.2	89	19	49.0	02.9
sep	21	2	50	44.5	2	49	54.4	89	19	48.9	02.8
sep	22	2	50	44.7	2	49	54.6	89	19	48.8	02.7
sep	23	2	50	44.9	2	49	54.8	89	19	48.6	02.7
sep	24	2	50	45.1	2	49	55.0	89	19	48.5	02.6
sep	25	2	50	45.3	2	49	55.2	89	19	48.4	02.5
sep	26	2	50	45.5	2	49	55.4	89	19	48.2	02.5
sep	27	2	50	45.7	2	49	55.6	89	19	48.1	02.4
sep	28	2	50	45.9	2	49	55.8	89	19	47.9	02.4
sep	29	2	50	46.1	2	49	56.0	89	19	47.8	02.3
sep	30	2	50	46.3	2	49	56.3	89	19	47.6	02.2
oct	1	2	50	46.6	2	49	56.5	89	19	47.5	02.2
oct	2	2	50	46.9	2	49	56.8	89	19	47.3	02.1
oct	3	2	50	47.2	2	49	57.1	89	19	47.1	02.0
oct	4	2	50	47.5	2	49	57.4	89	19	47.0	02.0
oct	5	2	50	47.9	2	49	57.8	89	19	46.8	01.9
oct	6	2	50	48.2	2	49	58.2	89	19	46.7	01.8
oct	7	2	50	48.6	2	49	58.6	89	19	46.5	01.8
oct	8	2	50	49.1	2	49	59.0	89	19	46.4	01.7
oct	9	2	50	49.5	2	49	59.4	89	19	46.2	01.6
oct	10	2	50	50.0	2	49	59.9	89	19	46.1	01.6
oct	11	2	50	50.4	2	50	00.4	89	19	45.9	01.5
oct	12	2	50	50.9	2	50	00.8	89	19	45.8	01.4
oct	13	2	50	51.4	2	50	01.3	89	19	45.7	01.4
oct	14	2	50	51.9	2	50	01.8	89	19	45.5	01.3
oct	15	2	50	52.4	2	50	02.3	89	19	45.4	01.2
oct	16	2	50	52.9	2	50	02.8	89	19	45.3	01.2
oct	17	2	50	53.4	2	50	03.3	89	19	45.1	01.1
oct	18	2	50	53.9	2	50	03.8	89	19	45.0	01.0
oct	19	2	50	54.4	2	50	04.2	89	19	44.9	01.0
oct	20	2	50	54.8	2	50	04.7	89	19	44.8	00.9
oct	21	2	50	55.3	2	50	05.1	89	19	44.7	00.8
oct	22	2	50	55.7	2	50	05.5	89	19	44.6	00.8
oct	23	2	50	56.1	2	50	05.9	89	19	44.5	00.7
oct	24	2	50	56.5	2	50	06.3	89	19	44.3	00.6
oct	25	2	50	56.9	2	50	06.7	89	19	44.2	00.6
oct	26	2	50	57.3	2	50	07.1	89	19	44.1	00.5
oct	27	2	50	57.7	2	50	07.5	89	19	44.0	00.4
oct	28	2	50	58.1	2	50	07.9	89	19	43.8	00.4
oct	29	2	50	58.6	2	50	08.4	89	19	43.7	00.3
oct	30	2	50	59.0	2	50	08.9	89	19	43.6	00.3
oct	31	2	50	59.5	2	50	09.4	89	19	43.4	00.2
nov	1	2	51	00.1	2	50	09.9	89	19	43.3	00.1
nov	2	2	51	00.7	2	50	10.5	89	19	43.1	00.1
nov	3	2	51	01.3	2	50	11.1	89	19	43.0	24.0
nov	4	2	51	01.9	2	50	11.7	89	19	42.9	23.9
nov	5	2	51	02.6	2	50	12.4	89	19	42.7	23.9

Posiciones aparentes de la estrella Polar, 2016

		α_c			α			δ			hp
mes	día	h	m	s	h	m	s	°	’	”	h
nov	6	2	51	03.3	2	50	13.1	89	19	42.6	23.8
nov	7	2	51	04.1	2	50	13.8	89	19	42.5	23.7
nov	8	2	51	04.8	2	50	14.6	89	19	42.4	23.7
nov	9	2	51	05.5	2	50	15.3	89	19	42.3	23.6
nov	10	2	51	06.3	2	50	16.0	89	19	42.2	23.5
nov	11	2	51	07.0	2	50	16.7	89	19	42.1	23.5
nov	12	2	51	07.7	2	50	17.4	89	19	42.0	23.4
nov	13	2	51	08.3	2	50	18.1	89	19	41.9	23.3
nov	14	2	51	09.0	2	50	18.7	89	19	41.8	23.3
nov	15	2	51	09.6	2	50	19.3	89	19	41.7	23.2
nov	16	2	51	10.2	2	50	19.9	89	19	41.6	23.1
nov	17	2	51	10.8	2	50	20.5	89	19	41.5	23.1
nov	18	2	51	11.4	2	50	21.1	89	19	41.4	23.0
nov	19	2	51	11.9	2	50	21.6	89	19	41.3	22.9
nov	20	2	51	12.5	2	50	22.2	89	19	41.2	22.9
nov	21	2	51	13.1	2	50	22.8	89	19	41.1	22.8
nov	22	2	51	13.7	2	50	23.4	89	19	41.0	22.7
nov	23	2	51	14.3	2	50	24.0	89	19	40.9	22.7
nov	24	2	51	14.9	2	50	24.6	89	19	40.8	22.6
nov	25	2	51	15.6	2	50	25.2	89	19	40.7	22.5
nov	26	2	51	16.2	2	50	25.9	89	19	40.6	22.5
nov	27	2	51	16.9	2	50	26.6	89	19	40.5	22.4
nov	28	2	51	17.6	2	50	27.3	89	19	40.4	22.3
nov	29	2	51	18.3	2	50	28.0	89	19	40.2	22.3
nov	30	2	51	19.1	2	50	28.7	89	19	40.1	22.2
dic	1	2	51	19.8	2	50	29.5	89	19	40.0	22.2
dic	2	2	51	20.6	2	50	30.3	89	19	39.9	22.1
dic	3	2	51	21.4	2	50	31.1	89	19	39.8	22.0
dic	4	2	51	22.2	2	50	31.9	89	19	39.7	22.0
dic	5	2	51	23.1	2	50	32.7	89	19	39.6	21.9
dic	6	2	51	23.9	2	50	33.6	89	19	39.6	21.8
dic	7	2	51	24.8	2	50	34.4	89	19	39.5	21.8
dic	8	2	51	25.6	2	50	35.2	89	19	39.4	21.7
dic	9	2	51	26.4	2	50	36.1	89	19	39.3	21.6
dic	10	2	51	27.3	2	50	36.9	89	19	39.3	21.6
dic	11	2	51	28.1	2	50	37.7	89	19	39.2	21.5
dic	12	2	51	28.9	2	50	38.5	89	19	39.1	21.4
dic	13	2	51	29.7	2	50	39.3	89	19	39.1	21.4
dic	14	2	51	30.5	2	50	40.0	89	19	39.0	21.3
dic	15	2	51	31.2	2	50	40.8	89	19	38.9	21.2
dic	16	2	51	31.9	2	50	41.5	89	19	38.9	21.2
dic	17	2	51	32.7	2	50	42.2	89	19	38.8	21.1
dic	18	2	51	33.4	2	50	42.9	89	19	38.8	21.0
dic	19	2	51	34.1	2	50	43.6	89	19	38.7	21.0
dic	20	2	51	34.8	2	50	44.3	89	19	38.6	20.9
dic	21	2	51	35.5	2	50	45.1	89	19	38.5	20.8
dic	22	2	51	36.2	2	50	45.8	89	19	38.5	20.8
dic	23	2	51	37.0	2	50	46.5	89	19	38.4	20.7
dic	24	2	51	37.8	2	50	47.3	89	19	38.3	20.6
dic	25	2	51	38.6	2	50	48.1	89	19	38.2	20.6
dic	26	2	51	39.4	2	50	49.0	89	19	38.1	20.5
dic	27	2	51	40.3	2	50	49.8	89	19	38.1	20.5
dic	28	2	51	41.2	2	50	50.7	89	19	38.0	20.4
dic	29	2	51	42.1	2	50	51.7	89	19	37.9	20.3
dic	30	2	51	43.1	2	50	52.6	89	19	37.8	20.3
dic	31	2	51	44.1	2	50	53.6	89	19	37.8	20.2
dic	32	2	51	45.1	2	50	54.6	89	19	37.7	20.1
dic	33	2	51	46.1	2	50	55.6	89	19	37.7	20.1
		2	51	47.1	2	50	56.6	89	19	37.6	20.0

Constelaciones, 2016

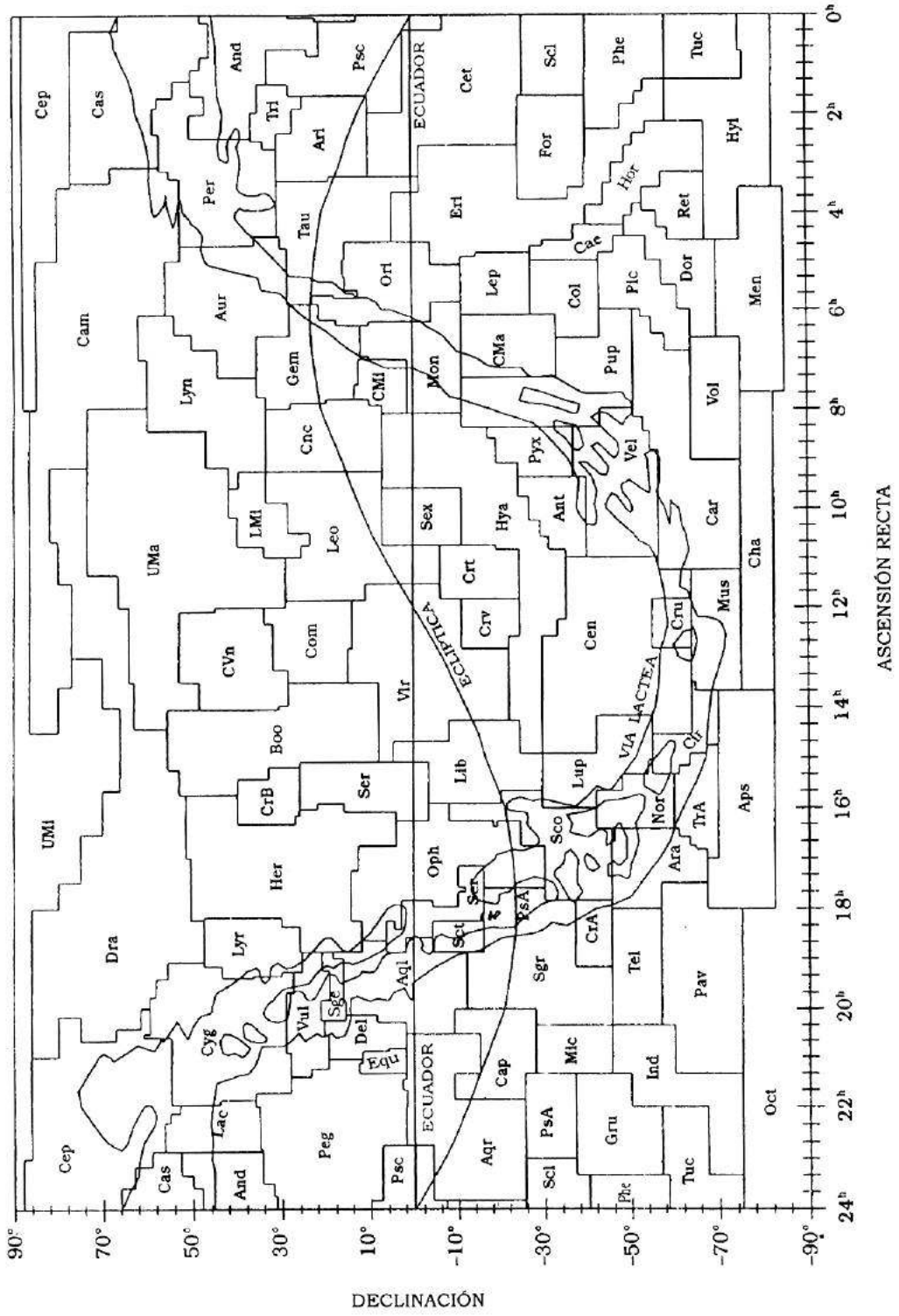
Nombres y significados

Nominativo	Genitivo	Abreviatura	Significado
Andromeda	Andromedae	And	Andrómeda, hija de Casiopea y Cefeo
Antlia	Antliae	Ant	Máquina neumática
Apus	Apodis	Aps	Ave del paraíso
Aquarius	Aquarii	Aqr	Aguador
Aquila	Aquilae	Aql	Aguila
Ara	Arae	Ara	Altar
Aries	Arietis	Ari	Carnero
Auriga	Aurigae	Aur	Cochero
Bootes	Bootis	Boo	Boyero o pastor
Caelum	Caeli	Cae	Buril
Camelopardalis	Camaleopardalis	Cam	Jirafa
Cancer	Cancri	Cnc	Cangrejo
Canes Venatici	Canum Venaticorum	CVn	Lebreles o perros de caza
Canis Major	Canis Majoris	CMa	Can mayor
Canis Minor	Canis Minoris	CMi	Can menor
Capricornus	Capricorni	Cap	Cabra marina
Carina	Carinae	Car	Carena o quilla
Cassiopeia	Cassiopeiae	Cas	Casiopea, reina
Centaurus	Centauri	Cen	Centauro
Cepheus	Cephei	Cep	Cefeo, rey
Cetus	Ceti	Cet	Cetáceo o ballena
Chamaleon	Chamaleontis	Cha	Camaleón
Circinus	Circini	Cir	Compás
Columba	Columbae	Col	Paloma
Coma Berenices	Comae Berenices	Com	Cabellera de Berenice
Corona Australis	Coronae Australis	CrA	Corona austral
Corona Borealis	Coronae Borealis	CrB	Corona boreal
Corvus	Corvi	Crv	Cuervo
Crater	Crateris	Crt	Copa
Crux	Crucis	Cru	Cruz del sur
Cygnus	Cygni	Cyg	Cisne
Delphinus	Delphini	Del	Delfín
Dorado	Doradus	Dor	Pez dorado
Draco	Draconis	Dra	Dragón
Equuleus	Equulei	Equ	Caballo menor
Eridanus	Eridani	Eri	Río
Fornax	Fornacis	For	Horno
Gemini	Geminorum	Gem	Gemelos
Grus	Gruis	Gru	Grulla
Hercules	Herculis	Her	Hércules
Horologium	Horologii	Hor	Reloj
Hydra	Hydrae	Hya	Serpiente marina hembra
Hydrus	Hydri	Hyi	Serpiente marina macho
Indus	Indi	Ind	Indio
Lacerta	Lacertae	Lac	Lagartija
Leo	Leonis	Leo	León
Leo Minor	Leonis Minoris	LMi	León menor
Lepus	Leporis	Lep	Liebre
Libra	Librae	Lib	Balanza
Lupus	Lupi	Lup	Lobo
Lynx	Lyncis	Lyn	Lince

Constelaciones, 2016

Nominativo	Genitivo	Abreviatura	Significado
Lyra	Lyrae	Lyr	Lira
Mensa	Mensae	Men	Mesa o altiplano
Microscopium	Microscopii	Mic	Microscopio
Monoceros	Monocerotis	Mon	Unicornio
Musca	Muscae	Mus	Mosca
Norma	Normae	Nor	Escuadra o regla
Octantis	Octantis	Oct	Octante
Ophiuchus	Ophiuchi	Oph	Serpentero, Ofiuco
Orionis	Orionis	Ori	Cazador
Pavo	Pavonis	Pav	Pavo real, pavón
Pegasus	Pegasi	Peg	Pegaso
Perseus	Persei	Per	Salvador de Andrómeda
Phoenix	Phoenicis	Phe	Fénix
Pictor	Pictoris	Pic	Caballete de pintor
Pisces	Piscium	Psc	Peces
Piscis Austrinus	Piscis Austrini	PsA	Pez austral
Puppis	Puppis	Pup	Popa
Pyxis	Pyxidis	Pyx	Compás o brújula
Reticulum	Reticuli	Ret	Retícula
Sagitta	Sagittae	Sge	Flecha
Sagittarius	Sagittarii	Sgr	Arquero
Scorpius	Scorpii	Sco	Escorpión
Sculptor	Sculptoris	Scl	Escultor
Scutum	Scuti	Sct	Escudo
Serpents	Serpentis	Ser	Serpiente
Sextans	Sextantis	Sex	Sextante
Taurus	Tauri	Tau	Toro
Telescopium	Telescopii	Tel	Telescopio
Triangulum	Trianguli	Tri	Triángulo
Triangulum-Australe	Trianguli-Australis	TrA	Triángulo austral
Tucana	Tucanae	Tuc	Tucán
Ursa Major	Ursae Majoris	UMa	Osa mayor
Ursa Minor	Ursae Minoris	UMi	Osa menor
Vela	Velorum	Vel	Vela
Virgo	Virginis	Vir	Virgen
Volans	Volantis	Vol	Pez volador
Vulpecula	Vulpeculae	Vul	Zorra

Diagrama de constelaciones, 2016



Objetos Messier, 2016

M	NGC	α h	α m	α s	δ º	δ ‘	δ “	const	v	tipo	descripción
110	205	0	40	24	+ 41	41	37	And	8	E6	Satélite de M31
032	221	0	42	42	+ 40	52	36	And	8	E2	Satélite de M31
031	224	0	42	42	+ 41	16	36	And	4	S	Galaxia de Andrómeda
103	581	1	33	12	+ 60	42	8	Cas	7	ca	
033	598	1	33	54	+ 30	39	17	Tri	7	Sc	
074	628	1	36	42	+ 15	47	26	Psc	10	Sc	
076	650	1	42	18	+ 51	34	9	Per	12	np	Nebulosa, Pequeña Mancuerna
077	1068	2	42	42	- 0	1	22	Cet	9	Sbp	Galaxia Seyfert
034	1039	2	42	0	+ 42	47	4	Per	6	ca	
045		3	47	18	+ 24	5	56	Tau	1	ca	Pléyades
079	1904	5	24	30	- 24	33	6	Lep	8	cg	
038	1912	5	28	42	+ 35	50	15	Aur	6	ca	
001	1952	5	34	30	+ 22	1	13	Tau	8	rsn	Nebulosa del Cangrejo
042	1976	5	35	24	- 5	27	2	Ori		ne	Nebulosa de Orión
036	1960	5	36	6	+ 34	8	3	Aur	6	ca	
078	2068	5	46	42	+ 0	3	5	Ori		nr	
037	2099	5	52	24	+ 32	33	10	Aur	6	ca	
035	2168	6	8	54	+ 24	20	5	Gem	5	ca	
041	2287	6	47	0	- 20	44	5	CMa	5	ca	
050	2323	7	3	12	- 8	20	1	Mon	7	ca	
047*	2422	7	36	36	- 14	30	4	Pup	5	ca	
046	2437	7	41	48	- 14	49	6	Pup	6	ca	
093	2447	7	44	42	- 23	52	13	Pup	6	ca	
048*	2548	8	13	48	- 5	48	3	Hya	5	ca	
044	2632	8	40	1	+ 19	59	1	Cnc	4	ca	El Pesebre o La Colmena
067	2682	8	50	24	+ 11	49	5	Cnc	6	ca	Cúmulo muy viejo
081	3031	9	55	30	+ 69	4	0	UMa	8	Sb	
082	3034	9	55	48	+ 69	41	1	UMa	9	gPec	
095	3351	10	40	0	+ 11	42	3	Leo	10	SBb	Miembro del grupo de Leo
096	3368	10	46	48	+ 11	49	14	Leo	9	Sbp	Miembro del grupo de Leo
105	3379	10	47	48	+ 12	35	3	Leo	9	E1	
108	3556	11	11	30	+ 55	40	2	UMa	11	Sc	
097	3587	11	14	48	+ 55	1	5	UMa	12	np	Nebulosa de la Lechuza
065	3623	11	18	54	+ 13	5	14	Leo	9	Sa	Miembro del grupo de Leo
066	3627	11	20	12	+ 12	59	3	Leo	8	Sb	Miembro del grupo de Leo
109	3992	11	57	42	+ 53	23	1	UMa	11	Sb	
098	4192	12	13	48	+ 14	54	2	Com	11	Sb	
099	4254	12	18	48	+ 14	25	12	Com	10	Sc	Miembro del cúmulo de Virgo
106	4258	12	19	0	+ 47	18	2	CVn	9	Sbp	Gran espiral
061	4303	12	21	54	+ 4	28	3	Vir	10	Sc	Miembro del cúmulo de Virgo
040		12	22	24	+ 58	5	13	UMa	9		Estrella binaria
100	4321	12	22	54	+ 15	49	2	Com	11	Sc	Miembro del cúmulo de Virgo
084	4374	12	25	6	+ 12	53	12	Vir	9	S0	Miembro del cúmulo de Virgo
085	4382	12	25	24	+ 18	11	2	Com	9	S0	Miembro del cúmulo de Virgo
086	4406	12	26	6	+ 13	7	12	Vir	10	E3	
049	4472	12	29	48	+ 8	0	12	Vir	9	E4	Elíptica gigante, cúmulo de Virgo
087	4486	12	30	48	+ 12	24	22	Vir	9	E0	Elíptica gigante, cúmulo de Virgo
088	4501	12	32	0	+ 14	25	3	Com	10	Sc	Espiral, cúmulo de Virgo
091*	4548	12	35	24	+ 14	30	21	Com	11	SBb	
089	4552	12	35	42	+ 12	33	22	Vir	10	E0	
090	4569	12	36	48	+ 13	10	3	Vir	10	Sb	Miembro del cúmulo de Virgo
058	4579	12	37	42	+ 11	49	12	Vir	9	SB	Miembro del cúmulo de Virgo
068	4590	12	39	30	- 26	45	7	Hya	8	cg	
104	4594	12	40	0	- 11	37	3	Vir	9	Sb	Galaxia del Sombrero, en Virgo
059	4621	12	42	0	+ 11	39	2	Vir	10	E5	Probable miembro de Virgo

Objetos Messier, 2016

M	NGC	α h	α m	α s	δ º	δ ‘	δ “	const	v	tipo	descripción
060	4649	12	43	42	+ 11	33	20	Vir	9	E2	Elíptica del cúmulo de Virgo
094	4736	12	50	54	+ 41	7	26	CVn	8	Sbp	
064	4826	12	56	42	+ 21	41	2	Com	9	Sb	Con región obscura en el centro
053	5024	13	12	54	+ 18	10	13	Com	8	cg	
063	5055	13	15	48	+ 42	2	4	CVn	10	Sb	Galaxia de la Margarita
051	5194	13	29	54	+ 47	12	4	CVn	8	Sc	Galaxia del Remolino
083	5236	13	37	0	- 29	52	6	Hya	10	Sc	
003	5272	13	42	12	+ 28	23	26	CVn	6	cg	Contiene muchas variables
101	5457	14	3	12	+ 54	21	9	UMa	10	Sc	
102*	5866	15	6	30	+ 55	46	4	Dra	11	E6p	
005	5904	15	18	36	+ 2	5	15	Ser	6	cg	Con asimetría poco común
080	6093	16	17	3	- 22	58	3	Sco	8	cg	
004	6121	16	23	36	- 26	32	5	Sco	6	cg	Cúmulo más cercano a la Tierra
107	6171	16	32	30	- 13	3	15	Oph	9	cg	
013	6205	16	41	42	+ 36	28	2	Her	6	cg	Gran cúmulo globular
012	6218	16	47	12	- 1	57	2	Oph	7	cg	
010	6254	16	57	64	- 4	6	7	Oph	7	cg	
062	6266	17	1	12	- 30	7	11	Oph	7	cg	
019	6273	17	2	36	- 26	16	11	Oph	7	cg	Cúmulo elongado
092	6341	17	17	6	+ 43	8	12	Her	6	cg	
009	6333	17	19	12	- 18	30	59	Oph	7	cg	
014	6402	17	37	36	- 3	15	2	Oph	8	cg	
006	6405	17	40	6	- 32	13	5	Sco	5	ca	
023	6494	17	56	48	- 19	1	5	Sgr	7	ca	
020	6514	18	2	18	- 23	2	5	Sgr	0	ne	Nebulosa Trífida
008	6523	18	3	48	- 24	22	59	Sgr	0	ne	Nebulosa de la Laguna
021	6531	18	4	36	- 22	30	5	Sgr	7	ca	
024		18	16	54	- 18	29	3	Sgr	5		Parte del bulbo de la Vía Láctea
016	6611	18	18	48	- 13	47	8	Ser		ne	
018	6613	18	19	54	- 17	8	3	Sgr	8	ca	
017	6618	18	20	48	- 16	11	5	Sgr		ne	Nebulosa Omega
028	6626	18	24	30	- 24	52	10	Sgr	7	cg	
069	6637	18	31	24	- 32	21	2	Sgr	9	cg	Pequeño
025	4725	18	31	36	- 19	15	12	Sgr	7	ca	
022	6656	18	36	24	- 23	54	1	Sgr	6	cg	
070	6681	18	43	12	- 32	18	8	Sgr	10	cg	Cercano a M69
026	6694	18	45	12	- 9	24	16	Sct	9	ca	Brillante
011	6705	18	51	6	- 6	16	15	Sct	6	ca	Gran cúmulo
057	6720	18	53	36	+ 33	2	5	Lyr	9	np	Nebulosa del Anillo
054	6715	18	55	6	- 30	29	5	Sgr	9	cg	Difícil observación
056	6779	19	16	36	+ 30	11	3	Lyr	8	cg	
055	6809	19	40	0	- 30	58	13	Sgr	7	cg	
071	6838	19	53	48	+ 18	47	1	Sge	9	cg	
027	6853	19	59	36	+ 22	43	11	Vul	8	np	Nebulosa de la Mancuerna
075	6864	20	6	6	- 21	55	32	Sgr	8	cg	Cúmulo lejano
029	6913	20	23	54	+ 38	32	5	Cyg	7	ca	
072	6981	20	53	30	- 12	32	18	Aqr	10	cg	Nebulosa Saturno
073	6994	20	59	0	- 12	38	13	Aqr	11	ca	Cuatro estrellas
015	7078	21	30	0	+ 12	10	21	Peg	6	cg	Cúmulo compacto
039	7092	21	32	12	+ 48	26	24	Cyg	5	ca	Cúmulo disperso
002	7089	21	33	30	- 0	49	11	Aqr	6	cg	
030	7099	21	40	24	- 23	11	15	Cap	8	cg	Cuasi elíptico
052	7654	23	24	12	+ 61	35	7	Cas	7	ca	Cúmulo rico

*Existe controversia en la identificación de estos objetos.

Lluvias de estrellas, 2016

Lluvias de estrellas observables a simple vista

Objetos	inicia		máximo		termina		α		δ		núm / h	cometa
	m	d	m	d	m	d	h	m	°	‘		
Cuadrántidas	ene	01	ene	03	ene	05	15	18	+49	41	120	
Cancerínidas	ene	01	ene	17	ene	24	08	42	+20	28	4	
Centáuridas	ene	28	feb	07	feb	21	14	00	-59	56	6	
Leónidas	feb	15	feb	24	mar	10	11	12	+16	23	2	
Nórmidas	feb	25	mar	13	mar	22	16	36	-51	56	8	
Virgínidas	ene	25	mar	25	abr	15	13	00	-04	30	5	
Líridas	abr	16	abr	22	abr	25	18	06	+34	49	15	C/Thatcher (1861 G1)
Púpidas	abr	15	abr	24	abr	28	07	18	-45	18	26	P/Grigg-Skjellerup
Acuáridas	abr	19	may	06	may	28	22	30	-01	66	60	P/Halley
Sagitáridas	abr	15	may	20	jul	15	16	30	-22	30	5	
Pegásidas	jul	07	jul	10	jul	13	22	42	+15	70	3	
Fenícidas	jul	10	jul	13	jul	16	02	06	-48	47		
Piscis Austrínidas	jul	15	jul	28	ago	10	22	42	-30	35	5	
Acuáridas	jul	12	jul	28	ago	19	22	36	-16	41	20	
Capricórnidas	jul	03	jul	30	ago	15	20	30	-10	23	4	
Acuáridas(sur)	jul	25	ago	04	ago	15	22	18	-15	34	2	
Acuáridas(norte)	jul	15	ago	09	ago	25	22	18	-05	42	4	
Perséidas	jul	17	ago	12	ago	24	03	06	+58	59	140	P/Swift-Tuttle
Cígnidas	ago	03	ago	18	ago	25	19	06	+59	25	3	
Acuáridas(norte)	ago	11	ago	20	ago	31	21	48	-06	31	3	
Aurígidas	ago	25	sep	01	sep	05	05	36	+42	66	10	
Aurígidas	sep	05	sep	09	oct	10	04	00	+47	64	6	
Píscidas	sep	01	sep	20	sep	30	00	18	-01	26	3	
Dracónidas	oct	06	oct	09	oct	10	17	30	+54	20	21	P/Giacobini-Zinner
Gemínidas	oct	14	oct	18	oct	27	06	48	+27	70	2	C/Ikeya (1964 N1)
Oriónidas	oct	02	oct	21	nov	07	06	18	+16	66	20	P/Halley
Táuridas (sur)	oct	01	nov	05	nov	25	03	30	+13	27	5	P/Encke
Táuridas (norte)	oct	01	nov	12	nov	25	03	54	+22	29	5	P/Encke
Leonidas	nov	14	nov	17	nov	21	10	12	+22	71	100	P/Tempel-Tuttle
Monocéridas	nov	15	nov	22	nov	25	07	48	+01	65		
Oriónidas	nov	26	dic	02	dic	15	05	30	+23	28	3	
Fenícidas	nov	28	dic	06	dic	09	01	12	-53	18		D/Blanpain (1819 W1)
Pupi vélidas	dic	01	dic	07	dic	15	08	12	-45	40	10	
Monocéridas	nov	27	dic	09	dic	17	15	00	+08	42	3	D/Mellish (1917 F1)
Hídridas	dic	03	dic	12	dic	15	08	30	+02	58	2	
Gemínidas	dic	07	dic	14	dic	17	07	30	+33	35	120	Phaethon
Coma Berenícidas	dic	12	dic	20	ene	23	11	42	+25	65	5	
Úrsidas	dic	17	dic	22	dic	26	15	00	+76	33	10	P/Tuttle

Eventos Planetarios, 2016

Hora del meridiano 90º W.G.

