ANUARIO DEL OBSERVATORIO ASTRONÓMICO NACIONAL

Edición CXXXVI

2017

INSTITUTO DE ASTRONOMÍA

UNIVERSIDAD NACIONAL AUTÓNOMA DE MÉXICO

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Ciudad Universitaria, 04510. México, D.F.
Instituto de Astronomía
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Efemérides astronómicas 2017

Prefacio, 2017

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 2016, 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 ha incluido la Fe de Errata de las posiciones aparentes de la estrella Polar para el año 2016. Las coordenadas que sustituyen a las publicadas en el Anuario para el año 2016, corresponden a la ascensión recta, tanto intermedias como ecuatoriales, dadas en decimales de hora y la declinación en decimales de grado.

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.

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Ciudad Universitaria
Apartado postal 70-264
México, D.F., 04510

Día Juliano, 2017

A las 0^h del meridiano 90° W.G.

d	ds	dj
enero		
1	dom	2457754.75
2	lun	2457755.75
3	mar	2457756.75
4	mie	2457757.75
5	jue	2457758.75
6	vie	2457759.75
7	sab	2457760.75
8	dom	2457761.75
9	lun	2457762.75
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13	vie	2457766.75
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27	vie	2457780.75
28	sab	2457781.75
29	dom	2457782.75
30	lun	2457783.75
31	mar	2457784.75
febrero		
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2	jue	2457786.75
3	vie	2457787.75
4	sab	2457788.75
5	dom	2457789.75
6	lun	2457790.75
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24	vie	2457808.75
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26	dom	2457810.75
27	lun	2457811.75
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marzo		
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4	sab	2457816.75
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6	lun	2457818.75
7	mar	2457819.75
8	mie	2457820.75
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11	sab	2457823.75
12	dom	2457824.75
13	lun	2457825.75
14	mar	2457826.75
15	mie	2457827.75
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17	vie	2457829.75
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21	mar	2457833.75
22	mie	2457834.75
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28	vie	2457871.75
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mayo		
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2	mar	2457875.75
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23	vie	2457927.75
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25	dom	2457929.75
26	lun	2457930.75
27	mar	2457931.75
28	mie	2457932.75
29	jue	2457933.75
30	vie	2457934.75
julio		
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2	dom	2457936.75
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4	mar	2457938.75
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18	mar	2457952.75
19	mie	2457953.75
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21	vie	2457955.75
22	sab	2457956.75
23	dom	2457957.75
24	lun	2457958.75

d	ds	dj
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26	mie	2457960.75
27	jue	2457961.75
28	vie	2457962.75
29	sab	2457963.75
30	dom	2457964.75
31	lun	2457965.75
agosto		
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2	mie	2457967.75
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4	vie	2457969.75
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23	mie	2457988.75
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27	dom	2457992.75
28	lun	2457993.75
29	mar	2457994.75
30	mie	2457995.75
31	jue	2457996.75
septiembre		
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2	sab	2457998.75
3	dom	2457999.75
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5	mar	2458001.75
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20	mie	2458016.75
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22	vie	2458018.75
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26	mar	2458022.75
27	mie	2458023.75
28	jue	2458024.75
29	vie	2458025.75
30	sab	2458026.75
octubre		
1	dom	2458027.75
2	lun	2458028.75
3	mar	2458029.75
4	mie	2458030.75
5	jue	2458031.75
6	vie	2458032.75
7	sab	2458033.75
8	dom	2458034.75
9	lun	2458035.75
10	mar	2458036.75
11	mie	2458037.75
12	jue	2458038.75
13	vie	2458039.75
14	sab	2458040.75
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18	mie	2458044.75
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20	vie	2458046.75
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24	mar	2458050.75
25	mie	2458051.75
26	jue	2458052.75
27	vie	2458053.75
28	sab	2458054.75
29	dom	2458055.75
30	lun	2458056.75
31	mar	2458057.75
noviembre		
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2	jue	2458059.75
3	vie	2458060.75
4	sab	2458061.75
5	dom	2458062.75
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8	mie	2458065.75
9	jue	2458066.75
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22	mie	2458079.75
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24	vie	2458081.75
25	sab	2458082.75
26	dom	2458083.75
27	lun	2458084.75
28	mar	2458085.75
29	mie	2458086.75
30	jue	2458087.75
diciembre		
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2	sab	2458089.75
3	dom	2458090.75
4	lun	2458091.75
5	mar	2458092.75
6	mie	2458093.75
7	jue	2458094.75
8	vie	2458095.75
9	sab	2458096.75
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12	mar	2458099.75
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19	mar	2458106.75
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22	vie	2458109.75
23	sab	2458110.75
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27	mie	2458114.75
28	jue	2458115.75
29	vie	2458116.75
30	sab	2458117.75
31	dom	2458118.75
1	lun	2458119.75

Eras y ciclos cronológicos: 2017

Calendario Gregoriano

Cómputo

Letra Dominical . . . . . A
Epacta 2
Número de Oro (ciclo lunar) IV
Indicción Romana 10
Ciclo Solar 10

Eras

El año 2017 es el undécimo séptimo del siglo XXI de la Era Cristiana.

El 14 de enero del año 2017 corresponde al 1 de enero del año 6730 período Juliano.

El 1 de enero del año 2017 del Calendario Juliano corresponde al 14 de enero.

Año	**Era**	**inicia**	
2770	Romana	enero	14
2677	Japonesa	enero	1
5778	Judía	septiembre	20
2329	Griega	septiembre	14
1439	Hégira	septiembre	21
7526	Bizantina	septiembre	14
	China	enero	28

Fiestas y aniversarios para el año 2017

Año Nuevo	domingo	1 de enero
Epifanía	viernes	6 de enero
Proclamación de la Constitución de 1917	domingo	5 de febrero
Septuagésima	domingo	12 de febrero
Día de la Bandera	viernes	24 de febrero
Quinquagésima	domingo	26 de febrero
Carnaval	martes	28 de febrero
Miércoles de ceniza	miércoles	1 de marzo
Aniversario del Natalicio de Benito Juárez	martes	21 de marzo
Domingo de Ramos	domingo	9 de abril
Viernes Santo	viernes	14 de abril
Pascua	domingo	16 de abril
Día del Trabajo	lunes	1 de mayo
Aniversario de la Batalla de Puebla	viernes	5 de mayo
Ascensión	jueves	25 de mayo
Inicio del Ramadán	sábado	27 de mayo
Pentecostés	domingo	4 de junio
Trinidad	domingo	11 de junio
Corpus Cristi	jueves	15 de junio
Domingo de Corpus	domingo	18 de junio
San Pedro y San Pablo	jueves	29 de junio
Aniversario de la Muerte de Benito Juárez	martes	18 de julio
Aniversario de la Muerte de Miguel Hidalgo	domingo	30 de julio
Aniversario de la Independencia de México	sábado	16 de septiembre
Año Nuevo Judío	jueves	21 de septiembre
Año Nuevo Islámico	viernes	22 de septiembre
Yom Kipur	sábado	30 de septiembre
Día de la Raza	jueves	12 de octubre
Conmemoración de los Difuntos	jueves	2 de noviembre
Aniversario de la Revolución Mexicana	lunes	20 de noviembre
Adviento	domingo	3 de diciembre
Navidad	lunes	25 de diciembre

Estaciones del año, 2017

Hora del meridiano 90º W.G.

mes	día	h	m	longitud eclíptica (º)	Constelación
invierno					
enero	17	14	9	300	capricornio
febrero	16	1	37	330	acuario
primavera					
marzo equinoccio	20	4	29	0	piscis
abril	21	15	9	30	aries
mayo	22	18	40	60	tauro
verano					
junio solsticio	20	22	24	90	géminis
julio	20	4	45	120	cáncer
agosto	20	10	1	150	leo
otoño					
septiembre equinoccio	22	14	2	180	virgo
octubre	25	4	0	210	libra
noviembre	23	22	43	240	escorpión
invierno					
diciembre solsticio	21	10	28	270	sagitario

Hora sideral, 2017

A las 0^h del meridiano 90º W.G.

d	dj	h	m	s
enero				
1	2457754.75	6	44	19.8
2	2457755.75	6	48	16.4
3	2457756.75	6	52	13
4	2457757.75	6	56	9.5
5	2457758.75	7	0	6.1
6	2457759.75	7	4	2.6
7	2457760.75	7	7	59.2
8	2457761.75	7	11	55.7
9	2457762.75	7	15	52.3
10	2457763.75	7	19	48.8
11	2457764.75	7	23	45.4
12	2457765.75	7	27	42
13	2457766.75	7	31	38.5
14	2457767.75	7	35	35.1
15	2457768.75	7	39	31.6
16	2457769.75	7	43	28.2
17	2457770.75	7	47	24.8
18	2457771.75	7	51	21.3
19	2457772.75	7	55	17.9
20	2457773.75	7	59	14.4
21	2457774.75	8	3	11
22	2457775.75	8	7	7.5
23	2457776.75	8	11	4.1
24	2457777.75	8	15	0.6
25	2457778.75	8	18	57.2
26	2457779.75	8	22	53.8
27	2457780.75	8	26	50.3
28	2457781.75	8	30	46.9
29	2457782.75	8	34	43.4
30	2457783.75	8	38	40
31	2457784.75	8	42	36.5
febrero				
1	2457785.75	8	46	33.1
2	2457786.75	8	50	29.6
3	2457787.75	8	54	26.2
4	2457788.75	8	58	22.7
5	2457789.75	9	2	19.3
6	2457790.75	9	6	15.8
7	2457791.75	9	10	12.4
8	2457792.75	9	14	9
9	2457793.75	9	18	5.5
10	2457794.75	9	22	2.1
11	2457795.75	9	25	58.6
12	2457796.75	9	29	55.2
13	2457797.75	9	33	51.7
14	2457798.75	9	37	48.3
15	2457799.75	9	41	44.8
16	2457800.75	9	45	41.4
17	2457801.75	9	49	37.9
18	2457802.75	9	53	34.5
19	2457803.75	9	57	31
20	2457804.75	10	1	27.6
21	2457805.75	10	5	24.2
22	2457806.75	10	9	20.7
23	2457807.75	10	13	17.3
24	2457808.75	10	17	13.8
25	2457809.75	10	21	10.4
26	2457810.75	10	25	6.9
27	2457811.75	10	29	3.5
28	2457812.75	10	33	0
marzo				
1	2457813.75	10	36	56.6
2	2457814.75	10	40	53.1
3	2457815.75	10	44	49.7
4	2457816.75	10	48	46.2
5	2457817.75	10	52	42.8
6	2457818.75	10	56	39.3
7	2457819.75	11	0	35.9
8	2457820.75	11	4	32.5
9	2457821.75	11	8	29
10	2457822.75	11	12	25.6
11	2457823.75	11	16	22.1
12	2457824.75	11	20	18.7
13	2457825.75	11	24	15.2
14	2457826.75	11	28	11.8
15	2457827.75	11	32	8.3
16	2457828.75	11	36	4.8
17	2457829.75	11	40	1.4
18	2457830.75	11	43	58
19	2457831.75	11	47	54.5
20	2457832.75	11	51	51.1
21	2457833.75	11	55	47.6
22	2457834.75	11	59	44.2
23	2457835.75	12	3	40.7
24	2457836.75	12	7	37.3
25	2457837.75	12	11	33.8
26	2457838.75	12	15	30.4
27	2457839.75	12	19	26.9
28	2457840.75	12	23	23.5
29	2457841.75	12	27	20
30	2457842.75	12	31	16.6
31	2457843.75	12	35	13.1
abril				
1	2457844.75	12	39	9.7
2	2457845.75	12	43	6.2
3	2457846.75	12	47	2.8
4	2457847.75	12	50	59.4
5	2457848.75	12	54	55.9
6	2457849.75	12	58	52.5
7	2457850.75	13	2	49
8	2457851.75	13	6	45.6
9	2457852.75	13	10	42.1
10	2457853.75	13	14	38.7
11	2457854.75	13	18	35.2
12	2457855.75	13	22	31.8
13	2457856.75	13	26	28.3
14	2457857.75	13	30	24.9
15	2457858.75	13	34	21.4
16	2457859.75	13	38	18
17	2457860.75	13	42	14.5
18	2457861.75	13	46	11.1
19	2457862.75	13	50	7.6
20	2457863.75	13	54	4.2
21	2457864.75	13	58	0.7
22	2457865.75	14	1	57.3
23	2457866.75	14	5	53.8
24	2457867.75	14	9	50.4
25	2457868.75	14	13	46.9
26	2457869.75	14	17	43.5
27	2457870.75	14	21	40
28	2457871.75	14	25	36.6
29	2457872.75	14	29	33.2
30	2457873.75	14	33	29.7
mayo				
1	2457874.75	14	37	26.3
2	2457875.75	14	41	22.8
3	2457876.75	14	45	19.4
4	2457877.75	14	49	16
5	2457878.75	14	53	12.5
6	2457879.75	14	57	9
7	2457880.75	15	1	5.6
8	2457881.75	15	5	2.1
9	2457882.75	15	8	58.7
10	2457883.75	15	12	55.3
11	2457884.75	15	16	51.8
12	2457885.75	15	20	48.4
13	2457886.75	15	24	44.9
14	2457887.75	15	28	41.5
15	2457888.75	15	32	38
16	2457889.75	15	36	34.6
17	2457890.75	15	40	31.2
18	2457891.75	15	44	27.7
19	2457892.75	15	48	24.3
20	2457893.75	15	52	20.8
21	2457894.75	15	56	17.4
22	2457895.75	16	0	13.9
23	2457896.75	16	4	10.5
24	2457897.75	16	8	7

Hora sideral, 2017

A las 0^h del meridiano 90º W.G.

d	dj	h	m	s
25	2457898.75	16	12	3.6
26	2457899.75	16	16	0.1
27	2457900.75	16	19	56.7
28	2457901.75	16	23	53.3
29	2457902.75	16	27	49.8
30	2457903.75	16	31	46.4
31	2457904.75	16	35	42.9
junio				
1	2457905.75	16	39	39.5
2	2457906.75	16	43	36.1
3	2457907.75	16	47	32.6
4	2457908.75	16	51	29.2
5	2457909.75	16	55	25.7
6	2457910.75	16	59	22.3
7	2457911.75	17	3	18.8
8	2457912.75	17	7	15.4
9	2457913.75	17	11	11.9
10	2457914.75	17	15	8.5
11	2457915.75	17	19	5.1
12	2457916.75	17	23	1.6
13	2457917.75	17	26	58.2
14	2457918.75	17	30	54.7
15	2457919.75	17	34	51.3
16	2457920.75	17	38	47.8
17	2457921.75	17	42	44.4
18	2457922.75	17	46	41
19	2457923.75	17	50	37.5
20	2457924.75	17	54	34.1
21	2457925.75	17	58	30.6
22	2457926.75	18	2	27.2
23	2457927.75	18	6	23.7
24	2457928.75	18	10	20.3
25	2457929.75	18	14	16.9
26	2457930.75	18	18	13.4
27	2457931.75	18	22	10
28	2457932.75	18	26	6.5
29	2457933.75	18	30	3.1
30	2457934.75	18	33	59.7
julio				
1	2457935.75	18	37	56.2
2	2457936.75	18	41	52.8
3	2457937.75	18	45	49.3
4	2457938.75	18	49	45.9
5	2457939.75	18	53	42.4
6	2457940.75	18	57	39
7	2457941.75	19	1	35.5
8	2457942.75	19	5	32.1
9	2457943.75	19	9	28.7
10	2457944.75	19	13	25.2
11	2457945.75	19	17	21.8
12	2457946.75	19	21	18.3
13	2457947.75	19	25	14.9
14	2457948.75	19	29	11.4
15	2457949.75	19	33	8
16	2457950.75	19	37	4.5
17	2457951.75	19	41	1.1
18	2457952.75	19	44	57.6
19	2457953.75	19	48	54.2
20	2457954.75	19	52	50.8
21	2457955.75	19	56	47.3
22	2457956.75	20	0	43.9
23	2457957.75	20	4	40.5
24	2457958.75	20	8	37
25	2457959.75	20	12	33.6
26	2457960.75	20	16	30.1
27	2457961.75	20	20	26.7
28	2457962.75	20	24	23.2
29	2457963.75	20	28	19.8
30	2457964.75	20	32	16.3
31	2457965.75	20	36	12.9
agosto				
1	2457966.75	20	40	9.4
2	2457967.75	20	44	6
3	2457968.75	20	48	2.5
4	2457969.75	20	51	59.1
5	2457970.75	20	55	55.7
6	2457971.75	20	59	52.2
7	2457972.75	21	3	48.8
8	2457973.75	21	7	45.3
9	2457974.75	21	11	41.9
10	2457975.75	21	15	38.4
11	2457976.75	21	19	35
12	2457977.75	21	23	31.5
13	2457978.75	21	27	28.1
14	2457979.75	21	31	24.6
15	2457980.75	21	35	21.2
16	2457981.75	21	39	17.7
17	2457982.75	21	43	14.3
18	2457983.75	21	47	10.9
19	2457984.75	21	51	7.4
20	2457985.75	21	55	4
21	2457986.75	21	59	0.5
22	2457987.75	22	2	57.1
23	2457988.75	22	6	53.6
24	2457989.75	22	10	50.2
25	2457990.75	22	14	46.7
26	2457991.75	22	18	43.3
27	2457992.75	22	22	39.8
28	2457993.75	22	26	36.4
29	2457994.75	22	30	32.9
30	2457995.75	22	34	29.5
31	2457996.75	22	38	26
septiembre				
1	2457997.75	22	42	22.6
2	2457998.75	22	46	19.2
3	2457999.75	22	50	15.7
4	2458000.75	22	54	12.3
5	2458001.75	22	58	8.8
6	2458002.75	23	2	5.4
7	2458003.75	23	6	1.9
8	2458004.75	23	9	58.5
9	2458005.75	23	13	55
10	2458006.75	23	17	51.6
11	2458007.75	23	21	48.1
12	2458008.75	23	25	44.7
13	2458009.75	23	29	41.2
14	2458010.75	23	33	37.8
15	2458011.75	23	37	34.3
16	2458012.75	23	41	30.9
17	2458013.75	23	45	27.4
18	2458014.75	23	49	24
19	2458015.75	23	53	20.5
20	2458016.75	23	57	17.1
21	2458017.75	0	1	13.6
22	2458018.75	0	5	10.2
23	2458019.75	0	9	6.7
24	2458020.75	0	13	3.3
25	2458021.75	0	16	59.8
26	2458022.75	0	20	56.4
27	2458023.75	0	24	52.9
28	2458024.75	0	28	49.5
29	2458025.75	0	32	46.1
30	2458026.75	0	36	42.6
octubre				
1	2458027.75	0	40	39.2
2	2458028.75	0	44	35.7
3	2458029.75	0	48	32.3
4	2458030.75	0	52	28.8
5	2458031.75	0	56	25.4
6	2458032.75	1	0	21.9
7	2458033.75	1	4	18.5
8	2458034.75	1	8	15
9	2458035.75	1	12	11.6
10	2458036.75	1	16	8.1
11	2458037.75	1	20	4.7
12	2458038.75	1	24	1.2
13	2458039.75	1	27	57.8
14	2458040.75	1	31	54.4

Hora sideral, 2017

A las 0^h del meridiano 90º W.G.

d	dj	h	m	s
15	2458041.75	1	35	50.9
16	2458042.75	1	39	47.5
17	2458043.75	1	43	44
18	2458044.75	1	47	40.6
19	2458045.75	1	51	37.1
20	2458046.75	1	55	33.6
21	2458047.75	1	59	30.2
22	2458048.75	2	3	26.7
23	2458049.75	2	7	23.3
24	2458050.75	2	11	19.9
25	2458051.75	2	15	16.4
26	2458052.75	2	19	13
27	2458053.75	2	23	9.5
28	2458054.75	2	27	6.1
29	2458055.75	2	31	2.6
30	2458056.75	2	34	59.2
31	2458057.75	2	38	55.7
noviembre				
1	2458058.75	2	42	52.3
2	2458059.75	2	46	48.8
3	2458060.75	2	50	45.4
4	2458061.75	2	54	41.9
5	2458062.75	2	58	38.5
6	2458063.75	3	2	35.1
7	2458064.75	3	6	31.6
8	2458065.75	3	10	28.2
9	2458066.75	3	14	24.7
10	2458067.75	3	18	21.3
11	2458068.75	3	22	17.9
12	2458069.75	3	26	14.4
13	2458070.75	3	30	11
14	2458071.75	3	34	7.5
15	2458072.75	3	38	4.1
16	2458073.75	3	42	0.6
17	2458074.75	3	45	57.2
18	2458075.75	3	49	53.7
19	2458076.75	3	53	50.3
20	2458077.75	3	57	46.8
21	2458078.75	4	1	43.4
22	2458079.75	4	5	40
23	2458080.75	4	9	36.5
24	2458081.75	4	13	33.1
25	2458082.75	4	17	29.6
26	2458083.75	4	21	26.2
27	2458084.75	4	25	22.7
28	2458085.75	4	29	19.3
29	2458086.75	4	33	15.8
30	2458087.75	4	37	12.4
diciembre				
1	2458088.75	4	41	9
2	2458089.75	4	45	5.5
3	2458090.75	4	49	2.1
4	2458091.75	4	52	58.6
5	2458092.75	4	56	55.2
6	2458093.75	5	0	51.8
7	2458094.75	5	4	48.3
8	2458095.75	5	8	44.9
9	2458096.75	5	12	41.4
10	2458097.75	5	16	38
11	2458098.75	5	20	34.5
12	2458099.75	5	24	31.1
13	2458100.75	5	28	27.6
14	2458101.75	5	32	24.2
15	2458102.75	5	36	20.8
16	2458103.75	5	40	17.3
17	2458104.75	5	44	13.9
18	2458105.75	5	48	10.4
19	2458106.75	5	52	7
20	2458107.75	5	56	3.6
21	2458108.75	6	0	0.1
22	2458109.75	6	3	56.7
23	2458110.75	6	7	53.2
24	2458111.75	6	11	49.8
25	2458112.75	6	15	46.3
26	2458113.75	6	19	42.9
27	2458114.75	6	23	39.5
28	2458115.75	6	27	36
29	2458116.75	6	31	32.6
30	2458117.75	6	35	29.1
31	2458118.75	6	39	25.7

Sol, 2017

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

mes	día	dj	h	α m	α s	vh s	δ °	δ `	δ “	vh ”	dis UA	hp h	hp m	hp s
ene	1	2457754.75	18	47	53.21	11.0	-22	58	41.85	13.2	0.98333	12	3	23.0
ene	2	2457755.75	18	52	17.91	11.0	-22	53	25.52	14.3	0.98332	12	3	51.2
ene	3	2457756.75	18	56	42.25	11.0	-22	47	41.85	15.5	0.98331	12	4	19.0
ene	4	2457757.75	19	1	6.17	11.0	-22	41	31.02	16.6	0.98331	12	4	46.3
ene	5	2457758.75	19	5	29.67	11.0	-22	34	53.19	17.7	0.98331	12	5	13.3
ene	6	2457759.75	19	9	52.70	10.9	-22	27	48.57	18.8	0.98332	12	5	39.7
ene	7	2457760.75	19	14	15.24	10.9	-22	20	17.35	19.9	0.98333	12	6	5.7
ene	8	2457761.75	19	18	37.26	10.9	-22	12	19.77	21.0	0.98334	12	6	31.2
ene	9	2457762.75	19	22	58.75	10.9	-22	3	56.07	22.1	0.98337	12	6	56.1
ene	10	2457763.75	19	27	19.68	10.8	-21	55	6.48	23.1	0.98339	12	7	20.5
ene	11	2457764.75	19	31	40.02	10.8	-21	45	51.29	24.2	0.98343	12	7	44.3
ene	12	2457765.75	19	35	59.77	10.8	-21	36	10.74	25.2	0.98347	12	8	7.5
ene	13	2457766.75	19	40	18.90	10.8	-21	26	5.12	26.3	0.98352	12	8	30.1
ene	14	2457767.75	19	44	37.39	10.7	-21	15	34.69	27.3	0.98357	12	8	52.0
ene	15	2457768.75	19	48	55.23	10.7	-21	4	39.75	28.3	0.98363	12	9	13.3
ene	16	2457769.75	19	53	12.41	10.7	-20	53	20.58	29.3	0.98370	12	9	33.9
ene	17	2457770.75	19	57	28.91	10.7	-20	41	37.48	30.3	0.98377	12	9	53.8
ene	18	2457771.75	20	1	44.72	10.6	-20	29	30.78	31.2	0.98385	12	10	13.1
ene	19	2457772.75	20	5	59.83	10.6	-20	17	0.80	32.2	0.98394	12	10	31.6
ene	20	2457773.75	20	10	14.22	10.6	-20	4	7.87	33.1	0.98403	12	10	49.5
ene	21	2457774.75	20	14	27.88	10.5	-19	50	52.35	34.1	0.98412	12	11	6.6
ene	22	2457775.75	20	18	40.81	10.5	-19	37	14.59	35.0	0.98422	12	11	22.9
ene	23	2457776.75	20	22	52.97	10.5	-19	23	14.96	35.9	0.98432	12	11	38.6
ene	24	2457777.75	20	27	4.38	10.4	-19	8	53.82	36.8	0.98443	12	11	53.4
ene	25	2457778.75	20	31	15.00	10.4	-18	54	11.56	37.6	0.98454	12	12	7.5
ene	26	2457779.75	20	35	24.84	10.4	-18	39	8.57	38.5	0.98465	12	12	20.8
ene	27	2457780.75	20	39	33.89	10.3	-18	23	45.22	39.3	0.98477	12	12	33.3
ene	28	2457781.75	20	43	42.13	10.3	-18	8	1.93	40.1	0.98489	12	12	44.9
ene	29	2457782.75	20	47	49.55	10.3	-17	51	59.08	40.9	0.98501	12	12	55.8
ene	30	2457783.75	20	51	56.15	10.2	-17	35	37.09	41.7	0.98514	12	13	5.8
ene	31	2457784.75	20	56	1.92	10.2	-17	18	56.34	42.5	0.98527	12	13	15.0
feb	1	2457785.75	21	0	6.86	10.2	-17	1	57.26	43.2	0.98541	12	13	23.4
feb	2	2457786.75	21	4	10.97	10.1	-16	44	40.24	43.9	0.98554	12	13	31.0
feb	3	2457787.75	21	8	14.24	10.1	-16	27	5.70	44.7	0.98568	12	13	37.7
feb	4	2457788.75	21	12	16.68	10.1	-16	9	14.05	45.3	0.98583	12	13	43.6
feb	5	2457789.75	21	16	18.30	10.0	-15	51	5.71	46.0	0.98598	12	13	48.7
feb	6	2457790.75	21	20	19.09	10.0	-15	32	41.10	46.7	0.98613	12	13	52.9
feb	7	2457791.75	21	24	19.06	10.0	-15	14	0.64	47.3	0.98629	12	13	56.3
feb	8	2457792.75	21	28	18.22	9.9	-14	55	4.75	48.0	0.98646	12	13	58.9
feb	9	2457793.75	21	32	16.58	9.9	-14	35	53.84	48.6	0.98663	12	14	0.7
feb	10	2457794.75	21	36	14.14	9.9	-14	16	28.32	49.2	0.98680	12	14	1.7
feb	11	2457795.75	21	40	10.93	9.8	-13	56	48.57	49.7	0.98698	12	14	2.0
feb	12	2457796.75	21	44	6.96	9.8	-13	36	55.01	50.3	0.98717	12	14	1.4
feb	13	2457797.75	21	48	2.23	9.8	-13	16	48.03	50.8	0.98736	12	14	0.1
feb	14	2457798.75	21	51	56.76	9.7	-12	56	28.01	51.4	0.98755	12	13	58.1
feb	15	2457799.75	21	55	50.58	9.7	-12	35	55.37	51.9	0.98775	12	13	55.4

Sol, 2017

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
feb	16	2457800.75	21	59	43.69	9.7	-12	15	10.50	52.4	0.98796	12	13	52.0
feb	17	2457801.75	22	3	36.11	9.7	-11	54	13.81	52.8	0.98817	12	13	47.8
feb	18	2457802.75	22	7	27.86	9.6	-11	33	5.71	53.3	0.98838	12	13	43.0
feb	19	2457803.75	22	11	18.94	9.6	-11	11	46.62	53.7	0.98860	12	13	37.6
feb	20	2457804.75	22	15	9.37	9.6	-10	50	16.94	54.2	0.98882	12	13	31.4
feb	21	2457805.75	22	18	59.17	9.5	-10	28	37.10	54.6	0.98904	12	13	24.7
feb	22	2457806.75	22	22	48.35	9.5	-10	6	47.50	55.0	0.98927	12	13	17.3
feb	23	2457807.75	22	26	36.91	9.5	-9	44	48.56	55.3	0.98950	12	13	9.3
feb	24	2457808.75	22	30	24.88	9.5	-9	22	40.70	55.7	0.98973	12	13	0.7
feb	25	2457809.75	22	34	12.27	9.5	-9	0	24.34	56.0	0.98996	12	12	51.6
feb	26	2457810.75	22	37	59.09	9.4	-8	37	59.90	56.3	0.99019	12	12	41.8
feb	27	2457811.75	22	41	45.35	9.4	-8	15	27.78	56.6	0.99043	12	12	31.5
feb	28	2457812.75	22	45	31.06	9.4	-7	52	48.41	56.9	0.99066	12	12	20.7
mar	1	2457813.75	22	49	16.25	9.4	-7	30	2.19	57.2	0.99090	12	12	9.3
mar	2	2457814.75	22	53	0.92	9.3	-7	7	9.53	57.4	0.99114	12	11	57.4
mar	3	2457815.75	22	56	45.09	9.3	-6	44	10.84	57.7	0.99138	12	11	45.1
mar	4	2457816.75	23	0	28.79	9.3	-6	21	6.53	57.9	0.99163	12	11	32.2
mar	5	2457817.75	23	4	12.01	9.3	-5	57	57.01	58.1	0.99187	12	11	18.9
mar	6	2457818.75	23	7	54.79	9.3	-5	34	42.67	58.3	0.99212	12	11	5.1
mar	7	2457819.75	23	11	37.15	9.2	-5	11	23.91	58.4	0.99237	12	10	50.9
mar	8	2457820.75	23	15	19.09	9.2	-4	48	1.13	58.6	0.99262	12	10	36.3
mar	9	2457821.75	23	19	0.65	9.2	-4	24	34.70	58.7	0.99288	12	10	21.3
mar	10	2457822.75	23	22	41.84	9.2	-4	1	4.99	58.9	0.99314	12	10	5.9
mar	11	2457823.75	23	26	22.69	9.2	-3	37	32.38	59.0	0.99340	12	9	50.2
mar	12	2457824.75	23	30	3.22	9.2	-3	13	57.22	59.1	0.99366	12	9	34.2
mar	13	2457825.75	23	33	43.46	9.2	-2	50	19.86	59.1	0.99393	12	9	17.9
mar	14	2457826.75	23	37	23.44	9.2	-2	26	40.64	59.2	0.99420	12	9	1.3
mar	15	2457827.75	23	41	3.17	9.1	-2	2	59.94	59.2	0.99448	12	8	44.5
mar	16	2457828.75	23	44	42.68	9.1	-1	39	18.08	59.3	0.99475	12	8	27.5
mar	17	2457829.75	23	48	22.00	9.1	-1	15	35.44	59.3	0.99503	12	8	10.2
mar	18	2457830.75	23	52	1.14	9.1	-0	51	52.36	59.3	0.99531	12	7	52.8
mar	19	2457831.75	23	55	40.14	9.1	-0	28	9.21	59.3	0.99560	12	7	35.3
mar	20	2457832.75	23	59	19.00*****		-0	4	26.34	59.3	0.99588	12	7	17.6
mar	21	2457833.75	0	2	57.76	9.1	+0	19	15.88	59.2	0.99617	12	6	59.8
mar	22	2457834.75	0	6	36.43	9.1	+0	42	57.09	59.2	0.99646	12	6	41.9
mar	23	2457835.75	0	10	15.02	9.1	+1	6	36.93	59.1	0.99674	12	6	24.0
mar	24	2457836.75	0	13	53.57	9.1	+1	30	15.04	59.0	0.99703	12	6	6.0
mar	25	2457837.75	0	17	32.08	9.1	+1	53	51.03	58.9	0.99732	12	5	47.9
mar	26	2457838.75	0	21	10.57	9.1	+2	17	24.56	58.8	0.99761	12	5	29.8
mar	27	2457839.75	0	24	49.07	9.1	+2	40	55.24	58.6	0.99789	12	5	11.8
mar	28	2457840.75	0	28	27.58	9.1	+3	4	22.71	58.5	0.99818	12	4	53.8
mar	29	2457841.75	0	32	6.13	9.1	+3	27	46.60	58.3	0.99847	12	4	35.8
mar	30	2457842.75	0	35	44.73	9.1	+3	51	6.55	58.2	0.99875	12	4	17.8
mar	31	2457843.75	0	39	23.40	9.1	+4	14	22.19	58.0	0.99903	12	3	59.9
abr	1	2457844.75	0	43	2.15	9.1	+4	37	33.14	57.7	0.99931	12	3	42.1
abr	2	2457845.75	0	46	40.99	9.1	+5	0	39.04	57.5	0.99959	12	3	24.4

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mes	día	dj	h	α m	α s	vh s	δ °	δ `	δ “	vh ”	dis UA	hp h	hp m	hp s
abr	3	2457846.75	0	50	19.95	9.1	+5	23	39.52	57.3	0.99988	12	3	6.8
abr	4	2457847.75	0	53	59.04	9.1	+5	46	34.21	57.0	1.00016	12	2	49.4
abr	5	2457848.75	0	57	38.27	9.1	+6	9	22.76	56.8	1.00044	12	2	32.0
abr	6	2457849.75	1	1	17.68	9.1	+6	32	4.83	56.5	1.00072	12	2	14.9
abr	7	2457850.75	1	4	57.27	9.2	+6	54	40.07	56.2	1.00100	12	1	57.9
abr	8	2457851.75	1	8	37.06	9.2	+7	17	8.15	55.9	1.00128	12	1	41.2
abr	9	2457852.75	1	12	17.09	9.2	+7	39	28.75	55.5	1.00156	12	1	24.6
abr	10	2457853.75	1	15	57.37	9.2	+8	1	41.55	55.2	1.00184	12	1	8.4
abr	11	2457854.75	1	19	37.92	9.2	+8	23	46.22	54.8	1.00213	12	0	52.4
abr	12	2457855.75	1	23	18.77	9.2	+8	45	42.45	54.5	1.00241	12	0	36.7
abr	13	2457856.75	1	26	59.93	9.2	+9	7	29.93	54.1	1.00270	12	0	21.3
abr	14	2457857.75	1	30	41.42	9.2	+9	29	8.33	53.7	1.00298	12	0	6.2
abr	15	2457858.75	1	34	23.27	9.3	+9	50	37.33	53.3	1.00327	11	59	51.5
abr	16	2457859.75	1	38	5.48	9.3	+10	11	56.60	52.9	1.00355	11	59	37.2
abr	17	2457860.75	1	41	48.08	9.3	+10	33	5.82	52.5	1.00384	11	59	23.2
abr	18	2457861.75	1	45	31.08	9.3	+10	54	4.67	52.0	1.00412	11	59	9.7
abr	19	2457862.75	1	49	14.50	9.3	+11	14	52.81	51.5	1.00440	11	58	56.5
abr	20	2457863.75	1	52	58.34	9.3	+11	35	29.91	51.1	1.00468	11	58	43.8
abr	21	2457864.75	1	56	42.63	9.4	+11	55	55.63	50.6	1.00496	11	58	31.5
abr	22	2457865.75	2	0	27.37	9.4	+12	16	9.65	50.1	1.00524	11	58	19.7
abr	23	2457866.75	2	4	12.58	9.4	+12	36	11.63	49.6	1.00552	11	58	8.4
abr	24	2457867.75	2	7	58.26	9.4	+12	56	1.23	49.0	1.00579	11	57	57.5
abr	25	2457868.75	2	11	44.43	9.4	+13	15	38.11	48.5	1.00606	11	57	47.1
abr	26	2457869.75	2	15	31.10	9.5	+13	35	1.94	47.9	1.00632	11	57	37.3
abr	27	2457870.75	2	19	18.26	9.5	+13	54	12.39	47.4	1.00659	11	57	27.9
abr	28	2457871.75	2	23	5.93	9.5	+14	13	9.11	46.8	1.00685	11	57	19.0
abr	29	2457872.75	2	26	54.10	9.5	+14	31	51.76	46.2	1.00710	11	57	10.6
abr	30	2457873.75	2	30	42.79	9.5	+14	50	20.00	45.6	1.00735	11	57	2.7
may	1	2457874.75	2	34	31.99	9.6	+15	8	33.48	44.9	1.00760	11	56	55.4
may	2	2457875.75	2	38	21.71	9.6	+15	26	31.87	44.3	1.00785	11	56	48.6
may	3	2457876.75	2	42	11.95	9.6	+15	44	14.82	43.6	1.00809	11	56	42.2
may	4	2457877.75	2	46	2.71	9.6	+16	1	42.04	43.0	1.00833	11	56	36.4
may	5	2457878.75	2	49	54.01	9.7	+16	18	53.19	42.3	1.00857	11	56	31.2
may	6	2457879.75	2	53	45.85	9.7	+16	35	47.98	41.6	1.00881	11	56	26.5
may	7	2457880.75	2	57	38.24	9.7	+16	52	26.12	40.9	1.00905	11	56	22.3
may	8	2457881.75	3	1	31.19	9.7	+17	8	47.30	40.2	1.00928	11	56	18.7
may	9	2457882.75	3	5	24.70	9.8	+17	24	51.26	39.4	1.00951	11	56	15.6
may	10	2457883.75	3	9	18.77	9.8	+17	40	37.71	38.7	1.00974	11	56	13.2
may	11	2457884.75	3	13	13.42	9.8	+17	56	6.36	37.9	1.00997	11	56	11.3
may	12	2457885.75	3	17	8.65	9.8	+18	11	16.95	37.2	1.01020	11	56	9.9
may	13	2457886.75	3	21	4.45	9.8	+18	26	9.21	36.4	1.01042	11	56	9.2
may	14	2457887.75	3	25	0.83	9.9	+18	40	42.85	35.6	1.01065	11	56	9.0
may	15	2457888.75	3	28	57.79	9.9	+18	54	57.60	34.8	1.01087	11	56	9.4
may	16	2457889.75	3	32	55.33	9.9	+19	8	53.20	34.0	1.01109	11	56	10.4
may	17	2457890.75	3	36	53.45	9.9	+19	22	29.39	33.2	1.01130	11	56	12.0
may	18	2457891.75	3	40	52.14	10.0	+19	35	45.88	32.4	1.01152	11	56	14.1

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mes	día	dj	h	α m	s	vh s	°	δ `	"	vh "	dis UA	h	hp m	s
may	19	2457892.75	3	44	51.39	10.0	+19	48	42.42	31.5	1.01173	11	56	16.8
may	20	2457893.75	3	48	51.21	10.0	+20	1	18.76	30.7	1.01193	11	56	20.1
may	21	2457894.75	3	52	51.59	10.0	+20	13	34.63	29.8	1.01214	11	56	23.9
may	22	2457895.75	3	56	52.51	10.1	+20	25	29.77	28.9	1.01234	11	56	28.2
may	23	2457896.75	4	0	53.98	10.1	+20	37	3.96	28.0	1.01253	11	56	33.2
may	24	2457897.75	4	4	55.97	10.1	+20	48	16.94	27.1	1.01272	11	56	38.6
may	25	2457898.75	4	8	58.48	10.1	+20	59	8.48	26.2	1.01290	11	56	44.6
may	26	2457899.75	4	13	1.49	10.1	+21	9	38.36	25.3	1.01308	11	56	51.0
may	27	2457900.75	4	17	4.98	10.2	+21	19	46.34	24.4	1.01326	11	56	58.0
may	28	2457901.75	4	21	8.93	10.2	+21	29	32.20	23.5	1.01342	11	57	5.3
may	29	2457902.75	4	25	13.32	10.2	+21	38	55.71	22.5	1.01359	11	57	13.2
may	30	2457903.75	4	29	18.13	10.2	+21	47	56.64	21.6	1.01374	11	57	21.4
may	31	2457904.75	4	33	23.34	10.2	+21	56	34.79	20.6	1.01390	11	57	30.1
jun	1	2457905.75	4	37	28.93	10.2	+22	4	49.96	19.7	1.01405	11	57	39.1
jun	2	2457906.75	4	41	34.90	10.3	+22	12	41.97	18.7	1.01419	11	57	48.5
jun	3	2457907.75	4	45	41.22	10.3	+22	20	10.65	17.7	1.01433	11	57	58.3
jun	4	2457908.75	4	49	47.88	10.3	+22	27	15.85	16.7	1.01447	11	58	8.4
jun	5	2457909.75	4	53	54.86	10.3	+22	33	57.41	15.7	1.01460	11	58	18.8
jun	6	2457910.75	4	58	2.16	10.3	+22	40	15.21	14.7	1.01473	11	58	29.5
jun	7	2457911.75	5	2	9.75	10.3	+22	46	9.12	13.7	1.01486	11	58	40.6
jun	8	2457912.75	5	6	17.61	10.3	+22	51	39.02	12.7	1.01498	11	58	51.9
jun	9	2457913.75	5	10	25.74	10.3	+22	56	44.80	11.7	1.01510	11	59	3.5
jun	10	2457914.75	5	14	34.10	10.4	+23	1	26.37	10.7	1.01522	11	59	15.3
jun	11	2457915.75	5	18	42.69	10.4	+23	5	43.62	9.7	1.01534	11	59	27.3
jun	12	2457916.75	5	22	51.49	10.4	+23	9	36.48	8.7	1.01545	11	59	39.5
jun	13	2457917.75	5	27	0.46	10.4	+23	13	4.87	7.7	1.01555	11	59	52.0
jun	14	2457918.75	5	31	9.60	10.4	+23	16	8.70	6.6	1.01566	12	0	4.5
jun	15	2457919.75	5	35	18.88	10.4	+23	18	47.93	5.6	1.01576	12	0	17.3
jun	16	2457920.75	5	39	28.29	10.4	+23	21	2.48	4.6	1.01586	12	0	30.1
jun	17	2457921.75	5	43	37.80	10.4	+23	22	52.32	3.5	1.01595	12	0	43.1
jun	18	2457922.75	5	47	47.39	10.4	+23	24	17.41	2.5	1.01604	12	0	56.1
jun	19	2457923.75	5	51	57.04	10.4	+23	25	17.71	1.5	1.01612	12	1	9.2
jun	20	2457924.75	5	56	6.72	10.4	+23	25	53.23	0.4	1.01620	12	1	22.3
jun	21	2457925.75	6	0	16.42	10.4	+23	26	3.94	-0.6	1.01627	12	1	35.5
jun	22	2457926.75	6	4	26.10	10.4	+23	25	49.88	-1.6	1.01634	12	1	48.6
jun	23	2457927.75	6	8	35.74	10.4	+23	25	11.05	-2.6	1.01640	12	2	1.7
jun	24	2457928.75	6	12	45.31	10.4	+23	24	7.49	-3.7	1.01645	12	2	14.7
jun	25	2457929.75	6	16	54.77	10.4	+23	22	39.24	-4.7	1.01650	12	2	27.6
jun	26	2457930.75	6	21	4.10	10.4	+23	20	46.33	-5.7	1.01654	12	2	40.4
jun	27	2457931.75	6	25	13.25	10.4	+23	18	28.81	-6.8	1.01657	12	2	52.9
jun	28	2457932.75	6	29	22.22	10.4	+23	15	46.72	-7.8	1.01660	12	3	5.4
jun	29	2457933.75	6	33	30.96	10.4	+23	12	40.13	-8.8	1.01663	12	3	17.5
jun	30	2457934.75	6	37	39.47	10.3	+23	9	9.12	-9.8	1.01665	12	3	29.5
jul	1	2457935.75	6	41	47.71	10.3	+23	5	13.78	-10.8	1.01666	12	3	41.2
jul	2	2457936.75	6	45	55.67	10.3	+23	0	54.21	-11.8	1.01667	12	3	52.6
jul	3	2457937.75	6	50	3.34	10.3	+22	56	10.53	-12.8	1.01667	12	4	3.7

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mes	día	dj	h	α m	s	vh s	°	δ `	“	vh ”	dis UA	h	hp m	s
jul	4	2457938.75	6	54	10.68	10.3	+22	51	2.86	-13.8	1.01668	12	4	14.5
jul	5	2457939.75	6	58	17.68	10.3	+22	45	31.33	-14.8	1.01667	12	4	24.9
jul	6	2457940.75	7	2	24.33	10.3	+22	39	36.09	-15.8	1.01666	12	4	35.0
jul	7	2457941.75	7	6	30.60	10.2	+22	33	17.28	-16.8	1.01665	12	4	44.7
jul	8	2457942.75	7	10	36.49	10.2	+22	26	35.06	-17.7	1.01664	12	4	54.1
jul	9	2457943.75	7	14	41.98	10.2	+22	19	29.60	-18.7	1.01662	12	5	3.0
jul	10	2457944.75	7	18	47.05	10.2	+22	12	1.06	-19.6	1.01660	12	5	11.5
jul	11	2457945.75	7	22	51.68	10.2	+22	4	9.60	-20.6	1.01657	12	5	19.6
jul	12	2457946.75	7	26	55.88	10.2	+21	55	55.42	-21.5	1.01654	12	5	27.2
jul	13	2457947.75	7	30	59.61	10.1	+21	47	18.69	-22.5	1.01651	12	5	34.4
jul	14	2457948.75	7	35	2.88	10.1	+21	38	19.60	-23.4	1.01647	12	5	41.1
jul	15	2457949.75	7	39	5.67	10.1	+21	28	58.34	-24.3	1.01643	12	5	47.3
jul	16	2457950.75	7	43	7.98	10.1	+21	19	15.12	-25.2	1.01639	12	5	53.1
jul	17	2457951.75	7	47	9.78	10.1	+21	9	10.14	-26.1	1.01634	12	5	58.3
jul	18	2457952.75	7	51	11.09	10.0	+20	58	43.62	-27.0	1.01629	12	6	3.1
jul	19	2457953.75	7	55	11.87	10.0	+20	47	55.80	-27.9	1.01623	12	6	7.3
jul	20	2457954.75	7	59	12.13	10.0	+20	36	46.93	-28.7	1.01616	12	6	11.0
jul	21	2457955.75	8	3	11.85	10.0	+20	25	17.25	-29.6	1.01609	12	6	14.2
jul	22	2457956.75	8	7	11.01	9.9	+20	13	27.03	-30.4	1.01602	12	6	16.8
jul	23	2457957.75	8	11	9.60	9.9	+20	1	16.52	-31.3	1.01593	12	6	18.8
jul	24	2457958.75	8	15	7.60	9.9	+19	48	46.00	-32.1	1.01584	12	6	20.3
jul	25	2457959.75	8	19	5.01	9.9	+19	35	55.73	-32.9	1.01575	12	6	21.1
jul	26	2457960.75	8	23	1.81	9.8	+19	22	45.96	-33.7	1.01565	12	6	21.4
jul	27	2457961.75	8	26	58.00	9.8	+19	9	16.97	-34.5	1.01554	12	6	21.0
jul	28	2457962.75	8	30	53.57	9.8	+18	55	29.03	-35.3	1.01543	12	6	20.0
jul	29	2457963.75	8	34	48.51	9.8	+18	41	22.41	-36.0	1.01531	12	6	18.4
jul	30	2457964.75	8	38	42.83	9.7	+18	26	57.40	-36.8	1.01519	12	6	16.2
jul	31	2457965.75	8	42	36.53	9.7	+18	12	14.29	-37.5	1.01507	12	6	13.3
ago	1	2457966.75	8	46	29.60	9.7	+17	57	13.36	-38.3	1.01494	12	6	9.8
ago	2	2457967.75	8	50	22.06	9.7	+17	41	54.92	-39.0	1.01480	12	6	5.7
ago	3	2457968.75	8	54	13.89	9.6	+17	26	19.24	-39.7	1.01466	12	6	1.0
ago	4	2457969.75	8	58	5.10	9.6	+17	10	26.63	-40.4	1.01452	12	5	55.7
ago	5	2457970.75	9	1	55.70	9.6	+16	54	17.39	-41.1	1.01438	12	5	49.7
ago	6	2457971.75	9	5	45.69	9.6	+16	37	51.80	-41.7	1.01423	12	5	43.1
ago	7	2457972.75	9	9	35.08	9.5	+16	21	10.17	-42.4	1.01408	12	5	36.0
ago	8	2457973.75	9	13	23.88	9.5	+16	4	12.78	-43.0	1.01393	12	5	28.2
ago	9	2457974.75	9	17	12.09	9.5	+15	46	59.93	-43.7	1.01377	12	5	19.9
ago	10	2457975.75	9	20	59.73	9.5	+15	29	31.90	-44.3	1.01361	12	5	11.0
ago	11	2457976.75	9	24	46.81	9.4	+15	11	48.99	-44.9	1.01345	12	5	1.5
ago	12	2457977.75	9	28	33.33	9.4	+14	53	51.48	-45.5	1.01329	12	4	51.4
ago	13	2457978.75	9	32	19.31	9.4	+14	35	39.66	-46.1	1.01312	12	4	40.9
ago	14	2457979.75	9	36	4.76	9.4	+14	17	13.82	-46.6	1.01295	12	4	29.8
ago	15	2457980.75	9	39	49.70	9.4	+13	58	34.29	-47.2	1.01278	12	4	18.2
ago	16	2457981.75	9	43	34.14	9.3	+13	39	41.35	-47.8	1.01260	12	4	6.1
ago	17	2457982.75	9	47	18.07	9.3	+13	20	35.34	-48.3	1.01242	12	3	53.4
ago	18	2457983.75	9	51	1.52	9.3	+13	1	16.58	-48.8	1.01223	12	3	40.3

Sol, 2017

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
ago	19	2457984.75	9	54	44.49	9.3	+12	41	45.40	-49.3	1.01204	12	3	26.7
ago	20	2457985.75	9	58	26.98	9.3	+12	22	2.13	-49.8	1.01184	12	3	12.7
ago	21	2457986.75	10	2	9.00	9.2	+12	2	7.12	-50.3	1.01164	12	2	58.1
ago	22	2457987.75	10	5	50.55	9.2	+11	42	0.68	-50.7	1.01144	12	2	43.1
ago	23	2457988.75	10	9	31.66	9.2	+11	21	43.14	-51.2	1.01123	12	2	27.7
ago	24	2457989.75	10	13	12.32	9.2	+11	1	14.84	-51.6	1.01101	12	2	11.8
ago	25	2457990.75	10	16	52.55	9.2	+10	40	36.10	-52.0	1.01079	12	1	55.5
ago	26	2457991.75	10	20	32.37	9.1	+10	19	47.24	-52.4	1.01057	12	1	38.7
ago	27	2457992.75	10	24	11.78	9.1	+9	58	48.61	-52.8	1.01034	12	1	21.6
ago	28	2457993.75	10	27	50.80	9.1	+9	37	40.51	-53.2	1.01011	12	1	4.1
ago	29	2457994.75	10	31	29.44	9.1	+9	16	23.30	-53.6	1.00988	12	0	46.2
ago	30	2457995.75	10	35	7.72	9.1	+8	54	57.28	-53.9	1.00964	12	0	27.9
ago	31	2457996.75	10	38	45.67	9.1	+8	33	22.80	-54.3	1.00940	12	0	9.3
sep	1	2457997.75	10	42	23.28	9.1	+8	11	40.17	-54.6	1.00916	11	59	50.3
sep	2	2457998.75	10	46	0.59	9.0	+7	49	49.73	-54.9	1.00892	11	59	31.1
sep	3	2457999.75	10	49	37.60	9.0	+7	27	51.78	-55.2	1.00867	11	59	11.6
sep	4	2458000.75	10	53	14.34	9.0	+7	5	46.65	-55.5	1.00842	11	58	51.7
sep	5	2458001.75	10	56	50.83	9.0	+6	43	34.65	-55.8	1.00817	11	58	31.7
sep	6	2458002.75	11	0	27.10	9.0	+6	21	16.09	-56.0	1.00792	11	58	11.4
sep	7	2458003.75	11	4	3.15	9.0	+5	58	51.28	-56.3	1.00767	11	57	50.9
sep	8	2458004.75	11	7	39.02	9.0	+5	36	20.51	-56.5	1.00742	11	57	30.2
sep	9	2458005.75	11	11	14.73	9.0	+5	13	44.08	-56.7	1.00717	11	57	9.4
sep	10	2458006.75	11	14	50.30	9.0	+4	51	2.30	-57.0	1.00692	11	56	48.4
sep	11	2458007.75	11	18	25.77	9.0	+4	28	15.46	-57.1	1.00666	11	56	27.3
sep	12	2458008.75	11	22	1.14	9.0	+4	5	23.88	-57.3	1.00641	11	56	6.1
sep	13	2458009.75	11	25	36.44	9.0	+3	42	27.87	-57.5	1.00615	11	55	44.9
sep	14	2458010.75	11	29	11.69	9.0	+3	19	27.78	-57.7	1.00589	11	55	23.6
sep	15	2458011.75	11	32	46.90	9.0	+2	56	23.93	-57.8	1.00563	11	55	2.2
sep	16	2458012.75	11	36	22.10	9.0	+2	33	16.66	-57.9	1.00536	11	54	40.9
sep	17	2458013.75	11	39	57.30	9.0	+2	10	6.34	-58.0	1.00510	11	54	19.5
sep	18	2458014.75	11	43	32.51	9.0	+1	46	53.29	-58.1	1.00483	11	53	58.2
sep	19	2458015.75	11	47	7.76	9.0	+1	23	37.88	-58.2	1.00455	11	53	36.9
sep	20	2458016.75	11	50	43.05	9.0	+1	0	20.45	-58.3	1.00428	11	53	15.6
sep	21	2458017.75	11	54	18.41	9.0	+0	37	1.34	-58.4	1.00400	11	52	54.4
sep	22	2458018.75	11	57	53.85	9.0	+0	13	40.92	-58.4	1.00372	11	52	33.3
sep	23	2458019.75	12	1	29.40	9.0	-0	9	40.47	-58.4	1.00344	11	52	12.3
sep	24	2458020.75	12	5	5.07	9.0	-0	33	2.47	-58.4	1.00315	11	51	51.4
sep	25	2458021.75	12	8	40.87	9.0	-0	56	24.73	-58.4	1.00287	11	51	30.7
sep	26	2458022.75	12	12	16.83	9.0	-1	19	46.89	-58.4	1.00258	11	51	10.1
sep	27	2458023.75	12	15	52.97	9.0	-1	43	8.59	-58.4	1.00229	11	50	49.7
sep	28	2458024.75	12	19	29.30	9.0	-2	6	29.48	-58.3	1.00200	11	50	29.5
sep	29	2458025.75	12	23	5.85	9.0	-2	29	49.21	-58.3	1.00171	11	50	9.4
sep	30	2458026.75	12	26	42.62	9.0	-2	53	7.40	-58.2	1.00142	11	49	49.7
oct	1	2458027.75	12	30	19.66	9.1	-3	16	23.72	-58.1	1.00113	11	49	30.2
oct	2	2458028.75	12	33	56.97	9.1	-3	39	37.81	-58.0	1.00083	11	49	10.9
oct	3	2458029.75	12	37	34.58	9.1	-4	2	49.32	-57.9	1.00054	11	48	52.0

Sol, 2017

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

mes	día	dj	h	α m	α s	vh s	δ °	δ `	δ “	vh ”	dis UA	hp h	hp m	hp s
oct	4	2458030.75	12	41	12.51	9.1	-4	25	57.90	-57.7	1.00025	11	48	33.3
oct	5	2458031.75	12	44	50.78	9.1	-4	49	3.22	-57.6	0.99997	11	48	15.1
oct	6	2458032.75	12	48	29.43	9.1	-5	12	4.93	-57.4	0.99968	11	47	57.2
oct	7	2458033.75	12	52	8.47	9.1	-5	35	2.72	-57.2	0.99939	11	47	39.7
oct	8	2458034.75	12	55	47.94	9.2	-5	57	56.24	-57.0	0.99911	11	47	22.6
oct	9	2458035.75	12	59	27.85	9.2	-6	20	45.16	-56.8	0.99883	11	47	5.9
oct	10	2458036.75	13	3	8.23	9.2	-6	43	29.14	-56.6	0.99855	11	46	49.8
oct	11	2458037.75	13	6	49.10	9.2	-7	6	7.82	-56.4	0.99827	11	46	34.1
oct	12	2458038.75	13	10	30.48	9.2	-7	28	40.84	-56.1	0.99799	11	46	18.9
oct	13	2458039.75	13	14	12.39	9.3	-7	51	7.81	-55.9	0.99771	11	46	4.3
oct	14	2458040.75	13	17	54.83	9.3	-8	13	28.35	-55.6	0.99743	11	45	50.2
oct	15	2458041.75	13	21	37.84	9.3	-8	35	42.08	-55.3	0.99715	11	45	36.6
oct	16	2458042.75	13	25	21.42	9.3	-8	57	48.61	-55.0	0.99687	11	45	23.6
oct	17	2458043.75	13	29	5.60	9.4	-9	19	47.55	-54.6	0.99660	11	45	11.2
oct	18	2458044.75	13	32	50.38	9.4	-9	41	38.49	-54.3	0.99632	11	44	59.5
oct	19	2458045.75	13	36	35.78	9.4	-10	3	21.04	-53.9	0.99604	11	44	48.3
oct	20	2458046.75	13	40	21.81	9.4	-10	24	54.81	-53.5	0.99576	11	44	37.8
oct	21	2458047.75	13	44	8.49	9.5	-10	46	19.38	-53.1	0.99548	11	44	27.9
oct	22	2458048.75	13	47	55.83	9.5	-11	7	34.34	-52.7	0.99520	11	44	18.7
oct	23	2458049.75	13	51	43.84	9.5	-11	28	39.31	-52.3	0.99492	11	44	10.2
oct	24	2458050.75	13	55	32.53	9.6	-11	49	33.85	-51.8	0.99464	11	44	2.3
oct	25	2458051.75	13	59	21.91	9.6	-12	10	17.56	-51.4	0.99437	11	43	55.2
oct	26	2458052.75	14	3	12.00	9.6	-12	30	50.03	-50.9	0.99409	11	43	48.7
oct	27	2458053.75	14	7	2.81	9.6	-12	51	10.84	-50.4	0.99381	11	43	42.9
oct	28	2458054.75	14	10	54.35	9.7	-13	11	19.59	-49.8	0.99354	11	43	37.9
oct	29	2458055.75	14	14	46.62	9.7	-13	31	15.86	-49.3	0.99327	11	43	33.6
oct	30	2458056.75	14	18	39.64	9.7	-13	50	59.25	-48.8	0.99300	11	43	30.1
oct	31	2458057.75	14	22	33.43	9.8	-14	10	29.34	-48.2	0.99273	11	43	27.3
nov	1	2458058.75	14	26	27.99	9.8	-14	29	45.74	-47.6	0.99247	11	43	25.3
nov	2	2458059.75	14	30	23.33	9.8	-14	48	48.05	-47.0	0.99221	11	43	24.1
nov	3	2458060.75	14	34	19.48	9.9	-15	7	35.88	-46.4	0.99195	11	43	23.7
nov	4	2458061.75	14	38	16.44	9.9	-15	26	8.86	-45.7	0.99170	11	43	24.1
nov	5	2458062.75	14	42	14.22	9.9	-15	44	26.61	-45.1	0.99145	11	43	25.4
nov	6	2458063.75	14	46	12.85	10.0	-16	2	28.76	-44.4	0.99120	11	43	27.5
nov	7	2458064.75	14	50	12.32	10.0	-16	20	14.93	-43.7	0.99096	11	43	30.4
nov	8	2458065.75	14	54	12.65	10.0	-16	37	44.74	-43.0	0.99073	11	43	34.1
nov	9	2458066.75	14	58	13.84	10.1	-16	54	57.77	-42.3	0.99049	11	43	38.8
nov	10	2458067.75	15	2	15.90	10.1	-17	11	53.65	-41.6	0.99026	11	43	44.3
nov	11	2458068.75	15	6	18.81	10.2	-17	28	31.96	-40.8	0.99003	11	43	50.6
nov	12	2458069.75	15	10	22.60	10.2	-17	44	52.30	-40.1	0.98981	11	43	57.9
nov	13	2458070.75	15	14	27.25	10.2	-18	0	54.28	-39.3	0.98959	11	44	5.9
nov	14	2458071.75	15	18	32.77	10.3	-18	16	37.48	-38.5	0.98937	11	44	14.9
nov	15	2458072.75	15	22	39.15	10.3	-18	32	1.52	-37.7	0.98915	11	44	24.7
nov	16	2458073.75	15	26	46.38	10.3	-18	47	6.00	-36.9	0.98894	11	44	35.4
nov	17	2458074.75	15	30	54.46	10.4	-19	1	50.52	-36.0	0.98872	11	44	47.0
nov	18	2458075.75	15	35	3.39	10.4	-19	16	14.71	-35.1	0.98851	11	44	59.3

Sol, 2017

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	19	2458076.75	15	39	13.14	10.4	-19	30	18.17	-34.3	0.98830	11	45	12.5
nov	20	2458077.75	15	43	23.71	10.5	-19	44	0.53	-33.4	0.98810	11	45	26.5
nov	21	2458078.75	15	47	35.09	10.5	-19	57	21.39	-32.5	0.98789	11	45	41.4
nov	22	2458079.75	15	51	47.26	10.5	-20	10	20.40	-31.5	0.98769	11	45	57.0
nov	23	2458080.75	15	56	0.21	10.6	-20	22	57.18	-30.6	0.98749	11	46	13.4
nov	24	2458081.75	16	0	13.92	10.6	-20	35	11.36	-29.6	0.98730	11	46	30.5
nov	25	2458082.75	16	4	28.38	10.6	-20	47	2.61	-28.7	0.98711	11	46	48.4
nov	26	2458083.75	16	8	43.57	10.7	-20	58	30.56	-27.7	0.98692	11	47	7.1
nov	27	2458084.75	16	12	59.47	10.7	-21	9	34.88	-26.7	0.98673	11	47	26.4
nov	28	2458085.75	16	17	16.07	10.7	-21	20	15.26	-25.7	0.98655	11	47	46.4
nov	29	2458086.75	16	21	33.36	10.7	-21	30	31.36	-24.6	0.98638	11	48	7.2
nov	30	2458087.75	16	25	51.30	10.8	-21	40	22.89	-23.6	0.98620	11	48	28.6
dic	1	2458088.75	16	30	9.90	10.8	-21	49	49.56	-22.6	0.98604	11	48	50.6
dic	2	2458089.75	16	34	29.13	10.8	-21	58	51.11	-21.5	0.98588	11	49	13.3
dic	3	2458090.75	16	38	48.97	10.9	-22	7	27.28	-20.4	0.98572	11	49	36.6
dic	4	2458091.75	16	43	9.41	10.9	-22	15	37.83	-19.4	0.98557	11	50	0.5
dic	5	2458092.75	16	47	30.43	10.9	-22	23	22.53	-18.3	0.98543	11	50	24.9
dic	6	2458093.75	16	51	52.00	10.9	-22	30	41.15	-17.2	0.98529	11	50	49.9
dic	7	2458094.75	16	56	14.11	10.9	-22	37	33.46	-16.1	0.98516	11	51	15.5
dic	8	2458095.75	17	0	36.73	11.0	-22	43	59.24	-15.0	0.98503	11	51	41.5
dic	9	2458096.75	17	4	59.83	11.0	-22	49	58.27	-13.8	0.98491	11	52	8.1
dic	10	2458097.75	17	9	23.38	11.0	-22	55	30.37	-12.7	0.98480	11	52	35.1
dic	11	2458098.75	17	13	47.37	11.0	-23	0	35.34	-11.6	0.98469	11	53	2.5
dic	12	2458099.75	17	18	11.76	11.0	-23	5	13.02	-10.4	0.98458	11	53	30.3
dic	13	2458100.75	17	22	36.51	11.0	-23	9	23.24	-9.3	0.98448	11	53	58.5
dic	14	2458101.75	17	27	1.60	11.1	-23	13	5.87	-8.1	0.98438	11	54	27.1
dic	15	2458102.75	17	31	26.99	11.1	-23	16	20.77	-7.0	0.98428	11	54	55.9
dic	16	2458103.75	17	35	52.64	11.1	-23	19	7.83	-5.8	0.98419	11	55	25.0
dic	17	2458104.75	17	40	18.53	11.1	-23	21	26.95	-4.6	0.98410	11	55	54.3
dic	18	2458105.75	17	44	44.60	11.1	-23	23	18.04	-3.5	0.98402	11	56	23.8
dic	19	2458106.75	17	49	10.83	11.1	-23	24	41.03	-2.3	0.98394	11	56	53.5
dic	20	2458107.75	17	53	37.17	11.1	-23	25	35.86	-1.1	0.98386	11	57	23.3
dic	21	2458108.75	17	58	3.59	11.1	-23	26	2.48	0.1	0.98379	11	57	53.2
dic	22	2458109.75	18	2	30.05	11.1	-23	26	0.86	1.2	0.98372	11	58	23.1
dic	23	2458110.75	18	6	56.51	11.1	-23	25	30.98	2.4	0.98366	11	58	52.9
dic	24	2458111.75	18	11	22.93	11.1	-23	24	32.85	3.6	0.98360	11	59	22.8
dic	25	2458112.75	18	15	49.28	11.1	-23	23	6.48	4.8	0.98354	11	59	52.6
dic	26	2458113.75	18	20	15.53	11.1	-23	21	11.89	5.9	0.98349	12	0	22.3
dic	27	2458114.75	18	24	41.63	11.1	-23	18	49.14	7.1	0.98344	12	0	51.8
dic	28	2458115.75	18	29	7.55	11.1	-23	15	58.29	8.3	0.98340	12	1	21.2
dic	29	2458116.75	18	33	33.27	11.1	-23	12	39.43	9.4	0.98337	12	1	50.4
dic	30	2458117.75	18	37	58.75	11.1	-23	8	52.65	10.6	0.98334	12	2	19.3
dic	31	2458118.75	18	42	23.97	11.0	-23	4	38.08	11.8	0.98331	12	2	48.0
ene	1	2458119.75	18	46	48.90	11.0	-22	59	55.86	12.9	0.98330	12	3	16.3
ene	2	2458120.75	18	51	13.51	*****	-22	54	46.13	*****	0.98329	12	3	44.4

Luna, 2017

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	2457754.75	21	7	50.24	-14	41	33.7	61.2	15.3	56.0	7.3	14.9
ene	2	2457755.75	21	59	18.33	-11	39	30.7	60.7	15.4	56.5	13.5	15.7
ene	3	2457756.75	22	50	23.75	-8	0	24.9	60.1	15.6	57.1	21.5	16.5
ene	4	2457757.75	23	41	25.49	-3	53	57.1	59.5	15.7	57.6	30.8	17.3
ene	5	2457758.75	0	32	54.61	+0	28	46.5	58.9	15.9	58.2	41.3	18.1
ene	6	2457759.75	1	25	29.41	+4	55	6.9	58.3	16.0	58.8	52.4	18.9
ene	7	2457760.75	2	19	48.91	+9	10	35.7	57.8	16.2	59.4	63.6	19.7
ene	8	2457761.75	3	16	23.61	+12	58	52.7	57.4	16.3	59.9	74.4	20.6
ene	9	2457762.75	4	15	23.69	+16	2	33.3	57.1	16.4	60.2	84.0	21.5
ene	10	2457763.75	5	16	27.24	+18	5	17.0	57.0	16.4	60.4	91.7	22.5
ene	11	2457764.75	6	18	36.18	+18	55	11.8	57.1	16.4	60.3	97.1	23.5
ene	12	2457765.75	7	20	27.25	+18	28	13.4	57.4	16.4	60.0	99.7	****
ene	13	2457766.75	8	20	36.86	+16	49	23.6	58.0	16.2	59.5	99.6	1.4
ene	14	2457767.75	9	18	5.90	+14	11	7.2	58.7	16.0	58.8	96.7	2.3
ene	15	2457768.75	10	12	31.04	+10	49	33.4	59.5	15.8	57.9	91.7	3.1
ene	16	2457769.75	11	4	1.09	+7	1	1.7	60.4	15.6	57.1	84.8	3.9
ene	17	2457770.75	11	53	6.03	+2	59	51.8	61.3	15.3	56.3	76.6	4.6
ene	18	2457771.75	12	40	26.44	-1	2	17.1	62.1	15.1	55.5	67.6	5.4
ene	19	2457772.75	13	26	46.01	-4	56	8.2	62.7	15.0	54.9	58.1	6.1
ene	20	2457773.75	14	12	47.03	-8	34	3.0	63.2	14.8	54.5	48.5	6.8
ene	21	2457774.75	14	59	7.53	-11	49	14.6	63.4	14.8	54.2	39.1	7.5
ene	22	2457775.75	15	46	18.83	-14	35	11.1	63.5	14.8	54.1	30.0	8.2
ene	23	2457776.75	16	34	42.86	-16	45	17.6	63.3	14.8	54.2	21.7	8.9
ene	24	2457777.75	17	24	29.50	-18	13	1.5	63.0	14.8	54.5	14.4	9.7
ene	25	2457778.75	18	15	34.74	-18	52	23.2	62.6	14.9	54.8	8.3	10.5
ene	26	2457779.75	19	7	41.25	-18	38	50.3	62.1	15.1	55.2	3.7	11.3
ene	27	2457780.75	20	0	22.58	-17	30	17.9	61.5	15.2	55.8	0.9	12.1
ene	28	2457781.75	20	53	10.48	-15	27	56.6	60.9	15.3	56.3	0.0	12.9
ene	29	2457782.75	21	45	43.11	-12	36	28.8	60.4	15.5	56.8	1.3	13.7
ene	30	2457783.75	22	37	51.19	-9	3	51.9	59.9	15.6	57.3	4.8	14.5
ene	31	2457784.75	23	29	40.38	-5	0	36.4	59.4	15.7	57.8	10.4	15.3
feb	1	2457785.75	0	21	30.01	-0	39	0.5	59.0	15.8	58.2	18.0	16.1
feb	2	2457786.75	1	13	49.18	+3	47	25.1	58.6	15.9	58.5	27.3	16.9
feb	3	2457787.75	2	7	11.14	+8	4	18.3	58.3	16.0	58.9	37.8	17.8
feb	4	2457788.75	3	2	6.11	+11	56	40.5	58.1	16.1	59.1	49.1	18.6
feb	5	2457789.75	3	58	52.44	+15	9	23.7	57.9	16.2	59.3	60.6	19.5
feb	6	2457790.75	4	57	27.19	+17	28	15.6	57.8	16.2	59.4	71.5	20.4
feb	7	2457791.75	5	57	20.01	+18	41	52.3	57.9	16.2	59.5	81.4	21.3
feb	8	2457792.75	6	57	35.42	+18	43	56.5	58.0	16.2	59.3	89.5	22.3
feb	9	2457793.75	7	57	6.13	+17	35	2.1	58.3	16.1	59.1	95.5	23.2
feb	10	2457794.75	8	54	52.31	+15	22	39.9	58.7	16.0	58.6	99.0	****
feb	11	2457795.75	9	50	16.68	+12	19	32.0	59.3	15.8	58.1	100.0	1.0
feb	12	2457796.75	10	43	9.17	+8	40	49.3	60.0	15.7	57.5	98.6	1.8
feb	13	2457797.75	11	33	42.45	+4	41	41.1	60.7	15.5	56.8	94.9	2.5
feb	14	2457798.75	12	22	23.96	+0	35	41.4	61.5	15.3	56.1	89.4	3.3
feb	15	2457799.75	13	9	48.44	-3	25	47.6	62.1	15.1	55.5	82.5	4.0

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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
feb	16	2457800.75	13	56	32.65	-7	13	27.5	62.7	15.0	54.9	74.4	4.7
feb	17	2457801.75	14	43	11.78	-10	39	35.1	63.1	14.9	54.5	65.5	5.4
feb	18	2457802.75	15	30	17.01	-13	37	26.6	63.3	14.8	54.3	56.2	6.2
feb	19	2457803.75	16	18	13.24	-16	0	50.0	63.4	14.8	54.2	46.7	6.9
feb	20	2457804.75	17	7	16.87	-17	43	49.4	63.2	14.8	54.3	37.3	7.6
feb	21	2457805.75	17	57	33.82	-18	40	50.2	62.8	14.9	54.6	28.3	8.4
feb	22	2457806.75	18	48	58.87	-18	47	5.6	62.3	15.0	55.0	20.0	9.2
feb	23	2457807.75	19	41	17.01	-17	59	20.8	61.7	15.2	55.6	12.7	10.0
feb	24	2457808.75	20	34	7.69	-16	16	45.5	60.9	15.3	56.2	6.8	10.8
feb	25	2457809.75	21	27	10.84	-13	41	39.7	60.2	15.5	56.9	2.5	11.7
feb	26	2457810.75	22	20	13.07	-10	19	58.8	59.5	15.7	57.6	0.3	12.5
feb	27	2457811.75	23	13	11.62	-6	21	11.4	58.9	15.9	58.2	0.3	13.3
feb	28	2457812.75	0	6	15.41	-1	57	51.0	58.5	16.0	58.7	2.9	14.1
mar	1	2457813.75	0	59	42.77	+2	35	10.9	58.1	16.1	59.1	7.9	14.9
mar	2	2457814.75	1	53	56.85	+7	1	41.3	57.9	16.2	59.3	15.2	15.8
mar	3	2457815.75	2	49	19.31	+11	5	7.0	57.9	16.2	59.4	24.3	16.6
mar	4	2457816.75	3	46	2.70	+14	29	39.5	57.9	16.2	59.4	34.9	17.5
mar	5	2457817.75	4	44	3.31	+17	1	29.0	58.0	16.1	59.3	46.2	18.4
mar	6	2457818.75	5	42	56.82	+18	30	9.7	58.3	16.1	59.1	57.7	19.3
mar	7	2457819.75	6	42	0.47	+18	50	4.3	58.5	16.0	58.8	68.7	20.2
mar	8	2457820.75	7	40	22.66	+18	1	17.0	58.8	15.9	58.5	78.6	21.1
mar	9	2457821.75	8	37	16.60	+16	9	28.4	59.2	15.8	58.1	86.9	22.0
mar	10	2457822.75	9	32	11.59	+13	24	45.7	59.7	15.7	57.7	93.4	22.9
mar	11	2457823.75	10	24	57.45	+9	59	57.2	60.2	15.6	57.2	97.7	23.7
mar	12	2457824.75	11	15	42.35	+6	8	46.6	60.8	15.5	56.7	99.8	****
mar	13	2457825.75	12	4	47.24	+2	4	33.2	61.3	15.3	56.2	99.7	1.2
mar	14	2457826.75	12	52	40.06	-2	0	35.8	61.9	15.2	55.6	97.5	2.0
mar	15	2457827.75	13	39	51.16	-5	56	4.4	62.4	15.0	55.2	93.4	2.7
mar	16	2457828.75	14	26	49.95	-9	32	46.9	62.9	14.9	54.7	87.7	3.4
mar	17	2457829.75	15	14	2.67	-12	42	55.7	63.2	14.8	54.4	80.7	4.1
mar	18	2457830.75	16	1	50.50	-15	19	45.2	63.4	14.8	54.2	72.6	4.8
mar	19	2457831.75	16	50	28.13	-17	17	19.3	63.4	14.8	54.2	63.7	5.6
mar	20	2457832.75	17	40	2.60	-18	30	26.0	63.2	14.8	54.3	54.4	6.4
mar	21	2457833.75	18	30	33.13	-18	54	45.0	62.8	14.9	54.6	44.8	7.1
mar	22	2457834.75	19	21	52.25	-18	27	5.1	62.2	15.0	55.1	35.3	7.9
mar	23	2457835.75	20	13	48.56	-17	5	53.5	61.5	15.2	55.7	26.2	8.7
mar	24	2457836.75	21	6	10.71	-14	51	49.1	60.7	15.4	56.5	17.8	9.5
mar	25	2457837.75	21	58	51.66	-11	48	16.7	59.8	15.6	57.3	10.5	10.3
mar	26	2457838.75	22	51	51.79	-8	1	57.9	58.9	15.8	58.1	4.8	11.2
mar	27	2457839.75	23	45	20.09	-3	43	9.6	58.2	16.1	58.9	1.2	12.0
mar	28	2457840.75	0	39	32.78	+0	54	16.2	57.6	16.2	59.5	0.0	12.8
mar	29	2457841.75	1	34	49.45	+5	33	23.3	57.2	16.4	60.0	1.5	13.7
mar	30	2457842.75	2	31	26.81	+9	55	21.2	57.1	16.4	60.2	5.8	14.6
mar	31	2457843.75	3	29	30.92	+13	41	14.4	57.1	16.4	60.2	12.6	15.5
abr	1	2457844.75	4	28	49.75	+16	34	17.9	57.3	16.4	60.0	21.5	16.4
abr	2	2457845.75	5	28	49.91	+18	22	14.7	57.7	16.3	59.7	32.0	17.3

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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
abr	3	2457846.75	6	28	41.00	+18	58	57.7	58.2	16.1	59.2	43.2	18.2
abr	4	2457847.75	7	27	27.92	+18	24	59.6	58.8	16.0	58.6	54.5	19.2
abr	5	2457848.75	8	24	25.45	+16	46	40.9	59.3	15.8	58.1	65.4	20.0
abr	6	2457849.75	9	19	8.32	+14	14	20.2	59.9	15.7	57.5	75.3	20.9
abr	7	2457850.75	10	11	33.14	+11	0	15.6	60.5	15.5	57.0	83.8	21.7
abr	8	2457851.75	11	1	54.18	+7	17	12.8	61.0	15.4	56.5	90.7	22.5
abr	9	2457852.75	11	50	36.81	+3	17	30.3	61.6	15.2	56.0	95.8	23.2
abr	10	2457853.75	12	38	11.55	-0	47	22.8	62.0	15.1	55.5	98.9	23.9
abr	11	2457854.75	13	25	9.60	-4	46	55.5	62.5	15.0	55.1	100.0	****
abr	12	2457855.75	14	11	59.77	-8	31	33.5	62.9	14.9	54.7	99.1	1.4
abr	13	2457856.75	14	59	6.35	-11	52	38.9	63.2	14.8	54.4	96.4	2.1
abr	14	2457857.75	15	46	47.45	-14	42	30.0	63.5	14.8	54.2	92.0	2.8
abr	15	2457858.75	16	35	13.80	-16	54	25.2	63.6	14.7	54.1	86.1	3.6
abr	16	2457859.75	17	24	28.33	-18	22	49.5	63.5	14.7	54.1	78.9	4.3
abr	17	2457860.75	18	14	26.82	-19	3	23.2	63.3	14.8	54.3	70.7	5.1
abr	18	2457861.75	19	5	0.01	-18	53	12.8	62.9	14.9	54.6	61.7	5.9
abr	19	2457862.75	19	55	57.12	-17	51	0.1	62.3	15.0	55.0	52.1	6.6
abr	20	2457863.75	20	47	9.83	-15	57	12.3	61.5	15.2	55.7	42.3	7.4
abr	21	2457864.75	21	38	36.02	-13	14	12.9	60.7	15.4	56.5	32.5	8.2
abr	22	2457865.75	22	30	22.12	-9	46	40.0	59.7	15.6	57.3	23.1	9.0
abr	23	2457866.75	23	22	43.66	-5	41	53.9	58.8	15.9	58.3	14.7	9.8
abr	24	2457867.75	0	16	3.89	-1	10	32.4	57.9	16.1	59.2	7.7	10.7
abr	25	2457868.75	1	10	50.06	+3	33	0.5	57.1	16.4	60.0	2.7	11.5
abr	26	2457869.75	2	7	27.16	+8	10	39.0	56.6	16.5	60.6	0.2	12.4
abr	27	2457870.75	3	6	8.63	+12	21	40.4	56.4	16.6	61.0	0.6	13.3
abr	28	2457871.75	4	6	45.77	+15	45	14.9	56.4	16.6	61.0	4.0	14.2
abr	29	2457872.75	5	8	40.24	+18	3	57.3	56.7	16.6	60.8	10.2	15.2
abr	30	2457873.75	6	10	46.84	+19	7	18.3	57.2	16.4	60.3	18.6	16.2
may	1	2457874.75	7	11	49.38	+18	53	38.0	57.8	16.2	59.6	28.6	17.1
may	2	2457875.75	8	10	43.12	+17	29	22.8	58.6	16.0	58.9	39.5	18.0
may	3	2457876.75	9	6	51.02	+15	6	21.2	59.4	15.8	58.1	50.5	18.9
may	4	2457877.75	10	0	6.96	+11	58	32.5	60.2	15.6	57.3	61.2	19.7
may	5	2457878.75	10	50	49.01	+8	19	46.4	60.9	15.4	56.6	71.1	20.5
may	6	2457879.75	11	39	29.50	+4	22	37.6	61.6	15.3	56.0	79.9	21.3
may	7	2457880.75	12	26	46.57	+0	18	13.5	62.1	15.1	55.5	87.3	22.0
may	8	2457881.75	13	13	18.48	-3	43	28.9	62.6	15.0	55.0	93.1	22.7
may	9	2457882.75	13	59	40.05	-7	33	22.5	63.0	14.9	54.6	97.2	23.4
may	10	2457883.75	14	46	20.19	-11	2	54.7	63.3	14.8	54.3	99.5	****
may	11	2457884.75	15	33	40.04	-14	4	3.3	63.5	14.8	54.1	99.9	0.8
may	12	2457885.75	16	21	51.33	-16	29	25.6	63.7	14.7	54.0	98.5	1.6
may	13	2457886.75	17	10	55.58	-18	12	37.4	63.7	14.7	54.0	95.4	2.3
may	14	2457887.75	18	0	44.76	-19	8	37.9	63.6	14.7	54.0	90.6	3.1
may	15	2457888.75	18	51	4.02	-19	14	12.1	63.3	14.8	54.2	84.4	3.9
may	16	2457889.75	19	41	36.32	-18	28	4.3	62.9	14.9	54.6	76.8	4.6
may	17	2457890.75	20	32	7.92	-16	50	59.3	62.3	15.0	55.0	68.2	5.4
may	18	2457891.75	21	22	33.23	-14	25	33.3	61.6	15.2	55.6	58.8	6.2

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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	19	2457892.75	22	12	57.70	-11	16	4.8	60.8	15.3	56.3	48.7	7.0
may	20	2457893.75	23	3	38.60	-7	28	38.2	59.9	15.6	57.2	38.4	7.7
may	21	2457894.75	23	55	3.76	-3	11	24.1	58.9	15.8	58.1	28.3	8.5
may	22	2457895.75	0	47	48.56	+1	24	40.3	58.0	16.1	59.1	18.8	9.3
may	23	2457896.75	1	42	30.72	+6	5	6.8	57.1	16.3	60.0	10.6	10.2
may	24	2457897.75	2	39	41.94	+10	31	38.8	56.5	16.5	60.7	4.4	11.1
may	25	2457898.75	3	39	35.49	+14	23	4.6	56.1	16.7	61.2	0.8	12.0
may	26	2457899.75	4	41	52.35	+17	18	1.9	56.0	16.7	61.4	0.1	13.0
may	27	2457900.75	5	45	33.38	+18	59	25.4	56.2	16.7	61.2	2.6	14.0
may	28	2457901.75	6	49	8.22	+19	18	54.4	56.7	16.6	60.8	7.9	15.0
may	29	2457902.75	7	51	1.95	+18	18	49.7	57.4	16.4	60.1	15.5	15.9
may	30	2457903.75	8	50	4.92	+16	10	24.6	58.3	16.1	59.2	24.8	16.9
may	31	2457904.75	9	45	47.77	+13	9	33.1	59.2	15.9	58.3	35.0	17.7
jun	1	2457905.75	10	38	18.08	+9	32	47.0	60.1	15.6	57.4	45.6	18.5
jun	2	2457906.75	11	28	7.46	+5	34	53.2	61.0	15.4	56.5	56.1	19.3
jun	3	2457907.75	12	15	58.87	+1	28	12.9	61.8	15.2	55.8	66.0	20.0
jun	4	2457908.75	13	2	37.75	-2	36	58.9	62.4	15.0	55.2	75.1	20.7
jun	5	2457909.75	13	48	46.85	-6	31	53.2	62.9	14.9	54.7	83.0	21.4
jun	6	2457910.75	14	35	3.11	-10	8	28.4	63.3	14.8	54.4	89.6	22.1
jun	7	2457911.75	15	21	55.40	-13	19	5.3	63.6	14.8	54.1	94.7	22.9
jun	8	2457912.75	16	9	42.35	-15	56	21.9	63.7	14.7	54.0	98.1	23.6
jun	9	2457913.75	16	58	30.64	-17	53	27.3	63.7	14.7	54.0	99.8	****
jun	10	2457914.75	17	48	14.47	-19	4	32.1	63.6	14.7	54.0	99.7	1.1
jun	11	2457915.75	18	38	37.39	-19	25	26.6	63.4	14.8	54.1	97.8	1.9
jun	12	2457916.75	19	29	16.87	-18	54	13.3	63.1	14.8	54.4	94.2	2.7
jun	13	2457917.75	20	19	50.96	-17	31	21.3	62.7	14.9	54.7	88.9	3.4
jun	14	2457918.75	21	10	5.03	-15	19	39.3	62.2	15.0	55.1	82.0	4.2
jun	15	2457919.75	21	59	56.43	-12	23	52.2	61.6	15.2	55.7	73.8	5.0
jun	16	2457920.75	22	49	36.40	-8	50	18.4	60.8	15.3	56.3	64.5	5.7
jun	17	2457921.75	23	39	29.40	-4	46	40.9	60.0	15.6	57.1	54.3	6.5
jun	18	2457922.75	0	30	10.68	-0	22	20.6	59.1	15.8	57.9	43.6	7.3
jun	19	2457923.75	1	22	22.38	+4	11	8.0	58.3	16.0	58.8	32.8	8.1
jun	20	2457924.75	2	16	47.52	+8	39	14.3	57.5	16.2	59.6	22.6	8.9
jun	21	2457925.75	3	14	0.34	+12	44	11.3	56.8	16.4	60.4	13.5	9.8
jun	22	2457926.75	4	14	12.38	+16	5	45.8	56.3	16.6	60.9	6.3	10.7
jun	23	2457927.75	5	16	57.42	+18	24	4.7	56.1	16.7	61.2	1.7	11.7
jun	24	2457928.75	6	21	5.05	+19	24	10.8	56.2	16.7	61.2	0.0	12.7
jun	25	2457929.75	7	24	54.37	+19	0	35.3	56.6	16.6	60.9	1.4	13.7
jun	26	2457930.75	8	26	45.92	+17	18	57.1	57.2	16.4	60.3	5.5	14.7
jun	27	2457931.75	9	25	32.87	+14	33	34.5	58.0	16.2	59.5	12.1	15.6
jun	28	2457932.75	10	20	52.86	+11	2	39.0	59.0	15.9	58.5	20.4	16.5
jun	29	2457933.75	11	13	0.64	+7	4	0.8	60.0	15.7	57.6	29.9	17.3
jun	30	2457934.75	12	2	33.20	+2	52	53.7	60.9	15.4	56.7	39.9	18.0
jul	1	2457935.75	12	50	16.77	-1	18	31.7	61.7	15.2	55.9	50.1	18.8
jul	2	2457936.75	13	36	58.46	-5	20	33.3	62.4	15.0	55.2	60.0	19.5
jul	3	2457937.75	14	23	21.50	-9	5	6.1	63.0	14.9	54.7	69.3	20.2

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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	4	2457938.75	15	10	2.33	-12	24	55.7	63.4	14.8	54.3	77.8	20.9
jul	5	2457939.75	15	57	28.16	-15	13	9.3	63.6	14.7	54.1	85.1	21.6
jul	6	2457940.75	16	45	54.70	-17	23	9.3	63.6	14.7	54.0	91.2	22.4
jul	7	2457941.75	17	35	24.43	-18	48	50.7	63.6	14.7	54.0	95.8	23.1
jul	8	2457942.75	18	25	46.58	-19	25	16.9	63.4	14.8	54.2	98.8	23.9
jul	9	2457943.75	19	16	40.00	-19	9	25.3	63.1	14.8	54.4	100.0	****
jul	10	2457944.75	20	7	39.10	-18	0	43.6	62.7	14.9	54.7	99.3	1.5
jul	11	2457945.75	20	58	21.33	-16	1	23.9	62.3	15.0	55.1	96.8	2.2
jul	12	2457946.75	21	48	33.91	-13	16	10.4	61.8	15.1	55.5	92.4	3.0
jul	13	2457947.75	22	38	17.76	-9	51	49.9	61.2	15.3	56.0	86.2	3.8
jul	14	2457948.75	23	27	48.25	-5	56	41.2	60.6	15.4	56.6	78.4	4.5
jul	15	2457949.75	0	17	33.47	-1	40	19.0	59.9	15.6	57.2	69.2	5.3
jul	16	2457950.75	1	8	11.01	+2	46	22.9	59.2	15.8	57.9	58.9	6.1
jul	17	2457951.75	2	0	23.41	+7	10	48.0	58.5	15.9	58.5	47.9	6.9
jul	18	2457952.75	2	54	51.38	+11	18	11.4	57.9	16.1	59.2	36.7	7.7
jul	19	2457953.75	3	52	3.69	+14	51	38.5	57.3	16.3	59.9	25.9	8.6
jul	20	2457954.75	4	52	3.71	+17	33	8.4	56.9	16.4	60.3	16.2	9.5
jul	21	2457955.75	5	54	17.22	+19	6	18.0	56.7	16.5	60.6	8.4	10.5
jul	22	2457956.75	6	57	31.00	+19	20	22.7	56.7	16.5	60.7	2.9	11.5
jul	23	2457957.75	8	0	10.05	+18	13	49.5	56.9	16.5	60.5	0.3	12.5
jul	24	2457958.75	9	0	47.71	+15	55	2.2	57.4	16.4	60.0	0.5	13.4
jul	25	2457959.75	9	58	30.45	+12	39	42.0	58.1	16.2	59.3	3.4	14.3
jul	26	2457960.75	10	53	4.65	+8	46	26.3	59.0	15.9	58.5	8.7	15.2
jul	27	2457961.75	11	44	48.13	+4	33	5.8	59.9	15.7	57.6	15.8	16.0
jul	28	2457962.75	12	34	16.94	+0	14	47.1	60.8	15.5	56.7	24.3	16.7
jul	29	2457963.75	13	22	14.39	-3	56	29.6	61.7	15.2	55.9	33.6	17.4
jul	30	2457964.75	14	9	23.90	-7	51	18.5	62.4	15.1	55.3	43.4	18.2
jul	31	2457965.75	14	56	24.78	-11	21	58.2	62.9	14.9	54.7	53.1	18.9
ago	1	2457966.75	15	43	49.41	-14	21	46.9	63.3	14.8	54.4	62.6	19.6
ago	2	2457967.75	16	32	0.81	-16	44	33.8	63.5	14.8	54.2	71.6	20.3
ago	3	2457968.75	17	21	10.53	-18	24	32.8	63.5	14.8	54.1	79.7	21.1
ago	4	2457969.75	18	11	17.44	-19	16	40.4	63.3	14.8	54.2	86.8	21.9
ago	5	2457970.75	19	2	8.54	-19	17	10.6	63.0	14.8	54.5	92.5	22.7
ago	6	2457971.75	19	53	22.64	-18	24	18.8	62.6	14.9	54.8	96.8	23.4
ago	7	2457972.75	20	44	36.49	-16	38	56.4	62.2	15.0	55.2	99.3	****
ago	8	2457973.75	21	35	31.79	-14	4	45.4	61.6	15.2	55.6	100.0	1.0
ago	9	2457974.75	22	26	0.67	-10	48	8.4	61.1	15.3	56.1	98.6	1.8
ago	10	2457975.75	23	16	8.43	-6	57	41.7	60.6	15.4	56.6	95.1	2.6
ago	11	2457976.75	0	6	13.21	-2	43	45.1	60.0	15.6	57.1	89.5	3.3
ago	12	2457977.75	0	56	43.65	+1	41	59.9	59.5	15.7	57.6	82.1	4.1
ago	13	2457978.75	1	48	14.95	+6	6	41.6	59.0	15.8	58.1	73.0	4.9
ago	14	2457979.75	2	41	23.52	+10	16	16.8	58.6	16.0	58.6	62.6	5.7
ago	15	2457980.75	3	36	39.37	+13	55	37.1	58.1	16.1	59.0	51.3	6.6
ago	16	2457981.75	4	34	16.33	+16	49	2.5	57.8	16.2	59.4	39.9	7.5
ago	17	2457982.75	5	34	1.77	+18	41	50.9	57.5	16.3	59.7	28.8	8.4
ago	18	2457983.75	6	35	11.23	+19	22	48.2	57.4	16.3	59.9	18.9	9.4

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

mes	día	dj	h	α m	α s	δ °	δ `	δ “	dis Rt	sd “	pax “	fas %	hp h
ago	19	2457984.75	7	36	34.93	+18	46	59.8	57.4	16.3	59.9	10.6	10.3
ago	20	2457985.75	8	36	56.59	+16	57	36.4	57.7	16.3	59.7	4.5	11.2
ago	21	2457986.75	9	35	15.82	+14	5	25.4	58.1	16.2	59.3	0.9	12.2
ago	22	2457987.75	10	31	1.73	+10	26	16.7	58.6	16.0	58.8	0.0	13.0
ago	23	2457988.75	11	24	13.27	+6	17	45.7	59.3	15.8	58.1	1.7	13.8
ago	24	2457989.75	12	15	11.14	+1	56	34.5	60.1	15.6	57.4	5.6	14.6
ago	25	2457990.75	13	4	27.99	-2	22	55.2	60.9	15.4	56.6	11.4	15.4
ago	26	2457991.75	13	52	40.62	-6	29	3.3	61.7	15.2	55.9	18.7	16.1
ago	27	2457992.75	14	40	24.75	-10	12	31.7	62.4	15.1	55.2	27.1	16.8
ago	28	2457993.75	15	28	11.67	-13	25	48.7	62.9	14.9	54.8	36.3	17.6
ago	29	2457994.75	16	16	25.81	-16	2	34.8	63.2	14.8	54.4	45.7	18.3
ago	30	2457995.75	17	5	22.82	-17	57	20.3	63.4	14.8	54.2	55.2	19.1
ago	31	2457996.75	17	55	8.26	-19	5	20.9	63.3	14.8	54.3	64.5	19.8
sep	1	2457997.75	18	45	37.65	-19	22	51.0	63.1	14.8	54.4	73.3	20.6
sep	2	2457998.75	19	36	38.36	-18	47	30.7	62.7	14.9	54.7	81.4	21.4
sep	3	2457999.75	20	27	53.61	-17	18	59.5	62.2	15.0	55.2	88.3	22.2
sep	4	2458000.75	21	19	7.86	-14	59	24.0	61.6	15.2	55.7	93.9	23.0
sep	5	2458001.75	22	10	11.87	-11	53	33.9	60.9	15.3	56.3	97.9	23.8
sep	6	2458002.75	23	1	6.14	-8	9	3.4	60.3	15.5	56.9	99.8	****
sep	7	2458003.75	23	52	1.92	-3	55	59.0	59.7	15.7	57.4	99.6	1.3
sep	8	2458004.75	0	43	19.98	+0	33	21.5	59.2	15.8	58.0	97.0	2.1
sep	9	2458005.75	1	35	27.41	+5	4	55.0	58.8	15.9	58.4	92.1	2.9
sep	10	2458006.75	2	28	52.81	+9	23	24.0	58.4	16.0	58.7	85.0	3.7
sep	11	2458007.75	3	23	59.69	+13	12	56.2	58.2	16.1	59.0	76.0	4.6
sep	12	2458008.75	4	20	58.55	+16	17	59.6	58.1	16.1	59.2	65.6	5.5
sep	13	2458009.75	5	19	39.05	+18	24	45.6	58.0	16.1	59.3	54.3	6.4
sep	14	2458010.75	6	19	26.49	+19	22	58.3	58.0	16.1	59.3	42.8	7.3
sep	15	2458011.75	7	19	26.44	+19	7	46.6	58.1	16.1	59.2	31.7	8.2
sep	16	2458012.75	8	18	38.31	+17	40	51.6	58.3	16.1	59.0	21.6	9.2
sep	17	2458013.75	9	16	11.98	+15	10	12.3	58.5	16.0	58.8	13.1	10.1
sep	18	2458014.75	10	11	39.06	+11	48	31.4	58.9	15.9	58.4	6.5	10.9
sep	19	2458015.75	11	4	54.97	+7	51	4.1	59.4	15.8	58.0	2.1	11.7
sep	20	2458016.75	11	56	13.99	+3	33	35.9	60.0	15.7	57.4	0.1	12.5
sep	21	2458017.75	12	46	1.84	-0	49	4.6	60.7	15.5	56.8	0.5	13.3
sep	22	2458018.75	13	34	48.88	-5	3	53.4	61.3	15.3	56.2	3.0	14.0
sep	23	2458019.75	14	23	5.25	-8	59	46.9	62.0	15.2	55.6	7.4	14.8
sep	24	2458020.75	15	11	17.47	-12	27	37.4	62.5	15.0	55.1	13.5	15.5
sep	25	2458021.75	15	59	46.22	-15	19	58.2	63.0	14.9	54.7	20.9	16.3
sep	26	2458022.75	16	48	44.80	-17	30	48.5	63.3	14.8	54.4	29.2	17.0
sep	27	2458023.75	17	38	18.43	-18	55	22.3	63.4	14.8	54.2	38.2	17.8
sep	28	2458024.75	18	28	24.70	-19	30	7.8	63.3	14.8	54.3	47.5	18.5
sep	29	2458025.75	19	18	55.43	-19	12	52.8	63.0	14.8	54.5	57.0	19.3
sep	30	2458026.75	20	9	39.84	-18	2	57.9	62.5	14.9	54.9	66.4	20.1
oct	1	2458027.75	21	0	28.60	-16	1	31.5	61.9	15.1	55.4	75.2	20.9
oct	2	2458028.75	21	51	17.54	-13	11	46.3	61.2	15.3	56.0	83.3	21.7
oct	3	2458029.75	22	42	10.33	-9	39	16.7	60.4	15.5	56.8	90.3	22.4

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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	4	2458030.75	23	33	19.39	-5	32	15.5	59.6	15.7	57.5	95.6	23.2
oct	5	2458031.75	0	25	4.98	-1	1	47.5	58.9	15.9	58.2	99.0	****
oct	6	2458032.75	1	17	52.50	+3	38	10.5	58.3	16.0	58.9	100.0	0.8
oct	7	2458033.75	2	12	7.75	+8	11	10.9	57.8	16.2	59.3	98.4	1.7
oct	8	2458034.75	3	8	10.18	+12	19	12.3	57.6	16.2	59.6	94.1	2.5
oct	9	2458035.75	4	6	4.49	+15	44	13.9	57.5	16.3	59.8	87.4	3.4
oct	10	2458036.75	5	5	33.18	+18	10	27.1	57.6	16.3	59.7	78.7	4.4
oct	11	2458037.75	6	5	54.28	+19	26	37.8	57.8	16.2	59.5	68.4	5.3
oct	12	2458038.75	7	6	8.54	+19	27	57.9	58.1	16.1	59.3	57.2	6.3
oct	13	2458039.75	8	5	15.01	+18	16	38.3	58.5	16.1	58.9	45.9	7.2
oct	14	2458040.75	9	2	27.56	+16	0	49.6	58.9	15.9	58.5	34.9	8.1
oct	15	2458041.75	9	57	24.18	+12	52	40.8	59.3	15.8	58.1	24.8	8.9
oct	16	2458042.75	10	50	6.76	+9	6	12.9	59.8	15.7	57.6	16.0	9.7
oct	17	2458043.75	11	40	54.70	+4	55	45.5	60.3	15.6	57.1	9.0	10.5
oct	18	2458044.75	12	30	17.08	+0	35	1.5	60.9	15.4	56.6	3.9	11.3
oct	19	2458045.75	13	18	46.07	-3	43	18.1	61.4	15.3	56.1	0.9	12.0
oct	20	2458046.75	14	6	52.21	-7	47	45.0	61.9	15.2	55.6	0.0	12.7
oct	21	2458047.75	14	55	1.12	-11	28	9.8	62.4	15.0	55.2	1.2	13.5
oct	22	2458048.75	15	43	31.22	-14	35	47.4	62.9	14.9	54.8	4.2	14.2
oct	23	2458049.75	16	32	32.34	-17	3	22.5	63.2	14.8	54.4	9.0	15.0
oct	24	2458050.75	17	22	5.42	-18	45	16.7	63.5	14.8	54.2	15.2	15.7
oct	25	2458051.75	18	12	3.66	-19	37	34.5	63.5	14.8	54.1	22.6	16.5
oct	26	2458052.75	19	2	15.41	-19	38	6.2	63.4	14.8	54.2	30.9	17.3
oct	27	2458053.75	19	52	28.26	-18	46	25.7	63.1	14.8	54.4	39.9	18.0
oct	28	2458054.75	20	42	33.48	-17	3	45.0	62.6	14.9	54.8	49.4	18.8
oct	29	2458055.75	21	32	29.60	-14	32	48.2	61.9	15.1	55.4	59.1	19.6
oct	30	2458056.75	22	22	24.47	-11	17	53.4	61.1	15.3	56.1	68.7	20.3
oct	31	2458057.75	23	12	35.67	-7	25	7.9	60.2	15.5	56.9	77.9	21.1
nov	1	2458058.75	0	3	29.37	-3	2	57.4	59.2	15.8	57.8	86.0	21.9
nov	2	2458059.75	0	55	37.71	+1	37	15.0	58.4	16.0	58.7	92.8	22.7
nov	3	2458060.75	1	49	34.34	+6	20	37.8	57.6	16.2	59.5	97.6	23.5
nov	4	2458061.75	2	45	47.12	+10	48	54.6	57.1	16.4	60.1	99.9	****
nov	5	2458062.75	3	44	27.80	+14	41	35.0	56.7	16.5	60.5	99.3	1.3
nov	6	2458063.75	4	45	20.58	+17	38	32.2	56.7	16.5	60.7	95.9	2.3
nov	7	2458064.75	5	47	35.80	+19	23	48.1	56.8	16.5	60.5	89.7	3.2
nov	8	2458065.75	6	49	56.76	+19	49	7.0	57.2	16.4	60.2	81.4	4.2
nov	9	2458066.75	7	51	0.85	+18	55	29.8	57.8	16.3	59.7	71.4	5.2
nov	10	2458067.75	8	49	44.52	+16	51	59.0	58.4	16.1	59.0	60.6	6.1
nov	11	2458068.75	9	45	37.65	+13	52	26.8	59.1	15.9	58.4	49.5	6.9
nov	12	2458069.75	10	38	42.83	+10	12	18.2	59.8	15.7	57.7	38.6	7.8
nov	13	2458070.75	11	29	25.59	+6	6	22.0	60.4	15.6	57.0	28.6	8.5
nov	14	2458071.75	12	18	23.26	+1	47	59.9	61.0	15.4	56.5	19.6	9.3
nov	15	2458072.75	13	6	16.35	-2	30	54.8	61.6	15.2	55.9	12.2	10.0
nov	16	2458073.75	13	53	43.01	-6	39	39.0	62.1	15.1	55.5	6.4	10.7
nov	17	2458074.75	14	41	15.33	-10	28	22.7	62.6	15.0	55.0	2.4	11.5
nov	18	2458075.75	15	29	16.68	-13	48	3.7	63.0	14.9	54.7	0.3	12.2

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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	19	2458076.75	16	17	59.64	-16	30	36.9	63.3	14.8	54.4	0.2	13.0
nov	20	2458077.75	17	7	25.09	-18	29	15.3	63.5	14.8	54.2	1.9	13.7
nov	21	2458078.75	17	57	22.94	-19	38	56.9	63.7	14.7	54.0	5.3	14.5
nov	22	2458079.75	18	47	35.44	-19	56	46.2	63.7	14.7	54.0	10.3	15.2
nov	23	2458080.75	19	37	42.57	-19	22	3.0	63.5	14.7	54.1	16.7	16.0
nov	24	2458081.75	20	27	28.20	-17	56	11.9	63.2	14.8	54.3	24.3	16.8
nov	25	2458082.75	21	16	45.25	-15	42	20.7	62.7	14.9	54.7	32.9	17.5
nov	26	2458083.75	22	5	38.58	-12	44	55.5	62.1	15.1	55.2	42.3	18.3
nov	27	2458084.75	22	54	25.57	-9	9	29.0	61.2	15.2	55.9	52.2	19.0
nov	28	2458085.75	23	43	34.88	-5	2	49.4	60.3	15.5	56.8	62.3	19.8
nov	29	2458086.75	0	33	44.24	-0	33	33.4	59.3	15.7	57.7	72.3	20.6
nov	30	2458087.75	1	25	36.91	+4	7	0.5	58.3	16.0	58.7	81.6	21.4
dic	1	2458088.75	2	19	55.97	+8	43	58.5	57.4	16.2	59.6	89.6	22.2
dic	2	2458089.75	3	17	14.55	+12	58	30.9	56.7	16.5	60.5	95.7	23.1
dic	3	2458090.75	4	17	41.57	+16	28	58.6	56.2	16.6	61.0	99.2	****
dic	4	2458091.75	5	20	46.29	+18	54	8.0	56.0	16.7	61.3	99.9	1.0
dic	5	2458092.75	6	25	12.73	+19	58	16.9	56.2	16.7	61.3	97.4	2.0
dic	6	2458093.75	7	29	15.54	+19	35	54.6	56.6	16.6	60.9	92.1	3.0
dic	7	2458094.75	8	31	14.25	+17	53	2.1	57.2	16.4	60.3	84.4	4.0
dic	8	2458095.75	9	30	4.49	+15	4	17.6	58.0	16.2	59.5	75.0	4.9
dic	9	2458096.75	10	25	28.13	+11	27	59.5	58.8	16.0	58.6	64.7	5.8
dic	10	2458097.75	11	17	43.92	+7	21	59.7	59.7	15.7	57.8	53.9	6.6
dic	11	2458098.75	12	7	31.71	+3	1	43.4	60.6	15.5	56.9	43.2	7.3
dic	12	2458099.75	12	55	39.13	-1	20	8.2	61.4	15.3	56.2	33.2	8.1
dic	13	2458100.75	13	42	53.24	-5	33	3.3	62.0	15.1	55.6	24.0	8.8
dic	14	2458101.75	14	29	55.67	-9	27	52.8	62.6	15.0	55.0	16.1	9.5
dic	15	2458102.75	15	17	19.45	-12	56	15.7	63.0	14.9	54.6	9.6	10.2
dic	16	2458103.75	16	5	26.42	-15	50	24.6	63.4	14.8	54.3	4.7	11.0
dic	17	2458104.75	16	54	25.23	-18	3	14.3	63.6	14.7	54.1	1.5	11.7
dic	18	2458105.75	17	44	10.59	-19	28	50.5	63.7	14.7	54.0	0.1	12.5
dic	19	2458106.75	18	34	25.07	-20	3	8.7	63.7	14.7	53.9	0.5	13.3
dic	20	2458107.75	19	24	44.02	-19	44	25.9	63.7	14.7	54.0	2.6	14.0
dic	21	2458108.75	20	14	42.76	-18	33	32.4	63.5	14.7	54.1	6.4	14.8
dic	22	2458109.75	21	4	3.81	-16	33	38.8	63.2	14.8	54.3	11.9	15.6
dic	23	2458110.75	21	52	42.09	-13	49	41.8	62.7	14.9	54.7	18.7	16.3
dic	24	2458111.75	22	40	46.83	-10	27	50.0	62.1	15.0	55.2	26.8	17.0
dic	25	2458112.75	23	28	41.08	-6	35	2.0	61.4	15.2	55.8	36.0	17.8
dic	26	2458113.75	0	16	59.58	-2	19	9.4	60.6	15.4	56.5	46.0	18.5
dic	27	2458114.75	1	6	26.05	+2	10	34.5	59.7	15.6	57.4	56.6	19.3
dic	28	2458115.75	1	57	49.33	+6	42	43.5	58.7	15.9	58.3	67.1	20.1
dic	29	2458116.75	2	51	57.08	+11	2	43.1	57.8	16.2	59.3	77.3	20.9
dic	30	2458117.75	3	49	24.96	+14	52	23.5	57.0	16.4	60.2	86.3	21.8
dic	31	2458118.75	4	50	20.38	+17	50	57.7	56.3	16.6	60.9	93.5	22.7

Mercurio, 2017

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

mes	día	dj	h	α m	s	°	δ `	“	dis UA	hp h
ene	1	2457754.75	18	12	43.72	-20	19	52.56	0.6870	11.5
ene	2	2457755.75	18	8	8.85	-20	15	33.43	0.6966	11.3
ene	3	2457756.75	18	4	12.26	-20	13	2.48	0.7085	11.2
ene	4	2457757.75	18	0	57.37	-20	12	19.86	0.7223	11.1
ene	5	2457758.75	17	58	25.76	-20	13	22.12	0.7377	11.0
ene	6	2457759.75	17	56	37.52	-20	16	2.70	0.7545	10.9
ene	7	2457760.75	17	55	31.57	-20	20	12.51	0.7723	10.8
ene	8	2457761.75	17	55	6.03	-20	25	40.69	0.7910	10.7
ene	9	2457762.75	17	55	18.50	-20	32	15.34	0.8103	10.7
ene	10	2457763.75	17	56	6.29	-20	39	44.12	0.8300	10.6
ene	11	2457764.75	17	57	26.63	-20	47	54.72	0.8500	10.6
ene	12	2457765.75	17	59	16.74	-20	56	35.22	0.8701	10.5
ene	13	2457766.75	18	1	33.95	-21	5	34.36	0.8902	10.5
ene	14	2457767.75	18	4	15.76	-21	14	41.63	0.9102	10.5
ene	15	2457768.75	18	7	19.83	-21	23	47.40	0.9300	10.5
ene	16	2457769.75	18	10	44.02	-21	32	42.91	0.9495	10.5
ene	17	2457770.75	18	14	26.38	-21	41	20.24	0.9688	10.4
ene	18	2457771.75	18	18	25.17	-21	49	32.31	0.9877	10.4
ene	19	2457772.75	18	22	38.78	-21	57	12.77	1.0062	10.5
ene	20	2457773.75	18	27	5.80	-22	4	15.99	1.0243	10.5
ene	21	2457774.75	18	31	44.94	-22	10	36.95	1.0420	10.5
ene	22	2457775.75	18	36	35.05	-22	16	11.20	1.0593	10.5
ene	23	2457776.75	18	41	35.12	-22	20	54.77	1.0761	10.5
ene	24	2457777.75	18	46	44.20	-22	24	44.19	1.0924	10.5
ene	25	2457778.75	18	52	1.48	-22	27	36.32	1.1083	10.5
ene	26	2457779.75	18	57	26.21	-22	29	28.43	1.1237	10.6
ene	27	2457780.75	19	2	57.71	-22	30	18.05	1.1387	10.6
ene	28	2457781.75	19	8	35.38	-22	30	3.02	1.1532	10.6
ene	29	2457782.75	19	14	18.67	-22	28	41.40	1.1672	10.7
ene	30	2457783.75	19	20	7.08	-22	26	11.45	1.1807	10.7
ene	31	2457784.75	19	26	0.18	-22	22	31.64	1.1938	10.7
feb	1	2457785.75	19	31	57.56	-22	17	40.61	1.2065	10.8
feb	2	2457786.75	19	37	58.84	-22	11	37.12	1.2187	10.8
feb	3	2457787.75	19	44	3.71	-22	4	20.08	1.2304	10.8
feb	4	2457788.75	19	50	11.87	-21	55	48.54	1.2417	10.9
feb	5	2457789.75	19	56	23.03	-21	46	1.62	1.2526	10.9
feb	6	2457790.75	20	2	36.96	-21	34	58.56	1.2631	10.9
feb	7	2457791.75	20	8	53.43	-21	22	38.66	1.2731	11.0
feb	8	2457792.75	20	15	12.24	-21	9	1.30	1.2827	11.0
feb	9	2457793.75	20	21	33.21	-20	54	5.94	1.2919	11.1
feb	10	2457794.75	20	27	56.18	-20	37	52.08	1.3006	11.1
feb	11	2457795.75	20	34	21.00	-20	20	19.25	1.3090	11.1
feb	12	2457796.75	20	40	47.55	-20	1	27.06	1.3169	11.2
feb	13	2457797.75	20	47	15.71	-19	41	15.15	1.3244	11.2
feb	14	2457798.75	20	53	45.38	-19	19	43.21	1.3314	11.3
feb	15	2457799.75	21	0	16.49	-18	56	50.96	1.3381	11.3

Mercurio, 2017

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

mes	día	dj	h	α m	s	°	δ `	“	dis UA	hp h
feb	16	2457800.75	21	6	48.97	-18	32	38.18	1.3443	11.3
feb	17	2457801.75	21	13	22.74	-18	7	4.66	1.3500	11.4
feb	18	2457802.75	21	19	57.77	-17	40	10.26	1.3553	11.4
feb	19	2457803.75	21	26	34.02	-17	11	54.86	1.3602	11.5
feb	20	2457804.75	21	33	11.46	-16	42	18.38	1.3646	11.5
feb	21	2457805.75	21	39	50.07	-16	11	20.78	1.3685	11.6
feb	22	2457806.75	21	46	29.86	-15	39	2.08	1.3719	11.6
feb	23	2457807.75	21	53	10.82	-15	5	22.34	1.3748	11.7
feb	24	2457808.75	21	59	52.96	-14	30	21.69	1.3772	11.7
feb	25	2457809.75	22	6	36.29	-13	54	0.33	1.3791	11.8
feb	26	2457810.75	22	13	20.84	-13	16	18.53	1.3804	11.8
feb	27	2457811.75	22	20	6.62	-12	37	16.68	1.3811	11.8
feb	28	2457812.75	22	26	53.68	-11	56	55.26	1.3812	11.9
mar	1	2457813.75	22	33	42.03	-11	15	14.93	1.3807	11.9
mar	2	2457814.75	22	40	31.71	-10	32	16.49	1.3794	12.0
mar	3	2457815.75	22	47	22.72	-9	48	0.96	1.3775	12.0
mar	4	2457816.75	22	54	15.09	-9	2	29.62	1.3748	12.1
mar	5	2457817.75	23	1	8.82	-8	15	44.02	1.3714	12.1
mar	6	2457818.75	23	8	3.87	-7	27	46.09	1.3671	12.2
mar	7	2457819.75	23	15	0.21	-6	38	38.11	1.3619	12.2
mar	8	2457820.75	23	21	57.75	-5	48	22.88	1.3558	12.3
mar	9	2457821.75	23	28	56.38	-4	57	3.79	1.3487	12.3
mar	10	2457822.75	23	35	55.94	-4	4	44.84	1.3407	12.4
mar	11	2457823.75	23	42	56.21	-3	11	30.74	1.3315	12.4
mar	12	2457824.75	23	49	56.91	-2	17	27.03	1.3212	12.5
mar	13	2457825.75	23	56	57.65	-1	22	40.18	1.3098	12.5
mar	14	2457826.75	0	3	58.01	-0	27	17.64	1.2971	12.6
mar	15	2457827.75	0	10	57.40	+0	28	32.04	1.2832	12.6
mar	16	2457828.75	0	17	55.17	+1	24	39.23	1.2681	12.7
mar	17	2457829.75	0	24	50.53	+2	20	53.11	1.2517	12.7
mar	18	2457830.75	0	31	42.56	+3	17	1.80	1.2340	12.8
mar	19	2457831.75	0	38	30.24	+4	12	52.35	1.2150	12.8
mar	20	2457832.75	0	45	12.40	+5	8	10.92	1.1948	12.9
mar	21	2457833.75	0	51	47.79	+6	2	42.97	1.1734	12.9
mar	22	2457834.75	0	58	15.05	+6	56	13.43	1.1509	13.0
mar	23	2457835.75	1	4	32.73	+7	48	27.04	1.1274	13.0
mar	24	2457836.75	1	10	39.36	+8	39	8.61	1.1030	13.0
mar	25	2457837.75	1	16	33.41	+9	28	3.31	1.0778	13.1
mar	26	2457838.75	1	22	13.38	+10	14	56.92	1.0520	13.1
mar	27	2457839.75	1	27	37.78	+10	59	36.08	1.0257	13.1
mar	28	2457840.75	1	32	45.18	+11	41	48.44	0.9991	13.2
mar	29	2457841.75	1	37	34.21	+12	21	22.75	0.9723	13.2
mar	30	2457842.75	1	42	3.60	+12	58	8.89	0.9454	13.2
mar	31	2457843.75	1	46	12.17	+13	31	57.90	0.9188	13.2
abr	1	2457844.75	1	49	58.88	+14	2	41.83	0.8924	13.2
abr	2	2457845.75	1	53	22.77	+14	30	13.76	0.8664	13.2

Mercurio, 2017

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

mes	día	dj	h	α m	s	°	δ `	“	dis UA	hp h
abr	3	2457846.75	1	56	23.06	+14	54	27.62	0.8410	13.2
abr	4	2457847.75	1	58	59.10	+15	15	18.16	0.8162	13.1
abr	5	2457848.75	2	1	10.40	+15	32	40.93	0.7923	13.1
abr	6	2457849.75	2	2	56.64	+15	46	32.23	0.7692	13.1
abr	7	2457850.75	2	4	17.73	+15	56	49.16	0.7471	13.0
abr	8	2457851.75	2	5	13.77	+16	3	29.76	0.7260	13.0
abr	9	2457852.75	2	5	45.10	+16	6	33.15	0.7061	12.9
abr	10	2457853.75	2	5	52.34	+16	5	59.75	0.6874	12.9
abr	11	2457854.75	2	5	36.36	+16	1	51.56	0.6699	12.8
abr	12	2457855.75	2	4	58.35	+15	54	12.44	0.6537	12.7
abr	13	2457856.75	2	3	59.78	+15	43	8.43	0.6389	12.6
abr	14	2457857.75	2	2	42.43	+15	28	48.02	0.6254	12.5
abr	15	2457858.75	2	1	8.36	+15	11	22.41	0.6134	12.4
abr	16	2457859.75	1	59	19.89	+14	51	5.65	0.6028	12.3
abr	17	2457860.75	1	57	19.57	+14	28	14.64	0.5936	12.2
abr	18	2457861.75	1	55	10.10	+14	3	9.01	0.5859	12.1
abr	19	2457862.75	1	52	54.32	+13	36	10.87	0.5796	12.0
abr	20	2457863.75	1	50	35.10	+13	7	44.35	0.5747	11.9
abr	21	2457864.75	1	48	15.30	+12	38	15.02	0.5712	11.8
abr	22	2457865.75	1	45	57.65	+12	8	9.25	0.5691	11.7
abr	23	2457866.75	1	43	44.78	+11	37	53.48	0.5683	11.6
abr	24	2457867.75	1	41	39.08	+11	7	53.48	0.5688	11.5
abr	25	2457868.75	1	39	42.70	+10	38	33.75	0.5705	11.4
abr	26	2457869.75	1	37	57.52	+10	10	16.92	0.5734	11.3
abr	27	2457870.75	1	36	25.13	+9	43	23.31	0.5774	11.2
abr	28	2457871.75	1	35	6.83	+9	18	10.65	0.5824	11.2
abr	29	2457872.75	1	34	3.63	+8	54	53.96	0.5885	11.1
abr	30	2457873.75	1	33	16.30	+8	33	45.46	0.5955	11.0
may	1	2457874.75	1	32	45.35	+8	14	54.71	0.6034	10.9
may	2	2457875.75	1	32	31.08	+7	58	28.78	0.6121	10.8
may	3	2457876.75	1	32	33.63	+7	44	32.41	0.6215	10.8
may	4	2457877.75	1	32	52.95	+7	33	8.36	0.6317	10.7
may	5	2457878.75	1	33	28.90	+7	24	17.60	0.6425	10.7
may	6	2457879.75	1	34	21.23	+7	17	59.62	0.6540	10.6
may	7	2457880.75	1	35	29.60	+7	14	12.66	0.6660	10.6
may	8	2457881.75	1	36	53.62	+7	12	53.96	0.6785	10.5
may	9	2457882.75	1	38	32.88	+7	13	59.96	0.6916	10.5
may	10	2457883.75	1	40	26.93	+7	17	26.50	0.7051	10.5
may	11	2457884.75	1	42	35.33	+7	23	8.95	0.7190	10.4
may	12	2457885.75	1	44	57.62	+7	31	2.37	0.7334	10.4
may	13	2457886.75	1	47	33.38	+7	41	1.59	0.7481	10.4
may	14	2457887.75	1	50	22.18	+7	53	1.30	0.7632	10.4
may	15	2457888.75	1	53	23.63	+8	6	56.15	0.7786	10.3
may	16	2457889.75	1	56	37.39	+8	22	40.75	0.7943	10.3
may	17	2457890.75	2	0	3.12	+8	40	9.73	0.8103	10.3
may	18	2457891.75	2	3	40.52	+8	59	17.79	0.8266	10.3

Mercurio, 2017

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

mes	día	dj	h	α m	s	°	δ '	"	dis UA	hp h
may	19	2457892.75	2	7	29.35	+9	19	59.67	0.8432	10.3
may	20	2457893.75	2	11	29.40	+9	42	10.18	0.8599	10.3
may	21	2457894.75	2	15	40.47	+10	5	44.19	0.8770	10.3
may	22	2457895.75	2	20	2.45	+10	30	36.63	0.8942	10.3
may	23	2457896.75	2	24	35.22	+10	56	42.47	0.9116	10.3
may	24	2457897.75	2	29	18.73	+11	23	56.72	0.9291	10.4
may	25	2457898.75	2	34	12.96	+11	52	14.36	0.9469	10.4
may	26	2457899.75	2	39	17.91	+12	21	30.37	0.9647	10.4
may	27	2457900.75	2	44	33.63	+12	51	39.66	0.9827	10.4
may	28	2457901.75	2	50	0.21	+13	22	37.02	1.0008	10.4
may	29	2457902.75	2	55	37.76	+13	54	17.15	1.0189	10.5
may	30	2457903.75	3	1	26.41	+14	26	34.55	1.0370	10.5
may	31	2457904.75	3	7	26.35	+14	59	23.50	1.0552	10.5
jun	1	2457905.75	3	13	37.76	+15	32	38.03	1.0733	10.6
jun	2	2457906.75	3	20	0.85	+16	6	11.85	1.0913	10.6
jun	3	2457907.75	3	26	35.85	+16	39	58.27	1.1092	10.6
jun	4	2457908.75	3	33	22.95	+17	13	50.19	1.1269	10.7
jun	5	2457909.75	3	40	22.38	+17	47	40.01	1.1444	10.7
jun	6	2457910.75	3	47	34.31	+18	21	19.62	1.1616	10.8
jun	7	2457911.75	3	54	58.90	+18	54	40.29	1.1784	10.9
jun	8	2457912.75	4	2	36.25	+19	27	32.71	1.1947	10.9
jun	9	2457913.75	4	10	26.37	+19	59	46.96	1.2105	11.0
jun	10	2457914.75	4	18	29.22	+20	31	12.49	1.2256	11.1
jun	11	2457915.75	4	26	44.62	+21	1	38.22	1.2400	11.1
jun	12	2457916.75	4	35	12.28	+21	30	52.58	1.2536	11.2
jun	13	2457917.75	4	43	51.75	+21	58	43.64	1.2662	11.3
jun	14	2457918.75	4	52	42.43	+22	24	59.34	1.2779	11.4
jun	15	2457919.75	5	1	43.53	+22	49	27.61	1.2884	11.4
jun	16	2457920.75	5	10	54.11	+23	11	56.73	1.2977	11.5
jun	17	2457921.75	5	20	13.01	+23	32	15.55	1.3057	11.6
jun	18	2457922.75	5	29	38.96	+23	50	13.84	1.3124	11.7
jun	19	2457923.75	5	39	10.50	+24	5	42.54	1.3176	11.8
jun	20	2457924.75	5	48	46.08	+24	18	34.10	1.3215	11.9
jun	21	2457925.75	5	58	24.10	+24	28	42.65	1.3238	12.0
jun	22	2457926.75	6	8	2.88	+24	36	3.96	1.3248	12.1
jun	23	2457927.75	6	17	40.77	+24	40	35.92	1.3243	12.2
jun	24	2457928.75	6	27	16.17	+24	42	18.24	1.3225	12.3
jun	25	2457929.75	6	36	47.57	+24	41	12.34	1.3193	12.4
jun	26	2457930.75	6	46	13.57	+24	37	21.27	1.3149	12.5
jun	27	2457931.75	6	55	32.91	+24	30	49.47	1.3093	12.6
jun	28	2457932.75	7	4	44.49	+24	21	42.59	1.3026	12.6
jun	29	2457933.75	7	13	47.33	+24	10	7.23	1.2949	12.7
jun	30	2457934.75	7	22	40.66	+23	56	10.70	1.2862	12.8
jul	1	2457935.75	7	31	23.82	+23	40	0.80	1.2768	12.9
jul	2	2457936.75	7	39	56.30	+23	21	45.69	1.2666	13.0
jul	3	2457937.75	7	48	17.70	+23	1	33.63	1.2557	13.0

