MINISTERIO DE DEFENSA

SERVICIO DE HIDROGRAFÍA NAVAL

REPÚBLICA ARGENTINA

PÚBLICO

ISSN 1667-8117

SUPLEMENTO AL

ALMANAQUE NÁUTICO Y AERONÁUTICO

PARA EL AÑO 2024

SOL, PLANETAS Y ESTRELLAS

2024

BUENOS AIRES

INTRODUCCIÓN

Esta efemérides astronómica fue calculada, redactada y compaginada en la División Astronomía del Observatorio Naval Buenos Aires.

Se incluyen en ella datos necesarios para determinar la posición geográfica mediante observaciones astronómicas, como así también tablas de transformaciones, correcciones y equivalencias aplicables a diversos cálculos. Contiene las posiciones aparentes de 324 estrellas fundamentales brillantes, sin incluir en ellas los términos de corto período de la nutación (inferiores a 35 días).

Las notaciones que aparecen en esta edición son las recomendadas en la XXI Asamblea General de la Unión Astronómica Internacional (1991).

La edición 2024 se entrega en formato PDF en la página web http://www.hidro.gov.ar

El formato PDF demanda la instalación del programa Acrobat Reader, que es de libre distribución. Esta versión se recorrerá haciendo uso tanto de los **marcadores**, como así también de las **miniaturas**. Ambos elementos permitirán posicionarse en el tema deseado.

Toda sugerencia con respecto a esta publicación será bien recibida y convenientemente atendida.

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ISSN 1667-8117

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ESCALAS DE TIEMPO

Se enumeran las diversas escalas de tiempo cuya finalidad primordial ha sido la definición del segundo, algunas de ellas basadas en fenómenos astronómicos y otras en fenómenos físicos.

TIEMPO ATÓMICO INTERNACIONAL (TAI)

Es la coordenada de referencia temporal establecida por el Bureau International des Poids et Mesures (BIPM). Está basado en las lecturas de relojes atómicos que funcionan de conformidad con la definición del segundo del Sistema Internacional de Unidades (SI). Este segundo fue definido en 1967 como *"la duración de 9.192.631.770 períodos de la radiación correspondiente a la transición entre los dos niveles hiperfinos del estado fundamental del átomo de cesio 133".*

TIEMPO DE LAS EFEMÉRIDES (ET)

Actualmente en desuso, esta escala de tiempo fue utilizada entre 1960 y 1983 como argumento temporal de las efemérides de los cuerpos del Sistema Solar. El Tiempo de las Efemérides fue reemplazado por el Tiempo Terrestre (TT) y por el Tiempo Dinámico Baricéntrico (TDB), escalas definidas en el marco de la relatividad general y consideradas una continuación de ET.

TIEMPO DINÁMICO TERRESTRE (TDT) y TIEMPO TERRESTRE (TT)

Tiempo Dinámico Terrestre (TDT) es la escala de tiempo utilizada en las efemérides geocéntricas aparentes de los cuerpos del Sistema Solar y de estrellas desde 1984.

A partir de 1991 se lo denomina Tiempo Terrestre (TT). La relación con el TAI es: $TT=TAI+32^s.184$. La relación con el Tiempo Universal (UT) es ΔT

$$TT = UT + \Delta T$$

cuyos valores están dados en The Astronomical Almanac (extrapolados):

2021 $\Delta T = 69^s$ 2022 $\Delta T = 69^s$ 2023 $\Delta T = 69^s$

TIEMPO DINÁMICO BARICÉNTRICO (TDB)

Es la escala de tiempo utilizada en las efemérides referidas al baricentro del Sistema Solar. En la práctica se determina a partir de TT mediante una fórmula matemática, y difiere en menos de 0.002^s.

TIEMPO SIDÉREO (TS)

El Tiempo Sidéreo es la escala de tiempo definida por el movimiento diurno del equinoccio vernal. El Tiempo Sidéreo Aparente o verdadero se define como el ángulo horario del equinoccio verdadero, y se denomina Tiempo Sidéreo Medio cuando se considera el movimiento del equinoccio medio. La Ecuación de los Equinoccios representa la diferencia entre el Tiempo Sidéreo Aparente y el Tiempo Sidéreo Medio. Prescindiendo del movimiento del equinoccio debido a la precesión y a la nutación, esta escala de tiempo es una medida directa del movimiento de rotación de la Tierra con respecto a las estrellas.

TIEMPO UNIVERSAL (UT)

El Tiempo Universal es la escala de tiempo que se aproxima al movimiento diurno medio del Sol. Es tiempo solar medio en Greenwich, y se define formalmente a partir del Tiempo Sidéreo mediante una fórmula que los vincula, luego se lo determina a partir de observaciones del movimiento diurno de las estrellas. Se definen los siguientes tipos de Tiempo Universal:

UT0 : es el tiempo universal obtenido directamente de las observaciones antes mencionadas. Luego, está afectado del movimiento del polo y de las irregularidades de rotación de la Tierra.

UT1 : se obtiene al corregir UT0 de los efectos del movimiento del polo y se lo designa generalmente como UT.

TIEMPO UNIVERSAL COORDINADO (UTC)

Es la escala de tiempo uniforme que tiene como unidad el segundo del SI y no se aparta de la rotación terrestre, dada por UT1, en más de 0.9^s. Es la base del tiempo legal de los países. Se propaga mediante emisiones horarias con la aproximación necesaria para sus aplicaciones (navegación, astronomía, geodesia). La diferencia entre las escalas de UTC y de TAI es un número entero de segundos. La diferencia entre UTC y UT1 no puede exceder 0.9^s; para mantener este compromiso, el 1° de enero y/o el 1° de julio se efectúan saltos de 1^s en la escala de UTC. Las emisiones de señales horarias se adaptan al UTC con una precisión de $\pm 0.001^s$.

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Los ejemplos que se dan a continuación siguen el ordenamiento de las Efemérides Astronómicas que se publican en este Suplemento al Almanaque Náutico y Aeronáutico.

Ejemplo 1. Calcular el TS local aparente correspondiente a las $15^h\ 54^m\ 35^s.659$ de Tiempo Universal UT, el día 1° de enero del corriente año en Buenos Aires, sabiendo que la longitud es L = $3^h\ 53^m\ 25^s.194$ Oeste.

$$TSL = UT + \underline{\textbf{c.a}} + \underline{\textbf{TSG a 0h UT}} - L$$

Ene. 1, $\underline{E_o}$ = $-\ 0^s.3278$

Ene. 2, $\underline{E_o}$ = $-\ 0.^s3300$

dE= Ene 2- Ene 1= -0 .0022

UT =$15^h\ 55^m \equiv 0^d.663$

dE . UT = $-\ 0^s.0014$

$E = \underline{E_o} + dE \cdot UT$

E= $-0^s.3278 + (-\ 0^s.0014) = -0^s.329$

UT	$= 15^h\ 54^m\ 35^s.659$
c.a.	$= \quad 2\ \ 36.816$ **(Tab.1)**
IS	$= 15^h\ 57^m\ 12^s.475$
TSG a 0^h UT	$= \ 6\ \ 40\ \ 36\ .631$ (Medio)
TSG	$= 22^h\ 37^m\ 49^s.106$ (Medio)
- L	$= \ 3\ \ 53\ \ 25\ .194$
TSL	$= 18^h\ 44^m\ 23^s.912$ (Medio)
+ E	$= \ -\quad\ \ 0\ .329$
TSL	$= 18^h\ 44^m\ 23^s.529$ (Aparente)

Ejemplo 2. Hallar el instante en Tiempo Universal UT correspondiente a las $18^h\ 46^m\ 17^s.045$ de tiempo sidéreo local aparente el 1° de enero del corriente año en Buenos Aires, L = $3^h\ 53^m\ 25^s.194$ Oeste.

$$UT = TSL + L - \underline{\textbf{TSG a 0h UT}} - \underline{\textbf{c.s.}}$$

UT apr. =TSL-TSG a 0^h UT+L

UT apr. =$15^h\ 55^m = 0^d.663$

$\underline{E_o}$ = $-\ 0^s.3278$

dE = $-\ 0^s.0022$

dE . UT = $-0^s.0014$

E = $\underline{E_o} + dE \cdot UT$

E= $-0^s.3278 + (-\ 0^s.0014) = -0^s.329$

TSL	$= \ 18^h\ 46^m\ 17^s.045$ (Aparente)
- E	$= \ -\quad\ -0.329$
TSL	$= 18^h\ 46^m\ 17^s.374$ (Medio)
+ L	$= \ 3\ \ 53\ \ 25.194$
TSG	$= 22^h\ 39^m\ 42^s.568$
-TSG a 0^hUT	$= \ 6\ \ 40\ \ 36\ .631$ (Medio)
IS	$= 15^h\ 59^m\ 05^s.937$
-c.s.	$= \quad 2\ \ 37\ .123$ **(Tab.2)**
UT	$= 15^h\ 56^m\ 28^s.814$

Ejemplo 3. ¿Cuál es el ángulo horario del Sol verdadero para las $19^h\ 29^m\ 05^s.44$ de UT el día 2 de enero del corriente año en Buenos Aires ($L = 3^h\ 53^m\ 25^s.194$ Oeste)?

$$AHL = TSL - \underline{AR}$$

Como la ascensión recta aparente (AR) está tabulada a 0^h TT, debe interpolarse para obtenerla a 0^h UT, siendo $\Delta T = TT-UT = 69^s$ para este año y las notaciones $\Delta{-1}$ la diferencia entre la AR del día dado y la del día anterior y $\Delta 1$ la diferencia entre la AR del día posterior al dado y la del día en cuestión, resulta:

$AR\ a\ 0^h\ UT = AR\ a\ 0^h\ TT + \Delta T/86400 \cdot dAR$

$dAR = \Delta{-1} = 264^s.89;\quad UT = 0^d.812$

$\Delta 1 = 264^s.58;\quad UT^2 = 0^d.659$

Ene.2 a 0^h TT, AR=	$18^h\ 48^m\ 05^s.715$
$\Delta T/86400 \cdot dAR$ =	+ 0 .21
Ene.2 a 0^h UT, AR=	$18^h\ 48^m\ 05^s.925$

½ ($\Delta 1 + \Delta{-1}$) =	$264^s.735$
½ ($\Delta 1 - \Delta{-1}$) =	$-0^s.155$
$AR_\circ$ UT =	$18^h\ 48^m\ 05^s.925$
½($\Delta 1+\Delta{-1}$)UT =	+ 3 34 .96
½($\Delta 1-\Delta{-1}$)UT^2 =	- $0^s.1$
AR =	$18^h\ 51^m\ 40^s.785$

UT =	$19^h\ 29^m\ 05^s.44$
c.a.	3 12 .05 **(Tab.1)**
IS =	$19^h\ 32^m\ 17^s.49$
TSG a 0^h UT =	6 44 32.85 (Aparente)
TSG =	$2^h\ 16^m\ 50^s.34$ (Medio)
$+\underline{E_0}$ =	- 0 .33
TSG =	$2^h\ 16^m\ 50^s.01$ (Aparente)
-L =	3 53 25.19
TSL =	$22^h\ 23^m\ 24^s.82$ (Aparente)
- AR =	18 51 40 .78
AHL =	$3^h\ 31^m\ 44^s.04$
	$52°\ 56'\ 6''.0$ **(Tab.4)**

UT y UT^2 son los coeficientes presentes en la fórmula de interpolación utilizada.

Ejemplo 4. Hallar el tiempo sidéreo local aparente para el instante en que el ángulo horario del Sol verdadero es $5^h\ 02^m\ 20^s.20$ en Buenos Aires, $L = 3^h\ 53^m\ 25^s.194$ Oeste el día 2 de enero del corriente año.

$$TSL = \underline{\mathbf{AR}} + AHL$$

Como la ascensión recta aparente (AR) está dada con argumento 0^h de TT, deberá interpolarse por el TT que resulte para el ángulo horario local dado.

$TT = AHL + L + \Delta T + PE$ PE = Tránsito de efemérides del Sol

AHL =	$5^h\ 02^m\ 20^s.20$
L =	$3\ 53\ 25^s.194$
ΔT =	+ 69^s
PE =	12 03 47
TT =	$21^h\ 00^m\ 41^s$
TT =	$0^d.875$
TT^2 =	$0^d.766$

AR =	$18^h\ 51^m\ 40^s.78$
½($\Delta 1 + \Delta{-1}$) TT =	+ 3 51.6
½($\Delta 1 - \Delta{-1}$) TT^2 =	- 0.12
AR =	$18^h\ 55^m\ 32^s.26$
AHL =	5 02 20 .20
TSL =	$23^h\ 57^m\ 52^s.46$

TT y TT^2 son los coeficientes presentes en la fórmula de interpolación utilizada.

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DATOS ASTRONOMICOS

Paralaje solar	8″.794 148
Constante de nutación	9″.2025 (J2000.0)
Constante de aberración	20″.49552 (J2000.0)
Precesión anual general época J2007.5	p = 0°.0139693
Oblicuidad media de la eclíptica época J2007.5	ε = 23° 26'17″.93
Precesión anual en ascensión recta época J2007.5	m = 0°.0128121
Precesión anual en declinación época J2007.5	n = 0°.0055670
Velocidad de la luz	c = 299 792 458 m/s
Longitud de la unidad astronómica	1UA = 1.49597870 x 10^{11} m
Duración del día sidéreo medio	23^h 56^m 04^s.09053 de tiempo solar medio
Duración del día solar medio	24^h 03^m 56^s.55537 de tiempo sidéreo medio

FORMA Y DIMENSIONES DE LA TIERRA

Radio ecuatorial (UAI 1976, UIGG)	a = 6 378 140 m
Factor de aplanamiento	f = 0.00335281 = 1 / 298.257
Reducción de la latitud geográfica ϕ a la latitud geocéntrica ϕ'	$\phi' - \phi = -11'32''.74 \operatorname{sen} 2\phi + 1''.16 \operatorname{sen} 4\phi$
Radio geocéntrico	$R = a\,(0.9983271 + 0.0016764 \cos 2\phi - 0.0000035 \cos 4\phi)$
Aceleración de la gravedad (en cm/s^2)	$g = 978.0318\,(1 + 0.0053024 \operatorname{sen}^2 \phi - 0.0000059 \operatorname{sen}^2 2\phi)$
Corrección de g (en cm/s) por elevación H (en metros)	$c = -(0.00030855 + 0.00000022 \cos 2\phi)H + 0.000072\,(H/1000)^2$

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ECUACIÓN DE TIEMPO 2024 (Aparente – Medio) Para 0h Tiempo Universal

Fecha		E de T	Δ (E de T)	Fecha		E de T	Δ (E de T)
		m s	s			m s	s
Enero	1	- 3 04.754	-28.337	**Marzo**	1	-12 17.886	+11.986
	2	- 3 33.091	-28.030		2	-12 05.900	+12.453
	3	- 4 01.121	-27.694		3	-11 53.447	+12.901
	4	- 4 28.815	-27.327		4	-11 40.546	+13.329
	5	- 4 56.142	-26.933		5	-11 27.218	+13.740
	6	- 5 23.075	-26.510		6	-11 13.478	+14.130
	7	- 5 49.586	-26.057		7	-10 59.348	+14.506
	8	- 6 15.643	-25.576		8	-10 44.842	+14.864
	9	- 6 41.219	-25.066		9	-10 29.978	+15.206
	10	- 7 06.285	-24.525		10	-10 14.772	+15.533
	11	- 7 30.810	-23.957		11	- 9 59.239	+15.846
	12	- 7 54.767	-23.358		12	- 9 43.392	+16.143
	13	- 8 18.125	-22.733		13	- 9 27.249	+16.424
	14	- 8 40.858	-22.081		14	- 9 10.825	+16.686
	15	- 9 02.939	-21.407		15	- 8 54.139	+16.931
	16	- 9 24.345	-20.710		16	- 8 37.208	+17.155
	17	- 9 45.055	-19.996		17	- 8 20.053	+17.357
	18	-10 05.051	-19.265		18	- 8 02.696	+17.541
	19	-10 24.317	-18.523		19	- 7 45.155	+17.701
	20	-10 42.839	-17.766		20	- 7 27.454	+17.839
	21	-11 00.606	-17.001		21	- 7 09.614	+17.956
	22	-11 17.606	-16.227		22	- 6 51.659	+18.048
	23	-11 33.833	-15.446		23	- 6 33.611	+18.119
	24	-11 49.280	-14.659		24	- 6 15.491	+18.167
	25	-12 03.939	-13.867		25	- 5 57.324	+18.191
	26	-12 17.806	-13.072		26	- 5 39.133	+18.193
	27	-12 30.878	-12.275		27	- 5 20.940	+18.172
	28	-12 43.153	-11.475		28	- 5 02.768	+18.128
	29	-12 54.629	-10.675		29	- 4 44.640	+18.062
	30	-13 05.303	-09.874		30	- 4 26.578	+17.974
	31	-13 15.178	-09.073		31	- 4 08.604	+17.864
Febreo	1	-13 24.251	-08.273	**Abril**	1	- 3 50.739	+17.734
	2	-13 32.524	-07.476		2	- 3 33.005	+17.585
	3	-13 40.000	-06.679		3	- 3 15.420	+17.415
	4	-13 46.679	-05.886		4	- 2 58.005	+17.227
	5	-13 52.565	-05.093		5	- 2 40.778	+17.024
	6	-13 57.658	-04.304		6	- 2 23.755	+16.804
	7	-14 01.962	-03.517		7	- 2 06.951	+16.570
	8	-14 05.479	-02.732		8	- 1 50.380	+16.324
	9	-14 08.211	-01.947		9	- 1 34.057	+16.064
	10	-14 10.158	-01.165		10	- 1 17.993	+15.793
	11	-14 11.322	-00.386		11	- 1 02.199	+15.510
	12	-14 11.709	+00.390		12	- 0 46.690	+15.212
	13	-14 11.319	+01.158		13	- 0 31.477	+14.901
	14	-14 10.161	+01.919		14	- 0 16.576	+14.576
	15	-14 08.241	+02.671		15	- 0 02.000	+14.237
	16	-14 05.571	+03.409		16	+ 0 12.237	+13.880
	17	-14 02.162	+04.135		17	+ 0 26.117	+13.512
	18	-13 58.026	+04.845		18	+ 0 39.629	+13.125
	19	-13 53.181	+05.542		19	+ 0 52.754	+12.724
	20	-13 47.639	+06.221		20	+ 1 05.478	+12.309
	21	-13 41.418	+06.884		21	+ 1 17.787	+11.878
	22	-13 34.535	+07.527		22	+ 1 29.665	+11.432
	23	-13 27.008	+08.153		23	+ 1 41.096	+10.971
	24	-13 18.855	+08.760		24	+ 1 52.067	+10.496
	25	-13 10.095	+09.347		25	+ 2 02.563	+10.006
	26	-13 00.748	+09.914		26	+ 2 12.569	+09.505
	27	-12 50.834	+10.462		27	+ 2 22.075	+08.989
	28	-12 40.372	+10.990		28	+ 2 31.064	+08.463
	29	-12 29.382	+11.497		29	+ 2 39.526	+07.924
					30	+ 2 47.450	+07.375

ECUACIÓN DE TIEMPO 2024 (Aparente – Medio) Para 0h Tiempo Universal

Fecha		E de T	Δ (E de T)	Fecha		E de T	Δ (E de T)
		m s	s			m s	s
Mayo	1	+ 2 54.825	+06.818	**Julio**	1	- 3 53.326	-11.464
	2	+ 3 01.643	+06.253		2	- 4 04.790	-11.197
	3	+ 3 07.896	+05.683		3	- 4 15.987	-10.903
	4	+ 3 13.578	+05.108		4	- 4 26.890	-10.585
	5	+ 3 18.686	+04.532		5	- 4 37.475	-10.243
	6	+ 3 23.218	+03.955		6	- 4 47.718	-09.877
	7	+ 3 27.174	+03.382		7	- 4 57.594	-09.488
	8	+ 3 30.555	+02.809		8	- 5 07.082	-09.076
	9	+ 3 33.364	+02.240		9	- 5 16.157	-08.644
	10	+ 3 35.604	+01.675		10	- 5 24.802	-08.195
	11	+ 3 37.279	+01.115		11	- 5 32.997	-07.727
	12	+ 3 38.395	+00.557		12	- 5 40.723	-07.241
	13	+ 3 38.951	+00.003		13	- 5 47.965	-06.742
	14	+ 3 38.954	-00.548		14	- 5 54.707	-06.228
	15	+ 3 38.406	-01.095		15	- 6 00.935	-05.702
	16	+ 3 37.311	-01.639		16	- 6 06.637	-05.165
	17	+ 3 35.672	-02.177		17	- 6 11.802	-04.618
	18	+ 3 33.495	-02.714		18	- 6 16.420	-04.062
	19	+ 3 30.781	-03.245		19	- 6 20.483	-03.500
	20	+ 3 27.535	-03.771		20	- 6 23.983	-02.934
	21	+ 3 23.765	-04.291		21	- 6 26.917	-02.362
	22	+ 3 19.473	-04.806		22	- 6 29.279	-01.788
	23	+ 3 14.667	-05.316		23	- 6 31.067	-01.212
	24	+ 3 09.351	-05.819		24	- 6 32.280	-00.636
	25	+ 3 03.532	-06.314		25	- 6 32.915	-00.058
	26	+ 2 57.218	-06.802		26	- 6 32.974	+00.521
	27	+ 2 50.417	-07.281		27	- 6 32.452	+01.104
	28	+ 2 43.135	-07.751		28	- 6 31.348	+01.686
	29	+ 2 35.385	-08.208		29	- 6 29.662	+02.274
	30	+ 2 27.177	-08.652		30	- 6 27.388	+02.864
	31	+ 2 18.524	-09.083		31	- 6 24.525	+03.456
Junio	1	+ 2 09.441	-09.497	**Agosto**	1	- 6 21.069	+04.053
	2	+ 1 59.944	-09.893		2	- 6 17.016	+04.651
	3	+ 1 50.052	-10.267		3	- 6 12.365	+05.251
	4	+ 1 39.785	-10.620		4	- 6 07.114	+05.854
	5	+ 1 29.164	-10.947		5	- 6 01.259	+06.456
	6	+ 1 18.217	-11.253		6	- 5 54.803	+07.058
	7	+ 1 06.964	-11.531		7	- 5 47.745	+07.657
	8	+ 0 55.433	-11.786		8	- 5 40.088	+08.255
	9	+ 0 43.647	-12.013		9	- 5 31.833	+08.846
	10	+ 0 31.634	-12.217		10	- 5 22.987	+09.435
	11	+ 0 19.417	-12.397		11	- 5 13.552	+10.015
	12	+ 0 07.019	-12.554		12	- 5 03.538	+10.590
	13	- 0 05.534	-12.686		13	- 4 52.948	+11.154
	14	- 0 18.220	-12.796		14	- 4 41.794	+11.710
	15	- 0 31.016	-12.882		15	- 4 30.084	+12.255
	16	- 0 43.898	-12.946		16	- 4 17.829	+12.788
	17	- 0 56.844	-12.989		17	- 4 05.041	+13.307
	18	- 1 09.833	-13.010		18	- 3 51.734	+13.812
	19	- 1 22.843	-13.010		19	- 3 37.922	+14.300
	20	- 1 35.853	-12.989		20	- 3 23.622	+14.772
	21	- 1 48.842	-12.948		21	- 3 08.850	+15.226
	22	- 2 01.790	-12.888		22	- 2 53.624	+15.662
	23	- 2 14.678	-12.811		23	- 2 37.962	+16.080
	24	- 2 27.489	-12.712		24	- 2 21.883	+16.482
	25	- 2 40.200	-12.596		25	- 2 05.400	+16.869
	26	- 2 52.796	-12.460		26	- 1 48.531	+17.240
	27	- 3 05.256	-12.304		27	- 1 31.291	+17.597
	28	- 3 17.560	-12.128		28	- 1 13.695	+17.940
	29	- 3 29.688	-11.930		29	- 0 55.755	+18.268
	30	- 3 41.617	-11.709		30	- 0 37.487	+18.585
					31	- 0 18.902	+18.886