Mes		Eventos	
d	h	objeto	
enero			
2	0	Luna	Cuarto Menguante
2	6	Luna	Apogeo
2	17	Tierra	Perihelio
3	13	Marte	1.5° al sur de la Luna
4	23	Mercurio	Estacionario
5	21	Plutón	Conjunción con el Sol
6	11	Venus	6° al norte de Antares
6	18	Venus	3° al sur de la Luna
6	23	Saturno	3° al sur de la Luna
8	14	Júpiter	Estacionario
8	22	Venus	0.09° al norte de Saturno
9	20	Luna	Luna Nueva
13	9	Neptuno	2° al sur de la Luna
14	8	Mercurio	Conjunción inferior
14	20	Luna	Perigeo
16	0	Urano	1.5° al norte de la Luna
16	17	Luna	Cuarto Creciente
19	4	Palas	Conjunción con el Sol
19	21	Aldebarán	0.5° al sur de la Luna occ
23	20	Luna	Luna Llena
25	13	Mercurio	Estacionario
27	19	Júpiter	1.4° al norte de la Luna
30	3	Luna	Apogeo
febrero			
0	21	Luna	Cuarto Menguante
1	3	Marte	3° al sur de la Luna
3	13	Saturno	3° al sur de la Luna
6	2	Venus	4° al sur de la Luna
6	11	Mercurio	4° al sur de la Luna
6	19	Mercurio	Elongación máxima O(26°)
8	9	Luna	Luna Nueva
9	18	Neptuno	2° al sur de la Luna
10	21	Luna	Perigeo
12	8	Urano	1.7° al norte de la Luna
15	2	Luna	Cuarto Creciente
16	2	Aldebarán	0.3° al sur de la Luna occ
22	12	Luna	Luna Llena
23	22	Júpiter	1.7° al norte de la Luna
26	21	Luna	Apogeo
28	10	Neptuno	Conjunción con el Sol
29	12	Marte	4° al sur de la Luna
marzo			
1	17	Luna	Cuarto Menguante
2	1	Saturno	4° al sur de la Luna
3	16	Ceres	Conjunción con el Sol
6	10	Juno	Estacionario
7	5	Venus	4° al sur de la Luna
8	5	Júpiter	Oposición
8	20	Luna	Luna Nueva (eclipse)
10	1	Luna	Perigeo
10	19	Urano	1.9° al norte de la Luna
14	8	Aldebarán	0.3° al sur de la Luna occ
15	11	Luna	Cuarto Creciente
19	23	Sol	Equinoccio
20	8	Venus	0.5° al sur de Neptuno
21	22	Júpiter	2° al norte de la Luna
23	6	Luna	Luna Llena (eclipse)
23	14	Mercurio	Conjunción Superior
25	7	Saturno	Estacionario
25	8	Luna	Apogeo
28	13	Marte	4° al sur de la Luna
29	9	Saturno	3° al sur de la Luna
31	9	Luna	Cuarto Menguante

Mes		Eventos	
d	h	objeto	
abril			
4	19	Neptuno	1.9° al sur de la Luna
6	2	Venus	0.7° al sur de la Luna occ
7	5	Luna	Luna Nueva
7	12	Luna	Perigeo
8	5	Mercurio	5° al norte de la Luna
8	22	Vesta	0.02° al sur de la Luna occ
9	15	Urano	Conjunción con el Sol
10	16	Aldebarán	0.3° al sur de la Luna occ
13	22	Luna	Cuarto Creciente
16	20	Marte	Estacionario
17	23	Júpiter	2° al norte de la Luna
18	7	Plutón	Estacionario
18	8	Mercurio	Elongación máxima E(20°)
21	10	Luna	Apogeo
21	23	Luna	Luna Llena
24	22	Marte	5° al sur de la Luna
25	13	Saturno	3° al sur de la Luna
26	21	Juno	Oposición
28	22	Mercurio	Estacionario
29	21	Luna	Cuarto Menguante
mayo			
2	5	Neptuno	1.7° al sur de la Luna
4	21	Urano	2° al norte de la Luna
5	22	Luna	Perigeo
6	13	Luna	Luna Nueva
8	3	Aldebarán	0.05° al sur de la Luna occ
9	9	Mercurio	Conjunción inferior (tránsito)
9	17	Júpiter	Estacionario
13	11	Luna	Cuarto Creciente
15	4	Júpiter	2° al norte de la Luna
18	16	Luna	Apogeo
21	14	Marte	6° al sur de la Luna
21	15	Luna	Luna Llena
21	16	Mercurio	Estacionario
22	5	Marte	Oposición
22	16	Saturno	3° al sur de la Luna
23	13	Vesta	Conjunción con el Sol
29	6	Luna	Cuarto Menguante
29	13	Neptuno	1.4° al sur de la Luna
30	16	Marte	Mínima distancia a la Tierra
junio			
1	8	Urano	2° al norte de la Luna
3	1	Saturno	Oposición
3	4	Mercurio	0.7° al norte de la Luna occ
3	5	Luna	Perigeo
4	21	Luna	Luna Nueva
5	3	Mercurio	Elongación máxima al O(24°)
6	16	Venus	Conjunción Superior
11	14	Júpiter	1.5° al norte de la Luna
12	2	Luna	Cuarto Creciente
14	2	Neptuno	Estacionario
15	6	Luna	Apogeo
17	4	Marte	7° al sur de la Luna
18	9	Palas	Estacionario
18	18	Saturno	3° al sur de la Luna
19	15	Mercurio	4° al norte de Aldebarán
20	5	Luna	Luna Llena
20	17	Sol	Solsticio
25	11	Juno	Estacionario
25	19	Neptuno	1.2° al sur de la Luna occ
27	12	Luna	Cuarto Menguante
28	17	Urano	3° al norte de la Luna
30	2	Marte	Estacionario

Eventos Planetarios, 2016

Hora del meridiano 90° W.G.

Mes d	Mes h	Eventos objeto	Eventos
julio			
1	1	Luna	Perigeo
1	22	Aldebarán	0.4° al sur de la Luna occ
4	5	Luna	Luna Nueva
4	10	Tierra	Afelio
6	21	Mercurio	Conjunción Superior
7	16	Plutón	Oposición
9	4	Júpiter	0.9° al norte de la Luna occ
11	19	Luna	Cuarto Creciente
12	23	Luna	Apogeo
14	12	Marte	8° al sur de la Luna
15	23	Saturno	3° al sur de la Luna
16	12	Mercurio	0.5° al norte de Venus
19	17	Luna	Luna Llena
23	0	Neptuno	1.1° al sur de la Luna occ
25	22	Urano	3° al norte de la Luna
26	17	Luna	Cuarto Menguante
27	6	Luna	Perigeo
29	5	Aldebarán	0.3° al sur de la Luna occ
29	20	Urano	Estacionario
30	11	Mercurio	0.3° al norte de Régulo
agosto			
2	15	Luna	Luna Nueva
4	0	Venus	3° al norte de la Luna
4	16	Mercurio	0.6° al norte de la Luna occ
5	3	Venus	1.1° al norte de Régulo
5	22	Júpiter	0.2° al norte de la Luna occ
9	18	Luna	Apogeo
10	12	Luna	Cuarto Creciente
11	16	Marte	8° al sur de la Luna
12	6	Saturno	4° al sur de la Luna
13	12	Saturno	Estacionario
16	15	Mercurio	Elongación máxima E(27°)
18	3	Luna	Luna Llena (eclipse)
19	6	Neptuno	1.1° al sur de la Luna occ
20	6	Palas	Oposición
21	19	Luna	Perigeo
22	4	Urano	3° al norte de la Luna
23	22	Marte	1.8° al norte de Antares
24	22	Luna	Cuarto Menguante
25	11	Aldebarán	0.2° al sur de la Luna occ
25	12	Marte	4° al sur de Saturno
26	23	Mercurio	5° al sur de Venus
27	16	Venus	0.07° al norte de Júpiter
29	19	Mercurio	Estacionario
septiembre			
1	3	Luna	Luna Nueva (eclipse)
2	7	Ceres	Estacionario
2	11	Mercurio	6° al sur de la Luna
2	11	Neptuno	Oposición
2	16	Júpiter	0.4° al sur de la Luna occ
3	5	Venus	1.1° al sur de la Luna occ
6	13	Luna	Apogeo
8	15	Saturno	4° al sur de la Luna
9	6	Luna	Cuarto Creciente
9	8	Marte	8° al sur de la Luna
12	18	Mercurio	Conjunción inferior
15	14	Neptuno	1.2° al sur de la Luna occ
16	13	Luna	Luna Llena (eclipse)
17	17	Venus	3° al norte de Espiga
18	11	Luna	Perigeo
18	11	Urano	3° al norte de la Luna
21	4	Mercurio	Estacionario
21	17	Aldebarán	0.2° al sur de la Luna occ
22	8	Sol	Equinoccio
23	4	Luna	Cuarto Menguante
25	21	Plutón	Estacionario
26	1	Júpiter	Conjunción con el Sol
28	14	Mercurio	Elongación máxima al O(18°)
29	5	Mercurio	0.7° al norte de la Luna occ
octubre			
0	18	Luna	Luna Nueva
3	11	Venus	5° al sur de la Luna
4	5	Luna	Apogeo
6	2	Saturno	4° al sur de la Luna
7	20	Palas	Estacionario
8	6	Marte	7° al sur de la Luna
8	23	Luna	Cuarto Creciente
10	22	Mercurio	0.9° al norte de Júpiter
13	0	Neptuno	1.2° al sur de la Luna occ
15	5	Urano	Oposición
15	20	Urano	3° al norte de la Luna
15	22	Luna	Luna Llena
16	18	Luna	Perigeo
19	1	Aldebarán	0.3° al sur de la Luna occ
20	23	Ceres	Oposición
22	13	Luna	Cuarto Menguante
25	22	Venus	3° al norte de Antares
27	10	Mercurio	Conjunción Superior
28	4	Júpiter	1.4° al sur de la Luna
30	2	Venus	3° al sur de la Luna
30	12	Luna	Luna Nueva
31	13	Luna	Apogeo
noviembre			
2	13	Saturno	4° al sur de la Luna
2	22	Venus	7° al sur de la Luna
6	6	Marte	5° al sur de la Luna
7	14	Luna	Cuarto Creciente
9	9	Neptuno	1° al sur de la Luna occ
12	5	Urano	3° al norte de la Luna
14	5	Luna	Perigeo
14	8	Luna	Luna Llena
15	11	Aldebarán	0.4° al sur de la Luna occ
18	15	Mercurio	3° al norte de Antares
20	4	Neptuno	Estacionario
21	3	Luna	Cuarto Menguante
24	20	Júpiter	1.9° al sur de la Luna
27	14	Luna	Apogeo
29	6	Luna	Luna Nueva
29	14	Juno	Conjunción con el Sol
diciembre			
0	22	Mercurio	7° al sur de la Luna
2	22	Vesta	Estacionario
3	7	Venus	6° al sur de la Luna
5	5	Marte	3° al sur de la Luna
6	16	Neptuno	0.7° al sur de la Luna occ
7	3	Luna	Cuarto Creciente
9	14	Urano	3° al norte de la Luna
10	6	Saturno	Conjunción con el Sol
10	23	Mercurio	Elongación máxima E(21°)
12	17	Luna	Perigeo
12	23	Aldebarán	0.5° al sur de la Luna occ
13	18	Luna	Luna Llena
15	1	Ceres	Estacionario
18	13	Régulo	1° al norte de la Luna occ
19	1	Mercurio	Estacionario
20	20	Luna	Cuarto Menguante
21	5	Sol	Solsticio
22	11	Júpiter	2° al sur de la Luna
25	0	Luna	Apogeo
27	15	Saturno	4° al sur de la Luna
28	13	Mercurio	Conjunción inferior
29	1	Luna	Luna Nueva

Fases de la Luna, 2016

Hora del meridiano 90º W.G.

Luna Nueva

mes	d	h	m
..	..	..	..
ene	9	19	30
feb	8	8	39
mar	8	19	54
abr	7	5	24
may	6	13	29
jun	4	20	59
jul	4	5	1
ago	2	14	44
sep	1	3	3
sep	31	18	11
oct	30	11	38
nov	29	6	18
dic	29	0	53

Luna Llena

mes	d	h	m
ene	23	19	46
feb	22	12	20
mar	23	6	1
abr	21	23	24
may	21	15	14
jun	20	5	2
jul	19	16	56
ago	18	3	26
sep	16	13	5
oct	15	22	23
nov	14	7	52
dic	13	18	5

Cuarto Creciente

mes	d	h	m
..	..	..	..
ene	16	17	26
feb	15	1	46
mar	15	11	3
abr	13	21	59
may	13	11	2
jun	12	2	10
jul	11	18	52
ago	10	12	21
sep	9	5	49
oct	8	22	33
nov	7	13	51
dic	7	3	3

Cuarto Menguante

mes	d	h	m
ene	1	23	30
ene	31	21	28
mar	1	17	11
mar	31	9	17
abr	29	21	29
may	29	6	12
jun	27	12	19
jul	26	17	0
ago	24	21	41
sep	23	3	56
oct	22	13	14
nov	21	2	33
dic	20	19	56

Crepúsculos, salidas y puestas de Sol, 2016

Hora local

LATITUD 30°

	AM	CM	SS	PS	CV	AV		AM	CM	SS	PS	CV	AV
	h m	h m	h m	h m	h m	h m		h m	h m	h m	h m	h m	h m
Ene 1	5 31	6 30	6 56	17 12	17 38	18 37	Jul 6	3 29	4 37	5 05	19 05	19 32	20 40
7	5 32	6 31	6 57	17 16	17 42	18 41	12	3 33	4 41	5 08	19 04	19 30	20 38
13	5 33	6 31	6 57	17 21	17 47	18 45	18	3 38	4 44	5 11	19 01	19 28	20 34
19	5 32	6 30	6 56	17 26	17 52	18 50	24	3 43	4 48	5 14	18 58	19 25	20 30
25	5 31	6 28	6 54	17 31	17 57	18 54	30	3 48	4 52	5 18	18 55	19 21	20 24
31	5 29	6 26	6 51	17 37	18 02	18 59	Ago 5	3 53	4 56	5 22	18 50	19 16	20 18
Feb 6	5 26	6 22	6 47	17 42	18 07	19 03	11	3 58	5 00	5 25	18 45	19 10	20 12
12	5 22	6 18	6 42	17 47	18 11	19 07	17	4 03	5 04	5 29	18 39	19 04	20 04
18	5 17	6 13	6 37	17 51	18 16	19 11	23	4 08	5 07	5 32	18 33	18 57	19 57
24	5 11	6 07	6 31	17 56	18 20	19 15	29	4 12	5 11	5 35	18 26	18 50	19 49
Mar 2	5 05	6 01	6 25	18 00	18 24	19 19	Sep 4	4 17	5 14	5 39	18 19	18 43	19 40
8	4 59	5 54	6 18	18 04	18 28	19 23	10	4 21	5 18	5 42	18 11	18 35	19 32
14	4 52	5 47	6 11	18 08	18 32	19 27	16	4 25	5 21	5 45	18 04	18 28	19 24
20	4 44	5 40	6 04	18 12	18 35	19 31	22	4 29	5 25	5 48	17 56	18 20	19 16
26	4 36	5 33	5 56	18 15	18 39	19 36	28	4 32	5 28	5 52	17 49	18 13	19 08
Abr 1	4 28	5 25	5 49	18 19	18 43	19 40	Oct 4	4 36	5 31	5 55	17 42	18 06	19 01
7	4 20	5 18	5 42	18 22	18 47	19 44	10	4 39	5 35	5 59	17 35	17 59	18 54
13	4 13	5 11	5 35	18 26	18 51	19 49	16	4 43	5 39	6 03	17 28	17 52	18 48
19	4 05	5 04	5 29	18 30	18 55	19 54	22	4 47	5 42	6 07	17 22	17 46	18 42
25	3 57	4 58	5 23	18 34	18 59	19 59	28	4 50	5 47	6 11	17 16	17 41	18 37
May 1	3 50	4 52	5 17	18 38	19 03	20 05	Nov 3	4 54	5 51	6 16	17 11	17 36	18 33
7	3 44	4 46	5 12	18 41	19 07	20 10	9	4 58	5 55	6 20	17 07	17 32	18 29
13	3 38	4 42	5 08	18 45	19 11	20 16	15	5 03	6 00	6 25	17 04	17 29	18 27
19	3 33	4 38	5 04	18 49	19 16	20 21	21	5 07	6 05	6 30	17 02	17 27	18 25
25	3 28	4 35	5 02	18 53	19 19	20 26	27	5 11	6 09	6 35	17 00	17 26	18 24
31	3 25	4 33	5 00	18 56	19 23	20 31	Dic 3	5 15	6 14	6 40	17 00	17 26	18 25
Jun 6	3 23	4 31	4 59	18 59	19 26	20 35	9	5 19	6 18	6 44	17 01	17 27	18 26
12	3 22	4 31	4 58	19 02	19 29	20 38	15	5 23	6 22	6 48	17 02	17 29	18 28
18	3 22	4 31	4 59	19 04	19 31	20 40	21	5 26	6 25	6 52	17 05	17 31	18 30
24	3 24	4 33	5 00	19 05	19 32	20 41	27	5 29	6 28	6 54	17 08	17 35	18 34
30	3 26	4 35	5 02	19 05	19 33	20 41	Ene 2	5 31	6 30	6 56	17 12	17 38	18 37

LATITUD 25°

	AM	CM	SS	PS	CV	AV		AM	CM	SS	PS	CV	AV
	h m	h m	h m	h m	h m	h m		h m	h m	h m	h m	h m	h m
Ene 1	5 24	6 20	6 45	17 22	17 47	18 44	7	4 28	5 22	5 45	18 19	18 42	19 37
7	5 26	6 22	6 47	17 27	17 51	18 48	13	4 21	5 16	5 40	18 22	18 45	19 40
13	5 27	6 22	6 47	17 31	17 56	18 51	19	4 15	5 11	5 34	18 25	18 48	19 44
19	5 27	6 22	6 47	17 36	18 00	18 55	25	4 08	5 05	5 29	18 27	18 51	19 48
25	5 26	6 21	6 45	17 40	18 04	18 59	May 1	4 03	5 00	5 24	18 30	18 54	19 52
31	5 25	6 19	6 43	17 44	18 08	19 03	7	3 57	4 56	5 20	18 33	18 58	19 56
Feb 6	5 22	6 16	6 40	17 49	18 12	19 06	13	3 52	4 52	5 17	18 36	19 01	20 01
12	5 19	6 13	6 36	17 53	18 16	19 10	19	3 48	4 49	5 14	18 39	19 04	20 05
18	5 15	6 09	6 32	17 56	18 19	19 13	25	3 45	4 47	5 12	18 42	19 08	20 09
24	5 11	6 04	6 27	18 00	18 23	19 16	31	3 43	4 45	5 10	18 45	19 11	20 13
Mar 2	5 06	5 59	6 22	18 03	18 26	19 19	Jun 6	3 41	4 44	5 10	18 48	19 14	20 16
8	5 00	5 53	6 16	18 06	18 29	19 22	12	3 41	4 44	5 10	18 50	19 16	20 19
14	4 54	5 47	6 10	18 09	18 31	19 25	18	3 41	4 45	5 10	18 52	19 18	20 21
20	4 48	5 41	6 04	18 11	18 34	19 27	24	3 42	4 46	5 12	18 53	19 19	20 22
26	4 41	5 35	5 58	18 14	18 37	19 30	30	3 45	4 48	5 14	18 54	19 20	20 23
Abr 1	4 35	5 29	5 52	18 17	18 40	19 34	Jul 6	3 47	4 50	5 16	18 54	19 19	20 22

Crepúsculos, salidas y puestas de Sol, 2016

Hora local

LATITUD 25°

	AM	CM	SS	PS	CV	AV		AM	CM	SS	PS	CV	AV
	h m	h m	h m	h m	h m	h m		h m	h m	h m	h m	h m	h m
12	3 51	4 53	5 18	18 53	19 18	20 20	10	4 40	5 33	5 56	17 38	18 01	18 54
18	3 54	4 56	5 21	18 51	19 16	20 18	16	4 43	5 36	5 59	17 32	17 55	18 48
24	3 58	4 59	5 24	18 49	19 14	20 14	22	4 45	5 39	6 02	17 27	17 50	18 43
30	4 02	5 02	5 27	18 46	19 10	20 10	28	4 48	5 42	6 05	17 22	17 46	18 39
Ago 5	4 07	5 05	5 30	18 42	19 06	20 05	Nov 3	4 51	5 45	6 09	17 18	17 42	18 36
11	4 10	5 08	5 32	18 38	19 02	19 59	9	4 54	5 49	6 13	17 15	17 39	18 33
17	4 14	5 11	5 35	18 33	18 57	19 53	15	4 58	5 53	6 17	17 12	17 37	18 31
23	4 18	5 14	5 37	18 27	18 51	19 47	21	5 01	5 57	6 21	17 11	17 35	18 30
29	4 21	5 16	5 40	18 22	18 45	19 40	27	5 05	6 01	6 25	17 10	17 35	18 30
Sep 4	4 24	5 19	5 42	18 15	18 39	19 33	Dic 3	5 09	6 05	6 30	17 10	17 35	18 31
10	4 27	5 21	5 44	18 09	18 32	19 26	9	5 12	6 09	6 34	17 11	17 36	18 33
16	4 30	5 24	5 46	18 03	18 26	19 19	15	5 16	6 12	6 37	17 13	17 38	18 35
22	4 33	5 26	5 49	17 56	18 19	19 12	21	5 19	6 16	6 41	17 16	17 41	18 37
28	4 35	5 28	5 51	17 50	18 13	19 06	27	5 22	6 18	6 43	17 19	17 44	18 41
Oct 4	4 38	5 31	5 53	17 44	18 06	18 59	Ene 2	5 24	6 21	6 45	17 23	17 48	18 44

LATITUD 20°

	AM	CM	SS	PS	CV	AV		AM	CM	SS	PS	CV	AV
	h m	h m	h m	h m	h m	h m		h m	h m	h m	h m	h m	h m
Ene 1	5 17	6 11	6 35	17 32	17 56	18 51	May 1	4 13	5 08	5 31	18 24	18 47	19 42
7	5 19	6 13	6 37	17 36	18 00	18 54	7	4 09	5 04	5 27	18 26	18 49	19 45
13	5 20	6 14	6 38	17 40	18 04	18 58	13	4 05	5 01	5 25	18 28	18 52	19 48
19	5 21	6 14	6 38	17 44	18 08	19 01	19	4 02	4 59	5 23	18 31	18 55	19 52
25	5 21	6 14	6 37	17 48	18 11	19 04	25	3 59	4 57	5 21	18 33	18 57	19 55
31	5 20	6 13	6 36	17 52	18 15	19 07	31	3 57	4 56	5 20	18 36	19 00	19 58
Feb 6	5 19	6 11	6 34	17 55	18 18	19 10	Jun 6	3 56	4 55	5 20	18 38	19 02	20 01
12	5 16	6 08	6 31	17 58	18 21	19 13	12	3 56	4 56	5 20	18 40	19 04	20 04
18	5 13	6 05	6 27	18 01	18 23	19 15	18	3 57	4 56	5 21	18 41	19 06	20 06
24	5 10	6 01	6 23	18 03	18 26	19 17	24	3 58	4 58	5 22	18 43	19 07	20 07
Mar 2	5 06	5 57	6 19	18 06	18 28	19 19	30	4 00	4 59	5 24	18 43	19 08	20 07
8	5 01	5 52	6 14	18 08	18 30	19 21	Jul 6	4 03	5 02	5 26	18 44	19 08	20 07
14	4 56	5 47	6 09	18 09	18 31	19 23	12	4 05	5 04	5 28	18 43	19 07	20 06
20	4 51	5 42	6 04	18 11	18 33	19 24	18	4 08	5 06	5 30	18 42	19 06	20 04
26	4 45	5 37	5 59	18 13	18 35	19 26	24	4 12	5 09	5 33	18 40	19 04	20 01
Abr 1	4 40	5 31	5 54	18 14	18 37	19 28	30	4 15	5 11	5 35	18 38	19 01	19 58
7	4 34	5 26	5 48	18 16	18 38	19 31	Ago 5	4 18	5 14	5 37	18 35	18 58	19 54
13	4 28	5 21	5 44	18 18	18 40	19 33	11	4 21	5 16	5 39	18 31	18 54	19 49
19	4 23	5 16	5 39	18 20	18 42	19 36	17	4 24	5 18	5 41	18 27	18 50	19 44
25	4 18	5 12	5 35	18 22	18 44	19 39	23	4 26	5 20	5 42	18 23	18 45	19 39

Crepúsculos, salidas y puestas de Sol, 2016

Hora local

LATITUD 20º

	AM	CM	SS	PS	CV	AV		AM	CM	SS	PS	CV	AV
	h m	h m	h m	h m	h m	h m		h m	h m	h m	h m	h m	h m
29	4 28	5 21	5 44	18 18	18 40	19 33	Nov 3	4 48	5 40	6 03	17 24	17 47	18 39
Sep 4	4 31	5 23	5 45	18 13	18 35	19 27	9	4 50	5 43	6 06	17 22	17 45	18 38
10	4 32	5 24	5 46	18 07	18 29	19 21	15	4 53	5 46	6 09	17 20	17 43	18 37
16	4 34	5 26	5 48	18 02	18 24	19 15	21	4 56	5 49	6 13	17 19	17 43	18 36
22	4 36	5 27	5 49	17 56	18 18	19 09	27	4 59	5 53	6 16	17 19	17 43	18 37
28	4 37	5 28	5 50	17 51	18 13	19 04	Dic 3	5 02	5 56	6 20	17 20	17 44	18 38
Oct 4	4 39	5 30	5 52	17 45	18 07	18 58	9	5 05	6 00	6 24	17 21	17 45	18 40
10	4 40	5 31	5 53	17 40	18 02	18 54	15	5 09	6 03	6 27	17 23	17 47	18 42
16	4 42	5 33	5 55	17 36	17 58	18 49	21	5 12	6 07	6 31	17 26	17 50	18 45
22	4 43	5 35	5 57	17 31	17 54	18 45	27	5 15	6 09	6 33	17 29	17 53	18 48
28	4 45	5 37	6 00	17 28	17 50	18 42	Ene 2	5 17	6 12	6 36	17 33	17 57	18 51

LATITUD 15º

	AM	CM	SS	PS	CV	AV		AM	CM	SS	PS	CV	AV
	h m	h m	h m	h m	h m	h m		h m	h m	h m	h m	h m	h m
Ene 1	5 10	6 03	6 26	17 42	18 05	18 58	Jul 6	4 16	5 12	5 35	18 34	18 58	19 54
7	5 12	6 05	6 28	17 45	18 08	19 01	12	4 18	5 14	5 37	18 34	18 57	19 53
13	5 14	6 06	6 29	17 49	18 12	19 04	18	4 20	5 16	5 39	18 33	18 57	19 52
19	5 15	6 07	6 30	17 52	18 15	19 07	24	4 23	5 18	5 41	18 32	18 55	19 50
25	5 15	6 07	6 30	17 55	18 18	19 10	30	4 25	5 20	5 42	18 30	18 53	19 47
31	5 15	6 07	6 29	17 58	18 21	19 12	Ago 5	4 28	5 21	5 44	18 28	18 51	19 44
Feb 6	5 14	6 05	6 28	18 01	18 23	19 14	11	4 30	5 23	5 45	18 25	18 48	19 40
12	5 13	6 04	6 26	18 03	18 25	19 16	17	4 32	5 24	5 46	18 22	18 44	19 36
18	5 11	6 01	6 23	18 05	18 27	19 17	23	4 33	5 25	5 47	18 18	18 40	19 32
24	5 08	5 58	6 20	18 07	18 28	19 18	29	4 35	5 26	5 47	18 14	18 36	19 27
Mar 2	5 05	5 55	6 16	18 08	18 30	19 19	Sep 4	4 36	5 26	5 48	18 10	18 31	19 22
8	5 01	5 51	6 12	18 09	18 31	19 20	10	4 37	5 27	5 48	18 05	18 27	19 17
14	4 57	5 47	6 08	18 10	18 32	19 21	16	4 37	5 27	5 49	18 01	18 22	19 12
20	4 53	5 43	6 04	18 11	18 32	19 22	22	4 38	5 28	5 49	17 56	18 17	19 07
26	4 48	5 38	6 00	18 12	18 33	19 23	28	4 38	5 28	5 50	17 51	18 13	19 03
Abr 1	4 44	5 34	5 55	18 12	18 34	19 24	Oct 4	4 39	5 29	5 50	17 47	18 08	18 58
7	4 39	5 30	5 51	18 13	18 35	19 25	10	4 39	5 29	5 51	17 43	18 04	18 54
13	4 34	5 25	5 47	18 14	18 36	19 27	16	4 40	5 30	5 52	17 39	18 01	18 51
19	4 30	5 21	5 43	18 15	18 37	19 29	22	4 41	5 31	5 53	17 36	17 57	18 48
25	4 26	5 18	5 40	18 16	18 38	19 30	28	4 42	5 33	5 55	17 33	17 55	18 45
May 1	4 22	5 15	5 37	18 17	18 40	19 33	Nov 3	4 44	5 35	5 57	17 30	17 53	18 44
7	4 18	5 12	5 34	18 19	18 42	19 35	9	4 45	5 37	5 59	17 29	17 51	18 42
13	4 15	5 09	5 32	18 21	18 44	19 38	15	4 47	5 39	6 02	17 28	17 50	18 42
19	4 13	5 08	5 31	18 23	18 46	19 40	21	4 50	5 42	6 05	17 27	17 50	18 42
25	4 11	5 06	5 30	18 24	18 48	19 43	27	4 52	5 45	6 08	17 28	17 51	18 43
31	4 10	5 06	5 29	18 26	18 50	19 46	Dic 3	4 55	5 48	6 11	17 29	17 52	18 45
Jun 6	4 09	5 06	5 29	18 28	18 52	19 48	9	4 58	5 51	6 15	17 30	17 54	18 47
12	4 10	5 06	5 30	18 30	18 54	19 50	15	5 01	5 55	6 18	17 33	17 56	18 49
18	4 10	5 07	5 31	18 32	18 55	19 52	21	5 04	5 58	6 21	17 36	17 59	18 52
24	4 12	5 08	5 32	18 33	18 57	19 53	27	5 07	6 01	6 24	17 39	18 02	18 55
30	4 13	5 10	5 34	18 34	18 57	19 54	Ene 2	5 10	6 03	6 26	17 42	18 05	18 58

Eclipses de Sol y Luna, y Tránsito de Mercurio para el año 2016

Hora del meridiano 90º W.G.

I.- Eclipse total de Sol el 8 de marzo, no se observará en la República Mexicana
El trayecto del eclipse total ocurrirá desde el Océano Índico, Melanesia hasta el noreste de las Islas Hawai.

Circunstancia	*día*	*h*	*m*	*s*
Inicia el eclipse	8	17	19	18
Inicia eclipse central	8	18	16	42
Eclipse central	8	20	05	42
Termina el eclipse central	8	21	37	30
Termina el eclipse	8	22	34	54

II.- Eclipse penumbral de Luna el 23 de marzo de 2015, se observará en le República Mexicana
El inicio del eclipse penumbral se observará en América con excepción del extremo Este de Brasil y Groenlandia, Europa y hacia Central. El máximo del eclipse penumbral se observará en los extremos Este de Asia y extremo Oeste de Asia y el Extremo Oeste de Australia.