Mercurio, 2017

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

mes	día	dj	h	α m	s	°	δ `	“	dis UA	hp h
jul	4	2457938.75	7	56	27.74	+22	39	32.94	1.2442	13.1
jul	5	2457939.75	8	4	26.23	+22	15	51.83	1.2321	13.2
jul	6	2457940.75	8	12	13.08	+21	50	38.35	1.2197	13.2
jul	7	2457941.75	8	19	48.22	+21	24	0.33	1.2067	13.3
jul	8	2457942.75	8	27	11.69	+20	56	5.33	1.1935	13.4
jul	9	2457943.75	8	34	23.52	+20	27	0.63	1.1799	13.4
jul	10	2457944.75	8	41	23.80	+19	56	53.23	1.1661	13.5
jul	11	2457945.75	8	48	12.63	+19	25	49.82	1.1520	13.5
jul	12	2457946.75	8	54	50.15	+18	53	56.79	1.1378	13.6
jul	13	2457947.75	9	1	16.47	+18	21	20.28	1.1234	13.6
jul	14	2457948.75	9	7	31.73	+17	48	6.16	1.1088	13.6
jul	15	2457949.75	9	13	36.05	+17	14	20.08	1.0941	13.7
jul	16	2457950.75	9	19	29.56	+16	40	7.45	1.0794	13.7
jul	17	2457951.75	9	25	12.37	+16	5	33.51	1.0645	13.7
jul	18	2457952.75	9	30	44.56	+15	30	43.36	1.0496	13.8
jul	19	2457953.75	9	36	6.21	+14	55	41.94	1.0347	13.8
jul	20	2457954.75	9	41	17.38	+14	20	34.10	1.0197	13.8
jul	21	2457955.75	9	46	18.08	+13	45	24.63	1.0047	13.8
jul	22	2457956.75	9	51	8.31	+13	10	18.25	0.9897	13.8
jul	23	2457957.75	9	55	48.04	+12	35	19.66	0.9747	13.8
jul	24	2457958.75	10	0	17.20	+12	0	33.59	0.9597	13.9
jul	25	2457959.75	10	4	35.71	+11	26	4.76	0.9448	13.9
jul	26	2457960.75	10	8	43.43	+10	51	57.97	0.9298	13.9
jul	27	2457961.75	10	12	40.21	+10	18	18.10	0.9149	13.9
jul	28	2457962.75	10	16	25.84	+9	45	10.18	0.9001	13.9
jul	29	2457963.75	10	20	0.09	+9	12	39.36	0.8853	13.9
jul	30	2457964.75	10	23	22.68	+8	40	50.99	0.8705	13.8
jul	31	2457965.75	10	26	33.31	+8	9	50.66	0.8559	13.8
ago	1	2457966.75	10	29	31.61	+7	39	44.18	0.8414	13.8
ago	2	2457967.75	10	32	17.19	+7	10	37.68	0.8270	13.8
ago	3	2457968.75	10	34	49.62	+6	42	37.57	0.8127	13.8
ago	4	2457969.75	10	37	8.40	+6	15	50.64	0.7986	13.7
ago	5	2457970.75	10	39	13.03	+5	50	24.03	0.7846	13.7
ago	6	2457971.75	10	41	2.97	+5	26	25.27	0.7709	13.7
ago	7	2457972.75	10	42	37.64	+5	4	2.27	0.7574	13.6
ago	8	2457973.75	10	43	56.44	+4	43	23.38	0.7441	13.6
ago	9	2457974.75	10	44	58.78	+4	24	37.27	0.7312	13.6
ago	10	2457975.75	10	45	44.05	+4	7	52.99	0.7187	13.5
ago	11	2457976.75	10	46	11.70	+3	53	19.81	0.7065	13.4
ago	12	2457977.75	10	46	21.17	+3	41	7.21	0.6948	13.4
ago	13	2457978.75	10	46	12.03	+3	31	24.66	0.6836	13.3
ago	14	2457979.75	10	45	43.90	+3	24	21.46	0.6730	13.2
ago	15	2457980.75	10	44	56.56	+3	20	6.47	0.6630	13.2
ago	16	2457981.75	10	43	49.99	+3	18	47.83	0.6538	13.1
ago	17	2457982.75	10	42	24.35	+3	20	32.52	0.6454	13.0
ago	18	2457983.75	10	40	40.11	+3	25	25.96	0.6378	12.9

Mercurio, 2017

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

mes	día	dj	h	α m	s	°	δ '	"	dis UA	hp h
ago	19	2457984.75	10	38	38.03	+3	33	31.45	0.6313	12.8
ago	20	2457985.75	10	36	19.27	+3	44	49.72	0.6259	12.7
ago	21	2457986.75	10	33	45.39	+3	59	18.30	0.6216	12.6
ago	22	2457987.75	10	30	58.37	+4	16	51.12	0.6187	12.5
ago	23	2457988.75	10	28	0.66	+4	37	18.07	0.6171	12.3
ago	24	2457989.75	10	24	55.14	+5	0	24.79	0.6171	12.2
ago	25	2457990.75	10	21	45.10	+5	25	52.62	0.6186	12.1
ago	26	2457991.75	10	18	34.19	+5	53	18.87	0.6218	12.0
ago	27	2457992.75	10	15	26.29	+6	22	17.20	0.6268	11.9
ago	28	2457993.75	10	12	25.48	+6	52	18.39	0.6335	11.8
ago	29	2457994.75	10	9	35.84	+7	22	51.16	0.6421	11.6
ago	30	2457995.75	10	7	1.40	+7	53	23.20	0.6525	11.5
ago	31	2457996.75	10	4	45.95	+8	23	22.15	0.6648	11.4
sep	1	2457997.75	10	2	52.99	+8	52	16.53	0.6790	11.3
sep	2	2457998.75	10	1	25.59	+9	19	36.58	0.6949	11.2
sep	3	2457999.75	10	0	26.37	+9	44	54.90	0.7126	11.2
sep	4	2458000.75	9	59	57.40	+10	7	46.85	0.7320	11.1
sep	5	2458001.75	10	0	0.22	+10	27	50.85	0.7530	11.0
sep	6	2458002.75	10	0	35.82	+10	44	48.49	0.7754	11.0
sep	7	2458003.75	10	1	44.66	+10	58	24.51	0.7991	10.9
sep	8	2458004.75	10	3	26.68	+11	8	26.78	0.8240	10.9
sep	9	2458005.75	10	5	41.36	+11	14	46.15	0.8500	10.9
sep	10	2458006.75	10	8	27.73	+11	17	16.43	0.8767	10.8
sep	11	2458007.75	10	11	44.44	+11	15	54.23	0.9042	10.8
sep	12	2458008.75	10	15	29.83	+11	10	38.88	0.9320	10.8
sep	13	2458009.75	10	19	41.94	+11	1	32.37	0.9601	10.8
sep	14	2458010.75	10	24	18.58	+10	48	39.19	0.9883	10.8
sep	15	2458011.75	10	29	17.45	+10	32	6.20	1.0163	10.9
sep	16	2458012.75	10	34	36.11	+10	12	2.39	1.0440	10.9
sep	17	2458013.75	10	40	12.11	+9	48	38.66	1.0711	10.9
sep	18	2458014.75	10	46	3.04	+9	22	7.51	1.0976	10.9
sep	19	2458015.75	10	52	6.55	+8	52	42.63	1.1233	11.0
sep	20	2458016.75	10	58	20.44	+8	20	38.60	1.1481	11.0
sep	21	2458017.75	11	4	42.65	+7	46	10.48	1.1719	11.1
sep	22	2458018.75	11	11	11.33	+7	9	33.46	1.1945	11.1
sep	23	2458019.75	11	17	44.81	+6	31	2.54	1.2160	11.1
sep	24	2458020.75	11	24	21.63	+5	50	52.28	1.2364	11.2
sep	25	2458021.75	11	31	0.56	+5	9	16.59	1.2555	11.2
sep	26	2458022.75	11	37	40.52	+4	26	28.56	1.2735	11.3
sep	27	2458023.75	11	44	20.65	+3	42	40.38	1.2903	11.3
sep	28	2458024.75	11	51	0.24	+2	58	3.27	1.3059	11.4
sep	29	2458025.75	11	57	38.70	+2	12	47.50	1.3204	11.4
sep	30	2458026.75	12	4	15.63	+1	27	2.35	1.3337	11.5
oct	1	2458027.75	12	10	50.67	+0	40	56.22	1.3460	11.5
oct	2	2458028.75	12	17	23.61	-0	5	23.37	1.3572	11.5
oct	3	2458029.75	12	23	54.30	-0	51	49.69	1.3675	11.6

Mercurio, 2017

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

mes	día	dj	h	α m	s	°	δ `	“	dis UA	hp h
oct	4	2458030.75	12	30	22.64	-1	38	16.74	1.3768	11.6
oct	5	2458031.75	12	36	48.63	-2	24	39.19	1.3852	11.7
oct	6	2458032.75	12	43	12.27	-3	10	52.28	1.3927	11.7
oct	7	2458033.75	12	49	33.61	-3	56	51.79	1.3993	11.8
oct	8	2458034.75	12	55	52.75	-4	42	33.95	1.4052	11.8
oct	9	2458035.75	13	2	9.79	-5	27	55.48	1.4102	11.8
oct	10	2458036.75	13	8	24.83	-6	12	53.35	1.4146	11.9
oct	11	2458037.75	13	14	38.02	-6	57	24.79	1.4182	11.9
oct	12	2458038.75	13	20	49.49	-7	41	27.36	1.4211	11.9
oct	13	2458039.75	13	26	59.38	-8	24	58.84	1.4233	12.0
oct	14	2458040.75	13	33	7.84	-9	7	57.21	1.4249	12.0
oct	15	2458041.75	13	39	15.01	-9	50	20.62	1.4258	12.1
oct	16	2458042.75	13	45	21.05	-10	32	7.33	1.4262	12.1
oct	17	2458043.75	13	51	26.10	-11	13	15.76	1.4259	12.1
oct	18	2458044.75	13	57	30.30	-11	53	44.40	1.4251	12.2
oct	19	2458045.75	14	3	33.78	-12	33	31.83	1.4237	12.2
oct	20	2458046.75	14	9	36.67	-13	12	36.70	1.4217	12.2
oct	21	2458047.75	14	15	39.10	-13	50	57.70	1.4192	12.3
oct	22	2458048.75	14	21	41.18	-14	28	33.57	1.4162	12.3
oct	23	2458049.75	14	27	43.02	-15	5	23.06	1.4126	12.3
oct	24	2458050.75	14	33	44.72	-15	41	24.97	1.4085	12.4
oct	25	2458051.75	14	39	46.36	-16	16	38.06	1.4038	12.4
oct	26	2458052.75	14	45	48.03	-16	51	1.15	1.3987	12.4
oct	27	2458053.75	14	51	49.78	-17	24	33.00	1.3930	12.5
oct	28	2458054.75	14	57	51.67	-17	57	12.41	1.3869	12.5
oct	29	2458055.75	15	3	53.73	-18	28	58.13	1.3802	12.5
oct	30	2458056.75	15	9	56.01	-18	59	48.91	1.3729	12.6
oct	31	2458057.75	15	15	58.49	-19	29	43.48	1.3652	12.6
nov	1	2458058.75	15	22	1.18	-19	58	40.55	1.3570	12.6
nov	2	2458059.75	15	28	4.06	-20	26	38.81	1.3482	12.7
nov	3	2458060.75	15	34	7.06	-20	53	36.90	1.3389	12.7
nov	4	2458061.75	15	40	10.14	-21	19	33.48	1.3291	12.8
nov	5	2458062.75	15	46	13.18	-21	44	27.17	1.3187	12.8
nov	6	2458063.75	15	52	16.07	-22	8	16.55	1.3078	12.8
nov	7	2458064.75	15	58	18.66	-22	31	0.18	1.2964	12.9
nov	8	2458065.75	16	4	20.74	-22	52	36.59	1.2844	12.9
nov	9	2458066.75	16	10	22.09	-23	13	4.30	1.2718	12.9
nov	10	2458067.75	16	16	22.43	-23	32	21.77	1.2587	13.0
nov	11	2458068.75	16	22	21.43	-23	50	27.47	1.2450	13.0
nov	12	2458069.75	16	28	18.73	-24	7	19.86	1.2307	13.0
nov	13	2458070.75	16	34	13.87	-24	22	57.41	1.2158	13.1
nov	14	2458071.75	16	40	6.35	-24	37	18.59	1.2003	13.1
nov	15	2458072.75	16	45	55.59	-24	50	21.88	1.1842	13.1
nov	16	2458073.75	16	51	40.90	-25	2	5.82	1.1675	13.2
nov	17	2458074.75	16	57	21.52	-25	12	28.97	1.1502	13.2
nov	18	2458075.75	17	2	56.56	-25	21	29.96	1.1322	13.2

Mercurio, 2017

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

mes	día	dj	h	α m	s	°	δ `	“	dis UA	hp h
nov	19	2458076.75	17	8	25.02	-25	29	7.51	1.1137	13.2
nov	20	2458077.75	17	13	45.75	-25	35	20.41	1.0945	13.3
nov	21	2458078.75	17	18	57.45	-25	40	7.57	1.0748	13.3
nov	22	2458079.75	17	23	58.65	-25	43	28.02	1.0545	13.3
nov	23	2458080.75	17	28	47.66	-25	45	20.94	1.0336	13.3
nov	24	2458081.75	17	33	22.63	-25	45	45.66	1.0122	13.3
nov	25	2458082.75	17	37	41.43	-25	44	41.70	0.9903	13.3
nov	26	2458083.75	17	41	41.70	-25	42	8.72	0.9679	13.3
nov	27	2458084.75	17	45	20.84	-25	38	6.54	0.9452	13.3
nov	28	2458085.75	17	48	35.96	-25	32	35.13	0.9223	13.3
nov	29	2458086.75	17	51	23.94	-25	25	34.55	0.8992	13.3
nov	30	2458087.75	17	53	41.43	-25	17	4.90	0.8760	13.3
dic	1	2458088.75	17	55	24.92	-25	7	6.27	0.8529	13.2
dic	2	2458089.75	17	56	30.85	-24	55	38.67	0.8302	13.2
dic	3	2458090.75	17	56	55.72	-24	42	42.01	0.8080	13.1
dic	4	2458091.75	17	56	36.38	-24	28	16.14	0.7865	13.1
dic	5	2458092.75	17	55	30.23	-24	12	21.01	0.7661	13.0
dic	6	2458093.75	17	53	35.62	-23	54	57.11	0.7470	12.9
dic	7	2458094.75	17	50	52.23	-23	36	6.11	0.7297	12.8
dic	8	2458095.75	17	47	21.50	-23	15	51.94	0.7143	12.6
dic	9	2458096.75	17	43	6.94	-22	54	22.13	0.7013	12.5
dic	10	2458097.75	17	38	14.37	-22	31	49.20	0.6909	12.4
dic	11	2458098.75	17	32	51.89	-22	8	31.92	0.6835	12.2
dic	12	2458099.75	17	27	9.54	-21	44	55.81	0.6791	12.0
dic	13	2458100.75	17	21	18.70	-21	21	32.55	0.6779	11.9
dic	14	2458101.75	17	15	31.25	-20	58	58.16	0.6799	11.7
dic	15	2458102.75	17	9	58.64	-20	37	50.05	0.6851	11.6
dic	16	2458103.75	17	4	51.06	-20	18	43.57	0.6932	11.4
dic	17	2458104.75	17	0	16.82	-20	2	8.77	0.7040	11.3
dic	18	2458105.75	16	56	22.03	-19	48	28.06	0.7173	11.1
dic	19	2458106.75	16	53	10.58	-19	37	55.01	0.7328	11.0
dic	20	2458107.75	16	50	44.32	-19	30	34.42	0.7500	10.9
dic	21	2458108.75	16	49	3.39	-19	26	23.26	0.7687	10.8
dic	22	2458109.75	16	48	6.64	-19	25	12.19	0.7886	10.7
dic	23	2458110.75	16	47	51.99	-19	26	47.29	0.8093	10.7
dic	24	2458111.75	16	48	16.80	-19	30	51.66	0.8307	10.6
dic	25	2458112.75	16	49	18.09	-19	37	6.80	0.8525	10.6
dic	26	2458113.75	16	50	52.79	-19	45	13.77	0.8745	10.5
dic	27	2458114.75	16	52	57.87	-19	54	53.93	0.8966	10.5
dic	28	2458115.75	16	55	30.43	-20	5	49.48	0.9186	10.5
dic	29	2458116.75	16	58	27.76	-20	17	43.81	0.9404	10.4
dic	30	2458117.75	17	1	47.38	-20	30	21.69	0.9619	10.4
dic	31	2458118.75	17	5	27.00	-20	43	29.25	0.9831	10.4
ene	1	2458119.75	17	9	24.61	-20	56	54.06	1.0038	10.4
ene	2	2458120.75	17	13	38.37	-21	10	24.94	1.0241	10.4

Venus, 2017

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

mes	día	dj	h	α m	s	°	δ `	“	dis UA	hp h
ene	1	2457754.75	22	1	47.97	-13	35	19.31	0.7676	15.3
ene	2	2457755.75	22	5	52.20	-13	8	56.82	0.7603	15.3
ene	3	2457756.75	22	9	54.30	-12	42	19.56	0.7529	15.3
ene	4	2457757.75	22	13	54.26	-12	15	28.36	0.7455	15.3
ene	5	2457758.75	22	17	52.06	-11	48	24.09	0.7381	15.3
ene	6	2457759.75	22	21	47.70	-11	21	7.60	0.7308	15.3
ene	7	2457760.75	22	25	41.15	-10	53	39.76	0.7234	15.3
ene	8	2457761.75	22	29	32.40	-10	26	1.42	0.7160	15.3
ene	9	2457762.75	22	33	21.43	-9	58	13.43	0.7086	15.3
ene	10	2457763.75	22	37	8.22	-9	30	16.67	0.7011	15.3
ene	11	2457764.75	22	40	52.76	-9	2	11.99	0.6937	15.3
ene	12	2457765.75	22	44	35.03	-8	34	0.25	0.6863	15.3
ene	13	2457766.75	22	48	15.01	-8	5	42.29	0.6789	15.3
ene	14	2457767.75	22	51	52.68	-7	37	18.94	0.6715	15.3
ene	15	2457768.75	22	55	28.02	-7	8	51.03	0.6641	15.3
ene	16	2457769.75	22	59	1.02	-6	40	19.40	0.6567	15.3
ene	17	2457770.75	23	2	31.64	-6	11	44.86	0.6492	15.2
ene	18	2457771.75	23	5	59.88	-5	43	8.25	0.6418	15.2
ene	19	2457772.75	23	9	25.69	-5	14	30.41	0.6344	15.2
ene	20	2457773.75	23	12	49.04	-4	45	52.19	0.6270	15.2
ene	21	2457774.75	23	16	9.90	-4	17	14.45	0.6196	15.2
ene	22	2457775.75	23	19	28.23	-3	48	38.05	0.6123	15.2
ene	23	2457776.75	23	22	43.98	-3	20	3.87	0.6049	15.2
ene	24	2457777.75	23	25	57.10	-2	51	32.79	0.5975	15.2
ene	25	2457778.75	23	29	7.54	-2	23	5.73	0.5902	15.2
ene	26	2457779.75	23	32	15.23	-1	54	43.58	0.5828	15.2
ene	27	2457780.75	23	35	20.11	-1	26	27.30	0.5755	15.1
ene	28	2457781.75	23	38	22.10	-0	58	17.82	0.5681	15.1
ene	29	2457782.75	23	41	21.13	-0	30	16.11	0.5608	15.1
ene	30	2457783.75	23	44	17.12	-0	2	23.17	0.5535	15.1
ene	31	2457784.75	23	47	9.96	+0	25	20.00	0.5463	15.1
feb	1	2457785.75	23	49	59.57	+0	52	52.37	0.5390	15.1
feb	2	2457786.75	23	52	45.83	+1	20	12.86	0.5318	15.0
feb	3	2457787.75	23	55	28.64	+1	47	20.40	0.5245	15.0
feb	4	2457788.75	23	58	7.88	+2	14	13.86	0.5174	15.0
feb	5	2457789.75	0	0	43.43	+2	40	52.09	0.5102	15.0
feb	6	2457790.75	0	3	15.15	+3	7	13.90	0.5030	14.9
feb	7	2457791.75	0	5	42.91	+3	33	18.08	0.4959	14.9
feb	8	2457792.75	0	8	6.56	+3	59	3.36	0.4889	14.9
feb	9	2457793.75	0	10	25.96	+4	24	28.48	0.4818	14.9
feb	10	2457794.75	0	12	40.96	+4	49	32.10	0.4748	14.8
feb	11	2457795.75	0	14	51.40	+5	14	12.88	0.4679	14.8
feb	12	2457796.75	0	16	57.12	+5	38	29.45	0.4610	14.8
feb	13	2457797.75	0	18	57.96	+6	2	20.36	0.4541	14.7
feb	14	2457798.75	0	20	53.74	+6	25	44.16	0.4473	14.7
feb	15	2457799.75	0	22	44.28	+6	48	39.30	0.4406	14.7

Venus, 2017

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

mes	día	dj	h	α m	s	°	δ `	“	dis UA	hp h
feb	16	2457800.75	0	24	29.41	+7	11	4.18	0.4339	14.6
feb	17	2457801.75	0	26	8.91	+7	32	57.14	0.4273	14.6
feb	18	2457802.75	0	27	42.61	+7	54	16.42	0.4207	14.6
feb	19	2457803.75	0	29	10.28	+8	15	0.20	0.4142	14.5
feb	20	2457804.75	0	30	31.72	+8	35	6.57	0.4078	14.5
feb	21	2457805.75	0	31	46.72	+8	54	33.51	0.4015	14.4
feb	22	2457806.75	0	32	55.05	+9	13	18.94	0.3952	14.4
feb	23	2457807.75	0	33	56.50	+9	31	20.66	0.3891	14.3
feb	24	2457808.75	0	34	50.83	+9	48	36.39	0.3830	14.3
feb	25	2457809.75	0	35	37.83	+10	5	3.73	0.3771	14.2
feb	26	2457810.75	0	36	17.29	+10	20	40.20	0.3712	14.2
feb	27	2457811.75	0	36	48.97	+10	35	23.20	0.3655	14.1
feb	28	2457812.75	0	37	12.68	+10	49	10.03	0.3598	14.1
mar	1	2457813.75	0	37	28.22	+11	1	57.92	0.3543	14.0
mar	2	2457814.75	0	37	35.41	+11	13	44.00	0.3490	13.9
mar	3	2457815.75	0	37	34.08	+11	24	25.32	0.3438	13.9
mar	4	2457816.75	0	37	24.09	+11	33	58.92	0.3387	13.8
mar	5	2457817.75	0	37	5.35	+11	42	21.80	0.3337	13.7
mar	6	2457818.75	0	36	37.78	+11	49	30.98	0.3290	13.7
mar	7	2457819.75	0	36	1.34	+11	55	23.55	0.3244	13.6
mar	8	2457820.75	0	35	16.07	+11	59	56.69	0.3200	13.5
mar	9	2457821.75	0	34	22.03	+12	3	7.78	0.3158	13.4
mar	10	2457822.75	0	33	19.36	+12	4	54.38	0.3118	13.3
mar	11	2457823.75	0	32	8.25	+12	5	14.38	0.3080	13.3
mar	12	2457824.75	0	30	48.98	+12	4	5.97	0.3044	13.2
mar	13	2457825.75	0	29	21.88	+12	1	27.78	0.3010	13.1
mar	14	2457826.75	0	27	47.35	+11	57	18.90	0.2979	13.0
mar	15	2457827.75	0	26	5.86	+11	51	38.95	0.2950	12.9
mar	16	2457828.75	0	24	17.96	+11	44	28.14	0.2924	12.8
mar	17	2457829.75	0	22	24.26	+11	35	47.31	0.2900	12.7
mar	18	2457830.75	0	20	25.43	+11	25	37.99	0.2879	12.6
mar	19	2457831.75	0	18	22.21	+11	14	2.43	0.2860	12.5
mar	20	2457832.75	0	16	15.36	+11	1	3.62	0.2845	12.4
mar	21	2457833.75	0	14	5.73	+10	46	45.31	0.2832	12.3
mar	22	2457834.75	0	11	54.17	+10	31	11.95	0.2822	12.2
mar	23	2457835.75	0	9	41.57	+10	14	28.71	0.2816	12.1
mar	24	2457836.75	0	7	28.82	+9	56	41.43	0.2812	12.0
mar	25	2457837.75	0	5	16.83	+9	37	56.50	0.2811	11.9
mar	26	2457838.75	0	3	6.47	+9	18	20.82	0.2813	11.8
mar	27	2457839.75	0	0	58.62	+8	58	1.69	0.2818	11.7
mar	28	2457840.75	23	58	54.12	+8	37	6.70	0.2825	11.6
mar	29	2457841.75	23	56	53.74	+8	15	43.64	0.2836	11.5
mar	30	2457842.75	23	54	58.25	+7	54	0.38	0.2850	11.4
mar	31	2457843.75	23	53	8.34	+7	32	4.75	0.2867	11.3
abr	1	2457844.75	23	51	24.65	+7	10	4.48	0.2886	11.2
abr	2	2457845.75	23	49	47.74	+6	48	7.11	0.2908	11.1

Venus, 2017

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

mes	día	dj	h	α m	s	°	δ `	“	dis UA	hp h
abr	3	2457846.75	23	48	18.14	+6	26	19.88	0.2933	11.0
abr	4	2457847.75	23	46	56.30	+6	4	49.68	0.2961	10.9
abr	5	2457848.75	23	45	42.59	+5	43	43.01	0.2991	10.8
abr	6	2457849.75	23	44	37.35	+5	23	5.89	0.3024	10.8
abr	7	2457850.75	23	43	40.82	+5	3	3.85	0.3059	10.7
abr	8	2457851.75	23	42	53.20	+4	43	41.89	0.3096	10.6
abr	9	2457852.75	23	42	14.62	+4	25	4.46	0.3136	10.5
abr	10	2457853.75	23	41	45.16	+4	7	15.46	0.3178	10.4
abr	11	2457854.75	23	41	24.85	+3	50	18.25	0.3222	10.4
abr	12	2457855.75	23	41	13.67	+3	34	15.66	0.3268	10.3
abr	13	2457856.75	23	41	11.54	+3	19	10.03	0.3316	10.2
abr	14	2457857.75	23	41	18.36	+3	5	3.21	0.3366	10.2
abr	15	2457858.75	23	41	34.01	+2	51	56.61	0.3418	10.1
abr	16	2457859.75	23	41	58.30	+2	39	51.25	0.3471	10.1
abr	17	2457860.75	23	42	31.06	+2	28	47.75	0.3526	10.0
abr	18	2457861.75	23	43	12.07	+2	18	46.44	0.3583	9.9
abr	19	2457862.75	23	44	1.10	+2	9	47.33	0.3641	9.9
abr	20	2457863.75	23	44	57.93	+2	1	50.19	0.3700	9.8
abr	21	2457864.75	23	46	2.30	+1	54	54.53	0.3761	9.8
abr	22	2457865.75	23	47	13.96	+1	48	59.71	0.3823	9.8
abr	23	2457866.75	23	48	32.66	+1	44	4.88	0.3886	9.7
abr	24	2457867.75	23	49	58.13	+1	40	9.06	0.3950	9.7
abr	25	2457868.75	23	51	30.12	+1	37	11.16	0.4015	9.6
abr	26	2457869.75	23	53	8.37	+1	35	9.97	0.4081	9.6
abr	27	2457870.75	23	54	52.64	+1	34	4.23	0.4148	9.6
abr	28	2457871.75	23	56	42.69	+1	33	52.61	0.4216	9.5
abr	29	2457872.75	23	58	38.27	+1	34	33.73	0.4285	9.5
abr	30	2457873.75	0	0	39.17	+1	36	6.21	0.4355	9.4
may	1	2457874.75	0	2	45.16	+1	38	28.64	0.4425	9.4
may	2	2457875.75	0	4	56.04	+1	41	39.62	0.4496	9.4
may	3	2457876.75	0	7	11.62	+1	45	37.77	0.4568	9.4
may	4	2457877.75	0	9	31.71	+1	50	21.69	0.4641	9.3
may	5	2457878.75	0	11	56.14	+1	55	50.01	0.4714	9.3
may	6	2457879.75	0	14	24.73	+2	2	1.35	0.4788	9.3
may	7	2457880.75	0	16	57.32	+2	8	54.36	0.4862	9.3
may	8	2457881.75	0	19	33.76	+2	16	27.66	0.4937	9.2
may	9	2457882.75	0	22	13.91	+2	24	39.92	0.5012	9.2
may	10	2457883.75	0	24	57.61	+2	33	29.79	0.5088	9.2
may	11	2457884.75	0	27	44.73	+2	42	55.93	0.5164	9.2
may	12	2457885.75	0	30	35.14	+2	52	57.03	0.5240	9.2
may	13	2457886.75	0	33	28.73	+3	3	31.76	0.5317	9.1
may	14	2457887.75	0	36	25.35	+3	14	38.82	0.5395	9.1
may	15	2457888.75	0	39	24.92	+3	26	16.92	0.5472	9.1
may	16	2457889.75	0	42	27.31	+3	38	24.78	0.5550	9.1
may	17	2457890.75	0	45	32.42	+3	51	1.14	0.5629	9.1
may	18	2457891.75	0	48	40.15	+4	4	4.74	0.5707	9.1

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

mes	día	dj	h	α m	s	°	δ `	“	dis UA	hp h
may	19	2457892.75	0	51	50.42	+4	17	34.35	0.5786	9.1
may	20	2457893.75	0	55	3.13	+4	31	28.75	0.5865	9.0
may	21	2457894.75	0	58	18.20	+4	45	46.72	0.5944	9.0
may	22	2457895.75	1	1	35.55	+5	0	27.09	0.6023	9.0
may	23	2457896.75	1	4	55.10	+5	15	28.67	0.6102	9.0
may	24	2457897.75	1	8	16.79	+5	30	50.31	0.6182	9.0
may	25	2457898.75	1	11	40.55	+5	46	30.85	0.6262	9.0
may	26	2457899.75	1	15	6.31	+6	2	29.18	0.6342	9.0
may	27	2457900.75	1	18	34.01	+6	18	44.17	0.6421	9.0
may	28	2457901.75	1	22	3.62	+6	35	14.74	0.6501	9.0
may	29	2457902.75	1	25	35.06	+6	51	59.83	0.6582	9.0
may	30	2457903.75	1	29	8.32	+7	8	58.38	0.6662	9.0
may	31	2457904.75	1	32	43.34	+7	26	9.40	0.6742	8.9
jun	1	2457905.75	1	36	20.11	+7	43	31.88	0.6822	8.9
jun	2	2457906.75	1	39	58.59	+8	1	4.86	0.6903	8.9
jun	3	2457907.75	1	43	38.76	+8	18	47.39	0.6983	8.9
jun	4	2457908.75	1	47	20.60	+8	36	38.52	0.7063	8.9
jun	5	2457909.75	1	51	4.09	+8	54	37.33	0.7144	8.9
jun	6	2457910.75	1	54	49.22	+9	12	42.89	0.7224	8.9
jun	7	2457911.75	1	58	35.97	+9	30	54.27	0.7304	8.9
jun	8	2457912.75	2	2	24.32	+9	49	10.58	0.7385	8.9
jun	9	2457913.75	2	6	14.27	+10	7	30.89	0.7465	8.9
jun	10	2457914.75	2	10	5.79	+10	25	54.32	0.7546	8.9
jun	11	2457915.75	2	13	58.88	+10	44	19.95	0.7626	8.9
jun	12	2457916.75	2	17	53.53	+11	2	46.90	0.7706	8.9
jun	13	2457917.75	2	21	49.72	+11	21	14.27	0.7786	8.9
jun	14	2457918.75	2	25	47.46	+11	39	41.17	0.7866	8.9
jun	15	2457919.75	2	29	46.71	+11	58	6.71	0.7946	8.9
jun	16	2457920.75	2	33	47.49	+12	16	30.03	0.8026	8.9
jun	17	2457921.75	2	37	49.78	+12	34	50.23	0.8106	8.9
jun	18	2457922.75	2	41	53.57	+12	53	6.45	0.8186	8.9
jun	19	2457923.75	2	45	58.86	+13	11	17.82	0.8265	8.9
jun	20	2457924.75	2	50	5.64	+13	29	23.48	0.8344	8.9
jun	21	2457925.75	2	54	13.89	+13	47	22.57	0.8424	8.9
jun	22	2457926.75	2	58	23.62	+14	5	14.25	0.8503	8.9
jun	23	2457927.75	3	2	34.80	+14	22	57.66	0.8582	8.9
jun	24	2457928.75	3	6	47.43	+14	40	31.96	0.8660	8.9
jun	25	2457929.75	3	11	1.50	+14	57	56.30	0.8739	8.9
jun	26	2457930.75	3	15	17.00	+15	15	9.85	0.8817	8.9
jun	27	2457931.75	3	19	33.92	+15	32	11.78	0.8896	9.0
jun	28	2457932.75	3	23	52.25	+15	49	1.29	0.8974	9.0
jun	29	2457933.75	3	28	12.01	+16	5	37.59	0.9052	9.0
jun	30	2457934.75	3	32	33.17	+16	21	59.90	0.9129	9.0
jul	1	2457935.75	3	36	55.75	+16	38	7.45	0.9207	9.0
jul	2	2457936.75	3	41	19.73	+16	53	59.48	0.9284	9.0
jul	3	2457937.75	3	45	45.13	+17	9	35.24	0.9361	9.0

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

mes	día	dj	h	α m	s	°	δ `	“	dis UA	hp h
jul	4	2457938.75	3	50	11.92	+17	24	53.98	0.9438	9.0
jul	5	2457939.75	3	54	40.11	+17	39	54.97	0.9515	9.0
jul	6	2457940.75	3	59	9.70	+17	54	37.48	0.9591	9.0
jul	7	2457941.75	4	3	40.66	+18	9	0.76	0.9668	9.0
jul	8	2457942.75	4	8	13.00	+18	23	4.11	0.9744	9.0
jul	9	2457943.75	4	12	46.71	+18	36	46.80	0.9820	9.1
jul	10	2457944.75	4	17	21.76	+18	50	8.13	0.9895	9.1
jul	11	2457945.75	4	21	58.14	+19	3	7.38	0.9971	9.1
jul	12	2457946.75	4	26	35.85	+19	15	43.88	1.0046	9.1
jul	13	2457947.75	4	31	14.86	+19	27	56.92	1.0121	9.1
jul	14	2457948.75	4	35	55.16	+19	39	45.83	1.0195	9.1
jul	15	2457949.75	4	40	36.72	+19	51	9.94	1.0270	9.1
jul	16	2457950.75	4	45	19.53	+20	2	8.62	1.0344	9.1
jul	17	2457951.75	4	50	3.56	+20	12	41.21	1.0417	9.1
jul	18	2457952.75	4	54	48.78	+20	22	47.09	1.0491	9.2
jul	19	2457953.75	4	59	35.16	+20	32	25.67	1.0564	9.2
jul	20	2457954.75	5	4	22.68	+20	41	36.35	1.0637	9.2
jul	21	2457955.75	5	9	11.29	+20	50	18.55	1.0710	9.2
jul	22	2457956.75	5	14	0.96	+20	58	31.71	1.0782	9.2
jul	23	2457957.75	5	18	51.66	+21	6	15.29	1.0854	9.2
jul	24	2457958.75	5	23	43.33	+21	13	28.74	1.0925	9.2
jul	25	2457959.75	5	28	35.94	+21	20	11.56	1.0997	9.3
jul	26	2457960.75	5	33	29.46	+21	26	23.23	1.1068	9.3
jul	27	2457961.75	5	38	23.85	+21	32	3.31	1.1138	9.3
jul	28	2457962.75	5	43	19.07	+21	37	11.34	1.1209	9.3
jul	29	2457963.75	5	48	15.07	+21	41	46.91	1.1279	9.3
jul	30	2457964.75	5	53	11.84	+21	45	49.62	1.1349	9.3
jul	31	2457965.75	5	58	9.32	+21	49	19.11	1.1418	9.4
ago	1	2457966.75	6	3	7.47	+21	52	15.04	1.1487	9.4
ago	2	2457967.75	6	8	6.25	+21	54	37.07	1.1556	9.4
ago	3	2457968.75	6	13	5.63	+21	56	24.91	1.1624	9.4
ago	4	2457969.75	6	18	5.55	+21	57	38.28	1.1692	9.4
ago	5	2457970.75	6	23	5.97	+21	58	16.92	1.1760	9.4
ago	6	2457971.75	6	28	6.85	+21	58	20.60	1.1827	9.5
ago	7	2457972.75	6	33	8.15	+21	57	49.12	1.1894	9.5
ago	8	2457973.75	6	38	9.81	+21	56	42.27	1.1961	9.5
ago	9	2457974.75	6	43	11.79	+21	54	59.91	1.2028	9.5
ago	10	2457975.75	6	48	14.05	+21	52	41.88	1.2094	9.5
ago	11	2457976.75	6	53	16.53	+21	49	48.09	1.2159	9.6
ago	12	2457977.75	6	58	19.21	+21	46	18.43	1.2224	9.6
ago	13	2457978.75	7	3	22.02	+21	42	12.86	1.2289	9.6
ago	14	2457979.75	7	8	24.93	+21	37	31.35	1.2354	9.6
ago	15	2457980.75	7	13	27.88	+21	32	13.91	1.2418	9.6
ago	16	2457981.75	7	18	30.83	+21	26	20.56	1.2482	9.7
ago	17	2457982.75	7	23	33.73	+21	19	51.36	1.2545	9.7
ago	18	2457983.75	7	28	36.53	+21	12	46.42	1.2608	9.7

Venus, 2017

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

mes	día	dj	h	α m	s	°	δ '	"	dis UA	hp h
ago	19	2457984.75	7	33	39.19	+21	5	5.84	1.2671	9.7
ago	20	2457985.75	7	38	41.65	+20	56	49.76	1.2733	9.7
ago	21	2457986.75	7	43	43.86	+20	47	58.33	1.2795	9.7
ago	22	2457987.75	7	48	45.78	+20	38	31.73	1.2856	9.8
ago	23	2457988.75	7	53	47.38	+20	28	30.15	1.2917	9.8
ago	24	2457989.75	7	58	48.61	+20	17	53.83	1.2977	9.8
ago	25	2457990.75	8	3	49.43	+20	6	43.01	1.3037	9.8
ago	26	2457991.75	8	8	49.82	+19	54	57.98	1.3097	9.8
ago	27	2457992.75	8	13	49.74	+19	42	39.03	1.3156	9.8
ago	28	2457993.75	8	18	49.16	+19	29	46.49	1.3215	9.9
ago	29	2457994.75	8	23	48.06	+19	16	20.70	1.3274	9.9
ago	30	2457995.75	8	28	46.40	+19	2	22.01	1.3332	9.9
ago	31	2457996.75	8	33	44.16	+18	47	50.82	1.3389	9.9
sep	1	2457997.75	8	38	41.32	+18	32	47.52	1.3447	9.9
sep	2	2457998.75	8	43	37.86	+18	17	12.53	1.3503	10.0
sep	3	2457999.75	8	48	33.75	+18	1	6.28	1.3560	10.0
sep	4	2458000.75	8	53	28.99	+17	44	29.20	1.3616	10.0
sep	5	2458001.75	8	58	23.56	+17	27	21.77	1.3671	10.0
sep	6	2458002.75	9	3	17.44	+17	9	44.44	1.3727	10.0
sep	7	2458003.75	9	8	10.63	+16	51	37.71	1.3781	10.0
sep	8	2458004.75	9	13	3.12	+16	33	2.06	1.3836	10.0
sep	9	2458005.75	9	17	54.90	+16	13	58.00	1.3890	10.1
sep	10	2458006.75	9	22	45.97	+15	54	26.07	1.3943	10.1
sep	11	2458007.75	9	27	36.33	+15	34	26.80	1.3996	10.1
sep	12	2458008.75	9	32	25.98	+15	14	0.76	1.4049	10.1
sep	13	2458009.75	9	37	14.90	+14	53	8.52	1.4101	10.1
sep	14	2458010.75	9	42	3.11	+14	31	50.69	1.4152	10.1
sep	15	2458011.75	9	46	50.60	+14	10	7.85	1.4204	10.2
sep	16	2458012.75	9	51	37.37	+13	48	0.64	1.4254	10.2
sep	17	2458013.75	9	56	23.42	+13	25	29.67	1.4305	10.2
sep	18	2458014.75	10	1	8.76	+13	2	35.56	1.4355	10.2
sep	19	2458015.75	10	5	53.39	+12	39	18.95	1.4404	10.2
sep	20	2458016.75	10	10	37.32	+12	15	40.47	1.4453	10.2
sep	21	2458017.75	10	15	20.57	+11	51	40.76	1.4502	10.2
sep	22	2458018.75	10	20	3.14	+11	27	20.48	1.4550	10.2
sep	23	2458019.75	10	24	45.06	+11	2	40.27	1.4597	10.3
sep	24	2458020.75	10	29	26.34	+10	37	40.81	1.4644	10.3
sep	25	2458021.75	10	34	6.99	+10	12	22.76	1.4691	10.3
sep	26	2458022.75	10	38	47.05	+9	46	46.80	1.4737	10.3
sep	27	2458023.75	10	43	26.52	+9	20	53.59	1.4783	10.3
sep	28	2458024.75	10	48	5.43	+8	54	43.82	1.4828	10.3
sep	29	2458025.75	10	52	43.81	+8	28	18.17	1.4873	10.3
sep	30	2458026.75	10	57	21.67	+8	1	37.32	1.4917	10.3
oct	1	2458027.75	11	1	59.06	+7	34	41.96	1.4961	10.4
oct	2	2458028.75	11	6	35.98	+7	7	32.77	1.5005	10.4
oct	3	2458029.75	11	11	12.49	+6	40	10.43	1.5048	10.4

Venus, 2017

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

mes	día	dj	h	α m	s	°	δ `	“	dis UA	hp h
oct	4	2458030.75	11	15	48.60	+6	12	35.64	1.5090	10.4
oct	5	2458031.75	11	20	24.34	+5	44	49.07	1.5132	10.4
oct	6	2458032.75	11	24	59.76	+5	16	51.39	1.5174	10.4
oct	7	2458033.75	11	29	34.89	+4	48	43.31	1.5215	10.4
oct	8	2458034.75	11	34	9.77	+4	20	25.49	1.5256	10.4
oct	9	2458035.75	11	38	44.42	+3	51	58.65	1.5297	10.4
oct	10	2458036.75	11	43	18.89	+3	23	23.48	1.5337	10.5
oct	11	2458037.75	11	47	53.21	+2	54	40.69	1.5376	10.5
oct	12	2458038.75	11	52	27.40	+2	25	51.03	1.5415	10.5
oct	13	2458039.75	11	57	1.52	+1	56	55.21	1.5453	10.5
oct	14	2458040.75	12	1	35.58	+1	27	53.97	1.5491	10.5
oct	15	2458041.75	12	6	9.62	+0	58	48.04	1.5529	10.5
oct	16	2458042.75	12	10	43.68	+0	29	38.16	1.5566	10.5
oct	17	2458043.75	12	15	17.79	+0	0	25.06	1.5603	10.5
oct	18	2458044.75	12	19	51.99	-0	28	50.52	1.5639	10.5
oct	19	2458045.75	12	24	26.31	-0	58	7.84	1.5675	10.5
oct	20	2458046.75	12	29	0.79	-1	27	26.15	1.5710	10.6
oct	21	2458047.75	12	33	35.47	-1	56	44.72	1.5745	10.6
oct	22	2458048.75	12	38	10.38	-2	26	2.79	1.5779	10.6
oct	23	2458049.75	12	42	45.56	-2	55	19.61	1.5813	10.6
oct	24	2458050.75	12	47	21.06	-3	24	34.43	1.5846	10.6
oct	25	2458051.75	12	51	56.89	-3	53	46.48	1.5879	10.6
oct	26	2458052.75	12	56	33.11	-4	22	55.01	1.5911	10.6
oct	27	2458053.75	13	1	9.74	-4	51	59.25	1.5943	10.6
oct	28	2458054.75	13	5	46.83	-5	20	58.45	1.5975	10.6
oct	29	2458055.75	13	10	24.41	-5	49	51.83	1.6006	10.7
oct	30	2458056.75	13	15	2.52	-6	18	38.63	1.6036	10.7
oct	31	2458057.75	13	19	41.20	-6	47	18.08	1.6067	10.7
nov	1	2458058.75	13	24	20.49	-7	15	49.43	1.6096	10.7
nov	2	2458059.75	13	29	0.42	-7	44	11.90	1.6126	10.7
nov	3	2458060.75	13	33	41.04	-8	12	24.75	1.6154	10.7
nov	4	2458061.75	13	38	22.39	-8	40	27.21	1.6183	10.7
nov	5	2458062.75	13	43	4.49	-9	8	18.51	1.6211	10.7
nov	6	2458063.75	13	47	47.40	-9	35	57.91	1.6238	10.8
nov	7	2458064.75	13	52	31.14	-10	3	24.61	1.6265	10.8
nov	8	2458065.75	13	57	15.74	-10	30	37.83	1.6292	10.8
nov	9	2458066.75	14	2	1.25	-10	57	36.78	1.6318	10.8
nov	10	2458067.75	14	6	47.67	-11	24	20.64	1.6344	10.8
nov	11	2458068.75	14	11	35.05	-11	50	48.62	1.6369	10.8
nov	12	2458069.75	14	16	23.41	-12	16	59.90	1.6394	10.8
nov	13	2458070.75	14	21	12.78	-12	42	53.69	1.6419	10.8
nov	14	2458071.75	14	26	3.18	-13	8	29.16	1.6443	10.9
nov	15	2458072.75	14	30	54.64	-13	33	45.52	1.6466	10.9
nov	16	2458073.75	14	35	47.17	-13	58	41.96	1.6489	10.9
nov	17	2458074.75	14	40	40.81	-14	23	17.67	1.6512	10.9
nov	18	2458075.75	14	45	35.56	-14	47	31.84	1.6534	10.9

Venus, 2017

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

mes	día	dj	h	α m	s	°	δ `	“	dis UA	hp h
nov	19	2458076.75	14	50	31.44	-15	11	23.66	1.6556	10.9
nov	20	2458077.75	14	55	28.47	-15	34	52.33	1.6577	11.0
nov	21	2458078.75	15	0	26.65	-15	57	57.03	1.6598	11.0
nov	22	2458079.75	15	5	26.01	-16	20	36.96	1.6618	11.0
nov	23	2458080.75	15	10	26.54	-16	42	51.33	1.6638	11.0
nov	24	2458081.75	15	15	28.26	-17	4	39.33	1.6658	11.0
nov	25	2458082.75	15	20	31.17	-17	26	0.17	1.6677	11.0
nov	26	2458083.75	15	25	35.26	-17	46	53.06	1.6695	11.1
nov	27	2458084.75	15	30	40.56	-18	7	17.22	1.6713	11.1
nov	28	2458085.75	15	35	47.04	-18	27	11.89	1.6731	11.1
nov	29	2458086.75	15	40	54.72	-18	46	36.31	1.6749	11.1
nov	30	2458087.75	15	46	3.59	-19	5	29.72	1.6766	11.1
dic	1	2458088.75	15	51	13.64	-19	23	51.41	1.6782	11.2
dic	2	2458089.75	15	56	24.88	-19	41	40.65	1.6798	11.2
dic	3	2458090.75	16	1	37.28	-19	58	56.74	1.6814	11.2
dic	4	2458091.75	16	6	50.83	-20	15	39.01	1.6829	11.2
dic	5	2458092.75	16	12	5.53	-20	31	46.78	1.6844	11.3
dic	6	2458093.75	16	17	21.34	-20	47	19.37	1.6859	11.3
dic	7	2458094.75	16	22	38.24	-21	2	16.12	1.6873	11.3
dic	8	2458095.75	16	27	56.22	-21	16	36.38	1.6887	11.3
dic	9	2458096.75	16	33	15.24	-21	30	19.53	1.6900	11.3
dic	10	2458097.75	16	38	35.26	-21	43	24.95	1.6913	11.4
dic	11	2458098.75	16	43	56.27	-21	55	52.06	1.6925	11.4
dic	12	2458099.75	16	49	18.22	-22	7	40.29	1.6937	11.4
dic	13	2458100.75	16	54	41.06	-22	18	49.11	1.6949	11.4
dic	14	2458101.75	17	0	4.77	-22	29	17.99	1.6960	11.5
dic	15	2458102.75	17	5	29.29	-22	39	6.46	1.6971	11.5
dic	16	2458103.75	17	10	54.57	-22	48	14.05	1.6982	11.5
dic	17	2458104.75	17	16	20.57	-22	56	40.31	1.6992	11.5
dic	18	2458105.75	17	21	47.23	-23	4	24.86	1.7001	11.6
dic	19	2458106.75	17	27	14.50	-23	11	27.29	1.7010	11.6
dic	20	2458107.75	17	32	42.32	-23	17	47.27	1.7019	11.6
dic	21	2458108.75	17	38	10.62	-23	23	24.46	1.7027	11.6
dic	22	2458109.75	17	43	39.36	-23	28	18.59	1.7035	11.7
dic	23	2458110.75	17	49	8.46	-23	32	29.38	1.7043	11.7
dic	24	2458111.75	17	54	37.87	-23	35	56.62	1.7050	11.7
dic	25	2458112.75	18	0	7.52	-23	38	40.11	1.7057	11.7
dic	26	2458113.75	18	5	37.36	-23	40	39.70	1.7063	11.8
dic	27	2458114.75	18	11	7.31	-23	41	55.26	1.7069	11.8
dic	28	2458115.75	18	16	37.32	-23	42	26.71	1.7074	11.8
dic	29	2458116.75	18	22	7.33	-23	42	14.00	1.7079	11.8
dic	30	2458117.75	18	27	37.27	-23	41	17.13	1.7084	11.9
dic	31	2458118.75	18	33	7.09	-23	39	36.12	1.7088	11.9
ene	1	2458119.75	18	38	36.71	-23	37	11.05	1.7092	11.9
ene	2	2458120.75	18	44	6.09	-23	34	2.02	1.7096	11.9

Marte, 2017

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

mes	día	dj	h	α m	s	°	δ `	“	dis UA	hp h
ene	1	2457754.75	22	46	23.35	-8	44	5.80	1.6422	16.0
ene	2	2457755.75	22	49	11.46	-8	26	0.78	1.6489	16.0
ene	3	2457756.75	22	51	59.30	-8	7	52.12	1.6556	16.0
ene	4	2457757.75	22	54	46.86	-7	49	40.00	1.6622	16.0
ene	5	2457758.75	22	57	34.17	-7	31	24.62	1.6689	16.0
ene	6	2457759.75	23	0	21.21	-7	13	6.16	1.6756	15.9
ene	7	2457760.75	23	3	7.99	-6	54	44.81	1.6823	15.9
ene	8	2457761.75	23	5	54.53	-6	36	20.76	1.6890	15.9
ene	9	2457762.75	23	8	40.82	-6	17	54.20	1.6957	15.9
ene	10	2457763.75	23	11	26.86	-5	59	25.32	1.7025	15.9
ene	11	2457764.75	23	14	12.68	-5	40	54.32	1.7092	15.8
ene	12	2457765.75	23	16	58.26	-5	22	21.37	1.7159	15.8
ene	13	2457766.75	23	19	43.62	-5	3	46.67	1.7226	15.8
ene	14	2457767.75	23	22	28.76	-4	45	10.39	1.7294	15.8
ene	15	2457768.75	23	25	13.69	-4	26	32.69	1.7361	15.8
ene	16	2457769.75	23	27	58.43	-4	7	53.74	1.7428	15.7
ene	17	2457770.75	23	30	42.99	-3	49	13.68	1.7496	15.7
ene	18	2457771.75	23	33	27.36	-3	30	32.69	1.7563	15.7
ene	19	2457772.75	23	36	11.57	-3	11	50.92	1.7631	15.7
ene	20	2457773.75	23	38	55.62	-2	53	8.53	1.7698	15.7
ene	21	2457774.75	23	41	39.53	-2	34	25.69	1.7766	15.6
ene	22	2457775.75	23	44	23.29	-2	15	42.56	1.7834	15.6
ene	23	2457776.75	23	47	6.92	-1	56	59.30	1.7901	15.6
ene	24	2457777.75	23	49	50.43	-1	38	16.09	1.7969	15.6
ene	25	2457778.75	23	52	33.83	-1	19	33.09	1.8036	15.6
ene	26	2457779.75	23	55	17.11	-1	0	50.48	1.8104	15.5
ene	27	2457780.75	23	58	0.28	-0	42	8.43	1.8172	15.5
ene	28	2457781.75	0	0	43.36	-0	23	27.12	1.8239	15.5
ene	29	2457782.75	0	3	26.35	-0	4	46.71	1.8307	15.5
ene	30	2457783.75	0	6	9.25	+0	13	52.62	1.8375	15.5
ene	31	2457784.75	0	8	52.06	+0	32	30.70	1.8442	15.4
feb	1	2457785.75	0	11	34.80	+0	51	7.36	1.8510	15.4
feb	2	2457786.75	0	14	17.47	+1	9	42.44	1.8577	15.4
feb	3	2457787.75	0	17	0.07	+1	28	15.77	1.8645	15.4
feb	4	2457788.75	0	19	42.62	+1	46	47.18	1.8712	15.4
feb	5	2457789.75	0	22	25.11	+2	5	16.51	1.8779	15.3
feb	6	2457790.75	0	25	7.56	+2	23	43.58	1.8847	15.3
feb	7	2457791.75	0	27	49.97	+2	42	8.24	1.8914	15.3
feb	8	2457792.75	0	30	32.34	+3	0	30.31	1.8981	15.3
feb	9	2457793.75	0	33	14.67	+3	18	49.62	1.9048	15.2
feb	10	2457794.75	0	35	56.99	+3	37	6.02	1.9115	15.2
feb	11	2457795.75	0	38	39.28	+3	55	19.34	1.9182	15.2
feb	12	2457796.75	0	41	21.57	+4	13	29.45	1.9249	15.2
feb	13	2457797.75	0	44	3.86	+4	31	36.21	1.9316	15.2
feb	14	2457798.75	0	46	46.17	+4	49	39.48	1.9383	15.1
feb	15	2457799.75	0	49	28.49	+5	7	39.12	1.9450	15.1

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

mes	día	dj	h	α m	s	°	δ `	“	dis UA	hp h
feb	16	2457800.75	0	52	10.85	+5	25	35.00	1.9517	15.1
feb	17	2457801.75	0	54	53.25	+5	43	26.99	1.9584	15.1
feb	18	2457802.75	0	57	35.70	+6	1	14.95	1.9650	15.1
feb	19	2457803.75	1	0	18.20	+6	18	58.74	1.9717	15.0
feb	20	2457804.75	1	3	0.77	+6	36	38.22	1.9783	15.0
feb	21	2457805.75	1	5	43.41	+6	54	13.25	1.9850	15.0
feb	22	2457806.75	1	8	26.13	+7	11	43.68	1.9916	15.0
feb	23	2457807.75	1	11	8.93	+7	29	9.38	1.9982	15.0
feb	24	2457808.75	1	13	51.82	+7	46	30.20	2.0049	14.9
feb	25	2457809.75	1	16	34.80	+8	3	46.00	2.0115	14.9
feb	26	2457810.75	1	19	17.88	+8	20	56.61	2.0180	14.9
feb	27	2457811.75	1	22	1.06	+8	38	1.91	2.0246	14.9
feb	28	2457812.75	1	24	44.36	+8	55	1.75	2.0312	14.9
mar	1	2457813.75	1	27	27.76	+9	11	55.98	2.0377	14.8
mar	2	2457814.75	1	30	11.29	+9	28	44.47	2.0443	14.8
mar	3	2457815.75	1	32	54.93	+9	45	27.07	2.0508	14.8
mar	4	2457816.75	1	35	38.71	+10	2	3.65	2.0573	14.8
mar	5	2457817.75	1	38	22.61	+10	18	34.07	2.0638	14.8
mar	6	2457818.75	1	41	6.64	+10	34	58.18	2.0702	14.7
mar	7	2457819.75	1	43	50.80	+10	51	15.84	2.0767	14.7
mar	8	2457820.75	1	46	35.10	+11	7	26.89	2.0831	14.7
mar	9	2457821.75	1	49	19.54	+11	23	31.20	2.0896	14.7
mar	10	2457822.75	1	52	4.12	+11	39	28.64	2.0960	14.7
mar	11	2457823.75	1	54	48.85	+11	55	19.06	2.1024	14.6
mar	12	2457824.75	1	57	33.73	+12	11	2.35	2.1087	14.6
mar	13	2457825.75	2	0	18.77	+12	26	38.38	2.1151	14.6
mar	14	2457826.75	2	3	3.99	+12	42	7.05	2.1214	14.6
mar	15	2457827.75	2	5	49.37	+12	57	28.24	2.1278	14.6
mar	16	2457828.75	2	8	34.94	+13	12	41.84	2.1341	14.5
mar	17	2457829.75	2	11	20.69	+13	27	47.74	2.1404	14.5
mar	18	2457830.75	2	14	6.63	+13	42	45.83	2.1466	14.5
mar	19	2457831.75	2	16	52.77	+13	57	35.99	2.1529	14.5
mar	20	2457832.75	2	19	39.11	+14	12	18.11	2.1591	14.5
mar	21	2457833.75	2	22	25.64	+14	26	52.09	2.1653	14.4
mar	22	2457834.75	2	25	12.39	+14	41	17.80	2.1715	14.4
mar	23	2457835.75	2	27	59.34	+14	55	35.12	2.1777	14.4
mar	24	2457836.75	2	30	46.50	+15	9	43.94	2.1839	14.4
mar	25	2457837.75	2	33	33.87	+15	23	44.15	2.1900	14.4
mar	26	2457838.75	2	36	21.46	+15	37	35.62	2.1961	14.3
mar	27	2457839.75	2	39	9.26	+15	51	18.24	2.2022	14.3
mar	28	2457840.75	2	41	57.28	+16	4	51.89	2.2082	14.3
mar	29	2457841.75	2	44	45.51	+16	18	16.47	2.2143	14.3
mar	30	2457842.75	2	47	33.96	+16	31	31.88	2.2203	14.3
mar	31	2457843.75	2	50	22.64	+16	44	37.99	2.2263	14.2
abr	1	2457844.75	2	53	11.52	+16	57	34.71	2.2322	14.2
abr	2	2457845.75	2	56	0.62	+17	10	21.92	2.2381	14.2

Marte, 2017

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

mes	día	dj	h	α m	s	°	δ `	“	dis UA	hp h
abr	3	2457846.75	2	58	49.93	+17	22	59.50	2.2440	14.2
abr	4	2457847.75	3	1	39.44	+17	35	27.35	2.2499	14.2
abr	5	2457848.75	3	4	29.16	+17	47	45.34	2.2558	14.2
abr	6	2457849.75	3	7	19.09	+17	59	53.37	2.2616	14.1
abr	7	2457850.75	3	10	9.21	+18	11	51.33	2.2674	14.1
abr	8	2457851.75	3	12	59.54	+18	23	39.12	2.2731	14.1
abr	9	2457852.75	3	15	50.07	+18	35	16.65	2.2789	14.1
abr	10	2457853.75	3	18	40.81	+18	46	43.82	2.2846	14.1
abr	11	2457854.75	3	21	31.75	+18	58	0.55	2.2902	14.0
abr	12	2457855.75	3	24	22.90	+19	9	6.77	2.2959	14.0
abr	13	2457856.75	3	27	14.26	+19	20	2.40	2.3015	14.0
abr	14	2457857.75	3	30	5.82	+19	30	47.35	2.3071	14.0
abr	15	2457858.75	3	32	57.59	+19	41	21.55	2.3127	14.0
abr	16	2457859.75	3	35	49.57	+19	51	44.93	2.3182	14.0
abr	17	2457860.75	3	38	41.75	+20	1	57.40	2.3237	13.9
abr	18	2457861.75	3	41	34.13	+20	11	58.89	2.3292	13.9
abr	19	2457862.75	3	44	26.71	+20	21	49.32	2.3346	13.9
abr	20	2457863.75	3	47	19.48	+20	31	28.62	2.3400	13.9
abr	21	2457864.75	3	50	12.45	+20	40	56.71	2.3454	13.9
abr	22	2457865.75	3	53	5.60	+20	50	13.51	2.3507	13.8
abr	23	2457866.75	3	55	58.94	+20	59	18.95	2.3560	13.8
abr	24	2457867.75	3	58	52.47	+21	8	12.96	2.3613	13.8
abr	25	2457868.75	4	1	46.17	+21	16	55.47	2.3665	13.8
abr	26	2457869.75	4	4	40.05	+21	25	26.40	2.3717	13.8
abr	27	2457870.75	4	7	34.10	+21	33	45.72	2.3769	13.8
abr	28	2457871.75	4	10	28.32	+21	41	53.36	2.3820	13.7
abr	29	2457872.75	4	13	22.69	+21	49	49.26	2.3871	13.7
abr	30	2457873.75	4	16	17.20	+21	57	33.36	2.3922	13.7
may	1	2457874.75	4	19	11.86	+22	5	5.60	2.3972	13.7
may	2	2457875.75	4	22	6.64	+22	12	25.91	2.4022	13.7
may	3	2457876.75	4	25	1.54	+22	19	34.22	2.4071	13.7
may	4	2457877.75	4	27	56.55	+22	26	30.48	2.4120	13.6
may	5	2457878.75	4	30	51.67	+22	33	14.62	2.4169	13.6
may	6	2457879.75	4	33	46.89	+22	39	46.61	2.4217	13.6
may	7	2457880.75	4	36	42.21	+22	46	6.39	2.4265	13.6
may	8	2457881.75	4	39	37.62	+22	52	13.93	2.4312	13.6
may	9	2457882.75	4	42	33.11	+22	58	9.21	2.4359	13.6
may	10	2457883.75	4	45	28.69	+23	3	52.18	2.4406	13.5
may	11	2457884.75	4	48	24.35	+23	9	22.83	2.4452	13.5
may	12	2457885.75	4	51	20.08	+23	14	41.13	2.4498	13.5
may	13	2457886.75	4	54	15.88	+23	19	47.06	2.4543	13.5
may	14	2457887.75	4	57	11.73	+23	24	40.59	2.4588	13.5
may	15	2457888.75	5	0	7.64	+23	29	21.72	2.4633	13.5
may	16	2457889.75	5	3	3.59	+23	33	50.41	2.4677	13.4
may	17	2457890.75	5	5	59.58	+23	38	6.64	2.4721	13.4
may	18	2457891.75	5	8	55.60	+23	42	10.41	2.4765	13.4

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

mes	día	dj	h	α m	s	°	δ `	“	dis UA	hp h
may	19	2457892.75	5	11	51.65	+23	46	1.70	2.4808	13.4
may	20	2457893.75	5	14	47.71	+23	49	40.48	2.4850	13.4
may	21	2457894.75	5	17	43.78	+23	53	6.74	2.4892	13.4
may	22	2457895.75	5	20	39.86	+23	56	20.48	2.4934	13.3
may	23	2457896.75	5	23	35.94	+23	59	21.69	2.4975	13.3
may	24	2457897.75	5	26	32.00	+24	2	10.37	2.5016	13.3
may	25	2457898.75	5	29	28.05	+24	4	46.53	2.5056	13.3
may	26	2457899.75	5	32	24.06	+24	7	10.19	2.5096	13.3
may	27	2457900.75	5	35	20.04	+24	9	21.36	2.5136	13.3
may	28	2457901.75	5	38	15.96	+24	11	20.04	2.5175	13.2
may	29	2457902.75	5	41	11.81	+24	13	6.24	2.5213	13.2
may	30	2457903.75	5	44	7.59	+24	14	39.97	2.5251	13.2
may	31	2457904.75	5	47	3.27	+24	16	1.22	2.5288	13.2
jun	1	2457905.75	5	49	58.86	+24	17	9.99	2.5325	13.2
jun	2	2457906.75	5	52	54.34	+24	18	6.31	2.5362	13.2
jun	3	2457907.75	5	55	49.70	+24	18	50.20	2.5398	13.1
jun	4	2457908.75	5	58	44.94	+24	19	21.66	2.5433	13.1
jun	5	2457909.75	6	1	40.06	+24	19	40.74	2.5468	13.1
jun	6	2457910.75	6	4	35.04	+24	19	47.46	2.5503	13.1
jun	7	2457911.75	6	7	29.87	+24	19	41.87	2.5537	13.1
jun	8	2457912.75	6	10	24.56	+24	19	24.00	2.5571	13.0
jun	9	2457913.75	6	13	19.10	+24	18	53.88	2.5604	13.0
jun	10	2457914.75	6	16	13.47	+24	18	11.57	2.5636	13.0
jun	11	2457915.75	6	19	7.67	+24	17	17.10	2.5669	13.0
jun	12	2457916.75	6	22	1.70	+24	16	10.53	2.5700	13.0
jun	13	2457917.75	6	24	55.54	+24	14	51.88	2.5731	13.0
jun	14	2457918.75	6	27	49.19	+24	13	21.22	2.5762	12.9
jun	15	2457919.75	6	30	42.64	+24	11	38.57	2.5792	12.9
jun	16	2457920.75	6	33	35.88	+24	9	43.99	2.5822	12.9
jun	17	2457921.75	6	36	28.92	+24	7	37.53	2.5851	12.9
jun	18	2457922.75	6	39	21.74	+24	5	19.22	2.5879	12.9
jun	19	2457923.75	6	42	14.34	+24	2	49.13	2.5907	12.9
jun	20	2457924.75	6	45	6.72	+24	0	7.32	2.5935	12.8
jun	21	2457925.75	6	47	58.87	+23	57	13.84	2.5962	12.8
jun	22	2457926.75	6	50	50.77	+23	54	8.77	2.5988	12.8
jun	23	2457927.75	6	53	42.43	+23	50	52.18	2.6014	12.8
jun	24	2457928.75	6	56	33.83	+23	47	24.16	2.6040	12.8
jun	25	2457929.75	6	59	24.96	+23	43	44.78	2.6064	12.7
jun	26	2457930.75	7	2	15.82	+23	39	54.10	2.6089	12.7
jun	27	2457931.75	7	5	6.38	+23	35	52.18	2.6112	12.7
jun	28	2457932.75	7	7	56.65	+23	31	39.10	2.6135	12.7
jun	29	2457933.75	7	10	46.62	+23	27	14.92	2.6158	12.7
jun	30	2457934.75	7	13	36.27	+23	22	39.69	2.6180	12.7
jul	1	2457935.75	7	16	25.62	+23	17	53.50	2.6201	12.6
jul	2	2457936.75	7	19	14.65	+23	12	56.42	2.6222	12.6
jul	3	2457937.75	7	22	3.35	+23	7	48.54	2.6242	12.6

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

mes	día	dj	h	α m	s	°	δ `	“	dis UA	hp h
jul	4	2457938.75	7	24	51.74	+23	2	29.94	2.6262	12.6
jul	5	2457939.75	7	27	39.79	+22	57	0.70	2.6281	12.6
jul	6	2457940.75	7	30	27.52	+22	51	20.90	2.6300	12.5
jul	7	2457941.75	7	33	14.91	+22	45	30.65	2.6318	12.5
jul	8	2457942.75	7	36	1.96	+22	39	30.01	2.6335	12.5
jul	9	2457943.75	7	38	48.67	+22	33	19.10	2.6352	12.5
jul	10	2457944.75	7	41	35.04	+22	26	57.97	2.6368	12.5
jul	11	2457945.75	7	44	21.05	+22	20	26.74	2.6384	12.4
jul	12	2457946.75	7	47	6.72	+22	13	45.47	2.6399	12.4
jul	13	2457947.75	7	49	52.04	+22	6	54.26	2.6414	12.4
jul	14	2457948.75	7	52	37.00	+21	59	53.18	2.6428	12.4
jul	15	2457949.75	7	55	21.61	+21	52	42.32	2.6441	12.4
jul	16	2457950.75	7	58	5.87	+21	45	21.77	2.6454	12.3
jul	17	2457951.75	8	0	49.77	+21	37	51.61	2.6467	12.3
jul	18	2457952.75	8	3	33.32	+21	30	11.94	2.6478	12.3
jul	19	2457953.75	8	6	16.51	+21	22	22.86	2.6489	12.3
jul	20	2457954.75	8	8	59.34	+21	14	24.48	2.6500	12.3
jul	21	2457955.75	8	11	41.81	+21	6	16.90	2.6509	12.2
jul	22	2457956.75	8	14	23.92	+20	58	0.24	2.6519	12.2
jul	23	2457957.75	8	17	5.66	+20	49	34.62	2.6527	12.2
jul	24	2457958.75	8	19	47.01	+20	41	0.12	2.6535	12.2
jul	25	2457959.75	8	22	27.99	+20	32	16.86	2.6543	12.2
jul	26	2457960.75	8	25	8.57	+20	23	24.91	2.6549	12.1
jul	27	2457961.75	8	27	48.78	+20	14	24.34	2.6555	12.1
jul	28	2457962.75	8	30	28.59	+20	5	15.24	2.6561	12.1
jul	29	2457963.75	8	33	8.03	+19	55	57.70	2.6565	12.1
jul	30	2457964.75	8	35	47.08	+19	46	31.86	2.6570	12.1
jul	31	2457965.75	8	38	25.75	+19	36	57.83	2.6573	12.0
ago	1	2457966.75	8	41	4.04	+19	27	15.71	2.6576	12.0
ago	2	2457967.75	8	43	41.94	+19	17	25.61	2.6578	12.0
ago	3	2457968.75	8	46	19.47	+19	7	27.63	2.6580	12.0
ago	4	2457969.75	8	48	56.62	+18	57	21.88	2.6581	11.9
ago	5	2457970.75	8	51	33.39	+18	47	8.44	2.6582	11.9
ago	6	2457971.75	8	54	9.79	+18	36	47.44	2.6581	11.9
ago	7	2457972.75	8	56	45.81	+18	26	18.96	2.6581	11.9
ago	8	2457973.75	8	59	21.45	+18	15	43.10	2.6579	11.9
ago	9	2457974.75	9	1	56.73	+18	4	59.96	2.6577	11.8
ago	10	2457975.75	9	4	31.64	+17	54	9.63	2.6574	11.8
ago	11	2457976.75	9	7	6.19	+17	43	12.20	2.6571	11.8
ago	12	2457977.75	9	9	40.38	+17	32	7.76	2.6567	11.8
ago	13	2457978.75	9	12	14.22	+17	20	56.41	2.6563	11.7
ago	14	2457979.75	9	14	47.71	+17	9	38.24	2.6557	11.7
ago	15	2457980.75	9	17	20.86	+16	58	13.35	2.6551	11.7
ago	16	2457981.75	9	19	53.67	+16	46	41.85	2.6545	11.7
ago	17	2457982.75	9	22	26.13	+16	35	3.84	2.6538	11.7
ago	18	2457983.75	9	24	58.26	+16	23	19.46	2.6530	11.6

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

mes	día	dj	h	α m	s	°	δ `	“	dis UA	hp h
ago	19	2457984.75	9	27	30.04	+16	11	28.80	2.6521	11.6
ago	20	2457985.75	9	30	1.49	+15	59	31.98	2.6512	11.6
ago	21	2457986.75	9	32	32.59	+15	47	29.11	2.6502	11.6
ago	22	2457987.75	9	35	3.36	+15	35	20.30	2.6492	11.5
ago	23	2457988.75	9	37	33.79	+15	23	5.63	2.6481	11.5
ago	24	2457989.75	9	40	3.88	+15	10	45.21	2.6469	11.5
ago	25	2457990.75	9	42	33.64	+14	58	19.13	2.6456	11.5
ago	26	2457991.75	9	45	3.08	+14	45	47.51	2.6443	11.4
ago	27	2457992.75	9	47	32.19	+14	33	10.43	2.6429	11.4
ago	28	2457993.75	9	50	0.98	+14	20	28.01	2.6415	11.4
ago	29	2457994.75	9	52	29.46	+14	7	40.34	2.6399	11.4
ago	30	2457995.75	9	54	57.63	+13	54	47.54	2.6383	11.3
ago	31	2457996.75	9	57	25.48	+13	41	49.70	2.6367	11.3
sep	1	2457997.75	9	59	53.04	+13	28	46.92	2.6350	11.3
sep	2	2457998.75	10	2	20.29	+13	15	39.31	2.6332	11.3
sep	3	2457999.75	10	4	47.25	+13	2	26.97	2.6313	11.2
sep	4	2458000.75	10	7	13.92	+12	49	9.99	2.6294	11.2
sep	5	2458001.75	10	9	40.31	+12	35	48.46	2.6274	11.2
sep	6	2458002.75	10	12	6.41	+12	22	22.47	2.6254	11.2
sep	7	2458003.75	10	14	32.25	+12	8	52.12	2.6233	11.1
sep	8	2458004.75	10	16	57.81	+11	55	17.47	2.6211	11.1
sep	9	2458005.75	10	19	23.13	+11	41	38.62	2.6189	11.1
sep	10	2458006.75	10	21	48.19	+11	27	55.65	2.6165	11.1
sep	11	2458007.75	10	24	13.01	+11	14	8.66	2.6142	11.0
sep	12	2458008.75	10	26	37.59	+11	0	17.73	2.6117	11.0
sep	13	2458009.75	10	29	1.94	+10	46	22.96	2.6092	11.0
sep	14	2458010.75	10	31	26.06	+10	32	24.47	2.6066	11.0
sep	15	2458011.75	10	33	49.95	+10	18	22.36	2.6040	10.9
sep	16	2458012.75	10	36	13.62	+10	4	16.74	2.6013	10.9
sep	17	2458013.75	10	38	37.08	+9	50	7.71	2.5985	10.9
sep	18	2458014.75	10	41	0.31	+9	35	55.38	2.5957	10.9
sep	19	2458015.75	10	43	23.32	+9	21	39.84	2.5927	10.8
sep	20	2458016.75	10	45	46.13	+9	7	21.19	2.5897	10.8
sep	21	2458017.75	10	48	8.73	+8	52	59.53	2.5867	10.8
sep	22	2458018.75	10	50	31.13	+8	38	34.94	2.5836	10.8
sep	23	2458019.75	10	52	53.34	+8	24	7.52	2.5804	10.7
sep	24	2458020.75	10	55	15.35	+8	9	37.38	2.5771	10.7
sep	25	2458021.75	10	57	37.18	+7	55	4.61	2.5738	10.7
sep	26	2458022.75	10	59	58.83	+7	40	29.32	2.5704	10.6
sep	27	2458023.75	11	2	20.30	+7	25	51.59	2.5669	10.6
sep	28	2458024.75	11	4	41.60	+7	11	11.52	2.5634	10.6
sep	29	2458025.75	11	7	2.73	+6	56	29.22	2.5598	10.6
sep	30	2458026.75	11	9	23.71	+6	41	44.79	2.5562	10.5
oct	1	2458027.75	11	11	44.52	+6	26	58.30	2.5524	10.5
oct	2	2458028.75	11	14	5.19	+6	12	9.85	2.5486	10.5
oct	3	2458029.75	11	16	25.72	+5	57	19.54	2.5448	10.5

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

mes	día	dj	h	α m	s	°	δ `	“	dis UA	hp h
oct	4	2458030.75	11	18	46.11	+5	42	27.44	2.5409	10.4
oct	5	2458031.75	11	21	6.37	+5	27	33.63	2.5369	10.4
oct	6	2458032.75	11	23	26.51	+5	12	38.18	2.5328	10.4
oct	7	2458033.75	11	25	46.54	+4	57	41.18	2.5287	10.4
oct	8	2458034.75	11	28	6.47	+4	42	42.70	2.5245	10.3
oct	9	2458035.75	11	30	26.31	+4	27	42.81	2.5203	10.3
oct	10	2458036.75	11	32	46.06	+4	12	41.62	2.5160	10.3
oct	11	2458037.75	11	35	5.72	+3	57	39.21	2.5116	10.2
oct	12	2458038.75	11	37	25.31	+3	42	35.69	2.5072	10.2
oct	13	2458039.75	11	39	44.82	+3	27	31.16	2.5027	10.2
oct	14	2458040.75	11	42	4.25	+3	12	25.72	2.4981	10.2
oct	15	2458041.75	11	44	23.62	+2	57	19.47	2.4934	10.1
oct	16	2458042.75	11	46	42.92	+2	42	12.51	2.4887	10.1
oct	17	2458043.75	11	49	2.16	+2	27	4.93	2.4840	10.1
oct	18	2458044.75	11	51	21.35	+2	11	56.83	2.4791	10.1
oct	19	2458045.75	11	53	40.48	+1	56	48.29	2.4742	10.0
oct	20	2458046.75	11	55	59.57	+1	41	39.41	2.4692	10.0
oct	21	2458047.75	11	58	18.62	+1	26	30.29	2.4642	10.0
oct	22	2458048.75	12	0	37.64	+1	11	21.02	2.4591	10.0
oct	23	2458049.75	12	2	56.62	+0	56	11.71	2.4540	9.9
oct	24	2458050.75	12	5	15.57	+0	41	2.44	2.4487	9.9
oct	25	2458051.75	12	7	34.50	+0	25	53.31	2.4434	9.9
oct	26	2458052.75	12	9	53.41	+0	10	44.43	2.4381	9.8
oct	27	2458053.75	12	12	12.31	-0	4	24.11	2.4327	9.8
oct	28	2458054.75	12	14	31.19	-0	19	32.23	2.4272	9.8
oct	29	2458055.75	12	16	50.08	-0	34	39.81	2.4216	9.8
oct	30	2458056.75	12	19	8.96	-0	49	46.78	2.4160	9.7
oct	31	2458057.75	12	21	27.85	-1	4	53.05	2.4104	9.7
nov	1	2458058.75	12	23	46.76	-1	19	58.54	2.4047	9.7
nov	2	2458059.75	12	26	5.70	-1	35	3.16	2.3989	9.7
nov	3	2458060.75	12	28	24.66	-1	50	6.85	2.3930	9.6
nov	4	2458061.75	12	30	43.67	-2	5	9.54	2.3871	9.6
nov	5	2458062.75	12	33	2.72	-2	20	11.15	2.3812	9.6
nov	6	2458063.75	12	35	21.83	-2	35	11.61	2.3752	9.5
nov	7	2458064.75	12	37	41.00	-2	50	10.82	2.3691	9.5
nov	8	2458065.75	12	40	0.23	-3	5	8.70	2.3630	9.5
nov	9	2458066.75	12	42	19.53	-3	20	5.13	2.3568	9.5
nov	10	2458067.75	12	44	38.91	-3	35	0.03	2.3505	9.4
nov	11	2458068.75	12	46	58.36	-3	49	53.29	2.3442	9.4
nov	12	2458069.75	12	49	17.88	-4	4	44.81	2.3378	9.4
nov	13	2458070.75	12	51	37.49	-4	19	34.50	2.3314	9.4
nov	14	2458071.75	12	53	57.18	-4	34	22.26	2.3249	9.3
nov	15	2458072.75	12	56	16.97	-4	49	8.01	2.3183	9.3
nov	16	2458073.75	12	58	36.84	-5	3	51.64	2.3117	9.3
nov	17	2458074.75	13	0	56.82	-5	18	33.05	2.3051	9.2
nov	18	2458075.75	13	3	16.89	-5	33	12.17	2.2983	9.2

Marte, 2017

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

mes	día	dj	h	α m	s	°	δ `	“	dis UA	hp h
nov	19	2458076.75	13	5	37.07	-5	47	48.87	2.2916	9.2
nov	20	2458077.75	13	7	57.36	-6	2	23.08	2.2847	9.2
nov	21	2458078.75	13	10	17.75	-6	16	54.67	2.2778	9.1
nov	22	2458079.75	13	12	38.26	-6	31	23.57	2.2709	9.1
nov	23	2458080.75	13	14	58.88	-6	45	49.66	2.2639	9.1
nov	24	2458081.75	13	17	19.62	-7	0	12.85	2.2568	9.1
nov	25	2458082.75	13	19	40.49	-7	14	33.04	2.2497	9.0
nov	26	2458083.75	13	22	1.47	-7	28	50.14	2.2426	9.0
nov	27	2458084.75	13	24	22.59	-7	43	4.06	2.2353	9.0
nov	28	2458085.75	13	26	43.85	-7	57	14.70	2.2281	9.0
nov	29	2458086.75	13	29	5.24	-8	11	21.98	2.2208	8.9
nov	30	2458087.75	13	31	26.78	-8	25	25.83	2.2134	8.9
dic	1	2458088.75	13	33	48.48	-8	39	26.16	2.2060	8.9
dic	2	2458089.75	13	36	10.34	-8	53	22.92	2.1985	8.8
dic	3	2458090.75	13	38	32.36	-9	7	16.03	2.1910	8.8
dic	4	2458091.75	13	40	54.56	-9	21	5.41	2.1834	8.8
dic	5	2458092.75	13	43	16.94	-9	34	50.98	2.1758	8.8
dic	6	2458093.75	13	45	39.49	-9	48	32.64	2.1682	8.7
dic	7	2458094.75	13	48	2.23	-10	2	10.31	2.1605	8.7
dic	8	2458095.75	13	50	25.15	-10	15	43.86	2.1527	8.7
dic	9	2458096.75	13	52	48.25	-10	29	13.22	2.1449	8.7
dic	10	2458097.75	13	55	11.53	-10	42	38.29	2.1371	8.6
dic	11	2458098.75	13	57	35.01	-10	55	58.96	2.1292	8.6
dic	12	2458099.75	13	59	58.68	-11	9	15.15	2.1212	8.6
dic	13	2458100.75	14	2	22.54	-11	22	26.77	2.1132	8.6
dic	14	2458101.75	14	4	46.59	-11	35	33.72	2.1052	8.5
dic	15	2458102.75	14	7	10.84	-11	48	35.91	2.0971	8.5
dic	16	2458103.75	14	9	35.28	-12	1	33.25	2.0890	8.5
dic	17	2458104.75	14	11	59.92	-12	14	25.63	2.0808	8.5
dic	18	2458105.75	14	14	24.75	-12	27	12.97	2.0726	8.4
dic	19	2458106.75	14	16	49.78	-12	39	55.15	2.0644	8.4
dic	20	2458107.75	14	19	15.00	-12	52	32.10	2.0561	8.4
dic	21	2458108.75	14	21	40.41	-13	5	3.70	2.0477	8.4
dic	22	2458109.75	14	24	6.02	-13	17	29.86	2.0393	8.3
dic	23	2458110.75	14	26	31.82	-13	29	50.50	2.0309	8.3
dic	24	2458111.75	14	28	57.82	-13	42	5.51	2.0225	8.3
dic	25	2458112.75	14	31	24.02	-13	54	14.81	2.0140	8.3
dic	26	2458113.75	14	33	50.42	-14	6	18.31	2.0054	8.2
dic	27	2458114.75	14	36	17.01	-14	18	15.94	1.9969	8.2
dic	28	2458115.75	14	38	43.82	-14	30	7.62	1.9883	8.2
dic	29	2458116.75	14	41	10.83	-14	41	53.29	1.9796	8.2
dic	30	2458117.75	14	43	38.06	-14	53	32.88	1.9710	8.1
dic	31	2458118.75	14	46	5.50	-15	5	6.32	1.9623	8.1
ene	1	2458119.75	14	48	33.17	-15	16	33.56	1.9535	8.1
ene	2	2458120.75	14	51	1.05	-15	27	54.52	1.9447	8.1

Júpiter, 2017

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

mes	día	dj	h	α m	s	°	δ `	“	dis UA	hp h
ene	1	2457754.75	13	20	11.43	-7	4	8.25	5.5428	6.6
ene	2	2457755.75	13	20	35.02	-7	6	15.40	5.5269	6.5
ene	3	2457756.75	13	20	58.05	-7	8	18.95	5.5109	6.5
ene	4	2457757.75	13	21	20.51	-7	10	18.87	5.4949	6.4
ene	5	2457758.75	13	21	42.40	-7	12	15.13	5.4788	6.4
ene	6	2457759.75	13	22	3.71	-7	14	7.71	5.4627	6.3
ene	7	2457760.75	13	22	24.43	-7	15	56.61	5.4466	6.2
ene	8	2457761.75	13	22	44.56	-7	17	41.80	5.4305	6.2
ene	9	2457762.75	13	23	4.10	-7	19	23.28	5.4144	6.1
ene	10	2457763.75	13	23	23.04	-7	21	1.01	5.3982	6.1
ene	11	2457764.75	13	23	41.38	-7	22	34.97	5.3820	6.0
ene	12	2457765.75	13	23	59.10	-7	24	5.13	5.3659	5.9
ene	13	2457766.75	13	24	16.20	-7	25	31.45	5.3497	5.9
ene	14	2457767.75	13	24	32.67	-7	26	53.90	5.3336	5.8
ene	15	2457768.75	13	24	48.51	-7	28	12.45	5.3174	5.8
ene	16	2457769.75	13	25	3.71	-7	29	27.07	5.3013	5.7
ene	17	2457770.75	13	25	18.27	-7	30	37.75	5.2851	5.6
ene	18	2457771.75	13	25	32.17	-7	31	44.46	5.2690	5.6
ene	19	2457772.75	13	25	45.42	-7	32	47.18	5.2530	5.5
ene	20	2457773.75	13	25	58.01	-7	33	45.90	5.2369	5.4
ene	21	2457774.75	13	26	9.94	-7	34	40.59	5.2209	5.4
ene	22	2457775.75	13	26	21.19	-7	35	31.24	5.2049	5.3
ene	23	2457776.75	13	26	31.77	-7	36	17.84	5.1890	5.3
ene	24	2457777.75	13	26	41.67	-7	37	0.35	5.1731	5.2
ene	25	2457778.75	13	26	50.88	-7	37	38.75	5.1573	5.1
ene	26	2457779.75	13	26	59.40	-7	38	13.04	5.1415	5.1
ene	27	2457780.75	13	27	7.23	-7	38	43.19	5.1258	5.0
ene	28	2457781.75	13	27	14.35	-7	39	9.17	5.1102	4.9
ene	29	2457782.75	13	27	20.77	-7	39	30.98	5.0946	4.9
ene	30	2457783.75	13	27	26.49	-7	39	48.60	5.0791	4.8
ene	31	2457784.75	13	27	31.49	-7	40	2.03	5.0637	4.7
feb	1	2457785.75	13	27	35.79	-7	40	11.25	5.0484	4.7
feb	2	2457786.75	13	27	39.37	-7	40	16.29	5.0332	4.6
feb	3	2457787.75	13	27	42.25	-7	40	17.15	5.0180	4.6
feb	4	2457788.75	13	27	44.42	-7	40	13.84	5.0030	4.5
feb	5	2457789.75	13	27	45.87	-7	40	6.37	4.9881	4.4
feb	6	2457790.75	13	27	46.62	-7	39	54.75	4.9733	4.4
feb	7	2457791.75	13	27	46.67	-7	39	39.00	4.9586	4.3
feb	8	2457792.75	13	27	46.00	-7	39	19.10	4.9441	4.2
feb	9	2457793.75	13	27	44.61	-7	38	55.06	4.9296	4.2
feb	10	2457794.75	13	27	42.52	-7	38	26.87	4.9153	4.1
feb	11	2457795.75	13	27	39.71	-7	37	54.55	4.9012	4.0
feb	12	2457796.75	13	27	36.19	-7	37	18.10	4.8871	4.0
feb	13	2457797.75	13	27	31.96	-7	36	37.53	4.8733	3.9
feb	14	2457798.75	13	27	27.03	-7	35	52.86	4.8595	3.8
feb	15	2457799.75	13	27	21.38	-7	35	4.11	4.8459	3.8

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

mes	día	dj	h	α m	s	°	δ `	“	dis UA	hp h
feb	16	2457800.75	13	27	15.03	-7	34	11.31	4.8325	3.7
feb	17	2457801.75	13	27	7.99	-7	33	14.48	4.8193	3.6
feb	18	2457802.75	13	27	0.24	-7	32	13.63	4.8062	3.6
feb	19	2457803.75	13	26	51.80	-7	31	8.80	4.7933	3.5
feb	20	2457804.75	13	26	42.67	-7	30	0.02	4.7805	3.4
feb	21	2457805.75	13	26	32.85	-7	28	47.31	4.7680	3.3
feb	22	2457806.75	13	26	22.34	-7	27	30.69	4.7556	3.3
feb	23	2457807.75	13	26	11.16	-7	26	10.21	4.7434	3.2
feb	24	2457808.75	13	25	59.30	-7	24	45.89	4.7314	3.1
feb	25	2457809.75	13	25	46.77	-7	23	17.76	4.7196	3.1
feb	26	2457810.75	13	25	33.58	-7	21	45.87	4.7081	3.0
feb	27	2457811.75	13	25	19.74	-7	20	10.27	4.6967	2.9
feb	28	2457812.75	13	25	5.25	-7	18	31.00	4.6856	2.9
mar	1	2457813.75	13	24	50.13	-7	16	48.13	4.6746	2.8
mar	2	2457814.75	13	24	34.39	-7	15	1.74	4.6639	2.7
mar	3	2457815.75	13	24	18.04	-7	13	11.89	4.6535	2.7
mar	4	2457816.75	13	24	1.09	-7	11	18.65	4.6432	2.6
mar	5	2457817.75	13	23	43.55	-7	9	22.11	4.6332	2.5
mar	6	2457818.75	13	23	25.43	-7	7	22.32	4.6234	2.4
mar	7	2457819.75	13	23	6.75	-7	5	19.36	4.6139	2.4
mar	8	2457820.75	13	22	47.52	-7	3	13.29	4.6046	2.3
mar	9	2457821.75	13	22	27.73	-7	1	4.18	4.5956	2.2
mar	10	2457822.75	13	22	7.42	-6	58	52.10	4.5869	2.2
mar	11	2457823.75	13	21	46.58	-6	56	37.11	4.5783	2.1
mar	12	2457824.75	13	21	25.24	-6	54	19.31	4.5701	2.0
mar	13	2457825.75	13	21	3.40	-6	51	58.77	4.5621	1.9
mar	14	2457826.75	13	20	41.09	-6	49	35.58	4.5544	1.9
mar	15	2457827.75	13	20	18.31	-6	47	9.84	4.5469	1.8
mar	16	2457828.75	13	19	55.08	-6	44	41.64	4.5397	1.7
mar	17	2457829.75	13	19	31.42	-6	42	11.06	4.5328	1.7
mar	18	2457830.75	13	19	7.34	-6	39	38.22	4.5262	1.6
mar	19	2457831.75	13	18	42.86	-6	37	3.20	4.5198	1.5
mar	20	2457832.75	13	18	17.98	-6	34	26.09	4.5137	1.4
mar	21	2457833.75	13	17	52.74	-6	31	47.01	4.5080	1.4
mar	22	2457834.75	13	17	27.14	-6	29	6.04	4.5025	1.3
mar	23	2457835.75	13	17	1.19	-6	26	23.28	4.4973	1.2
mar	24	2457836.75	13	16	34.93	-6	23	38.85	4.4924	1.1
mar	25	2457837.75	13	16	8.36	-6	20	52.84	4.4877	1.1
mar	26	2457838.75	13	15	41.51	-6	18	5.38	4.4834	1.0
mar	27	2457839.75	13	15	14.39	-6	15	16.56	4.4794	0.9
mar	28	2457840.75	13	14	47.03	-6	12	26.53	4.4757	0.9
mar	29	2457841.75	13	14	19.45	-6	9	35.41	4.4723	0.8
mar	30	2457842.75	13	13	51.66	-6	6	43.35	4.4692	0.7
mar	31	2457843.75	13	13	23.70	-6	3	50.46	4.4664	0.6
abr	1	2457844.75	13	12	55.58	-6	0	56.90	4.4639	0.6
abr	2	2457845.75	13	12	27.33	-5	58	2.78	4.4617	0.5

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

mes	día	dj	h	α m	s	°	δ `	“	dis UA	hp h
abr	3	2457846.75	13	11	58.95	-5	55	8.22	4.4598	0.4
abr	4	2457847.75	13	11	30.48	-5	52	13.35	4.4582	0.3
abr	5	2457848.75	13	11	1.93	-5	49	18.27	4.4569	0.3
abr	6	2457849.75	13	10	33.32	-5	46	23.10	4.4560	0.2
abr	7	2457850.75	13	10	4.67	-5	43	27.97	4.4553	0.1
abr	8	2457851.75	13	9	35.99	-5	40	32.99	4.4550	0.0
abr	9	2457852.75	13	9	7.32	-5	37	38.29	4.4549	24.0
abr	10	2457853.75	13	8	38.66	-5	34	43.99	4.4552	23.9
abr	11	2457854.75	13	8	10.05	-5	31	50.22	4.4558	23.8
abr	12	2457855.75	13	7	41.49	-5	28	57.11	4.4566	23.7
abr	13	2457856.75	13	7	13.01	-5	26	4.77	4.4578	23.7
abr	14	2457857.75	13	6	44.64	-5	23	13.33	4.4593	23.6
abr	15	2457858.75	13	6	16.37	-5	20	22.90	4.4611	23.5
abr	16	2457859.75	13	5	48.25	-5	17	33.60	4.4631	23.5
abr	17	2457860.75	13	5	20.28	-5	14	45.55	4.4655	23.4
abr	18	2457861.75	13	4	52.47	-5	11	58.85	4.4682	23.3
abr	19	2457862.75	13	4	24.86	-5	9	13.62	4.4712	23.2
abr	20	2457863.75	13	3	57.46	-5	6	29.97	4.4745	23.2
abr	21	2457864.75	13	3	30.28	-5	3	48.00	4.4780	23.1
abr	22	2457865.75	13	3	3.35	-5	1	7.83	4.4819	23.0
abr	23	2457866.75	13	2	36.68	-4	58	29.57	4.4861	22.9
abr	24	2457867.75	13	2	10.30	-4	55	53.33	4.4905	22.9
abr	25	2457868.75	13	1	44.21	-4	53	19.23	4.4953	22.8
abr	26	2457869.75	13	1	18.45	-4	50	47.40	4.5003	22.7
abr	27	2457870.75	13	0	53.03	-4	48	17.95	4.5056	22.7
abr	28	2457871.75	13	0	27.97	-4	45	50.99	4.5112	22.6
abr	29	2457872.75	13	0	3.29	-4	43	26.64	4.5171	22.5
abr	30	2457873.75	12	59	39.00	-4	41	4.98	4.5232	22.4
may	1	2457874.75	12	59	15.11	-4	38	46.09	4.5296	22.4
may	2	2457875.75	12	58	51.64	-4	36	30.07	4.5363	22.3
may	3	2457876.75	12	58	28.60	-4	34	16.98	4.5433	22.2
may	4	2457877.75	12	58	6.01	-4	32	6.90	4.5505	22.1
may	5	2457878.75	12	57	43.87	-4	29	59.92	4.5580	22.1
may	6	2457879.75	12	57	22.20	-4	27	56.11	4.5657	22.0
may	7	2457880.75	12	57	1.02	-4	25	55.55	4.5736	21.9
may	8	2457881.75	12	56	40.33	-4	23	58.31	4.5819	21.9
may	9	2457882.75	12	56	20.15	-4	22	4.46	4.5903	21.8
may	10	2457883.75	12	56	0.49	-4	20	14.08	4.5990	21.7
may	11	2457884.75	12	55	41.36	-4	18	27.22	4.6080	21.6
may	12	2457885.75	12	55	22.76	-4	16	43.94	4.6171	21.6
may	13	2457886.75	12	55	4.71	-4	15	4.31	4.6265	21.5
may	14	2457887.75	12	54	47.22	-4	13	28.36	4.6362	21.4
may	15	2457888.75	12	54	30.29	-4	11	56.15	4.6460	21.4
may	16	2457889.75	12	54	13.93	-4	10	27.72	4.6561	21.3
may	17	2457890.75	12	53	58.15	-4	9	3.12	4.6664	21.2
may	18	2457891.75	12	53	42.96	-4	7	42.38	4.6768	21.2

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

mes	día	dj	h	α m	s	°	δ `	“	dis UA	hp h
may	19	2457892.75	12	53	28.36	-4	6	25.55	4.6875	21.1
may	20	2457893.75	12	53	14.36	-4	5	12.66	4.6984	21.0
may	21	2457894.75	12	53	0.98	-4	4	3.76	4.7095	20.9
may	22	2457895.75	12	52	48.21	-4	2	58.88	4.7208	20.9
may	23	2457896.75	12	52	36.07	-4	1	58.08	4.7323	20.8
may	24	2457897.75	12	52	24.56	-4	1	1.41	4.7440	20.7
may	25	2457898.75	12	52	13.69	-4	0	8.89	4.7558	20.7
may	26	2457899.75	12	52	3.47	-3	59	20.57	4.7679	20.6
may	27	2457900.75	12	51	53.91	-3	58	36.46	4.7801	20.5
may	28	2457901.75	12	51	44.99	-3	57	56.59	4.7924	20.5
may	29	2457902.75	12	51	36.73	-3	57	20.94	4.8050	20.4
may	30	2457903.75	12	51	29.13	-3	56	49.53	4.8177	20.3
may	31	2457904.75	12	51	22.19	-3	56	22.36	4.8305	20.3
jun	1	2457905.75	12	51	15.90	-3	55	59.43	4.8435	20.2
jun	2	2457906.75	12	51	10.28	-3	55	40.75	4.8566	20.1
jun	3	2457907.75	12	51	5.32	-3	55	26.33	4.8699	20.1
jun	4	2457908.75	12	51	1.02	-3	55	16.16	4.8833	20.0
jun	5	2457909.75	12	50	57.39	-3	55	10.25	4.8969	19.9
jun	6	2457910.75	12	50	54.43	-3	55	8.60	4.9105	19.9
jun	7	2457911.75	12	50	52.13	-3	55	11.21	4.9243	19.8
jun	8	2457912.75	12	50	50.50	-3	55	18.06	4.9382	19.7
jun	9	2457913.75	12	50	49.54	-3	55	29.15	4.9522	19.7
jun	10	2457914.75	12	50	49.23	-3	55	44.46	4.9664	19.6
jun	11	2457915.75	12	50	49.59	-3	56	3.97	4.9806	19.5
jun	12	2457916.75	12	50	50.61	-3	56	27.68	4.9949	19.5
jun	13	2457917.75	12	50	52.29	-3	56	55.55	5.0094	19.4
jun	14	2457918.75	12	50	54.62	-3	57	27.56	5.0239	19.3
jun	15	2457919.75	12	50	57.61	-3	58	3.71	5.0385	19.3
jun	16	2457920.75	12	51	1.25	-3	58	43.97	5.0532	19.2
jun	17	2457921.75	12	51	5.54	-3	59	28.33	5.0680	19.1
jun	18	2457922.75	12	51	10.49	-4	0	16.76	5.0828	19.1
jun	19	2457923.75	12	51	16.08	-4	1	9.27	5.0978	19.0
jun	20	2457924.75	12	51	22.33	-4	2	5.84	5.1128	18.9
jun	21	2457925.75	12	51	29.22	-4	3	6.46	5.1278	18.9
jun	22	2457926.75	12	51	36.77	-4	4	11.12	5.1429	18.8
jun	23	2457927.75	12	51	44.96	-4	5	19.80	5.1581	18.8
jun	24	2457928.75	12	51	53.79	-4	6	32.47	5.1733	18.7
jun	25	2457929.75	12	52	3.26	-4	7	49.09	5.1886	18.6
jun	26	2457930.75	12	52	13.36	-4	9	9.61	5.2039	18.6
jun	27	2457931.75	12	52	24.09	-4	10	34.00	5.2193	18.5
jun	28	2457932.75	12	52	35.43	-4	12	2.22	5.2346	18.4
jun	29	2457933.75	12	52	47.40	-4	13	34.24	5.2501	18.4
jun	30	2457934.75	12	52	59.98	-4	15	10.02	5.2655	18.3
jul	1	2457935.75	12	53	13.16	-4	16	49.54	5.2809	18.3
jul	2	2457936.75	12	53	26.96	-4	18	32.75	5.2964	18.2
jul	3	2457937.75	12	53	41.35	-4	20	19.64	5.3119	18.1

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

mes	día	dj	h	α m	s	°	δ `	“	dis UA	hp h
jul	4	2457938.75	12	53	56.34	-4	22	10.15	5.3274	18.1
jul	5	2457939.75	12	54	11.92	-4	24	4.26	5.3429	18.0
jul	6	2457940.75	12	54	28.08	-4	26	1.93	5.3584	17.9
jul	7	2457941.75	12	54	44.83	-4	28	3.11	5.3739	17.9
jul	8	2457942.75	12	55	2.14	-4	30	7.77	5.3894	17.8
jul	9	2457943.75	12	55	20.03	-4	32	15.85	5.4049	17.8
jul	10	2457944.75	12	55	38.48	-4	34	27.32	5.4203	17.7
jul	11	2457945.75	12	55	57.48	-4	36	42.13	5.4358	17.6
jul	12	2457946.75	12	56	17.04	-4	39	0.24	5.4512	17.6
jul	13	2457947.75	12	56	37.15	-4	41	21.61	5.4667	17.5
jul	14	2457948.75	12	56	57.79	-4	43	46.20	5.4821	17.5
jul	15	2457949.75	12	57	18.98	-4	46	13.98	5.4974	17.4
jul	16	2457950.75	12	57	40.70	-4	48	44.92	5.5127	17.3
jul	17	2457951.75	12	58	2.95	-4	51	18.99	5.5280	17.3
jul	18	2457952.75	12	58	25.74	-4	53	56.16	5.5433	17.2
jul	19	2457953.75	12	58	49.05	-4	56	36.41	5.5585	17.2
jul	20	2457954.75	12	59	12.88	-4	59	19.70	5.5737	17.1
jul	21	2457955.75	12	59	37.22	-5	2	6.00	5.5888	17.0
jul	22	2457956.75	13	0	2.08	-5	4	55.25	5.6039	17.0
jul	23	2457957.75	13	0	27.44	-5	7	47.41	5.6189	16.9
jul	24	2457958.75	13	0	53.29	-5	10	42.42	5.6339	16.9
jul	25	2457959.75	13	1	19.63	-5	13	40.23	5.6488	16.8
jul	26	2457960.75	13	1	46.46	-5	16	40.80	5.6636	16.8
jul	27	2457961.75	13	2	13.76	-5	19	44.09	5.6784	16.7
jul	28	2457962.75	13	2	41.54	-5	22	50.06	5.6930	16.6
jul	29	2457963.75	13	3	9.78	-5	25	58.66	5.7076	16.6
jul	30	2457964.75	13	3	38.49	-5	29	9.87	5.7222	16.5
jul	31	2457965.75	13	4	7.65	-5	32	23.63	5.7366	16.5
ago	1	2457966.75	13	4	37.27	-5	35	39.91	5.7510	16.4
ago	2	2457967.75	13	5	7.33	-5	38	58.67	5.7653	16.3
ago	3	2457968.75	13	5	37.83	-5	42	19.85	5.7794	16.3
ago	4	2457969.75	13	6	8.76	-5	45	43.42	5.7935	16.2
ago	5	2457970.75	13	6	40.12	-5	49	9.33	5.8075	16.2
ago	6	2457971.75	13	7	11.91	-5	52	37.52	5.8214	16.1
ago	7	2457972.75	13	7	44.10	-5	56	7.95	5.8352	16.1
ago	8	2457973.75	13	8	16.71	-5	59	40.58	5.8489	16.0
ago	9	2457974.75	13	8	49.72	-6	3	15.37	5.8625	15.9
ago	10	2457975.75	13	9	23.13	-6	6	52.27	5.8760	15.9
ago	11	2457976.75	13	9	56.93	-6	10	31.24	5.8894	15.8
ago	12	2457977.75	13	10	31.13	-6	14	12.26	5.9027	15.8
ago	13	2457978.75	13	11	5.72	-6	17	55.29	5.9158	15.7
ago	14	2457979.75	13	11	40.69	-6	21	40.31	5.9289	15.7
ago	15	2457980.75	13	12	16.05	-6	25	27.28	5.9418	15.6
ago	16	2457981.75	13	12	51.78	-6	29	16.19	5.9546	15.6
ago	17	2457982.75	13	13	27.89	-6	33	6.98	5.9673	15.5
ago	18	2457983.75	13	14	4.37	-6	36	59.62	5.9798	15.4

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

mes	día	dj	h	α m	s	°	δ `	“	dis UA	hp h
ago	19	2457984.75	13	14	41.20	-6	40	54.05	5.9923	15.4
ago	20	2457985.75	13	15	18.39	-6	44	50.24	6.0045	15.3
ago	21	2457986.75	13	15	55.93	-6	48	48.13	6.0167	15.3
ago	22	2457987.75	13	16	33.82	-6	52	47.67	6.0287	15.2
ago	23	2457988.75	13	17	12.04	-6	56	48.83	6.0406	15.2
ago	24	2457989.75	13	17	50.59	-7	0	51.56	6.0523	15.1
ago	25	2457990.75	13	18	29.48	-7	4	55.83	6.0639	15.1
ago	26	2457991.75	13	19	8.69	-7	9	1.61	6.0754	15.0
ago	27	2457992.75	13	19	48.21	-7	13	8.85	6.0867	14.9
ago	28	2457993.75	13	20	28.06	-7	17	17.52	6.0978	14.9
ago	29	2457994.75	13	21	8.21	-7	21	27.58	6.1088	14.8
ago	30	2457995.75	13	21	48.67	-7	25	38.98	6.1196	14.8
ago	31	2457996.75	13	22	29.42	-7	29	51.69	6.1303	14.7
sep	1	2457997.75	13	23	10.47	-7	34	5.66	6.1408	14.7
sep	2	2457998.75	13	23	51.80	-7	38	20.84	6.1512	14.6
sep	3	2457999.75	13	24	33.41	-7	42	37.20	6.1614	14.6
sep	4	2458000.75	13	25	15.30	-7	46	54.68	6.1715	14.5
sep	5	2458001.75	13	25	57.46	-7	51	13.25	6.1813	14.5
sep	6	2458002.75	13	26	39.89	-7	55	32.87	6.1911	14.4
sep	7	2458003.75	13	27	22.58	-7	59	53.50	6.2006	14.4
sep	8	2458004.75	13	28	5.53	-8	4	15.12	6.2100	14.3
sep	9	2458005.75	13	28	48.74	-8	8	37.68	6.2192	14.2
sep	10	2458006.75	13	29	32.20	-8	13	1.18	6.2282	14.2
sep	11	2458007.75	13	30	15.92	-8	17	25.58	6.2371	14.1
sep	12	2458008.75	13	30	59.88	-8	21	50.86	6.2458	14.1
sep	13	2458009.75	13	31	44.09	-8	26	16.98	6.2543	14.0
sep	14	2458010.75	13	32	28.53	-8	30	43.92	6.2627	14.0
sep	15	2458011.75	13	33	13.21	-8	35	11.62	6.2708	13.9
sep	16	2458012.75	13	33	58.12	-8	39	40.04	6.2788	13.9
sep	17	2458013.75	13	34	43.25	-8	44	9.15	6.2866	13.8
sep	18	2458014.75	13	35	28.60	-8	48	38.89	6.2942	13.8
sep	19	2458015.75	13	36	14.16	-8	53	9.22	6.3016	13.7
sep	20	2458016.75	13	36	59.92	-8	57	40.12	6.3089	13.7
sep	21	2458017.75	13	37	45.90	-9	2	11.54	6.3159	13.6
sep	22	2458018.75	13	38	32.07	-9	6	43.46	6.3228	13.6
sep	23	2458019.75	13	39	18.44	-9	11	15.85	6.3294	13.5
sep	24	2458020.75	13	40	4.99	-9	15	48.66	6.3359	13.4
sep	25	2458021.75	13	40	51.74	-9	20	21.87	6.3421	13.4
sep	26	2458022.75	13	41	38.67	-9	24	55.44	6.3482	13.3
sep	27	2458023.75	13	42	25.77	-9	29	29.32	6.3541	13.3
sep	28	2458024.75	13	43	13.04	-9	34	3.49	6.3598	13.2
sep	29	2458025.75	13	44	0.48	-9	38	37.90	6.3652	13.2
sep	30	2458026.75	13	44	48.07	-9	43	12.50	6.3705	13.1
oct	1	2458027.75	13	45	35.82	-9	47	47.27	6.3756	13.1
oct	2	2458028.75	13	46	23.72	-9	52	22.16	6.3805	13.0
oct	3	2458029.75	13	47	11.76	-9	56	57.13	6.3851	13.0

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

mes	día	dj	h	α m	s	°	δ `	“	dis UA	hp h
oct	4	2458030.75	13	47	59.95	-10	1	32.15	6.3896	12.9
oct	5	2458031.75	13	48	48.27	-10	6	7.19	6.3939	12.9
oct	6	2458032.75	13	49	36.73	-10	10	42.22	6.3980	12.8
oct	7	2458033.75	13	50	25.32	-10	15	17.22	6.4018	12.8
oct	8	2458034.75	13	51	14.04	-10	19	52.17	6.4055	12.7
oct	9	2458035.75	13	52	2.89	-10	24	27.06	6.4089	12.7
oct	10	2458036.75	13	52	51.87	-10	29	1.85	6.4122	12.6
oct	11	2458037.75	13	53	40.96	-10	33	36.52	6.4152	12.6
oct	12	2458038.75	13	54	30.16	-10	38	11.02	6.4180	12.5
oct	13	2458039.75	13	55	19.47	-10	42	45.32	6.4206	12.5
oct	14	2458040.75	13	56	8.89	-10	47	19.38	6.4230	12.4
oct	15	2458041.75	13	56	58.39	-10	51	53.15	6.4252	12.3
oct	16	2458042.75	13	57	48.00	-10	56	26.61	6.4272	12.3
oct	17	2458043.75	13	58	37.68	-11	0	59.72	6.4290	12.2
oct	18	2458044.75	13	59	27.46	-11	5	32.45	6.4305	12.2
oct	19	2458045.75	14	0	17.31	-11	10	4.76	6.4319	12.1
oct	20	2458046.75	14	1	7.23	-11	14	36.64	6.4330	12.1
oct	21	2458047.75	14	1	57.23	-11	19	8.05	6.4339	12.0
oct	22	2458048.75	14	2	47.29	-11	23	38.97	6.4346	12.0
oct	23	2458049.75	14	3	37.41	-11	28	9.35	6.4351	11.9
oct	24	2458050.75	14	4	27.59	-11	32	39.16	6.4353	11.9
oct	25	2458051.75	14	5	17.82	-11	37	8.32	6.4353	11.8
oct	26	2458052.75	14	6	8.08	-11	41	36.74	6.4352	11.8
oct	27	2458053.75	14	6	58.37	-11	46	4.58	6.4348	11.7
oct	28	2458054.75	14	7	48.69	-11	50	31.95	6.4342	11.7
oct	29	2458055.75	14	8	39.04	-11	54	58.53	6.4333	11.6
oct	30	2458056.75	14	9	29.42	-11	59	24.28	6.4323	11.6
oct	31	2458057.75	14	10	19.82	-12	3	49.21	6.4310	11.5
nov	1	2458058.75	14	11	10.22	-12	8	13.29	6.4296	11.5
nov	2	2458059.75	14	12	0.63	-12	12	36.51	6.4279	11.4
nov	3	2458060.75	14	12	51.05	-12	16	58.84	6.4260	11.4
nov	4	2458061.75	14	13	41.47	-12	21	20.27	6.4239	11.3
nov	5	2458062.75	14	14	31.90	-12	25	40.79	6.4215	11.3
nov	6	2458063.75	14	15	22.31	-12	30	0.37	6.4190	11.2
nov	7	2458064.75	14	16	12.72	-12	34	19.01	6.4162	11.2
nov	8	2458065.75	14	17	3.11	-12	38	36.66	6.4132	11.1
nov	9	2458066.75	14	17	53.48	-12	42	53.30	6.4101	11.1
nov	10	2458067.75	14	18	43.82	-12	47	8.88	6.4066	11.0
nov	11	2458068.75	14	19	34.12	-12	51	23.37	6.4030	11.0
nov	12	2458069.75	14	20	24.38	-12	55	36.73	6.3992	10.9
nov	13	2458070.75	14	21	14.60	-12	59	48.95	6.3952	10.8
nov	14	2458071.75	14	22	4.77	-13	3	59.98	6.3909	10.8
nov	15	2458072.75	14	22	54.88	-13	8	9.82	6.3864	10.7
nov	16	2458073.75	14	23	44.94	-13	12	18.43	6.3817	10.7
nov	17	2458074.75	14	24	34.93	-13	16	25.79	6.3768	10.6
nov	18	2458075.75	14	25	24.84	-13	20	31.88	6.3717	10.6

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

mes	día	dj	h	α m	s	°	δ `	“	dis UA	hp h
nov	19	2458076.75	14	26	14.69	-13	24	36.67	6.3664	10.5
nov	20	2458077.75	14	27	4.44	-13	28	40.14	6.3608	10.5
nov	21	2458078.75	14	27	54.11	-13	32	42.25	6.3551	10.4
nov	22	2458079.75	14	28	43.68	-13	36	42.97	6.3491	10.4
nov	23	2458080.75	14	29	33.14	-13	40	42.28	6.3430	10.3
nov	24	2458081.75	14	30	22.50	-13	44	40.14	6.3366	10.3
nov	25	2458082.75	14	31	11.73	-13	48	36.52	6.3300	10.2
nov	26	2458083.75	14	32	0.85	-13	52	31.38	6.3233	10.2
nov	27	2458084.75	14	32	49.83	-13	56	24.71	6.3163	10.1
nov	28	2458085.75	14	33	38.68	-14	0	16.48	6.3091	10.1
nov	29	2458086.75	14	34	27.39	-14	4	6.66	6.3017	10.0
nov	30	2458087.75	14	35	15.96	-14	7	55.23	6.2941	10.0
dic	1	2458088.75	14	36	4.38	-14	11	42.18	6.2863	9.9
dic	2	2458089.75	14	36	52.64	-14	15	27.50	6.2784	9.9
dic	3	2458090.75	14	37	40.76	-14	19	11.19	6.2702	9.8
dic	4	2458091.75	14	38	28.71	-14	22	53.23	6.2618	9.8
dic	5	2458092.75	14	39	16.49	-14	26	33.59	6.2533	9.7
dic	6	2458093.75	14	40	4.09	-14	30	12.26	6.2445	9.7
dic	7	2458094.75	14	40	51.51	-14	33	49.20	6.2356	9.6
dic	8	2458095.75	14	41	38.74	-14	37	24.39	6.2265	9.5
dic	9	2458096.75	14	42	25.77	-14	40	57.78	6.2171	9.5
dic	10	2458097.75	14	43	12.60	-14	44	29.36	6.2076	9.4
dic	11	2458098.75	14	43	59.22	-14	47	59.10	6.1979	9.4
dic	12	2458099.75	14	44	45.62	-14	51	26.99	6.1881	9.3
dic	13	2458100.75	14	45	31.80	-14	54	53.01	6.1780	9.3
dic	14	2458101.75	14	46	17.75	-14	58	17.15	6.1678	9.2
dic	15	2458102.75	14	47	3.47	-15	1	39.38	6.1574	9.2
dic	16	2458103.75	14	47	48.95	-15	4	59.69	6.1468	9.1
dic	17	2458104.75	14	48	34.17	-15	8	18.05	6.1360	9.1
dic	18	2458105.75	14	49	19.14	-15	11	34.45	6.1250	9.0
dic	19	2458106.75	14	50	3.84	-15	14	48.86	6.1139	9.0
dic	20	2458107.75	14	50	48.26	-15	18	1.25	6.1026	8.9
dic	21	2458108.75	14	51	32.40	-15	21	11.60	6.0912	8.9
dic	22	2458109.75	14	52	16.26	-15	24	19.89	6.0795	8.8
dic	23	2458110.75	14	52	59.81	-15	27	26.09	6.0678	8.7
dic	24	2458111.75	14	53	43.06	-15	30	30.17	6.0558	8.7
dic	25	2458112.75	14	54	25.99	-15	33	32.12	6.0437	8.6
dic	26	2458113.75	14	55	8.61	-15	36	31.92	6.0314	8.6
dic	27	2458114.75	14	55	50.91	-15	39	29.55	6.0190	8.5
dic	28	2458115.75	14	56	32.87	-15	42	25.00	6.0065	8.5
dic	29	2458116.75	14	57	14.50	-15	45	18.27	5.9938	8.4
dic	30	2458117.75	14	57	55.80	-15	48	9.35	5.9809	8.4
dic	31	2458118.75	14	58	36.74	-15	50	58.24	5.9679	8.3
ene	1	2458119.75	14	59	17.33	-15	53	44.93	5.9548	8.3
ene	2	2458120.75	14	59	57.57	-15	56	29.41	5.9415	8.2

Saturno, 2017

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

mes	día	dj	h	α m	s	°	δ `	“	dis UA	hp h
ene	1	2457754.75	17	22	54.68	-21	52	32.61	10.9687	10.6
ene	2	2457755.75	17	23	23.98	-21	52	59.81	10.9629	10.6
ene	3	2457756.75	17	23	53.16	-21	53	26.45	10.9569	10.5
ene	4	2457757.75	17	24	22.22	-21	53	52.54	10.9506	10.5
ene	5	2457758.75	17	24	51.15	-21	54	18.07	10.9441	10.4
ene	6	2457759.75	17	25	19.96	-21	54	43.04	10.9374	10.4
ene	7	2457760.75	17	25	48.65	-21	55	7.45	10.9304	10.3
ene	8	2457761.75	17	26	17.20	-21	55	31.31	10.9232	10.2
ene	9	2457762.75	17	26	45.61	-21	55	54.63	10.9157	10.2
ene	10	2457763.75	17	27	13.88	-21	56	17.43	10.9081	10.1
ene	11	2457764.75	17	27	42.00	-21	56	39.71	10.9001	10.1
ene	12	2457765.75	17	28	9.96	-21	57	1.48	10.8920	10.0
ene	13	2457766.75	17	28	37.77	-21	57	22.73	10.8836	9.9
ene	14	2457767.75	17	29	5.41	-21	57	43.47	10.8750	9.9
ene	15	2457768.75	17	29	32.88	-21	58	3.67	10.8662	9.8
ene	16	2457769.75	17	30	0.17	-21	58	23.34	10.8571	9.8
ene	17	2457770.75	17	30	27.28	-21	58	42.48	10.8478	9.7
ene	18	2457771.75	17	30	54.21	-21	59	1.09	10.8383	9.7
ene	19	2457772.75	17	31	20.95	-21	59	19.17	10.8286	9.6
ene	20	2457773.75	17	31	47.50	-21	59	36.74	10.8187	9.5
ene	21	2457774.75	17	32	13.86	-21	59	53.79	10.8086	9.5
ene	22	2457775.75	17	32	40.01	-22	0	10.35	10.7982	9.4
ene	23	2457776.75	17	33	5.96	-22	0	26.41	10.7876	9.4
ene	24	2457777.75	17	33	31.69	-22	0	41.99	10.7769	9.3
ene	25	2457778.75	17	33	57.21	-22	0	57.10	10.7659	9.2
ene	26	2457779.75	17	34	22.50	-22	1	11.73	10.7547	9.2
ene	27	2457780.75	17	34	47.56	-22	1	25.90	10.7433	9.1
ene	28	2457781.75	17	35	12.39	-22	1	39.59	10.7318	9.1
ene	29	2457782.75	17	35	36.97	-22	1	52.82	10.7200	9.0
ene	30	2457783.75	17	36	1.31	-22	2	5.58	10.7080	9.0
ene	31	2457784.75	17	36	25.40	-22	2	17.87	10.6959	8.9
feb	1	2457785.75	17	36	49.22	-22	2	29.68	10.6836	8.8
feb	2	2457786.75	17	37	12.79	-22	2	41.02	10.6711	8.8
feb	3	2457787.75	17	37	36.10	-22	2	51.90	10.6584	8.7
feb	4	2457788.75	17	37	59.14	-22	3	2.33	10.6455	8.7
feb	5	2457789.75	17	38	21.91	-22	3	12.32	10.6325	8.6
feb	6	2457790.75	17	38	44.41	-22	3	21.89	10.6193	8.5
feb	7	2457791.75	17	39	6.63	-22	3	31.06	10.6060	8.5
feb	8	2457792.75	17	39	28.57	-22	3	39.83	10.5925	8.4
feb	9	2457793.75	17	39	50.22	-22	3	48.21	10.5788	8.4
feb	10	2457794.75	17	40	11.57	-22	3	56.20	10.5650	8.3
feb	11	2457795.75	17	40	32.62	-22	4	3.80	10.5510	8.2
feb	12	2457796.75	17	40	53.37	-22	4	11.00	10.5369	8.2
feb	13	2457797.75	17	41	13.82	-22	4	17.81	10.5227	8.1
feb	14	2457798.75	17	41	33.95	-22	4	24.24	10.5083	8.1
feb	15	2457799.75	17	41	53.77	-22	4	30.29	10.4938	8.0