ECUACIÓN DE TIEMPO 2024 (Aparente – Medio) Para 0h Tiempo Universal

Fecha	E de T	Δ (E de T)	Fecha	E de T	Δ (E de T)
	m s	s		m s	s
Septiembre 1	- 0 00.016	+19.174	**Noviembre** 1	+16 25.966	+01.021
2	+ 0 19.158	+19.448	2	+16 26.988	+00.213
3	+ 0 38.606	+19.707	3	+16 27.201	-00.601
4	+ 0 58.313	+19.953	4	+16 26.600	-01.419
5	+ 1 18.266	+20.182	5	+16 25.182	-02.237
6	+ 1 38.448	+20.395	6	+16 22.944	-03.061
7	+ 1 58.843	+20.593	7	+16 19.883	-03.884
8	+ 2 19.437	+20.773	8	+16 15.998	-04.711
9	+ 2 40.209	+20.937	9	+16 11.287	-05.537
10	+ 3 01.146	+21.081	10	+16 05.750	-06.366
11	+ 3 22.228	+21.209	11	+15 59.384	-07.196
12	+ 3 43.437	+21.317	12	+15 52.189	-08.028
13	+ 4 04.754	+21.404	13	+15 44.161	-08.861
14	+ 4 26.158	+21.472	14	+15 35.300	-09.698
15	+ 4 47.630	+21.516	15	+15 25.602	-10.535
16	+ 5 09.147	+21.538	16	+15 15.067	-11.374
17	+ 5 30.685	+21.536	17	+15 03.692	-12.213
18	+ 5 52.221	+21.509	18	+14 51.479	-13.050
19	+ 6 13.730	+21.455	19	+14 38.430	-13.883
20	+ 6 35.186	+21.379	20	+14 24.546	-14.708
21	+ 6 56.564	+21.276	21	+14 09.838	-15.529
22	+ 7 17.841	+21.152	22	+13 54.309	-16.337
23	+ 7 38.992	+21.006	23	+13 37.972	-17.135
24	+ 7 59.998	+20.838	24	+13 20.837	-17.918
25	+ 8 20.837	+20.650	25	+13 02.920	-18.687
26	+ 8 41.486	+20.443	26	+12 44.232	-19.440
27	+ 9 01.929	+20.217	27	+12 24.793	-20.173
28	+ 9 22.146	+19.973	28	+12 04.620	-20.886
29	+ 9 42.119	+19.709	29	+11 43.734	-21.578
30	+10 01.829	+19.428	30	+11 22.156	-22.247
Octubre 1	+10 21.257	+19.129	**Diciembre** 1	+10 59.910	-22.890
2	+10 40.386	+18.813	2	+10 37.020	-23.508
3	+10 59.200	+18.480	3	+10 13.512	-24.097
4	+11 17.679	+18.129	4	+ 9 49.415	-24.659
5	+11 35.808	+17.760	5	+ 9 24.757	-25.190
6	+11 53.568	+17.376	6	+ 8 59.566	-25.693
7	+12 10.944	+16.973	7	+ 8 33.873	-26.167
8	+12 27.917	+16.553	8	+ 8 07.706	-26.609
9	+12 44.469	+16.117	9	+ 7 41.097	-27.024
10	+13 00.586	+15.662	10	+ 7 14.073	-27.411
11	+13 16.248	+15.189	11	+ 6 46.662	-27.769
12	+13 31.437	+14.698	12	+ 6 18.893	-28.099
13	+13 46.135	+14.187	13	+ 5 50.795	-28.402
14	+14 00.322	+13.658	14	+ 5 22.393	-28.678
15	+14 13.980	+13.105	15	+ 4 53.715	-28.928
16	+14 27.085	+12.533	16	+ 4 24.787	-29.150
17	+14 39.618	+11.937	17	+ 3 55.637	-29.341
18	+14 51.555	+11.321	18	+ 3 26.296	-29.505
19	+15 02.876	+10.681	19	+ 2 56.791	-29.637
20	+15 13.557	+10.023	20	+ 2 27.154	-29.736
21	+15 23.580	+09.346	21	+ 1 57.418	-29.805
22	+15 32.926	+08.652	22	+ 1 27.613	-29.839
23	+15 41.578	+07.941	23	+ 0 57.774	-29.839
24	+15 49.519	+07.217	24	+ 0 27.935	-29.805
25	+15 56.737	+06.478	25	- 0 01.869	-29.735
26	+16 03.215	+05.729	26	- 0 31.605	-29.630
27	+16 08.944	+04.967	27	- 1 01.235	-29.489
28	+16 13.910	+04.194	28	- 1 30.724	-29.312
29	+16 18.105	+03.413	29	- 2 00.036	-29.098
30	+16 21.518	+02.622	30	- 2 29.134	-28.849
31	+16 24.140	+01.826	31	- 2 57.983	-28.562

VOLVER AL INDICE

ECLIPSES DE SOL Y LUNA 2024

Los eclipses de Luna son visibles para cualquier observador que tenga la Luna sobre el horizonte durante el período en que se manifiesta el fenómeno. No ocurre lo mismo con los eclipses de Sol, que pueden observarse en las zonas de la superficie terrestre que se detallan a continuación.

Marzo 25: eclipse Penumbral de Luna. Comienza a las 04 horas 53 minutos UT y finaliza a las 09 horas 32 minutos UT. La hora del eclipse máximo es a las 07 horas 14 UT y tiene una duración total de 04 horas 39 minutos. Es visible en todo el continente Americano.

Abril 08: eclipse Total de Sol. El eclipse comienza a las 16 horas 38 minutos UT y finaliza a las 19 horas 55 minutos UT. Hora del máximo del eclipse es a las 18 horas 17 minutos UT. La duración máxima de la totalidad es de 04 minutos 28 segundos. La magnitud del eclipse es 1.057. Es visible desde Norteamérica y Centroamérica. La fase total se observa en México, centro de Estados Unidos y este de Canadá.

Septiembre *18: eclipse Parcial de Luna.* Comienza a la 00 hora 41 minutos UT y finaliza a las 04 horas 47 minutos UT. El máximo del eclipse parcial es a las 02 horas 45 minutos UT. Es visible en toda América, Europa y África.

Octubre 02: eclipse Anular Sol. Comienza a las 16 horas 50 minutos UT y finaliza a las 20 horas 39 minutos UT. La fase anular comienza a las 16 horas 56 minutos y finaliza a las 20 horas 39 minutos UT. Hora del máximo del eclipse es a las 18 horas 45 minutos. La duración máxima de anularidad es de 07 minutos 25 segundos. La magnitud del eclipse es 0.9. Es visible en el Océano Pacífico y sur de Sudamérica. La fase anular del eclipse es vista en el sur de Chile y sur de Argentina.

EQUINOCCIOS Y SOLSTICIOS 2024

EQUINOCCIOS EN UT	SOLSTICIOS EN UT
Marzo $20^{d}\ 03^{h}\ 06^{m}$	**Junio** $20^{d}\ 20^{h}\ 51^{m}$
Septiembre $22^{d}\ 12^{h}\ 44^{m}$	**Diciembre** $21^{d}\ 09^{h}\ 21^{m}$

FASES DE LA LUNA PARA EL AÑO 2024 EN UT

NUEVA

d	h	m
Ene.11	11:57	
Feb.09	22:59	
Mar.10	09:00	
Abr.08	18:21	
May.08	03:22	
Jun.06	12:38	
Jul.05	22:57	
Ago.04	11:13	
Sep.03	01:55	
Oct.02	18:49	
Nov.01	12:47	
Dic.01	06:21	
Dic.30	22:27	

CRECIENTE

d	h	m
Ene.18	03:53	
Feb.16	15:01	
Mar.17	04:11	
Abr.15	19:13	
May.15	11:48	
Jun.14	05:18	
Jul.13	22:49	
Ago.12	15:19	
Sep.11	06:06	
Oct.10	18:55	
Nov.09	05:55	
Dic.08	15:27	

LLENA

d	h	m
Ene.25	17:54	
Feb.24	12:30	
Mar.25	07:00	
Abr.23	23:49	
May.23	13:53	
Jun.22	01:08	
Jul.21	10:17	
Ago.19	18:26	
Sep.18	02:34	
Oct.17	11:26	
Nov.15	21:28	
Dic.15	09:02	

MENGUANTE

d	h	m
Ene.04	03:30	
Feb.02	23:18	
Mar.03	15:23	
Abr.02	03:15	
May.01	11:27	
May.30	17:13	
Jun.28	21:53	
Jul.28	02:51	
Ago.26	09:26	
Sep.24	18:50	
Oct.24	08:03	
Nov.23	01:28	
Dic.22	22:18	

VOLVER AL INDICE

LUNA 2024
PARA 0^h DE TIEMPO TERRESTRE

Fecha 0^h TT		Asc. Recta Aparente	Declinación Aparente	Semi Diámetro	Tránsito Superior	Tránsito Inferior
		h m s	° ' "	' "	h	h
Enero	01	10 36 26.320	+12 37 53.61	14 45.5	4.0422	16.3777
	02	11 19 28.087	+ 7 21 58.57	14 45.2	4.7073	17.0331
	03	12 1 29.129	+ 1 50 46.81	14 47.5	5.3577	17.6837
	04	12 43 33.136	- 3 46 38.34	14 52.6	6.0135	18.3500
	05	13 26 47.448	- 9 21 4.89	15 00.5	6.6958	19.0537
	06	14 12 22.057	-14 41 43.27	15 11.0	7.4265	19.8168
	07	15 1 25.838	-19 34 33.92	15 23.7	8.2270	20.6590
	08	15 54 55.746	-23 41 17.46	15 37.6	9.1136	21.5907
	09	16 53 15.400	-26 39 27.84	15 52.0	10.0885	22.6034
	10	17 55 47.281	-28 5 37.35	16 05.4	11.1303	23.6629
	11	19 0 39.850	-27 41 49.12	16 16.8	12.1943	-------
	12	20 5 16.801	-25 22 59.65	16 24.8	13.2294	0.7182
	13	21 7 20.943	-21 19 57.75	16 28.8	14.2018	1.7245
	14	22 5 43.594	-15 55 41.32	16 28.6	15.1037	2.6611
	15	23 0 28.667	- 9 38 14.78	16 24.5	15.9472	3.5315
	16	23 52 27.719	- 2 55 5.21	16 17.4	16.7542	4.3538
	17	0 42 53.259	+ 3 49 37.53	16 08.3	17.5489	5.1516
	18	1 33 1.033	+10 15 16.08	15 58.1	18.3537	5.9488
	19	2 23 59.021	+16 3 52.23	15 47.7	19.1865	6.7658
	20	3 16 37.891	+20 59 9.86	15 37.6	20.0566	7.6167
	21	4 11 19.901	+24 46 22.18	15 28.1	20.9614	8.5054
	22	5 7 48.349	+27 13 12.43	15 19.3	21.8841	9.4220
	23	6 5 5.460	+28 11 58.90	15 11.4	22.7982	10.3440
	24	7 1 46.852	+27 41 39.21	15 04.2	23.6767	11.2433
	25	7 56 29.759	+25 48 22.82	14 57.8	-------	12.0966
	26	8 48 19.282	+22 43 55.03	14 52.4	0.5020	12.8926
	27	9 36 58.854	+18 42 46.75	14 47.9	1.2691	13.6324
	28	10 22 45.208	+13 59 38.49	14 44.8	1.9841	14.3258
	29	11 6 17.110	+ 8 47 48.90	14 43.2	2.6595	14.9874
	30	11 48 25.558	+ 3 18 49.10	14 43.6	3.3116	15.6345
	31	12 30 8.024	- 2 17 16.59	14 46.1	3.9585	16.2858
Febrero	01	13 12 26.067	- 7 51 1.56	14 51.1	4.6191	16.9610
	02	13 56 24.441	-13 12 29.74	14 58.6	5.3140	17.6807
	03	14 43 9.257	-18 9 56.97	15 08.8	6.0637	18.4653
	04	15 33 41.974	-22 28 33.60	15 21.4	6.8872	19.3308
	05	16 28 45.459	-25 49 41.28	15 36.0	7.7961	20.2820
	06	17 28 21.128	-27 51 49.46	15 51.6	8.7859	21.3034
	07	18 31 26.834	-28 14 25.57	16 07.2	9.8291	22.3569
	08	19 35 58.987	-26 44 26.09	16 21.3	10.8808	23.3955
	09	20 39 34.326	-23 22 15.13	16 32.4	11.8973	-------
	10	21 40 27.599	-18 22 58.27	16 39.1	12.8547	0.3839
	11	22 38 1.935	-12 12 14.40	16 40.6	13.7523	1.3103
	12	23 32 40.710	- 5 20 4.80	16 36.9	14.6051	2.1830
	13	0 25 22.251	+ 1 44 4.24	16 28.7	15.4350	3.0215
	14	1 17 17.026	+ 8 33 59.86	16 17.2	16.2641	3.8483
	15	2 9 32.052	+14 47 26.51	16 03.8	17.1109	4.6843
	16	3 2 59.221	+20 5 49.21	15 49.9	17.9866	5.5448
	17	3 58 4.255	+24 13 53.29	15 36.4	18.8913	6.4358
	18	4 54 37.108	+27 0 3.78	15 24.0	19.8124	7.3511
	19	5 51 49.830	+28 17 33.26	15 13.2	20.7272	8.2722
	20	6 48 28.520	+28 5 37.58	15 04.2	21.6110	9.1744
	21	7 43 17.633	+26 29 51.71	14 56.8	22.4459	10.0353
	22	8 35 24.010	+23 40 52.53	14 51.0	23.2249	10.8423
	23	9 24 28.188	+19 52 2.83	14 46.7	23.9518	11.5943
	24	10 10 41.717	+15 17 22.38	14 43.8	-------	12.2987
	25	10 54 37.708	+10 10 6.78	14 42.2	0.6369	12.9683
	26	11 37 1.672	+ 4 42 17.82	14 42.1	1.2947	13.6184
	27	12 18 45.580	- 0 55 9.51	14 43.4	1.9414	14.2658
	28	13 0 45.005	- 6 31 57.66	14 46.4	2.5940	14.9283
	29	13 43 57.898	-11 57 42.98	14 51.3	3.2708	15.6240

LUNA 2024
PARA 0^h DE TIEMPO TERRESTRE

Fecha 0^h TT		Asc. Recta Aparente	Declinación Aparente	Semi Diámetro	Tránsito Superior	Tránsito Inferior
		h m s	° ' "	' "	h	h
Marzo	01	14 29 23.133	-17 1 2.69	14 58.2	3.9900	16.3711
	02	15 17 56.477	-21 28 39.41	15 07.4	4.7691	17.1854
	03	16 10 21.298	-25 4 41.82	15 18.8	5.6210	18.0757
	04	17 6 52.599	-27 31 0.16	15 32.1	6.5483	19.0366
	05	18 6 58.773	-28 29 8.21	15 46.9	7.5370	20.0450
	06	19 9 15.233	-27 44 32.73	16 02.4	8.5555	21.0638
	07	20 11 45.489	-25 11 30.73	16 17.3	9.5655	22.0575
	08	21 12 44.523	-20 56 9.67	16 30.2	10.5378	23.0057
	09	22 11 15.328	-15 15 48.17	16 39.4	11.4618	23.9074
	10	23 7 17.030	- 8 35 35.14	16 43.8	12.3444	-------
	11	0 1 30.263	- 1 24 32.27	16 42.7	13.2028	0.7754
	12	0 54 56.397	+ 5 47 44.85	16 36.1	14.0578	1.6295
	13	1 48 39.676	+12 33 29.53	16 25.1	14.9283	2.4901
	14	2 43 32.520	+18 28 16.86	16 11.1	15.8266	3.3735
	15	3 40 1.829	+23 12 6.15	15 55.6	16.7541	4.2871
	16	4 37 57.397	+26 30 21.20	15 40.0	17.6986	5.2255
	17	5 36 28.883	+28 15 0.73	15 25.5	18.6369	6.1702
	18	6 34 18.563	+28 25 28.70	15 12.8	19.5428	7.0954
	19	7 30 7.646	+27 8 9.12	15 02.3	20.3969	7.9771
	20	8 23 1.834	+24 34 28.07	14 54.1	21.1918	8.8018
	21	9 12 42.595	+20 58 13.09	14 48.1	21.9309	9.5678
	22	9 59 23.373	+16 33 20.87	14 44.3	22.6249	10.2827
	23	10 43 39.010	+11 32 48.02	14 42.3	23.2882	10.9594
	24	11 26 15.933	+ 6 8 17.74	14 42.1	23.9369	11.6134
	25	12 8 5.918	+ 0 30 39.72	14 43.3	-------	12.2610
	26	12 50 3.091	- 5 9 35.31	14 45.9	0.5878	12.9193
	27	13 33 2.578	-10 41 36.32	14 49.9	1.2578	13.6053
	28	14 17 59.035	-15 53 32.27	14 55.1	1.9640	14.3358
	29	15 5 43.019	-20 31 57.20	15 01.8	2.7223	15.1250
	30	15 56 53.183	-24 21 32.86	15 10.0	3.5446	15.9814
	31	16 51 43.423	-27 5 34.67	15 19.7	4.4345	16.9022
Abril	01	17 49 48.593	-28 27 33.18	15 30.8	5.3819	17.8698
	02	18 49 59.290	-28 14 19.73	15 43.3	6.3620	18.8541
	03	19 50 37.438	-26 19 39.62	15 56.5	7.3424	19.8236
	04	20 50 10.271	-22 46 23.60	16 09.7	8.2956	20.7574
	05	21 47 42.203	-17 46 12.85	16 21.7	9.2088	21.6509
	06	22 43 6.203	-11 37 41.11	16 31.3	10.0852	22.5138
	07	23 36 55.478	- 4 44 3.10	16 37.2	10.9392	23.3639
	08	0 30 7.274	+ 2 28 27.92	16 38.4	11.7907	-------
	09	1 23 46.941	+ 9 32 6.01	16 34.6	12.6603	0.2221
	10	2 18 53.173	+15 59 8.49	16 26.0	13.5638	1.1072
	11	3 16 2.174	+21 23 57.29	16 13.8	14.5066	2.0305
	12	4 15 11.240	+25 25 30.15	15 59.2	15.4790	2.9904
	13	5 15 29.310	+27 50 8.00	15 43.7	16.4557	3.9688
	14	6 15 26.440	+28 33 43.21	15 28.7	17.4044	4.9354
	15	7 13 24.436	+27 41 43.40	15 15.1	18.2987	5.8594
	16	8 8 11.537	+25 26 38.43	15 03.7	19.1263	6.7210
	17	8 59 19.847	+22 4 6.95	14 54.8	19.8891	7.5153
	18	9 47 1.508	+17 49 40.64	14 48.5	20.5984	8.2495
	19	10 31 54.785	+12 57 5.47	14 44.8	21.2699	8.9378
	20	11 14 51.048	+ 7 38 8.81	14 43.5	21.9212	9.5970
	21	11 56 46.742	+ 2 3 15.26	14 44.3	22.5702	10.2449
	22	12 38 39.720	- 3 37 38.99	14 46.9	23.2347	10.8994
	23	13 21 27.837	- 9 14 9.48	14 51.1	23.9325	11.5784
	24	14 6 7.620	-14 34 32.32	14 56.4	-------	12.2990
	25	14 53 30.829	-19 25 6.03	15 02.7	0.6798	13.0763
	26	15 44 16.744	-23 30 0.13	15 09.8	1.4893	13.9192
	27	16 38 39.351	-26 31 55.25	15 17.6	2.3654	14.8262
	28	17 36 13.014	-28 14 2.16	15 26.1	3.2991	15.7806
	29	18 35 47.284	-28 23 18.32	15 35.1	4.2665	16.7526
	30	19 35 42.660	-26 53 53.29	15 44.7	5.2348	17.7098