Circunstancia	*día*	*h*	*m*	*s*
Inicia el eclipse penumbral	23	3	37	00
Media el eclipse	23	5	47	12
Termina el eclipse penumbral	23	13	57	24

III.- Tránsito de Mercurio el 9 de mayo. Se observará en el República Mexicana.
Se observará en América del Norte, Centro América, Oeste de América del Sur, el Antártico, en África, extremo Este de Europa y Asia.

Circunstancias del tránsito de Mercurio

Suceso	*día*	*h*	*m*	*s*
Contacto exterior, ingresa	9	5	12	18
Contacto interior, ingresa	9	5	15	30
Mínima distancia angular	9	8	57	25
Contacto interior, egresa	9	12	39	13
Contacto exterior, egresa	9	12	42	25

IV.- Eclipse penumbral de Luna el 18 de agosto, se observará en la República Mexicana
Se observará en en América con excepción del extremo Este de Brasil, el extremo Este de Asia, el Océano Pacífico y Australia.

Circunstancia	*día*	*h*	*m*	*s*
Inicia el eclipse penumbral	18	3	24	24
Media el eclipse	18	3	42	05
Termina el eclipse penumbral	18	4	01	00

V.- Eclipse anular de Sol del 1 de septiembre, no se observará en le República Mexicana
Este eclipse se observará en la región de la Antártida, el inicio del eclipse parcial se observará en el extremo sur de África y el final en la costa Este del continente Antártico.

Circunstancia	*día*	*h*	*m*	*s*
Inicia el eclipse	1	0	13	01
Inicia el eclipse central	1	1	19	12
Máximo del eclipse	1	3	18	06
Termina el eclipse central	1	4	54	24
Inicia el eclipse	1	6	00	42

VI.- Eclipse penumbral de Luna el 16 de septiembre, no se observará en la República Mexicana
Se observará en Asia Central, Europa, el Océano Atlántico, extremo Este de Groenlandia. El inicio del eclipse penbumbral se observará en el Océano Pacífico, el eclipse penumbral se observara en Asia Central y el Océano Índico. El finbal del eclipse penumbral se observará en África, Europa y el Océano Atléntico.

Circunstancia	*día*	*h*	*m*	*s*
Inicia el eclipse penumbral	16	10	52	42
Media el eclipse	16	12	54	18
Termina el eclipse penumbral	16	14	56	00

Tránsito de Mercurío, el 9 de mayo de 2016

Hora de meridiano 90° W.G.

Poblaciones	Posición Central		Egreso Contacto Interior		Egreso Contacto Exterior	
	h	m	h	m	h	m
	14	57	18	39	18	42
	Ac °	Alt °	Ac °	Alt °	Ac °	Alt °
Aguascalientes						
Aguascalientes	84	36	160	85	169	86
Asientos	84	37	164	85	172	85
Calvillo	84	36	155	85	163	86
Jesús María	84	36	160	85	168	86
Puertecito	84	36	161	85	169	86
Rincón de Romos	84	36	161	85	169	85
Baja California						
Bailador Isla	84	25	132	70	134	70
Cedros Isla	83	25	125	73	127	74
Ensenada	84	25	131	70	132	70
Granito Isla	84	27	133	73	134	74
Guadalupe Isla	82	23	122	70	123	71
Mejía Isla	84	27	132	73	134	74
Mexicali	85	26	135	70	137	70
Miramar Isla	84	26	131	72	133	73
Salsipuedes Isla	84	28	132	74	134	75
San Benito Isla	83	25	125	73	126	73
San Felipe	84	26	133	71	135	72
San Jerónimo Isla	83	25	128	72	130	72
San Pedro Mártir	84	26	132	71	133	71
San Quintin	84	25	129	71	131	72
Baja California Sur						
Asunción Isla	83	26	124	74	126	75
Catalina Isla	83	29	128	78	131	78
Cerralvo Isla	83	30	126	79	129	80
Coronados Isla	83	29	129	77	131	78
Danzante Isla	83	29	128	77	130	78
El Triunfo	83	29	123	79	126	80
Espíritu Santo Isla	83	29	126	79	128	79
José del Cabo	82	30	121	80	124	80
La Paz	83	29	124	79	127	79
Miraflores	82	30	122	80	125	80
Mulejé	84	28	130	76	132	77
Roca Alijos Isla	82	26	119	76	120	76
San Bartolo	83	30	124	79	126	80
San Marcos Isla	84	28	130	76	132	76
Santa Ines Isla	84	28	130	76	132	76
Santiago	82	30	123	80	126	80
Tortugas Isla	84	28	131	76	133	76
Campeche						
Becal	86	48	256	80	257	79
Bolonchenticul	86	48	259	79	260	79
Calkiní	86	48	256	80	257	79
Campeche	85	47	258	80	259	79
Carmen	84	46	264	82	265	81
Carmen Isla	84	46	264	82	265	81
Champotón	85	47	261	80	262	80
Dzibalchen	85	48	261	79	262	79
Escárcega	84	47	265	81	266	80
Holpechen	85	48	260	80	261	79
Hontun	85	47	260	80	261	79
Iturbide	85	48	261	79	262	79

Poblaciones	Posición Central		Egreso Contacto Interior		Egreso Contacto Exterior	
	h	m	h	m	h	m
	14	57	18	39	18	42
	Ac °	Alt °	Ac °	Alt °	Ac °	Alt °
Lerma	84	47	267	80	268	80
Palizada	84	46	261	82	262	81
Pital	84	46	265	81	266	80
Río Desempeño	84	48	267	80	267	79
Sabancury	84	46	263	81	263	80
Xicalango	84	46	264	82	265	81
Coahuila						
Acuña	90	38	179	78	182	78
Allende	89	38	179	79	183	79
Cuatro Ciénegas	88	37	172	81	176	81
Jiménez	90	38	180	79	183	78
Laguna de Jaco	88	35	163	79	167	79
Monclova	88	37	175	81	180	81
Múzquiz	89	37	175	80	179	80
Parras	86	37	170	82	175	82
Piedras Negras	90	38	181	79	184	79
San Pedro de Colonias	86	36	165	82	169	82
Sabinas	89	38	177	80	181	80
Saltillo	87	38	178	82	183	82
Sierra Mojada	87	35	163	80	167	80
Torreón	86	36	161	82	166	82
Unión	89	38	180	79	183	79
Viesca	86	36	165	82	170	82
Zaragoza	89	38	179	79	183	79
Colima						
Colima	82	35	119	87	127	87
Madrid	81	35	116	87	122	87
Manzanillo	81	34	112	86	117	87
Socorro Isla	80	28	95	80	96	81
Tecomán	81	34	113	87	119	87
Chiapas						
Acapetahua	80	44	288	82	287	81
Arista	81	44	285	83	284	83
Cacahuantón	80	45	289	81	288	81
Catazajá	83	45	270	82	270	81
Chiapa de Corzo	82	44	278	83	277	82
Cintalapa	81	44	279	83	278	83
Comitán	81	45	280	82	280	81
Escuintla	80	44	288	82	286	81
Huixtla	80	45	288	82	287	81
Jaltenango	81	45	284	82	283	82
Juárez	82	44	271	83	271	82
La Gradeza	80	45	286	82	285	81
Las Margaritas	80	44	287	82	286	82
Mapastepec	80	44	287	82	286	82
Mazatán	80	45	290	82	289	81
Ocosingo	82	45	276	82	276	81
Ocozocoautla	82	44	278	83	277	82
Pichucalco	82	44	272	83	272	82
Pueblo Nuevo	80	45	288	82	287	81
Puerto Madero	80	44	293	82	292	82
San Bartolomé	81	45	280	82	280	81
Suchiate	80	45	291	81	289	81

Tránsito de Mercurío, el 9 de mayo de 2016

Hora de meridiano 90° W.G.

	Posición Central		Egreso Contacto Interior		Egreso Contacto Exterior	
	h 14	m 57	h 18	m 39	h 18	m 42
Poblaciones	Ac °	Alt °	Ac °	Alt °	Ac °	Alt °
Tonalá	81	44	284	83	283	83
Tuxtla Gutiérrez	82	44	278	83	277	82
Villa Flores	81	44	282	83	281	82
Yajalón	82	45	274	82	274	81
Chihuahua						
Ahumada	88	33	156	76	159	76
Camargo	87	34	157	79	160	79
Chihuahua	87	33	155	78	158	78
Chinipas	85	31	142	78	145	78
Ciénega de Ortiz	87	33	153	78	156	79
Ciudad Guerrero	86	32	149	77	152	78
Ciudad Jiménez	87	34	157	80	160	80
Ciudad Juárez	89	33	158	75	161	75
Coyame	88	34	160	77	163	78
Cuchillo Parado	88	35	161	78	164	78
Cusihuiriachi	86	33	151	78	154	78
Galeana	87	32	152	76	154	76
Guadalupe	89	34	159	75	162	76
Guadalupe y Calvo	85	32	144	80	148	80
Guerrero	86	32	149	77	152	78
Meoqui	87	34	156	78	160	79
Namiquipa	87	32	151	77	153	77
Ocampo	86	31	145	77	147	78
Ojinaga	88	35	163	78	166	78
Parral Hidalgo del	86	34	153	80	156	80
Placer de Guadalupe	88	34	158	78	162	78
San Buenaventura	87	32	152	76	154	77
San Ignacio	86	33	150	79	154	79
Santa Bárbara	86	34	152	80	155	80
Santa Isabel	87	33	153	78	156	78
Satevo	87	33	153	78	156	79
Temosachic	86	32	148	77	151	77
Valle de Zaragoza	86	34	153	79	157	79
Valle del Rosario	86	33	151	79	154	79
Distrito Federal						
Álamo	83	39	218	88	230	87
Atzcapotzalco	83	39	216	88	228	87
Chapultepec	83	39	217	88	229	87
Churubusco	83	39	219	88	231	87
Ciudad Universitaria	83	39	219	88	231	87
Ciudad Universitaria	83	39	219	88	231	87
Coyoacán	83	39	219	88	231	87
Cuajilmalpa	83	39	216	88	229	87
Guadalupe Hidalgo	83	39	218	88	229	87
Ixtacalco	83	39	219	88	230	87
Ixtapalapa	83	39	220	88	231	87
La Piedad	83	39	218	88	230	87
México	83	39	218	88	230	87
Mixcoac	83	39	218	88	230	87
Mixquic	83	39	224	88	235	87
Nativitas	83	39	219	88	230	87
San Jerónimo	83	39	218	88	230	87
San Simón	83	39	219	88	230	87

	Posición Central		Egreso Contacto Interior		Egreso Contacto Exterior	
	h 14	m 57	h 18	m 39	h 18	m 42
Poblaciones	Ac °	Alt °	Ac °	Alt °	Ac °	Alt °
Tacubaya	83	39	217	88	229	87
Tlahuac	83	39	223	88	234	87
Tlalpam	83	39	220	88	231	87
Villa Obregón	83	39	218	88	230	87
Xochimilco	83	39	221	88	233	87
Durango						
Ciudad Lerdo	86	36	161	82	166	82
Cuencame	85	35	159	82	164	82
Durango	85	34	149	83	154	83
Gómez Palacio	86	36	161	82	166	82
Guanaceví	85	33	148	80	152	81
Indé	86	34	152	81	156	81
Llano Grande	84	34	145	82	150	83
Mezquital	84	35	149	83	154	83
Nazas	86	35	156	82	161	82
Nombre de Dios	85	35	151	83	156	83
Pueblo Nuevo	84	34	142	83	147	83
San José de Guadalupe	86	36	164	83	170	83
San Juan del Río	85	35	153	82	158	82
Santa María del Oro	86	34	152	81	156	81
Santa María Ocotlan	84	34	144	84	150	84
Santiago Papasquiaro	85	34	148	81	153	82
Tamazula	84	32	140	81	144	81
Tayoltita	84	33	142	82	146	82
Tepehuanes	85	33	147	81	151	81
Tizonazo	86	34	152	81	156	81
Tlahualilo	86	36	163	81	167	81
Topia	85	33	143	81	147	81
Guerrero						
Acapulco	81	38	317	89	298	88
Acayahualco	82	38	240	89	251	88
Chaucingo	82	39	244	88	252	88
Chilpancingo	81	38	272	89	271	88
Coahuayutla	81	36	123	89	152	89
Coatepec	82	38	230	89	245	88
Coyuca de Catalán	82	37	180	89	224	89
Huamuxtitlan	81	38	258	89	263	88
Iguana	82	38	234	89	247	88
La Unión	81	36	110	89	135	89
Mayanalan	82	39	243	89	253	88
Mezcala	81	38	250	89	259	88
Pericotepec	81	38	227	89	251	89
Petatlan	81	37	86	89	292	90
Placeres de Oro	81	37	160	89	216	89
San Jerónimo	81	37	341	89	299	89
San Luis de La Loma	81	37	36	90	304	89
San Marcos	81	38	302	89	292	88
Santa Fetepetlapa	82	39	230	88	243	88
Taxco	82	38	226	89	241	88
Teloloapan	82	38	223	89	242	88
Tepantitlancoa	81	38	219	89	248	89
Tepecoacuilco	82	39	238	89	249	88
Tetela del Río	81	38	233	89	252	89

Tránsito de Mercurío, el 9 de mayo de 2016

Hora de meridiano 90° W.G.

			Egreso						Egreso			
	Posición Central		Contacto Interior		Contacto Exterior			Posición Central		Contacto Interior		Contacto Exterior	
	h	m	h	m	h	m		h	m	h	m	h	m
	14	57	18	39	18	42		14	57	18	39	18	42
Poblaciones	Ac °	Alt °	Ac °	Alt °	Ac °	Alt °	Poblaciones	Ac °	Alt °	Ac °	Alt °	Ac °	Alt °
Tlacozotitlan	82	39	258	89	262	88	Villa Ocampo	84	37	169	86	179	86
Tlapehuala	81	38	191	89	232	89	Villagran	83	37	174	87	187	87
Tonalapa del Río	82	38	230	89	245	88	Xichu	84	38	189	86	199	86
Zihuatanejo	81	36	94	89	110	90	Yuriria	83	38	190	87	205	87
Zirandaro	82	37	162	89	205	89	**Hidalgo**						
Guanajuato							Acayuca	83	39	215	87	225	87
Abasolo	83	38	182	87	196	87	Actopan	84	41	233	86	238	85
Acambaro	83	38	178	88	195	87	Ahuehueco	84	39	206	86	215	86
Apaseo	83	38	179	87	193	87	Altajayucan	83	39	204	87	215	87
Apaseo El Alto	83	38	181	87	195	87	Apan	83	40	226	87	234	86
Atargea	84	39	194	86	204	86	Atotonilco Grande	84	40	215	87	224	86
C. Gonzalez	84	37	172	86	183	86	Bonanza	84	39	203	87	213	86
Celaya	83	38	177	87	191	87	Chapantongo	83	39	204	87	215	87
Cerano	83	37	164	87	180	87	Chapulhuacan	84	39	205	86	214	86
Comonfort	83	38	178	87	191	87	Chicautla	83	39	206	87	217	87
Coronea	83	38	186	87	201	87	Epazoyuca	83	40	218	87	228	86
Cortazar	83	37	176	87	190	87	Huasca	83	40	217	87	226	86
Cubilete Cerro	83	37	169	87	180	87	Huautla	84	40	213	86	221	85
Cuerámaro	83	37	162	87	175	87	Huejutla	84	40	211	86	219	85
Dolores Hidalgo	84	38	176	86	187	86	Huichapan	83	39	199	87	211	87
Guanajuato	83	37	170	87	182	87	Ixmiquilpan	84	39	205	87	216	86
Huanímaro	83	37	164	87	178	87	Metxtitlan	84	39	211	86	220	86
Ibarra	84	37	168	86	178	86	Mexquititlan	84	40	213	86	222	86
Irapuato	83	37	168	87	181	87	Nopala	84	40	216	87	225	86
Iturbide	84	38	184	87	196	86	Orizatlan	84	40	208	86	217	86
Jaral del Progreso	83	37	169	87	183	87	Pachuca	83	39	216	87	225	86
Jerécuaro	83	38	183	87	198	87	Pisa Flores	84	39	204	86	212	86
León	83	37	164	86	176	86	Real del Monte	83	40	216	87	226	86
Manuel Doblado	83	37	158	87	170	87	San Agustin Tlaxiaca	83	39	214	87	224	87
Mora	84	38	185	86	196	86	San Gabriel	83	40	220	87	229	87
Moroleon	83	37	169	87	184	87	San Juanico	83	39	219	87	228	87
Pénjamo	83	37	160	87	174	87	San Pablo	84	39	208	87	218	86
Pueblo Nuevo	83	37	167	87	181	87	Singuilucan	83	40	222	87	230	86
Purísima de Bustos	83	37	161	86	172	87	Sta Monica	83	40	219	87	228	86
Romita	83	37	166	87	178	87	Tasquillo	84	39	203	87	214	86
Salamanca	83	37	170	87	184	87	Tepetitlan	83	39	205	87	217	87
Salvatierra	83	37	175	87	190	87	Tezontepec	83	39	217	87	227	87
San Diego de La Unión	84	38	177	86	187	86	Tianguistengo	84	40	212	86	220	86
San Francisco del Rincón	83	37	161	86	173	87	Tlaxcoapan	83	39	208	87	220	87
San José	83	37	175	87	187	87	Tulancingo	83	40	221	87	229	86
San Juan de los Llanos	84	37	170	86	181	86	Yolotepec	84	39	208	87	218	86
San Luis de la Paz	84	38	182	86	193	86	Zempoala	83	39	219	87	228	87
San Miguel de Allende	83	38	178	87	191	87	Zimapan	84	39	201	87	211	86
Santa Catarina	84	38	186	86	197	86	**Jalisco**						
Santiago Maravatío	83	37	173	87	188	87	Ameca	82	35	132	86	139	86
Silao	83	37	167	87	179	87	Atoyac	82	35	131	86	140	87
Santa Cruz Galeana	83	37	174	87	187	87	Autlan de Navarro	82	34	121	86	127	86
Tarandacuao	83	38	183	88	199	87	Bolaños	83	35	144	85	151	85
Tarimoro	83	38	178	87	193	87	Cabo Corriente	82	33	120	84	124	85
Tierra Blanca	84	38	189	86	200	86	Carranza	82	35	126	86	134	87
Uriangato	83	38	191	87	205	87	Ciudad Guzman	82	35	128	87	137	87
Valle de Santiago	83	37	170	87	184	87	Cihuatlan	81	34	113	86	118	87
Victoria	84	38	186	86	197	86	Cocula	82	35	133	86	140	86

Tránsito de Mercurío, el 9 de mayo de 2016

Hora de meridiano 90° W.G.

			Egreso								Egreso			
	Posición Central		Contacto Interior		Contacto Exterior			Posición Central		Contacto Interior		Contacto Exterior	
	h m		h m		h m			h m		h m		h m	
	14 57		18 39		18 42			14 57		18 39		18 42	
Poblaciones	Ac °	Alt °	Ac °	Alt °	Ac °	Alt °	Poblaciones	Ac °	Alt °	Ac °	Alt °	Ac °	Alt °
Colotlan	84	35	151	85	158	85	Temascalapa	83	39	217	87	227	87
Encarnación de Díaz	84	36	159	86	169	86	Temascaltepec	82	38	202	88	222	88
Guachinango	82	34	130	85	136	86	Tenancingo	82	38	216	88	231	88
Guadalajara	83	35	140	86	149	86	Teoloyucan	83	39	213	87	224	87
Guerrero	83	35	147	85	154	85	Texcoco	83	39	221	87	231	87
Hostotipaquillo	83	35	137	85	144	86	Tlalmanalco	83	39	227	88	237	87
Huejuquilla	84	35	148	84	155	84	Tlalnepantla	83	39	215	88	227	87
La Barca	83	36	146	87	158	87	Toluca	82	38	209	88	224	88
La Rosa	82	35	132	87	142	87	**Michoacan**						
Lagos de Moreno	83	37	162	86	172	86	Agostitlan	82	38	181	88	201	88
Ojuelos	84	37	168	86	178	86	Aguililla	81	36	120	88	132	88
Puerto Vallarta	82	33	124	85	129	85	Apatzingan	82	36	134	88	151	88
San Miguel del Alto	83	36	154	86	164	86	Apo	82	36	138	87	152	88
San Pedro Analco	83	35	139	85	146	86	Ario de Rosales	82	37	147	88	169	88
Talpa de Allende	82	34	125	85	130	86	Buenavista	82	36	131	88	145	88
Tapatitlan	83	36	148	86	158	87	Coahuayana	81	35	112	87	118	88
Tecaltiche	83	36	154	86	164	86	Cotija	82	36	139	87	151	87
Tecatitlan	82	35	126	87	136	87	Hidalgo	83	38	182	88	201	88
Tecomates	82	34	118	86	123	86	Huajumbaro	83	38	178	88	197	88
Tequila	83	35	137	86	145	86	Irimbo	83	38	184	88	202	88
Unión de Tula	82	34	124	86	131	86	Janitzio	82	37	154	88	173	88
México							Jiquilpan	82	36	141	87	152	87
Acambay	83	38	198	88	212	87	La Huacana	82	36	141	88	164	89
Amecameca	83	39	229	88	239	87	Los Reyes	82	36	139	87	153	88
Analco de Becerra	82	38	200	88	218	88	Maravatío	83	38	185	88	202	88
Atlacomulco	83	39	217	87	227	87	Morelia	82	37	166	88	185	88
Ayotla	83	39	223	88	234	87	Ostula	81	35	108	87	115	88
Chalco	83	39	225	88	235	87	Panindícuaro	82	36	140	87	152	87
Chapa de Mota	83	39	206	88	219	87	Paracho	82	36	147	88	163	88
Chicoloapan	83	39	222	88	233	87	Parácuaro	82	35	122	87	132	88
Chimalhuacan	83	39	221	88	232	87	Patzcuaro	82	37	155	88	174	88
Coatlichan	83	39	222	87	232	87	Penjamillo	83	36	154	87	169	87
Ecatzingo de Hidalgo	82	39	233	88	242	87	Piedad de Cavadas	83	36	155	87	168	87
Huexotla	83	39	222	87	232	87	Pueblo Viejo	82	37	158	88	176	88
Huizquilucan	83	39	215	88	228	87	Puruándiro	83	37	162	87	177	87
Ixtapan de La Sal	82	38	217	88	233	88	San Pedro Jacuaro	83	38	180	88	199	88
Ixtlahuaca	83	39	217	87	227	87	Senguio	83	38	187	88	205	88
Jilotepec	83	39	204	87	217	87	Tacambaro	82	37	155	88	178	88
Lerma	83	39	213	88	227	88	Tepalcatepec	82	35	127	87	139	88
Los Reyes	83	39	224	88	234	87	Tequicheo	82	37	176	89	206	89
Naucalpan	83	39	216	88	228	87	Tumbiscatío	81	36	120	88	135	89
Otumba	83	39	221	87	230	87	Turicato	82	37	153	88	179	89
Ozumba	82	39	231	88	240	87	Tuzantla	82	38	182	88	206	88
Popocatepetl	83	39	233	88	242	87	Uruapan	82	36	144	88	161	88
Popocatepetl	83	39	232	88	240	87	Villa Madero	82	37	162	88	184	88
Progreso Industrial	83	39	211	88	224	87	Zacapu	82	37	154	88	171	88
Remedios	83	39	215	88	227	87	Zamora	82	36	147	87	160	87
San Antonio del Rosario	82	38	201	89	232	89	Zinapécuaro	83	38	179	88	197	88
San Cristobal	83	39	215	88	227	87	Zitácuaro	82	38	188	88	208	88
S. Pedro Atzapotzaltongo	83	39	212	88	224	87	**Morelos**						
San Pedro Atzompa	83	39	217	87	228	87	Acapatzingo	82	39	226	88	238	88
Sultepec	82	38	211	89	230	88	Acatlipa	82	39	228	88	239	88
Tecamac	83	39	217	87	228	87	Ahuacatitlan	82	39	224	88	236	88

Tránsito de Mercurío, el 9 de mayo de 2016

Hora de meridiano 90° W.G.

	Posición Central		Egreso Contacto Interior		Egreso Contacto Exterior	
	h 14	m 57	h 18	m 39	h 18	m 42
Poblaciones	Ac °	Alt °	Ac °	Alt °	Ac °	Alt °
Atlatlahuacan	82	39	231	88	241	87
Chapultepec	82	39	226	88	238	88
Coatetelco	82	39	228	88	240	88
Cuajomulco	82	39	224	88	235	87
Cuautla	82	39	233	88	243	87
Cuernavaca	82	39	225	88	237	88
Huautla	82	39	241	88	249	88
Huitzilac	82	39	222	88	235	88
Itzamatitlan	82	39	230	88	240	87
Jojutla	82	39	234	88	244	88
Oaxtepec	82	39	231	88	241	87
San Miguel	82	39	238	88	246	87
Tejalpa	82	39	227	88	239	88
Tepalcingo	82	39	240	88	248	87
Tetelcingo	82	39	232	88	242	87
Xiutepec	82	39	227	88	239	88
Xochitepec	82	39	228	88	240	88
Yautepec	82	39	230	88	240	87
Yecapixtla	82	39	233	88	242	87
Nayarit						
Acaponeta	83	34	137	83	142	84
Amatlan de Jara	83	35	139	85	145	85
Huajimic	83	34	139	85	146	85
Ixtapan	83	34	130	84	136	85
Ixtlán del Río	83	34	134	85	140	86
Jesús María	83	34	141	84	147	84
Mezcaltitan	83	33	133	84	138	84
Ruiz	83	34	135	84	141	84
San Blas	83	34	131	84	137	85
San Martín de Bolanos	83	35	140	85	147	85
Tepic	83	34	134	84	139	85
Tuxpan	83	35	142	85	149	85
Nuevo Leon						
Agualeguas	88	39	187	81	191	81
Arramberri	86	39	187	83	193	83
Cadereytaj Imenez	87	39	184	82	190	82
Cerralvo	88	39	187	81	191	81
China	88	39	189	82	194	82
Doctor Arroyo	86	38	184	84	191	84
Galeana	87	39	184	83	190	83
Garcia	87	38	180	82	185	82
Lampazos de Naranjo	88	38	181	81	185	81
Linares	87	39	188	83	194	83
Los Aldamas	88	39	189	81	194	81
Mier y Noriega	86	38	185	84	192	84
Montemorelos	87	39	186	82	191	82
Monterrey	87	38	182	82	187	82
Parras	88	39	187	81	191	81
Sabinas Hidalgo	88	39	183	81	188	81
Salinas Victoria	88	38	182	82	187	82
Santiago Huajuco	87	39	184	82	189	82
Vallecillo	88	39	184	81	189	81
Villa Aldama	88	38	181	81	186	81

	Posición Central		Egreso Contacto Interior		Egreso Contacto Exterior	
	h 14	m 57	h 18	m 39	h 18	m 42
Poblaciones	Ac °	Alt °	Ac °	Alt °	Ac °	Alt °
Zaragoza	86	39	189	84	195	84
Oaxaca						
Ayoquezco	81	41	284	86	282	86
Ayotzintepec	82	42	269	86	270	85
Ayutla	82	41	264	86	265	85
Chacalapa	80	41	291	85	288	85
Chalcatongo	81	40	281	87	279	86
Coatzopan	82	41	263	86	265	86
Colotepec	80	41	296	86	292	85
Cuicatlan	82	41	267	86	268	86
Ecatepec	81	42	287	85	285	85
Ejutla de Crespo	81	41	286	86	284	85
Etla	81	41	276	86	276	86
Guelatao	82	41	274	86	274	85
Guelatao	82	41	274	86	274	85
Guichicovi	81	42	277	85	277	84
Huajuapan de Leon	82	40	266	87	267	87
Huamelulas Pedro	81	42	289	85	287	84
Huatulco	80	41	294	85	291	85
Huautla	82	41	262	86	263	86
Jamiltepec	80	40	296	87	291	86
Juchitlan de Zaragoza	81	42	283	85	282	84
Juguila	80	40	293	87	289	86
Juxtlahuaca	81	40	276	87	275	87
Lachiguiri	81	40	291	87	288	86
Loxicha	80	41	293	86	290	85
Mazatlan	81	42	277	85	276	84
Miahuatlan	81	41	288	86	286	85
Nejapa	81	42	283	85	281	85
Niltepec	81	43	281	84	280	83
Nochixtlan	82	41	273	87	272	86
Oaxaca de Juárez	81	41	278	86	277	86
Ocotepec	82	41	268	86	268	85
Ojitlan	82	41	264	86	265	85
Ojitlan	82	41	264	86	265	85
Pluma Hidalgo	80	41	293	86	290	85
Pochutla	80	41	295	86	292	85
Puerto Angel	80	41	296	86	293	85
Putla	81	40	282	87	280	87
Quiechapa	81	41	286	86	284	85
Quiotepec	82	41	265	86	266	86
Salinas Cruz	81	42	286	85	284	84
San Jerónimo Ixtepec	81	42	282	85	280	84
San Miguel Peras	81	41	281	86	279	86
San Vicente Coatlan	81	41	289	86	286	85
Silacayoapan	81	40	272	88	272	87
Soladevega	81	41	287	86	285	86
Soyaltepec	82	41	262	86	263	85
Sta María del Mar	81	43	285	84	283	84
Suchixtepec	82	40	263	87	264	86
Tamazulapan	82	40	269	87	269	86
Tecomavaca	82	41	264	87	265	86
Tehuantepec	81	42	284	85	283	84

Tránsito de Mercurío, el 9 de mayo de 2016

Hora de meridiano 90° W.G.