Saturno, 2017

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

mes	día	dj	h	α m	s	°	δ `	“	dis UA	hp h
feb	16	2457800.75	17	42	13.28	-22	4	35.96	10.4791	7.9
feb	17	2457801.75	17	42	32.46	-22	4	41.29	10.4643	7.9
feb	18	2457802.75	17	42	51.32	-22	4	46.26	10.4494	7.8
feb	19	2457803.75	17	43	9.86	-22	4	50.90	10.4344	7.8
feb	20	2457804.75	17	43	28.06	-22	4	55.22	10.4192	7.7
feb	21	2457805.75	17	43	45.92	-22	4	59.23	10.4040	7.6
feb	22	2457806.75	17	44	3.45	-22	5	2.94	10.3886	7.6
feb	23	2457807.75	17	44	20.62	-22	5	6.36	10.3731	7.5
feb	24	2457808.75	17	44	37.44	-22	5	9.48	10.3575	7.5
feb	25	2457809.75	17	44	53.91	-22	5	12.32	10.3418	7.4
feb	26	2457810.75	17	45	10.01	-22	5	14.86	10.3261	7.3
feb	27	2457811.75	17	45	25.75	-22	5	17.12	10.3102	7.3
feb	28	2457812.75	17	45	41.11	-22	5	19.09	10.2943	7.2
mar	1	2457813.75	17	45	56.11	-22	5	20.77	10.2782	7.1
mar	2	2457814.75	17	46	10.73	-22	5	22.17	10.2621	7.1
mar	3	2457815.75	17	46	24.98	-22	5	23.31	10.2460	7.0
mar	4	2457816.75	17	46	38.86	-22	5	24.19	10.2297	7.0
mar	5	2457817.75	17	46	52.35	-22	5	24.84	10.2134	6.9
mar	6	2457818.75	17	47	5.46	-22	5	25.27	10.1971	6.8
mar	7	2457819.75	17	47	18.19	-22	5	25.50	10.1807	6.8
mar	8	2457820.75	17	47	30.52	-22	5	25.52	10.1642	6.7
mar	9	2457821.75	17	47	42.46	-22	5	25.35	10.1477	6.7
mar	10	2457822.75	17	47	54.00	-22	5	24.98	10.1312	6.6
mar	11	2457823.75	17	48	5.15	-22	5	24.41	10.1146	6.5
mar	12	2457824.75	17	48	15.89	-22	5	23.64	10.0980	6.5
mar	13	2457825.75	17	48	26.23	-22	5	22.68	10.0814	6.4
mar	14	2457826.75	17	48	36.16	-22	5	21.52	10.0648	6.3
mar	15	2457827.75	17	48	45.69	-22	5	20.19	10.0481	6.3
mar	16	2457828.75	17	48	54.82	-22	5	18.68	10.0314	6.2
mar	17	2457829.75	17	49	3.54	-22	5	17.01	10.0147	6.1
mar	18	2457830.75	17	49	11.84	-22	5	15.19	9.9980	6.1
mar	19	2457831.75	17	49	19.73	-22	5	13.24	9.9814	6.0
mar	20	2457832.75	17	49	27.21	-22	5	11.16	9.9647	6.0
mar	21	2457833.75	17	49	34.27	-22	5	8.95	9.9480	5.9
mar	22	2457834.75	17	49	40.91	-22	5	6.63	9.9313	5.8
mar	23	2457835.75	17	49	47.12	-22	5	4.20	9.9147	5.8
mar	24	2457836.75	17	49	52.91	-22	5	1.66	9.8981	5.7
mar	25	2457837.75	17	49	58.26	-22	4	59.01	9.8815	5.6
mar	26	2457838.75	17	50	3.19	-22	4	56.25	9.8650	5.6
mar	27	2457839.75	17	50	7.69	-22	4	53.37	9.8484	5.5
mar	28	2457840.75	17	50	11.75	-22	4	50.37	9.8320	5.4
mar	29	2457841.75	17	50	15.39	-22	4	47.25	9.8156	5.4
mar	30	2457842.75	17	50	18.59	-22	4	44.01	9.7992	5.3
mar	31	2457843.75	17	50	21.37	-22	4	40.68	9.7829	5.2
abr	1	2457844.75	17	50	23.72	-22	4	37.27	9.7667	5.2
abr	2	2457845.75	17	50	25.64	-22	4	33.79	9.7505	5.1

Saturno, 2017

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

mes	día	dj	h	α m	s	°	δ `	“	dis UA	hp h
abr	3	2457846.75	17	50	27.14	-22	4	30.25	9.7344	5.1
abr	4	2457847.75	17	50	28.20	-22	4	26.66	9.7184	5.0
abr	5	2457848.75	17	50	28.84	-22	4	23.01	9.7025	4.9
abr	6	2457849.75	17	50	29.04	-22	4	19.30	9.6866	4.9
abr	7	2457850.75	17	50	28.81	-22	4	15.52	9.6709	4.8
abr	8	2457851.75	17	50	28.16	-22	4	11.68	9.6552	4.7
abr	9	2457852.75	17	50	27.08	-22	4	7.77	9.6397	4.7
abr	10	2457853.75	17	50	25.58	-22	4	3.78	9.6242	4.6
abr	11	2457854.75	17	50	23.65	-22	3	59.74	9.6089	4.5
abr	12	2457855.75	17	50	21.31	-22	3	55.63	9.5937	4.5
abr	13	2457856.75	17	50	18.55	-22	3	51.47	9.5786	4.4
abr	14	2457857.75	17	50	15.37	-22	3	47.26	9.5636	4.3
abr	15	2457858.75	17	50	11.78	-22	3	43.01	9.5488	4.3
abr	16	2457859.75	17	50	7.78	-22	3	38.73	9.5341	4.2
abr	17	2457860.75	17	50	3.36	-22	3	34.42	9.5195	4.1
abr	18	2457861.75	17	49	58.53	-22	3	30.08	9.5051	4.1
abr	19	2457862.75	17	49	53.29	-22	3	25.71	9.4908	4.0
abr	20	2457863.75	17	49	47.64	-22	3	21.32	9.4767	3.9
abr	21	2457864.75	17	49	41.59	-22	3	16.89	9.4627	3.9
abr	22	2457865.75	17	49	35.13	-22	3	12.42	9.4489	3.8
abr	23	2457866.75	17	49	28.27	-22	3	7.90	9.4353	3.7
abr	24	2457867.75	17	49	21.01	-22	3	3.32	9.4218	3.7
abr	25	2457868.75	17	49	13.35	-22	2	58.69	9.4085	3.6
abr	26	2457869.75	17	49	5.31	-22	2	53.99	9.3954	3.5
abr	27	2457870.75	17	48	56.89	-22	2	49.24	9.3824	3.5
abr	28	2457871.75	17	48	48.10	-22	2	44.45	9.3697	3.4
abr	29	2457872.75	17	48	38.93	-22	2	39.62	9.3571	3.3
abr	30	2457873.75	17	48	29.39	-22	2	34.78	9.3448	3.2
may	1	2457874.75	17	48	19.49	-22	2	29.91	9.3326	3.2
may	2	2457875.75	17	48	9.22	-22	2	25.03	9.3206	3.1
may	3	2457876.75	17	47	58.60	-22	2	20.11	9.3089	3.0
may	4	2457877.75	17	47	47.63	-22	2	15.15	9.2974	3.0
may	5	2457878.75	17	47	36.31	-22	2	10.15	9.2860	2.9
may	6	2457879.75	17	47	24.65	-22	2	5.09	9.2749	2.8
may	7	2457880.75	17	47	12.66	-22	1	59.97	9.2641	2.8
may	8	2457881.75	17	47	0.34	-22	1	54.81	9.2534	2.7
may	9	2457882.75	17	46	47.70	-22	1	49.58	9.2430	2.6
may	10	2457883.75	17	46	34.76	-22	1	44.32	9.2328	2.6
may	11	2457884.75	17	46	21.50	-22	1	39.00	9.2228	2.5
may	12	2457885.75	17	46	7.95	-22	1	33.65	9.2131	2.4
may	13	2457886.75	17	45	54.10	-22	1	28.27	9.2036	2.3
may	14	2457887.75	17	45	39.97	-22	1	22.85	9.1944	2.3
may	15	2457888.75	17	45	25.55	-22	1	17.40	9.1854	2.2
may	16	2457889.75	17	45	10.85	-22	1	11.92	9.1766	2.1
may	17	2457890.75	17	44	55.89	-22	1	6.41	9.1682	2.1
may	18	2457891.75	17	44	40.66	-22	1	0.85	9.1599	2.0

Saturno, 2017

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

mes	día	dj	h	α m	s	°	δ `	“	dis UA	hp h
may	19	2457892.75	17	44	25.17	-22	0	55.25	9.1520	1.9
may	20	2457893.75	17	44	9.43	-22	0	49.59	9.1442	1.9
may	21	2457894.75	17	43	53.44	-22	0	43.87	9.1368	1.8
may	22	2457895.75	17	43	37.23	-22	0	38.09	9.1296	1.7
may	23	2457896.75	17	43	20.79	-22	0	32.23	9.1227	1.6
may	24	2457897.75	17	43	4.13	-22	0	26.31	9.1161	1.6
may	25	2457898.75	17	42	47.27	-22	0	20.34	9.1097	1.5
may	26	2457899.75	17	42	30.22	-22	0	14.32	9.1036	1.4
may	27	2457900.75	17	42	12.98	-22	0	8.28	9.0978	1.4
may	28	2457901.75	17	41	55.56	-22	0	2.21	9.0923	1.3
may	29	2457902.75	17	41	37.97	-21	59	56.13	9.0871	1.2
may	30	2457903.75	17	41	20.21	-21	59	50.01	9.0821	1.2
may	31	2457904.75	17	41	2.30	-21	59	43.87	9.0775	1.1
jun	1	2457905.75	17	40	44.24	-21	59	37.68	9.0731	1.0
jun	2	2457906.75	17	40	26.05	-21	59	31.44	9.0690	0.9
jun	3	2457907.75	17	40	7.73	-21	59	25.16	9.0652	0.9
jun	4	2457908.75	17	39	49.30	-21	59	18.84	9.0617	0.8
jun	5	2457909.75	17	39	30.76	-21	59	12.48	9.0585	0.7
jun	6	2457910.75	17	39	12.13	-21	59	6.09	9.0556	0.7
jun	7	2457911.75	17	38	53.42	-21	58	59.69	9.0530	0.6
jun	8	2457912.75	17	38	34.63	-21	58	53.27	9.0507	0.5
jun	9	2457913.75	17	38	15.77	-21	58	46.84	9.0486	0.4
jun	10	2457914.75	17	37	56.85	-21	58	40.42	9.0469	0.4
jun	11	2457915.75	17	37	37.89	-21	58	34.01	9.0455	0.3
jun	12	2457916.75	17	37	18.88	-21	58	27.61	9.0443	0.2
jun	13	2457917.75	17	36	59.84	-21	58	21.22	9.0435	0.2
jun	14	2457918.75	17	36	40.77	-21	58	14.84	9.0429	0.1
jun	15	2457919.75	17	36	21.69	-21	58	8.48	9.0427	0.0
jun	16	2457920.75	17	36	2.60	-21	58	2.12	9.0427	24.0
jun	17	2457921.75	17	35	43.51	-21	57	55.78	9.0431	23.9
jun	18	2457922.75	17	35	24.44	-21	57	49.44	9.0437	23.8
jun	19	2457923.75	17	35	5.39	-21	57	43.11	9.0447	23.7
jun	20	2457924.75	17	34	46.37	-21	57	36.80	9.0459	23.7
jun	21	2457925.75	17	34	27.41	-21	57	30.51	9.0475	23.6
jun	22	2457926.75	17	34	8.50	-21	57	24.28	9.0493	23.5
jun	23	2457927.75	17	33	49.66	-21	57	18.10	9.0514	23.5
jun	24	2457928.75	17	33	30.89	-21	57	12.01	9.0539	23.4
jun	25	2457929.75	17	33	12.21	-21	57	6.02	9.0566	23.3
jun	26	2457930.75	17	32	53.62	-21	57	0.11	9.0596	23.2
jun	27	2457931.75	17	32	35.14	-21	56	54.30	9.0629	23.2
jun	28	2457932.75	17	32	16.76	-21	56	48.57	9.0666	23.1
jun	29	2457933.75	17	31	58.50	-21	56	42.93	9.0705	23.0
jun	30	2457934.75	17	31	40.38	-21	56	37.38	9.0746	23.0
jul	1	2457935.75	17	31	22.39	-21	56	31.92	9.0791	22.9
jul	2	2457936.75	17	31	4.56	-21	56	26.58	9.0839	22.8
jul	3	2457937.75	17	30	46.89	-21	56	21.36	9.0889	22.7

Saturno, 2017

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

mes	día	dj	h	α m	s	°	δ `	“	dis UA	hp h
jul	4	2457938.75	17	30	29.39	-21	56	16.27	9.0943	22.7
jul	5	2457939.75	17	30	12.06	-21	56	11.33	9.0999	22.6
jul	6	2457940.75	17	29	54.93	-21	56	6.54	9.1057	22.5
jul	7	2457941.75	17	29	37.98	-21	56	1.93	9.1119	22.5
jul	8	2457942.75	17	29	21.24	-21	55	57.50	9.1183	22.4
jul	9	2457943.75	17	29	4.70	-21	55	53.26	9.1250	22.3
jul	10	2457944.75	17	28	48.37	-21	55	49.21	9.1320	22.3
jul	11	2457945.75	17	28	32.27	-21	55	45.36	9.1392	22.2
jul	12	2457946.75	17	28	16.39	-21	55	41.71	9.1467	22.1
jul	13	2457947.75	17	28	0.75	-21	55	38.26	9.1544	22.0
jul	14	2457948.75	17	27	45.35	-21	55	35.01	9.1624	22.0
jul	15	2457949.75	17	27	30.20	-21	55	31.96	9.1707	21.9
jul	16	2457950.75	17	27	15.30	-21	55	29.12	9.1792	21.8
jul	17	2457951.75	17	27	0.68	-21	55	26.50	9.1880	21.8
jul	18	2457952.75	17	26	46.33	-21	55	24.11	9.1970	21.7
jul	19	2457953.75	17	26	32.26	-21	55	21.96	9.2063	21.6
jul	20	2457954.75	17	26	18.49	-21	55	20.08	9.2158	21.6
jul	21	2457955.75	17	26	5.01	-21	55	18.48	9.2255	21.5
jul	22	2457956.75	17	25	51.83	-21	55	17.18	9.2355	21.4
jul	23	2457957.75	17	25	38.96	-21	55	16.17	9.2457	21.3
jul	24	2457958.75	17	25	26.41	-21	55	15.47	9.2562	21.3
jul	25	2457959.75	17	25	14.17	-21	55	15.07	9.2669	21.2
jul	26	2457960.75	17	25	2.25	-21	55	14.96	9.2778	21.1
jul	27	2457961.75	17	24	50.66	-21	55	15.15	9.2889	21.1
jul	28	2457962.75	17	24	39.41	-21	55	15.64	9.3002	21.0
jul	29	2457963.75	17	24	28.51	-21	55	16.44	9.3117	20.9
jul	30	2457964.75	17	24	17.95	-21	55	17.56	9.3235	20.9
jul	31	2457965.75	17	24	7.75	-21	55	19.01	9.3354	20.8
ago	1	2457966.75	17	23	57.91	-21	55	20.80	9.3475	20.7
ago	2	2457967.75	17	23	48.43	-21	55	22.94	9.3599	20.7
ago	3	2457968.75	17	23	39.32	-21	55	25.45	9.3724	20.6
ago	4	2457969.75	17	23	30.57	-21	55	28.32	9.3851	20.5
ago	5	2457970.75	17	23	22.20	-21	55	31.57	9.3980	20.5
ago	6	2457971.75	17	23	14.20	-21	55	35.19	9.4111	20.4
ago	7	2457972.75	17	23	6.57	-21	55	39.18	9.4243	20.3
ago	8	2457973.75	17	22	59.33	-21	55	43.55	9.4377	20.3
ago	9	2457974.75	17	22	52.47	-21	55	48.29	9.4513	20.2
ago	10	2457975.75	17	22	45.99	-21	55	53.40	9.4650	20.1
ago	11	2457976.75	17	22	39.90	-21	55	58.86	9.4789	20.0
ago	12	2457977.75	17	22	34.20	-21	56	4.69	9.4930	20.0
ago	13	2457978.75	17	22	28.90	-21	56	10.88	9.5072	19.9
ago	14	2457979.75	17	22	24.00	-21	56	17.44	9.5215	19.8
ago	15	2457980.75	17	22	19.51	-21	56	24.38	9.5360	19.8
ago	16	2457981.75	17	22	15.42	-21	56	31.72	9.5506	19.7
ago	17	2457982.75	17	22	11.74	-21	56	39.45	9.5654	19.6
ago	18	2457983.75	17	22	8.47	-21	56	47.60	9.5803	19.6

Saturno, 2017

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

mes	día	dj	h	α m	s	°	δ `	“	dis UA	hp h
ago	19	2457984.75	17	22	5.61	-21	56	56.16	9.5953	19.5
ago	20	2457985.75	17	22	3.16	-21	57	5.13	9.6104	19.4
ago	21	2457986.75	17	22	1.12	-21	57	14.50	9.6257	19.4
ago	22	2457987.75	17	21	59.50	-21	57	24.25	9.6410	19.3
ago	23	2457988.75	17	21	58.29	-21	57	34.39	9.6565	19.2
ago	24	2457989.75	17	21	57.50	-21	57	44.90	9.6721	19.2
ago	25	2457990.75	17	21	57.12	-21	57	55.79	9.6877	19.1
ago	26	2457991.75	17	21	57.17	-21	58	7.06	9.7035	19.1
ago	27	2457992.75	17	21	57.65	-21	58	18.71	9.7193	19.0
ago	28	2457993.75	17	21	58.54	-21	58	30.75	9.7352	18.9
ago	29	2457994.75	17	21	59.86	-21	58	43.17	9.7512	18.9
ago	30	2457995.75	17	22	1.60	-21	58	55.98	9.7673	18.8
ago	31	2457996.75	17	22	3.76	-21	59	9.19	9.7834	18.7
sep	1	2457997.75	17	22	6.34	-21	59	22.78	9.7996	18.7
sep	2	2457998.75	17	22	9.33	-21	59	36.75	9.8158	18.6
sep	3	2457999.75	17	22	12.75	-21	59	51.09	9.8321	18.5
sep	4	2458000.75	17	22	16.58	-22	0	5.80	9.8485	18.5
sep	5	2458001.75	17	22	20.82	-22	0	20.87	9.8649	18.4
sep	6	2458002.75	17	22	25.47	-22	0	36.27	9.8813	18.3
sep	7	2458003.75	17	22	30.54	-22	0	52.01	9.8978	18.3
sep	8	2458004.75	17	22	36.01	-22	1	8.06	9.9143	18.2
sep	9	2458005.75	17	22	41.90	-22	1	24.43	9.9308	18.1
sep	10	2458006.75	17	22	48.20	-22	1	41.11	9.9474	18.1
sep	11	2458007.75	17	22	54.92	-22	1	58.10	9.9639	18.0
sep	12	2458008.75	17	23	2.05	-22	2	15.40	9.9805	18.0
sep	13	2458009.75	17	23	9.59	-22	2	33.03	9.9971	17.9
sep	14	2458010.75	17	23	17.53	-22	2	50.98	10.0137	17.8
sep	15	2458011.75	17	23	25.89	-22	3	9.24	10.0303	17.8
sep	16	2458012.75	17	23	34.65	-22	3	27.80	10.0469	17.7
sep	17	2458013.75	17	23	43.80	-22	3	46.66	10.0635	17.6
sep	18	2458014.75	17	23	53.36	-22	4	5.79	10.0801	17.6
sep	19	2458015.75	17	24	3.31	-22	4	25.18	10.0967	17.5
sep	20	2458016.75	17	24	13.66	-22	4	44.81	10.1132	17.4
sep	21	2458017.75	17	24	24.40	-22	5	4.67	10.1297	17.4
sep	22	2458018.75	17	24	35.54	-22	5	24.77	10.1462	17.3
sep	23	2458019.75	17	24	47.07	-22	5	45.09	10.1626	17.3
sep	24	2458020.75	17	24	58.99	-22	6	5.63	10.1790	17.2
sep	25	2458021.75	17	25	11.30	-22	6	26.39	10.1954	17.1
sep	26	2458022.75	17	25	23.99	-22	6	47.37	10.2117	17.1
sep	27	2458023.75	17	25	37.07	-22	7	8.55	10.2279	17.0
sep	28	2458024.75	17	25	50.52	-22	7	29.94	10.2441	16.9
sep	29	2458025.75	17	26	4.34	-22	7	51.52	10.2603	16.9
sep	30	2458026.75	17	26	18.53	-22	8	13.27	10.2763	16.8
oct	1	2458027.75	17	26	33.08	-22	8	35.19	10.2923	16.8
oct	2	2458028.75	17	26	47.99	-22	8	57.26	10.3082	16.7
oct	3	2458029.75	17	27	3.26	-22	9	19.46	10.3241	16.6

Saturno, 2017

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

mes	día	dj	h	α m	s	°	δ `	“	dis UA	hp h
oct	4	2458030.75	17	27	18.89	-22	9	41.78	10.3398	16.6
oct	5	2458031.75	17	27	34.86	-22	10	4.19	10.3555	16.5
oct	6	2458032.75	17	27	51.19	-22	10	26.69	10.3711	16.5
oct	7	2458033.75	17	28	7.86	-22	10	49.26	10.3865	16.4
oct	8	2458034.75	17	28	24.87	-22	11	11.90	10.4019	16.3
oct	9	2458035.75	17	28	42.24	-22	11	34.62	10.4172	16.3
oct	10	2458036.75	17	28	59.94	-22	11	57.41	10.4324	16.2
oct	11	2458037.75	17	29	17.97	-22	12	20.27	10.4475	16.2
oct	12	2458038.75	17	29	36.34	-22	12	43.20	10.4624	16.1
oct	13	2458039.75	17	29	55.04	-22	13	6.17	10.4773	16.0
oct	14	2458040.75	17	30	14.06	-22	13	29.18	10.4920	16.0
oct	15	2458041.75	17	30	33.39	-22	13	52.20	10.5066	15.9
oct	16	2458042.75	17	30	53.04	-22	14	15.22	10.5211	15.8
oct	17	2458043.75	17	31	13.00	-22	14	38.21	10.5354	15.8
oct	18	2458044.75	17	31	33.27	-22	15	1.17	10.5497	15.7
oct	19	2458045.75	17	31	53.85	-22	15	24.09	10.5637	15.7
oct	20	2458046.75	17	32	14.73	-22	15	46.95	10.5777	15.6
oct	21	2458047.75	17	32	35.91	-22	16	9.76	10.5914	15.5
oct	22	2458048.75	17	32	57.39	-22	16	32.50	10.6051	15.5
oct	23	2458049.75	17	33	19.16	-22	16	55.18	10.6185	15.4
oct	24	2458050.75	17	33	41.22	-22	17	17.79	10.6319	15.4
oct	25	2458051.75	17	34	3.55	-22	17	40.32	10.6450	15.3
oct	26	2458052.75	17	34	26.17	-22	18	2.75	10.6580	15.3
oct	27	2458053.75	17	34	49.05	-22	18	25.08	10.6708	15.2
oct	28	2458054.75	17	35	12.20	-22	18	47.29	10.6835	15.1
oct	29	2458055.75	17	35	35.60	-22	19	9.37	10.6960	15.1
oct	30	2458056.75	17	35	59.27	-22	19	31.30	10.7083	15.0
oct	31	2458057.75	17	36	23.18	-22	19	53.07	10.7204	15.0
nov	1	2458058.75	17	36	47.34	-22	20	14.65	10.7323	14.9
nov	2	2458059.75	17	37	11.74	-22	20	36.03	10.7441	14.8
nov	3	2458060.75	17	37	36.38	-22	20	57.21	10.7557	14.8
nov	4	2458061.75	17	38	1.26	-22	21	18.17	10.7671	14.7
nov	5	2458062.75	17	38	26.37	-22	21	38.91	10.7782	14.7
nov	6	2458063.75	17	38	51.72	-22	21	59.44	10.7892	14.6
nov	7	2458064.75	17	39	17.29	-22	22	19.76	10.8000	14.5
nov	8	2458065.75	17	39	43.08	-22	22	39.87	10.8107	14.5
nov	9	2458066.75	17	40	9.09	-22	22	59.76	10.8211	14.4
nov	10	2458067.75	17	40	35.30	-22	23	19.40	10.8313	14.4
nov	11	2458068.75	17	41	1.72	-22	23	38.79	10.8412	14.3
nov	12	2458069.75	17	41	28.34	-22	23	57.90	10.8510	14.3
nov	13	2458070.75	17	41	55.15	-22	24	16.73	10.8606	14.2
nov	14	2458071.75	17	42	22.15	-22	24	35.25	10.8699	14.1
nov	15	2458072.75	17	42	49.35	-22	24	53.46	10.8791	14.1
nov	16	2458073.75	17	43	16.73	-22	25	11.36	10.8880	14.0
nov	17	2458074.75	17	43	44.28	-22	25	28.94	10.8967	14.0
nov	18	2458075.75	17	44	12.02	-22	25	46.20	10.9052	13.9

Saturno, 2017

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

mes	día	dj	h	α m	s	°	δ `	“	dis UA	hp h
nov	19	2458076.75	17	44	39.93	-22	26	3.14	10.9134	13.8
nov	20	2458077.75	17	45	8.00	-22	26	19.76	10.9214	13.8
nov	21	2458078.75	17	45	36.23	-22	26	36.04	10.9292	13.7
nov	22	2458079.75	17	46	4.62	-22	26	52.00	10.9367	13.7
nov	23	2458080.75	17	46	33.15	-22	27	7.61	10.9440	13.6
nov	24	2458081.75	17	47	1.83	-22	27	22.87	10.9511	13.6
nov	25	2458082.75	17	47	30.64	-22	27	37.77	10.9579	13.5
nov	26	2458083.75	17	47	59.58	-22	27	52.30	10.9645	13.4
nov	27	2458084.75	17	48	28.65	-22	28	6.44	10.9709	13.4
nov	28	2458085.75	17	48	57.84	-22	28	20.18	10.9770	13.3
nov	29	2458086.75	17	49	27.14	-22	28	33.52	10.9829	13.3
nov	30	2458087.75	17	49	56.56	-22	28	46.44	10.9885	13.2
dic	1	2458088.75	17	50	26.08	-22	28	58.94	10.9939	13.2
dic	2	2458089.75	17	50	55.72	-22	29	11.01	10.9990	13.1
dic	3	2458090.75	17	51	25.45	-22	29	22.67	11.0039	13.0
dic	4	2458091.75	17	51	55.28	-22	29	33.93	11.0085	13.0
dic	5	2458092.75	17	52	25.21	-22	29	44.78	11.0129	12.9
dic	6	2458093.75	17	52	55.22	-22	29	55.24	11.0170	12.9
dic	7	2458094.75	17	53	25.30	-22	30	5.29	11.0209	12.8
dic	8	2458095.75	17	53	55.46	-22	30	14.91	11.0245	12.8
dic	9	2458096.75	17	54	25.69	-22	30	24.10	11.0279	12.7
dic	10	2458097.75	17	54	55.98	-22	30	32.85	11.0310	12.6
dic	11	2458098.75	17	55	26.33	-22	30	41.13	11.0339	12.6
dic	12	2458099.75	17	55	56.74	-22	30	48.97	11.0365	12.5
dic	13	2458100.75	17	56	27.20	-22	30	56.34	11.0388	12.5
dic	14	2458101.75	17	56	57.71	-22	31	3.26	11.0409	12.4
dic	15	2458102.75	17	57	28.27	-22	31	9.72	11.0427	12.3
dic	16	2458103.75	17	57	58.86	-22	31	15.74	11.0443	12.3
dic	17	2458104.75	17	58	29.48	-22	31	21.31	11.0456	12.2
dic	18	2458105.75	17	59	0.13	-22	31	26.44	11.0466	12.2
dic	19	2458106.75	17	59	30.81	-22	31	31.12	11.0474	12.1
dic	20	2458107.75	18	0	1.49	-22	31	35.31	11.0479	12.1
dic	21	2458108.75	18	0	32.19	-22	31	38.93	11.0482	12.0
dic	22	2458109.75	18	1	2.85	-22	31	42.23	11.0481	11.9
dic	23	2458110.75	18	1	33.54	-22	31	45.40	11.0479	11.9
dic	24	2458111.75	18	2	4.22	-22	31	47.96	11.0473	11.8
dic	25	2458112.75	18	2	34.89	-22	31	50.01	11.0465	11.8
dic	26	2458113.75	18	3	5.53	-22	31	51.57	11.0455	11.7
dic	27	2458114.75	18	3	36.15	-22	31	52.66	11.0441	11.7
dic	28	2458115.75	18	4	6.75	-22	31	53.28	11.0425	11.6
dic	29	2458116.75	18	4	37.31	-22	31	53.44	11.0407	11.5
dic	30	2458117.75	18	5	7.84	-22	31	53.14	11.0386	11.5
dic	31	2458118.75	18	5	38.33	-22	31	52.40	11.0362	11.4
ene	1	2458119.75	18	6	8.78	-22	31	51.23	11.0336	11.4
ene	2	2458120.75	18	6	39.17	-22	31	49.66	11.0307	11.3

Urano, 2017

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

mes	día	dj	h	α m	s	°	δ `	“	dis UA	hp h
ene	1	2457754.75	1	16	52.80	+7	28	10.96	19.7538	18.5
ene	2	2457755.75	1	16	53.40	+7	28	16.95	19.7708	18.5
ene	3	2457756.75	1	16	54.19	+7	28	24.12	19.7878	18.4
ene	4	2457757.75	1	16	55.17	+7	28	32.45	19.8049	18.3
ene	5	2457758.75	1	16	56.35	+7	28	41.95	19.8220	18.3
ene	6	2457759.75	1	16	57.73	+7	28	52.63	19.8391	18.2
ene	7	2457760.75	1	16	59.30	+7	29	4.48	19.8563	18.1
ene	8	2457761.75	1	17	1.07	+7	29	17.52	19.8735	18.1
ene	9	2457762.75	1	17	3.04	+7	29	31.74	19.8907	18.0
ene	10	2457763.75	1	17	5.20	+7	29	47.15	19.9079	18.0
ene	11	2457764.75	1	17	7.56	+7	30	3.73	19.9251	17.9
ene	12	2457765.75	1	17	10.11	+7	30	21.47	19.9423	17.8
ene	13	2457766.75	1	17	12.85	+7	30	40.36	19.9594	17.8
ene	14	2457767.75	1	17	15.77	+7	31	0.37	19.9766	17.7
ene	15	2457768.75	1	17	18.89	+7	31	21.50	19.9938	17.6
ene	16	2457769.75	1	17	22.19	+7	31	43.75	20.0109	17.6
ene	17	2457770.75	1	17	25.68	+7	32	7.11	20.0280	17.5
ene	18	2457771.75	1	17	29.35	+7	32	31.59	20.0451	17.4
ene	19	2457772.75	1	17	33.22	+7	32	57.19	20.0621	17.4
ene	20	2457773.75	1	17	37.27	+7	33	23.90	20.0791	17.3
ene	21	2457774.75	1	17	41.51	+7	33	51.73	20.0960	17.2
ene	22	2457775.75	1	17	45.94	+7	34	20.67	20.1129	17.2
ene	23	2457776.75	1	17	50.56	+7	34	50.72	20.1297	17.1
ene	24	2457777.75	1	17	55.36	+7	35	21.87	20.1465	17.0
ene	25	2457778.75	1	18	0.34	+7	35	54.10	20.1632	17.0
ene	26	2457779.75	1	18	5.51	+7	36	27.42	20.1798	16.9
ene	27	2457780.75	1	18	10.85	+7	37	1.80	20.1964	16.9
ene	28	2457781.75	1	18	16.37	+7	37	37.23	20.2128	16.8
ene	29	2457782.75	1	18	22.07	+7	38	13.70	20.2292	16.7
ene	30	2457783.75	1	18	27.94	+7	38	51.18	20.2455	16.7
ene	31	2457784.75	1	18	33.98	+7	39	29.68	20.2617	16.6
feb	1	2457785.75	1	18	40.20	+7	40	9.18	20.2777	16.5
feb	2	2457786.75	1	18	46.59	+7	40	49.68	20.2937	16.5
feb	3	2457787.75	1	18	53.14	+7	41	31.17	20.3095	16.4
feb	4	2457788.75	1	18	59.87	+7	42	13.65	20.3253	16.3
feb	5	2457789.75	1	19	6.76	+7	42	57.11	20.3409	16.3
feb	6	2457790.75	1	19	13.82	+7	43	41.55	20.3564	16.2
feb	7	2457791.75	1	19	21.05	+7	44	26.94	20.3717	16.1
feb	8	2457792.75	1	19	28.43	+7	45	13.27	20.3869	16.1
feb	9	2457793.75	1	19	35.97	+7	46	0.52	20.4020	16.0
feb	10	2457794.75	1	19	43.66	+7	46	48.67	20.4169	16.0
feb	11	2457795.75	1	19	51.51	+7	47	37.69	20.4317	15.9
feb	12	2457796.75	1	19	59.50	+7	48	27.57	20.4463	15.8
feb	13	2457797.75	1	20	7.64	+7	49	18.30	20.4608	15.8
feb	14	2457798.75	1	20	15.93	+7	50	9.87	20.4752	15.7
feb	15	2457799.75	1	20	24.37	+7	51	2.28	20.4893	15.6

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

mes	día	dj	h	α m	s	°	δ `	“	dis UA	hp h
feb	16	2457800.75	1	20	32.95	+7	51	55.53	20.5033	15.6
feb	17	2457801.75	1	20	41.68	+7	52	49.60	20.5172	15.5
feb	18	2457802.75	1	20	50.55	+7	53	44.48	20.5308	15.5
feb	19	2457803.75	1	20	59.56	+7	54	40.17	20.5443	15.4
feb	20	2457804.75	1	21	8.71	+7	55	36.66	20.5576	15.3
feb	21	2457805.75	1	21	18.00	+7	56	33.92	20.5707	15.3
feb	22	2457806.75	1	21	27.42	+7	57	31.94	20.5836	15.2
feb	23	2457807.75	1	21	36.97	+7	58	30.70	20.5964	15.1
feb	24	2457808.75	1	21	46.65	+7	59	30.19	20.6089	15.1
feb	25	2457809.75	1	21	56.46	+8	0	30.39	20.6213	15.0
feb	26	2457810.75	1	22	6.39	+8	1	31.26	20.6334	14.9
feb	27	2457811.75	1	22	16.43	+8	2	32.80	20.6453	14.9
feb	28	2457812.75	1	22	26.60	+8	3	35.00	20.6571	14.8
mar	1	2457813.75	1	22	36.88	+8	4	37.83	20.6686	14.8
mar	2	2457814.75	1	22	47.27	+8	5	41.30	20.6799	14.7
mar	3	2457815.75	1	22	57.79	+8	6	45.39	20.6910	14.6
mar	4	2457816.75	1	23	8.41	+8	7	50.11	20.7018	14.6
mar	5	2457817.75	1	23	19.14	+8	8	55.42	20.7125	14.5
mar	6	2457818.75	1	23	29.98	+8	10	1.32	20.7229	14.4
mar	7	2457819.75	1	23	40.92	+8	11	7.79	20.7331	14.4
mar	8	2457820.75	1	23	51.96	+8	12	14.79	20.7430	14.3
mar	9	2457821.75	1	24	3.09	+8	13	22.31	20.7527	14.3
mar	10	2457822.75	1	24	14.31	+8	14	30.32	20.7622	14.2
mar	11	2457823.75	1	24	25.63	+8	15	38.80	20.7715	14.1
mar	12	2457824.75	1	24	37.03	+8	16	47.74	20.7805	14.1
mar	13	2457825.75	1	24	48.51	+8	17	57.12	20.7892	14.0
mar	14	2457826.75	1	25	0.08	+8	19	6.95	20.7978	13.9
mar	15	2457827.75	1	25	11.73	+8	20	17.20	20.8060	13.9
mar	16	2457828.75	1	25	23.47	+8	21	27.87	20.8141	13.8
mar	17	2457829.75	1	25	35.28	+8	22	38.95	20.8219	13.8
mar	18	2457830.75	1	25	47.17	+8	23	50.42	20.8294	13.7
mar	19	2457831.75	1	25	59.14	+8	25	2.28	20.8367	13.6
mar	20	2457832.75	1	26	11.17	+8	26	14.51	20.8437	13.6
mar	21	2457833.75	1	26	23.28	+8	27	27.09	20.8505	13.5
mar	22	2457834.75	1	26	35.45	+8	28	39.99	20.8570	13.4
mar	23	2457835.75	1	26	47.68	+8	29	53.21	20.8633	13.4
mar	24	2457836.75	1	26	59.98	+8	31	6.72	20.8693	13.3
mar	25	2457837.75	1	27	12.32	+8	32	20.49	20.8750	13.3
mar	26	2457838.75	1	27	24.73	+8	33	34.51	20.8805	13.2
mar	27	2457839.75	1	27	37.18	+8	34	48.76	20.8857	13.1
mar	28	2457840.75	1	27	49.68	+8	36	3.23	20.8906	13.1
mar	29	2457841.75	1	28	2.23	+8	37	17.91	20.8953	13.0
mar	30	2457842.75	1	28	14.82	+8	38	32.78	20.8997	12.9
mar	31	2457843.75	1	28	27.46	+8	39	47.86	20.9038	12.9
abr	1	2457844.75	1	28	40.14	+8	41	3.11	20.9076	12.8
abr	2	2457845.75	1	28	52.86	+8	42	18.52	20.9112	12.8

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

mes	día	dj	h	α m	s	°	δ `	“	dis UA	hp h
abr	3	2457846.75	1	29	5.61	+8	43	34.08	20.9145	12.7
abr	4	2457847.75	1	29	18.39	+8	44	49.75	20.9176	12.6
abr	5	2457848.75	1	29	31.19	+8	46	5.51	20.9203	12.6
abr	6	2457849.75	1	29	44.02	+8	47	21.34	20.9228	12.5
abr	7	2457850.75	1	29	56.87	+8	48	37.22	20.9251	12.4
abr	8	2457851.75	1	30	9.73	+8	49	53.13	20.9270	12.4
abr	9	2457852.75	1	30	22.61	+8	51	9.06	20.9287	12.3
abr	10	2457853.75	1	30	35.51	+8	52	25.00	20.9301	12.3
abr	11	2457854.75	1	30	48.42	+8	53	40.94	20.9312	12.2
abr	12	2457855.75	1	31	1.34	+8	54	56.86	20.9321	12.1
abr	13	2457856.75	1	31	14.28	+8	56	12.69	20.9327	12.1
abr	14	2457857.75	1	31	27.21	+8	57	27.90	20.9330	12.0
abr	15	2457858.75	1	31	40.11	+8	58	44.18	20.9330	12.0
abr	16	2457859.75	1	31	53.06	+9	0	0.15	20.9328	11.9
abr	17	2457860.75	1	32	6.00	+9	1	15.93	20.9323	11.8
abr	18	2457861.75	1	32	18.94	+9	2	31.59	20.9315	11.8
abr	19	2457862.75	1	32	31.87	+9	3	47.13	20.9305	11.7
abr	20	2457863.75	1	32	44.79	+9	5	2.54	20.9291	11.6
abr	21	2457864.75	1	32	57.69	+9	6	17.80	20.9276	11.6
abr	22	2457865.75	1	33	10.58	+9	7	32.89	20.9257	11.5
abr	23	2457866.75	1	33	23.44	+9	8	47.80	20.9235	11.5
abr	24	2457867.75	1	33	36.29	+9	10	2.50	20.9211	11.4
abr	25	2457868.75	1	33	49.11	+9	11	17.00	20.9185	11.3
abr	26	2457869.75	1	34	1.91	+9	12	31.29	20.9155	11.3
abr	27	2457870.75	1	34	14.68	+9	13	45.35	20.9123	11.2
abr	28	2457871.75	1	34	27.43	+9	14	59.19	20.9088	11.1
abr	29	2457872.75	1	34	40.14	+9	16	12.78	20.9051	11.1
abr	30	2457873.75	1	34	52.82	+9	17	26.12	20.9010	11.0
may	1	2457874.75	1	35	5.46	+9	18	39.17	20.8968	11.0
may	2	2457875.75	1	35	18.06	+9	19	51.92	20.8922	10.9
may	3	2457876.75	1	35	30.60	+9	21	4.33	20.8874	10.8
may	4	2457877.75	1	35	43.10	+9	22	16.39	20.8823	10.8
may	5	2457878.75	1	35	55.55	+9	23	28.08	20.8770	10.7
may	6	2457879.75	1	36	7.94	+9	24	39.39	20.8715	10.6
may	7	2457880.75	1	36	20.28	+9	25	50.32	20.8656	10.6
may	8	2457881.75	1	36	32.56	+9	27	0.86	20.8595	10.5
may	9	2457882.75	1	36	44.79	+9	28	11.00	20.8532	10.5
may	10	2457883.75	1	36	56.95	+9	29	20.73	20.8466	10.4
may	11	2457884.75	1	37	9.06	+9	30	30.05	20.8398	10.3
may	12	2457885.75	1	37	21.10	+9	31	38.95	20.8327	10.3
may	13	2457886.75	1	37	33.08	+9	32	47.40	20.8254	10.2
may	14	2457887.75	1	37	44.99	+9	33	55.41	20.8179	10.1
may	15	2457888.75	1	37	56.83	+9	35	2.96	20.8101	10.1
may	16	2457889.75	1	38	8.59	+9	36	10.02	20.8021	10.0
may	17	2457890.75	1	38	20.27	+9	37	16.58	20.7938	10.0
may	18	2457891.75	1	38	31.88	+9	38	22.63	20.7853	9.9

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

mes	día	dj	h	α m	s	°	δ `	“	dis UA	hp h
may	19	2457892.75	1	38	43.40	+9	39	28.15	20.7766	9.8
may	20	2457893.75	1	38	54.84	+9	40	33.11	20.7676	9.8
may	21	2457894.75	1	39	6.19	+9	41	37.52	20.7584	9.7
may	22	2457895.75	1	39	17.45	+9	42	41.35	20.7490	9.6
may	23	2457896.75	1	39	28.62	+9	43	44.61	20.7393	9.6
may	24	2457897.75	1	39	39.70	+9	44	47.29	20.7295	9.5
may	25	2457898.75	1	39	50.69	+9	45	49.39	20.7194	9.5
may	26	2457899.75	1	40	1.58	+9	46	50.89	20.7091	9.4
may	27	2457900.75	1	40	12.38	+9	47	51.79	20.6986	9.3
may	28	2457901.75	1	40	23.07	+9	48	52.07	20.6878	9.3
may	29	2457902.75	1	40	33.66	+9	49	51.70	20.6769	9.2
may	30	2457903.75	1	40	44.13	+9	50	50.66	20.6658	9.1
may	31	2457904.75	1	40	54.50	+9	51	48.93	20.6544	9.1
jun	1	2457905.75	1	41	4.74	+9	52	46.50	20.6429	9.0
jun	2	2457906.75	1	41	14.88	+9	53	43.36	20.6312	9.0
jun	3	2457907.75	1	41	24.89	+9	54	39.50	20.6192	8.9
jun	4	2457908.75	1	41	34.79	+9	55	34.91	20.6071	8.8
jun	5	2457909.75	1	41	44.57	+9	56	29.61	20.5948	8.8
jun	6	2457910.75	1	41	54.23	+9	57	23.57	20.5824	8.7
jun	7	2457911.75	1	42	3.78	+9	58	16.80	20.5697	8.6
jun	8	2457912.75	1	42	13.19	+9	59	9.29	20.5569	8.6
jun	9	2457913.75	1	42	22.49	+10	0	1.03	20.5439	8.5
jun	10	2457914.75	1	42	31.65	+10	0	52.02	20.5307	8.5
jun	11	2457915.75	1	42	40.69	+10	1	42.23	20.5174	8.4
jun	12	2457916.75	1	42	49.59	+10	2	31.66	20.5039	8.3
jun	13	2457917.75	1	42	58.36	+10	3	20.30	20.4902	8.3
jun	14	2457918.75	1	43	7.00	+10	4	8.13	20.4764	8.2
jun	15	2457919.75	1	43	15.49	+10	4	55.13	20.4624	8.1
jun	16	2457920.75	1	43	23.84	+10	5	41.29	20.4483	8.1
jun	17	2457921.75	1	43	32.05	+10	6	26.61	20.4340	8.0
jun	18	2457922.75	1	43	40.12	+10	7	11.07	20.4196	7.9
jun	19	2457923.75	1	43	48.04	+10	7	54.68	20.4051	7.9
jun	20	2457924.75	1	43	55.82	+10	8	37.42	20.3904	7.8
jun	21	2457925.75	1	44	3.45	+10	9	19.31	20.3756	7.8
jun	22	2457926.75	1	44	10.93	+10	10	0.33	20.3606	7.7
jun	23	2457927.75	1	44	18.26	+10	10	40.49	20.3455	7.6
jun	24	2457928.75	1	44	25.44	+10	11	19.77	20.3303	7.6
jun	25	2457929.75	1	44	32.47	+10	11	58.16	20.3150	7.5
jun	26	2457930.75	1	44	39.33	+10	12	35.62	20.2996	7.4
jun	27	2457931.75	1	44	46.03	+10	13	12.15	20.2841	7.4
jun	28	2457932.75	1	44	52.57	+10	13	47.72	20.2684	7.3
jun	29	2457933.75	1	44	58.94	+10	14	22.34	20.2527	7.2
jun	30	2457934.75	1	45	5.15	+10	14	56.00	20.2369	7.2
jul	1	2457935.75	1	45	11.19	+10	15	28.71	20.2210	7.1
jul	2	2457936.75	1	45	17.07	+10	16	0.45	20.2050	7.1
jul	3	2457937.75	1	45	22.78	+10	16	31.24	20.1889	7.0

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

mes	día	dj	h	α m	s	°	δ `	“	dis UA	hp h
jul	4	2457938.75	1	45	28.33	+10	17	1.07	20.1727	6.9
jul	5	2457939.75	1	45	33.71	+10	17	29.94	20.1565	6.9
jul	6	2457940.75	1	45	38.92	+10	17	57.85	20.1402	6.8
jul	7	2457941.75	1	45	43.97	+10	18	24.80	20.1238	6.7
jul	8	2457942.75	1	45	48.84	+10	18	50.77	20.1074	6.7
jul	9	2457943.75	1	45	53.54	+10	19	15.76	20.0909	6.6
jul	10	2457944.75	1	45	58.06	+10	19	39.76	20.0743	6.5
jul	11	2457945.75	1	46	2.41	+10	20	2.76	20.0577	6.5
jul	12	2457946.75	1	46	6.58	+10	20	24.76	20.0411	6.4
jul	13	2457947.75	1	46	10.57	+10	20	45.73	20.0244	6.3
jul	14	2457948.75	1	46	14.38	+10	21	5.69	20.0077	6.3
jul	15	2457949.75	1	46	18.01	+10	21	24.61	19.9910	6.2
jul	16	2457950.75	1	46	21.46	+10	21	42.51	19.9742	6.2
jul	17	2457951.75	1	46	24.74	+10	21	59.39	19.9574	6.1
jul	18	2457952.75	1	46	27.83	+10	22	15.25	19.9406	6.0
jul	19	2457953.75	1	46	30.74	+10	22	30.10	19.9238	6.0
jul	20	2457954.75	1	46	33.48	+10	22	43.93	19.9069	5.9
jul	21	2457955.75	1	46	36.03	+10	22	56.74	19.8901	5.8
jul	22	2457956.75	1	46	38.39	+10	23	8.53	19.8732	5.8
jul	23	2457957.75	1	46	40.57	+10	23	19.28	19.8564	5.7
jul	24	2457958.75	1	46	42.56	+10	23	28.97	19.8396	5.6
jul	25	2457959.75	1	46	44.36	+10	23	37.60	19.8228	5.6
jul	26	2457960.75	1	46	45.97	+10	23	45.16	19.8060	5.5
jul	27	2457961.75	1	46	47.39	+10	23	51.65	19.7892	5.4
jul	28	2457962.75	1	46	48.63	+10	23	57.07	19.7725	5.4
jul	29	2457963.75	1	46	49.67	+10	24	1.45	19.7558	5.3
jul	30	2457964.75	1	46	50.53	+10	24	4.77	19.7391	5.2
jul	31	2457965.75	1	46	51.21	+10	24	7.06	19.7225	5.2
ago	1	2457966.75	1	46	51.70	+10	24	8.31	19.7059	5.1
ago	2	2457967.75	1	46	52.01	+10	24	8.53	19.6894	5.0
ago	3	2457968.75	1	46	52.13	+10	24	7.72	19.6729	5.0
ago	4	2457969.75	1	46	52.07	+10	24	5.89	19.6566	4.9
ago	5	2457970.75	1	46	51.82	+10	24	3.02	19.6402	4.8
ago	6	2457971.75	1	46	51.39	+10	23	59.13	19.6240	4.8
ago	7	2457972.75	1	46	50.77	+10	23	54.20	19.6078	4.7
ago	8	2457973.75	1	46	49.96	+10	23	48.23	19.5917	4.6
ago	9	2457974.75	1	46	48.97	+10	23	41.23	19.5757	4.6
ago	10	2457975.75	1	46	47.79	+10	23	33.19	19.5598	4.5
ago	11	2457976.75	1	46	46.42	+10	23	24.12	19.5439	4.5
ago	12	2457977.75	1	46	44.88	+10	23	14.02	19.5282	4.4
ago	13	2457978.75	1	46	43.15	+10	23	2.90	19.5126	4.3
ago	14	2457979.75	1	46	41.24	+10	22	50.78	19.4971	4.3
ago	15	2457980.75	1	46	39.15	+10	22	37.66	19.4816	4.2
ago	16	2457981.75	1	46	36.89	+10	22	23.56	19.4663	4.1
ago	17	2457982.75	1	46	34.45	+10	22	8.48	19.4512	4.1
ago	18	2457983.75	1	46	31.82	+10	21	52.42	19.4361	4.0

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

mes	día	dj	h	α m	s	°	δ `	“	dis UA	hp h
ago	19	2457984.75	1	46	29.02	+10	21	35.37	19.4212	3.9
ago	20	2457985.75	1	46	26.04	+10	21	17.34	19.4064	3.9
ago	21	2457986.75	1	46	22.88	+10	20	58.32	19.3918	3.8
ago	22	2457987.75	1	46	19.55	+10	20	38.31	19.3773	3.7
ago	23	2457988.75	1	46	16.03	+10	20	17.31	19.3630	3.7
ago	24	2457989.75	1	46	12.34	+10	19	55.34	19.3488	3.6
ago	25	2457990.75	1	46	8.48	+10	19	32.42	19.3347	3.5
ago	26	2457991.75	1	46	4.46	+10	19	8.56	19.3209	3.5
ago	27	2457992.75	1	46	0.27	+10	18	43.77	19.3072	3.4
ago	28	2457993.75	1	45	55.91	+10	18	18.08	19.2936	3.3
ago	29	2457994.75	1	45	51.39	+10	17	51.50	19.2803	3.3
ago	30	2457995.75	1	45	46.72	+10	17	24.03	19.2671	3.2
ago	31	2457996.75	1	45	41.88	+10	16	55.69	19.2542	3.1
sep	1	2457997.75	1	45	36.89	+10	16	26.48	19.2414	3.1
sep	2	2457998.75	1	45	31.74	+10	15	56.42	19.2288	3.0
sep	3	2457999.75	1	45	26.44	+10	15	25.50	19.2164	2.9
sep	4	2458000.75	1	45	20.99	+10	14	53.75	19.2042	2.8
sep	5	2458001.75	1	45	15.38	+10	14	21.15	19.1922	2.8
sep	6	2458002.75	1	45	9.62	+10	13	47.73	19.1804	2.7
sep	7	2458003.75	1	45	3.72	+10	13	13.49	19.1688	2.6
sep	8	2458004.75	1	44	57.67	+10	12	38.45	19.1574	2.6
sep	9	2458005.75	1	44	51.49	+10	12	2.62	19.1463	2.5
sep	10	2458006.75	1	44	45.16	+10	11	26.04	19.1353	2.4
sep	11	2458007.75	1	44	38.70	+10	10	48.71	19.1246	2.4
sep	12	2458008.75	1	44	32.12	+10	10	10.66	19.1142	2.3
sep	13	2458009.75	1	44	25.40	+10	9	31.90	19.1039	2.2
sep	14	2458010.75	1	44	18.55	+10	8	52.44	19.0939	2.2
sep	15	2458011.75	1	44	11.58	+10	8	12.30	19.0842	2.1
sep	16	2458012.75	1	44	4.48	+10	7	31.47	19.0746	2.0
sep	17	2458013.75	1	43	57.26	+10	6	49.96	19.0654	2.0
sep	18	2458014.75	1	43	49.91	+10	6	7.78	19.0563	1.9
sep	19	2458015.75	1	43	42.45	+10	5	24.94	19.0476	1.8
sep	20	2458016.75	1	43	34.88	+10	4	41.47	19.0390	1.8
sep	21	2458017.75	1	43	27.19	+10	3	57.39	19.0308	1.7
sep	22	2458018.75	1	43	19.40	+10	3	12.72	19.0228	1.6
sep	23	2458019.75	1	43	11.51	+10	2	27.49	19.0151	1.6
sep	24	2458020.75	1	43	3.52	+10	1	41.73	19.0076	1.5
sep	25	2458021.75	1	42	55.44	+10	0	55.45	19.0005	1.4
sep	26	2458022.75	1	42	47.27	+10	0	8.68	18.9936	1.4
sep	27	2458023.75	1	42	39.02	+9	59	21.44	18.9869	1.3
sep	28	2458024.75	1	42	30.68	+9	58	33.74	18.9806	1.2
sep	29	2458025.75	1	42	22.26	+9	57	45.60	18.9745	1.2
sep	30	2458026.75	1	42	13.76	+9	56	57.04	18.9687	1.1
oct	1	2458027.75	1	42	5.18	+9	56	8.08	18.9632	1.0
oct	2	2458028.75	1	41	56.53	+9	55	18.71	18.9580	1.0
oct	3	2458029.75	1	41	47.82	+9	54	28.98	18.9531	0.9

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

mes	día	dj	h	α m	s	°	δ `	“	dis UA	hp h
oct	4	2458030.75	1	41	39.04	+9	53	38.88	18.9484	0.8
oct	5	2458031.75	1	41	30.19	+9	52	48.45	18.9441	0.7
oct	6	2458032.75	1	41	21.30	+9	51	57.71	18.9400	0.7
oct	7	2458033.75	1	41	12.35	+9	51	6.68	18.9363	0.6
oct	8	2458034.75	1	41	3.35	+9	50	15.40	18.9328	0.5
oct	9	2458035.75	1	40	54.31	+9	49	23.90	18.9296	0.5
oct	10	2458036.75	1	40	45.24	+9	48	32.19	18.9268	0.4
oct	11	2458037.75	1	40	36.12	+9	47	40.30	18.9242	0.3
oct	12	2458038.75	1	40	26.97	+9	46	48.24	18.9219	0.3
oct	13	2458039.75	1	40	17.79	+9	45	56.01	18.9200	0.2
oct	14	2458040.75	1	40	8.58	+9	45	3.65	18.9183	0.1
oct	15	2458041.75	1	39	59.34	+9	44	11.14	18.9170	0.1
oct	16	2458042.75	1	39	50.08	+9	43	18.53	18.9159	24.0
oct	17	2458043.75	1	39	40.81	+9	42	25.83	18.9152	23.9
oct	18	2458044.75	1	39	31.52	+9	41	33.08	18.9147	23.9
oct	19	2458045.75	1	39	22.23	+9	40	40.29	18.9146	23.8
oct	20	2458046.75	1	39	12.93	+9	39	47.51	18.9148	23.7
oct	21	2458047.75	1	39	3.64	+9	38	54.76	18.9153	23.7
oct	22	2458048.75	1	38	54.36	+9	38	2.07	18.9161	23.6
oct	23	2458049.75	1	38	45.09	+9	37	9.47	18.9172	23.5
oct	24	2458050.75	1	38	35.83	+9	36	16.98	18.9186	23.5
oct	25	2458051.75	1	38	26.60	+9	35	24.63	18.9203	23.4
oct	26	2458052.75	1	38	17.39	+9	34	32.43	18.9223	23.3
oct	27	2458053.75	1	38	8.20	+9	33	40.40	18.9247	23.2
oct	28	2458054.75	1	37	59.05	+9	32	48.56	18.9273	23.2
oct	29	2458055.75	1	37	49.92	+9	31	56.93	18.9303	23.1
oct	30	2458056.75	1	37	40.84	+9	31	5.53	18.9335	23.0
oct	31	2458057.75	1	37	31.79	+9	30	14.38	18.9371	23.0
nov	1	2458058.75	1	37	22.79	+9	29	23.50	18.9409	22.9
nov	2	2458059.75	1	37	13.85	+9	28	32.91	18.9451	22.8
nov	3	2458060.75	1	37	4.95	+9	27	42.65	18.9495	22.8
nov	4	2458061.75	1	36	56.12	+9	26	52.75	18.9543	22.7
nov	5	2458062.75	1	36	47.35	+9	26	3.23	18.9593	22.6
nov	6	2458063.75	1	36	38.64	+9	25	14.13	18.9647	22.6
nov	7	2458064.75	1	36	30.01	+9	24	25.46	18.9703	22.5
nov	8	2458065.75	1	36	21.45	+9	23	37.23	18.9762	22.4
nov	9	2458066.75	1	36	12.97	+9	22	49.46	18.9824	22.4
nov	10	2458067.75	1	36	4.56	+9	22	2.16	18.9889	22.3
nov	11	2458068.75	1	35	56.23	+9	21	15.33	18.9957	22.2
nov	12	2458069.75	1	35	47.98	+9	20	29.00	19.0028	22.2
nov	13	2458070.75	1	35	39.82	+9	19	43.20	19.0101	22.1
nov	14	2458071.75	1	35	31.76	+9	18	57.93	19.0178	22.0
nov	15	2458072.75	1	35	23.79	+9	18	13.25	19.0257	22.0
nov	16	2458073.75	1	35	15.93	+9	17	29.16	19.0339	21.9
nov	17	2458074.75	1	35	8.17	+9	16	45.70	19.0423	21.8
nov	18	2458075.75	1	35	0.52	+9	16	2.90	19.0511	21.7

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

mes	día	dj	h	α m	s	°	δ `	“	dis UA	hp h
nov	19	2458076.75	1	34	52.99	+9	15	20.78	19.0600	21.7
nov	20	2458077.75	1	34	45.58	+9	14	39.36	19.0693	21.6
nov	21	2458078.75	1	34	38.28	+9	13	58.65	19.0788	21.5
nov	22	2458079.75	1	34	31.11	+9	13	18.68	19.0886	21.5
nov	23	2458080.75	1	34	24.06	+9	12	39.45	19.0987	21.4
nov	24	2458081.75	1	34	17.15	+9	12	0.99	19.1089	21.3
nov	25	2458082.75	1	34	10.36	+9	11	23.30	19.1195	21.3
nov	26	2458083.75	1	34	3.70	+9	10	46.40	19.1302	21.2
nov	27	2458084.75	1	33	57.18	+9	10	10.30	19.1413	21.1
nov	28	2458085.75	1	33	50.80	+9	9	35.02	19.1525	21.1
nov	29	2458086.75	1	33	44.56	+9	9	0.57	19.1640	21.0
nov	30	2458087.75	1	33	38.46	+9	8	26.97	19.1757	20.9
dic	1	2458088.75	1	33	32.52	+9	7	54.26	19.1876	20.9
dic	2	2458089.75	1	33	26.73	+9	7	22.45	19.1998	20.8
dic	3	2458090.75	1	33	21.09	+9	6	51.56	19.2122	20.7
dic	4	2458091.75	1	33	15.62	+9	6	21.60	19.2247	20.7
dic	5	2458092.75	1	33	10.30	+9	5	52.60	19.2375	20.6
dic	6	2458093.75	1	33	5.14	+9	5	24.55	19.2505	20.5
dic	7	2458094.75	1	33	0.13	+9	4	57.44	19.2637	20.5
dic	8	2458095.75	1	32	55.29	+9	4	31.28	19.2771	20.4
dic	9	2458096.75	1	32	50.61	+9	4	6.08	19.2907	20.3
dic	10	2458097.75	1	32	46.10	+9	3	41.85	19.3044	20.3
dic	11	2458098.75	1	32	41.75	+9	3	18.60	19.3184	20.2
dic	12	2458099.75	1	32	37.57	+9	2	56.36	19.3325	20.1
dic	13	2458100.75	1	32	33.57	+9	2	35.14	19.3468	20.1
dic	14	2458101.75	1	32	29.75	+9	2	14.96	19.3613	20.0
dic	15	2458102.75	1	32	26.11	+9	1	55.84	19.3760	19.9
dic	16	2458103.75	1	32	22.65	+9	1	37.80	19.3908	19.9
dic	17	2458104.75	1	32	19.37	+9	1	20.83	19.4057	19.8
dic	18	2458105.75	1	32	16.28	+9	1	4.96	19.4208	19.7
dic	19	2458106.75	1	32	13.37	+9	0	50.17	19.4361	19.7
dic	20	2458107.75	1	32	10.65	+9	0	36.49	19.4515	19.6
dic	21	2458108.75	1	32	8.11	+9	0	23.92	19.4670	19.5
dic	22	2458109.75	1	32	5.77	+9	0	12.44	19.4827	19.5
dic	23	2458110.75	1	32	3.61	+9	0	2.07	19.4984	19.4
dic	24	2458111.75	1	32	1.64	+8	59	52.81	19.5143	19.3
dic	25	2458112.75	1	31	59.85	+8	59	44.67	19.5304	19.3
dic	26	2458113.75	1	31	58.26	+8	59	37.64	19.5465	19.2
dic	27	2458114.75	1	31	56.87	+8	59	31.74	19.5627	19.1
dic	28	2458115.75	1	31	55.67	+8	59	26.98	19.5790	19.1
dic	29	2458116.75	1	31	54.66	+8	59	23.36	19.5954	19.0
dic	30	2458117.75	1	31	53.85	+8	59	20.90	19.6119	18.9
dic	31	2458118.75	1	31	53.24	+8	59	19.60	19.6285	18.9
ene	1	2458119.75	1	31	52.83	+8	59	19.48	19.6452	18.8
ene	2	2458120.75	1	31	52.61	+8	59	20.51	19.6619	18.7

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

mes	día	dj	h	α m	s	°	δ `	“	dis UA	hp h
ene	1	2457754.75	22	46	27.71	-8	42	23.65	30.4503	16.0
ene	2	2457755.75	22	46	32.91	-8	41	51.26	30.4650	16.0
ene	3	2457756.75	22	46	38.21	-8	41	18.26	30.4796	15.9
ene	4	2457757.75	22	46	43.61	-8	40	44.66	30.4940	15.8
ene	5	2457758.75	22	46	49.11	-8	40	10.45	30.5083	15.8
ene	6	2457759.75	22	46	54.72	-8	39	35.65	30.5224	15.7
ene	7	2457760.75	22	47	0.42	-8	39	0.24	30.5363	15.6
ene	8	2457761.75	22	47	6.22	-8	38	24.24	30.5501	15.6
ene	9	2457762.75	22	47	12.13	-8	37	47.65	30.5636	15.5
ene	10	2457763.75	22	47	18.13	-8	37	10.49	30.5770	15.5
ene	11	2457764.75	22	47	24.22	-8	36	32.78	30.5901	15.4
ene	12	2457765.75	22	47	30.41	-8	35	54.54	30.6031	15.3
ene	13	2457766.75	22	47	36.68	-8	35	15.78	30.6159	15.3
ene	14	2457767.75	22	47	43.04	-8	34	36.52	30.6285	15.2
ene	15	2457768.75	22	47	49.49	-8	33	56.76	30.6409	15.1
ene	16	2457769.75	22	47	56.01	-8	33	16.52	30.6530	15.1
ene	17	2457770.75	22	48	2.62	-8	32	35.79	30.6650	15.0
ene	18	2457771.75	22	48	9.31	-8	31	54.57	30.6767	14.9
ene	19	2457772.75	22	48	16.08	-8	31	12.86	30.6883	14.9
ene	20	2457773.75	22	48	22.94	-8	30	30.68	30.6996	14.8
ene	21	2457774.75	22	48	29.87	-8	29	48.04	30.7106	14.8
ene	22	2457775.75	22	48	36.88	-8	29	4.93	30.7215	14.7
ene	23	2457776.75	22	48	43.97	-8	28	21.37	30.7321	14.6
ene	24	2457777.75	22	48	51.13	-8	27	37.39	30.7425	14.6
ene	25	2457778.75	22	48	58.37	-8	26	52.98	30.7526	14.5
ene	26	2457779.75	22	49	5.67	-8	26	8.17	30.7625	14.4
ene	27	2457780.75	22	49	13.04	-8	25	22.97	30.7722	14.4
ene	28	2457781.75	22	49	20.48	-8	24	37.41	30.7816	14.3
ene	29	2457782.75	22	49	27.98	-8	23	51.49	30.7908	14.2
ene	30	2457783.75	22	49	35.53	-8	23	5.22	30.7997	14.2
ene	31	2457784.75	22	49	43.15	-8	22	18.61	30.8083	14.1
feb	1	2457785.75	22	49	50.82	-8	21	31.67	30.8167	14.1
feb	2	2457786.75	22	49	58.55	-8	20	44.41	30.8249	14.0
feb	3	2457787.75	22	50	6.33	-8	19	56.81	30.8328	13.9
feb	4	2457788.75	22	50	14.17	-8	19	8.90	30.8404	13.9
feb	5	2457789.75	22	50	22.06	-8	18	20.69	30.8477	13.8
feb	6	2457790.75	22	50	30.00	-8	17	32.18	30.8548	13.7
feb	7	2457791.75	22	50	37.98	-8	16	43.40	30.8616	13.7
feb	8	2457792.75	22	50	46.02	-8	15	54.37	30.8682	13.6
feb	9	2457793.75	22	50	54.09	-8	15	5.10	30.8744	13.5
feb	10	2457794.75	22	51	2.20	-8	14	15.63	30.8804	13.5
feb	11	2457795.75	22	51	10.35	-8	13	25.95	30.8862	13.4
feb	12	2457796.75	22	51	18.54	-8	12	36.09	30.8916	13.4
feb	13	2457797.75	22	51	26.75	-8	11	46.03	30.8968	13.3
feb	14	2457798.75	22	51	35.00	-8	10	55.79	30.9017	13.2
feb	15	2457799.75	22	51	43.28	-8	10	5.37	30.9063	13.2

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

mes	día	dj	h	α m	s	°	δ `	“	dis UA	hp h
feb	16	2457800.75	22	51	51.59	-8	9	14.78	30.9107	13.1
feb	17	2457801.75	22	51	59.93	-8	8	24.02	30.9147	13.0
feb	18	2457802.75	22	52	8.29	-8	7	33.11	30.9185	13.0
feb	19	2457803.75	22	52	16.69	-8	6	42.06	30.9220	12.9
feb	20	2457804.75	22	52	25.11	-8	5	50.88	30.9252	12.8
feb	21	2457805.75	22	52	33.54	-8	4	59.59	30.9281	12.8
feb	22	2457806.75	22	52	42.00	-8	4	8.21	30.9308	12.7
feb	23	2457807.75	22	52	50.48	-8	3	16.75	30.9331	12.7
feb	24	2457808.75	22	52	58.96	-8	2	25.23	30.9352	12.6
feb	25	2457809.75	22	53	7.46	-8	1	33.67	30.9369	12.5
feb	26	2457810.75	22	53	15.97	-8	0	42.08	30.9384	12.5
feb	27	2457811.75	22	53	24.48	-7	59	50.48	30.9396	12.4
feb	28	2457812.75	22	53	33.00	-7	58	58.89	30.9405	12.3
mar	1	2457813.75	22	53	41.53	-7	58	7.39	30.9411	12.3
mar	2	2457814.75	22	53	50.03	-7	57	16.12	30.9415	12.2
mar	3	2457815.75	22	53	58.54	-7	56	24.26	30.9415	12.1
mar	4	2457816.75	22	54	7.06	-7	55	32.51	30.9413	12.1
mar	5	2457817.75	22	54	15.58	-7	54	40.86	30.9407	12.0
mar	6	2457818.75	22	54	24.10	-7	53	49.29	30.9399	12.0
mar	7	2457819.75	22	54	32.61	-7	52	57.80	30.9388	11.9
mar	8	2457820.75	22	54	41.11	-7	52	6.40	30.9374	11.8
mar	9	2457821.75	22	54	49.60	-7	51	15.11	30.9357	11.8
mar	10	2457822.75	22	54	58.07	-7	50	23.95	30.9337	11.7
mar	11	2457823.75	22	55	6.52	-7	49	32.91	30.9315	11.6
mar	12	2457824.75	22	55	14.95	-7	48	42.01	30.9290	11.6
mar	13	2457825.75	22	55	23.36	-7	47	51.26	30.9261	11.5
mar	14	2457826.75	22	55	31.75	-7	47	0.64	30.9230	11.5
mar	15	2457827.75	22	55	40.11	-7	46	10.18	30.9197	11.4
mar	16	2457828.75	22	55	48.46	-7	45	19.87	30.9160	11.3
mar	17	2457829.75	22	55	56.78	-7	44	29.73	30.9121	11.3
mar	18	2457830.75	22	56	5.07	-7	43	39.77	30.9079	11.2
mar	19	2457831.75	22	56	13.34	-7	42	49.99	30.9034	11.1
mar	20	2457832.75	22	56	21.57	-7	42	0.43	30.8987	11.1
mar	21	2457833.75	22	56	29.77	-7	41	11.09	30.8937	11.0
mar	22	2457834.75	22	56	37.94	-7	40	21.99	30.8884	10.9
mar	23	2457835.75	22	56	46.07	-7	39	33.14	30.8828	10.9
mar	24	2457836.75	22	56	54.16	-7	38	44.56	30.8770	10.8
mar	25	2457837.75	22	57	2.21	-7	37	56.26	30.8709	10.8
mar	26	2457838.75	22	57	10.21	-7	37	8.26	30.8645	10.7
mar	27	2457839.75	22	57	18.17	-7	36	20.56	30.8579	10.6
mar	28	2457840.75	22	57	26.07	-7	35	33.17	30.8510	10.6
mar	29	2457841.75	22	57	33.93	-7	34	46.09	30.8438	10.5
mar	30	2457842.75	22	57	41.74	-7	33	59.31	30.8364	10.4
mar	31	2457843.75	22	57	49.51	-7	33	12.86	30.8287	10.4
abr	1	2457844.75	22	57	57.22	-7	32	26.73	30.8208	10.3
abr	2	2457845.75	22	58	4.87	-7	31	40.95	30.8127	10.2

Neptuno, 2017

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

mes	día	dj	h	α m	s	°	δ `	“	dis UA	hp h
abr	3	2457846.75	22	58	12.48	-7	30	55.54	30.8043	10.2
abr	4	2457847.75	22	58	20.02	-7	30	10.52	30.7956	10.1
abr	5	2457848.75	22	58	27.50	-7	29	25.91	30.7867	10.1
abr	6	2457849.75	22	58	34.91	-7	28	41.71	30.7776	10.0
abr	7	2457850.75	22	58	42.26	-7	27	57.94	30.7682	9.9
abr	8	2457851.75	22	58	49.55	-7	27	14.60	30.7586	9.9
abr	9	2457852.75	22	58	56.76	-7	26	31.69	30.7488	9.8
abr	10	2457853.75	22	59	3.91	-7	25	49.22	30.7388	9.7
abr	11	2457854.75	22	59	10.98	-7	25	7.19	30.7285	9.7
abr	12	2457855.75	22	59	17.99	-7	24	25.60	30.7180	9.6
abr	13	2457856.75	22	59	24.93	-7	23	44.46	30.7073	9.5
abr	14	2457857.75	22	59	31.79	-7	23	3.79	30.6963	9.5
abr	15	2457858.75	22	59	38.58	-7	22	23.58	30.6852	9.4
abr	16	2457859.75	22	59	45.30	-7	21	43.86	30.6738	9.4
abr	17	2457860.75	22	59	51.94	-7	21	4.63	30.6623	9.3
abr	18	2457861.75	22	59	58.50	-7	20	25.91	30.6505	9.2
abr	19	2457862.75	23	0	4.99	-7	19	47.71	30.6386	9.2
abr	20	2457863.75	23	0	11.38	-7	19	10.05	30.6264	9.1
abr	21	2457864.75	23	0	17.70	-7	18	32.93	30.6140	9.0
abr	22	2457865.75	23	0	23.92	-7	17	56.38	30.6015	9.0
abr	23	2457866.75	23	0	30.06	-7	17	20.38	30.5888	8.9
abr	24	2457867.75	23	0	36.11	-7	16	44.95	30.5758	8.8
abr	25	2457868.75	23	0	42.06	-7	16	10.09	30.5627	8.8
abr	26	2457869.75	23	0	47.93	-7	15	35.79	30.5495	8.7
abr	27	2457870.75	23	0	53.71	-7	15	2.05	30.5360	8.7
abr	28	2457871.75	23	0	59.40	-7	14	28.89	30.5224	8.6
abr	29	2457872.75	23	1	5.00	-7	13	56.31	30.5086	8.5
abr	30	2457873.75	23	1	10.50	-7	13	24.33	30.4947	8.5
may	1	2457874.75	23	1	15.91	-7	12	52.98	30.4806	8.4
may	2	2457875.75	23	1	21.21	-7	12	22.27	30.4663	8.3
may	3	2457876.75	23	1	26.42	-7	11	52.20	30.4519	8.3
may	4	2457877.75	23	1	31.52	-7	11	22.78	30.4374	8.2
may	5	2457878.75	23	1	36.51	-7	10	54.03	30.4227	8.1
may	6	2457879.75	23	1	41.41	-7	10	25.92	30.4079	8.1
may	7	2457880.75	23	1	46.20	-7	9	58.48	30.3930	8.0
may	8	2457881.75	23	1	50.88	-7	9	31.68	30.3779	7.9
may	9	2457882.75	23	1	55.47	-7	9	5.54	30.3627	7.9
may	10	2457883.75	23	1	59.94	-7	8	40.05	30.3474	7.8
may	11	2457884.75	23	2	4.32	-7	8	15.23	30.3320	7.8
may	12	2457885.75	23	2	8.59	-7	7	51.07	30.3165	7.7
may	13	2457886.75	23	2	12.75	-7	7	27.58	30.3008	7.6
may	14	2457887.75	23	2	16.81	-7	7	4.78	30.2851	7.6
may	15	2457888.75	23	2	20.75	-7	6	42.68	30.2692	7.5
may	16	2457889.75	23	2	24.59	-7	6	21.27	30.2533	7.4
may	17	2457890.75	23	2	28.31	-7	6	0.58	30.2373	7.4
may	18	2457891.75	23	2	31.92	-7	5	40.61	30.2211	7.3

Neptuno, 2017

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

mes	día	dj	h	α m	s	°	δ `	“	dis UA	hp h
may	19	2457892.75	23	2	35.41	-7	5	21.36	30.2050	7.2
may	20	2457893.75	23	2	38.79	-7	5	2.84	30.1887	7.2
may	21	2457894.75	23	2	42.06	-7	4	45.05	30.1723	7.1
may	22	2457895.75	23	2	45.20	-7	4	27.99	30.1559	7.0
may	23	2457896.75	23	2	48.23	-7	4	11.64	30.1394	7.0
may	24	2457897.75	23	2	51.15	-7	3	56.02	30.1229	6.9
may	25	2457898.75	23	2	53.95	-7	3	41.10	30.1063	6.8
may	26	2457899.75	23	2	56.64	-7	3	26.91	30.0897	6.8
may	27	2457900.75	23	2	59.21	-7	3	13.45	30.0730	6.7
may	28	2457901.75	23	3	1.66	-7	3	0.73	30.0563	6.6
may	29	2457902.75	23	3	3.99	-7	2	48.78	30.0395	6.6
may	30	2457903.75	23	3	6.20	-7	2	37.60	30.0227	6.5
may	31	2457904.75	23	3	8.29	-7	2	27.19	30.0059	6.5
jun	1	2457905.75	23	3	10.26	-7	2	17.54	29.9891	6.4
jun	2	2457906.75	23	3	12.10	-7	2	8.67	29.9722	6.3
jun	3	2457907.75	23	3	13.82	-7	2	0.55	29.9554	6.3
jun	4	2457908.75	23	3	15.42	-7	1	53.18	29.9385	6.2
jun	5	2457909.75	23	3	16.89	-7	1	46.56	29.9217	6.1
jun	6	2457910.75	23	3	18.25	-7	1	40.68	29.9048	6.1
jun	7	2457911.75	23	3	19.49	-7	1	35.55	29.8880	6.0
jun	8	2457912.75	23	3	20.61	-7	1	31.16	29.8711	5.9
jun	9	2457913.75	23	3	21.62	-7	1	27.51	29.8543	5.9
jun	10	2457914.75	23	3	22.50	-7	1	24.61	29.8375	5.8
jun	11	2457915.75	23	3	23.26	-7	1	22.46	29.8207	5.7
jun	12	2457916.75	23	3	23.90	-7	1	21.08	29.8040	5.7
jun	13	2457917.75	23	3	24.42	-7	1	20.45	29.7873	5.6
jun	14	2457918.75	23	3	24.82	-7	1	20.59	29.7706	5.5
jun	15	2457919.75	23	3	25.09	-7	1	21.49	29.7540	5.5
jun	16	2457920.75	23	3	25.24	-7	1	23.16	29.7374	5.4
jun	17	2457921.75	23	3	25.27	-7	1	25.58	29.7209	5.3
jun	18	2457922.75	23	3	25.17	-7	1	28.76	29.7045	5.3
jun	19	2457923.75	23	3	24.96	-7	1	32.67	29.6881	5.2
jun	20	2457924.75	23	3	24.62	-7	1	37.33	29.6717	5.1
jun	21	2457925.75	23	3	24.17	-7	1	42.70	29.6555	5.1
jun	22	2457926.75	23	3	23.60	-7	1	48.79	29.6393	5.0
jun	23	2457927.75	23	3	22.91	-7	1	55.61	29.6232	4.9
jun	24	2457928.75	23	3	22.11	-7	2	3.15	29.6072	4.9
jun	25	2457929.75	23	3	21.19	-7	2	11.44	29.5912	4.8
jun	26	2457930.75	23	3	20.14	-7	2	20.47	29.5754	4.7
jun	27	2457931.75	23	3	18.98	-7	2	30.24	29.5597	4.7
jun	28	2457932.75	23	3	17.69	-7	2	40.76	29.5441	4.6
jun	29	2457933.75	23	3	16.29	-7	2	52.00	29.5286	4.6
jun	30	2457934.75	23	3	14.76	-7	3	3.97	29.5132	4.5
jul	1	2457935.75	23	3	13.13	-7	3	16.63	29.4979	4.4
jul	2	2457936.75	23	3	11.37	-7	3	29.99	29.4828	4.4
jul	3	2457937.75	23	3	9.51	-7	3	44.02	29.4678	4.3

Neptuno, 2017

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

mes	día	dj	h	α m	s	°	δ `	“	dis UA	hp h
jul	4	2457938.75	23	3	7.54	-7	3	58.73	29.4529	4.2
jul	5	2457939.75	23	3	5.45	-7	4	14.11	29.4381	4.2
jul	6	2457940.75	23	3	3.26	-7	4	30.15	29.4235	4.1
jul	7	2457941.75	23	3	0.96	-7	4	46.86	29.4091	4.0
jul	8	2457942.75	23	2	58.55	-7	5	4.22	29.3948	4.0
jul	9	2457943.75	23	2	56.03	-7	5	22.24	29.3806	3.9
jul	10	2457944.75	23	2	53.41	-7	5	40.92	29.3666	3.8
jul	11	2457945.75	23	2	50.68	-7	6	0.25	29.3527	3.8
jul	12	2457946.75	23	2	47.84	-7	6	20.23	29.3391	3.7
jul	13	2457947.75	23	2	44.89	-7	6	40.85	29.3256	3.6
jul	14	2457948.75	23	2	41.84	-7	7	2.10	29.3122	3.6
jul	15	2457949.75	23	2	38.69	-7	7	23.97	29.2991	3.5
jul	16	2457950.75	23	2	35.43	-7	7	46.44	29.2861	3.4
jul	17	2457951.75	23	2	32.08	-7	8	9.51	29.2733	3.4
jul	18	2457952.75	23	2	28.62	-7	8	33.14	29.2607	3.3
jul	19	2457953.75	23	2	25.08	-7	8	57.35	29.2483	3.2
jul	20	2457954.75	23	2	21.44	-7	9	22.10	29.2360	3.2
jul	21	2457955.75	23	2	17.70	-7	9	47.42	29.2240	3.1
jul	22	2457956.75	23	2	13.88	-7	10	13.28	29.2122	3.0
jul	23	2457957.75	23	2	9.96	-7	10	39.71	29.2006	3.0
jul	24	2457958.75	23	2	5.95	-7	11	6.70	29.1892	2.9
jul	25	2457959.75	23	2	1.84	-7	11	34.23	29.1780	2.8
jul	26	2457960.75	23	1	57.64	-7	12	2.30	29.1670	2.8
jul	27	2457961.75	23	1	53.36	-7	12	30.89	29.1563	2.7
jul	28	2457962.75	23	1	48.99	-7	12	59.97	29.1458	2.6
jul	29	2457963.75	23	1	44.54	-7	13	29.52	29.1355	2.6
jul	30	2457964.75	23	1	40.01	-7	13	59.54	29.1255	2.5
jul	31	2457965.75	23	1	35.40	-7	14	30.00	29.1157	2.4
ago	1	2457966.75	23	1	30.71	-7	15	0.90	29.1061	2.4
ago	2	2457967.75	23	1	25.96	-7	15	32.23	29.0967	2.3
ago	3	2457968.75	23	1	21.13	-7	16	3.97	29.0877	2.2
ago	4	2457969.75	23	1	16.23	-7	16	36.12	29.0788	2.2
ago	5	2457970.75	23	1	11.26	-7	17	8.67	29.0702	2.1
ago	6	2457971.75	23	1	6.22	-7	17	41.62	29.0619	2.0
ago	7	2457972.75	23	1	1.11	-7	18	14.95	29.0538	2.0
ago	8	2457973.75	23	0	55.94	-7	18	48.66	29.0459	1.9
ago	9	2457974.75	23	0	50.70	-7	19	22.74	29.0384	1.8
ago	10	2457975.75	23	0	45.40	-7	19	57.18	29.0310	1.7
ago	11	2457976.75	23	0	40.04	-7	20	31.94	29.0240	1.7
ago	12	2457977.75	23	0	34.62	-7	21	7.03	29.0172	1.6
ago	13	2457978.75	23	0	29.15	-7	21	42.41	29.0107	1.5
ago	14	2457979.75	23	0	23.63	-7	22	18.07	29.0044	1.5
ago	15	2457980.75	23	0	18.05	-7	22	53.99	28.9984	1.4
ago	16	2457981.75	23	0	12.43	-7	23	30.15	28.9927	1.3
ago	17	2457982.75	23	0	6.76	-7	24	6.56	28.9873	1.3
ago	18	2457983.75	23	0	1.05	-7	24	43.21	28.9821	1.2

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

mes	día	dj	h	α m	s	°	δ `	“	dis UA	hp h
ago	19	2457984.75	22	59	55.30	-7	25	20.09	28.9773	1.1
ago	20	2457985.75	22	59	49.50	-7	25	57.20	28.9727	1.1
ago	21	2457986.75	22	59	43.67	-7	26	34.52	28.9684	1.0
ago	22	2457987.75	22	59	37.79	-7	27	12.05	28.9644	0.9
ago	23	2457988.75	22	59	31.88	-7	27	49.76	28.9606	0.9
ago	24	2457989.75	22	59	25.93	-7	28	27.63	28.9572	0.8
ago	25	2457990.75	22	59	19.95	-7	29	5.64	28.9541	0.7
ago	26	2457991.75	22	59	13.95	-7	29	43.76	28.9512	0.7
ago	27	2457992.75	22	59	7.92	-7	30	21.97	28.9486	0.6
ago	28	2457993.75	22	59	1.88	-7	31	0.27	28.9464	0.5
ago	29	2457994.75	22	58	55.82	-7	31	38.63	28.9444	0.5
ago	30	2457995.75	22	58	49.74	-7	32	17.05	28.9427	0.4
ago	31	2457996.75	22	58	43.65	-7	32	55.51	28.9413	0.3
sep	1	2457997.75	22	58	37.54	-7	33	34.01	28.9402	0.3
sep	2	2457998.75	22	58	31.43	-7	34	12.53	28.9395	0.2
sep	3	2457999.75	22	58	25.30	-7	34	51.07	28.9390	0.1
sep	4	2458000.75	22	58	19.17	-7	35	29.61	28.9387	0.1
sep	5	2458001.75	22	58	13.04	-7	36	8.15	28.9388	24.0
sep	6	2458002.75	22	58	6.90	-7	36	46.65	28.9392	23.9
sep	7	2458003.75	22	58	0.76	-7	37	25.12	28.9399	23.9
sep	8	2458004.75	22	57	54.62	-7	38	3.53	28.9409	23.8
sep	9	2458005.75	22	57	48.49	-7	38	41.85	28.9422	23.7
sep	10	2458006.75	22	57	42.36	-7	39	20.06	28.9437	23.7
sep	11	2458007.75	22	57	36.25	-7	39	58.14	28.9456	23.6
sep	12	2458008.75	22	57	30.15	-7	40	36.09	28.9478	23.5
sep	13	2458009.75	22	57	24.08	-7	41	13.89	28.9502	23.5
sep	14	2458010.75	22	57	18.02	-7	41	51.54	28.9530	23.4
sep	15	2458011.75	22	57	11.97	-7	42	29.03	28.9560	23.3
sep	16	2458012.75	22	57	5.95	-7	43	6.35	28.9594	23.3
sep	17	2458013.75	22	56	59.96	-7	43	43.50	28.9630	23.2
sep	18	2458014.75	22	56	53.98	-7	44	20.46	28.9670	23.1
sep	19	2458015.75	22	56	48.03	-7	44	57.21	28.9712	23.1
sep	20	2458016.75	22	56	42.11	-7	45	33.74	28.9757	23.0
sep	21	2458017.75	22	56	36.23	-7	46	10.00	28.9805	22.9
sep	22	2458018.75	22	56	30.38	-7	46	46.00	28.9856	22.9
sep	23	2458019.75	22	56	24.57	-7	47	21.70	28.9910	22.8
sep	24	2458020.75	22	56	18.80	-7	47	57.09	28.9967	22.7
sep	25	2458021.75	22	56	13.09	-7	48	32.15	29.0027	22.7
sep	26	2458022.75	22	56	7.41	-7	49	6.88	29.0089	22.6
sep	27	2458023.75	22	56	1.79	-7	49	41.27	29.0154	22.5
sep	28	2458024.75	22	55	56.22	-7	50	15.30	29.0222	22.4
sep	29	2458025.75	22	55	50.71	-7	50	48.97	29.0293	22.4
sep	30	2458026.75	22	55	45.25	-7	51	22.28	29.0366	22.3
oct	1	2458027.75	22	55	39.84	-7	51	55.20	29.0442	22.2
oct	2	2458028.75	22	55	34.49	-7	52	27.73	29.0521	22.2
oct	3	2458029.75	22	55	29.20	-7	52	59.86	29.0603	22.1

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

mes	día	dj	h	α m	s	°	δ `	“	dis UA	hp h
oct	4	2458030.75	22	55	23.97	-7	53	31.58	29.0687	22.0
oct	5	2458031.75	22	55	18.81	-7	54	2.86	29.0774	22.0
oct	6	2458032.75	22	55	13.71	-7	54	33.69	29.0863	21.9
oct	7	2458033.75	22	55	8.68	-7	55	4.04	29.0955	21.8
oct	8	2458034.75	22	55	3.73	-7	55	33.89	29.1049	21.8
oct	9	2458035.75	22	54	58.85	-7	56	3.25	29.1146	21.7
oct	10	2458036.75	22	54	54.05	-7	56	32.09	29.1246	21.6
oct	11	2458037.75	22	54	49.33	-7	57	0.42	29.1348	21.6
oct	12	2458038.75	22	54	44.68	-7	57	28.24	29.1452	21.5
oct	13	2458039.75	22	54	40.12	-7	57	55.54	29.1559	21.4
oct	14	2458040.75	22	54	35.64	-7	58	22.31	29.1668	21.4
oct	15	2458041.75	22	54	31.24	-7	58	48.56	29.1780	21.3
oct	16	2458042.75	22	54	26.92	-7	59	14.26	29.1893	21.2
oct	17	2458043.75	22	54	22.69	-7	59	39.39	29.2010	21.2
oct	18	2458044.75	22	54	18.55	-8	0	3.94	29.2128	21.1
oct	19	2458045.75	22	54	14.50	-8	0	27.89	29.2248	21.0
oct	20	2458046.75	22	54	10.54	-8	0	51.22	29.2371	21.0
oct	21	2458047.75	22	54	6.69	-8	1	13.93	29.2496	20.9
oct	22	2458048.75	22	54	2.93	-8	1	35.99	29.2623	20.8
oct	23	2458049.75	22	53	59.27	-8	1	57.41	29.2752	20.8
oct	24	2458050.75	22	53	55.72	-8	2	18.18	29.2883	20.7
oct	25	2458051.75	22	53	52.27	-8	2	38.29	29.3016	20.6
oct	26	2458052.75	22	53	48.92	-8	2	57.74	29.3151	20.6
oct	27	2458053.75	22	53	45.68	-8	3	16.53	29.3288	20.5
oct	28	2458054.75	22	53	42.55	-8	3	34.66	29.3426	20.4
oct	29	2458055.75	22	53	39.52	-8	3	52.12	29.3567	20.4
oct	30	2458056.75	22	53	36.60	-8	4	8.89	29.3709	20.3
oct	31	2458057.75	22	53	33.78	-8	4	24.99	29.3853	20.2
nov	1	2458058.75	22	53	31.08	-8	4	40.39	29.3998	20.2
nov	2	2458059.75	22	53	28.48	-8	4	55.07	29.4145	20.1
nov	3	2458060.75	22	53	26.00	-8	5	9.04	29.4294	20.0
nov	4	2458061.75	22	53	23.64	-8	5	22.26	29.4444	20.0
nov	5	2458062.75	22	53	21.40	-8	5	34.74	29.4596	19.9
nov	6	2458063.75	22	53	19.27	-8	5	46.47	29.4749	19.8
nov	7	2458064.75	22	53	17.27	-8	5	57.45	29.4903	19.8
nov	8	2458065.75	22	53	15.38	-8	6	7.69	29.5059	19.7
nov	9	2458066.75	22	53	13.62	-8	6	17.19	29.5217	19.6
nov	10	2458067.75	22	53	11.97	-8	6	25.97	29.5375	19.6
nov	11	2458068.75	22	53	10.44	-8	6	34.01	29.5535	19.5
nov	12	2458069.75	22	53	9.02	-8	6	41.31	29.5695	19.4
nov	13	2458070.75	22	53	7.73	-8	6	47.85	29.5857	19.4
nov	14	2458071.75	22	53	6.56	-8	6	53.63	29.6020	19.3
nov	15	2458072.75	22	53	5.52	-8	6	58.63	29.6184	19.2
nov	16	2458073.75	22	53	4.60	-8	7	2.84	29.6349	19.2
nov	17	2458074.75	22	53	3.81	-8	7	6.26	29.6515	19.1
nov	18	2458075.75	22	53	3.15	-8	7	8.88	29.6682	19.0

Neptuno, 2017

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

mes	día	dj	h	α m	s	°	δ `	“	dis UA	hp h
nov	19	2458076.75	22	53	2.62	-8	7	10.71	29.6850	19.0
nov	20	2458077.75	22	53	2.22	-8	7	11.73	29.7018	18.9
nov	21	2458078.75	22	53	1.94	-8	7	11.96	29.7187	18.9
nov	22	2458079.75	22	53	1.80	-8	7	11.40	29.7357	18.8
nov	23	2458080.75	22	53	1.79	-8	7	10.05	29.7527	18.7
nov	24	2458081.75	22	53	1.90	-8	7	7.91	29.7698	18.7
nov	25	2458082.75	22	53	2.14	-8	7	4.99	29.7869	18.6
nov	26	2458083.75	22	53	2.51	-8	7	1.29	29.8041	18.5
nov	27	2458084.75	22	53	3.01	-8	6	56.81	29.8213	18.5
nov	28	2458085.75	22	53	3.63	-8	6	51.54	29.8385	18.4
nov	29	2458086.75	22	53	4.38	-8	6	45.48	29.8558	18.3
nov	30	2458087.75	22	53	5.26	-8	6	38.62	29.8731	18.3
dic	1	2458088.75	22	53	6.28	-8	6	30.96	29.8904	18.2
dic	2	2458089.75	22	53	7.42	-8	6	22.48	29.9077	18.1
dic	3	2458090.75	22	53	8.69	-8	6	13.20	29.9250	18.1
dic	4	2458091.75	22	53	10.10	-8	6	3.11	29.9423	18.0
dic	5	2458092.75	22	53	11.64	-8	5	52.23	29.9596	17.9
dic	6	2458093.75	22	53	13.30	-8	5	40.58	29.9769	17.9
dic	7	2458094.75	22	53	15.10	-8	5	28.16	29.9942	17.8
dic	8	2458095.75	22	53	17.01	-8	5	14.99	30.0115	17.7
dic	9	2458096.75	22	53	19.05	-8	5	1.07	30.0287	17.7
dic	10	2458097.75	22	53	21.22	-8	4	46.38	30.0460	17.6
dic	11	2458098.75	22	53	23.51	-8	4	30.93	30.0631	17.5
dic	12	2458099.75	22	53	25.93	-8	4	14.70	30.0803	17.5
dic	13	2458100.75	22	53	28.47	-8	3	57.70	30.0974	17.4
dic	14	2458101.75	22	53	31.14	-8	3	39.93	30.1145	17.3
dic	15	2458102.75	22	53	33.94	-8	3	21.38	30.1315	17.3
dic	16	2458103.75	22	53	36.86	-8	3	2.06	30.1484	17.2
dic	17	2458104.75	22	53	39.91	-8	2	41.97	30.1653	17.2
dic	18	2458105.75	22	53	43.09	-8	2	21.14	30.1821	17.1
dic	19	2458106.75	22	53	46.39	-8	1	59.56	30.1988	17.0
dic	20	2458107.75	22	53	49.81	-8	1	37.25	30.2154	17.0
dic	21	2458108.75	22	53	53.35	-8	1	14.21	30.2320	16.9
dic	22	2458109.75	22	53	57.02	-8	0	50.46	30.2484	16.8
dic	23	2458110.75	22	54	0.79	-8	0	26.00	30.2648	16.8
dic	24	2458111.75	22	54	4.69	-8	0	0.83	30.2811	16.7
dic	25	2458112.75	22	54	8.70	-7	59	34.97	30.2972	16.6
dic	26	2458113.75	22	54	12.83	-7	59	8.41	30.3132	16.6
dic	27	2458114.75	22	54	17.07	-7	58	41.16	30.3292	16.5
dic	28	2458115.75	22	54	21.42	-7	58	13.21	30.3450	16.4
dic	29	2458116.75	22	54	25.89	-7	57	44.56	30.3606	16.4
dic	30	2458117.75	22	54	30.48	-7	57	15.22	30.3762	16.3
dic	31	2458118.75	22	54	35.17	-7	56	45.19	30.3916	16.2
ene	1	2458119.75	22	54	39.98	-7	56	14.49	30.4068	16.2
ene	2	2458120.75	22	54	44.90	-7	55	43.14	30.4220	16.1

Plutón (planeta enano), 2017

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

mes	día	dj	h	α m	s	°	δ `	“	dis UA	hp h
ene	1	2457754.75	19	12	57.51	-21	21	9.42	34.2207	12.5
ene	2	2457755.75	19	13	6.32	-21	20	59.82	34.2230	12.4
ene	3	2457756.75	19	13	15.14	-21	20	50.14	34.2249	12.3
ene	4	2457757.75	19	13	23.96	-21	20	40.37	34.2266	12.3
ene	5	2457758.75	19	13	32.79	-21	20	30.49	34.2280	12.2
ene	6	2457759.75	19	13	41.62	-21	20	20.43	34.2291	12.2
ene	7	2457760.75	19	13	50.43	-21	20	10.23	34.2299	12.1
ene	8	2457761.75	19	13	59.25	-21	20	0.39	34.2304	12.0
ene	9	2457762.75	19	14	8.08	-21	19	50.38	34.2306	12.0
ene	10	2457763.75	19	14	16.92	-21	19	40.23	34.2306	11.9
ene	11	2457764.75	19	14	25.74	-21	19	30.01	34.2302	11.8
ene	12	2457765.75	19	14	34.56	-21	19	19.77	34.2295	11.8
ene	13	2457766.75	19	14	43.37	-21	19	9.50	34.2286	11.7
ene	14	2457767.75	19	14	52.15	-21	18	59.20	34.2273	11.7
ene	15	2457768.75	19	15	0.92	-21	18	48.88	34.2258	11.6
ene	16	2457769.75	19	15	9.67	-21	18	38.53	34.2240	11.5
ene	17	2457770.75	19	15	18.40	-21	18	28.14	34.2219	11.5
ene	18	2457771.75	19	15	27.11	-21	18	17.72	34.2195	11.4
ene	19	2457772.75	19	15	35.79	-21	18	7.26	34.2168	11.3
ene	20	2457773.75	19	15	44.45	-21	17	56.78	34.2138	11.3
ene	21	2457774.75	19	15	53.09	-21	17	46.29	34.2106	11.2
ene	22	2457775.75	19	16	1.70	-21	17	35.78	34.2070	11.1
ene	23	2457776.75	19	16	10.27	-21	17	25.27	34.2032	11.1
ene	24	2457777.75	19	16	18.82	-21	17	14.77	34.1991	11.0
ene	25	2457778.75	19	16	27.34	-21	17	4.29	34.1947	11.0
ene	26	2457779.75	19	16	35.81	-21	16	53.83	34.1900	10.9
ene	27	2457780.75	19	16	44.25	-21	16	43.41	34.1850	10.8
ene	28	2457781.75	19	16	52.64	-21	16	33.02	34.1798	10.8
ene	29	2457782.75	19	17	0.99	-21	16	22.67	34.1743	10.7
ene	30	2457783.75	19	17	9.29	-21	16	12.35	34.1685	10.6
ene	31	2457784.75	19	17	17.53	-21	16	2.07	34.1624	10.6
feb	1	2457785.75	19	17	25.73	-21	15	51.82	34.1561	10.5
feb	2	2457786.75	19	17	33.87	-21	15	41.59	34.1495	10.4
feb	3	2457787.75	19	17	41.96	-21	15	31.39	34.1426	10.4
feb	4	2457788.75	19	17	50.00	-21	15	21.23	34.1355	10.3
feb	5	2457789.75	19	17	57.98	-21	15	11.12	34.1281	10.3
feb	6	2457790.75	19	18	5.91	-21	15	1.07	34.1205	10.2
feb	7	2457791.75	19	18	13.77	-21	14	51.09	34.1126	10.1
feb	8	2457792.75	19	18	21.58	-21	14	41.20	34.1044	10.1
feb	9	2457793.75	19	18	29.32	-21	14	31.41	34.0961	10.0
feb	10	2457794.75	19	18	36.99	-21	14	21.71	34.0874	9.9
feb	11	2457795.75	19	18	44.59	-21	14	12.11	34.0785	9.9
feb	12	2457796.75	19	18	52.12	-21	14	2.59	34.0694	9.8
feb	13	2457797.75	19	18	59.57	-21	13	53.16	34.0600	9.7
feb	14	2457798.75	19	19	6.95	-21	13	43.81	34.0504	9.7
feb	15	2457799.75	19	19	14.25	-21	13	34.54	34.0406	9.6

Plutón (planeta enano), 2017

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

mes	día	dj	h	α m	s	°	δ `	“	dis UA	hp h
feb	16	2457800.75	19	19	21.48	-21	13	25.37	34.0306	9.6
feb	17	2457801.75	19	19	28.64	-21	13	16.29	34.0203	9.5
feb	18	2457802.75	19	19	35.71	-21	13	7.32	34.0098	9.4
feb	19	2457803.75	19	19	42.71	-21	12	58.46	33.9990	9.4
feb	20	2457804.75	19	19	49.62	-21	12	49.72	33.9881	9.3
feb	21	2457805.75	19	19	56.46	-21	12	41.11	33.9769	9.2
feb	22	2457806.75	19	20	3.20	-21	12	32.65	33.9655	9.2
feb	23	2457807.75	19	20	9.86	-21	12	24.33	33.9540	9.1
feb	24	2457808.75	19	20	16.43	-21	12	16.17	33.9422	9.0
feb	25	2457809.75	19	20	22.91	-21	12	8.15	33.9302	9.0
feb	26	2457810.75	19	20	29.29	-21	12	0.30	33.9180	8.9
feb	27	2457811.75	19	20	35.57	-21	11	52.59	33.9056	8.9
feb	28	2457812.75	19	20	41.76	-21	11	45.02	33.8931	8.8
mar	1	2457813.75	19	20	47.84	-21	11	37.60	33.8803	8.7
mar	2	2457814.75	19	20	53.83	-21	11	30.32	33.8674	8.7
mar	3	2457815.75	19	20	59.72	-21	11	23.18	33.8543	8.6
mar	4	2457816.75	19	21	5.52	-21	11	16.20	33.8410	8.5
mar	5	2457817.75	19	21	11.21	-21	11	9.39	33.8276	8.5
mar	6	2457818.75	19	21	16.80	-21	11	2.77	33.8140	8.4
mar	7	2457819.75	19	21	22.29	-21	10	56.33	33.8002	8.3
mar	8	2457820.75	19	21	27.68	-21	10	50.10	33.7863	8.3
mar	9	2457821.75	19	21	32.95	-21	10	44.08	33.7722	8.2
mar	10	2457822.75	19	21	38.11	-21	10	38.25	33.7580	8.2
mar	11	2457823.75	19	21	43.16	-21	10	32.62	33.7437	8.1
mar	12	2457824.75	19	21	48.10	-21	10	27.19	33.7292	8.0
mar	13	2457825.75	19	21	52.93	-21	10	21.94	33.7145	8.0
mar	14	2457826.75	19	21	57.64	-21	10	16.88	33.6998	7.9
mar	15	2457827.75	19	22	2.24	-21	10	12.00	33.6849	7.8
mar	16	2457828.75	19	22	6.73	-21	10	7.33	33.6699	7.8
mar	17	2457829.75	19	22	11.11	-21	10	2.85	33.6548	7.7
mar	18	2457830.75	19	22	15.37	-21	9	58.58	33.6396	7.6
mar	19	2457831.75	19	22	19.52	-21	9	54.54	33.6243	7.6
mar	20	2457832.75	19	22	23.55	-21	9	50.71	33.6088	7.5
mar	21	2457833.75	19	22	27.47	-21	9	47.12	33.5933	7.4
mar	22	2457834.75	19	22	31.27	-21	9	43.76	33.5777	7.4
mar	23	2457835.75	19	22	34.94	-21	9	40.65	33.5620	7.3
mar	24	2457836.75	19	22	38.49	-21	9	37.78	33.5462	7.2
mar	25	2457837.75	19	22	41.92	-21	9	35.15	33.5303	7.2
mar	26	2457838.75	19	22	45.23	-21	9	32.76	33.5144	7.1
mar	27	2457839.75	19	22	48.40	-21	9	30.60	33.4984	7.1
mar	28	2457840.75	19	22	51.46	-21	9	28.67	33.4823	7.0
mar	29	2457841.75	19	22	54.38	-21	9	26.95	33.4661	6.9
mar	30	2457842.75	19	22	57.19	-21	9	25.46	33.4499	6.9
mar	31	2457843.75	19	22	59.87	-21	9	24.20	33.4337	6.8
abr	1	2457844.75	19	23	2.43	-21	9	23.18	33.4174	6.7
abr	2	2457845.75	19	23	4.87	-21	9	22.42	33.4011	6.7

Plutón (planeta enano), 2017

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

mes	día	dj	h	α m	s	°	δ `	“	dis UA	hp h
abr	3	2457846.75	19	23	7.18	-21	9	21.92	33.3848	6.6
abr	4	2457847.75	19	23	9.36	-21	9	21.69	33.3684	6.5
abr	5	2457848.75	19	23	11.42	-21	9	21.73	33.3520	6.5
abr	6	2457849.75	19	23	13.34	-21	9	22.04	33.3356	6.4
abr	7	2457850.75	19	23	15.14	-21	9	22.61	33.3191	6.3
abr	8	2457851.75	19	23	16.80	-21	9	23.43	33.3027	6.3
abr	9	2457852.75	19	23	18.34	-21	9	24.50	33.2863	6.2
abr	10	2457853.75	19	23	19.75	-21	9	25.82	33.2698	6.1
abr	11	2457854.75	19	23	21.03	-21	9	27.38	33.2534	6.1
abr	12	2457855.75	19	23	22.18	-21	9	29.19	33.2370	6.0
abr	13	2457856.75	19	23	23.21	-21	9	31.25	33.2206	5.9
abr	14	2457857.75	19	23	24.11	-21	9	33.56	33.2042	5.9
abr	15	2457858.75	19	23	24.89	-21	9	36.13	33.1878	5.8
abr	16	2457859.75	19	23	25.55	-21	9	38.97	33.1715	5.7
abr	17	2457860.75	19	23	26.07	-21	9	42.08	33.1552	5.7
abr	18	2457861.75	19	23	26.47	-21	9	45.46	33.1389	5.6
abr	19	2457862.75	19	23	26.75	-21	9	49.13	33.1227	5.6
abr	20	2457863.75	19	23	26.89	-21	9	53.06	33.1066	5.5
abr	21	2457864.75	19	23	26.91	-21	9	57.27	33.0905	5.4
abr	22	2457865.75	19	23	26.79	-21	10	1.75	33.0744	5.4
abr	23	2457866.75	19	23	26.55	-21	10	6.50	33.0584	5.3
abr	24	2457867.75	19	23	26.18	-21	10	11.49	33.0425	5.2
abr	25	2457868.75	19	23	25.68	-21	10	16.73	33.0267	5.2
abr	26	2457869.75	19	23	25.06	-21	10	22.21	33.0109	5.1
abr	27	2457870.75	19	23	24.31	-21	10	27.93	32.9952	5.0
abr	28	2457871.75	19	23	23.45	-21	10	33.90	32.9796	5.0
abr	29	2457872.75	19	23	22.46	-21	10	40.13	32.9641	4.9
abr	30	2457873.75	19	23	21.36	-21	10	46.63	32.9488	4.8
may	1	2457874.75	19	23	20.13	-21	10	53.41	32.9335	4.8
may	2	2457875.75	19	23	18.78	-21	11	0.47	32.9183	4.7
may	3	2457876.75	19	23	17.30	-21	11	7.80	32.9032	4.6
may	4	2457877.75	19	23	15.71	-21	11	15.39	32.8883	4.6
may	5	2457878.75	19	23	13.99	-21	11	23.23	32.8735	4.5
may	6	2457879.75	19	23	12.15	-21	11	31.31	32.8588	4.4
may	7	2457880.75	19	23	10.19	-21	11	39.63	32.8442	4.4
may	8	2457881.75	19	23	8.12	-21	11	48.18	32.8298	4.3
may	9	2457882.75	19	23	5.93	-21	11	56.96	32.8155	4.2
may	10	2457883.75	19	23	3.64	-21	12	5.98	32.8013	4.2
may	11	2457884.75	19	23	1.23	-21	12	15.22	32.7873	4.1
may	12	2457885.75	19	22	58.71	-21	12	24.71	32.7735	4.0
may	13	2457886.75	19	22	56.08	-21	12	34.43	32.7598	4.0
may	14	2457887.75	19	22	53.35	-21	12	44.40	32.7463	3.9
may	15	2457888.75	19	22	50.50	-21	12	54.61	32.7329	3.8
may	16	2457889.75	19	22	47.55	-21	13	5.06	32.7197	3.8
may	17	2457890.75	19	22	44.49	-21	13	15.76	32.7067	3.7
may	18	2457891.75	19	22	41.32	-21	13	26.69	32.6938	3.6

Plutón (planeta enano), 2017

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

mes	día	dj	h	α m	s	°	δ `	“	dis UA	hp h
may	19	2457892.75	19	22	38.05	-21	13	37.86	32.6811	3.6
may	20	2457893.75	19	22	34.67	-21	13	49.24	32.6686	3.5
may	21	2457894.75	19	22	31.19	-21	14	0.84	32.6563	3.4
may	22	2457895.75	19	22	27.60	-21	14	12.64	32.6442	3.4
may	23	2457896.75	19	22	23.92	-21	14	24.63	32.6323	3.3
may	24	2457897.75	19	22	20.14	-21	14	36.81	32.6206	3.2
may	25	2457898.75	19	22	16.27	-21	14	49.18	32.6090	3.2
may	26	2457899.75	19	22	12.30	-21	15	1.75	32.5977	3.1
may	27	2457900.75	19	22	8.25	-21	15	14.52	32.5866	3.0
may	28	2457901.75	19	22	4.11	-21	15	27.51	32.5758	3.0
may	29	2457902.75	19	21	59.88	-21	15	40.71	32.5651	2.9
may	30	2457903.75	19	21	55.55	-21	15	54.13	32.5546	2.8
may	31	2457904.75	19	21	51.14	-21	16	7.74	32.5444	2.8
jun	1	2457905.75	19	21	46.64	-21	16	21.54	32.5344	2.7
jun	2	2457906.75	19	21	42.05	-21	16	35.51	32.5247	2.6
jun	3	2457907.75	19	21	37.39	-21	16	49.64	32.5152	2.6
jun	4	2457908.75	19	21	32.64	-21	17	3.92	32.5059	2.5
jun	5	2457909.75	19	21	27.82	-21	17	18.36	32.4968	2.4
jun	6	2457910.75	19	21	22.92	-21	17	32.95	32.4880	2.4
jun	7	2457911.75	19	21	17.95	-21	17	47.69	32.4794	2.3
jun	8	2457912.75	19	21	12.92	-21	18	2.59	32.4711	2.2
jun	9	2457913.75	19	21	7.81	-21	18	17.63	32.4630	2.2
jun	10	2457914.75	19	21	2.65	-21	18	32.83	32.4552	2.1
jun	11	2457915.75	19	20	57.41	-21	18	48.18	32.4477	2.0
jun	12	2457916.75	19	20	52.11	-21	19	3.69	32.4403	2.0
jun	13	2457917.75	19	20	46.75	-21	19	19.34	32.4333	1.9
jun	14	2457918.75	19	20	41.33	-21	19	35.14	32.4265	1.8
jun	15	2457919.75	19	20	35.84	-21	19	51.07	32.4200	1.8
jun	16	2457920.75	19	20	30.30	-21	20	7.13	32.4137	1.7
jun	17	2457921.75	19	20	24.70	-21	20	23.31	32.4077	1.6
jun	18	2457922.75	19	20	19.05	-21	20	39.58	32.4020	1.6
jun	19	2457923.75	19	20	13.34	-21	20	55.96	32.3965	1.5
jun	20	2457924.75	19	20	7.59	-21	21	12.41	32.3913	1.4
jun	21	2457925.75	19	20	1.80	-21	21	28.95	32.3864	1.4
jun	22	2457926.75	19	19	55.97	-21	21	45.58	32.3818	1.3
jun	23	2457927.75	19	19	50.09	-21	22	2.30	32.3774	1.2
jun	24	2457928.75	19	19	44.18	-21	22	19.12	32.3733	1.2
jun	25	2457929.75	19	19	38.24	-21	22	36.04	32.3695	1.1
jun	26	2457930.75	19	19	32.26	-21	22	53.07	32.3660	1.0
jun	27	2457931.75	19	19	26.24	-21	23	10.19	32.3628	1.0
jun	28	2457932.75	19	19	20.19	-21	23	27.39	32.3599	0.9
jun	29	2457933.75	19	19	14.11	-21	23	44.64	32.3572	0.8
jun	30	2457934.75	19	19	8.00	-21	24	1.95	32.3549	0.7
jul	1	2457935.75	19	19	1.87	-21	24	19.29	32.3528	0.7
jul	2	2457936.75	19	18	55.71	-21	24	36.67	32.3510	0.6
jul	3	2457937.75	19	18	49.55	-21	24	54.08	32.3495	0.5

Plutón (planeta enano), 2017

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

mes	día	dj	h	α m	s	°	δ `	“	dis UA	hp h
jul	4	2457938.75	19	18	43.36	-21	25	11.53	32.3483	0.5
jul	5	2457939.75	19	18	37.17	-21	25	29.01	32.3474	0.4
jul	6	2457940.75	19	18	30.97	-21	25	46.52	32.3468	0.3
jul	7	2457941.75	19	18	24.76	-21	26	4.06	32.3464	0.3
jul	8	2457942.75	19	18	18.54	-21	26	21.64	32.3464	0.2
jul	9	2457943.75	19	18	12.32	-21	26	39.24	32.3466	0.1
jul	10	2457944.75	19	18	6.09	-21	26	56.88	32.3472	0.1
jul	11	2457945.75	19	17	59.87	-21	27	14.54	32.3480	0.0
jul	12	2457946.75	19	17	53.64	-21	27	32.22	32.3491	23.9
jul	13	2457947.75	19	17	47.42	-21	27	49.90	32.3505	23.9
jul	14	2457948.75	19	17	41.20	-21	28	7.57	32.3522	23.8
jul	15	2457949.75	19	17	34.98	-21	28	25.23	32.3542	23.7
jul	16	2457950.75	19	17	28.78	-21	28	42.87	32.3565	23.7
jul	17	2457951.75	19	17	22.59	-21	29	0.46	32.3591	23.6
jul	18	2457952.75	19	17	16.42	-21	29	18.02	32.3619	23.5
jul	19	2457953.75	19	17	10.27	-21	29	35.54	32.3651	23.5
jul	20	2457954.75	19	17	4.14	-21	29	53.03	32.3685	23.4
jul	21	2457955.75	19	16	58.04	-21	30	10.49	32.3723	23.3
jul	22	2457956.75	19	16	51.96	-21	30	27.94	32.3763	23.3
jul	23	2457957.75	19	16	45.91	-21	30	45.36	32.3806	23.2
jul	24	2457958.75	19	16	39.89	-21	31	2.76	32.3852	23.1
jul	25	2457959.75	19	16	33.90	-21	31	20.11	32.3900	23.1
jul	26	2457960.75	19	16	27.93	-21	31	37.41	32.3952	23.0
jul	27	2457961.75	19	16	22.01	-21	31	54.65	32.4007	22.9
jul	28	2457962.75	19	16	16.12	-21	32	11.80	32.4064	22.9
jul	29	2457963.75	19	16	10.27	-21	32	28.87	32.4124	22.8
jul	30	2457964.75	19	16	4.46	-21	32	45.85	32.4187	22.7
jul	31	2457965.75	19	15	58.71	-21	33	2.75	32.4252	22.7
ago	1	2457966.75	19	15	53.00	-21	33	19.56	32.4321	22.6
ago	2	2457967.75	19	15	47.35	-21	33	36.28	32.4392	22.5
ago	3	2457968.75	19	15	41.75	-21	33	52.92	32.4465	22.5
ago	4	2457969.75	19	15	36.20	-21	34	9.48	32.4542	22.4
ago	5	2457970.75	19	15	30.72	-21	34	25.95	32.4621	22.3
ago	6	2457971.75	19	15	25.29	-21	34	42.34	32.4702	22.3
ago	7	2457972.75	19	15	19.92	-21	34	58.64	32.4786	22.2
ago	8	2457973.75	19	15	14.61	-21	35	14.85	32.4873	22.1
ago	9	2457974.75	19	15	9.36	-21	35	30.95	32.4963	22.1
ago	10	2457975.75	19	15	4.17	-21	35	46.93	32.5054	22.0
ago	11	2457976.75	19	14	59.05	-21	36	2.80	32.5149	21.9
ago	12	2457977.75	19	14	54.00	-21	36	18.52	32.5246	21.9
ago	13	2457978.75	19	14	49.02	-21	36	34.11	32.5345	21.8
ago	14	2457979.75	19	14	44.11	-21	36	49.55	32.5447	21.7
ago	15	2457980.75	19	14	39.28	-21	37	4.85	32.5551	21.7
ago	16	2457981.75	19	14	34.54	-21	37	20.01	32.5658	21.6
ago	17	2457982.75	19	14	29.87	-21	37	35.03	32.5767	21.5
ago	18	2457983.75	19	14	25.29	-21	37	49.93	32.5878	21.5

Plutón (planeta enano), 2017

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

mes	día	dj	h	α m	s	°	δ `	“	dis UA	hp h
ago	19	2457984.75	19	14	20.79	-21	38	4.71	32.5992	21.4
ago	20	2457985.75	19	14	16.38	-21	38	19.36	32.6108	21.3
ago	21	2457986.75	19	14	12.05	-21	38	33.88	32.6226	21.3
ago	22	2457987.75	19	14	7.80	-21	38	48.25	32.6346	21.2
ago	23	2457988.75	19	14	3.64	-21	39	2.46	32.6469	21.1
ago	24	2457989.75	19	13	59.57	-21	39	16.50	32.6594	21.0
ago	25	2457990.75	19	13	55.60	-21	39	30.36	32.6721	21.0
ago	26	2457991.75	19	13	51.72	-21	39	44.04	32.6850	20.9
ago	27	2457992.75	19	13	47.94	-21	39	57.53	32.6981	20.8
ago	28	2457993.75	19	13	44.26	-21	40	10.85	32.7113	20.8
ago	29	2457994.75	19	13	40.68	-21	40	24.00	32.7248	20.7
ago	30	2457995.75	19	13	37.20	-21	40	36.97	32.7385	20.6
ago	31	2457996.75	19	13	33.83	-21	40	49.77	32.7524	20.6
sep	1	2457997.75	19	13	30.57	-21	41	2.41	32.7664	20.5
sep	2	2457998.75	19	13	27.41	-21	41	14.87	32.7807	20.4
sep	3	2457999.75	19	13	24.35	-21	41	27.17	32.7951	20.4
sep	4	2458000.75	19	13	21.40	-21	41	39.29	32.8096	20.3
sep	5	2458001.75	19	13	18.56	-21	41	51.23	32.8244	20.2
sep	6	2458002.75	19	13	15.82	-21	42	2.98	32.8393	20.2
sep	7	2458003.75	19	13	13.19	-21	42	14.53	32.8543	20.1
sep	8	2458004.75	19	13	10.67	-21	42	25.88	32.8696	20.1
sep	9	2458005.75	19	13	8.27	-21	42	37.01	32.8849	20.0
sep	10	2458006.75	19	13	5.98	-21	42	47.92	32.9004	19.9
sep	11	2458007.75	19	13	3.81	-21	42	58.61	32.9161	19.9
sep	12	2458008.75	19	13	1.75	-21	43	9.10	32.9319	19.8
sep	13	2458009.75	19	12	59.82	-21	43	19.38	32.9478	19.7
sep	14	2458010.75	19	12	58.01	-21	43	29.47	32.9639	19.7
sep	15	2458011.75	19	12	56.32	-21	43	39.38	32.9801	19.6
sep	16	2458012.75	19	12	54.74	-21	43	49.09	32.9964	19.5
sep	17	2458013.75	19	12	53.29	-21	43	58.60	33.0128	19.5
sep	18	2458014.75	19	12	51.95	-21	44	7.92	33.0294	19.4
sep	19	2458015.75	19	12	50.73	-21	44	17.01	33.0460	19.3
sep	20	2458016.75	19	12	49.64	-21	44	25.88	33.0628	19.3
sep	21	2458017.75	19	12	48.66	-21	44	34.52	33.0797	19.2
sep	22	2458018.75	19	12	47.82	-21	44	42.92	33.0966	19.1
sep	23	2458019.75	19	12	47.10	-21	44	51.08	33.1136	19.1
sep	24	2458020.75	19	12	46.51	-21	44	59.01	33.1308	19.0
sep	25	2458021.75	19	12	46.04	-21	45	6.72	33.1480	18.9
sep	26	2458022.75	19	12	45.71	-21	45	14.20	33.1652	18.9
sep	27	2458023.75	19	12	45.51	-21	45	21.47	33.1826	18.8
sep	28	2458024.75	19	12	45.43	-21	45	28.52	33.2000	18.7
sep	29	2458025.75	19	12	45.48	-21	45	35.35	33.2174	18.7
sep	30	2458026.75	19	12	45.66	-21	45	41.97	33.2349	18.6
oct	1	2458027.75	19	12	45.97	-21	45	48.38	33.2525	18.5
oct	2	2458028.75	19	12	46.40	-21	45	54.57	33.2701	18.5
oct	3	2458029.75	19	12	46.96	-21	46	0.53	33.2877	18.4

Plutón (planeta enano), 2017

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

mes	día	dj	h	α m	s	°	δ `	“	dis UA	hp h
oct	4	2458030.75	19	12	47.65	-21	46	6.26	33.3054	18.3
oct	5	2458031.75	19	12	48.46	-21	46	11.75	33.3231	18.3
oct	6	2458032.75	19	12	49.40	-21	46	16.98	33.3408	18.2
oct	7	2458033.75	19	12	50.47	-21	46	21.97	33.3585	18.1
oct	8	2458034.75	19	12	51.67	-21	46	26.71	33.3763	18.1
oct	9	2458035.75	19	12	53.00	-21	46	31.20	33.3940	18.0
oct	10	2458036.75	19	12	54.47	-21	46	35.46	33.4118	17.9
oct	11	2458037.75	19	12	56.06	-21	46	39.50	33.4296	17.9
oct	12	2458038.75	19	12	57.79	-21	46	43.32	33.4473	17.8
oct	13	2458039.75	19	12	59.64	-21	46	46.94	33.4651	17.7
oct	14	2458040.75	19	13	1.62	-21	46	50.33	33.4828	17.7
oct	15	2458041.75	19	13	3.72	-21	46	53.50	33.5006	17.6
oct	16	2458042.75	19	13	5.95	-21	46	56.43	33.5183	17.6
oct	17	2458043.75	19	13	8.30	-21	46	59.12	33.5359	17.5
oct	18	2458044.75	19	13	10.78	-21	47	1.57	33.5536	17.4
oct	19	2458045.75	19	13	13.39	-21	47	3.76	33.5711	17.4
oct	20	2458046.75	19	13	16.13	-21	47	5.70	33.5887	17.3
oct	21	2458047.75	19	13	18.99	-21	47	7.39	33.6062	17.2
oct	22	2458048.75	19	13	21.98	-21	47	8.85	33.6236	17.2
oct	23	2458049.75	19	13	25.10	-21	47	10.07	33.6410	17.1
oct	24	2458050.75	19	13	28.35	-21	47	11.06	33.6583	17.0
oct	25	2458051.75	19	13	31.72	-21	47	11.82	33.6755	17.0
oct	26	2458052.75	19	13	35.21	-21	47	12.37	33.6927	16.9
oct	27	2458053.75	19	13	38.83	-21	47	12.70	33.7097	16.8
oct	28	2458054.75	19	13	42.56	-21	47	12.81	33.7267	16.8
oct	29	2458055.75	19	13	46.42	-21	47	12.70	33.7436	16.7
oct	30	2458056.75	19	13	50.39	-21	47	12.36	33.7604	16.6
oct	31	2458057.75	19	13	54.48	-21	47	11.80	33.7771	16.6
nov	1	2458058.75	19	13	58.68	-21	47	11.00	33.7937	16.5
nov	2	2458059.75	19	14	3.00	-21	47	9.96	33.8102	16.5
nov	3	2458060.75	19	14	7.43	-21	47	8.67	33.8266	16.4
nov	4	2458061.75	19	14	11.98	-21	47	7.14	33.8428	16.3
nov	5	2458062.75	19	14	16.65	-21	47	5.37	33.8589	16.3
nov	6	2458063.75	19	14	21.44	-21	47	3.37	33.8749	16.2
nov	7	2458064.75	19	14	26.34	-21	47	1.15	33.8908	16.1
nov	8	2458065.75	19	14	31.35	-21	46	58.74	33.9065	16.1
nov	9	2458066.75	19	14	36.47	-21	46	56.12	33.9221	16.0
nov	10	2458067.75	19	14	41.70	-21	46	53.31	33.9376	15.9
nov	11	2458068.75	19	14	47.03	-21	46	50.29	33.9529	15.9
nov	12	2458069.75	19	14	52.47	-21	46	47.06	33.9680	15.8
nov	13	2458070.75	19	14	58.01	-21	46	43.60	33.9830	15.7
nov	14	2458071.75	19	15	3.65	-21	46	39.92	33.9978	15.7
nov	15	2458072.75	19	15	9.39	-21	46	36.02	34.0125	15.6
nov	16	2458073.75	19	15	15.24	-21	46	31.88	34.0270	15.6
nov	17	2458074.75	19	15	21.19	-21	46	27.52	34.0413	15.5
nov	18	2458075.75	19	15	27.24	-21	46	22.95	34.0554	15.4