LUNA 2024
PARA 0^h DE TIEMPO TERRESTRE

Fecha 0^h TT		Asc. Recta Aparente	Declinación Aparente	Semi Diámetro	Tránsito Superior	Tránsito Inferior
		h m s	° ' "	' "	h	h
Mayo	01	20 34 24.864	-23 48 49.12	15 54.5	6.1752	18.6298
	02	21 30 56.913	-19 19 1.68	16 04.1	7.0732	19.5063
	03	22 25 10.633	-13 40 48.80	16 13.0	7.9304	20.3475
	04	23 17 38.707	- 7 13 35.37	16 20.3	8.7602	21.1712
	05	0 9 19.355	- 0 18 48.50	16 25.2	9.5832	21.9991
	06	1 1 22.060	+ 6 40 14.06	16 26.7	10.4215	22.8531
	07	1 54 55.026	+13 18 30.13	16 24.5	11.2957	23.7507
	08	2 50 51.000	+19 10 1.01	16 18.3	12.2185	-------
	09	3 49 28.987	+23 49 56.98	16 08.7	13.1888	0.6986
	10	4 50 16.337	+26 58 10.56	15 56.5	14.1864	1.6862
	11	5 51 45.651	+28 23 26.41	15 43.0	15.1757	2.6845
	12	6 51 59.911	+28 5 56.75	15 29.2	16.1199	3.6553
	13	7 49 16.502	+26 16 16.84	15 16.3	16.9957	4.5671
	14	8 42 40.275	+23 11 5.56	15 05.1	17.7978	5.4057
	15	9 32 8.149	+19 8 14.73	14 56.2	18.5349	6.1736
	16	10 18 14.212	+14 23 43.82	14 49.9	19.2229	6.8839
	17	11 1 52.030	+ 9 10 42.92	14 46.4	19.8810	7.5545
	18	11 44 2.747	+ 3 39 59.79	14 45.7	20.5285	8.2048
	19	12 25 49.423	- 1 58 55.56	14 47.4	21.1850	8.8544
	20	13 8 15.110	- 7 36 35.76	14 51.4	21.8699	9.5227
	21	13 52 21.888	-13 2 22.86	14 57.2	22.6017	10.2289
	22	14 39 8.220	-18 3 25.88	15 04.4	23.3960	10.9902
	23	15 29 21.925	-22 24 4.76	15 12.4	-------	11.8197
	24	16 23 26.855	-25 46 10.99	15 20.9	0.2613	12.7197
	25	17 21 5.559	-27 51 4.59	15 29.4	1.1926	13.6767
	26	18 21 8.814	-28 23 20.81	15 37.6	2.1675	14.6603
	27	19 21 47.910	-27 15 15.63	15 45.2	3.1503	15.6332
	28	20 21 12.005	-24 29 18.52	15 52.3	4.1059	16.5661
	29	21 18 7.975	-20 17 11.63	15 58.6	5.0132	17.4474
	30	22 12 17.385	-14 56 20.08	16 04.1	5.8699	18.2826
	31	23 4 8.793	- 8 46 26.10	16 08.6	6.6879	19.0885
Junio	01	23 54 40.284	- 2 7 39.79	16 11.8	7.4873	19.8873
	02	0 45 3.873	+ 4 39 34.83	16 13.4	8.2914	20.7026
	03	1 36 33.883	+11 14 5.46	16 13.0	9.1234	21.5560
	04	2 30 15.694	+17 13 22.77	16 10.1	10.0020	22.4621
	05	3 26 50.416	+22 14 9.13	16 04.8	10.9359	23.4216
	06	4 26 15.188	+25 54 30.52	15 57.0	11.9163	-------
	07	5 27 28.709	+27 57 58.45	15 47.3	12.9148	0.4157
	08	6 28 39.991	+28 17 53.87	15 36.3	13.8915	1.4084
	09	7 27 46.864	+26 59 19.40	15 24.8	14.8116	2.3602
	10	8 23 21.478	+24 16 35.55	15 13.8	15.6581	3.2444
	11	9 14 51.985	+20 28 16.03	15 03.9	16.4317	4.0534
	12	10 2 35.423	+15 52 32.56	14 55.9	17.1454	4.7950
	13	10 47 18.624	+10 44 52.62	14 50.3	17.8173	5.4853
	14	11 30 1.992	+ 5 17 38.53	14 47.3	18.4677	6.1439
	15	12 11 50.488	- 0 19 4.82	14 47.1	19.1168	6.7911
	16	12 53 50.144	- 5 56 14.17	14 49.7	19.7851	7.4472
	17	13 37 7.059	-11 24 24.19	14 54.8	20.4930	8.1329
	18	14 22 45.945	-16 32 25.37	15 02.2	21.2595	8.8679
	19	15 11 45.177	-21 6 15.57	15 11.4	22.0988	9.6695
	20	16 4 45.265	-24 48 32.67	15 21.6	23.0141	10.5474
	21	17 1 50.129	-27 19 36.95	15 32.2	23.9908	11.4965
	22	18 2 8.733	-28 20 51.52	15 42.4	-------	12.4921
	23	19 3 55.319	-27 39 57.53	15 51.6	0.9950	13.4943
	24	20 5 1.787	-25 15 30.03	15 59.2	1.9851	14.4642
	25	21 3 46.752	-21 17 45.29	16 04.9	2.9293	15.3797
	26	21 59 26.726	-16 5 18.89	16 08.5	3.8157	16.2389
	27	22 52 15.262	-10 0 20.85	16 10.2	4.6512	17.0552
	28	23 43 4.134	- 3 25 11.13	16 10.2	5.4538	17.8500
	29	0 33 4.010	+ 3 18 58.84	16 08.7	6.2467	18.6470
	30	1 23 30.757	+ 9 51 54.44	16 05.8	7.0538	19.4695

LUNA 2024
PARA 0^h DE TIEMPO TERRESTRE

Fecha 0^h TT		Asc. Recta Aparente	Declinación Aparente	Semi Diámetro	Tránsito Superior	Tránsito Inferior
		h m s	° ' "	' "	h	h
Julio	01	2 15 34.966	+15 53 31.31	16 01.8	7.8963	20.3358
	02	3 10 9.815	+21 3 27.28	15 56.6	8.7887	21.2547
	03	4 7 34.453	+25 1 44.90	15 50.3	9.7322	22.2185
	04	5 7 17.160	+27 31 21.39	15 42.8	10.7096	23.2010
	05	6 7 52.187	+28 22 2.27	15 34.5	11.6877	-------
	06	7 7 23.639	+27 33 35.12	15 25.5	12.6289	0.1649
	07	8 4 8.284	+25 15 52.71	15 16.4	13.5070	1.0768
	08	8 57 8.749	+21 45 25.97	15 07.5	14.3134	1.9190
	09	9 46 19.303	+17 20 45.64	14 59.6	15.0543	2.6912
	10	10 32 11.975	+12 18 58.10	14 53.1	15.7448	3.4048
	11	11 15 39.306	+ 6 54 20.57	14 48.6	16.4034	4.0769
	12	11 57 42.506	+ 1 18 26.36	14 46.4	17.0498	4.7269
	13	12 39 25.794	- 4 19 1.99	14 46.8	17.7042	5.3747
	14	13 21 54.543	- 9 48 58.77	14 50.0	18.3869	6.0407
	15	14 6 14.422	-15 1 33.62	14 56.0	19.1182	6.7453
	16	14 53 28.665	-19 44 50.96	15 04.5	19.9159	7.5078
	17	15 44 30.265	-23 43 47.76	15 15.2	20.7914	8.3437
	18	16 39 46.475	-26 40 7.90	15 27.5	21.7417	9.2581
	19	17 38 57.882	-28 14 12.43	15 40.5	22.7438	10.2385
	20	18 40 45.385	-28 9 22.93	15 53.2	23.7582	11.2522
	21	19 43 5.190	-26 17 44.41	16 04.5	-------	12.2569
	22	20 43 54.087	-22 43 47.47	16 13.5	0.7445	13.2186
	23	21 41 55.249	-17 43 35.37	16 19.4	1.6781	14.1234
	24	22 36 54.137	-11 40 19.09	16 21.9	2.5556	14.9768
	25	23 29 25.817	- 4 59 29.86	16 21.1	3.3895	15.7964
	26	0 20 33.297	+ 1 54 6.41	16 17.4	4.2006	16.6049
	27	1 11 29.792	+ 8 37 38.74	16 11.5	5.0122	17.4253
	28	2 3 26.095	+14 50 5.42	16 04.2	5.8464	18.2774
	29	2 57 18.995	+20 11 45.65	15 56.0	6.7196	19.1733
	30	3 53 37.201	+24 24 21.89	15 47.4	7.6380	20.1120
	31	4 52 6.365	+27 12 17.28	15 38.8	8.5924	21.0757
Agosto	01	5 51 42.751	+28 25 13.25	15 30.2	9.5575	22.0336
	02	6 50 47.746	+28 0 55.85	15 21.9	10.4999	22.9531
	03	7 47 42.107	+26 6 9.11	15 13.9	11.3911	23.8124
	04	8 41 19.507	+22 54 36.80	15 06.3	12.2168	-------
	05	9 31 19.659	+18 43 23.23	14 59.4	12.9777	0.6049
	06	10 18 1.093	+13 49 34.33	14 53.4	13.6846	1.3370
	07	11 2 6.350	+ 8 28 24.78	14 48.6	14.3534	2.0227
	08	11 44 29.649	+ 2 52 47.44	14 45.4	15.0020	2.6791
	09	12 26 9.907	- 2 46 24.23	14 44.2	15.6490	3.3245
	10	13 8 7.875	- 8 19 26.33	14 45.2	16.3134	3.9778
	11	13 51 25.121	-13 36 40.78	14 48.8	17.0144	4.6581
	12	14 37 2.454	-18 27 25.70	14 55.0	17.7701	5.3844
	13	15 25 55.158	-22 38 50.23	15 03.9	18.5953	6.1734
	14	16 18 42.379	-25 55 16.84	15 15.3	19.4953	7.0361
	15	17 15 30.122	-27 58 54.74	15 28.7	20.4604	7.9711
	16	18 15 34.405	-28 32 14.43	15 43.4	21.4624	8.9591
	17	19 17 20.446	-27 22 43.64	15 58.3	22.4632	9.9653
	18	20 18 50.496	-24 27 33.51	16 12.2	23.4306	10.9525
	19	21 18 28.406	-19 55 43.73	16 23.6	-------	11.8962
	20	22 15 30.455	-14 6 19.73	16 31.4	0.3495	12.7914
	21	23 10 7.161	- 7 24 37.88	16 34.8	1.2236	13.6485
	22	0 3 6.532	- 0 18 12.84	16 33.5	2.0687	14.4869
	23	0 55 34.511	+ 6 45 45.38	16 27.9	2.9059	15.3284
	24	1 48 39.133	+13 22 0.01	16 19.1	3.7567	16.1930
	25	2 43 16.925	+19 7 46.13	16 08.1	4.6385	17.0939
	26	3 39 58.578	+23 43 19.30	15 56.1	5.5591	18.0327
	27	4 38 34.759	+26 52 57.43	15 44.0	6.5125	18.9953
	28	5 38 9.960	+28 26 52.09	15 32.5	7.4774	19.9548
	29	6 37 14.829	+28 23 2.72	15 22.0	8.4235	20.8804
	30	7 34 16.622	+26 47 42.95	15 12.7	9.3229	21.7497
	31	8 28 10.497	+23 53 31.87	15 04.6	10.1601	22.5543

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PARA 0^h DE TIEMPO TERRESTRE

Fecha 0^h TT		Asc. Recta Aparente	Declinación Aparente	Semi Diámetro	Tránsito Superior	Tránsito Inferior
		h m s	° ' "	' "	h	h
Septiembre	01	9 18 33.495	+19 56 24.56	14 57.7	10.9332	23.2983
	02	10 5 39.622	+15 12 39.62	14 52.0	11.6511	23.9936
	03	10 50 6.699	+ 9 57 18.33	14 47.5	12.3278	-------
	04	11 32 44.542	+ 4 23 32.93	14 44.3	12.9800	0.6559
	05	12 14 27.763	- 1 17 1.70	14 42.5	13.6248	1.3022
	06	12 56 12.480	- 6 53 54.47	14 42.3	14.2797	1.9499
	07	13 38 55.047	-12 16 54.15	14 44.0	14.9621	2.6164
	08	14 23 30.757	-17 15 20.43	14 47.7	15.6887	3.3189
	09	15 10 50.493	-21 37 16.03	14 53.8	16.4736	4.0731
	10	16 1 33.301	-25 8 53.87	15 02.3	17.3250	4.8908
	11	16 55 54.065	-27 34 46.16	15 13.2	18.2400	5.7753
	12	17 53 29.689	-28 39 10.79	15 26.4	19.2011	6.7164
	13	18 53 13.833	-28 9 9.76	15 41.3	20.1788	7.6899
	14	19 53 31.621	-25 58 11.26	15 57.0	21.1428	8.6641
	15	20 52 52.468	-22 8 48.52	16 12.5	22.0733	9.6129
	16	21 50 21.567	-16 52 57.45	16 26.1	22.9666	10.5242
	17	22 45 51.839	-10 30 15.67	16 36.4	23.8328	11.4021
	18	23 39 56.373	- 3 25 39.56	16 42.1	-------	12.2613
	19	0 33 32.509	+ 3 52 52.00	16 42.4	0.6901	13.1220
	20	1 27 45.619	+10 56 20.95	16 37.4	1.5594	14.0045
	21	2 23 33.555	+17 16 46.69	16 27.9	2.4590	14.9237
	22	3 21 29.806	+22 29 4.23	16 15.2	3.3987	15.8830
	23	4 21 26.418	+26 13 17.53	16 00.7	4.3744	16.8696
	24	5 22 25.432	+28 17 9.19	15 45.9	5.3647	17.8553
	25	6 22 51.182	+28 37 57.05	15 31.8	6.3373	18.8069
	26	7 21 3.789	+27 22 29.44	15 19.1	7.2614	19.6991
	27	8 15 54.038	+24 44 26.84	15 08.3	8.1193	20.5220
	28	9 6 58.446	+21 0 30.40	14 59.4	8.9083	21.2795
	29	9 54 32.979	+16 27 12.94	14 52.4	9.6373	21.9837
	30	10 39 18.029	+11 19 24.88	14 47.3	10.3210	22.6511
Octubre	01	11 22 5.378	+ 5 49 59.47	14 43.9	10.9763	23.2987
	02	12 3 50.474	+ 0 10 20.05	14 42.0	11.6205	23.9439
	03	12 45 28.987	- 5 28 58.16	14 41.5	12.2708	-------
	04	13 27 55.487	-10 57 25.16	14 42.5	12.9437	0.6034
	05	14 12 2.206	-16 3 57.05	14 45.0	13.6549	1.2936
	06	14 58 36.060	-20 36 24.71	14 49.0	14.4175	2.0291
	07	15 48 12.337	-24 21 19.16	14 54.8	15.2395	2.8209
	08	16 41 4.623	-27 4 11.59	15 02.5	16.1194	3.6728
	09	17 36 53.859	-28 30 49.51	15 12.2	17.0437	4.5774
	10	18 34 44.297	-28 29 33.99	15 23.9	17.9882	5.5152
	11	19 33 15.014	-26 53 59.49	15 37.3	18.9261	6.4595
	12	20 31 6.212	-23 44 42.51	15 51.8	19.8382	7.3861
	13	21 27 26.246	-19 9 30.99	16 06.7	20.7184	8.2821
	14	22 22 4.578	-13 22 20.26	16 20.8	21.5739	9.1484
	15	23 15 28.597	- 6 42 0.76	16 32.5	22.4213	9.9974
	16	0 8 31.967	+ 0 28 27.03	16 40.4	23.2813	10.8483
	17	1 2 21.222	+ 7 42 25.73	16 43.3	-------	11.7229
	18	1 58 1.574	+14 30 41.64	16 40.7	0.1752	12.6400
	19	2 56 19.243	+20 23 27.70	16 33.0	1.1180	13.6089
	20	3 57 19.481	+24 53 46.28	16 21.0	2.1111	14.6215
	21	5 0 8.714	+27 41 57.64	16 06.3	3.1359	15.6492
	22	6 2 59.191	+28 39 50.30	15 50.5	4.1560	16.6513
	23	7 3 45.798	+27 52 2.98	15 35.0	5.1311	17.5925
	24	8 0 54.183	+25 33 11.38	15 20.7	6.0342	18.4558
	25	8 53 46.442	+22 2 22.07	15 08.4	6.8581	19.2425
	26	9 42 35.734	+17 38 27.02	14 58.4	7.6108	19.9654
	27	10 28 6.514	+12 37 40.62	14 51.0	8.3086	20.6428
	28	11 11 16.855	+ 7 13 20.62	14 45.9	8.9704	21.2938
	29	11 53 8.200	+ 1 36 33.68	14 43.1	9.6152	21.9371
	30	12 34 41.046	- 4 2 39.48	14 42.3	10.2616	22.5909
	31	13 16 53.563	- 9 34 20.76	14 43.2	10.9272	23.2723

LUNA 2024
PARA 0^h DE TIEMPO TERRESTRE

Fecha 0^h TT		Asc. Recta Aparente	Declinación Aparente	Semi Diámetro	Tránsito Superior	Tránsito Inferior
		h m s	° ' "	' "	h	h
Noviembre	01	14 0 40.566	-14 47 41.85	14 45.6	11.6283	23.9967
	02	14 46 50.730	-19 30 27.38	14 49.2	12.3788	-------
	03	15 36 0.357	-23 28 44.07	14 54.1	13.1875	0.7756
	04	16 28 23.209	-26 27 32.82	15 00.1	14.0536	1.6138
	05	17 23 39.413	-28 12 22.04	15 07.2	14.9642	2.5046
	06	18 20 51.428	-28 31 38.98	15 15.6	15.8951	3.4289
	07	19 18 35.973	-27 19 29.36	15 25.2	16.8187	4.3594
	08	20 15 30.967	-24 37 3.47	15 36.0	17.7140	5.2707
	09	21 10 42.936	-20 32 4.52	15 47.7	18.5736	6.1482
	10	22 3 59.939	-15 17 1.18	15 59.8	19.4032	6.9913
	11	22 55 48.369	- 9 7 29.06	16 11.7	20.2185	7.8114
	12	23 47 1.920	- 2 21 33.76	16 22.2	21.0408	8.6273
	13	0 38 49.953	+ 4 39 48.89	16 30.3	21.8938	9.4620
	14	1 32 26.427	+11 32 16.20	16 34.6	22.7988	10.3387
	15	2 28 55.896	+17 48 3.04	16 34.4	23.7679	11.2752
	16	3 28 52.181	+22 57 49.00	16 29.5	-------	12.2755
	17	4 31 51.842	+26 34 54.82	16 20.3	0.7946	13.3207
	18	5 36 19.747	+28 21 37.01	16 07.7	1.8477	14.3693
	19	6 39 51.729	+28 14 23.00	15 53.2	2.8795	15.3733
	20	7 40 11.977	+26 24 6.51	15 38.0	3.8472	16.2994
	21	8 36 3.029	+23 10 47.47	15 23.5	4.7295	17.1383
	22	9 27 15.470	+18 56 33.45	15 10.7	5.5275	17.8992
	23	10 14 27.473	+14 1 0.64	15 00.1	6.2560	18.6005
	24	10 58 40.021	+ 8 39 44.36	14 52.1	6.9355	19.2635
	25	11 41 0.830	+ 3 4 50.50	14 46.9	7.5871	19.9090
	26	12 22 37.138	- 2 33 45.82	14 44.4	8.2316	20.5574
	27	13 4 33.530	- 8 6 54.09	14 44.4	8.8886	21.2277
	28	13 47 51.219	-13 24 50.55	14 46.6	9.5766	21.9376
	29	14 33 26.017	-18 16 15.92	14 50.6	10.3122	22.7018
	30	15 22 2.715	-22 27 39.99	14 56.0	11.1073	23.5287
Diciembre	01	16 14 4.497	-25 43 34.51	15 02.4	11.9653	-------
	02	17 9 19.332	-27 48 2.51	15 09.6	12.8760	0.4153
	03	18 6 51.544	-28 27 33.30	15 17.1	13.8152	1.3440
	04	19 5 10.513	-27 34 32.99	15 25.0	14.7511	2.2855
	05	20 2 39.501	-25 9 40.73	15 33.0	15.6568	3.2089
	06	20 58 9.295	-21 21 26.22	15 41.1	16.5193	4.0937
	07	21 51 16.396	-16 23 39.47	15 49.3	17.3410	4.9346
	08	22 42 20.882	-10 32 44.61	15 57.4	18.1356	5.7405
	09	23 32 13.809	- 4 6 4.10	16 05.1	18.9241	6.5292
	10	0 22 4.286	+ 2 38 10.26	16 11.9	19.7303	7.3234
	11	1 13 9.335	+ 9 20 8.50	16 17.2	20.5786	8.1478
	12	2 6 43.774	+15 37 22.10	16 20.3	21.4888	9.0251
	13	3 3 44.781	+21 4 30.28	16 20.5	22.4685	9.9703
	14	4 4 27.737	+25 15 5.18	16 17.3	23.5031	10.9809
	15	5 8 0.571	+27 46 10.74	16 10.7	-------	12.0295
	16	6 12 20.432	+28 24 58.14	16 01.2	0.5534	13.0685
	17	7 14 53.542	+27 13 23.00	15 49.5	1.5691	14.0510
	18	8 13 38.109	+24 26 46.48	15 36.6	2.5117	14.9502
	19	9 7 41.913	+20 27 31.16	15 23.7	3.3669	15.7632
	20	9 57 17.101	+15 38 16.50	15 11.7	4.1413	16.5036
	21	10 43 14.408	+10 18 11.23	15 01.5	4.8527	17.1914
	22	11 26 40.418	+ 4 42 5.25	14 53.6	5.5226	17.8488
	23	12 8 45.062	- 0 58 38.31	14 48.4	6.1728	18.4971
	24	12 50 36.868	- 6 34 35.53	14 46.1	6.8243	19.1568
	25	13 33 21.766	-11 56 50.12	14 46.6	7.4972	19.8478
	26	14 18 1.987	-16 55 30.00	14 49.8	8.2106	20.5876
	27	15 5 32.253	-21 18 41.28	14 55.3	8.9804	21.3899
	28	15 56 30.864	-24 51 58.37	15 02.6	9.8163	22.2589
	29	16 51 5.366	-27 19 3.95	15 11.3	10.7159	23.1845
	30	17 48 38.262	-28 24 12.58	15 20.6	11.6608	-------
	31	18 47 45.761	-27 56 6.87	15 29.9	12.6191	0.1405