			Egreso						Egreso			
	Posición Central		Contacto Interior		Contacto Exterior			Posición Central		Contacto Interior		Contacto Exterior	
	h m		h m		h m			h m		h m		h m	
	14 57		18 39		18 42			14 57		18 39		18 42	
Poblaciones	Ac °	Alt °	Ac °	Alt °	Ac °	Alt °	Poblaciones	Ac °	Alt °	Ac °	Alt °	Ac °	Alt °
Teotitlan del Camino	82	41	261	87	263	86	San Andres Chalchico	83	41	246	87	250	86
Teposcolula	82	40	272	87	272	86	San Antonio	83	40	238	87	244	87
Tequisistlan	81	42	284	85	283	84	San Aparicio	82	41	255	87	257	86
Teutla	82	41	264	86	266	86	San Baltazar	83	40	239	87	245	87
Tezoatlan	82	40	268	87	269	87	San Juan de Los Llanos	83	40	237	87	242	86
Tlaxiaco	81	40	277	87	276	86	San Martín Texmelucan	83	40	231	87	239	87
Tlocula de Matamoros	81	41	280	86	278	85	San Salvador el Seco	83	40	242	87	247	86
Tololapan	81	41	283	86	281	85	Sanctorum	83	40	237	87	244	87
Tuxtepec	82	42	264	86	265	85	Santiago Xalitzintla	83	40	234	87	242	87
Valle Nacional	82	41	269	86	270	85	Santa María Chiamecati	82	40	247	87	252	87
Villa Alta	82	42	274	86	273	85	Sta Rita Tlahuapan	83	39	229	87	237	87
Yacuane	81	40	277	87	276	86	Tecali	83	40	243	87	249	86
Yalalag	81	41	276	86	275	85	Tecamachalco	83	40	245	87	250	86
Yautepec	81	42	285	85	283	85	Tehuacán de Granadas	82	40	255	87	258	86
Yautepec	81	41	285	86	283	85	Temextatiloyan	83	40	237	87	244	87
Zaniza	81	40	287	87	284	86	Tepeaca	83	40	243	87	248	86
Zimatlan	81	41	281	86	280	86	Tepeji Rodriguez	82	40	249	87	254	87
Puebla de Zaragoza							Tetela de Ocampo	83	40	231	86	237	86
Acatepec	83	40	237	87	244	87	Teziutlan	83	41	235	86	240	86
Acatlan de OsoRío	82	40	256	87	259	87	Tlacotepec	82	40	249	87	253	86
Ahuatempan	82	40	252	87	256	87	Tlaltenango	83	40	234	87	242	87
Atezcal	82	40	254	87	257	86	Tlancualpican	82	39	246	88	252	87
Atlixco	82	40	238	88	245	87	Tlaxcalanzingo	83	40	238	87	244	87
C0r0nanc	83	40	236	87	243	87	Tonantzintla	83	40	237	87	244	87
Cacalotepec	83	40	238	87	245	87	Xalmimilulco	82	40	254	88	258	87
Canal de Morelos	83	40	250	87	254	86	Xochimehuacan	83	40	237	87	244	87
Canoa	83	40	237	87	244	86	Xonacatepec	83	40	238	87	245	87
Chachapa	83	40	239	87	245	87	Zacapoaxtla	83	40	232	86	238	86
Chiautla de Tapia	82	39	250	88	255	87	Zacatlan de las Manzs.	83	40	228	87	235	86
Chila Asunción	82	40	262	87	264	87	Zapotitlan	82	40	257	87	259	86
Cholula	83	40	237	87	244	87	Zautla	83	40	233	86	239	86
Coxcatlan	82	41	259	87	261	86	Zinacatepec	82	41	257	87	260	86
Cualtlancingo	83	40	237	87	244	87	**Queretaro**						
Huauchinango	84	40	224	86	231	86	Amealco	83	38	190	87	205	87
Huejotzingo	83	40	234	87	241	87	Arroyo Seco	84	39	193	86	202	86
Hueyotlipan	83	40	237	87	244	87	Boye	84	39	196	87	207	87
Ixtaccihuatl	83	39	230	88	239	87	Cadereyta	84	38	194	87	206	87
Izucar de Matamoros	82	40	244	88	250	87	Ezequiel Montes	84	38	193	87	205	87
La Malinche	83	40	237	87	243	86	Huimilpan	83	38	187	87	201	87
Loreto	83	40	238	87	245	87	Jalpan	84	39	197	86	207	86
Molcaxac	82	40	247	87	251	86	Querétaro	83	38	185	87	198	87
Momoxpan	83	40	237	87	244	87	San Juan del Río	83	38	192	87	205	87
Moyotzingo	83	40	232	87	240	87	Tequisquiapan	83	38	194	87	206	87
Nextetelco	83	40	235	87	243	87	Toliman	84	38	192	87	203	86
Nopalucan	83	40	239	87	245	86	**Quintana Roo**						
Ocotlan	83	40	236	87	243	87	Ascensión	86	50	262	77	263	77
Ocoyucan	83	40	238	87	245	87	Cabo Catoche	88	50	255	77	256	76
Oyotzingo	83	40	233	87	241	87	Carrillo Puerto	86	49	263	78	263	77
Pantepec	84	40	221	86	229	86	Chetumal	84	49	267	78	268	78
Petlaltzingo	82	40	259	87	262	87	Contoy	88	51	256	76	257	76
Popocatepetl	83	39	233	88	242	87	Cozumel	87	50	260	77	260	76
Puebla de Zaragoza	83	40	238	87	245	87	Filomeno Mata	86	49	261	78	262	77
Resurreccion	83	40	238	87	244	87	Icaiche	84	48	269	79	269	78

Tránsito de Mercurío, el 9 de mayo de 2016

Hora de meridiano 90° W.G.

			Egreso								Egreso			
	Posición Central		Contacto Interior		Contacto Exterior			Posición Central		Contacto Interior		Contacto Exterior	
	h m		h m		h m			h m		h m		h m	
	14 57		18 39		18 42			14 57		18 39		18 42	
Poblaciones	Ac °	Alt °	Ac °	Alt °	Ac °	Alt °	Poblaciones	Ac °	Alt °	Ac °	Alt °	Ac °	Alt °
Kantunil Kin	87	50	256	77	257	76	Sta María	84	30	134	79	136	79
Leona Vicario	87	50	257	77	258	76	Topolobampo	84	31	134	79	137	79
Polyuc	85	49	262	78	263	78	**Sonora**						
Put	85	48	261	79	262	78	Agua Prieta	87	31	147	74	150	74
Saban	86	49	260	78	261	78	Aguiabampo	84	31	136	78	139	79
Santa Cruz Chico	85	49	265	78	266	77	Álamos	85	31	139	78	142	78
Tulum	86	50	260	77	261	77	Altar	86	29	140	73	142	74
Vigia Chico	86	50	262	77	263	77	Antimonio	85	28	138	73	140	73
Xkalak	84	49	269	78	269	77	Arizpe	86	30	144	75	146	75
Xkanha	85	48	264	79	264	78	Bacanora	86	31	143	76	146	76
San Luis Potosí							Bacerac	87	31	148	75	150	76
Ahualco	84	37	174	85	183	85	Baroyeca	85	30	139	77	142	77
Alaquines	85	39	193	85	201	85	Buenavista	85	30	138	77	141	77
Arista	85	38	178	85	186	85	Caborca	85	28	139	73	141	74
Arriaga	84	37	171	86	180	86	Cananea	87	30	145	74	147	74
Cárdenas	85	39	192	85	201	85	Carbó	85	29	140	75	142	75
Catorce	86	38	178	84	185	84	Carbon	85	29	140	75	142	75
Ciudad del Maíz	85	39	192	85	200	85	Cedros	85	31	140	77	143	77
Cerritos	85	38	184	85	192	85	Ciudad Obregón	85	30	137	77	140	77
Charcas	85	38	175	84	183	84	Conicarit	85	31	139	78	142	78
Guadalcazar	85	38	183	85	191	85	Cucurpe	86	30	142	74	144	75
Matehuala	86	38	180	84	187	84	Guaymas	85	29	135	76	138	76
Moctezuma	85	38	175	85	183	85	Hermosillo	85	29	138	75	141	76
Pastora	85	38	187	85	196	85	Huatabampo	84	30	136	78	139	78
Ramos	85	37	167	85	175	85	Imuris	86	29	143	74	145	74
Río Verde	84	38	188	86	197	85	Libertad	85	28	135	73	137	74
Salinas del Peñón Blanco	84	37	169	85	177	85	Macoyahui	85	31	140	78	143	78
San Luis Potosí	84	38	176	85	185	85	Magdalena	86	29	142	74	144	74
Santa Catarina	84	39	195	86	204	86	Minas Nuevas	85	31	139	78	142	78
Santa María del Río	84	38	179	86	189	86	Moctezuma	86	30	144	75	146	76
Sto Domingo	85	37	170	84	177	84	Movas	85	30	141	77	143	77
Tamazunchale	84	40	206	86	214	86	Nabas	85	30	141	76	144	77
Tamuín	84	39	208	86	216	86	Naco	87	30	146	74	149	74
Tancanhuitz	85	39	202	86	210	85	Nacori Grande	86	30	141	76	144	76
Valles	85	39	200	85	207	85	Nacozari	86	30	145	75	148	75
Vieja	85	39	195	85	203	85	Navojoa	85	30	138	77	140	78
Villa de Reyes	84	38	176	86	186	86	Nogales	86	29	143	73	146	74
Zaragoza José de	84	38	179	86	188	86	Puerto Libertad	90	36	171	78	174	78
Sinaloa							Punta Peñasco	85	27	137	72	138	72
Altata	84	31	135	80	138	81	Quiriego	85	31	140	77	142	78
Badiraguato	84	32	139	80	142	80	Rayón	86	30	141	75	143	75
Cosalá	84	33	139	81	143	82	Sahuaripa	86	31	144	76	146	76
Culiacán	84	32	138	80	141	81	San José de Pimas	85	30	139	76	142	76
El Fuerte	85	31	138	78	141	79	Santa Ana	86	29	141	74	143	74
La Laguna	85	31	140	78	143	79	Santa Clara	85	26	135	71	137	72
Mazatlan	83	33	135	82	139	83	Soyopa	86	30	142	76	144	77
Mocorito	84	32	138	80	141	80	Suaqui Grande	85	30	140	76	142	77
Navolato	84	32	136	80	140	81	Tiburon	84	28	133	74	135	75
Rosario	83	33	137	83	142	83	Torin	85	30	137	77	139	77
San Blas	84	31	137	79	140	79	Tubutama	86	29	141	73	143	74
San José de Gracia	85	32	140	79	144	80	Ures	86	30	141	75	143	76
Sinaloa	84	31	138	79	141	80	Yabaros	84	30	136	78	139	78
Soyatita	85	32	142	80	145	80							

Tránsito de Mercurío, el 9 de mayo de 2016

Hora de meridiano 90° W.G.

	Posición Central		Egreso Contacto Interior		Egreso Contacto Exterior	
	h 14	m 57	h 18	m 39	h 18	m 42
Poblaciones	Ac °	Alt °	Ac °	Alt °	Ac °	Alt °
Tabasco						
Alvaro Obregón	83	45	266	82	267	82
Astapa	83	45	270	83	270	82
Cárdenas	83	44	268	83	268	82
Comalcalco	83	44	266	83	266	82
Francisco I. Madero	83	45	265	82	266	82
Huimanquillo	83	44	269	83	269	82
Ignacio Allende	83	45	265	83	266	82
Tacotalpa	82	45	271	83	271	82
Tapijulapa	82	45	272	82	272	82
Teapa	82	45	271	83	271	82
Tenosique	83	46	272	81	272	80
Tierra Colorada	83	45	268	82	269	82
Villahermosa	83	45	268	83	268	82
Xicotencatl	82	45	272	82	272	82
Tamaulipas						
Abasolo	87	40	199	83	204	83
Aldama Presas	86	40	205	84	211	84
Altamira	86	40	208	85	215	84
Antiguo Morelos	85	39	197	85	204	85
Burgos	87	40	194	82	199	82
Camargo	88	40	191	81	196	81
Casas	86	40	197	84	203	83
Ciudad Victoria	86	39	193	84	199	83
Cruillas	87	40	196	83	201	82
Guemes	86	40	194	83	200	83
Guerrero	89	39	188	81	192	81
Jaumave	86	39	192	84	198	84
Jiménez	86	39	190	83	195	83
Llera	86	39	195	84	202	84
Magiscatzin	86	40	200	84	206	84
Matamoros	89	41	200	81	204	81
Mendez	88	40	195	82	200	82
Mier	88	40	189	81	194	81
Miquihuana	86	39	188	84	195	84
Ocampo	84	39	201	87	211	86
Padilla	87	40	196	83	201	83
Reynosa	89	40	195	81	199	81
San Carlos	87	40	193	83	199	83
San Fernando	88	40	198	82	203	82
Tampico	85	40	210	85	216	84
Tula	85	39	189	85	197	84
Villagran	87	39	190	83	196	83
Xicotencatl	86	40	197	84	203	84
Tlaxcala						
Apizaco	83	40	233	87	240	86
Calpulalpam	83	40	225	87	234	87
Cuauhutotohuatlan	83	40	237	87	244	87
Cuaula	83	39	224	87	233	87
Huamantla	83	40	237	87	243	86
S. Juan de Los Llanos	83	40	237	87	242	86
S. Martín Tezmelucan	83	40	231	87	239	87
San Aparicio	83	40	238	87	244	87
Tenancingo	83	40	236	87	243	87
Tlaxcala	83	40	233	87	240	87
Veracrúz						
Acayucan	82	43	267	85	268	84
Acayucan	82	42	266	85	267	85
Actopan	83	41	244	86	248	85
Alvarado	83	42	256	85	258	85
Chiconamel	84	40	210	86	218	85
Chicontepec	84	40	215	86	223	85
Ciudad Azueta	82	42	265	85	266	85
Coatepec	83	41	243	86	247	85
Coatzacoalcos	83	43	265	84	266	83
Coatzintla	84	41	227	86	233	85
Cordoba	83	41	250	86	254	86
Cosamaloapan	83	42	261	85	262	85
Coscomatepec	83	41	247	86	251	86
Cuatotolopan	82	42	265	85	266	84
Cuichapa	83	41	252	86	255	86
General Alemán	82	42	263	86	264	85
Hidalgotitlan	82	43	269	84	269	84
Huatusco	83	41	246	86	250	85
Huayacocotla	84	40	215	86	224	86
Inalambrica	83	42	250	85	253	85
Ixcatepec	85	40	215	86	222	85
Ixhuatlan	84	40	219	86	226	86
Jalapa	83	41	242	86	246	85
Lobos	85	41	220	85	226	84
Martínez de La Torre	84	41	235	86	240	85
Minatitlan	82	43	267	84	268	83
Misantla	84	41	238	86	242	85
Mocayapan	83	43	264	84	265	84
Naolingo	83	41	241	86	245	85
Nautla	84	42	241	85	245	84
Orizaba	83	41	250	86	253	86
Ozuluama	85	40	213	85	220	85
Pantepec	84	40	221	86	229	86
Papantla	84	41	228	86	234	85
Perote	83	41	239	86	244	86
Pico de Orizaba	83	41	246	86	250	86
Playa Vicente	82	42	268	85	268	85
Rizo	83	42	253	85	255	85
Rodriguez Clara	82	42	266	85	267	84
Sacrificios	83	42	251	85	253	85
San Andres Tuxtla	83	43	261	85	263	84
San Carlos	83	42	247	86	250	85
San Juan de Ulúa	83	42	250	85	253	85
San Juan Evangelista	82	43	268	85	268	84
San Martín	83	43	260	85	262	84
Santiaguillo	83	42	252	85	255	84
Tamarindo	83	41	255	86	257	85
Tamiahua	85	41	220	85	226	85
Tantoyucan	85	40	212	86	219	85
Tehuipango	82	41	255	86	258	86

Tránsito de Mercurío, el 9 de mayo de 2016

Hora de meridiano 90° W.G.

			Egreso								Egreso			
	Posición Central		Contacto Interior		Contacto Exterior			Posición Central		Contacto Interior		Contacto Exterior	
	h	m	h	m	h	m		h	m	h	m	h	m
	14	57	18	39	18	42		14	57	18	39	18	42
Poblaciones	Ac °	Alt °	Ac °	Alt °	Ac °	Alt °	Poblaciones	Ac °	Alt °	Ac °	Alt °	Ac °	Alt °
Teocelo de Díaz	83	41	243	86	247	85	Sisal	87	48	252	79	253	79
Tepetzintla	85	41	226	85	231	84	Tekax	84	40	221	87	229	86
Tesechoacan	82	42	264	85	265	85	Telchac	87	48	253	79	254	78
Tierra Blanca	83	41	259	86	260	85	Tzimin	87	49	255	78	256	77
Tihuatlan	84	41	224	86	230	85	Valladolid	87	49	257	78	258	77
Tlacojalpan	82	42	262	85	264	85	Yalkubul	88	49	253	78	254	77
Tlacotalpan	83	42	259	85	260	84	**Zacatecas**						
Tlaliscoyan	83	42	255	85	257	85	Calera	84	36	160	84	167	84
Tlapacoyan	84	41	234	86	240	85	Chalchihuites	84	35	152	83	158	84
Tonayan	83	41	240	86	244	85	Concepción del Oro	86	37	174	83	180	83
Tuxpan	84	41	223	85	229	85	Fresnillo	85	36	159	84	166	84
Veracrúz	83	42	250	85	253	85	Guadalupe	84	36	161	85	168	85
Verde	83	42	250	85	253	85	Jerez	84	36	156	84	163	85
Xico	83	41	243	86	247	85	Juchipila	83	36	148	86	157	86
Zongolica	83	41	253	86	256	86	Nieves	85	36	161	83	166	83
Yucatán							Nochistlán	83	36	151	86	160	86
Becanchen	86	48	260	79	261	78	Obs. Astronómico	84	36	161	85	168	85
Celestúm	86	47	253	80	254	79	Obs. Astronómico	84	36	161	85	168	85
Chancenote	87	50	257	77	257	77	Ojo Caliente	84	36	163	85	171	85
Chavihau	87	49	253	78	254	78	Ojuelos	84	37	168	86	178	86
Cuyo	88	50	254	77	255	76	Pánuco	84	36	161	84	168	85
Espita	87	49	256	78	257	77	Pinos	84	37	169	85	178	85
Halacho	86	48	256	80	257	79	Río Grande	85	36	160	83	166	84
Huhi	87	48	256	79	257	78	S. Juan del Mezquital	85	36	159	83	164	83
Izamal	87	49	255	78	256	78	Sombrerete	85	35	155	83	160	84
Maxcanú	86	48	255	79	256	79	Tlatenango	83	35	149	85	156	85
Mérida	87	48	254	79	255	78	Valparaiso	84	35	152	84	158	84
Molas	87	48	255	79	256	78	Villa de Cos	85	36	164	84	171	84
Progreso	87	48	252	79	253	78	Villanueva	84	36	156	85	163	85
San Felipe	88	49	253	78	254	77	Zacatecas	84	36	160	84	168	85

Abreviaturas
ac: acimut
alt: altura

Poblaciones de la República Méxicana, 2016

Coordenadas geográficas (Anuario del Observatorio 1984)

ESTADO Población	latitud °	‘	“	longitud °	‘	“	alt m	δm °	‘	Δδm ‘/año
AGUASCALIENTES										
Aguascalientes	21	52	43	102	18	4	1888	6	2	-7
Asientos	22	14	18	102	5	29	2164	5	57	-7
Calvillo	21	50	45	102	44	14	1702	6	11	-7
Jesús María	21	57	45	102	20	48	1907	6	3	-7
Puertecito	21	57	52	102	15	15	2052	6	1	-7
Rincón de Romos	22	13	49	102	19	22	1957	6	3	-7
BAJA CALIFORNIA										
Bailador Isla	31	56	56	116	5	12	0	11	16	-5
Cedros Isla	28	3	53	115	11	35	0	10	23	-5
Ensenada	31	51	10	116	38	9	2	11	22	-5
Granito Isla	29	33	0	113	32	0	0	10	14	-5
Guadalupe Isla	29	10	45	118	19	30	0	11	11	-4
Mejía Isla	29	33	8	113	35	18	0	10	15	-5
Mexicali	32	40	0	115	27	0	0	11	15	-5
Miramar Isla	30	2	30	114	31	30	0	10	34	-5
Salsipuedes Isla	28	44	0	112	50	30	0	9	56	-5
San Benito Isla	28	18	8	115	36	12	0	10	30	-5
San Felipe	31	1	36	114	49	46	0	10	48	-5
San Jerónimo Isla	29	47	20	115	48	14	0	10	48	-5
San Pedro Mártir	31	2	39	115	27	49	2800	10	57	-5
San Quintin	30	22	16	115	59	10	0	10	57	-5
BAJA CALIFORNIA SUR										
Asunción Isla	27	6	21	114	18	15	0	10	2	-5
Catalina Isla	25	35	35	110	47	48	0	8	58	-5
Cerralvo Isla	24	22	0	109	55	29	0	8	36	-5
Coronados Isla	26	6	12	111	15	38	0	9	9	-5
Danaznte Isla	25	48	0	111	12	0	0	9	6	-5
El Triunfo	23	48	13	110	8	41	432	8	35	-5
Espíritu Santo Isla	24	34	43	110	21	30	0	8	44	-5
José del Cabo	23	4	8	109	40	36	7	8	24	-5
La Paz	24	9	41	110	20	44	10	8	41	-5
Miraflores	23	22	25	109	48	33	183	8	28	-5
Muleje	26	53	33	111	46	41	35	9	24	-5
Roca Alijos Isla	24	58	6	113	44	47	0	9	35	-5
San Bartolo	23	44	16	109	52	15	353	8	31	-5
San Marcos Isla	27	14	35	112	5	23	0	9	31	-5
Santa Ines Isla	27	2	34	111	53	28	0	9	27	-5
Santiago	23	28	24	109	43	21	98	8	27	-5
Tortugas Isla	27	26	59	111	52	59	0	9	30	-5
CAMPECHE										
Becal	20	26	34	90	1	36	12	0	16	-8
Bolonchenticul	20	0	21	89	44	53	14	0	10	-8
Calkini	20	22	21	90	3	3	52	0	18	-8
Campeche	19	50	47	90	32	14	5	0	38	-8
Carmen	18	38	22	91	50	16	3	1	28	-8
Carmen Isla	18	38	44	91	50	16	0	1	28	-8
Champotón	19	21	4	90	43	0	27	0	47	-8
Dzibalchen	19	27	41	89	43	55	100	0	13	-8
Escárcega	18	36	25	90	43	55	75	0	53	-8
Hontun	19	34	49	90	11	12	50	0	28	-8
Holpechen	19	44	47	89	50	35	56	0	15	-8
Iturbide	19	34	58	89	36	4	110	0	8	-8

Poblaciones de la República Méxicana, 2016

Coordenadas geográficas (Anuario del Observatorio 1984)

ESTADO Población	latitud °	‘	“	longitud °	‘	“	alt m	δm °	‘	Δδm ‘/año
Lerma	18	15	39	90	36	12	5	0	51	-8
Palizada	19	6	13	92	4	42	46	1	33	-8
Pital	18	33	3	91	7	41	20	1	6	-8
Río Desenpeno	18	29	50	89	54	6	200	0	26	-8
Sabancury	18	58	34	91	10	51	2	1	5	-8
Xicalango	18	37	55	91	53	38	2	1	30	-8
COAHUILA										
Acuna	29	19	33	100	55	51	200	5	39	-7
Allende	28	20	36	100	51	6	374	5	35	-7
Cuatro Cienegas	26	58	19	102	4	9	742	6	5	-7
Jiménez	29	4	21	100	40	21	290	5	31	-7
Laguna de Jaco	27	57	28	103	57	6	1350	6	55	-6
Monclova	26	54	14	101	25	8	586	5	48	-7
Muzquiz	27	52	51	101	30	56	504	5	52	-7
Parras	25	27	0	102	10	0	1683	6	4	-7
Piedras Negras	28	42	25	100	31	2	220	5	26	-7
Sabinas	27	50	34	101	7	23	340	5	41	-7
Saltillo	25	26	37	100	59	22	1599	5	34	-7
San Pedro de Colonias	25	45	24	102	59	1	1103	6	25	-7
Sierra Mojada	27	17	8	103	42	7	1256	6	47	-7
Torreón	25	32	18	103	27	55	1140	6	36	-7
Unión	28	14	0	100	44	30	0	5	31	-7
Viesca	25	20	46	102	48	19	1093	6	19	-7
Zaragoza	28	30	36	100	52	8	540	5	35	-7
COLIMA										
Colima	19	14	29	103	43	47	508	6	29	-6
Madrid	19	4	57	103	52	38	120	6	32	-6
Manzanillo	19	3	15	104	19	46	3	6	40	-6
Socorro Isla	18	42	57	110	56	53	0	8	17	-5
Tecoman	18	54	31	103	52	38	80	6	32	-6
CHIAPAS										
Acapetahua	15	16	20	92	41	59	23	2	18	-8
Arista	15	56	8	93	48	41	0	2	45	-8
Cacahuanton	14	59	31	92	9	46	630	2	4	-8
Catazaja	17	43	56	92	1	57	7	1	41	-8
Cintalapa	16	41	58	93	43	24	545	2	38	-8
Comitán	16	15	12	92	7	41	1530	1	54	-8
Chiapa de Corzo	16	42	28	93	1	5	415	2	17	-8
Escuintla	15	18	53	92	39	58	110	2	17	-8
Huixtla	15	7	41	92	28	34	28	2	13	-8
Jaltenango	15	52	12	92	43	35	677	2	15	-8
Juárez	17	39	8	93	9	47	152	2	16	-8
La Gradeza	15	30	46	92	13	38	1950	2	2	-8
Las Margaritas	15	32	35	93	5	46	1512	2	28	-8
Mapastepec	15	25	52	92	54	27	85	2	23	-8
Mazatán	14	51	43	92	25	59	35	2	13	-8
Ocosingo	16	54	38	92	5	45	908	1	48	-8
Ocozocoautla	16	45	55	93	22	37	864	2	28	-8
Pichucalco	17	31	46	93	7	24	100	2	15	-8
Pueblo Nuevo	15	12	37	92	35	7	28	2	15	-8
Puerto Madero	14	42	59	93	25	37	2	2	43	-8
San Bartolomé	16	19	29	92	33	36	804	2	6	-8
Suchiate	14	40	23	92	9	12	22	2	6	-8

Poblaciones de la República Méxicana, 2016

Coordenadas geográficas (Anuario del Observatorio 1984)

ESTADO Población	latitud °	‘	“	longitud °	‘	“	alt m	δm °	‘	Δδm ‘/año
Tonala	16	5	14	93	45	21	55	2	43	-8
Tuxtla Gutiérrez	16	45	20	93	6	46	528	2	20	-8
Villa Flores	16	14	8	93	16	3	610	2	28	-8
Yajalón	17	10	57	92	20	24	849	1	54	-8
CHIHUAHUA										
Ahumada	30	37	18	106	31	12	1181	8	10	-6
Camargo	27	41	49	105	10	9	1653	7	23	-6
Ciénaga de Ortiz	28	8	15	106	12	11	1300	7	49	-6
Ciudad Guerrero	28	32	57	107	29	27	2000	8	18	-6
Ciudad Jiménez	27	7	52	104	55	29	1381	7	15	-6
Ciudad Juárez	31	44	19	106	29	15	1144	8	16	-6
Coyame	29	27	42	105	5	44	1062	7	30	-6
Cuchillo Parado	29	26	34	104	52	58	900	7	25	-6
Cusihuiriachi	28	14	25	106	50	13	1985	8	3	-6
Chihuahua	28	38	12	106	4	42	1430	7	48	-6
Chinipas	27	23	34	108	32	22	1640	8	32	-6
Galeana	30	6	52	107	37	51	1431	8	32	-6
Guadalupe	31	23	27	106	6	13	1113	8	5	-6
Guadalupe Y Calvo	26	6	6	106	58	2	1100	7	54	-6
Guerrero	28	32	57	107	29	18	2000	8	18	-6
Meoqui	28	16	36	105	29	16	1155	7	33	-6
Namiquipa	29	15	5	107	24	34	1828	8	21	-6
Ocampo	28	10	59	108	22	27	1732	8	34	-6
Ojinaga	29	33	53	104	25	23	841	7	14	-6
Parral Hidalgo del	26	56	4	105	39	58	1661	7	31	-6
Placer de Guadalupe	29	9	41	105	22	57	900	7	35	-6
San Buenaventura	29	50	47	107	29	10	1574	8	27	-6
San Ignacio	27	10	21	106	19	28	970	7	46	-6
Santa Barbara	26	48	13	105	49	1	1969	7	33	-6
Santa Isabel	28	20	34	106	22	1	1630	7	53	-6
Satevo	27	57	17	106	6	32	1368	7	45	-6
Temosachic	28	57	12	107	49	50	1900	8	28	-6
Valle de Zaragoza	27	27	40	105	48	35	900	7	36	-6
Valle del Rosario	27	19	5	106	17	41	1480	7	46	-6
DISTRITO FEDERAL										
Alamo	19	23	55	99	8	30	2246	4	50	-7
Atzcapotzalco	19	28	48	99	11	7	2277	4	51	-7
Ciudad Universitaria	19	20	1	99	10	54	2280	4	51	-7
Ciudad Universitaria	19	19	50	99	11	3	2280	4	51	-7
Coyoacán	19	20	54	99	9	45	2278	4	51	-7
Cuajilmalpa	19	21	33	99	18	1	2783	4	54	-7
Chapultepec	19	25	11	99	10	52	2310	4	51	-7
Churubusco	19	21	17	99	8	56	2260	4	50	-7
Guadalupe Hidalgo	19	29	9	99	6	56	2200	4	49	-7
Ixtacalco	19	23	22	99	7	16	2261	4	50	-7
Ixtapalapa	19	21	22	99	5	30	2280	4	49	-7
La Piedad	19	24	3	99	9	20	2253	4	50	-7
México	19	25	59	99	7	58	2233	4	50	-7
Mixcoac	19	22	37	99	10	55	2200	4	51	-7
Mixquic	19	13	28	98	57	52	2260	4	46	-7
Nativitas	19	23	12	99	8	48	2246	4	50	-7
San Jerónimo	19	19	33	99	13	20	2394	4	52	-7
San Simón	19	22	36	99	8	39	2100	4	50	-7
Tacubaya	19	24	10	99	11	40	2298	4	51	-7

Poblaciones de la República Méxicana, 2016

Coordenadas geográficas (Anuario del Observatorio 1984)

ESTADO Población	latitud °	 ‘	 “	longitud °	 ‘	 “	alt m	δm °	 ‘	Δδm ‘/año
Tlahuac	19	16	6	99	0	16	2264	4	47	-7
Tlalpam	19	17	16	99	9	57	2294	4	51	-7
Villa Obregón	19	20	41	99	11	21	2340	4	51	-7
Xochimilco	19	15	44	99	6	7	2274	4	49	-7
DURANGO										
Ciudad Lerdo	25	32	14	103	31	28	1135	6	37	-7
Cuencame	24	52	18	103	38	6	1889	6	37	-7
Durango	24	1	31	104	40	11	1889	6	58	-6
Gómez Palacio	25	34	18	103	30	17	1195	6	37	-7
Guanaceví	25	55	59	105	57	31	2230	7	32	-6
Inde	25	54	45	105	10	16	2049	7	15	-6
Llano Grande	23	52	2	105	12	7	2406	7	8	-6
Mezquital	23	28	57	104	22	18	1468	6	50	-6
Nazas	25	13	40	104	6	53	1264	6	49	-6
Nombre de Dios	23	51	4	104	15	25	1855	6	48	-6
Pueblo Nuevo	23	22	35	105	22	18	1982	7	10	-6
San Juan de Guadalupe	24	37	0	102	45	8	1520	6	16	-7
San Juan del Río	24	46	45	104	23	22	1737	6	54	-6
Santa María del Oro	25	56	53	105	19	56	1871	7	19	-6
Santa María Ocotlan	22	54	44	104	36	10	365	6	53	-6
Santiago Papasquiaro	25	2	47	105	25	30	1716	7	17	-6
Tamazula	24	58	11	106	58	13	240	7	48	-6
Tayoltita	24	6	27	105	55	30	500	7	24	-6
Tepehuanes	25	21	19	105	47	9	1967	7	26	-6
Tizonazo	25	58	4	105	15	33	1981	7	17	-6
Topia	25	12	19	106	34	34	1851	7	41	-6
Tlahualilo	26	6	31	103	26	21	1132	6	37	-7
GUERRERO										
Acapulco	16	50	21	99	55	1	82	5	14	-7
Acayahualco	18	13	30	99	28	52	790	5	1	-7
Coahuayutla	18	18	52	101	48	37	358	5	51	-7
Coatepec	18	20	22	99	42	56	1260	5	6	-7
Coyuca de Catalán	18	20	2	100	39	0	210	5	27	-7
Chaucingo	18	18	7	99	6	53	810	4	52	-7
Chilpancingo	17	33	10	99	30	3	1360	5	3	-7
Huamuxtitlán	17	48	37	99	34	2	1125	5	4	-7
Iguana	18	21	1	99	32	24	731	5	2	-7
La Unión	17	58	52	101	48	49	174	5	52	-7
Mayanalán	18	10	29	99	26	1	0	5	0	-7
Mezcala	17	56	13	99	36	6	420	5	4	-7
Pericotepec	17	57	40	100	13	0	770	5	18	-7
Petatlán	17	32	8	101	17	0	0	5	42	-7
Placeres de Oro	18	14	31	100	53	57	0	5	32	-7
San Jerónimo	17	5	55	100	28	26	0	5	25	-7
San Luis de la Loma	17	15	42	100	53	48	0	5	34	-7
San Marcos	16	47	31	99	20	41	210	5	2	-7
Santa Fetepetlapa	18	33	5	99	25	19	1090	4	59	-7
Taxco	18	33	16	99	36	20	1755	5	3	-7
Teloloapan	18	22	6	99	52	31	1620	5	9	-7
Tonalapa del Río	18	20	38	99	41	6	750	5	5	-7
Tepantitlancoa	18	0	26	100	17	6	820	5	19	-7
Tepecoacuilco	18	17	10	99	27	55	1012	5	0	-7
Tetela del Río	17	59	7	100	4	50	350	5	15	-7
Tlacozotitlan	17	53	29	99	7	51	560	4	54	-7