Plutón (planeta enano), 2017

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

mes	día	dj	h	α m	s	°	δ `	“	dis UA	hp h
nov	19	2458076.75	19	15	33.39	-21	46	18.17	34.0694	15.4
nov	20	2458077.75	19	15	39.64	-21	46	13.19	34.0831	15.3
nov	21	2458078.75	19	15	45.99	-21	46	8.01	34.0967	15.2
nov	22	2458079.75	19	15	52.43	-21	46	2.65	34.1101	15.2
nov	23	2458080.75	19	15	58.96	-21	45	57.10	34.1233	15.1
nov	24	2458081.75	19	16	5.58	-21	45	51.37	34.1362	15.0
nov	25	2458082.75	19	16	12.28	-21	45	45.46	34.1490	15.0
nov	26	2458083.75	19	16	19.07	-21	45	39.36	34.1615	14.9
nov	27	2458084.75	19	16	25.94	-21	45	33.08	34.1739	14.8
nov	28	2458085.75	19	16	32.89	-21	45	26.61	34.1860	14.8
nov	29	2458086.75	19	16	39.93	-21	45	19.94	34.1979	14.7
nov	30	2458087.75	19	16	47.04	-21	45	13.07	34.2096	14.7
dic	1	2458088.75	19	16	54.23	-21	45	6.00	34.2210	14.6
dic	2	2458089.75	19	17	1.50	-21	44	58.74	34.2322	14.5
dic	3	2458090.75	19	17	8.85	-21	44	51.29	34.2432	14.5
dic	4	2458091.75	19	17	16.27	-21	44	43.67	34.2540	14.4
dic	5	2458092.75	19	17	23.77	-21	44	35.89	34.2645	14.3
dic	6	2458093.75	19	17	31.34	-21	44	27.98	34.2747	14.3
dic	7	2458094.75	19	17	38.97	-21	44	19.92	34.2848	14.2
dic	8	2458095.75	19	17	46.67	-21	44	11.72	34.2946	14.1
dic	9	2458096.75	19	17	54.43	-21	44	3.36	34.3041	14.1
dic	10	2458097.75	19	18	2.24	-21	43	54.85	34.3134	14.0
dic	11	2458098.75	19	18	10.12	-21	43	46.17	34.3224	14.0
dic	12	2458099.75	19	18	18.06	-21	43	37.32	34.3312	13.9
dic	13	2458100.75	19	18	26.05	-21	43	28.32	34.3397	13.8
dic	14	2458101.75	19	18	34.10	-21	43	19.15	34.3479	13.8
dic	15	2458102.75	19	18	42.20	-21	43	9.83	34.3559	13.7
dic	16	2458103.75	19	18	50.36	-21	43	0.37	34.3636	13.6
dic	17	2458104.75	19	18	58.57	-21	42	50.78	34.3711	13.6
dic	18	2458105.75	19	19	6.83	-21	42	41.06	34.3782	13.5
dic	19	2458106.75	19	19	15.14	-21	42	31.23	34.3851	13.4
dic	20	2458107.75	19	19	23.49	-21	42	21.28	34.3918	13.4
dic	21	2458108.75	19	19	31.88	-21	42	11.23	34.3981	13.3
dic	22	2458109.75	19	19	40.30	-21	42	1.07	34.4042	13.3
dic	23	2458110.75	19	19	48.76	-21	41	50.81	34.4099	13.2
dic	24	2458111.75	19	19	57.26	-21	41	40.44	34.4154	13.1
dic	25	2458112.75	19	20	5.78	-21	41	29.96	34.4206	13.1
dic	26	2458113.75	19	20	14.34	-21	41	19.38	34.4256	13.0
dic	27	2458114.75	19	20	22.92	-21	41	8.68	34.4302	12.9
dic	28	2458115.75	19	20	31.52	-21	40	57.86	34.4346	12.9
dic	29	2458116.75	19	20	40.16	-21	40	46.94	34.4386	12.8
dic	30	2458117.75	19	20	48.82	-21	40	35.91	34.4424	12.8
dic	31	2458118.75	19	20	57.50	-21	40	24.80	34.4459	12.7
ene	1	2458119.75	19	21	6.21	-21	40	13.61	34.4491	12.6
ene	2	2458120.75	19	21	14.93	-21	40	2.36	34.4520	12.6

Satélite de los planetas, 2017

Planeta		Satélite	Periodo orbital (días)	Semi eje mayor (10^3 km)	Excentricidad 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	163.998 e		2	0.04
Júp	53	Dia	287.00	12118.00	0.2110	28.23		1.0	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, 2017

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
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, 2017

Parámetros de las órbitas de los planetas

(a las 0h del meridiano 90º W.G. del 7 de enero del 2017)

Planetas	Semieje mayor en UA	Revolución en años trópicos	Excentricidad	Inclinación °	Aplanamiento geométrico ($x10^{-3}$)
Mercurio	0.3870983	0.251	0.2056272	7.00400	0
Venus	0.7233267	0.615	0.0067404	3.39442	0
Tierra	0.9999985	1.000	0.0167015	0.00217	3.354
Marte	1.5237182	1.881	0.0935073	1.82839	6.772
Júpiter	5.202041	11.862	0.0489192	1.30373	5.000
Saturno	9.558687	29.458	0.0530788	2.48732	64.874
Urano	19.10948	84.013	0.0508390	0.77193	97.462
Neptuno	29.96013	164.749	0.0064668	1.77232	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, 2017

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, 2017

Unión Astronómica Internacional (IAU 1976)

Parámetros del Sol, la Tierra y la Luna

Sol	
Radio	6.96×10^8 m
Semidiámetro a la distancia media	15' 59.63",=959.63"
Masa	1.9891×10^{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)	$1.49597870 \times 10^{11}$ 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, 2017

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, 2017

Nombres de estrellas			Nombres de estrellas		
Propios	Clasificación Bayer	NY	Propios	Clasificación Bayer	NY
Acamar	θ Eri	897	Algieba	γ Leo	4058
Achernar	α Eri	472	Algol	ß Per	936
Achird	η Cas	219	Algomeyla	ß CMi	2845
Acrux	α Cru	4730	Algomeysa	α CMi	2943
Acubens	α Cnc	3572	Algorab	δ Crv	4757
Adhafera	ζ Leo	4031	Alhajoth	α Aur	1708
Adhara	ε CMa	2618	Al Hammam	ζ Peg	8634
Adhil	ξ And	390	Alhena	γ Gem	2421
Adib	α Dra	5291	Alioth	ε UMa	4905
Agena	ß Cen	5267	Al Kaffal Jidmah	γ Cet	804
Ain	ε Tau	1409	Alkaid	η UMa	5191
Ain al Rami	ν Sgr	7116	Al Kalbal Asad	α Leo	3982
Ak	α UMa	4301	Alkalurops	μ Boo	5733
Akrab	ß Sco	5984	Al Kaphrab	χ UMa	4518
Aladfar	η Lyr	7298	Alkes	α Crt	4287
Alamak	γ And	603	Alkhiba	α Crv	4623
Al Anchatal Nahr	τ Eri	850	Al Kirdah	ξ Cep	8417
Al Anf	ε Peg	8308	Almaak	γ And	603
Al Anz	ε Aur	1605	Almaaz	ε Aur	1605
Alaraph	α Vir	5056	Al Minliar al Asad	κ Leo	3731
Alaraph	ß Vir	4540	Al Minliar al Shuja	σ Hya	3418
Alascha	λ Sco	6527	Almuredin	ε Vir	4932
Al Athfar	μ Lyr	6903	Alnair	α Gru	8425
Al Atik	o Per	1131	Al Nasl	γ Sgr	6746
Al Baldah	π Sgr	7264	Alnath	α Ari	617
Al Bali	ε Aqr	7950	Alnilam	ε Ori	1903
Albireo	ß Cyg	7417	Alnitak	ζ Ori	1948
Al Chiba	α Crv	4623	Al Niyat	σ Sco	6084
Alcor	80 UMa	5062	Al Niyat	τ Sco	6165
Alcyone	ν Tau	1165	Alphard	α Hya	3748
Aldebarán	α Tau	1457	Alphecca	α CrB	5793
Alderamín	α Cep	8162	Alpheratz	α And	15
Aldhafara	ζ Leo	4031	Alphirk	ß Cep	8238
Al Dhiba	ι Dra	5744	Alrai	γ Cep	8974
Aldhibah	ζ Dra	6396	Alrami	α Sgr	7348
Al Dihi	ι Dra	5744	Al Rescha	α Psc	595
Aldib	δ Dra	7310	Alruccabah	α UMi	424
Al Dibah	ζ Dra	6396	Al Rukbahal Daj	ω Cyg	7851
Alfard	α Hya	3748	Alsafi	σ Dra	7462
Alfecca	α CrA	7254	Alsah	α Sge	7479
Alfirk	ß Cep	8238	Al Sanamal Nakah	ß Cas	21
Alga	θ Ser	7141	Alsciaukat	31 Lyn	3275
Algebar	ß Ori	1713	Alshain	ß Aql	7602
Algedi Prima	α Cap	7747	Alshat	ν Cap	7773
Algedi Secunda	α Cap	7754	Alshemali	μ leo	3905
Algeiba	γ Leo	4057	Al Sheratain	ß Ari	553
Algenib	γ Peg	39	Alsuhail	λ Vel	3634
Algenib	α Per	1017	Al Suhailal Muhlif	γ Vel	3206
Algenubi	ε Leo	3873	Altair	α Aql	7557

Nomenclatura de las estrellas brillantes, 2017

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, 2017

Nombres de estrellas			Nombres de estrellas		
Propios	Clasificación Bayer	NY	Propios	Clasificación Bayer	NY
Genam	ξ Dra	6688	Megrez	δ UMa	4660
Gianfar	λ Dra	4434	Mekbuda	ζ Gem	2650
Giedi Prima	α Cap	7747	Menchib	ξ Per	1228
Giedi Secunda	α Cap	7754	Menkalinan	ß Aur	2088
Gienah	γ Crv	4662	Menkar	α Cet	911
Gienah	ε Cyg	7949	Menkar	λ Cet	896
Gildun	δ UMi	6789	Menkent	θ Cen	5288
Gomeisa	ß CMi	2845	Merak	ß UMa	4295
Gorgonea Quarta	ω Per	947	Meres	ß Boo	5602
Gorgonea Tertia	ρ Per	921	Meridiana	β CrA	7259
Hadar	ß Cen	5267	Merope	23 Tau	1156
Haedus	ζ Aur	1612	Mesartim	γ Ari	545
Hamal	α Ari	617	Minelauva	ß Vir	4540
Hassaleh	ι Aur	1577	Minkar	ε Crv	4630
Hatysa	ι Ori	1895	Mintaka	δ Ori	1852
Head of Hydrus	α Hyi	691	Mira	ο Cet	681
Heka	λ Ori	1879	Mirach	ß And	337
Hércules	ß Gem	2990	Miram	η Per	834
Heze	ζ Vir	5107	Mirphak	α Per	2294
Hoedus II	ν Aur	1641	Mirza	ß CMa	2286
Homam	ζ Peg	8634	Misam	κ Per	941
Hyadum I	γ Tau	1346	Mizar	ζ UMa	5055
Hyadum II	δ Tau	1373	Mufrid	η Boo	5235
Isis	γ CMa	2657	Muscida	ο UMa	3323
Izar	ε Boo	5506	Muscida	π UMa	3403
Jabbah	ν Sco	6027	Naos	ζ Pup	3165
Jed	δ Oph	6056	Nashira	γ Cap	8278
Jugum	γ Lyr	7178	Nicolaus	α Del	7906
Kaffaljidhma	γ Cet	804	Nihal	ß Lep	1829
Kaus Australis	ε Sgr	6879	Nodus I	ζ Dra	6396
Kaus Borealis	λ Sgr	6913	Nunki	σ Sgr	7121
Keid	ο Eri	1325	Nusakan	ß CrB	5747
Kitalphar	α Equ	8131	Oculus Boreus	ε Tau	1409
Kocab	ß UMi	5563	Peacok	α Pav	7790
Kornephoros	ß Her	6148	Phact	α Col	1956
Kraz	ß Crv	4786	Phad	γ UMa	4554
Ksora	δ Cas	403	Pherkad	γ UMi	5735
Kuma	ν Dra	6555	Pherkad Minor	λ UMi	5714
Lesath	υ Sco	6508	Pleione	28 Tau	1180
Maasym	λ Her	6526	Polaris	α UMi	424
Maia	20 Tau	1149	Pullux	ß Gem	2990
Maiaplacidus	ß Car	3685	Praecipua	46 LMi	4247
Marfak	θ Cas	343	Praepes	η Gem	2216
Marfak	κ Her	6008	Praesaepe	ε Cnc	3429
Marfak	μ Cas	321	Prima Giedi	α Cap	7747
Marfic	λ Oph	6149	Procyon	α CMi	2943
Markab	α Peg	8781	Propus	ι Gem	2821
Matar	η Peg	8650	Rana	δ Eri	1136
Mebsuta	ε Gem	2473	Rasalgethi	α Her	6406

Nomenclatura de las estrellas brillantes, 2017

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, 2017

Estrella				α			δ						
NH	NY	nom		h	m	s	°	‘	“	V	U-B	B-V	Esp
118268	9072	28	Psc	0	0	12.7	+06	57	36.7	4.03	0.419	0.49	F4IV
118322	9076	ε	Tuc	0	0	48.8	-65	28	47.4	4.49	-0.075	-0.04	B9IV
122	9084	θ	Oct	0	2	28.3	-76	58	9.0	4.78	1.254	1.26	K2III
154	9089	30	Psc	0	2	51.5	-05	55	0.7	4.37	1.631	2.35	M3III
301	9098	2	Cet	0	4	38.1	-17	14	19.1	4.55	-0.047	-0.03	B9IVn
355	9103	3	Cet	0	5	23.8	-10	24	43.9	4.99	1.619	1.64	K3Ibvar
443	3	33	Psc	0	6	13.9	-05	36	35.3	4.61	1.029	1.04	K1III
677	15	α	And	0	9	17.7	+29	11	13.1	2.07	-0.038	-0.10	B9p
746	21	β	Cas	0	10	7.3	+59	14	46.4	2.28	0.380	0.40	F2III-IV
765	25	ε	Phe	0	10	17.6	-45	39	3.5	3.88	1.013	1.00	K0III
910	33	6	Cet	0	12	9.2	-15	22	19.2	4.89	0.487	0.59	F5V
1067	39	γ	Peg	0	14	8.3	+15	16	50.8	2.83	-0.190	-0.22	B2IV
1168	45	χ	Peg	0	15	30.6	+20	18	14.1	4.79	1.572	1.93	M2III
1170	48	AE	Cet	0	15	31.7	-18	50	9.7	4.44	1.640	1.96	M1III
1366	63	θ	And	0	18	0.7	+38	46	43.2	4.61	0.059	0.07	A2V
1473	68	σ	And	0	19	14.8	+36	52	55.6	4.51	0.054	0.06	A2V
1562	74	ι	Cet	0	20	19.1	-08	43	37.4	3.56	1.214	1.13	K2III
1599	77	ζ	Tuc	0	20	58.3	-64	46	19.6	4.23	0.576	0.65	F9V
2021	98	β	Hyi	0	26	38.8	-77	9	21.2	2.82	0.618	0.68	G2IV
2072	100	κ	Phe	0	27	3.6	-43	34	58.5	3.93	0.175	0.20	A7V
2081	99	α	Phe	0	27	8.8	-42	12	39.4	2.40	1.083	1.11	K0III...
2210	105	η	Scl	0	28	47.6	-32	54	38.7	4.86	1.634	2.32	M2/M3III
2472	125	λ^1	Phe	0	32	15.3	-48	42	25.0	4.76	0.018	0.01	A0V
2484	126	β^1	Tuc	0	32	20.3	-62	51	43.3	4.36	-0.064	-0.02	B9V
2487	127	β^2	Tuc	0	32	21.1	-62	52	9.6	4.53	0.147	0.14	A2V
2505	123	λ	Cas	0	32	44.9	+54	37	7.2	4.74	-0.098	-0.08	B8Vn
2599	130	κ	Cas	0	34	0.5	+63	1	41.3	4.17	0.130	0.17	B1Ia
2912	154	π	And	0	37	49.2	+33	48	55.6	4.34	-0.123	-0.08	B5V
2920	153	ζ	Cas	0	37	57.4	+53	59	34.7	3.69	-0.196	-0.23	B2IV
3031	163	ε	And	0	39	29.1	+29	24	23.5	4.34	0.871	0.92	G5III...
3092	165	δ	And	0	40	16.1	+30	57	23.6	3.27	1.268	1.23	K3III...
3179	168	α	Cas	0	41	30.7	+56	37	58.9	2.24	1.170	1.13	K0II-IIIvar
3245	180	μ	Phe	0	42	8.9	-45	59	21.1	4.59	0.953	0.95	G8III
3300	179	ξ	Cas	0	43	3.0	+50	36	29.6	4.80	-0.105	-0.10	B2.5V
3405	191	η	Phe	0	44	8.1	-57	22	2.4	4.36	0.024	0.02	A0IV
3414	184	π	Cas	0	44	26.6	+47	7	12.0	4.95	0.170	0.19	A5V
3419	188	β	Cet	0	44	28.0	-17	53	27.0	2.04	1.019	1.00	K0III
3455	194	φ^1	Cet	0	45	4.4	-10	30	52.3	4.77	0.998	0.98	K0IIIvar
3504	193	o	Cas	0	45	42.5	+48	22	47.4	4.48	-0.069	0.00	B5III
3693	215	ζ	And	0	48	16.2	+24	21	43.5	4.08	1.100	1.06	K1II
3786	224	δ	Psc	0	49	35.5	+07	40	48.0	4.44	1.500	1.58	K5III
3801	223	ν	Cas	0	49	50.1	+51	3	47.8	4.90	-0.091	-0.07	B9III
3821	219	η	Cas	0	50	10.5	+57	54	27.3	3.46	0.587	0.66	G0V SB
3881	226	ν	And	0	50	47.1	+41	10	26.0	4.53	-0.136	-0.14	B5V SB
4147	248	20	Cet	0	53	54.2	-01	2	58.4	4.78	1.550	1.66	M0III
4151	244	***	***	0	54	7.7	+61	13	10.4	4.80	0.540	0.61	F8V
4292	253	υ^1	Cas	0	56	3.2	+59	4	1.4	4.83	1.216	1.19	K2III
4422	265	υ^2	Cas	0	57	43.2	+59	16	30.8	4.62	0.957	1.01	G8III-IV
4436	269	37	And	0	57	43.8	+38	35	38.1	3.86	0.130	0.14	A5V
4427	264	γ	Cas	0	57	46.7	+60	48	40.0	2.15	-0.046	-0.02	B0IV:evar
4463	271	η	And	0	58	8.7	+23	30	42.4	4.40	0.940	0.94	G8III-IV
4577	280	α	Scl	0	59	26.9	-29	15	47.6	4.30	-0.154	-0.12	B7IIIp
4906	294	ε	Psc	1	3	51.2	+07	59	2.3	4.27	0.952	0.98	K0III
5165	322	β	Phe	1	6	51.6	-46	37	29.7	3.32	0.885	0.90	G8IIIvar
5348	338	ζ	Phe	1	9	7.0	-55	9	9.2	3.94	-0.120	-0.08	B6V +0B0V

Posiciones medias de estrellas brillantes, 2017

Estrella				α			δ						
NH	NY	nom		h	m	s	º	‘	“	V	U-B	B-V	Esp
5364	334	η	Cet	1	9	28.2	-10	5	23.7	3.46	1.161	1.11	K2III
5434	335	φ	And	1	10	31.6	+47	20	4.7	4.26	0.012	-0.02	B7III
5447	337	β	And	1	10	43.0	+35	42	46.4	2.07	1.576	1.74	M0IIIvar
5372	285	***	***	1	11	29.1	+86	20	59.7	4.24	1.213	1.16	K2II-III
5542	343	θ	Cas	1	12	10.8	+55	14	33.0	4.34	0.170	0.19	A7Vvar
5571	351	χ	Psc	1	12	23.9	+21	7	38.1	4.66	1.024	0.99	K0III
5586	352	τ	Psc	1	12	37.7	+30	10	55.5	4.51	1.092	1.05	K0III-IV...
5742	360	φ	Psc	1	14	42.2	+24	40	33.4	4.67	1.047	1.02	K0III...
5862	370	ν	Phe	1	15	58.3	-45	26	19.1	4.97	0.571	0.62	F8V
5896	377	κ	Tuc	1	16	21.6	-68	46	59.6	4.25	0.480	0.55	F6IV
6193	383	υ	Psc	1	20	26.0	+27	21	20.0	4.74	0.032	0.10	A3V
6242	382	φ	Cas	1	21	11.8	+58	19	22.9	4.95	0.683	0.93	F0Ia
6411	390	ξ	And	1	23	22.7	+45	37	11.8	4.87	1.077	1.04	K0III-IV
6537	402	θ	Cet	1	24	53.9	-08	5	36.2	3.60	1.065	1.05	K0III
6670	412	46	Cet	1	26	28.9	-14	30	29.7	4.90	1.231	1.29	K2III
6686	403	δ	Cas	1	26	58.5	+60	19	32.2	2.66	0.160	0.19	A5Vv SB
6692	399	ψ	Cas	1	27	11.6	+68	13	14.5	4.72	1.047	1.01	K0III
6813	417	ω	And	1	28	42.7	+45	29	47.2	4.83	0.421	0.49	F5IV
6867	429	γ	Phe	1	29	7.4	-43	13	44.6	3.41	1.542	1.73	K5II-III
7007	434	μ	Psc	1	31	6.2	+06	14	0.5	4.84	1.372	1.42	K4III
7083	440	δ	Phe	1	31	58.7	-48	58	56.0	3.93	0.972	1.00	K0III-IV
7097	437	η	Psc	1	32	25.4	+15	26	7.7	3.62	0.974	0.94	G8III
7294	442	χ	Cas	1	35	5.3	+59	19	16.2	4.68	0.991	1.01	K0III
7513	458	υ	And	1	37	49.9	+41	29	32.5	4.10	0.536	0.58	F8V
7588	472	α	Eri	1	38	21.8	-57	8	54.0	0.45	-0.158	-0.17	B3Vp
7607	464	υ	Per	1	39	4.5	+48	42	58.4	3.59	1.275	1.23	K3III
7818	477	τ	And	1	41	37.2	+40	39	54.1	4.96	-0.068	-0.06	B8III
7884	489	ν	Psc	1	42	20.6	+05	34	32.1	4.45	1.347	1.37	K3III
7918	483	***	***	1	42	51.5	+42	42	1.3	4.96	0.618	0.67	G2V
7999	500	***	***	1	43	36.7	-03	36	9.6	4.98	1.378	1.26	K3II-III
8068	496	φ	Per	1	44	46.0	+50	46	34.2	4.01	-0.098	-0.08	B2Vpe
8102	509	τ	Cet	1	44	52.9	-15	50	45.1	3.49	0.727	0.82	G8V
8198	510	ο	Psc	1	46	19.2	+09	14	42.5	4.26	0.942	0.93	K0III
8497	531	χ	Cet	1	50	26.7	-10	36	1.7	4.66	0.333	0.38	F3III
8645	539	ζ	Cet	1	52	19.5	-10	14	57.1	3.74	1.136	1.07	K2III
8796	544	α	Tri	1	54	5.0	+29	39	48.2	3.42	0.488	0.55	F6IV
8837	555	ψ	Phe	1	54	20.7	-46	13	3.0	4.39	1.597	2.49	M4III SB
8833	549	ξ	Psc	1	54	27.8	+03	16	23.7	4.61	0.928	0.93	K0III SB
8832	545	γ^1	Ari	1	54	29.6	+19	22	44.3	3.88	-0.047	-0.03	A1p Si
8928	570	η^2	Hyi	1	55	22.8	-67	33	41.7	4.68	0.931	0.95	G5III
8903	553	β	Ari	1	55	36.6	+20	53	34.4	2.64	0.165	0.18	A5V...
8886	542	ε	Cas	1	55	40.4	+63	45	19.5	3.35	-0.150	-0.12	B2pvar
9007	566	χ	Eri	1	56	38.2	-51	31	20.6	3.69	0.844	0.90	G5IV
9009	548	ω	Cas	1	57	23.1	+68	46	12.9	4.97	-0.084	-0.06	B8III
9061	565	56	Cet	1	57	29.3	-22	26	31.1	4.92	1.434	1.45	K3III
9095	574	***	***	1	57	51.6	-47	18	1.3	4.82	0.864	0.89	G8III
9153	569	λ	Ari	1	58	54.5	+23	40	50.5	4.79	0.290	0.33	F0V
9236	591	α	Hyi	1	59	19.2	-61	29	6.6	2.86	0.290	0.34	F0V
9347	585	υ	Cet	2	0	49.8	-20	59	37.3	3.99	1.554	1.79	K5/M0III
9487	595	α	Psc	2	2	57.2	+02	50	51.3	3.82	0.024	0.05	A2
9480	575	48	Cas	2	3	25.6	+70	59	26.7	4.49	0.164	0.20	A3IV
9505	590	g	Per	2	3	28.7	+54	34	16.5	4.99	-0.071	-0.02	B8III
9598	580	50	Cas	2	4	57.9	+72	30	17.5	3.95	-0.002	0.03	A2V
9640	603	57	And	2	4	58.8	+42	24	46.4	2.10	1.370	1.37	B8V
9677	612	ν	For	2	5	16.5	-29	12	48.5	4.68	-0.156	-0.12	B9.5p (Si)

Posiciones medias de estrellas brillantes, 2017

Estrella				α			δ						
NH	NY	nom		h	m	s	°	‘	“	V	U-B	B-V	Esp
9884	617	α	Ari	2	8	9.8	+23	32	39.8	2.01	1.151	1.13	K2III
9977	620	58	And	2	9	33.0	+37	56	28.5	4.78	0.120	0.16	A5IV-V
10053	623	14	Ari	2	10	25.4	+26	1	18.8	4.98	0.339	0.40	F2III
10064	622	4	Tri	2	10	35.5	+35	4	9.3	3.00	0.140	0.17	A5III
10280	642	TZ	Tri	2	13	23.5	+30	23	3.3	4.94	0.770	0.81	F5V comp
10324	649	65	Cet	2	13	55.8	+08	55	40.8	4.36	0.878	0.90	G8II:
10340	643	60	And	2	14	19.7	+44	18	46.3	4.84	1.476	1.49	K4III
10602	674	φ	Eri	2	17	8.1	-51	25	54.2	3.56	-0.120	-0.11	B8IV-V
10644	660	8	Tri	2	18	7.7	+34	18	12.3	4.84	0.607	0.76	G0V
10670	664	γ	Tri	2	18	21.6	+33	55	38.1	4.03	0.019	-0.02	A1Vnn
11001	705	δ	Hyi	2	22	3.9	-68	34	48.3	4.08	0.034	0.04	A3V
11345	708	65	And	2	26	47.8	-12	12	44.4	4.88	-0.027	-0.01	A0V
11313	699	ρ	Cet	2	26	48.1	+50	21	24.5	4.73	1.532	1.58	K4III
11407	721	κ	Eri	2	27	37.6	-47	37	33.2	4.24	-0.136	-0.11	B5IV
11484	718	73	Cet	2	29	5.5	+08	32	15.4	4.30	-0.053	-0.06	B9III
11569	707	ι	Cas	2	30	31.9	+67	28	47.9	4.46	0.153	0.17	A5p Sr
11783	740	σ	Cet	2	32	55.0	-15	10	7.5	4.74	0.454	0.55	F5V
11918	749	ω	For	2	34	36.7	-28	9	22.2	4.96	-0.050	-0.04	B9V
12093	754	78	Cet	2	36	47.7	+05	40	7.5	4.87	0.880	0.89	G8III
12394	806	ε	Hyi	2	39	51.9	-68	11	32.1	4.12	-0.061	-0.07	B9III
12387	779	δ	Cet	2	40	22.9	+00	24	11.3	4.08	-0.212	-0.22	B2IV
12390	781	ε	Cet	2	40	24.7	-11	47	55.3	4.83	0.447	0.53	F5V
12413	789	s	Eri	2	40	28.0	-42	49	1.8	4.74	0.061	0.09	A2V
12486	794	ι	Eri	2	41	21.4	-39	46	52.2	4.11	1.006	1.05	K0III
12623	788	12	Per	2	43	21.6	+40	16	0.9	4.91	0.582	0.62	F9V
12706	804	86	Cet	2	44	12.5	+03	18	31.3	3.47	0.093	0.10	A3V
12719	801	35	Ari	2	44	29.0	+27	46	50.2	4.65	-0.122	-0.12	B3V
12770	811	π	Cet	2	44	57.4	-13	47	7.3	4.24	-0.122	-0.11	B7IV
12777	799	13	Per	2	45	24.3	+49	18	4.7	4.10	0.514	0.59	F7V
12876	837	ζ	Hyi	2	45	49.2	-67	32	36.1	4.83	0.058	0.08	A2IV/V
12828	813	μ	Cet	2	45	53.4	+10	11	13.6	4.27	0.311	0.37	F1III-IV
12843	818	τ^1	Eri	2	45	55.2	-18	29	57.5	4.47	0.481	0.54	F5/F6V
13061	824	39	Ari	2	48	57.3	+29	19	7.6	4.52	1.112	1.04	K1III
13147	841	β	For	2	49	49.4	-32	19	59.4	4.45	0.981	1.00	G8III
13244	872	ν	Hyi	2	50	22.9	-74	59	43.4	4.76	1.337	1.27	K3III
13209	838	41	Ari	2	51	1.1	+27	19	53.8	3.61	-0.100	-0.08	B8Vn
13254	840	16	Per	2	51	41.7	+38	23	22.6	4.22	0.343	0.41	F2III
13288	850	τ^2	Eri	2	51	50.0	-20	55	57.7	4.76	0.906	0.91	K0III
13268	834	η	Per	2	51	59.2	+55	58	0.7	3.77	1.690	1.64	K3Ib comp SB
13328	843	α	UMi	2	52	35.9	+35	7	50.4	4.56	1.554	1.67	K5III
11767	424	17	Per	2	53	36.6	+89	20	16.8	1.97	0.636	0.70	F7:Ib-IIv SB
13531	854	18	Per	2	55	30.5	+52	49	58.3	3.93	0.758	0.80	G4III...
13701	874	3	Eri	2	57	17.0	-08	49	45.8	3.89	1.088	1.08	K1III-IV
13847	897	θ^2	Eri	2	58	55.5	-40	14	6.9	2.88	0.128	0.17	A4III+...
13884	909	β	Hor	2	59	7.9	-64	0	7.5	4.98	0.126	0.14	A5III
13879	879	π	Per	2	59	53.2	+39	43	53.8	4.68	0.065	0.11	A2Vn
13905	882	24	Per	3	0	9.1	+35	15	7.7	4.94	1.235	1.19	K2III
13914	887	48	Ari	3	0	13.0	+21	24	33.7	4.63	0.048	0.05	A2Vs
13954	896	91	Cet	3	0	39.3	+08	58	34.0	4.71	-0.109	-0.09	B6III
14146	919	τ^3	Eri	3	3	9.8	-23	33	24.1	4.08	0.163	0.18	A4V
14135	911	α	Cet	3	3	11.8	+04	9	26.6	2.54	1.630	1.97	M2III
14328	915	γ	Per	3	6	4.5	+53	34	25.1	2.91	0.716	0.77	G8III+...
14354	921	25	Per	3	6	18.2	+38	54	24.8	3.32	1.528	2.76	M3IIIvar
14382	918	k	Per	3	6	52.1	+56	46	23.0	4.77	1.018	0.99	K0II-III
14576	936	β	Per	3	9	18.8	+41	1	18.6	2.09	-0.003	0.02	B8V

Posiciones medias de estrellas brillantes, 2017

Estrella				α			δ						
NH	NY	nom		h	m	s	º	‘	“	V	U-B	B-V	Esp
14632	937	ι	Per	3	10	20.4	+49	40	43.4	4.05	0.595	0.65	G0V
14668	941	27	Per	3	10	41.0	+44	55	21.5	3.79	0.980	0.94	K0III
14817	947	ω	Per	3	12	25.5	+39	40	36.6	4.61	1.115	1.09	K1III
14838	951	57	Ari	3	12	38.0	+19	47	30.4	4.35	1.033	0.96	K2IIIvar
14879	963	α	For	3	12	49.2	-28	55	10.6	3.80	0.543	0.63	F8V
14862	932	***	***	3	13	52.7	+74	27	29.3	4.85	0.035	0.05	A2Vnn
15110	972	58	Ari	3	15	54.6	+21	6	29.4	4.87	-0.007	0.02	A1V
15197	984	ζ	Eri	3	16	41.1	-08	45	20.5	4.80	0.232	0.28	A5m
15382	994	15	Eri	3	19	8.5	-22	26	52.9	4.86	0.904	0.91	K0III
15416	991	***	***	3	19	49.8	+34	17	7.6	4.85	1.491	1.41	K2II
15457	996	κ^1	Cet	3	20	16.9	+03	25	60.0	4.84	0.681	0.73	G5Vvar
15474	1003	τ^4	Eri	3	20	17.7	-21	41	42.2	3.70	1.614	2.42	M3/M4III
15510	1008	e	Eri	3	20	37.6	-43	0	13.5	4.26	0.711	0.79	G8V
15549	999	***	***	3	21	24.1	+29	6	38.5	4.47	1.555	1.61	K2II-III
15520	985	BK	Cam	3	21	32.9	+65	42	52.5	4.74	-0.108	-0.12	B2.5Vne
15648	1002	32	Per	3	22	37.3	+43	23	29.8	4.96	0.051	0.06	A3V
15863	1017	33	Per	3	25	34.9	+49	55	19.3	1.79	0.481	0.63	F5Ib
15900	1030	o	Tau	3	25	45.4	+09	5	21.7	3.61	0.887	0.90	G8III
16083	1038	2	Tau	3	28	7.2	+09	47	33.3	3.73	-0.082	-0.07	B9Vn
16147	1034	***	***	3	29	18.2	+49	7	20.9	4.99	-0.091	-0.07	B5V
16245	1083	κ	Ret	3	29	41.3	-62	52	34.5	4.71	0.410	0.49	F5IV-V
16228	1035	CS	Cam	3	30	30.0	+59	59	58.9	4.21	0.419	0.58	B9Ia
16244	1044	34	Per	3	30	37.6	+49	34	5.2	4.67	-0.096	-0.07	B3V
16281	1040	CE	Cam	3	31	19.4	+58	56	16.2	4.55	0.489	0.79	A0Ia SB:
16341	1070	ν	Eri	3	31	29.2	-05	0	58.2	4.74	-0.092	-0.07	B9Vs
16335	1052	σ	Per	3	31	49.0	+48	3	15.1	4.36	1.367	1.42	K3III
16369	1066	5	Tau	3	31	50.5	+12	59	43.8	4.14	1.112	1.01	K0II-III...
16537	1084	18	Eri	3	33	45.4	-09	24	0.0	3.72	0.881	0.94	K2V
16611	1088	τ^5	Eri	3	34	33.7	-21	34	30.5	4.26	-0.106	-0.09	B9V
16870	1106	ψ	Per	3	37	43.4	-40	13	4.2	4.57	1.023	1.07	K0III
16826	1087	y	Eri	3	37	44.5	+48	14	57.7	4.32	-0.058	0.07	B5Ve
16852	1101	10	Tau	3	37	46.1	+00	27	22.0	4.29	0.575	0.66	F9V
17304	1134	δ	For	3	42	56.7	-31	52	60.0	4.99	-0.159	-0.15	B5III
17351	1143	o	Per	3	43	29.0	-37	15	32.8	4.59	1.191	1.12	K2IIICN...
17313	1123	h	Eri	3	43	29.5	+34	1	11.4	4.97	-0.048	-0.03	B0.5V
17378	1136	δ	Eri	3	44	5.3	-09	42	18.7	3.52	0.915	0.94	K0IV
17358	1122	δ	Per	3	44	10.7	+47	50	31.1	3.01	-0.125	-0.07	B5III SB
17440	1175	β	Ret	3	44	25.4	-64	45	7.8	3.84	1.133	1.11	K0IV SB
17448	1131	o	Per	3	45	25.2	+32	20	32.5	3.84	0.022	0.12	B1III
17499	1142	17	Tau	3	45	55.1	+24	10	1.5	3.72	-0.105	-0.09	B6III
17531	1145	19	Tau	3	46	15.2	+24	31	15.4	4.30	-0.110	-0.08	B6V
17529	1135	ν	Per	3	46	23.3	+42	37	56.6	3.77	0.425	0.52	F5IIvar
17573	1149	20	Tau	3	46	52.3	+24	25	16.2	3.87	-0.063	-0.02	B8III
17593	1162	π	Eri	3	46	58.2	-12	2	51.8	4.43	1.604	1.89	M1III
17678	1208	γ	Hyi	3	46	59.2	-74	11	6.1	3.26	1.590	1.94	M2III
17608	1156	23	Tau	3	47	22.1	+24	0	5.8	4.14	-0.051	0.02	B6IV
17587	1129	***	***	3	47	35.1	+63	23	54.5	4.78	0.747	0.79	A3V...
17651	1173	27	Eri	3	47	36.1	-23	11	56.3	4.22	0.434	0.51	F3/F5V
17702	1165	η	Tau	3	48	31.7	+24	9	28.7	2.85	-0.086	-0.01	B7III
17797	1189	***	***	3	49	14.7	-37	34	2.9	4.30	-0.038	-0.02	A+...
17874	1195	g	Eri	3	50	6.6	-36	8	53.2	4.17	0.927	0.92	G8III
17847	1178	27	Tau	3	50	12.4	+24	6	20.3	3.62	-0.070	-0.03	B8III
17884	1155	BE	Cam	3	51	8.5	+65	34	41.2	4.39	1.870	2.58	M1III
17959	1148	γ	Cam	3	52	14.0	+71	23	2.2	4.59	0.064	0.13	A2IVn
18216	1213	τ^8	Eri	3	54	27.4	-24	33	41.0	4.64	-0.136	-0.13	B5V

Posiciones medias de estrellas brillantes, 2017

Estrella				α			δ						
NH	NY	nom		h	m	s	°	‘	“	V	U-B	B-V	Esp
18255	1211	32	Eri	3	55	10.3	-02	54	14.7	4.46	0.672	0.73	G8III
18246	1203	ζ	Per	3	55	14.2	+31	56	3.3	2.84	0.271	0.18	B1Ib
18488	1205	***	***	3	58	38.6	+61	9	29.9	4.99	1.435	1.53	K3I-II
18543	1231	γ	Eri	3	58	50.8	-13	27	35.2	2.97	1.588	1.78	M1IIIb Ca-1
18505	1204	***	***	3	58	59.0	+63	7	18.0	4.95	-0.074	-0.01	B9.5V
18597	1247	45	Per	3	59	1.6	-61	21	4.1	4.56	1.590	1.85	M2III
18532	1220	δ	Ret	3	59	2.0	+40	3	33.7	2.90	-0.199	-0.19	B0.5V
18614	1228	ξ	Per	4	0	6.3	+35	50	23.7	3.98	0.016	0.16	O7.5Iab:
18673	1240	36	Eri	4	0	40.3	-23	58	3.1	4.62	-0.121	-0.07	Ap Si
18744	1264	γ	Ret	4	1	9.2	-62	6	38.8	4.48	1.500	2.42	M4III
18772	1266	ι	Ret	4	1	35.4	-61	1	48.7	4.97	1.386	1.41	K4III
18724	1239	35	Tau	4	1	39.1	+12	32	18.8	3.41	-0.099	-0.08	B3V +0A
18907	1251	38	Tau	4	4	5.3	+06	2	12.0	3.91	0.032	0.03	A1V
19038	1256	37	Tau	4	5	44.0	+22	7	42.3	4.36	1.064	1.02	K0III
19018	1242	***	***	4	5	55.3	+59	12	8.2	5.00	0.495	0.69	F0II
19167	1261	λ	Per	4	7	53.7	+50	23	49.6	4.25	-0.011	0.08	A0IVn
19343	1273	48	Per	4	9	56.3	+47	45	27.3	3.96	-0.025	0.08	B3Ve
19515	1302	δ	Hor	4	11	26.0	-41	56	55.3	4.93	0.334	0.41	A9V
19587	1298	o^1	Eri	4	12	43.3	-06	47	35.1	4.04	0.327	0.38	F2II-III
19747	1326	α	Hor	4	14	35.0	-42	15	7.2	3.85	1.085	1.09	K1III
19780	1336	α	Ret	4	14	39.2	-62	25	49.3	3.33	0.915	0.91	G7III
19740	1311	47	Tau	4	14	53.6	+09	18	25.1	4.84	0.799	0.86	G5III
19777	1318	39	Eri	4	15	13.7	-10	12	50.1	4.87	1.156	1.12	K3III
19849	1325	f	Per	4	16	4.7	-07	37	36.0	4.43	0.820	0.89	K1V
19811	1306	40	Eri	4	16	5.1	+40	31	35.3	4.67	1.007	1.07	G5II comp
19812	1303	51	Per	4	16	11.3	+48	27	7.6	4.12	0.935	0.93	G0Ib...
19860	1320	μ	Tau	4	16	29.2	+08	56	5.8	4.27	-0.054	-0.02	B3IV
19893	1338	γ	Dor	4	16	29.2	-51	26	35.3	4.26	0.312	0.37	F4III
19921	1355	ε	Ret	4	16	47.3	-59	15	37.9	4.44	1.078	1.05	K2IV
19990	1329	ω^2	Tau	4	18	17.3	+20	37	13.1	4.93	0.259	0.30	A3m
20042	1347	υ^4	Eri	4	18	33.4	-33	45	23.5	3.55	-0.108	-0.09	B9V
20070	1324	b	Per	4	19	34.0	+50	20	12.5	4.60	0.043	0.16	A2V
20205	1346	γ	Tau	4	20	47.5	+15	40	6.9	3.65	0.981	0.95	G8III
20250	1348	φ	Tau	4	21	26.0	+27	23	28.3	4.97	1.150	1.35	K1III
20252	1343	54	Per	4	21	33.0	+34	36	26.9	4.93	0.950	0.94	G8III
20354	1350	V469	Per	4	22	49.4	+46	32	20.5	4.80	-0.022	0.03	B4IV
20455	1373	δ^1	Tau	4	23	56.8	+17	34	56.0	3.77	0.983	0.93	G8III
20535	1393	d	Eri	4	24	41.7	-33	58	37.5	3.97	1.468	1.53	K4III
20542	1380	64	Tau	4	25	6.4	+17	29	0.1	4.80	0.154	0.18	A7V
20635	1387	κ^1	Tau	4	26	24.9	+22	19	57.1	4.21	0.136	0.16	A7IV-V
20648	1389	68	Tau	4	26	30.3	+17	57	59.7	4.30	0.049	0.08	A2IV
20713	1394	71	Tau	4	27	20.7	+15	39	23.8	4.48	0.262	0.33	F0V...
20711	1392	υ	Tau	4	27	21.4	+22	51	6.8	4.28	0.263	0.32	A8Vn
20732	1396	π	Tau	4	27	35.8	+14	45	7.3	4.69	0.979	0.96	G8III
20877	1407	75	Tau	4	29	26.5	+16	23	50.8	4.96	1.137	1.12	K2IIIvar
20885	1411	θ^1	Tau	4	29	34.6	+15	59	59.1	3.84	0.952	1.02	G7III
20889	1409	ε	Tau	4	29	38.4	+19	13	4.3	3.53	1.014	1.04	K0III
20894	1412	78	Tau	4	29	39.8	+15	54	30.1	3.40	0.179	0.21	A7III
21029	1427	***	***	4	31	33.9	+16	13	50.7	4.78	0.170	0.19	A6IV
21139	1437	45	Eri	4	32	46.5	-00	0	27.7	4.91	1.320	1.25	K3II-III
21248	1453	υ^1	Eri	4	34	11.8	-29	43	55.4	4.49	0.972	1.00	K0III
21281	1465	α	Dor	4	34	22.6	-55	0	33.4	3.30	-0.079	-0.08	A0V:
21273	1444	ρ	Tau	4	34	50.6	+14	52	47.5	4.65	0.255	0.28	A8V
21393	1464	52	Eri	4	36	13.9	-30	31	38.8	3.81	0.957	0.93	G8III
21402	1458	88	Tau	4	36	37.0	+10	11	43.4	4.25	0.184	0.21	A5m

Posiciones medias de estrellas brillantes, 2017

Estrella				α			δ						
NH	NY	nom		h	m	s	º	‘	“	V	U-B	B-V	Esp
21421	1457	87	Tau	4	36	55.6	+16	32	35.2	0.87	1.538	1.67	K5III
21444	1463	ν	Eri	4	37	11.7	-03	19	4.3	3.93	-0.210	-0.20	B2III SB
21476	1454	58	Per	4	37	54.4	+41	17	56.8	4.25	1.171	1.13	G8II comp
21594	1481	53	Eri	4	38	59.0	-14	16	15.6	3.86	1.082	1.09	K1III
21589	1473	c	Tau	4	39	8.3	+12	32	40.6	4.27	0.122	0.15	A6V
21644	1483	***	***	4	39	42.6	-12	5	22.6	4.99	0.074	0.13	A0V
21683	1479	σ^2	Tau	4	40	16.7	+15	57	4.6	4.67	0.147	0.19	A5Vn
21770	1502	α	Cae	4	41	7.6	-41	49	52.1	4.44	0.342	0.40	F2V
21763	1496	54	Eri	4	41	12.5	-19	38	20.3	4.32	1.599	2.27	M3/M4III
21881	1497	94	Tau	4	43	17.9	+22	59	20.5	4.27	-0.112	-0.10	B3V
22109	1520	μ	Eri	4	46	22.7	-03	13	25.7	4.01	-0.148	-0.13	B5IV
22449	1543	π^3	Ori	4	50	47.5	+06	59	25.8	3.19	0.484	0.53	F6V
22453	1533	1	Aur	4	51	5.5	+37	31	3.2	4.89	1.447	1.51	K4II
22509	1544	2	Ori	4	51	34.0	+08	55	43.9	4.35	0.010	0.04	A1Vn
22549	1552	3	Ori	4	52	8.4	+05	38	1.4	3.68	-0.157	-0.16	B2III SB
22667	1556	o^1	Ori	4	53	31.5	+14	16	42.3	4.71	1.773	2.63	M3Sv
22701	1560	61	Eri	4	53	45.3	-05	25	28.7	4.36	0.257	0.33	A9IV
22678	1551	2	Aur	4	53	48.4	+36	43	52.1	4.79	1.414	1.46	K3III
22797	1567	π^5	Ori	4	55	9.9	+02	28	5.0	3.71	-0.179	-0.18	B2III SB
22783	1542	9	Cam	4	55	48.1	+66	22	12.0	4.26	-0.008	0.09	O9.5Ia SB:
22845	1570	π^1	Ori	4	55	51.6	+10	10	38.3	4.64	0.085	0.11	A0V
22957	1580	o^2	Ori	4	57	21.4	+13	32	26.7	4.06	1.158	1.16	K2III
23015	1577	ι	Aur	4	58	8.2	+33	11	32.0	2.69	1.490	1.46	K3IIvar
23040	1568	7	Cam	4	58	41.7	+53	46	41.4	4.43	-0.017	0.06	A1V
23123	1601	10	Ori	4	59	27.4	+01	44	22.5	4.47	1.369	1.32	K2IIvar
23179	1592	4	Aur	5	0	26.9	+37	54	54.1	4.93	0.037	0.06	A1V
23231	1611	64	Eri	5	0	44.6	-12	30	46.0	4.78	0.267	0.33	F0V
23362	1621	***	***	5	2	11.2	-20	1	39.1	4.91	-0.047	-0.04	B9V
23364	1617	ψ	Eri	5	2	17.3	-07	8	58.2	4.80	-0.164	-0.18	B3V
23416	1605	ε	Aur	5	3	13.7	+43	50	50.8	3.03	0.537	0.61	F0Ia
23453	1612	8	Aur	5	3	42.3	+41	5	58.8	3.69	1.154	1.12	K4II comp
23497	1620	ι	Tau	5	4	8.6	+21	36	48.5	4.62	0.155	0.19	A7V
23522	1603	10	Cam	5	4	58.9	+60	27	56.4	4.03	0.921	0.89	G0Ib
23595	1652	γ^1	Cae	5	5	2.2	-35	27	35.7	4.55	1.177	1.19	K2III
23607	1638	V1032	Ori	5	5	34.2	+15	25	37.5	4.65	-0.064	0.02	A0p Si
23693	1674	ζ	Dor	5	5	48.8	-57	26	57.3	4.71	0.526	0.60	F7V
23685	1654	ε	Lep	5	6	12.1	-22	20	54.9	3.19	1.460	1.50	K4III
23767	1641	10	Aur	5	7	44.7	+41	15	23.1	3.18	-0.148	-0.17	B3V
23783	1637	9	Aur	5	8	3.1	+51	37	8.6	4.98	0.343	0.40	F0V
23835	1656	104	Tau	5	8	29.2	+18	40	1.4	4.91	0.657	0.74	G4V
23875	1666	β	Eri	5	8	42.7	-05	3	54.1	2.78	0.161	0.16	A3IIIvar
23972	1679	λ	Eri	5	9	59.1	-08	43	58.2	4.25	-0.187	-0.16	B2IVn
24010	1676	15	Ori	5	10	42.1	+15	37	5.3	4.81	0.313	0.40	F2IV
24244	1696	ι	Lep	5	13	6.9	-11	50	57.9	4.45	-0.099	-0.08	B8V
24305	1702	μ	Lep	5	13	43.1	-16	11	9.0	3.29	-0.110	-0.09	B9IV: HgMn
24372	1744	θ	Dor	5	13	44.9	-67	9	56.0	4.81	1.274	1.22	K2III
24327	1705	κ	Lep	5	14	2.4	-12	55	18.2	4.36	-0.094	-0.07	B7V
24331	1698	ρ	Ori	5	14	12.4	+02	52	50.9	4.46	1.166	1.12	K3III...
24340	1689	μ	Aur	5	14	37.7	+38	30	12.8	4.82	0.189	0.23	A4m
24436	1713	β	Ori	5	15	22.8	-08	10	57.4	0.18	-0.030	0.03	B8Ia
24608	1708	13	Aur	5	17	59.1	+46	0	50.2	0.08	0.795	0.83	M1: comp
24659	1743	o	Col	5	18	7.0	-34	52	44.4	4.81	0.987	1.00	K0/K1III/IV
24674	1735	20	Ori	5	18	27.4	-06	49	36.2	3.59	-0.115	-0.10	B5III
24727	1726	16	Aur	5	19	19.6	+33	23	17.8	4.54	1.252	1.32	K3III...
24822	1739	n	Tau	5	20	19.8	+22	6	47.1	4.96	0.937	0.92	G8III

Posiciones medias de estrellas brillantes, 2017

Estrella				α			δ						
NH	NY	nom		h	m	s	°	‘	“	V	U-B	B-V	Esp
24813	1729	λ	Aur	5	20	22.5	+40	6	46.2	4.69	0.630	0.70	G0V
24845	1756	λ	Lep	5	20	22.9	-13	9	35.6	4.29	-0.235	-0.26	B0.5IV
24927	1762	***	***	5	21	11.8	-21	13	23.7	4.70	-0.048	-0.03	A0V
25044	1765	22	Ori	5	22	39.4	-00	21	59.3	4.72	-0.168	-0.17	B2IV-V
25142	1770	23	Ori	5	23	45.2	+03	33	36.0	4.99	-0.096	-0.14	B1V
25247	1784	29	Ori	5	24	47.5	-07	47	35.5	4.13	0.943	0.97	G8III
25281	1788	η	Ori	5	25	21.5	-02	22	56.3	3.35	-0.240	-0.16	B1V +0B2
25278	1780	V1119	Tau	5	25	26.8	+17	23	54.0	5.00	0.544	0.62	F8V SB
25302	1789	V1086	Ori	5	25	39.4	+01	51	40.2	4.89	-0.200	-0.19	B1V:pe
25336	1790	24	Ori	5	26	4.2	+06	21	51.1	1.64	-0.224	-0.22	B2III
25428	1791	β	Tau	5	27	24.0	+28	37	14.3	1.65	-0.130	-0.09	B7III
25473	1811	ψ	Ori	5	27	45.3	+03	6	34.3	4.59	-0.199	-0.21	B2IV
25539	1810	ο	Tau	5	28	41.2	+21	57	1.5	4.88	-0.140	-0.13	B2.5IV
25606	1829	β	Lep	5	28	59.7	-20	44	47.6	2.81	0.807	0.86	G5II
25737	1834	31	Ori	5	30	37.3	-01	4	47.0	4.71	1.592	1.70	K5III
25813	1839	32	Ori	5	31	43.3	+05	57	36.6	4.20	-0.143	-0.14	B5V
25859	1862	ε	Col	5	31	50.1	-35	27	31.0	3.86	1.130	1.09	K1II/III
25923	1855	υ	Ori	5	32	46.7	-07	17	23.4	4.62	-0.261	-0.28	B0V
25930	1852	δ	Ori	5	32	54.1	-00	17	14.7	2.25	-0.175	-0.21	O9.5II
25945	1845	119	Tau	5	33	14.4	+18	36	20.8	4.32	2.060	2.54	M2Ib
25985	1865	11	Lep	5	33	30.2	-17	48	39.2	2.58	0.211	0.32	F0Ib
26069	1922	β	Dor	5	33	46.7	-62	28	43.0	3.76	0.640	0.69	F6Ia
25984	1843	χ	Aur	5	33	52.1	+32	12	12.0	4.71	0.281	0.51	B5Iab
26176	1876	37	Ori	5	35	46.9	+09	30	0.2	4.39	-0.157	-0.13	B0IV...
26199	1887	***	***	5	35	54.0	-05	59	29.8	4.78	-0.248	-0.27	B0.5V
26207	1879	λ	Ori	5	36	6.2	+09	56	40.2	3.39	-0.160	-0.13	O...
26220	1893	41	Ori	5	36	7.4	-05	22	37.2	4.98	0.000	0.00	O7
26235	1897	θ^2	Ori	5	36	14.5	-05	24	20.9	4.98	-0.097	0.03	O9.5Vpe
26237	1892	c	Ori	5	36	15.0	-04	49	41.3	4.58	-0.183	-0.19	B2III...
26241	1899	44	Ori	5	36	17.4	-05	53	58.8	2.75	-0.210	-0.22	O9III
26311	1903	ε	Ori	5	37	6.1	-01	11	31.3	1.69	-0.184	-0.16	B0Ia
26366	1907	40	Ori	5	37	52.1	+09	17	55.6	4.09	0.951	1.02	G8III-IV
26451	1910	ζ	Tau	5	38	41.5	+21	9	6.2	2.97	-0.148	-0.15	B4IIIp
26549	1931	σ	Ori	5	39	37.5	-02	35	28.5	3.77	-0.190	-0.25	O9.5V...
26563	1937	d	Ori	5	39	43.9	-07	12	15.4	4.77	0.139	0.16	A4V
26594	1934	47	Ori	5	40	6.6	+04	7	48.4	4.50	-0.098	-0.02	B3IIIe
26634	1956	α	Col	5	40	17.0	-34	3	56.6	2.65	-0.120	-0.07	B7IV
26727	1948	ζ	Ori	5	41	38.5	-01	56	4.5	1.74	-0.199	-0.18	O9.5Ib SB
26736	1952	***	***	5	41	44.1	-01	7	15.1	4.95	-0.197	-0.21	B2IV-V
26777	1946	126	Tau	5	42	18.4	+16	32	30.5	4.84	-0.125	-0.10	B3IV...
26885	1963	51	Ori	5	43	23.0	+01	28	54.5	4.90	1.144	1.17	K1III
27100	2015	δ	Dor	5	44	48.4	-65	43	44.5	4.34	0.217	0.27	A7V
27072	1983	γ	Lep	5	45	11.6	-22	26	37.4	3.59	0.481	0.57	F7V
27321	2020	β	πc	5	47	42.0	-51	3	38.9	3.85	0.171	0.18	A3V
27288	1998	ζ	Lep	5	47	45.0	-14	48	59.7	3.55	0.104	0.11	A2Vann
27366	2004	κ	Ori	5	48	35.2	-09	39	52.5	2.07	-0.168	-0.14	B0.5Iavar
27468	2002	132	Tau	5	50	5.5	+24	34	19.0	4.88	1.021	1.04	G8IIIvar
27530	2042	γ	πc	5	50	8.8	-56	9	45.9	4.50	1.075	1.06	K1III
27483	1995	29	Aur	5	50	23.2	+39	11	7.0	4.51	0.949	0.95	G8III
27511	2010	134	Tau	5	50	32.0	+12	39	19.7	4.89	-0.068	-0.05	B9IV
27628	2040	β	Col	5	51	34.7	-35	45	45.5	3.12	1.146	1.10	K1.5III
27654	2035	δ	Lep	5	52	4.5	-20	52	43.4	3.76	0.984	1.05	G8III/IV
27639	2011	31	Aur	5	52	14.1	+37	18	32.1	4.72	1.621	1.90	M1III
27673	2012	32	Aur	5	52	42.2	+39	9	6.6	3.97	1.132	1.07	K0III
27750	2037	56	Ori	5	53	21.0	+01	51	29.2	4.76	1.382	1.31	K2IIvar

Posiciones medias de estrellas brillantes, 2017

Estrella				α			δ						
NH	NY	nom		h	m	s	º	‘	“	V	U-B	B-V	Esp
27810	2056	λ	Col	5	53	45.0	-33	47	54.3	4.88	-0.154	-0.14	B5V
27890	2102	***	***	5	54	14.1	-63	5	3.7	4.65	1.022	1.03	K1III/IV
27830	2034	136	Tau	5	54	25.7	+27	36	53.3	4.56	-0.008	0.00	A0V
27913	2047	χ^1	Ori	5	55	25.2	+20	16	40.3	4.39	0.594	0.66	G0V
28010	2087	ξ	Ori	5	56	6.1	-37	7	8.4	4.97	1.102	1.03	K1IIICN...
27989	2061	η	Col	5	56	7.2	+07	24	32.3	0.45	1.500	2.32	M2Ib
27949	2029	α	Aur	5	56	18.9	+55	42	32.1	4.96	0.052	0.09	A2V
28103	2085	γ	Lep	5	57	12.1	-14	9	56.4	3.71	0.337	0.39	F1V
28199	2106	139	Col	5	58	9.5	-35	16	56.3	4.36	-0.165	-0.16	B2.5IV
28237	2084	η	Tau	5	59	4.8	+25	57	16.3	4.81	-0.088	-0.04	B1Ib
28328	2120	δ	Col	5	59	41.0	-42	48	53.8	3.96	1.146	1.06	K0III
28360	2088	37	Aur	6	0	48.8	+44	56	50.5	1.90	0.077	0.05	A2V
28380	2095	35	Aur	6	0	54.9	+37	12	43.5	2.65	-0.083	-0.06	A0p Si
28413	2113	***	***	6	0	55.9	-03	4	29.3	4.53	1.202	1.26	K2IIIvar
28358	2077	β	Aur	6	0	58.1	+54	17	2.0	3.72	1.010	0.99	K0III
28404	2091	3	Aur	6	1	14.1	+45	56	11.2	4.30	1.701	2.51	M3IIvar
28574	2128	μ	Mon	6	2	39.8	-10	35	55.9	4.92	-0.128	-0.08	B5III
28614	2124	χ^2	Ori	6	3	20.8	+09	38	45.2	4.12	0.170	0.19	Am...
28716	2135	1	Ori	6	4	57.6	+20	8	11.6	4.64	0.236	0.41	B2Iavar
28734	2134	SS	Gem	6	5	11.1	+23	15	38.8	4.16	0.835	0.88	G7III
28816	2148	θ	Lep	6	5	46.0	-16	29	12.3	4.92	0.196	0.21	Ap shell
28910	2155	θ	Lep	6	6	56.9	-14	56	16.7	4.67	0.046	0.04	A0V
29034	2177	ν	Col	6	8	7.7	-37	15	22.5	5.00	-0.095	-0.08	B8:IV
29038	2159	δ	Ori	6	8	34.3	+14	45	53.8	4.42	-0.164	-0.17	B3IV
29276	2212	ξ	πc	6	10	38.4	-54	58	23.0	4.72	-0.229	-0.24	B0.5IV
29426	2199	f^1	Ori	6	12	56.1	+14	12	12.2	4.45	-0.180	-0.16	B3IV
29434	2198	ν^1	Ori	6	13	3.8	+16	7	30.0	4.95	-0.149	-0.12	B5Vn
29651	2227	γ	Mon	6	15	42.6	-06	16	52.9	3.99	1.319	1.27	K3III
29655	2216	η	Gem	6	15	56.0	+22	30	0.7	3.31	1.600	2.70	M3III
29696	2219	κ	Aur	6	16	29.6	+29	29	24.1	4.32	1.021	1.04	G8IIIvar
29735	2244	***	***	6	16	33.0	-13	43	31.2	5.00	-0.078	-0.05	B9V
29807	2256	κ	Col	6	17	10.5	-35	8	50.1	4.37	0.978	0.94	G8II
29997	2209	***	***	6	20	46.3	+69	18	39.2	4.76	0.025	0.05	A0Vn
30093	2275	***	***	6	20	52.2	-02	57	11.4	4.91	1.613	1.90	M1III
30122	2282	δ	CMa	6	20	59.1	-30	4	19.6	3.02	-0.160	-0.20	B2.5V
30060	2238	ζ	Lyn	6	21	9.9	+59	0	8.7	4.44	0.032	0.05	A2Vs
30277	2296	β	Col	6	22	45.2	-33	26	46.2	3.85	0.858	0.88	G7II
30324	2294	μ	CMa	6	23	28.2	-17	57	56.6	1.98	-0.240	-0.24	B1II/III
30343	2286	μ	Gem	6	24	1.1	+22	30	11.1	2.87	1.621	2.30	M3IIIvar
30438	2326	***	***	6	24	20.4	-52	42	20.8	-0.62	0.164	0.23	F0Ib
30419	2298	α	Mon	6	24	41.7	+04	34	57.5	4.39	0.215	0.25	A5IV
30520	2289	ψ^1	Aur	6	26	14.7	+49	16	37.3	4.92	1.905	1.94	K5Iabvar
30788	2361	λ	CMa	6	28	49.2	-32	35	31.3	4.47	-0.169	-0.16	B4V
30867	2356	β	Mon	6	29	40.0	-07	2	43.7	3.76	-0.113	-0.11	B3Ve
30883	2343	ν	Gem	6	30	0.1	+20	11	58.4	4.13	-0.115	-0.10	B6III
31125	2387	4	CMa	6	32	35.1	-23	25	55.3	4.34	-0.245	-0.24	B1III
31216	2385	13	Mon	6	33	51.0	+07	19	7.7	4.47	0.023	0.09	A0Ib
31407	2435	***	***	6	35	21.7	-52	59	25.6	4.35	-0.021	0.06	B9III
31416	2414	ξ^2	CMa	6	35	47.4	-22	58	47.0	4.54	-0.035	-0.01	A0III
31592	2429	ν^2	CMa	6	37	26.9	-19	16	18.9	3.95	1.037	1.02	K1III+...
31685	2451	ν	Pup	6	38	17.8	-43	12	43.4	3.17	-0.103	-0.07	B8III SB
31700	2443	ν^3	CMa	6	38	39.6	-18	15	13.4	4.42	1.137	1.12	K0II/III
31681	2421	γ	Gem	6	38	43.3	+16	22	57.9	1.93	0.001	0.04	A0IV
31827	2450	***	***	6	40	4.7	-14	9	45.3	4.82	1.459	1.45	K2III
31832	2427	ψ^2	Aur	6	40	34.7	+42	28	18.2	4.80	1.236	1.17	K3III

Posiciones medias de estrellas brillantes, 2017

Estrella				α			δ						
NH	NY	nom		h	m	s	°	‘	“	V	U-B	B-V	Esp
31978	2456	S	Mon	6	41	56.5	+09	52	41.6	4.66	-0.233	-0.22	O7
32249	2478	30	Gem	6	44	58.5	+13	12	32.3	4.49	1.167	1.11	K1III
32246	2473	ε	Gem	6	45	0.5	+25	6	44.2	3.06	1.377	1.22	A3mA6-A9
32349	2491	9	CMa	6	45	55.2	-16	44	28.6	-1.44	0.009	-0.02	A0m...
32362	2484	ξ	Gem	6	46	16.3	+12	52	31.2	3.35	0.443	0.48	F5IV
32438	2470	12	Lyn	6	47	46.6	+59	25	18.4	4.86	0.084	0.10	A3V
32533	2503	17	Mon	6	48	16.8	+08	1	1.3	4.77	1.396	1.36	K4III
32607	2550	α	πc	6	48	22.2	-61	57	38.1	3.24	0.225	0.28	A7IV
32578	2506	18	Mon	6	48	46.4	+02	23	30.2	4.48	1.099	1.06	K0III
32761	2554	***	***	6	50	14.1	-53	38	36.5	4.41	0.899	0.92	G6II
32768	2553	τ	Pup	6	50	22.2	-50	38	9.7	2.94	1.207	1.14	K0III...
32759	2538	κ	CMa	6	50	29.7	-32	31	46.6	3.50	-0.116	-0.10	B1.5IVne
32855	2549	***	***	6	51	30.6	-34	23	20.0	4.99	1.379	1.28	K2/K3III
32844	2516	ψ^7	Aur	6	52	0.1	+41	45	32.0	4.99	1.256	1.23	K3III
33018	2540	θ	Gem	6	53	56.5	+33	56	18.8	3.60	0.102	0.14	A3III
33092	2571	EY	CMa	6	54	18.3	-20	14	49.0	4.82	-0.212	-0.21	B1Ib
33152	2580	o^1	CMa	6	54	51.5	-24	12	25.7	3.89	1.740	1.58	K3Iab
33160	2574	θ	CMa	6	55	0.2	-12	3	42.1	4.08	1.418	1.49	K4III
33202	2564	e	Gem	6	55	37.8	+13	9	15.3	4.73	0.321	0.36	F0Vp
33302	2590	π	CMa	6	56	23.0	-20	9	35.5	4.66	0.374	0.46	F2IV/V
33357	2608	***	***	6	56	44.0	-48	44	41.6	4.94	1.668	2.05	M1III
33345	2593	μ	CMa	6	56	54.8	-14	4	1.8	5.00	1.182	1.30	B9.5V
33347	2596	ι	CMa	6	56	55.1	-17	4	40.9	4.36	-0.063	0.01	B3Ib/II
33449	2560	15	Lyn	6	58	47.2	+58	23	51.9	4.35	0.850	0.85	G5III-IV
33485	2585	ψ	Aur	6	58	53.6	+45	4	10.5	4.90	0.027	0.05	A2Vn
33579	2618	ε	CMa	6	59	18.8	-28	59	48.7	1.50	-0.211	-0.20	B2II
33856	2646	σ	CMa	7	2	25.0	-27	57	39.1	3.49	1.729	1.82	K4III
33694	2527	***	***	7	2	35.6	+76	57	5.7	4.55	1.365	1.35	K4III
33977	2653	o^2	CMa	7	3	45.3	-23	51	35.5	3.02	-0.077	-0.03	B3Ia
33971	2648	19	Mon	7	3	46.9	-04	15	56.9	4.99	-0.195	-0.19	B1V
34059	2672	H	Pup	7	4	20.9	-49	36	36.5	4.92	0.140	0.15	A4IV
34045	2657	γ	CMa	7	4	33.0	-15	39	36.9	4.11	-0.112	-0.09	B8II
34088	2650	43	Gem	7	5	8.7	+20	32	35.5	4.01	0.899	0.90	G3Ibv SB
34481	2736	γ^2	Vol	7	8	35.6	-70	31	37.8	3.78	1.006	0.94	G8IIIvar
34444	2693	δ	CMa	7	9	6.2	-26	25	19.1	1.83	0.671	0.67	F8Ia
34495	2702	A	Pup	7	9	26.3	-39	41	4.4	4.83	-0.179	-0.17	B3IV/V
34622	2701	20	Mon	7	11	5.8	-04	15	56.2	4.91	1.020	1.03	K0III
34693	2697	46	Gem	7	12	15.1	+30	12	53.8	4.41	1.261	1.25	K2III
34769	2714	22	Mon	7	12	45.5	-00	31	22.7	4.15	-0.005	0.02	A2V
34752	2696	63	Aur	7	12	51.4	+39	17	25.3	4.91	1.451	1.48	K4II-III
34834	2740	QW	Pup	7	13	3.6	-46	47	21.2	4.49	0.324	0.40	F0IV
34899	2746	OU	Pup	7	13	44.8	-45	12	49.9	4.87	-0.003	0.02	Ap
34922	2748	L^2	Pup	7	14	4.4	-44	40	8.4	4.42	1.331	3.46	M5e
34981	2745	27	CMa	7	14	58.0	-26	23	1.1	4.42	-0.170	-0.12	B3III
35020	2762	***	***	7	15	7.1	-48	18	11.5	4.75	-0.091	-0.07	B8/B9V
35037	2749	ω	CMa	7	15	31.3	-26	48	14.4	4.01	-0.150	-0.08	B2IV/Ve
35228	2803	δ	Vol	7	16	49.0	-67	59	21.0	3.97	0.760	0.78	F6II
35205	2766	***	***	7	17	17.1	-27	54	47.1	4.66	1.589	2.11	M2III
35210	2764	145	CMa	7	17	21.1	-23	20	51.7	4.83	1.601	1.77	K4III
35264	2773	π	Pup	7	17	45.7	-37	7	47.0	2.71	1.616	1.65	K3Ib
35363	2787	NV	Pup	7	18	55.7	-36	46	0.2	4.65	-0.099	0.11	B2V+...
35350	2763	λ	Gem	7	19	5.9	+16	30	26.8	3.58	0.106	0.12	A3V...
35412	2781	29	CMa	7	19	24.1	-24	35	29.8	4.88	-0.160	-0.06	O7f
35415	2782	30	CMa	7	19	26.0	-24	59	14.3	4.37	-0.132	-0.10	O9Ib
35384	2751	***	***	7	19	51.5	+49	25	54.4	5.00	0.087	0.16	A4IIIn

Posiciones medias de estrellas brillantes, 2017

Estrella				α			δ						
NH	NY	nom		h	m	s	º	‘	“	V	U-B	B-V	Esp
35550	2777	δ	Gem	7	21	10.0	+21	56	55.4	3.50	0.374	0.44	F0IV...
35727	2812	***	***	7	22	59.8	-19	3	3.6	4.94	-0.039	0.01	B5II/III
35904	2827	η	CMa	7	24	47.3	-29	20	17.4	2.45	-0.083	0.01	B5Ia
36041	2828	2	CMi	7	26	36.2	+09	14	25.1	4.99	0.991	0.96	G8III
36046	2821	60	Gem	7	26	48.7	+27	45	42.7	3.78	1.024	1.01	G9III+...
36145	2818	21	Lyn	7	28	1.8	+49	10	30.2	4.61	-0.001	0.02	A1V
36188	2845	3	CMi	7	28	5.9	+08	15	10.0	2.89	-0.097	-0.07	B8Vvar
36284	2854	γ	CMi	7	29	6.9	+08	53	19.8	4.33	1.425	1.48	K3III SB
36377	2878	σ	Pup	7	29	47.2	-43	20	15.4	3.25	1.509	1.54	K5III SB
36366	2852	62	Gem	7	30	14.1	+31	44	54.0	4.16	0.320	0.40	F0V...
36431	2874	***	***	7	30	36.0	-23	3	41.9	4.85	0.243	0.35	A6Ib/II
36425	2864	6	CMi	7	30	46.2	+11	58	8.7	4.55	1.276	1.21	K2III
36514	2881	***	***	7	31	23.4	-30	59	59.9	4.65	0.904	0.89	G2Ib...
36773	2902	VZ	Cam	7	34	36.2	-14	33	46.1	4.82	1.362	1.37	A4Ia
36547	2742	KQ	Pup	7	34	39.1	+82	22	22.3	4.92	1.633	2.66	M4IIIa
36795	2906	***	***	7	34	48.1	-22	20	5.5	4.44	0.521	0.60	F6V
36850	2890	α	Gem	7	35	42.7	+31	50	53.8	1.58	0.034	0.05	A2Vm
36917	2922	***	***	7	36	5.1	-28	24	32.2	4.65	-0.111	-0.12	B8V
36942	2934	***	***	7	36	5.7	-52	34	24.5	4.93	1.373	1.39	K3III
36962	2905	υ	Gem	7	36	59.9	+26	51	19.5	4.06	1.540	1.66	K5III
37096	2937	f	Pup	7	38	1.0	-35	0	31.4	4.53	-0.081	-0.08	B8IV/V
37173	2944	PU	Pup	7	39	1.8	-25	24	19.8	4.69	-0.100	-0.07	B8IV
37229	2948	***	***	7	39	32.9	-26	50	40.5	3.80	-0.159	-0.15	B5IV
37297	2961	n^1	Pup	7	40	4.4	-38	20	56.5	4.84	-0.189	-0.17	B3V
37279	2943	α	CMi	7	40	13.0	+05	10	44.0	0.40	0.432	0.49	F5IV-V
37265	2930	71	Gem	7	40	18.3	+34	32	33.7	4.89	0.413	0.47	F3III
37379	2959	***	***	7	41	11.2	-15	18	19.9	4.98	1.543	1.49	K3III
37504	3024	ζ	Vol	7	41	35.7	-72	38	52.3	3.93	1.033	1.02	K0III
37447	2970	26	Mon	7	42	5.0	-09	35	34.9	3.94	1.022	1.01	K0III
37648	2993	1	Pup	7	44	14.8	-28	27	12.2	4.63	1.632	1.76	K5III
37629	2973	75	Gem	7	44	24.2	+28	50	23.1	4.23	1.118	1.12	K1III SB
37609	2946	24	Lyn	7	44	28.7	+58	40	3.0	4.93	0.104	0.17	A3IVn
37677	2996	3	Pup	7	44	30.6	-28	59	51.3	3.94	0.160	0.34	A2Iab
37740	2985	κ	Gem	7	45	30.1	+24	21	16.7	3.57	0.932	0.90	G8III
37819	3017	c	Pup	7	45	52.7	-38	0	42.7	3.62	1.706	1.82	K4III
37826	2990	β	Gem	7	46	23.1	+27	58	57.3	1.16	0.991	0.97	K0IIIvar
37908	3003	g	Gem	7	47	8.1	+18	27	57.9	4.89	1.425	1.54	K5III
38070	3034	o	Pup	7	48	48.8	-25	58	53.5	4.40	-0.070	0.13	B1IV:nne
38089	3046	Q	Pup	7	48	51.4	-47	7	21.2	4.69	1.039	1.03	K0III
38164	3055	P	Pup	7	49	46.3	-46	25	4.6	4.10	-0.160	-0.17	B0III
38170	3045	ξ	Pup	7	50	1.8	-24	54	16.7	3.34	1.218	1.08	G6Ia
38414	3080	a	Pup	7	52	49.1	-40	37	18.1	3.71	1.012	1.04	G5III...
38455	3084	b	Pup	7	53	15.8	-38	54	32.0	4.49	-0.188	-0.18	B2V
38500	3089	***	***	7	53	33.2	-49	39	33.1	4.63	-0.228	-0.24	B1.5Vp
38518	3090	J	Pup	7	53	49.0	-48	8	57.2	4.22	-0.130	-0.11	B0.5Ib
38538	3067	φ	Gem	7	54	33.9	+26	43	8.9	4.97	0.098	0.14	A3V
38827	3117	x	Car	7	57	13.4	-53	1	47.6	3.46	-0.177	-0.17	B3IVp
38835	3102	11	Pup	7	57	36.7	-22	55	39.9	4.20	0.718	0.75	F7/F8II
38901	3113	***	***	7	58	22.0	-30	22	57.0	4.76	0.151	0.24	A7III
38957	3129	V	Pup	7	58	44.6	-49	17	34.9	4.47	-0.180	-0.14	B1Vp +0B2
39138	3159	***	***	8	0	33.0	-63	36	58.4	4.81	-0.173	-0.16	B3V
39079	3122	27	Mon	8	0	36.6	-03	43	42.1	4.93	1.205	1.22	K2III
39095	3131	***	***	8	0	39.1	-18	26	53.5	4.61	0.087	0.11	A1V
39211	3141	28	Mon	8	2	6.7	-01	26	32.3	4.69	1.475	1.54	K4III
39311	3145	***	***	8	3	10.5	+02	17	7.4	4.39	1.252	1.27	K2III

Posiciones medias de estrellas brillantes, 2017

Estrella				α			δ						
NH	NY	nom		h	m	s	°	‘	“	V	U-B	B-V	Esp
39429	3165	ζ	Pup	8	4	12.0	-40	3	11.5	2.21	-0.269	-0.22	O5IAf
39424	3149	x	Gem	8	4	35.4	+27	44	38.3	4.94	1.130	1.09	K2III
39794	3223	ε	Vol	8	7	58.8	-68	40	6.7	4.35	-0.113	-0.10	B6IV
39757	3185	ρ	Pup	8	8	17.4	-24	21	20.5	2.83	0.458	0.42	F2mF5IIp
39903	3220	***	***	8	9	18.0	-61	21	21.3	4.74	0.437	0.53	F5V
39863	3188	ζ	Mon	8	9	28.4	-03	2	8.9	4.36	0.970	0.92	G2Ib
39847	3173	27	Lyn	8	9	46.0	+51	27	16.7	4.78	0.048	0.10	A2V
39906	3192	16	Pup	8	9	48.5	-19	17	49.8	4.40	-0.160	-0.14	B5V
39953	3207	γ^2	Vel	8	10	4.3	-47	23	19.7	1.75	-0.145	-0.14	WC8 +0O9I
40091	3225	NS	Pup	8	11	59.0	-39	40	17.3	4.44	1.590	1.62	K4III
40096	3226	***	***	8	12	1.4	-43	2	24.8	4.73	0.164	0.30	A7Ib
40084	3211	19	Pup	8	12	5.6	-12	58	47.6	4.72	0.939	0.93	K0III
40167	3208	ζ	Cnc	8	13	12.8	+17	35	37.4	4.67	0.531	0.60	G0V
40259	3229	20	Pup	8	14	8.2	-15	50	30.9	4.99	1.066	1.02	G5Ib/II
40274	3237	MX	Pup	8	14	9.2	-35	57	11.4	4.78	-0.110	-0.01	B2ne
40326	3243	h^2	Pup	8	14	40.2	-40	24	7.6	4.42	1.170	1.15	K1II/III
40526	3249	β	Cnc	8	17	27.8	+09	7	49.8	3.53	1.481	1.47	K4III
40702	3318	α	Cha	8	18	2.9	-76	58	28.1	4.05	0.413	0.49	F5III
40706	3270	q	Pup	8	19	12.6	-36	42	51.4	4.44	0.222	0.25	A4m...
40888	3340	θ	Cha	8	20	5.3	-77	32	25.0	4.34	1.161	1.10	K0III-IV
40945	3282	w	Pup	8	22	4.4	-33	6	39.0	4.83	1.419	1.35	K2/K3III
41037	3307	ε	Car	8	22	52.3	-59	33	58.2	1.86	1.196	1.16	K3III+B2V
41039	3294	B	Vel	8	23	4.0	-48	32	49.9	4.79	-0.146	-0.12	B1V
41075	3275	31	Lyn	8	24	1.6	+43	7	50.1	4.25	1.550	1.61	K5III
41312	3347	β	Vol	8	25	55.3	-66	11	43.8	3.77	1.132	1.10	K2IIIvar
41307	3314	C	Hya	8	26	32.1	-03	57	52.3	3.91	-0.012	-0.02	A0V
41704	3323	o	UMa	8	31	42.3	+60	39	28.9	3.35	0.856	0.87	G4II-III
42134	3414	e^2	Car	8	35	44.5	-58	4	12.9	4.84	0.981	0.98	K0III
42312	3426	e	Vel	8	38	15.6	-43	3	3.5	4.11	0.109	0.20	A6II
42313	3410	4	Hya	8	38	34.9	+05	38	30.3	4.14	0.003	0.02	A1Vnn
42402	3418	σ	Hya	8	39	40.3	+03	16	44.4	4.45	1.216	1.12	K2III
42483	3433	ζ	Pyx	8	40	26.1	-29	37	27.0	4.86	0.900	0.99	G5III
42515	3438	β	Pyx	8	40	47.3	-35	22	16.4	3.97	0.936	0.91	G5II/III
42536	3447	o	Vel	8	40	47.7	-52	59	4.2	3.60	-0.168	-0.16	B3IV
42509	3431	a	Hya	8	40	51.2	-12	32	17.2	4.98	1.415	1.40	K3III
42568	3457	V343	Car	8	41	0.1	-59	49	25.9	4.31	-0.117	-0.08	B1.5III
42570	3445	b	Vel	8	41	12.4	-46	42	41.9	3.77	0.670	0.92	F3Ia
42527	3403	π^2	UMa	8	41	43.5	+64	15	54.5	4.59	1.179	1.18	K2III
42624	3452	n	Vel	8	41	47.6	-47	22	48.7	4.74	0.137	0.25	A5II
42662	3441	9	Hya	8	42	32.1	-16	0	25.8	4.87	1.063	1.04	K0IIICN...
42726	3467	HY	Vel	8	42	55.5	-53	10	38.5	4.83	-0.173	-0.18	B3IV
42799	3454	η	Hya	8	44	8.3	+03	20	5.5	4.30	-0.192	-0.20	B3V...
42806	3449	43	Cnc	8	44	17.7	+21	24	16.1	4.66	0.010	0.03	A1IV
42828	3468	α	Pyx	8	44	17.8	-33	15	0.8	3.68	-0.180	-0.17	B1.5III
42835	3459	F	Hya	8	44	31.9	-07	17	51.6	4.63	0.840	0.85	G2Ib
42884	3477	d	Vel	8	45	1.5	-42	42	47.9	4.05	0.874	0.89	G5III
42913	3485	δ	Vel	8	45	11.2	-54	46	24.7	1.93	0.043	0.05	A1V
42911	3461	δ	Cnc	8	45	40.6	+18	5	20.1	3.94	1.083	1.01	K0III
43023	3487	a	Vel	8	46	37.3	-46	6	22.2	3.87	0.015	0.09	A1III
43105	3498	V344	Car	8	47	9.7	-56	50	4.5	4.50	-0.169	-0.16	B3Vne
43067	3484	D	Hya	8	47	12.1	-13	36	45.2	4.32	0.900	0.91	G8III
43109	3482	ε	Hya	8	47	42.0	+06	21	13.2	3.38	0.685	0.78	G0III-IV
43103	3475	48	Cnc	8	47	45.1	+28	41	41.1	4.03	1.007	0.96	G8Iab:
43234	3492	ρ	Hya	8	49	21.5	+05	46	19.9	4.35	-0.044	-0.03	A0Vn
43347	3520	g	Vel	8	50	24.0	-45	22	25.1	4.94	0.043	0.06	A2III

Posiciones medias de estrellas brillantes, 2017

Estrella				α			δ						
NH	NY	nom		h	m	s	º	‘	“	V	U-B	B-V	Esp
43409	3518	γ	Pyx	8	51	16.5	-27	46	31.8	4.02	1.272	1.24	K3III
43783	3571	c	Car	8	55	26.5	-60	42	42.6	3.84	-0.104	-0.08	B8III
43825	3556	δ	Pyx	8	56	16.6	-27	44	60.0	4.87	0.142	0.16	A3IV
43813	3547	ζ	Hya	8	56	19.1	+05	52	40.8	3.11	0.978	0.96	G8III-IV
43878	3574	H	Vel	8	56	51.0	-52	47	28.5	4.68	-0.115	-0.11	B5V
43937	3582	V376	Car	8	57	24.1	-59	17	50.4	4.93	-0.182	-0.21	B2IV-V
44066	3572	α	Cnc	8	59	26.6	+11	47	20.4	4.26	0.141	0.14	A5m
44127	3569	ι	UMa	9	0	23.9	+47	58	19.1	3.12	0.223	0.25	A7IV
44191	3591	w	Vel	9	0	44.7	-41	19	20.4	4.45	0.646	0.75	Fp
44248	3579	10	UMa	9	1	46.1	+41	42	45.4	3.96	0.463	0.53	F5V
44382	3615	α	Vol	9	2	43.1	-66	27	58.3	4.00	0.145	0.15	Am
44390	3576	8	UMa	9	4	5.9	+67	33	35.4	4.74	1.542	2.15	M3III
44511	3614	c	Vel	9	4	45.5	-47	10	4.8	3.75	1.174	1.11	K2III
44471	3594	κ	UMa	9	4	48.7	+47	5	10.0	3.57	0.007	0.03	A1Vn
44599	3643	***	***	9	5	10.9	-72	40	23.3	4.47	0.607	0.67	F6II-III
44626	3642	V345	Car	9	5	46.5	-70	36	32.5	4.66	-0.149	-0.13	B2IVe
44659	3613	18	Hya	9	6	53.6	+05	1	17.3	4.99	1.189	1.17	K2II-III
44700	3612	***	***	9	7	38.2	+38	22	52.2	4.56	1.037	0.97	G8Ib-II
44816	3634	λ	Vel	9	8	38.4	-43	30	13.9	2.23	1.665	1.69	K4Ib-II
44824	3628	κ	Pyx	9	8	49.0	-25	55	47.6	4.62	1.594	1.66	K4/K5III
44901	3619	15	UMa	9	10	5.8	+51	31	58.2	4.46	0.288	0.30	Am
45080	3659	V357	Car	9	11	25.7	-59	2	20.4	3.43	-0.190	-0.17	B2IV
45101	3663	i	Car	9	11	40.5	-62	23	20.9	3.96	-0.180	-0.18	B3IV
45085	3654	GX	Vel	9	11	42.6	-44	56	24.3	4.99	0.222	0.36	B5Ia
45038	3616	13	UMa	9	11	54.6	+67	3	41.1	4.80	0.489	0.57	F7IV-V
45075	3624	τ	UMa	9	12	20.5	+63	26	27.8	4.67	0.381	0.45	Am
45238	3685	β	Car	9	13	23.1	-69	47	22.0	1.67	0.070	0.02	A2IV
45336	3665	22	Hya	9	15	16.4	+02	14	22.6	3.89	-0.060	-0.07	B9.5V
45439	3682	l	Vel	9	16	18.2	-38	38	36.6	4.92	1.084	1.06	K1III
45448	3684	k	Vel	9	16	27.2	-37	29	12.2	4.63	0.473	0.52	F3/F5V
45496	3696	g	Car	9	16	41.7	-57	36	54.7	4.34	1.602	1.83	M1III
45493	3662	DD	UMa	9	17	26.2	+53	56	54.3	4.80	0.199	0.26	A5V
45556	3699	ι	Car	9	17	33.5	-59	20	56.6	2.21	0.189	0.28	A8Ib
45688	3690	38	Lyn	9	19	55.7	+36	43	39.2	3.82	0.066	0.12	A1V
45751	3706	26	Hya	9	20	37.0	-12	2	58.1	4.77	0.927	0.91	G8III
45811	3709	27	Hya	9	21	20.3	-09	37	50.5	4.80	0.913	0.92	F5V+...
45856	3728	k	Car	9	21	22.0	-62	28	46.4	4.79	0.926	0.96	G6III
45860	3705	40	Lyn	9	22	7.0	+34	19	3.3	3.14	1.550	1.65	M0IIIvar
45902	3718	θ	Pyx	9	22	16.1	-26	2	26.2	4.71	1.633	1.91	M0III
45941	3734	κ	Vel	9	22	39.4	-55	5	9.2	2.47	-0.141	-0.17	B2IV
46026	3733	λ	Pyx	9	23	57.8	-28	54	33.7	4.71	0.892	0.91	G8III
46146	3731	κ	Leo	9	25	40.2	+26	6	21.9	4.47	1.222	1.20	K2III
46371	3749	G	Hya	9	28	6.5	-22	25	16.3	4.72	1.154	1.11	K1III
46390	3748	α	Hya	9	28	26.8	-08	44	6.7	1.99	1.440	1.39	K3III
46515	3765	ε	Ant	9	29	58.1	-36	1	42.6	4.51	1.408	1.37	K3III
46509	3759	τ^1	Hya	9	30	2.1	-02	50	46.2	4.59	0.411	0.52	F6V
46651	3786	ψ	Vel	9	31	23.5	-40	32	38.7	3.60	0.371	0.43	F2IV
46701	3803	N	Vel	9	31	45.3	-57	6	43.2	3.16	1.538	1.59	K5III
46750	3773	4	Leo	9	32	43.0	+22	53	23.7	4.32	1.541	1.63	K5IIIvar
46776	3787	23	UMa	9	32	52.4	-01	15	45.3	4.54	0.109	0.16	A3V
46771	3782	32	Hya	9	32	53.2	+11	13	17.5	4.99	1.046	0.89	K0IIIvar
46733	3757	ξ	Leo	9	32	53.4	+62	59	2.9	3.65	0.360	0.41	F0IV
46853	3775	25	UMa	9	34	1.1	+51	35	47.5	3.17	0.475	0.56	F6IV
46974	3825	h	Car	9	34	57.1	-59	18	29.5	4.08	-0.013	0.01	B5II
46952	3800	10	LMi	9	35	17.4	+36	19	8.2	4.54	0.914	0.91	G8III

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Estrella				α			δ						
NH	NY	nom		h	m	s	°	‘	“	V	U-B	B-V	Esp
46977	3771	d	UMa	9	35	59.9	+69	45	7.6	4.54	0.781	0.83	G4III-IV
47006	3799	26	UMa	9	36	0.8	+51	58	21.5	4.47	0.027	0.08	A2V
47029	3809	***	***	9	36	9.0	+39	32	34.4	4.81	0.992	1.00	K0III
47175	3836	M	Vel	9	37	27.2	-49	26	2.1	4.34	0.173	0.18	A5V
47205	3827	10	Leo	9	38	8.0	+06	45	23.9	5.00	1.051	1.03	K1IIIvar
47310	3834	2	Sex	9	39	22.0	+04	34	10.3	4.68	1.310	1.35	K3III
47193	3751	***	***	9	39	27.4	+81	14	49.0	4.28	1.488	1.46	K3III
47391	3856	m	Car	9	39	50.1	-61	24	27.6	4.51	-0.070	-0.06	B9V
47431	3845	ι	Hya	9	40	44.9	-01	13	22.7	3.90	1.313	1.29	K3IIIvar
47508	3852	14	Leo	9	42	5.0	+09	48	43.0	3.52	0.516	0.59	A5V+...
47522	3858	I	Hya	9	42	5.0	-23	40	18.1	4.76	-0.117	-0.10	B5V
47592	3862	***	***	9	43	1.9	-23	59	41.0	4.93	0.534	0.58	G0V
47758	3871	θ	Ant	9	44	59.0	-27	51	0.7	4.78	0.516	0.61	A7V+...
47854	3884	l	Car	9	45	43.7	-62	35	20.3	3.69	1.010	1.03	G5Iab/Ib
47908	3873	ε	Leo	9	46	50.5	+23	41	34.4	2.97	0.808	0.81	G0II
48002	3890	υ	Car	9	47	32.3	-65	9	12.7	2.92	0.273	0.42	A9
48319	3888	υ	UMa	9	52	13.2	+58	57	19.7	3.78	0.291	0.39	F0IV
48356	3903	υ^1	Hya	9	52	19.2	-14	55	45.5	4.11	0.918	0.92	G6/G8III
48374	3912	m	Vel	9	52	21.3	-46	37	48.7	4.58	1.172	1.10	G5Ib
48402	3894	φ	UMa	9	53	17.1	+53	58	54.0	4.55	0.038	0.09	A3IV
48455	3905	μ	Leo	9	53	45.3	+25	55	25.7	3.88	1.222	1.13	K0III
48559	3919	***	***	9	54	60.0	-26	0	54.9	4.87	1.199	1.19	K2III
48615	3923	***	***	9	55	41.8	-19	5	34.4	4.94	1.559	1.75	K5III
48774	3940	φ	Vel	9	57	28.7	-54	39	5.5	3.52	-0.067	-0.04	B5Ib
49029	3950	π	Leo	10	1	8.2	+07	57	34.6	4.68	1.589	1.96	M2III
49402	3970	υ^2	Hya	10	5	58.6	-13	9	0.2	4.60	-0.087	-0.07	B8V
49583	3975	η	Leo	10	8	17.1	+16	40	36.1	3.48	-0.031	0.06	A0Ib
49593	3974	21	LMi	10	8	27.4	+35	9	31.3	4.49	0.190	0.19	A7V
49637	3980	31	Leo	10	8	49.9	+09	54	40.0	4.39	1.448	1.51	K4III
49641	3981	α	Sex	10	8	50.0	-00	27	27.9	4.48	-0.032	-0.01	A0III
49669	3982	α	Leo	10	9	18.1	+11	52	51.8	1.36	-0.087	-0.10	B7V
49712	3990	Q	Vel	10	9	36.2	-51	53	51.1	4.85	-0.120	-0.10	B3IV
49841	3994	41	Hya	10	11	26.5	-12	26	28.2	3.61	1.007	0.96	K0III
50099	4037	ω	Car	10	14	9.1	-70	7	30.1	3.29	-0.074	-0.03	B8III
50191	4023	q	Vel	10	15	28.4	-42	12	32.7	3.85	0.051	0.03	A2V
50335	4031	ζ	Leo	10	17	39.6	+23	19	46.2	3.43	0.307	0.39	F0III
50371	4050	V337	Car	10	17	40.2	-61	25	12.3	3.39	1.541	1.45	K3II
50372	4033	33	UMa	10	18	8.7	+42	49	34.7	3.45	0.029	0.05	A2IV
50555	4063	GZ	Vel	10	20	16.4	-55	7	3.2	4.59	1.600	1.50	K3II
50564	4054	40	Leo	10	20	41.2	+19	22	53.6	4.78	0.452	0.53	F6IV
50583	4057	41	Leo	10	20	56.1	+19	45	8.6	2.01	1.128	1.17	K0III
50676	4074	J	Vel	10	21	34.0	-56	7	54.2	4.50	-0.102	-0.08	B3III
50799	4080	r	Vel	10	23	4.8	-41	44	18.3	4.82	1.095	1.06	K1IIIvar
50801	4069	μ	UMa	10	23	21.9	+41	24	39.2	3.06	1.603	1.77	M0III SB
50847	4089	***	***	10	23	29.4	-66	59	25.1	4.97	-0.128	-0.12	B8V
50954	4102	***	***	10	24	44.3	-74	7	15.0	3.99	0.369	0.43	F2IV
50933	4072	ET	UMa	10	25	22.4	+65	28	37.9	4.94	-0.052	-0.02	A0sp...
51056	4090	30	LMi	10	26	54.7	+33	42	23.2	4.72	0.260	0.31	F0V
51069	4094	μ	Hya	10	26	56.3	-16	55	33.9	3.83	1.456	1.47	K4III
51172	4104	α	Ant	10	27	57.3	-31	9	26.4	4.28	1.429	1.47	K4III
51192	4110	V399	Car	10	28	3.8	-57	43	42.3	4.65	0.474	0.69	A6Ia
51232	4114	s	Car	10	28	31.5	-58	49	44.7	3.81	0.317	0.41	F2II
51233	4100	31	LMi	10	28	53.4	+36	37	1.0	4.20	0.908	0.89	G8III-IV
51438	4138	***	***	10	30	46.6	-72	4	58.9	4.72	0.042	0.06	A2III
51495	4142	***	***	10	31	26.5	-73	18	41.9	4.94	1.677	1.71	K4/K5III

Posiciones medias de estrellas brillantes, 2017

Estrella			α			δ						
NH	NY	nom	h	m	s	º	‘	“	V	U-B	B-V	Esp
51459	4112	36 UMa	10	31	44.1	+55	53	24.7	4.82	0.541	0.58	F8V
51523	4134	*** ***	10	32	2.8	-53	48	17.0	4.89	0.500	0.58	F6V
51576	4140	p Car	10	32	39.0	-61	46	32.3	3.30	-0.089	0.02	B4Vne
51624	4133	ρ Leo	10	33	43.9	+09	12	57.8	3.84	-0.148	-0.13	B1Ib SB
51658	4132	*** ***	10	34	14.8	+40	20	6.0	4.72	0.222	0.23	A7IV
51839	4174	γ Cha	10	35	39.7	-78	41	55.0	4.11	1.580	1.71	M0III
51849	4159	r Car	10	36	15.9	-57	38	54.8	4.45	1.604	1.62	K3/K4II
51808	4126	*** ***	10	36	31.9	+75	37	19.1	4.86	0.957	0.94	K0III
51986	4167	p Vel	10	38	2.5	-48	19	0.5	3.84	0.300	0.35	A3m+...
51979	4162	*** ***	10	38	3.1	-27	30	13.4	4.87	1.626	1.89	M1III
52009	4163	U Hya	10	38	25.2	-13	28	33.5	4.89	2.800	2.27	C
52102	4177	*** ***	10	39	25.2	-59	16	27.8	4.69	1.562	1.63	K4/K5III:
52085	4171	φ^3 Hya	10	39	26.2	-16	58	4.2	4.91	0.922	0.85	G8III
52098	4166	37 LMi	10	39	42.0	+31	53	5.5	4.68	0.823	0.82	G0II
52154	4180	x Vel	10	40	0.4	-55	41	41.0	4.29	1.025	0.96	G2II
52370	4196	V518 Car	10	42	51.6	-64	33	29.8	4.76	-0.139	-0.13	B3V
52419	4199	θ Car	10	43	35.1	-64	29	11.0	2.74	-0.220	-0.24	B0Vp
52468	4200	w Car	10	44	12.5	-60	39	31.3	4.58	1.700	1.79	K3Ib
52502	4205	*** ***	10	44	45.1	-64	3	11.4	4.80	-0.134	-0.12	B5Vn
52633	4234	δ^2 Cha	10	45	55.7	-80	37	57.0	4.45	-0.188	-0.19	B2.5IV
52736	4222	*** ***	10	47	29.7	-64	28	33.5	4.87	-0.149	-0.18	B3IV
52727	4216	μ Vel	10	47	31.5	-49	30	47.0	2.69	0.901	0.91	G5III SB
52943	4232	ν Hya	10	50	29.4	-16	17	8.1	3.11	1.232	1.22	K0/K1III
53253	4257	u Car	10	54	12.6	-58	56	46.9	3.78	0.945	0.96	K0III-IV...
53229	4247	46 LMi	10	54	17.2	+34	7	12.4	3.79	1.040	1.07	K0III-IV
53295	4248	45 UMa	10	54	58.8	+43	5	47.0	4.66	-0.039	0.01	A1Vs
53417	4259	54 Leo	10	56	33.5	+24	39	21.6	4.30	0.016	0.07	A1
53502	4273	ι Ant	10	57	32.2	-37	13	55.7	4.60	1.006	0.99	K0III
53740	4287	7 Crt	11	0	37.7	-18	23	32.2	4.08	1.079	1.06	K1III
53773	4293	i Vel	11	0	57.7	-42	19	12.0	4.37	0.116	0.13	A3IV
53807	4291	58 Leo	11	1	27.8	+03	31	23.6	4.84	1.144	1.13	K1III
53824	4294	59 Leo	11	1	39.2	+06	0	25.6	4.98	0.166	0.18	A5III
53907	4299	61 Leo	11	2	43.2	-02	34	44.7	4.73	1.593	1.77	K5III
53910	4295	β UMa	11	2	53.2	+56	17	17.7	2.34	0.033	0.02	A1V
53954	4300	60 Leo	11	3	15.7	+20	5	8.3	4.42	0.053	0.03	A1m
54061	4301	50 UMa	11	4	47.6	+61	39	22.8	1.81	1.061	1.03	F7V comp
54182	4310	63 Leo	11	5	55.1	+07	14	28.0	4.62	0.332	0.39	F2III-IVvar
54204	4314	x^1 Hya	11	6	10.6	-27	23	18.0	4.92	0.369	0.43	F3IV/V
54301	4325	z Car	11	7	15.8	-62	31	7.9	4.62	0.988	0.97	G8III
54463	4337	x Car	11	9	20.6	-59	4	12.1	3.93	1.225	1.19	G0Ia0
54539	4335	ψ UMa	11	10	38.5	+44	24	11.7	3.00	1.144	1.09	K1III
54682	4343	β Crt	11	12	31.3	-22	55	17.8	4.46	0.025	0.04	A1V
54751	4352	V533 Car	11	13	21.4	-60	24	46.7	4.59	0.541	0.70	A6Ia
54872	4357	68 Leo	11	15	2.2	+20	25	39.3	2.56	0.128	0.12	A4V
54879	4359	70 Leo	11	15	9.4	+15	20	1.2	3.33	-0.003	0.01	A2V
54951	4362	FN Leo	11	16	7.9	+22	59	59.5	4.56	1.657	2.27	M3III
55084	4368	φ Leo	11	17	33.1	-03	44	50.9	4.45	0.210	0.25	A7IVn
55219	4377	ν UMa	11	19	25.2	+32	59	54.9	3.49	1.400	1.37	K3III SB
55266	4380	55 UMa	11	20	4.8	+38	5	21.6	4.76	0.113	0.11	A2V
55282	4382	δ Crt	11	20	13.0	-14	52	24.4	3.56	1.112	1.12	K0III
55425	4390	π Cen	11	21	48.6	-54	35	13.4	3.90	-0.157	-0.16	B5Vn
55434	4386	σ Leo	11	22	2.3	+05	55	59.6	4.05	-0.058	-0.06	B9.5Vs
55560	4392	56 UMa	11	23	46.9	+43	23	11.3	4.99	0.998	0.94	G8II
55588	4396	*** ***	11	24	3.7	-36	15	39.4	5.00	1.464	1.47	K4III
55642	4399	78 Leo	11	24	50.1	+10	25	58.4	4.00	0.423	0.47	F2IV SB

Posiciones medias de estrellas brillantes, 2017

Estrella				α			δ						
NH	NY	nom		h	m	s	°	‘	“	V	U-B	B-V	Esp
55687	4402	14	Crt	11	25	29.7	-10	57	19.7	4.81	1.556	1.67	K5III
55705	4405	γ	Crt	11	25	45.5	-17	46	49.0	4.06	0.216	0.24	A9V
55945	4418	τ	Leo	11	28	50.2	+02	45	35.0	4.95	1.000	0.95	G8II-III
56127	4432	87	Leo	11	31	12.6	-03	6	0.7	4.77	1.529	1.62	K4III
56211	4434	λ	Dra	11	32	25.4	+69	14	3.5	3.82	1.613	1.79	M0IIIvar
56280	4443	17	Crt	11	33	8.6	-29	21	25.3	4.93	0.540	0.61	F8V
56343	4450	ξ	Hya	11	33	51.9	-31	57	16.5	3.54	0.947	0.92	G8III
56480	4460	A	Cen	11	35	35.8	-54	21	39.1	4.62	-0.077	-0.06	B9V
56561	4467	λ	Cen	11	36	35.8	-63	7	0.3	3.11	-0.044	-0.01	B9II:
56633	4468	21	Crt	11	37	34.2	-09	53	57.0	4.70	-0.073	-0.06	B9.5Vn
56647	4471	91	Leo	11	37	50.7	-00	55	13.7	4.30	0.983	0.98	G9III
56922	4494	o	Hya	11	41	5.2	-34	50	30.2	4.70	-0.070	-0.05	B9V
56986	4499	***	***	11	41	43.8	-62	11	13.9	4.93	1.111	1.11	G3Ib
57175	4511	V810	Cen	11	44	21.8	-62	35	11.6	5.00	0.784	0.87	F9Ia
57283	4514	27	Crt	11	45	39.1	-18	26	52.8	4.71	0.958	0.94	G8III
57328	4515	2	Vir	11	46	11.1	+08	9	38.8	4.84	0.174	0.19	A4V
57363	4520	λ	Mus	11	46	26.6	-66	49	33.0	3.63	0.160	0.17	A7III
57380	4517	ν	Vir	11	46	45.5	+06	25	52.6	4.04	1.501	1.79	M0III
57399	4518	χ	UMa	11	46	58.1	+47	40	56.3	3.69	1.181	1.15	K0III
57443	4523	***	***	11	47	21.4	-40	35	44.3	4.89	0.664	0.73	G3/G5V
57439	4522	***	***	11	47	22.1	-61	16	32.6	4.11	0.895	0.88	G0II
57565	4527	93	Leo	11	48	53.2	+20	7	17.9	4.50	0.547	0.69	A comp SB
57581	4530	μ	Mus	11	49	5.7	-66	54	44.2	4.75	1.522	1.62	K4III
57632	4534	94	Leo	11	49	57.1	+14	28	27.1	2.14	0.090	0.10	A3Vvar
57669	4537	j	Cen	11	50	32.8	-63	53	8.8	4.30	-0.149	-0.09	B3V
57696	4538	***	***	11	50	47.7	-70	19	23.2	4.98	1.360	1.31	G5Ib
57757	4540	5	Vir	11	51	36.4	+01	39	57.8	3.59	0.518	0.61	F8V
57803	4546	B	Cen	11	52	1.5	-45	16	15.1	4.47	1.283	1.24	K4III
57851	4549	***	***	11	52	43.2	-65	18	11.9	4.89	-0.123	-0.11	B4V
57936	4552	β	Hya	11	53	47.8	-34	0	19.7	4.29	-0.100	-0.07	Ap Si
58001	4554	γ	UMa	11	54	44.7	+53	35	50.8	2.41	0.044	0.06	A0V SB
58484	4583	ε	Cha	12	0	31.2	-78	19	9.4	4.88	-0.054	-0.02	B9Vn
58590	4589	8	Vir	12	1	46.2	+06	31	0.4	4.65	0.122	0.14	A5V
58758	4599	θ^1	Cru	12	3	55.6	-63	24	37.1	4.32	0.280	0.36	Am
58867	4603	θ^2	Cru	12	5	13.9	-63	15	47.2	4.72	-0.081	-0.06	B2IV
58948	4608	9	Vir	12	6	6.0	+08	38	9.2	4.12	0.967	0.96	G8III
59072	4616	η	Cru	12	7	48.4	-64	42	40.6	4.14	0.353	0.41	F2III
59173	4618	V863	Cen	12	9	0.0	-50	45	31.2	4.46	-0.163	-0.16	B2IIIne
59196	4621	δ	Cen	12	9	16.3	-50	49	11.3	2.58	-0.128	-0.12	B2IVne
59199	4623	α	Crv	12	9	19.2	-24	49	35.0	4.02	0.334	0.40	F0IV/V
59316	4630	2	Crv	12	11	1.6	-22	43	1.3	3.02	1.326	1.23	K2III
59449	4638	ρ	Cen	12	12	34.4	-52	27	57.0	3.97	-0.156	-0.17	B3V
59747	4656	δ	Cru	12	16	5.1	-58	50	46.2	2.79	-0.193	-0.25	B2IV
59774	4660	69	UMa	12	16	17.1	+56	56	7.7	3.32	0.077	0.03	A3Vvar
59803	4662	γ	Crv	12	16	42.5	-17	38	20.3	2.58	-0.107	-0.10	B8III
59847	4667	7	Com	12	17	13.5	+23	50	53.6	4.93	0.957	0.94	K0III
59856	4668	***	***	12	17	22.7	+32	57	49.8	4.99	1.140	1.12	K1III
59929	4671	ε	Mus	12	18	31.9	-68	3	28.7	4.06	1.603	2.82	M5III
60009	4679	ζ	Cru	12	19	23.9	-64	6	0.7	4.06	-0.168	-0.18	B2.5V
60000	4674	β	Cha	12	19	24.6	-79	24	33.3	4.24	-0.123	-0.11	B5Vn
60129	4689	η	Vir	12	20	48.1	-00	45	50.2	3.89	0.026	0.03	A2IV
60172	4695	c	Vir	12	21	14.3	+03	12	54.9	4.97	1.172	1.19	K1III
60202	4697	11	Com	12	21	36.0	+17	41	46.7	4.72	1.010	1.02	G8III
60260	4700	ε	Cru	12	22	18.9	-60	29	51.6	3.59	1.389	1.39	K3/K4III
60351	4707	12	Com	12	23	23.0	+25	44	57.1	4.78	0.515	0.61	F8:p...

Posiciones medias de estrellas brillantes, 2017

Estrella				α			δ						
NH	NY	nom		h	m	s	º	‘	“	V	U-B	B-V	Esp
60485	4716	5	CVn	12	24	52.2	+51	27	55.6	4.76	0.877	0.89	G7III
60697	4733	14	Com	12	27	16.4	+27	10	17.2	4.92	0.277	0.28	F0p
60710	4732	G	Cen	12	27	29.0	-51	32	50.7	4.82	-0.141	-0.16	B3Vn
60718	4730	α[1]	Cru	12	27	35.1	-63	11	45.2	0.77	-0.243	-0.26	B0.5IV
60742	4737	γ	Com	12	27	48.5	+28	10	16.7	4.35	1.128	1.04	K2IIICN+...
60746	4738	16	Com	12	27	51.7	+26	43	44.2	4.98	0.088	0.05	A4V
60823	4743	σ	Cen	12	28	59.6	-50	19	38.5	3.91	-0.192	-0.20	B3V
60965	4757	7	Crv	12	30	46.3	-16	36	45.6	2.94	-0.012	-0.04	B9.5V
61084	4763	γ	Cru	12	32	8.8	-57	12	39.5	1.59	1.600	2.37	M4III
61174	4775	η	Crv	12	32	58.5	-16	17	33.8	4.30	0.388	0.44	F2V
61199	4773	γ	Mus	12	33	32.1	-72	13	45.9	3.84	-0.157	-0.14	B5V
61281	4787	κ	Dra	12	34	13.2	+69	41	31.0	3.85	-0.116	-0.02	B6IIIp
61317	4785	8	CVn	12	34	34.2	+41	15	45.3	4.24	0.588	0.67	G0V
61359	4786	β	Crv	12	35	18.6	-23	29	35.9	2.65	0.893	0.88	G5II
61384	4795	6	Dra	12	35	27.9	+69	55	31.8	4.95	1.312	1.27	K2III
61394	4789	23	Com	12	35	43.3	+22	31	59.3	4.80	0.012	0.03	A0IV
61585	4798	α	Mus	12	38	14.8	-69	13	54.2	2.69	-0.176	-0.23	B2IV-V
61622	4802	τ	Cen	12	38	40.0	-48	38	14.6	3.85	0.049	0.06	A2V
61740	4813	26	Vir	12	40	9.0	-08	5	29.9	4.66	1.240	1.15	K2III
61789	4817	l	Cen	12	40	49.7	-40	4	60.0	4.63	-0.082	-0.06	B8II/III
61932	4819	γ	Cen	12	42	29.4	-49	3	20.4	2.20	-0.023	-0.01	A1IV
61941	4825	γ	Vir	12	42	32.8	-01	32	41.5	2.74	0.368	0.43	F0V+...
61960	4828	ρ	Vir	12	42	46.2	+10	8	22.0	4.88	0.076	0.08	A0V
61966	4823	CH	Cru	12	42	57.7	-59	46	53.7	4.91	-0.044	-0.02	B6IV
62012	4831	w	Cen	12	43	34.0	-48	54	32.2	4.66	1.075	1.03	K0III
62268	4842	ι	Cru	12	46	40.6	-61	4	37.5	4.69	1.049	1.03	K1III
62322	4844	β	Mus	12	47	22.3	-68	12	12.8	3.04	-0.178	-0.19	B2V
62327	4848	***	***	12	47	23.6	-56	35	3.3	4.62	-0.150	-0.16	B3V
62434	4853	β	Cru	12	48	45.3	-59	47	2.7	1.25	-0.238	-0.27	B0.5III
62683	4874	p	Cen	12	51	38.4	-34	5	39.7	4.90	-0.031	-0.01	B9V
62763	4883	31	Com	12	52	33.0	+27	26	44.8	4.93	0.681	0.70	G0III
62867	4888	e	Cen	12	54	6.8	-49	2	17.5	4.33	1.344	1.33	K3/K4III
62886	4894	35	Com	12	54	9.4	+21	9	0.2	4.89	0.904	0.91	G8III
62896	4889	n	Cen	12	54	24.7	-40	16	25.3	4.25	0.224	0.27	A4IV
62956	4905	ε	UMa	12	54	47.7	+55	51	54.4	1.76	-0.022	-0.04	A0p
62985	4902	ψ	Vir	12	55	15.9	-09	38	1.4	4.77	1.590	2.18	M3IIIvar
63003	4898	μ[1]	Cru	12	55	38.0	-57	16	21.3	4.03	-0.180	-0.26	B2IV-V
63007	4897	λ	Cru	12	55	42.3	-59	14	28.9	4.62	-0.153	-0.15	B4Vn
63090	4910	δ	Vir	12	56	29.1	+03	18	9.7	3.39	1.571	2.24	M3III
63125	4915	α[2]	CVn	12	56	50.6	+38	13	27.0	2.89	-0.115	-0.13	A0spe...
63355	4920	36	Com	12	59	47.3	+17	18	55.6	4.76	1.568	1.79	M0III
63462	4924	37	Com	13	1	6.6	+30	41	27.5	4.88	1.165	1.13	K1IIIp
63503	4931	78	UMa	13	1	28.5	+56	16	20.6	4.93	0.368	0.45	F2V
63608	4932	ε	Vir	13	3	2.9	+10	51	55.6	2.85	0.934	0.83	G8IIIvar
63613	4923	δ	Mus	13	3	30.1	-71	38	33.8	3.61	1.190	1.17	K2III
63724	4933	ξ[1]	Cen	13	4	34.6	-49	37	15.4	4.83	0.029	0.05	A0V
63945	4940	f	Cen	13	7	18.1	-48	33	24.0	4.71	-0.148	-0.14	B5V
64004	4942	ξ[2]	Cen	13	7	56.5	-49	59	58.3	4.27	-0.182	-0.18	B1.5V
64022	4954	41	Com	13	8	1.0	+27	31	52.3	4.80	1.482	1.55	K5III
64166	4958	45	Hya	13	10	0.0	-23	12	40.4	4.94	1.048	1.02	K0III
64241	4968	42	Com	13	10	50.3	+17	26	14.0	4.32	0.455	0.53	F5V
64238	4963	51	Vir	13	10	51.4	-05	37	55.3	4.38	-0.008	0.01	A1V
64394	4983	β	Com	13	12	41.3	+27	47	23.5	4.23	0.572	0.67	G0V
64408	4979	***	***	13	13	2.1	-37	53	43.3	4.85	0.693	0.73	G3V
64425	4975	V831	Cen	13	13	24.0	-60	0	47.5	4.58	-0.073	-0.07	B8V

Posiciones medias de estrellas brillantes, 2017

Estrella				α			δ						
NH	NY	nom		h	m	s	°	‘	“	V	U-B	B-V	Esp
64540	4997	***	***	13	14	30.4	+40	3	38.2	4.94	1.061	1.03	K0III
64583	4989	***	***	13	15	20.9	-59	11	46.5	4.90	0.489	0.56	F7IV
64661	4993	η	Mus	13	16	27.4	-67	59	12.3	4.79	-0.078	-0.09	B8V
64844	5017	20	CVn	13	18	19.5	+40	28	51.1	4.72	0.306	0.31	F3III
64820	5002	***	***	13	18	25.0	-66	52	31.1	4.86	1.480	1.50	K2Ib/II
64852	5015	σ	Vir	13	18	29.3	+05	22	41.2	4.78	1.638	1.97	M2III
64924	5019	61	Vir	13	19	19.4	-18	24	29.0	4.74	0.709	0.75	G5V
64962	5020	γ	Hya	13	19	52.6	-23	15	48.0	2.99	0.920	0.90	G8III
65109	5028	ι	Cen	13	21	35.2	-36	48	14.8	2.75	0.068	0.02	A2V
65271	5035	J	Cen	13	23	46.7	-61	4	46.3	4.52	-0.141	-0.13	B3V
65378	5054	79	UMa	13	24	37.6	+54	50	3.7	2.23	0.057	0.07	A2V
65387	5041	m	Cen	13	25	12.1	-64	37	35.8	4.52	0.822	0.87	G5III-IV
65477	5062	80	UMa	13	25	55.4	+54	53	49.8	3.99	0.169	0.19	A5V SB
65474	5056	α	Vir	13	26	7.0	-11	15	7.8	0.98	-0.235	-0.25	B1V
65639	5068	69	Vir	13	28	23.3	-16	3	49.7	4.76	1.096	1.02	K1IIICN...
65721	5072	70	Vir	13	29	17.2	+13	41	8.9	4.97	0.714	0.77	G5V
65936	5089	d	Cen	13	32	3.9	-39	29	49.6	3.90	1.186	1.10	G8II/III
66006	5095	l	Vir	13	32	52.6	-06	20	44.2	4.68	1.606	2.06	M3III
66200	5105	78	Vir	13	35	1.2	+03	34	10.6	4.92	0.029	0.03	A1p SrCrEu
66234	5112	24	CVn	13	35	10.0	+48	55	36.9	4.68	0.132	0.10	A5V
66257	5110	BH	CVn	13	35	34.6	+37	5	35.7	4.91	0.404	0.55	F2IV SB
66249	5107	ζ	Vir	13	35	35.2	-00	41	5.0	3.38	0.114	0.12	A3V
66458	5127	25	CVn	13	38	14.2	+36	12	22.9	4.82	0.239	0.31	A7III
66657	5132	ε	Cen	13	41	0.4	-53	33	16.8	2.29	-0.171	-0.23	B1III
66738	5154	83	UMa	13	41	24.0	+54	35	36.6	4.63	1.630	1.97	M2IIIvar
66821	5141	Q	Cen	13	42	52.7	-54	38	50.7	4.99	-0.055	-0.03	B8Vn+...
67153	5168	1	Cen	13	46	41.2	-33	7	53.7	4.23	0.390	0.44	F3V
67234	5172	M	Cen	13	47	46.4	-51	31	11.4	4.64	0.955	0.93	G8/K0III
67275	5185	τ	Boo	13	48	5.6	+17	22	13.1	4.50	0.508	0.51	F7V
67301	5191	η	UMa	13	48	13.7	+49	13	35.0	1.85	-0.099	-0.08	B3V SB
67459	5200	υ	Boo	13	50	19.3	+15	42	42.1	4.05	1.520	1.60	K5IIIvar
67457	5192	2	Cen	13	50	27.9	-34	32	14.9	4.19	1.520	3.00	M5III
67480	5201	e	Boo	13	50	32.5	+21	10	40.1	4.92	1.432	1.38	K4III
67464	5190	ν	Cen	13	50	33.7	-41	46	27.1	3.41	-0.225	-0.24	B2IV
67472	5193	μ	Cen	13	50	40.7	-42	33	36.7	3.47	-0.170	-0.21	B2IV-Ve
67494	5196	89	Vir	13	50	49.5	-18	13	14.5	4.96	1.059	1.09	K0III
67627	5226	i	Dra	13	51	56.6	+64	38	13.9	4.58	1.572	2.35	M3III
67665	5219	AW	CVn	13	52	33.7	+34	21	29.2	4.76	1.611	1.63	K5III
67669	5210	V983	Cen	13	52	50.5	-33	4	48.6	4.32	-0.146	-0.12	B5
67786	5221	h	Cen	13	54	13.3	-32	0	48.0	4.75	-0.111	-0.10	B4IV
67927	5235	η	Boo	13	55	31.1	+18	18	38.1	2.68	0.580	0.65	G0IV
68002	5231	ζ	Cen	13	56	38.4	-47	22	25.6	2.55	-0.176	-0.18	B2.5IV
68191	5241	***	***	13	58	56.0	-63	46	17.7	4.71	1.075	1.05	K4III
68245	5248	φ	Cen	13	59	20.5	-42	11	7.7	3.83	-0.224	-0.23	B2IV
68282	5249	υ^1	Cen	13	59	46.1	-44	53	17.6	3.87	-0.208	-0.22	B2IV-V
68520	5264	τ	Vir	14	2	32.3	+01	27	37.9	4.23	0.121	0.14	A3V
68523	5260	υ^2	Cen	14	2	49.5	-45	41	14.6	4.34	0.598	0.65	F6II
68756	5291	α	Dra	14	4	51.8	+64	17	33.3	3.67	-0.049	-0.08	A0III SB
68702	5267	β	Cen	14	5	4.4	-60	27	23.6	0.61	-0.231	-0.25	B1III
68862	5285	x	Cen	14	7	7.3	-41	15	45.6	4.36	-0.198	-0.21	B2V
68895	5287	π	Hya	14	7	22.3	-26	45	57.3	3.25	1.091	1.10	K2III
68933	5288	5	Cen	14	7	43.1	-36	27	18.9	2.06	1.011	1.01	K0IIIb
69112	5321	4	UMi	14	8	48.3	+77	27	54.9	4.80	1.368	1.34	K3III
69191	5297	***	***	14	11	5.4	-53	31	17.1	4.74	0.938	0.92	G8III
69226	5304	12	Boo	14	11	11.8	+25	0	33.9	4.82	0.541	0.57	F9IVw

Posiciones medias de estrellas brillantes, 2017

Estrella				α			δ						
NH	NY	nom		h	m	s	º	‘	“	V	U-B	B-V	Esp
69269	5301	ET	Vir	14	11	48.0	-16	23	2.2	4.93	1.684	1.94	M1III
69389	5313	CU	Vir	14	13	9.0	+02	19	40.0	4.99	-0.118	-0.11	B9p Si
69427	5315	κ	Vir	14	13	49.9	-10	21	15.8	4.18	1.323	1.35	K3III
69483	5329	κ^2	Boo	14	14	6.6	+51	42	31.1	4.53	0.233	0.23	A8IV
69673	5340	16	Boo	14	16	27.6	+19	5	31.0	-0.05	1.239	1.22	K2IIIp
69713	5350	21	Boo	14	16	47.1	+51	17	13.3	4.75	0.236	0.19	A9V
69701	5338	99	Vir	14	16	56.0	-06	4	59.6	4.07	0.511	0.59	F7V
69732	5351	19	Boo	14	17	2.9	+46	0	30.6	4.18	0.087	0.04	A0sh
69879	5361	A	Boo	14	18	44.2	+35	25	45.8	4.80	1.057	1.00	K1III
69974	5359	100	Vir	14	20	3.6	-13	27	3.0	4.52	0.128	0.11	A1V
69996	5354	ι	Lup	14	20	31.9	-46	8	16.5	3.55	-0.184	-0.18	B2.5IV
69896	5303	η	Aps	14	20	32.3	-81	5	16.9	4.89	0.243	0.24	A2m...
70027	5370	20	Boo	14	20	35.0	+16	13	39.0	4.84	1.228	1.16	K3III
70069	5358	ν	Cen	14	21	33.6	-56	27	57.9	4.30	0.082	0.21	B6Ib
70090	5367	ψ	Cen	14	21	37.7	-37	57	53.6	4.05	-0.030	-0.02	A0IV
70104	5364	***	***	14	21	50.1	-45	16	0.8	4.78	0.310	0.36	F0IV
70264	5371	***	***	14	23	53.1	-58	32	16.9	4.76	0.795	0.83	G8/K1 +0F/G
70306	5381	51	Hya	14	24	6.5	-27	50	0.6	4.78	1.300	1.31	K3III
70300	5378	V761	Cen	14	24	7.3	-39	35	27.0	4.41	-0.185	-0.20	B2V
70327	5385	***	***	14	24	14.4	+08	22	3.8	4.86	0.010	0.07	A0V
70497	5404	θ	Boo	14	25	47.5	+51	46	13.3	4.04	0.497	0.59	F7V
70574	5395	τ^1	Lup	14	27	16.1	-45	17	58.6	4.56	-0.147	-0.14	B2IV
70576	5396	τ^2	Lup	14	27	18.8	-45	27	26.7	4.33	0.434	0.58	A7:+...
70692	5430	5	UMi	14	27	30.5	+75	37	5.5	4.25	1.431	1.42	K4III
70755	5409	105	Vir	14	29	6.3	-02	18	20.2	4.81	0.693	0.73	G2III
70753	5407	52	Hya	14	29	12.2	-29	34	9.7	4.97	-0.074	-0.05	B7/B8V
70638	5339	δ	Oct	14	29	55.9	-83	44	44.3	4.31	1.300	1.30	K2III
71053	5429	ρ	Boo	14	32	35.0	+30	17	43.1	3.57	1.298	1.22	K3III
71075	5435	γ	Boo	14	32	46.9	+38	13	56.4	3.04	0.191	0.17	A7IIIvar
71121	5425	σ	Lup	14	33	48.4	-50	32	1.2	4.44	-0.177	-0.18	B2III
71284	5447	σ	Boo	14	35	26.5	+29	40	11.4	4.47	0.364	0.41	F3Vwvar
71352	5440	η	Cen	14	36	37.5	-42	14	1.2	2.33	-0.157	-0.17	B1Vn +0A
71536	5453	ρ	Lup	14	39	4.4	-49	30	3.6	4.05	-0.152	-0.16	B5V
71681	5460	α^2	Cen	14	40	47.2	-60	54	25.6	1.35	0.900	0.88	K1V
71683	5459	α^1	Cen	14	40	48.5	-60	54	22.3	-0.01	0.710	0.69	G2V
71762	5475	29	Boo	14	41	32.9	+16	20	38.6	4.49	-0.002	0.02	B9p MnHg
71795	5477	ζ	Boo	14	41	59.1	+13	39	14.6	3.78	0.044	0.06	A3IVn
71832	5480	31	Boo	14	42	30.4	+08	5	15.8	4.86	0.992	0.96	G8IIIvar
71865	5471	***	***	14	43	3.2	-37	52	3.3	4.01	-0.157	-0.18	B2.5V
71860	5469	α	Lup	14	43	6.1	-47	27	44.1	2.30	-0.154	-0.21	B1.5III
71908	5463	α	Cir	14	43	56.5	-65	3	0.0	3.18	0.256	0.26	F1Vp
71957	5487	μ	Vir	14	43	59.1	-05	44	0.3	3.87	0.385	0.47	F2III
71995	5490	W	Boo	14	44	11.5	+26	27	15.1	4.80	1.672	2.13	M3III
72010	5485	c^1	Cen	14	44	44.0	-35	14	52.7	4.06	1.356	1.35	K3III
72105	5505	36	Boo	14	45	45.1	+27	0	4.3	2.35	0.966	0.95	A0
72125	5502	o	Boo	14	46	3.5	+16	53	27.5	4.60	0.972	0.94	K0III
72104	5489	c^2	Cen	14	46	3.9	-35	15	53.7	4.92	0.013	0.02	A0V
72220	5511	109	Vir	14	47	8.1	+01	49	12.1	3.73	-0.005	0.01	A0V
72370	5470	α	Aps	14	50	7.0	-79	7	1.0	3.83	1.433	1.42	K5III
72607	5563	β	UMi	14	50	40.3	+74	5	2.2	2.07	1.465	1.46	K4IIIvar
72571	5526	58	Hya	14	51	19.2	-28	1	56.1	4.42	1.366	1.43	K3III
72622	5531	9	Lib	14	51	51.0	-16	6	48.7	2.75	0.147	0.16	A3IV
72631	5535	11	Lib	14	51	55.6	-02	22	16.1	4.93	0.988	0.97	G8...
72659	5544	ξ	Boo	14	52	11.9	+19	1	43.7	4.54	0.720	0.82	G8V +0K4V

Posiciones medias de estrellas brillantes, 2017

Estrella				α			δ						
NH	NY	nom		h	m	s	°	‘	“	V	U-B	B-V	Esp
72683	5528	o	Lup	14	52	47.3	-43	38	48.0	4.32	-0.154	-0.14	B5IV
73199	5589	RR	UMi	14	57	52.0	+65	51	47.0	4.63	1.590	2.85	M5III
73165	5570	16	Lib	14	58	5.9	-04	25	0.5	4.47	0.318	0.38	F0V
73273	5571	β	Lup	14	59	41.1	-43	12	11.8	2.68	-0.184	-0.23	B2III
73334	5576	κ	Cen	15	0	18.4	-42	10	23.7	3.13	-0.208	-0.21	B2IV
73473	5586	δ	Lib	15	1	54.6	-08	35	14.7	4.91	0.000	0.07	B9.5V
73555	5602	β	Boo	15	2	36.3	+40	19	20.0	3.49	0.956	0.89	G8III
73568	5600	ω	Boo	15	2	52.5	+24	56	23.2	4.80	1.506	1.54	K4III
73620	5601	110	Vir	15	3	47.2	+02	1	24.6	4.39	1.026	1.04	K0III
73695	5618	44	Boo	15	4	21.9	+47	35	11.4	4.83	0.647	0.71	G2V +0G2V
73714	5603	γ	Sco	15	5	5.9	-25	20	58.8	3.25	1.674	2.23	M3/M4III
73745	5616	ψ	Boo	15	5	11.7	+26	52	48.8	4.52	1.240	1.23	K2III
73807	5605	π	Lup	15	6	19.1	-47	7	6.5	3.91	-0.144	-0.15	B5
73996	5634	45	Boo	15	8	4.2	+24	48	6.7	4.93	0.429	0.51	F5V
74117	5626	λ	Lup	15	10	1.8	-45	20	45.5	4.07	-0.162	-0.18	B3V
74376	5646	κ^1	Lup	15	13	9.6	-48	48	11.0	3.88	-0.029	-0.02	B9V
74392	5652	ι^1	Lib	15	13	13.3	-19	51	24.5	4.54	-0.071	-0.06	Asp...
74395	5649	ζ	Lup	15	13	33.1	-52	9	52.1	3.41	0.918	0.91	G8III
74449	5651	e	Lup	15	14	0.5	-44	33	54.9	4.83	-0.177	-0.19	B3IV
74604	5660	1	Lup	15	15	41.9	-31	34	59.8	4.91	0.374	0.48	F3III
74666	5681	49	Boo	15	16	12.5	+33	15	1.2	3.46	0.961	0.96	G8III
74785	5685	β	Lib	15	17	57.0	-09	26	47.2	2.61	-0.071	-0.08	B8V
74824	5670	β	Cir	15	18	53.8	-58	51	54.2	4.07	0.088	0.08	A3V
74857	5686	2	Lup	15	18	54.0	-30	12	42.6	4.35	1.100	1.03	K1II/III
74837	5666	ε	Cir	15	19	8.6	-63	40	24.8	4.85	1.260	1.20	K2.5III
74911	5683	μ	Lup	15	19	45.5	-47	56	18.0	4.27	-0.086	-0.07	B8V
74946	5671	γ	TrA	15	20	34.1	-68	44	32.6	2.87	0.014	0.04	A1V
75097	5735	γ	UMi	15	20	42.8	+71	46	18.2	3.00	0.058	0.12	A3II-III
75141	5695	δ	Lup	15	22	31.6	-40	42	34.6	3.22	-0.227	-0.23	B1.5IV
75177	5705	φ^1	Lup	15	22	55.3	-36	19	25.1	3.57	1.534	1.59	K5III
75206	5698	ν^1	Lup	15	23	21.9	-47	59	24.5	4.99	0.515	0.59	F8V
75264	5708	ε	Lup	15	23	52.6	-44	45	4.5	3.37	-0.191	-0.20	B2IV-V
75312	5727	η	CrB	15	23	55.7	+30	13	31.8	4.99	0.577	0.65	G2V
75304	5712	φ^2	Lup	15	24	16.8	-36	55	12.0	4.54	-0.155	-0.16	B4V
75323	5704	γ	Cir	15	24	47.1	-59	22	56.1	4.48	0.169	0.18	B5III +0F8
75379	5723	ε	Lib	15	25	8.9	-10	23	2.7	4.92	0.453	0.52	F5IV
75411	5733	μ^1	Boo	15	25	9.1	+37	18	59.6	4.31	0.309	0.35	F0V
75458	5744	ι	Dra	15	25	19.3	+58	54	18.8	3.29	1.166	1.07	K2III
75501	5724	k	Lup	15	26	28.6	-38	47	39.7	4.60	0.000	0.02	A0V
75695	5747	3	CrB	15	28	33.0	+29	2	46.4	3.66	0.319	0.37	F0p
76008	5826	15	UMi	15	30	55.7	+77	17	25.7	5.00	1.545	1.61	K5III
76041	5774	53	Boo	15	32	24.6	+40	50	26.4	4.98	0.086	0.15	A5V
76127	5778	θ	CrB	15	33	38.1	+31	18	3.3	4.14	-0.127	-0.12	B6Vnn
76219	5777	37	Lib	15	35	8.2	-10	7	24.2	4.61	1.000	1.02	K1IV
76267	5793	α	CrB	15	35	25.8	+26	39	24.1	2.22	0.032	0.05	A0V
76276	5788	δ	Ser	15	35	38.4	+10	28	52.9	3.80	0.268	0.30	F0IV
76297	5776	γ	Lup	15	36	18.8	-41	13	27.2	2.80	-0.216	-0.22	B2IV
76333	5787	38	Lib	15	36	30.5	-14	50	48.3	3.91	1.007	1.02	K0III
76371	5781	d	Lup	15	37	6.0	-45	0	56.1	4.55	-0.175	-0.20	B3IVp
76470	5794	υ	Lib	15	38	5.4	-28	11	30.5	3.60	1.361	1.36	K3III
76440	5771	ε	TrA	15	38	20.5	-66	22	26.5	4.11	1.161	1.12	K0III
76552	5797	ω	Lup	15	39	14.3	-42	37	24.3	4.34	1.412	1.42	K4.5III
76600	5812	τ	Lib	15	39	44.1	-29	50	2.5	3.66	-0.177	-0.18	B2.5V
76669	5833	ζ^1	CrB	15	40	2.2	+36	34	47.3	4.64	-0.103	-0.09	B7V+...