VOLVER AL INDICE

VOLVER AL EJEMPLO 1 **VOLVER A EJEMPLO 2** **VOLVER AL EJEMPLO 3**

TIEMPO SIDÉREO 2024

Fecha 0^h UT		Día Juliano	Tiempo Sidéreo Ángulo Horario de Aries		Ecuación de los Equinoccios
			Aparente	Medio	(E_0)
		245	h m s	s	s
Enero	01	0310.5	6 40 36.3034	36.6312	-.3278
	02	0311.5	6 44 32.8565	33.1865	-.3300
	03	0312.5	6 48 29.4085	29.7419	-.3334
	04	0313.5	6 52 25.9604	26.2973	-.3369
	05	0314.5	6 56 22.5131	22.8527	-.3396
	06	0315.5	7 0 19.0677	19.4080	-.3403
	07	0316.5	7 4 15.6253	15.9634	-.3381
	08	0317.5	7 8 12.1862	12.5188	-.3326
	09	0318.5	7 12 8.7505	9.0741	-.3236
	10	0319.5	7 16 5.3174	5.6295	-.3121
	11	0320.5	7 20 1.8852	2.1849	-.2997
	12	0321.5	7 23 58.4516	58.7402	-.2886
	13	0322.5	7 27 55.0146	55.2956	-.2810
	14	0323.5	7 31 51.5731	51.8510	-.2779
	15	0324.5	7 35 48.1273	48.4063	-.2790
	16	0325.5	7 39 44.6788	44.9617	-.2829
	17	0326.5	7 43 41.2296	41.5171	-.2875
	18	0327.5	7 47 37.7818	38.0725	-.2907
	19	0328.5	7 51 34.3365	34.6278	-.2913
	20	0329.5	7 55 30.8946	31.1832	-.2886
	21	0330.5	7 59 27.4557	27.7386	-.2829
	22	0331.5	8 3 24.0188	24.2939	-.2751
	23	0332.5	8 7 20.5828	20.8493	-.2665
	24	0333.5	8 11 17.1465	17.4047	-.2582
	25	0334.5	8 15 13.7084	13.9600	-.2516
	26	0335.5	8 19 10.2680	10.5154	-.2474
	27	0336.5	8 23 6.8248	7.0708	-.2460
	28	0337.5	8 27 3.3787	3.6261	-.2474
	29	0338.5	8 30 59.9304	60.1815	-.2511
	30	0339.5	8 34 56.4806	56.7369	-.2563
	31	0340.5	8 38 53.0301	53.2922	-.2621
Febrero	01	0341.5	8 42 49.5802	49.8476	-.2674
	02	0342.5	8 46 46.1319	46.4030	-.2711
	03	0343.5	8 50 42.6859	42.9584	-.2725
	04	0344.5	8 54 39.2429	39.5137	-.2708
	05	0345.5	8 58 35.8033	36.0691	-.2658
	06	0346.5	9 2 32.3664	32.6245	-.2581
	07	0347.5	9 6 28.9312	29.1798	-.2486
	08	0348.5	9 10 25.4959	25.7352	-.2393
	09	0349.5	9 14 22.0582	22.2906	-.2324
	10	0350.5	9 18 18.6163	18.8459	-.2296
	11	0351.5	9 22 15.1697	15.4013	-.2316
	12	0352.5	9 26 11.7195	11.9567	-.2372
	13	0353.5	9 30 8.2674	8.5120	-.2446
	14	0354.5	9 34 4.8163	5.0674	-.2511
	15	0355.5	9 38 1.3677	1.6228	-.2551
	16	0356.5	9 41 57.9226	58.1782	-.2556
	17	0357.5	9 45 54.4805	54.7335	-.2530
	18	0358.5	9 49 51.0408	51.2889	-.2481
	19	0359.5	9 53 47.6022	47.8443	-.2421
	20	0360.5	9 57 44.1633	44.3996	-.2363
	21	0361.5	10 1 40.7230	40.9550	-.2320
	22	0362.5	10 5 37.2805	37.5104	-.2299
	23	0363.5	10 9 33.8352	34.0657	-.2305
	24	0364.5	10 13 30.3873	30.6211	-.2338
	25	0365.5	10 17 26.9369	27.1765	-.2396
	26	0366.5	10 21 23.4847	23.7318	-.2471
	27	0367.5	10 25 20.0318	20.2872	-.2554
	28	0368.5	10 29 16.5791	16.8426	-.2635
	29	0369.5	10 33 13.1277	13.3980	-.2703

TIEMPO SIDÉREO 2024

Fecha 0^h UT		Día Juliano	Tiempo Sidéreo Ángulo Horario de Aries		Ecuación de los Equinoccios
			Aparente	Medio	(E_0)
		245	h m s	s	s
Marzo	01	0370.5	10 37 9.6784	9.9533	-.2749
	02	0371.5	10 41 6.2320	6.5087	-.2767
	03	0372.5	10 45 2.7887	3.0641	-.2754
	04	0373.5	10 48 59.3480	59.6194	-.2714
	05	0374.5	10 52 55.9095	56.1748	-.2653
	06	0375.5	10 56 52.4716	52.7302	-.2586
	07	0376.5	11 0 49.0325	49.2855	-.2530
	08	0377.5	11 4 45.5903	45.8409	-.2506
	09	0378.5	11 8 42.1438	42.3963	-.2525
	10	0379.5	11 12 38.6929	38.9516	-.2587
	11	0380.5	11 16 35.2395	35.5070	-.2675
	12	0381.5	11 20 31.7858	32.0624	-.2766
	13	0382.5	11 24 28.3343	28.6178	-.2835
	14	0383.5	11 28 24.8863	25.1731	-.2868
	15	0384.5	11 32 21.4422	21.7285	-.2863
	16	0385.5	11 36 18.0010	18.2839	-.2829
	17	0386.5	11 40 14.5611	14.8392	-.2781
	18	0387.5	11 44 11.1215	11.3946	-.2731
	19	0388.5	11 48 7.6806	7.9500	-.2694
	20	0389.5	11 52 4.2375	4.5053	-.2678
	21	0390.5	11 56 .7918	1.0607	-.2689
	22	0391.5	11 59 57.3434	57.6161	-.2727
	23	0392.5	12 3 53.8925	54.1714	-.2789
	24	0393.5	12 7 50.4398	50.7268	-.2870
	25	0394.5	12 11 46.9862	47.2822	-.2960
	26	0395.5	12 15 43.5326	43.8376	-.3050
	27	0396.5	12 19 40.0801	40.3929	-.3128
	28	0397.5	12 23 36.6297	36.9483	-.3186
	29	0398.5	12 27 33.1820	33.5037	-.3217
	30	0399.5	12 31 29.7373	30.0590	-.3217
	31	0400.5	12 35 26.2956	26.6144	-.3188
Abril	01	0401.5	12 39 22.8560	23.1698	-.3138
	02	0402.5	12 43 19.4172	19.7251	-.3079
	03	0403.5	12 47 15.9780	16.2805	-.3025
	04	0404.5	12 51 12.5366	12.8359	-.2993
	05	0405.5	12 55 9.0916	9.3912	-.2996
	06	0406.5	12 59 5.6426	5.9466	-.3040
	07	0407.5	13 3 2.1904	2.5020	-.3116
	08	0408.5	13 6 58.7369	59.0574	-.3205
	09	0409.5	13 10 55.2845	55.6127	-.3282
	10	0410.5	13 14 51.8355	52.1681	-.3326
	11	0411.5	13 18 48.3907	48.7235	-.3328
	12	0412.5	13 22 44.9496	45.2788	-.3292
	13	0413.5	13 26 41.5108	41.8342	-.3234
	14	0414.5	13 30 38.0728	38.3896	-.3168
	15	0415.5	13 34 34.6338	34.9449	-.3111
	16	0416.5	13 38 31.1928	31.5003	-.3075
	17	0417.5	13 42 27.7493	28.0557	-.3064
	18	0418.5	13 46 24.3028	24.6110	-.3082
	19	0419.5	13 50 20.8539	21.1664	-.3125
	20	0420.5	13 54 17.4030	17.7218	-.3188
	21	0421.5	13 58 13.9509	14.2772	-.3263
	22	0422.5	14 2 10.4986	10.8325	-.3339
	23	0423.5	14 6 7.0473	7.3879	-.3406
	24	0424.5	14 10 3.5979	3.9433	-.3454
	25	0425.5	14 14 .1511	.4986	-.3475
	26	0426.5	14 17 56.7075	57.0540	-.3465
	27	0427.5	14 21 53.2670	53.6094	-.3424
	28	0428.5	14 25 49.8286	50.1647	-.3361
	29	0429.5	14 29 46.3916	46.7201	-.3285
	30	0430.5	14 33 42.9543	43.2755	-.3212

TIEMPO SIDÉREO 2024

Fecha 0h UT		Día Juliano	Tiempo Sidéreo Ángulo Horario de Aries		Ecuación de los Equinoccios
			Aparente	Medio	(E_0)
		245	h m s	s	s
Mayo	01	0431.5	14 37 39.5150	39.8308	-.3158
	02	0432.5	14 41 36.0727	36.3862	-.3135
	03	0433.5	14 45 32.6268	32.9416	-.3148
	04	0434.5	14 49 29.1775	29.4969	-.3194
	05	0435.5	14 53 25.7264	26.0523	-.3259
	06	0436.5	14 57 22.2755	22.6077	-.3322
	07	0437.5	15 1 18.8271	19.1631	-.3360
	08	0438.5	15 5 15.3824	15.7184	-.3360
	09	0439.5	15 9 11.9421	12.2738	-.3317
	10	0440.5	15 13 8.5051	8.8292	-.3241
	11	0441.5	15 17 5.0695	5.3845	-.3150
	12	0442.5	15 21 1.6338	1.9399	-.3061
	13	0443.5	15 24 58.1963	58.4953	-.2990
	14	0444.5	15 28 54.7562	55.0506	-.2944
	15	0445.5	15 32 51.3132	51.6060	-.2928
	16	0446.5	15 36 47.8674	48.1614	-.2940
	17	0447.5	15 40 44.4193	44.7167	-.2974
	18	0448.5	15 44 40.9698	41.2721	-.3023
	19	0449.5	15 48 37.5199	37.8275	-.3076
	20	0450.5	15 52 34.0705	34.3829	-.3124
	21	0451.5	15 56 30.6227	30.9382	-.3155
	22	0452.5	16 0 27.1776	27.4936	-.3160
	23	0453.5	16 4 23.7355	24.0490	-.3135
	24	0454.5	16 8 20.2965	20.6043	-.3078
	25	0455.5	16 12 16.8602	17.1597	-.2995
	26	0456.5	16 16 13.4255	13.7151	-.2896
	27	0457.5	16 20 9.9907	10.2704	-.2797
	28	0458.5	16 24 6.5542	6.8258	-.2716
	29	0459.5	16 28 3.1148	3.3812	-.2664
	30	0460.5	16 31 59.6717	59.9365	-.2648
	31	0461.5	16 35 56.2252	56.4919	-.2667
Junio	01	0462.5	16 39 52.7764	53.0473	-.2709
	02	0463.5	16 43 49.3274	49.6027	-.2753
	03	0464.5	16 47 45.8798	46.1580	-.2782
	04	0465.5	16 51 42.4357	42.7134	-.2777
	05	0466.5	16 55 38.9955	39.2688	-.2733
	06	0467.5	16 59 35.5589	35.8241	-.2652
	07	0468.5	17 3 32.1247	32.3795	-.2548
	08	0469.5	17 7 28.6911	28.9349	-.2438
	09	0470.5	17 11 25.2562	25.4902	-.2340
	10	0471.5	17 15 21.8190	22.0456	-.2266
	11	0472.5	17 19 18.3788	18.6010	-.2222
	12	0473.5	17 23 14.9355	15.1563	-.2208
	13	0474.5	17 27 11.4897	11.7117	-.2220
	14	0475.5	17 31 8.0420	8.2671	-.2251
	15	0476.5	17 35 4.5935	4.8225	-.2290
	16	0477.5	17 39 1.1451	1.3778	-.2327
	17	0478.5	17 42 57.6980	57.9332	-.2352
	18	0479.5	17 46 54.2532	54.4886	-.2354
	19	0480.5	17 50 50.8111	51.0439	-.2328
	20	0481.5	17 54 47.3723	47.5993	-.2270
	21	0482.5	17 58 43.9365	44.1547	-.2182
	22	0483.5	18 2 40.5025	40.7100	-.2075
	23	0484.5	18 6 37.0692	37.2654	-.1962
	24	0485.5	18 10 33.6345	33.8208	-.1863
	25	0486.5	18 14 30.1969	30.3761	-.1792
	26	0487.5	18 18 26.7554	26.9315	-.1761
	27	0488.5	18 22 23.3102	23.4869	-.1767
	28	0489.5	18 26 19.8623	20.0423	-.1800
	29	0490.5	18 30 16.4135	16.5976	-.1841
	30	0491.5	18 34 12.9658	13.1530	-.1872

TIEMPO SIDÉREO 2024

Fecha 0h UT		Día Juliano	Tiempo Sidéreo Ángulo Horario de Aries		Ecuación de los Equinoccios
			Aparente	Medio	(E_0)
		245	h m s	s	s
Julio	01	0492.5	18 38 9.5210	9.7084	-.1874
	02	0493.5	18 42 6.0796	6.2637	-.1841
	03	0494.5	18 46 2.6420	2.8191	-.1771
	04	0495.5	18 49 59.2069	59.3745	-.1676
	05	0496.5	18 53 55.7729	55.9298	-.1569
	06	0497.5	18 57 52.3383	52.4852	-.1469
	07	0498.5	19 1 48.9018	49.0406	-.1388
	08	0499.5	19 5 45.4623	45.5959	-.1336
	09	0500.5	19 9 42.0197	42.1513	-.1316
	10	0501.5	19 13 38.5743	38.7067	-.1324
	11	0502.5	19 17 35.1267	35.2621	-.1354
	12	0503.5	19 21 31.6777	31.8174	-.1397
	13	0504.5	19 25 28.2286	28.3728	-.1442
	14	0505.5	19 29 24.7803	24.9282	-.1479
	15	0506.5	19 33 21.3337	21.4835	-.1498
	16	0507.5	19 37 17.8898	18.0389	-.1491
	17	0508.5	19 41 14.4490	14.5943	-.1453
	18	0509.5	19 45 11.0110	11.1496	-.1386
	19	0510.5	19 49 7.5756	7.7050	-.1294
	20	0511.5	19 53 4.1413	4.2604	-.1191
	21	0512.5	19 57 .7064	.8157	-.1093
	22	0513.5	20 0 57.2691	57.3711	-.1020
	23	0514.5	20 4 53.8279	53.9265	-.0986
	24	0515.5	20 8 50.3825	50.4819	-.0994
	25	0516.5	20 12 46.9337	47.0372	-.1035
	26	0517.5	20 16 43.4835	43.5926	-.1091
	27	0518.5	20 20 40.0339	40.1480	-.1141
	28	0519.5	20 24 36.5867	36.7033	-.1166
	29	0520.5	20 28 33.1430	33.2587	-.1157
	30	0521.5	20 32 29.7029	29.8141	-.1112
	31	0522.5	20 36 26.2653	26.3694	-.1041
Agosto	01	0523.5	20 40 22.8292	22.9248	-.0956
	02	0524.5	20 44 19.3929	19.4802	-.0873
	03	0525.5	20 48 15.9548	16.0355	-.0807
	04	0526.5	20 52 12.5143	12.5909	-.0766
	05	0527.5	20 56 9.0706	9.1463	-.0757
	06	0528.5	21 0 5.6239	5.7017	-.0778
	07	0529.5	21 4 2.1747	2.2570	-.0823
	08	0530.5	21 7 58.7240	58.8124	-.0884
	09	0531.5	21 11 55.2728	55.3678	-.0950
	10	0532.5	21 15 51.8219	51.9231	-.1012
	11	0533.5	21 19 48.3726	48.4785	-.1059
	12	0534.5	21 23 44.9256	45.0339	-.1083
	13	0535.5	21 27 41.4812	41.5892	-.1080
	14	0536.5	21 31 38.0399	38.1446	-.1047
	15	0537.5	21 35 34.6011	34.7000	-.0989
	16	0538.5	21 39 31.1640	31.2553	-.0913
	17	0539.5	21 43 27.7272	27.8107	-.0835
	18	0540.5	21 47 24.2889	24.3661	-.0772
	19	0541.5	21 51 20.8472	20.9214	-.0742
	20	0542.5	21 55 17.4013	17.4768	-.0755
	21	0543.5	21 59 13.9514	14.0322	-.0808
	22	0544.5	22 3 10.4992	10.5876	-.0884
	23	0545.5	22 7 7.0467	7.1429	-.0962
	24	0546.5	22 11 3.5965	3.6983	-.1018
	25	0547.5	22 15 .1499	.2537	-.1038
	26	0548.5	22 18 56.7069	56.8090	-.1021
	27	0549.5	22 22 53.2669	53.3644	-.0975
	28	0550.5	22 26 49.8285	49.9198	-.0913
	29	0551.5	22 30 46.3900	46.4751	-.0851
	30	0552.5	22 34 42.9503	43.0305	-.0802
	31	0553.5	22 38 39.5081	39.5859	-.0778

TIEMPO SIDÉREO 2024

Fecha 0^h U T		Día Juliano	Tiempo Sidéreo Ángulo Horario de Aries		Ecuación de los Equinoccios
			Aparente	Medio	(E_0)
		245	h m s	s	s
Septiembre	01	0554.5	22 42 36.0629	36.1412	-.0783
	02	0555.5	22 46 32.6148	32.6966	-.0818
	03	0556.5	22 50 29.1641	29.2520	-.0879
	04	0557.5	22 54 25.7117	25.8074	-.0957
	05	0558.5	22 58 22.2583	22.3627	-.1044
	06	0559.5	23 2 18.8053	18.9181	-.1128
	07	0560.5	23 6 15.3535	15.4735	-.1200
	08	0561.5	23 10 11.9037	12.0288	-.1251
	09	0562.5	23 14 8.4566	8.5842	-.1276
	10	0563.5	23 18 5.0123	5.1396	-.1273
	11	0564.5	23 22 1.5706	1.6949	-.1243
	12	0565.5	23 25 58.1309	58.2503	-.1194
	13	0566.5	23 29 54.6919	54.8057	-.1138
	14	0567.5	23 33 51.2523	51.3610	-.1087
	15	0568.5	23 37 47.8104	47.9164	-.1060
	16	0569.5	23 41 44.3648	44.4718	-.1070
	17	0570.5	23 45 40.9152	41.0272	-.1120
	18	0571.5	23 49 37.4622	37.5825	-.1203
	19	0572.5	23 53 34.0082	34.1379	-.1297
	20	0573.5	23 57 30.5557	30.6933	-.1376
	21	0574.5	0 1 27.1065	27.2486	-.1421
	22	0575.5	0 5 23.6616	23.8040	-.1424
	23	0576.5	0 9 20.2204	20.3594	-.1390
	24	0577.5	0 13 16.7813	16.9147	-.1334
	25	0578.5	0 17 13.3425	13.4701	-.1276
	26	0579.5	0 21 9.9027	10.0255	-.1228
	27	0580.5	0 25 6.4604	6.5808	-.1204
	28	0581.5	0 29 3.0154	3.1362	-.1208
	29	0582.5	0 32 59.5674	59.6916	-.1242
	30	0583.5	0 36 56.1167	56.2470	-.1303
Octubre	01	0584.5	0 40 52.6641	52.8023	-.1382
	02	0585.5	0 44 49.2105	49.3577	-.1472
	03	0586.5	0 48 45.7571	45.9131	-.1560
	04	0587.5	0 52 42.3046	42.4684	-.1638
	05	0588.5	0 56 38.8542	39.0238	-.1696
	06	0589.5	1 0 35.4063	35.5792	-.1729
	07	0590.5	1 4 31.9612	32.1345	-.1733
	08	0591.5	1 8 28.5188	28.6899	-.1711
	09	0592.5	1 12 25.0784	25.2453	-.1669
	10	0593.5	1 16 21.6391	21.8006	-.1615
	11	0594.5	1 20 18.1997	18.3560	-.1563
	12	0595.5	1 24 14.7587	14.9114	-.1527
	13	0596.5	1 28 11.3148	11.4668	-.1520
	14	0597.5	1 32 7.8672	8.0221	-.1549
	15	0598.5	1 36 4.4162	4.5775	-.1613
	16	0599.5	1 40 .9632	1.1329	-.1697
	17	0600.5	1 43 57.5105	57.6882	-.1777
	18	0601.5	1 47 54.0606	54.2436	-.1830
	19	0602.5	1 51 50.6151	50.7990	-.1839
	20	0603.5	1 55 47.1740	47.3543	-.1803
	21	0604.5	1 59 43.7362	43.9097	-.1735
	22	0605.5	2 3 40.2995	40.4651	-.1656
	23	0606.5	2 7 36.8620	37.0204	-.1584
	24	0607.5	2 11 33.4224	33.5758	-.1534
	25	0608.5	2 15 29.9799	30.1312	-.1513
	26	0609.5	2 19 26.5344	26.6866	-.1522
	27	0610.5	2 23 23.0859	23.2419	-.1560
	28	0611.5	2 27 19.6355	19.7973	-.1618
	29	0612.5	2 31 16.1839	16.3527	-.1688
	30	0613.5	2 35 12.7321	12.9080	-.1759
	31	0614.5	2 39 9.2813	9.4634	-.1821

TIEMPO SIDÉREO 2024

Fecha 0^h U T		Día Juliano	Tiempo Sidéreo Ángulo Horario de Aries		Ecuación de los Equinoccios
			Aparente	Medio	(E_0)
		245	h m s	s	s
Noviembre	01	0615.5	2 43 5.8323	6.0188	-.1865
	02	0616.5	2 47 2.3857	2.5741	-.1884
	03	0617.5	2 50 58.9421	59.1295	-.1874
	04	0618.5	2 54 55.5013	55.6849	-.1836
	05	0619.5	2 58 52.0626	52.2402	-.1776
	06	0620.5	3 2 48.6252	48.7956	-.1704
	07	0621.5	3 6 45.1880	45.3510	-.1630
	08	0622.5	3 10 41.7494	41.9064	-.1570
	09	0623.5	3 14 38.3083	38.4617	-.1534
	10	0624.5	3 18 34.8640	35.0171	-.1531
	11	0625.5	3 22 31.4165	31.5725	-.1560
	12	0626.5	3 26 27.9664	28.1278	-.1614
	13	0627.5	3 30 24.5159	24.6832	-.1673
	14	0628.5	3 34 21.0671	21.2386	-.1715
	15	0629.5	3 38 17.6220	17.7939	-.1719
	16	0630.5	3 42 14.1816	14.3493	-.1677
	17	0631.5	3 46 10.7453	10.9047	-.1594
	18	0632.5	3 50 7.3114	7.4600	-.1486
	19	0633.5	3 54 3.8777	4.0154	-.1377
	20	0634.5	3 58 .4423	.5708	-.1285
	21	0635.5	4 1 57.0040	57.1262	-.1222
	22	0636.5	4 5 53.5622	53.6815	-.1193
	23	0637.5	4 9 50.1174	50.2369	-.1195
	24	0638.5	4 13 46.6702	46.7923	-.1221
	25	0639.5	4 17 43.2214	43.3476	-.1262
	26	0640.5	4 21 39.7723	39.9030	-.1307
	27	0641.5	4 25 36.3238	36.4584	-.1346
	28	0642.5	4 29 32.8767	33.0137	-.1370
	29	0643.5	4 33 29.4322	29.5691	-.1369
	30	0644.5	4 37 25.9904	26.1245	-.1341
Diciembre	01	0645.5	4 41 22.5514	22.6798	-.1284
	02	0646.5	4 45 19.1150	19.2352	-.1202
	03	0647.5	4 49 15.6801	15.7906	-.1105
	04	0648.5	4 53 12.2454	12.3460	-.1006
	05	0649.5	4 57 8.8096	8.9013	-.0917
	06	0650.5	5 1 5.3714	5.4567	-.0853
	07	0651.5	5 5 1.9300	2.0121	-.0821
	08	0652.5	5 8 58.4853	58.5674	-.0821
	09	0653.5	5 12 55.0380	55.1228	-.0848
	10	0654.5	5 16 51.5896	51.6782	-.0886
	11	0655.5	5 20 48.1420	48.2335	-.0915
	12	0656.5	5 24 44.6974	44.7889	-.0915
	13	0657.5	5 28 41.2569	41.3443	-.0874
	14	0658.5	5 32 37.8205	37.8996	-.0791
	15	0659.5	5 36 34.3875	34.4550	-.0675
	16	0660.5	5 40 30.9557	31.0104	-.0547
	17	0661.5	5 44 27.5231	27.5658	-.0427
	18	0662.5	5 48 24.0878	24.1211	-.0333
	19	0663.5	5 52 20.6492	20.6765	-.0273
	20	0664.5	5 56 17.2071	17.2319	-.0248
	21	0665.5	6 0 13.7620	13.7872	-.0252
	22	0666.5	6 4 10.3150	10.3426	-.0276
	23	0667.5	6 8 6.8671	6.8980	-.0309
	24	0668.5	6 12 3.4193	3.4533	-.0340
	25	0669.5	6 15 59.9728	60.0087	-.0359
	26	0670.5	6 19 56.5284	56.5641	-.0357
	27	0671.5	6 23 53.0865	53.1194	-.0329
	28	0672.5	6 27 49.6475	49.6748	-.0273
	29	0673.5	6 31 46.2112	46.2302	-.0190
	30	0674.5	6 35 42.7766	42.7855	-.0089
	31	0675.5	6 39 39.3428	39.3409	.0019