Poblaciones de la República Méxicana, 2016

Coordenadas geográficas (Anuario del Observatorio 1984)

ESTADO Población	latitud °	‘	“	longitud °	‘	“	alt m	δm °	‘	Δδm ‘/año
Tlapehuala	18	14	21	100	31	18	235	5	24	-7
Zihuatanejo	17	38	14	101	33	48	0	5	47	-7
Zirándaro	18	29	4	100	58	0	193	5	34	-7
GUANAJUATO										
Abasolo	20	26	59	100	31	48	1760	5	21	-7
Acámbaro	20	2	1	100	43	24	1947	5	26	-7
Apaseo	20	32	37	100	41	7	1767	5	25	-7
Apaseo El Alto	20	27	25	100	37	13	1853	5	24	-7
Atargea	21	16	5	99	43	5	1258	5	1	-7
C González	21	28	44	101	12	52	2140	5	37	-7
Celaya	20	31	24	100	48	55	1808	5	28	-7
Cerano	20	6	41	101	23	26	1500	5	41	-7
Comonfort	20	43	15	100	45	51	1795	5	27	-7
Coronea	20	11	42	100	21	59	1998	5	18	-7
Cortázar	20	28	59	100	52	58	1800	5	30	-7
Cubilete E	21	0	25	101	22	30	2480	5	41	-7
Cuerámaro	20	37	36	101	40	23	1785	5	47	-7
Dolores Hidalgo	21	9	32	100	56	0	1987	5	30	-7
Guanajuato	21	1	1	101	15	20	2050	5	38	-7
Huanímaro	20	22	1	101	29	45	2459	5	43	-7
Ibarra	21	28	53	101	32	23	2110	5	44	-7
Irapuato	20	40	28	101	20	51	1795	5	40	-7
Iturbide	21	0	3	100	23	4	1100	5	18	-7
Jaral del Progreso	20	22	11	101	13	45	1743	5	38	-7
Jerécuaro	20	9	3	100	30	43	1100	5	21	-7
León	21	7	22	101	41	0	1885	5	48	-7
Manuel Doblado	20	43	49	101	57	14	1795	5	54	-7
Mora	21	8	47	100	19	0	2128	5	16	-7
Moroleon	20	7	54	101	11	36	1772	5	37	-7
Pénjamo	20	25	44	101	43	22	1700	5	49	-7
Pueblo Nuevo	20	31	35	101	22	18	1714	5	41	-7
Purísima de Bustos	21	1	48	101	52	36	1780	5	52	-7
Romita	20	52	14	101	31	7	1792	5	44	-7
Salamanca	20	34	22	101	11	39	1721	5	37	-7
Salvatierra	20	12	56	100	53	46	1749	5	30	-7
San Diego de La Unión	21	27	56	100	52	25	2080	5	29	-7
San Fco. del Rincón	21	1	2	101	51	36	1721	5	52	-7
San Juan de Los Llanos	21	16	47	101	19	4	1000	5	39	-7
San José	20	56	13	100	58	32	2002	5	32	-7
San Luis Dela Paz	21	17	57	100	30	52	2020	5	21	-7
San Miguel de Allende	20	54	52	100	44	47	1870	5	26	-7
Santa Catarina	21	8	27	100	14	10	1845	5	14	-7
Sta. Cruz Galeana	20	38	35	100	59	50	1000	5	32	-7
Santiago Maravatío	20	10	28	100	59	38	1790	5	32	-7
Silao	20	56	24	101	25	59	1780	5	42	-7
Tarandacuao	20	1	14	100	32	3	1920	5	22	-7
Tarimoro	20	17	39	100	45	20	1790	5	27	-7
Tierra Blanca	21	6	9	100	4	44	1760	5	10	-7
Uriangato	20	8	46	100	8	10	1800	5	13	-7
Valle de Santiago	20	23	31	101	11	21	1760	5	37	-7
Victoria	21	12	23	100	13	9	1760	5	14	-7
Villa Ocampo	21	38	52	101	28	50	2420	5	43	-7
Villagrán	20	29	40	100	59	52	1790	5	32	-7
Xichu	21	18	0	100	3	37	1334	5	10	-7

Poblaciones de la República Méxicana, 2016

Coordenadas geográficas (Anuario del Observatorio 1984)

ESTADO Población	latitud °	‘	“	longitud °	‘	“	alt m	δm °	‘	Δδm ‘/año
Yuriria	20	12	51	100	8	19	1882	5	13	-7
HIDALGO										
Acayuca	20	1	48	98	50	30	2570	4	41	-7
Actopan	20	16	12	96	56	42	2069	3	51	-8
Ahuehueco	21	1	43	98	54	24	2500	4	41	-7
Altajayucan	20	24	40	99	20	59	1898	4	53	-7
Apan	19	39	35	98	24	10	2493	4	31	-7
Atotonilco Grande	20	17	6	98	40	13	2138	4	36	-7
Bonanza	20	43	12	99	14	36	1900	4	50	-7
Chapantongo	20	17	16	99	24	50	2145	4	55	-7
Chapulhuacan	21	9	29	98	54	22	1500	4	41	-7
Chicautla	20	19	54	99	13	49	1884	4	50	-7
Epazoyuca	20	1	33	98	37	26	2461	4	36	-7
Huasca	20	12	12	98	34	42	1900	4	34	-7
Huautla	21	2	3	98	16	54	1900	4	25	-7
Huejutla	21	8	43	98	24	58	2490	4	28	-7
Huichapan	20	22	37	99	38	58	2102	5	1	-7
Ixmiquilpan	20	29	4	99	13	5	1745	4	50	-7
Mextitlán	20	35	45	98	45	30	1353	4	38	-7
Mexquititlán	20	32	0	98	38	27	1421	4	35	-7
Nopala	20	15	19	98	38	52	2437	4	36	-7
Orizatlán	21	10	35	98	36	40	1900	4	33	-7
Pachuca	20	7	44	98	43	54	2426	4	38	-7
Pisa Flores	21	11	44	99	0	15	1900	4	43	-7
Real del Monte	20	8	23	98	40	21	2679	4	37	-7
San Agustín Tlaxiaca	20	7	5	98	53	6	2372	4	42	-7
San Gabriel	19	52	44	98	36	58	1900	4	36	-7
San Juanico	19	54	14	98	40	17	1900	4	37	-7
San Pablo	20	38	38	98	55	21	1900	4	42	-7
Sta. Mónica	19	58	55	98	37	16	1900	4	36	-7
Singuilucan	20	1	52	98	19	59	2714	4	28	-7
Tasquillo	20	33	7	99	18	21	1720	4	52	-7
Tepetitlán	20	11	14	99	22	59	2000	4	54	-7
Tezontepec	19	52	44	98	49	10	2326	4	41	-7
Tianguistengo	20	44	0	98	37	34	1687	4	34	-7
Tulancingo	20	4	58	98	22	8	2222	4	29	-7
Tlaxcoapan	20	5	40	99	13	29	2100	4	51	-7
Yolotepec	20	23	36	99	4	31	1900	4	46	-7
Zempoala	19	54	54	98	40	2	2532	4	37	-7
Zimapan	20	44	20	99	22	58	1813	4	54	-7
JALISCO										
Ameca	20	32	47	104	2	46	1235	6	37	-6
Atoyac	20	0	40	103	31	12	1350	6	26	-6
Autlan de Navarro	19	46	13	104	22	4	688	6	42	-6
Bolaños	21	46	31	103	46	58	910	6	34	-6
Cabo Corriente	20	24	42	105	40	50	81	7	7	-6
Carranza	19	44	46	103	46	18	0	6	30	-6
Cihuatlán	19	14	8	104	33	36	0	6	45	-6
Cd. Guzmán	19	42	13	103	27	53	1507	6	24	-7
Cocula	20	23	55	103	49	27	1432	6	32	-6
Colotlán	22	6	51	103	16	8	0	6	23	-7
Encarnación de Díaz	21	31	37	102	14	6	1814	6	0	-7
Guachinango	20	34	38	104	22	59	1285	6	43	-6
Guadalajara	20	42	32	103	23	9	1567	6	24	-7

Poblaciones de la República Méxicana, 2016

Coordenadas geográficas (Anuario del Observatorio 1984)

ESTADO Población	latitud °	‘	“	longitud °	‘	“	alt m	δm °	‘	Δδm ‘/año
Guerrero	21	59	4	103	35	52	1785	6	30	-7
Hostotipaquillo	21	3	46	104	4	21	1079	6	38	-6
Huejuquilla	22	37	42	103	53	58	1480	6	38	-6
La Barca	20	16	37	102	32	53	1517	6	6	-7
La Rosa	19	45	7	103	10	2	0	6	19	-7
Lagos de Moreno	21	21	20	101	55	24	1942	5	53	-7
Ojuelos	21	52	5	101	35	20	2254	5	46	-7
Puerto Vallarta	20	36	56	105	14	42	5	6	59	-6
San Miguel del Alto	21	1	52	102	24	12	2385	6	3	-7
San Pedro Analco	21	14	54	103	57	57	0	6	36	-6
Talpa de Allende	20	23	41	104	49	52	1039	6	51	-6
Tapatitlán	20	48	48	102	45	41	1764	6	11	-7
Tecatitlán	19	28	16	103	18	30	1036	6	21	-7
Tecomates	19	33	8	104	29	18	0	6	44	-6
Tecaltiche	21	26	11	102	34	32	2240	6	7	-7
Tequila	20	53	33	103	50	8	1215	6	33	-6
Unión de Tula	19	57	37	104	16	7	1385	6	40	-6
MEXICO										
Acambay	19	57	18	99	50	47	2552	5	6	-7
Amecameca	19	7	36	98	46	0	2468	4	42	-7
Analco de Becerra	19	15	34	100	1	26	2511	5	11	-7
Atlacomulco	19	48	7	98	52	48	2526	4	43	-7
Ayotla	19	18	55	98	56	8	2251	4	45	-7
Chalco	19	15	53	98	54	12	2280	4	45	-7
Chapa de Mota	19	47	24	99	31	23	3070	4	58	-7
Chicoloapan	19	25	3	98	54	11	2235	4	44	-7
Chimalhuacan	19	25	45	98	56	57	2255	4	45	-7
Coatlichan	19	27	4	98	52	34	2200	4	43	-7
Ecatzingo de Hidalgo	18	57	2	98	45	29	2340	4	42	-7
Huexotla	19	28	50	98	52	25	2200	4	43	-7
Huizquilucan	19	21	47	99	21	39	2750	4	55	-7
Ixtapan de La Sal	18	50	13	99	40	28	1900	5	4	-7
Ixtlahuaca	19	52	54	98	51	39	2640	4	42	-7
Jilotepec	19	57	13	99	31	45	2525	4	58	-7
Lerma	19	17	16	99	30	34	2599	4	59	-7
Los Reyes	19	21	27	98	52	42	2200	4	44	-7
Naucalpan	19	28	36	99	13	45	2298	4	52	-7
Otumba	19	41	59	98	45	33	2349	4	40	-7
Ozumba	19	2	3	98	47	50	2500	4	42	-7
Progreso Industrial	19	37	37	99	20	32	2449	4	54	-7
Popocatepetl	19	1	17	98	37	34	5452	4	38	-7
Popocatepetl	19	5	3	98	39	12	5450	4	39	-7
Remedios	19	28	25	99	15	2	2383	4	53	-7
San Antonio del Rosario	18	24	4	100	18	43	3350	5	19	-7
San Cristobal	19	24	24	99	19	40	2239	4	55	-7
San Pedro Atzapotzaltongo	19	37	38	99	18	54	2420	4	54	-7
San Pedro Atzompa	19	40	56	99	0	36	2243	4	46	-7
Sultepec	18	50	0	99	51	44	2336	5	8	-7
Tecamac	19	42	21	98	58	10	2300	4	45	-7
Temascalapa	19	49	37	98	54	11	2347	4	43	-7
Temascaltepec	19	2	24	100	2	47	1640	5	12	-7
Tenancingo	18	57	51	99	35	45	2022	5	2	-7
Teoloyucan	19	44	48	99	10	53	2280	4	50	-7
Texcoco	19	30	52	98	52	57	2278	4	43	-7

Poblaciones de la República Méxicana, 2016

Coordenadas geográficas (Anuario del Observatorio 1984)

ESTADO Población	latitud °	‘	“	longitud °	‘	“	alt m	δm °	‘	Δδm ‘/año
Tlalmanalco	19	12	36	98	48	27	2412	4	42	-7
Tlalnepantla	19	32	20	99	11	39	2278	4	51	-7
Toluca	19	17	33	99	39	38	2680	5	3	-7
MICHOACÁN										
Aguililla	18	44	17	102	44	9	970	6	10	-7
Agostitlan	19	32	6	100	37	13	2500	5	24	-7
Apatzingan	19	4	54	102	15	31	682	6	0	-7
Apo	19	26	38	102	25	2	0	6	3	-7
Ario de Rosales	19	12	21	101	44	19	2050	5	49	-7
Buenavista	19	12	3	102	35	35	586	6	7	-7
Coahuayana	18	45	9	103	40	30	20	6	28	-6
Cotija	19	48	41	102	42	26	1751	6	9	-7
Hidalgo	19	41	19	100	33	23	2360	5	23	-7
Huajumbaro	19	40	52	100	44	29	2390	5	27	-7
Irimbo	19	41	54	100	28	58	2015	5	21	-7
Janitzio	19	34	27	101	39	11	2120	5	47	-7
Jiquilpan	19	59	31	102	43	16	1654	6	10	-7
La Huacana	18	57	36	101	48	39	550	5	51	-7
Los Reyes	19	35	23	102	28	57	1280	6	5	-7
Maravatío	19	53	33	100	26	43	2080	5	20	-7
Morelia	19	42	16	101	11	30	1941	5	37	-7
Ostula	18	29	50	103	28	19	229	6	24	-6
Panindícuaro	19	59	7	102	45	40	1638	6	10	-7
Parácuaro	19	8	46	103	13	32	586	6	19	-7
Paracho	19	38	44	102	3	1	1567	5	56	-7
Pátzcuaro	19	32	24	101	37	0	2174	5	46	-7
Penjamillo	20	6	31	101	55	40	1645	5	53	-7
Piedad de Cavadas	20	20	44	102	1	32	1696	5	55	-7
Pueblo Viejo	19	46	16	101	34	3	2210	5	45	-7
Puruandiro	20	5	21	101	30	59	1994	5	44	-7
San Pedro Jacuaro	19	43	1	100	38	49	2004	5	25	-7
Senguio	19	44	11	100	21	31	2030	5	18	-7
Tacambaro	19	13	52	101	27	34	1577	5	43	-7
Tequicheo	18	54	0	100	44	21	440	5	28	-7
Tepalcatepec	19	11	31	102	50	35	320	6	12	-7
Tumbiscatio	18	31	33	102	22	28	820	6	3	-7
Turicato	19	3	0	101	25	14	795	5	43	-7
Tuzantla	19	12	19	100	34	39	640	5	24	-7
Uruapan	19	24	56	102	3	46	1634	5	56	-7
Villa Madero	19	23	30	101	16	34	800	5	39	-7
Zacapu	19	49	11	101	47	34	1980	5	50	-7
Zamora	19	59	17	102	18	52	1567	6	1	-7
Zinapécuaro	19	53	5	100	40	32	1920	5	25	-7
Zitácuaro	19	25	51	100	21	50	1781	5	19	-7
MORELOS										
Acapatzingo	18	54	11	99	13	17	1465	4	53	-7
Acatlipa	18	49	30	99	13	42	1215	4	53	-7
Ahuacatitlan	18	58	42	99	15	19	1955	4	54	-7
Atlatlahuacan	18	56	5	98	53	53	1656	4	45	-7
Coatetelco	18	43	55	99	19	48	1029	4	56	-7
Cuajomulco	19	2	2	99	12	17	2651	4	52	-7
Cuautla	18	48	20	98	57	13	1309	4	47	-7
Cuernavaca	18	54	54	99	14	14	1542	4	53	-7
Chapultepec	18	55	11	99	12	49	1492	4	53	-7

Poblaciones de la República Méxicana, 2016

Coordenadas geográficas (Anuario del Observatorio 1984)

ESTADO Población	latitud °	‘	“	longitud °	‘	“	alt m	δm °	‘	Δδm ‘/año
Huautla	18	26	24	99	1	44	1075	4	50	-7
Huitzilac	19	1	39	99	16	2	2540	4	54	-7
Itzamatitlán	18	53	58	99	1	30	1235	4	48	-7
Jojutla	18	36	39	99	10	52	890	4	53	-7
Oaxtepec	18	54	2	98	58	11	1385	4	47	-7
Smiguel	18	41	42	98	48	40	1403	4	44	-7
Tejalpa	18	53	43	99	9	57	1337	4	52	-7
Tepalcingo	18	35	34	98	50	43	1220	4	45	-7
Tetelcingo	18	51	55	98	55	47	1425	4	46	-7
Xiutepec	18	52	31	99	10	27	1355	4	52	-7
Xochitepec	18	47	4	99	13	50	1154	4	54	-7
Yautepec	18	52	38	99	3	46	1282	4	49	-7
Yecapixtla	18	52	56	98	51	55	1603	4	45	-7
NAYARIT										
Acaponeta	22	29	21	105	21	41	30	7	7	-6
Amatlan de Jara	21	23	9	104	8	47	1150	6	40	-6
Huajimic	21	41	29	104	18	18	1170	6	44	-6
Ixtapan	21	18	16	105	9	44	0	7	0	-6
Ixtlan del Río	21	2	9	104	22	16	1042	6	44	-6
Jesús María	22	15	9	104	31	10	610	6	50	-6
Mezcaltitan	21	54	18	105	28	39	0	7	7	-6
Ruíz	21	57	29	105	8	35	24	7	1	-6
San Blas	21	32	27	105	17	16	2	7	3	-6
San Martin de Bolanos	21	29	42	104	1	35	0	6	38	-6
Tepic	21	30	47	104	53	42	915	6	55	-6
Tuxpan	21	54	10	104	8	6	39	6	41	-6
NUEVO LEÓN										
Agualeguas	26	18	38	99	33	3	207	4	55	-7
Arramberri	24	6	10	99	49	3	1076	5	2	-7
Cadereyta Jiménez	25	35	34	99	59	54	360	5	7	-7
Cerralvo	26	5	32	99	36	29	345	4	57	-7
China	25	42	30	99	13	55	163	4	46	-7
Doctor Arroyo	23	40	23	100	10	52	1766	5	12	-7
Galeana	24	49	41	100	3	53	1654	5	9	-7
García	25	48	49	100	35	21	697	5	24	-7
Lampazos de Naranjo	27	1	32	100	30	33	340	5	23	-7
Linares	24	51	39	99	34	5	684	4	55	-7
Los Aldamas	26	3	58	99	11	30	288	4	45	-7
Mier y Noriega	23	25	19	100	7	11	1681	5	10	-7
Montemorelos	25	11	34	99	49	31	432	5	3	-7
Monterrey	25	40	11	100	18	26	538	5	16	-7
Parras	26	30	5	99	31	5	165	4	54	-7
Sabinas Hidalgo	26	29	59	100	10	9	313	5	13	-7
Salinas Victoria	25	57	34	100	18	0	464	5	16	-7
Santiago Huajuco	25	25	35	100	8	17	445	5	11	-7
Vallecillo	26	39	41	99	58	2	274	5	7	-7
Villa Aldama	26	29	49	100	25	50	469	5	20	-7
Zaragoza	23	50	52	99	36	19	1377	4	57	-7
0AXACA										
Ayutla	18	1	48	96	39	46	733	3	52	-8
Ayoquezco	16	41	13	96	50	2	0	4	2	-8
Ayotzintepec	17	40	38	96	8	17	64	3	40	-8
Coatzopan	18	2	56	96	45	31	1922	3	54	-8

Poblaciones de la República Méxicana, 2016

Coordenadas geográficas (Anuario del Observatorio 1984)

ESTADO Población	latitud °	‘	“	longitud °	‘	“	alt m	δm °	‘	Δδm ‘/año
Colotepec	15	53	33	96	56	28	0	4	9	-8
Cuicatlán	17	48	11	96	57	36	595	4	1	-8
Chacalapa	15	55	20	95	55	48	555	3	43	-8
Chalcatongo	17	1	57	97	34	24	2365	4	19	-7
Ecatepec	16	17	8	95	52	39	1690	3	40	-8
Ejutla de Crespo	16	33	48	96	43	44	1440	4	0	-8
Etla	17	12	17	96	47	49	1640	3	59	-8
Guichicovi	16	58	35	95	13	52	297	3	19	-8
Guelatao	17	19	15	96	29	34	1698	3	51	-8
Guelatao	17	19	10	96	29	31	1600	3	51	-8
Huajuapan de León	17	48	30	97	46	31	1680	4	21	-7
Huamelulas Pedro	16	1	39	95	40	1	1030	3	35	-8
Huatulco	15	49	44	96	19	11	325	3	53	-8
Huautla	18	7	53	96	50	45	1714	3	56	-8
Jamiltepec	16	16	33	97	49	23	240	4	28	-7
Juchitán de Zaragoza	16	25	56	95	1	31	38	3	16	-8
Juguila	16	14	6	97	17	45	1500	4	16	-7
Juxtlahuaca	17	20	11	98	0	56	1650	4	29	-7
Lachiguiri	16	23	9	97	20	8	1780	4	16	-7
Loxicha	16	0	31	96	37	20	1885	4	0	-8
Mazatlán	17	2	11	95	26	48	642	3	24	-8
Miahuatlán	16	20	1	96	35	44	1607	3	58	-8
Nejapa	16	36	50	95	58	48	1000	3	41	-8
Niltepec	16	33	47	94	36	48	110	3	4	-8
Nochixtlán	17	27	33	97	13	29	2200	4	9	-8
Oaxaca de Juárez	17	3	43	96	43	18	1550	3	58	-8
Ocotepec	17	47	53	96	23	47	1636	3	46	-8
Ojitlan	18	3	35	96	23	34	233	3	45	-8
Pluma Hidalgo	15	54	50	96	25	30	1475	3	56	-8
Pochutla	15	44	21	96	27	57	163	3	57	-8
Puerto Ángel	15	39	24	96	29	35	20	3	59	-8
Putla	17	1	28	97	56	2	1248	4	28	-7
Quiechapa	16	25	34	96	14	54	1900	3	48	-8
Quiotepec	17	54	8	96	59	0	845	4	1	-8
Salinas Cruz	16	9	37	95	12	11	70	3	22	-8
San Jerónimo Ixtepec	16	33	58	95	6	1	121	3	17	-8
San Miguel Peras	16	56	22	97	0	16	50	4	5	-8
San Vicente Coatlán	16	23	15	96	50	42	0	4	4	-8
Sta María del Mar	16	13	24	94	51	33	0	3	13	-8
Silacayoapan	17	30	14	98	8	38	1720	4	31	-7
Soladevega	16	31	1	96	58	22	1580	4	6	-8
Soyaltepec	18	12	12	96	28	57	0	3	46	-8
Suchixtepec	17	58	28	97	39	26	2842	4	18	-7
Tamazulapan	17	40	30	97	34	19	0	4	17	-7
Tecomavaca	17	57	34	97	1	5	660	4	1	-8
Tehuantepec	16	19	57	95	13	46	100	3	22	-8
Teotitlán del Camino	18	7	53	97	4	26	1067	4	2	-8
Teposcolula	17	30	45	97	29	16	2155	4	15	-7
Tequisistlán	16	24	21	95	36	2	1000	3	32	-8
Teutla	17	59	0	96	42	54	1338	3	53	-8
Tezoatlán	17	40	24	97	48	42	1500	4	23	-7
Tlaxiaco	17	15	59	97	40	58	1210	4	21	-7
Tlocula de Matamoros	16	57	19	96	28	43	1650	3	52	-8
Tololapan	16	40	4	96	18	12	0	3	49	-8

Poblaciones de la República Méxicana, 2016

Coordenadas geográficas (Anuario del Observatorio 1984)

ESTADO Población	latitud °	‘	“	longitud °	‘	“	alt m	δm °	‘	Δδm ‘/año
Tuxtepec	18	5	24	96	6	50	91	3	37	-8
Valle Nacional	17	40	43	96	17	59	65	3	44	-8
Villa Alta	17	20	41	96	9	8	1138	3	41	-8
Yacuane	17	14	25	97	27	3	0	4	15	-7
Yautepec	16	25	52	95	58	11	1100	3	41	-8
Yautepec	16	30	15	96	6	18	1000	3	44	-8
Yalalag	17	11	20	96	10	48	1186	3	43	-8
Zaniza	16	39	7	97	20	19	0	4	15	-7
Zimatlán	16	52	0	96	46	34	1609	4	0	-8
PUEBLA										
Acatepec	19	1	16	98	18	24	2174	4	30	-7
Acatlán de Osorio	18	12	6	98	3	6	1213	4	27	-7
Ahuatempan	18	24	47	98	0	58	1810	4	25	-7
Atezcal	18	23	51	97	43	28	1847	4	18	-7
Atlixco	18	54	32	98	26	27	1881	4	34	-7
Cacalotepec	19	0	3	98	17	28	2337	4	30	-7
Canoa	19	8	55	98	6	4	2000	4	25	-7
Canal de Morelos	18	44	8	97	25	20	2337	4	9	-7
Coronanc	19	7	11	98	17	58	2230	4	30	-7
Coxcatlán	18	15	55	97	8	55	1217	4	4	-8
Oyotzingo	19	11	49	98	26	18	2322	4	33	-7
Cualtlancingo	19	5	16	98	16	14	2118	4	29	-7
Chachapa	19	2	47	98	5	35	2298	4	25	-7
Chiautla de Tapia	18	17	28	98	35	55	1025	4	40	-7
Chila Asunción	17	58	26	97	51	11	1676	4	22	-7
Cholula	19	3	45	98	18	15	2150	4	30	-7
Huauchinango	20	10	51	98	2	58	1472	4	21	-7
Huejotzingo	19	9	29	98	24	22	2291	4	33	-7
Hueyotlipan	19	5	6	98	12	32	2195	4	28	-7
Ixtaccihuatl	19	11	11	98	38	38	5146	4	38	-7
Izucar de Matamoros	18	36	6	98	27	42	1326	4	36	-7
La Malinche	19	13	48	98	1	47	4461	4	23	-7
Loreto	19	3	24	98	11	5	2221	4	27	-7
Molcaxac	18	44	9	97	54	8	1874	4	21	-7
Momoxpan	19	4	13	98	15	54	2159	4	29	-7
Moyotzingo	19	14	35	98	24	11	2271	4	32	-7
Nextetelco	19	7	13	98	20	21	1500	4	31	-7
Nopalucan	19	12	59	97	49	10	2490	4	18	-7
Ocotlán	19	8	37	98	17	3	2243	4	30	-7
Ocoyucan	18	58	30	98	17	58	2152	4	30	-7
Pantepec	20	31	29	97	56	14	738	4	17	-7
Petlaltzingo	18	4	59	97	55	12	1325	4	24	-7
Popocatepetl	19	1	17	98	37	34	5452	4	38	-7
Puebla de Zaragoza	19	2	30	98	11	48	2162	4	28	-7
Resurrección	19	6	4	98	7	36	2366	4	26	-7
San Andrés Chalchico	18	59	10	97	26	52	2540	4	9	-7
San Antonio	19	6	3	98	9	31	2296	4	26	-7
San Aparicio	18	29	42	97	16	51	1771	4	6	-8
San Baltazar	19	1	24	98	12	18	2142	4	28	-7
Sanctorum	19	5	51	98	15	8	2000	4	29	-7
San Juan de los Llanos	19	27	54	97	41	3	2380	4	13	-7
San Martín Texmelucan	19	16	59	98	25	59	2278	4	33	-7
San Salvador El Seco	19	8	7	97	38	32	2450	4	13	-7
Sta María Chiamecati	18	38	47	98	4	46	2000	4	26	-7

Poblaciones de la República Méxicana, 2016

Coordenadas geográficas (Anuario del Observatorio 1984)