Posiciones medias de estrellas brillantes, 2017

Estrella				α			δ						
NH	NY	nom		h	m	s	º	‘	“	V	U-B	B-V	Esp
76705	5820	3	Lup	15	40	52.9	-34	28	3.9	4.66	0.964	0.97	G8/K0III
76742	5824	42	Lib	15	41	19.2	-23	52	25.4	4.97	1.302	1.25	K3III
76852	5842	ι	Ser	15	42	19.9	+19	36	54.0	4.51	0.062	0.07	A1V
76829	5825	g	Lup	15	42	24.0	-44	43	3.9	4.64	0.413	0.47	F5IV-V
76880	5838	43	Lib	15	42	57.5	-19	44	3.7	4.75	1.574	1.74	K5III
77055	5903	16	UMi	15	43	28.1	+77	44	23.7	4.29	0.038	0.05	A3Vn
76952	5849	γ	CrB	15	43	28.7	+26	14	28.0	3.81	0.020	0.04	A1Vs
76945	5839	4	Lup	15	43	48.2	-34	45	55.0	4.75	-0.151	-0.15	B5V
77070	5854	α	Ser	15	45	7.9	+06	22	17.8	2.63	1.167	1.09	K2III
77233	5867	β	Ser	15	46	59.8	+15	22	5.1	3.65	0.073	0.09	A3V
77257	5868	λ	Ser	15	47	17.6	+07	17	57.4	4.42	0.604	0.66	G0Vvar
77450	5879	35	Ser	15	49	31.7	+18	5	18.5	4.09	1.616	1.73	M1III
77512	5889	10	CrB	15	50	19.7	+26	0	56.6	4.59	0.794	0.82	G5III-IV
77516	5881	μ	Ser	15	50	32.1	-03	28	57.5	3.54	-0.036	-0.03	A0V
77622	5892	ε	Ser	15	51	41.4	+04	25	34.1	3.71	0.147	0.13	A2m
77655	5901	11	CrB	15	51	53.5	+35	36	14.1	4.79	0.996	0.97	K0III-IV
77635	5885	1	Sco	15	52	2.1	-25	48	11.6	4.63	-0.072	-0.04	B1.5Vn
77661	5899	38	Ser	15	52	2.1	+20	55	34.5	4.74	1.534	1.60	K5III
77634	5883	χ	Lup	15	52	4.5	-33	40	44.7	3.97	-0.045	-0.05	B9.5III-IV
77760	5914	χ	Her	15	53	16.9	+42	24	11.9	4.60	0.563	0.63	F9V
77840	5904	2	Sco	15	54	40.0	-25	22	41.2	4.59	-0.073	-0.06	B2.5Vn
77853	5908	46	Lib	15	54	49.5	-16	46	45.9	4.13	1.003	1.02	K0III
77952	5897	β	TrA	15	56	42.0	-63	28	58.4	2.83	0.315	0.36	F2III
78072	5933	41	Ser	15	57	15.7	+15	36	19.9	3.85	0.478	0.54	F6V
78104	5928	5	Sco	15	57	58.1	-29	15	49.8	3.87	-0.199	-0.18	B2IV/V
78180	5960	CL	Dra	15	58	12.5	+54	42	3.0	4.96	0.269	0.29	F0IV
78159	5947	ε	CrB	15	58	18.8	+26	49	41.3	4.14	1.231	1.17	K3III
78207	5941	48	Lib	15	59	10.3	-14	19	43.1	4.95	-0.080	-0.06	B8Ia/Iab
78265	5944	π	Sco	15	59	54.8	-26	9	47.4	2.89	-0.180	-0.18	B1V +0B2V
78323	5943	***	***	16	0	42.1	-41	47	35.5	4.99	0.988	0.97	G8III
78384	5948	η	Lup	16	1	17.2	-38	26	43.0	3.42	-0.206	-0.23	B2.5IV
78401	5953	7	Sco	16	1	22.3	-22	40	13.0	2.29	-0.117	-0.09	B0.2IV
78493	5971	ι	CrB	16	2	8.7	+29	48	10.7	4.98	-0.050	-0.03	A0p...
78527	5986	13	Dra	16	2	13.2	+58	31	8.2	4.01	0.528	0.55	F8IV-V
78554	5972	π	Ser	16	3	2.9	+22	45	24.7	4.82	0.066	0.09	A3V
78592	5982	υ	Her	16	3	20.7	+45	59	19.8	4.72	-0.094	-0.06	B9III
78650	5969	***	***	16	4	24.3	-25	54	45.7	4.96	1.234	1.25	K3III
78639	5962	η	Nor	16	4	30.5	-49	16	36.9	4.65	0.902	0.91	G8III
78655	5967	***	***	16	4	34.3	-38	38	59.7	4.90	-0.146	-0.15	B6III/IV
78662	5961	ι^1	Nor	16	4	58.1	-57	49	21.3	4.63	0.252	0.30	A7IV
78820	5984	8	Sco	16	6	27.4	-19	51	7.5	2.56	-0.065	-0.04	B0.5V
78821	5985	8	Sco	16	6	27.7	-19	50	54.2	4.90	-0.024	0.00	B2V
78914	5980	δ	Nor	16	7	44.0	-45	13	8.6	4.73	0.230	0.20	Am
78918	5987	θ	Lup	16	7	44.8	-36	50	54.5	4.22	-0.184	-0.19	B2.5Vn
78933	5993	9	Sco	16	7	50.0	-20	42	55.1	3.93	-0.046	0.01	B1V
78990	5997	ω^2	Sco	16	8	26.1	-20	54	53.1	4.31	0.831	0.85	G6/G8III
79043	6008	7	Her	16	8	52.0	+17	0	5.0	5.00	0.931	0.93	G8III
79101	6023	φ	Her	16	9	19.3	+44	53	23.1	4.23	-0.045	-0.02	B9MNp...
79119	6018	16	CrB	16	9	36.7	+36	26	50.5	4.73	1.015	1.00	K0III-IV
79375	6031	ψ	Sco	16	12	57.5	-10	6	30.3	4.93	0.087	0.09	A3IV
79374	6027	ν	Sco	16	13	0.9	-19	30	17.5	4.00	0.076	0.14	B2IV
79404	6028	13	Sco	16	13	23.1	-27	58	13.4	4.58	-0.172	-0.15	B2V
79509	6024	κ	Nor	16	14	52.0	-54	40	26.3	4.95	1.017	0.99	G4III
79593	6056	δ	Oph	16	15	15.9	-03	44	17.4	2.73	1.584	1.82	M1III
79822	6116	η	UMi	16	17	0.8	+75	42	51.7	4.95	0.393	0.46	F5V

Posiciones medias de estrellas brillantes, 2017

Estrella				α			δ						
NH	NY	nom		h	m	s	°	‘	“	V	U-B	B-V	Esp
79664	6030	δ	TrA	16	17	2.6	-63	43	42.1	3.86	1.105	1.03	G5II
79790	6058	γ^1	Nor	16	18	19.9	-50	6	36.7	4.97	0.788	0.88	F9Ia
79882	6075	ε	Oph	16	19	14.9	-04	44	2.2	3.23	0.966	0.96	G8III
79881	6070	d	Sco	16	19	23.2	-28	39	22.0	4.80	0.008	-0.01	A0V:
79992	6092	22	Her	16	20	16.1	+46	16	20.6	3.91	-0.151	-0.19	B5IV
80000	6072	γ^2	Nor	16	21	9.4	-50	11	48.3	4.01	1.080	1.03	G8III
80079	6081	o	Sco	16	21	41.5	-24	12	36.4	4.55	0.758	0.80	A4II/III
80112	6084	σ	Sco	16	22	15.3	-25	38	0.2	2.90	0.299	0.31	B1III
80170	6095	20	Her	16	22	41.6	+19	6	47.1	3.74	0.299	0.34	A9III
80181	6103	19	CrB	16	22	46.8	+30	51	8.3	4.86	0.970	0.93	K0III
80179	6093	50	Ser	16	22	57.6	+00	59	20.7	4.82	0.338	0.39	F0V
80047	6020	δ^1	Aps	16	23	1.1	-78	44	11.2	4.68	1.680	2.67	M5III
80331	6132	η	Dra	16	24	13.9	+61	28	29.7	2.73	0.910	0.84	G8III
80343	6104	ψ	Oph	16	25	7.8	-20	4	37.0	4.48	0.996	0.99	K0III
80463	6117	24	Her	16	26	13.5	+13	59	38.6	4.57	0.002	0.02	B9p Cr
80473	6112	5	Oph	16	26	38.2	-23	29	10.0	4.57	0.227	0.25	B2V
80650	6161	15	Dra	16	27	57.4	+68	43	48.8	4.94	-0.051	0.02	A0III
80569	6118	x	Oph	16	28	2.4	-18	29	40.6	4.22	0.217	0.24	B2Vne
80582	6115	ε	Nor	16	28	28.4	-47	35	34.8	4.46	-0.070	-0.04	B4V
80628	6129	3	Oph	16	28	45.1	-08	24	35.1	4.62	0.185	0.20	A3m
80704	6146	30	Her	16	29	13.1	+41	50	38.2	4.83	1.289	3.61	M6III:var
80686	6098	ζ	TrA	16	30	22.2	-70	7	16.9	4.90	0.555	0.64	F9V
80763	6134	α	Sco	16	30	29.0	-26	28	9.9	1.06	1.865	2.90	M1Ib +0B2.5V
80816	6148	27	Her	16	30	58.4	+21	27	9.0	2.78	0.947	0.94	G8III
80815	6141	i	Sco	16	31	16.4	-25	9	8.4	4.79	-0.116	-0.12	B3V
80883	6149	10	Oph	16	31	47.8	+01	56	48.6	3.82	0.022	0.03	A2V
80894	6147	φ	Oph	16	32	8.6	-16	38	58.4	4.29	0.924	0.89	G8/K0III
80911	6143	***	***	16	32	31.7	-34	44	27.5	4.24	-0.168	-0.17	B2III-IV
80975	6153	ω	Oph	16	33	10.6	-21	30	8.8	4.45	0.130	0.12	Ap
81008	6159	h	Her	16	33	25.5	+11	27	5.6	4.84	1.495	1.58	K4III
81126	6168	35	Her	16	34	40.1	+42	24	6.4	4.20	-0.013	0.02	B9Vvar
81122	6155	μ	Nor	16	35	19.9	-44	4	50.7	4.86	0.045	0.18	B0Ia
81065	6102	γ	Aps	16	36	11.3	-78	55	58.4	3.86	0.923	0.92	K0IV SB
81266	6165	τ	Sco	16	36	58.5	-28	15	3.1	2.82	-0.206	-0.24	B0V
81304	6166	***	***	16	37	31.8	-35	17	23.3	4.18	1.535	1.72	K5III
81377	6175	ζ	Oph	16	38	7.4	-10	36	4.4	2.54	0.038	0.10	O9.5V
81497	6200	42	Her	16	39	13.4	+48	53	41.1	4.86	1.562	2.03	M2.5III
81660	6223	g	Dra	16	41	2.6	+64	33	21.8	4.84	1.212	1.19	K1p
81693	6212	40	Her	16	41	56.8	+31	34	18.2	2.81	0.650	0.70	F9IV
81724	6196	***	***	16	42	35.2	-17	46	28.8	4.91	1.095	1.13	G8II/III
81833	6220	44	Her	16	43	29.8	+38	53	23.3	3.48	0.916	0.89	G8III-IV
82080	6322	ε	UMi	16	44	14.2	+82	0	21.7	4.21	0.897	0.91	G5IIIvar
81852	6163	β	Aps	16	45	37.0	-77	33	2.7	4.23	1.060	1.04	K0III
82020	6237	***	***	16	45	37.9	+56	45	3.9	4.84	0.375	0.44	F2V
82321	6254	52	Her	16	49	45.0	+45	57	12.9	4.82	0.087	0.10	A2p...
82273	6217	α	TrA	16	50	31.9	-69	3	26.4	1.91	1.447	1.45	K2IIb-IIIa
82369	6243	20	Oph	16	50	48.2	-10	48	45.2	4.64	0.478	0.55	F7IV
82396	6241	ε	Sco	16	51	18.0	-34	19	24.5	2.29	1.144	1.10	K2IIIb
82363	6229	η	Ara	16	51	18.3	-59	4	14.1	3.77	1.562	1.67	K5III
82514	6247	μ^1	Sco	16	53	3.5	-38	4	32.8	3.00	-0.200	-0.20	B1.5IV +0B
82545	6252	μ^2	Sco	16	53	31.4	-38	2	44.7	3.56	-0.210	-0.21	B2IV
82673	6281	ι	Oph	16	54	50.2	+10	8	15.7	4.39	-0.088	-0.13	B8V
82671	6262	ζ^1	Sco	16	55	14.0	-42	23	22.0	4.70	0.444	0.71	B1Iae
82729	6271	ζ^2	Sco	16	55	49.1	-42	23	22.5	3.62	1.393	1.37	K4III
82860	6315	h	Dra	16	56	7.7	+65	6	29.6	4.88	0.481	0.56	F6Vvar

Posiciones medias de estrellas brillantes, 2017

Estrella				α			δ						
NH	NY	nom		h	m	s	º	‘	“	V	U-B	B-V	Esp
83000	6299	27	Oph	16	58	29.8	+09	20	56.4	3.19	1.160	1.10	K2IIIvar
83081	6285	ζ	Ara	17	0	4.4	-56	0	56.8	3.12	1.552	1.60	K5III
83207	6324	ε	Her	17	0	57.6	+30	54	5.7	3.92	-0.018	-0.04	A0V
83153	6295	ε^1	Ara	17	0	59.0	-53	11	7.5	4.06	1.452	1.42	K4III
83262	6318	30	Oph	17	1	59.0	-04	14	51.4	4.82	1.483	1.49	K4III
83430	6337	***	***	17	3	56.0	+14	4	4.4	4.97	1.600	2.08	M3III
83608	6369	21	Dra	17	5	42.0	+54	26	50.9	4.91	0.471	0.54	F5
83574	6334	k	Sco	17	5	58.6	-34	8	45.4	4.83	0.257	0.38	B2Iab
83613	6355	60	Her	17	6	11.4	+12	43	4.6	4.89	0.125	0.11	A4IV
83895	6396	22	Dra	17	8	50.4	+65	41	35.5	3.17	-0.120	-0.14	B6III
84012	6378	η	Oph	17	11	23.0	-15	44	42.5	2.43	0.059	0.06	A2.5Va
84143	6380	η	Sco	17	13	24.6	-43	15	37.8	3.32	0.441	0.47	F3p
84345	6406	64	Her	17	15	26.8	+14	22	17.4	2.78	1.164	1.13	M5IIvar
84380	6418	67	Her	17	15	39.4	+36	47	25.1	3.16	1.437	1.31	K3IIvar
84379	6410	65	Her	17	15	45.1	+24	49	10.6	3.12	0.080	0.06	A3IVv SB
84405	6401	36	Oph	17	16	25.7	-26	37	37.3	4.33	0.855	0.92	K2:III:
84514	6415	41	Oph	17	17	30.6	-00	27	49.5	4.72	1.119	1.09	K2III
84573	6431	u	Her	17	17	58.4	+33	4	55.8	4.80	-0.166	-0.17	B1.5Vp
84606	6436	e	Her	17	18	16.5	+37	16	26.6	4.64	0.043	0.07	A2V
84880	6446	53	Ser	17	21	48.8	-12	51	47.6	4.32	0.037	0.07	A0/A1V
84893	6445	40	Oph	17	22	3.4	-21	7	48.7	4.39	0.394	0.47	F2/F3V
84970	6453	θ	Oph	17	23	5.1	-25	0	55.8	3.27	-0.186	-0.21	B2IV
84969	6417	ζ	Aps	17	23	49.6	-67	47	11.0	4.76	1.194	1.18	K1III
85112	6484	ρ	Her	17	24	17.2	+37	7	50.7	4.15	-0.011	0.01	B9.5III
85822	6789	23	UMi	17	26	39.3	+86	34	25.6	4.35	0.021	0.04	A1Vn
85258	6461	β	Ara	17	26	45.5	-55	32	39.8	2.84	1.479	1.50	K3Ib-II
85267	6462	γ	Ara	17	26	52.2	-56	23	31.7	3.31	-0.150	-0.12	B1Ib
85355	6498	σ	Oph	17	27	23.0	+04	7	35.0	4.34	1.480	1.44	K3IIvar
85340	6486	b	Oph	17	27	26.4	-24	11	23.6	4.16	0.283	0.30	A3IV:m
85365	6493	***	***	17	27	33.6	-05	6	2.7	4.53	0.385	0.46	F3V
85423	6492	d	Oph	17	28	28.4	-29	52	52.7	4.28	0.402	0.45	F3III
85670	6536	β	Dra	17	30	49.7	+52	17	20.4	2.79	0.954	0.93	G2II
85693	6526	76	Her	17	31	26.8	+26	5	54.5	4.41	1.434	1.39	K3IIIvar
85696	6508	34	Sco	17	31	57.3	-37	18	29.1	2.70	-0.179	-0.23	B2IV
85755	6519	c	Oph	17	32	29.1	-23	58	28.8	4.78	0.016	0.08	A0V
85819	6554	24	Dra	17	32	31.3	+55	10	22.0	4.89	0.251	0.28	Am...
85829	6555	ν^2	Dra	17	32	36.8	+55	9	41.7	4.86	0.279	0.30	Am
85727	6500	δ	Ara	17	32	40.9	-60	41	46.5	3.60	-0.104	-0.10	B8V
85792	6510	α	Ara	17	33	11.8	-49	53	17.2	2.84	-0.136	-0.15	B2Vne
85927	6527	λ	Sco	17	34	47.9	-37	6	53.7	1.62	-0.231	-0.24	B1.5IV+...
86032	6556	55	Oph	17	35	44.8	+12	32	54.6	2.08	0.155	0.17	A5III
86201	6596	ω	Dra	17	36	51.1	+68	44	59.0	4.77	0.430	0.49	F5V
86092	6537	σ	Ara	17	36	57.9	-46	30	57.3	4.56	-0.020	0.01	A0V
86170	6546	***	***	17	37	45.2	-38	38	45.2	4.26	1.075	1.09	G8/K0III/IV
86228	6553	θ	Sco	17	38	34.6	-43	0	25.9	1.86	0.406	0.48	F1II
86263	6561	ξ	Ser	17	38	35.4	-15	24	29.4	3.54	0.262	0.29	F0IIIp
86284	6567	μ	Oph	17	38	47.8	-08	7	41.0	4.58	0.132	0.22	B8II-IIIMNp
86414	6588	ι	Her	17	39	57.6	+45	59	51.9	3.82	-0.179	-0.21	B3V SB
86614	6636	ψ^1	Dra	17	41	37.9	+72	8	23.3	4.57	0.434	0.50	F5IV-V
86486	6569	λ	Ara	17	41	45.0	-49	25	28.1	4.76	0.415	0.49	F3IV
86565	6581	o	Ser	17	42	23.9	-12	52	59.7	4.24	0.086	0.10	A2Va
86670	6580	κ	Sco	17	43	42.0	-39	2	14.2	2.39	-0.171	-0.22	B1.5III
86742	6603	60	Oph	17	44	20.2	+04	33	40.5	2.76	1.168	1.10	K2III
86736	6595	58	Oph	17	44	28.7	-21	41	24.8	4.86	0.469	0.54	F6/F7V
86974	6623	μ	Her	17	47	8.7	+27	42	41.1	3.42	0.750	0.71	G5IV

Posiciones medias de estrellas brillantes, 2017

Estrella				α			δ						
NH	NY	nom		h	m	s	°	‘	“	V	U-B	B-V	Esp
86929	6582	η	Pav	17	47	27.2	-64	43	47.4	3.61	1.161	1.09	K1III
87072	6616	X	Sgr	17	48	39.8	-27	50	9.2	4.53	0.600	0.76	F7II
87108	6629	62	Oph	17	48	46.2	+02	42	7.0	3.75	0.043	0.05	A0V
87073	6615	ι	Sco	17	48	48.6	-40	7	55.4	2.99	0.509	0.64	F3Ia
87220	6628	***	***	17	50	18.7	-31	42	27.4	4.79	-0.028	0.01	B8Ib/II
87261	6630	***	***	17	51	3.0	-37	2	50.0	3.19	1.192	1.15	K0/K1III
87294	6631	ι	Sco	17	51	24.6	-40	5	39.7	4.78	0.259	0.41	A6Ib
87585	6688	32	Dra	17	53	49.9	+56	52	13.2	3.73	1.177	1.11	K2III
87808	6695	θ	Her	17	56	51.2	+37	14	56.8	3.86	1.350	1.17	K1IIvar
87833	6705	33	Dra	17	57	0.8	+51	29	14.7	2.24	1.521	1.54	K5III
87846	6675	***	***	17	58	4.1	-44	20	36.4	4.85	1.176	1.15	K2III
87933	6703	ξ	Her	17	58	26.7	+29	14	49.1	3.70	0.935	0.89	K0III
87936	6682	***	***	17	59	2.4	-41	43	1.3	4.88	1.617	1.88	M0III
87998	6707	94	Her	17	59	10.4	+30	11	19.7	4.41	0.380	0.51	F2II
88048	6698	64	Oph	17	59	59.4	-09	46	27.9	3.32	0.987	0.95	K0III
88060	6693	***	***	18	0	12.7	-30	15	11.6	5.00	1.654	2.00	K5/M0III
88128	6713	93	Her	18	0	50.2	+16	45	3.8	4.67	1.254	1.12	K0II-III
88116	6700	4	Sgr	18	0	51.7	-23	48	58.5	4.74	-0.030	-0.01	B9V
88149	6712	66	Oph	18	1	7.8	+04	22	7.9	4.79	-0.100	-0.08	B2Ve
88175	6710	ζ	Ser	18	1	24.5	-03	41	24.3	4.62	0.390	0.45	F3V
88192	6714	67	Oph	18	1	31.3	+02	55	55.2	3.93	0.029	0.10	B5Ib
88267	6729	95	Her	18	2	15.0	+21	35	48.4	4.26	0.406	0.47	G5
88290	6723	68	Oph	18	2	38.5	+01	18	21.4	4.42	0.046	0.06	A2Vn
88404	6733	τ	Oph	18	4	2.1	-08	10	44.5	4.77	0.410	0.45	F5V+...
88567	6742	γ^1	Sgr	18	6	8.3	-29	34	39.9	4.66	0.774	0.81	G0Ib/II
88601	6752	V2391	Oph	18	6	20.2	+02	29	52.5	4.03	0.860	0.96	K0V SB
88657	6765	98	Her	18	6	46.1	+22	13	17.7	4.96	1.656	2.18	M3IIIa+...
88635	6746	10	Sgr	18	6	55.9	-30	25	20.2	2.98	0.981	0.99	K0III
88714	6743	θ	Ara	18	7	59.6	-50	5	18.3	3.65	-0.101	-0.06	B2Ib
88788	6791	***	***	18	8	0.4	+43	27	53.6	5.00	0.913	0.91	G8III...
88726	6749	***	***	18	8	5.8	-43	25	21.2	4.92	0.255	0.29	A5V
88765	6770	71	Oph	18	8	8.6	+08	44	14.3	4.64	0.951	0.92	G8III-IV
88771	6771	72	Oph	18	8	10.8	+09	34	3.1	3.71	0.159	0.18	A4IVs
88794	6779	o	Her	18	8	13.5	+28	45	57.2	3.84	-0.018	-0.02	B9.5V
88839	6766	***	***	18	9	11.5	-28	27	12.9	4.55	0.938	1.00	K0IIICNpvar
88886	6787	102	Her	18	9	30.4	+20	49	6.3	4.37	-0.164	-0.19	B2IV
88866	6745	π	Pav	18	10	15.9	-63	39	56.0	4.33	0.228	0.23	Am
89112	6783	ε	Tel	18	12	31.7	-45	56	58.4	4.52	1.009	0.95	G5III
89172	6815	104	Her	18	12	33.7	+31	24	38.4	4.96	1.643	2.16	M3III
89153	6801	***	***	18	12	47.4	-23	41	46.2	4.96	1.055	1.02	K0III
89348	6850	36	Dra	18	13	59.9	+64	24	12.2	4.99	0.440	0.51	F5V
89341	6812	μ	Sgr	18	14	48.6	-21	3	10.0	3.84	0.195	0.21	B2III:
89642	6832	η	Sgr	18	18	48.7	-36	45	17.1	3.10	1.582	2.24	M2III
89678	6842	***	***	18	19	8.9	-27	2	5.1	4.66	1.629	1.62	K3III
89826	6872	1	Lyr	18	20	28.5	+36	4	23.9	4.33	1.162	1.10	K2IIIvar
89908	6920	43	Dra	18	20	30.3	+71	20	48.3	4.22	-0.093	-0.11	A0p (Si)
89937	6927	x	Dra	18	20	44.4	+72	44	24.0	3.55	0.489	0.62	F7Vvar
89861	6868	106	Her	18	21	2.4	+21	58	11.2	4.92	1.594	1.82	M1III
89918	6866	74	Oph	18	21	44.5	+03	23	10.5	4.85	0.911	0.90	G8III
89931	6859	19	Sgr	18	22	6.8	-29	49	8.7	2.72	1.380	1.35	K3III
89962	6869	58	Ser	18	22	12.9	-02	53	34.8	3.23	0.941	0.96	K0III-IV
90156	6923	b	Dra	18	24	9.9	+58	48	40.5	4.98	0.082	0.05	A3V
90139	6895	109	Her	18	24	26.7	+21	46	43.6	3.85	1.168	1.13	K2III
90135	6884	ζ	Sct	18	24	37.1	-08	55	26.0	4.66	0.932	0.94	K0III
90098	6855	ξ	Pav	18	24	50.2	-61	29	1.3	4.35	1.462	1.50	M1III SB

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Estrella				α			δ						
NH	NY	nom		h	m	s	º	‘	“	V	U-B	B-V	Esp
90185	6879	20	Sgr	18	25	20.0	-34	22	29.0	1.79	-0.031	0.01	B9.5III
90344	6945	42	Dra	18	26	2.1	+65	34	27.8	4.82	1.179	1.16	K2III
90289	6896	21	Sgr	18	26	23.6	-20	31	51.0	4.81	1.310	1.27	A1/A2V
90422	6897	α	Tel	18	28	16.2	-45	57	25.2	3.49	-0.179	-0.18	B3IV
90496	6913	22	Sgr	18	29	3.0	-25	24	37.9	2.82	1.025	1.04	K1IIIb
90568	6905	ζ	Tel	18	30	10.6	-49	3	33.1	4.10	0.995	1.02	G8/K0III
90595	6930	γ	Sct	18	30	11.7	-14	33	11.7	4.67	0.076	0.10	A1IV/V
90905	6978	d	Dra	18	32	52.6	+57	3	33.9	4.77	0.611	0.67	F7Ib
90797	6916	ν	Pav	18	33	0.3	-62	15	53.6	4.63	-0.116	-0.11	B8III
90830	6934	δ^1	Tel	18	33	3.1	-45	54	4.4	4.92	-0.101	-0.08	B6IV
90982	6951	θ	CrA	18	34	45.1	-42	17	53.4	4.62	0.994	0.95	G5III
91117	6973	α	Sct	18	36	9.6	-08	13	49.8	3.85	1.317	1.28	K2III
91262	7001	3	Lyr	18	37	31.9	+38	48	3.1	0.03	-0.001	-0.01	A0Vvar
91726	7020	δ	Sct	18	43	13.9	-09	2	4.1	4.70	0.358	0.40	F2IIIp d Del
91845	7032	ε	Sct	18	44	28.4	-08	15	23.7	4.88	1.112	1.07	G8II
91919	7051	4	Lyr	18	44	55.1	+39	41	21.4	4.67	0.170	0.19	F1V
91926	7053	ε^2	Lyr	18	44	57.6	+39	37	54.6	4.59	0.180	0.20	A8Vn
91792	6982	ζ	Pav	18	45	4.2	-71	24	37.0	4.01	1.134	1.14	K2III
91971	7056	ζ^1	Lyr	18	45	22.5	+37	37	27.4	4.34	0.192	0.18	Am
91918	7029	***	***	18	45	29.6	-35	37	23.3	4.86	-0.168	-0.19	B2V
92043	7061	110	Her	18	46	24.9	+20	33	50.8	4.19	0.483	0.55	F6V
92041	7039	27	Sgr	18	46	44.9	-26	58	16.6	3.17	-0.107	-0.10	B8.5III
92088	7064	***	***	18	46	46.8	+26	40	54.7	4.83	1.199	1.16	K3III
92024	7012	***	***	18	47	9.6	-64	51	8.8	4.78	0.199	0.21	A7V
92161	7069	111	Her	18	47	47.7	+18	12	7.6	4.34	0.148	0.16	A5III
92175	7063	β	Sct	18	48	6.2	-04	43	40.2	4.22	1.087	1.09	G5II...
92420	7106	β	Lyr	18	50	43.6	+33	23	2.0	3.52	0.003	0.02	A8:V comp SB
92512	7125	o	Dra	18	51	27.5	+59	24	36.4	4.63	1.185	1.20	K0II-III SB
92689	7137	***	***	18	53	39.5	+50	43	50.1	4.92	0.903	0.88	G8III
92609	7074	λ	Pav	18	53	50.0	-62	9	55.2	4.22	-0.150	-0.14	B2II-III
92782	7180	υ	Dra	18	54	10.7	+71	19	12.9	4.82	1.151	1.10	K0III
92791	7139	12	Lyr	18	55	7.0	+36	55	18.1	4.22	1.575	2.60	M4IIvar
92761	7116	ν^1	Sgr	18	55	13.5	-22	43	18.6	4.86	1.412	1.35	K1II
92818	7133	113	Her	18	55	29.2	+22	40	5.8	4.57	0.782	0.86	G4III+...
92862	7157	R	Lyr	18	55	52.1	+43	58	11.6	4.08	1.397	3.14	M5IIIvar
92845	7120	ν^2	Sgr	18	56	10.6	-22	38	53.0	5.00	1.348	1.25	K1Ib/II
92855	7121	34	Sgr	18	56	21.0	-26	16	24.6	2.05	-0.134	-0.13	B2.5V
92946	7141	θ^1	Ser	18	57	5.4	+04	13	39.2	4.62	0.161	0.20	A5V
92951	7142	θ^2	Ser	18	57	6.8	+04	13	34.1	4.98	0.204	0.22	A5Vn
93026	7149	η	Sct	18	57	59.9	-05	49	20.3	4.83	1.057	1.03	K1III
93015	7107	κ	Pav	18	58	44.7	-67	12	32.7	4.40	0.530	0.59	F5Ib-II:
93085	7150	37	Sgr	18	58	46.4	-21	4	56.0	3.52	1.151	1.09	G8/K0II/III
93194	7178	14	Lyr	18	59	35.9	+32	42	52.1	3.25	-0.049	-0.03	B9III
93148	7134	λ	Tel	18	59	51.5	-52	54	49.7	4.85	-0.051	-0.03	A0V
93174	7152	ε	CrA	18	59	54.1	-37	4	58.7	4.83	0.396	0.44	F3IV/V
93244	7176	13	Aql	19	0	25.0	+15	5	35.4	4.02	1.082	1.00	K2III
93279	7192	λ	Lyr	19	0	40.4	+32	10	15.3	4.94	1.465	1.32	K3III
93408	7215	16	Lyr	19	1	56.1	+46	57	37.1	5.00	0.186	0.23	A7V
93429	7193	i	Aql	19	2	36.9	-05	42	47.6	4.02	1.079	1.08	K1IIIvar
93506	7194	38	Sgr	19	3	43.4	-29	51	12.9	2.60	0.062	0.06	A3IV
93542	7188	ζ	CrA	19	4	21.1	-42	4	6.9	4.74	-0.027	-0.02	A0Vn
93683	7217	39	Sgr	19	5	43.8	-21	42	52.0	3.76	1.012	0.98	K0III
93747	7235	17	Aql	19	6	12.9	+13	53	26.2	2.99	0.014	-0.01	A0Vn
93805	7236	16	Aql	19	7	10.6	-04	51	18.1	3.43	-0.096	-0.09	B9Vn
93825	7226	γ	CrA	19	7	36.0	-37	2	12.2	4.23	0.523	0.59	F7IV-V

Posiciones medias de estrellas brillantes, 2017

Estrella				α			δ						
NH	NY	nom		h	m	s	°	‘	“	V	U-B	B-V	Esp
93864	7234	40	Sgr	19	8	1.9	-27	38	36.1	3.32	1.169	1.15	K1/K2III
94005	7242	δ	CrA	19	9	33.9	-40	28	4.7	4.57	1.070	1.06	K1III
94114	7254	α	CrA	19	10	39.6	-37	52	32.2	4.11	0.042	0.03	A0/A1V
94141	7264	π	Sgr	19	10	48.2	-20	59	39.8	2.88	0.377	0.44	F2II/III
94160	7259	β	CrA	19	11	13.8	-39	18	41.1	4.10	1.163	1.11	K0II/IIICN.
94376	7310	57	Dra	19	12	33.3	+67	41	32.3	3.07	0.990	0.94	G9III
94490	7309	54	Dra	19	14	13.8	+57	44	8.6	5.00	1.156	1.12	K2III
94481	7298	η	Lyr	19	14	21.2	+39	10	36.8	4.43	-0.150	-0.19	B2.5IV
94648	7352	τ	Dra	19	15	12.3	+73	23	14.8	4.45	1.257	1.15	K3III
94643	7292	42	Sgr	19	16	36.7	-25	13	30.3	4.86	0.569	0.67	K0/K1III+..
94703	7306	1	Vul	19	16	58.2	+21	25	20.5	4.76	-0.058	-0.05	B4IV
94713	7314	21	Lyr	19	16	58.6	+38	9	56.6	4.35	1.258	1.13	K0II
94779	7328	κ	Cyg	19	17	30.4	+53	24	4.7	3.80	0.950	0.85	K0III
94820	7304	43	Sgr	19	18	39.4	-18	55	13.4	4.88	1.013	0.99	K0III
95081	7371	58	Dra	19	20	45.3	+65	44	54.0	4.60	0.033	0.01	A2IIIs
95066	7333	26	Aql	19	21	28.9	-05	22	54.6	4.98	0.937	0.93	G8III-IV...
95168	7340	ρ^1	Sgr	19	22	41.2	-17	48	46.5	3.92	0.228	0.25	F0III/IV
95176	7342	46	Sgr	19	22	43.7	-15	55	15.0	4.52	0.079	0.34	F2p
95241	7337	β^1	Sgr	19	23	53.5	-44	25	28.0	3.96	-0.085	-0.07	B9V
95294	7343	β^2	Sgr	19	24	28.8	-44	45	54.7	4.27	0.350	0.42	F2III
95372	7372	2	Cyg	19	24	49.0	+29	39	23.4	4.99	-0.120	-0.11	B3IV
95347	7348	α	Sgr	19	25	5.7	-40	34	53.1	3.96	-0.105	-0.10	B8V
95501	7377	30	Aql	19	26	22.8	+03	9	3.0	3.36	0.319	0.38	F0IV
95585	7387	ν	Aql	19	27	24.8	+00	22	28.7	4.64	0.576	0.75	F2Ib
95771	7405	α	Vul	19	29	26.0	+24	42	4.7	4.44	1.502	1.68	M0 comp
95853	7420	ι^2	Cyg	19	30	8.8	+51	46	3.5	3.76	0.148	0.18	A5Vn
95947	7417	6	Cyg	19	31	25.6	+27	59	50.5	3.05	1.088	1.05	K3II+...
96100	7462	61	Dra	19	32	19.4	+69	41	27.3	4.67	0.786	0.85	K0V
96052	7426	8	Cyg	19	32	25.4	+34	29	27.8	4.74	-0.150	-0.12	B3IV
96229	7429	μ	Aql	19	34	56.6	+07	25	2.0	4.45	1.176	1.14	K3III
96275	7437	9	Vul	19	35	21.0	+19	48	45.5	5.00	-0.093	-0.08	B8IIIn
96341	7424	ι	Tel	19	36	30.6	-48	3	35.3	4.88	1.096	1.06	G9III
96441	7469	13	Cyg	19	36	54.7	+50	15	44.2	4.49	0.395	0.44	F4V
96468	7447	41	Aql	19	37	37.6	-01	14	47.9	4.36	-0.079	-0.06	B5III
96465	7440	52	Sgr	19	37	46.2	-24	50	37.1	4.59	-0.075	-0.06	B8/B9V
96483	7446	κ	Aql	19	37	49.9	-06	59	14.4	4.93	-0.046	0.03	B0.5III
96683	7478	12	Cyg	19	40	4.1	+30	11	40.4	4.68	0.971	0.89	G8III-IV...
96757	7479	α	Sge	19	40	52.7	+18	3	18.5	4.39	0.777	0.77	G0II
96837	7488	β	Sge	19	41	50.1	+17	31	3.4	4.39	1.041	0.96	G8II
97118	7517	15	Cyg	19	44	54.5	+37	23	50.8	4.89	0.948	0.94	G8III
97165	7528	δ	Cyg	19	45	31.3	+45	10	27.2	2.86	-0.002	-0.02	B9.5III
97278	7525	50	Aql	19	47	5.5	+10	39	25.1	2.72	1.507	1.44	K3II
97295	7534	17	Cyg	19	47	5.5	+33	46	9.0	5.00	0.476	0.55	F5
97290	7515	f	Sgr	19	47	22.9	-19	43	3.9	4.87	1.061	1.03	K0III
97433	7582	63	Dra	19	48	6.3	+70	18	44.6	3.84	0.888	0.88	G8III
97365	7536	7	Sge	19	48	10.1	+18	34	42.5	3.68	1.313	1.27	M2II +0B6
97649	7557	53	Aql	19	51	38.2	+08	54	56.3	0.76	0.221	0.27	A7IV-V
97679	7565	V395	Vul	19	51	49.3	+22	39	19.8	4.90	-0.153	-0.12	B2.5V
97804	7570	η	Aql	19	53	21.8	+01	3	6.1	3.87	0.630	0.73	F6Ibv SB
97886	7592	13	Vul	19	54	12.3	+24	7	34.4	4.57	-0.047	-0.02	B9.5III
97938	7595	ξ	Aql	19	55	5.7	+08	30	28.0	4.71	1.023	1.03	K0III
98055	7619	24	Cyg	19	56	4.9	+52	29	9.5	4.91	0.124	0.12	A4Vn
98036	7602	60	Aql	19	56	10.3	+06	27	5.6	3.71	0.855	0.89	G8IVvar
98073	7633	***	***	19	56	15.3	+58	53	35.3	4.98	1.584	1.56	K5II-III

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Estrella				α			δ						
NH	NY	nom		h	m	s	º	‘	“	V	U-B	B-V	Esp
98032	7581	ι	Sgr	19	56	27.9	-41	49	15.1	4.12	1.063	1.09	K0III
98068	7613	22	Cyg	19	56	29.3	+38	32	2.4	4.95	-0.086	-0.07	B5IV
98066	7597	ω	Sgr	19	56	54.5	-26	15	6.4	4.70	0.748	0.79	G3/G5III
98110	7615	η	Cyg	19	56	57.8	+35	7	50.7	3.89	1.019	0.98	K0IIIvar
98162	7604	59	Sgr	19	58	1.1	-27	7	19.9	4.54	1.462	1.39	K3III
98337	7635	12	Sge	19	59	32.1	+19	32	26.3	3.51	1.571	1.65	K5III
98353	7618	60	Sgr	20	0	1.0	-26	8	49.7	4.84	0.882	0.91	G8II/III
98412	7623	θ^1	Sgr	20	0	52.3	-35	13	39.4	4.37	-0.150	-0.15	B2.5IV
98543	7653	15	Vul	20	1	49.3	+27	48	10.2	4.66	0.184	0.19	A4III
98495	7590	ε	Pav	20	2	35.2	-72	51	42.7	3.97	-0.032	-0.04	A0V
98702	7685	ρ	Dra	20	2	53.4	+67	55	24.8	4.51	1.313	1.23	K3III
98608	7625	ν	Pav	20	3	12.5	-59	19	35.1	4.95	1.356	3.25	M6III
98688	7650	V3872	Sgr	20	3	43.9	-27	39	35.6	4.43	1.640	2.50	M4III
98761	7652	***	***	20	4	43.0	-37	53	27.2	4.77	1.417	1.40	K4III
98842	7659	***	***	20	5	26.0	-32	0	21.1	4.99	1.208	1.17	K1III/IV
99255	7750	1	Cep	20	8	16.1	+77	45	48.1	4.38	-0.046	-0.06	B9III
99120	7673	ξ	Tel	20	8	43.1	-52	49	44.8	4.93	1.591	1.83	M1II
99303	7708	b^2	Cyg	20	10	4.6	+36	53	31.0	4.93	-0.139	-0.13	B2.5V
99240	7665	δ	Pav	20	10	25.6	-66	8	7.3	3.55	0.751	0.76	G5IV-Vvar
99473	7710	θ	Aql	20	12	12.4	-00	46	6.5	3.24	-0.066	-0.06	B9.5III
99655	7740	33	Cyg	20	13	48.2	+56	37	18.3	4.28	0.114	0.14	A3IV-Vn
99639	7730	30	Cyg	20	13	51.1	+46	52	9.5	4.80	0.100	0.19	A5IIIn
99675	7735	31	Cyg	20	14	11.0	+46	47	42.3	3.80	1.270	1.15	K2II+...
99742	7724	67	Aql	20	15	5.2	+15	15	6.8	4.94	0.072	0.09	A2V
99770	7736	V1644	Cyg	20	15	11.4	+36	51	38.5	4.93	0.151	0.21	A2V
99824	7739	QR	Vul	20	16	0.4	+25	38	46.6	4.79	-0.181	-0.22	B3V
99848	7751	V1488	Cyg	20	16	0.8	+47	46	6.9	3.96	1.451	1.45	K3Ib-II comp
99874	7744	23	Vul	20	16	29.7	+27	52	7.6	4.50	1.258	1.30	K3III
100044	7763	P	Cyg	20	18	25.9	+38	5	17.2	4.77	0.377	0.44	B2pe
100027	7747	5	Cap	20	18	37.0	-12	27	10.8	4.30	0.928	1.05	G3Ib
100064	7754	6	Cap	20	19	1.4	-12	29	22.1	3.58	0.883	0.92	G6/G8III
100310	7773	ν	Cap	20	21	38.0	-12	42	10.4	4.77	-0.047	-0.06	B9IV
100345	7776	9	Cap	20	21	59.6	-14	43	29.7	3.05	0.790	0.90	A5:n
100453	7796	37	Cyg	20	22	51.4	+40	18	48.3	2.23	0.673	0.65	F8Ib
100587	7806	39	Cyg	20	24	33.6	+32	14	50.9	4.43	1.331	1.31	K3III
100751	7790	α	Pav	20	27	1.3	-56	40	38.8	1.94	-0.118	-0.10	B2IV
101027	7822	11	Cap	20	29	51.4	-17	45	16.7	4.77	0.386	0.44	F3V
101093	7850	2	Cep	20	29	52.3	+63	3	11.7	4.21	0.199	0.20	A7III
101076	7834	41	Cyg	20	30	6.7	+30	25	40.0	4.01	0.404	0.46	F5II
101101	7831	69	Aql	20	30	33.8	-02	49	34.7	4.91	1.160	1.12	K2III
101138	7844	V2014	Cyg	20	30	36.1	+49	0	39.7	4.94	-0.087	-0.06	B2.5IV
101421	7852	2	δ	20	34	2.9	+11	21	49.1	4.03	-0.123	-0.10	B6III
101474	7866	V2125	Cyg	20	34	35.1	+35	18	41.6	4.61	1.593	1.78	K2Ib comp
101589	7871	ζ	δ	20	36	7.6	+14	44	7.7	4.64	0.120	0.14	A3V
101612	7848	φ^1	Pav	20	37	1.0	-60	31	16.5	4.75	0.291	0.34	F1III
101692	7873	70	Aql	20	37	38.2	-02	29	18.0	4.91	1.606	1.66	K5II
101769	7882	β	δ	20	38	22.2	+14	39	24.5	3.64	0.425	0.50	F5IV
101772	7869	α	Ind	20	38	47.4	-47	13	45.0	3.11	0.998	0.98	K0III
101773	7859	ρ	Pav	20	39	2.4	-61	28	5.5	4.86	0.447	0.52	Fm delta Del
101847	7884	l	Aql	20	39	14.4	-01	2	34.7	4.31	0.949	0.91	G8III SB
101867	7891	29	Vul	20	39	18.3	+21	15	48.3	4.81	-0.030	-0.01	A0V
101958	7906	α	δ	20	40	27.0	+15	58	29.1	3.77	-0.057	-0.01	B9V
102098	7924	50	Cyg	20	42	1.7	+45	20	36.7	1.25	0.092	0.16	A2Ia
102281	7928	δ	δ	20	44	16.5	+15	8	17.7	4.43	0.302	0.34	A7IIIp d Del
102333	7920	η	Ind	20	45	18.9	-51	51	25.6	4.51	0.278	0.30	A6:var

Posiciones medias de estrellas brillantes, 2017

Estrella			α			δ						
NH	NY	nom	h	m	s	°	‘	“	V	U-B	B-V	Esp
102388	7939	30 Vul	20	45	38.0	+25	20	2.6	4.92	1.183	1.11	K2III
102422	7957	η Cep	20	45	38.6	+61	54	25.7	3.41	0.912	0.94	K0IV
102431	7955	*** ***	20	45	47.1	+57	38	34.8	4.52	0.535	0.58	F8IV-V
102453	7942	52 Cyg	20	46	23.1	+30	47	3.8	4.22	1.051	1.01	K0III
102395	7913	β Pav	20	46	30.9	-66	8	19.3	3.42	0.163	0.20	A5IV
102488	7949	53 Cyg	20	46	55.2	+34	2	11.7	2.48	1.021	1.00	K0III
102485	7936	xsi Cap	20	47	7.7	-25	12	24.9	4.13	0.426	0.49	F5V
102532	7948	12 δ	20	47	28.2	+16	11	17.6	4.27	1.042	1.03	K1IV
102571	7956	T Cyg	20	47	52.7	+34	26	21.1	4.93	1.294	1.25	K3IIIvar
102589	7963	54 Cyg	20	48	5.5	+36	33	20.8	4.53	-0.083	-0.12	B6IV
102618	7950	2 Aqr	20	48	37.3	-09	25	50.6	3.78	0.000	-0.01	A1V
102624	7951	3 Aqr	20	48	39.6	-04	57	45.6	4.43	1.639	2.21	M3IIIvar
102724	7977	V1661 Cyg	20	49	32.1	+46	10	46.9	4.81	0.571	0.59	B3Ia
102790	7952	ζ Ind	20	50	40.8	-46	9	39.1	4.90	1.494	1.57	K5III
102831	7965	α Mic	20	51	3.4	-33	42	49.9	4.89	1.004	0.97	G8III
102978	7980	18 Cap	20	52	51.7	-26	51	9.4	4.12	1.633	1.76	K4III
103004	7995	31 Vul	20	52	52.6	+27	9	47.8	4.56	0.835	0.87	G8III
103045	7990	6 Aqr	20	53	35.8	-08	55	0.1	4.73	0.325	0.36	A3m
103089	8001	57 Cyg	20	53	51.9	+44	27	15.0	4.80	-0.134	-0.16	B5V
103227	7986	β Ind	20	56	9.9	-58	23	12.4	3.67	1.250	1.11	K0III
103413	8028	ν Cyg	20	57	49.6	+41	14	6.5	3.94	0.027	0.01	A1Vn
103632	8047	f^1 Cyg	21	0	25.3	+47	35	23.6	4.74	-0.084	-0.06	B1ne
103738	8039	γ Mic	21	2	21.6	-32	11	18.0	4.67	0.890	0.90	G8III
104019	8060	η Cap	21	5	23.9	-19	47	5.2	4.82	0.169	0.18	A5V
104060	8079	ξ Cyg	21	5	34.1	+43	59	53.9	3.72	1.609	1.63	K5Ibv SB
104139	8075	23 Cap	21	6	55.7	-17	9	44.5	4.08	-0.010	0.00	A1V
104194	8089	f^2 Cyg	21	7	12.3	+47	43	9.6	4.56	1.569	1.54	K4II
104234	8080	24 Cap	21	8	8.9	-24	56	5.7	4.49	1.604	1.81	K5/M0III
104459	8093	ν Aqr	21	10	32.7	-11	17	59.8	4.50	0.926	0.92	G8III
104521	8097	γ Equ	21	11	11.5	+10	12	10.4	4.70	0.262	0.26	F0p
104732	8115	ζ Cyg	21	13	40.9	+30	17	57.6	3.21	0.990	0.97	G8II SB
104858	8123	δ Equ	21	15	19.9	+10	4	43.4	4.47	0.529	0.57	F5V+...
104887	8130	65 Cyg	21	15	29.5	+38	7	14.1	3.74	0.393	0.46	F1IV
104987	8131	α Equ	21	16	41.9	+05	19	15.5	3.92	0.549	0.62	G0III+...
105102	8143	67 Cyg	21	18	6.3	+39	28	7.2	4.22	0.098	0.25	B9Iab
105138	8146	υ Cyg	21	18	38.3	+34	58	15.9	4.41	-0.103	-0.09	B2Vne
105140	8135	ε Mic	21	18	59.7	-32	5	54.4	4.71	0.070	0.09	A0V
105199	8162	α Cep	21	18	59.8	+62	39	36.3	2.45	0.257	0.26	A7IV-V
105319	8140	θ Ind	21	21	6.2	-53	22	30.0	4.39	0.191	0.21	A5V
105382	8151	θ^1 Mic	21	21	52.4	-40	44	3.8	4.80	0.029	0.07	A2p
105502	8173	1 Peg	21	22	53.8	+19	52	48.4	4.08	1.108	1.05	K1III
105515	8167	ι Cap	21	23	13.1	-16	45	33.0	4.28	0.888	0.89	G8III
105881	8204	34 Cap	21	27	39.8	-22	20	4.9	3.77	1.002	0.88	G4Ibp...
105858	8181	γ Pav	21	27	52.1	-65	17	8.8	4.21	0.494	0.61	F6V
106032	8238	8 Cep	21	28	52.8	+70	38	15.8	3.23	-0.201	-0.25	B2IIIv SB
106039	8213	b Cap	21	29	43.1	-21	43	48.5	4.50	0.889	0.89	K0III
106140	8225	2 Peg	21	30	44.5	+23	42	58.4	4.52	1.618	1.82	M1III
106278	8232	22 Aqr	21	32	28.7	-05	29	36.3	2.90	0.828	0.82	G0Ib
106481	8252	ρ Cyg	21	34	38.4	+45	40	11.1	3.98	0.885	0.94	G8III
106551	8255	72 Cyg	21	35	29.5	+38	36	47.1	4.87	1.085	1.06	K1III
106723	8260	39 Cap	21	38	3.5	-19	23	12.5	4.51	-0.180	-0.17	B3V:p
106801	8279	V337 Cep	21	38	23.4	+62	9	40.6	4.76	0.246	0.38	B2Ib
106786	8264	ξ Aqr	21	38	40.9	-07	46	29.9	4.68	0.175	0.19	A7V
106985	8278	40 Cap	21	41	3.5	-16	34	56.9	3.69	0.320	0.32	A7III: mp...
107119	8317	11 Cep	21	42	10.3	+71	23	31.8	4.55	1.108	1.07	K0III

Posiciones medias de estrellas brillantes, 2017

Estrella				α			δ						
NH	NY	nom		h	m	s	º	‘	“	V	U-B	B-V	Esp
107136	8301	π^1	Cyg	21	42	43.0	+51	16	12.0	4.69	-0.119	-0.12	B3IV
107089	8254	ν	Oct	21	43	21.6	-77	18	39.0	3.73	1.008	0.98	K0III
107188	8288	43	Cap	21	43	38.0	-18	47	8.9	4.72	0.868	0.91	G8III
107259	8316	μ	Cep	21	44	2.6	+58	51	38.6	4.23	2.242	3.57	M2Ia
107310	8309	78	Cyg	21	44	55.6	+28	49	20.4	4.49	0.512	0.58	F6V
107315	8308	ε	Peg	21	45	2.7	+09	57	21.3	2.38	1.520	1.42	K2Ibvar
107348	8313	9	Peg	21	45	20.4	+17	25	51.4	4.34	1.161	1.05	G5Ib
107354	8315	10	Peg	21	45	26.4	+25	43	34.0	4.14	0.425	0.48	F5IV
107418	8334	ν	Cep	21	45	57.2	+61	12	7.0	4.25	0.474	0.73	A2Iavar
107380	8305	9	PsA	21	45	59.1	-32	56	42.5	4.35	-0.053	-0.05	B9.5V
107533	8335	81	Cyg	21	47	26.5	+49	23	27.8	4.23	-0.120	-0.13	B3III
107556	8322	49	Cap	21	48	0.3	-16	2	49.7	2.85	0.180	0.35	A5mF2 (IV)
108085	8353	γ	Gru	21	54	59.0	-37	16	54.3	3.00	-0.084	-0.10	B8III
108431	8368	δ	Ind	21	59	5.8	-54	54	30.8	4.40	0.297	0.35	F0IV
108874	8402	ο	Aqr	22	4	13.1	-02	4	13.0	4.74	-0.100	-0.03	B7IVe
108917	8417	17	Cep	22	4	17.9	+64	42	49.0	4.26	0.379	0.44	Am
108870	8387	ε	Ind	22	4	41.2	-56	42	47.1	4.69	1.056	1.15	K5V
109068	8413	ν	Peg	22	6	33.7	+05	8	40.7	4.86	1.443	1.45	K4III
109074	8414	α	Aqr	22	6	40.9	-00	14	3.3	2.95	0.969	0.92	G2Ib
109111	8411	λ	Gru	22	7	9.8	-39	27	29.6	4.47	1.349	1.31	M0III
109139	8418	33	Aqr	22	7	22.8	-13	47	3.0	4.29	-0.075	-0.06	B8V
109176	8430	24	Peg	22	7	49.6	+25	25	52.1	3.77	0.435	0.51	F5V
109268	8425	α	Gru	22	9	19.7	-46	52	31.9	1.73	-0.070	-0.05	B7IV
109285	8431	μ	PsA	22	9	24.0	-32	54	8.7	4.50	0.054	0.06	A2V
109289	8433	υ	PsA	22	9	27.1	-33	57	28.4	4.99	1.499	1.50	K4III
109400	8468	24	Cep	22	10	8.4	+72	25	39.4	4.79	0.919	0.91	G8III
109410	8454	π	Peg	22	10	46.0	+33	15	52.6	4.28	0.471	0.52	F5III
109427	8450	26	Peg	22	11	4.9	+06	17	4.4	3.52	0.086	0.09	A2V
109422	8447	τ	PsA	22	11	10.0	-32	27	42.5	4.94	0.489	0.54	F6V
109492	8465	ζ	Cep	22	11	27.8	+58	17	16.5	3.39	1.558	1.58	K1Ibv SB
109754	8485	***	***	22	14	37.9	+39	48	8.0	4.50	1.385	1.36	K3III
109857	8494	23	Cep	22	15	41.1	+57	7	52.5	4.18	0.278	0.33	F0IV
109908	8486	μ^1	Gru	22	16	39.8	-41	15	32.5	4.79	0.790	0.83	G8III+...
109937	8498	1	Lac	22	16	44.1	+37	50	10.9	4.14	1.447	1.33	K3III
110003	8499	43	Aqr	22	17	45.4	-07	41	44.2	4.17	0.979	0.95	G8III-IV
110130	8502	α	Tuc	22	19	41.1	-60	10	18.0	2.87	1.390	1.37	K3III
110351	8523	2	Lac	22	21	45.1	+46	37	30.4	4.55	-0.100	-0.10	B6V
110371	8522	32	Peg	22	22	7.9	+28	25	8.9	4.78	-0.010	0.06	B9III
110386	8520	31	Peg	22	22	22.8	+12	17	37.8	4.82	-0.132	-0.16	B2IV-V
110395	8518	48	Aqr	22	22	33.6	-01	17	55.1	3.86	-0.057	-0.06	A0V
110538	8538	3	Lac	22	24	15.1	+52	19	1.6	4.42	1.015	1.03	G9III
110609	8541	4	Lac	22	25	13.7	+49	33	55.9	4.55	0.092	0.18	B9Iab
110672	8539	π	Aqr	22	26	10.2	+01	28	0.1	4.80	-0.171	-0.18	B1Ve
110838	8540	δ	Tuc	22	28	33.5	-64	52	35.9	4.51	-0.029	-0.01	B8V
110882	8551	35	Peg	22	28	44.7	+04	47	2.0	4.78	1.039	1.07	K0III
110960	8558	ζ^1	Aqr	22	29	43.9	+00	4	12.3	3.65	0.406	0.50	F3III-IV
110991	8571	δ	Cep	22	29	49.5	+58	30	18.5	4.07	0.778	0.81	G2Ibvar
111022	8572	V412	Lac	22	30	15.8	+47	47	48.7	4.34	1.679	1.90	M0II
110997	8556	δ^1	Gru	22	30	18.5	-43	24	20.2	3.97	1.022	0.98	G6/G8III
111043	8560	δ^2	Gru	22	30	47.7	-43	39	33.0	4.12	1.570	2.49	M4.5IIIa
111104	8579	6	Lac	22	31	14.7	+43	12	48.5	4.52	-0.086	-0.09	B2IV
111123	8573	57	Aqr	22	31	34.3	-10	35	16.5	4.82	-0.053	-0.04	A0IVs
111169	8585	7	Lac	22	32	1.0	+50	22	22.2	3.76	0.031	0.05	A1V
111188	8576	β	PsA	22	32	29.8	-32	15	21.1	4.29	0.011	0.03	A1V
111310	8582	ν	Tuc	22	34	10.1	-61	53	30.0	4.91	1.612	2.50	M4III

Posiciones medias de estrellas brillantes, 2017

Estrella				α			δ						
NH	NY	nom		h	m	s	°	‘	“	V	U-B	B-V	Esp
111497	8597	62	Aqr	22	36	15.3	-00	1	36.7	4.04	-0.083	-0.07	B9IV-Vn
111674	8613	9	Lac	22	38	5.8	+51	38	9.0	4.64	0.254	0.28	A8IV
111841	8622	10	Lac	22	40	3.0	+39	8	30.2	4.89	-0.207	-0.23	O9V
111944	8632	11	Lac	22	41	17.1	+44	22	4.9	4.50	1.318	1.25	K3III
111954	8628	ε	PsA	22	41	37.2	-26	57	6.9	4.18	-0.105	-0.07	B8V
112029	8634	ζ	Peg	22	42	20.1	+10	55	23.2	3.41	-0.086	-0.06	B8.5V
112051	8641	o	Peg	22	42	34.8	+29	23	57.8	4.80	-0.013	0.02	A1IV
112122	8636	β	Gru	22	43	42.3	-46	47	33.4	2.07	1.610	2.60	M5III
112158	8650	η	Peg	22	43	49.5	+30	18	47.3	2.93	0.852	0.87	G2II-III..
112203	8644	ρ	Gru	22	44	30.5	-41	19	21.7	4.84	1.027	1.01	K0III
112211	8649	g	Aqr	22	44	31.6	-18	44	18.2	4.68	1.358	1.35	K3III
112374	8655	η	Gru	22	46	41.7	-53	24	27.5	4.84	1.180	1.21	K2IIICNIV
112519	8702	***	***	22	47	22.0	+83	14	47.9	4.77	1.257	1.25	K3III
112440	8667	47	Peg	22	47	22.6	+23	39	29.2	3.97	1.070	0.99	G8II-III
112447	8665	46	Peg	22	47	34.1	+12	15	46.9	4.20	0.502	0.60	F7V
112405	8630	β	Oct	22	47	45.0	-81	17	20.8	4.13	0.208	0.24	A9IV/V
112623	8675	ε	Gru	22	49	36.2	-51	13	27.8	3.49	0.083	0.10	A3V
112724	8694	32	Cep	22	50	18.5	+66	17	33.7	3.50	1.053	1.06	K0III
112716	8679	τ	Aqr	22	50	31.0	-13	29	59.7	4.05	1.570	1.72	K5III
112748	8684	μ	Peg	22	50	51.0	+24	41	39.6	3.51	0.933	0.89	M2III
112917	8699	15	Lac	22	52	49.6	+43	24	20.6	4.95	1.559	1.71	M0III
112948	8695	22	PsA	22	53	29.6	-32	46	56.4	4.46	-0.037	-0.01	A0III
112961	8698	λ	Aqr	22	53	31.6	-07	29	10.2	3.73	1.626	2.07	M2IIIvar
113116	8748	***	***	22	54	12.6	+84	26	23.0	4.70	1.418	1.38	K4III
113136	8709	δ	Aqr	22	55	34.6	-15	43	38.7	3.27	0.066	0.08	A3V
113186	8717	ρ	Peg	22	56	6.6	+08	54	35.7	4.91	-0.003	0.00	A1V
113246	8720	δ	PsA	22	56	54.8	-32	26	44.9	4.20	0.952	0.96	G8III
113288	8726	V424	Lac	22	57	12.3	+49	49	38.1	4.99	1.778	1.87	K5Ibvar
113368	8728	α	PsA	22	58	36.8	-29	31	44.9	1.17	0.145	0.16	A3V
113638	8747	ζ	Gru	23	1	54.3	-52	39	35.8	4.11	0.960	1.01	G8III
113726	8762	1	And	23	2	43.8	+42	25	13.2	3.62	-0.099	-0.05	B6pv SB
113881	8775	53	Peg	23	4	37.5	+28	10	40.8	2.44	1.655	2.31	M2II-IIIvar
113889	8773	4	Psc	23	4	46.1	+03	54	52.4	4.48	-0.115	-0.09	B6Ve
113919	8780	3	And	23	4	58.4	+50	8	50.9	4.64	1.058	1.02	K0III
113963	8781	54	Peg	23	5	38.0	+15	17	58.9	2.49	-0.002	0.00	B9.5III
114104	8797	1	Cas	23	7	21.6	+59	30	52.4	4.84	-0.060	-0.02	B0.5IV
114119	8789	86	Aqr	23	7	37.1	-23	38	53.8	4.48	0.892	0.92	G8III
114131	8787	θ	Gru	23	7	51.5	-43	25	32.1	4.28	0.423	0.44	F5me...
114144	8795	55	Peg	23	7	53.2	+09	30	15.4	4.54	1.559	1.79	M2III
114155	8796	56	Peg	23	7	58.0	+25	33	46.7	4.76	1.285	1.30	K0IIp
114222	8819	33	Cep	23	8	27.5	+75	28	56.1	4.41	0.802	0.84	G2III
114341	8812	c^2	Aqr	23	10	22.6	-21	4	37.8	3.68	1.202	1.16	K1III
114375	8817	89	Aqr	23	10	50.8	-22	21	45.1	4.71	0.674	0.75	A3IV:
114421	8820	ι	Gru	23	11	20.6	-45	9	6.0	3.88	0.998	0.95	K0III SB
114570	8830	7	And	23	13	21.4	+49	30	7.3	4.53	0.302	0.35	F0V
114724	8834	90	Aqr	23	15	13.7	-05	57	16.0	4.22	1.545	1.89	M2III
114855	8841	ψ^1	Aqr	23	16	48.4	-08	59	31.8	4.24	1.107	1.06	K0III
114939	8850	92	Aqr	23	17	45.3	-07	37	51.1	4.93	1.613	2.56	M3III
114971	8852	6	Psc	23	18	4.4	+03	22	41.3	3.70	0.916	0.97	G7III
114996	8848	γ	Tuc	23	18	26.4	-58	8	22.5	3.99	0.410	0.50	F1III
115022	8860	8	And	23	18	33.6	+49	6	40.0	4.82	1.668	2.14	M2III
115033	8858	ψ^2	Aqr	23	18	48.7	-09	5	12.3	4.41	-0.144	-0.14	B5Vn
115088	8872	34	Cep	23	19	21.1	+68	12	26.5	4.75	0.836	0.86	K0III
115102	8863	γ	Scl	23	19	45.9	-32	26	11.5	4.41	1.109	1.08	K1III
115115	8865	ψ^3	Aqr	23	19	52.2	-09	30	53.6	4.99	-0.022	0.00	A0V

Posiciones medias de estrellas brillantes, 2017

Estrella				α			δ						
NH	NY	nom		h	m	s	º	‘	“	V	U-B	B-V	Esp
115250	8880	τ	Peg	23	21	30.3	+23	50	10.7	4.58	0.180	0.23	A5V
115438	8892	b^1	Aqr	23	23	53.2	-20	0	17.6	3.96	1.082	1.10	K0III
115590	8904	4	Cas	23	25	37.4	+62	22	44.5	4.96	1.676	1.94	M1III
115623	8905	υ	Peg	23	26	15.3	+23	30	2.2	4.42	0.617	0.67	F8IV
115669	8906	b^2	Aqr	23	26	57.8	-20	32	45.4	4.38	1.460	1.52	K4III
115738	8911	8	Psc	23	27	49.8	+01	21	5.7	4.95	0.036	0.01	A0p
115830	8916	10	Psc	23	28	51.4	+06	28	31.0	4.27	1.062	1.03	K1III
115919	8923	70	Peg	23	30	2.5	+12	51	26.0	4.54	0.939	0.93	G8III
115990	8926	AR	Cas	23	30	50.9	+58	38	43.9	4.89	-0.122	-0.11	B3IV
116231	8937	β	Scl	23	33	54.3	-37	43	16.8	4.38	-0.095	-0.09	B9.5IVMNpe.
116247	8939	101	Aqr	23	34	11.4	-20	49	3.7	4.70	0.020	0.03	A0V
116310	8943	72	Peg	23	34	49.5	+31	25	19.2	4.97	1.383	1.36	K4III
116389	8949	ι	Phe	23	36	0.7	-42	31	5.4	4.69	0.078	0.10	A2V
116584	8961	λ	And	23	38	25.6	+46	33	11.0	3.81	0.984	0.96	G8III-IV
116602	8959	***	***	23	38	47.2	-45	23	43.6	4.74	0.082	0.08	A2V
116631	8965	17	And	23	38	60.0	+43	21	54.2	4.29	-0.083	-0.06	B8V
116727	8974	35	Cep	23	40	4.9	+77	43	47.7	3.21	1.031	0.99	K1IV
116758	8968	102	Aqr	23	40	41.4	-14	7	31.4	4.97	0.257	0.29	A7IV
116771	8969	17	Psc	23	40	51.1	+05	43	16.4	4.13	0.507	0.59	F7V
116805	8976	19	And	23	41	16.5	+44	25	51.3	4.15	-0.071	-0.06	B9IVn
116901	8982	104	Aqr	23	42	40.2	-17	43	9.9	4.82	0.822	0.81	G2Ib/II
116928	8984	λ	Psc	23	42	56.4	+01	52	35.1	4.49	0.200	0.22	A7V
116971	8988	105	Aqr	23	43	37.7	-14	26	53.1	4.49	-0.032	-0.04	B9V
117073	8997	78	Peg	23	44	52.5	+29	27	30.4	4.93	0.935	0.93	K0III
117221	9003	ψ	And	23	46	54.4	+46	31	2.9	4.97	1.086	1.05	G5Ib
117245	9004	TX	Psc	23	47	17.2	+03	35	2.2	4.95	2.508	2.57	C5II
117301	9008	τ	Cas	23	47	55.3	+58	44	58.3	4.88	1.122	1.08	K1III
117452	9016	δ	Scl	23	49	50.1	-28	2	0.5	4.59	0.001	-0.01	A0V
117863	9045	7	Cas	23	55	16.0	+57	35	48.3	4.51	1.190	1.15	F8Iavar
118121	9062	η	Tuc	23	58	29.5	-64	12	4.0	5.00	0.060	0.07	A1V
118131	9064	ψ	Peg	23	58	39.2	+25	14	19.1	4.63	1.584	2.21	M3III
118209	9067	27	Psc	23	59	34.1	-03	27	32.1	4.88	0.930	0.92	G9III
118243	9071	σ	Cas	23	59	54.3	+55	51	8.3	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, 2017 (a las 0h del meridiano 90° W.G.)

θ SCL

5.25 F4V

		α	α_c	δ	
		h m	h m	° ′	
		00	12 00	11-35	-1 hp
mes	d	s	s	“	h
ene	1	34.66	42.78	93.27	18.5
ene	7	34.55	42.62	93.45	18.1
ene	13	34.47	42.47	93.18	17.7
ene	19	34.38	42.33	93.05	17.3
ene	25	34.29	42.18	92.69	16.9
ene	31	34.22	42.06	92.14	16.5
feb	6	34.13	41.94	91.58	16.1
feb	12	34.10	41.84	90.68	15.7
feb	18	34.02	41.75	89.96	15.3
feb	24	33.99	41.67	88.86	14.9
mar	2	33.95	41.61	87.87	14.5
mar	8	33.95	41.56	86.56	14.1
mar	14	33.94	41.53	85.33	13.7
mar	20	33.94	41.51	84.01	13.3
mar	26	33.98	41.51	82.48	12.9
abr	1	34.01	41.52	81.07	12.5
abr	7	34.09	41.55	79.35	12.1
abr	13	34.15	41.59	77.91	11.7
abr	19	34.25	41.65	76.18	11.3
abr	25	34.35	41.72	74.60	11.0
may	1	34.48	41.80	72.84	10.6
may	7	34.63	41.91	71.20	10.2
may	13	34.77	42.01	69.65	9.8
may	19	34.95	42.13	67.95	9.4
may	25	35.11	42.25	66.52	9.0
may	31	35.33	42.39	64.82	8.6
jun	6	35.51	42.53	63.56	8.2
jun	12	35.72	42.67	62.16	7.8
jun	18	35.93	42.83	60.97	7.4
jun	24	36.14	42.97	59.82	7.1
jun	30	36.37	43.14	58.75	6.7
jul	6	36.56	43.28	57.99	6.3
jul	12	36.79	43.44	57.16	5.9
jul	18	36.97	43.59	56.72	5.5
jul	24	37.20	43.73	56.09	5.1
jul	30	37.37	43.87	55.95	4.7
ago	5	37.55	43.99	55.79	4.3
ago	11	37.72	44.12	55.83	4.0
ago	17	37.85	44.22	56.07	3.6
ago	23	38.01	44.33	56.29	3.2
ago	29	38.11	44.41	56.91	2.8
sep	4	38.23	44.48	57.42	2.4
sep	10	38.29	44.53	58.30	2.0
sep	16	38.38	44.57	59.00	1.6
sep	22	38.42	44.59	60.05	1.2
sep	28	38.45	44.59	61.09	0.8
oct	4	38.48	44.58	62.16	0.4
oct	10	38.46	44.55	63.39	0.0
oct	16	38.48	44.51	64.43	23.6
oct	22	38.42	44.44	65.79	23.2
oct	28	38.40	44.36	66.87	22.8
nov	3	38.33	44.27	68.15	22.4
nov	9	38.28	44.15	69.13	22.1
nov	15	38.21	44.04	70.25	21.7
nov	21	38.12	43.90	71.27	21.3
nov	27	38.04	43.76	72.11	20.9
dic	3	37.93	43.61	73.02	20.5
dic	9	37.87	43.45	73.50	20.1
dic	15	37.75	43.29	74.23	19.7
dic	21	37.66	43.13	74.56	19.3
dic	27	37.56	42.97	74.95	18.9

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	54.85	2.97	52.89	19.2
ene	7	54.60	2.68	52.63	18.8
ene	13	54.38	2.37	51.87	18.4
ene	19	54.16	2.11	51.18	18.0
ene	25	53.93	1.83	50.21	17.6
ene	31	53.77	1.61	49.00	17.2
feb	6	53.56	1.37	47.74	16.8
feb	12	53.44	1.18	46.11	16.4
feb	18	53.28	1.00	44.65	16.0
feb	24	53.17	0.85	42.79	15.6
mar	2	53.08	0.74	41.02	15.2
mar	8	53.02	0.62	38.94	14.8
mar	14	52.99	0.58	36.95	14.4
mar	20	52.95	0.52	34.91	14.0
mar	26	53.00	0.52	32.67	13.6
abr	1	53.01	0.53	30.60	13.2
abr	7	53.12	0.58	28.24	12.8
abr	13	53.21	0.65	26.23	12.4
abr	19	53.34	0.74	23.98	12.0
abr	25	53.51	0.88	21.92	11.6
may	1	53.69	1.01	19.75	11.2
may	7	53.93	1.21	17.77	10.9
may	13	54.14	1.38	15.95	10.5
may	19	54.43	1.61	14.04	10.1
may	25	54.70	1.84	12.47	9.7
may	31	55.04	2.09	10.70	9.3
jun	6	55.35	2.37	9.45	8.9
jun	12	55.68	2.63	8.13	8.5
jun	18	56.04	2.94	7.08	8.2
jun	24	56.38	3.21	6.14	7.8
jun	30	56.77	3.54	5.35	7.4
jul	6	57.10	3.82	4.94	7.0
jul	12	57.48	4.13	4.50	6.6
jul	18	57.81	4.43	4.51	6.2
jul	24	58.17	4.71	4.39	5.9
jul	30	58.50	5.00	4.79	5.5
ago	5	58.80	5.24	5.23	5.1
ago	11	59.10	5.51	5.89	4.7
ago	17	59.34	5.71	6.77	4.3
ago	23	59.63	5.94	7.67	3.9
ago	29	59.81	6.10	8.99	3.5
sep	4	60.01	6.25	10.19	1.4
sep	10	60.15	6.38	11.77	1.1
sep	16	60.28	6.46	13.17	0.7
sep	22	60.37	6.54	14.90	0.3
sep	28	60.40	6.54	16.61	23.9
oct	4	60.44	6.54	18.31	23.5
oct	10	60.40	6.48	20.14	23.1
oct	16	60.39	6.41	21.74	22.7
oct	22	60.28	6.29	23.61	22.3
oct	28	60.18	6.14	25.15	21.9
nov	3	60.04	5.98	26.81	21.5
nov	9	59.89	5.76	28.13	22.8
nov	15	59.72	5.55	29.51	22.4
nov	21	59.50	5.28	30.72	22.0
nov	27	59.31	5.02	31.65	21.6
dic	3	59.05	4.73	32.59	21.2
dic	9	58.86	4.44	33.01	20.8
dic	15	58.59	4.14	33.61	20.4
dic	21	58.35	3.82	33.73	20.0
dic	27	58.11	3.53	33.81	19.6

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	33.98	42.10	55.46	18.7
ene	7	33.46	41.54	55.06	18.3
ene	13	32.96	40.95	54.15	17.8
ene	19	32.50	40.45	53.30	17.4
ene	25	32.01	39.90	52.17	17.0
ene	31	31.63	39.47	50.77	16.6
feb	6	31.20	39.00	49.35	16.2
feb	12	30.90	38.64	47.53	15.8
feb	18	30.56	38.29	45.90	15.4
feb	24	30.30	37.98	43.86	15.0
mar	2	30.10	37.76	41.92	14.6
mar	8	29.92	37.53	39.69	14.2
mar	14	29.84	37.43	37.55	13.8
mar	20	29.73	37.30	35.37	13.4
mar	26	29.77	37.29	33.01	13.0
abr	1	29.77	37.28	30.83	12.6
abr	7	29.92	37.37	28.38	12.2
abr	13	30.05	37.50	26.28	11.9
abr	19	30.25	37.65	23.98	11.5
abr	25	30.54	37.91	21.87	11.1
may	1	30.82	38.14	19.68	10.7
may	7	31.23	38.51	17.69	10.3
may	13	31.59	38.83	15.88	9.9
may	19	32.08	39.25	14.00	9.5
may	25	32.54	39.69	12.49	9.2
may	31	33.11	40.16	10.78	8.8
jun	6	33.66	40.68	9.61	8.4
jun	12	34.22	41.17	8.39	8.0
jun	18	34.87	41.77	7.44	7.7
jun	24	35.45	42.28	6.64	7.3
jun	30	36.15	42.91	5.98	6.9
jul	6	36.73	43.46	5.72	6.5
jul	12	37.40	44.04	5.44	6.1
jul	18	38.01	44.63	5.62	5.8
jul	24	38.64	45.17	5.67	5.4
jul	30	39.24	45.74	6.26	5.0
ago	5	39.77	46.21	6.88	4.6
ago	11	40.34	46.74	7.72	4.3
ago	17	40.78	47.15	8.80	3.9
ago	23	41.28	47.60	9.88	3.5
ago	29	41.63	47.93	11.39	3.1
sep	4	41.98	48.23	12.78	2.7
sep	10	42.26	48.50	14.53	2.3
sep	16	42.47	48.66	16.10	2.0
sep	22	42.65	48.82	18.00	1.6
sep	28	42.70	48.84	19.86	1.2
oct	4	42.76	48.87	21.69	0.8
oct	10	42.67	48.76	23.65	0.4
oct	16	42.62	48.65	25.36	24.0
oct	22	42.42	48.43	27.33	23.6
oct	28	42.19	48.15	28.94	23.2
nov	3	41.92	47.86	30.67	22.8
nov	9	41.57	47.44	32.02	22.4
nov	15	41.23	47.06	33.42	22.0
nov	21	40.75	46.53	34.64	21.6
nov	27	40.34	46.06	35.55	21.2
dic	3	39.82	45.49	36.45	20.8
dic	9	39.37	44.95	36.81	20.3
dic	15	38.82	44.37	37.34	19.9
dic	21	38.29	43.75	37.36	19.5
dic	27	37.79	43.20	37.33	19.1

Posiciones aparentes de estrellas brillantes, 2017 (a las 0^h del meridiano 90° W.G.)

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	25.97	34.09	48.93	18.7
ene	7	25.88	33.95	49.40	18.3
ene	13	25.82	33.81	49.51	17.9
ene	19	25.73	33.68	49.76	17.5
ene	25	25.65	33.55	49.87	17.2
ene	31	25.58	33.42	49.79	16.8
feb	6	25.50	33.31	49.77	16.4
feb	12	25.46	33.20	49.41	16.0
feb	18	25.38	33.10	49.26	15.6
feb	24	25.34	33.01	48.76	15.2
mar	2	25.28	32.94	48.36	14.8
mar	8	25.27	32.88	47.66	14.4
mar	14	25.24	32.83	47.01	14.0
mar	20	25.23	32.79	46.30	13.6
mar	26	25.24	32.77	45.34	13.2
abr	1	25.25	32.76	44.50	12.8
abr	7	25.31	32.76	43.29	12.4
abr	13	25.33	32.78	42.33	12.0
abr	19	25.41	32.81	41.08	11.6
abr	25	25.48	32.86	39.88	11.2
may	1	25.59	32.91	38.51	10.8
may	7	25.71	32.98	37.16	10.4
may	13	25.82	33.06	35.88	10.1
may	19	25.97	33.15	34.38	9.7
may	25	26.10	33.25	33.10	9.3
may	31	26.30	33.35	31.48	8.9
jun	6	26.45	33.47	30.24	8.5
jun	12	26.63	33.58	28.82	8.1
jun	18	26.81	33.71	27.51	7.7
jun	24	27.00	33.84	26.23	7.3
jun	30	27.21	33.97	24.93	6.9
jul	6	27.38	34.10	23.91	6.6
jul	12	27.59	34.23	22.75	6.2
jul	18	27.75	34.36	21.94	5.8
jul	24	27.96	34.49	20.90	5.4
jul	30	28.12	34.62	20.28	5.0
ago	5	28.29	34.73	19.65	4.6
ago	11	28.45	34.85	19.15	4.2
ago	17	28.58	34.95	18.85	3.8
ago	23	28.74	35.05	18.48	3.4
ago	29	28.84	35.14	18.52	3.0
sep	4	28.96	35.21	18.43	2.7
sep	10	29.04	35.27	18.71	2.3
sep	16	29.14	35.32	18.84	1.9
sep	22	29.19	35.36	19.28	1.5
sep	28	29.25	35.38	19.78	1.1
oct	4	29.29	35.39	20.29	0.7
oct	10	29.30	35.39	21.03	0.3
oct	16	29.34	35.37	21.58	23.9
oct	22	29.32	35.33	22.51	23.5
oct	28	29.32	35.28	23.20	23.1
nov	3	29.28	35.22	24.13	22.7
nov	9	29.27	35.14	24.85	22.3
nov	15	29.23	35.06	25.72	21.9
nov	21	29.18	34.96	26.59	21.5
nov	27	29.13	34.85	27.30	21.1
dic	3	29.05	34.73	28.18	20.7
dic	9	29.02	34.60	28.66	20.4
dic	15	28.93	34.47	29.46	20.0
dic	21	28.87	34.33	29.95	19.6
dic	27	28.78	34.20	30.52	19.2

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	58.25	6.37	80.87	19.8
ene	7	58.15	6.23	81.40	19.4
ene	13	58.10	6.09	81.60	19.0
ene	19	58.01	5.96	81.95	18.6
ene	25	57.93	5.83	82.20	18.2
ene	31	57.87	5.71	82.28	17.8
feb	6	57.78	5.59	82.45	17.4
feb	12	57.74	5.48	82.27	17.0
feb	18	57.66	5.39	82.35	16.6
feb	24	57.62	5.30	82.08	16.2
mar	2	57.56	5.22	81.91	15.8
mar	8	57.55	5.15	81.48	15.4
mar	14	57.52	5.10	81.08	15.0
mar	20	57.50	5.06	80.64	14.6
mar	26	57.51	5.04	79.95	14.2
abr	1	57.51	5.02	79.38	13.8
abr	7	57.57	5.02	78.43	13.4
abr	13	57.59	5.04	77.72	13.0
abr	19	57.66	5.06	76.70	12.6
abr	25	57.73	5.10	75.74	12.3
may	1	57.84	5.15	74.58	11.9
may	7	57.94	5.22	73.42	11.5
may	13	58.05	5.29	72.33	11.1
may	19	58.20	5.37	70.99	10.7
may	25	58.32	5.47	69.85	10.3
may	31	58.51	5.57	68.35	9.9
jun	6	58.66	5.68	67.19	9.5
jun	12	58.84	5.79	65.85	9.1
jun	18	59.01	5.91	64.57	8.7
jun	24	59.20	6.03	63.32	8.4
jun	30	59.40	6.16	62.00	8.0
jul	6	59.57	6.29	60.95	7.6
jul	12	59.77	6.41	59.73	7.2
jul	18	59.93	6.54	58.83	6.8
jul	24	60.13	6.67	57.69	4.7
jul	30	60.29	6.79	56.94	4.3
ago	5	60.46	6.90	56.15	3.9
ago	11	60.61	7.01	55.48	3.5
ago	17	60.74	7.11	55.00	3.2
ago	23	60.90	7.21	54.42	2.8
ago	29	61.00	7.29	54.24	2.4
sep	4	61.12	7.37	53.93	2.0
sep	10	61.19	7.43	53.96	1.6
sep	16	61.30	7.48	53.84	1.2
sep	22	61.36	7.52	54.04	0.8
sep	28	61.41	7.55	54.28	0.4
oct	4	61.46	7.56	54.54	0.0
oct	10	61.47	7.56	55.04	23.6
oct	16	61.52	7.54	55.34	23.2
oct	22	61.50	7.51	56.04	22.8
oct	28	61.51	7.47	56.52	22.4
nov	3	61.48	7.41	57.24	22.0
nov	9	61.47	7.34	57.77	21.7
nov	15	61.43	7.26	58.46	21.3
nov	21	61.39	7.17	59.19	20.9
nov	27	61.35	7.07	59.77	20.5
dic	3	61.28	6.95	60.55	20.1
dic	9	61.25	6.83	60.96	19.7
dic	15	61.17	6.71	61.71	19.3
dic	21	61.11	6.58	62.18	18.9
dic	27	61.03	6.44	62.75	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	26.40	34.52	43.44	19.2
ene	7	26.31	34.39	44.00	18.8
ene	13	26.26	34.25	44.24	18.4
ene	19	26.16	34.12	44.61	18.0
ene	25	26.08	33.98	44.90	17.6
ene	31	26.01	33.85	45.00	17.2
feb	6	25.92	33.73	45.21	16.8
feb	12	25.87	33.62	45.06	16.4
feb	18	25.78	33.51	45.17	16.0
feb	24	25.74	33.41	44.93	15.6
mar	2	25.67	33.33	44.78	15.2
mar	8	25.64	33.25	44.39	14.8
mar	14	25.60	33.19	44.00	14.4
mar	20	25.57	33.14	43.60	14.0
mar	26	25.58	33.10	42.93	13.6
abr	1	25.57	33.08	42.39	13.2
abr	7	25.61	33.07	41.46	12.8
abr	13	25.62	33.07	40.78	12.4
abr	19	25.68	33.08	39.79	12.0
abr	25	25.74	33.11	38.83	11.7
may	1	25.84	33.15	37.70	11.3
may	7	25.93	33.21	36.54	10.9
may	13	26.03	33.27	35.47	10.5
may	19	26.17	33.35	34.13	10.1
may	25	26.29	33.43	32.99	9.7
may	31	26.47	33.53	31.49	9.3
jun	6	26.61	33.63	30.32	8.9
jun	12	26.79	33.74	28.97	8.5
jun	18	26.96	33.85	27.68	8.1
jun	24	27.14	33.97	26.41	7.8
jun	30	27.34	34.10	25.06	7.4
jul	6	27.50	34.23	23.99	7.0
jul	12	27.71	34.35	22.73	6.6
jul	18	27.87	34.48	21.80	6.2
jul	24	28.08	34.61	20.63	5.8
jul	30	28.23	34.73	19.83	5.4
ago	5	28.41	34.85	19.01	5.0
ago	11	28.57	34.97	18.28	4.6
ago	17	28.71	35.08	17.77	4.2
ago	23	28.87	35.18	17.14	3.9
ago	29	28.98	35.28	16.93	3.5
sep	4	29.11	35.36	16.58	3.1
sep	10	29.20	35.43	16.57	2.7
sep	16	29.31	35.50	16.43	2.3
sep	22	29.38	35.55	16.59	1.9
sep	28	29.45	35.58	16.82	1.5
oct	4	29.50	35.61	17.05	1.1
oct	10	29.53	35.62	17.54	0.7
oct	16	29.59	35.62	17.83	0.3
oct	22	29.58	35.60	18.52	23.9
oct	28	29.60	35.56	19.01	23.5
nov	3	29.58	35.52	19.72	23.1
nov	9	29.59	35.46	20.28	22.8
nov	15	29.56	35.39	20.97	22.4
nov	21	29.53	35.31	21.73	22.0
nov	27	29.50	35.21	22.33	21.6
dic	3	29.43	35.11	23.14	21.2
dic	9	29.41	34.99	23.57	20.8
dic	15	29.33	34.87	24.34	20.4
dic	21	29.28	34.74	24.85	20.0
dic	27	29.20	34.61	25.44	19.6

Posiciones aparentes de estrellas brillantes, 2017 (a las 0h del meridiano 90° W.G.)

θ CET

3.61 K0 IIIB

α = 01 24 α_c = 01 23 δ = -08 05 hp

mes	d	s	s	"	h
ene	1	52.23	0.35	55.50	20.2
ene	7	52.13	0.21	56.08	19.8
ene	13	52.08	0.07	56.36	19.4
ene	19	51.99	59.94	56.76	19.0
ene	25	51.91	59.80	57.10	18.6
ene	31	51.83	59.67	57.24	18.2
feb	6	51.74	59.54	57.51	17.8
feb	12	51.68	59.43	57.42	17.4
feb	18	51.59	59.31	57.59	17.0
feb	24	51.53	59.21	57.43	16.6
mar	2	51.46	59.12	57.34	16.2
mar	8	51.42	59.03	57.03	15.8
mar	14	51.37	58.96	56.71	15.4
mar	20	51.34	58.90	56.40	15.0
mar	26	51.33	58.85	55.80	14.6
abr	1	51.31	58.82	55.35	14.2
abr	7	51.34	58.80	54.50	13.8
abr	13	51.34	58.79	53.90	13.4
abr	19	51.40	58.80	52.99	13.0
abr	25	51.44	58.82	52.10	12.6
may	1	51.53	58.85	51.06	12.2
may	7	51.62	58.89	49.95	11.9
may	13	51.71	58.95	48.94	11.5
may	19	51.84	59.02	47.65	11.1
may	25	51.95	59.09	46.56	10.7
may	31	52.13	59.18	45.10	10.3
jun	6	52.26	59.28	43.96	9.9
jun	12	52.43	59.38	42.65	9.5
jun	18	52.60	59.49	41.35	9.1
jun	24	52.78	59.61	40.10	8.7
jun	30	52.97	59.73	38.74	8.3
jul	6	53.14	59.86	37.67	8.0
jul	12	53.34	59.98	36.39	7.6
jul	18	53.50	0.11	35.42	7.2
jul	24	53.71	0.24	34.22	6.8
jul	30	53.86	0.37	33.37	6.4
ago	5	54.04	0.49	32.51	6.0
ago	11	54.20	0.61	31.72	5.6
ago	17	54.35	0.72	31.16	5.2
ago	23	54.51	0.83	30.45	4.8
ago	29	54.63	0.93	30.18	4.5
sep	4	54.77	1.02	29.75	4.1
sep	10	54.86	1.10	29.67	3.7
sep	16	54.98	1.17	29.47	3.3
sep	22	55.06	1.23	29.53	2.9
sep	28	55.13	1.27	29.70	2.5
oct	4	55.20	1.30	29.86	2.1
oct	10	55.24	1.32	30.29	1.7
oct	16	55.30	1.33	30.51	1.3
oct	22	55.31	1.32	31.15	0.9
oct	28	55.34	1.30	31.58	0.5
nov	3	55.33	1.26	32.24	0.1
nov	9	55.34	1.21	32.77	23.7
nov	15	55.32	1.15	33.42	23.3
nov	21	55.29	1.07	34.15	23.0
nov	27	55.27	0.99	34.73	22.6
dic	3	55.21	0.89	35.52	22.2
dic	9	55.20	0.78	35.95	21.8
dic	15	55.12	0.67	36.72	21.4
dic	21	55.08	0.54	37.24	21.0
dic	27	55.00	0.41	37.83	20.6

δ CAS

2.6 A5 III-IV

α = 01 26 α_c = 01 26 δ = +60 18 hp

mes	d	s	s	"	h
ene	1	57.60	5.72	34.13	20.3
ene	7	57.37	5.44	34.20	19.9
ene	13	57.20	5.20	34.31	19.5
ene	19	56.96	4.91	34.07	19.1
ene	25	56.76	4.66	33.65	18.7
ene	31	56.53	4.38	33.16	18.3
feb	6	56.32	4.13	32.29	17.9
feb	12	56.14	3.88	31.55	17.5
feb	18	55.92	3.65	30.35	17.1
feb	24	55.77	3.45	29.25	16.7
mar	2	55.58	3.24	27.87	16.3
mar	8	55.48	3.09	26.53	15.9
mar	14	55.34	2.93	25.07	15.5
mar	20	55.26	2.83	23.47	15.1
mar	26	55.20	2.73	22.03	14.8
abr	1	55.16	2.68	20.34	14.4
abr	7	55.19	2.65	18.98	14.0
abr	13	55.20	2.64	17.35	13.6
abr	19	55.29	2.69	15.99	13.2
abr	25	55.35	2.73	14.62	12.8
may	1	55.52	2.84	13.41	12.4
may	7	55.66	2.93	12.34	12.0
may	13	55.84	3.08	11.24	11.6
may	19	56.06	3.24	10.51	11.2
may	25	56.27	3.41	9.68	10.8
may	31	56.57	3.62	9.36	10.5
jun	6	56.81	3.83	8.88	10.1
jun	12	57.12	4.07	8.73	9.7
jun	18	57.39	4.29	8.73	9.3
jun	24	57.73	4.56	8.86	8.9
jun	30	58.04	4.80	9.32	8.5
jul	6	58.35	5.07	9.70	8.1
jul	12	58.68	5.33	10.49	7.8
jul	18	58.97	5.58	11.18	7.4
jul	24	59.32	5.86	12.32	7.0
jul	30	59.59	6.09	13.36	6.6
ago	5	59.91	6.35	14.61	6.2
ago	11	60.17	6.57	16.02	4.1
ago	17	60.44	6.81	17.39	3.7
ago	23	60.70	7.01	19.13	3.4
ago	29	60.92	7.21	20.64	3.0
sep	4	61.15	7.40	22.48	2.6
sep	10	61.31	7.55	24.15	2.2
sep	16	61.53	7.71	26.09	1.8
sep	22	61.65	7.82	27.92	1.4
sep	28	61.80	7.93	29.78	1.0
oct	4	61.89	8.00	31.74	0.6
oct	10	61.98	8.06	33.50	0.2
oct	16	62.06	8.09	35.54	23.8
oct	22	62.08	8.10	37.22	23.5
oct	28	62.13	8.09	39.10	23.1
nov	3	62.09	8.02	40.73	22.7
nov	9	62.11	7.97	42.46	22.3
nov	15	62.03	7.86	44.01	21.9
nov	21	61.98	7.76	45.39	21.5
nov	27	61.88	7.60	46.81	21.1
dic	3	61.76	7.43	47.84	20.7
dic	9	61.67	7.25	49.11	20.3
dic	15	61.49	7.03	49.85	19.9
dic	21	61.35	6.82	50.65	19.5
dic	27	61.14	6.56	51.14	19.1

ν PSC

4.4 K3 IIIB

α = 01 42 α_c = 01 41 δ = +05 33 hp

mes	d	s	s	"	h
ene	1	19.12	27.24	17.23	19.5
ene	7	19.02	27.10	16.72	19.1
ene	13	18.98	26.97	16.43	18.7
ene	19	18.88	26.83	15.99	18.3
ene	25	18.80	26.70	15.54	17.9
ene	31	18.72	26.56	15.26	17.5
feb	6	18.62	26.43	14.78	17.1
feb	12	18.56	26.31	14.63	16.7
feb	18	18.46	26.19	14.17	16.3
feb	24	18.40	26.08	14.00	15.9
mar	2	18.32	25.97	13.72	15.5
mar	8	18.28	25.89	13.61	15.1
mar	14	18.22	25.80	13.52	14.8
mar	20	18.17	25.74	13.37	14.4
mar	26	18.15	25.68	13.51	14.0
abr	1	18.13	25.64	13.47	13.6
abr	7	18.15	25.61	13.82	13.2
abr	13	18.15	25.60	13.88	12.8
abr	19	18.19	25.59	14.25	12.4
abr	25	18.22	25.60	14.71	12.0
may	1	18.31	25.63	15.26	11.6
may	7	18.39	25.66	15.93	11.2
may	13	18.47	25.71	16.49	10.8
may	19	18.60	25.77	17.38	10.4
may	25	18.70	25.85	18.08	10.0
may	31	18.88	25.93	19.19	9.6
jun	6	19.00	26.02	20.03	9.3
jun	12	19.17	26.12	21.07	8.9
jun	18	19.33	26.23	22.15	8.5
jun	24	19.51	26.35	23.21	8.1
jun	30	19.70	26.47	24.46	7.7
jul	6	19.87	26.59	25.44	7.3
jul	12	20.07	26.71	26.69	6.9
jul	18	20.23	26.84	27.67	6.5
jul	24	20.44	26.97	28.93	6.1
jul	30	20.60	27.10	29.91	5.8
ago	5	20.78	27.22	30.92	5.4
ago	11	20.94	27.35	31.93	5.0
ago	17	21.09	27.46	32.74	4.6
ago	23	21.26	27.58	33.74	4.2
ago	29	21.38	27.68	34.34	3.8
sep	4	21.53	27.78	35.13	3.4
sep	10	21.63	27.87	35.62	3.0
sep	16	21.76	27.95	36.24	2.6
sep	22	21.85	28.01	36.63	2.2
sep	28	21.93	28.07	36.92	1.8
oct	4	22.01	28.12	37.25	1.5
oct	10	22.06	28.15	37.30	1.1
oct	16	22.14	28.17	37.57	0.7
oct	22	22.16	28.17	37.43	0.3
oct	28	22.20	28.16	37.47	23.9
nov	3	22.20	28.14	37.29	23.5
nov	9	22.24	28.10	37.20	23.1
nov	15	22.22	28.05	37.00	22.7
nov	21	22.21	27.99	36.66	22.3
nov	27	22.20	27.92	36.46	21.9
dic	3	22.15	27.83	35.99	21.5
dic	9	22.15	27.73	35.86	21.1
dic	15	22.08	27.63	35.34	20.7
dic	21	22.05	27.51	35.03	20.3
dic	27	21.97	27.39	34.60	19.9

Posiciones aparentes de estrellas brillantes, 2017 (a las 0^h del meridiano 90° W.G.)

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	51.34	59.46	67.85	20.5
ene	7	51.25	59.32	68.44	20.1
ene	13	51.18	59.18	68.74	19.7
ene	19	51.08	59.04	69.10	19.3
ene	25	50.99	58.89	69.39	18.9
ene	31	50.91	58.75	69.43	18.5
feb	6	50.81	58.61	69.58	18.1
feb	12	50.74	58.48	69.33	17.7
feb	18	50.63	58.36	69.33	17.3
feb	24	50.57	58.24	68.97	16.9
mar	2	50.48	58.14	68.66	16.5
mar	8	50.43	58.04	68.12	16.1
mar	14	50.37	57.95	67.54	15.7
mar	20	50.31	57.88	66.97	15.3
mar	26	50.29	57.82	66.09	14.9
abr	1	50.26	57.77	65.36	14.5
abr	7	50.28	57.73	64.23	14.1
abr	13	50.26	57.71	63.35	13.7
abr	19	50.30	57.70	62.18	13.3
abr	25	50.34	57.71	61.00	12.9
may	1	50.41	57.72	59.72	12.5
may	7	50.48	57.76	58.35	12.2
may	13	50.56	57.80	57.11	11.8
may	19	50.68	57.86	55.59	11.4
may	25	50.79	57.93	54.29	11.0
may	31	50.95	58.01	52.65	10.6
jun	6	51.07	58.10	51.33	10.2
jun	12	51.24	58.19	49.87	9.8
jun	18	51.40	58.30	48.43	9.4
jun	24	51.58	58.41	47.09	9.0
jun	30	51.77	58.53	45.62	8.6
jul	6	51.93	58.65	44.50	8.3
jul	12	52.13	58.78	43.18	7.9
jul	18	52.29	58.91	42.20	7.5
jul	24	52.51	59.04	41.02	7.1
jul	30	52.67	59.17	40.19	6.7
ago	5	52.85	59.29	39.41	6.3
ago	11	53.02	59.42	38.69	5.9
ago	17	53.17	59.54	38.25	5.5
ago	23	53.34	59.66	37.67	5.1
ago	29	53.46	59.76	37.55	4.8
sep	4	53.61	59.86	37.31	4.4
sep	10	53.71	59.95	37.41	4.0
sep	16	53.84	0.03	37.43	3.6
sep	22	53.93	0.10	37.71	3.2
sep	28	54.01	0.15	38.14	2.8
oct	4	54.09	0.19	38.54	2.4
oct	10	54.14	0.22	39.24	2.0
oct	16	54.21	0.24	39.72	1.6
oct	22	54.22	0.24	40.63	1.2
oct	28	54.26	0.22	41.34	0.8
nov	3	54.25	0.19	42.26	0.4
nov	9	54.27	0.14	43.06	0.0
nov	15	54.26	0.09	43.94	23.6
nov	21	54.23	0.01	44.93	23.3
nov	27	54.21	59.93	45.71	22.9
dic	3	54.15	59.83	46.71	22.5
dic	9	54.14	59.72	47.30	22.1
dic	15	54.06	59.60	48.23	21.7
dic	21	54.01	59.48	48.87	21.3
dic	27	53.93	59.35	49.54	20.9

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	8.50	16.61	30.72	19.6
ene	7	8.40	16.47	30.47	19.2
ene	13	8.35	16.34	30.34	18.8
ene	19	8.24	16.19	30.04	18.4
ene	25	8.15	16.05	29.62	18.1
ene	31	8.05	15.89	29.33	17.7
feb	6	7.94	15.75	28.74	17.3
feb	12	7.87	15.61	28.43	16.9
feb	18	7.74	15.47	27.75	16.5
feb	24	7.67	15.34	27.27	16.1
mar	2	7.56	15.22	26.64	15.7
mar	8	7.51	15.11	26.09	15.3
mar	14	7.42	15.01	25.54	14.9
mar	20	7.36	14.93	24.87	14.5
mar	26	7.33	14.85	24.46	14.1
abr	1	7.28	14.79	23.82	13.7
abr	7	7.29	14.75	23.54	13.3
abr	13	7.27	14.72	23.02	12.9
abr	19	7.31	14.71	22.75	12.5
abr	25	7.33	14.70	22.51	12.1
may	1	7.40	14.72	22.34	11.7
may	7	7.47	14.75	22.33	11.3
may	13	7.55	14.79	22.21	10.9
may	19	7.68	14.85	22.46	10.5
may	25	7.78	14.92	22.54	10.2
may	31	7.95	15.01	23.05	9.8
jun	6	8.08	15.10	23.36	9.4
jun	12	8.26	15.21	23.89	9.0
jun	18	8.42	15.32	24.53	8.6
jun	24	8.61	15.44	25.16	8.2
jun	30	8.80	15.57	26.08	7.8
jul	6	8.98	15.70	26.77	7.4
jul	12	9.19	15.84	27.79	7.0
jul	18	9.36	15.98	28.61	6.7
jul	24	9.59	16.13	29.75	6.3
jul	30	9.76	16.26	30.72	5.9
ago	5	9.96	16.41	31.74	5.5
ago	11	10.14	16.54	32.87	5.1
ago	17	10.31	16.68	33.81	4.7
ago	23	10.50	16.81	35.05	4.3
ago	29	10.64	16.94	35.94	3.9
sep	4	10.81	17.06	37.07	3.5
sep	10	10.92	17.16	37.96	3.1
sep	16	11.08	17.27	39.00	2.8
sep	22	11.18	17.35	39.90	2.4
sep	28	11.30	17.44	40.71	2.0
oct	4	11.40	17.50	41.62	1.6
oct	10	11.47	17.56	42.25	1.2
oct	16	11.57	17.60	43.14	0.8
oct	22	11.61	17.62	43.64	0.4
oct	28	11.68	17.64	44.32	0.0
nov	3	11.69	17.63	44.79	23.6
nov	9	11.75	17.62	45.32	23.2
nov	15	11.75	17.58	45.77	22.8
nov	21	11.76	17.54	46.02	22.4
nov	27	11.76	17.47	46.42	22.0
dic	3	11.72	17.40	46.50	21.7
dic	9	11.73	17.31	46.88	21.3
dic	15	11.66	17.21	46.83	20.9
dic	21	11.64	17.10	46.93	20.5
dic	27	11.56	16.97	46.88	20.1

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	39.37	47.49	59.15	20.6
ene	7	39.26	47.34	59.90	20.2
ene	13	39.18	47.17	60.34	19.8
ene	19	39.07	47.02	60.75	19.4
ene	25	38.95	46.85	61.08	19.0
ene	31	38.85	46.69	61.07	18.6
feb	6	38.72	46.53	61.15	18.2
feb	12	38.63	46.38	60.78	17.8
feb	18	38.50	46.23	60.60	17.4
feb	24	38.41	46.08	60.05	17.0
mar	2	38.30	45.95	59.47	16.6
mar	8	38.22	45.82	58.67	16.2
mar	14	38.13	45.72	57.76	15.8
mar	20	38.05	45.61	56.87	15.4
mar	26	38.00	45.53	55.62	15.0
abr	1	37.94	45.45	54.52	14.6
abr	7	37.93	45.39	53.01	14.3
abr	13	37.89	45.34	51.72	13.9
abr	19	37.91	45.31	50.18	13.5
abr	25	37.92	45.29	48.59	13.1
may	1	37.97	45.28	46.94	12.7
may	7	38.03	45.30	45.17	12.3
may	13	38.09	45.33	43.59	11.9
may	19	38.19	45.37	41.72	11.5
may	25	38.28	45.42	40.09	11.1
may	31	38.43	45.49	38.15	10.7
jun	6	38.55	45.57	36.53	10.3
jun	12	38.71	45.66	34.84	9.9
jun	18	38.87	45.77	33.16	9.5
jun	24	39.04	45.88	31.65	9.2
jun	30	39.24	46.01	30.01	8.8
jul	6	39.41	46.13	28.78	8.4
jul	12	39.62	46.27	27.38	8.0
jul	18	39.80	46.41	26.34	7.6
jul	24	40.02	46.55	25.17	7.2
jul	30	40.21	46.71	24.36	6.8
ago	5	40.40	46.85	23.67	6.4
ago	11	40.60	47.00	23.05	6.1
ago	17	40.77	47.14	22.77	5.7
ago	23	40.97	47.28	22.38	5.3
ago	29	41.12	47.42	22.50	4.9
sep	4	41.29	47.54	22.53	4.5
sep	10	41.42	47.66	22.92	4.1
sep	16	41.58	47.76	23.30	3.7
sep	22	41.69	47.86	23.93	3.3
sep	28	41.80	47.94	24.78	2.9
oct	4	41.91	48.01	25.58	2.5
oct	10	41.98	48.06	26.73	2.1
oct	16	42.07	48.10	27.67	1.8
oct	22	42.10	48.12	29.05	1.4
oct	28	42.16	48.12	30.25	1.0
nov	3	42.17	48.11	31.63	0.6
nov	9	42.20	48.07	32.93	0.2
nov	15	42.20	48.03	34.26	23.8
nov	21	42.18	47.96	35.71	23.4
nov	27	42.17	47.88	36.91	23.0
dic	3	42.11	47.79	38.32	22.6
dic	9	42.09	47.68	39.30	22.2
dic	15	42.01	47.56	40.55	21.8
dic	21	41.96	47.42	41.52	21.4
dic	27	41.87	47.29	42.42	21.0

Posiciones aparentes de estrellas brillantes, 2017 (a las 0^h del meridiano 90° W.G.)

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	20.41	28.52	31.93	20.1
ene	7	20.29	28.37	31.89	19.7
ene	13	20.23	28.23	31.93	19.4
ene	19	20.11	28.06	31.77	19.0
ene	25	20.01	27.91	31.45	18.6
ene	31	19.90	27.74	31.22	18.2
feb	6	19.77	27.58	30.65	17.8
feb	12	19.68	27.42	30.31	17.4
feb	18	19.54	27.27	29.57	17.0
feb	24	19.45	27.12	28.99	16.6
mar	2	19.32	26.98	28.23	16.2
mar	8	19.25	26.86	27.50	15.8
mar	14	19.15	26.74	26.74	15.4
mar	20	19.08	26.64	25.82	15.0
mar	26	19.03	26.55	25.14	14.6
abr	1	18.97	26.48	24.20	14.2
abr	7	18.97	26.43	23.60	13.8
abr	13	18.94	26.39	22.73	13.4
abr	19	18.97	26.37	22.09	13.0
abr	25	18.99	26.36	21.49	12.6
may	1	19.06	26.38	20.95	12.2
may	7	19.13	26.41	20.57	11.8
may	13	19.21	26.45	20.08	11.4
may	19	19.34	26.51	19.95	11.0
may	25	19.44	26.59	19.67	10.7
may	31	19.63	26.68	19.82	10.3
jun	6	19.76	26.78	19.79	9.9
jun	12	19.95	26.90	19.99	9.5
jun	18	20.12	27.02	20.34	9.1
jun	24	20.32	27.16	20.68	8.7
jun	30	20.53	27.29	21.35	8.3
jul	6	20.72	27.44	21.82	7.9
jul	12	20.95	27.59	22.65	7.5
jul	18	21.13	27.75	23.33	7.2
jul	24	21.38	27.91	24.34	6.8
jul	30	21.56	28.06	25.23	6.4
ago	5	21.78	28.23	26.20	6.0
ago	11	21.97	28.38	27.32	5.6
ago	17	22.17	28.54	28.29	5.2
ago	23	22.37	28.68	29.59	4.8
ago	29	22.53	28.83	30.58	4.4
sep	4	22.72	28.96	31.85	4.0
sep	10	22.85	29.08	32.91	3.7
sep	16	23.03	29.21	34.15	3.3
sep	22	23.14	29.31	35.29	2.9
sep	28	23.27	29.41	36.36	2.5
oct	4	23.38	29.49	37.56	2.1
oct	10	23.47	29.56	38.50	1.7
oct	16	23.58	29.61	39.72	1.3
oct	22	23.63	29.65	40.57	0.9
oct	28	23.72	29.68	41.60	0.5
nov	3	23.74	29.68	42.46	0.1
nov	9	23.81	29.68	43.35	23.7
nov	15	23.82	29.65	44.17	23.3
nov	21	23.83	29.61	44.80	23.0
nov	27	23.83	29.55	45.57	22.6
dic	3	23.80	29.47	45.99	22.2
dic	9	23.81	29.39	46.71	21.8
dic	15	23.74	29.28	46.99	21.4
dic	21	23.71	29.17	47.37	21.0
dic	27	23.62	29.04	47.60	20.6

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	19.43	27.54	39.88	21.0
ene	7	19.30	27.38	40.42	20.6
ene	13	19.23	27.22	40.94	20.2
ene	19	19.08	27.03	41.32	19.8
ene	25	18.95	26.85	41.43	19.4
ene	31	18.80	26.64	41.62	19.0
feb	6	18.63	26.44	41.40	18.6
feb	12	18.50	26.24	41.35	18.2
feb	18	18.30	26.03	40.87	17.8
feb	24	18.16	25.84	40.44	17.4
mar	2	17.97	25.63	39.82	17.0
mar	8	17.85	25.46	39.08	16.6
mar	14	17.69	25.28	38.32	16.2
mar	20	17.56	25.13	37.28	15.8
mar	26	17.46	24.98	36.43	15.4
abr	1	17.34	24.85	35.25	15.0
abr	7	17.30	24.76	34.32	14.6
abr	13	17.21	24.66	33.11	14.2
abr	19	17.21	24.61	32.02	13.8
abr	25	17.18	24.55	30.97	13.4
may	1	17.23	24.54	29.85	13.0
may	7	17.26	24.54	28.94	12.6
may	13	17.33	24.57	27.84	12.2
may	19	17.44	24.61	27.08	11.9
may	25	17.53	24.67	26.16	11.5
may	31	17.71	24.77	25.61	11.1
jun	6	17.84	24.86	24.93	10.7
jun	12	18.04	25.00	24.43	10.3
jun	18	18.22	25.12	24.13	9.9
jun	24	18.45	25.29	23.77	9.5
jun	30	18.69	25.45	23.82	9.1
jul	6	18.91	25.63	23.67	8.7
jul	12	19.18	25.82	23.91	8.4
jul	18	19.40	26.01	24.05	8.0
jul	24	19.70	26.23	24.51	7.6
jul	30	19.93	26.43	24.97	7.2
ago	5	20.21	26.65	25.50	6.8
ago	11	20.45	26.86	26.29	6.4
ago	17	20.71	27.08	26.93	6.0
ago	23	20.98	27.29	27.99	5.7
ago	29	21.20	27.50	28.79	5.3
sep	4	21.46	27.71	29.91	4.9
sep	10	21.65	27.89	30.94	4.5
sep	16	21.91	28.09	32.13	4.1
sep	22	22.09	28.26	33.37	3.7
sep	28	22.30	28.44	34.52	3.3
oct	4	22.48	28.58	35.92	2.9
oct	10	22.64	28.72	37.07	2.5
oct	16	22.82	28.85	38.58	2.2
oct	22	22.93	28.95	39.78	1.8
oct	28	23.08	29.04	41.18	1.4
nov	3	23.16	29.09	42.50	1.0
nov	9	23.29	29.16	43.81	0.6
nov	15	23.34	29.17	45.17	0.2
nov	21	23.40	29.18	46.31	23.8
nov	27	23.44	29.16	47.65	23.4
dic	3	23.44	29.12	48.65	23.0
dic	9	23.48	29.06	49.94	22.6
dic	15	23.43	28.97	50.83	22.2
dic	21	23.41	28.88	51.79	21.8
dic	27	23.33	28.74	52.64	21.4

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	36.96	45.08	40.88	21.7
ene	7	36.84	44.92	41.99	21.3
ene	13	36.74	44.74	42.85	20.9
ene	19	36.61	44.57	43.57	20.5
ene	25	36.48	44.37	44.25	20.1
ene	31	36.34	44.18	44.50	19.7
feb	6	36.18	43.99	44.85	19.3
feb	12	36.05	43.79	44.69	18.9
feb	18	35.88	43.61	44.67	18.5
feb	24	35.73	43.41	44.29	18.1
mar	2	35.57	43.23	43.77	17.7
mar	8	35.44	43.05	43.09	17.3
mar	14	35.30	42.89	42.17	16.9
mar	20	35.16	42.73	41.31	16.5
mar	26	35.05	42.58	40.01	16.1
abr	1	34.93	42.45	38.85	15.7
abr	7	34.86	42.32	37.26	15.3
abr	13	34.78	42.22	35.83	14.9
abr	19	34.73	42.13	34.18	14.5
abr	25	34.69	42.06	32.38	14.1
may	1	34.68	41.99	30.60	13.7
may	7	34.69	41.96	28.59	13.3
may	13	34.70	41.94	26.80	12.9
may	19	34.76	41.93	24.70	12.5
may	25	34.81	41.95	22.80	12.1
may	31	34.92	41.97	20.63	11.7
jun	6	35.01	42.03	18.71	11.3
jun	12	35.14	42.09	16.78	11.0
jun	18	35.28	42.18	14.77	10.6
jun	24	35.43	42.27	13.01	10.2
jun	30	35.62	42.38	11.06	9.8
jul	6	35.79	42.51	9.55	9.4
jul	12	36.00	42.64	7.89	9.0
jul	18	36.18	42.80	6.54	8.6
jul	24	36.42	42.95	5.16	8.2
jul	30	36.62	43.12	4.07	7.8
ago	5	36.84	43.29	3.20	7.5
ago	11	37.07	43.47	2.33	7.1
ago	17	37.28	43.65	1.90	6.7
ago	23	37.51	43.83	1.34	6.3
ago	29	37.71	44.01	1.35	5.9
sep	4	37.93	44.17	1.31	5.5
sep	10	38.11	44.35	1.61	5.1
sep	16	38.32	44.50	2.03	4.7
sep	22	38.49	44.66	2.65	4.3
sep	28	38.66	44.79	3.60	4.0
oct	4	38.82	44.92	4.49	3.6
oct	10	38.94	45.03	5.81	3.2
oct	16	39.09	45.12	6.94	2.8
oct	22	39.18	45.20	8.54	2.4
oct	28	39.29	45.25	10.05	2.0
nov	3	39.35	45.29	11.69	1.6
nov	9	39.42	45.29	13.38	1.2
nov	15	39.47	45.30	15.04	0.8
nov	21	39.48	45.26	16.92	0.4
nov	27	39.50	45.22	18.52	0.0
dic	3	39.48	45.15	20.35	23.6
dic	9	39.48	45.06	21.78	23.2
dic	15	39.42	44.96	23.45	22.9
dic	21	39.37	44.83	24.88	22.5
dic	27	39.29	44.70	26.17	22.1

Posiciones aparentes de estrellas brillantes, 2017 (a las 0^h del meridiano 90° W.G.)