VOLVER AL INDICE

VOLVER AL EJEMPLO 3 VOLVER AL EJEMPLO 4

SOL 2024

PARA 0^h DE TIEMPO TERRESTRE

Fecha	Día Juliano	Asc. Recta Aparente	Declinación Aparente	P.H.	Semi Diámetro	Distancia Geocent.	Tránsito Efemérides
	245	h m s	° ' "	"	' "	UA	h m s
Ene. 01	0310.5	18 43 40.824	-23 03 30.70	8.94	16 15.93	.9833183	12 03 19
02	0311.5	18 48 05.715	-22 58 40.62	8.94	16 15.93	.9833099	12 03 47
03	0312.5	18 52 30.297	-22 53 23.05	8.94	16 15.94	.9833070	12 04 15
04	0313.5	18 56 54.543	-22 47 38.11	8.94	16 15.93	.9833095	12 04 42
05	0314.5	19 01 18.424	-22 41 25.96	8.94	16 15.93	.9833172	12 05 9
06	0315.5	19 05 41.912	-22 34 46.77	8.94	16 15.91	.9833297	12 05 36
07	0316.5	19 10 04.980	-22 27 40.73	8.94	16 15.90	.9833469	12 06 2
08	0317.5	19 14 27.599	-22 20 08.05	8.94	16 15.88	.9833685	12 06 28
09	0318.5	19 18 49.739	-22 12 08.95	8.94	16 15.85	.9833942	12 06 54
10	0319.5	19 23 11.372	-22 03 43.66	8.94	16 15.82	.9834238	12 07 18
11	0320.5	19 27 32.466	-21 54 52.44	8.94	16 15.79	.9834571	12 07 43
12	0321.5	19 31 52.990	-21 45 35.57	8.94	16 15.75	.9834939	12 08 6
13	0322.5	19 36 12.911	-21 35 53.30	8.94	16 15.71	.9835343	12 08 29
14	0323.5	19 40 32.203	-21 25 45.93	8.94	16 15.67	.9835782	12 08 52
15	0324.5	19 44 50.839	-21 15 13.76	8.94	16 15.62	.9836258	12 09 14
16	0325.5	19 49 08.797	-21 04 17.07	8.94	16 15.57	.9836775	12 09 35
17	0326.5	19 53 26.059	-20 52 56.20	8.94	16 15.51	.9837334	12 09 55
18	0327.5	19 57 42.608	-20 41 11.46	8.94	16 15.45	.9837938	12 10 15
19	0328.5	20 01 58.429	-20 29 03.21	8.94	16 15.39	.9838592	12 10 33
20	0329.5	20 06 13.510	-20 16 31.79	8.94	16 15.32	.9839298	12 10 52
21	0330.5	20 10 27.838	-20 03 37.56	8.94	16 15.24	.9840058	12 11 9
22	0331.5	20 14 41.403	-19 50 20.88	8.94	16 15.16	.9840875	12 11 26
23	0332.5	20 18 54.195	-19 36 42.11	8.94	16 15.08	.9841750	12 11 41
24	0333.5	20 23 06.205	-19 22 41.61	8.93	16 14.98	.9842685	12 11 57
25	0334.5	20 27 17.426	-19 08 19.73	8.93	16 14.88	.9843680	12 12 11
26	0335.5	20 31 27.854	-18 53 36.83	8.93	16 14.78	.9844734	12 12 24
27	0336.5	20 35 37.485	-18 38 33.27	8.93	16 14.67	.9845848	12 12 37
28	0337.5	20 39 46.314	-18 23 09.41	8.93	16 14.55	.9847022	12 12 49
29	0338.5	20 43 54.342	-18 07 25.62	8.93	16 14.43	.9848252	12 12 60
30	0339.5	20 48 01.568	-17 51 22.25	8.93	16 14.30	.9849539	12 13 10
31	0340.5	20 52 07.992	-17 34 59.69	8.93	16 14.17	.9850880	12 13 20
Feb. 01	0341.5	20 56 13.616	-17 18 18.31	8.93	16 14.03	.9852272	12 13 28
02	0342.5	21 00 18.442	-17 01 18.49	8.92	16 13.89	.9853715	12 13 36
03	0343.5	21 04 22.472	-16 44 00.63	8.92	16 13.74	.9855204	12 13 43
04	0344.5	21 08 25.709	-16 26 25.10	8.92	16 13.59	.9856737	12 13 49
05	0345.5	21 12 28.155	-16 08 32.33	8.92	16 13.44	.9858311	12 13 55
06	0346.5	21 16 29.813	-15 50 22.72	8.92	16 13.28	.9859922	12 13 60
07	0347.5	21 20 30.682	-15 31 56.69	8.92	16 13.12	.9861567	12 14 4
08	0348.5	21 24 30.764	-15 13 14.67	8.92	16 12.95	.9863242	12 14 7
09	0349.5	21 28 30.059	-14 54 17.11	8.91	16 12.78	.9864946	12 14 9
10	0350.5	21 32 28.565	-14 35 04.44	8.91	16 12.61	.9866675	12 14 11
11	0351.5	21 36 26.284	-14 15 37.10	8.91	16 12.44	.9868428	12 14 11
12	0352.5	21 40 23.220	-13 55 55.53	8.91	16 12.26	.9870205	12 14 11
13	0353.5	21 44 19.379	-13 36 00.16	8.91	16 12.09	.9872007	12 14 11
14	0354.5	21 48 14.770	-13 15 51.44	8.91	16 11.91	.9873836	12 14 9
15	0355.5	21 52 09.403	-12 55 29.79	8.90	16 11.72	.9875695	12 14 7
16	0356.5	21 56 03.288	-12 34 55.66	8.90	16 11.54	.9877586	12 14 4
17	0357.5	21 59 56.438	-12 14 09.49	8.90	16 11.35	.9879512	12 13 60
18	0358.5	22 03 48.864	-11 53 11.70	8.90	16 11.16	.9881475	12 13 55
19	0359.5	22 07 40.579	-11 32 02.72	8.90	16 10.96	.9883477	12 13 50
20	0360.5	22 11 31.599	-11 10 42.96	8.90	16 10.76	.9885521	12 13 44
21	0361.5	22 15 21.938	-10 49 12.83	8.89	16 10.55	.9887607	12 13 38
22	0362.5	22 19 11.613	-10 27 32.72	8.89	16 10.34	.9889737	12 13 31
23	0363.5	22 23 00.642	-10 05 43.04	8.89	16 10.13	.9891910	12 13 23
24	0364.5	22 26 49.042	- 9 43 44.15	8.89	16 09.91	.9894127	12 13 14
25	0365.5	22 30 36.832	- 9 21 36.46	8.89	16 09.69	.9896388	12 13 5
26	0366.5	22 34 24.034	- 8 59 20.32	8.88	16 09.47	.9898692	12 12 56
27	0367.5	22 38 10.667	- 8 36 56.13	8.88	16 09.24	.9901037	12 12 45
28	0368.5	22 41 56.753	- 8 14 24.24	8.88	16 09.00	.9903423	12 12 35
29	0369.5	22 45 42.312	- 7 51 45.04	8.88	16 08.77	.9905847	12 12 23

SOL 2024
PARA O^h DE TIEMPO TERRESTRE

Fecha	Día Juliano	Asc. Recta Aparente	Declinación Aparente	P.H.	Semi Diámetro	Distancia Geocent.	Tránsito Efemérides
	245	h m s	° ' "	"	' "	UA	h m s
Mar. 01	0370.5	22 49 27.366	- 7 28 58.89	8.88	16 08.53	.9908308	12 12 12
02	0371.5	22 53 11.935	- 7 06 06.18	8.87	16 08.28	.9910801	12 11 59
03	0372.5	22 56 56.039	- 6 43 07.28	8.87	16 08.04	.9913326	12 11 47
04	0373.5	23 00 39.698	- 6 20 02.57	8.87	16 07.79	.9915878	12 11 34
05	0374.5	23 04 22.930	- 5 56 52.44	8.87	16 07.53	.9918453	12 11 20
06	0375.5	23 08 05.754	- 5 33 37.29	8.86	16 07.28	.9921049	12 11 6
07	0376.5	23 11 48.184	- 5 10 17.52	8.86	16 07.03	.9923660	12 10 52
08	0377.5	23 15 30.237	- 4 46 53.54	8.86	16 06.77	.9926283	12 10 37
09	0378.5	23 19 11.927	- 4 23 25.75	8.86	16 06.52	.9928915	12 10 22
10	0379.5	23 22 53.271	- 3 59 54.57	8.85	16 06.26	.9931552	12 10 7
11	0380.5	23 26 34.284	- 3 36 20.41	8.85	16 06.00	.9934194	12 09 51
12	0381.5	23 30 14.984	- 3 12 43.68	8.85	16 05.74	.9936838	12 09 35
13	0382.5	23 33 55.389	- 2 49 04.77	8.85	16 05.49	.9939485	12 09 19
14	0383.5	23 37 35.518	- 2 25 24.09	8.85	16 05.23	.9942138	12 09 2
15	0384.5	23 41 15.387	- 2 01 42.05	8.84	16 04.97	.9944797	12 08 45
16	0385.5	23 44 55.016	- 1 37 59.04	8.84	16 04.71	.9947466	12 08 28
17	0386.5	23 48 34.422	- 1 14 15.44	8.84	16 04.45	.9950146	12 08 11
18	0387.5	23 52 13.624	- 0 50 31.64	8.84	16 04.19	.9952841	12 07 54
19	0388.5	23 55 52.643	- 0 26 48.01	8.83	16 03.93	.9955551	12 07 36
20	0389.5	23 59 31.499	- 0 03 04.91	8.83	16 03.67	.9958278	12 07 18
21	0390.5	0 03 10.214	+ 0 20 37.32	8.83	16 03.40	.9961023	12 07 0
22	0391.5	0 06 48.810	+ 0 44 18.31	8.83	16 03.13	.9963788	12 06 42
23	0392.5	0 10 27.311	+ 1 07 57.74	8.82	16 02.86	.9966573	12 06 24
24	0393.5	0 14 05.739	+ 1 31 35.26	8.82	16 02.59	.9969378	12 06 6
25	0394.5	0 17 44.118	+ 1 55 10.55	8.82	16 02.32	.9972203	12 05 48
26	0395.5	0 21 22.473	+ 2 18 43.29	8.82	16 02.05	.9975049	12 05 30
27	0396.5	0 25 00.828	+ 2 42 13.13	8.81	16 01.77	.9977912	12 05 12
28	0397.5	0 28 39.206	+ 3 05 39.78	8.81	16 01.49	.9980794	12 04 53
29	0398.5	0 32 17.630	+ 3 29 02.89	8.81	16 01.21	.9983692	12 04 35
30	0399.5	0 35 56.123	+ 3 52 22.14	8.81	16 00.93	.9986603	12 04 17
31	0400.5	0 39 34.707	+ 4 15 37.20	8.80	16 00.65	.9989525	12 03 59
Abr. 01	0401.5	0 43 13.402	+ 4 38 47.75	8.80	16 00.37	.9992456	12 03 42
02	0402.5	0 46 52.229	+ 5 01 53.43	8.80	16 00.09	.9995392	12 03 24
03	0403.5	0 50 31.206	+ 5 24 53.89	8.80	15 59.81	.9998328	12 03 6
04	0404.5	0 54 10.349	+ 5 47 48.79	8.79	15 59.52	1.0001262	12 02 49
05	0405.5	0 57 49.677	+ 6 10 37.75	8.79	15 59.24	1.0004189	12 02 32
06	0406.5	1 01 29.204	+ 6 33 20.42	8.79	15 58.96	1.0007104	12 02 15
07	0407.5	1 05 08.948	+ 6 55 56.41	8.79	15 58.69	1.0010004	12 01 58
08	0408.5	1 08 48.924	+ 7 18 25.36	8.78	15 58.41	1.0012886	12 01 42
09	0409.5	1 12 29.148	+ 7 40 46.91	8.78	15 58.14	1.0015747	12 01 26
10	0410.5	1 16 09.634	+ 8 03 00.67	8.78	15 57.86	1.0018587	12 01 10
11	0411.5	1 19 50.395	+ 8 25 06.29	8.78	15 57.60	1.0021406	12 00 54
12	0412.5	1 23 31.445	+ 8 47 03.40	8.77	15 57.33	1.0024204	12 00 39
13	0413.5	1 27 12.793	+ 9 08 51.62	8.77	15 57.06	1.0026984	12 00 24
14	0414.5	1 30 54.454	+ 9 30 30.61	8.77	15 56.80	1.0029748	12 00 9
15	0415.5	1 34 36.438	+ 9 51 59.99	8.77	15 56.54	1.0032498	11 59 55
16	0416.5	1 38 18.761	+10 13 19.44	8.76	15 56.28	1.0035235	11 59 41
17	0417.5	1 42 01.435	+10 34 28.61	8.76	15 56.02	1.0037961	11 59 27
18	0418.5	1 45 44.478	+10 55 27.18	8.76	15 55.76	1.0040679	11 59 14
19	0419.5	1 49 27.903	+11 16 14.81	8.76	15 55.50	1.0043389	11 59 1
20	0420.5	1 53 11.727	+11 36 51.20	8.75	15 55.24	1.0046093	11 58 48
21	0421.5	1 56 55.966	+11 57 16.03	8.75	15 54.99	1.0048792	11 58 36
22	0422.5	2 00 40.636	+12 17 28.99	8.75	15 54.73	1.0051486	11 58 24
23	0423.5	2 04 25.753	+12 37 29.78	8.75	15 54.47	1.0054176	11 58 13
24	0424.5	2 08 11.332	+12 57 18.11	8.74	15 54.22	1.0056861	11 58 3
25	0425.5	2 11 57.389	+13 16 53.67	8.74	15 53.96	1.0059542	11 57 52
26	0426.5	2 15 43.938	+13 36 16.16	8.74	15 53.71	1.0062218	11 57 42
27	0427.5	2 19 30.992	+13 55 25.29	8.74	15 53.46	1.0064887	11 57 33
28	0428.5	2 23 18.564	+14 14 20.76	8.74	15 53.21	1.0067547	11 57 25
29	0429.5	2 27 06.664	+14 33 02.26	8.73	15 52.96	1.0070197	11 57 16
30	0430.5	2 30 55.303	+14 51 29.47	8.73	15 52.71	1.0072832	11 57 9

SOL 2024
PARA O^h DE TIEMPO TERRESTRE

Fecha	Día Juliano	Asc. Recta Aparente	Declinación Aparente	P.H.	Semi Diámetro	Distancia Geocent.	Tránsito Efemérides
	245	h m s	° ' "	"	' "	UA	h m s
May. 01	0431.5	2 34 44.488	+15 09 42.08	8.73	15 52.46	1.0075451	11 57 2
02	0432.5	2 38 34.227	+15 27 39.76	8.73	15 52.21	1.0078048	11 56 55
03	0433.5	2 42 24.528	+15 45 22.18	8.72	15 51.97	1.0080621	11 56 49
04	0434.5	2 46 15.396	+16 02 49.01	8.72	15 51.73	1.0083164	11 56 44
05	0435.5	2 50 06.836	+16 19 59.91	8.72	15 51.49	1.0085674	11 56 39
06	0436.5	2 53 58.852	+16 36 54.56	8.72	15 51.26	1.0088148	11 56 35
07	0437.5	2 57 51.448	+16 53 32.64	8.72	15 51.03	1.0090581	11 56 31
08	0438.5	3 01 44.622	+17 09 53.82	8.71	15 50.80	1.0092972	11 56 28
09	0439.5	3 05 38.372	+17 25 57.78	8.71	15 50.58	1.0095321	11 56 25
10	0440.5	3 09 32.694	+17 41 44.21	8.71	15 50.37	1.0097626	11 56 23
11	0441.5	3 13 27.583	+17 57 12.79	8.71	15 50.15	1.0099889	11 56 22
12	0442.5	3 17 23.032	+18 12 23.21	8.71	15 49.94	1.0102112	11 56 21
13	0443.5	3 21 19.037	+18 27 15.15	8.70	15 49.74	1.0104296	11 56 21
14	0444.5	3 25 15.593	+18 41 48.33	8.70	15 49.54	1.0106443	11 56 21
15	0445.5	3 29 12.698	+18 56 02.46	8.70	15 49.34	1.0108555	11 56 22
16	0446.5	3 33 10.346	+19 09 57.27	8.70	15 49.14	1.0110634	11 56 23
17	0447.5	3 37 08.537	+19 23 32.48	8.70	15 48.95	1.0112682	11 56 25
18	0448.5	3 41 07.265	+19 36 47.84	8.69	15 48.76	1.0114701	11 56 28
19	0449.5	3 45 06.528	+19 49 43.10	8.69	15 48.58	1.0116692	11 56 31
20	0450.5	3 49 06.323	+20 02 18.03	8.69	15 48.39	1.0118656	11 56 34
21	0451.5	3 53 06.646	+20 14 32.37	8.69	15 48.21	1.0120595	11 56 38
22	0452.5	3 57 07.492	+20 26 25.93	8.69	15 48.03	1.0122510	11 56 43
23	0453.5	4 01 08.856	+20 37 58.46	8.69	15 47.85	1.0124402	11 56 48
24	0454.5	4 05 10.732	+20 49 09.77	8.68	15 47.68	1.0126271	11 56 53
25	0455.5	4 09 13.114	+20 59 59.64	8.68	15 47.51	1.0128116	11 56 59
26	0456.5	4 13 15.993	+21 10 27.86	8.68	15 47.34	1.0129937	11 57 6
27	0457.5	4 17 19.360	+21 20 34.22	8.68	15 47.17	1.0131733	11 57 13
28	0458.5	4 21 23.204	+21 30 18.52	8.68	15 47.00	1.0133501	11 57 21
29	0459.5	4 25 27.514	+21 39 40.54	8.68	15 46.84	1.0135239	11 57 28
30	0460.5	4 29 32.279	+21 48 40.07	8.68	15 46.68	1.0136944	11 57 37
31	0461.5	4 33 37.485	+21 57 16.89	8.67	15 46.52	1.0138611	11 57 46
Jun. 01	0462.5	4 37 43.119	+22 05 30.81	8.67	15 46.37	1.0140238	11 57 55
02	0463.5	4 41 49.166	+22 13 21.63	8.67	15 46.23	1.0141819	11 58 5
03	0464.5	4 45 55.611	+22 20 49.17	8.67	15 46.08	1.0143352	11 58 15
04	0465.5	4 50 02.433	+22 27 53.27	8.67	15 45.94	1.0144832	11 58 25
05	0466.5	4 54 09.613	+22 34 33.76	8.67	15 45.81	1.0146259	11 58 36
06	0467.5	4 58 17.124	+22 40 50.49	8.67	15 45.68	1.0147629	11 58 47
07	0468.5	5 02 24.942	+22 46 43.33	8.67	15 45.56	1.0148941	11 58 59
08	0469.5	5 06 33.040	+22 52 12.13	8.66	15 45.44	1.0150197	11 59 10
09	0470.5	5 10 41.390	+22 57 16.77	8.66	15 45.33	1.0151396	11 59 22
10	0471.5	5 14 49.966	+23 01 57.13	8.66	15 45.23	1.0152540	11 59 34
11	0472.5	5 18 58.743	+23 06 13.11	8.66	15 45.12	1.0153630	11 59 47
12	0473.5	5 23 07.697	+23 10 04.61	8.66	15 45.03	1.0154669	11 59 59
13	0474.5	5 27 16.804	+23 13 31.54	8.66	15 44.94	1.0155658	12 00 12
14	0475.5	5 31 26.042	+23 16 33.85	8.66	15 44.85	1.0156599	12 00 24
15	0476.5	5 35 35.389	+23 19 11.48	8.66	15 44.77	1.0157495	12 00 37
16	0477.5	5 39 44.823	+23 21 24.38	8.66	15 44.69	1.0158348	12 00 50
17	0478.5	5 43 54.322	+23 23 12.53	8.66	15 44.61	1.0159159	12 01 3
18	0479.5	5 48 03.866	+23 24 35.91	8.66	15 44.54	1.0159931	12 01 16
19	0480.5	5 52 13.434	+23 25 34.51	8.66	15 44.47	1.0160666	12 01 29
20	0481.5	5 56 23.005	+23 26 08.33	8.65	15 44.41	1.0161365	12 01 42
21	0482.5	6 00 32.558	+23 26 17.40	8.65	15 44.34	1.0162030	12 01 55
22	0483.5	6 04 42.072	+23 26 01.73	8.65	15 44.28	1.0162662	12 02 8
23	0484.5	6 08 51.528	+23 25 21.34	8.65	15 44.23	1.0163261	12 02 21
24	0485.5	6 13 00.903	+23 24 16.27	8.65	15 44.18	1.0163829	12 02 34
25	0486.5	6 17 10.178	+23 22 46.53	8.65	15 44.13	1.0164362	12 02 46
26	0487.5	6 21 19.332	+23 20 52.14	8.65	15 44.08	1.0164860	12 02 59
27	0488.5	6 25 28.347	+23 18 33.16	8.65	15 44.04	1.0165321	12 03 11
28	0489.5	6 29 37.203	+23 15 49.60	8.65	15 44.00	1.0165740	12 03 23
29	0490.5	6 33 45.882	+23 12 41.52	8.65	15 43.96	1.0166116	12 03 35
30	0491.5	6 37 54.364	+23 09 08.99	8.65	15 43.93	1.0166443	12 03 47