ESTADO Población	latitud °	‘	“	longitud °	‘	“	alt m	δm °	‘	Δδm ‘/año
Sta Rita Tlahuapan	19	19	56	98	35	9	2291	4	37	-7
Santiago Xalitzintla	19	4	36	98	30	53	2000	4	35	-7
Tecali	18	53	58	97	57	59	2240	4	22	-7
Tecamachalco	18	52	57	97	43	49	2055	4	16	-7
Tehuacan de Las Grandas	18	27	51	97	23	20	1676	4	9	-7
Temextatiloyan	19	5	22	98	12	46	2183	4	28	-7
Tepeaca	18	57	43	97	54	8	2257	4	20	-7
Tepeji Rodríguez	18	34	47	97	55	45	1746	4	22	-7
Tetela de Ocampo	19	49	15	97	48	10	1790	4	15	-7
Teziutlán	19	49	30	97	21	17	1990	4	4	-7
Tlacotepec	18	40	54	97	39	9	1977	4	15	-7
Tlaltenango	19	10	10	98	20	36	2246	4	31	-7
Tlancualpican	18	25	41	98	41	41	1100	4	42	-7
Tlaxcalanzingo	19	1	44	98	16	24	2173	4	30	-7
Tonantzintla	19	1	58	98	18	50	2147	4	31	-7
Xalmimilulco	18	12	32	98	22	46	2248	4	35	-7
Xochimehuacan	19	5	23	98	11	51	2200	4	28	-7
Xonacatepec	19	5	12	98	6	8	2209	4	25	-7
Zacapoaxtla	19	52	49	97	35	2	2045	4	9	-7
Zacatlán de las Manzanas	19	56	7	97	57	27	2059	4	19	-7
Zapotitlán	18	19	56	97	28	23	2407	4	12	-7
Zautla	19	43	6	97	40	21	2020	4	12	-7
Zinacatepec	18	19	57	97	14	41	1139	4	6	-8
QUERÉTARO										
Amealco	20	11	17	100	8	38	2075	5	13	-7
Arroyo Seco	21	32	54	99	41	13	1008	5	0	-7
Boye	20	40	58	99	44	47	1000	5	3	-7
Cadereyta	20	41	41	99	48	58	2077	5	4	-7
Ezequiel Montes	20	40	2	99	53	54	1000	5	6	-7
Huimilpan	20	22	39	100	16	32	2307	5	16	-7
Jalpan	21	13	8	99	28	16	860	4	55	-7
Querétaro	20	35	36	100	23	11	1000	5	18	-7
San Juan del Río	20	23	30	99	59	49	1978	5	9	-7
Tequisquiapan	20	31	26	99	53	42	1717	5	6	-7
Toliman	20	54	35	99	55	45	1535	5	7	-7
QUINTANA ROO										
Ascensión	19	46	31	87	28	0	0	-1	8	-8
Cabo Catoche	21	36	25	87	6	21	157	-1	36	-8
Carrillo Puerto	19	34	50	88	2	38	30	0	-46	-8
Contoy	21	31	45	86	48	12	0	-1	47	-8
Cozumel	20	31	20	86	57	12	0	-1	33	-8
Chetumal	18	29	39	88	17	56	0	0	-28	-8
Filomeno Mata	19	52	8	88	23	47	0	0	-36	-8
Icaiche	18	4	17	89	10	7	183	0	5	-8
Kantunil Kin	21	6	14	87	29	12	20	-1	18	-8
Leona VicaRío	20	59	23	87	12	22	0	-1	27	-8
Polyuc	19	36	50	88	33	58	0	0	-28	-8
Put	19	39	8	89	24	46	0	0	1	-8
Saban	20	2	12	88	32	16	0	0	-32	-8
Sta Cruz Chico	18	56	3	88	9	44	0	0	-36	-8
Tulum	20	12	34	87	25	34	150	-1	13	-8
Vigia Chico	19	46	27	87	35	2	0	-1	4	-8
Xkalak	18	13	32	87	50	50	0	0	-41	-8
Xkanha	19	6	13	89	20	5	0	0	3	-8

Poblaciones de la República Méxicana, 2016

Coordenadas geográficas (Anuario del Observatorio 1984)

ESTADO Población	latitud °	‘	“	longitud °	‘	“	alt m	δm °	‘	Δδm ‘/año
SAN LUIS POTOSÍ										
Ahualco	22	23	56	101	9	58	1902	5	36	-7
Alaquines	22	7	41	99	35	27	1300	4	57	-7
Arista	22	38	46	100	51	2	1560	5	28	-7
Arriaga	21	54	44	101	22	58	2660	5	41	-7
Cárdenas	21	59	49	99	38	28	1201	4	59	-7
Catorce	23	41	34	100	53	23	2756	5	30	-7
Cerritos	22	25	55	100	16	51	1153	5	14	-7
Cd. del Maíz	22	24	8	99	36	9	1239	4	57	-7
Charcas	23	7	47	101	6	37	2057	5	35	-7
Guadalcazar	22	37	1	100	23	56	1673	5	17	-7
Matehuala	23	38	41	100	38	26	1615	5	23	-7
Moctezuma	22	45	7	101	5	0	1777	5	34	-7
Pastora	22	8	2	100	3	25	920	5	9	-7
Ramos	22	49	59	101	55	3	2210	5	54	-7
Río Verde	21	55	52	99	59	38	991	5	7	-7
Salinas de Puente Blanco	22	37	44	101	43	0	2099	5	49	-7
San Luis Potosí	22	9	10	100	58	38	1877	5	31	-7
Santa Catarina	21	39	37	99	29	36	898	4	55	-7
Santa María del Río	21	48	4	100	44	9	1703	5	26	-7
Santo Domingo	23	19	35	101	44	6	1971	5	50	-7
Tamazunchale	21	16	0	98	47	18	206	4	38	-7
Tamuín	21	0	18	98	46	30	275	4	38	-7
Tancanhuitz	21	36	11	98	57	57	241	4	42	-7
Valles	21	59	4	99	0	58	95	4	43	-7
Vieja	22	2	29	99	25	16	10	4	53	-7
Villa de Reyes	21	48	19	100	56	0	1819	5	30	-7
Zaragozas José de	22	2	8	100	43	53	1925	5	26	-7
SINALOA										
Altata	24	38	0	107	55	53	2	8	4	-6
Badiraguato	25	21	40	107	33	7	300	8	1	-6
Cosalá	24	24	38	106	41	44	300	7	40	-6
Culiacán	24	48	36	107	23	57	84	7	55	-6
El Fuerte	26	25	14	108	39	0	0	8	28	-6
La Laguna	26	34	58	108	27	25	600	8	25	-6
Mazatlán	23	11	55	106	25	20	3	7	29	-6
Mocorito	25	29	0	107	55	13	838	8	8	-6
Navolato	24	45	57	107	41	48	12	8	0	-6
Rosario	22	59	29	105	51	13	32	7	18	-6
San Blas	26	4	38	108	45	53	37	8	27	-6
San José de Gracia	26	8	38	107	53	38	750	8	12	-6
Santa María	25	33	56	109	10	26	46	8	31	-6
Sinaloa	25	49	26	108	13	29	55	8	16	-6
Soyatita	25	44	21	107	18	36	1200	7	58	-6
Topolobampo	25	36	1	109	2	52	3	8	29	-6
SONORA										
Agua Prieta	31	19	42	109	33	44	1050	9	21	-6
Aguiabampo	26	21	58	109	8	59	7	8	36	-6
Álamos	27	1	16	108	56	2	410	8	37	-6
Altar	30	42	46	111	44	12	0	9	56	-5
Antimonio	30	44	34	112	36	49	61	10	11	-5
Arizpe	30	20	9	110	10	22	870	9	25	-6
Bacanora	28	59	2	109	23	21	446	8	59	-6
Bacerac	30	21	41	108	49	25	937	8	58	-6

Poblaciones de la República Méxicana, 2016

Coordenadas geográficas (Anuario del Observatorio 1984)

ESTADO Población	latitud °	‘	“	longitud °	‘	“	alt m	δm °	‘	Δδm ‘/año
Baroyeca	27	38	32	109	29	33	0	8	51	-6
Buenavista	27	51	3	109	52	24	111	9	0	-6
Caborca	30	41	50	112	9	29	305	10	3	-5
Cananea	30	58	57	110	18	1	1489	9	32	-6
Carbo	29	41	0	110	57	29	464	9	34	-5
Carbón	29	41	0	110	57	29	464	9	34	-5
Cedros	27	45	39	109	17	26	475	8	48	-6
Ciudad Obregón	27	29	35	109	56	0	100	8	58	-5
Conicarit	27	14	18	109	5	5	145	8	41	-6
Cucurpe	30	19	51	110	42	18	803	9	34	-5
Guaymas	27	55	28	110	53	31	0	9	18	-5
Hermosillo	29	4	29	110	57	36	237	9	29	-5
Huatabampo	26	49	36	109	38	46	20	8	48	-6
Imuris	30	46	38	110	51	58	826	9	41	-5
Libertad	29	54	12	112	45	7	0	10	6	-5
Macoyahui	27	19	36	108	54	28	201	8	38	-6
Magdalena	30	37	45	111	3	42	693	9	43	-5
Moctezuma	29	48	10	109	41	41	677	9	11	-6
Minas Nuevas	27	3	29	109	0	33	520	8	38	-6
Movas	28	9	40	109	26	34	260	8	54	-6
Naco	31	19	53	109	57	5	1340	9	28	-6
Nacori Grande	29	3	37	110	2	44	634	9	12	-6
Nacozari	30	22	25	109	41	28	1040	9	16	-6
Navojoa	27	4	52	109	27	13	40	8	47	-6
Nogales	31	19	49	110	56	42	1120	9	47	-5
Nabas	28	27	40	109	31	35	170	8	58	-6
Puerto Libertad	29	54	34	102	40	52	8	6	30	-7
Punta Peñasco	31	18	9	113	32	57	61	10	32	-5
Quiriego	27	31	11	109	15	7	251	8	46	-6
Rayón	29	42	47	110	34	36	560	9	27	-5
Sahuaripa	29	3	18	109	13	31	460	8	57	-6
San José de Pimas	28	42	47	110	21	2	415	9	15	-5
Santa Ana	30	32	38	111	7	26	687	9	44	-5
Santa Clara	31	40	41	114	29	30	0	10	50	-5
Soyopa	28	45	49	109	38	7	272	9	2	-6
Suaqui Grande	28	23	44	109	53	30	272	9	4	-6
Tiburón	28	45	55	112	41	56	0	9	54	-5
Torín	27	34	30	110	13	19	64	9	4	-5
Tubutama	30	53	4	111	28	16	682	9	53	-5
Ures	29	25	45	110	23	29	432	9	21	-5
Yabaros	26	42	12	109	30	45	2	8	45	-6
TABASCO										
Álvaro Obregón	18	13	19	92	40	4	33	1	57	-8
Astapa	17	46	42	92	59	18	134	2	10	-8
Cárdenas	18	0	42	93	22	10	4	2	20	-8
Comalcalco	18	15	54	93	13	7	5	2	14	-8
Francisco I. Madero	18	25	18	92	44	28	72	1	58	-8
Huimanquillo	17	52	10	93	27	31	193	2	23	-8
Ignacio Allende	18	23	10	92	50	51	32	2	2	-8
Tacotalpa	17	35	47	92	49	26	60	2	6	-8
Tapijulapa	17	27	52	92	46	50	0	2	5	-8
Teapa	17	33	14	92	57	12	50	2	10	-8
Tenosique	17	28	45	91	25	33	60	1	23	-8
Tierra Colorada	17	57	22	92	37	46	144	1	58	-8

Poblaciones de la República Méxicana, 2016

Coordenadas geográficas (Anuario del Observatorio 1984)

ESTADO Población	latitud °	‘	“	longitud °	‘	“	alt m	δm °	‘	Δδm ‘/año
Villahermosa	17	59	15	92	55	0	10	2	6	-8
Xicotencatl	17	30	35	92	40	52	206	2	2	-8
TAMAULIPAS										
Abasolo	24	4	0	98	22	38	61	4	23	-7
Aldama Presas	22	55	6	98	4	12	98	4	16	-7
Altamira	22	23	40	97	55	47	26	4	13	-7
Antiguo Morelos	22	33	3	99	5	9	178	4	44	-7
Burgos	24	57	1	98	46	57	193	4	34	-7
Camargo	26	19	1	98	49	55	68	4	35	-7
Casas	23	43	44	98	44	27	120	4	33	-7
Ciudad Victoria	23	44	6	99	7	51	321	4	44	-7
Cruillas	24	45	32	98	30	59	265	4	26	-7
Guemes	23	55	18	99	0	28	220	4	40	-7
Guerrero	26	46	45	99	20	22	34	4	49	-7
Jaumave	23	24	30	99	22	28	735	4	51	-7
Jiménez	24	12	56	99	28	44	101	4	53	-7
Llera	23	19	11	99	1	15	290	4	41	-7
Magiscatzin	22	48	29	98	42	1	56	4	33	-7
Matamoros	25	52	45	97	31	9	12	3	56	-7
Mendez	25	7	11	98	34	12	128	4	27	-7
Mier	26	25	57	99	8	41	80	4	44	-7
Miquihuana	23	34	15	99	46	32	1892	5	1	-7
Ocampo	20	50	32	99	20	14	348	4	52	-7
Padilla	24	0	39	98	46	27	153	4	34	-7
Reynosa	26	5	50	98	16	42	38	4	18	-7
San Carlos	24	34	50	98	56	26	432	4	38	-7
San Fernando	24	50	56	98	9	30	55	4	16	-7
Tampico	22	13	0	97	51	19	12	4	11	-7
Tula	22	59	50	99	42	55	1173	5	0	-7
Villagrán	24	28	33	99	20	21	363	4	49	-7
Xicotencatl	22	59	48	98	56	35	131	4	39	-7
TLAXCALA										
Apizaco	19	24	59	98	8	27	2408	4	25	-7
Calpulalpam	19	35	37	98	34	18	2578	4	36	-7
Cuaula	19	36	10	98	38	44	2703	4	37	-7
Cuauhutotohuatlán	19	7	7	98	10	9	2308	4	27	-7
Huamantla	19	18	53	97	55	39	2553	4	20	-7
Tenancingo	19	8	47	98	11	57	2281	4	27	-7
Tlaxcala	19	19	4	98	14	9	2252	4	28	-7
San Aparicio	19	6	0	98	9	30	2293	4	26	-7
San Juan de los Llanos	19	27	54	97	41	0	2448	4	13	-7
San Martín Tezmelucan	19	16	59	98	25	59	2278	4	33	-7
VERACRUZ										
Acayucan	17	56	42	95	54	43	88	3	32	-8
Acayucan	17	56	34	94	54	13	88	3	4	-8
Actopan	19	30	11	96	36	45	311	3	45	-8
Alvarado	18	46	14	95	45	56	9	3	25	-8
Ciudad Azueta	18	4	43	95	42	18	0	3	26	-8
Coatepec	19	27	8	96	57	1	1252	3	54	-8
Coatzacoalcos	18	8	56	94	24	40	2	2	49	-8
Coatzintla	20	29	6	97	26	12	144	4	4	-7
Córdoba	18	53	34	96	55	52	924	3	56	-8
Cosamaloapan	18	21	46	95	48	32	96	3	28	-8

Poblaciones de la República Méxicana, 2016

Coordenadas geográficas (Anuario del Observatorio 1984)

ESTADO Población	latitud °	‘	“	longitud °	‘	“	alt m	δm °	‘	Δδm ‘/año
Coscomatepec	19	4	23	97	2	5	1588	3	58	-8
Cuatotolopan	18	7	16	95	18	7	23	3	15	-8
Cuichapa	18	46	28	96	52	8	642	3	54	-8
Chiconamel	21	14	0	98	27	36	158	4	29	-7
Chicontepec	20	58	31	98	9	54	595	4	22	-7
General Alemán	18	11	32	96	5	44	18	3	36	-8
Hidalgotitlán	17	46	20	94	38	47	77	2	58	-8
Huatusco	19	9	1	96	57	9	1344	3	55	-8
Huayacocotla	20	32	27	98	28	38	2100	4	31	-7
Inalambrica	19	10	50	96	7	36	0	3	33	-8
Ixcatepec	21	14	23	98	0	14	295	4	17	-7
Ixhuatlán	20	41	30	98	0	35	306	4	19	-7
Jalapa	19	31	35	96	54	51	1427	3	53	-8
Lobos	21	28	0	97	13	3	0	3	55	-7
Martínez de la Torre	20	3	58	97	2	36	151	3	54	-8
Minatitlán	17	58	47	94	32	27	64	2	54	-8
Misantla	19	56	2	96	50	24	410	3	49	-8
Mocayapan	18	12	49	94	50	17	340	3	1	-8
Naolingo	19	39	15	96	51	51	1605	3	51	-8
Nautla	20	12	43	95	45	38	4	3	18	-8
Orizaba	18	50	58	97	5	47	1284	4	0	-8
Ozuluama	21	39	46	97	51	0	229	4	12	-7
Pantepec	20	31	29	97	56	14	738	4	17	-7
Papantla	20	26	53	97	19	7	298	4	1	-7
Perote	19	33	52	97	14	24	2465	4	1	-8
Pico Orizaba	19	2	0	97	15	42	5700	4	4	-7
Playa Vicente	17	50	5	95	48	35	95	3	30	-8
Rizo	19	3	17	95	55	8	0	3	28	-8
Rodríguez Clara	17	59	28	95	24	9	148	3	18	-8
Sacrificios	19	10	26	96	5	27	0	3	32	-8
San Andrés Tuxtla	18	26	42	95	11	53	361	3	10	-8
San Andrés Tuxtla	18	26	40	95	13	1	323	3	11	-8
San Carlos	19	24	17	96	21	25	136	3	38	-8
San Juan de Ulua	19	12	26	96	7	46	0	3	33	-8
San Juan Evangelista	17	52	59	95	8	12	88	3	11	-8
San Martín	18	33	48	95	10	48	1738	3	9	-8
Santiaguillo	19	8	29	95	48	23	0	3	24	-8
Tamarindo	18	45	23	96	22	49	80	3	41	-8
Tamiahua	21	16	26	97	26	29	4	4	2	-7
Tantoyucan	21	21	7	98	13	31	217	4	23	-7
Tehuipango	18	31	14	97	3	31	2382	4	0	-8
Teocelo de Díaz	19	23	8	96	57	47	1218	3	55	-8
Tepetzintla	21	10	43	96	49	48	351	3	45	-8
Tesechoacan	18	8	12	95	39	47	0	3	25	-8
Tierra Blanca	18	27	3	96	21	28	60	3	42	-8
Tihuatlán	20	43	26	97	32	23	222	4	6	-7
Tlacotalpan	18	36	40	95	39	54	320	3	22	-8
Tlaliscoyan	18	48	7	96	3	26	84	3	32	-8
Tlapacoyan	19	58	13	97	12	35	504	3	59	-8
Tonayan	19	40	54	96	54	45	0	3	52	-8
Tuxpan	20	57	18	97	23	59	14	4	2	-7
Veracruz	19	12	2	96	8	13	14	3	33	-8
Verde	19	11	50	96	3	59	0	3	31	-8
Xico	19	25	17	97	0	11	0	3	56	-8

Poblaciones de la República Méxicana, 2016

Coordenadas geográficas (Anuario del Observatorio 1984)

ESTADO Población	latitud °	‘	“	longitud °	‘	“	alt m	δm °	‘	Δδm ‘/año
Zongolica	18	40	10	96	59	26	1294	3	58	-8
YUCATÁN										
Becanchen	19	52	32	89	13	3	0	0	-7	-8
Celestúm	20	51	36	90	24	5	3	0	26	-8
Cuyo	21	31	9	87	40	48	8	-1	15	-8
Chancenote	20	59	36	87	46	56	0	-1	7	-8
Chavihau	21	21	28	89	7	7	0	0	-22	-8
Espita	21	0	36	88	18	27	22	0	-48	-8
Halacho	20	28	44	90	4	51	6	0	18	-8
Huhi	20	43	42	89	10	0	15	0	-16	-8
Izamal	20	56	16	88	57	14	14	0	-25	-8
Maxcanu	20	35	11	89	59	55	8	0	14	-8
Mérida	20	59	0	89	38	43	9	0	-1	-8
Molas	20	49	0	89	37	48	10	0	0	-8
Progreso	21	18	0	89	39	30	8	0	-3	-8
San Felipe	21	34	8	88	13	58	0	0	-55	-8
Sisal	21	9	59	90	1	55	0	0	11	-8
Tekax	20	12	18	98	17	20	35	4	27	-7
Telchac	21	20	35	89	15	50	10	0	-17	-8
Tzimin	21	8	1	88	9	6	17	0	-55	-8
Valladolid	20	41	24	88	12	23	20	0	-49	-8
Yalkubul	21	31	26	88	36	55	0	0	-41	-8
ZACATECAS										
Calera	22	57	2	102	42	10	2236	6	12	-7
Concepción del Oro	24	36	54	101	25	43	2070	5	44	-7
Chalchihuites	23	28	42	103	53	15	2321	6	39	-6
Fresnillo	23	10	35	102	52	39	2250	6	16	-7
Guadalupe	22	45	30	102	31	9	2265	6	8	-7
Jerez	22	38	51	102	59	48	2027	6	18	-7
Juchipila	21	24	46	103	7	29	1350	6	19	-7
Nieves	23	59	41	103	1	12	2017	6	21	-7
Nochistlán	21	21	47	102	50	55	1930	6	13	-7
Observatorio Astronómico	22	43	56	102	32	26	2717	6	8	-7
Observatorio Astronómico	22	46	1	102	32	56	2425	6	8	-7
Ojo Caliente	22	34	44	102	15	20	2114	6	2	-7
Ojuelos	21	52	5	101	35	20	2000	5	46	-7
Pánuco	22	52	45	102	32	30	2321	6	8	-7
Pinos	22	17	54	101	34	23	2419	5	46	-7
Río Grande	23	49	40	103	2	17	2000	6	21	-7
San Juan del Mezquital	24	17	28	103	23	47	2000	6	31	-7
Sombrerete	23	37	53	103	38	30	2351	6	34	-7
Tlatenango	21	47	0	103	18	44	1724	6	24	-7
Valparaíso	22	46	13	103	34	5	2140	6	31	-7
Villa de Cos	23	17	40	102	20	55	2050	6	5	-7
Villanueva	22	21	16	102	53	13	1955	6	15	-7
Zacatecas	22	46	30	102	34	45	2496	6	9	-7

Mapa de zonas horarias

Las zonas horarias dividen a la Tierra en 24 franjas de 15° de anchura; las letras representan el código de uso con los que se corrige la hora del Meridiano de Greenwich. Además de señalarse en el encabezado del mapa, en la tabla se indica el número de horas que deberán sumarse, algebraicamente, a la hora del Meridiano de Greenwich. El mapa se tomó del Standard Time Zones, del Astronomical Phenomena, 1998.

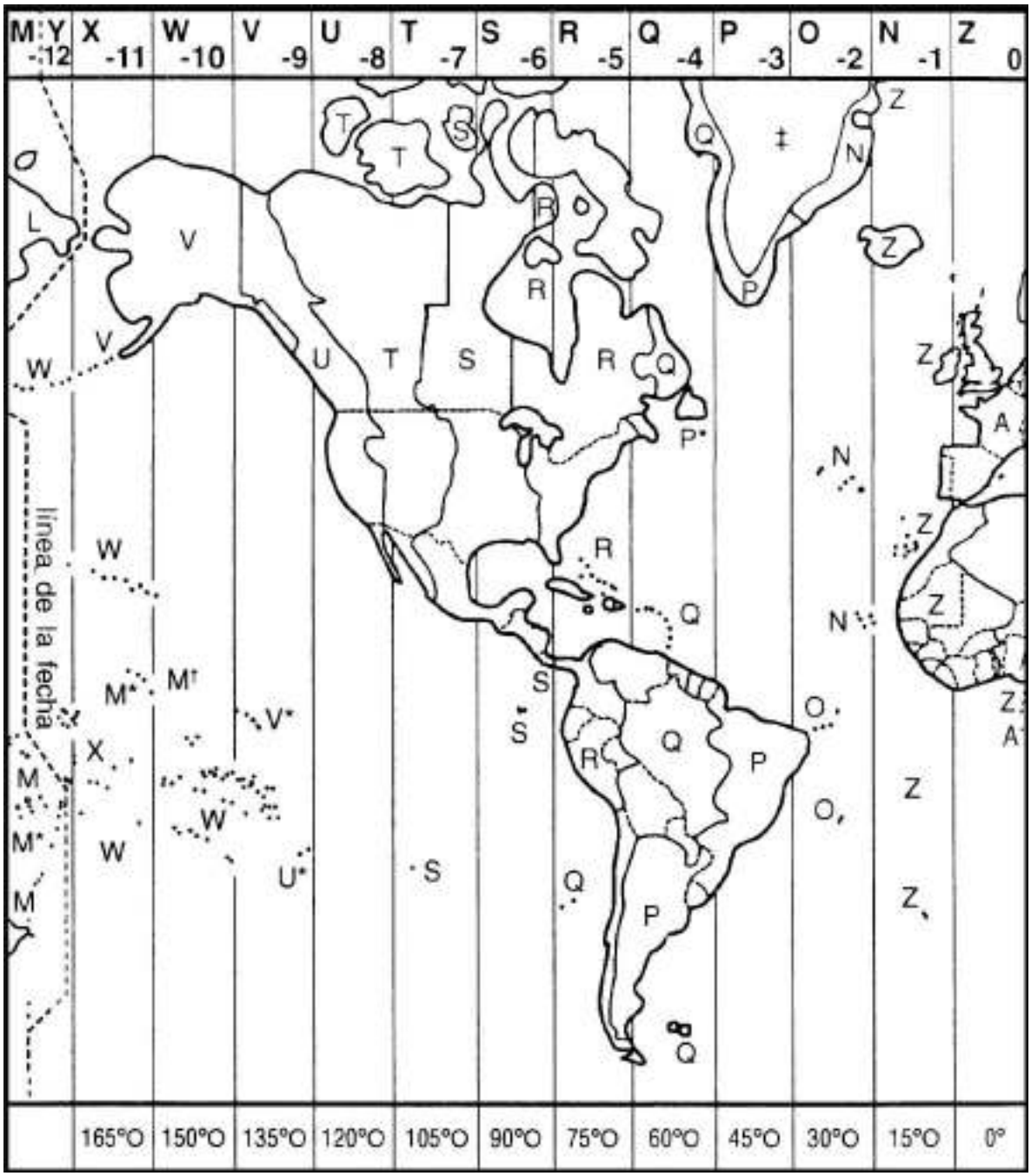
º ’	zona	h	m
00	Z	0	
+15	A	+ 1	
+30	B	+ 2	
+45	C	+ 3	
+52 30	C*	+ 3	30
+60	D	+ 4	
+67 30	D*	+ 4	30
+75	E	+ 5	
+82 30	E*	+ 5	30

º ’	zona	h	m
+90	F	+ 6	
+97 30	F*	+ 6	30
+105	G	+ 7	
+120	H	+ 8	
+135	I	+ 9	
+142 30	I*	+ 9	30
+150	K	+ 10	
+157 30	K*	+ 10	30
+165	L	+ 11	

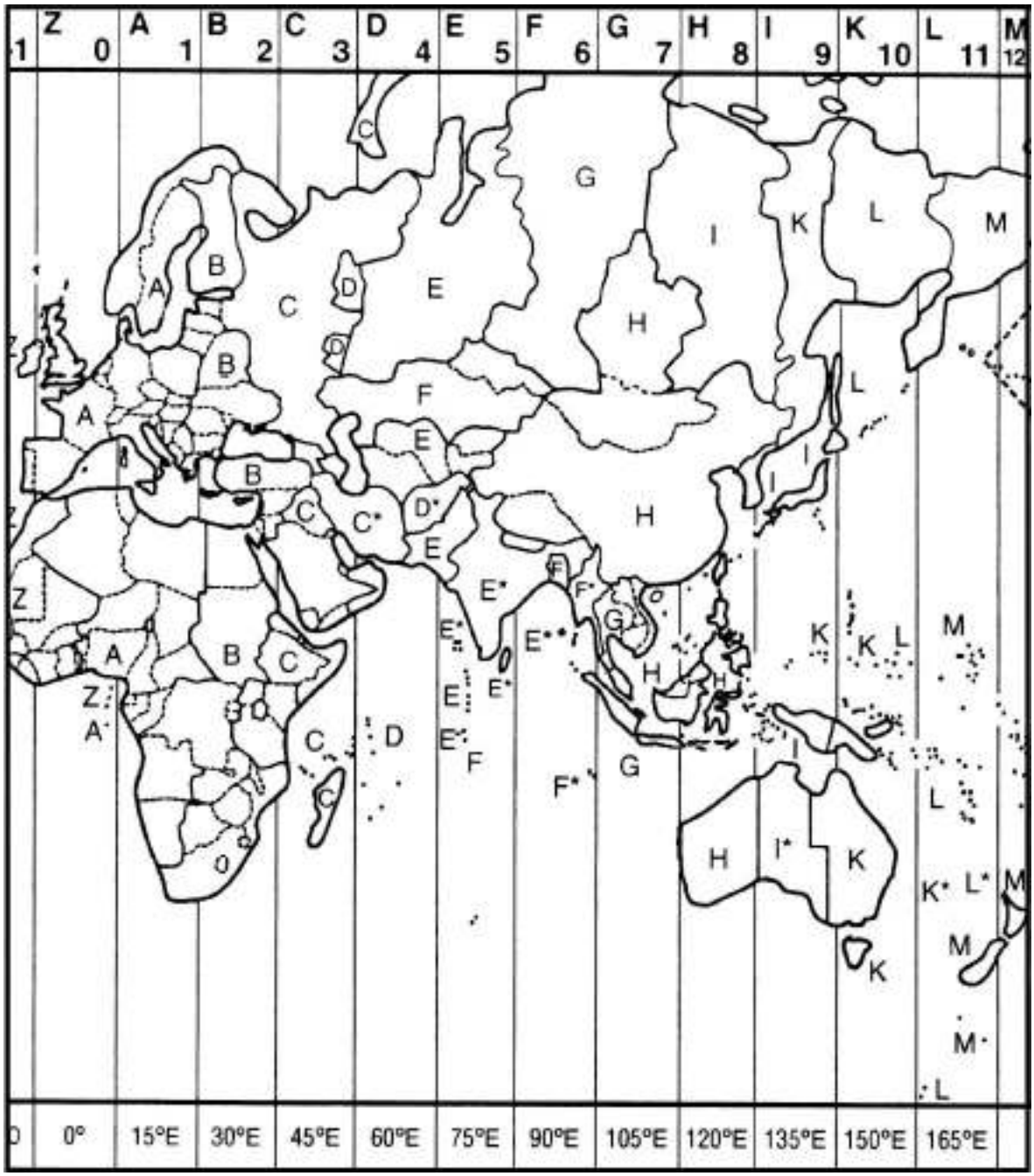
º ’	zona	h	m
+180	M	+ 12	
+187 30	M*	+ 12	30
-15	N	- 1	
-30	O	- 2	
-45	P	- 3	
-52 30	P*	- 3	30
-60	Q	- 4	
-75	R	- 5	
-90	S	- 6	

º ’	zona	h	m
-105	T	- 7	
-120	U	- 8	
-127 30	U*	- 8	30
-135	V	- 9	
-142 30	V*	- 9	30
-150	W	- 10	
-165	X	- 11	
-180	Y	- 12	

Mapa de zonas horarias



Mapa de zonas horarias



Hora Legal en la República Mexicana, 2016

Diario Oficial de la Federación el 29 de diciembre de 2001,
1 de marzo de 2002 y reformas DOF 06-01-2010, DOF 11-11-2010
(Decretado por el Congreso de los Estados Unidos Mexicanos)

Artículo 1. La presente Ley es de aplicación general y regirá en todo el territorio de los Estados Unidos Mexicanos, sus disposiciones son de orden público e interés general, su aplicación y vigilancia estará a cargo del Ejecutivo Federal por conducto de las dependencias que conforme a la Ley Orgánica de la Administración Pública Federal tengan asignada competencia sobre la materia que regula el presente ordenamiento.