δ ERI

3.52 K0 IV

α α_c δ

h m h m ° ´

03 44 03 43 -09 42 hp

mes	d	s	s	"	h
ene	1	4.43	12.54	37.62	21.1
ene	7	4.36	12.44	38.40	20.7
ene	13	4.33	12.32	39.06	20.3
ene	19	4.25	12.20	39.62	19.9
ene	25	4.17	12.06	40.27	19.5
ene	31	4.09	11.93	40.58	19.1
feb	6	3.98	11.78	41.09	18.7
feb	12	3.90	11.64	41.19	18.3
feb	18	3.77	11.50	41.49	17.9
feb	24	3.68	11.35	41.55	17.6
mar	2	3.55	11.21	41.53	17.2
mar	8	3.47	11.07	41.46	16.8
mar	14	3.36	10.94	41.18	16.4
mar	20	3.25	10.82	41.03	16.0
mar	26	3.18	10.70	40.51	15.6
abr	1	3.08	10.59	40.17	15.2
abr	7	3.04	10.49	39.45	14.8
abr	13	2.96	10.41	38.89	14.4
abr	19	2.93	10.33	38.16	14.0
abr	25	2.90	10.27	37.27	13.6
may	1	2.90	10.22	36.42	13.2
may	7	2.91	10.18	35.31	12.8
may	13	2.92	10.16	34.41	12.4
may	19	2.97	10.15	33.16	12.0
may	25	3.01	10.15	32.08	11.6
may	31	3.11	10.17	30.71	11.2
jun	6	3.18	10.20	29.50	10.8
jun	12	3.29	10.24	28.25	10.4
jun	18	3.40	10.30	26.84	10.1
jun	24	3.53	10.36	25.64	9.7
jun	30	3.68	10.44	24.15	9.3
jul	6	3.81	10.53	23.02	8.9
jul	12	3.98	10.63	21.66	8.5
jul	18	4.12	10.74	20.53	8.1
jul	24	4.32	10.85	19.30	7.7
jul	30	4.47	10.98	18.22	7.3
ago	5	4.66	11.10	17.31	6.9
ago	11	4.83	11.23	16.30	6.5
ago	17	5.00	11.36	15.65	6.2
ago	23	5.19	11.50	14.79	5.8
ago	29	5.34	11.64	14.39	5.4
sep	4	5.52	11.77	13.88	5.0
sep	10	5.66	11.90	13.63	4.6
sep	16	5.84	12.02	13.45	4.2
sep	22	5.98	12.14	13.37	3.8
sep	28	6.12	12.26	13.60	3.4
oct	4	6.26	12.36	13.70	3.0
oct	10	6.37	12.46	14.21	2.6
oct	16	6.51	12.54	14.50	2.3
oct	22	6.60	12.61	15.21	1.9
oct	28	6.71	12.67	15.85	1.5
nov	3	6.78	12.72	16.58	1.1
nov	9	6.88	12.75	17.43	0.7
nov	15	6.94	12.77	18.20	0.3
nov	21	6.99	12.77	19.26	23.9
nov	27	7.04	12.75	20.06	23.5
dic	3	7.05	12.72	21.14	23.1
dic	9	7.10	12.68	21.90	22.7
dic	15	7.08	12.62	22.92	22.3
dic	21	7.09	12.55	23.81	21.9
dic	27	7.05	12.46	24.60	21.5

γ DOR

4.26 FI V

α α_c δ

h m h m ° ´

04 16 04 15 -51 26 hp

mes	d	s	s	"	h
ene	1	29.67	37.79	59.57	22.4
ene	7	29.55	37.63	61.04	22.0
ene	13	29.44	37.43	62.35	21.6
ene	19	29.29	37.24	63.44	21.2
ene	25	29.13	37.02	64.55	20.8
ene	31	28.96	36.80	65.20	20.4
feb	6	28.76	36.57	65.94	20.0
feb	12	28.59	36.33	66.18	19.6
feb	18	28.37	36.10	66.51	19.2
feb	24	28.18	35.85	66.52	18.8
mar	2	27.96	35.62	66.30	18.4
mar	8	27.77	35.37	65.98	18.0
mar	14	27.57	35.15	65.31	17.6
mar	20	27.36	34.93	64.73	17.2
mar	26	27.19	34.71	63.69	16.8
abr	1	27.00	34.51	62.74	16.4
abr	7	26.86	34.31	61.36	16.0
abr	13	26.70	34.15	60.06	15.6
abr	19	26.58	33.98	58.59	15.2
abr	25	26.47	33.85	56.86	14.8
may	1	26.39	33.71	55.20	14.4
may	7	26.33	33.61	53.21	14.0
may	13	26.28	33.52	51.45	13.6
may	19	26.27	33.45	49.34	13.2
may	25	26.27	33.41	47.39	12.8
may	31	26.32	33.37	45.19	12.4
jun	6	26.36	33.38	43.14	12.0
jun	12	26.44	33.39	41.12	11.6
jun	18	26.54	33.43	38.93	11.2
jun	24	26.65	33.49	37.04	10.9
jun	30	26.80	33.57	34.88	10.5
jul	6	26.95	33.67	33.16	10.1
jul	12	27.13	33.78	31.28	9.7
jul	18	27.31	33.93	29.66	9.3
jul	24	27.53	34.06	28.06	8.9
jul	30	27.74	34.24	26.66	8.5
ago	5	27.96	34.41	25.54	8.1
ago	11	28.19	34.60	24.38	7.7
ago	17	28.42	34.79	23.68	7.4
ago	23	28.68	34.99	22.86	7.0
ago	29	28.90	35.20	22.58	6.6
sep	4	29.15	35.40	22.32	6.2
sep	10	29.38	35.62	22.36	5.8
sep	16	29.62	35.80	22.61	5.4
sep	22	29.84	36.01	23.00	5.0
sep	28	30.05	36.19	23.82	4.6
oct	4	30.26	36.36	24.58	4.3
oct	10	30.44	36.52	25.81	3.9
oct	16	30.63	36.66	26.91	3.5
oct	22	30.78	36.80	28.47	3.1
oct	28	30.93	36.89	30.04	2.7
nov	3	31.05	36.99	31.71	2.3
nov	9	31.16	37.03	33.56	1.9
nov	15	31.25	37.08	35.34	1.5
nov	21	31.30	37.08	37.43	1.1
nov	27	31.35	37.07	39.25	0.7
dic	3	31.36	37.04	41.33	0.3
dic	9	31.38	36.96	43.09	24.0
dic	15	31.34	36.88	45.05	23.6
dic	21	31.30	36.76	46.87	23.2
dic	27	31.23	36.64	48.49	22.8

β ERI

2.79 A3 III

α α_c δ

h m h m ° ´

05 08 05 07-05 -04 hp

mes	d	s	s	"	h
ene	1	42.09	50.21	-7.9	22.4
ene	7	42.07	50.14	-8.7	22.0
ene	13	42.07	50.06	-9.5	21.6
ene	19	42.02	49.97	-10.2	21.2
ene	25	41.97	49.87	-10.9	20.8
ene	31	41.91	49.76	-11.4	20.4
feb	6	41.83	49.63	-12.0	20.0
feb	12	41.76	49.50	-12.3	19.6
feb	18	41.64	49.37	-12.7	19.2
feb	24	41.55	49.23	-13.0	18.8
mar	2	41.43	49.09	-13.1	18.4
mar	8	41.33	48.94	-13.3	18.1
mar	14	41.21	48.80	-13.2	17.7
mar	20	41.09	48.66	-13.3	17.3
mar	26	40.99	48.52	-13.0	16.9
abr	1	40.87	48.38	-12.9	16.5
abr	7	40.80	48.26	-12.5	16.1
abr	13	40.69	48.14	-12.2	15.7
abr	19	40.63	48.02	-11.8	15.3
abr	25	40.55	47.92	-11.1	14.9
may	1	40.51	47.83	-10.6	14.5
may	7	40.47	47.75	-9.8	14.1
may	13	40.44	47.68	-9.2	13.7
may	19	40.45	47.63	-8.3	13.3
may	25	40.44	47.58	-7.4	12.9
may	31	40.50	47.55	-6.4	12.5
jun	6	40.52	47.54	-5.5	12.1
jun	12	40.59	47.54	-4.5	11.7
jun	18	40.65	47.55	-3.3	11.4
jun	24	40.74	47.57	-2.4	11.0
jun	30	40.85	47.61	-1.1	10.6
jul	6	40.94	47.67	-0.1	10.2
jul	12	41.08	47.73	-59.0	9.8
jul	18	41.19	47.80	-57.9	9.4
jul	24	41.36	47.89	-56.9	9.0
jul	30	41.49	47.99	-55.8	8.6
ago	5	41.65	48.09	-55.0	8.2
ago	11	41.80	48.21	-54.0	7.8
ago	17	41.96	48.33	-53.4	7.4
ago	23	42.14	48.46	-52.6	7.0
ago	29	42.29	48.59	-52.1	6.6
sep	4	42.48	48.72	-51.6	6.2
sep	10	42.62	48.86	-51.2	5.8
sep	16	42.81	49.00	-51.0	5.4
sep	22	42.97	49.14	-50.8	5.0
sep	28	43.13	49.27	-51.0	4.6
oct	4	43.30	49.40	-51.0	4.3
oct	10	43.44	49.53	-51.4	3.9
oct	16	43.62	49.65	-51.6	3.5
oct	22	43.74	49.76	-52.2	3.1
oct	28	43.90	49.86	-52.8	2.7
nov	3	44.01	49.95	-53.4	2.3
nov	9	44.16	50.03	-54.3	1.9
nov	15	44.27	50.10	-55.0	1.5
nov	21	44.37	50.15	-56.0	1.1
nov	27	44.47	50.19	-56.8	0.7
dic	3	44.53	50.21	-57.8	0.3
dic	9	44.63	50.22	-58.7	23.9
dic	15	44.67	50.21	-59.7	23.5
dic	21	44.72	50.19	-0.6	23.1
dic	27	44.73	50.15	-1.4	21.5

Posiciones aparentes de estrellas brillantes, 2017 (a las 0^h del meridiano 90° W.G.)

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	50.27	58.38	77.00	23.8
ene	7	50.16	58.24	78.75	23.4
ene	13	50.04	58.04	80.43	23.0
ene	19	49.90	57.85	81.83	22.6
ene	25	49.73	57.62	83.31	22.2
ene	31	49.54	57.38	84.33	21.8
feb	6	49.33	57.13	85.45	21.4
feb	12	49.12	56.86	86.09	21.0
feb	18	48.88	56.60	86.78	20.6
feb	24	48.64	56.31	87.19	20.2
mar	2	48.38	56.04	87.32	19.8
mar	8	48.13	55.74	87.41	19.4
mar	14	47.88	55.47	87.08	19.0
mar	20	47.63	55.19	86.86	18.6
mar	26	47.39	54.92	86.15	18.2
abr	1	47.15	54.66	85.50	17.8
abr	7	46.94	54.39	84.45	17.4
abr	13	46.72	54.17	83.39	17.0
abr	19	46.53	53.93	82.19	16.6
abr	25	46.36	53.73	80.67	16.2
may	1	46.21	53.52	79.24	15.8
may	7	46.08	53.36	77.41	15.4
may	13	45.97	53.21	75.79	15.0
may	19	45.89	53.07	73.82	14.6
may	25	45.83	52.97	71.93	14.2
may	31	45.81	52.87	69.82	13.8
jun	6	45.81	52.83	67.76	13.4
jun	12	45.83	52.78	65.76	13.0
jun	18	45.88	52.78	63.52	12.6
jun	24	45.95	52.79	61.57	12.2
jun	30	46.06	52.83	59.31	11.8
jul	6	46.18	52.90	57.45	11.4
jul	12	46.33	52.98	55.43	11.1
jul	18	46.49	53.11	53.60	10.7
jul	24	46.69	53.22	51.84	10.3
jul	30	46.89	53.39	50.17	9.9
ago	5	47.11	53.56	48.83	9.5
ago	11	47.35	53.75	47.39	9.1
ago	17	47.59	53.96	46.42	8.7
ago	23	47.85	54.17	45.32	8.3
ago	29	48.11	54.40	44.74	7.9
sep	4	48.38	54.63	44.21	7.6
sep	10	48.64	54.88	43.92	7.2
sep	16	48.92	55.10	43.93	6.8
sep	22	49.18	55.35	44.02	6.4
sep	28	49.44	55.58	44.60	6.0
oct	4	49.70	55.80	45.12	5.6
oct	10	49.93	56.02	46.14	5.2
oct	16	50.17	56.20	47.07	4.9
oct	22	50.38	56.40	48.45	4.5
oct	28	50.59	56.55	49.92	4.1
nov	3	50.76	56.70	51.48	3.7
nov	9	50.93	56.80	53.33	3.3
nov	15	51.07	56.90	55.07	2.9
nov	21	51.17	56.95	57.20	2.5
nov	27	51.27	56.98	59.10	2.1
dic	3	51.32	56.99	61.28	1.7
dic	9	51.37	56.95	63.22	1.3
dic	15	51.37	56.91	65.34	0.9
dic	21	51.35	56.82	67.40	0.6
dic	27	51.30	56.72	69.24	0.2

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	44.64	52.76	72.13	0.3
ene	7	44.63	52.71	73.29	23.9
ene	13	44.65	52.64	74.50	23.5
ene	19	44.61	52.56	75.44	23.1
ene	25	44.57	52.47	76.57	22.7
ene	31	44.52	52.36	77.30	22.3
feb	6	44.44	52.25	78.21	21.9
feb	12	44.38	52.12	78.76	21.6
feb	18	44.27	51.99	79.38	21.2
feb	24	44.18	51.85	79.87	20.8
mar	2	44.05	51.71	80.12	20.4
mar	8	43.95	51.56	80.46	20.0
mar	14	43.82	51.41	80.43	19.6
mar	20	43.69	51.26	80.58	19.2
mar	26	43.58	51.11	80.35	18.8
abr	1	43.45	50.96	80.22	18.4
abr	7	43.36	50.82	79.80	18.0
abr	13	43.24	50.68	79.38	17.6
abr	19	43.15	50.55	78.91	17.2
abr	25	43.06	50.43	78.14	16.8
may	1	43.00	50.31	77.54	16.4
may	7	42.94	50.21	76.54	16.0
may	13	42.88	50.12	75.77	15.6
may	19	42.86	50.04	74.67	15.2
may	25	42.83	49.97	73.64	14.8
may	31	42.86	49.91	72.45	14.4
jun	6	42.85	49.87	71.23	14.0
jun	12	42.89	49.84	70.08	13.6
jun	18	42.93	49.83	68.65	13.2
jun	24	42.99	49.83	67.49	12.8
jun	30	43.08	49.84	65.98	12.4
jul	6	43.15	49.87	64.79	12.1
jul	12	43.26	49.91	63.42	11.7
jul	18	43.35	49.97	62.13	11.3
jul	24	43.50	50.03	60.92	10.9
jul	30	43.61	50.12	59.65	10.5
ago	5	43.76	50.21	58.67	10.1
ago	11	43.90	50.31	57.49	9.7
ago	17	44.05	50.42	56.72	9.3
ago	23	44.22	50.54	55.74	8.9
ago	29	44.37	50.66	55.16	8.5
sep	4	44.55	50.79	54.58	8.2
sep	10	44.70	50.93	54.13	7.8
sep	16	44.89	51.07	53.94	7.4
sep	22	45.04	51.21	53.70	7.0
sep	28	45.22	51.35	53.90	6.6
oct	4	45.39	51.49	53.96	6.2
oct	10	45.55	51.63	54.46	5.8
oct	16	45.73	51.76	54.84	5.4
oct	22	45.87	51.89	55.56	5.0
oct	28	46.04	52.00	56.37	4.6
nov	3	46.17	52.11	57.19	4.3
nov	9	46.33	52.20	58.32	3.9
nov	15	46.46	52.29	59.28	3.5
nov	21	46.58	52.36	60.63	3.1
nov	27	46.70	52.42	61.75	2.7
dic	3	46.79	52.46	63.14	2.3
dic	9	46.90	52.48	64.36	1.9
dic	15	46.96	52.50	65.71	1.5
dic	21	47.03	52.49	67.08	1.1
dic	27	47.06	52.47	68.24	0.7

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	4.30	12.42	55.52	23.3
ene	7	4.30	12.37	56.86	22.9
ene	13	4.31	12.30	58.26	22.5
ene	19	4.27	12.22	59.37	22.1
ene	25	4.23	12.13	60.66	21.7
ene	31	4.18	12.02	61.56	21.3
feb	6	4.09	11.90	62.61	20.9
feb	12	4.02	11.77	63.29	20.5
feb	18	3.91	11.63	64.02	20.1
feb	24	3.81	11.49	64.61	19.7
mar	2	3.68	11.34	64.94	19.3
mar	8	3.57	11.18	65.34	18.9
mar	14	3.44	11.03	65.35	18.5
mar	20	3.31	10.87	65.53	18.1
mar	26	3.19	10.71	65.31	17.7
abr	1	3.05	10.56	65.18	17.3
abr	7	2.95	10.41	64.74	16.9
abr	13	2.82	10.27	64.27	16.5
abr	19	2.73	10.13	63.75	16.1
abr	25	2.63	10.00	62.91	15.7
may	1	2.56	9.88	62.23	15.3
may	7	2.49	9.77	61.13	14.9
may	13	2.43	9.67	60.25	14.5
may	19	2.40	9.58	59.04	14.1
may	25	2.36	9.51	57.88	13.7
may	31	2.38	9.44	56.56	13.3
jun	6	2.37	9.40	55.20	12.9
jun	12	2.41	9.36	53.91	12.6
jun	18	2.44	9.34	52.33	12.2
jun	24	2.50	9.33	51.03	11.8
jun	30	2.58	9.34	49.38	11.4
jul	6	2.65	9.37	48.04	11.0
jul	12	2.76	9.40	46.54	10.6
jul	18	2.84	9.46	45.11	10.2
jul	24	2.99	9.52	43.77	9.8
jul	30	3.10	9.60	42.38	9.4
ago	5	3.24	9.69	41.29	9.0
ago	11	3.39	9.79	40.01	8.6
ago	17	3.53	9.90	39.15	8.2
ago	23	3.71	10.02	38.10	7.9
ago	29	3.86	10.15	37.45	7.5
sep	4	4.04	10.29	36.83	7.1
sep	10	4.19	10.43	36.33	6.7
sep	16	4.38	10.57	36.13	6.3
sep	22	4.55	10.71	35.89	5.9
sep	28	4.72	10.86	36.11	5.5
oct	4	4.90	11.00	36.21	5.1
oct	10	5.06	11.14	36.75	4.7
oct	16	5.25	11.28	37.20	4.4
oct	22	5.39	11.41	38.00	4.0
oct	28	5.57	11.53	38.92	3.6
nov	3	5.70	11.64	39.85	3.2
nov	9	5.87	11.74	41.12	2.8
nov	15	6.00	11.83	42.22	2.4
nov	21	6.12	11.90	43.73	2.0
nov	27	6.24	11.96	45.03	1.6
dic	3	6.33	12.00	46.58	1.2
dic	9	6.45	12.03	47.99	0.8
dic	15	6.50	12.04	49.53	0.4
dic	21	6.57	12.04	51.09	0.1
dic	27	6.60	12.02	52.44	23.7

Posiciones aparentes de estrellas brillantes, 2017 (a las 0h del meridiano 90° W.G.)

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	11.84	19.96	68.16	23.5
ene	7	11.84	19.91	69.31	23.2
ene	13	11.86	19.85	70.53	22.8
ene	19	11.83	19.78	71.47	22.4
ene	25	11.79	19.69	72.60	22.0
ene	31	11.75	19.59	73.35	21.6
feb	6	11.67	19.48	74.27	21.2
feb	12	11.61	19.36	74.84	20.8
feb	18	11.50	19.23	75.47	20.4
feb	24	11.42	19.09	75.98	20.0
mar	2	11.29	18.95	76.24	19.6
mar	8	11.19	18.80	76.61	19.2
mar	14	11.07	18.65	76.60	18.8
mar	20	10.94	18.51	76.78	18.4
mar	26	10.83	18.35	76.58	18.0
abr	1	10.70	18.21	76.48	17.6
abr	7	10.61	18.06	76.09	17.2
abr	13	10.48	17.93	75.70	16.8
abr	19	10.39	17.79	75.27	16.4
abr	25	10.30	17.67	74.53	16.0
may	1	10.23	17.55	73.97	15.6
may	7	10.17	17.44	73.00	15.2
may	13	10.11	17.35	72.27	14.8
may	19	10.09	17.26	71.22	14.4
may	25	10.05	17.19	70.21	14.0
may	31	10.07	17.13	69.07	13.6
jun	6	10.06	17.09	67.88	13.2
jun	12	10.10	17.05	66.77	12.9
jun	18	10.13	17.03	65.37	12.5
jun	24	10.19	17.03	64.25	12.1
jun	30	10.27	17.03	62.77	11.7
jul	6	10.34	17.06	61.60	11.3
jul	12	10.45	17.09	60.26	10.9
jul	18	10.53	17.15	58.98	10.5
jul	24	10.67	17.21	57.79	10.1
jul	30	10.78	17.28	56.53	9.7
ago	5	10.92	17.37	55.56	9.3
ago	11	11.06	17.47	54.39	8.9
ago	17	11.21	17.58	53.62	8.5
ago	23	11.38	17.69	52.65	8.2
ago	29	11.52	17.82	52.06	7.8
sep	4	11.70	17.94	51.48	7.4
sep	10	11.84	18.08	51.01	7.0
sep	16	12.03	18.22	50.82	6.6
sep	22	12.19	18.36	50.56	6.2
sep	28	12.36	18.50	50.75	5.8
oct	4	12.54	18.64	50.79	5.4
oct	10	12.69	18.78	51.26	5.0
oct	16	12.88	18.91	51.63	4.7
oct	22	13.02	19.04	52.32	4.3
oct	28	13.20	19.16	53.12	3.9
nov	3	13.33	19.27	53.91	3.5
nov	9	13.50	19.37	55.03	3.1
nov	15	13.63	19.46	55.97	2.7
nov	21	13.75	19.53	57.30	2.3
nov	27	13.88	19.59	58.42	1.9
dic	3	13.97	19.64	59.78	1.5
dic	9	14.09	19.67	61.00	1.1
dic	15	14.15	19.69	62.34	0.7
dic	21	14.23	19.69	63.71	0.4
dic	27	14.26	19.68	64.86	24.0

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	49.56	57.68	41.48	0.8
ene	7	49.42	57.50	43.47	0.4
ene	13	49.20	57.19	45.54	0.0
ene	19	48.95	56.90	47.29	23.6
ene	25	48.64	56.54	49.19	23.2
ene	31	48.28	56.12	50.67	22.8
feb	6	47.88	55.69	52.26	22.4
feb	12	47.43	55.17	53.45	22.0
feb	18	46.97	54.70	54.62	21.6
feb	24	46.47	54.14	55.62	21.2
mar	2	45.95	53.61	56.28	20.8
mar	8	45.40	53.01	56.97	20.4
mar	14	44.86	52.44	57.19	20.0
mar	20	44.31	51.87	57.52	19.6
mar	26	43.74	51.27	57.39	19.1
abr	1	43.20	50.71	57.27	18.7
abr	7	42.64	50.10	56.79	18.3
abr	13	42.13	49.58	56.21	17.9
abr	19	41.62	49.02	55.53	17.5
abr	25	41.14	48.52	54.46	17.1
may	1	40.68	48.00	53.50	16.7
may	7	40.27	47.54	52.07	16.3
may	13	39.89	47.13	50.81	15.9
may	19	39.54	46.72	49.20	15.5
may	25	39.25	46.40	47.57	15.1
may	31	38.98	46.04	45.77	14.7
jun	6	38.79	45.81	43.87	14.3
jun	12	38.63	45.58	42.05	13.9
jun	18	38.53	45.43	39.91	13.5
jun	24	38.47	45.30	38.04	13.1
jun	30	38.46	45.23	35.81	12.7
jul	6	38.52	45.24	33.89	12.3
jul	12	38.61	45.26	31.82	11.9
jul	18	38.77	45.39	29.81	11.5
jul	24	38.95	45.49	27.93	11.1
jul	30	39.21	45.72	26.00	10.7
ago	5	39.50	45.95	24.41	10.3
ago	11	39.83	46.24	22.66	10.0
ago	17	40.21	46.58	21.35	9.6
ago	23	40.61	46.92	19.91	9.2
ago	29	41.06	47.35	18.90	8.8
sep	4	41.51	47.76	17.99	8.4
sep	10	42.00	48.24	17.23	8.1
sep	16	42.49	48.67	16.84	7.7
sep	22	43.01	49.18	16.46	7.3
sep	28	43.53	49.67	16.61	6.9
oct	4	44.04	50.14	16.70	6.5
oct	10	44.55	50.63	17.29	6.2
oct	16	45.03	51.06	17.86	5.8
oct	22	45.52	51.54	18.84	5.4
oct	28	45.96	51.92	20.02	5.0
nov	3	46.39	52.32	21.26	4.6
nov	9	46.75	52.62	22.90	4.2
nov	15	47.10	52.93	24.42	3.9
nov	21	47.40	53.18	26.41	3.5
nov	27	47.63	53.35	28.24	3.1
dic	3	47.83	53.51	30.36	2.7
dic	9	47.95	53.53	32.38	2.3
dic	15	48.04	53.59	34.53	1.9
dic	21	48.05	53.52	36.76	1.5
dic	27	48.02	53.43	38.77	1.1

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	15.56	23.68	23.29	0.5
ene	7	15.60	23.67	22.99	0.1
ene	13	15.66	23.66	22.54	23.7
ene	19	15.67	23.62	22.39	23.3
ene	25	15.68	23.57	22.02	22.9
ene	31	15.67	23.51	21.96	22.5
feb	6	15.62	23.43	21.71	22.1
feb	12	15.60	23.34	21.69	21.7
feb	18	15.51	23.24	21.60	21.3
feb	24	15.45	23.13	21.52	20.9
mar	2	15.34	23.00	21.64	20.5
mar	8	15.27	22.88	21.52	20.1
mar	14	15.15	22.74	21.72	19.7
mar	20	15.04	22.60	21.65	19.3
mar	26	14.94	22.46	21.84	18.9
abr	1	14.81	22.32	21.87	18.5
abr	7	14.72	22.18	22.02	18.1
abr	13	14.59	22.04	22.17	17.7
abr	19	14.51	21.91	22.22	17.3
abr	25	14.40	21.78	22.53	16.9
may	1	14.34	21.65	22.52	16.6
may	7	14.26	21.54	22.87	16.2
may	13	14.19	21.43	22.95	15.8
may	19	14.16	21.34	23.24	15.4
may	25	14.11	21.25	23.47	15.0
may	31	14.13	21.18	23.71	14.6
jun	6	14.10	21.12	24.05	14.2
jun	12	14.12	21.08	24.22	13.8
jun	18	14.14	21.04	24.69	13.4
jun	24	14.19	21.02	24.84	13.0
jun	30	14.25	21.02	25.32	12.6
jul	6	14.30	21.02	25.56	12.2
jul	12	14.40	21.04	25.96	11.8
jul	18	14.46	21.08	26.37	11.4
jul	24	14.60	21.13	26.63	11.0
jul	30	14.69	21.19	27.08	10.6
ago	5	14.82	21.26	27.25	10.3
ago	11	14.94	21.35	27.69	9.9
ago	17	15.07	21.44	27.79	9.5
ago	23	15.24	21.55	28.13	9.1
ago	29	15.37	21.67	28.22	8.7
sep	4	15.54	21.79	28.33	8.3
sep	10	15.68	21.92	28.47	7.9
sep	16	15.87	22.06	28.34	7.5
sep	22	16.03	22.20	28.43	7.1
sep	28	16.21	22.34	28.15	6.7
oct	4	16.39	22.49	28.09	6.4
oct	10	16.55	22.63	27.72	6.0
oct	16	16.75	22.78	27.49	5.6
oct	22	16.91	22.92	27.09	5.2
oct	28	17.11	23.07	26.62	4.8
nov	3	17.26	23.20	26.28	4.4
nov	9	17.46	23.33	25.62	4.0
nov	15	17.61	23.44	25.26	3.6
nov	21	17.77	23.55	24.57	3.2
nov	27	17.93	23.65	24.13	2.9
dic	3	18.06	23.73	23.52	2.5
dic	9	18.23	23.81	23.03	2.1
dic	15	18.32	23.86	22.53	1.7
dic	21	18.44	23.91	21.96	1.3
dic	27	18.52	23.93	21.66	0.9

Posiciones aparentes de estrellas brillantes, 2017 (a las 0^h del meridiano 90° W.G.)

I PUP

4.49 F0 IV

α α_c δ

h m h m ° ′

07 13 07 12 -46 47 hp

mes	d	s	s	“	h
ene	1	4.70	12.82	24.79	0.6
ene	7	4.73	12.81	26.79	0.2
ene	13	4.77	12.76	28.98	23.8
ene	19	4.75	12.70	30.83	23.4
ene	25	4.73	12.63	32.89	23.0
ene	31	4.68	12.52	34.60	22.6
feb	6	4.60	12.40	36.41	22.2
feb	12	4.51	12.25	37.92	21.8
feb	18	4.38	12.11	39.36	21.4
feb	24	4.26	11.94	40.73	21.1
mar	2	4.10	11.76	41.74	20.7
mar	8	3.95	11.56	42.86	20.3
mar	14	3.77	11.36	43.49	19.9
mar	20	3.60	11.16	44.25	19.5
mar	26	3.42	10.94	44.61	19.1
abr	1	3.22	10.73	44.92	18.7
abr	7	3.05	10.50	44.97	18.3
abr	13	2.85	10.30	44.83	17.9
abr	19	2.68	10.08	44.66	17.5
abr	25	2.50	9.87	44.06	17.1
may	1	2.35	9.66	43.61	16.7
may	7	2.19	9.47	42.65	16.3
may	13	2.05	9.29	41.82	15.9
may	19	1.93	9.10	40.67	15.5
may	25	1.80	8.95	39.43	15.1
may	31	1.73	8.78	38.09	14.7
jun	6	1.63	8.66	36.52	14.3
jun	12	1.58	8.53	35.06	13.9
jun	18	1.53	8.43	33.22	13.5
jun	24	1.51	8.35	31.62	13.1
jun	30	1.51	8.27	29.64	12.7
jul	6	1.52	8.24	27.88	12.3
jul	12	1.56	8.20	25.98	11.9
jul	18	1.59	8.21	24.04	11.5
jul	24	1.67	8.21	22.27	11.1
jul	30	1.75	8.25	20.31	10.7
ago	5	1.86	8.30	18.69	10.3
ago	11	1.97	8.37	16.86	9.9
ago	17	2.10	8.47	15.41	9.6
ago	23	2.25	8.57	13.83	9.2
ago	29	2.41	8.71	12.57	8.8
sep	4	2.59	8.84	11.44	8.4
sep	10	2.76	9.00	10.37	8.0
sep	16	2.97	9.16	9.71	7.6
sep	22	3.17	9.34	8.96	7.2
sep	28	3.39	9.52	8.75	6.8
oct	4	3.60	9.71	8.48	6.4
oct	10	3.82	9.90	8.66	6.1
oct	16	4.05	10.08	8.90	5.7
oct	22	4.27	10.28	9.44	5.3
oct	28	4.50	10.46	10.27	4.9
nov	3	4.71	10.64	11.12	4.5
nov	9	4.93	10.80	12.46	4.1
nov	15	5.13	10.96	13.64	3.7
nov	21	5.33	11.10	15.32	3.3
nov	27	5.51	11.22	16.92	3.0
dic	3	5.66	11.34	18.77	2.6
dic	9	5.83	11.41	20.67	2.2
dic	15	5.95	11.49	22.64	1.8
dic	21	6.07	11.53	24.80	1.4
dic	27	6.14	11.55	26.74	1.0

108 G PUP

4.43 F6 IV

α α_c δ

h m h m ° ′

07 34 07 33 -22 19 hp

mes	d	s	s	“	h
ene	1	48.09	56.21	8.30	2.2
ene	7	48.14	56.22	9.82	1.8
ene	13	48.22	56.21	11.56	1.4
ene	19	48.24	56.19	12.93	1.0
ene	25	48.26	56.16	14.53	0.6
ene	31	48.26	56.10	15.80	0.2
feb	6	48.23	56.03	17.17	23.8
feb	12	48.20	55.95	18.31	23.4
feb	18	48.13	55.86	19.36	23.0
feb	24	48.07	55.75	20.40	22.7
mar	2	47.97	55.63	21.11	22.3
mar	8	47.89	55.50	21.97	21.9
mar	14	47.77	55.36	22.39	21.5
mar	20	47.66	55.22	22.97	21.1
mar	26	47.55	55.07	23.21	20.7
abr	1	47.41	54.92	23.45	20.3
abr	7	47.31	54.77	23.50	19.9
abr	13	47.17	54.62	23.37	19.5
abr	19	47.06	54.46	23.29	19.1
abr	25	46.94	54.31	22.81	18.7
may	1	46.84	54.16	22.55	18.3
may	7	46.74	54.01	21.82	17.9
may	13	46.64	53.88	21.25	17.5
may	19	46.57	53.75	20.43	17.1
may	25	46.49	53.63	19.53	16.7
may	31	46.46	53.51	18.60	16.3
jun	6	46.39	53.41	17.44	15.9
jun	12	46.37	53.32	16.42	15.5
jun	18	46.35	53.25	15.05	15.1
jun	24	46.35	53.18	13.94	14.7
jun	30	46.36	53.13	12.48	14.3
jul	6	46.37	53.09	11.21	13.9
jul	12	46.42	53.07	9.83	13.5
jul	18	46.45	53.06	8.39	13.1
jul	24	46.53	53.06	7.14	12.8
jul	30	46.59	53.09	5.67	12.4
ago	5	46.68	53.13	4.53	12.0
ago	11	46.77	53.17	3.16	11.6
ago	17	46.87	53.24	2.13	11.2
ago	23	47.00	53.31	0.98	10.8
ago	29	47.11	53.41	0.07	10.4
sep	4	47.26	53.51	59.28	10.0
sep	10	47.38	53.62	58.49	9.6
sep	16	47.55	53.74	58.10	9.2
sep	22	47.70	53.87	57.56	8.8
sep	28	47.87	54.01	57.50	8.5
oct	4	48.04	54.14	57.34	8.1
oct	10	48.21	54.29	57.57	7.7
oct	16	48.40	54.43	57.83	7.3
oct	22	48.57	54.58	58.33	6.9
oct	28	48.77	54.73	59.07	6.5
nov	3	48.93	54.87	59.76	6.1
nov	9	49.13	55.00	0.93	5.7
nov	15	49.30	55.13	1.88	5.3
nov	21	49.47	55.25	3.28	5.0
nov	27	49.64	55.36	4.57	4.6
dic	3	49.79	55.46	6.06	4.2
dic	9	49.96	55.54	7.60	3.8
dic	15	50.07	55.62	9.15	3.4
dic	21	50.21	55.67	10.88	3.0
dic	27	50.30	55.71	12.36	2.6

289 G PUP

4.45 A7 III

α α_c δ

h m h m ° ′

08 19 08 18 -36 42 hp

mes	d	s	s	“	h
ene	1	13.06	21.18	47.78	2.0
ene	7	13.14	21.22	49.63	1.6
ene	13	13.24	21.23	51.77	1.2
ene	19	13.28	21.24	53.55	0.8
ene	25	13.33	21.22	55.58	0.4
ene	31	13.34	21.18	57.33	24.0
feb	6	13.33	21.13	59.16	23.6
feb	12	13.31	21.06	60.81	23.2
feb	18	13.25	20.98	62.33	22.8
feb	24	13.20	20.87	63.88	22.4
mar	2	13.10	20.76	65.07	22.0
mar	8	13.02	20.63	66.42	21.6
mar	14	12.90	20.49	67.30	21.2
mar	20	12.78	20.35	68.31	20.8
mar	26	12.66	20.18	69.00	20.4
abr	1	12.51	20.03	69.61	20.0
abr	7	12.39	19.85	70.07	19.6
abr	13	12.23	19.68	70.25	19.2
abr	19	12.10	19.50	70.49	18.8
abr	25	11.95	19.32	70.29	18.4
may	1	11.83	19.15	70.27	18.0
may	7	11.69	18.97	69.76	17.6
may	13	11.57	18.80	69.33	17.2
may	19	11.46	18.63	68.66	16.8
may	25	11.34	18.48	67.82	16.4
may	31	11.26	18.32	66.98	16.0
jun	6	11.16	18.18	65.80	15.6
jun	12	11.10	18.05	64.76	15.3
jun	18	11.03	17.93	63.34	14.9
jun	24	10.99	17.83	62.12	14.5
jun	30	10.96	17.73	60.54	14.1
jul	6	10.94	17.66	59.07	13.7
jul	12	10.94	17.59	57.52	13.3
jul	18	10.94	17.55	55.82	12.9
jul	24	10.98	17.51	54.34	12.5
jul	30	11.00	17.51	52.57	12.1
ago	5	11.07	17.51	51.11	11.7
ago	11	11.13	17.53	49.42	11.3
ago	17	11.21	17.57	48.02	10.9
ago	23	11.31	17.62	46.53	10.5
ago	29	11.41	17.70	45.22	10.1
sep	4	11.54	17.79	44.07	9.7
sep	10	11.65	17.89	42.88	9.4
sep	16	11.82	18.00	42.13	9.0
sep	22	11.96	18.13	41.21	8.6
sep	28	12.14	18.27	40.78	8.2
oct	4	12.31	18.42	40.31	7.8
oct	10	12.49	18.58	40.20	7.4
oct	16	12.70	18.73	40.21	7.0
oct	22	12.88	18.90	40.42	6.6
oct	28	13.10	19.06	40.97	6.2
nov	3	13.29	19.23	41.48	5.9
nov	9	13.52	19.38	42.52	5.5
nov	15	13.71	19.54	43.40	5.1
nov	21	13.91	19.69	44.74	4.7
nov	27	14.11	19.83	46.07	4.3
dic	3	14.29	19.96	47.61	3.9
dic	9	14.49	20.07	49.31	3.5
dic	15	14.64	20.18	51.00	3.1
dic	21	14.80	20.26	52.97	2.7
dic	27	14.92	20.33	54.72	2.3

Posiciones aparentes de estrellas brillantes, 2017 (a las 0^h del meridiano 90° W.G.)

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	58.82	6.94	35.74	3.4
ene	7	58.94	7.02	37.85	3.0
ene	13	59.04	7.03	40.29	2.6
ene	19	59.08	7.03	42.41	2.2
ene	25	59.10	7.00	44.81	1.8
ene	31	59.06	6.90	46.97	1.4
feb	6	59.00	6.81	49.22	1.0
feb	12	58.90	6.64	51.32	0.6
feb	18	58.76	6.49	53.29	0.2
feb	24	58.60	6.27	55.32	23.8
mar	2	58.39	6.04	56.97	23.4
mar	8	58.17	5.78	58.80	23.0
mar	14	57.91	5.50	60.14	22.6
mar	20	57.66	5.22	61.59	22.2
mar	26	57.36	4.89	62.72	21.8
abr	1	57.06	4.58	63.75	21.4
abr	7	56.75	4.21	64.59	21.0
abr	13	56.43	3.88	65.13	20.6
abr	19	56.12	3.52	65.70	20.2
abr	25	55.79	3.16	65.80	19.8
may	1	55.48	2.80	66.03	19.4
may	7	55.16	2.43	65.74	19.0
may	13	54.87	2.11	65.48	18.6
may	19	54.57	1.74	64.96	18.2
may	25	54.29	1.43	64.21	17.8
may	31	54.03	1.09	63.42	17.4
jun	6	53.78	0.80	62.25	17.0
jun	12	53.57	0.53	61.17	16.6
jun	18	53.36	0.26	59.67	16.2
jun	24	53.20	0.03	58.33	15.8
jun	30	53.04	59.80	56.59	15.4
jul	6	52.92	59.65	54.92	15.0
jul	12	52.83	59.48	53.14	14.6
jul	18	52.76	59.38	51.16	14.2
jul	24	52.74	59.27	49.38	13.8
jul	30	52.73	59.23	47.27	13.4
ago	5	52.77	59.22	45.45	13.0
ago	11	52.82	59.22	43.39	12.6
ago	17	52.92	59.29	41.59	12.2
ago	23	53.04	59.35	39.69	11.8
ago	29	53.20	59.50	37.94	11.4
sep	4	53.39	59.64	36.37	11.0
sep	10	53.60	59.83	34.75	10.7
sep	16	53.85	0.03	33.56	10.3
sep	22	54.10	0.27	32.22	9.9
sep	28	54.41	0.55	31.38	9.5
oct	4	54.71	0.81	30.52	9.1
oct	10	55.04	1.13	30.04	8.7
oct	16	55.38	1.41	29.70	8.3
oct	22	55.73	1.75	29.58	8.0
oct	28	56.10	2.06	29.85	7.6
nov	3	56.44	2.38	30.11	7.2
nov	9	56.81	2.68	30.95	6.8
nov	15	57.15	2.98	31.66	6.4
nov	21	57.51	3.29	32.89	6.0
nov	27	57.82	3.54	34.15	5.6
dic	3	58.13	3.80	35.67	5.3
dic	9	58.41	3.99	37.40	4.9
dic	15	58.67	4.21	39.17	4.5
dic	21	58.90	4.37	41.27	4.1
dic	27	59.08	4.50	43.20	3.7

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	46.36	54.48	45.10	3.6
ene	7	46.53	54.60	47.13	3.2
ene	13	46.69	54.68	49.53	2.8
ene	19	46.78	54.73	51.64	2.4
ene	25	46.86	54.76	54.05	2.1
ene	31	46.88	54.72	56.28	1.7
feb	6	46.88	54.68	58.60	1.3
feb	12	46.82	54.57	60.84	0.9
feb	18	46.74	54.47	62.93	0.5
feb	24	46.63	54.31	65.12	0.1
mar	2	46.47	54.13	66.97	23.7
mar	8	46.31	53.92	69.01	23.3
mar	14	46.08	53.67	70.60	22.9
mar	20	45.87	53.43	72.28	22.5
mar	26	45.61	53.13	73.70	22.1
abr	1	45.34	52.85	74.99	21.7
abr	7	45.06	52.51	76.16	21.3
abr	13	44.76	52.20	76.98	20.9
abr	19	44.47	51.87	77.87	20.5
abr	25	44.14	51.51	78.29	20.1
may	1	43.85	51.17	78.84	19.7
may	7	43.52	50.80	78.89	19.3
may	13	43.23	50.47	78.92	18.9
may	19	42.92	50.10	78.73	18.5
may	25	42.63	49.77	78.27	18.1
may	31	42.36	49.41	77.81	17.6
jun	6	42.08	49.11	76.90	17.2
jun	12	41.85	48.80	76.09	16.8
jun	18	41.60	48.50	74.85	16.4
jun	24	41.41	48.24	73.73	16.0
jun	30	41.21	47.97	72.23	15.6
jul	6	41.06	47.78	70.71	15.2
jul	12	40.92	47.57	69.11	14.8
jul	18	40.80	47.41	67.25	14.4
jul	24	40.73	47.26	65.60	14.1
jul	30	40.67	47.17	63.55	13.7
ago	5	40.66	47.11	61.77	13.3
ago	11	40.66	47.06	59.73	12.9
ago	17	40.72	47.09	57.89	12.5
ago	23	40.78	47.09	55.97	12.1
ago	29	40.90	47.20	54.11	11.7
sep	4	41.04	47.29	52.44	11.3
sep	10	41.20	47.44	50.67	10.9
sep	16	41.42	47.61	49.32	10.5
sep	22	41.64	47.81	47.79	10.1
sep	28	41.92	48.05	46.71	9.8
oct	4	42.19	48.29	45.63	9.4
oct	10	42.50	48.59	44.87	9.0
oct	16	42.82	48.85	44.30	8.6
oct	22	43.17	49.18	43.87	8.2
oct	28	43.53	49.49	43.87	7.8
nov	3	43.88	49.82	43.84	7.4
nov	9	44.27	50.14	44.41	7.1
nov	15	44.61	50.44	44.85	6.7
nov	21	45.00	50.78	45.80	6.3
nov	27	45.34	51.05	46.83	5.9
dic	3	45.68	51.35	48.10	5.5
dic	9	46.00	51.58	49.66	5.1
dic	15	46.30	51.84	51.21	4.8
dic	21	46.58	52.05	53.16	4.4
dic	27	46.81	52.22	54.97	4.0

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	27.08	35.20	7.09	3.3
ene	7	27.28	35.36	9.07	2.9
ene	13	27.47	35.46	11.45	2.5
ene	19	27.58	35.53	13.55	2.1
ene	25	27.69	35.59	15.95	1.7
ene	31	27.72	35.56	18.19	1.3
feb	6	27.73	35.54	20.52	0.9
feb	12	27.68	35.42	22.81	0.5
feb	18	27.60	35.32	24.94	0.1
feb	24	27.48	35.16	27.20	23.7
mar	2	27.30	34.96	29.11	23.3
mar	8	27.13	34.73	31.23	22.9
mar	14	26.88	34.47	32.91	22.5
mar	20	26.64	34.21	34.68	22.1
mar	26	26.35	33.87	36.21	21.7
abr	1	26.05	33.56	37.60	21.3
abr	7	25.72	33.18	38.89	20.9
abr	13	25.38	32.83	39.83	20.5
abr	19	25.05	32.45	40.83	20.1
abr	25	24.67	32.05	41.38	19.7
may	1	24.34	31.65	42.05	19.3
may	7	23.95	31.23	42.22	18.9
may	13	23.61	30.85	42.38	18.5
may	19	23.25	30.42	42.31	18.1
may	25	22.90	30.04	41.96	17.7
may	31	22.57	29.62	41.62	17.3
jun	6	22.24	29.26	40.81	16.9
jun	12	21.95	28.90	40.10	16.5
jun	18	21.65	28.54	38.96	16.1
jun	24	21.41	28.24	37.92	15.7
jun	30	21.15	27.91	36.50	15.3
jul	6	20.95	27.67	35.04	14.9
jul	12	20.77	27.41	33.50	14.5
jul	18	20.61	27.22	31.69	14.1
jul	24	20.50	27.03	30.07	13.7
jul	30	20.40	26.90	28.05	13.3
ago	5	20.37	26.82	26.27	12.9
ago	11	20.34	26.74	24.23	12.5
ago	17	20.38	26.75	22.37	12.1
ago	23	20.43	26.74	20.43	11.7
ago	29	20.54	26.84	18.53	11.3
sep	4	20.69	26.93	16.81	10.9
sep	10	20.85	27.09	14.97	10.5
sep	16	21.08	27.27	13.55	10.1
sep	22	21.31	27.48	11.93	9.7
sep	28	21.62	27.76	10.76	9.4
oct	4	21.91	28.02	9.58	9.0
oct	10	22.27	28.35	8.70	8.6
oct	16	22.62	28.65	8.02	8.2
oct	22	23.01	29.03	7.47	7.8
oct	28	23.42	29.38	7.35	7.4
nov	3	23.81	29.75	7.20	7.1
nov	9	24.25	30.12	7.64	6.7
nov	15	24.65	30.48	7.97	6.3
nov	21	25.08	30.86	8.80	5.9
nov	27	25.47	31.19	9.72	5.5
dic	3	25.87	31.54	10.88	5.1
dic	9	26.23	31.82	12.35	4.8
dic	15	26.58	32.12	13.82	4.4
dic	21	26.91	32.37	15.69	4.0
dic	27	27.17	32.59	17.43	3.6

Posiciones aparentes de estrellas brillantes, 2017 (a las 0h del meridiano 90° W.G.)

24 UMA

4.54 G4 III-IV

α = 09 35 α_c = 09 34 δ = +69 44 hp

mes	d	s	s	"	h
ene	1	58.26	6.37	58.27	4.5
ene	7	58.59	6.67	59.33	4.1
ene	13	58.94	6.93	60.21	3.7
ene	19	59.22	7.17	61.58	3.4
ene	25	59.44	7.34	62.85	3.0
ene	31	59.67	7.51	64.40	2.6
feb	6	59.78	7.58	65.96	2.2
feb	12	59.93	7.67	67.55	1.8
feb	18	59.94	7.66	69.32	1.4
feb	24	59.96	7.64	70.92	1.0
mar	2	59.90	7.56	72.78	0.6
mar	8	59.83	7.44	74.28	0.2
mar	14	59.70	7.29	76.02	23.8
mar	20	59.50	7.07	77.49	23.4
mar	26	59.34	6.86	78.95	23.0
abr	1	59.06	6.57	80.29	22.6
abr	7	58.85	6.31	81.38	22.2
abr	13	58.53	5.97	82.52	21.8
abr	19	58.24	5.64	83.26	21.4
abr	25	57.94	5.31	84.11	21.0
may	1	57.62	4.94	84.44	20.6
may	7	57.33	4.60	84.87	20.2
may	13	56.98	4.22	84.97	19.8
may	19	56.71	3.89	84.91	19.4
may	25	56.38	3.52	84.77	19.0
may	31	56.16	3.21	84.20	18.6
jun	6	55.86	2.89	83.75	18.2
jun	12	55.63	2.58	82.88	17.8
jun	18	55.43	2.33	82.12	17.4
jun	24	55.22	2.06	80.94	17.0
jun	30	55.10	1.87	79.80	16.6
jul	6	54.93	1.65	78.49	16.2
jul	12	54.87	1.51	77.02	15.8
jul	18	54.76	1.37	75.64	15.4
jul	24	54.76	1.29	73.83	15.0
jul	30	54.73	1.24	72.30	14.6
ago	5	54.76	1.20	70.43	14.2
ago	11	54.83	1.24	68.75	13.8
ago	17	54.89	1.25	66.87	13.4
ago	23	55.06	1.37	65.01	13.0
ago	29	55.16	1.46	63.18	12.7
sep	4	55.38	1.63	61.25	12.3
sep	10	55.57	1.80	59.57	11.9
sep	16	55.84	2.02	57.58	11.5
sep	22	56.10	2.27	55.96	11.1
sep	28	56.39	2.53	54.15	10.7
oct	4	56.75	2.85	52.60	10.3
oct	10	57.06	3.15	51.04	9.9
oct	16	57.49	3.52	49.54	9.6
oct	22	57.85	3.86	48.28	9.2
oct	28	58.30	4.26	46.96	8.8
nov	3	58.72	4.65	46.06	8.4
nov	9	59.19	5.05	44.94	8.0
nov	15	59.66	5.49	44.32	7.7
nov	21	60.10	5.88	43.66	5.6
nov	27	60.61	6.32	43.29	5.2
dic	3	61.03	6.71	43.12	4.8
dic	9	61.56	7.14	42.98	4.4
dic	15	61.97	7.52	43.26	4.1
dic	21	62.43	7.89	43.51	3.7
dic	27	62.84	8.26	44.25	3.3

I CAR

3.99 F2 V

α = 10 24 α_c = 10 23 δ = -74 06 hp

mes	d	s	s	"	h
ene	1	48.33	56.45	50.99	5.0
ene	7	48.70	56.77	52.63	4.7
ene	13	49.07	57.06	54.75	4.3
ene	19	49.34	57.29	56.65	3.9
ene	25	49.63	57.52	58.86	3.5
ene	31	49.80	57.65	61.07	3.1
feb	6	49.98	57.79	63.34	2.7
feb	12	50.06	57.81	65.73	2.3
feb	18	50.12	57.85	67.93	1.9
feb	24	50.14	57.81	70.37	1.5
mar	2	50.06	57.72	72.52	1.1
mar	8	50.00	57.61	74.92	0.8
mar	14	49.82	57.41	76.97	0.4
mar	20	49.67	57.24	79.08	24.0
mar	26	49.43	56.96	81.10	23.6
abr	1	49.19	56.70	82.93	23.2
abr	7	48.89	56.34	84.79	22.7
abr	13	48.56	56.01	86.25	22.3
abr	19	48.24	55.64	87.83	21.9
abr	25	47.83	55.21	89.01	21.5
may	1	47.48	54.80	90.29	21.1
may	7	47.04	54.31	91.15	20.7
may	13	46.65	53.89	91.90	20.3
may	19	46.21	53.38	92.53	19.9
may	25	45.77	52.92	92.81	19.5
may	31	45.35	52.40	93.16	19.1
jun	6	44.90	51.92	92.98	18.7
jun	12	44.50	51.45	92.87	18.3
jun	18	44.05	50.95	92.36	17.9
jun	24	43.69	50.52	91.86	17.5
jun	30	43.27	50.03	91.04	17.1
jul	6	42.93	49.65	90.03	16.7
jul	12	42.59	49.23	88.98	16.3
jul	18	42.26	48.88	87.55	15.9
jul	24	42.01	48.54	86.32	15.5
jul	30	41.74	48.24	84.59	15.1
ago	5	41.57	48.01	83.03	14.7
ago	11	41.37	47.78	81.20	14.3
ago	17	41.28	47.65	79.40	13.9
ago	23	41.18	47.50	77.56	13.5
ago	29	41.18	47.48	75.58	13.1
sep	4	41.21	47.46	73.79	12.7
sep	10	41.27	47.50	71.78	12.3
sep	16	41.42	47.61	70.14	11.9
sep	22	41.57	47.74	68.24	11.5
sep	28	41.84	47.97	66.67	11.1
oct	4	42.08	48.19	65.12	10.7
oct	10	42.43	48.52	63.75	10.3
oct	16	42.78	48.81	62.62	10.0
oct	22	43.19	49.21	61.48	9.6
oct	28	43.65	49.61	60.80	9.2
nov	3	44.09	50.02	60.06	8.8
nov	9	44.62	50.49	59.89	8.4
nov	15	45.09	50.92	59.63	8.1
nov	21	45.65	51.43	59.79	7.7
nov	27	46.15	51.87	60.16	7.3
dic	3	46.69	52.36	60.69	6.9
dic	9	47.20	52.78	61.67	6.5
dic	15	47.70	53.24	62.58	6.2
dic	21	48.20	53.66	63.97	5.8
dic	27	48.62	54.03	65.30	5.4

37 UMA

5.16 F1 V

α = 10 36 α_c = 10 35 δ = +56 59 hp

mes	d	s	s	"	h
ene	1	14.65	22.77	23.57	4.3
ene	7	14.91	22.99	23.92	3.9
ene	13	15.20	23.20	24.11	3.5
ene	19	15.44	23.39	24.81	3.1
ene	25	15.65	23.55	25.49	2.7
ene	31	15.87	23.71	26.42	2.3
feb	6	16.01	23.81	27.51	2.0
feb	12	16.18	23.93	28.60	1.6
feb	18	16.26	23.98	30.02	1.2
feb	24	16.35	24.03	31.28	0.8
mar	2	16.39	24.04	32.89	0.4
mar	8	16.41	24.02	34.23	24.0
mar	14	16.40	23.99	35.85	23.6
mar	20	16.34	23.90	37.34	23.2
mar	26	16.30	23.82	38.81	22.8
abr	1	16.18	23.69	40.32	22.4
abr	7	16.11	23.56	41.57	22.0
abr	13	15.95	23.40	43.00	21.6
abr	19	15.82	23.22	44.06	21.2
abr	25	15.66	23.03	45.26	20.8
may	1	15.50	22.81	46.04	20.4
may	7	15.34	22.61	46.90	20.0
may	13	15.14	22.38	47.55	19.6
may	19	14.99	22.17	47.99	19.2
may	25	14.79	21.93	48.43	18.8
may	31	14.66	21.71	48.41	18.4
jun	6	14.46	21.49	48.56	18.0
jun	12	14.31	21.26	48.29	17.6
jun	18	14.17	21.07	48.08	17.2
jun	24	14.02	20.86	47.52	16.8
jun	30	13.92	20.69	46.90	16.4
jul	6	13.78	20.50	46.17	16.0
jul	12	13.71	20.36	45.20	15.6
jul	18	13.60	20.21	44.32	15.2
jul	24	13.56	20.09	42.97	14.8
jul	30	13.49	19.99	41.86	14.4
ago	5	13.46	19.90	40.40	14.1
ago	11	13.45	19.86	39.02	13.7
ago	17	13.43	19.80	37.47	13.3
ago	23	13.48	19.80	35.80	12.9
ago	29	13.49	19.79	34.21	12.5
sep	4	13.57	19.82	32.38	12.1
sep	10	13.63	19.86	30.79	11.7
sep	16	13.74	19.93	28.81	11.3
sep	22	13.86	20.02	27.14	10.9
sep	28	13.98	20.12	25.25	10.5
oct	4	14.16	20.27	23.49	10.1
oct	10	14.31	20.40	21.74	9.7
oct	16	14.55	20.58	19.91	9.4
oct	22	14.74	20.76	18.33	9.0
oct	28	15.00	20.96	16.60	8.6
nov	3	15.24	21.18	15.22	8.2
nov	9	15.53	21.39	13.60	7.8
nov	15	15.81	21.64	12.39	7.4
nov	21	16.10	21.88	11.15	7.0
nov	27	16.43	22.14	10.10	6.6
dic	3	16.71	22.39	9.29	6.3
dic	9	17.07	22.66	8.40	5.9
dic	15	17.36	22.91	7.98	5.5
dic	21	17.69	23.16	7.49	5.1
dic	27	18.00	23.41	7.47	4.7

Posiciones aparentes de estrellas brillantes, 2017 (a las 0^h del meridiano 90° W.G.)

β UMA

2.34 A1 V

		α	α_c	δ	
		h m	h m	° ′	
		11 02	11 01	+56 17	hp
mes	d	s	s	″	h
ene	1	51.10	59.22	10.96	5.8
ene	7	51.37	59.45	71.10	5.4
ene	13	51.67	59.66	71.11	5.0
ene	19	51.92	59.87	71.61	4.6
ene	25	52.15	60.04	72.14	4.2
ene	31	52.38	60.22	72.91	3.8
feb	6	52.54	60.35	73.88	3.4
feb	12	52.74	60.48	74.84	3.0
feb	18	52.84	60.57	76.17	2.7
feb	24	52.96	60.64	77.37	2.3
mar	2	53.02	60.68	78.93	1.9
mar	8	53.08	60.68	80.26	1.5
mar	14	53.09	60.68	81.87	1.1
mar	20	53.06	60.63	83.40	0.7
mar	26	53.05	60.57	84.91	0.3
abr	1	52.96	60.47	86.50	23.9
abr	7	52.91	60.36	87.83	23.5
abr	13	52.77	60.22	89.37	23.1
abr	19	52.66	60.06	90.57	22.7
abr	25	52.53	59.90	91.89	22.3
may	1	52.38	59.70	92.85	21.9
may	7	52.24	59.51	93.86	21.5
may	13	52.05	59.29	94.70	21.1
may	19	51.91	59.08	95.30	20.7
may	25	51.71	58.86	95.93	20.3
may	31	51.58	58.64	96.08	19.9
jun	6	51.40	58.42	96.42	19.5
jun	12	51.24	58.19	96.34	19.1
jun	18	51.09	57.99	96.28	18.7
jun	24	50.93	57.77	95.91	18.3
jun	30	50.82	57.59	95.43	17.9
jul	6	50.67	57.39	94.88	17.5
jul	12	50.58	57.23	94.03	17.1
jul	18	50.45	57.06	93.29	16.7
jul	24	50.39	56.92	92.05	16.3
jul	30	50.30	56.80	91.03	15.9
ago	5	50.24	56.68	89.67	15.5
ago	11	50.21	56.61	88.35	15.1
ago	17	50.16	56.52	86.87	14.7
ago	23	50.18	56.49	85.22	14.4
ago	29	50.16	56.45	83.66	14.0
sep	4	50.21	56.45	81.83	13.6
sep	10	50.23	56.47	80.22	13.2
sep	16	50.31	56.50	78.22	12.8
sep	22	50.40	56.56	76.49	12.4
sep	28	50.49	56.63	74.55	12.0
oct	4	50.64	56.74	72.69	11.6
oct	10	50.76	56.85	70.86	11.2
oct	16	50.97	57.00	68.90	10.8
oct	22	51.13	57.15	67.20	10.4
oct	28	51.36	57.32	65.32	10.0
nov	3	51.58	57.52	63.78	9.7
nov	9	51.84	57.71	62.00	9.3
nov	15	52.11	57.94	60.59	8.9
nov	21	52.37	58.15	59.18	8.5
nov	27	52.69	58.40	57.90	8.1
dic	3	52.96	58.64	56.90	7.7
dic	9	53.31	58.90	55.78	7.3
dic	15	53.60	59.14	55.15	7.0
dic	21	53.92	59.39	54.45	6.6
dic	27	54.23	59.64	54.20	6.2

δ LEO

2.56 A4 V

		α	α_c	δ	
		h m	h m	° ′	
		11 14	11 14	+20 25	hp
mes	d	s	s	″	h
ene	1	0.53	8.65	41.66	4.5
ene	7	0.70	8.78	40.95	4.1
ene	13	0.91	8.91	40.03	3.7
ene	19	1.07	9.03	39.53	3.4
ene	25	1.23	9.13	39.00	3.0
ene	31	1.39	9.23	38.64	2.6
feb	6	1.50	9.31	38.46	2.2
feb	12	1.64	9.38	38.25	1.8
feb	18	1.71	9.44	38.41	1.4
feb	24	1.80	9.48	38.43	1.0
mar	2	1.85	9.51	38.82	0.6
mar	8	1.90	9.51	39.03	0.2
mar	14	1.92	9.51	39.55	23.8
mar	20	1.92	9.49	40.07	23.4
mar	26	1.93	9.46	40.59	23.0
abr	1	1.89	9.41	41.30	22.7
abr	7	1.89	9.35	41.82	22.3
abr	13	1.82	9.27	42.66	21.9
abr	19	1.78	9.18	43.24	21.5
abr	25	1.72	9.09	44.04	21.1
may	1	1.66	8.98	44.60	20.7
may	7	1.59	8.87	45.31	20.3
may	13	1.51	8.75	45.97	19.9
may	19	1.45	8.62	46.49	19.5
may	25	1.35	8.49	47.16	19.1
may	31	1.31	8.36	47.46	18.7
jun	6	1.21	8.23	48.05	18.3
jun	12	1.14	8.09	48.34	17.9
jun	18	1.07	7.97	48.74	17.5
jun	24	1.00	7.83	48.93	17.1
jun	30	0.95	7.71	49.09	16.7
jul	6	0.87	7.59	49.28	16.3
jul	12	0.83	7.48	49.23	15.9
jul	18	0.76	7.38	49.37	15.5
jul	24	0.75	7.28	49.07	15.1
jul	30	0.69	7.19	49.04	14.7
ago	5	0.67	7.11	48.72	14.3
ago	11	0.65	7.05	48.46	13.9
ago	17	0.62	6.99	48.08	13.5
ago	23	0.64	6.95	47.53	13.2
ago	29	0.62	6.92	47.10	12.8
sep	4	0.66	6.90	46.37	12.4
sep	10	0.66	6.90	45.82	12.0
sep	16	0.72	6.91	44.87	11.6
sep	22	0.76	6.93	44.12	11.2
sep	28	0.83	6.97	43.14	10.8
oct	4	0.92	7.02	42.14	10.4
oct	10	0.99	7.08	41.12	10.0
oct	16	1.13	7.15	39.87	9.6
oct	22	1.22	7.24	38.82	9.2
oct	28	1.38	7.34	37.46	8.8
nov	3	1.51	7.45	36.33	8.4
nov	9	1.69	7.56	34.86	8.1
nov	15	1.86	7.69	33.63	7.7
nov	21	2.03	7.81	32.28	7.3
nov	27	2.24	7.96	30.94	6.9
dic	3	2.42	8.09	29.75	6.5
dic	9	2.66	8.24	28.31	6.1
dic	15	2.84	8.38	27.26	5.7
dic	21	3.06	8.53	26.01	5.3
dic	27	3.26	8.67	25.09	4.9

β VIR

3.6 F9 V

		α	α_c	δ	
		h m	h m	° ′	
		11 51	11 50	+01 40	hp
mes	d	s	s	″	h
ene	1	34.74	42.86	67.99	6.1
ene	7	34.91	42.99	66.90	5.7
ene	13	35.12	43.11	65.55	5.3
ene	19	35.28	43.23	64.54	4.9
ene	25	35.45	43.34	63.48	4.5
ene	31	35.61	43.45	62.49	4.2
feb	6	35.73	43.54	61.69	3.8
feb	12	35.88	43.62	60.79	3.4
feb	18	35.96	43.69	60.27	3.0
feb	24	36.07	43.75	59.58	2.6
mar	2	36.13	43.79	59.23	2.2
mar	8	36.21	43.82	58.74	1.8
mar	14	36.25	43.84	58.54	1.4
mar	20	36.27	43.84	58.39	1.0
mar	26	36.30	43.83	58.23	0.6
abr	1	36.29	43.80	58.32	0.2
abr	7	36.31	43.77	58.24	23.8
abr	13	36.27	43.72	58.53	23.4
abr	19	36.26	43.66	58.62	23.1
abr	25	36.21	43.59	58.94	22.7
may	1	36.19	43.50	59.12	22.3
may	7	36.14	43.41	59.47	21.9
may	13	36.07	43.31	59.89	21.5
may	19	36.03	43.21	60.17	21.1
may	25	35.95	43.09	60.70	20.7
may	31	35.92	42.98	60.90	20.3
jun	6	35.83	42.86	61.48	19.9
jun	12	35.78	42.73	61.81	19.5
jun	18	35.71	42.61	62.29	19.1
jun	24	35.65	42.48	62.67	18.7
jun	30	35.60	42.36	63.03	18.3
jul	6	35.52	42.24	63.52	17.9
jul	12	35.48	42.12	63.79	17.5
jul	18	35.40	42.01	64.30	17.1
jul	24	35.37	41.90	64.45	16.7
jul	30	35.30	41.80	64.89	16.3
ago	5	35.27	41.71	65.11	15.9
ago	11	35.23	41.63	65.36	15.5
ago	17	35.19	41.56	65.59	15.1
ago	23	35.18	41.50	65.62	14.7
ago	29	35.15	41.44	65.83	14.3
sep	4	35.16	41.41	65.73	14.0
sep	10	35.14	41.38	65.82	13.6
sep	16	35.19	41.37	65.53	13.2
sep	22	35.18	41.35	65.63	12.8
sep	28	35.23	41.37	65.17	12.4
oct	4	35.29	41.39	64.76	12.0
oct	10	35.35	41.43	64.35	11.6
oct	16	35.45	41.48	63.64	11.2
oct	22	35.53	41.54	63.12	10.8
oct	28	35.66	41.62	62.24	10.4
nov	3	35.77	41.71	61.51	10.0
nov	9	35.93	41.80	60.42	9.6
nov	15	36.08	41.91	59.47	9.2
nov	21	36.24	42.02	58.38	8.9
nov	27	36.43	42.14	57.16	8.5
dic	3	36.59	42.27	56.07	8.1
dic	9	36.81	42.40	54.62	7.7
dic	15	36.99	42.53	53.50	7.3
dic	21	37.20	42.67	52.10	6.9
dic	27	37.39	42.80	50.92	6.5

Posiciones aparentes de estrellas brillantes, 2017 (a las 0^h del meridiano 90° W.G.)

γ UMA

2.41 A0 VE

α = 11 54 α_c = 11 53 δ = +53 35 hp

mes	d	s	s	"	h
ene	1	42.34	50.46	45.76	6.4
ene	7	42.61	50.69	45.47	6.0
ene	13	42.91	50.90	45.07	5.6
ene	19	43.17	51.12	45.15	5.2
ene	25	43.41	51.31	45.32	4.8
ene	31	43.67	51.51	45.68	4.4
feb	6	43.86	51.67	46.35	4.0
feb	12	44.09	51.83	46.99	3.7
feb	18	44.23	51.96	48.07	3.3
feb	24	44.39	52.06	49.05	2.9
mar	2	44.50	52.16	50.41	2.5
mar	8	44.60	52.21	51.63	2.1
mar	14	44.67	52.26	53.12	1.7
mar	20	44.69	52.25	54.65	1.3
mar	26	44.73	52.25	56.13	0.9
abr	1	44.69	52.21	57.80	0.5
abr	7	44.69	52.15	59.21	0.1
abr	13	44.61	52.06	60.89	23.7
abr	19	44.55	51.95	62.28	23.3
abr	25	44.46	51.84	63.79	22.9
may	1	44.36	51.68	65.03	22.5
may	7	44.26	51.53	66.28	22.1
may	13	44.11	51.35	67.46	21.7
may	19	44.00	51.17	68.36	21.4
may	25	43.83	50.97	69.35	21.0
may	31	43.72	50.77	69.84	20.6
jun	6	43.55	50.57	70.54	20.2
jun	12	43.40	50.35	70.84	19.8
jun	18	43.26	50.16	71.12	19.4
jun	24	43.10	49.93	71.15	19.0
jun	30	42.98	49.74	70.99	18.6
jul	6	42.81	49.53	70.81	18.2
jul	12	42.70	49.35	70.28	17.8
jul	18	42.55	49.17	69.86	17.4
jul	24	42.46	48.99	68.92	17.0
jul	30	42.34	48.84	68.17	16.6
ago	5	42.24	48.69	67.08	16.2
ago	11	42.17	48.57	65.95	15.8
ago	17	42.07	48.44	64.72	15.4
ago	23	42.04	48.36	63.20	15.0
ago	29	41.97	48.27	61.81	14.6
sep	4	41.96	48.21	60.09	14.2
sep	10	41.93	48.17	58.55	13.8
sep	16	41.96	48.14	56.61	13.4
sep	22	41.98	48.15	54.86	13.0
sep	28	42.01	48.15	52.94	12.6
oct	4	42.10	48.20	50.98	12.2
oct	10	42.16	48.24	49.09	11.8
oct	16	42.30	48.33	46.97	11.4
oct	22	42.41	48.42	45.13	11.1
oct	28	42.58	48.54	43.05	10.7
nov	3	42.74	48.68	41.26	10.3
nov	9	42.95	48.82	39.24	9.9
nov	15	43.17	49.00	37.50	9.5
nov	21	43.38	49.16	35.79	9.1
nov	27	43.66	49.37	34.14	8.7
dic	3	43.89	49.57	32.78	8.3
dic	9	44.21	49.79	31.25	8.0
dic	15	44.47	50.01	30.22	7.6
dic	21	44.77	50.23	29.10	7.2
dic	27	45.06	50.48	28.39	6.8

88 G CEN

5.25 F6 V

α = 12 04 α_c = 12 03 δ = -42 31 hp

mes	d	s	s	"	h
ene	1	33.16	41.28	29.65	6.3
ene	7	33.37	41.45	30.88	5.9
ene	13	33.63	41.62	32.52	5.5
ene	19	33.82	41.77	33.99	5.1
ene	25	34.03	41.93	35.65	4.7
ene	31	34.22	42.06	37.41	4.3
feb	6	34.38	42.19	39.11	3.9
feb	12	34.55	42.29	41.05	3.6
feb	18	34.66	42.39	42.71	3.2
feb	24	34.80	42.47	44.64	2.8
mar	2	34.87	42.53	46.33	2.4
mar	8	34.97	42.58	48.22	2.0
mar	14	35.01	42.60	49.88	1.6
mar	20	35.06	42.62	51.50	1.2
mar	26	35.09	42.61	53.18	0.8
abr	1	35.08	42.60	54.60	0.4
abr	7	35.10	42.55	56.19	0.0
abr	13	35.05	42.50	57.37	23.6
abr	19	35.04	42.44	58.70	23.2
abr	25	34.97	42.35	59.76	22.8
may	1	34.94	42.26	60.88	22.4
may	7	34.86	42.14	61.75	22.0
may	13	34.78	42.02	62.45	21.6
may	19	34.71	41.89	63.19	21.3
may	25	34.60	41.74	63.57	20.9
may	31	34.54	41.59	64.15	20.5
jun	6	34.41	41.43	64.22	20.1
jun	12	34.32	41.27	64.40	19.7
jun	18	34.20	41.10	64.32	19.3
jun	24	34.10	40.94	64.17	18.9
jun	30	33.99	40.75	63.91	18.5
jul	6	33.87	40.59	63.35	18.1
jul	12	33.77	40.42	62.89	17.7
jul	18	33.64	40.26	62.04	17.3
jul	24	33.57	40.10	61.42	16.9
jul	30	33.44	39.94	60.36	16.5
ago	5	33.37	39.81	59.39	16.1
ago	11	33.27	39.67	58.28	15.7
ago	17	33.20	39.57	57.07	15.3
ago	23	33.14	39.45	55.94	14.9
ago	29	33.07	39.37	54.53	14.5
sep	4	33.05	39.30	53.36	14.1
sep	10	33.00	39.24	51.92	13.7
sep	16	33.03	39.21	50.78	13.3
sep	22	33.02	39.19	49.43	12.9
sep	28	33.06	39.20	48.24	12.5
oct	4	33.11	39.21	47.14	12.1
oct	10	33.18	39.26	46.03	11.7
oct	16	33.28	39.31	45.24	11.4
oct	22	33.38	39.39	44.28	11.0
oct	28	33.53	39.49	43.73	10.6
nov	3	33.66	39.60	43.12	10.2
nov	9	33.86	39.73	42.93	9.8
nov	15	34.03	39.86	42.70	9.4
nov	21	34.25	40.03	42.71	9.0
nov	27	34.47	40.18	42.98	8.6
dic	3	34.68	40.36	43.27	8.2
dic	9	34.94	40.53	44.06	7.9
dic	15	35.16	40.71	44.66	7.5
dic	21	35.43	40.89	45.70	7.1
dic	27	35.65	41.06	46.71	6.7

o VIR

4.12 G8 III

α = 12 06 α_c = 12 05 δ = +08 38 hp

mes	d	s	s	"	h
ene	1	4.20	12.32	17.31	5.5
ene	7	4.37	12.45	16.28	5.1
ene	13	4.58	12.58	15.03	4.7
ene	19	4.75	12.70	14.12	4.3
ene	25	4.92	12.82	13.21	3.9
ene	31	5.09	12.93	12.36	3.5
feb	6	5.22	13.03	11.75	3.1
feb	12	5.37	13.12	11.03	2.8
feb	18	5.47	13.20	10.73	2.4
feb	24	5.59	13.26	10.27	2.0
mar	2	5.66	13.32	10.15	1.6
mar	8	5.75	13.35	9.92	1.2
mar	14	5.79	13.38	9.96	0.8
mar	20	5.83	13.39	10.08	0.4
mar	26	5.87	13.39	10.17	0.0
abr	1	5.86	13.37	10.53	23.6
abr	7	5.89	13.34	10.69	23.2
abr	13	5.85	13.30	11.22	22.8
abr	19	5.85	13.25	11.55	22.4
abr	25	5.81	13.18	12.09	22.0
may	1	5.78	13.10	12.49	21.6
may	7	5.74	13.01	13.02	21.2
may	13	5.68	12.92	13.62	20.8
may	19	5.64	12.81	14.05	20.5
may	25	5.56	12.70	14.71	20.1
may	31	5.53	12.59	15.02	19.7
jun	6	5.44	12.47	15.67	19.3
jun	12	5.39	12.34	16.07	18.9
jun	18	5.32	12.22	16.57	18.5
jun	24	5.25	12.09	16.97	18.1
jun	30	5.20	11.96	17.29	17.7
jul	6	5.12	11.84	17.74	17.3
jul	12	5.07	11.72	17.94	16.9
jul	18	4.98	11.60	18.36	16.5
jul	24	4.95	11.49	18.39	16.1
jul	30	4.88	11.38	18.68	15.7
ago	5	4.84	11.28	18.75	15.3
ago	11	4.79	11.19	18.82	14.9
ago	17	4.74	11.11	18.86	14.5
ago	23	4.73	11.04	18.67	14.1
ago	29	4.68	10.98	18.66	13.7
sep	4	4.69	10.93	18.34	13.3
sep	10	4.66	10.90	18.20	12.9
sep	16	4.69	10.87	17.70	12.5
sep	22	4.69	10.86	17.37	12.1
sep	28	4.72	10.86	16.80	11.8
oct	4	4.77	10.87	16.13	11.4
oct	10	4.81	10.90	15.49	11.0
oct	16	4.91	10.94	14.54	10.6
oct	22	4.98	10.99	13.80	10.2
oct	28	5.10	11.06	12.71	9.8
nov	3	5.20	11.14	11.79	9.4
nov	9	5.35	11.22	10.53	9.0
nov	15	5.49	11.32	9.41	8.6
nov	21	5.65	11.43	8.19	8.2
nov	27	5.83	11.55	6.86	7.8
dic	3	5.99	11.67	5.68	7.5
dic	9	6.21	11.79	4.16	7.1
dic	15	6.38	11.93	3.00	6.7
dic	21	6.60	12.06	1.59	6.3
dic	27	6.78	12.20	0.41	5.9

Posiciones aparentes de estrellas brillantes, 2017 (a las 0^h del meridiano 90° W.G.)

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	14.60	22.72	62.69	5.9
ene	7	14.89	22.97	62.29	5.6
ene	13	15.21	23.20	61.81	5.2
ene	19	15.50	23.45	61.79	4.8
ene	25	15.77	23.67	61.91	4.4
ene	31	16.06	23.90	62.20	4.0
feb	6	16.28	24.09	62.83	3.6
feb	12	16.53	24.28	63.42	3.2
feb	18	16.71	24.43	64.49	2.9
feb	24	16.90	24.57	65.47	2.5
mar	2	17.04	24.70	66.83	2.1
mar	8	17.16	24.77	68.10	1.7
mar	14	17.26	24.85	69.62	1.3
mar	20	17.30	24.87	71.21	0.9
mar	26	17.36	24.89	72.75	0.5
abr	1	17.35	24.86	74.52	0.1
abr	7	17.36	24.82	76.01	23.7
abr	13	17.30	24.75	77.81	23.3
abr	19	17.24	24.64	79.32	22.9
abr	25	17.16	24.54	80.94	22.5
may	1	17.06	24.38	82.32	22.1
may	7	16.96	24.24	83.69	21.7
may	13	16.81	24.05	85.01	21.3
may	19	16.69	23.87	86.03	20.9
may	25	16.52	23.66	87.16	20.5
may	31	16.39	23.45	87.79	20.1
jun	6	16.21	23.23	88.60	19.7
jun	12	16.04	22.99	89.04	19.3
jun	18	15.88	22.78	89.42	18.9
jun	24	15.70	22.53	89.57	18.5
jun	30	15.56	22.32	89.49	18.1
jul	6	15.37	22.09	89.41	17.7
jul	12	15.23	21.88	88.95	17.3
jul	18	15.06	21.67	88.59	16.9
jul	24	14.93	21.46	87.71	16.5
jul	30	14.79	21.29	86.99	16.2
ago	5	14.65	21.10	85.94	15.8
ago	11	14.55	20.96	84.82	15.4
ago	17	14.43	20.79	83.60	15.0
ago	23	14.37	20.68	82.06	14.6
ago	29	14.26	20.56	80.66	14.2
sep	4	14.23	20.47	78.90	13.8
sep	10	14.17	20.41	77.31	13.4
sep	16	14.16	20.35	75.34	13.0
sep	22	14.16	20.33	73.51	12.6
sep	28	14.17	20.31	71.53	12.2
oct	4	14.23	20.34	69.48	11.8
oct	10	14.28	20.36	67.52	11.4
oct	16	14.40	20.43	65.29	11.0
oct	22	14.49	20.50	63.35	10.6
oct	28	14.64	20.60	61.16	10.2
nov	3	14.80	20.73	59.25	9.8
nov	9	14.99	20.86	57.13	9.5
nov	15	15.21	21.04	55.25	9.1
nov	21	15.42	21.20	53.43	8.7
nov	27	15.70	21.41	51.64	8.3
dic	3	15.94	21.61	50.17	7.9
dic	9	16.26	21.84	48.50	7.5
dic	15	16.53	22.07	47.35	7.1
dic	21	16.85	22.31	46.12	6.7
dic	27	17.16	22.57	45.28	6.4

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	7.72	15.84	9.08	6.0
ene	7	8.00	16.08	10.04	5.6
ene	13	8.33	16.32	11.44	5.2
ene	19	8.59	16.54	12.75	4.9
ene	25	8.88	16.77	14.27	4.5
ene	31	9.12	16.96	15.99	4.1
feb	6	9.36	17.16	17.66	3.7
feb	12	9.58	17.33	19.65	3.3
feb	18	9.76	17.48	21.39	2.9
feb	24	9.95	17.63	23.46	2.5
mar	2	10.07	17.73	25.36	2.1
mar	8	10.23	17.84	27.47	1.7
mar	14	10.30	17.89	29.42	1.4
mar	20	10.39	17.96	31.34	1.0
mar	26	10.45	17.97	33.39	0.6
abr	1	10.47	17.99	35.19	0.2
abr	7	10.51	17.96	37.20	23.8
abr	13	10.47	17.92	38.80	23.4
abr	19	10.47	17.87	40.57	23.0
abr	25	10.40	17.77	42.11	22.6
may	1	10.37	17.69	43.68	22.2
may	7	10.27	17.55	45.04	21.8
may	13	10.18	17.42	46.19	21.4
may	19	10.08	17.26	47.41	21.0
may	25	9.94	17.09	48.25	20.6
may	31	9.84	16.90	49.28	20.2
jun	6	9.67	16.69	49.79	19.8
jun	12	9.55	16.50	50.36	19.4
jun	18	9.36	16.26	50.68	19.0
jun	24	9.22	16.05	50.87	18.6
jun	30	9.04	15.80	50.96	18.2
jul	6	8.86	15.58	50.68	17.8
jul	12	8.70	15.35	50.47	17.4
jul	18	8.50	15.11	49.85	17.0
jul	24	8.36	14.89	49.39	16.6
jul	30	8.16	14.67	48.47	16.2
ago	5	8.03	14.47	47.56	15.8
ago	11	7.86	14.26	46.50	15.4
ago	17	7.72	14.09	45.26	15.0
ago	23	7.60	13.91	44.09	14.6
ago	29	7.48	13.78	42.56	14.2
sep	4	7.41	13.65	41.22	13.8
sep	10	7.30	13.54	39.58	13.4
sep	16	7.29	13.47	38.19	13.0
sep	22	7.24	13.41	36.54	12.7
sep	28	7.26	13.40	34.99	12.3
oct	4	7.28	13.38	33.53	11.9
oct	10	7.34	13.42	32.00	11.5
oct	16	7.44	13.47	30.78	11.1
oct	22	7.53	13.55	29.35	10.7
oct	28	7.70	13.66	28.31	10.3
nov	3	7.84	13.78	27.20	9.9
nov	9	8.08	13.95	26.49	9.5
nov	15	8.28	14.11	25.77	9.1
nov	21	8.54	14.32	25.24	8.7
nov	27	8.80	14.51	25.03	8.4
dic	3	9.07	14.74	24.83	8.0
dic	9	9.39	14.97	25.16	7.6
dic	15	9.67	15.21	25.32	7.2
dic	21	10.00	15.47	25.96	6.8
dic	27	10.28	15.70	26.62	6.4

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	23.01	31.13	58.78	6.8
ene	7	23.22	31.30	59.75	6.4
ene	13	23.49	31.48	61.10	6.0
ene	19	23.69	31.64	62.33	5.7
ene	25	23.92	31.82	63.71	5.3
ene	31	24.13	31.97	65.26	4.9
feb	6	24.32	32.12	66.70	4.5
feb	12	24.51	32.26	68.44	4.1
feb	18	24.66	32.38	69.89	3.7
feb	24	24.83	32.50	71.62	3.3
mar	2	24.94	32.59	73.16	2.9
mar	8	25.08	32.69	74.86	2.5
mar	14	25.16	32.75	76.42	2.1
mar	20	25.24	32.81	77.90	1.8
mar	26	25.32	32.84	79.51	1.4
abr	1	25.36	32.87	80.84	1.0
abr	7	25.41	32.87	82.40	0.6
abr	13	25.41	32.86	83.55	0.2
abr	19	25.44	32.84	84.86	23.8
abr	25	25.41	32.79	85.97	23.4
may	1	25.42	32.74	87.10	23.0
may	7	25.38	32.66	88.08	22.6
may	13	25.34	32.58	88.84	22.2
may	19	25.30	32.48	89.71	21.8
may	25	25.22	32.36	90.22	21.4
may	31	25.19	32.24	90.96	21.0
jun	6	25.08	32.10	91.23	20.6
jun	12	25.02	31.97	91.58	20.2
jun	18	24.91	31.81	91.75	19.8
jun	24	24.83	31.67	91.80	19.4
jun	30	24.73	31.50	91.82	19.0
jul	6	24.62	31.34	91.50	18.6
jul	12	24.53	31.17	91.31	18.2
jul	18	24.39	31.01	90.74	17.8
jul	24	24.32	30.85	90.38	17.5
jul	30	24.18	30.68	89.61	17.1
ago	5	24.09	30.54	88.88	16.7
ago	11	23.98	30.38	88.06	16.3
ago	17	23.88	30.25	87.06	15.9
ago	23	23.81	30.12	86.20	15.5
ago	29	23.71	30.01	84.99	15.1
sep	4	23.66	29.91	84.01	14.7
sep	10	23.58	29.82	82.76	14.3
sep	16	23.57	29.75	81.75	13.9
sep	22	23.52	29.69	80.54	13.5
sep	28	23.53	29.67	79.40	13.1
oct	4	23.54	29.64	78.39	12.7
oct	10	23.56	29.65	77.28	12.3
oct	16	23.63	29.66	76.51	11.9
oct	22	23.69	29.70	75.50	11.5
oct	28	23.81	29.77	74.88	11.1
nov	3	23.90	29.84	74.18	10.7
nov	9	24.07	29.94	73.83	10.3
nov	15	24.21	30.04	73.48	10.0
nov	21	24.39	30.17	73.27	9.6
nov	27	24.59	30.30	73.37	9.2
dic	3	24.78	30.45	73.42	8.8
dic	9	25.03	30.61	73.98	8.4
dic	15	25.23	30.77	74.33	8.0
dic	21	25.49	30.95	75.10	7.6
dic	27	25.70	31.12	75.87	7.2

Posiciones aparentes de estrellas brillantes, 2017 (a las 0^h del meridiano 90° W.G.)

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	0.74	8.85	64.71	6.3
ene	7	0.91	8.99	63.59	5.9
ene	13	1.13	9.13	62.29	5.6
ene	19	1.31	9.26	61.29	5.2
ene	25	1.50	9.39	60.35	4.8
ene	31	1.68	9.52	59.42	4.4
feb	6	1.84	9.64	58.80	4.0
feb	12	2.01	9.76	58.03	3.6
feb	18	2.14	9.86	57.71	3.2
feb	24	2.28	9.96	57.26	2.8
mar	2	2.39	10.04	57.13	2.4
mar	8	2.51	10.11	56.96	2.0
mar	14	2.59	10.18	57.01	1.7
mar	20	2.65	10.22	57.22	1.3
mar	26	2.73	10.25	57.36	0.9
abr	1	2.76	10.27	57.83	0.5
abr	7	2.82	10.28	58.08	0.1
abr	13	2.82	10.27	58.72	23.7
abr	19	2.84	10.24	59.20	23.3
abr	25	2.84	10.21	59.83	22.9
may	1	2.84	10.16	60.41	22.5
may	7	2.82	10.10	61.04	22.1
may	13	2.79	10.02	61.80	21.7
may	19	2.77	9.94	62.35	21.3
may	25	2.71	9.85	63.15	20.9
may	31	2.69	9.75	63.59	20.5
jun	6	2.62	9.64	64.35	20.1
jun	12	2.57	9.53	64.89	19.7
jun	18	2.51	9.41	65.45	19.3
jun	24	2.45	9.28	65.98	18.9
jun	30	2.39	9.16	66.35	18.6
jul	6	2.31	9.03	66.89	18.2
jul	12	2.25	8.90	67.13	17.8
jul	18	2.16	8.77	67.58	17.4
jul	24	2.11	8.64	67.65	17.0
jul	30	2.02	8.52	67.93	16.6
ago	5	1.96	8.40	68.02	16.2
ago	11	1.89	8.29	68.04	15.8
ago	17	1.82	8.18	68.10	15.4
ago	23	1.77	8.09	67.85	15.0
ago	29	1.70	8.00	67.81	14.6
sep	4	1.67	7.92	67.43	14.2
sep	10	1.61	7.85	67.22	13.8
sep	16	1.60	7.79	66.67	13.4
sep	22	1.57	7.74	66.22	13.0
sep	28	1.57	7.71	65.64	12.6
oct	4	1.58	7.69	64.89	12.2
oct	10	1.59	7.68	64.21	11.8
oct	16	1.65	7.68	63.17	11.4
oct	22	1.68	7.70	62.36	11.0
oct	28	1.77	7.73	61.20	10.6
nov	3	1.84	7.78	60.17	10.3
nov	9	1.96	7.83	58.87	9.9
nov	15	2.08	7.91	57.63	9.5
nov	21	2.21	7.99	56.37	9.1
nov	27	2.37	8.08	54.93	8.7
dic	3	2.51	8.19	53.68	8.3
dic	9	2.72	8.30	52.07	7.9
dic	15	2.87	8.42	50.83	7.5
dic	21	3.08	8.54	49.35	7.1
dic	27	3.26	8.68	48.06	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	39.04	47.15	26.82	7.6
ene	7	39.23	47.31	25.75	7.2
ene	13	39.46	47.45	24.58	6.8
ene	19	39.66	47.61	23.74	6.4
ene	25	39.85	47.75	23.04	6.0
ene	31	40.06	47.90	22.40	5.6
feb	6	40.23	48.03	22.13	5.2
feb	12	40.42	48.17	21.75	4.9
feb	18	40.56	48.29	21.86	4.5
feb	24	40.72	48.40	21.88	4.1
mar	2	40.84	48.50	22.26	3.7
mar	8	40.97	48.58	22.63	3.3
mar	14	41.07	48.66	23.22	2.9
mar	20	41.14	48.71	24.01	2.5
mar	26	41.23	48.75	24.73	2.1
abr	1	41.26	48.77	25.78	1.7
abr	7	41.33	48.78	26.61	1.3
abr	13	41.33	48.78	27.83	0.9
abr	19	41.35	48.75	28.86	0.5
abr	25	41.34	48.72	30.03	0.2
may	1	41.34	48.66	31.13	23.8
may	7	41.32	48.60	32.23	23.4
may	13	41.27	48.51	33.45	23.0
may	19	41.25	48.42	34.40	22.6
may	25	41.18	48.32	35.57	22.2
may	31	41.15	48.20	36.34	21.8
jun	6	41.06	48.09	37.36	21.4
jun	12	41.00	47.95	38.13	21.0
jun	18	40.93	47.82	38.85	20.6
jun	24	40.85	47.68	39.50	20.2
jun	30	40.78	47.54	39.92	19.8
jul	6	40.67	47.39	40.46	19.4
jul	12	40.60	47.25	40.65	19.0
jul	18	40.49	47.11	40.99	18.6
jul	24	40.43	46.96	40.90	18.2
jul	30	40.33	46.83	40.96	17.8
ago	5	40.25	46.69	40.80	17.4
ago	11	40.16	46.57	40.50	17.0
ago	17	40.07	46.44	40.21	16.6
ago	23	40.02	46.33	39.56	16.2
ago	29	39.93	46.23	39.10	15.8
sep	4	39.89	46.13	38.26	15.4
sep	10	39.82	46.05	37.55	15.0
sep	16	39.79	45.98	36.49	14.6
sep	22	39.75	45.92	35.50	14.2
sep	28	39.74	45.87	34.38	13.9
oct	4	39.74	45.85	33.07	13.5
oct	10	39.74	45.82	31.85	13.1
oct	16	39.79	45.82	30.27	12.7
oct	22	39.82	45.83	28.93	12.3
oct	28	39.90	45.86	27.27	11.9
nov	3	39.96	45.90	25.75	11.5
nov	9	40.08	45.95	24.01	11.1
nov	15	40.19	46.02	22.34	10.7
nov	21	40.32	46.10	20.71	10.3
nov	27	40.49	46.20	18.92	9.9
dic	3	40.63	46.31	17.40	9.5
dic	9	40.84	46.42	15.55	9.2
dic	15	41.01	46.55	14.13	8.8
dic	21	41.22	46.68	12.54	8.4
dic	27	41.42	46.83	11.18	8.0

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	33.16	41.28	48.80	7.6
ene	7	33.37	41.45	49.67	7.2
ene	13	33.63	41.62	50.88	6.8
ene	19	33.83	41.78	52.00	6.4
ene	25	34.06	41.96	53.22	6.0
ene	31	34.27	42.11	54.64	5.6
feb	6	34.46	42.27	55.92	5.2
feb	12	34.67	42.41	57.51	4.8
feb	18	34.82	42.55	58.80	4.5
feb	24	35.00	42.67	60.36	4.1
mar	2	35.12	42.78	61.76	3.7
mar	8	35.28	42.89	63.29	3.3
mar	14	35.38	42.97	64.72	2.9
mar	20	35.48	43.04	66.03	2.5
mar	26	35.57	43.10	67.51	2.1
abr	1	35.63	43.14	68.70	1.7
abr	7	35.71	43.17	70.13	1.3
abr	13	35.72	43.17	71.17	0.9
abr	19	35.77	43.17	72.36	0.5
abr	25	35.77	43.15	73.39	0.1
may	1	35.80	43.12	74.42	23.7
may	7	35.78	43.06	75.35	23.4
may	13	35.76	43.00	76.04	23.0
may	19	35.74	42.92	76.88	22.6
may	25	35.68	42.83	77.38	22.2
may	31	35.67	42.72	78.11	21.8
jun	6	35.58	42.60	78.40	21.4
jun	12	35.53	42.49	78.76	21.0
jun	18	35.45	42.34	79.00	20.6
jun	24	35.38	42.21	79.09	20.2
jun	30	35.29	42.06	79.21	19.8
jul	6	35.19	41.91	78.98	19.4
jul	12	35.10	41.75	78.90	19.0
jul	18	34.98	41.59	78.46	18.6
jul	24	34.91	41.44	78.22	18.2
jul	30	34.77	41.28	77.61	17.8
ago	5	34.68	41.13	77.01	17.4
ago	11	34.57	40.98	76.37	17.0
ago	17	34.47	40.84	75.52	16.6
ago	23	34.39	40.70	74.84	16.2
ago	29	34.29	40.58	73.78	15.8
sep	4	34.23	40.47	72.96	15.4
sep	10	34.13	40.37	71.88	15.0
sep	16	34.11	40.29	71.00	14.6
sep	22	34.05	40.21	69.96	14.2
sep	28	34.03	40.17	68.94	13.8
oct	4	34.02	40.13	68.07	13.4
oct	10	34.03	40.11	67.06	13.1
oct	16	34.08	40.11	66.39	12.7
oct	22	34.11	40.13	65.46	12.3
oct	28	34.21	40.17	64.90	11.9
nov	3	34.28	40.21	64.27	11.5
nov	9	34.42	40.29	63.92	11.1
nov	15	34.54	40.37	63.61	10.7
nov	21	34.70	40.48	63.37	10.3
nov	27	34.88	40.59	63.47	9.9
dic	3	35.05	40.72	63.47	9.5
dic	9	35.28	40.86	63.98	9.1
dic	15	35.47	41.01	64.27	8.8
dic	21	35.71	41.18	64.95	8.4
dic	27	35.92	41.33	65.64	8.0

Posiciones aparentes de estrellas brillantes, 2017 (a las 0h del meridiano 90° W.G.)

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	32.93	41.05	51.21	7.8
ene	7	33.11	41.18	52.34	7.4
ene	13	33.33	41.32	53.67	7.0
ene	19	33.50	41.45	54.79	6.6
ene	25	33.69	41.59	55.85	6.2
ene	31	33.88	41.72	56.98	5.8
feb	6	34.04	41.85	57.82	5.5
feb	12	34.23	41.97	58.86	5.1
feb	18	34.36	42.09	59.48	4.7
feb	24	34.52	42.19	60.25	4.3
mar	2	34.63	42.29	60.75	3.9
mar	8	34.77	42.38	61.28	3.5
mar	14	34.86	42.45	61.64	3.1
mar	20	34.95	42.52	61.80	2.7
mar	26	35.04	42.57	62.08	2.3
abr	1	35.10	42.61	62.02	1.9
abr	7	35.18	42.63	62.17	1.5
abr	13	35.20	42.65	61.92	1.1
abr	19	35.25	42.64	61.82	0.8
abr	25	35.26	42.63	61.57	0.4
may	1	35.29	42.60	61.32	24.0
may	7	35.29	42.56	61.04	23.6
may	13	35.27	42.51	60.56	23.2
may	19	35.27	42.45	60.29	22.8
may	25	35.23	42.37	59.74	22.4
may	31	35.23	42.29	59.50	22.0
jun	6	35.17	42.19	58.93	21.6
jun	12	35.14	42.09	58.52	21.2
jun	18	35.08	41.98	58.10	20.8
jun	24	35.04	41.87	57.62	20.4
jun	30	34.98	41.75	57.31	20.0
jul	6	34.90	41.63	56.76	19.6
jul	12	34.85	41.50	56.48	19.2
jul	18	34.76	41.37	55.98	18.8
jul	24	34.71	41.25	55.78	18.4
jul	30	34.62	41.12	55.37	18.0
ago	5	34.55	41.00	55.08	17.6
ago	11	34.47	40.88	54.87	17.2
ago	17	34.39	40.76	54.55	16.8
ago	23	34.34	40.65	54.53	16.4
ago	29	34.25	40.55	54.25	16.1
sep	4	34.21	40.45	54.29	15.7
sep	10	34.13	40.37	54.17	15.3
sep	16	34.11	40.29	54.32	14.9
sep	22	34.06	40.23	54.40	14.5
sep	28	34.04	40.18	54.54	14.1
oct	4	34.03	40.14	54.89	13.7
oct	10	34.03	40.11	55.11	13.3
oct	16	34.07	40.10	55.70	12.9
oct	22	34.08	40.09	56.08	12.5
oct	28	34.15	40.11	56.81	12.1
nov	3	34.20	40.14	57.47	11.7
nov	9	34.31	40.18	58.35	11.3
nov	15	34.40	40.23	59.25	10.9
nov	21	34.52	40.30	60.15	10.5
nov	27	34.66	40.38	61.30	10.2
dic	3	34.80	40.47	62.27	9.8
dic	9	34.99	40.57	63.65	9.4
dic	15	35.14	40.68	64.71	9.0
dic	21	35.34	40.80	66.03	8.6
dic	27	35.51	40.92	67.25	8.2

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	47.20	55.32	54.42	8.4
ene	7	47.38	55.46	55.39	8.1
ene	13	47.61	55.61	56.59	7.7
ene	19	47.80	55.75	57.68	7.3
ene	25	48.00	55.90	58.77	6.9
ene	31	48.19	56.04	60.02	6.5
feb	6	48.37	56.18	61.03	6.1
feb	12	48.56	56.31	62.31	5.7
feb	18	48.71	56.43	63.23	5.3
feb	24	48.88	56.56	64.36	4.9
mar	2	49.00	56.66	65.30	4.6
mar	8	49.16	56.77	66.28	4.2
mar	14	49.26	56.85	67.16	3.8
mar	20	49.37	56.93	67.86	3.4
mar	26	49.47	57.00	68.72	3.0
abr	1	49.54	57.05	69.26	2.6
abr	7	49.63	57.09	70.03	2.2
abr	13	49.67	57.11	70.41	1.8
abr	19	49.73	57.13	70.93	1.4
abr	25	49.75	57.12	71.33	1.0
may	1	49.80	57.11	71.68	0.6
may	7	49.80	57.08	72.01	0.2
may	13	49.80	57.04	72.10	23.8
may	19	49.81	56.99	72.39	23.4
may	25	49.78	56.92	72.36	23.1
may	31	49.79	56.85	72.61	22.7
jun	6	49.73	56.76	72.49	22.3
jun	12	49.71	56.66	72.46	21.9
jun	18	49.65	56.55	72.40	21.5
jun	24	49.61	56.44	72.21	21.1
jun	30	49.56	56.32	72.16	20.7
jul	6	49.48	56.20	71.78	20.3
jul	12	49.42	56.07	71.63	19.9
jul	18	49.32	55.93	71.20	19.5
jul	24	49.27	55.80	71.01	19.1
jul	30	49.17	55.67	70.55	18.7
ago	5	49.09	55.54	70.13	18.3
ago	11	49.00	55.41	69.75	17.9
ago	17	48.91	55.28	69.19	17.5
ago	23	48.85	55.16	68.89	17.1
ago	29	48.75	55.05	68.25	16.7
sep	4	48.69	54.94	67.89	16.3
sep	10	48.60	54.84	67.32	15.9
sep	16	48.58	54.76	66.97	15.5
sep	22	48.51	54.68	66.52	15.1
sep	28	48.48	54.62	66.08	14.7
oct	4	48.47	54.57	65.85	14.3
oct	10	48.45	54.54	65.45	13.9
oct	16	48.48	54.51	65.44	13.6
oct	22	48.49	54.51	65.18	13.2
oct	28	48.55	54.51	65.22	12.8
nov	3	48.60	54.53	65.18	12.4
nov	9	48.71	54.58	65.39	12.0
nov	15	48.80	54.63	65.66	11.6
nov	21	48.92	54.70	65.94	11.2
nov	27	49.06	54.78	66.53	10.8
dic	3	49.20	54.87	66.97	10.4
dic	9	49.40	54.98	67.87	10.0
dic	15	49.55	55.09	68.49	9.6
dic	21	49.75	55.22	69.43	9.3
dic	27	49.93	55.34	70.36	8.9

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	19.88	28.00	34.46	7.9
ene	7	20.07	28.14	35.26	7.6
ene	13	20.31	28.30	36.31	7.2
ene	19	20.50	28.45	37.30	6.8
ene	25	20.71	28.61	38.29	6.4
ene	31	20.92	28.76	39.51	6.0
feb	6	21.11	28.92	40.51	5.6
feb	12	21.32	29.06	41.83	5.2
feb	18	21.48	29.20	42.81	4.8
feb	24	21.67	29.34	44.03	4.4
mar	2	21.80	29.46	45.11	4.1
mar	8	21.97	29.58	46.24	3.7
mar	14	22.09	29.68	47.31	3.3
mar	20	22.21	29.78	48.21	2.9
mar	26	22.33	29.86	49.31	2.5
abr	1	22.42	29.93	50.10	2.1
abr	7	22.53	29.98	51.13	1.7
abr	13	22.57	30.02	51.80	1.3
abr	19	22.65	30.05	52.59	0.9
abr	25	22.68	30.06	53.29	0.5
may	1	22.74	30.06	53.93	0.1
may	7	22.76	30.04	54.57	23.7
may	13	22.77	30.01	54.95	23.4
may	19	22.79	29.97	55.53	23.0
may	25	22.76	29.91	55.79	22.6
may	31	22.78	29.84	56.31	22.2
jun	6	22.73	29.75	56.45	21.8
jun	12	22.71	29.66	56.66	21.4
jun	18	22.66	29.56	56.84	21.0
jun	24	22.61	29.45	56.85	20.6
jun	30	22.56	29.32	56.99	20.2
jul	6	22.48	29.20	56.77	19.8
jul	12	22.42	29.06	56.76	19.4
jul	18	22.31	28.92	56.45	19.0
jul	24	22.26	28.79	56.34	18.6
jul	30	22.14	28.64	55.94	18.2
ago	5	22.06	28.50	55.54	17.8
ago	11	21.95	28.36	55.17	17.4
ago	17	21.86	28.22	54.57	17.0
ago	23	21.78	28.09	54.21	16.6
ago	29	21.67	27.96	53.48	16.2
sep	4	21.60	27.85	52.99	15.8
sep	10	21.49	27.73	52.28	15.4
sep	16	21.45	27.64	51.74	15.0
sep	22	21.37	27.54	51.09	14.6
sep	28	21.34	27.47	50.41	14.2
oct	4	21.31	27.41	49.92	13.9
oct	10	21.28	27.37	49.24	13.5
oct	16	21.30	27.33	48.92	13.1
oct	22	21.30	27.32	48.33	12.7
oct	28	21.36	27.32	48.06	12.3
nov	3	21.39	27.33	47.73	11.9
nov	9	21.50	27.37	47.59	11.5
nov	15	21.58	27.41	47.53	11.1
nov	21	21.70	27.48	47.46	10.7
nov	27	21.85	27.56	47.72	10.3
dic	3	21.98	27.65	47.84	9.9
dic	9	22.18	27.76	48.44	9.5
dic	15	22.33	27.88	48.79	9.1
dic	21	22.55	28.01	49.45	8.8
dic	27	22.73	28.14	50.16	8.4

Posiciones aparentes de estrellas brillantes, 2017 (a las 0^h del meridiano 90° W.G.)

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	40.60	48.71	53.04	8.5
ene	7	40.80	48.87	53.69	8.1
ene	13	41.06	49.05	54.62	7.8
ene	19	41.27	49.22	55.53	7.4
ene	25	41.50	49.40	56.47	7.0
ene	31	41.72	49.56	57.68	6.6
feb	6	41.93	49.74	58.71	6.2
feb	12	42.15	49.90	60.10	5.8
feb	18	42.32	50.05	61.18	5.4
feb	24	42.53	50.20	62.53	5.0
mar	2	42.68	50.34	63.78	4.7
mar	8	42.86	50.47	65.11	4.3
mar	14	42.99	50.58	66.41	3.9
mar	20	43.13	50.69	67.56	3.5
mar	26	43.25	50.78	68.93	3.1
abr	1	43.35	50.86	70.01	2.7
abr	7	43.46	50.92	71.36	2.3
abr	13	43.51	50.96	72.35	1.9
abr	19	43.60	51.00	73.47	1.5
abr	25	43.63	51.00	74.52	1.1
may	1	43.70	51.01	75.50	0.7
may	7	43.71	50.99	76.48	0.3
may	13	43.72	50.96	77.19	24.0
may	19	43.74	50.91	78.09	23.6
may	25	43.71	50.85	78.67	23.2
may	31	43.72	50.78	79.49	22.8
jun	6	43.66	50.68	79.92	22.4
jun	12	43.63	50.59	80.40	22.0
jun	18	43.57	50.47	80.82	21.6
jun	24	43.52	50.35	81.05	21.2
jun	30	43.44	50.21	81.39	20.8
jul	6	43.35	50.07	81.34	20.4
jul	12	43.28	49.93	81.47	20.0
jul	18	43.15	49.77	81.27	19.6
jul	24	43.09	49.62	81.23	19.2
jul	30	42.95	49.45	80.88	18.8
ago	5	42.86	49.30	80.48	18.4
ago	11	42.74	49.14	80.09	18.0
ago	17	42.62	48.99	79.44	17.6
ago	23	42.53	48.84	78.99	17.2
ago	29	42.40	48.70	78.14	16.8
sep	4	42.32	48.57	77.50	16.4
sep	10	42.21	48.44	76.61	16.0
sep	16	42.16	48.34	75.86	15.6
sep	22	42.06	48.23	74.97	15.2
sep	28	42.02	48.16	74.03	14.8
oct	4	41.98	48.08	73.27	14.4
oct	10	41.95	48.04	72.29	14.0
oct	16	41.97	48.00	71.66	13.7
oct	22	41.97	47.98	70.73	13.3
oct	28	42.03	47.99	70.12	12.9
nov	3	42.07	48.00	69.46	12.5
nov	9	42.18	48.05	68.99	12.1
nov	15	42.27	48.10	68.60	11.7
nov	21	42.40	48.18	68.19	11.3
nov	27	42.55	48.27	68.14	10.9
dic	3	42.70	48.37	67.96	10.5
dic	9	42.91	48.50	68.26	10.1
dic	15	43.08	48.63	68.35	9.7
dic	21	43.31	48.78	68.77	9.4
dic	27	43.51	48.92	69.27	9.0

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	56.42	4.54	44.49	9.6
ene	7	56.59	4.67	45.54	9.2
ene	13	56.80	4.80	46.71	8.8
ene	19	56.98	4.93	47.81	8.4
ene	25	57.17	5.07	48.78	8.0
ene	31	57.37	5.21	49.93	7.6
feb	6	57.54	5.35	50.75	7.3
feb	12	57.74	5.49	51.82	6.9
feb	18	57.89	5.62	52.50	6.5
feb	24	58.08	5.75	53.30	6.1
mar	2	58.22	5.88	53.93	5.7
mar	8	58.39	6.00	54.50	5.3
mar	14	58.51	6.10	55.02	4.9
mar	20	58.64	6.20	55.26	4.5
mar	26	58.77	6.29	55.68	4.1
abr	1	58.86	6.37	55.74	3.7
abr	7	58.98	6.44	56.01	3.4
abr	13	59.04	6.49	55.92	3.0
abr	19	59.13	6.53	55.90	2.6
abr	25	59.19	6.56	55.83	2.2
may	1	59.26	6.58	55.64	1.8
may	7	59.30	6.58	55.52	1.4
may	13	59.32	6.56	55.13	1.0
may	19	59.36	6.54	54.97	0.6
may	25	59.36	6.50	54.54	0.2
may	31	59.39	6.45	54.37	23.8
jun	6	59.36	6.39	53.92	23.4
jun	12	59.36	6.31	53.55	23.0
jun	18	59.33	6.23	53.25	22.6
jun	24	59.30	6.14	52.79	22.2
jun	30	59.27	6.03	52.58	21.8
jul	6	59.20	5.92	52.06	21.4
jul	12	59.16	5.81	51.83	21.1
jul	18	59.07	5.69	51.38	20.7
jul	24	59.03	5.56	51.17	20.3
jul	30	58.93	5.43	50.81	19.9
ago	5	58.86	5.30	50.47	19.5
ago	11	58.77	5.17	50.29	19.1
ago	17	58.68	5.04	49.90	18.7
ago	23	58.60	4.92	49.86	18.3
ago	29	58.49	4.79	49.51	17.9
sep	4	58.43	4.67	49.45	17.5
sep	10	58.32	4.56	49.26	17.1
sep	16	58.27	4.45	49.25	16.7
sep	22	58.19	4.36	49.23	16.3
sep	28	58.13	4.27	49.18	15.9
oct	4	58.09	4.19	49.40	15.5
oct	10	58.04	4.13	49.41	15.1
oct	16	58.05	4.08	49.82	14.7
oct	22	58.02	4.04	49.97	14.3
oct	28	58.05	4.01	50.41	13.9
nov	3	58.06	4.00	50.84	13.5
nov	9	58.13	4.00	51.42	13.1
nov	15	58.19	4.02	52.13	12.7
nov	21	58.27	4.05	52.74	12.4
nov	27	58.38	4.10	53.68	12.0
dic	3	58.48	4.16	54.41	11.6
dic	9	58.65	4.23	55.56	11.2
dic	15	58.77	4.31	56.43	10.8
dic	21	58.95	4.41	57.52	10.4
dic	27	59.10	4.52	58.63	10.0

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	36.08	44.19	60.30	9.1
ene	7	36.53	44.61	58.89	8.7
ene	13	36.99	44.98	57.56	8.4
ene	19	37.51	45.46	56.49	8.0
ene	25	38.00	45.90	55.74	7.6
ene	31	38.56	46.40	55.02	7.2
feb	6	39.06	46.87	54.84	6.8
feb	12	39.60	47.35	54.57	6.5
feb	18	40.11	47.84	54.86	6.1
feb	24	40.61	48.28	55.19	5.7
mar	2	41.10	48.76	55.85	5.3
mar	8	41.53	49.13	56.71	4.9
mar	14	41.96	49.55	57.72	4.6
mar	20	42.32	49.88	59.09	4.2
mar	26	42.67	50.20	60.38	3.8
abr	1	42.95	50.46	62.11	3.4
abr	7	43.20	50.66	63.64	3.0
abr	13	43.40	50.84	65.55	2.6
abr	19	43.53	50.93	67.39	2.2
abr	25	43.65	51.02	69.28	1.9
may	1	43.66	50.98	71.25	1.5
may	7	43.68	50.96	73.09	1.1
may	13	43.61	50.84	75.13	0.7
may	19	43.52	50.70	76.84	0.3
may	25	43.37	50.51	78.75	23.9
may	31	43.18	50.24	80.28	23.5
jun	6	42.96	49.98	81.93	23.1
jun	12	42.67	49.62	83.38	22.7
jun	18	42.40	49.30	84.62	22.3
jun	24	42.04	48.87	85.86	21.9
jun	30	41.70	48.47	86.68	21.5
jul	6	41.30	48.02	87.63	21.1
jul	12	40.90	47.55	88.13	20.6
jul	18	40.48	47.10	88.68	20.2
jul	24	40.04	46.57	88.82	19.8
jul	30	39.60	46.10	88.90	19.4
ago	5	39.13	45.57	88.79	19.0
ago	11	38.70	45.11	88.37	18.6
ago	17	38.22	44.59	87.99	18.2
ago	23	37.80	44.11	87.09	17.8
ago	29	37.34	43.64	86.35	17.4
sep	4	36.92	43.17	85.17	17.0
sep	10	36.53	42.76	84.01	16.6
sep	16	36.12	42.31	82.56	16.2
sep	22	35.78	41.95	80.99	15.8
sep	28	35.43	41.56	79.37	15.4
oct	4	35.16	41.26	77.42	15.0
oct	10	34.88	40.96	75.63	14.6
oct	16	34.67	40.70	73.40	14.2
oct	22	34.49	40.50	71.40	13.8
oct	28	34.36	40.32	69.11	13.4
nov	3	34.30	40.23	66.86	13.0
nov	9	34.24	40.11	64.55	12.6
nov	15	34.29	40.12	62.16	12.2
nov	21	34.35	40.12	59.95	11.8
nov	27	34.50	40.22	57.52	11.4
dic	3	34.67	40.35	55.43	11.0
dic	9	34.92	40.50	53.06	10.6
dic	15	35.21	40.75	51.11	10.2
dic	21	35.53	40.99	49.11	9.8
dic	27	35.93	41.35	47.28	9.5

Posiciones aparentes de estrellas brillantes, 2017 (a las 0^h del meridiano 90° W.G.)

σ LIB

3.28 M2.5 III

α α_c δ

h m h m ° ′

15 04 15 04 -25 20 hp

mes	d	s	s	“	h
ene	1	2.98	11.10	37.81	8.4
ene	7	3.16	11.23	38.41	8.0
ene	13	3.39	11.38	39.18	7.7
ene	19	3.57	11.52	39.97	7.3
ene	25	3.78	11.68	40.69	6.9
ene	31	3.99	11.84	41.68	6.5
feb	6	4.19	11.99	42.42	6.1
feb	12	4.41	12.15	43.49	5.7
feb	18	4.58	12.30	44.24	5.3
feb	24	4.79	12.46	45.19	4.9
mar	2	4.94	12.60	46.07	4.5
mar	8	5.14	12.75	46.92	4.2
mar	14	5.28	12.87	47.81	3.8
mar	20	5.43	13.00	48.47	3.4
mar	26	5.59	13.11	49.38	3.0
abr	1	5.70	13.21	49.96	2.6
abr	7	5.85	13.30	50.80	2.2
abr	13	5.93	13.38	51.32	1.8
abr	19	6.05	13.44	51.93	1.4
abr	25	6.12	13.49	52.53	1.0
may	1	6.21	13.53	52.99	0.6
may	7	6.27	13.55	53.57	0.2
may	13	6.32	13.56	53.84	23.9
may	19	6.37	13.55	54.36	23.5
may	25	6.38	13.53	54.59	23.1
may	31	6.44	13.49	55.05	22.7
jun	6	6.42	13.44	55.23	22.3
jun	12	6.43	13.38	55.43	21.9
jun	18	6.40	13.30	55.69	21.5
jun	24	6.38	13.22	55.73	21.1
jun	30	6.35	13.12	55.98	20.7
jul	6	6.29	13.01	55.87	20.3
jul	12	6.25	12.89	55.98	19.9
jul	18	6.15	12.77	55.84	19.5
jul	24	6.11	12.64	55.85	19.1
jul	30	6.00	12.50	55.68	18.7
ago	5	5.92	12.36	55.43	18.3
ago	11	5.81	12.22	55.29	17.9
ago	17	5.71	12.08	54.87	17.5
ago	23	5.62	11.93	54.73	17.1
ago	29	5.49	11.79	54.20	16.7
sep	4	5.41	11.66	53.89	16.3
sep	10	5.29	11.52	53.40	15.9
sep	16	5.22	11.41	53.00	15.5
sep	22	5.12	11.29	52.56	15.1
sep	28	5.05	11.19	51.99	14.7
oct	4	4.99	11.09	51.66	14.4
oct	10	4.93	11.01	51.07	14.0
oct	16	4.92	10.95	50.83	13.6
oct	22	4.87	10.89	50.30	13.2
oct	28	4.90	10.86	50.04	12.8
nov	3	4.90	10.83	49.77	12.4
nov	9	4.96	10.83	49.59	12.0
nov	15	5.01	10.84	49.53	11.6
nov	21	5.09	10.87	49.32	11.2
nov	27	5.20	10.91	49.49	10.8
dic	3	5.30	10.97	49.48	10.4
dic	9	5.47	11.05	49.91	10.0
dic	15	5.60	11.14	50.11	9.6
dic	21	5.78	11.25	50.56	9.2
dic	27	5.94	11.36	51.11	8.9

1 H UMI

5.15 F8

α α_c δ

h m h m ° ′

15 14 15 13 +67 16 hp

mes	d	s	s	“	h
ene	1	47.17	55.29	49.54	9.8
ene	7	47.49	55.57	47.91	9.5
ene	13	47.82	55.81	46.37	9.1
ene	19	48.18	56.14	45.04	8.7
ene	25	48.54	56.44	44.05	8.3
ene	31	48.94	56.78	43.06	7.9
feb	6	49.31	57.12	42.60	7.5
feb	12	49.71	57.45	42.07	7.2
feb	18	50.08	57.81	42.08	6.8
feb	24	50.46	58.13	42.15	6.4
mar	2	50.83	58.49	42.53	6.0
mar	8	51.16	58.77	43.17	5.6
mar	14	51.50	59.09	43.93	5.2
mar	20	51.78	59.35	45.10	4.8
mar	26	52.07	59.60	46.19	4.5
abr	1	52.30	59.82	47.74	4.1
abr	7	52.53	59.99	49.14	3.7
abr	13	52.70	60.15	50.92	3.3
abr	19	52.85	60.25	52.68	2.9
abr	25	52.97	60.35	54.48	2.5
may	1	53.04	60.36	56.44	2.1
may	7	53.10	60.38	58.25	1.7
may	13	53.09	60.33	60.32	1.3
may	19	53.08	60.26	62.09	0.9
may	25	53.02	60.16	64.06	0.5
may	31	52.94	60.00	65.70	0.2
jun	6	52.82	59.84	67.47	23.8
jun	12	52.67	59.62	69.08	23.4
jun	18	52.51	59.41	70.47	23.0
jun	24	52.30	59.13	71.92	22.6
jun	30	52.10	58.86	72.93	22.2
jul	6	51.84	58.56	74.11	21.8
jul	12	51.59	58.24	74.85	21.4
jul	18	51.31	57.93	75.62	21.0
jul	24	51.03	57.56	76.03	20.5
jul	30	50.73	57.23	76.36	20.1
ago	5	50.41	56.85	76.53	19.7
ago	11	50.11	56.51	76.36	19.3
ago	17	49.77	56.14	76.25	18.9
ago	23	49.47	55.78	75.62	18.5
ago	29	49.14	55.44	75.14	18.1
sep	4	48.84	55.08	74.22	17.7
sep	10	48.54	54.78	73.29	17.3
sep	16	48.24	54.43	72.09	16.9
sep	22	47.98	54.15	70.72	16.5
sep	28	47.71	53.85	69.32	16.1
oct	4	47.50	53.60	67.55	15.7
oct	10	47.27	53.35	65.93	15.3
oct	16	47.11	53.14	63.85	14.9
oct	22	46.94	52.96	61.98	14.5
oct	28	46.83	52.79	59.80	14.1
nov	3	46.76	52.70	57.62	13.7
nov	9	46.70	52.57	55.37	13.3
nov	15	46.71	52.54	53.00	12.9
nov	21	46.73	52.51	50.79	12.5
nov	27	46.82	52.53	48.33	12.1
dic	3	46.92	52.59	46.18	11.8
dic	9	47.09	52.67	43.73	11.4
dic	15	47.27	52.81	41.65	11.0
dic	21	47.49	52.96	39.52	10.6
dic	27	47.76	53.18	37.50	10.2

β CIR

4.07 A3 Vb

α α_c δ

h m h m ° ′

15 18 15 17 -58 51 hp

mes	d	s	s	“	h
ene	1	49.81	57.93	26.26	10.0
ene	7	50.07	58.15	26.00	9.6
ene	13	50.44	58.43	25.98	9.2
ene	19	50.73	58.68	26.10	8.8
ene	25	51.07	58.96	26.23	8.4
ene	31	51.40	59.24	26.77	8.1
feb	6	51.72	59.52	27.17	7.7
feb	12	52.07	59.81	28.02	7.3
feb	18	52.35	60.08	28.67	6.9
feb	24	52.70	60.37	29.64	6.5
mar	2	52.96	60.62	30.67	6.1
mar	8	53.29	60.90	31.78	5.7
mar	14	53.54	61.13	33.06	5.4
mar	20	53.80	61.37	34.20	5.0
mar	26	54.06	61.58	35.68	4.6
abr	1	54.27	61.78	36.95	4.2
abr	7	54.51	61.97	38.56	3.8
abr	13	54.66	62.11	39.92	3.4
abr	19	54.87	62.27	41.43	3.0
abr	25	54.99	62.37	43.00	2.6
may	1	55.16	62.48	44.48	2.3
may	7	55.25	62.53	46.10	1.9
may	13	55.34	62.58	47.44	1.5
may	19	55.42	62.60	49.03	1.1
may	25	55.44	62.59	50.36	0.7
may	31	55.51	62.57	51.90	0.3
jun	6	55.47	62.50	53.14	23.9
jun	12	55.48	62.43	54.36	23.5
jun	18	55.41	62.31	55.62	23.1
jun	24	55.37	62.20	56.60	22.7
jun	30	55.28	62.05	57.76	22.3
jul	6	55.16	61.88	58.46	21.9
jul	12	55.06	61.70	59.32	21.5
jul	18	54.88	61.49	59.86	21.1
jul	24	54.77	61.30	60.44	20.7
jul	30	54.55	61.05	60.77	20.3
ago	5	54.39	60.83	60.89	19.9
ago	11	54.18	60.58	61.05	19.5
ago	17	53.98	60.34	60.81	19.1
ago	23	53.78	60.10	60.74	18.7
ago	29	53.55	59.85	60.17	18.3
sep	4	53.38	59.62	59.71	17.9
sep	10	53.14	59.38	58.97	17.5
sep	16	53.00	59.18	58.18	17.1
sep	22	52.79	58.96	57.27	16.7
sep	28	52.65	58.78	56.11	16.3
oct	4	52.51	58.61	55.09	15.9
oct	10	52.39	58.47	53.73	15.5
oct	16	52.32	58.35	52.63	15.1
oct	22	52.23	58.25	51.16	14.7
oct	28	52.24	58.20	49.87	14.3
nov	3	52.21	58.14	48.53	13.9
nov	9	52.29	58.16	47.22	13.6
nov	15	52.33	58.16	46.02	13.2
nov	21	52.44	58.22	44.66	12.8
nov	27	52.59	58.30	43.66	12.4
dic	3	52.73	58.41	42.49	12.0
dic	9	52.97	58.56	41.77	11.6
dic	15	53.16	58.71	40.85	11.2
dic	21	53.44	58.91	40.22	10.8
dic	27	53.68	59.10	39.76	10.4

Posiciones aparentes de estrellas brillantes, 2017 (a las 0h del meridiano 90° W.G.)