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Fecha	Día Juliano	Asc. Recta Aparente	Declinación Aparente	P.H.	Semi Diámetro	Distancia Geocent.	Tránsito Efemérides
	245	h m s	° ' "	"	' "	UA	h m s
Jul. 01	0492.5	6 42 02.628	+23 05 12.10	8.65	15 43.91	1.0166719	12 03 59
02	0493.5	6 46 10.652	+23 00 50.95	8.65	15 43.89	1.0166941	12 04 10
03	0494.5	6 50 18.411	+22 56 05.64	8.65	15 43.87	1.0167105	12 04 21
04	0495.5	6 54 25.879	+22 50 56.32	8.65	15 43.86	1.0167210	12 04 32
05	0496.5	6 58 33.030	+22 45 23.10	8.65	15 43.86	1.0167253	12 04 42
06	0497.5	7 02 39.839	+22 39 26.14	8.65	15 43.86	1.0167236	12 04 52
07	0498.5	7 06 46.279	+22 33 05.59	8.65	15 43.87	1.0167157	12 05 2
08	0499.5	7 10 52.327	+22 26 21.60	8.65	15 43.88	1.0167017	12 05 11
09	0500.5	7 14 57.961	+22 19 14.33	8.65	15 43.90	1.0166817	12 05 20
10	0501.5	7 19 03.160	+22 11 43.97	8.65	15 43.92	1.0166559	12 05 29
11	0502.5	7 23 07.908	+22 03 50.69	8.65	15 43.95	1.0166245	12 05 37
12	0503.5	7 27 12.185	+21 55 34.69	8.65	15 43.99	1.0165876	12 05 44
13	0504.5	7 31 15.978	+21 46 56.16	8.65	15 44.03	1.0165456	12 05 51
14	0505.5	7 35 19.272	+21 37 55.33	8.65	15 44.07	1.0164986	12 05 58
15	0506.5	7 39 22.055	+21 28 32.39	8.65	15 44.12	1.0164468	12 06 4
16	0507.5	7 43 24.313	+21 18 47.59	8.65	15 44.17	1.0163906	12 06 9
17	0508.5	7 47 26.038	+21 08 41.14	8.65	15 44.23	1.0163302	12 06 14
18	0509.5	7 51 27.218	+20 58 13.29	8.65	15 44.29	1.0162659	12 06 18
19	0510.5	7 55 27.846	+20 47 24.29	8.65	15 44.35	1.0161978	12 06 22
20	0511.5	7 59 27.913	+20 36 14.36	8.65	15 44.41	1.0161264	12 06 25
21	0512.5	8 03 27.412	+20 24 43.75	8.66	15 44.48	1.0160516	12 06 28
22	0513.5	8 07 26.337	+20 12 52.69	8.66	15 44.56	1.0159738	12 06 30
23	0514.5	8 11 24.685	+20 00 41.42	8.66	15 44.63	1.0158929	12 06 31
24	0515.5	8 15 22.453	+19 48 10.16	8.66	15 44.71	1.0158088	12 06 32
25	0516.5	8 19 19.640	+19 35 19.12	8.66	15 44.79	1.0157215	12 06 33
26	0517.5	8 23 16.248	+19 22 08.54	8.66	15 44.88	1.0156307	12 06 33
27	0518.5	8 27 12.278	+19 08 38.65	8.66	15 44.96	1.0155361	12 06 32
28	0519.5	8 31 07.728	+18 54 49.71	8.66	15 45.06	1.0154375	12 06 30
29	0520.5	8 35 02.598	+18 40 41.99	8.66	15 45.15	1.0153344	12 06 28
30	0521.5	8 38 56.885	+18 26 15.75	8.66	15 45.25	1.0152266	12 06 26
31	0522.5	8 42 50.584	+18 11 31.31	8.66	15 45.36	1.0151139	12 06 23
Ago. 01	0523.5	8 46 43.693	+17 56 28.95	8.66	15 45.47	1.0149959	12 06 19
02	0524.5	8 50 36.204	+17 41 08.98	8.67	15 45.58	1.0148726	12 06 14
03	0525.5	8 54 28.116	+17 25 31.71	8.67	15 45.70	1.0147437	12 06 10
04	0526.5	8 58 19.424	+17 09 37.44	8.67	15 45.83	1.0146094	12 06 4
05	0527.5	9 02 10.127	+16 53 26.49	8.67	15 45.96	1.0144695	12 05 58
06	0528.5	9 06 00.224	+16 36 59.16	8.67	15 46.09	1.0143242	12 05 51
07	0529.5	9 09 49.718	+16 20 15.77	8.67	15 46.23	1.0141735	12 05 44
08	0530.5	9 13 38.610	+16 03 16.64	8.67	15 46.38	1.0140176	12 05 36
09	0531.5	9 17 26.905	+15 46 02.08	8.67	15 46.53	1.0138567	12 05 27
10	0532.5	9 21 14.608	+15 28 32.40	8.68	15 46.68	1.0136910	12 05 18
11	0533.5	9 25 01.725	+15 10 47.94	8.68	15 46.84	1.0135207	12 05 8
12	0534.5	9 28 48.263	+14 52 49.02	8.68	15 47.01	1.0133461	12 04 58
13	0535.5	9 32 34.230	+14 34 35.95	8.68	15 47.17	1.0131674	12 04 47
14	0536.5	9 36 19.635	+14 16 09.07	8.68	15 47.34	1.0129850	12 04 36
15	0537.5	9 40 04.487	+13 57 28.70	8.68	15 47.52	1.0127991	12 04 24
16	0538.5	9 43 48.795	+13 38 35.15	8.68	15 47.69	1.0126102	12 04 11
17	0539.5	9 47 32.571	+13 19 28.76	8.69	15 47.87	1.0124185	12 03 58
18	0540.5	9 51 15.826	+13 00 09.82	8.69	15 48.06	1.0122243	12 03 45
19	0541.5	9 54 58.573	+12 40 38.65	8.69	15 48.24	1.0120279	12 03 31
20	0542.5	9 58 40.827	+12 20 55.53	8.69	15 48.43	1.0118295	12 03 16
21	0543.5	10 02 22.606	+12 01 00.73	8.69	15 48.61	1.0116292	12 03 1
22	0544.5	10 06 03.928	+11 40 54.52	8.69	15 48.80	1.0114271	12 02 46
23	0545.5	10 09 44.815	+11 20 37.17	8.70	15 48.99	1.0112230	12 02 30
24	0546.5	10 13 25.284	+11 00 08.95	8.70	15 49.19	1.0110167	12 02 13
25	0547.5	10 17 05.356	+10 39 30.16	8.70	15 49.38	1.0108079	12 01 57
26	0548.5	10 20 45.044	+10 18 41.11	8.70	15 49.58	1.0105965	12 01 40
27	0549.5	10 24 24.365	+ 9 57 42.11	8.70	15 49.78	1.0103820	12 01 22
28	0550.5	10 28 03.330	+ 9 36 33.50	8.71	15 49.99	1.0101642	12 01 5
29	0551.5	10 31 41.952	+ 9 15 15.60	8.71	15 50.20	1.0099430	12 00 46
30	0552.5	10 35 20.244	+ 8 53 48.76	8.71	15 50.41	1.0097181	12 00 28
31	0553.5	10 38 58.218	+ 8 32 13.31	8.71	15 50.62	1.0094894	12 00 9

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Fecha	Día Juliano	Asc. Recta Aparente	Declinación Aparente	P.H.	Semi Diámetro	Distancia Geocent.	Tránsito Efemérides
	245	h m s	° ' "	"	' "	UA	h m s
Sept. 01	0554.5	10 42 35.887	+ 8 10 29.60	8.71	15 50.84	1.0092568	11 59 50
02	0555.5	10 46 13.265	+ 7 48 37.97	8.72	15 51.07	1.0090203	11 59 31
03	0556.5	10 49 50.366	+ 7 26 38.76	8.72	15 51.29	1.0087799	11 59 11
04	0557.5	10 53 27.206	+ 7 04 32.30	8.72	15 51.52	1.0085356	11 58 52
05	0558.5	10 57 03.801	+ 6 42 18.95	8.72	15 51.76	1.0082875	11 58 31
06	0559.5	11 00 40.166	+ 6 19 59.04	8.72	15 51.99	1.0080358	11 58 11
07	0560.5	11 04 16.319	+ 5 57 32.91	8.73	15 52.24	1.0077807	11 57 51
08	0561.5	11 07 52.277	+ 5 35 00.91	8.73	15 52.48	1.0075223	11 57 30
09	0562.5	11 11 28.057	+ 5 12 23.38	8.73	15 52.73	1.0072609	11 57 9
10	0563.5	11 15 03.676	+ 4 49 40.67	8.73	15 52.98	1.0069967	11 56 48
11	0564.5	11 18 39.152	+ 4 26 53.11	8.74	15 53.23	1.0067301	11 56 27
12	0565.5	11 22 14.504	+ 4 04 01.06	8.74	15 53.48	1.0064614	11 56 6
13	0566.5	11 25 49.748	+ 3 41 04.85	8.74	15 53.74	1.0061909	11 55 44
14	0567.5	11 29 24.904	+ 3 18 04.81	8.74	15 54.00	1.0059191	11 55 23
15	0568.5	11 32 59.990	+ 2 55 01.29	8.74	15 54.26	1.0056462	11 55 2
16	0569.5	11 36 35.028	+ 2 31 54.60	8.75	15 54.52	1.0053727	11 54 40
17	0570.5	11 40 10.040	+ 2 08 45.04	8.75	15 54.78	1.0050989	11 54 18
18	0571.5	11 43 45.051	+ 1 45 32.92	8.75	15 55.04	1.0048251	11 53 57
19	0572.5	11 47 20.088	+ 1 22 18.50	8.75	15 55.30	1.0045514	11 53 35
20	0573.5	11 50 55.180	+ 0 59 02.07	8.76	15 55.56	1.0042778	11 53 14
21	0574.5	11 54 30.352	+ 0 35 43.91	8.76	15 55.82	1.0040044	11 52 53
22	0575.5	11 58 05.631	+ 0 12 24.33	8.76	15 56.08	1.0037309	11 52 32
23	0576.5	12 01 41.037	- 0 10 56.37	8.76	15 56.34	1.0034571	11 52 10
24	0577.5	12 05 16.592	- 0 34 17.84	8.77	15 56.60	1.0031828	11 51 50
25	0578.5	12 08 52.316	- 0 57 39.75	8.77	15 56.86	1.0029076	11 51 29
26	0579.5	12 12 28.225	- 1 21 01.72	8.77	15 57.13	1.0026315	11 51 8
27	0580.5	12 16 04.340	- 1 44 23.41	8.77	15 57.39	1.0023541	11 50 48
28	0581.5	12 19 40.677	- 2 07 44.46	8.78	15 57.66	1.0020754	11 50 28
29	0582.5	12 23 17.257	- 2 31 04.49	8.78	15 57.93	1.0017952	11 50 8
30	0583.5	12 26 54.097	- 2 54 23.14	8.78	15 58.19	1.0015134	11 49 48
Oct. 01	0584.5	12 30 31.215	- 3 17 40.04	8.78	15 58.47	1.0012300	11 49 29
02	0585.5	12 34 08.632	- 3 40 54.82	8.79	15 58.74	1.0009450	11 49 10
03	0586.5	12 37 46.365	- 4 04 07.10	8.79	15 59.01	1.0006585	11 48 52
04	0587.5	12 41 24.433	- 4 27 16.51	8.79	15 59.29	1.0003704	11 48 33
05	0588.5	12 45 02.853	- 4 50 22.68	8.79	15 59.57	1.0000809	11 48 15
06	0589.5	12 48 41.644	- 5 13 25.22	8.80	15 59.85	.9997902	11 47 58
07	0590.5	12 52 20.824	- 5 36 23.75	8.80	16 00.13	.9994985	11 47 41
08	0591.5	12 56 00.408	- 5 59 17.88	8.80	16 00.41	.9992059	11 47 24
09	0592.5	12 59 40.414	- 6 22 07.25	8.80	16 00.69	.9989128	11 47 7
10	0593.5	13 03 20.858	- 6 44 51.45	8.81	16 00.97	.9986195	11 46 52
11	0594.5	13 07 01.757	- 7 07 30.10	8.81	16 01.25	.9983262	11 46 36
12	0595.5	13 10 43.126	- 7 30 02.83	8.81	16 01.54	.9980334	11 46 21
13	0596.5	13 14 24.984	- 7 52 29.24	8.81	16 01.82	.9977414	11 46 7
14	0597.5	13 18 07.348	- 8 14 48.97	8.82	16 02.10	.9974508	11 45 53
15	0598.5	13 21 50.239	- 8 37 01.65	8.82	16 02.38	.9971618	11 45 39
16	0599.5	13 25 33.680	- 8 59 06.93	8.82	16 02.65	.9968749	11 45 27
17	0600.5	13 29 17.694	- 9 21 04.48	8.82	16 02.93	.9965903	11 45 14
18	0601.5	13 33 02.306	- 9 42 53.98	8.83	16 03.20	.9963083	11 45 3
19	0602.5	13 36 47.540	-10 04 35.08	8.83	16 03.47	.9960289	11 44 52
20	0603.5	13 40 33.417	-10 26 07.45	8.83	16 03.74	.9957521	11 44 41
21	0604.5	13 44 19.955	-10 47 30.71	8.83	16 04.00	.9954777	11 44 32
22	0605.5	13 48 07.172	-11 08 44.50	8.84	16 04.27	.9952056	11 44 23
23	0606.5	13 51 55.082	-11 29 48.41	8.84	16 04.53	.9949355	11 44 14
24	0607.5	13 55 43.700	-11 50 42.04	8.84	16 04.79	.9946672	11 44 7
25	0608.5	13 59 33.040	-12 11 24.99	8.84	16 05.05	.9944005	11 43 60
26	0609.5	14 03 23.115	-12 31 56.84	8.85	16 05.31	.9941352	11 43 54
27	0610.5	14 07 13.938	-12 52 17.17	8.85	16 05.56	.9938712	11 43 48
28	0611.5	14 11 05.520	-13 12 25.58	8.85	16 05.82	.9936084	11 43 44
29	0612.5	14 14 57.873	-13 32 21.63	8.85	16 06.07	.9933465	11 43 40
30	0613.5	14 18 51.008	-13 52 04.92	8.86	16 06.33	.9930856	11 43 37
31	0614.5	14 22 44.934	-14 11 35.03	8.86	16 06.58	.9928257	11 43 35

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PARA O^h DE TIEMPO TERRESTRE

Fecha	Día Juliano	Asc. Recta Aparente	Declinación Aparente	P.H.	Semi Diámetro	Distancia Geocent.	Tránsito Efemérides
	245	h m s	° ' "	"	' "	UA	h m s
Nov. 01	0615.5	14 26 39.658	-14 30 51.52	8.86	16 06.83	.9925666	11 43 33
02	0616.5	14 30 35.189	-14 49 53.99	8.86	16 07.08	.9923086	11 43 33
03	0617.5	14 34 31.532	-15 08 42.01	8.86	16 07.33	.9920515	11 43 33
04	0618.5	14 38 28.691	-15 27 15.16	8.87	16 07.58	.9917955	11 43 34
05	0619.5	14 42 26.670	-15 45 33.01	8.87	16 07.83	.9915408	11 43 36
06	0620.5	14 46 25.470	-16 03 35.15	8.87	16 08.08	.9912876	11 43 38
07	0621.5	14 50 25.093	-16 21 21.16	8.87	16 08.32	.9910362	11 43 42
08	0622.5	14 54 25.538	-16 38 50.61	8.88	16 08.57	.9907867	11 43 46
09	0623.5	14 58 26.807	-16 56 03.09	8.88	16 08.81	.9905396	11 43 51
10	0624.5	15 02 28.899	-17 12 58.19	8.88	16 09.05	.9902952	11 43 57
11	0625.5	15 06 31.817	-17 29 35.50	8.88	16 09.29	.9900539	11 44 4
12	0626.5	15 10 35.562	-17 45 54.65	8.88	16 09.52	.9898161	11 44 12
13	0627.5	15 14 40.138	-18 01 55.24	8.89	16 09.75	.9895823	11 44 20
14	0628.5	15 18 45.550	-18 17 36.94	8.89	16 09.97	.9893528	11 44 29
15	0629.5	15 22 51.802	-18 32 59.37	8.89	16 10.19	.9891278	11 44 39
16	0630.5	15 26 58.896	-18 48 02.22	8.89	16 10.41	.9889077	11 44 50
17	0631.5	15 31 06.833	-19 02 45.12	8.89	16 10.62	.9886924	11 45 2
18	0632.5	15 35 15.612	-19 17 07.72	8.90	16 10.83	.9884820	11 45 15
19	0633.5	15 39 25.227	-19 31 09.66	8.90	16 11.03	.9882764	11 45 28
20	0634.5	15 43 35.674	-19 44 50.58	8.90	16 11.23	.9880753	11 45 42
21	0635.5	15 47 46.944	-19 58 10.08	8.90	16 11.42	.9878787	11 45 58
22	0636.5	15 51 59.030	-20 11 07.80	8.90	16 11.61	.9876862	11 46 13
23	0637.5	15 56 11.921	-20 23 43.37	8.91	16 11.79	.9874977	11 46 30
24	0638.5	16 00 25.608	-20 35 56.43	8.91	16 11.98	.9873129	11 46 48
25	0639.5	16 04 40.077	-20 47 46.61	8.91	16 12.15	.9871317	11 47 6
26	0640.5	16 08 55.314	-20 59 13.58	8.91	16 12.33	.9869540	11 47 25
27	0641.5	16 13 11.304	-21 10 16.99	8.91	16 12.50	.9867795	11 47 45
28	0642.5	16 17 28.029	-21 20 56.51	8.91	16 12.67	.9866083	11 48 5
29	0643.5	16 21 45.470	-21 31 11.82	8.92	16 12.84	.9864400	11 48 27
30	0644.5	16 26 03.606	-21 41 02.61	8.92	16 13.00	.9862748	11 48 49
Dic. 01	0645.5	16 30 22.413	-21 50 28.57	8.92	16 13.16	.9861125	11 49 11
02	0646.5	16 34 41.865	-21 59 29.41	8.92	16 13.32	.9859532	11 49 34
03	0647.5	16 39 01.937	-22 08 04.85	8.92	16 13.47	.9857968	11 49 58
04	0648.5	16 43 22.599	-22 16 14.62	8.92	16 13.62	.9856435	11 50 23
05	0649.5	16 47 43.821	-22 23 58.45	8.92	16 13.77	.9854934	11 50 47
06	0650.5	16 52 05.573	-22 31 16.09	8.92	16 13.92	.9853467	11 51 13
07	0651.5	16 56 27.825	-22 38 07.31	8.93	16 14.06	.9852037	11 51 39
08	0652.5	17 00 50.546	-22 44 31.88	8.93	16 14.19	.9850647	11 52 5
09	0653.5	17 05 13.708	-22 50 29.58	8.93	16 14.33	.9849301	11 52 32
10	0654.5	17 09 37.284	-22 56 00.25	8.93	16 14.46	.9848001	11 52 59
11	0655.5	17 14 01.247	-23 01 03.70	8.93	16 14.58	.9846752	11 53 27
12	0656.5	17 18 25.570	-23 05 39.80	8.93	16 14.70	.9845558	11 53 55
13	0657.5	17 22 50.228	-23 09 48.42	8.93	16 14.81	.9844422	11 54 23
14	0658.5	17 27 15.193	-23 13 29.45	8.93	16 14.92	.9843346	11 54 52
15	0659.5	17 31 40.439	-23 16 42.79	8.94	16 15.02	.9842332	11 55 20
16	0660.5	17 36 05.934	-23 19 28.33	8.94	16 15.11	.9841382	11 55 49
17	0661.5	17 40 31.651	-23 21 45.99	8.94	16 15.20	.9840494	11 56 19
18	0662.5	17 44 57.557	-23 23 35.66	8.94	16 15.28	.9839669	11 56 48
19	0663.5	17 49 23.622	-23 24 57.27	8.94	16 15.36	.9838904	11 57 18
20	0664.5	17 53 49.817	-23 25 50.75	8.94	16 15.43	.9838198	11 57 47
21	0665.5	17 58 16.109	-23 26 16.02	8.94	16 15.49	.9837548	11 58 17
22	0666.5	18 02 42.466	-23 26 13.06	8.94	16 15.55	.9836952	11 58 47
23	0667.5	18 07 08.857	-23 25 41.84	8.94	16 15.61	.9836409	11 59 17
24	0668.5	18 11 35.248	-23 24 42.35	8.94	16 15.65	.9835915	11 59 47
25	0669.5	18 16 01.606	-23 23 14.61	8.94	16 15.70	.9835469	12 00 17
26	0670.5	18 20 27.897	-23 21 18.63	8.94	16 15.74	.9835069	12 00 46
27	0671.5	18 24 54.085	-23 18 54.47	8.94	16 15.77	.9834713	12 01 16
28	0672.5	18 29 20.136	-23 16 02.20	8.94	16 15.80	.9834398	12 01 45
29	0673.5	18 33 46.011	-23 12 41.88	8.94	16 15.83	.9834124	12 02 14
30	0674.5	18 38 11.676	-23 08 53.63	8.94	16 15.85	.9833889	12 02 43
31	0675.5	18 42 37.091	-23 04 37.55	8.94	16 15.87	.9833692	12 03 12

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PARA 0^h DE TIEMPO TERRESTRE