Artículo 2. Se reconoce para los Estados Unidos Mexicanos la aplicación y vigencia de los husos horarios 90 grados, 105 grados y 120 grados al Oeste del meridiano de Greenwich y los horarios que les corresponden conforme a su ubicación, aceptando los acuerdos tomados en la Conferencia Internacional de Meridianos de 1884, que establece el meridiano cero (Fracción reforma DOF 06-01-2010).

Artículo 3. Para el efecto de la aplicación de esta Ley, se establecen dentro del territorio nacional las siguientes zonas y se reconocen los meridianos que les correspondan:

I. Zona Centro: Referida al meridiano 90 grados al Oeste del meridiano de Greenwich y que comprende la mayor parte del territorio nacional, con la salvedad de lo establecido en los numerales II, III y IV de este mismo artículo;

II. Zona Pacífico: Referida al meridiano 105 grados al Oeste del meridiano de Greenwich y que comprende los territorios de los estados de Baja California Sur; Chihuahua; Nayarit, con excepción del municipio de Bahía de Banderas, el cual se regirá conforme a la fracción anterior en lo relativo a la Zona Centro; Sinaloa y Sonora (Fracción reformada DOF 06-01-2010);

III. Zona Noroeste: Referida al meridiano 120 grados al Oeste del meridiano de Greenwich y que comprende el territorio del Estado de Baja California;

IV. Las islas, arrecifes y cayos quedarán comprendidos dentro del meridiano al cual corresponda su situación geográfica y de acuerdo a los instrumentos de derecho internacional aceptados.

Actualización *D.O.F: Jueves, 11 de Noviembre de 2010*: En los municipios fronterizos de Tijuana y Mexicali en Baja California; Juárez y Ojinaga en Chihuahua; Acuña y Piedras Negras en Coahuila; Anáhuac en Nuevo León; y Nuevo Laredo, Reynosa y Matamoros en Tamaulipas, la aplicación de este horario estacional surtirá efecto desde las dos horas del segundo domingo de marzo y concluirá a las dos horas del primer domingo de noviembre.

En los municipios fronterizos que se encuentren ubicados en la franja fronteriza norte en el territorio comprendido entre la línea internacional y la línea paralela ubicada a una distancia de veinte kilómetros, así como la Ciudad de Ensenada, Baja California, hacia el interior del país, la aplicación de este horario estacional surtirá efecto desde las dos horas del segundo domingo de marzo y concluirá a las dos horas del primer domingo de noviembre.

Horario de Invierno y Verano

Desde 1996 se practica en México el cambio de horario. El primer domingo de abril y el último domingo de octubre a las 2h00 de la mañana se realiza el cambio de horario.

Al horario adoptado entre el primer domingo de abril y el último domingo de octubre se le llama Horario de Verano, mientras que el horario para el resto del año se le llama Horario de Invierno. El ajuste de una hora que se realiza en los relojes para pasar de un horario al otro ocurre exactamente las 2h00m de la mañana (esta hora es la del horario que se abandona) del domingo en cuestión. El cambio de horario se realiza en esta hora para minimizar los posibles efectos adversos para la sociedad en general por efecto del ajuste de los relojes. En los Estados Unidos Mexicanos el cambio de horario se realiza primeramente en la zona horaria del Centro, una hora después se efectúa el cambio de horario en la zona del Pacífico, y una hora más tarde se realiza el cambio de horario en la zona del Noroeste.

Es importante señalar que para el primer domingo de abril no existe la hora del día entre las 2h00 y las 3h00 de la mañana, puesto que en ese día, una vez que los relojes marcan las 2h00 de la mañana del horario de invierno, deben ser adelantados hasta las 3h00 de la mañana del horario de verano. En contra parte, para el último domingo de octubre existen dos intervalos de tiempo distintos que tienen el mismo valor numérico en cuanto a la hora del día, este intervalo es de la 1h00 a las 2h00 de la mañana. Lo anterior ocurre debido a que una vez que los relojes marcan las 2h00 de la mañana del horario de verano, estos son atrasados una hora para marcar la 1h00 de la mañana del horario de invierno. Para evitar ambigüedades sobre la hora del día, particularmente en aquellos domingos en que ocurre el cambio de horario, se recomienda acompañar la hora del día con una indicación que se refiera al horario (verano o invierno). Por ejemplo, para el 2009, el domingo en el cual ocurrió el cambio del horario de verano al horario de invierno, fue el 25 de octubre del 2009, y una indicación como la siguiente evitaría cualquier ambigüedad: 1h30 del horario de verano del 29 de octubre del 2009. Esta forma de indicar la hora del día deja establecido claramente que se trata de aquel momento del domingo 29 de octubre en el cual los relojes indican por primera vez la 1h30 de la mañana. Por su parte, la hora 1h30 del horario de invierno del 25 de octubre del 2009, establece que se trata de aquel momento en el cual los relojes indican por segunda vez la 1h30 de la mañana. Consideraciones similares deberán tomarse en cuenta para el cambio del horario de invierno al horario de verano.

Centros astronómicos en la República Mexicana, 2016

ESTADO Población	latitud ° ‘ “	longitud ° ‘ “	altura s.n.m.m.	ubicación
Universidad Nacional Autónoma de México **Instituto de Astronomía**				
BAJA CALIFORNIA				
San Pedro Mártir	31 02 39	115 27 49	2800	Telescopio 2.12 m
	31 02 43	115 28 00	2790	Telescopio 1.50 m
PUEBLA				
Tonantzintla	19 01 58	98 18 50	2147	Telescopio 1 m
Centro de Radioastronomía y Astrofísica, U. N. A. M.				
MICHOACÁN				
Morelia	19 42 16	101 11 30	1941	
Instituto Nacional de Astrofísica, Óptica y Electrónica, S.E.P.				
PUEBLA				
Tonantzintla	19 01 58	98 18 50	2147	
SONORA				
Observatorio Cananea				
Guillermo Haro	31 03 10	110 18 19	2480	Telescopio 2.1 m
Departamento de Astronomía, Universidad de Guanajuato				
GUANAJUATO				
Guanajuato	21 03 10	101 19 28	2425	Mineral de la Luz
Universidad Autónoma de Zacatecas				
ZACATECAS				
Observatorio astronómico	22 43 56	102 32 26	2425	Ciudad Universitaria
Observatorio astronómico	22 46 01	102 32 56	2714	Cerro de la Virgen
Sociedad Astronómica de México				
MÉXICO, D.F.				
Observatorio Luis G. León	19 23 56	99 8 29	2246	Col. Álamos, México, D.F.
ESTADO DE MÉXICO				
Observatorio Chapa de Mota	19 47 24	99 31 23	3070	Municipio de Chapa de Mota
Universidad Autónoma de Sinaloa				
SINALOA				
Observatorio Cosala	24 24 5	106 36 36	595	Municipio de Cosala
Instituto de Geofísica				
MEXART*: Observatorio de centelleo interplanetario	19 48 39	101 41 39		Coeneo, Michoacán

* Mexican Array Radiotelescope

Refracción, 2016

Presentamos un método gráfico para determinar la refracción atmosférica en función de la distancia cenital, temperatura o presión. Las gráficas se obtuvieron mediante interpolación polinomial de quinto, sexto, séptimo y noveno orden, de los valores tabulados y publicados por el Observatorio Pulkovo, en el Anuario Astronómico de la URSS, y por Pulkova, 1956, cuarta edición (Academia de Ciencias de la URSS, Moscú, Leningrado); y Abalakin, 1985, quinta edición (Observatorio Astronómico Central, Academia de Ciencias de la URSS, Leningrado).

De la gráfica de corrección por distancia cenital obtenemos la refracción media r dada en minutos de arco, en función de la distancia cenital dada en grados. Ésta se obtiene de la regresión polinomial de noveno orden, dada por la ecuación

r= a+b1*z+b2*z2+b3*z3+b4*z4+b5*z5+b6*z6+b7*z7+b8*z8+b9*z9 ,

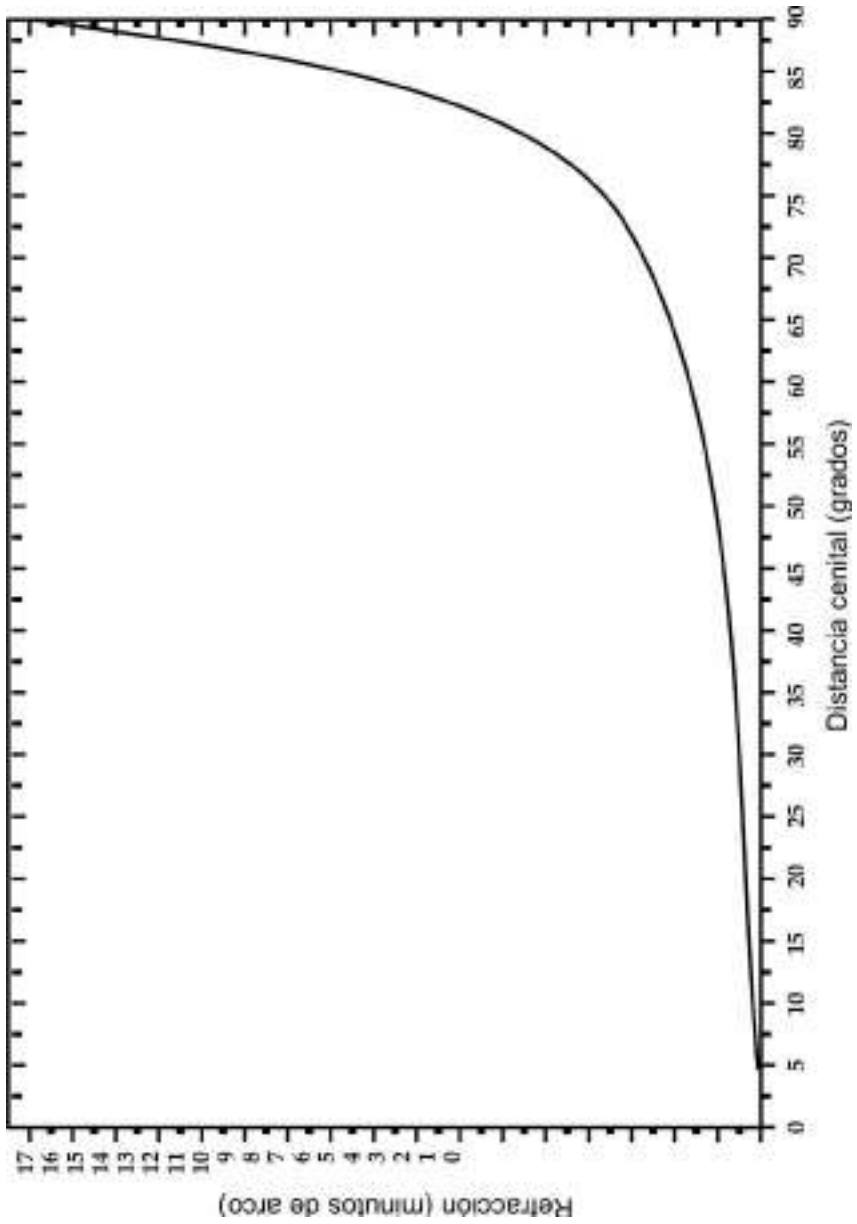
donde r está dada en minutos de arco, y sus coeficientes son:

a	$-7.64878\ 10^{-4}$	b5	$1.22379\ 10^{-6}$
b_1	0.02752	b6	$-2.70552\ 10^{-8}$
b_2	-0.00384	b7	$3.52568\ 10^{-10}$
b_3	$5.03936\ 10^{-4}$	b8	$-2.50309\ 10^{-12}$
b_4	$-3.28953\ 10^{-5}$	b9	$7.48708\ 10^{-15}$

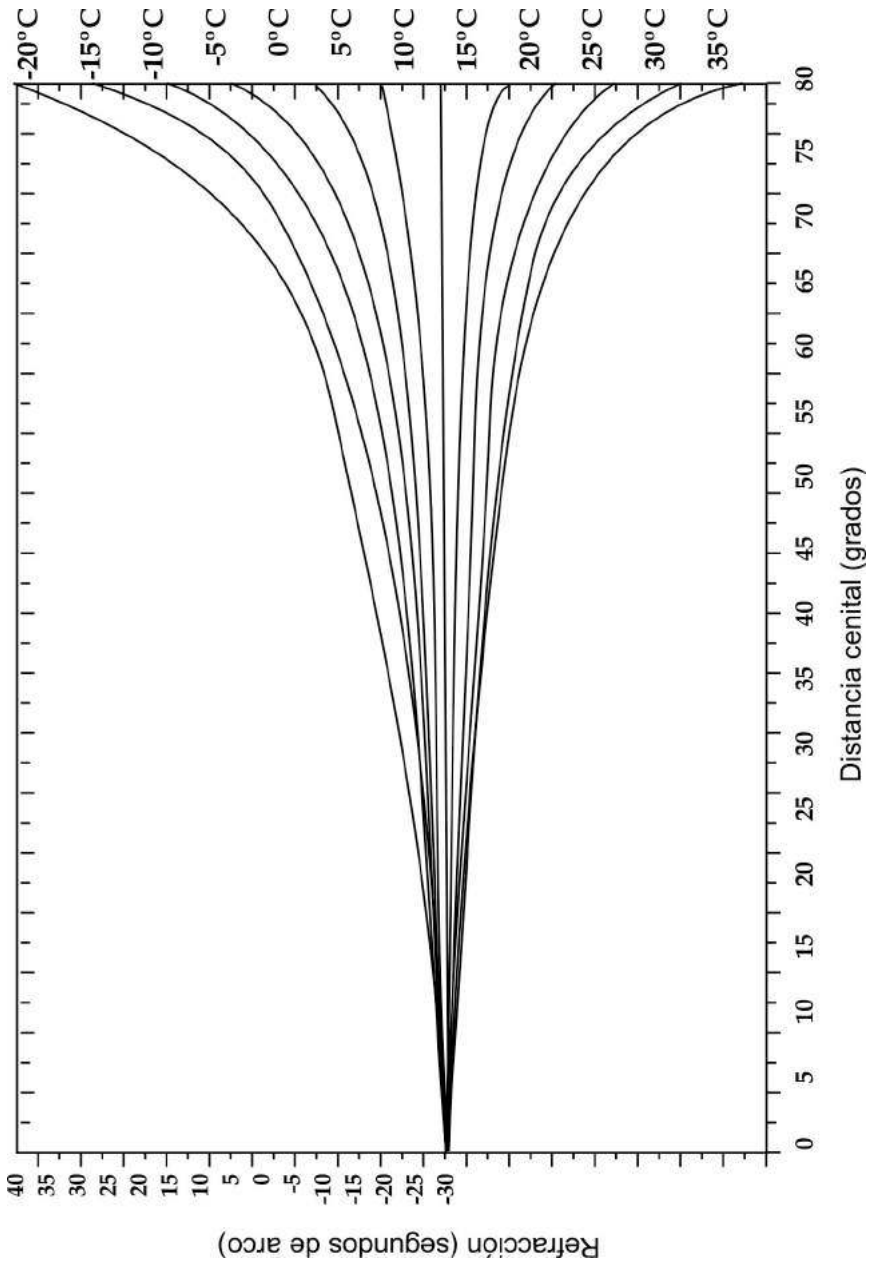
Con la gráfica de corrección por temperatura, se determina el valor en segundos de arco, que se deberá sumar algebraicamente a la refracción media. Cada curva corresponde a las temperaturas, en grados centígrados, señaladas al extremo derecho de cada una de ellas.

De la gráfica de corrección por presión se obtienen los valores en segundos de arco, que se deberán sumar algebraicamente a la refracción media. A la derecha de cada curva se muestran las variaciones de la refracción en función de la presión barométrica B, en mm.

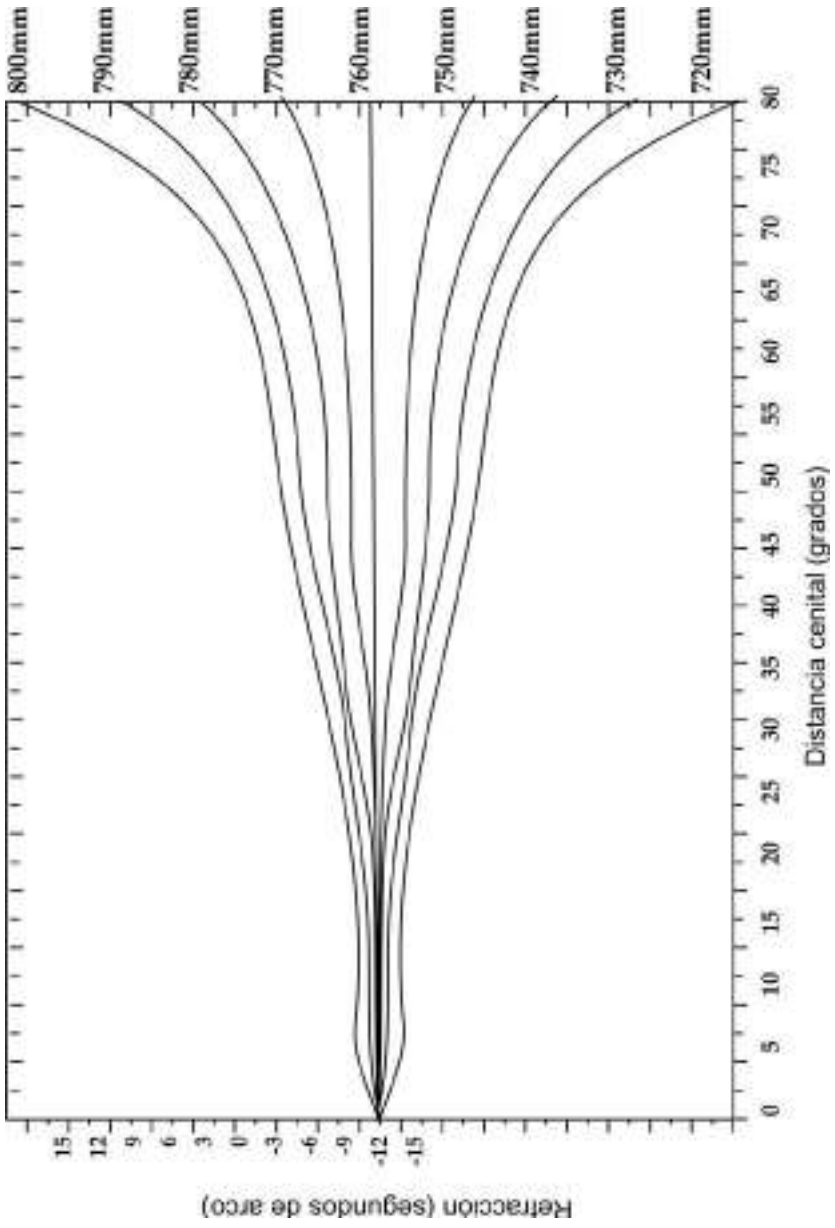
Corrección por distancia cenital, 2016



Corrección por temperatura, 2016



Corrección por presión, 2016



Abreviaturas, 2016

Dia juliano
Abreviaturas:
d: día
ds: día de la semana
dj: día juliano

Hora sideral
Abreviaturas:
dj: día juliano

Sol
Abreviaturas:
α: ascensión recta
δ: declinación
hp: hora del paso por el meridiano
vh: variación horaria
Δ: distancia geocéntrica
UA: unidad astronómica

Luna
Abreviaturas:
dj: día juliano
α: ascensión recta
δ: declinación
hp: hora del paso por el meridiano
Δ: distancia geocéntrica en radios terrestres
sd: semidiámetro
pax: paralaje horizontal

Planetas
Abreviaturas:
α: ascensión recta
δ: declinación
Δ: distancia geocéntrica
UA: unidad astronómica
hp: hora del paso por el meridiano

Sistema de constantes y parámetros
Abreviaturas:
α: ascensión recta, d: declinación, f: latitud
UA: unidad astronómica, rad: radianes
DJ: día Juliano
1g: aceleración de la gravedad en la superficie terrestre o Normal

Nomenclatura de las estrellas brillantes
Abreviaturas:
α: ascensión recta
δ: declinación
N: número del catálogo de estrellas brillantes en el Bright Star Catalog de la Universidad de Yale. E.U.A.

Posiciones medias de estrellas brillantes
Abreviaturas:
N:número de estrella en: Bright Star Catalog. Yale University, EUA
V:magnitud
Esp:tipo espectral
nom: nombre de la estrella en clasificación Bayer

Posiciones aparentes de estrellas brillantes
Abreviaturas de términos astronómicos:
α: ascensión recta
α_c: ascensión recta en el sistema de referencia intermedio
δ: declinación
Hp: hora del paso

Posiciones aparentes de la polar
Abreviaturas:
α: ascensión recta
α_c:ascensión recta coordenadas intermedias
δ: declinación
hp: hora del paso por el meridiano

Lluvias de estrellas
Abreviaturas:
α: ascensión recta
δ: declinación
vel: velocidad de incidencia en km/s
Núm: número de estrellas fugaces por hora

Eventos planetarios
Abreviaturas:
E: Separación angular al Este (E).
Medida geocéntrica que se refiere a la separación angular entre los centros de los objetos
(véase sección de explicaciones).
O: Separación angular al Oeste(O).
*: ocultación
**: eclipse

Crepúsculos Salidas y puestas del Sol
AM: inicia el crepúsculo astronómico matutino; CM: inicia el crepúsculo civil matutino;
SS: salida del Sol; PS: puesta del Sol; CV: termina el crepúsculo civil vespertino;
AV: termina el crepúsculo astronómico vespertino.
(Para el cálculo de la hora legal, véase la sección *Explicaciones*).

Objetos Nebulares
Abreviaturas:
M: número de objeto Messier; NGC: número en el Nuevo Catálogo General
const: constelación; v: magnitud; tipo: tipo morfológico;
α: ascensión recta; d: declinación (ambas para J2000)
E: galaxia elíptica; S: galaxia espiral; SB: galaxia espiral barrada; Pec: peculiar
ca: cúmulo abierto; cg: cúmulo globular;
rsn: remanente de supernova; np: nebulosa planetaria;
nr: nebulosa de reflexión; ne: nebulosa de emisión;
(véase la sección de explicaciones para obtener r información sobre morfología).

Poblaciones de la República Mexicana
Abreviaturas:
alt: altura sobre el nivel del mar
δm: declinación magnética para el 1 de del 2006
Δδm: Variación de la declinación magnética por año

Glosario: Términos astronómicos básicos, 2016

Acimut o azimut. Distancia angular medida hacia el Este, desde el Norte geográfico, hasta el punto definido por la intersección con el horizonte del círculo vertical que pasa por un objeto celeste. También es común referirla al Sur geográfico.

Adviento. Período litúrgico de cuatro semanas que precede a la Navidad.

Afelio. Punto en el cual un cuerpo en órbita en torno al Sol alcanza su r distancia a éste.

Altitud o Altura. Distancia angular entre el horizonte y el cuerpo celeste. Se mide a lo largo del gran círculo que pasa por el objeto astronómico y el cenit del lugar. Es positiva cuando el objeto está sobre el horizonte y negativa cuando está por debajo.

Ángulo horario. Distancia angular entre el meridiano del lugar y el círculo horario que pasa por el objeto celeste. Se mide en el plano del ecuador celeste.

Anuario astronómico. Guía de posiciones de objetos celestes y acontecimientos astronómicos que se publica cada año.

Año anomalístico. Paso sucesivo de la Tierra por su perihelio. Su duración es de 365.25964 días.

Año civil. Intervalo de 365 días que rige las actividades civiles, sociales o religiosas de la ría de los países del mundo; y es la parte entera de la duración del año trópico. Para su buen funcionamiento es necesario que en cada año, la posición del Sol en el cielo corresponda al mismo día. Para lograrlo se agrega el día 29 de cada cuatro años, omitiéndose para aquellos años seculares (múltiplos de 100), que no sean divisibles entre 400. (Véase la sección *Explicaciones*, en Calendarios)

Año sideral. Tiempo que le toma a la Tierra en dar una vuelta completa alrededor del Sol, respecto de las estrellas fijas. Su duración es de 365.25636 días.

Año trópico. Tiempo que transcurre entre los dos equinoccios o bien el tiempo que le toma al Sol pasar dos veces consecutivas por el primer punto de Aries. Su duración es de 365.24219 días.

Apogeo. Punto orbital más alejado de un cuerpo, respecto de la Tierra.

Ascensión recta. Ángulo en el plano del ecuador celeste, que mide la separación entre los círculos horarios del punto Vernal y de un objeto celeste.

Asteroides. Pequeños objetos rocosos del Sistema Solar, cuyos diámetros son del orden de 400 km, en promedio. Se les localiza principalmente en el llamado Cinturón de Asteroides, entre las órbitas de Marte y Júpiter. Otros grupos se identifican como los Apolo, Amor y Trollanos.

Astrología. Un sistema de fundamentos subjetivos, no científico, con el que se pretende explicar el carácter y comportamiento humanos, tomando como base las posiciones de los astros.

Azimut. Véase Acimut.

Calendario. Conjunto de normas establecidas para medir el transcurso del tiempo en años, meses y días.

Calendario Gregoriano. Calendario introducido por el Papa Gregorio XIII en 1582, con el que modificó el calendario Juliano. Consiste en agregar un día en todos los años que sean divisibles por cuatro; a estos se les llaman años bisiestos. Se exceptúan aquellos años seculares, o de final de siglo, que no sean divisibles por cuatrocientos. Los años 1800, 1900 y 2100 no son años bisiestos, en cambio 1600 y 2000 sí lo son.

Calendario Juliano. Año de 365.25 días exactamente; según la tradición, César lo instituyó en el año 45 a.C. y fue modificado por el papa Gregorio XIII en 1582 d.C.

Carnaval. Los tres días que preceden a la cuaresma. Fiestas celebradas durante estos días, consistentes en mascaradas, bailes y otros regocijos bulliciosos.

Catálogo. En Astronomía, tabla en la que se enumeran y enlistan objetos astronómicos, y en la que se caracterizan sus propiedades.

Cenit o Zenit. Punto de la esfera celeste que se encuentra exactamente encima del observador.

Ciclo Solar. Relativo al calendario, es el período de veintiocho años al final del cual el año comienza con el mismo día.

Ciclo de actividad solar. Ciclo cuya duración es de 11 años aproximadamente. Se percibe por el aumento en la cantidad de manchas, ráfagas y protuberancias solares.

Círculo horario. Gran círculo en la bóveda celeste, que contiene a los polos celestes y algún objeto astronómico.

Conjunción. Evento que se produce cuando dos objetos celestes alcanzan la misma longitud eclíptica o ascensión recta.

Conjunción inferior. Suceso astronómico de Mercurio o Venus cuando alguno de ellos se encuentra exactamente entre el Sol y la Tierra.
Conjunción superior. Evento astronómico de Mercurio o Venus cuando el Sol se encuentra entre el planeta y la Tierra.

Cometa. Cuerpo que orbita alrededor del Sol, con núcleo de polvo y hielos de unos 10 km de diámetro. Cuando se acerca al Sol, sus materiales sólidos se su-

Glosario: Términos astronómicos básicos, 2016

bliman, de tal modo que al ser arrastrados por el viento solar producen una cauda cometaria; sus dimensiones pueden alcanzar más de cien millones de kilómetros.

Constelación. Grupo de estrellas cuya asociación esquemática o mítica, sirve para identificar cierta región de la esfera celeste; en la actualidad, dichos grupos han sido definidos por la Unión Astronómica Internacional, para delimitar con precisión las regiones de la esfera celeste. El cielo se ha dividido en 88 constelaciones.

Coordenadas geográficas. Latitud y longitud de un punto de la superficie terreste, relativas al centro de la Tierra.

Coordenadas celestes eclípticas. Latitud y longitud de un punto de la bóveda celeste relativas al plano de la órbita de la Tierra. Pueden ser geocéntricas o heliocéntricas.

Coordenadas celestes ecuatoriales. Ascensión Recta y Declinación de un punto de la bóveda celeste relativas al plano del ecuador terrestre. Pueden ser geocéntricas o heliocéntricas.

Corona solar. Región más externa de la atmósfera solar, caracterizada por una temperatura de varios millones de grados. Se logra observar durante los eclipses totales de Sol. Otras estrellas también poseen corona.

Crepúsculo. Intervalo de tiempo que precede a la salida del Sol o que sigue después de su puesta, durante el cual el cielo está parcialmente iluminado. Puede ser crepúsculo civil, cuando se habla del tiempo que ocupa el Sol en recorrer la distancia cenital entre 90o 50' y 96o; náutico entre 96o y 102o, y astronómico, entre 102o y 108o.

Culminación. Paso de un objeto celeste por el meridiano del observador. Punto en el que alcanza la máxima altura en su movimiento diurno.

Cúmulo abierto o galáctico. Conglomerado estelar de cientos de estrellas cuya distribución tiende hacia el plano de la Galaxia.

Cúmulo globular. Grupo estelar de forma casi esférica que se encuentra fuera del plano de la Galaxia. Su número de estrellas va de unos cientos de miles a decenas de millones, muchas de ellas son estrellas tardías.

Declinación. Distancia angular en la esfera celeste que se mide desde el ecuador celeste, a lo largo del círculo horario definido por el objeto celeste. Es positiva al norte y negativa al sur.

Declinación magnética. Desviación de las líneas del campo magnético de la Tierra, respecto de la línea norte sur geográfica. Esta es una propiedad física que varía con el tiempo y depende del lugar donde se mide.

Deflexión de la vertical. Diferencia angular entre el cenit astronómico y el cenit geodésico.

Día Juliano. Intervalo de tiempo en días, a partir del 1 de del año 4713 a.C., al medio día del meridiano de Greewich.

Día medio. Tiempo transcurrido entre dos pasos sucesivos del Sol medio o ficticio, por el meridiano. Su duración es de 24 horas.

Día sideral. Tiempo que transcurre entre dos pasos sucesivos del punto vernal o de alguna estrella por el meridiano. Su duración es de 23 horas, 56 minutos, 4.098904 segundos.

Día solar. Tiempo transcurrido entre dos tránsitos consecutivos del Sol por el meridiano. Por su variación durante el año, se hizo necesario definir el día solar medio. Dicha variación es causada por la irregularidad de la rotación de la Tierra y de su movimiento en torno al Sol.

Diámetro angular. Ángulo que subtiende el diámetro aparente de un cuerpo celeste cercano. Para la Luna y el Sol dicho ángulo es de 30' aproximadamente.

Distancia cenital. Distancia angular de un cuerpo celeste, medida desde el cenit.

Distancia media. Parámetro de una órbita elíptica, definido por la longitud del semieje r.

Eclipse. Paso de un cuerpo celeste por la sombra de otro, haciendo que la fuente que lo ilumina quede oculta por el primero.

Eclipse anular de Sol. Ocurre cuando el diámetro aparente de la Luna es menor que el solar. Parte del disco solar se muestra como un anillo alrededor de la Luna.