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	16.04	24.16	19.52	9.1
ene	7	16.28	24.36	17.80	8.7
ene	13	16.55	24.54	16.17	8.4
ene	19	16.82	24.77	14.72	8.0
ene	25	17.10	25.00	13.61	7.6
ene	31	17.41	25.25	12.48	7.2
feb	6	17.69	25.50	11.88	6.8
feb	12	18.01	25.75	11.19	6.4
feb	18	18.29	26.02	11.05	6.0
feb	24	18.59	26.26	10.96	5.7
mar	2	18.87	26.53	11.18	5.3
mar	8	19.14	26.75	11.66	4.9
mar	14	19.40	26.99	12.26	4.5
mar	20	19.63	27.19	13.28	4.1
mar	26	19.86	27.39	14.23	3.7
abr	1	20.05	27.56	15.65	3.3
abr	7	20.24	27.70	16.93	2.9
abr	13	20.38	27.83	18.60	2.6
abr	19	20.52	27.92	20.27	2.2
abr	25	20.63	28.00	21.98	1.8
may	1	20.71	28.03	23.89	1.4
may	7	20.77	28.05	25.65	1.0
may	13	20.79	28.03	27.68	0.6
may	19	20.81	27.99	29.43	0.2
may	25	20.79	27.93	31.41	23.8
may	31	20.76	27.82	33.07	23.4
jun	6	20.69	27.72	34.87	23.0
jun	12	20.61	27.56	36.53	22.6
jun	18	20.51	27.41	37.98	22.2
jun	24	20.38	27.22	39.51	21.8
jun	30	20.26	27.02	40.62	21.4
jul	6	20.08	26.80	41.90	21.0
jul	12	19.92	26.57	42.76	20.6
jul	18	19.72	26.34	43.66	20.2
jul	24	19.53	26.06	44.22	19.8
jul	30	19.32	25.82	44.69	19.4
ago	5	19.09	25.54	45.03	19.0
ago	11	18.88	25.28	45.01	18.6
ago	17	18.64	25.01	45.08	18.2
ago	23	18.42	24.74	44.62	17.8
ago	29	18.17	24.47	44.31	17.4
sep	4	17.96	24.20	43.57	17.0
sep	10	17.73	23.97	42.80	16.6
sep	16	17.52	23.70	41.79	16.2
sep	22	17.31	23.48	40.59	15.8
sep	28	17.11	23.25	39.36	15.4
oct	4	16.95	23.05	37.74	15.0
oct	10	16.78	22.86	36.28	14.6
oct	16	16.66	22.69	34.34	14.2
oct	22	16.53	22.55	32.59	13.8
oct	28	16.45	22.41	30.54	13.4
nov	3	16.39	22.33	28.45	13.0
nov	9	16.36	22.23	26.31	12.6
nov	15	16.36	22.19	24.00	12.2
nov	21	16.37	22.15	21.86	11.9
nov	27	16.45	22.16	19.43	11.5
dic	3	16.52	22.20	17.30	11.1
dic	9	16.66	22.24	14.86	10.7
dic	15	16.80	22.34	12.76	10.3
dic	21	16.98	22.44	10.60	9.9
dic	27	17.18	22.60	8.53	9.5

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	15.37	23.49	58.90	9.3
ene	7	15.70	23.77	58.34	8.9
ene	13	16.13	24.12	57.99	8.6
ene	19	16.49	24.44	57.82	8.2
ene	25	16.91	24.80	57.66	7.8
ene	31	17.32	25.16	57.92	7.4
feb	6	17.72	25.53	58.06	7.0
feb	12	18.16	25.91	58.68	6.7
feb	18	18.53	26.26	59.13	6.3
feb	24	18.97	26.65	59.90	5.9
mar	2	19.33	26.98	60.78	5.5
mar	8	19.75	27.36	61.75	5.1
mar	14	20.08	27.67	62.93	4.7
mar	20	20.44	28.00	63.99	4.4
mar	26	20.78	28.30	65.42	4.0
abr	1	21.07	28.58	66.68	3.6
abr	7	21.40	28.85	68.29	3.2
abr	13	21.62	29.07	69.69	2.8
abr	19	21.89	29.29	71.24	2.4
abr	25	22.08	29.45	72.92	2.0
may	1	22.31	29.63	74.48	1.6
may	7	22.45	29.73	76.25	1.3
may	13	22.58	29.82	77.74	0.9
may	19	22.71	29.89	79.50	0.5
may	25	22.76	29.90	81.02	0.1
may	31	22.86	29.91	82.76	23.7
jun	6	22.83	29.85	84.23	23.3
jun	12	22.84	29.80	85.66	22.9
jun	18	22.77	29.67	87.17	22.5
jun	24	22.72	29.56	88.39	22.1
jun	30	22.62	29.39	89.80	21.7
jul	6	22.47	29.19	90.75	21.3
jul	12	22.34	28.99	91.86	20.9
jul	18	22.11	28.73	92.66	20.5
jul	24	21.97	28.50	93.48	20.1
jul	30	21.69	28.20	94.05	19.7
ago	5	21.48	27.92	94.39	19.3
ago	11	21.20	27.60	94.76	18.9
ago	17	20.93	27.30	94.71	18.5
ago	23	20.67	26.99	94.83	18.1
ago	29	20.37	26.66	94.41	17.7
sep	4	20.12	26.37	94.07	17.3
sep	10	19.80	26.04	93.46	16.9
sep	16	19.59	25.78	92.74	16.5
sep	22	19.31	25.48	91.89	16.1
sep	28	19.10	25.24	90.75	15.7
oct	4	18.89	24.99	89.73	15.3
oct	10	18.71	24.79	88.33	14.9
oct	16	18.59	24.62	87.16	14.5
oct	22	18.45	24.46	85.59	14.1
oct	28	18.41	24.37	84.16	13.7
nov	3	18.34	24.28	82.68	13.3
nov	9	18.40	24.27	81.16	12.9
nov	15	18.42	24.25	79.75	12.5
nov	21	18.53	24.31	78.16	12.1
nov	27	18.67	24.39	76.90	11.7
dic	3	18.83	24.50	75.45	11.4
dic	9	19.10	24.68	74.43	11.0
dic	15	19.31	24.85	73.22	10.6
dic	21	19.63	25.09	72.26	10.2
dic	27	19.91	25.32	71.49	9.8

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	38.45	46.57	45.79	10.2
ene	7	38.59	46.67	44.58	9.8
ene	13	38.78	46.78	43.38	9.4
ene	19	38.94	46.89	42.17	9.0
ene	25	39.12	47.02	41.20	8.7
ene	31	39.31	47.15	40.03	8.3
feb	6	39.48	47.29	39.26	7.9
feb	12	39.68	47.43	38.26	7.5
feb	18	39.84	47.57	37.67	7.1
feb	24	40.03	47.71	37.03	6.7
mar	2	40.19	47.85	36.53	6.3
mar	8	40.37	47.98	36.22	5.9
mar	14	40.52	48.11	35.91	5.5
mar	20	40.67	48.24	35.95	5.1
mar	26	40.83	48.35	35.83	4.8
abr	1	40.95	48.46	36.11	4.4
abr	7	41.10	48.56	36.21	4.0
abr	13	41.20	48.64	36.66	3.6
abr	19	41.32	48.72	37.11	3.2
abr	25	41.41	48.78	37.55	2.8
may	1	41.52	48.83	38.22	2.4
may	7	41.59	48.87	38.74	2.0
may	13	41.65	48.89	39.59	1.6
may	19	41.73	48.90	40.18	1.2
may	25	41.76	48.90	41.03	0.8
may	31	41.82	48.88	41.66	0.4
jun	6	41.83	48.85	42.48	0.1
jun	12	41.85	48.80	43.27	23.7
jun	18	41.85	48.75	43.89	23.3
jun	24	41.85	48.68	44.73	22.9
jun	30	41.84	48.60	45.22	22.5
jul	6	41.79	48.51	46.02	22.1
jul	12	41.77	48.41	46.50	21.7
jul	18	41.69	48.31	47.12	21.3
jul	24	41.66	48.19	47.55	20.9
jul	30	41.57	48.07	47.98	20.5
ago	5	41.50	47.94	48.44	20.1
ago	11	41.41	47.81	48.64	19.7
ago	17	41.31	47.68	49.05	19.3
ago	23	41.23	47.54	49.06	18.9
ago	29	41.11	47.41	49.33	18.5
sep	4	41.02	47.27	49.31	18.1
sep	10	40.90	47.14	49.32	17.7
sep	16	40.83	47.01	49.24	17.3
sep	22	40.72	46.89	49.02	16.9
sep	28	40.63	46.77	48.89	16.5
oct	4	40.56	46.66	48.42	16.1
oct	10	40.48	46.56	48.17	15.7
oct	16	40.44	46.47	47.52	15.3
oct	22	40.38	46.39	47.07	14.9
oct	28	40.36	46.32	46.37	14.6
nov	3	40.33	46.27	45.61	14.2
nov	9	40.36	46.23	44.83	13.8
nov	15	40.37	46.20	43.83	13.4
nov	21	40.41	46.19	42.99	13.0
nov	27	40.48	46.19	41.80	12.6
dic	3	40.54	46.21	40.82	12.2
dic	9	40.66	46.24	39.49	11.8
dic	15	40.75	46.29	38.38	11.4
dic	21	40.89	46.35	37.13	11.0
dic	27	41.01	46.43	35.82	10.6

Posiciones aparentes de estrellas brillantes, 2017 (a las 0^h del meridiano 90° W.G.)

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	12.84	20.96	29.56	9.6
ene	7	12.98	21.05	28.09	9.2
ene	13	13.16	21.16	26.66	8.8
ene	19	13.32	21.28	25.27	8.4
ene	25	13.50	21.40	24.13	8.0
ene	31	13.69	21.53	22.84	7.6
feb	6	13.87	21.67	21.98	7.2
feb	12	14.07	21.81	20.95	6.9
feb	18	14.23	21.96	20.34	6.5
feb	24	14.43	22.10	19.74	6.1
mar	2	14.59	22.25	19.30	5.7
mar	8	14.77	22.38	19.10	5.3
mar	14	14.93	22.52	18.93	4.9
mar	20	15.08	22.65	19.14	4.5
mar	26	15.24	22.77	19.22	4.1
abr	1	15.37	22.88	19.73	3.7
abr	7	15.52	22.98	20.10	3.3
abr	13	15.62	23.07	20.81	3.0
abr	19	15.75	23.15	21.56	2.6
abr	25	15.84	23.21	22.31	2.2
may	1	15.95	23.26	23.32	1.8
may	7	16.03	23.30	24.16	1.4
may	13	16.08	23.32	25.34	1.0
may	19	16.16	23.33	26.27	0.6
may	25	16.19	23.33	27.45	0.2
may	31	16.25	23.31	28.42	23.8
jun	6	16.25	23.27	29.54	23.4
jun	12	16.27	23.23	30.64	23.0
jun	18	16.27	23.17	31.55	22.6
jun	24	16.26	23.09	32.66	22.2
jun	30	16.25	23.01	33.40	21.8
jul	6	16.19	22.92	34.42	21.5
jul	12	16.16	22.81	35.10	21.1
jul	18	16.09	22.70	35.88	20.7
jul	24	16.04	22.58	36.46	20.3
jul	30	15.95	22.45	36.99	19.9
ago	5	15.87	22.32	37.52	19.5
ago	11	15.78	22.18	37.75	19.1
ago	17	15.67	22.04	38.17	18.7
ago	23	15.58	21.90	38.15	18.3
ago	29	15.46	21.76	38.35	17.9
sep	4	15.37	21.61	38.22	17.5
sep	10	15.24	21.48	38.09	17.1
sep	16	15.16	21.34	37.84	16.7
sep	22	15.04	21.21	37.41	16.3
sep	28	14.95	21.08	37.05	15.9
oct	4	14.86	20.97	36.32	15.5
oct	10	14.78	20.86	35.78	15.1
oct	16	14.73	20.76	34.82	14.7
oct	22	14.66	20.67	34.04	14.3
oct	28	14.64	20.60	32.99	13.9
nov	3	14.60	20.54	31.86	13.5
nov	9	14.61	20.48	30.71	13.1
nov	15	14.62	20.45	29.33	12.7
nov	21	14.65	20.43	28.11	12.3
nov	27	14.71	20.43	26.54	11.9
dic	3	14.76	20.44	25.19	11.6
dic	9	14.88	20.46	23.50	11.2
dic	15	14.96	20.51	22.04	10.8
dic	21	15.10	20.56	20.47	10.4
dic	27	15.22	20.63	18.84	10.0

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	0.33	8.45	35.28	9.9
ene	7	0.85	8.93	34.07	9.5
ene	13	1.58	9.58	32.98	9.1
ene	19	2.21	10.16	32.14	8.7
ene	25	2.97	10.86	31.25	8.4
ene	31	3.74	11.58	30.81	8.0
feb	6	4.51	12.32	30.26	7.6
feb	12	5.38	13.12	30.19	7.3
feb	18	6.13	13.86	30.02	6.9
feb	24	7.02	14.70	30.14	6.5
mar	2	7.79	15.45	30.47	6.1
mar	8	8.68	16.29	30.85	5.8
mar	14	9.44	17.03	31.57	5.4
mar	20	10.23	17.79	32.17	5.0
mar	26	11.01	18.54	33.20	4.7
abr	1	11.72	19.23	34.12	4.3
abr	7	12.48	19.94	35.41	3.9
abr	13	13.07	20.51	36.62	3.5
abr	19	13.74	21.14	37.97	3.2
abr	25	14.26	21.64	39.55	2.8
may	1	14.85	22.17	41.02	2.4
may	7	15.29	22.57	42.82	2.0
may	13	15.68	22.92	44.36	1.6
may	19	16.07	23.25	46.22	1.3
may	25	16.30	23.45	47.93	0.9
may	31	16.62	23.67	49.85	0.5
jun	6	16.69	23.72	51.63	0.1
jun	12	16.83	23.78	53.35	23.7
jun	18	16.81	23.71	55.25	23.3
jun	24	16.80	23.63	56.85	22.9
jun	30	16.68	23.44	58.71	22.5
jul	6	16.46	23.18	60.15	22.1
jul	12	16.25	22.90	61.74	21.7
jul	18	15.87	22.48	63.10	21.3
jul	24	15.59	22.12	64.41	20.9
jul	30	15.09	21.59	65.58	20.5
ago	5	14.65	21.09	66.45	20.1
ago	11	14.10	20.50	67.41	19.7
ago	17	13.54	19.91	67.90	19.3
ago	23	12.98	19.30	68.55	18.9
ago	29	12.32	18.62	68.68	18.4
sep	4	11.75	18.00	68.80	18.0
sep	10	11.05	17.29	68.68	17.6
sep	16	10.51	16.69	68.34	17.2
sep	22	9.84	16.00	67.90	16.8
sep	28	9.28	15.41	67.05	16.4
oct	4	8.72	14.82	66.31	16.0
oct	10	8.19	14.28	65.10	15.6
oct	16	7.78	13.81	64.05	15.2
oct	22	7.32	13.34	62.58	14.8
oct	28	7.04	13.00	61.11	14.3
nov	3	6.72	12.65	59.58	13.9
nov	9	6.62	12.49	57.86	13.5
nov	15	6.46	12.29	56.27	13.2
nov	21	6.46	12.23	54.36	12.8
nov	27	6.54	12.25	52.74	12.4
dic	3	6.65	12.32	50.88	12.0
dic	9	6.97	12.55	49.34	11.6
dic	15	7.21	12.75	47.63	11.2
dic	21	7.66	13.13	46.05	10.8
dic	27	8.07	13.49	44.70	10.4

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	31.84	39.96	14.43	10.9
ene	7	31.96	40.04	14.94	10.5
ene	13	32.15	40.15	15.45	10.1
ene	19	32.30	40.25	16.09	9.7
ene	25	32.48	40.38	16.52	9.3
ene	31	32.67	40.51	17.25	8.9
feb	6	32.84	40.65	17.67	8.5
feb	12	33.05	40.79	18.38	8.1
feb	18	33.21	40.94	18.81	7.8
feb	24	33.42	41.09	19.32	7.4
mar	2	33.59	41.24	19.84	7.0
mar	8	33.79	41.40	20.18	6.6
mar	14	33.96	41.55	20.68	6.2
mar	20	34.13	41.69	20.85	5.8
mar	26	34.31	41.84	21.27	5.4
abr	1	34.46	41.97	21.37	5.0
abr	7	34.65	42.10	21.68	4.6
abr	13	34.77	42.22	21.75	4.3
abr	19	34.93	42.33	21.80	3.9
abr	25	35.06	42.43	21.97	3.5
may	1	35.20	42.52	21.87	3.1
may	7	35.32	42.59	22.02	2.7
may	13	35.41	42.65	21.83	2.3
may	19	35.53	42.70	21.90	1.9
may	25	35.59	42.74	21.76	1.5
may	31	35.71	42.76	21.79	1.1
jun	6	35.74	42.76	21.69	0.7
jun	12	35.81	42.76	21.54	0.3
jun	18	35.84	42.74	21.58	23.9
jun	24	35.87	42.70	21.36	23.6
jun	30	35.89	42.65	21.46	23.2
jul	6	35.87	42.59	21.23	22.8
jul	12	35.87	42.52	21.25	22.4
jul	18	35.81	42.43	21.14	22.0
jul	24	35.80	42.34	21.09	21.6
jul	30	35.72	42.23	21.05	21.2
ago	5	35.67	42.11	20.87	20.8
ago	11	35.58	41.99	20.93	20.4
ago	17	35.49	41.86	20.68	20.0
ago	23	35.41	41.73	20.77	19.6
ago	29	35.29	41.59	20.53	19.2
sep	4	35.20	41.45	20.48	18.8
sep	10	35.07	41.30	20.37	18.4
sep	16	34.98	41.17	20.21	18.0
sep	22	34.86	41.03	20.18	17.6
sep	28	34.76	40.89	19.93	17.2
oct	4	34.66	40.77	19.96	16.8
oct	10	34.56	40.65	19.70	16.4
oct	16	34.51	40.54	19.77	16.0
oct	22	34.41	40.43	19.59	15.6
oct	28	34.38	40.34	19.56	15.2
nov	3	34.33	40.26	19.61	14.8
nov	9	34.33	40.20	19.56	14.4
nov	15	34.32	40.15	19.75	14.0
nov	21	34.34	40.12	19.71	13.7
nov	27	34.39	40.10	20.01	13.3
dic	3	34.42	40.09	20.03	12.9
dic	9	34.52	40.11	20.51	12.5
dic	15	34.59	40.13	20.80	12.1
dic	21	34.72	40.18	21.18	11.7
dic	27	34.83	40.24	21.72	11.3

Posiciones aparentes de estrellas brillantes, 2017 (a las 0^h del meridiano 90° W.G.)

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	26.80	34.92	28.45	10.7
ene	7	26.93	35.01	26.52	10.4
ene	13	27.10	35.09	24.74	10.0
ene	19	27.26	35.21	22.95	9.6
ene	25	27.44	35.33	21.49	9.2
ene	31	27.63	35.48	19.91	8.8
feb	6	27.82	35.63	18.82	8.4
feb	12	28.04	35.78	17.61	8.0
feb	18	28.23	35.96	16.84	7.6
feb	24	28.45	36.12	16.18	7.2
mar	2	28.64	36.30	15.70	6.9
mar	8	28.86	36.47	15.58	6.5
mar	14	29.06	36.64	15.48	6.1
mar	20	29.24	36.81	15.86	5.7
mar	26	29.44	36.97	16.16	5.3
abr	1	29.61	37.13	16.94	4.9
abr	7	29.80	37.26	17.66	4.5
abr	13	29.95	37.40	18.73	4.1
abr	19	30.11	37.50	19.93	3.7
abr	25	30.24	37.61	21.14	3.4
may	1	30.37	37.69	22.69	3.0
may	7	30.49	37.76	24.08	2.6
may	13	30.57	37.81	25.83	2.2
may	19	30.67	37.84	27.38	1.8
may	25	30.72	37.87	29.16	1.4
may	31	30.80	37.85	30.80	1.0
jun	6	30.82	37.84	32.53	0.6
jun	12	30.84	37.80	34.29	0.2
jun	18	30.85	37.75	35.81	23.8
jun	24	30.84	37.67	37.56	23.4
jun	30	30.82	37.58	38.90	23.0
jul	6	30.76	37.48	40.49	22.6
jul	12	30.71	37.36	41.73	22.2
jul	18	30.63	37.24	42.99	21.8
jul	24	30.56	37.09	44.08	21.4
jul	30	30.44	36.95	45.01	21.0
ago	5	30.33	36.78	45.95	20.7
ago	11	30.21	36.62	46.49	20.3
ago	17	30.07	36.44	47.20	19.9
ago	23	29.94	36.26	47.41	19.5
ago	29	29.78	36.08	47.77	19.1
sep	4	29.64	35.89	47.78	18.7
sep	10	29.47	35.71	47.68	18.3
sep	16	29.34	35.52	47.46	17.9
sep	22	29.17	35.34	46.95	17.5
sep	28	29.03	35.16	46.49	17.1
oct	4	28.89	34.99	45.60	16.7
oct	10	28.75	34.83	44.85	16.3
oct	16	28.64	34.67	43.64	15.9
oct	22	28.52	34.53	42.54	15.5
oct	28	28.43	34.39	41.17	15.1
nov	3	28.35	34.29	39.63	14.7
nov	9	28.30	34.17	38.11	14.3
nov	15	28.26	34.09	36.27	13.9
nov	21	28.24	34.02	34.60	13.5
nov	27	28.25	33.96	32.56	13.1
dic	3	28.26	33.93	30.72	12.7
dic	9	28.33	33.91	28.57	12.3
dic	15	28.38	33.92	26.60	11.9
dic	21	28.48	33.94	24.57	11.5
dic	27	28.58	33.99	22.45	11.1

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	14.17	22.29	7.96	10.5
ene	7	14.31	22.38	7.91	10.1
ene	13	14.52	22.51	7.87	9.7
ene	19	14.68	22.63	8.02	9.3
ene	25	14.88	22.78	8.00	9.0
ene	31	15.09	22.93	8.33	8.6
feb	6	15.29	23.09	8.42	8.2
feb	12	15.52	23.27	8.84	7.8
feb	18	15.71	23.43	9.06	7.4
feb	24	15.94	23.62	9.40	7.0
mar	2	16.13	23.79	9.84	6.6
mar	8	16.37	23.98	10.15	6.2
mar	14	16.56	24.15	10.69	5.9
mar	20	16.76	24.32	10.96	5.5
mar	26	16.97	24.49	11.54	5.1
abr	1	17.14	24.65	11.88	4.7
abr	7	17.36	24.81	12.45	4.3
abr	13	17.50	24.95	12.86	3.9
abr	19	17.69	25.09	13.29	3.5
abr	25	17.84	25.21	13.88	3.1
may	1	18.01	25.33	14.24	2.7
may	7	18.14	25.42	14.88	2.4
may	13	18.26	25.50	15.22	2.0
may	19	18.40	25.57	15.83	1.6
may	25	18.48	25.62	16.26	1.2
may	31	18.61	25.66	16.85	0.8
jun	6	18.66	25.68	17.34	0.4
jun	12	18.73	25.69	17.76	0.0
jun	18	18.77	25.67	18.38	23.6
jun	24	18.81	25.64	18.72	23.2
jun	30	18.83	25.60	19.38	22.8
jul	6	18.81	25.54	19.67	22.4
jul	12	18.82	25.47	20.18	22.0
jul	18	18.75	25.37	20.55	21.6
jul	24	18.75	25.28	20.93	21.2
jul	30	18.65	25.15	21.29	20.8
ago	5	18.59	25.03	21.45	20.4
ago	11	18.49	24.90	21.81	20.1
ago	17	18.38	24.75	21.81	19.7
ago	23	18.29	24.61	22.09	19.3
ago	29	18.15	24.44	22.00	18.9
sep	4	18.05	24.29	22.02	18.5
sep	10	17.89	24.13	21.94	18.1
sep	16	17.79	23.97	21.74	17.7
sep	22	17.64	23.81	21.61	17.3
sep	28	17.52	23.66	21.19	16.9
oct	4	17.41	23.51	21.00	16.5
oct	10	17.29	23.37	20.47	16.1
oct	16	17.22	23.25	20.20	15.7
oct	22	17.11	23.12	19.63	15.3
oct	28	17.07	23.03	19.16	14.9
nov	3	16.99	22.93	18.72	14.5
nov	9	17.00	22.87	18.15	14.1
nov	15	16.97	22.80	17.79	13.7
nov	21	16.99	22.77	17.17	13.3
nov	27	17.03	22.75	16.87	12.9
dic	3	17.07	22.74	16.36	12.5
dic	9	17.18	22.76	16.15	12.1
dic	15	17.25	22.79	15.77	11.7
dic	21	17.39	22.85	15.48	11.3
dic	27	17.50	22.92	15.40	11.0

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	59.30	7.42	38.45	11.9
ene	7	59.48	7.56	37.68	11.5
ene	13	59.76	7.76	36.95	11.2
ene	19	59.99	7.94	36.45	10.8
ene	25	60.26	8.16	35.82	8.7
ene	31	60.55	8.39	35.61	8.3
feb	6	60.83	8.63	35.22	7.9
feb	12	61.15	8.90	35.22	7.5
feb	18	61.42	9.15	35.10	7.1
feb	24	61.75	9.43	35.17	6.8
mar	2	62.03	9.69	35.43	6.4
mar	8	62.36	9.97	35.63	6.0
mar	14	62.64	10.23	36.14	5.6
mar	20	62.93	10.50	36.46	5.2
mar	26	63.24	10.76	37.16	4.8
abr	1	63.50	11.01	37.69	4.4
abr	7	63.80	11.26	38.54	4.1
abr	13	64.03	11.47	39.29	3.7
abr	19	64.30	11.70	40.10	3.3
abr	25	64.51	11.89	41.15	2.9
may	1	64.77	12.08	42.03	2.5
may	7	64.96	12.24	43.23	2.1
may	13	65.14	12.38	44.16	1.7
may	19	65.33	12.50	45.39	1.3
may	25	65.45	12.59	46.48	1.0
may	31	65.63	12.69	47.75	0.6
jun	6	65.70	12.72	48.93	0.2
jun	12	65.81	12.76	50.05	23.8
jun	18	65.86	12.76	51.37	23.4
jun	24	65.91	12.74	52.40	23.0
jun	30	65.93	12.70	53.74	22.6
jul	6	65.90	12.62	54.70	22.2
jul	12	65.89	12.54	55.84	21.8
jul	18	65.80	12.42	56.81	21.4
jul	24	65.77	12.30	57.75	21.0
jul	30	65.63	12.13	58.63	20.6
ago	5	65.52	11.97	59.26	20.2
ago	11	65.38	11.78	60.04	19.8
ago	17	65.21	11.58	60.40	19.4
ago	23	65.06	11.38	60.98	19.0
ago	29	64.85	11.14	61.11	18.6
sep	4	64.68	10.93	61.29	18.2
sep	10	64.45	10.69	61.30	17.8
sep	16	64.29	10.47	61.11	17.4
sep	22	64.06	10.23	60.92	17.0
sep	28	63.88	10.01	60.36	16.6
oct	4	63.70	9.80	59.96	16.2
oct	10	63.51	9.60	59.14	15.8
oct	16	63.39	9.42	58.51	15.4
oct	22	63.22	9.23	57.53	15.0
oct	28	63.13	9.09	56.55	14.6
nov	3	63.01	8.95	55.57	14.2
nov	9	62.99	8.86	54.38	13.8
nov	15	62.94	8.77	53.38	13.4
nov	21	62.94	8.72	52.05	13.1
nov	27	62.98	8.69	51.01	12.7
dic	3	63.01	8.69	49.74	12.3
dic	9	63.15	8.73	48.75	11.9
dic	15	63.23	8.77	47.60	11.5
dic	21	63.40	8.87	46.54	11.1
dic	27	63.55	8.97	45.69	10.7

Posiciones aparentes de estrellas brillantes, 2017 (a las 0^h del meridiano 90° W.G.)

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	20.21	28.33	22.19	11.1
ene	7	20.35	28.43	21.76	10.7
ene	13	20.57	28.56	21.33	10.3
ene	19	20.75	28.70	21.11	9.9
ene	25	20.96	28.85	20.73	9.5
ene	31	21.18	29.02	20.72	9.1
feb	6	21.39	29.20	20.50	8.7
feb	12	21.65	29.40	20.62	8.3
feb	18	21.86	29.58	20.59	7.9
feb	24	22.12	29.79	20.69	7.6
mar	2	22.33	29.99	20.93	7.2
mar	8	22.60	30.21	21.07	6.8
mar	14	22.82	30.41	21.49	6.4
mar	20	23.05	30.61	21.67	6.0
mar	26	23.29	30.82	22.18	5.6
abr	1	23.49	31.01	22.49	5.2
abr	7	23.75	31.20	23.07	4.8
abr	13	23.92	31.37	23.53	4.5
abr	19	24.14	31.54	24.02	4.1
abr	25	24.32	31.69	24.72	3.7
may	1	24.53	31.85	25.21	3.3
may	7	24.69	31.97	26.02	2.9
may	13	24.84	32.08	26.54	2.5
may	19	25.01	32.18	27.35	2.1
may	25	25.11	32.26	28.02	1.7
may	31	25.28	32.33	28.84	1.3
jun	6	25.34	32.37	29.61	1.0
jun	12	25.45	32.40	30.29	0.6
jun	18	25.50	32.40	31.21	0.2
jun	24	25.56	32.40	31.83	23.8
jun	30	25.60	32.37	32.79	23.4
jul	6	25.59	32.31	33.39	23.0
jul	12	25.61	32.26	34.19	22.6
jul	18	25.55	32.17	34.86	22.2
jul	24	25.55	32.08	35.51	21.8
jul	30	25.45	31.96	36.16	21.4
ago	5	25.39	31.83	36.58	21.0
ago	11	25.28	31.69	37.19	20.6
ago	17	25.17	31.54	37.43	20.2
ago	23	25.07	31.38	37.91	19.8
ago	29	24.91	31.21	38.01	19.4
sep	4	24.79	31.04	38.18	19.0
sep	10	24.61	30.85	38.24	18.6
sep	16	24.50	30.68	38.12	18.2
sep	22	24.33	30.50	38.07	17.8
sep	28	24.19	30.32	37.67	17.4
oct	4	24.05	30.15	37.48	17.0
oct	10	23.91	29.99	36.90	16.6
oct	16	23.81	29.84	36.54	16.2
oct	22	23.68	29.69	35.87	15.8
oct	28	23.61	29.57	35.23	15.4
nov	3	23.52	29.45	34.62	15.0
nov	9	23.50	29.37	33.80	14.6
nov	15	23.46	29.29	33.19	14.3
nov	21	23.45	29.23	32.28	13.9
nov	27	23.48	29.20	31.66	13.5
dic	3	23.51	29.18	30.82	13.1
dic	9	23.62	29.20	30.23	12.7
dic	15	23.67	29.22	29.50	12.3
dic	21	23.81	29.27	28.83	11.9
dic	27	23.92	29.34	28.37	11.5

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	17.04	25.16	48.33	11.5
ene	7	17.12	25.20	47.18	11.1
ene	13	17.27	25.26	46.18	10.7
ene	19	17.38	25.33	45.00	10.3
ene	25	17.51	25.41	44.13	9.9
ene	31	17.67	25.51	43.02	9.5
feb	6	17.81	25.61	42.27	9.1
feb	12	17.99	25.73	41.36	8.7
feb	18	18.13	25.85	40.71	8.4
feb	24	18.31	25.99	40.15	8.0
mar	2	18.46	26.12	39.58	7.6
mar	8	18.65	26.26	39.35	7.2
mar	14	18.81	26.40	38.99	6.8
mar	20	18.98	26.54	39.04	6.4
mar	26	19.16	26.68	38.95	6.0
abr	1	19.31	26.82	39.21	5.6
abr	7	19.50	26.96	39.42	5.2
abr	13	19.63	27.08	39.83	4.9
abr	19	19.80	27.20	40.40	4.5
abr	25	19.94	27.32	40.87	4.1
may	1	20.10	27.42	41.70	3.7
may	7	20.24	27.51	42.30	3.3
may	13	20.35	27.59	43.27	2.9
may	19	20.49	27.66	44.04	2.5
may	25	20.58	27.72	44.99	2.1
may	31	20.71	27.76	45.89	1.7
jun	6	20.77	27.79	46.81	1.3
jun	12	20.86	27.81	47.84	0.9
jun	18	20.91	27.81	48.62	0.6
jun	24	20.97	27.80	49.70	0.2
jun	30	21.01	27.78	50.40	23.8
jul	6	21.02	27.74	51.38	23.4
jul	12	21.04	27.69	52.12	23.0
jul	18	21.01	27.63	52.86	22.6
jul	24	21.02	27.55	53.59	22.2
jul	30	20.97	27.47	54.15	21.8
ago	5	20.92	27.37	54.84	21.4
ago	11	20.86	27.26	55.19	21.0
ago	17	20.78	27.15	55.79	20.6
ago	23	20.71	27.03	56.00	20.2
ago	29	20.60	26.90	56.40	19.8
sep	4	20.52	26.77	56.59	19.4
sep	10	20.39	26.63	56.69	19.0
sep	16	20.31	26.49	56.85	18.6
sep	22	20.18	26.35	56.72	18.2
sep	28	20.07	26.21	56.78	17.8
oct	4	19.96	26.07	56.47	17.4
oct	10	19.85	25.93	56.37	17.0
oct	16	19.77	25.80	55.93	16.6
oct	22	19.66	25.68	55.60	16.2
oct	28	19.60	25.56	55.14	15.8
nov	3	19.51	25.45	54.49	15.4
nov	9	19.48	25.35	53.98	15.0
nov	15	19.43	25.26	53.12	14.7
nov	21	19.41	25.19	52.49	14.3
nov	27	19.41	25.13	51.50	13.9
dic	3	19.40	25.08	50.68	13.5
dic	9	19.46	25.04	49.61	13.1
dic	15	19.48	25.03	48.62	12.7
dic	21	19.56	25.02	47.60	12.3
dic	27	19.62	25.04	46.38	11.9

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	27.05	35.17	16.30	11.8
ene	7	27.18	35.26	15.48	11.4
ene	13	27.41	35.40	14.59	11.0
ene	19	27.58	35.54	13.97	10.6
ene	25	27.81	35.70	13.16	10.2
ene	31	28.05	35.89	12.73	9.8
feb	6	28.28	36.08	12.11	9.5
feb	12	28.56	36.31	11.83	9.1
feb	18	28.79	36.52	11.44	8.7
feb	24	29.08	36.76	11.18	8.3
mar	2	29.33	36.99	11.12	7.9
mar	8	29.63	37.24	10.94	7.5
mar	14	29.89	37.48	11.11	7.1
mar	20	30.16	37.72	11.05	6.7
mar	26	30.45	37.97	11.36	6.4
abr	1	30.70	38.21	11.52	6.0
abr	7	31.00	38.45	11.94	5.6
abr	13	31.22	38.67	12.33	5.2
abr	19	31.49	38.89	12.74	4.8
abr	25	31.72	39.09	13.42	4.4
may	1	31.97	39.29	13.90	4.0
may	7	32.19	39.46	14.76	3.7
may	13	32.38	39.62	15.36	3.3
may	19	32.60	39.77	16.25	2.9
may	25	32.74	39.89	17.07	2.5
may	31	32.95	40.01	18.02	2.1
jun	6	33.06	40.08	18.99	1.7
jun	12	33.20	40.15	19.87	1.3
jun	18	33.29	40.19	21.02	0.9
jun	24	33.38	40.21	21.89	0.5
jun	30	33.45	40.21	23.10	0.1
jul	6	33.46	40.18	23.99	23.7
jul	12	33.50	40.14	25.07	23.4
jul	18	33.45	40.07	26.06	23.0
jul	24	33.46	39.99	26.99	22.6
jul	30	33.37	39.87	27.97	22.2
ago	5	33.31	39.75	28.68	21.8
ago	11	33.20	39.61	29.60	21.4
ago	17	33.08	39.44	30.14	21.0
ago	23	32.96	39.28	30.89	20.6
ago	29	32.78	39.08	31.28	20.2
sep	4	32.65	38.90	31.68	19.8
sep	10	32.44	38.68	31.99	19.4
sep	16	32.30	38.49	32.06	19.0
sep	22	32.10	38.27	32.20	18.6
sep	28	31.92	38.06	31.94	18.2
oct	4	31.75	37.86	31.86	17.8
oct	10	31.57	37.65	31.37	17.4
oct	16	31.44	37.47	31.03	17.0
oct	22	31.26	37.28	30.37	16.6
oct	28	31.16	37.12	29.67	16.2
nov	3	31.02	36.96	28.99	15.8
nov	9	30.97	36.84	28.02	15.4
nov	15	30.89	36.72	27.25	15.0
nov	21	30.85	36.63	26.13	14.6
nov	27	30.85	36.57	25.25	14.2
dic	3	30.85	36.52	24.14	13.8
dic	9	30.94	36.52	23.21	13.4
dic	15	30.97	36.51	22.17	13.0
dic	21	31.09	36.56	21.11	12.6
dic	27	31.19	36.61	20.28	12.2

Posiciones aparentes de estrellas brillantes, 2017 (a las 0h del meridiano 90° W.G.)

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	28.93	37.05	68.36	12.7
ene	7	28.98	37.05	66.35	12.3
ene	13	29.07	37.06	64.57	11.9
ene	19	29.15	37.10	62.57	11.5
ene	25	29.26	37.16	60.90	11.1
ene	31	29.39	37.23	59.04	10.7
feb	6	29.52	37.33	57.55	10.4
feb	12	29.69	37.43	56.01	10.0
feb	18	29.83	37.56	54.72	9.6
feb	24	30.02	37.69	53.62	9.2
mar	2	30.19	37.85	52.55	8.8
mar	8	30.39	38.00	51.96	8.4
mar	14	30.57	38.16	51.27	8.0
mar	20	30.77	38.33	51.09	7.6
mar	26	30.97	38.50	50.87	7.2
abr	1	31.17	38.68	51.07	6.9
abr	7	31.38	38.84	51.37	6.5
abr	13	31.56	39.01	51.90	6.1
abr	19	31.77	39.17	52.72	5.7
abr	25	31.95	39.32	53.50	5.3
may	1	32.14	39.46	54.78	4.9
may	7	32.31	39.59	55.88	4.5
may	13	32.47	39.71	57.40	4.1
may	19	32.63	39.81	58.84	3.7
may	25	32.76	39.91	60.48	3.4
may	31	32.91	39.97	62.20	3.0
jun	6	33.01	40.03	63.91	2.6
jun	12	33.12	40.07	65.83	2.2
jun	18	33.20	40.09	67.50	1.8
jun	24	33.27	40.10	69.52	1.4
jun	30	33.32	40.08	71.19	1.0
jul	6	33.34	40.06	73.09	0.6
jul	12	33.36	40.00	74.79	0.2
jul	18	33.33	39.95	76.44	23.8
jul	24	33.33	39.86	78.15	23.4
jul	30	33.27	39.77	79.57	23.0
ago	5	33.21	39.66	81.12	22.6
ago	11	33.13	39.54	82.27	22.2
ago	17	33.04	39.41	83.62	21.8
ago	23	32.94	39.25	84.56	21.4
ago	29	32.80	39.10	85.56	21.0
sep	4	32.68	38.93	86.33	20.6
sep	10	32.52	38.76	86.88	20.2
sep	16	32.39	38.57	87.48	19.9
sep	22	32.22	38.39	87.65	19.5
sep	28	32.07	38.20	87.95	19.1
oct	4	31.91	38.01	87.78	18.7
oct	10	31.74	37.83	87.72	18.3
oct	16	31.60	37.63	87.28	17.9
oct	22	31.44	37.45	86.79	17.5
oct	28	31.31	37.27	86.13	17.1
nov	3	31.16	37.10	85.15	16.7
nov	9	31.06	36.93	84.30	16.3
nov	15	30.95	36.78	82.98	15.9
nov	21	30.86	36.64	81.81	15.5
nov	27	30.79	36.51	80.24	15.1
dic	3	30.73	36.40	78.74	14.7
dic	9	30.71	36.29	77.03	14.3
dic	15	30.68	36.22	75.25	13.9
dic	21	30.69	36.16	73.48	13.5
dic	27	30.70	36.12	71.43	13.1

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	18.06	26.18	73.74	13.9
ene	7	18.05	26.13	72.31	13.5
ene	13	18.15	26.15	70.55	13.2
ene	19	18.23	26.18	69.08	12.8
ene	25	18.34	26.24	67.32	12.4
ene	31	18.52	26.36	65.77	12.0
feb	6	18.68	26.48	64.09	11.6
feb	12	18.94	26.68	62.52	11.2
feb	18	19.13	26.86	61.02	10.8
feb	24	19.43	27.10	59.43	10.4
mar	2	19.69	27.35	58.15	10.0
mar	8	20.03	27.64	56.64	9.7
mar	14	20.35	27.94	55.54	9.3
mar	20	20.67	28.24	54.27	8.9
mar	26	21.07	28.59	53.27	8.5
abr	1	21.41	28.92	52.30	8.1
abr	7	21.84	29.30	51.45	7.7
abr	13	22.19	29.63	50.83	7.4
abr	19	22.60	30.00	50.14	7.0
abr	25	23.00	30.37	49.85	6.6
may	1	23.42	30.73	49.37	6.2
may	7	23.83	31.10	49.37	5.8
may	13	24.19	31.43	49.27	5.4
may	19	24.61	31.79	49.42	5.1
may	25	24.95	32.09	49.74	4.7
may	31	25.38	32.43	50.07	4.3
jun	6	25.68	32.70	50.75	3.9
jun	12	26.02	32.97	51.32	3.5
jun	18	26.33	33.23	52.29	3.1
jun	24	26.61	33.44	53.09	2.8
jun	30	26.89	33.65	54.28	2.4
jul	6	27.07	33.79	55.40	2.0
jul	12	27.29	33.94	56.64	1.6
jul	18	27.41	34.03	58.07	1.2
jul	24	27.58	34.11	59.33	0.8
jul	30	27.63	34.13	60.93	0.4
ago	5	27.68	34.13	62.27	0.0
ago	11	27.69	34.10	63.90	23.6
ago	17	27.64	34.01	65.27	23.2
ago	23	27.62	33.93	66.81	22.8
ago	29	27.47	33.77	68.21	22.4
sep	4	27.37	33.61	69.51	22.0
sep	10	27.16	33.40	70.89	21.6
sep	16	27.01	33.19	71.90	21.2
sep	22	26.77	32.94	73.12	20.8
sep	28	26.52	32.66	73.90	20.4
oct	4	26.28	32.38	74.78	20.0
oct	10	25.98	32.07	75.31	19.6
oct	16	25.75	31.78	75.79	19.2
oct	22	25.43	31.44	76.09	18.8
oct	28	25.18	31.14	76.09	18.4
nov	3	24.89	30.82	76.14	18.0
nov	9	24.66	30.53	75.68	17.6
nov	15	24.41	30.24	75.40	17.2
nov	21	24.18	29.96	74.65	16.8
nov	27	24.01	29.72	73.93	16.4
dic	3	23.80	29.47	72.97	16.0
dic	9	23.72	29.30	71.86	15.6
dic	15	23.57	29.11	70.72	15.2
dic	21	23.52	28.98	69.29	14.8
dic	27	23.46	28.88	68.04	14.4

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	4.00	12.12	32.51	14.2
ene	7	3.98	12.06	32.44	13.8
ene	13	4.03	12.02	32.01	13.4
ene	19	4.05	12.00	31.89	13.0
ene	25	4.09	11.99	31.48	12.6
ene	31	4.16	12.00	31.19	12.2
feb	6	4.21	12.02	30.70	11.8
feb	12	4.32	12.06	30.22	11.4
feb	18	4.38	12.11	29.78	11.0
feb	24	4.51	12.18	29.14	10.6
mar	2	4.61	12.27	28.70	10.2
mar	8	4.75	12.36	27.91	9.8
mar	14	4.88	12.47	27.40	9.5
mar	20	5.02	12.58	26.62	9.1
mar	26	5.19	12.71	25.94	8.7
abr	1	5.33	12.84	25.18	8.3
abr	7	5.53	12.99	24.36	7.9
abr	13	5.68	13.13	23.67	7.5
abr	19	5.88	13.28	22.75	7.1
abr	25	6.06	13.43	22.11	6.7
may	1	6.27	13.58	21.12	6.3
may	7	6.46	13.74	20.48	5.9
may	13	6.64	13.88	19.67	5.6
may	19	6.86	14.03	18.94	5.2
may	25	7.03	14.17	18.31	4.8
may	31	7.26	14.32	17.55	4.4
jun	6	7.42	14.44	17.10	4.0
jun	12	7.61	14.56	16.45	3.6
jun	18	7.78	14.68	16.15	3.2
jun	24	7.94	14.78	15.62	2.8
jun	30	8.11	14.87	15.41	2.4
jul	6	8.22	14.95	15.16	2.1
jul	12	8.37	15.01	14.99	1.7
jul	18	8.45	15.06	15.04	1.3
jul	24	8.57	15.11	14.89	0.9
jul	30	8.63	15.13	15.15	0.5
ago	5	8.69	15.13	15.19	0.1
ago	11	8.72	15.13	15.55	23.7
ago	17	8.73	15.10	15.76	23.3
ago	23	8.76	15.07	16.15	22.9
ago	29	8.72	15.02	16.56	22.5
sep	4	8.71	14.95	16.93	22.1
sep	10	8.63	14.87	17.54	21.7
sep	16	8.60	14.78	17.84	21.3
sep	22	8.51	14.68	18.50	20.9
sep	28	8.42	14.56	18.87	20.5
oct	4	8.34	14.44	19.45	20.1
oct	10	8.22	14.31	19.86	19.7
oct	16	8.14	14.17	20.30	19.4
oct	22	8.01	14.02	20.77	19.0
oct	28	7.92	13.88	21.04	18.6
nov	3	7.79	13.73	21.52	18.2
nov	9	7.72	13.59	21.61	17.8
nov	15	7.61	13.44	22.00	17.4
nov	21	7.52	13.30	22.07	17.0
nov	27	7.45	13.17	22.25	16.6
dic	3	7.36	13.03	22.34	16.2
dic	9	7.34	12.92	22.29	15.8
dic	15	7.27	12.81	22.36	15.4
dic	21	7.25	12.72	22.16	15.0
dic	27	7.22	12.63	22.21	14.6

Posiciones aparentes de estrellas brillantes, 2017 (a las 0^h del meridiano 90° W.G.)

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	57.44	5.55	43.66	16.2
ene	7	57.28	5.35	41.90	15.8
ene	13	57.18	5.17	40.36	15.4
ene	19	57.06	5.01	38.38	15.0
ene	25	57.01	4.91	36.55	14.6
ene	31	56.96	4.80	34.50	14.2
feb	6	56.96	4.77	32.53	13.8
feb	12	56.98	4.73	30.58	13.4
feb	18	57.03	4.76	28.53	13.0
feb	24	57.13	4.80	26.73	12.6
mar	2	57.22	4.88	24.75	12.3
mar	8	57.39	5.00	23.23	11.9
mar	14	57.54	5.13	21.52	11.5
mar	20	57.75	5.31	20.18	11.1
mar	26	57.96	5.49	18.91	10.7
abr	1	58.21	5.72	17.85	10.3
abr	7	58.48	5.94	17.11	9.9
abr	13	58.75	6.20	16.38	9.5
abr	19	59.06	6.45	16.10	9.2
abr	25	59.34	6.72	15.77	8.8
may	1	59.68	7.00	16.02	8.4
may	7	59.98	7.25	16.19	8.0
may	13	60.30	7.54	16.74	5.9
may	19	60.61	7.79	17.46	5.5
may	25	60.92	8.06	18.30	5.1
may	31	61.23	8.29	19.57	4.8
jun	6	61.50	8.53	20.73	4.4
jun	12	61.79	8.74	22.30	4.0
jun	18	62.03	8.92	23.76	3.6
jun	24	62.28	9.11	25.63	3.2
jun	30	62.48	9.24	27.42	2.8
jul	6	62.67	9.39	29.37	2.4
jul	12	62.83	9.48	31.43	2.0
jul	18	62.95	9.56	33.38	1.7
jul	24	63.07	9.60	35.70	1.3
jul	30	63.13	9.63	37.70	0.9
ago	5	63.19	9.63	39.97	0.5
ago	11	63.18	9.59	42.00	0.1
ago	17	63.18	9.55	44.18	23.7
ago	23	63.13	9.44	46.26	23.3
ago	29	63.06	9.35	48.24	22.9
sep	4	62.96	9.21	50.25	22.5
sep	10	62.82	9.06	51.94	22.1
sep	16	62.69	8.87	53.87	21.7
sep	22	62.50	8.66	55.35	21.3
sep	28	62.32	8.45	56.96	20.9
oct	4	62.09	8.19	58.22	20.5
oct	10	61.87	7.96	59.45	20.1
oct	16	61.63	7.66	60.52	19.7
oct	22	61.37	7.39	61.30	19.3
oct	28	61.12	7.08	62.07	18.9
nov	3	60.84	6.78	62.38	18.5
nov	9	60.60	6.47	62.86	18.1
nov	15	60.31	6.14	62.79	17.7
nov	21	60.06	5.84	62.74	17.3
nov	27	59.79	5.51	62.35	18.6
dic	3	59.55	5.22	61.75	18.2
dic	9	59.32	4.90	61.11	17.8
dic	15	59.08	4.63	60.05	17.4
dic	21	58.89	4.35	59.02	17.0
dic	27	58.68	4.10	57.53	16.6

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	45.56	53.68	86.71	16.0
ene	7	45.45	53.52	85.45	15.6
ene	13	45.42	53.41	83.75	15.2
ene	19	45.38	53.34	82.31	14.8
ene	25	45.37	53.27	80.54	14.4
ene	31	45.43	53.27	78.85	14.0
feb	6	45.46	53.27	77.03	13.6
feb	12	45.60	53.34	75.17	13.3
feb	18	45.67	53.40	73.43	12.9
feb	24	45.84	53.51	71.47	12.5
mar	2	46.00	53.65	69.79	12.1
mar	8	46.21	53.82	67.81	11.7
mar	14	46.44	54.02	66.20	11.3
mar	20	46.66	54.22	64.44	10.9
mar	26	46.95	54.48	62.81	10.5
abr	1	47.21	54.72	61.27	10.1
abr	7	47.56	55.02	59.72	9.8
abr	13	47.85	55.30	58.48	9.4
abr	19	48.20	55.60	57.11	9.0
abr	25	48.55	55.93	56.11	8.6
may	1	48.92	56.24	54.93	8.2
may	7	49.31	56.59	54.19	7.8
may	13	49.66	56.90	53.45	7.5
may	19	50.07	57.24	52.86	7.1
may	25	50.42	57.56	52.53	6.7
may	31	50.85	57.90	52.14	6.3
jun	6	51.18	58.21	52.20	5.9
jun	12	51.55	58.50	52.16	5.5
jun	18	51.91	58.81	52.53	5.2
jun	24	52.23	59.07	52.81	4.8
jun	30	52.58	59.35	53.45	4.4
jul	6	52.83	59.55	54.17	4.0
jul	12	53.13	59.78	54.98	3.6
jul	18	53.34	59.95	56.09	3.2
jul	24	53.59	60.12	57.03	2.8
jul	30	53.74	60.24	58.42	2.4
ago	5	53.88	60.33	59.63	2.1
ago	11	54.00	60.40	61.13	1.7
ago	17	54.04	60.41	62.52	1.3
ago	23	54.12	60.44	64.04	0.9
ago	29	54.07	60.37	65.61	0.5
sep	4	54.06	60.31	67.05	0.1
sep	10	53.96	60.20	68.70	23.7
sep	16	53.88	60.07	69.99	23.3
sep	22	53.73	59.90	71.56	22.9
sep	28	53.55	59.69	72.77	22.5
oct	4	53.38	59.49	74.06	22.1
oct	10	53.14	59.22	75.13	21.7
oct	16	52.95	58.98	76.06	21.3
oct	22	52.66	58.68	76.95	20.9
oct	28	52.43	58.39	77.49	20.5
nov	3	52.15	58.09	78.11	20.1
nov	9	51.91	57.78	78.20	19.7
nov	15	51.65	57.48	78.45	19.3
nov	21	51.38	57.16	78.27	18.9
nov	27	51.16	56.88	78.01	18.5
dic	3	50.90	56.58	77.57	18.1
dic	9	50.76	56.34	76.81	17.7
dic	15	50.53	56.07	76.11	17.3
dic	21	50.39	55.85	74.99	16.9
dic	27	50.24	55.66	74.00	16.5

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	35.99	44.11	66.82	16.4
ene	7	35.89	43.97	65.96	16.0
ene	13	35.86	43.85	64.65	15.6
ene	19	35.81	43.76	63.56	15.2
ene	25	35.78	43.67	62.15	14.8
ene	31	35.80	43.64	60.75	14.4
feb	6	35.79	43.60	59.23	14.0
feb	12	35.88	43.62	57.59	13.6
feb	18	35.90	43.63	56.08	13.2
feb	24	36.01	43.68	54.29	12.8
mar	2	36.10	43.76	52.74	12.4
mar	8	36.24	43.85	50.87	12.0
mar	14	36.38	43.97	49.30	11.6
mar	20	36.53	44.09	47.58	11.2
mar	26	36.74	44.26	45.92	10.9
abr	1	36.91	44.42	44.34	10.5
abr	7	37.17	44.62	42.68	10.1
abr	13	37.37	44.82	41.33	9.7
abr	19	37.63	45.03	39.79	9.3
abr	25	37.89	45.27	38.59	8.9
may	1	38.18	45.49	37.19	8.5
may	7	38.47	45.75	36.17	8.1
may	13	38.74	45.98	35.17	7.8
may	19	39.07	46.25	34.26	7.4
may	25	39.35	46.49	33.62	7.0
may	31	39.70	46.75	32.86	6.6
jun	6	39.98	47.00	32.59	6.2
jun	12	40.29	47.24	32.19	5.8
jun	18	40.59	47.49	32.17	5.4
jun	24	40.87	47.70	32.10	5.1
jun	30	41.17	47.94	32.34	4.7
jul	6	41.40	48.12	32.72	4.3
jul	12	41.67	48.32	33.16	3.9
jul	18	41.87	48.49	33.95	3.5
jul	24	42.11	48.64	34.56	3.1
jul	30	42.27	48.78	35.66	2.7
ago	5	42.43	48.88	36.61	2.3
ago	11	42.57	48.97	37.85	2.0
ago	17	42.65	49.02	39.07	1.6
ago	23	42.76	49.08	40.38	1.2
ago	29	42.77	49.07	41.85	0.8
sep	4	42.82	49.06	43.19	0.4
sep	10	42.78	49.02	44.80	24.0
sep	16	42.77	48.96	46.08	23.6
sep	22	42.70	48.87	47.68	23.2
sep	28	42.61	48.74	49.00	22.8
oct	4	42.52	48.62	50.39	22.4
oct	10	42.37	48.45	51.65	22.0
oct	16	42.27	48.29	52.76	21.6
oct	22	42.07	48.09	53.93	21.2
oct	28	41.93	47.89	54.75	20.8
nov	3	41.74	47.68	55.68	20.4
nov	9	41.58	47.45	56.12	20.0
nov	15	41.40	47.23	56.73	19.6
nov	21	41.21	46.99	56.98	19.2
nov	27	41.06	46.78	57.11	18.8
dic	3	40.87	46.54	57.11	18.4
dic	9	40.76	46.35	56.75	18.0
dic	15	40.59	46.13	56.50	17.6
dic	21	40.48	45.94	55.81	17.2
dic	27	40.36	45.77	55.23	16.8

Posiciones aparentes de estrellas brillantes, 2017 (a las 0^h del meridiano 90° W.G.)

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	35.89	44.00	81.32	16.9
ene	7	35.82	43.89	81.49	16.5
ene	13	35.80	43.80	81.26	16.1
ene	19	35.76	43.71	81.29	15.7
ene	25	35.73	43.63	81.05	15.3
ene	31	35.73	43.57	80.81	14.9
feb	6	35.71	43.52	80.51	14.5
feb	12	35.74	43.49	80.02	14.1
feb	18	35.74	43.46	79.69	13.7
feb	24	35.78	43.46	79.03	13.3
mar	2	35.81	43.46	78.54	12.9
mar	8	35.88	43.49	77.68	12.5
mar	14	35.94	43.53	77.02	12.1
mar	20	36.01	43.57	76.17	11.7
mar	26	36.11	43.64	75.26	11.4
abr	1	36.20	43.71	74.36	11.0
abr	7	36.34	43.80	73.23	10.6
abr	13	36.45	43.89	72.32	10.2
abr	19	36.60	44.00	71.12	9.8
abr	25	36.74	44.11	70.12	9.4
may	1	36.92	44.23	68.81	9.0
may	7	37.09	44.36	67.73	8.6
may	13	37.25	44.49	66.59	8.2
may	19	37.45	44.63	65.38	7.8
may	25	37.62	44.77	64.35	7.5
may	31	37.85	44.91	63.06	7.1
jun	6	38.02	45.04	62.16	6.7
jun	12	38.23	45.18	61.04	6.3
jun	18	38.42	45.31	60.19	5.9
jun	24	38.61	45.44	59.22	5.5
jun	30	38.80	45.57	58.43	5.1
jul	6	38.96	45.68	57.76	4.7
jul	12	39.15	45.79	57.07	4.3
jul	18	39.28	45.89	56.70	4.0
jul	24	39.45	45.99	56.08	3.6
jul	30	39.57	46.07	55.92	3.2
ago	5	39.69	46.13	55.63	2.8
ago	11	39.79	46.19	55.60	2.4
ago	17	39.86	46.23	55.58	2.0
ago	23	39.95	46.26	55.63	1.6
ago	29	39.98	46.28	55.92	1.2
sep	4	40.03	46.28	56.10	0.8
sep	10	40.03	46.26	56.62	0.4
sep	16	40.05	46.24	56.87	0.0
sep	22	40.03	46.20	57.50	23.6
sep	28	40.00	46.13	57.98	23.2
oct	4	39.96	46.07	58.59	22.9
oct	10	39.90	45.98	59.22	22.5
oct	16	39.86	45.89	59.75	22.1
oct	22	39.77	45.78	60.51	21.7
oct	28	39.71	45.67	61.02	21.3
nov	3	39.61	45.55	61.78	20.9
nov	9	39.55	45.42	62.17	20.5
nov	15	39.46	45.29	62.84	20.1
nov	21	39.36	45.14	63.31	19.7
nov	27	39.29	45.00	63.77	19.3
dic	3	39.19	44.86	64.25	18.9
dic	9	39.14	44.73	64.44	18.5
dic	15	39.04	44.59	64.87	18.1
dic	21	38.99	44.45	64.97	17.7
dic	27	38.92	44.33	65.27	17.3

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	20.28	28.40	26.03	16.6
ene	7	20.19	28.27	25.01	16.2
ene	13	20.16	28.15	24.27	15.8
ene	19	20.09	28.04	23.15	15.4
ene	25	20.05	27.95	22.17	15.0
ene	31	20.02	27.86	21.08	14.6
feb	6	19.98	27.79	19.96	14.2
feb	12	19.99	27.73	18.98	13.9
feb	18	19.97	27.69	17.80	13.5
feb	24	19.99	27.67	16.89	13.1
mar	2	20.00	27.66	15.78	12.7
mar	8	20.06	27.67	15.04	12.3
mar	14	20.10	27.68	14.13	11.9
mar	20	20.16	27.73	13.43	11.5
mar	26	20.25	27.77	12.86	11.1
abr	1	20.33	27.84	12.33	10.7
abr	7	20.46	27.92	12.13	10.3
abr	13	20.56	28.01	11.80	9.9
abr	19	20.72	28.11	11.88	9.5
abr	25	20.85	28.22	11.87	9.1
may	1	21.03	28.35	12.28	8.8
may	7	21.19	28.47	12.63	8.4
may	13	21.36	28.60	13.18	8.0
may	19	21.56	28.73	13.94	7.6
may	25	21.73	28.87	14.65	7.2
may	31	21.95	29.00	15.81	6.8
jun	6	22.12	29.14	16.73	6.4
jun	12	22.33	29.28	18.01	6.0
jun	18	22.50	29.40	19.17	5.6
jun	24	22.70	29.53	20.60	5.3
jun	30	22.88	29.65	22.01	4.9
jul	6	23.04	29.77	23.41	4.5
jul	12	23.22	29.87	24.98	4.1
jul	18	23.35	29.96	26.35	3.7
jul	24	23.52	30.05	28.08	3.3
jul	30	23.62	30.12	29.45	2.9
ago	5	23.74	30.19	31.05	2.5
ago	11	23.83	30.24	32.45	2.1
ago	17	23.91	30.28	33.90	1.7
ago	23	23.99	30.30	35.36	1.4
ago	29	24.02	30.32	36.61	1.0
sep	4	24.07	30.31	37.98	0.6
sep	10	24.06	30.30	39.02	0.2
sep	16	24.09	30.27	40.32	23.8
sep	22	24.06	30.23	41.22	23.4
sep	28	24.04	30.18	42.22	23.0
oct	4	24.00	30.10	43.03	22.6
oct	10	23.95	30.03	43.74	22.2
oct	16	23.90	29.93	44.48	21.8
oct	22	23.82	29.83	44.88	21.4
oct	28	23.76	29.72	45.41	21.0
nov	3	23.66	29.60	45.56	20.6
nov	9	23.60	29.47	45.93	20.2
nov	15	23.50	29.33	45.90	19.8
nov	21	23.41	29.19	45.89	19.4
nov	27	23.33	29.04	45.74	19.0
dic	3	23.22	28.90	45.38	18.6
dic	9	23.16	28.74	45.17	18.2
dic	15	23.05	28.60	44.53	17.8
dic	21	22.99	28.45	44.05	17.4
dic	27	22.89	28.31	43.21	17.0

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	32.20	40.32	52.37	17.0
ene	7	32.08	40.15	51.84	16.6
ene	13	32.01	40.00	50.82	16.2
ene	19	31.93	39.88	50.00	15.8
ene	25	31.85	39.75	48.86	15.4
ene	31	31.82	39.67	47.65	15.0
feb	6	31.77	39.58	46.36	14.6
feb	12	31.79	39.53	44.84	14.2
feb	18	31.76	39.49	43.48	13.8
feb	24	31.80	39.47	41.78	13.4
mar	2	31.83	39.49	40.27	13.0
mar	8	31.90	39.51	38.42	12.7
mar	14	31.97	39.56	36.81	12.3
mar	20	32.05	39.61	35.05	11.9
mar	26	32.18	39.71	33.26	11.5
abr	1	32.29	39.80	31.57	11.1
abr	7	32.47	39.93	29.70	10.7
abr	13	32.61	40.05	28.15	10.3
abr	19	32.80	40.20	26.37	9.9
abr	25	32.99	40.37	24.87	9.5
may	1	33.21	40.53	23.18	9.1
may	7	33.45	40.73	21.79	8.8
may	13	33.66	40.90	20.45	8.4
may	19	33.93	41.11	19.12	8.0
may	25	34.16	41.31	18.08	7.6
may	31	34.47	41.52	16.86	7.2
jun	6	34.71	41.73	16.14	6.8
jun	12	34.98	41.93	15.30	6.4
jun	18	35.25	42.15	14.80	6.0
jun	24	35.51	42.34	14.27	5.7
jun	30	35.79	42.55	14.01	5.3
jul	6	36.01	42.73	13.96	4.9
jul	12	36.27	42.91	13.92	4.5
jul	18	36.46	43.08	14.28	4.1
jul	24	36.71	43.24	14.45	3.7
jul	30	36.88	43.38	15.14	3.3
ago	5	37.05	43.49	15.73	2.9
ago	11	37.21	43.61	16.61	2.6
ago	17	37.31	43.68	17.54	2.2
ago	23	37.45	43.76	18.54	1.8
ago	29	37.50	43.80	19.79	1.4
sep	4	37.57	43.82	20.93	1.0
sep	10	37.58	43.82	22.38	0.6
sep	16	37.61	43.80	23.55	0.2
sep	22	37.59	43.76	25.08	23.8
sep	28	37.54	43.68	26.41	23.4
oct	4	37.49	43.60	27.80	23.0
oct	10	37.39	43.48	29.17	22.6
oct	16	37.33	43.36	30.36	22.2
oct	22	37.19	43.20	31.71	21.8
oct	28	37.08	43.04	32.72	21.4
nov	3	36.93	42.87	33.87	21.0
nov	9	36.81	42.68	34.58	20.6
nov	15	36.66	42.49	35.46	20.2
nov	21	36.49	42.27	36.04	19.8
nov	27	36.36	42.08	36.47	19.4
dic	3	36.18	41.86	36.84	19.0
dic	9	36.08	41.66	36.80	18.6
dic	15	35.91	41.46	36.90	18.2
dic	21	35.79	41.26	36.57	17.8
dic	27	35.67	41.08	36.32	17.4

Posiciones aparentes de estrellas brillantes, 2017 (a las 0^h del meridiano 90° W.G.)

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	16.83	24.95	40.80	16.6
ene	7	16.56	24.64	39.66	16.2
ene	13	16.36	24.35	38.69	15.8
ene	19	16.12	24.07	37.24	15.4
ene	25	15.94	23.84	35.80	15.0
ene	31	15.76	23.60	34.16	14.6
feb	6	15.63	23.44	32.40	14.2
feb	12	15.52	23.27	30.69	13.8
feb	18	15.44	23.16	28.70	13.4
feb	24	15.41	23.09	26.91	13.0
mar	2	15.38	23.04	24.86	12.6
mar	8	15.44	23.05	23.14	12.2
mar	14	15.48	23.07	21.22	11.8
mar	20	15.60	23.16	19.48	11.4
mar	26	15.73	23.25	17.86	11.0
abr	1	15.90	23.41	16.27	10.6
abr	7	16.11	23.57	15.04	10.2
abr	13	16.33	23.78	13.69	9.9
abr	19	16.62	24.01	12.77	9.5
abr	25	16.87	24.25	11.81	9.1
may	1	17.22	24.54	11.33	8.7
may	7	17.52	24.80	10.85	8.3
may	13	17.87	25.11	10.62	7.9
may	19	18.22	25.40	10.69	7.5
may	25	18.57	25.72	10.78	7.2
may	31	18.96	26.01	11.42	6.8
jun	6	19.30	26.32	11.91	6.4
jun	12	19.67	26.63	12.85	6.0
jun	18	19.99	26.89	13.77	5.6
jun	24	20.36	27.19	15.05	5.2
jun	30	20.66	27.43	16.43	4.9
jul	6	20.97	27.69	17.90	4.5
jul	12	21.25	27.90	19.64	4.1
jul	18	21.49	28.11	21.26	3.7
jul	24	21.76	28.29	23.35	3.3
jul	30	21.93	28.43	25.18	2.9
ago	5	22.13	28.58	27.32	2.5
ago	11	22.25	28.66	29.36	2.1
ago	17	22.39	28.76	31.51	1.8
ago	23	22.46	28.77	33.75	1.4
ago	29	22.51	28.81	35.85	1.0
sep	4	22.54	28.79	38.12	0.6
sep	10	22.51	28.74	40.10	0.2
sep	16	22.50	28.68	42.39	23.8
sep	22	22.40	28.57	44.32	23.4
sep	28	22.32	28.46	46.35	23.0
oct	4	22.18	28.28	48.21	22.6
oct	10	22.04	28.12	49.96	22.2
oct	16	21.86	27.89	51.73	21.8
oct	22	21.66	27.67	53.14	21.4
oct	28	21.46	27.42	54.64	21.0
nov	3	21.20	27.13	55.70	20.6
nov	9	20.98	26.85	56.93	20.2
nov	15	20.69	26.52	57.70	19.8
nov	21	20.44	26.22	58.41	19.4
nov	27	20.15	25.86	58.89	19.0
dic	3	19.87	25.54	59.05	18.6
dic	9	19.59	25.17	59.28	18.2
dic	15	19.29	24.84	58.97	17.8
dic	21	19.03	24.49	58.71	17.4
dic	27	18.73	24.14	57.97	17.0

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	48.73	56.85	36.60	17.5
ene	7	48.64	56.72	35.59	17.1
ene	13	48.60	56.60	34.84	16.7
ene	19	48.53	56.48	33.72	16.3
ene	25	48.49	56.38	32.72	15.9
ene	31	48.45	56.29	31.62	15.5
feb	6	48.42	56.22	30.48	15.1
feb	12	48.42	56.16	29.48	14.7
feb	18	48.39	56.12	28.27	14.3
feb	24	48.42	56.09	27.34	13.9
mar	2	48.42	56.08	26.19	13.5
mar	8	48.48	56.09	25.42	13.1
mar	14	48.51	56.10	24.48	12.7
mar	20	48.58	56.14	23.75	12.4
mar	26	48.66	56.19	23.15	12.0
abr	1	48.74	56.26	22.57	11.6
abr	7	48.88	56.33	22.34	11.2
abr	13	48.97	56.42	21.98	10.8
abr	19	49.13	56.52	22.01	10.4
abr	25	49.26	56.63	21.97	10.0
may	1	49.44	56.76	22.35	9.6
may	7	49.60	56.88	22.67	9.2
may	13	49.77	57.01	23.18	8.8
may	19	49.97	57.14	23.92	8.5
may	25	50.14	57.28	24.61	8.1
may	31	50.36	57.42	25.75	7.7
jun	6	50.53	57.56	26.65	7.3
jun	12	50.74	57.69	27.91	6.9
jun	18	50.92	57.82	29.07	6.5
jun	24	51.12	57.95	30.49	6.1
jun	30	51.31	58.07	31.90	5.7
jul	6	51.47	58.19	33.31	5.3
jul	12	51.65	58.29	34.89	5.0
jul	18	51.78	58.39	36.26	4.6
jul	24	51.95	58.48	38.00	4.2
jul	30	52.05	58.56	39.39	3.8
ago	5	52.18	58.62	41.01	3.4
ago	11	52.27	58.67	42.44	3.0
ago	17	52.35	58.72	43.91	2.6
ago	23	52.43	58.74	45.41	2.2
ago	29	52.46	58.76	46.68	1.8
sep	4	52.51	58.76	48.09	1.4
sep	10	52.51	58.75	49.15	1.0
sep	16	52.54	58.72	50.49	0.6
sep	22	52.51	58.68	51.43	24.2
sep	28	52.49	58.63	52.46	23.9
oct	4	52.45	58.56	53.31	23.5
oct	10	52.40	58.48	54.06	23.1
oct	16	52.36	58.39	54.83	22.7
oct	22	52.27	58.29	55.28	22.3
oct	28	52.22	58.18	55.84	21.9
nov	3	52.12	58.05	56.02	21.5
nov	9	52.06	57.93	56.42	21.1
nov	15	51.96	57.79	56.43	20.7
nov	21	51.87	57.65	56.44	20.3
nov	27	51.78	57.50	56.32	19.9
dic	3	51.68	57.35	55.97	19.5
dic	9	51.62	57.20	55.78	19.1
dic	15	51.51	57.05	55.16	18.7
dic	21	51.44	56.91	54.69	18.3
dic	27	51.35	56.76	53.86	17.9

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	35.74	43.86	52.38	17.4
ene	7	35.65	43.73	51.53	17.0
ene	13	35.62	43.61	50.98	16.6
ene	19	35.55	43.50	50.08	16.2
ene	25	35.51	43.41	49.31	15.8
ene	31	35.47	43.32	48.49	15.4
feb	6	35.44	43.24	47.63	15.0
feb	12	35.44	43.18	46.94	14.6
feb	18	35.41	43.13	46.03	14.2
feb	24	35.43	43.10	45.42	13.8
mar	2	35.42	43.08	44.61	13.4
mar	8	35.47	43.08	44.16	13.0
mar	14	35.50	43.09	43.55	12.6
mar	20	35.55	43.11	43.11	12.2
mar	26	35.63	43.15	42.82	11.8
abr	1	35.70	43.21	42.52	11.5
abr	7	35.81	43.27	42.57	11.1
abr	13	35.90	43.35	42.46	10.7
abr	19	36.04	43.44	42.73	10.3
abr	25	36.16	43.53	42.90	9.9
may	1	36.33	43.64	43.46	9.5
may	7	36.48	43.75	43.96	9.1
may	13	36.64	43.88	44.60	8.7
may	19	36.82	44.00	45.45	8.3
may	25	36.98	44.13	46.22	7.9
may	31	37.20	44.26	47.41	7.6
jun	6	37.36	44.39	48.33	7.2
jun	12	37.57	44.52	49.59	6.8
jun	18	37.74	44.64	50.72	6.4
jun	24	37.93	44.77	52.07	6.0
jun	30	38.12	44.89	53.40	5.6
jul	6	38.28	45.00	54.68	5.2
jul	12	38.46	45.11	56.12	4.8
jul	18	38.59	45.21	57.33	4.4
jul	24	38.77	45.30	58.88	4.0
jul	30	38.88	45.38	60.07	3.7
ago	5	39.01	45.45	61.45	3.3
ago	11	39.11	45.51	62.64	2.9
ago	17	39.20	45.57	63.85	2.5
ago	23	39.29	45.60	65.08	2.1
ago	29	39.33	45.63	66.06	1.7
sep	4	39.39	45.64	67.18	1.3
sep	10	39.40	45.64	67.95	0.9
sep	16	39.44	45.62	68.99	0.5
sep	22	39.43	45.59	69.63	24.1
sep	28	39.42	45.56	70.37	23.7
oct	4	39.40	45.50	70.94	23.3
oct	10	39.35	45.44	71.41	22.9
oct	16	39.33	45.36	71.94	22.5
oct	22	39.26	45.27	72.13	22.1
oct	28	39.21	45.17	72.47	21.8
nov	3	39.13	45.06	72.47	21.4
nov	9	39.08	44.95	72.69	21.0
nov	15	38.99	44.82	72.56	20.6
nov	21	38.92	44.69	72.45	20.2
nov	27	38.84	44.56	72.26	19.8
dic	3	38.75	44.42	71.87	19.4
dic	9	38.70	44.28	71.68	19.0
dic	15	38.60	44.14	71.08	18.6
dic	21	38.54	44.00	70.68	18.2
dic	27	38.45	43.86	69.95	17.8

Posiciones aparentes de estrellas brillantes, 2017 (a las 0h del meridiano 90° W.G.)

γ SCL

4.41 G8

α α_c δ

h m h m ° ′

23 19 23 18 -32 26 hp

mes	d	s	s	“	h
ene	1	42.95	51.06	34.03	17.8
ene	7	42.85	50.93	34.05	17.4
ene	13	42.80	50.80	33.62	17.0
ene	19	42.73	50.68	33.39	16.6
ene	25	42.67	50.57	32.89	16.2
ene	31	42.64	50.48	32.30	15.8
feb	6	42.59	50.39	31.66	15.4
feb	12	42.59	50.33	30.76	15.0
feb	18	42.55	50.27	30.03	14.6
feb	24	42.56	50.24	28.94	14.2
mar	2	42.56	50.22	28.01	13.9
mar	8	42.60	50.21	26.73	13.5
mar	14	42.63	50.22	25.61	13.1
mar	20	42.67	50.24	24.35	12.7
mar	26	42.75	50.28	22.97	12.3
abr	1	42.82	50.33	21.67	11.9
abr	7	42.94	50.40	20.11	11.5
abr	13	43.03	50.48	18.83	11.1
abr	19	43.16	50.56	17.26	10.7
abr	25	43.30	50.67	15.89	10.3
may	1	43.46	50.78	14.29	9.9
may	7	43.63	50.91	12.89	9.5
may	13	43.79	51.03	11.52	9.2
may	19	43.99	51.17	10.06	8.8
may	25	44.17	51.31	8.85	8.4
may	31	44.40	51.46	7.39	8.0
jun	6	44.59	51.61	6.36	7.6
jun	12	44.81	51.76	5.17	7.2
jun	18	45.01	51.91	4.24	6.8
jun	24	45.22	52.06	3.28	6.4
jun	30	45.45	52.21	2.48	6.0
jul	6	45.63	52.35	1.91	5.7
jul	12	45.84	52.49	1.29	5.3
jul	18	46.01	52.62	1.05	4.9
jul	24	46.21	52.74	0.59	4.5
jul	30	46.36	52.86	0.63	4.1
ago	5	46.51	52.96	0.58	3.7
ago	11	46.65	53.05	0.79	3.3
ago	17	46.75	53.12	1.08	2.9
ago	23	46.88	53.20	1.42	2.5
ago	29	46.94	53.24	2.06	2.1
sep	4	47.03	53.27	2.60	1.8
sep	10	47.05	53.29	3.48	1.4
sep	16	47.11	53.29	4.13	1.0
sep	22	47.11	53.28	5.14	24.6
sep	28	47.10	53.24	6.05	24.2
oct	4	47.09	53.20	7.04	23.8
oct	10	47.04	53.13	8.09	23.4
oct	16	47.02	53.05	8.99	23.0
oct	22	46.94	52.96	10.14	22.6
oct	28	46.89	52.85	11.00	22.2
nov	3	46.80	52.73	12.08	21.8
nov	9	46.73	52.60	12.79	21.4
nov	15	46.64	52.47	13.70	21.0
nov	21	46.54	52.32	14.43	20.6
nov	27	46.45	52.17	15.04	20.2
dic	3	46.34	52.01	15.69	19.8
dic	9	46.28	51.86	15.94	19.4
dic	15	46.16	51.70	16.43	19.0
dic	21	46.08	51.55	16.53	18.6
dic	27	45.99	51.40	16.74	18.2

υ PEG

4.40 F8

α α_c δ

h m h m ° ′

23 26 23 25 +23 29 hp

mes	d	s	s	“	h
ene	1	13.23	21.35	57.52	17.1
ene	7	13.13	21.21	56.66	16.7
ene	13	13.09	21.08	56.06	16.3
ene	19	13.01	20.96	55.10	15.9
ene	25	12.95	20.85	54.22	15.5
ene	31	12.90	20.74	53.28	15.1
feb	6	12.84	20.65	52.25	14.7
feb	12	12.83	20.57	51.39	14.3
feb	18	12.78	20.51	50.27	13.9
feb	24	12.78	20.46	49.43	13.5
mar	2	12.76	20.42	48.38	13.1
mar	8	12.80	20.40	47.65	12.7
mar	14	12.81	20.40	46.78	12.3
mar	20	12.85	20.41	46.06	11.9
mar	26	12.91	20.44	45.49	11.5
abr	1	12.97	20.48	44.89	11.2
abr	7	13.08	20.54	44.66	10.8
abr	13	13.16	20.61	44.25	10.4
abr	19	13.30	20.69	44.23	10.0
abr	25	13.41	20.78	44.15	9.6
may	1	13.58	20.89	44.44	9.2
may	7	13.73	21.00	44.71	8.8
may	13	13.89	21.13	45.11	8.4
may	19	14.07	21.25	45.77	8.0
may	25	14.24	21.38	46.35	7.6
may	31	14.46	21.51	47.40	7.3
jun	6	14.63	21.65	48.20	6.9
jun	12	14.84	21.79	49.35	6.5
jun	18	15.02	21.92	50.43	6.1
jun	24	15.22	22.06	51.73	5.7
jun	30	15.42	22.18	53.07	5.3
jul	6	15.59	22.31	54.37	4.9
jul	12	15.78	22.43	55.87	4.5
jul	18	15.92	22.54	57.16	4.1
jul	24	16.11	22.64	58.83	3.8
jul	30	16.23	22.73	60.16	3.4
ago	5	16.38	22.82	61.69	3.0
ago	11	16.49	22.89	63.09	2.6
ago	17	16.59	22.96	64.49	2.2
ago	23	16.69	23.01	65.97	1.8
ago	29	16.75	23.05	67.19	1.4
sep	4	16.82	23.07	68.58	1.0
sep	10	16.84	23.08	69.63	0.6
sep	16	16.90	23.08	70.95	0.2
sep	22	16.89	23.06	71.90	23.8
sep	28	16.90	23.04	72.92	23.4
oct	4	16.89	22.99	73.81	23.0
oct	10	16.86	22.94	74.56	22.6
oct	16	16.84	22.87	75.39	22.3
oct	22	16.77	22.79	75.86	21.9
oct	28	16.74	22.70	76.48	21.5
nov	3	16.65	22.59	76.74	21.1
nov	9	16.61	22.48	77.20	20.7
nov	15	16.53	22.36	77.31	20.3
nov	21	16.45	22.23	77.40	19.9
nov	27	16.37	22.09	77.41	19.5
dic	3	16.28	21.95	77.17	19.1
dic	9	16.22	21.80	77.12	18.7
dic	15	16.11	21.66	76.63	18.3
dic	21	16.05	21.51	76.29	17.9
dic	27	15.95	21.36	75.62	17.5

κ PSC

4.94 A0

α α_c δ

h m h m ° ′

23 27 23 26 +01 20 hp

mes	d	s	s	“	h
ene	1	47.45	55.57	53.47	18.1
ene	7	47.36	55.44	52.84	17.7
ene	13	47.33	55.32	52.55	17.3
ene	19	47.26	55.21	51.98	16.9
161.325		47.22	55.11	51.56	16.5
ene	31	47.18	55.02	51.16	16.1
feb	6	47.13	54.94	50.72	15.7
feb	12	47.13	54.87	50.51	15.3
feb	18	47.09	54.82	50.08	14.9
feb	24	47.10	54.78	49.97	14.5
mar	2	47.09	54.75	49.68	14.1
mar	8	47.12	54.73	49.77	13.7
mar	14	47.14	54.73	49.72	13.3
mar	20	47.17	54.74	49.70	12.9
mar	26	47.24	54.76	49.91	12.5
abr	1	47.29	54.80	50.09	12.1
abr	7	47.40	54.86	50.60	11.8
abr	13	47.47	54.92	50.91	11.4
abr	19	47.59	54.99	51.58	11.0
abr	25	47.70	55.08	52.13	10.6
may	1	47.85	55.17	53.01	10.2
may	7	48.00	55.27	53.81	9.8
may	13	48.14	55.38	54.67	9.4
may	19	48.32	55.49	55.74	9.0
may	25	48.47	55.61	56.66	8.6
may	31	48.68	55.74	57.97	8.2
jun	6	48.84	55.86	58.96	7.9
jun	12	49.04	55.99	60.23	7.5
jun	18	49.21	56.11	61.35	7.1
jun	24	49.40	56.24	62.61	6.7
jun	30	49.59	56.36	63.84	6.3
jul	6	49.75	56.48	64.94	5.9
jul	12	49.94	56.59	66.19	5.5
jul	18	50.08	56.69	67.15	5.1
jul	24	50.26	56.80	68.43	4.7
jul	30	50.39	56.89	69.30	4.4
ago	5	50.52	56.97	70.31	4.0
ago	11	50.64	57.04	71.14	3.6
ago	17	50.74	57.11	71.93	3.2
ago	23	50.84	57.16	72.73	2.8
ago	29	50.90	57.20	73.25	2.4
sep	4	50.98	57.22	73.90	2.0
sep	10	51.00	57.24	74.21	1.6
sep	16	51.06	57.24	74.75	1.2
sep	22	51.06	57.23	74.92	24.8
sep	28	51.07	57.20	75.16	24.4
oct	4	51.06	57.17	75.28	24.0
oct	10	51.03	57.12	75.27	23.6
oct	16	51.03	57.05	75.38	23.2
oct	22	50.96	56.98	75.15	22.8
oct	28	50.93	56.89	75.11	22.5
nov	3	50.86	56.80	74.76	22.1
nov	9	50.83	56.70	74.68	21.7
nov	15	50.75	56.58	74.29	21.3
nov	21	50.68	56.46	73.96	20.9
nov	27	50.62	56.34	73.62	20.5
dic	3	50.53	56.21	73.11	20.1
dic	9	50.49	56.08	72.88	19.7
dic	15	50.40	55.94	72.28	19.3
dic	21	50.34	55.81	71.93	18.9
dic	27	50.26	55.68	71.34	18.5

Posiciones aparentes de la estrella Polar, 2017 (a las 0^h del meridiano 90° W.G.)

		α_c			α			δ			hp
mes	día	h	m	s	h	m	s	°	’	”	h
ene	1	2	53	36.68	2	54	28.57	89	20	18.8	20.1
ene	2	2	53	35.06	2	54	26.96	89	20	19.1	20.1
ene	3	2	53	33.39	2	54	25.29	89	20	19.3	20
ene	4	2	53	31.69	2	54	23.6	89	20	19.5	19.9
ene	5	2	53	30.02	2	54	21.93	89	20	19.7	19.9
ene	6	2	53	28.42	2	54	20.34	89	20	19.9	19.8
ene	7	2	53	26.91	2	54	18.83	89	20	20	19.7
ene	8	2	53	25.49	2	54	17.42	89	20	20.2	19.7
ene	9	2	53	24.13	2	54	16.08	89	20	20.4	19.6
ene	10	2	53	22.78	2	54	14.74	89	20	20.6	19.5
ene	11	2	53	21.37	2	54	13.35	89	20	20.8	19.5
ene	12	2	53	19.84	2	54	11.83	89	20	21	19.4
ene	13	2	53	18.17	2	54	10.18	89	20	21.2	19.3
ene	14	2	53	16.37	2	54	8.4	89	20	21.4	19.3
ene	15	2	53	14.49	2	54	6.52	89	20	21.6	19.2
ene	16	2	53	12.56	2	54	4.6	89	20	21.7	19.1
ene	17	2	53	10.63	2	54	2.68	89	20	21.8	19.1
ene	18	2	53	8.74	2	54	0.79	89	20	22	19
ene	19	2	53	6.91	2	53	58.96	89	20	22.1	18.9
ene	20	2	53	5.13	2	53	57.18	89	20	22.1	18.9
ene	21	2	53	3.4	2	53	55.46	89	20	22.2	18.8
ene	22	2	53	1.71	2	53	53.78	89	20	22.3	18.7
ene	23	2	53	0.04	2	53	52.12	89	20	22.4	18.7
ene	24	2	52	58.35	2	53	50.44	89	20	22.5	18.6
ene	25	2	52	56.62	2	53	48.73	89	20	22.6	18.6
ene	26	2	52	54.83	2	53	46.95	89	20	22.7	18.5
ene	27	2	52	52.96	2	53	45.09	89	20	22.9	18.4
ene	28	2	52	51	2	53	43.14	89	20	23	18.4
ene	29	2	52	48.95	2	53	41.1	89	20	23	18.3
ene	30	2	52	46.85	2	53	39.01	89	20	23.1	18.2
ene	31	2	52	44.74	2	53	36.9	89	20	23.2	18.2
feb	1	2	52	42.66	2	53	34.83	89	20	23.2	18.1
feb	2	2	52	40.66	2	53	32.83	89	20	23.2	18
feb	3	2	52	38.77	2	53	30.94	89	20	23.2	18
feb	4	2	52	36.98	2	53	29.16	89	20	23.2	17.9
feb	5	2	52	35.28	2	53	27.46	89	20	23.2	17.8
feb	6	2	52	33.61	2	53	25.81	89	20	23.2	17.8
feb	7	2	52	31.93	2	53	24.14	89	20	23.2	17.7
feb	8	2	52	30.17	2	53	22.39	89	20	23.3	17.6
feb	9	2	52	28.3	2	53	20.54	89	20	23.3	17.6
feb	10	2	52	26.33	2	53	18.57	89	20	23.3	17.5
feb	11	2	52	24.27	2	53	16.52	89	20	23.3	17.4
feb	12	2	52	22.17	2	53	14.42	89	20	23.3	17.4
feb	13	2	52	20.07	2	53	12.33	89	20	23.3	17.3
feb	14	2	52	18.02	2	53	10.28	89	20	23.2	17.2
feb	15	2	52	16.04	2	53	8.3	89	20	23.1	17.2
feb	16	2	52	14.14	2	53	6.4	89	20	23	17.1
feb	17	2	52	12.31	2	53	4.58	89	20	23	17
feb	18	2	52	10.55	2	53	2.83	89	20	22.9	17
feb	19	2	52	8.84	2	53	1.12	89	20	22.8	16.9
feb	20	2	52	7.14	2	52	59.43	89	20	22.7	16.8
feb	21	2	52	5.43	2	52	57.73	89	20	22.6	16.8
feb	22	2	52	3.69	2	52	56	89	20	22.6	16.7
feb	23	2	52	1.89	2	52	54.21	89	20	22.5	16.6
feb	24	2	52	0.03	2	52	52.35	89	20	22.4	16.6
feb	25	2	51	58.09	2	52	50.43	89	20	22.3	16.5
feb	26	2	51	56.11	2	52	48.45	89	20	22.2	16.4
feb	27	2	51	54.13	2	52	46.47	89	20	22.1	16.4
feb	28	2	51	52.18	2	52	44.52	89	20	22	16.3
mar	1	2	51	50.33	2	52	42.67	89	20	21.8	16.2
mar	2	2	51	48.6	2	52	40.94	89	20	21.6	16.2
mar	3	2	51	47	2	52	39.35	89	20	21.4	16.1

Posiciones aparentes de la estrella Polar, 2017 (a las 0h del meridiano 90° W.G.)

		α_c			α			δ			hp
mes	día	h	m	s	h	m	s	°	’	”	h
mar	4	2	51	45.52	2	52	37.87	89	20	21.3	16
mar	5	2	51	44.1	2	52	36.46	89	20	21.1	16
mar	6	2	51	42.69	2	52	35.06	89	20	20.9	15.9
mar	7	2	51	41.23	2	52	33.62	89	20	20.8	15.8
mar	8	2	51	39.7	2	52	32.1	89	20	20.7	15.8
mar	9	2	51	38.09	2	52	30.49	89	20	20.5	15.7
mar	10	2	51	36.4	2	52	28.81	89	20	20.4	15.6
mar	11	2	51	34.68	2	52	27.09	89	20	20.2	15.6
mar	12	2	51	32.97	2	52	25.38	89	20	20	15.5
mar	13	2	51	31.31	2	52	23.72	89	20	19.8	15.4
mar	14	2	51	29.73	2	52	22.14	89	20	19.6	15.4
mar	15	2	51	28.25	2	52	20.66	89	20	19.3	15.3
mar	16	2	51	26.86	2	52	19.28	89	20	19.1	15.2
mar	17	2	51	25.57	2	52	17.98	89	20	18.8	15.2
mar	18	2	51	24.34	2	52	16.76	89	20	18.6	15.1
mar	19	2	51	23.15	2	52	15.58	89	20	18.4	15
mar	20	2	51	21.99	2	52	14.42	89	20	18.1	15
mar	21	2	51	20.81	2	52	13.25	89	20	17.9	14.9
mar	22	2	51	19.6	2	52	12.05	89	20	17.7	14.8
mar	23	2	51	18.34	2	52	10.8	89	20	17.5	14.8
mar	24	2	51	17.04	2	52	9.5	89	20	17.3	14.7
mar	25	2	51	15.69	2	52	8.16	89	20	17	14.6
mar	26	2	51	14.33	2	52	6.81	89	20	16.8	14.6
mar	27	2	51	13.01	2	52	5.49	89	20	16.5	14.5
mar	28	2	51	11.78	2	52	4.26	89	20	16.2	14.4
mar	29	2	51	10.69	2	52	3.16	89	20	15.9	14.4
mar	30	2	51	9.75	2	52	2.22	89	20	15.6	14.3
mar	31	2	51	8.95	2	52	1.43	89	20	15.3	14.2
abr	1	2	51	8.25	2	52	0.74	89	20	15	14.2
abr	2	2	51	7.58	2	52	0.09	89	20	14.8	14.1
abr	3	2	51	6.89	2	51	59.41	89	20	14.5	14.1
abr	4	2	51	6.14	2	51	58.66	89	20	14.3	14
abr	5	2	51	5.31	2	51	57.84	89	20	14	13.9
abr	6	2	51	4.41	2	51	56.95	89	20	13.8	13.9
abr	7	2	51	3.49	2	51	56.03	89	20	13.5	13.8
abr	8	2	51	2.57	2	51	55.12	89	20	13.2	13.7
abr	9	2	51	1.71	2	51	54.25	89	20	12.9	13.7
abr	10	2	51	0.92	2	51	53.47	89	20	12.6	13.6
abr	11	2	51	0.24	2	51	52.79	89	20	12.3	13.5
abr	12	2	50	59.67	2	51	52.22	89	20	11.9	13.5
abr	13	2	50	59.2	2	51	51.76	89	20	11.6	13.4
abr	14	2	50	58.82	2	51	51.38	89	20	11.3	13.3
abr	15	2	50	58.49	2	51	51.06	89	20	11	13.3
abr	16	2	50	58.2	2	51	50.77	89	20	10.7	13.2
abr	17	2	50	57.91	2	51	50.49	89	20	10.4	13.1
abr	18	2	50	57.6	2	51	50.19	89	20	10.1	13.1
abr	19	2	50	57.25	2	51	49.86	89	20	9.8	13
abr	20	2	50	56.87	2	51	49.48	89	20	9.5	12.9
abr	21	2	50	56.45	2	51	49.07	89	20	9.2	12.9
abr	22	2	50	56.01	2	51	48.63	89	20	8.9	12.8
abr	23	2	50	55.59	2	51	48.22	89	20	8.6	12.7
abr	24	2	50	55.25	2	51	47.87	89	20	8.3	12.7
abr	25	2	50	55.02	2	51	47.65	89	20	7.9	12.6
abr	26	2	50	54.96	2	51	47.59	89	20	7.6	12.5
abr	27	2	50	55.06	2	51	47.69	89	20	7.3	12.5
abr	28	2	50	55.29	2	51	47.93	89	20	6.9	12.4
abr	29	2	50	55.58	2	51	48.24	89	20	6.6	12.3
abr	30	2	50	55.87	2	51	48.54	89	20	6.3	12.3
may	1	2	50	56.09	2	51	48.78	89	20	6.1	12.2
may	2	2	50	56.23	2	51	48.93	89	20	5.8	12.1
may	3	2	50	56.3	2	51	49.01	89	20	5.5	12.1
may	4	2	50	56.33	2	51	49.04	89	20	5.2	12

Posiciones aparentes de la estrella Polar, 2017 (a las 0^h del meridiano 90° W.G.)

		α_c			α			δ			hp
mes	día	h	m	s	h	m	s	°	’	”	h
may	5	2	50	56.36	2	51	49.08	89	20	4.9	11.9
may	6	2	50	56.43	2	51	49.15	89	20	4.6	11.9
may	7	2	50	56.57	2	51	49.3	89	20	4.3	11.8
may	8	2	50	56.82	2	51	49.54	89	20	4	11.7
may	9	2	50	57.17	2	51	49.9	89	20	3.6	11.7
may	10	2	50	57.62	2	51	50.36	89	20	3.3	11.6
may	11	2	50	58.16	2	51	50.91	89	20	3	11.6
may	12	2	50	58.77	2	51	51.52	89	20	2.7	11.5
may	13	2	50	59.42	2	51	52.18	89	20	2.4	11.4
may	14	2	51	0.07	2	51	52.85	89	20	2.1	11.4
may	15	2	51	0.71	2	51	53.5	89	20	1.8	11.3
may	16	2	51	1.31	2	51	54.11	89	20	1.6	11.2
may	17	2	51	1.88	2	51	54.69	89	20	1.3	11.2
may	18	2	51	2.4	2	51	55.22	89	20	1	11.1
may	19	2	51	2.89	2	51	55.72	89	20	0.8	11
may	20	2	51	3.39	2	51	56.23	89	20	0.5	11
may	21	2	51	3.94	2	51	56.77	89	20	0.2	10.9
may	22	2	51	4.58	2	51	57.42	89	19	59.9	10.8
may	23	2	51	5.35	2	51	58.19	89	19	59.6	10.8
may	24	2	51	6.29	2	51	59.14	89	19	59.3	10.7
may	25	2	51	7.37	2	52	0.23	89	19	59	10.6
may	26	2	51	8.55	2	52	1.43	89	19	58.7	10.6
may	27	2	51	9.76	2	52	2.65	89	19	58.5	10.5
may	28	2	51	10.91	2	52	3.82	89	19	58.3	10.4
may	29	2	51	11.97	2	52	4.89	89	19	58	10.4
may	30	2	51	12.93	2	52	5.87	89	19	57.8	10.3
may	31	2	51	13.83	2	52	6.78	89	19	57.6	10.2
jun	1	2	51	14.71	2	52	7.66	89	19	57.4	10.2
jun	2	2	51	15.6	2	52	8.56	89	19	57.2	10.1
jun	3	2	51	16.56	2	52	9.53	89	19	56.9	10
jun	4	2	51	17.61	2	52	10.58	89	19	56.6	10
jun	5	2	51	18.76	2	52	11.73	89	19	56.4	9.9
jun	6	2	51	20	2	52	12.98	89	19	56.1	9.8
jun	7	2	51	21.33	2	52	14.32	89	19	55.9	9.8
jun	8	2	51	22.72	2	52	15.72	89	19	55.6	9.7
jun	9	2	51	24.15	2	52	17.16	89	19	55.4	9.7
jun	10	2	51	25.58	2	52	18.61	89	19	55.2	9.6
jun	11	2	51	27	2	52	20.04	89	19	55	9.5
jun	12	2	51	28.38	2	52	21.43	89	19	54.8	9.5
jun	13	2	51	29.71	2	52	22.77	89	19	54.7	9.4
jun	14	2	51	30.99	2	52	24.06	89	19	54.5	9.3
jun	15	2	51	32.22	2	52	25.31	89	19	54.3	9.3
jun	16	2	51	33.45	2	52	26.54	89	19	54.2	9.2
jun	17	2	51	34.69	2	52	27.79	89	19	54	9.1
jun	18	2	51	36	2	52	29.1	89	19	53.8	9.1
jun	19	2	51	37.42	2	52	30.52	89	19	53.6	9
jun	20	2	51	38.97	2	52	32.08	89	19	53.3	8.9
jun	21	2	51	40.66	2	52	33.79	89	19	53.2	8.9
jun	22	2	51	42.47	2	52	35.61	89	19	53	8.8
jun	23	2	51	44.33	2	52	37.48	89	19	52.8	8.7
jun	24	2	51	46.17	2	52	39.34	89	19	52.7	8.7
jun	25	2	51	47.91	2	52	41.1	89	19	52.6	8.6
jun	26	2	51	49.55	2	52	42.75	89	19	52.5	8.5
jun	27	2	51	51.08	2	52	44.3	89	19	52.4	8.5
jun	28	2	51	52.56	2	52	45.79	89	19	52.3	8.4
jun	29	2	51	54.03	2	52	47.26	89	19	52.2	8.3
jun	30	2	51	55.55	2	52	48.78	89	19	52.1	8.3
jul	1	2	51	57.13	2	52	50.37	89	19	51.9	8.2
jul	2	2	51	58.8	2	52	52.05	89	19	51.8	8.2
jul	3	2	52	0.57	2	52	53.82	89	19	51.6	8.1
jul	4	2	52	2.41	2	52	55.67	89	19	51.5	8
jul	5	2	52	4.3	2	52	57.58	89	19	51.4	8

Posiciones aparentes de la estrella Polar, 2017 (a las 0^h del meridiano 90° W.G.)

		α_c			α			δ			hp
mes	día	h	m	s	h	m	s	°	’	”	h
jul	6	2	52	6.24	2	52	59.52	89	19	51.3	7.9
jul	7	2	52	8.17	2	53	1.47	89	19	51.2	7.8
jul	8	2	52	10.09	2	53	3.4	89	19	51.1	7.8
jul	9	2	52	11.95	2	53	5.28	89	19	51.1	7.7
jul	10	2	52	13.76	2	53	7.1	89	19	51	7.6
jul	11	2	52	15.5	2	53	8.85	89	19	51	7.6
jul	12	2	52	17.19	2	53	10.54	89	19	51	7.5
jul	13	2	52	18.84	2	53	12.2	89	19	50.9	7.4
jul	14	2	52	20.49	2	53	13.86	89	19	50.9	7.4
jul	15	2	52	22.19	2	53	15.56	89	19	50.8	7.3
jul	16	2	52	23.96	2	53	17.34	89	19	50.7	7.2
jul	17	2	52	25.85	2	53	19.23	89	19	50.7	7.2
jul	18	2	52	27.86	2	53	21.24	89	19	50.6	7.1
jul	19	2	52	29.97	2	53	23.37	89	19	50.5	7
jul	20	2	52	32.15	2	53	25.56	89	19	50.5	7
jul	21	2	52	34.33	2	53	27.75	89	19	50.5	6.9
jul	22	2	52	36.44	2	53	29.88	89	19	50.6	6.8
jul	23	2	52	38.44	2	53	31.9	89	19	50.6	6.8
jul	24	2	52	40.32	2	53	33.79	89	19	50.6	6.7
jul	25	2	52	42.1	2	53	35.58	89	19	50.7	6.7
jul	26	2	52	43.84	2	53	37.33	89	19	50.7	6.6
jul	27	2	52	45.6	2	53	39.09	89	19	50.7	6.5
jul	28	2	52	47.4	2	53	40.9	89	19	50.7	6.5
jul	29	2	52	49.29	2	53	42.78	89	19	50.7	6.4
jul	30	2	52	51.25	2	53	44.75	89	19	50.7	6.3
jul	31	2	52	53.29	2	53	46.79	89	19	50.7	6.3
ago	1	2	52	55.38	2	53	48.89	89	19	50.7	6.2
ago	2	2	52	57.49	2	53	51.02	89	19	50.8	6.1
ago	3	2	52	59.61	2	53	53.15	89	19	50.8	6.1
ago	4	2	53	1.71	2	53	55.25	89	19	50.9	6
ago	5	2	53	3.75	2	53	57.31	89	19	51	5.9
ago	6	2	53	5.72	2	53	59.29	89	19	51.1	5.9
ago	7	2	53	7.62	2	54	1.2	89	19	51.2	5.8
ago	8	2	53	9.44	2	54	3.03	89	19	51.3	5.7
ago	9	2	53	11.21	2	54	4.8	89	19	51.4	5.7
ago	10	2	53	12.96	2	54	6.55	89	19	51.5	5.6
ago	11	2	53	14.72	2	54	8.32	89	19	51.5	5.5
ago	12	2	53	16.55	2	54	10.15	89	19	51.6	5.5
ago	13	2	53	18.47	2	54	12.07	89	19	51.7	5.4
ago	14	2	53	20.5	2	54	14.1	89	19	51.7	5.3
ago	15	2	53	22.62	2	54	16.23	89	19	51.8	5.3
ago	16	2	53	24.8	2	54	18.42	89	19	51.9	5.2
ago	17	2	53	26.99	2	54	20.62	89	19	52.1	5.2
ago	18	2	53	29.13	2	54	22.77	89	19	52.2	5.1
ago	19	2	53	31.16	2	54	24.82	89	19	52.4	5
ago	20	2	53	33.07	2	54	26.74	89	19	52.6	5
ago	21	2	53	34.86	2	54	28.54	89	19	52.8	4.9
ago	22	2	53	36.58	2	54	30.27	89	19	52.9	4.8
ago	23	2	53	38.28	2	54	31.96	89	19	53.1	4.8
ago	24	2	53	40	2	54	33.69	89	19	53.2	4.7
ago	25	2	53	41.78	2	54	35.47	89	19	53.3	4.6
ago	26	2	53	43.63	2	54	37.32	89	19	53.5	4.6
ago	27	2	53	45.55	2	54	39.25	89	19	53.6	4.5
ago	28	2	53	47.53	2	54	41.23	89	19	53.8	4.4
ago	29	2	53	49.53	2	54	43.23	89	19	53.9	4.4
ago	30	2	53	51.53	2	54	45.24	89	19	54.1	4.3
ago	31	2	53	53.5	2	54	47.22	89	19	54.3	4.2
sep	1	2	53	55.41	2	54	49.15	89	19	54.5	4.2
sep	2	2	53	57.25	2	54	51	89	19	54.7	4.1
sep	3	2	53	59.01	2	54	52.76	89	19	55	4
sep	4	2	54	0.67	2	54	54.43	89	19	55.2	4
sep	5	2	54	2.27	2	54	56.02	89	19	55.4	3.9

Posiciones aparentes de la estrella Polar, 2017 (a las 0^h del meridiano 90° W.G.)

		α_c			α			δ			hp
mes	día	h	m	s	h	m	s	°	’	”	h
sep	6	2	54	3.81	2	54	57.57	89	19	55.6	3.8
sep	7	2	54	5.35	2	54	59.12	89	19	55.9	3.8
sep	8	2	54	6.94	2	55	0.7	89	19	56	3.7
sep	9	2	54	8.6	2	55	2.36	89	19	56.2	3.7
sep	10	2	54	10.36	2	55	4.12	89	19	56.4	3.6
sep	11	2	54	12.21	2	55	5.98	89	19	56.6	3.5
sep	12	2	54	14.12	2	55	7.9	89	19	56.9	3.5
sep	13	2	54	16.04	2	55	9.82	89	19	57.1	3.4
sep	14	2	54	17.9	2	55	11.7	89	19	57.4	3.3
sep	15	2	54	19.66	2	55	13.47	89	19	57.7	3.3
sep	16	2	54	21.3	2	55	15.12	89	19	57.9	3.2
sep	17	2	54	22.81	2	55	16.64	89	19	58.2	3.1
sep	18	2	54	24.23	2	55	18.06	89	19	58.5	3.1
sep	19	2	54	25.59	2	55	19.42	89	19	58.8	3
sep	20	2	54	26.95	2	55	20.78	89	19	59.1	2.9
sep	21	2	54	28.35	2	55	22.18	89	19	59.3	2.9
sep	22	2	54	29.81	2	55	23.64	89	19	59.6	2.8
sep	23	2	54	31.33	2	55	25.16	89	19	59.8	2.7
sep	24	2	54	32.9	2	55	26.74	89	20	0.1	2.7
sep	25	2	54	34.5	2	55	28.35	89	20	0.3	2.6
sep	26	2	54	36.1	2	55	29.95	89	20	0.6	2.5
sep	27	2	54	37.67	2	55	31.53	89	20	0.9	2.5
sep	28	2	54	39.18	2	55	33.05	89	20	1.2	2.4
sep	29	2	54	40.61	2	55	34.49	89	20	1.5	2.3
sep	30	2	54	41.95	2	55	35.83	89	20	1.9	2.3
oct	1	2	54	43.19	2	55	37.08	89	20	2.2	2.2
oct	2	2	54	44.34	2	55	38.23	89	20	2.5	2.2
oct	3	2	54	45.42	2	55	39.32	89	20	2.8	2.1
oct	4	2	54	46.47	2	55	40.37	89	20	3.1	2
oct	5	2	54	47.54	2	55	41.43	89	20	3.4	2
oct	6	2	54	48.66	2	55	42.56	89	20	3.7	1.9
oct	7	2	54	49.88	2	55	43.78	89	20	4	1.8
oct	8	2	54	51.2	2	55	45.1	89	20	4.3	1.8
oct	9	2	54	52.58	2	55	46.48	89	20	4.6	1.7
oct	10	2	54	53.97	2	55	47.89	89	20	4.9	1.6
oct	11	2	54	55.31	2	55	49.24	89	20	5.3	1.6
oct	12	2	54	56.54	2	55	50.48	89	20	5.7	1.5
oct	13	2	54	57.64	2	55	51.59	89	20	6	1.4
oct	14	2	54	58.6	2	55	52.56	89	20	6.4	1.4
oct	15	2	54	59.44	2	55	53.41	89	20	6.8	1.3
oct	16	2	55	0.22	2	55	54.19	89	20	7.1	1.2
oct	17	2	55	0.97	2	55	54.94	89	20	7.5	1.2
oct	18	2	55	1.74	2	55	55.71	89	20	7.8	1.1
oct	19	2	55	2.55	2	55	56.52	89	20	8.1	1
oct	20	2	55	3.41	2	55	57.39	89	20	8.4	1
oct	21	2	55	4.33	2	55	58.31	89	20	8.8	0.9
oct	22	2	55	5.28	2	55	59.26	89	20	9.1	0.8
oct	23	2	55	6.22	2	56	0.21	89	20	9.4	0.8
oct	24	2	55	7.14	2	56	1.14	89	20	9.8	0.7
oct	25	2	55	7.99	2	56	2	89	20	10.2	0.6
oct	26	2	55	8.76	2	56	2.79	89	20	10.5	0.6
oct	27	2	55	9.44	2	56	3.47	89	20	10.9	0.5
oct	28	2	55	10.01	2	56	4.05	89	20	11.3	0.5
oct	29	2	55	10.48	2	56	4.53	89	20	11.7	0.4
oct	30	2	55	10.86	2	56	4.91	89	20	12.1	0.3
oct	31	2	55	11.19	2	56	5.25	89	20	12.4	0.3
nov	1	2	55	11.5	2	56	5.56	89	20	12.8	0.2
nov	2	2	55	11.85	2	56	5.91	89	20	13.1	0.1
nov	3	2	55	12.28	2	56	6.34	89	20	13.5	0.1
nov	4	2	55	12.8	2	56	6.87	89	20	13.8	6
nov	5	2	55	13.41	2	56	7.49	89	20	14.1	23.9
nov	6	2	55	14.05	2	56	8.14	89	20	14.5	23.9

Posiciones aparentes de la estrella Polar, 2017 (a las 0^h del meridiano 90° W.G.)

		α_c			α			δ			hp
mes	día	h	m	s	h	m	s	°	’	”	h
nov	7	2	55	14.66	2	56	8.76	89	20	14.9	23.8
nov	8	2	55	15.16	2	56	9.28	89	20	15.3	23.7
nov	9	2	55	15.51	2	56	9.64	89	20	15.7	23.7
nov	10	2	55	15.7	2	56	9.85	89	20	16.1	23.6
nov	11	2	55	15.77	2	56	9.92	89	20	16.5	23.5
nov	12	2	55	15.74	2	56	9.9	89	20	16.9	23.5
nov	13	2	55	15.67	2	56	9.84	89	20	17.3	23.4
nov	14	2	55	15.61	2	56	9.77	89	20	17.6	23.3
nov	15	2	55	15.57	2	56	9.74	89	20	18	23.3
nov	16	2	55	15.58	2	56	9.76	89	20	18.3	23.2
nov	17	2	55	15.64	2	56	9.82	89	20	18.6	23.1
nov	18	2	55	15.73	2	56	9.92	89	20	19	23.1
nov	19	2	55	15.83	2	56	10.03	89	20	19.3	23
nov	20	2	55	15.9	2	56	10.11	89	20	19.7	22.9
nov	21	2	55	15.91	2	56	10.14	89	20	20.1	22.9
nov	22	2	55	15.84	2	56	10.08	89	20	20.4	22.8
nov	23	2	55	15.68	2	56	9.93	89	20	20.8	22.7
nov	24	2	55	15.4	2	56	9.66	89	20	21.2	22.7
nov	25	2	55	15.02	2	56	9.29	89	20	21.6	22.6
nov	26	2	55	14.54	2	56	8.82	89	20	22	22.5
nov	27	2	55	14	2	56	8.28	89	20	22.3	22.5
nov	28	2	55	13.42	2	56	7.71	89	20	22.7	22.4
nov	29	2	55	12.84	2	56	7.14	89	20	23	22.3
nov	30	2	55	12.33	2	56	6.63	89	20	23.3	22.3
dic	1	2	55	11.9	2	56	6.21	89	20	23.6	22.2
dic	2	2	55	11.56	2	56	5.88	89	20	23.9	22.2
dic	3	2	55	11.3	2	56	5.63	89	20	24.3	22.1
dic	4	2	55	11.03	2	56	5.38	89	20	24.6	22
dic	5	2	55	10.69	2	56	5.05	89	20	25	22
dic	6	2	55	10.2	2	56	4.58	89	20	25.4	21.9
dic	7	2	55	9.54	2	56	3.94	89	20	25.8	21.8
dic	8	2	55	8.73	2	56	3.14	89	20	26.1	21.8
dic	9	2	55	7.81	2	56	2.23	89	20	26.5	21.7
dic	10	2	55	6.83	2	56	1.26	89	20	26.8	21.6
dic	11	2	55	5.84	2	56	0.28	89	20	27.1	21.6
dic	12	2	55	4.89	2	55	59.32	89	20	27.4	21.5
dic	13	2	55	3.98	2	55	58.42	89	20	27.7	21.4
dic	14	2	55	3.12	2	55	57.57	89	20	28	21.4
dic	15	2	55	2.3	2	55	56.76	89	20	28.3	21.3
dic	16	2	55	1.49	2	55	55.96	89	20	28.6	21.2
dic	17	2	55	0.67	2	55	55.15	89	20	28.9	21.2
dic	18	2	54	59.8	2	55	54.3	89	20	29.2	21.1
dic	19	2	54	58.86	2	55	53.37	89	20	29.5	21
dic	20	2	54	57.83	2	55	52.35	89	20	29.8	21
dic	21	2	54	56.69	2	55	51.23	89	20	30.1	20.9
dic	22	2	54	55.45	2	55	50	89	20	30.4	20.8
dic	23	2	54	54.11	2	55	48.68	89	20	30.7	20.8
dic	24	2	54	52.71	2	55	47.28	89	20	31	20.7
dic	25	2	54	51.26	2	55	45.84	89	20	31.3	20.6
dic	26	2	54	49.82	2	55	44.4	89	20	31.5	20.6
dic	27	2	54	48.41	2	55	43	89	20	31.8	20.5
dic	28	2	54	47.08	2	55	41.67	89	20	32	20.4
dic	29	2	54	45.84	2	55	40.44	89	20	32.2	20.4
dic	30	2	54	44.69	2	55	39.3	89	20	32.4	20.3
dic	31	2	54	43.41	2	55	38.1	89	20	32.6	20.2

Constelaciones, 2017

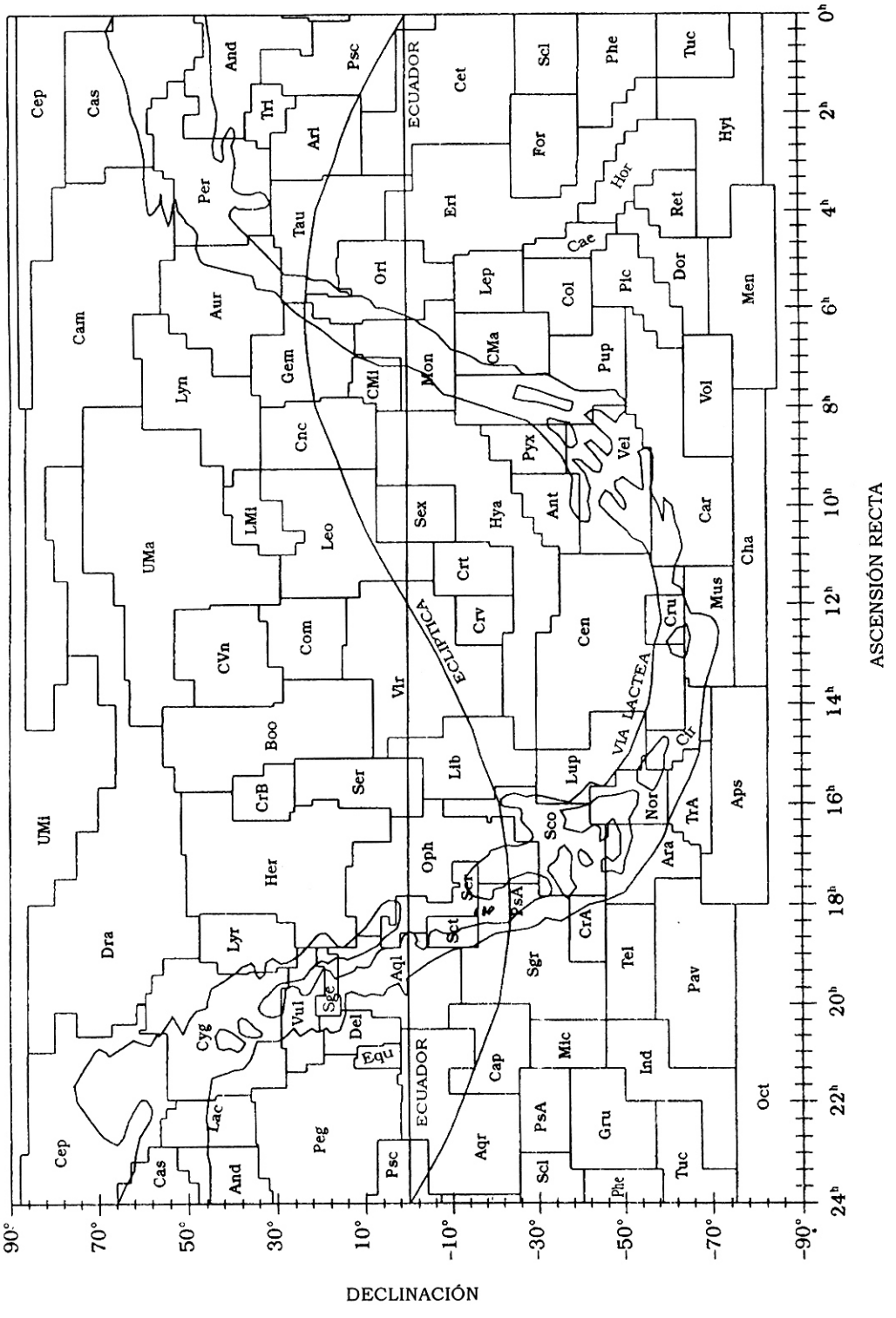
Nombres y significados

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, 2017

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, 2017



Objetos Messier, 2017

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, 2017

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, 2017

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, 2017

Hora del meridiano 90º W.G.

Mes		Eventos	
d	h	objeto	suceso
enero			
1	1	Marte	0.02° al sur de Neptuno
2	3	Venus	1.9° al sur de la Luna
2	22	Neptuno	0.4° al sur de la Luna occ
3	1	Marte	0.2° al sur de la Luna occ
4	8	Tierra	perihelio
5	14	Luna	Cuarto Creciente
5	20	Urano	3° al norte de la Luna
7	1	Plutón	Conjunción con el Sol
8	4	Mercurio	Estacionario
9	9	Aldebarán	0.4° al sur de la Luna occ
10	0	Luna	Perigeo
12	6	Luna	Luna Llena
12	7	Venus	Máxima Elongación al E(47°)
12	20	Venus	0.4° al norte de Neptuno
14	23	Régulo	0.8 ° al norte de la Luna occ
17	19	Vesta	Oposición
18	23	Júpiter	3° al sur de la Luna
19	4	Mercurio	Máxima Elongación al O(24°)
19	16	Luna	Cuarto Menguante
20	15	Júpiter	4° al norte de Espiga
21	18	Luna	Apogeo
24	4	Saturno	4° al sur de la Luna
25	19	Mercurio	4° al sur de la Luna
27	18	Luna	Luna Nueva
30	5	Neptuno	0.2° al sur de la Luna occ
31	9	Venus	4° al norte de la Luna
31	19	Marte	2° al norte de la Luna
febrero			
2	2	Urano	3° al norte de la Luna
2	20	Ceres	1° al sur de la Luna occ
3	22	Luna	Cuarto Creciente
5	16	Aldebarán	0.2° al sur de la Luna
6	8	Luna	Perigeo
6	13	Júpiter	Estacionario
10	19	Luna	Luna Llena
11	8	Régulo	0.8° al norte de la Luna occ
15	9	Júpiter	3° al sur de la Luna
17	1	Venus	Máximo brillo
18	14	Luna	Cuarto Menguante
18	15	Luna	Apogeo
20	17	Saturno	4° al sur de la Luna
23	10	Júpiter	4° al norte de Espiga
26	9	Luna	Luna Nueva ecl
27	2	Marte	0.6° al norte de Urano
28	14	Venus	10° al norte de la Luna
marzo			
1	10	Urano	4° al norte de la Luna
1	13	Marte	4° al norte de la Luna
1	21	Neptuno	Conjunción con el Sol
2	8	Venus	Estacionario
2	15	Ceres	0.8° al norte de la Luna occ
3	2	Luna	Perigeo
4	21	Aldebarán	0.2° al sur de la Luna occ
5	6	Luna	Cuarto Creciente
6	18	Mercurio	Conjunción superior
6	21	Vesta	Estacionario
10	17	Régulo	0.8° al norte de la Luna occ
12	9	Luna	Luna Llena
14	14	Júpiter	2° al sur de la Luna
14	21	Palas	Conjunción con el Sol
18	11	Luna	Apogeo
20	4	Sol	Equinoccio
20	4	Saturno	3° al sur de la Luna
20	10	Luna	Cuarto Menguante
25	4	Venus	Conjunción Inferior
26	2	Neptuno	0.005° al norte de la Luna occ
27	21	Luna	Luna Nueva
29	1	Mercurio	7° al norte de la Luna
30	7	Marte	5° al norte de la Luna
30	7	Luna	Perigeo

Mes		Eventos	
d	h	objeto	suceso
abril			
1	3	Aldebarán	0.3° al sur de la Luna occ
1	4	Mercurio	Máxima Elongación al E(19°)
3	13	Luna	Cuarto Creciente
5	23	Saturno	Estacionario
6	23	Régulo	0.7° al norte de la Luna occ
7	16	Júpiter	Oposición
9	19	Mercurio	Estacionario
10	15	Júpiter	2° al sur de la Luna
11	0	Luna	Luna Llena
12	18	Venus	Estacionario
14	0	Urano	Conjunción con el Sol
15	4	Luna	Apogeo
16	12	Saturno	3° al sur de la Luna
19	4	Luna	Cuarto Menguante
20	0	Mercurio	Conjunción Inferior
20	15	Plutón	Estacionario
22	14	Neptuno	0.2° al norte de la Luna occ
23	12	Venus	5° al norte de la Luna
24	10	Palas	0.8° al sur de la Luna occ
26	6	Luna	Luna Nueva
27	10	Luna	Perigeo
28	2	Marte	6° al norte de la Luna
28	12	Aldebarán	0.5° al sur de la Luna occ
29	22	Venus	Máximo brillo
mayo			
2	8	Mercurio	Estacionario
2	21	Luna	Cuarto Creciente
4	4	Régulo	0.5° al norte de la Luna occ
7	1	Marte	6° al norte de Aldebarán
7	15	Júpiter	2° al sur de la Luna
7	17	Mercurio	2° al sur de Urano
8	2	Juno	Estacionario
10	16	Luna	Luna Llena
12	14	Luna	Apogeo
13	17	Saturno	3° al sur de la Luna
17	17	Mercurio	Máxima Elongación al O(26°)
18	19	Luna	Cuarto Menguante
20	0	Neptuno	0.5° al norte de la Luna occ
22	7	Venus	2° al norte de la Luna
22	23	Urano	4° al norte de la Luna
23	19	Mercurio	1.6° al norte de la Luna
25	14	Luna	Luna Nueva
25	19	Luna	Perigeo
26	20	Marte	5° al norte de la Luna
31	11	Régulo	0.3° al norte de la Luna occ
junio			
1	7	Luna	Cuarto Creciente
2	9	Venus	1.8° al sur de Urano
3	7	Venus	Máxima elongacion al O(46°)
3	18	Júpiter	2° al sur de la Luna
5	18	Ceres	Conjunción con el Sol
8	16	Luna	Apogeo
9	7	Luna	Luna Llena
9	19	Saturno	3° al sur de la Luna
9	23	Júpiter	Estacionario
12	5	Mercurio	5° al norte de Aldebarán
15	4	Saturno	Oposición
16	7	Neptuno	0.7° al norte de la Luna occ
16	17	Neptuno	Estacionario
17	6	Luna	Cuarto Menguante
19	10	Urano	4° al norte de la Luna
20	15	Venus	2° al norte de la Luna
20	22	Sol	Solsticio
21	8	Mercurio	Conjunción Superior
22	9	Aldebarán	0.5° al sur de la Luna occ
23	5	Luna	Perigeo
23	21	Luna	Luna Nueva
27	19	Régulo	0.03° al norte de la Luna occ
30	19	Luna	Cuarto Creciente

Eventos Planetarios, 2017

Hora del meridiano 90° W.G.