Fecha		Asc. Recta Aparente	Declinación Aparente	Semi Diámetro	Paralaje Horiz.	Paso Mer. Efemérides
		h m s	° ' "	"	"	h m s
Enero	01	16 03 47.900	-18 46 08.65	7.06	7.44	9 23 37
	02	16 08 49.285	-19 01 44.41	7.02	7.40	9 24 42
	03	16 13 51.839	-19 16 51.17	6.98	7.36	9 25 49
	04	16 18 55.545	-19 31 28.25	6.95	7.32	9 26 56
	05	16 24 00.383	-19 45 34.94	6.91	7.29	9 28 05
	06	16 29 06.328	-19 59 10.57	6.88	7.25	9 29 15
	07	16 34 13.355	-20 12 14.47	6.84	7.21	9 30 26
	08	16 39 21.435	-20 24 46.02	6.81	7.18	9 31 38
	09	16 44 30.536	-20 36 44.59	6.77	7.14	9 32 51
	10	16 49 40.621	-20 48 09.58	6.74	7.11	9 34 05
	11	16 54 51.653	-20 59 00.41	6.71	7.07	9 35 20
	12	17 00 03.589	-21 09 16.52	6.68	7.04	9 36 36
	13	17 05 16.386	-21 18 57.35	6.64	7.01	9 37 52
	14	17 10 30.000	-21 28 02.40	6.61	6.97	9 39 10
	15	17 15 44.389	-21 36 31.15	6.58	6.94	9 40 28
	16	17 20 59.510	-21 44 23.16	6.55	6.91	9 41 47
	17	17 26 15.323	-21 51 37.99	6.52	6.88	9 43 06
	18	17 31 31.783	-21 58 15.27	6.49	6.85	9 44 27
	19	17 36 48.847	-22 04 14.61	6.46	6.82	9 45 47
	20	17 42 06.469	-22 09 35.69	6.44	6.79	9 47 09
	21	17 47 24.601	-22 14 18.21	6.41	6.76	9 48 31
	22	17 52 43.192	-22 18 21.87	6.38	6.73	9 49 53
	23	17 58 02.193	-22 21 46.42	6.35	6.70	9 51 16
	24	18 03 21.551	-22 24 31.61	6.32	6.67	9 52 39
	25	18 08 41.212	-22 26 37.24	6.30	6.64	9 54 02
	26	18 14 01.123	-22 28 03.10	6.27	6.61	9 55 25
	27	18 19 21.230	-22 28 49.05	6.25	6.59	9 56 49
	28	18 24 41.478	-22 28 54.95	6.22	6.56	9 58 13
	29	18 30 01.813	-22 28 20.70	6.20	6.53	9 59 37
	30	18 35 22.181	-22 27 06.23	6.17	6.51	10 01 01
	31	18 40 42.526	-22 25 11.51	6.15	6.48	10 02 25
Febrero	01	18 46 02.795	-22 22 36.53	6.12	6.45	10 03 48
	02	18 51 22.933	-22 19 21.33	6.10	6.43	10 05 12
	03	18 56 42.884	-22 15 25.97	6.07	6.40	10 06 35
	04	19 02 02.594	-22 10 50.55	6.05	6.38	10 07 58
	05	19 07 22.009	-22 05 35.21	6.03	6.36	10 09 21
	06	19 12 41.074	-21 59 40.11	6.01	6.33	10 10 44
	07	19 17 59.733	-21 53 05.46	5.98	6.31	10 12 06
	08	19 23 17.931	-21 45 51.49	5.96	6.29	10 13 27
	09	19 28 35.613	-21 37 58.46	5.94	6.26	10 14 48
	10	19 33 52.725	-21 29 26.64	5.92	6.24	10 16 08
	11	19 39 09.219	-21 20 16.35	5.90	6.22	10 17 28
	12	19 44 25.048	-21 10 27.91	5.88	6.20	10 18 47
	13	19 49 40.169	-21 00 01.69	5.86	6.17	10 20 05
	14	19 54 54.546	-20 48 58.08	5.84	6.15	10 21 23
	15	20 00 08.141	-20 37 17.50	5.82	6.13	10 22 40
	16	20 05 20.921	-20 25 00.39	5.80	6.11	10 23 56
	17	20 10 32.854	-20 12 07.22	5.78	6.09	10 25 11
	18	20 15 43.909	-19 58 38.48	5.76	6.07	10 26 25
	19	20 20 54.057	-19 44 34.67	5.74	6.05	10 27 38
	20	20 26 03.273	-19 29 56.29	5.72	6.03	10 28 50
	21	20 31 11.533	-19 14 43.87	5.70	6.01	10 30 02
	22	20 36 18.816	-18 58 57.95	5.68	5.99	10 31 12
	23	20 41 25.103	-18 42 39.08	5.67	5.97	10 32 21
	24	20 46 30.379	-18 25 47.83	5.65	5.95	10 33 30
	25	20 51 34.630	-18 08 24.75	5.63	5.94	10 34 37
	26	20 56 37.847	-17 50 30.46	5.61	5.92	10 35 43
	27	21 01 40.020	-17 32 05.54	5.60	5.90	10 36 49
	28	21 06 41.143	-17 13 10.60	5.58	5.88	10 37 53
	29	21 11 41.213	-16 53 46.29	5.56	5.87	10 38 56

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PARA 0^h DE TIEMPO TERRESTRE

Fecha		Asc. Recta Aparente	Declinación Aparente	Semi Diámetro	Paralaje Horiz.	Paso Mer. Efemérides
		h m s	° ' "	"	"	h m s
Marzo	01	21 16 40.227	-16 33 53.22	5.55	5.85	10 39 58
	02	21 21 38.185	-16 13 32.07	5.53	5.83	10 40 59
	03	21 26 35.087	-15 52 43.49	5.51	5.81	10 41 59
	04	21 31 30.935	-15 31 28.16	5.50	5.80	10 42 58
	05	21 36 25.732	-15 09 46.77	5.48	5.78	10 43 55
	06	21 41 19.483	-14 47 40.01	5.47	5.77	10 44 52
	07	21 46 12.190	-14 25 08.60	5.45	5.75	10 45 48
	08	21 51 03.862	-14 02 13.26	5.44	5.73	10 46 43
	09	21 55 54.505	-13 38 54.69	5.42	5.72	10 47 36
	10	22 00 44.130	-13 15 13.62	5.41	5.70	10 48 29
	11	22 05 32.751	-12 51 10.77	5.39	5.69	10 49 21
	12	22 10 20.386	-12 26 46.85	5.38	5.67	10 50 11
	13	22 15 07.052	-12 02 02.59	5.37	5.66	10 51 01
	14	22 19 52.772	-11 36 58.73	5.35	5.64	10 51 50
	15	22 24 37.567	-11 11 35.98	5.34	5.63	10 52 38
	16	22 29 21.459	-10 45 55.09	5.33	5.62	10 53 25
	17	22 34 04.473	-10 19 56.78	5.31	5.60	10 54 11
	18	22 38 46.634	- 9 53 41.77	5.30	5.59	10 54 56
	19	22 43 27.969	- 9 27 10.79	5.29	5.58	10 55 40
	20	22 48 08.506	- 9 00 24.54	5.28	5.56	10 56 24
	21	22 52 48.277	- 8 33 23.73	5.26	5.55	10 57 07
	22	22 57 27.312	- 8 06 09.06	5.25	5.54	10 57 49
	23	23 02 05.645	- 7 38 41.24	5.24	5.52	10 58 31
	24	23 06 43.311	- 7 11 00.95	5.23	5.51	10 59 11
	25	23 11 20.345	- 6 43 08.90	5.22	5.50	10 59 52
	26	23 15 56.784	- 6 15 05.78	5.20	5.49	11 00 31
	27	23 20 32.665	- 5 46 52.28	5.19	5.48	11 01 10
	28	23 25 08.025	- 5 18 29.09	5.18	5.46	11 01 49
	29	23 29 42.904	- 4 49 56.91	5.17	5.45	11 02 27
	30	23 34 17.337	- 4 21 16.43	5.16	5.44	11 03 05
	31	23 38 51.365	- 3 52 28.35	5.15	5.43	11 03 42
Abril	01	23 43 25.023	- 3 23 33.39	5.14	5.42	11 04 19
	02	23 47 58.349	- 2 54 32.25	5.13	5.41	11 04 56
	03	23 52 31.381	- 2 25 25.64	5.12	5.40	11 05 32
	04	23 57 04.154	- 1 56 14.28	5.11	5.39	11 06 08
	05	0 01 36.705	- 1 26 58.89	5.10	5.38	11 06 44
	06	0 06 09.071	- 0 57 40.20	5.09	5.37	11 07 20
	07	0 10 41.291	- 0 28 18.92	5.08	5.36	11 07 56
	08	0 15 13.405	+ 0 01 04.24	5.07	5.35	11 08 31
	09	0 19 45.451	+ 0 30 28.56	5.06	5.34	11 09 07
	10	0 24 17.469	+ 0 59 53.33	5.05	5.33	11 09 42
	11	0 28 49.499	+ 1 29 17.83	5.04	5.32	11 10 18
	12	0 33 21.577	+ 1 58 41.34	5.04	5.31	11 10 53
	13	0 37 53.743	+ 2 28 03.14	5.03	5.30	11 11 29
	14	0 42 26.032	+ 2 57 22.53	5.02	5.29	11 12 05
	15	0 46 58.485	+ 3 26 38.78	5.01	5.28	11 12 41
	16	0 51 31.139	+ 3 55 51.18	5.00	5.28	11 13 17
	17	0 56 04.035	+ 4 24 59.04	5.00	5.27	11 13 53
	18	1 00 37.213	+ 4 54 01.65	4.99	5.26	11 14 30
	19	1 05 10.712	+ 5 22 58.32	4.98	5.25	11 15 07
	20	1 09 44.575	+ 5 51 48.35	4.97	5.24	11 15 45
	21	1 14 18.840	+ 6 20 31.04	4.97	5.24	11 16 23
	22	1 18 53.550	+ 6 49 05.71	4.96	5.23	11 17 01
	23	1 23 28.744	+ 7 17 31.65	4.95	5.22	11 17 40
	24	1 28 04.463	+ 7 45 48.18	4.95	5.21	11 18 20
	25	1 32 40.744	+ 8 13 54.59	4.94	5.21	11 18 60
	26	1 37 17.628	+ 8 41 50.19	4.93	5.20	11 19 40
	27	1 41 55.149	+ 9 09 34.28	4.93	5.19	11 20 22
	28	1 46 33.345	+ 9 37 06.13	4.92	5.19	11 21 04
	29	1 51 12.248	+10 04 25.05	4.91	5.18	11 21 46
	30	1 55 51.893	+10 31 30.29	4.91	5.18	11 22 30

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PARA 0h DE TIEMPO TERRESTRE

Fecha		Asc. Recta Aparente	Declinación Aparente	Semi Diámetro	Paralaje Horiz.	Paso Mer. Efemérides
		h m s	° ' "	"	"	h m s
Mayo	01	2 00 32.310	+10 58 21.13	4.90	5.17	11 23 14
	02	2 05 13.530	+11 24 56.83	4.90	5.16	11 23 59
	03	2 09 55.582	+11 51 16.64	4.89	5.16	11 24 45
	04	2 14 38.497	+12 17 19.83	4.89	5.15	11 25 32
	05	2 19 22.301	+12 43 05.64	4.88	5.15	11 26 20
	06	2 24 07.023	+13 08 33.33	4.88	5.14	11 27 08
	07	2 28 52.689	+13 33 42.17	4.87	5.14	11 27 58
	08	2 33 39.320	+13 58 31.41	4.87	5.13	11 28 48
	09	2 38 26.937	+14 23 00.32	4.86	5.13	11 29 40
	10	2 43 15.559	+14 47 08.16	4.86	5.12	11 30 33
	11	2 48 05.200	+15 10 54.16	4.86	5.12	11 31 26
	12	2 52 55.874	+15 34 17.60	4.85	5.12	11 32 21
	13	2 57 47.596	+15 57 17.73	4.85	5.11	11 33 16
	14	3 02 40.379	+16 19 53.81	4.84	5.11	11 34 13
	15	3 07 34.234	+16 42 05.12	4.84	5.11	11 35 11
	16	3 12 29.172	+17 03 50.93	4.84	5.10	11 36 10
	17	3 17 25.204	+17 25 10.53	4.84	5.10	11 37 10
	18	3 22 22.338	+17 46 03.21	4.83	5.10	11 38 11
	19	3 27 20.579	+18 06 28.28	4.83	5.09	11 39 14
	20	3 32 19.934	+18 26 25.04	4.83	5.09	11 40 17
	21	3 37 20.405	+18 45 52.80	4.82	5.09	11 41 21
	22	3 42 21.992	+19 04 50.91	4.82	5.08	11 42 27
	23	3 47 24.693	+19 23 18.68	4.82	5.08	11 43 34
	24	3 52 28.505	+19 41 15.47	4.82	5.08	11 44 42
	25	3 57 33.419	+19 58 40.61	4.82	5.08	11 45 51
	26	4 02 39.427	+20 15 33.48	4.81	5.08	11 47 01
	27	4 07 46.513	+20 31 53.43	4.81	5.07	11 48 12
	28	4 12 54.663	+20 47 39.82	4.81	5.07	11 49 24
	29	4 18 03.858	+21 02 52.04	4.81	5.07	11 50 37
	30	4 23 14.077	+21 17 29.45	4.81	5.07	11 51 51
	31	4 28 25.299	+21 31 31.47	4.81	5.07	11 53 07
Junio	01	4 33 37.499	+21 44 57.49	4.81	5.07	11 54 23
	02	4 38 50.648	+21 57 46.95	4.81	5.07	11 55 40
	03	4 44 04.714	+22 09 59.27	4.81	5.07	11 56 58
	04	4 49 19.647	+22 21 33.68	4.81	5.07	11 58 17
	05	4 54 35.646	+22 32 30.30	4.81	5.07	11 59 37
	06	4 59 52.187	+22 42 49.03	4.81	5.07	12 00 57
	07	5 05 09.562	+22 52 28.10	4.81	5.07	12 02 18
	08	5 10 27.666	+23 01 27.69	4.81	5.07	12 03 40
	09	5 15 46.442	+23 09 47.41	4.81	5.07	12 05 03
	10	5 21 05.839	+23 17 26.87	4.81	5.07	12 06 26
	11	5 26 25.805	+23 24 25.70	4.81	5.07	12 07 50
	12	5 31 46.289	+23 30 43.58	4.81	5.07	12 09 14
	13	5 37 07.238	+23 36 20.19	4.81	5.07	12 10 39
	14	5 42 28.599	+23 41 15.28	4.81	5.07	12 12 04
	15	5 47 50.318	+23 45 28.59	4.81	5.08	12 13 29
	16	5 53 12.342	+23 48 59.93	4.82	5.08	12 14 55
	17	5 58 34.615	+23 51 49.11	4.82	5.08	12 16 21
	18	6 03 57.080	+23 53 56.00	4.82	5.08	12 17 47
	19	6 09 19.683	+23 55 20.47	4.82	5.08	12 19 13
	20	6 14 42.364	+23 56 02.46	4.82	5.09	12 20 39
	21	6 20 05.067	+23 56 01.90	4.83	5.09	12 22 06
	22	6 25 27.734	+23 55 18.79	4.83	5.09	12 23 32
	23	6 30 50.305	+23 53 53.12	4.83	5.10	12 24 58
	24	6 36 12.723	+23 51 44.94	4.84	5.10	12 26 23
	25	6 41 34.929	+23 48 54.29	4.84	5.10	12 27 49
	26	6 46 56.867	+23 45 21.24	4.84	5.11	12 29 14
	27	6 52 18.480	+23 41 05.92	4.85	5.11	12 30 39
	28	6 57 39.716	+23 36 08.44	4.85	5.11	12 32 04
	29	7 03 00.522	+23 30 28.99	4.85	5.12	12 33 28
	30	7 08 20.846	+23 24 07.75	4.86	5.12	12 34 52

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PARA 0^h DE TIEMPO TERRESTRE

Fecha		Asc. Recta Aparente	Declinación Aparente	Semi Diámetro	Paralaje Horiz.	Paso Mer. Efemérides
		h m s	° ' "	"	"	h m s
Julio	01	7 13 40.635	+23 17 04.98	4.86	5.13	12 36 15
	02	7 18 59.840	+23 09 20.94	4.87	5.13	12 37 37
	03	7 24 18.407	+23 00 55.95	4.87	5.14	12 38 59
	04	7 29 36.285	+22 51 50.34	4.88	5.14	12 40 20
	05	7 34 53.424	+22 42 04.48	4.88	5.15	12 41 40
	06	7 40 09.773	+22 31 38.75	4.89	5.15	12 42 59
	07	7 45 25.287	+22 20 33.57	4.89	5.16	12 44 18
	08	7 50 39.920	+22 08 49.36	4.90	5.16	12 45 35
	09	7 55 53.632	+21 56 26.58	4.90	5.17	12 46 52
	10	8 01 06.386	+21 43 25.71	4.91	5.17	12 48 08
	11	8 06 18.146	+21 29 47.23	4.91	5.18	12 49 23
	12	8 11 28.880	+21 15 31.68	4.92	5.19	12 50 36
	13	8 16 38.560	+21 00 39.58	4.93	5.19	12 51 49
	14	8 21 47.160	+20 45 11.49	4.93	5.20	12 53 00
	15	8 26 54.655	+20 29 08.00	4.94	5.21	12 54 11
	16	8 32 01.027	+20 12 29.69	4.95	5.22	12 55 20
	17	8 37 06.255	+19 55 17.17	4.95	5.22	12 56 28
	18	8 42 10.324	+19 37 31.07	4.96	5.23	12 57 35
	19	8 47 13.220	+19 19 12.03	4.97	5.24	12 58 41
	20	8 52 14.931	+19 00 20.68	4.98	5.25	12 59 45
	21	8 57 15.450	+18 40 57.69	4.98	5.26	13 00 49
	22	9 02 14.768	+18 21 03.70	4.99	5.26	13 01 51
	23	9 07 12.883	+18 00 39.38	5.00	5.27	13 02 52
	24	9 12 09.794	+17 39 45.38	5.01	5.28	13 03 52
	25	9 17 05.506	+17 18 22.35	5.02	5.29	13 04 50
	26	9 22 00.026	+16 56 30.96	5.03	5.30	13 05 48
	27	9 26 53.361	+16 34 11.87	5.03	5.31	13 06 44
	28	9 31 45.524	+16 11 25.79	5.04	5.32	13 07 39
	29	9 36 36.523	+15 48 13.40	5.05	5.33	13 08 33
	30	9 41 26.371	+15 24 35.42	5.06	5.34	13 09 25
	31	9 46 15.079	+15 00 32.58	5.07	5.35	13 10 17
Agosto	01	9 51 02.660	+14 36 05.61	5.08	5.36	13 11 07
	02	9 55 49.126	+14 11 15.24	5.09	5.37	13 11 57
	03	10 00 34.492	+13 46 02.21	5.10	5.38	13 12 45
	04	10 05 18.777	+13 20 27.26	5.11	5.39	13 13 32
	05	10 10 01.998	+12 54 31.12	5.12	5.40	13 14 18
	06	10 14 44.176	+12 28 14.54	5.14	5.41	13 15 03
	07	10 19 25.335	+12 01 38.24	5.15	5.43	13 15 47
	08	10 24 05.499	+11 34 42.97	5.16	5.44	13 16 30
	09	10 28 44.695	+11 07 29.46	5.17	5.45	13 17 13
	10	10 33 22.952	+10 39 58.44	5.18	5.46	13 17 54
	11	10 38 00.297	+10 12 10.65	5.19	5.48	13 18 34
	12	10 42 36.763	+ 9 44 06.83	5.21	5.49	13 19 14
	13	10 47 12.379	+ 9 15 47.72	5.22	5.50	13 19 52
	14	10 51 47.179	+ 8 47 14.04	5.23	5.52	13 20 30
	15	10 56 21.195	+ 8 18 26.53	5.24	5.53	13 21 07
	16	11 00 54.461	+ 7 49 25.92	5.26	5.54	13 21 43
	17	11 05 27.010	+ 7 20 12.95	5.27	5.56	13 22 19
	18	11 09 58.879	+ 6 50 48.34	5.28	5.57	13 22 54
	19	11 14 30.103	+ 6 21 12.80	5.30	5.59	13 23 28
	20	11 19 00.720	+ 5 51 27.05	5.31	5.60	13 24 02
	21	11 23 30.772	+ 5 21 31.76	5.32	5.61	13 24 35
	22	11 28 00.302	+ 4 51 27.63	5.34	5.63	13 25 08
	23	11 32 29.354	+ 4 21 15.32	5.35	5.65	13 25 40
	24	11 36 57.974	+ 3 50 55.51	5.37	5.66	13 26 12
	25	11 41 26.205	+ 3 20 28.89	5.38	5.68	13 26 44
	26	11 45 54.089	+ 2 49 56.15	5.40	5.69	13 27 15
	27	11 50 21.669	+ 2 19 17.99	5.41	5.71	13 27 46
	28	11 54 48.985	+ 1 48 35.12	5.43	5.73	13 28 16
	29	11 59 16.077	+ 1 17 48.26	5.45	5.74	13 28 47
	30	12 03 42.984	+ 0 46 58.13	5.46	5.76	13 29 17
	31	12 08 09.748	+ 0 16 05.45	5.48	5.78	13 29 47

VENUS 2024
PARA O^h DE TIEMPO TERRESTRE

Fecha		Asc. Recta Aparente	Declinación Aparente	Semi Diámetro	Paralaje Horiz.	Paso Mer. Efemérides
		h m s	° ' "	"	"	h m s
Septiembre	01	12 12 36.408	- 0 14 49.06	5.49	5.79	13 30 17
	02	12 17 03.006	- 0 45 44.69	5.51	5.81	13 30 47
	03	12 21 29.584	- 1 16 40.71	5.53	5.83	13 31 17
	04	12 25 56.182	- 1 47 36.40	5.55	5.85	13 31 47
	05	12 30 22.842	- 2 18 31.05	5.56	5.87	13 32 18
	06	12 34 49.607	- 2 49 23.94	5.58	5.89	13 32 48
	07	12 39 16.517	- 3 20 14.34	5.60	5.91	13 33 18
	08	12 43 43.614	- 3 51 01.53	5.62	5.92	13 33 49
	09	12 48 10.938	- 4 21 44.79	5.64	5.94	13 34 20
	10	12 52 38.530	- 4 52 23.39	5.66	5.96	13 34 51
	11	12 57 06.430	- 5 22 56.59	5.68	5.98	13 35 23
	12	13 01 34.675	- 5 53 23.68	5.69	6.01	13 35 55
	13	13 06 03.305	- 6 23 43.91	5.71	6.03	13 36 27
	14	13 10 32.357	- 6 53 56.54	5.73	6.05	13 36 60
	15	13 15 01.868	- 7 24 00.85	5.76	6.07	13 37 33
	16	13 19 31.878	- 7 53 56.08	5.78	6.09	13 38 07
	17	13 24 02.424	- 8 23 41.53	5.80	6.11	13 38 41
	18	13 28 33.549	- 8 53 16.46	5.82	6.13	13 39 16
	19	13 33 05.294	- 9 22 40.18	5.84	6.16	13 39 52
	20	13 37 37.701	- 9 51 51.99	5.86	6.18	13 40 28
	21	13 42 10.814	-10 20 51.18	5.88	6.20	13 41 05
	22	13 46 44.670	-10 49 37.05	5.91	6.23	13 41 43
	23	13 51 19.306	-11 18 08.88	5.93	6.25	13 42 21
	24	13 55 54.758	-11 46 25.93	5.95	6.27	13 43 01
	25	14 00 31.057	-12 14 27.45	5.97	6.30	13 43 41
	26	14 05 08.235	-12 42 12.69	6.00	6.32	13 44 22
	27	14 09 46.321	-13 09 40.89	6.02	6.35	13 45 04
	28	14 14 25.345	-13 36 51.27	6.05	6.37	13 45 47
	29	14 19 05.334	-14 03 43.08	6.07	6.40	13 46 31
	30	14 23 46.316	-14 30 15.53	6.09	6.43	13 47 16
Octubre	01	14 28 28.313	-14 56 27.87	6.12	6.45	13 48 02
	02	14 33 11.351	-15 22 19.31	6.15	6.48	13 48 50
	03	14 37 55.451	-15 47 49.09	6.17	6.51	13 49 38
	04	14 42 40.633	-16 12 56.43	6.20	6.53	13 50 27
	05	14 47 26.913	-16 37 40.56	6.22	6.56	13 51 17
	06	14 52 14.306	-17 02 00.72	6.25	6.59	13 52 09
	07	14 57 02.826	-17 25 56.13	6.28	6.62	13 53 02
	08	15 01 52.482	-17 49 26.02	6.31	6.65	13 53 55
	09	15 06 43.280	-18 12 29.63	6.33	6.68	13 54 50
	10	15 11 35.226	-18 35 06.20	6.36	6.71	13 55 46
	11	15 16 28.321	-18 57 14.96	6.39	6.74	13 56 44
	12	15 21 22.564	-19 18 55.15	6.42	6.77	13 57 42
	13	15 26 17.953	-19 40 06.03	6.45	6.80	13 58 42
	14	15 31 14.484	-20 00 46.84	6.48	6.83	13 59 42
	15	15 36 12.152	-20 20 56.85	6.51	6.86	14 00 44
	16	15 41 10.953	-20 40 35.36	6.54	6.90	14 01 47
	17	15 46 10.880	-20 59 41.67	6.57	6.93	14 02 51
	18	15 51 11.926	-21 18 15.11	6.60	6.96	14 03 56
	19	15 56 14.082	-21 36 15.02	6.64	7.00	14 05 03
	20	16 01 17.334	-21 53 40.78	6.67	7.03	14 06 10
	21	16 06 21.663	-22 10 31.73	6.70	7.07	14 07 18
	22	16 11 27.047	-22 26 47.25	6.73	7.10	14 08 28
	23	16 16 33.462	-22 42 26.70	6.77	7.14	14 09 38
	24	16 21 40.878	-22 57 29.45	6.80	7.17	14 10 50
	25	16 26 49.266	-23 11 54.91	6.84	7.21	14 12 02
	26	16 31 58.591	-23 25 42.48	6.87	7.25	14 13 16
	27	16 37 08.817	-23 38 51.58	6.91	7.28	14 14 30
	28	16 42 19.904	-23 51 21.67	6.94	7.32	14 15 45
	29	16 47 31.810	-24 03 12.22	6.98	7.36	14 17 01
	30	16 52 44.490	-24 14 22.72	7.02	7.40	14 18 18
	31	16 57 57.894	-24 24 52.70	7.06	7.44	14 19 35