Eclipse lunar. Paso de la Luna por la sombra de la Tierra. Puede ser total umbral, cuando la Luna se encuentra dentro de la umbra de la Tierra; parcial umbral cuando parte del disco lunar se encuentra dentro de ella. Será total penumbral, cuando el disco de la Luna sólo se encuentra en la penumbra de la Tierra; y parcial penumbral o simplemente parcial, cuando parte del disco lunar se encuentra en la penumbra terrestre.

Eclíptica, plano de la. Plano medio de la órbita de la Tierra alrededor del Sol.

Eclíptica. Trayectoria aparente que describe el Sol en la bóveda celeste, a lo largo del año. Es llamada así porque los eclipses ocurren cuando la Luna se encuentra en el plano que la contiene.

Ecuación del tiempo. Diferencia entre los ángulos horarios del Sol verdadero y el Sol medio o ficticio. Dife-

Glosario: Términos astronómicos básicos, 2016

rencia entre el tiempo solar aparente y el tiempo solar medio.

Ecuador. Gran círculo en la superficie de un cuerpo, que resulta de la intersección de ésta con el plano que pasa por su centro y es perpendicular al eje de rotación del cuerpo.

Ecuador celeste. Proyección del ecuador de la Tierra, en la bóveda celeste.

Edad de la Luna. Término dado en astronomía para el número de días transcurridos después de la Luna Nueva.

Efemérides. Predicción de la posición de un astro. Lista de posiciones astronómicas y otros datos que cambian con el tiempo.

Elementos orbitales. Parámetros que caracterizan la órbita de un cuerpo que se mueve en torno a otro.

Elongación. Ángulo geocéntrico entre un planeta y el Sol medido en el plano definido por el planeta, el Sol y la Tierra. Las elongaciones planetarias fluctúan entre 0o y 180o, al Este o al Oeste del Sol.

Elongación máxima. Valor máximo de la elongación de un planeta interior.

Epacta. Número de días en que el año solar excede al lunar (casi 11 días). Edad de la Luna el 1 de de cada año.

Epifanía. Fiesta que celebra la iglesia cristiana el día 6 de , para conmemorar la adoración de Jesucristo por los Reyes Magos. Manifestación de Dios a los paganos.

Equinoccio Vernal. Día del año en el que se inicia la primavera en el hemisferio norte. La duración del día y la noche son iguales. Nodo ascendente de la eclíptica sobre el ecuador celeste. Momento en el que la longitud aparente del Sol es cero.

Era. Sistema de notación cronológica, relativa a la fecha en que ocurrió algún suceso importante.

Esfera celeste. Esfera imaginaria donde parecen estar colocados a la misma distancia todos los objetos celestes. En su centro está la Tierra cuyo plano ecuatorial contiene al ecuador terrestre; sus polos son la intersección de la proyección del eje de rotación de la Tierra con dicha esfera.

Espectral, tipo. Clasificación de las estrellas con base en su espectro, de acuerdo con su temperatura superficial. Se han caracterizado los tipos principales: O, B, A, F, G, K, M y además C(R y N) y S. También se puede clasificar por su luminosidad como 0, I, II, II, IV, V, VI y VII.

Estacionario, punto. Posición en la cual la variación de la ascensión recta de un planeta es momentáneamente nula.

Estaciones. Intervalos del año definidos por el tiempo en que el Sol permanece entre aquellos puntos orbitales caracterizados por los solsticios y equinoccios. Son llamadas Primavera, Verano, Otoño e Invierno. El clima en la Tierra es diferente en cada una de ellas, debido a la inclinación de su eje de rotación respecto del plano de la eclíptica.

Estrella. Esfera de gas incandescente cuya fuente de energía son las reacciones termonucleares.

Excentricidad de una órbita. Para una órbita elíptica, el cociente de la distancia entre los focos y el diámetro r de la órbita. Parámetro que especifica la forma de una sección cónica.

Fase. Se dice del aspecto o forma aparente que presenta un planeta o luna, visto a distancia. Es la fracción del disco iluminado por el Sol.

Fases de la Luna. Forma aparente de la Luna. luna nueva, cuarto creciente, luna llena y cuarto menguante, se definen como los tiempos en los que la longitud de la Luna difieren de las del Sol en 0o, 90o, 180o y 270o , respectivamente.

Galaxia. Conglomerado de millones de estrellas, gas y polvo. Se clasifican según su morfología en: elípticas (E), espirales (S) e irregulares (I). Las espirales también pueden presentar núcleos que tienen forma de barra (SB).

Geocéntrico. Con referencia o perteneciente al centro de la Tierra.

Geodesia. Ciencia que trata de la forma y las medidas de la Tierra.

Gravitación. Campo de fuerza al que se debe la atracción de las masas en el Universo.

Greenwich. Región conurbada de Londres donde se encontraba el observatorio astronómico. El meridiano de este lugar se toma como origen de los meridianos, por lo que es llamado meridiano cero.

Hégira o Héjira. Éra de los mahometanos, que se cuenta desde la puesta del Sol del 16 de de año 622 d.C., día en que Mahoma huyó de la Meca al salir hacia la ciudad de Medina.

Heliocéntrico. Con referencia o perteneciente al centro del Sol.

Hora civil o legal. Hora regida por el Sol medio o ficticio. Hora referida a un meridiano horario o huso horario. La Tierra se divide en 24 husos horarios, que se

Glosario: Términos astronómicos básicos, 2016

obtienen al dividir entre 15 los 360° de la circunferencia del ecuador.

Hora local. Hora regida por la posición del Sol verdadero. Cuando éste pasa por el meridiano del lugar, define las 12 horas o el mediodía locales.

Hora sideral. Tiempo transcurrido desde el paso del meridiano del lugar por el primer punto de Aries. El día sideral es 3m 55.91s menor que el día solar. Se refiere al tiempo medido basado en las estrellas fijas. Véase tiempo sideral.

Hora universal. Hora local de Greenwich. La hora local de algún punto de la superficie de la Tierra se obtiene restando a la hora de Greenwich la longitud del lugar convertida a horas.

Horizonte. Plano perpendicular a la línea que va del observador al cenit del lugar. Gran círculo formado por la intersección de la esfera celeste con el plano perpendicular a la línea que une al observador con el cenit del lugar, llamado horizonte astronómico u horizonte del observador.

Inclinación. En Astronomía, ángulo entre el plano de una órbita y otro de referencia. Elemento orbital que especifica la orientación de una órbita.

Júpiter. Planeta gigante del Sistema Solar. Después de Venus es el planeta más brillante del sistema solar. Véanse tablas de parámetros físicos y orbitales de planetas, y satélites de los planetas.

Latitud celeste. Distancia angular en la esfera celeste medida al norte o al sur del plano de la eclíptica. Se mide a lo largo del gran círculo que pasa por los polos de la eclíptica y el cuerpo celeste.

Latitud terrestre. Distancia angular en la Tierra, medida al norte o al sur del ecuador, a lo largo de algún meridiano.

Lluvia de estrellas. Fenómeno luminoso causado por la caída de pequeñísimas partículas dejadas por los cometas. Se observan como estelas luminosas a las que, tradicionalmente, se los nombran estrellas fugaces, las cuales parecen surgir de un punto en el cielo llamado radiante. Se han clasificado unas 18 lluvias de estrellas, las cuales reciben el nombre de la constelación donde se ubica su respectivo radiante.

Longitud (geográfica). Distancia angular medida en el plano del ecuador, al Este o al Oeste del meridiano de Greenwich.

Longitud eclíptica. Distancia angular de un cuerpo celeste medida sobre el plano de la eclíptica, a partir del primer punto de Aries.

Luminosidad. Cantidad total de energía radiada por un cuerpo celeste en la unidad de tiempo.

Luna. Satélite natural de la Tierra. Después del Sol es el objeto más brillante del cielo. Véase tabla de satélites de los planetas.

Lunación. Período de tiempo entre dos lunas nuevas consecutivas. Su duración aproximada es de 29.5 días.

Luna llena. Fase durante la cual el disco lunar está totalmente iluminado; ocurre cuando la luna se encuentra en oposición al Sol respecto de la Tierra.

Luna nueva. Fase durante la cual el disco lunar no se ve iluminado ocurre cuando la Luna se encuentra en conjunción con el Sol.

Magnitud. Medida logarítmica del brillo de un objeto celeste, considerado como una fuente puntual.

Magnitud de un eclipse de Luna. Fracción del diámetro lunar obscurecido por la sombra de la Tierra, en el máximo del eclipse lunar.

Magnitud de un eclipse de Sol. Fracción del diámetro solar ocultado por la Luna, en el máximo del eclipse de Sol.

Marte. Planeta rocoso del Sistema Solar que, a simple vista, se aprecia de color rojizo. Véanse tablas de parámetros físicos y orbitales de planetas, y satélites de los planetas.

Masa. Medida inherente a la cantidad de materia de un cuerpo.

Mercurio. Planeta rocoso del Sistema Solar que por su distancia heliocéntrica es el más cercano al Sol. Véanse tablas de parámetros físicos y orbitales de planetas, y satélites de los planetas.

Meridiano. Círculo máximo en la esfera celeste que pasa por los polos y el cenit del observador.

Meridiano 90° W.G. Meridiano que atraviesa la Península de Yucatán. Se encuentra 90° al Oeste del meridiano de Greenwich en Inglaterra. Define al huso horario (S) de 6 horas al Oeste de Greenwich, llamado Hora del Centro en la República Mexicana. Difiere de la hora local de la ciudad de México en 36 minutos 37 segundos.

Meteorito. Dícese de algún fragmento de roca o metal del medio interplanetario, una vez que ha sufrido una colisión contra un planeta, satélite o, en general, con algún cuerpo del Sistema Solar.

Messier, catálogo. Enlistado de aquellos objetos celestes que al ser vistos con telescopios pequeños, son de aspecto difuso. Contiene cúmulos estelares, nebulosas y galaxias. Fue elaborado por Charles Messier.

Glosario: Términos astronómicos básicos, 2016

Movimiento directo. Dirección de la rotación o del movimiento de traslación de un planeta o satélite, visto desde el polo norte de la eclíptica, cuyo sentido es contrario al de las manecillas del reloj.

Movimiento retrógrado. Dirección de la rotación de un planeta o satélite visto desde el polo norte de la eclíptica, cuyo sentido es el de las manecillas del reloj.

Nadir. Punto de la esfera celeste diametralmente opuesto al cenit. Dícese de aquel punto, del otro lado de la Tierra, ubicado por debajo de nosotros.
Nebulosa. Nube de materia interestelar.

Nebulosa planetaria. Envolvente de gas alrededor de una estrella con masa parecida a la del Sol, arrojada por ella misma a consecuencia de un estado avanzado de su evolución.

Neptuno. Planeta gaseoso del Sistema Solar. Véanse tablas de parámetros físicos y orbitales de planetas, y satélites de los planetas.

Nodo. El punto de intersección entre dos grandes círculos celestes. Los eclipses de Luna y de Sol ocurren cuando ambos se encuentran cerca de los nodos de intersección de sus trayectorias orbitales.

Número de Oro, o Áureo. En terminos astronómicos, ciclo lunar de diez y nueve años, al cabo de los cuales las fases de la Luna vuelven a sucederse en los mismos días del año.

Ocultación. Efecto de cubrimiento de un objeto celeste por otro de r diámetro aparente, específicamente el paso de la Luna frente a una estrella o planeta.

Oposición. Configuración geocéntrica del Sol y un planeta exterior en la que sus longitudes aparentes difieren en 180°.

Órbita. Trayectoria de un cuerpo celeste en torno a otro.

Paso superior por el meridiano. Tránsito de un objeto celeste por el meridiano del observador.

Pentecostés. Fiesta de los judíos instituida en memoria de la ley de Jehová, que les fue dada en el Monte Sinaí. En la Iglesia Católica festividad de la venida del Espíritu Santo.

Perigeo. Punto en el cual un cuerpo en órbita en torno a la Tierra alcanza su menor distancia a ésta.
Perihelio. Punto en el cual un cuerpo en órbita en torno al Sol alcanza su menor distancia a éste.

Penumbra. Región intermedia entre la sombra y la zona iluminada. También se refiere a la región desde la que un eclipse se ve como parcial. Componente exterior de la sombra que proyecta un objeto iluminado por una fuente de luz.

Planeta. Cuerpo celeste esférico cuyo tamaño es r de 1000 km de diámetro. No emite luz propia. Su masa es tal que la energía liberada por las reacciones nucleares en su interior no son suficientes para que se convierta en estrella. Actualmente se han encontrado evidencias de la existencia de planetas que orbitan algunas estrellas.

Plutón. Planeta del Sistema Solar cuya órbita es la más alejada del Sol. Véanse tablas de parámetros físicos y orbitales de planetas, y satélites de los planetas.
Polar. Estrella Polar (a UMi). Se localiza a sólo 0.9o del Polo Norte Celeste.

Precesión. Movimiento progresivo y uniforme del eje de rotación de un cuerpo que rota libremente, sujeto a la torca ejercida por una fuerza gravitatoria externa. En la Tierra, la precesión es causada por la acción de la fuerza gravitatoria del Sol y la Luna sobre su deformación ecuatorial .

Primer punto de Aries. Punto imaginario donde se intersectan el ecuador celeste y la eclíptica. Cuando el Sol pasa por dicho punto, su declinación cambia de negativa a positiva. No existe ninguna estrella en esta posición.

Puesta del Sol. Momento en que el limbo superior del Sol desaparece bajo el horizonte del observador.

Polo norte celeste. Punto de intersección de la proyección del eje de rotación terrestre con la esfera celeste.

Punto Vernal. Véase primer punto de Aries.

Quincuagésima. Domínica que precede a la Cuaresma.

Ramadán. Noveno mes del año lunar de los musulmanes.

Revolución. Órbita de un cuerpo alrededor de otro.

Rosh Hashanah. Año Nuevo de los Judíos.

Salida del Sol. Momento en que el limbo superior del Sol sale por el horizonte del observador.

Saros. Ciclo lunar babilónico de 6585.32 días, o 18 años, 11.33 días o 223 lunaciones, después del cual el Sol y la Luna regresan a una misma posición relativa en el cielo. Significa repetición en griego.
Satélite. Cuerpo en órbita alrededor de otro. Luna de un planeta.

Saturno. Planeta gaseoso del Sistema Solar con un gran número de anillos. Véanse tablas de parámetros físicos y orbitales de planetas, y satélites de los planetas.

Glosario: Términos astronómicos básicos, 2016

Segundo. En el sistema internacional, duración de 9 192 631 770 ciclos de la radiación dada por la transición entre los dos niveles hiperfinos del estado base del Cesio 133.

Semana Santa. Semana que culmina con la Pascua, la cual se festeja en el primer domingo que sigue a la primera luna llena, después del equinoccio de primavera.

Septuagésima. Domínica que celebra la Iglesia Católica tres semanas antes de la primera de cuaresma.

Sideral. Relativo a las estrellas.

Sistema de referencia. Lugar y tiempo desde donde se mide o registra un evento.

Sol. Estrella más cercana a la Tierra.

Sol medio. Sol imaginario o ficticio, que se desplaza en la bóveda celeste a velocidad constante. No está sujeto a las variaciones del Sol verdadero debidas a la elipticidad de la órbita terrestre. Se usa para definir el tiempo solar medio.

Solsticio. Uno de dos puntos en los cuales el Sol parece estar en sus puntos Norte y Sur más extremos. Puntos de la eclíptica que están a la máxima distancia del ecuador celeste. En el hemisferio norte, el solsticio de verano ocurre alrededor del 21 de y el de invierno cerca del 22 de aproximadamente. Estas fechas corresponden al día más largo y corto del año, respectivamente.

Sombras volantes. Franjas de luz y sombra que se observan justo antes y después de la fase de totalidad de un eclipse de Sol.

Sucot. Fiesta judía de la cosecha.

Tiempo atómico internacional. Escala de tiempo que resulta del análisis de las mediciones de tiempos atómicos en varias ciudades del mundo, regulada por el Bureau International des Poids et Mesures. La unidad de tiempo es el segundo internacional de tiempo.

Tiempo solar medio. Medida de tiempo basada en el movimiento diurno de Sol medio o ficticio, suponiendo un movimiento de rotación terrestre uniforme.

Tiempo sideral. Medida de tiempo basada en el movimiento diurno del punto Vernal. Está dado por la razón de rotación terrestre respecto a las estrellas.

Tiempo universal. Medida de tiempo basada en el movimiento diurno del Sol. Hora local en el meridiano de Greenwich; se determina por la observación del movimiento diurno de las estrellas.

Tierra. Planeta rocoso del Sistema Solar. Véanse tablas de parámetros físicos y orbitales de planetas, y satélites de los planetas.

Tránsito. Paso de un objeto celeste por un meridiano. Paso de un cuerpo frente a otro de r diámetro aparente.

Umbra. En un eclipse, la región desde donde se observa al cuerpo celeste totalmente oculto. Umbra, en latín, significa sombra.

Unidad astronómica o U.A. Distancia media entre la Tierra y el Sol; 150 millones de kilómetros, aproximadamente.

Urano. Planeta gaseoso del Sistema Solar con 9 anillos. Véanse tablas de parámetros físicos y orbitales de planetas, y satélites de los planetas.

Venus. Planeta rocoso del Sistema Solar que se muestra desde la Tierra como el de r brillo. Véanse tablas de parámetros físicos y orbitales de planetas, y satélites de los planetas.

Yom Kippur. Día del perdón entre los judíos.

Zenit o Cenit. Ver Cenit.

Zodiaco. Banda imaginaria de constelaciones a través de la cual se mueve el Sol, la Luna y los planetas durante el año.

Apéndice

Explicaciones

Explicaciones generales al contenido del Anuario

Con la abreviatura W. G., debemos leer Oeste del meridiano de Greenwich, ésta se mantiene en toda la publicación, a menos que se indique otra referencia.

Calendario

En un sentido general los calendarios son sistemas de cómputo de días, con ellos se rige la vida social, civil y religiosa de los grupos humanos. Se construyen mediante la combinación de diferentes unidades de tiempo. Se han ideado diversas estructuras funcionales por medio de la aplicación de ciertos algoritmos o procedimientos matemáticos, con los que se pretende seguir la duración de diversos ciclos astronómicos. Ejemplos de ellos son los relacionados al movimiento aparente del Sol, la Luna, Venus o algunas estrellas brillantes, los cuales contienen implícitamente el movimiento de traslación y rotación de la Tierra, así como el de la Luna en torno a la Tierra.

El *año civil*, es el intervalo de 365 días que se utiliza en la ría de los países del mundo, y es la parte entera de la duración del año trópico (el ciclo de las estaciones). Para su buen funcionamiento se requiere que cada año para una fecha dada, la posición aproximada del Sol corresponda a la del año anterior. Para lograrlo se hace necesario corregirlo de acuerdo a las siguientes reglas:

Si el año es divisible exactamente entre 4, durará 366 días, al cual se le llama año *bisiesto*.

Los años seculares (múltiplos de 100) no serán bisiestos, excepto si son divisibles entre 400.

Como ejemplos de ello tenemos que los años 1700, 1800 y 1900 no fueron bisisestos; en cambio el año1600 y el 2000 sí lo fueron.

Aquellos años contados de acuerdo a la Era Cristiana tienen su origen numérico en el año 1; este y los años subsecuentes se nombran después de Cristo (d. C.) y los precedentes como antes de Cristo (a.C.). En nuestros días, el calendario adoptado por la ría de los países del mundo es el Calendario Gregoriano, institutido por el Papa Gregorio XIII en 1582. En aquel año introdujo la corrección al calendario Juliano en 10 días, al decretar que al día 4 de le siguiría el 15 de .

En Astronomía, con el propósito de manejar los años numéricamente, el año 1 a.C. se define como el año cero. Los años contados antes de la era cristiana serán negativos, con la regla de restar uno al número del año, y el resultado escribirlo sin el sufijo a.C., anteponiendo el signo menos.

Como ejemplos: el año 2 a.C. será -1 en la notación astronómica; el año 23 a.C. será el -22, el año 115 a.C. será el -114, etc. Para los años posteriores a la era cristiana, simplemente se quita el sufijo d.C. y se tendrá la notación astronómica. Con esta representación se pueden manejar numéricamente los años y se puede obtener fácilmente, de acuerdo con el procedimiento ya mencionado, la secuencia de años bisiestos en cualquier época.

En la región geográfica comprendida entre el occidente de la República Mexicana hasta las que se encuentran entre las Repúblicas de Nicaragua y Costa Rica en centro América, a la

que se da el nombre de Mesoamérica, florecieron las culturas americanas desarrolladas por los huicholes, mexicas, huastecos, zapotecos, mayas, olmecas, etc. En ésta región de América se desarrolló un sistema de dos calendarios con los que se contaban, independientemente, intervalos de 365 y 260 días. El primer intervalo se daba mediante la combinación de 18 meses de 20 días, más cinco días adicionales con los que se completaba la cuenta; evidentemente se reproduce el ciclo anual del Sol. El segundo se obtenía mediante la combinación de 13 meses de 20 días, del cual se desconoce una contraparte en ciclos astronómicos. Hasta el momento se conoce con certeza por la existencia de los códices, el calendario mexica, maya y zapoteca, aunque existen evidencias de la calendárica olmeca, teotihuacana y otras. Entre las épocas más antiguas de esta calendárica, se encuentra la referida por la Estela 12 de Monte alban, para el año -591. Como resultado del estudio del calendario maya, se ha inferido la existencia de una fecha Era que corresponde al 13 de de -3112. Finalmente en base a estudios etnográficos, se ha detectado el uso actual de esta calendárica en las regiones Mixe de Oaxaca y la Maya entre México y Guatemala.

Día Juliano

Sistema de numeración sucesiva de días, establecido arbitrariamente para que todas las fechas históricas tengan un número progresivo. Así el día juliano queda definido como el número de días solares medios, transcurridos desde el 1 de de -4712, a partir del medio día del meridiano de Greenwich.

En la tabla se dan para cada mes, grupos de tres columnas; el número del día en la primera; en la segunda, el nombre del día y en la tercera el día juliano correspondiente al mediodía del meridiano 90°W.G.

Eras, ciclos cronológicos, cómputo, fiestas y aniversarios

Las Eras son épocas definidas por algún suceso cultural de importancia, las cuales referimos aquí al calendario gregoriano. Los ciclos cronológicos y el cómputo son reglas eclesiásticas que ordenan las celebraciones religiosas. Se rigen por los ciclos “solar”, “número de oro” e “indicción romana”, equivalentes a 28,19 y 15 años respectivamente. La pascua corresponde al primer domingo, en el calendario gregoriano, después de la Luna Llena tabular que ocurre después del equinoccio vernal tabular (21 de). La Luna Llena tabular o eclesiástica, se basa en el ciclo Metónico de 235 meses sinódicos.

En la tabla de fiestas y aniversarios se dan las fechas de algunos acontecimientos históricos de importancia en la República Mexicana. También se dan algunas fechas de las celebraciones religiosas importantes de diferentes grupos sociales del País.

Estaciones del año

Se dan los instantes (mes, día, hora y minuto) en los que el Sol inicia su recorrido a través de cada una de las Constelaciones del Zodiaco. Señalamos los intervalos trimestrales de las estaciones del año y las longitudes eclípticas que delimitan cada constelación zodiacal. La primavera se inicia en , en el instante en que ocurre el equinoccio del Nodo Ascendente; el Verano en , en el instante en que ocurre el Solsticio; el Otoño en , en el instante en que ocurre el equinoccio del Nodo Descendente; y el Invierno que se inicia en , en el instante del Solsticio.

Nomenclatura de estrellas

Se dan los nombres propios de algunas estrellas, la extensión de la clasificación Bayer, y su correspondiente numero secuencial del Bright Star Catalog. Conviene señalar que dicha clasificación fue desarrollada por el bávaro John Bayer (1572-1631), cuando publicó su atlas Uranometría en el año de 1603. De acuerdo a los modos de clasificación que él conocía, dio un nombre a las estrellas de acuerdo a seis órdenes de magnitud entre el brillo relativo de las estrellas, para cada constelación. Así a las estrellas más brillantes les asignó una letra griega, además del nombre de la constelación, de acuerdo al mencionado brillo y dependiendo de su posición dentro del grupo de estrellas.

Clasificación espectral de las estrellas

Clase espectral	Color	Temperatura superficial °K	Carácter
O	Blanco-azul	35 000	Líneas de helio ionizado, nitrógeno, oxígeno e hidrógeno.
B	Blanco-azul	20 000	Líneas de helio neutro.
A	Blanca	10 000	Líneas intensas de hidrógeno, no tiene helio.
F	Blanco-amarillo	7 000	Líneas intensas de calcio y débiles de hidrógeno
G	Amarilla	6 000	Líneas débiles de hidrógeno y líneas intensas de metales. La clase espectral de nuestro Sol es G2V.
K	Naranja	4 000 a 4 700	Espectro muy complejo con líneas de metales.
M	Roja	2 500 a 3 000	Espectro muy complejo con líneas intensas de metales y anchas bandas moleculares, en especial de óxido de titanio.
N y R	Rojo intenso Roja	2 500	Con bandas espectrales de compuestos de carbón. Semejantes as las N, conbandas de óxido de zirconio, y líneas de emisión del hidrógeno.
W	Azul	50 000	Muestran emisión debido a la expansión de sus capas externas y atmósferas muy turbulentas.

Subclase	
Ia	supergigante brillante
Ib	supergigante poco luminosa
II	gigante brillante
III	gigante normal
IV	subgigante
V	secuencia principal
VI	subenana

Catálogo Messier

Es una selección de objetos astronómicos brillantes y difusos, creado por Charles Messier, quien pretendía identificarlos plenamente, para evitar confundirlos con los cometas. Messier era conocido por sus observaciones astronómicas en la búsqueda de este tipo de objetos, actividad que desarrolló desde fines del siglo XVIII, hasta su muerte en 1817, llegando a descubrir trece cometas. Los primeros ochenta objetos (del M1 al M80) fueron clasificados por el propio Messier.

Entre los elementos del catálogo se pueden distinguir objetos que pertenecen a nuestra Galaxia, y los que no, son llamados extragalácticos. Como parte de la Galaxia se encuentran los cúmulos abiertos (ca), que son grupos de unos cientos de estrellas ligados gravitatoriamente; cúmulos globulares o galácticos (cg), son conjuntos de cientos de miles de estrellas; remanentes de supernovas (rsn), so restos de estrellas cuyos procesos evolutivos terminan como supernovas; nebulosas planetarias (np), son estrellas cuyos procesos evolutivos terminan con la eyección de materia a velocidades moderadas; nebulosas de reflexión (nr), son aquellas nubes de material interestelar que reflejan la luz de las estrellas vecinas; y nebulosas de emisión (ne), son aquellas nubes que al estar sometidas a la radiación de estrellas muy caliente, ionizan el material interestelar del que estan formadas.

Los objetos extragalácticos del catálogo son galaxias del tipo elíptico (E), espirales (S), o espirales barradas (SB).

Eventos astronómicos

Lluvias de estrellas. Son restos de cometas que al penetrar la atmósfera terrestre, se disuelven en ella dejando una estela luminosa comunmente conocida como estrella fugaz. Como se trata de enjambres de materiales muy pequeños que inciden sobre la Tierra con trayectorias casi paralelas, las estrellas fugaces parecen surgir del mismo punto en la bóveda celeste, llamado radiante. En esta sección se dan las principales lluvias de estrellas, cuyos nombres se asocian a la constelación en la que se encuentra el radiante;

los días en que se pueden observar; y el número promedio de estrellas fugaces por hora.

Crepúsculos, salidas y puestas del sol y de la luna. Los crepúsculos, salidas y puestas del sol, son eventos astronómicos locales que dependen de la latidud del lugar de observación. La salida o puesta del sol está definida para el instante en el cual el centro del Sol se encuentra a 0.5° bajo el horizonte del observador, de tal manera que considerando la refracción y el semidiámetro solar, el limbo superior del Sol se encuentra a una altura de 0° sobre el horizonte. Los crepúsculos que se dan en estas tablas, son el astronómico y civil que corresponden a la posición del centro del disco solar, se encuentra bajo el horizonte a 18° y 6 ° respectivamente.

La hora en que ocurre cada evento está dada en *hora local; la hora legal* se obtiene al sumar a la hora local, la diferencia en horas entre la longitud del lugar de observación y el meridiano horario.

Por ejemplo, evaluemos para el meridiano 90° W. G. la salida del Sol el día 6 de , en un lugar cuya latitud es 30° y longitud 97°30'. En la tabla dada para latitud 30°, la salida del Sol (SS) indicada para el 6 de , es 4h 59m.

La diferencia en longitud (Dl) será:

$\Delta\lambda = (97.5° - 90°)/15$

$\Delta\lambda = 7.5°/15$ donde obtenemos Dl = 30 m; así, la hora de la salida del Sol será:

T = 4h 59m +30m es decir T= 5h 29m.

Hora en la República Mexicana (Hora Legal en México)

La hora legal se adoptó en la República Mexicana el 1 de de 1922, actualmente se tienen cuatro husos horarios de referencia, los meridianos 75°, 90°, 105° y 120° al W. G. El 13 de de 1998 se modificó en México el horario de Verano, decretándose los cuatro husos horarios para la República Mexicana.

Los husos horarios en el mundo (ver mapa de zonas horarias), son franjas de 15° centradas en el meridiano horario de referencia, el meridiano de la ciudad de Greenwich, Inglaterra se ha definido como el meridiano 0°. Los meridianos se miden a partir del meridiano de Greenwich al Este o al Oeste y se escriben las siglas E.G. y W. G. precediéndolas el valor numérico de la longitud geográfica. También con el propósito de manejar numéricamente, los valores de las longitudes geográficas serán positivos para las longitudes medidas al Este de Greenwich y negativos para los que se determinan al Oeste. Por ejemplo el meridiano 90° W.G. se escribe numéricamente como -90°. Los meridianos horarios hacia el Este o al Oeste son: 15°, 30°, 45°, 60°, 75°, 90°, 105°, 120°, 135°, 150°, 165°. Al meridiano 180° se le llama Línea Internacional del Tiempo.

El tiempo referido al meridiano de Greenwich o simplemente meridiano 0°, es llamado Tiempo Universal. Los husos horarios en que se divide la Tierra son adaptados por los países según sus propias necesidades, esto se puede observar en el mapa de zonas horarias, donde las franjas de los husos horarios son modificadas por accidentes orográficos o hidrográficos o bien por las fronteras entre países vecinos o por límites entre sus propias divisiones políticas. La hora así definida es llamada también hora legal o civil. En algunos países, según sea la época del año, se suele modificar los horarios legales que les corresponden, por horarios llamados de Verano o Invierno, con el propósito de aprovechar mejor la iluminación de la luz solar.

Anuario del Observatorio Astronómico Nacional,
calculado y editado por el Instituto
de Astronomía de la UNAM,
se terminó de imprimir
el 16 de noviembre de 2015,
en los talleres de Impretei S.A. de C.V.,
Almería No. 17, Col. Postal,
México, D.F., C.P. 03410,
Tel. 56 96 25 03,
impreteisa@prodigy.net.mx

En su composición se utilizaron
tipos Bookman Old Style.

La edición consta de 400 ejemplares
más sobrantes para reposición.