Mes		Eventos	
d	h	objeto	suceso
julio			
1	1	Júpiter	3° al sur de la Luna
2	7	Juno	Oposición
2	18	Mercurio	5° al sur de Polux
3	14	Tierra	Afelio
5	22	Luna	Apogeo
6	21	Saturno	3° al sur de la Luna
8	22	Luna	Luna Llena
9	23	Plutón	Oposición
13	12	Neptuno	0.9° al norte de la Luna occ
14	5	Venus	3° al norte de Aldebarán
16	13	Luna	Cuarto Menguante
16	18	Urano	4° al norte de la Luna
19	18	Aldebarán	0.4° al sur de la Luna occ
20	5	Venus	3° al norte de la Luna
21	11	Luna	Perigeo
23	4	Luna	Luna Nueva
25	3	Mercurio	0.9° al sur de la Luna occ
25	5	Régulo	0.07° al sur de la Luna occ
26	3	Mercurio	1.1° al sur de Régulo
26	19	Marte	Conjunción con el Sol
28	14	Júpiter	3° al sur de la Luna
29	23	Mercurio	Máxima elongación al E(27°)
30	9	Luna	Cuarto Creciente
agosto			
2	12	Luna	Apogeo
3	1	Saturno	3° al sur de la Luna
3	4	Urano	Estacionario
7	12	Luna	Luna Llena
9	17	Neptuno	0.9° al norte de la Luna occ
12	0	Mercurio	Estacionario
12	23	Urano	4° al norte de la Luna
14	19	Luna	Cuarto Menguante ecl
16	1	Aldebarán	0.4° al sur de la Luna
18	7	Luna	Perigeo
18	23	Venus	2° al norte de la Luna
21	13	Luna	Luna Nueva ecl
21	13	Venus	7° al sur de Polux
25	7	Júpiter	3° al sur de la Luna
25	9	Saturno	Estacionario
26	4	Juno	Estacionario
26	15	Mercurio	Conjunción Inferior
29	2	Luna	Cuarto Creciente
30	5	Luna	Apogeo
30	8	Saturno	4° al sur de la Luna
septiembre			
4	10	Mercurio	Estacionario
4	23	Neptuno	Oposición
5	5	Júpiter	3° al norte de Espiga
5	23	Neptuno	0.8° al norte de la Luna occ
6	1	Luna	Luna Llena
9	4	Urano	4° al norte de la Luna
10	6	Mercurio	0.6° al sur de Régulo
12	4	Mercurio	Máxima elongación O(18°)
12	7	Aldebarán	0.4° al sur de la Luna occ
13	0	Luna	Cuarto Menguante
13	10	Luna	Perigeo
16	12	Mercurio	0.06° al norte de Marte
17	19	Venus	0.5° al norte de la Luna occ
17	23	Régulo	0.09° al sur de la Luna occ
18	14	Marte	0.1° al sur de la Luna occ
18	17	Mercurio	0.03° al norte de la Luna occ
19	17	Venus	0.5° al norte de Régulo
19	23	Luna	Luna Nueva
22	2	Júpiter	4° al sur de la Luna
22	14	Sol	Equinoccio
25	5	Palas	Estacionario
26	18	Saturno	3° al sur de la Luna
27	1	Luna	Apogeo
27	8	Vesta	Conjunción con el Sol
27	21	Luna	Cuarto Creciente
28	2	Plutón	Estacionario

Mes		Eventos	
d	h	objeto	suceso
octubre			
3	6	Neptuno	0.7° al norte de la Luna occ
5	7	Venus	0.2° al norte de la Luna
5	13	Luna	Luna Llena
6	10	Urano	4° al norte de la Luna
8	15	Mercurio	Conjunción superior
9	0	Luna	Perigeo
9	13	Aldebarán	0.6° al sur de la Luna occ
12	6	Luna	Cuarto Menguante
15	5	Régulo	0.2° al sur de la Luna occ
17	4	Marte	1.8° al sur de la Luna
17	18	Venus	2° al sur de la Luna
19	12	Urano	Oposición
19	13	Luna	Luna Nueva
24	6	Saturno	3° al sur de la Luna
24	20	Luna	Apogeo
26	12	Júpiter	Conjunción con el Sol
27	16	Luna	Cuarto Creciente
28	18	Palas	Oposición
30	15	Neptuno	0.9° al norte de la Luna occ
noviembre			
1	9	Venus	4° al norte de Espiga
2	19	Urano	4° al norte de la Luna
3	23	Luna	Luna Llena
5	18	Luna	Perigeo
5	21	Aldebarán	0.8° al sur de la Luna occ
10	15	Luna	Cuarto Menguante
11	11	Régulo	0.4° al sur de la Luna occ
12	9	Mercurio	2° al norte de Antares
13	0	Venus	0.3° al norte de Júpiter
14	19	Marte	3° al sur de la Luna
16	3	Vesta	0.4° al norte de la Luna occ
16	15	Júpiter	4° al sur de la Luna
18	6	Luna	Luna Nueva
20	3	Mercurio	7° al sur de la Luna
20	18	Saturno	3° al sur de la Luna
21	13	Luna	Apogeo
22	15	Neptuno	Estacionario
23	18	Mercurio	Máxima Elongación al E(22°)
26	11	Luna	Cuarto Creciente
26	23	Neptuno	1.2° al norte de la Luna occ
27	18	Marte	3° al norte de Espiga
28	3	Mercurio	3° al sur de Saturno
30	4	Urano	4° al norte de la Luna
diciembre			
3	2	Mercurio	Estacionario
3	7	Aldebarán	0.8° al sur de la Luna occ
3	10	Luna	Luna Llena
3	2	Mercurio	Estacionario
3	7	Aldebarán	0.8° al sur de la Luna
3	10	Luna	Luna Llena
3	10	Luna	Luna llena
4	3	Luna	perigeo
8	17	Régulo	0.7° al sur de la Luna occ
10	2	Luna	cuarto menguante
12	20	Mercurio	conjunción inferior
13	10	Marte	4° al sur de la Luna
14	8	Júpiter	4° al sur de la Luna
14	13	Vesta	0.2° al norte de la Luna occ
18	1	Luna	Luna Nueva
18	19	Luna	apogeo
21	10	Sol	solsticio
21	15	Ceres	estacionario
21	15	Saturno	conjunción sol
22	21	Mercurio	estacionario
24	0	Palas	estacionario
24	7	Neptuno	1.4° al norte de la Luna
26	3	Luna	cuarto creciente
27	12	Urano	5° al norte de la Luna
30	19	Aldebarán	0.8° al sur de la Luna occ

Fases de la Luna, 2017

Hora del meridiano 90º W.G.

Luna Nueva

mes	d	h	m
..	..	..	..
ene	27	18	7
feb	26	8	58
mar	27	20	57
abr	26	6	16
may	25	13	44
jun	23	20	31
jul	23	3	45
ago	21	12	30
sep	19	23	30
oct	19	13	12
nov	18	5	42
dic	18	0	30

Luna Llena

mes	d	h	m
ene	12	5	34
feb	10	18	33
mar	12	8	54
abr	11	0	8
may	10	15	42
jun	9	7	10
jul	8	22	6
ago	7	12	11
sep	6	1	3
oct	5	12	40
nov	3	23	23
dic	3	9	47
	..	..	..

Cuarto Creciente

mes	d	h	m
ene	5	13	47
feb	3	22	19
mar	5	5	32
abr	3	12	39
may	2	20	47
jun	1	6	42
jul	30	18	51
jul	30	9	23
ago	29	2	13
sep	27	20	53
oct	27	16	22
nov	26	11	3
dic	26	3	30

Cuarto Menguante

mes	d	h	m
ene	19	16	13
feb	18	13	33
mar	20	9	58
abr	19	3	57
may	18	18	33
jun	17	5	33
jul	16	13	26
ago	14	19	15
sep	13	0	25
oct	12	6	25
nov	10	14	36
dic	10	1	51
	..	..	..

Crepúsculos, salidas y puestas de Sol, 2017

Hora local

LATITUD 30º

	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 25º

	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, 2017

Hora local

LATITUD 25º

	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 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
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, 2017

Hora local

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
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 15°

	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 2017

Hora del meridiano 90° W.G.

I- Eclipse penumbral de Luna el 10 de febrero de 2017, observable en la República Mexicana.
El inicio del eclipse penumbral ocurrirá a lo largo de la costa de China en el Océano Pacífico, el Mar Amarillo, Indonesia hasta el Oeste de Australia. La inmersión total de la Luna en la penumbra terrestre se observará en el Oeste de Asia, Rusia, Europa, África, Océano Atlántico y al oeste de América de Norte y América del Sur. El final del eclipse como parcial se observará al Oeste del Continente Americano.

Circunstancias del eclipse	*d*	*h*	*m*	*s*
Inicia eclipse penumbral parcial	10	16	32	12
Media el eclipse penumbral	10	18	43	54
Termina eclipse penumbral parcial	10	20	55	30

II- Eclipse anular de sol el día 26 de febrero de 2017, no se observará en la República Mexicana.
La franja de anularidad cruzará la región sur de Chile y Argentina, el Océano Atlántico, y Angola y Congo en África.

Circunstancias del eclipse	*día*	*h*	*m*	*s*
Inicia el eclipse como parcial	26	6	10	48
Inicia el eclipse anular central	26	7	15	42
Media el eclipse anular	26	8	38	49
Termina el eclipse anular central	26	10	30	54
Termina el eclipse parcial	26	11	36	1

III- Eclipse parcial de Luna el 7 de agosto de 2017, no se observará en la República Mexicana.
Se observará en hemisferio entre el Océano Atlántico y el Océano Pacífico. El eclipse umbral parcial se observará en el Mar Amarillo, Asia, Oeste de Europa, la península de Arabia y el Este de África, el Océano Índico y la Antártida.

Circunstancias del eclipse parcial	*día*	*h*	*m*	*s*
Inicia el eclipse penumbral	7	9	48	6
Inicia el eclipse umbral parcial	7	11	22	19
Media el eclipse parcial	7	12	20	30
Termina eclipse umbral parcial	7	13	18	48
Termina eclipse penumbral	7	14	52	53

IV- Eclipse total de sol el 21 de agosto de 2017, se observará como parcial en la República Mexicana.
El incio de la franja de totalidad se observará en el Pacífico Norte entre las islas Aleutianas y Hawai. Ingresará al continente americano al sur del Estado de Washington en Estados Unidos y saldrá por el estado de Carolina del Norte. Terminará en el Océano Atlántico al Oeste de Cabo Verde en África.

Circunstancias del eclipse total	*día*	*h*	*m*	*s*
Inicia el eclipse	21	9	46	48
Inicia el eclipse central	21	10	49	6
Máximo del eclipse total	21	12	13	13
Termina el eclipse central	21	14	2	6
Termina el eclipse	21	15	4	23

Eclipse total de Sol, parcial en la República Mexicana, 21 agosto 2017

Hora del meridiano 90° W.G.

ESTADO Población	inicia h	 m	altura °	media h	 m	altura °	termina h	 m	altura °	duración h	 m	fracción ocultada %
AGUASALIENTES												
Aguascalientes	10	52.2	60	12	9.2	76	13	29.5	77	2	37.5	28
Calvillo	10	52.2	60	12	9.2	76	13	29.5	77	2	37.5	28
Puertecito	10	52.2	60	12	9.2	76	13	29.5	77	2	37.5	28
Rincon de Romos	10	49.4	59	12	8.0	76	13	30.0	76	2	40.5	31
BAJA CALIFORNIA												
Bailador Isla	10	11.0	37	11	25.5	52	12	50.0	67	2	39.9	52
Cedros Isla	10	15.2	39	11	28.1	55	12	50.6	70	2	35.7	41
Ensenada	10	11.0	37	11	25.5	52	12	50.0	67	2	39.9	52
Guadalupe Isla	10	10.0	35	11	21.3	50	12	42.8	66	2	32.7	43
Mexicali	10	11.7	37	11	27.6	53	12	53.3	67	2	41.9	56
San Benito Isla	10	15.2	39	11	28.1	55	12	50.6	70	2	35.7	41
San Pedro Mártir	10	12.3	38	11	27.7	53	12	52.8	67	2	40.9	52
BAJA CALIFORNIA SUR												
Asuncion Isla	10	18.0	40	11	30.7	56	12	52.7	71	2	34.6	38
Jose del Cabo	10	33.7	49	11	46.1	65	13	5.4	78	2	31.5	28
La Paz	10	29.7	47	11	42.5	63	13	3.0	77	2	33.5	30
Muleje	10	24.2	45	11	38.7	61	13	1.5	75	2	37.6	36
Roca Alijos Isla	10	24.7	43	11	34.3	59	12	52.4	74	2	27.5	28
San Marcos Isla	10	21.0	43	11	35.7	59	12	59.0	73	2	38.7	39
Tortugas Isla	10	22.6	44	11	38.2	60	13	2.2	74	2	39.7	40
CAMPECHE												
Becal	11	19.6	77	12	45.6	77	14	7.6	59	2	48.7	42
Bolonchenticul	11	21.7	78	12	48.2	76	14	10.2	58	2	48.7	44
Campeche	11	22.5	78	12	47.3	77	14	8.0	59	2	45.7	39
Carmen Isla	11	23.6	78	12	46.3	79	14	5.5	61	2	41.6	34
Champotón	11	22.5	78	12	47.3	77	14	8.0	59	2	45.7	39
Dzibalchen	11	24.6	79	12	49.9	76	14	10.6	58	2	46.7	41
Escárcega	11	25.6	79	12	49.0	77	14	8.3	59	2	42.6	36
Iturbide	11	24.6	79	12	49.9	76	14	10.6	58	2	46.7	41
Lerma	11	25.6	79	12	49.0	77	14	8.3	59	2	42.6	36
Palizada	11	18.4	75	12	41.9	80	14	2.4	63	2	43.6	36
COAHUILA												
Acuña	10	39.4	56	12	5.8	71	13	35.5	69	2	57.0	58
Cuatro Ciénegas	10	40.4	56	12	3.5	72	13	30.7	73	2	50.8	45
Laguna de Jaco	10	36.7	54	11	59.7	70	13	27.5	73	2	50.8	47
Monclova	10	42.3	57	12	6.3	73	13	33.7	72	2	51.8	46
Parras	10	42.3	57	12	4.6	73	13	30.7	74	2	48.7	41
Piedras Negras	10	40.9	57	12	6.9	72	13	36.0	70	2	55.9	54
Saltillo	10	46.2	59	12	10.3	75	13	37.0	72	2	50.7	44
Torreón	10	40.4	55	12	1.7	72	13	27.5	75	2	47.7	40
Viesca	10	42.3	57	12	4.6	73	13	30.7	74	2	48.7	41
COLIMA												
Colima	10	56.7	60	12	8.6	77	13	23.9	80	2	27.4	21
Manzanillo	10	54.8	59	12	5.4	75	13	19.8	81	2	25.3	20
Socorro Isla	10	47.7	52	11	47.1	66	12	52.2	80	2	4.2	12
CHIAPAS												
Cacahuanton	11	36.6	81	12	50.4	80	14	1.5	63	2	24.4	21
Catazaja	11	25.0	77	12	45.3	80	14	2.5	63	2	37.5	30

Eclipse total de Sol, parcial en la República Mexicana, 21 agosto 2017

Hora del meridiano 90º W.G.

ESTADO Población	inicia h	 m	altura °	media h	 m	altura °	termina h	 m	altura °	duración h	 m	fracción ocultada %
Comitán	11	28.6	79	12	47.0	80	14	2.3	63	2	33.5	27
Chiapa de Corzo	11	26.7	77	12	44.1	82	13	59.0	65	2	32.4	25
Jaltenango	11	32.5	80	12	48.7	80	14	2.0	63	2	29.4	24
Las Margaritas	11	30.7	79	12	45.9	82	13	58.6	65	2	27.4	22
Ocosingo	11	28.6	79	12	47.0	80	14	2.3	63	2	33.5	27
Pichucalco	11	23.1	76	12	42.4	82	13	59.3	65	2	36.5	28
Puerto Madero	11	34.9	80	12	47.6	82	13	58.0	65	2	23.3	20
Suchiate	11	36.6	81	12	50.4	80	14	1.5	63	2	24.4	21
Tuxtla Gutiérrez	11	26.7	77	12	44.1	82	13	59.0	65	2	32.4	25
CHIHUAHUA												
Ahumada	10	27.2	49	11	49.4	64	13	18.3	72	2	51.9	55
Camargo	10	33.0	51	11	54.2	68	13	21.3	74	2	48.8	45
Ciudad Juárez	10	26.1	48	11	48.8	64	13	18.1	71	2	52.0	58
Cusihuiriachi	10	29.7	50	11	50.8	66	13	18.3	74	2	48.8	47
Chihuahua	10	29.7	50	11	50.8	66	13	18.3	74	2	48.8	47
Guadalupe y Calvo	10	32.9	51	11	52.3	67	13	17.9	76	2	45.7	40
Ojinaga	10	31.9	52	11	55.3	67	13	24.2	72	2	52.9	53
Parral Hidalgo del	10	34.7	52	11	55.1	69	13	21.2	75	2	46.7	41
Valle Del Rosario	10	31.2	50	11	51.5	67	13	18.2	75	2	47.7	44
CIUDAD DE MÉXICO												
Atzcapotzalco	11	4.3	66	12	21.3	82	13	39.3	74	2	34.4	26
Ciudad Universitaria	11	4.3	66	12	21.3	82	13	39.3	74	2	34.4	26
Chapultepec	11	4.3	66	12	21.3	82	13	39.3	74	2	34.4	26
Ixtapalapa	11	4.3	66	12	21.3	82	13	39.3	74	2	34.4	26
MÉxico	11	4.3	66	12	21.3	82	13	39.3	74	2	34.4	26
Tacubaya	11	4.3	66	12	21.3	82	13	39.3	74	2	34.4	26
Tlalpan	11	4.3	66	12	21.3	82	13	39.3	74	2	34.4	26
Xochimilco	11	4.3	66	12	21.3	82	13	39.3	74	2	34.4	26
DURANGO												
Ciudad Lerdo	10	40.4	55	12	1.7	72	13	27.5	75	2	47.7	40
Durango	10	40.6	55	11	59.8	71	13	23.9	77	2	43.6	36
Gomez Palacio	10	40.4	55	12	1.7	72	13	27.5	75	2	47.7	40
Nazas	10	38.5	54	11	58.8	71	13	24.2	76	2	45.7	39
Santa Maria Ocotlán	10	45.5	56	12	1.9	73	13	22.8	78	2	37.5	29
Santiago Papasquiaro	10	36.6	53	11	56.0	69	13	20.9	76	2	44.6	38
Tepehuanes	10	36.6	53	11	56.0	69	13	20.9	76	2	44.6	38
Tlahualilo	10	38.4	55	12	0.7	71	13	27.6	74	2	49.7	44
GUERRERO												
Acapulco	11	15.8	69	12	25.8	85	13	36.6	76	2	20.3	17
Coyuca de Catalán	11	6.0	66	12	19.6	82	13	34.7	76	2	28.4	21
Chilpancingo	11	11.7	68	12	24.3	84	13	37.7	75	2	26.3	20
Petatlan	11	8.0	65	12	17.8	81	13	29.6	79	2	21.3	18
S. Marcos	11	15.8	69	12	25.8	85	13	36.6	76	2	20.3	17
Taxco	11	7.9	67	12	22.8	83	13	38.6	75	2	30.4	23
Teloloapan	11	7.9	67	12	22.8	83	13	38.6	75	2	30.4	23
Zihuatanejo	11	8.0	65	12	17.8	81	13	29.6	79	2	21.3	18
Zirandaro	11	6.0	66	12	19.6	82	13	34.7	76	2	28.4	21
GUANAJUATO												
Abasolo	10	59.1	64	12	16.7	80	13	36.2	75	2	37.5	27
Celaya	10	59.1	64	12	16.7	80	13	36.2	75	2	37.5	27

Eclipse total de Sol, parcial en la República Mexicana, 21 agosto 2017

Hora del meridiano 90° W.G.

ESTADO Población	inicia h	 m	altura °	media h	 m	altura °	termina h	 m	altura °	duración h	 m	fracción ocultada %
Dolores Hidalgo	10	56.1	63	12	15.4	79	13	36.6	74	2	40.5	30
Guanajuato	10	54.1	61	12	12.3	78	13	33.1	76	2	38.5	29
Irapuato	10	57.2	62	12	13.6	79	13	32.5	77	2	35.4	26
León	10	54.1	61	12	12.3	78	13	33.1	76	2	38.5	29
Salamanca	10	57.2	62	12	13.6	79	13	32.5	77	2	35.4	26
S. Miguel de Allende	10	59.1	64	12	16.7	80	13	36.2	75	2	37.5	27
Xichu	10	56.1	63	12	15.4	79	13	36.6	74	2	40.5	30
Yuriria	10	59.1	64	12	16.7	80	13	36.2	75	2	37.5	27
HIDALGO												
Apan	11	6.3	67	12	24.4	82	13	42.9	72	2	36.5	27
Huichapan	11	1.1	65	12	19.8	81	13	39.8	74	2	38.5	29
Nopala	11	3.1	66	12	22.9	81	13	43.3	72	2	40.5	30
Pachuca	11	3.1	66	12	22.9	81	13	43.3	72	2	40.5	30
Pisa Flores	10	58.1	64	12	18.4	80	13	40.1	73	2	42.5	32
Real del Monte	11	3.1	66	12	22.9	81	13	43.3	72	2	40.5	30
Tezontepec	11	6.3	67	12	24.4	82	13	42.9	72	2	36.5	27
Tulancingo	11	3.1	66	12	22.9	81	13	43.3	72	2	40.5	30
Zimapan	11	1.1	65	12	19.8	81	13	39.8	74	2	38.5	29
JALISCO												
Cihuatlán	10	54.8	59	12	5.4	75	13	19.8	81	2	25.3	20
Cocula	10	53.3	59	12	7.4	76	13	24.9	79	2	31.4	24
Colotlán	10	47.4	58	12	5.0	74	13	26.4	78	2	39.5	30
Guadalajara	10	53.3	59	12	7.4	76	13	24.9	79	2	31.4	24
Lagos de Moreno	10	54.1	61	12	12.3	78	13	33.1	76	2	38.5	29
Puerto Vallarta	10	49.5	57	12	1.1	73	13	17.1	81	2	27.4	22
Tecatitlán	10	56.7	60	12	8.6	77	13	23.9	80	2	27.4	21
Tequila	10	53.3	59	12	7.4	76	13	24.9	79	2	31.4	24
MÉXICO												
Amecameca	11	6.3	67	12	24.4	82	13	42.9	72	2	36.5	27
Atlacomulco	11	6.3	67	12	24.4	82	13	42.9	72	2	36.5	27
Chalco	11	6.3	67	12	24.4	82	13	42.9	72	2	36.5	27
Huexotla	11	6.3	67	12	24.4	82	13	42.9	72	2	36.5	27
Ixtapan de La Sal	11	7.9	67	12	22.8	83	13	38.6	75	2	30.4	23
Naucalpan	11	4.3	66	12	21.3	82	13	39.3	74	2	34.4	26
Otumba	11	6.3	67	12	24.4	82	13	42.9	72	2	36.5	27
Ozumba	11	6.3	67	12	24.4	82	13	42.9	72	2	36.5	27
Popocatépetl	11	6.3	67	12	24.4	82	13	42.9	72	2	36.5	27
S. Antonio del Rosario	11	6.0	66	12	19.6	82	13	34.7	76	2	28.4	21
Tecamac	11	6.3	67	12	24.4	82	13	42.9	72	2	36.5	27
Tenancingo	11	7.9	67	12	22.8	83	13	38.6	75	2	30.4	23
Texcoco	11	6.3	67	12	24.4	82	13	42.9	72	2	36.5	27
Tlalmanalco	11	6.3	67	12	24.4	82	13	42.9	72	2	36.5	27
Tlalnepantla	11	4.3	66	12	21.3	82	13	39.3	74	2	34.4	26
Toluca	11	4.3	66	12	21.3	82	13	39.3	74	2	34.4	26
MICHOACÁN												
Cotija	10	58.6	62	12	11.8	78	13	27.9	79	2	29.4	22
Janitzio	11	0.5	63	12	15.0	79	13	31.8	77	2	31.4	23
Maravatio	11	2.4	64	12	18.2	81	13	35.6	76	2	33.4	24
Morelia	11	0.5	63	12	15.0	79	13	31.8	77	2	31.4	23
Pátzcuaro	11	0.5	63	12	15.0	79	13	31.8	77	2	31.4	23
Tacambaro	11	0.5	63	12	15.0	79	13	31.8	77	2	31.4	23

Eclipse total de Sol, parcial en la República Mexicana, 21 agosto 2017

Hora del meridiano 90° W.G.

ESTADO Población	inicia h	 m	altura °	media h	 m	altura °	termina h	 m	altura °	duración h	 m	fracción ocultada %
Uruapan	10	58.6	62	12	11.8	78	13	27.9	79	2	29.4	22
Zacapu	11	0.5	63	12	15.0	79	13	31.8	77	2	31.4	23
Zitácuaro	11	2.4	64	12	18.2	81	13	35.6	76	2	33.4	24
MORELOS												
Cuautla	11	9.8	68	12	25.9	83	13	42.4	73	2	32.4	24
Cuernavaca	11	7.9	67	12	22.8	83	13	38.6	75	2	30.4	23
Huitzilac	11	4.3	66	12	21.3	82	13	39.3	74	2	34.4	26
Oaxtepec	11	9.8	68	12	25.9	83	13	42.4	73	2	32.4	24
Yautepec	11	7.9	67	12	22.8	83	13	38.6	75	2	30.4	23
NAYARIT												
Acaponeta	10	43.6	55	11	58.9	72	13	19.2	79	2	35.5	28
Ixtlan del Río	10	48.3	57	12	3.1	74	13	22.0	79	2	33.4	26
Mezcaltitan	10	46.4	56	11	59.9	72	13	18.2	80	2	31.4	25
San Blas	10	46.4	56	11	59.9	72	13	18.2	80	2	31.4	25
Tepic	10	48.3	57	12	3.1	74	13	22.0	79	2	33.4	26
Tuxpan	10	48.3	57	12	3.1	74	13	22.0	79	2	33.4	26
NUEVO LEON												
Cerralvo	10	46.3	60	12	11.9	74	13	39.7	70	2	53.8	48
Galeana	10	48.4	60	12	11.5	76	13	37.1	73	2	48.7	40
Linares	10	50.4	61	12	14.4	77	13	40.2	71	2	49.7	42
Monte Morelos	10	48.3	60	12	13.1	76	13	40.0	71	2	51.8	45
Monterrey	10	46.2	59	12	10.3	75	13	37.0	72	2	50.7	44
Vallecillo	10	46.3	60	12	11.9	74	13	39.7	70	2	53.8	48
Villaldama	10	44.3	58	12	9.1	74	13	36.7	71	2	52.8	47
Zaragoza	10	52.8	62	12	15.7	78	13	40.3	72	2	47.6	38
0AXACA												
Etla	11	17.3	72	12	33.6	85	13	49.1	70	2	31.4	24
Guichicovi	11	23.0	75	12	38.3	84	13	52.1	68	2	29.4	22
Guelatao	11	17.3	72	12	33.6	85	13	49.1	70	2	31.4	24
Huatulco	11	25.4	74	12	36.9	86	13	47.6	70	2	22.3	18
Huautla	11	13.7	71	12	32.0	84	13	49.5	69	2	35.5	27
Juchitlán de Zaragoza	11	23.0	75	12	38.3	84	13	52.1	68	2	29.4	22
Miahuatlán	11	21.2	73	12	35.2	85	13	48.4	70	2	27.4	21
Oaxaca de Juárez	11	17.3	72	12	33.6	85	13	49.1	70	2	31.4	24
Ocotepec	11	17.3	72	12	33.6	85	13	49.1	70	2	31.4	24
Puerto Angel	11	25.4	74	12	36.9	86	13	47.6	70	2	22.3	18
Putla	11	15.4	71	12	30.5	85	13	45.4	72	2	29.4	22
Salinas Cruz	11	23.0	75	12	38.3	84	13	52.1	68	2	29.4	22
Tehuantepec	11	23.0	75	12	38.3	84	13	52.1	68	2	29.4	22
Tlaxiaco	11	15.4	71	12	30.5	85	13	45.4	72	2	29.4	22
Valle Nacional	11	17.3	72	12	33.6	85	13	49.1	70	2	31.4	24
Yalalag	11	17.3	72	12	33.6	85	13	49.1	70	2	31.4	24
PUEBLA												
Atlixco	11	9.8	68	12	25.9	83	13	42.4	73	2	32.4	24
Cualtlancingo	11	6.3	67	12	24.4	82	13	42.9	72	2	36.5	27
Chila Asunción	11	15.4	71	12	30.5	85	13	45.4	72	2	29.4	22
Cholula	11	6.3	67	12	24.4	82	13	42.9	72	2	36.5	27
Huauchinango	11	3.1	66	12	22.9	81	13	43.3	72	2	40.5	30
Huejotzingo	11	6.3	67	12	24.4	82	13	42.9	72	2	36.5	27
Izucar de Matamoros	11	9.8	68	12	25.9	83	13	42.4	73	2	32.4	24

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ESTADO Población	inicia h	 m	altura °	media h	 m	altura °	termina h	 m	altura °	duración h	 m	fracción ocultada %
Popocatepetl	11	6.3	67	12	24.4	82	13	42.9	72	2	36.5	27
Puebla de Zaragoza	11	6.3	67	12	24.4	82	13	42.9	72	2	36.5	27
S. Martín Texmelucan	11	6.3	67	12	24.4	82	13	42.9	72	2	36.5	27
Tecali	11	11.7	70	12	29.0	84	13	46.0	71	2	34.4	25
Tepejí Rodríguez	11	11.7	70	12	29.0	84	13	46.0	71	2	34.4	25
Tlaltenango	11	6.3	67	12	24.4	82	13	42.9	72	2	36.5	27
Tonantzintla	11	6.3	67	12	24.4	82	13	42.9	72	2	36.5	27
Zacatlán de las Manzanas	11	8.3	69	12	27.4	83	13	46.4	71	2	38.5	28
QUERÉTARO												
Arroyo Seco	10	58.1	64	12	18.4	80	13	40.1	73	2	42.5	32
Cadereyta	11	1.1	65	12	19.8	81	13	39.8	74	2	38.5	29
Jalpan	10	58.1	64	12	18.4	80	13	40.1	73	2	42.5	32
Querétaro	10	59.1	64	12	16.7	80	13	36.2	75	2	37.5	27
San Juan del Río	11	1.1	65	12	19.8	81	13	39.8	74	2	38.5	29
Tequisquiapan	11	1.1	65	12	19.8	81	13	39.8	74	2	38.5	29
QUINTANA ROO												
Cabo Catoche	11	23.3	79	12	51.5	73	14	14.3	55	2	51.9	51
Carrillo Puerto	11	26.7	80	12	52.4	74	14	13.2	56	2	46.7	42
Cozumel	11	28.1	81	12	55.6	72	14	17.3	53	2	49.8	49
Chetumal	11	29.7	81	12	54.2	74	14	13.6	56	2	43.7	39
Kantunil Kin	12	57.3	-2	13	45.5	-13	14	32.7	-23	1	36.0	58
Sta Curz Chico	11	29.7	81	12	54.2	74	14	13.6	56	2	43.7	39
Xkalak	11	31.8	82	12	56.7	73	14	16.1	55	2	44.7	41
Xkanha	11	24.6	79	12	49.9	76	14	10.6	58	2	46.7	41
SAN LUIS POTOSÍ												
Arista	10	53.3	62	12	14.0	78	13	36.9	74	2	43.6	34
Matehuala	10	50.7	61	12	12.7	77	13	37.1	73	2	46.6	37
Río Verde	10	58.1	64	12	18.4	80	13	40.1	73	2	42.5	32
San Luis Potosí	10	53.3	62	12	14.0	78	13	36.9	74	2	43.6	34
Tamazunchale	11	0.1	65	12	21.4	80	13	43.5	71	2	43.6	33
Tamuin	11	0.1	65	12	21.4	80	13	43.5	71	2	43.6	33
SINALOA												
Altata	10	35.0	51	11	51.1	67	13	13.5	78	2	38.6	33
Badiraguato	10	32.9	50	11	50.3	67	13	14.2	77	2	41.6	36
Culiacán	10	35.0	51	11	51.1	67	13	13.5	78	2	38.6	33
La Laguna	10	29.3	48	11	46.8	65	13	11.4	76	2	42.7	39
Mazatlán	10	39.2	53	11	54.9	70	13	16.3	79	2	37.5	30
Mocorito	10	32.9	50	11	50.3	67	13	14.2	77	2	41.6	36
Rosario	10	43.6	55	11	58.9	72	13	19.2	79	2	35.5	28
Santa María	10	29.4	48	11	44.7	64	13	7.4	77	2	37.6	34
Sinaloa	10	31.2	49	11	47.5	65	13	10.8	77	2	39.6	35
Topolobampo	10	29.4	48	11	44.7	64	13	7.4	77	2	37.6	34
SONORA												
Agua Prieta	10	21.2	45	11	41.5	60	13	9.7	71	2	48.9	56
Alamos	10	27.7	48	11	46.1	64	13	11.8	75	2	44.7	42
Altar	10	19.0	43	11	37.0	59	13	3.8	71	2	44.9	51
Arizpe	10	20.5	44	11	39.5	60	13	6.7	71	2	46.9	51
Baroyeca	10	25.9	46	11	43.4	63	13	8.6	75	2	42.7	41
Cananea	10	20.5	44	11	39.5	60	13	6.7	71	2	46.9	51
Ciudad Obregón	10	25.9	46	11	43.4	63	13	8.6	75	2	42.7	41

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ESTADO Población	inicia h	 m	altura °	media h	 m	altura °	termina h	 m	altura °	duración h	 m	fracción ocultada %
Guaymas	10	24.3	45	11	40.8	62	13	5.4	74	2	41.7	40
Hermosillo	10	21.6	44	11	39.9	61	13	6.4	72	2	44.8	48
Huatabampo	10	27.6	47	11	44.0	64	13	8.1	76	2	40.6	38
Macoyahui	10	27.7	48	11	46.1	64	13	11.8	75	2	44.7	42
Navojoa	10	25.9	46	11	43.4	63	13	8.6	75	2	42.7	41
Nogales	10	19.6	43	11	39.1	59	13	6.9	70	2	47.9	55
Sahuaripa	10	23.2	45	11	42.4	62	13	9.4	73	2	46.8	48
Santa Clara	10	13.7	39	11	29.9	55	12	55.6	68	2	41.9	53
Soyopa	10	24.5	46	11	42.9	62	13	9.1	74	2	44.8	45
Tiburón	10	19.7	42	11	35.3	59	12	59.8	72	2	40.7	43
Yabaros	10	27.6	47	11	44.0	64	13	8.1	76	2	40.6	38
TABASCO												
Astapa	11	25.0	77	12	45.3	80	14	2.5	63	2	37.5	30
Comalcalco	11	19.6	75	12	40.8	81	13	59.4	64	2	39.5	31
Ignacio Allende	11	21.6	76	12	43.6	80	14	2.5	63	2	40.6	33
Tapijulapa	11	25.0	77	12	45.3	80	14	2.5	63	2	37.5	30
Tierra Colorada	11	25.0	77	12	45.3	80	14	2.5	63	2	37.5	30
Villahermosa	11	25.0	77	12	45.3	80	14	2.5	63	2	37.5	30
Xicotencatl	11	25.0	77	12	45.3	80	14	2.5	63	2	37.5	30
TAMAULIPAS												
Camargo	10	48.3	61	12	14.7	75	13	42.6	69	2	54.8	50
Ciudad Victoria	10	52.8	62	12	15.7	78	13	40.3	72	2	47.6	38
Cruillas	10	52.5	63	12	17.2	77	13	43.3	70	2	50.7	43
Guemes	10	52.8	62	12	15.7	78	13	40.3	72	2	47.6	38
Guerrero	10	46.3	60	12	11.9	74	13	39.7	70	2	53.8	48
Jaumave	10	52.8	62	12	15.7	78	13	40.3	72	2	47.6	38
Matamoros	10	52.4	63	12	18.7	77	13	45.9	68	2	53.8	48
Méndez	10	50.3	62	12	15.9	76	13	43.0	69	2	52.8	46
Mier	10	46.3	60	12	11.9	74	13	39.7	70	2	53.8	48
Miquihuana	10	52.8	62	12	15.7	78	13	40.3	72	2	47.6	38
Ocampo	11	1.1	65	12	19.8	81	13	39.8	74	2	38.5	29
Reynosa	10	48.3	61	12	14.7	75	13	42.6	69	2	54.8	50
Tampico	10	59.4	66	12	22.9	80	13	46.7	70	2	47.6	38
TLAXCALA												
Cuauhutotohuatlan	11	6.3	67	12	24.4	82	13	42.9	72	2	36.5	27
Huamantla	11	8.3	69	12	27.4	83	13	46.4	71	2	38.5	28
Tlaxcala	11	6.3	67	12	24.4	82	13	42.9	72	2	36.5	27
S. Martín Texmelucan	11	6.3	67	12	24.4	82	13	42.9	72	2	36.5	27
VERACRUZ												
Actopan	11	10.3	70	12	30.4	83	13	49.8	69	2	39.5	30
Alvarado	11	15.6	72	12	35.0	83	13	52.9	68	2	37.5	28
Coatzacoalcos	11	17.6	74	12	37.9	82	13	56.2	66	2	38.5	30
Coatzintla	11	5.1	68	12	25.9	82	13	46.7	70	2	41.5	31
Córdoba	11	13.7	71	12	32.0	84	13	49.5	69	2	35.5	27
Chicontepec	11	3.1	66	12	22.9	81	13	43.3	72	2	40.5	30
Huatusco	11	10.3	70	12	30.4	83	13	49.8	69	2	39.5	30
Ixcatepec	11	0.1	65	12	21.4	80	13	43.5	71	2	43.6	33
Jalapa	11	10.3	70	12	30.4	83	13	49.8	69	2	39.5	30
Martínez de La Torre	11	5.1	68	12	25.9	82	13	46.7	70	2	41.5	31
Minatitlan	11	21.1	75	12	39.6	83	13	56.0	66	2	34.5	27
Orizaba	11	11.7	70	12	29.0	84	13	46.0	71	2	34.4	25

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ESTADO Población	inicia h	 m	altura °	media h	 m	altura °	termina h	 m	altura °	duración h	 m	fracción ocultada %
Papantla	11	5.1	68	12	25.9	82	13	46.7	70	2	41.5	31
Pico de Orizaba	11	8.3	69	12	27.4	83	13	46.4	71	2	38.5	28
Pl. Vicente	11	19.2	73	12	36.6	84	13	52.6	68	2	33.4	25
Rizo	11	12.3	71	12	33.4	82	13	53.1	67	2	40.5	31
Tamarindo	11	13.7	71	12	32.0	84	13	49.5	69	2	35.5	27
Tantoyucan	11	0.1	65	12	21.4	80	13	43.5	71	2	43.6	33
Tehuipango	11	11.7	70	12	29.0	84	13	46.0	71	2	34.4	25
Tierra Blanca	11	13.7	71	12	32.0	84	13	49.5	69	2	35.5	27
Tihuatlan	11	5.1	68	12	25.9	82	13	46.7	70	2	41.5	31
Tlacotalpan	11	15.6	72	12	35.0	83	13	52.9	68	2	37.5	28
Tuxpán	11	5.1	68	12	25.9	82	13	46.7	70	2	41.5	31
Veracruz	11	10.3	70	12	30.4	83	13	49.8	69	2	39.5	30
Zongolica	11	13.7	71	12	32.0	84	13	49.5	69	2	35.5	27
YUCATÁN												
Becanchen	11	24.6	79	12	49.9	76	14	10.6	58	2	46.7	41
Celestum	11	19.6	77	12	45.6	77	14	7.6	59	2	48.7	42
Chavihau	11	19.0	77	12	46.5	75	14	9.6	58	2	50.8	47
Maxcanu	11	21.7	78	12	48.2	76	14	10.2	58	2	48.7	44
Merida	11	21.7	78	12	48.2	76	14	10.2	58	2	48.7	44
Progreso	11	19.0	77	12	46.5	75	14	9.6	58	2	50.8	47
Telchac	11	19.0	77	12	46.5	75	14	9.6	58	2	50.8	47
Tzimin	11	21.1	78	12	49.0	74	14	12.0	56	2	50.8	49
Yalkubul	11	21.1	78	12	49.0	74	14	12.0	56	2	50.8	49
ZACATECAS												
Calera	10	49.4	59	12	8.0	76	13	30.0	76	2	40.5	31
Concepcion del Oro	10	46.4	59	12	8.6	75	13	33.9	74	2	47.7	39
Fresnillo	10	46.8	58	12	6.8	75	13	30.4	76	2	43.6	34
Jerez	10	49.4	59	12	8.0	76	13	30.0	76	2	40.5	31
Juchipila	10	50.2	59	12	6.2	75	13	25.8	78	2	35.5	27
Nochistlan	10	52.2	60	12	9.2	76	13	29.5	77	2	37.5	28
Ob. Astronómico	10	49.4	59	12	8.0	76	13	30.0	76	2	40.5	31

Poblaciones de la República Méxicana, 2017

Coordenadas geográficas (Anuario del Observatorio 1984)

ESTADO Población	latitud °	‘	“	longitud °	‘	“	alt m	δm °	‘	Δδm ‘/año
AGUASCALIENTES										
Aguascalientes	21	52	43	102	18	4	1888	5	59	-7
Asientos	22	14	18	102	5	29	2164	5	54	-7
Calvillo	21	50	45	102	44	14	1702	6	8	-7
Jesus María	21	57	45	102	20	48	1907	6	0	-7
Puertecito	21	57	52	102	15	15	2052	5	58	-7
Rincon de Romos	22	13	49	102	19	22	1957	5	59	-7
BAJA CALIFORNIA										
Bailador Isla	31	56	56	116	5	12	0	11	14	-5
Cedros Isla	28	3	53	115	11	35	0	10	21	-5
Ensenada	31	51	10	116	38	9	2	11	21	-5
Granito Isla	29	33	0	113	32	0	0	10	13	-5
Guadalupe Isla	29	10	45	118	19	30	0	11	10	-4
Mejía Isla	29	33	8	113	35	18	0	10	14	-5
Mexicali	32	40	0	115	27	0	0	11	13	-5
Miramar Isla	30	2	30	114	31	30	0	10	32	-5
Salsipuedes Isla	28	44	0	112	50	30	0	9	55	-5
San Benito Isla	28	18	8	115	36	12	0	10	29	-5
San Felipe	31	1	36	114	49	46	0	10	47	-5
San Jeronimo Isla	29	47	20	115	48	14	0	10	47	-5
San Pedro Mártir	31	2	39	115	27	49	2800	10	56	-5
San Quintin	30	22	16	115	59	10	0	10	56	-5
BAJA CALIFORNIA SUR										
Asunción Isla	27	6	21	114	18	15	0	10	0	-5
Catalina Isla	25	35	35	110	47	48	0	8	56	-5
Cerralvo Isla	24	22	0	109	55	29	0	8	34	-5
Coronados Isla	26	6	12	111	15	38	0	9	8	-5
Danaznte Isla	25	48	0	111	12	0	0	9	4	-5
El Triunfo	23	48	13	110	8	41	432	8	34	-5
Espíritu Santo Isla	24	34	43	110	21	30	0	8	42	-5
José del Cabo	23	4	8	109	40	36	7	8	22	-5
La Paz	24	9	41	110	20	44	10	8	39	-5
Miraflores	23	22	25	109	48	33	183	8	26	-5
Muleje	26	53	33	111	46	41	35	9	22	-5
Roca Alijos Isla	24	58	6	113	44	47	0	9	33	-5
San Bartolo	23	44	16	109	52	15	353	8	29	-5
San Marcos Isla	27	14	35	112	5	23	0	9	30	-5
Santa Inés Isla	27	2	34	111	53	28	0	9	25	-5
Santiago	23	28	24	109	43	21	98	8	25	-5
Tortugas Isla	27	26	59	111	52	59	0	9	28	-5
CAMPECHE										
Becal	20	26	34	90	1	36	12	0	12	-8
Bolonchenticul	20	0	21	89	44	53	14	0	5	-8
Calkini	20	22	21	90	3	3	52	0	13	-8
Campeche	19	50	47	90	32	14	5	0	33	-8
Carmen	18	38	22	91	50	16	3	1	24	-8
Carmen Isla	18	38	44	91	50	16	0	1	24	-8
Champotón	19	21	4	90	43	0	27	0	43	-8
Dzibalchen	19	27	41	89	43	55	100	0	9	-8
Escárcega	18	36	25	90	43	55	75	0	48	-8
Hontun	19	34	49	90	11	12	50	0	23	-8
Holpechen	19	44	47	89	50	35	56	0	10	-8
Iturbide	19	34	58	89	36	4	110	0	3	-8

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Lerma	18	15	39	90	36	12	5	0	47	-8
Palizada	19	6	13	92	4	42	46	1	28	-8
Pital	18	33	3	91	7	41	20	1	2	-8
Río Desenpeno	18	29	50	89	54	6	200	0	22	-8
Sabancury	18	58	34	91	10	51	2	1	0	-8
Xicalango	18	37	55	91	53	38	2	1	26	-8
COAHUILA										
Acuna	29	19	33	100	55	51	200	5	35	-7
Allende	28	20	36	100	51	6	374	5	31	-7
Cuatro Ciénegas	26	58	19	102	4	9	742	6	2	-7
Jiménez	29	4	21	100	40	21	290	5	27	-7
Laguna de Jaco	27	57	28	103	57	6	1350	6	52	-6
Monclova	26	54	14	101	25	8	586	5	44	-7
Muzquiz	27	52	51	101	30	56	504	5	49	-7
Parras	25	27	0	102	10	0	1683	6	1	-7
Piedras Negras	28	42	25	100	31	2	220	5	22	-7
Sabinas	27	50	34	101	7	23	340	5	38	-7
Saltillo	25	26	37	100	59	22	1599	5	30	-7
S. Pedro de Colonias	25	45	24	102	59	1	1103	6	22	-7
Sierra Mojada	27	17	8	103	42	7	1256	6	44	-7
Torreón	25	32	18	103	27	55	1140	6	32	-7
Unión	28	14	0	100	44	30	0	5	28	-7
Viesca	25	20	46	102	48	19	1093	6	16	-7
Zaragoza	28	30	36	100	52	8	540	5	32	-7
COLIMA										
Colima	19	14	29	103	43	47	508	6	26	-6
Madrid	19	4	57	103	52	38	120	6	29	-6
Manzanillo	19	3	15	104	19	46	3	6	37	-6
Socorro Isla	18	42	57	110	56	53	0	8	15	-5
Tecoman	18	54	31	103	52	38	80	6	29	-6
CHIAPAS										
Acapetahua	15	16	20	92	41	59	23	2	13	-8
Arista	15	56	8	93	48	41	0	2	41	-8
Cacahuanton	14	59	31	92	9	46	630	2	0	-8
Catazaja	17	43	56	92	1	57	7	1	36	-8
Cintalapa	16	41	58	93	43	24	545	2	34	-8
Comitán	16	15	12	92	7	41	1530	1	49	-8
Chiapa de Corzo	16	42	28	93	1	5	415	2	13	-8
Escuintla	15	18	53	92	39	58	110	2	12	-8
Huixtla	15	7	41	92	28	34	28	2	8	-8
Jaltenango	15	52	12	92	43	35	677	2	10	-8
Juárez	17	39	8	93	9	47	152	2	11	-8
La Gradeza	15	30	46	92	13	38	1950	1	58	-8
Las Margaritas	15	32	35	93	5	46	1512	2	23	-8
Mapastepec	15	25	52	92	54	27	85	2	18	-8
Mazatán	14	51	43	92	25	59	35	2	9	-8
Ocosingo	16	54	38	92	5	45	908	1	44	-8
Ocozocoautla	16	45	55	93	22	37	864	2	23	-8
Pichucalco	17	31	46	93	7	24	100	2	11	-8
Pueblo Nuevo	15	12	37	92	35	7	28	2	11	-8
Puerto Madero	14	42	59	93	25	37	2	2	38	-8
San Bartolomé	16	19	29	92	33	36	804	2	2	-8
Suchiate	14	40	23	92	9	12	22	2	2	-8
Tonalá	16	5	14	93	45	21	55	2	38	-8

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Tuxtla Gutiérrez	16	45	20	93	6	46	528	2	15	-8
Villa Flores	16	14	8	93	16	3	610	2	23	-8
Yajalón	17	10	57	92	20	24	849	1	49	-8
CHIHUAHUA										
Ahumada	30	37	18	106	31	12	1181	8	7	-6
Camargo	27	41	49	105	10	9	1653	7	20	-6
Ciénaga de Ortíz	28	8	15	106	12	11	1300	7	46	-6
Ciudad Guerrero	28	32	57	107	29	27	2000	8	16	-6
Ciudad Jiménez	27	7	52	104	55	29	1381	7	12	-6
Ciudad Juárez	31	44	19	106	29	15	1144	8	13	-6
Coyame	29	27	42	105	5	44	1062	7	27	-6
Cuchillo Parado	29	26	34	104	52	58	900	7	22	-6
Cusihuiriachi	28	14	25	106	50	13	1985	8	0	-6
Chihuahua	28	38	12	106	4	42	1430	7	46	-6
Chinipas	27	23	34	108	32	22	1640	8	30	-6
Galeana	30	6	52	107	37	51	1431	8	29	-6
Guadalupe	31	23	27	106	6	13	1113	8	2	-6
Guadalupe y Calvo	26	6	6	106	58	2	1100	7	51	-6
Guerrero	28	32	57	107	29	18	2000	8	16	-6
Meoqui	28	16	36	105	29	16	1155	7	30	-6
Namiquipa	29	15	5	107	24	34	1828	8	19	-6
Ocampo	28	10	59	108	22	27	1732	8	32	-6
Ojinaga	29	33	53	104	25	23	841	7	11	-6
Parral Hidalgo del	26	56	4	105	39	58	1661	7	28	-6
Placer de Guadalupe	29	9	41	105	22	57	900	7	32	-6
San Buenaventura	29	50	47	107	29	10	1574	8	24	-6
San Ignacio	27	10	21	106	19	28	970	7	43	-6
Santa Bárbara	26	48	13	105	49	1	1969	7	31	-6
Santa Isabel	28	20	34	106	22	1	1630	7	51	-6
Satevo	27	57	17	106	6	32	1368	7	43	-6
Temosachic	28	57	12	107	49	50	1900	8	26	-6
Valle de Zaragoza	27	27	40	105	48	35	900	7	34	-6
Valle del Rosario	27	19	5	106	17	41	1480	7	44	-6
DISTRITO FEDERAL										
Álamo	19	23	55	99	8	30	2246	4	46	-7
Atzcapotzalco	19	28	48	99	11	7	2277	4	47	-7
Ciudad Universitaria	19	20	1	99	10	54	2280	4	47	-7
Ciudad Universitaria	19	19	50	99	11	3	2280	4	47	-7
Coyoacán	19	20	54	99	9	45	2278	4	47	-7
Cuajilmalpa	19	21	33	99	18	1	2783	4	50	-7
Chapultepec	19	25	11	99	10	52	2310	4	47	-7
Churubusco	19	21	17	99	8	56	2260	4	47	-7
Guadalupe Hidalgo	19	29	9	99	6	56	2200	4	45	-7
Ixtacalco	19	23	22	99	7	16	2261	4	46	-7
Ixtapalapa	19	21	22	99	5	30	2280	4	45	-7
La Piedad	19	24	3	99	9	20	2253	4	47	-7
México	19	25	59	99	7	58	2233	4	46	-7
Mixcoac	19	22	37	99	10	55	2200	4	47	-7
Mixquic	19	13	28	98	57	52	2260	4	42	-7
Nativitas	19	23	12	99	8	48	2246	4	46	-7
San Jerónimo	19	19	33	99	13	20	2394	4	48	-7
San Simón	19	22	36	99	8	39	2100	4	46	-7
Tacubaya	19	24	10	99	11	40	2298	4	48	-7
Tlahuac	19	16	6	99	0	16	2264	4	43	-7

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Tlalpan	19	17	16	99	9	57	2294	4	47	-7
Villa Obregón	19	20	41	99	11	21	2340	4	48	-7
Xochimilco	19	15	44	99	6	7	2274	4	46	-7
DURANGO										
Ciudad Lerdo	25	32	14	103	31	28	1135	6	34	-7
Cuencame	24	52	18	103	38	6	1889	6	34	-7
Durango	24	1	31	104	40	11	1889	6	55	-6
Gómez Palacio	25	34	18	103	30	17	1195	6	33	-7
Guanacevi	25	55	59	105	57	31	2230	7	29	-6
Inde	25	54	45	105	10	16	2049	7	12	-6
Llano Grande	23	52	2	105	12	7	2406	7	5	-6
Mezquital	23	28	57	104	22	18	1468	6	47	-6
Nazas	25	13	40	104	6	53	1264	6	46	-6
Nombre de Dios	23	51	4	104	15	25	1855	6	45	-6
Pueblo Nuevo	23	22	35	105	22	18	1982	7	7	-6
S. J. de Guadalupe	24	37	0	102	45	8	1520	6	13	-7
San Juan del Río	24	46	45	104	23	22	1737	6	51	-6
Santa María del Oro	25	56	53	105	19	56	1871	7	16	-6
Santa María Ocotlán	22	54	44	104	36	10	365	6	50	-6
Santiago Papasquiaro	25	2	47	105	25	30	1716	7	14	-6
Tamazula	24	58	11	106	58	13	240	7	45	-6
Tayoltita	24	6	27	105	55	30	500	7	21	-6
Tepehuanes	25	21	19	105	47	9	1967	7	23	-6
Tizonazo	25	58	4	105	15	33	1981	7	15	-6
Topia	25	12	19	106	34	34	1851	7	39	-6
Tlahualilo	26	6	31	103	26	21	1132	6	34	-7
GUERRERO										
Acapulco	16	50	21	99	55	1	82	5	10	-7
Acayahualco	18	13	30	99	28	52	790	4	57	-7
Coahuayutla	18	18	52	101	48	37	358	5	48	-7
Coatepec	18	20	22	99	42	56	1260	5	2	-7
Coyuca de Catalán	18	20	2	100	39	0	210	5	23	-7
Chaucingo	18	18	7	99	6	53	810	4	48	-7
Chilpancingo	17	33	10	99	30	3	1360	4	59	-7
Huamuxtitlán	17	48	37	99	34	2	1125	5	0	-7
Iguana	18	21	1	99	32	24	731	4	58	-7
La Unión	17	58	52	101	48	49	174	5	49	-7
Mayanalan	18	10	29	99	26	1	0	4	56	-7
Mezcala	17	56	13	99	36	6	420	5	1	-7
Pericotepec	17	57	40	100	13	0	770	5	14	-7
Petatlan	17	32	8	101	17	0	0	5	38	-7
Placeres de Oro	18	14	31	100	53	57	0	5	29	-7
San Jerónimo	17	5	55	100	28	26	0	5	22	-7
San L. de La Loma	17	15	42	100	53	48	0	5	31	-7
San Marcos	16	47	31	99	20	41	210	4	58	-7
Santa Fetepetlapa	18	33	5	99	25	19	1090	4	55	-7
Taxco	18	33	16	99	36	20	1755	4	59	-7
Teloloapan	18	22	6	99	52	31	1620	5	6	-7
Tonalapa del Río	18	20	38	99	41	6	750	5	2	-7
Tepantitlancoa	18	0	26	100	17	6	820	5	16	-7
Tepecoacuilco	18	17	10	99	27	55	1012	4	57	-7
Teteladelrio	17	59	7	100	4	50	350	5	11	-7
Tlacozotitlan	17	53	29	99	7	51	560	4	50	-7
Tlapehuala	18	14	21	100	31	18	235	5	21	-7

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Zihuatanejo	17	38	14	101	33	48	0	5	44	-7
Zirandaro	18	29	4	100	58	0	193	5	30	-7
GUANAJUATO										
Abasolo	20	26	59	100	31	48	1760	5	18	-7
Acambaro	20	2	1	100	43	24	1947	5	23	-7
Apaseo	20	32	37	100	41	7	1767	5	22	-7
Apaseo el Alto	20	27	25	100	37	13	1853	5	20	-7
Atargea	21	16	5	99	43	5	1258	4	58	-7
C. González	21	28	44	101	12	52	2140	5	34	-7
Celaya	20	31	24	100	48	55	1808	5	25	-7
Cerano	20	6	41	101	23	26	1500	5	38	-7
Comonfort	20	43	15	100	45	51	1795	5	23	-7
Coronea	20	11	42	100	21	59	1998	5	14	-7
Cortazar	20	28	59	100	52	58	1800	5	26	-7
Cubilete E	21	0	25	101	22	30	2480	5	37	-7
Cueramaro	20	37	36	101	40	23	1785	5	44	-7
Dolores Hidalgo	21	9	32	100	56	0	1987	5	27	-7
Guanajuato	21	1	1	101	15	20	2050	5	35	-7
Huanimaro	20	22	1	101	29	45	2459	5	40	-7
Ibarra	21	28	53	101	32	23	2110	5	41	-7
Irapuato	20	40	28	101	20	51	1795	5	37	-7
Iturbide	21	0	3	100	23	4	1100	5	14	-7
Jaral del Progreso	20	22	11	101	13	45	1743	5	34	-7
Jerecuaro	20	9	3	100	30	43	1100	5	18	-7
León	21	7	22	101	41	0	1885	5	44	-7
Manuel Doblado	20	43	49	101	57	14	1795	5	50	-7
Mora	21	8	47	100	19	0	2128	5	12	-7
Moroleón	20	7	54	101	11	36	1772	5	33	-7
Penjamo	20	25	44	101	43	22	1700	5	45	-7
Pueblo Nuevo	20	31	35	101	22	18	1714	5	37	-7
Purísima de Bustos	21	1	48	101	52	36	1780	5	49	-7
Romita	20	52	14	101	31	7	1792	5	41	-7
Salamanca	20	34	22	101	11	39	1721	5	33	-7
Salvatierra	20	12	56	100	53	46	1749	5	27	-7
San Diego de La Unión	21	27	56	100	52	25	2080	5	26	-7
San Fco. del Rincón	21	1	2	101	51	36	1721	5	48	-7
San Juan de los Llanos	21	16	47	101	19	4	1000	5	36	-7
San José	20	56	13	100	58	32	2002	5	28	-7
San Luis de la Paz	21	17	57	100	30	52	2020	5	17	-7
San Miguel de Allende	20	54	52	100	44	47	1870	5	23	-7
Santa Catarina	21	8	27	100	14	10	1845	5	10	-7
Sta. Cruz Galeana	20	38	35	100	59	50	1000	5	29	-7
Santiago Maravatío	20	10	28	100	59	38	1790	5	29	-7
Silao	20	56	24	101	25	59	1780	5	39	-7
Tarandacuao	20	1	14	100	32	3	1920	5	18	-7
Tarimoro	20	17	39	100	45	20	1790	5	23	-7
Tierra Blanca	21	6	9	100	4	44	1760	5	7	-7
Uriangato	20	8	46	100	8	10	1800	5	9	-7
Valle de Santiago	20	23	31	101	11	21	1760	5	33	-7
Victoria	21	12	23	100	13	9	1760	5	10	-7
Villa Ocampo	21	38	52	101	28	50	2420	5	40	-7
Villagrán	20	29	40	100	59	52	1790	5	29	-7
Xichu	21	18	0	100	3	37	1334	5	6	-7
Yuriria	20	12	51	100	8	19	1882	5	9	-7

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HIDALGO										
Acayuca	20	1	48	98	50	30	2570	4	37	-7
Actopan	20	16	12	96	56	42	2069	3	47	-8
Ahuehueco	21	1	43	98	54	24	2500	4	37	-7
Altajayucan	20	24	40	99	20	59	1898	4	50	-7
Apan	19	39	35	98	24	10	2493	4	27	-7
Atotonilco Grande	20	17	6	98	40	13	2138	4	33	-7
Bonanza	20	43	12	99	14	36	1900	4	46	-7
Chapantongo	20	17	16	99	24	50	2145	4	51	-7
Chapulhuacan	21	9	29	98	54	22	1500	4	37	-7
Chicautla	20	19	54	99	13	49	1884	4	47	-7
Epazoyuca	20	1	33	98	37	26	2461	4	32	-7
Huasca	20	12	12	98	34	42	1900	4	30	-7
Huautla	21	2	3	98	16	54	1900	4	21	-7
Huejutla	21	8	43	98	24	58	2490	4	24	-7
Huichapan	20	22	37	99	38	58	2102	4	57	-7
Ixmiquilpan	20	29	4	99	13	5	1745	4	46	-7
Metxtitlan	20	35	45	98	45	30	1353	4	34	-7
Mexquititlan	20	32	0	98	38	27	1421	4	31	-7
Nopala	20	15	19	98	38	52	2437	4	32	-7
Orizatlan	21	10	35	98	36	40	1900	4	29	-7
Pachuca	20	7	44	98	43	54	2426	4	35	-7
Pisa Flores	21	11	44	99	0	15	1900	4	40	-7
Real del Monte	20	8	23	98	40	21	2679	4	33	-7
San Agustín Tlaxiaca	20	7	5	98	53	6	2372	4	38	-7
San Gabriel	19	52	44	98	36	58	1900	4	32	-7
San Juaníco	19	54	14	98	40	17	1900	4	34	-7
San Pablo	20	38	38	98	55	21	1900	4	38	-7
Sta. Mónica	19	58	55	98	37	16	1900	4	32	-7
Singuilucan	20	1	52	98	19	59	2714	4	25	-7
Tasquillo	20	33	7	99	18	21	1720	4	48	-7
Tepetitlan	20	11	14	99	22	59	2000	4	51	-7
Tezontepec	19	52	44	98	49	10	2326	4	37	-7
Tianguistengo	20	44	0	98	37	34	1687	4	31	-7
Tulancingo	20	4	58	98	22	8	2222	4	25	-7
Tlaxcoapan	20	5	40	99	13	29	2100	4	47	-7
Yolotepec	20	23	36	99	4	31	1900	4	43	-7
Zempoala	19	54	54	98	40	2	2532	4	33	-7
Zimapan	20	44	20	99	22	58	1813	4	50	-7
JALISCO										
Ameca	20	32	47	104	2	46	1235	6	34	-6
Atoyac	20	0	40	103	31	12	1350	6	23	-7
Autlan de Navarro	19	46	13	104	22	4	688	6	39	-6
Bolanos	21	46	31	103	46	58	910	6	31	-7
Cabo Corriente	20	24	42	105	40	50	81	7	4	-6
Carranza	19	44	46	103	46	18	0	6	27	-6
Cihuatlan	19	14	8	104	33	36	0	6	42	-6
Cd. Guzmán	19	42	13	103	27	53	1507	6	21	-7
Cocula	20	23	55	103	49	27	1432	6	29	-6
Colotlán	22	6	51	103	16	8	0	6	20	-7
Encarnación de Diaz	21	31	37	102	14	6	1814	5	57	-7
Guachinango	20	34	38	104	22	59	1285	6	40	-6
Guadalajara	20	42	32	103	23	9	1567	6	21	-7
Guerrero	21	59	4	103	35	52	1785	6	27	-7

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ESTADO Población	latitud °	‘	“	longitud °	‘	“	alt m	δm °	‘	Δδm ‘/año
Hostotipaquillo	21	3	46	104	4	21	1079	6	35	-6
Huejuquilla	22	37	42	103	53	58	1480	6	35	-6
La Barca	20	16	37	102	32	53	1517	6	3	-7
La Rosa	19	45	7	103	10	2	0	6	16	-7
Lagos de Moreno	21	21	20	101	55	24	1942	5	50	-7
Ojuelos	21	52	5	101	35	20	2254	5	42	-7
Puerto Vallarta	20	36	56	105	14	42	5	6	57	-6
San Miguel del Alto	21	1	52	102	24	12	2385	6	0	-7
San Pedro Analco	21	14	54	103	57	57	0	6	33	-6
Talpa de Allende	20	23	41	104	49	52	1039	6	49	-6
Tapatitlán	20	48	48	102	45	41	1764	6	8	-7
Tecatitlán	19	28	16	103	18	30	1036	6	18	-7
Tecomates	19	33	8	104	29	18	0	6	41	-6
Tecaltiche	21	26	11	102	34	32	2240	6	4	-7
Tequila	20	53	33	103	50	8	1215	6	30	-6
Unión de Tula	19	57	37	104	16	7	1385	6	37	-6
MÉXICO										
Acambay	19	57	18	99	50	47	2552	5	2	-7
Amecameca	19	7	36	98	46	0	2468	4	38	-7
Analco de Becerra	19	15	34	100	1	26	2511	5	8	-7
Atlacomulco	19	48	7	98	52	48	2526	4	39	-7
Ayotla	19	18	55	98	56	8	2251	4	41	-7
Chalco	19	15	53	98	54	12	2280	4	41	-7
Chapa de Mota	19	47	24	99	31	23	3070	4	55	-7
Chicoloapan	19	25	3	98	54	11	2235	4	40	-7
Chimalhuacán	19	25	45	98	56	57	2255	4	42	-7
Coatlichan	19	27	4	98	52	34	2200	4	40	-7
Ecatzingo de Hidalgo	18	57	2	98	45	29	2340	4	38	-7
Huexotla	19	28	50	98	52	25	2200	4	40	-7
Huizquilucan	19	21	47	99	21	39	2750	4	52	-7
Ixtapan de La Sal	18	50	13	99	40	28	1900	5	0	-7
Ixtlahuaca	19	52	54	98	51	39	2640	4	38	-7
Jilotepec	19	57	13	99	31	45	2525	4	55	-7
Lerma	19	17	16	99	30	34	2599	4	55	-7
Los Reyes	19	21	27	98	52	42	2200	4	40	-7
Naucalpan	19	28	36	99	13	45	2298	4	48	-7
Otumba	19	41	59	98	45	33	2349	4	36	-7
Ozumba	19	2	3	98	47	50	2500	4	39	-7
Progreso Industrial	19	37	37	99	20	32	2449	4	51	-7
Popocatepetl	19	1	17	98	37	34	5452	4	34	-7
Popocatepetl	19	5	3	98	39	12	5450	4	35	-7
Remedios	19	28	25	99	15	2	2383	4	49	-7
San Antonio del Rosario	18	24	4	100	18	43	3350	5	16	-7
San Cristobal	19	24	24	99	19	40	2239	4	51	-7
San Pedro Atzapotzaltongo	19	37	38	99	18	54	2420	4	50	-7
San Pedro Atzompa	19	40	56	99	0	36	2243	4	42	-7
Sultepec	18	50	0	99	51	44	2336	5	5	-7
Tecamac	19	42	21	98	58	10	2300	4	41	-7
Temascalapa	19	49	37	98	54	11	2347	4	39	-7
Temascaltepec	19	2	24	100	2	47	1640	5	9	-7
Tenancingo	18	57	51	99	35	45	2022	4	58	-7
Teoloyucan	19	44	48	99	10	53	2280	4	47	-7
Texcoco	19	30	52	98	52	57	2278	4	40	-7
Tlalmanalco	19	12	36	98	48	27	2412	4	39	-7

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ESTADO Población	latitud °	‘	“	longitud °	‘	“	alt m	δm °	‘	Δδm ‘/año
Tlalnepantla	19	32	20	99	11	39	2278	4	47	-7
Toluca	19	17	33	99	39	38	2680	4	59	-7
MICHOACÁN										
Aguililla	18	44	17	102	44	9	970	6	7	-7
Agostitlán	19	32	6	100	37	13	2500	5	21	-7
Apatzingán	19	4	54	102	15	31	682	5	57	-7
Apo	19	26	38	102	25	2	0	6	0	-7
Ario de Rosales	19	12	21	101	44	19	2050	5	46	-7
Buenavista	19	12	3	102	35	35	586	6	4	-7
Coahuayana	18	45	9	103	40	30	20	6	25	-6
Cotija	19	48	41	102	42	26	1751	6	6	-7
Hidalgo	19	41	19	100	33	23	2360	5	19	-7
Huajumbaro	19	40	52	100	44	29	2390	5	24	-7
Irimbo	19	41	54	100	28	58	2015	5	18	-7
Janitzio	19	34	27	101	39	11	2120	5	44	-7
Jiquilpan	19	59	31	102	43	16	1654	6	6	-7
La Huacana	18	57	36	101	48	39	550	5	48	-7
Los Reyes	19	35	23	102	28	57	1280	6	1	-7
Maravatio	19	53	33	100	26	43	2080	5	17	-7
Morelia	19	42	16	101	11	30	1941	5	34	-7
Ostula	18	29	50	103	28	19	229	6	21	-7
Panindicuaro	19	59	7	102	45	40	1638	6	7	-7
Paracuaro	19	8	46	103	13	32	586	6	16	-7
Paracho	19	38	44	102	3	1	1567	5	52	-7
Pátzcuaro	19	32	24	101	37	0	2174	5	43	-7
Penjamillo	20	6	31	101	55	40	1645	5	50	-7
Piedad de Cavadas	20	20	44	102	1	32	1696	5	52	-7
Pueblo Viejo	19	46	16	101	34	3	2210	5	42	-7
Puruandiro	20	5	21	101	30	59	1994	5	41	-7
San Pedro Jácuaro	19	43	1	100	38	49	2004	5	21	-7
Senguio	19	44	11	100	21	31	2030	5	15	-7
Tacambaro	19	13	52	101	27	34	1577	5	40	-7
Tequicheo	18	54	0	100	44	21	440	5	25	-7
Tepalcatepec	19	11	31	102	50	35	320	6	9	-7
Tumbiscatio	18	31	33	102	22	28	820	5	59	-7
Turicato	19	3	0	101	25	14	795	5	39	-7
Tuzantla	19	12	19	100	34	39	640	5	20	-7
Uruapan	19	24	56	102	3	46	1634	5	53	-7
Villa Madero	19	23	30	101	16	34	800	5	36	-7
Zacapu	19	49	11	101	47	34	1980	5	47	-7
Zamora	19	59	17	102	18	52	1567	5	58	-7
Zinapecuaro	19	53	5	100	40	32	1920	5	22	-7
Zitacuaro	19	25	51	100	21	50	1781	5	15	-7
MORELOS										
Acapatzingo	18	54	11	99	13	17	1465	4	49	-7
Acatlipa	18	49	30	99	13	42	1215	4	50	-7
Ahuacatitlán	18	58	42	99	15	19	1955	4	50	-7
Atlatlahuacán	18	56	5	98	53	53	1656	4	41	-7
Coatetelco	18	43	55	99	19	48	1029	4	52	-7
Cuajomulco	19	2	2	99	12	17	2651	4	49	-7
Cuautla	18	48	20	98	57	13	1309	4	43	-7
Cuernavaca	18	54	54	99	14	14	1542	4	50	-7
Chapultepec	18	55	11	99	12	49	1492	4	49	-7
Huautla	18	26	24	99	1	44	1075	4	46	-7

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Huitzilac	19	1	39	99	16	2	2540	4	50	-7
Itzamatitlan	18	53	58	99	1	30	1235	4	45	-7
Jojutla	18	36	39	99	10	52	890	4	49	-7
Oaxtepec	18	54	2	98	58	11	1385	4	43	-7
Smiguel	18	41	42	98	48	40	1403	4	40	-7
Tejalpa	18	53	43	99	9	57	1337	4	48	-7
Tepalcingo	18	35	34	98	50	43	1220	4	41	-7
Tetelcingo	18	51	55	98	55	47	1425	4	42	-7
Xiutepec	18	52	31	99	10	27	1355	4	48	-7
Xochitepec	18	47	4	99	13	50	1154	4	50	-7
Yautepec	18	52	38	99	3	46	1282	4	46	-7
Yecapixtla	18	52	56	98	51	55	1603	4	41	-7
NAYARIT										
Acaponeta	22	29	21	105	21	41	30	7	4	-6
Amatlan de Jara	21	23	9	104	8	47	1150	6	37	-6
Huajimic	21	41	29	104	18	18	1170	6	41	-6
Ixtapan	21	18	16	105	9	44	0	6	57	-6
Ixtlan del Río	21	2	9	104	22	16	1042	6	41	-6
Jesus María	22	15	9	104	31	10	610	6	47	-6
Mezcaltitan	21	54	18	105	28	39	0	7	4	-6
Ruiz	21	57	29	105	8	35	24	6	58	-6
San Blas	21	32	27	105	17	16	2	7	0	-6
San Martín de Bolaños	21	29	42	104	1	35	0	6	35	-6
Tepic	21	30	47	104	53	42	915	6	52	-6
Tuxpan	21	54	10	104	8	6	39	6	38	-6
NUEVO LEÓN										
Agualeguas	26	18	38	99	33	3	207	4	52	-7
Arramberri	24	6	10	99	49	3	1076	4	59	-7
Cadereyta Jiménez	25	35	34	99	59	54	360	5	4	-7
Cerralvo	26	5	32	99	36	29	345	4	53	-7
China	25	42	30	99	13	55	163	4	42	-7
Doctor Arroyo	23	40	23	100	10	52	1766	5	8	-7
Galeana	24	49	41	100	3	53	1654	5	5	-7
García	25	48	49	100	35	21	697	5	20	-7
Lampazos de Naranjo	27	1	32	100	30	33	340	5	19	-7
Linares	24	51	39	99	34	5	684	4	52	-7
Los Aldamas	26	3	58	99	11	30	288	4	41	-7
Mier y Noriega	23	25	19	100	7	11	1681	5	7	-7
Montemorelos	25	11	34	99	49	31	432	4	59	-7
Monterrey	25	40	11	100	18	26	538	5	12	-7
Parras	26	30	5	99	31	5	165	4	51	-7
Sabinas Hidalgo	26	29	59	100	10	9	313	5	9	-7
Salinas Victoria	25	57	34	100	18	0	464	5	12	-7
Santiago Huajuco	25	25	35	100	8	17	445	5	8	-7
Vallecillo	26	39	41	99	58	2	274	5	4	-7
Villa Aldama	26	29	49	100	25	50	469	5	17	-7
Zaragoza	23	50	52	99	36	19	1377	4	53	-7
OAXACA										
Ayutla	18	1	48	96	39	46	733	3	48	-8
Ayoquezco	16	41	13	96	50	2	0	3	58	-8
Ayotzintepec	17	40	38	96	8	17	64	3	35	-8
Coatzopan	18	2	56	96	45	31	1922	3	50	-8
Colotepec	15	53	33	96	56	28	0	4	5	-8

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

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

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

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ESTADO Población	latitud °	‘	“	longitud °	‘	“	alt m	δm °	‘	Δδm ‘/año
SAN LUIS POTOSI										
Ahualco	22	23	56	101	9	58	1902	5	33	-7
Alaquines	22	7	41	99	35	27	1300	4	53	-7
Arista	22	38	46	100	51	2	1560	5	25	-7
Arriaga	21	54	44	101	22	58	2660	5	38	-7
Cárdenas	21	59	49	99	38	28	1201	4	55	-7
Catorce	23	41	34	100	53	23	2756	5	26	-7
Cerritos	22	25	55	100	16	51	1153	5	11	-7
Cd. Del Maíz	22	24	8	99	36	9	1239	4	54	-7
Charcas	23	7	47	101	6	37	2057	5	31	-7
Guadalcazar	22	37	1	100	23	56	1673	5	14	-7
Matehuala	23	38	41	100	38	26	1615	5	20	-7
Moctezuma	22	45	7	101	5	0	1777	5	31	-7
Pastora	22	8	2	100	3	25	920	5	5	-7
Ramos	22	49	59	101	55	3	2210	5	51	-7
Río Verde	21	55	52	99	59	38	991	5	4	-7
Salinas de P. Blanco	22	37	44	101	43	0	2099	5	46	-7
San Luis Potosí	22	9	10	100	58	38	1877	5	28	-7
Sta. Catarina	21	39	37	99	29	36	898	4	51	-7
Sta. María del Río	21	48	4	100	44	9	1703	5	22	-7
Sto. Domingo	23	19	35	101	44	6	1971	5	47	-7
Tamazunchale	21	16	0	98	47	18	206	4	34	-7
Tamuin	21	0	18	98	46	30	275	4	34	-7
Tancanhuitz	21	36	11	98	57	57	241	4	38	-7
Valles	21	59	4	99	0	58	95	4	39	-7
Vieja	22	2	29	99	25	16	10	4	49	-7
Villa de Reyes	21	48	19	100	56	0	1819	5	27	-7
Zaragozas José de	22	2	8	100	43	53	1925	5	22	-7
SINALOA										
Altata	24	38	0	107	55	53	2	8	2	-6
Badiraguato	25	21	40	107	33	7	300	7	59	-6
Cosala	24	24	38	106	41	44	300	7	37	-6
Culiacan	24	48	36	107	23	57	84	7	53	-6
El Fuerte	26	25	14	108	39	0	0	8	25	-6
La Laguna	26	34	58	108	27	25	600	8	23	-6
Mazatlan	23	11	55	106	25	20	3	7	27	-6
Mocorito	25	29	0	107	55	13	838	8	6	-6
Navolato	24	45	57	107	41	48	12	7	58	-6
Rosario	22	59	29	105	51	13	32	7	15	-6
San Blas	26	4	38	108	45	53	37	8	25	-6
San José de Gracia	26	8	38	107	53	38	750	8	9	-6
Sta. María	25	33	56	109	10	26	46	8	29	-6
Sinaloa	25	49	26	108	13	29	55	8	14	-6
Soyatita	25	44	21	107	18	36	1200	7	56	-6
Topolobampo	25	36	1	109	2	52	3	8	27	-6
SONORA										
Agua Prieta	31	19	42	109	33	44	1050	9	19	-6
Aguiabampo	26	21	58	109	8	59	7	8	34	-6
Álamos	27	1	16	108	56	2	410	8	35	-6
Altar	30	42	46	111	44	12	0	9	54	-5
Antimonio	30	44	34	112	36	49	61	10	10	-5
Arizpe	30	20	9	110	10	22	870	9	23	-6
Bacanora	28	59	2	109	23	21	446	8	57	-6
Bacerac	30	21	41	108	49	25	937	8	56	-6

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

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ESTADO Población	latitud °	‘	“	longitud °	‘	“	alt m	δm °	‘	Δδm ‘/año
Villahermosa	17	59	15	92	55	0	10	2	2	-8
Xicotencatl	17	30	35	92	40	52	206	1	57	-8
TAMAULIPAS										
Abasolo	24	4	0	98	22	38	61	4	19	-7
Aldama Presas	22	55	6	98	4	12	98	4	12	-7
Altamira	22	23	40	97	55	47	26	4	9	-7
Antiguo Morelos	22	33	3	99	5	9	178	4	40	-7
Burgos	24	57	1	98	46	57	193	4	30	-7
Camargo	26	19	1	98	49	55	68	4	31	-7
Casas	23	43	44	98	44	27	120	4	29	-7
Ciudad Victoria	23	44	6	99	7	51	321	4	40	-7
Cruillas	24	45	32	98	30	59	265	4	22	-7
Guemes	23	55	18	99	0	28	220	4	37	-7
Guerrero	26	46	45	99	20	22	34	4	46	-7
Jaumave	23	24	30	99	22	28	735	4	47	-7
Jimenez	24	12	56	99	28	44	101	4	49	-7
Llera	23	19	11	99	1	15	290	4	37	-7
Magiscatzin	22	48	29	98	42	1	56	4	29	-7
Matamoros	25	52	45	97	31	9	12	3	52	-7
Méndez	25	7	11	98	34	12	128	4	24	-7
Mier	26	25	57	99	8	41	80	4	40	-7
Miquihuana	23	34	15	99	46	32	1892	4	57	-7
Ocampo	20	50	32	99	20	14	348	4	49	-7
Padilla	24	0	39	98	46	27	153	4	30	-7
Reynosa	26	5	50	98	16	42	38	4	15	-7
San Carlos	24	34	50	98	56	26	432	4	34	-7
San Fernando	24	50	56	98	9	30	55	4	12	-7
Tampico	22	13	0	97	51	19	12	4	7	-7
Tula	22	59	50	99	42	55	1173	4	56	-7
Villagran	24	28	33	99	20	21	363	4	46	-7
Xicotencatl	22	59	48	98	56	35	131	4	36	-7
TLAXCALA										
Apizaco	19	24	59	98	8	27	2408	4	21	-7
Calpulalpam	19	35	37	98	34	18	2578	4	32	-7
Cuaula	19	36	10	98	38	44	2703	4	34	-7
Cuauhutotohuatlan	19	7	7	98	10	9	2308	4	23	-7
Huamantla	19	18	53	97	55	39	2553	4	16	-7
Tenancingo	19	8	47	98	11	57	2281	4	23	-7
Tlaxcala	19	19	4	98	14	9	2252	4	24	-7
San Aparicio	19	6	0	98	9	30	2293	4	23	-7
S. Juan de los Llanos	19	27	54	97	41	0	2448	4	9	-7
S. Martín Tezmelucán	19	16	59	98	25	59	2278	4	29	-7
VERACRUZ										
Acayucan	17	56	42	95	54	43	88	3	28	-8
Acayucan	17	56	34	94	54	13	88	3	0	-8
Acayucan	17	56	42	94	54	48	158	3	0	-8
Actopan	19	30	11	96	36	45	311	3	41	-8
Alvarado	18	46	14	95	45	56	9	3	20	-8
Ciudad Azueta	18	4	43	95	42	18	0	3	22	-8
Coatepec	19	27	8	96	57	1	1252	3	50	-8
Coatzacoalcos	18	8	56	94	24	40	2	2	45	-8
Coatzintla	20	29	6	97	26	12	144	4	0	-8
Córdoba	18	53	34	96	55	52	924	3	51	-8

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Cosamaloapan	18	21	46	95	48	32	96	3	23	-8
Coscomatepec	19	4	23	97	2	5	1588	3	54	-8
Cuatotolopan	18	7	16	95	18	7	23	3	10	-8
Cuichapa	18	46	28	96	52	8	642	3	50	-8
Chiconamel	21	14	0	98	27	36	158	4	25	-7
Chicontepec	20	58	31	98	9	54	595	4	18	-7
Gral. Alemán	18	11	32	96	5	44	18	3	32	-8
Hidalgotitlan	17	46	20	94	38	47	77	2	54	-8
Huatusco	19	9	1	96	57	9	1344	3	51	-8
Huayacocotla	20	32	27	98	28	38	2100	4	27	-7
Inalambrica	19	10	50	96	7	36	0	3	29	-8
Ixcatepec	21	14	23	98	0	14	295	4	13	-7
Ixhuatlan	20	41	30	98	0	35	306	4	15	-7
Jalapa	19	31	35	96	54	51	1427	3	49	-8
Lobos	21	28	0	97	13	3	0	3	51	-8
Martínez de la Torre	20	3	58	97	2	36	151	3	50	-8
Minatitlán	17	58	47	94	32	27	64	2	50	-8
Misantla	19	56	2	96	50	24	410	3	45	-8
Mocayapan	18	12	49	94	50	17	340	2	57	-8
Naolingo	19	39	15	96	51	51	1605	3	47	-8
Nautla	20	12	43	95	45	38	4	3	14	-8
Orizaba	18	50	58	97	5	47	1284	3	56	-8
Ozuluama	21	39	46	97	51	0	229	4	8	-7
Pantepec	20	31	29	97	56	14	738	4	13	-7
Papantla	20	26	53	97	19	7	298	3	57	-8
Perote	19	33	52	97	14	24	2465	3	57	-8
Pico Orizaba	19	2	0	97	15	42	5700	4	0	-8
Pl Vicente	17	50	5	95	48	35	95	3	26	-8
Rizo	19	3	17	95	55	8	0	3	23	-8
Rodríguez Clara	17	59	28	95	24	9	148	3	14	-8
Sacrificios	19	10	26	96	5	27	0	3	28	-8
San Andrés Tuxtla	18	26	42	95	11	53	361	3	6	-8
San Andrés Tuxtla	18	26	40	95	13	1	323	3	6	-8
San Carlos	19	24	17	96	21	25	136	3	34	-8
San Juan de Ulúa	19	12	26	96	7	46	0	3	29	-8
San Juan Evangelista	17	52	59	95	8	12	88	3	7	-8
San Martín	18	33	48	95	10	48	1738	3	5	-8
Santiaguillo	19	8	29	95	48	23	0	3	20	-8
Tamarindo	18	45	23	96	22	49	80	3	37	-8
Tamiahua	21	16	26	97	26	29	4	3	58	-7
Tantoyucan	21	21	7	98	13	31	217	4	19	-7
Tehuipango	18	31	14	97	3	31	2382	3	56	-8
Teocelo de Díaz	19	23	8	96	57	47	1218	3	51	-8
Tepetzintla	21	10	43	96	49	48	351	3	41	-8
Tesechoacan	18	8	12	95	39	47	0	3	20	-8
Tierra Blanca	18	27	3	96	21	28	60	3	38	-8
Tihuatlán	20	43	26	97	32	23	222	4	2	-7
Tlacojalpan	18	13	57	95	57	13	91	3	28	-8
Tlacotalpan	18	36	40	95	39	54	320	3	18	-8
Tlaliscoyan	18	48	7	96	3	26	84	3	28	-8
Tlapacoyan	19	58	13	97	12	35	504	3	55	-8
Tonayan	19	40	54	96	54	45	0	3	48	-8
Tuxpan	20	57	18	97	23	59	14	3	58	-8
Veracruz	19	12	2	96	8	13	14	3	29	-8

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Verde	19	11	50	96	3	59	0	3	27	-8
Xico	19	25	17	97	0	11	0	3	52	-8
Zongolica	18	40	10	96	59	26	1294	3	54	-8
YUCATÁN										
Becanchen	19	52	32	89	13	3	0	0	-12	-8
Celestum	20	51	36	90	24	5	3	0	22	-8
Cuyo	21	31	9	87	40	48	8	-1	19	-8
Chancenote	20	59	36	87	46	56	0	-1	11	-8
Chavihau	21	21	28	89	7	7	0	0	-26	-8
Espita	21	0	36	88	18	27	22	0	-53	-8
Halacho	20	28	44	90	4	51	6	0	13	-8
Huhi	20	43	42	89	10	0	15	0	-20	-8
Izamal	20	56	16	88	57	14	14	0	-29	-8
Maxcanu	20	35	11	89	59	55	8	0	10	-8
Merida	20	59	0	89	38	43	9	0	-5	-8
Molas	20	49	0	89	37	48	10	0	-5	-8
Progreso	21	18	0	89	39	30	8	0	-7	-8
San Felipe	21	34	8	88	13	58	0	0	-59	-8
Sisal	21	9	59	90	1	55	0	0	7	-8
Tekax	20	12	18	98	17	20	35	4	23	-7
Telchac	21	20	35	89	15	50	10	0	-21	-8
Tzimin	21	8	1	88	9	6	17	0	-59	-8
Valladolid	20	41	24	88	12	23	20	0	-54	-8
Yalkubul	21	31	26	88	36	55	0	0	-45	-8
ZACATECAS										
Calera	22	57	2	102	42	10	2236	6	9	-7
Concepción del Oro	24	36	54	101	25	43	2070	5	41	-7
Chalchihuites	23	28	42	103	53	15	2321	6	36	-7
Fresnillo	23	10	35	102	52	39	2250	6	13	-7
Guadalupe	22	45	30	102	31	9	2265	6	5	-7
Jerez	22	38	51	102	59	48	2027	6	15	-7
Juchipila	21	24	46	103	7	29	1350	6	16	-7
Nieves	23	59	41	103	1	12	2017	6	18	-7
Nochistlán	21	21	47	102	50	55	1930	6	10	-7
Observatorio Astronómico	22	43	56	102	32	26	2717	6	5	-7
Observatorio Astronómico	22	46	1	102	32	56	2425	6	5	-7
Ojo Caliente	22	34	44	102	15	20	2114	5	58	-7
Ojuelos	21	52	5	101	35	20	2000	5	42	-7
Pánuco	22	52	45	102	32	30	2321	6	5	-7
Pinos	22	17	54	101	34	23	2419	5	42	-7
Río Grande	23	49	40	103	2	17	2000	6	18	-7
San Juan del Mezquital	24	17	28	103	23	47	2000	6	27	-7
Sombrerete	23	37	53	103	38	30	2351	6	31	-7
Tlatenango	21	47	0	103	18	44	1724	6	21	-7
Valparaiso	22	46	13	103	34	5	2140	6	28	-7
Villa de Cos	23	17	40	102	20	55	2050	6	1	-7
Villanueva	22	21	16	102	53	13	1955	6	12	-7
Zacatec	22	46	30	102	34	45	2496	6	6	-7

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.

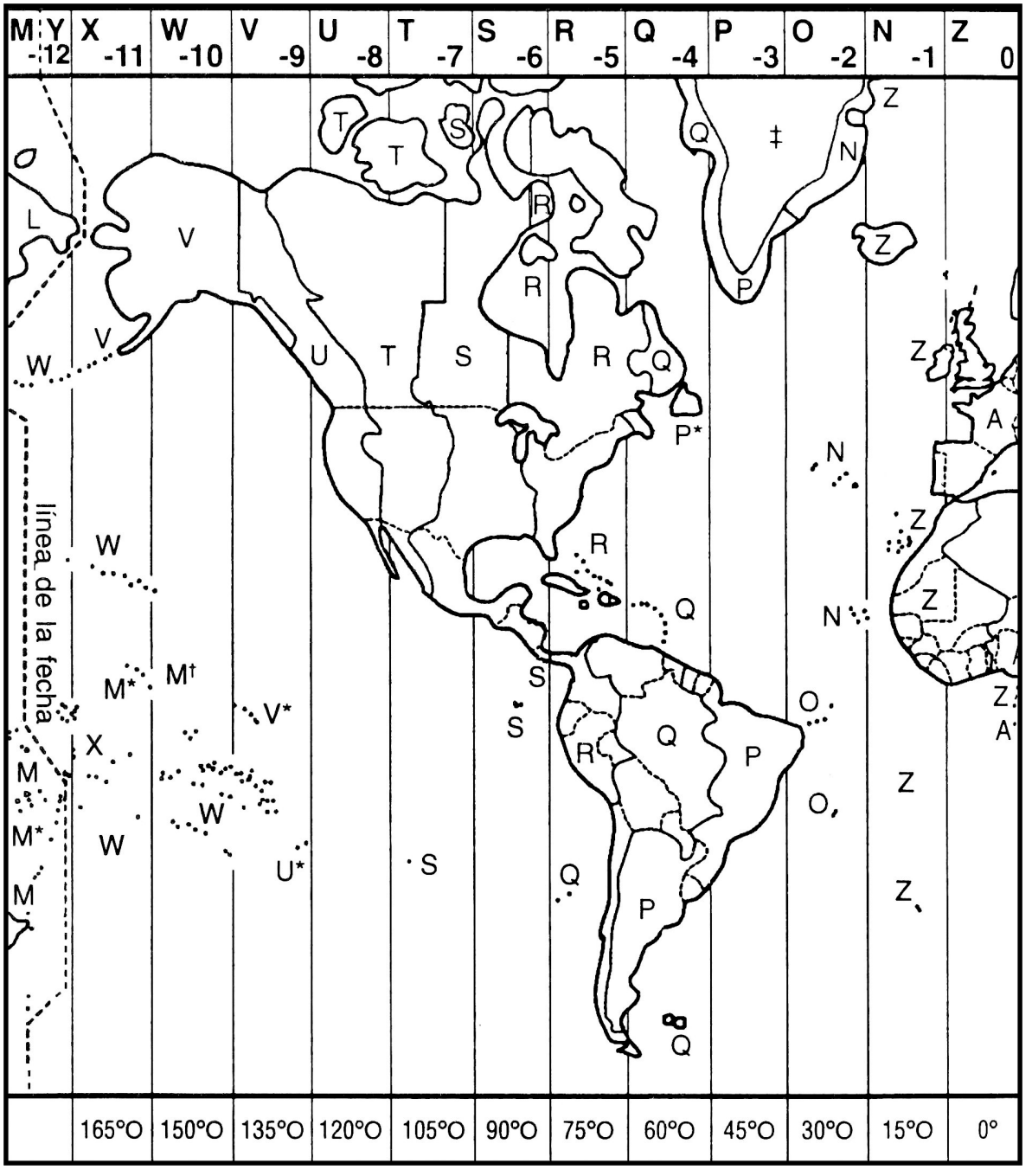
° ’	zona	h	m
00	Z	0	
+15	A	+ 1	
+30	B	+ 2	
+45	C	+ 3	
+52 30	C*	+ 3	30
+60	D	+ 4	
+67 30	D*	+ 4	30
+75	E	+ 5	
+82 30	E*	+ 5	30

° ’	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	

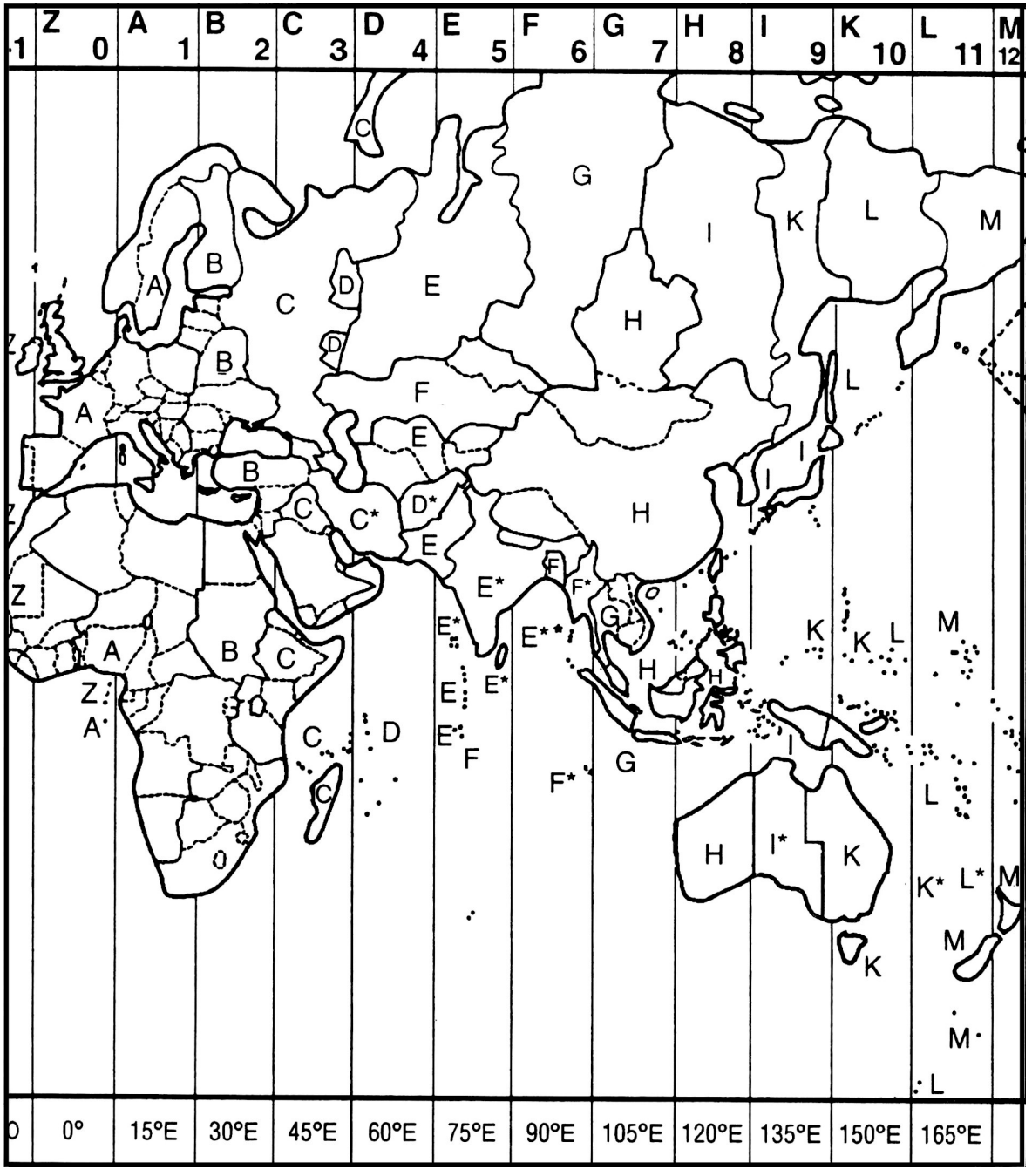
° ’	zona	h	m
+180	M	+ 12	
+187 30	M*	+ 12	30
-15	N	- 1	
-30	O	- 2	
-45	P	- 3	
-52 30	P*	- 3	30
-60	Q	- 4	
-75	R	- 5	
-90	S	- 6	

° ’	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

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

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				
CIUDAD DE MÉXICO				
Observatorio Luis G. León	19 23 56	99 8 29	2246	Col. Álamos, Cd. de México
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

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 ,

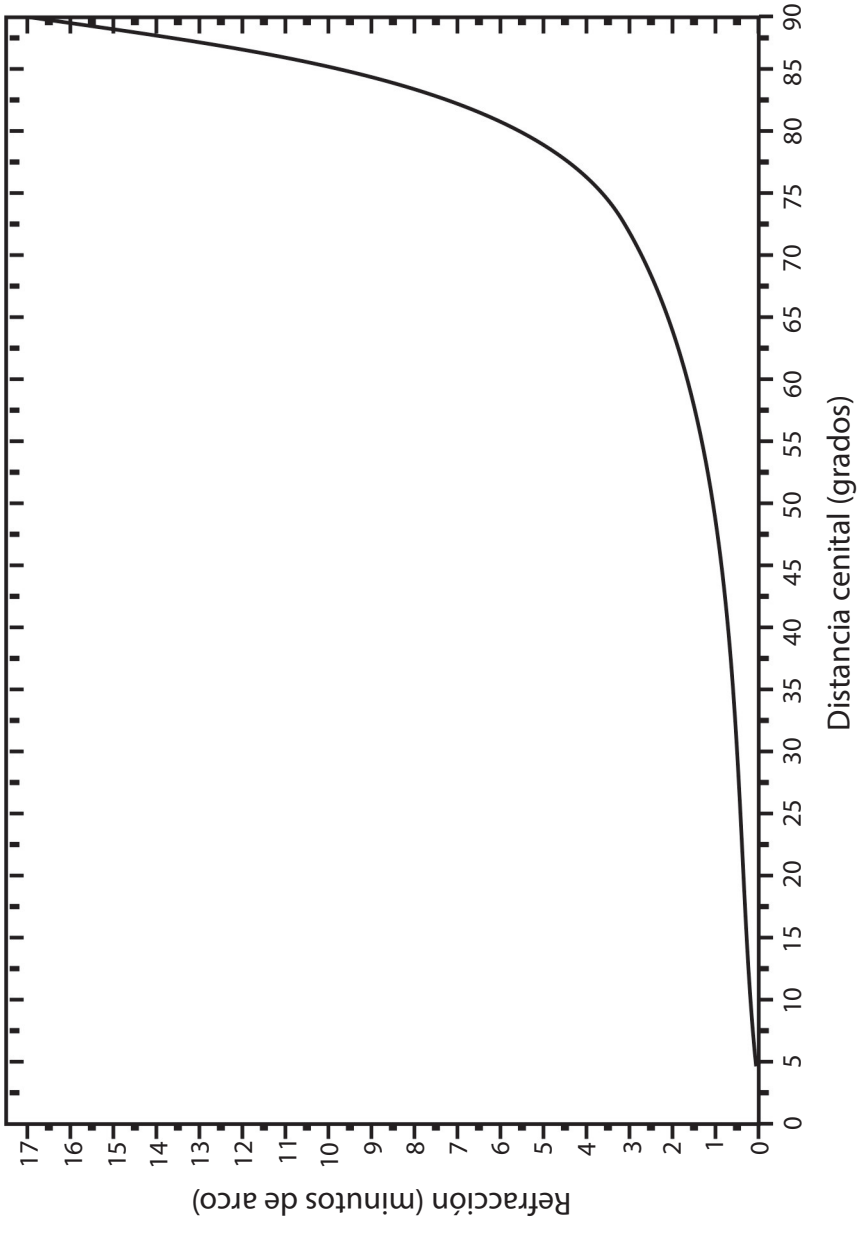
donde r está dada en minutos de arco, y sus coeficientes son:

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	$7.48708\ 10^{-15}$

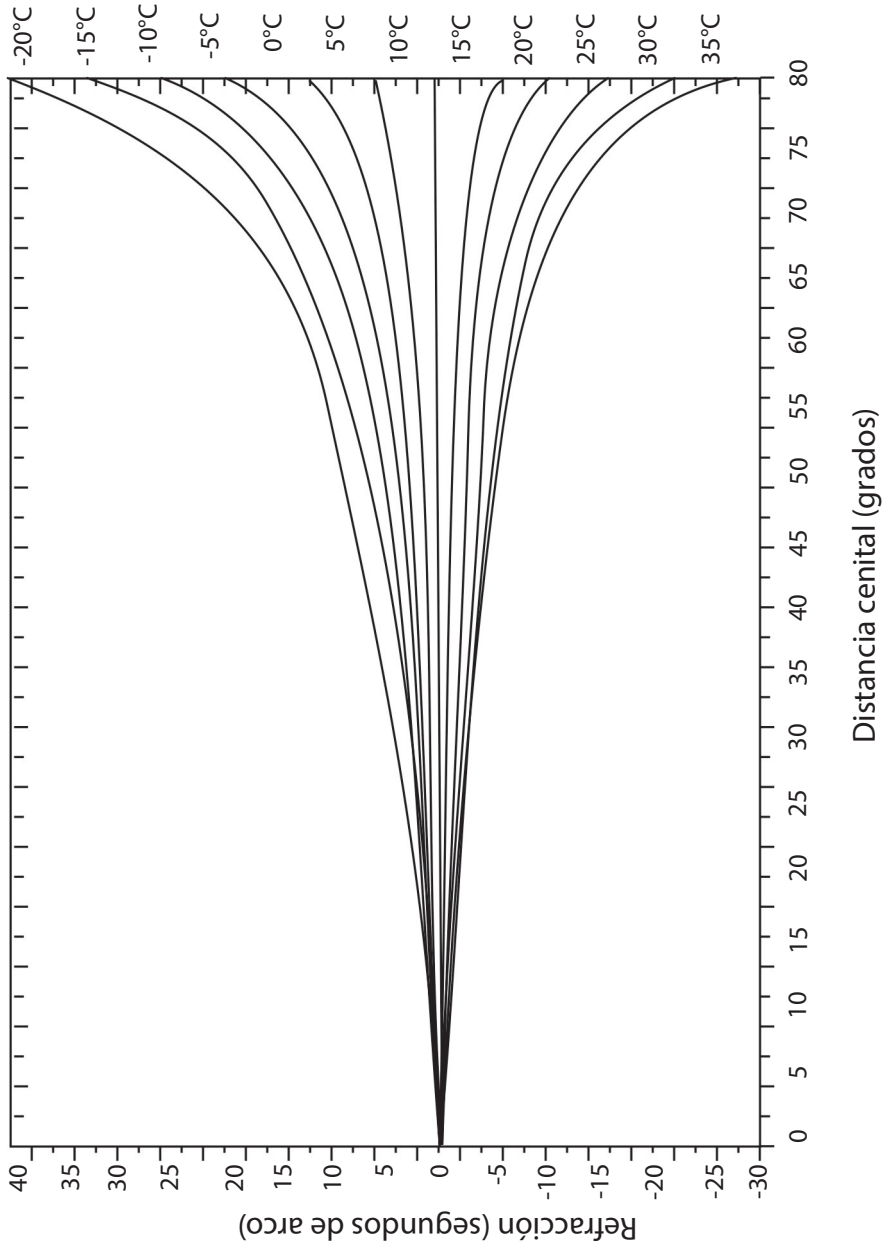
Con la gráfica de corrección por temperatura, se determina el valor en segundos de arco, que se deberá sumar algebraicamente a la refracción media. Cada curva corresponde a las temperaturas, en grados centígrados, señaladas al extremo derecho de cada una de ellas.

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.

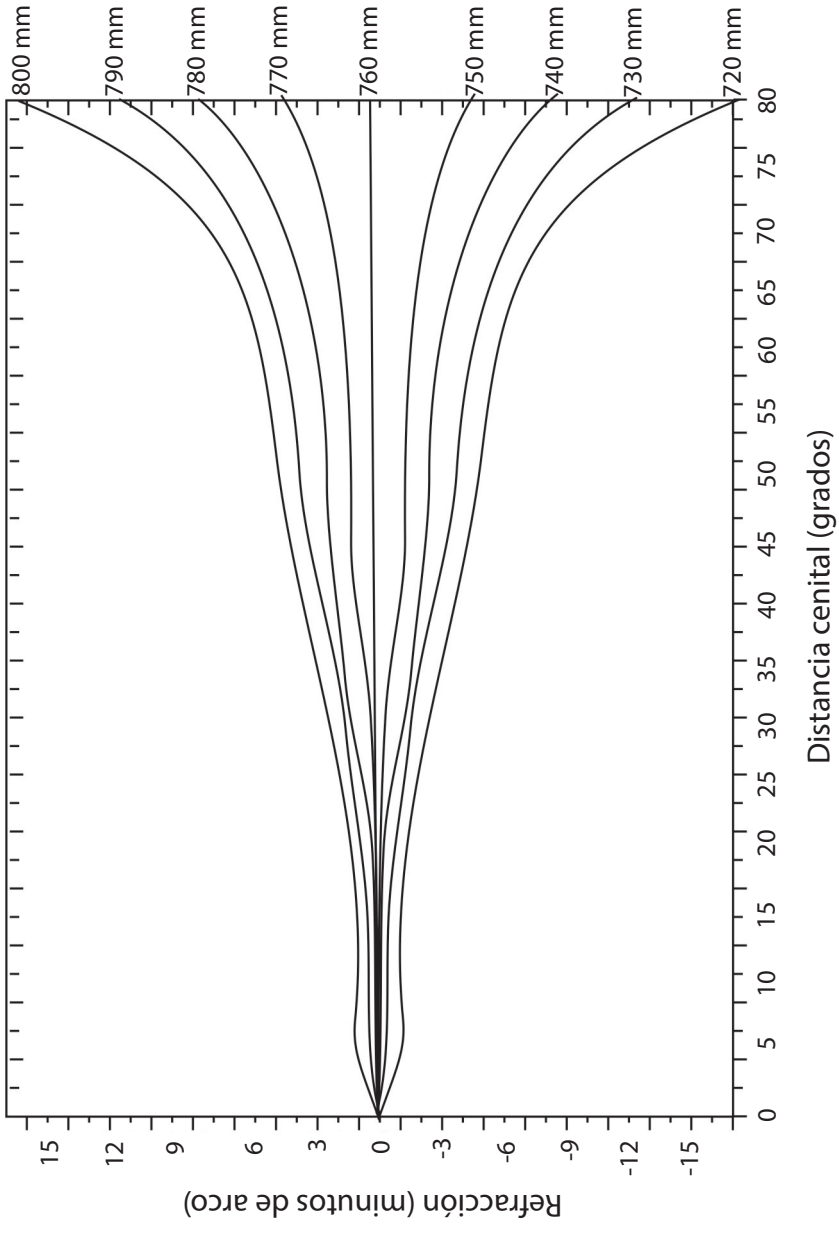
Corrección por distancia cenital



Corrección por temperatura



Corrección por presión



Abreviaturas

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

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

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-

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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

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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.

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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.

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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.

ERRATA: Anuario para el año 2016
Posiciones aparentes de la estrella Polar, 2016

		α_c	α	δ			α_c	α	δ
mes	día	h	h	°	mes	día	h	h	°
ene	1	2.874963	2.888614	89.334788	mar	3	2.844719	2.858503	89.335480
ene	2	2.874542	2.888195	89.334844	mar	4	2.844287	2.858074	89.335444
ene	3	2.874133	2.887788	89.334898	mar	5	2.843839	2.857629	89.335409
ene	4	2.873737	2.887393	89.334950	mar	6	2.843371	2.857163	89.335373
ene	5	2.873352	2.887011	89.335002	mar	7	2.842883	2.856677	89.335333
ene	6	2.872975	2.886637	89.335055	mar	8	2.842385	2.856179	89.335288
ene	7	2.872599	2.886264	89.335111	mar	9	2.841892	2.855687	89.335235
ene	8	2.872215	2.885884	89.335169	mar	10	2.841422	2.855217	89.335176
ene	9	2.871812	2.885486	89.335229	mar	11	2.840989	2.854784	89.335112
ene	10	2.871382	2.885060	89.335291	mar	12	2.840598	2.854393	89.335046
ene	11	2.870920	2.884601	89.335351	mar	13	2.840242	2.854039	89.334981
ene	12	2.870427	2.884111	89.335408	mar	14	2.839907	2.853706	89.334920
ene	13	2.869911	2.883598	89.335460	mar	15	2.839578	2.853379	89.334862
ene	14	2.869387	2.883075	89.335504	mar	16	2.839241	2.853045	89.334808
ene	15	2.868869	2.882559	89.335542	mar	17	2.838888	2.852695	89.334754
ene	16	2.868371	2.882062	89.335575	mar	18	2.838516	2.852326	89.334700
ene	17	2.867899	2.881592	89.335604	mar	19	2.838130	2.851941	89.334643
ene	18	2.867452	2.881147	89.335633	mar	20	2.837733	2.851545	89.334583
ene	19	2.867022	2.880720	89.335664	mar	21	2.837335	2.851148	89.334518
ene	20	2.866596	2.880297	89.335697	mar	22	2.836945	2.850758	89.334448
ene	21	2.866160	2.879865	89.335734	mar	23	2.836571	2.850383	89.334374
ene	22	2.865702	2.879411	89.335773	mar	24	2.836218	2.850031	89.334296
ene	23	2.865215	2.878928	89.335812	mar	25	2.835892	2.849704	89.334217
ene	24	2.864699	2.878415	89.335848	mar	26	2.835592	2.849405	89.334136
ene	25	2.864159	2.877878	89.335881	mar	27	2.835317	2.849131	89.334056
ene	26	2.863602	2.877323	89.335909	mar	28	2.835063	2.848879	89.333978
ene	27	2.863038	2.876760	89.335931	mar	29	2.834823	2.848641	89.333902
ene	28	2.862477	2.876200	89.335948	mar	30	2.834590	2.848410	89.333829
ene	29	2.861926	2.875650	89.335960	mar	31	2.834356	2.848178	89.333758
ene	30	2.861390	2.875115	89.335968	abr	1	2.834112	2.847937	89.333689
ene	31	2.860871	2.874597	89.335975	abr	2	2.833855	2.847682	89.333621
feb	1	2.860369	2.874096	89.335980	abr	3	2.833582	2.847411	89.333551
feb	2	2.859880	2.873610	89.335986	abr	4	2.833299	2.847129	89.333477
feb	3	2.859401	2.873133	89.335993	abr	5	2.833017	2.846847	89.333398
feb	4	2.858922	2.872658	89.336002	abr	6	2.832752	2.846583	89.333312
feb	5	2.858435	2.872174	89.336013	abr	7	2.832523	2.846354	89.333222
feb	6	2.857931	2.871673	89.336026	abr	8	2.832339	2.846170	89.333129
feb	7	2.857401	2.871146	89.336039	abr	9	2.832199	2.846032	89.333036
feb	8	2.856843	2.870592	89.336049	abr	10	2.832092	2.845927	89.332948
feb	9	2.856264	2.870014	89.336054	abr	11	2.831999	2.845837	89.332865
feb	10	2.855675	2.869426	89.336053	abr	12	2.831904	2.845745	89.332786
feb	11	2.855093	2.868845	89.336044	abr	13	2.831795	2.845639	89.332710
feb	12	2.854535	2.868287	89.336028	abr	14	2.831668	2.845515	89.332634
feb	13	2.854009	2.867762	89.336008	abr	15	2.831526	2.845374	89.332557
feb	14	2.853516	2.867270	89.335988	abr	16	2.831373	2.845224	89.332478
feb	15	2.853047	2.866803	89.335968	abr	17	2.831220	2.845071	89.332394
feb	16	2.852590	2.866349	89.335951	abr	18	2.831073	2.844925	89.332307
feb	17	2.852131	2.865893	89.335938	abr	19	2.830943	2.844795	89.332216
feb	18	2.851658	2.865423	89.335926	abr	20	2.830834	2.844687	89.332123
feb	19	2.851164	2.864933	89.335914	abr	21	2.830753	2.844605	89.332027
feb	20	2.850648	2.864419	89.335902	abr	22	2.830700	2.844553	89.331932
feb	21	2.850112	2.863885	89.335885	abr	23	2.830674	2.844528	89.331837
feb	22	2.849563	2.863337	89.335865	abr	24	2.830671	2.844527	89.331745
feb	23	2.849010	2.862785	89.335839	abr	25	2.830685	2.844543	89.331656
feb	24	2.848463	2.862238	89.335807	abr	26	2.830708	2.844569	89.331570
feb	25	2.847929	2.861704	89.335771	abr	27	2.830733	2.844597	89.331488
feb	26	2.847414	2.861190	89.335731	abr	28	2.830751	2.844618	89.331408
feb	27	2.846922	2.860698	89.335689	abr	29	2.830758	2.844628	89.331331
feb	28	2.846452	2.860229	89.335645	abr	30	2.830751	2.844624	89.331253
feb	29	2.846002	2.859780	89.335601	may	1	2.830734	2.844608	89.331173
mar	1	2.845568	2.859348	89.335559	may	2	2.830714	2.844590	89.331089
mar	2	2.845143	2.858925	89.335519	may	3	2.830705	2.844581	89.331000

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		α_c	α	δ			α_c	α	δ
mes	día	h	h	°	mes	día	h	h	°
may	4	2.830723	2.844600	89.330907	jul	5	2.850229	2.864269	89.327077
may	5	2.830782	2.844660	89.330811	jul	6	2.850711	2.864755	89.327062
may	6	2.830887	2.844766	89.330715	jul	7	2.851174	2.865220	89.327046
may	7	2.831033	2.844915	89.330623	jul	8	2.851625	2.865674	89.327027
may	8	2.831204	2.845089	89.330536	jul	9	2.852078	2.866128	89.327006
may	9	2.831380	2.845269	89.330455	jul	10	2.852540	2.866592	89.326982
may	10	2.831545	2.845438	89.330380	jul	11	2.853019	2.867072	89.326957
may	11	2.831690	2.845586	89.330307	jul	12	2.853519	2.867573	89.326931
may	12	2.831815	2.845714	89.330233	jul	13	2.854041	2.868097	89.326907
may	13	2.831926	2.845828	89.330159	jul	14	2.854582	2.868640	89.326886
may	14	2.832031	2.845935	89.330081	jul	15	2.855140	2.869200	89.326868
may	15	2.832141	2.846046	89.330000	jul	16	2.855707	2.869770	89.326855
may	16	2.832263	2.846170	89.329915	jul	17	2.856275	2.870342	89.326847
may	17	2.832406	2.846313	89.329829	jul	18	2.856837	2.870907	89.326845
may	18	2.832574	2.846482	89.329741	jul	19	2.857382	2.871457	89.326846
may	19	2.832769	2.846678	89.329654	jul	20	2.857907	2.871985	89.326851
may	20	2.832990	2.846901	89.329567	jul	21	2.858408	2.872489	89.326856
may	21	2.833235	2.847149	89.329484	jul	22	2.858892	2.872975	89.326860
may	22	2.833498	2.847414	89.329404	jul	23	2.859368	2.873453	89.326860
may	23	2.833771	2.847690	89.329329	jul	24	2.859849	2.873935	89.326857
may	24	2.834045	2.847968	89.329258	jul	25	2.860350	2.874437	89.326852
may	25	2.834313	2.848240	89.329191	jul	26	2.860880	2.874967	89.326845
may	26	2.834569	2.848499	89.329126	jul	27	2.861442	2.875531	89.326839
may	27	2.834809	2.848743	89.329062	jul	28	2.862032	2.876123	89.326838
may	28	2.835036	2.848973	89.328998	jul	29	2.862639	2.876733	89.326842
may	29	2.835257	2.849196	89.328931	jul	30	2.863247	2.877346	89.326853
may	30	2.835483	2.849423	89.328860	jul	31	2.863842	2.877945	89.326870
may	31	2.835728	2.849669	89.328785	ago	1	2.864414	2.878520	89.326892
jun	1	2.836006	2.849948	89.328707	ago	2	2.864957	2.879066	89.326916
jun	2	2.836324	2.850268	89.328630	ago	3	2.865474	2.879586	89.326939
jun	3	2.836684	2.850631	89.328554	ago	4	2.865974	2.880088	89.326960
jun	4	2.837075	2.851025	89.328485	ago	5	2.866466	2.880582	89.326979
jun	5	2.837479	2.851433	89.328422	ago	6	2.866963	2.881078	89.326995
jun	6	2.837877	2.851836	89.328365	ago	7	2.867470	2.881586	89.327009
jun	7	2.838256	2.852219	89.328313	ago	8	2.867994	2.882111	89.327023
jun	8	2.838611	2.852578	89.328263	ago	9	2.868537	2.882655	89.327037
jun	9	2.838945	2.852915	89.328213	ago	10	2.869097	2.883216	89.327054
jun	10	2.839266	2.853239	89.328160	ago	11	2.869671	2.883792	89.327074
jun	11	2.839585	2.853560	89.328105	ago	12	2.870254	2.884377	89.327098
jun	12	2.839912	2.853888	89.328046	ago	13	2.870838	2.884964	89.327127
jun	13	2.840255	2.854232	89.327985	ago	14	2.871416	2.885545	89.327161
jun	14	2.840619	2.854598	89.327924	ago	15	2.871978	2.886110	89.327200
jun	15	2.841007	2.854988	89.327862	ago	16	2.872518	2.886653	89.327242
jun	16	2.841420	2.855403	89.327802	ago	17	2.873031	2.887169	89.327286
jun	17	2.841856	2.855840	89.327745	ago	18	2.873521	2.887661	89.327329
jun	18	2.842308	2.856296	89.327692	ago	19	2.873995	2.888136	89.327369
jun	19	2.842770	2.856762	89.327643	ago	20	2.874466	2.888607	89.327406
jun	20	2.843234	2.857229	89.327600	ago	21	2.874950	2.889092	89.327439
jun	21	2.843691	2.857690	89.327561	ago	22	2.875459	2.889601	89.327470
jun	22	2.844133	2.858136	89.327526	ago	23	2.875999	2.890142	89.327501
jun	23	2.844557	2.858563	89.327492	ago	24	2.876565	2.890709	89.327536
jun	24	2.844963	2.858973	89.327458	ago	25	2.877148	2.891294	89.327576
jun	25	2.845357	2.859370	89.327423	ago	26	2.877731	2.891881	89.327623
jun	26	2.845751	2.859765	89.327384	ago	27	2.878302	2.892455	89.327675
jun	27	2.846157	2.860172	89.327342	ago	28	2.878848	2.893004	89.327732
jun	28	2.846588	2.860604	89.327297	ago	29	2.879365	2.893524	89.327792
jun	29	2.847053	2.861071	89.327252	ago	30	2.879853	2.894014	89.327852
jun	30	2.847555	2.861575	89.327209	ago	31	2.880318	2.894481	89.327910
jul	1	2.848088	2.862111	89.327170	sep	1	2.880770	2.894933	89.327966
jul	2	2.848637	2.862665	89.327138	sep	2	2.881219	2.895382	89.328019
jul	3	2.849187	2.863218	89.327112	sep	3	2.881673	2.895837	89.328069
jul	4	2.849720	2.863757	89.327093	sep	4	2.882140	2.896303	89.328119

ERRATA: Anuario para el año 2016
Posiciones aparentes de la estrella Polar, 2016

		α_c	α	δ			α_c	α	δ
mes	día	h	h	°	mes	día	h	h	°
sep	5	2.882622	2.896785	89.328168	nov	4	2.902300	2.916554	89.333272
sep	6	2.883119	2.897283	89.328219	nov	5	2.902426	2.916683	89.333380
sep	7	2.883628	2.897793	89.328272	nov	6	2.902524	2.916785	89.333490
sep	8	2.884145	2.898312	89.328330	nov	7	2.902592	2.916855	89.333601
sep	9	2.884662	2.898831	89.328392	nov	8	2.902630	2.916896	89.333710
sep	10	2.885173	2.899344	89.328458	nov	9	2.902644	2.916912	89.333816
sep	11	2.885669	2.899842	89.328529	nov	10	2.902645	2.916913	89.333918
sep	12	2.886142	2.900319	89.328604	nov	11	2.902645	2.916915	89.334015
sep	13	2.886589	2.900768	89.328680	nov	12	2.902662	2.916932	89.334107
sep	14	2.887008	2.901188	89.328757	nov	13	2.902705	2.916977	89.334198
sep	15	2.887403	2.901584	89.328832	nov	14	2.902777	2.917051	89.334290
sep	16	2.887787	2.901968	89.328903	nov	15	2.902866	2.917143	89.334387
sep	17	2.888174	2.902356	89.328970	nov	16	2.902953	2.917234	89.334490
sep	18	2.888582	2.902763	89.329033	nov	17	2.903016	2.917301	89.334599
sep	19	2.889018	2.903199	89.329096	nov	18	2.903042	2.917332	89.334711
sep	20	2.889482	2.903665	89.329161	nov	19	2.903026	2.917319	89.334823
sep	21	2.889965	2.904150	89.329230	nov	20	2.902971	2.917267	89.334933
sep	22	2.890451	2.904638	89.329306	nov	21	2.902887	2.917186	89.335040
sep	23	2.890922	2.905112	89.329388	nov	22	2.902786	2.917086	89.335141
sep	24	2.891367	2.905560	89.329475	nov	23	2.902678	2.916979	89.335239
sep	25	2.891780	2.905976	89.329564	nov	24	2.902571	2.916874	89.335332
sep	26	2.892161	2.906358	89.329653	nov	25	2.902472	2.916775	89.335423
sep	27	2.892514	2.906713	89.329741	nov	26	2.902382	2.916687	89.335513
sep	28	2.892850	2.907049	89.329826	nov	27	2.902301	2.916608	89.335602
sep	29	2.893177	2.907376	89.329908	nov	28	2.902227	2.916536	89.335693
sep	30	2.893504	2.907704	89.329987	nov	29	2.902153	2.916465	89.335787
oct	1	2.893839	2.908039	89.330064	nov	30	2.902073	2.916389	89.335883
oct	2	2.894186	2.908386	89.330141	dic	1	2.901979	2.916298	89.335982
oct	3	2.894546	2.908746	89.330218	dic	2	2.901863	2.916186	89.336083
oct	4	2.894916	2.909117	89.330297	dic	3	2.901719	2.916046	89.336186
oct	5	2.895293	2.909495	89.330380	dic	4	2.901544	2.915875	89.336288
oct	6	2.895669	2.909874	89.330466	dic	5	2.901339	2.915673	89.336389
oct	7	2.896038	2.910245	89.330556	dic	6	2.901109	2.915444	89.336487
oct	8	2.896392	2.910601	89.330651	dic	7	2.900861	2.915199	89.336580
oct	9	2.896724	2.910936	89.330749	dic	8	2.900608	2.914947	89.336667
oct	10	2.897029	2.911243	89.330849	dic	9	2.900364	2.914705	89.336750
oct	11	2.897304	2.911520	89.330949	dic	10	2.900142	2.914484	89.336829
oct	12	2.897552	2.911769	89.331048	dic	11	2.899946	2.914291	89.336908
oct	13	2.897779	2.911998	89.331144	dic	12	2.899774	2.914122	89.336988
oct	14	2.898001	2.912219	89.331236	dic	13	2.899611	2.913963	89.337074
oct	15	2.898233	2.912451	89.331323	dic	14	2.899438	2.913795	89.337165
oct	16	2.898489	2.912708	89.331407	dic	15	2.899233	2.913595	89.337260
oct	17	2.898775	2.912995	89.331492	dic	16	2.898987	2.913354	89.337356
oct	18	2.899086	2.913307	89.331580	dic	17	2.898698	2.913069	89.337451
oct	19	2.899404	2.913629	89.331674	dic	18	2.898375	2.912749	89.337541
oct	20	2.899711	2.913939	89.331775	dic	19	2.898030	2.912406	89.337626
oct	21	2.899990	2.914221	89.331880	dic	20	2.897675	2.912053	89.337705
oct	22	2.900233	2.914467	89.331988	dic	21	2.897321	2.911700	89.337780
oct	23	2.900439	2.914676	89.332096	dic	22	2.896974	2.911354	89.337850
oct	24	2.900613	2.914852	89.332203	dic	23	2.896638	2.911020	89.337917
oct	25	2.900763	2.915004	89.332306	dic	24	2.896314	2.910698	89.337984
oct	26	2.900901	2.915142	89.332406	dic	25	2.895999	2.910385	89.338051
oct	27	2.901034	2.915276	89.332502	dic	26	2.895688	2.910078	89.338119
oct	28	2.901172	2.915414	89.332595	dic	27	2.895374	2.909768	89.338189
oct	29	2.901319	2.915561	89.332687	dic	28	2.895051	2.909448	89.338261
oct	30	2.901476	2.915719	89.332779	dic	29	2.894709	2.909111	89.338336
oct	31	2.901643	2.915887	89.332872	dic	30	2.894343	2.908749	89.338411
nov	1	2.901815	2.916061	89.332967	dic	31	2.893948	2.908357	89.338486
nov	2	2.901987	2.916236	89.333065	ene	1	2.893524	2.907936	89.338559
nov	3	2.902151	2.916402	89.333167	ene	2	2.893074	2.907489	89.338628

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