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PARA Oh DE TIEMPO TERRESTRE

Fecha		Asc. Recta Aparente	Declinación Aparente	Semi Diámetro	Paralaje Horiz.	Paso Mer. Efemérides
		h m s	° ' "	"	"	h m s
Noviembre	01	17 03 11.972	-24 34 41.70	7.10	7.48	14 20 53
	02	17 08 26.667	-24 43 49.31	7.13	7.52	14 22 11
	03	17 13 41.921	-24 52 15.13	7.17	7.56	14 23 30
	04	17 18 57.673	-24 59 58.80	7.21	7.61	14 24 50
	05	17 24 13.859	-25 06 59.99	7.25	7.65	14 26 10
	06	17 29 30.410	-25 13 18.38	7.30	7.69	14 27 30
	07	17 34 47.257	-25 18 53.73	7.34	7.74	14 28 51
	08	17 40 04.327	-25 23 45.77	7.38	7.78	14 30 11
	09	17 45 21.548	-25 27 54.30	7.42	7.83	14 31 32
	10	17 50 38.845	-25 31 19.16	7.47	7.87	14 32 53
	11	17 55 56.143	-25 34 00.19	7.51	7.92	14 34 14
	12	18 01 13.371	-25 35 57.29	7.56	7.97	14 35 34
	13	18 06 30.454	-25 37 10.41	7.60	8.02	14 36 55
	14	18 11 47.323	-25 37 39.51	7.65	8.07	14 38 15
	15	18 17 03.907	-25 37 24.63	7.70	8.12	14 39 35
	16	18 22 20.135	-25 36 25.83	7.74	8.17	14 40 54
	17	18 27 35.937	-25 34 43.20	7.79	8.22	14 42 13
	18	18 32 51.241	-25 32 16.87	7.84	8.27	14 43 32
	19	18 38 05.977	-25 29 07.00	7.89	8.32	14 44 50
	20	18 43 20.074	-25 25 13.74	7.94	8.38	14 46 07
	21	18 48 33.463	-25 20 37.31	8.00	8.43	14 47 23
	22	18 53 46.076	-25 15 17.92	8.05	8.49	14 48 39
	23	18 58 57.847	-25 09 15.84	8.10	8.54	14 49 54
	24	19 04 08.709	-25 02 31.37	8.16	8.60	14 51 07
	25	19 09 18.598	-24 55 04.82	8.21	8.66	14 52 20
	26	19 14 27.452	-24 46 56.55	8.27	8.72	14 53 32
	27	19 19 35.207	-24 38 06.96	8.32	8.78	14 54 42
	28	19 24 41.803	-24 28 36.47	8.38	8.84	14 55 52
	29	19 29 47.180	-24 18 25.54	8.44	8.90	14 56 60
	30	19 34 51.280	-24 07 34.64	8.50	8.96	14 58 07
Diciembre	01	19 39 54.043	-23 56 04.30	8.56	9.03	14 59 12
	02	19 44 55.415	-23 43 55.05	8.62	9.09	15 00 16
	03	19 49 55.338	-23 31 07.48	8.69	9.16	15 01 18
	04	19 54 53.758	-23 17 42.17	8.75	9.23	15 02 19
	05	19 59 50.621	-23 03 39.75	8.82	9.30	15 03 19
	06	20 04 45.875	-22 49 00.86	8.88	9.37	15 04 16
	07	20 09 39.473	-22 33 46.15	8.95	9.44	15 05 12
	08	20 14 31.368	-22 17 56.32	9.02	9.51	15 06 07
	09	20 19 21.517	-22 01 32.06	9.09	9.58	15 06 59
	10	20 24 09.880	-21 44 34.07	9.16	9.66	15 07 50
	11	20 28 56.423	-21 27 03.10	9.23	9.73	15 08 39
	12	20 33 41.113	-21 08 59.89	9.30	9.81	15 09 26
	13	20 38 23.920	-20 50 25.21	9.38	9.89	15 10 11
	14	20 43 04.817	-20 31 19.83	9.46	9.97	15 10 54
	15	20 47 43.778	-20 11 44.54	9.53	10.05	15 11 35
	16	20 52 20.780	-19 51 40.13	9.61	10.14	15 12 14
	17	20 56 55.802	-19 31 07.37	9.69	10.22	15 12 51
	18	21 01 28.825	-19 10 07.05	9.78	10.31	15 13 27
	19	21 05 59.834	-18 48 39.95	9.86	10.40	15 13 60
	20	21 10 28.815	-18 26 46.83	9.95	10.49	15 14 31
	21	21 14 55.755	-18 04 28.49	10.03	10.58	15 14 60
	22	21 19 20.644	-17 41 45.71	10.12	10.67	15 15 27
	23	21 23 43.472	-17 18 39.29	10.21	10.77	15 15 52
	24	21 28 04.229	-16 55 10.03	10.30	10.86	15 16 15
	25	21 32 22.905	-16 31 18.74	10.40	10.96	15 16 36
	26	21 36 39.493	-16 07 06.23	10.49	11.06	15 16 54
	27	21 40 53.982	-15 42 33.33	10.59	11.17	15 17 11
	28	21 45 06.363	-15 17 40.87	10.69	11.27	15 17 25
	29	21 49 16.625	-14 52 29.67	10.79	11.38	15 17 38
	30	21 53 24.756	-14 27 00.60	10.89	11.49	15 17 48
	31	21 57 30.744	-14 01 14.50	11.00	11.60	15 17 56

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PARA 0^h DE TIEMPO TERRESTRE

Fecha		Asc. Recta Aparente	Declinación Aparente	Semi Diámetro	Paralaje Horiz.	Paso Mer. Efemérides
		h m s	° ' "	"	"	h m s
Enero	01	17 48 12.913	-23 57 40.93	1.93	3.63	11 07 17
	02	17 51 27.666	-23 59 03.08	1.93	3.63	11 06 36
	03	17 54 42.681	-24 00 10.13	1.94	3.64	11 05 54
	04	17 57 57.945	-24 01 02.03	1.94	3.64	11 05 13
	05	18 01 13.446	-24 01 38.71	1.94	3.65	11 04 32
	06	18 04 29.169	-24 02 00.12	1.94	3.65	11 03 51
	07	18 07 45.103	-24 02 06.22	1.95	3.66	11 03 11
	08	18 11 01.233	-24 01 56.97	1.95	3.66	11 02 31
	09	18 14 17.542	-24 01 32.33	1.95	3.67	11 01 50
	10	18 17 34.014	-24 00 52.28	1.95	3.67	11 01 10
	11	18 20 50.630	-23 59 56.80	1.96	3.68	11 00 30
	12	18 24 07.371	-23 58 45.87	1.96	3.68	10 59 51
	13	18 27 24.218	-23 57 19.46	1.96	3.69	10 59 11
	14	18 30 41.151	-23 55 37.54	1.96	3.69	10 58 31
	15	18 33 58.156	-23 53 40.09	1.97	3.70	10 57 52
	16	18 37 15.218	-23 51 27.11	1.97	3.70	10 57 13
	17	18 40 32.324	-23 48 58.59	1.97	3.71	10 56 33
	18	18 43 49.463	-23 46 14.53	1.98	3.71	10 55 54
	19	18 47 06.621	-23 43 14.96	1.98	3.72	10 55 14
	20	18 50 23.787	-23 39 59.91	1.98	3.72	10 54 35
	21	18 53 40.948	-23 36 29.41	1.98	3.73	10 53 56
	22	18 56 58.089	-23 32 43.49	1.99	3.73	10 53 16
	23	19 00 15.198	-23 28 42.18	1.99	3.74	10 52 37
	24	19 03 32.261	-23 24 25.53	1.99	3.75	10 51 57
	25	19 06 49.264	-23 19 53.56	2.00	3.75	10 51 18
	26	19 10 06.196	-23 15 06.30	2.00	3.76	10 50 38
	27	19 13 23.043	-23 10 03.80	2.00	3.76	10 49 58
	28	19 16 39.793	-23 04 46.09	2.01	3.77	10 49 18
	29	19 19 56.437	-22 59 13.22	2.01	3.77	10 48 38
	30	19 23 12.961	-22 53 25.24	2.01	3.78	10 47 58
	31	19 26 29.357	-22 47 22.19	2.01	3.79	10 47 18
Febrero	01	19 29 45.613	-22 41 04.14	2.02	3.79	10 46 38
	02	19 33 01.719	-22 34 31.16	2.02	3.80	10 45 57
	03	19 36 17.664	-22 27 43.33	2.02	3.80	10 45 17
	04	19 39 33.436	-22 20 40.72	2.03	3.81	10 44 36
	05	19 42 49.025	-22 13 23.43	2.03	3.82	10 43 55
	06	19 46 04.417	-22 05 51.55	2.03	3.82	10 43 14
	07	19 49 19.600	-21 58 05.19	2.04	3.83	10 42 32
	08	19 52 34.558	-21 50 04.46	2.04	3.83	10 41 50
	09	19 55 49.277	-21 41 49.47	2.04	3.84	10 41 08
	10	19 59 03.742	-21 33 20.33	2.05	3.85	10 40 26
	11	20 02 17.940	-21 24 37.14	2.05	3.85	10 39 44
	12	20 05 31.860	-21 15 40.00	2.05	3.86	10 39 01
	13	20 08 45.495	-21 06 29.04	2.06	3.87	10 38 18
	14	20 11 58.836	-20 57 04.37	2.06	3.87	10 37 35
	15	20 15 11.879	-20 47 26.12	2.06	3.88	10 36 51
	16	20 18 24.615	-20 37 34.44	2.07	3.89	10 36 07
	17	20 21 37.039	-20 27 29.47	2.07	3.89	10 35 23
	18	20 24 49.142	-20 17 11.35	2.07	3.90	10 34 38
	19	20 28 00.920	-20 06 40.22	2.08	3.91	10 33 53
	20	20 31 12.364	-19 55 56.23	2.08	3.91	10 33 08
	21	20 34 23.470	-19 44 59.52	2.09	3.92	10 32 23
	22	20 37 34.232	-19 33 50.22	2.09	3.93	10 31 37
	23	20 40 44.647	-19 22 28.48	2.09	3.93	10 30 50
	24	20 43 54.709	-19 10 54.43	2.10	3.94	10 30 04
	25	20 47 04.417	-18 59 08.21	2.10	3.95	10 29 17
	26	20 50 13.768	-18 47 09.97	2.10	3.95	10 28 30
	27	20 53 22.760	-18 34 59.83	2.11	3.96	10 27 42
	28	20 56 31.392	-18 22 37.97	2.11	3.97	10 26 54
	29	20 59 39.662	-18 10 04.52	2.11	3.97	10 26 05

MARTE 2024
PARA 0^h DE TIEMPO TERRESTRE

Fecha		Asc. Recta Aparente	Declinación Aparente	Semi Diámetro	Paralaje Horiz.	Paso Mer. Efemérides
		h m s	° ' "	"	"	h m s
Marzo	01	21 02 47.570	-17 57 19.65	2.12	3.98	10 25 17
	02	21 05 55.112	-17 44 23.51	2.12	3.99	10 24 27
	03	21 09 02.289	-17 31 16.28	2.13	3.99	10 23 38
	04	21 12 09.096	-17 17 58.14	2.13	4.00	10 22 48
	05	21 15 15.532	-17 04 29.25	2.13	4.01	10 21 58
	06	21 18 21.592	-16 50 49.82	2.14	4.01	10 21 07
	07	21 21 27.272	-16 37 00.03	2.14	4.02	10 20 16
	08	21 24 32.567	-16 23 00.06	2.14	4.03	10 19 25
	09	21 27 37.472	-16 08 50.12	2.15	4.04	10 18 33
	10	21 30 41.985	-15 54 30.38	2.15	4.04	10 17 41
	11	21 33 46.105	-15 40 01.02	2.16	4.05	10 16 48
	12	21 36 49.833	-15 25 22.23	2.16	4.06	10 15 55
	13	21 39 53.170	-15 10 34.19	2.16	4.06	10 15 02
	14	21 42 56.119	-14 55 37.11	2.17	4.07	10 14 08
	15	21 45 58.681	-14 40 31.18	2.17	4.08	10 13 14
	16	21 49 00.856	-14 25 16.61	2.17	4.09	10 12 20
	17	21 52 02.647	-14 09 53.59	2.18	4.09	10 11 25
	18	21 55 04.055	-13 54 22.32	2.18	4.10	10 10 29
	19	21 58 05.082	-13 38 42.98	2.19	4.11	10 09 34
	20	22 01 05.732	-13 22 55.77	2.19	4.12	10 08 38
	21	22 04 06.007	-13 07 00.86	2.19	4.12	10 07 41
	22	22 07 05.912	-12 50 58.44	2.20	4.13	10 06 45
	23	22 10 05.453	-12 34 48.68	2.20	4.14	10 05 47
	24	22 13 04.635	-12 18 31.76	2.21	4.15	10 04 50
	25	22 16 03.463	-12 02 07.86	2.21	4.15	10 03 52
	26	22 19 01.945	-11 45 37.14	2.21	4.16	10 02 54
	27	22 22 00.087	-11 28 59.80	2.22	4.17	10 01 55
	28	22 24 57.894	-11 12 16.02	2.22	4.18	10 00 57
	29	22 27 55.374	-10 55 25.97	2.23	4.18	9 59 57
	30	22 30 52.533	-10 38 29.85	2.23	4.19	9 58 58
	31	22 33 49.374	-10 21 27.85	2.23	4.20	9 57 58
Abril	01	22 36 45.903	-10 04 20.18	2.24	4.21	9 56 58
	02	22 39 42.123	- 9 47 07.02	2.24	4.21	9 55 58
	03	22 42 38.037	- 9 29 48.60	2.25	4.22	9 54 57
	04	22 45 33.649	- 9 12 25.12	2.25	4.23	9 53 56
	05	22 48 28.959	- 8 54 56.79	2.26	4.24	9 52 55
	06	22 51 23.973	- 8 37 23.81	2.26	4.25	9 51 53
	07	22 54 18.693	- 8 19 46.40	2.26	4.25	9 50 51
	08	22 57 13.124	- 8 02 04.75	2.27	4.26	9 49 49
	09	23 00 07.274	- 7 44 19.06	2.27	4.27	9 48 46
	10	23 03 01.149	- 7 26 29.55	2.28	4.28	9 47 44
	11	23 05 54.754	- 7 08 36.40	2.28	4.28	9 46 41
	12	23 08 48.094	- 6 50 39.84	2.28	4.29	9 45 37
	13	23 11 41.173	- 6 32 40.07	2.29	4.30	9 44 34
	14	23 14 33.998	- 6 14 37.30	2.29	4.31	9 43 30
	15	23 17 26.574	- 5 56 31.74	2.30	4.32	9 42 26
	16	23 20 18.906	- 5 38 23.56	2.30	4.33	9 41 22
	17	23 23 11.003	- 5 20 12.96	2.31	4.33	9 40 17
	18	23 26 02.871	- 5 02 00.12	2.31	4.34	9 39 12
	19	23 28 54.519	- 4 43 45.22	2.31	4.35	9 38 08
	20	23 31 45.956	- 4 25 28.44	2.32	4.36	9 37 02
	21	23 34 37.191	- 4 07 09.95	2.32	4.37	9 35 57
	22	23 37 28.233	- 3 48 49.92	2.33	4.37	9 34 52
	23	23 40 19.092	- 3 30 28.53	2.33	4.38	9 33 46
	24	23 43 09.777	- 3 12 05.94	2.34	4.39	9 32 40
	25	23 46 00.297	- 2 53 42.33	2.34	4.40	9 31 34
	26	23 48 50.662	- 2 35 17.87	2.35	4.41	9 30 28
	27	23 51 40.878	- 2 16 52.74	2.35	4.42	9 29 21
	28	23 54 30.953	- 1 58 27.13	2.35	4.42	9 28 15
	29	23 57 20.893	- 1 40 01.23	2.36	4.43	9 27 08
	30	0 00 10.704	- 1 21 35.22	2.36	4.44	9 26 01

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PARA 0^h DE TIEMPO TERRESTRE

Fecha		Asc. Recta Aparente	Declinación Aparente	Semi Diámetro	Paralaje Horiz.	Paso Mer. Efemérides
		h m s	° ' "	"	"	h m s
Mayo	01	0 03 00.391	- 1 03 09.32	2.37	4.45	9 24 55
	02	0 05 49.959	- 0 44 43.71	2.37	4.46	9 23 48
	03	0 08 39.412	- 0 26 18.59	2.38	4.47	9 22 41
	04	0 11 28.757	- 0 07 54.16	2.38	4.47	9 21 33
	05	0 14 17.999	+ 0 10 29.39	2.39	4.48	9 20 26
	06	0 17 07.145	+ 0 28 51.86	2.39	4.49	9 19 19
	07	0 19 56.202	+ 0 47 13.07	2.39	4.50	9 18 11
	08	0 22 45.175	+ 1 05 32.83	2.40	4.51	9 17 04
	09	0 25 34.069	+ 1 23 50.95	2.40	4.52	9 15 56
	10	0 28 22.889	+ 1 42 07.22	2.41	4.53	9 14 48
	11	0 31 11.637	+ 2 00 21.46	2.41	4.54	9 13 40
	12	0 34 00.319	+ 2 18 33.47	2.42	4.54	9 12 33
	13	0 36 48.939	+ 2 36 43.06	2.42	4.55	9 11 25
	14	0 39 37.502	+ 2 54 50.07	2.43	4.56	9 10 17
	15	0 42 26.016	+ 3 12 54.31	2.43	4.57	9 09 09
	16	0 45 14.488	+ 3 30 55.63	2.44	4.58	9 08 01
	17	0 48 02.925	+ 3 48 53.87	2.44	4.59	9 06 53
	18	0 50 51.336	+ 4 06 48.85	2.45	4.60	9 05 45
	19	0 53 39.728	+ 4 24 40.44	2.45	4.61	9 04 36
	20	0 56 28.110	+ 4 42 28.48	2.46	4.62	9 03 28
	21	0 59 16.489	+ 5 00 12.82	2.46	4.63	9 02 20
	22	1 02 04.875	+ 5 17 53.32	2.47	4.63	9 01 12
	23	1 04 53.275	+ 5 35 29.82	2.47	4.64	9 00 04
	24	1 07 41.695	+ 5 53 02.17	2.48	4.65	8 58 56
	25	1 10 30.142	+ 6 10 30.22	2.48	4.66	8 57 48
	26	1 13 18.621	+ 6 27 53.81	2.49	4.67	8 56 40
	27	1 16 07.135	+ 6 45 12.77	2.49	4.68	8 55 32
	28	1 18 55.690	+ 7 02 26.95	2.50	4.69	8 54 24
	29	1 21 44.287	+ 7 19 36.15	2.50	4.70	8 53 16
	30	1 24 32.931	+ 7 36 40.22	2.51	4.71	8 52 08
	31	1 27 21.624	+ 7 53 38.97	2.51	4.72	8 51 00
Junio	01	1 30 10.372	+ 8 10 32.24	2.52	4.73	8 49 53
	02	1 32 59.177	+ 8 27 19.87	2.52	4.74	8 48 45
	03	1 35 48.044	+ 8 44 01.69	2.53	4.75	8 47 37
	04	1 38 36.975	+ 9 00 37.54	2.53	4.76	8 46 30
	05	1 41 25.971	+ 9 17 07.26	2.54	4.77	8 45 22
	06	1 44 15.034	+ 9 33 30.69	2.54	4.78	8 44 15
	07	1 47 04.161	+ 9 49 47.66	2.55	4.79	8 43 08
	08	1 49 53.354	+10 05 58.01	2.55	4.80	8 42 00
	09	1 52 42.611	+10 22 01.57	2.56	4.81	8 40 53
	10	1 55 31.934	+10 37 58.18	2.57	4.82	8 39 46
	11	1 58 21.323	+10 53 47.71	2.57	4.83	8 38 39
	12	2 01 10.782	+11 09 30.02	2.58	4.84	8 37 32
	13	2 04 00.312	+11 25 04.95	2.58	4.85	8 36 25
	14	2 06 49.919	+11 40 32.40	2.59	4.86	8 35 18
	15	2 09 39.604	+11 55 52.22	2.59	4.87	8 34 11
	16	2 12 29.373	+12 11 04.32	2.60	4.88	8 33 04
	17	2 15 19.228	+12 26 08.56	2.61	4.90	8 31 58
	18	2 18 09.172	+12 41 04.83	2.61	4.91	8 30 51
	19	2 20 59.209	+12 55 53.03	2.62	4.92	8 29 45
	20	2 23 49.342	+13 10 33.05	2.62	4.93	8 28 39
	21	2 26 39.571	+13 25 04.78	2.63	4.94	8 27 32
	22	2 29 29.899	+13 39 28.10	2.63	4.95	8 26 26
	23	2 32 20.325	+13 53 42.89	2.64	4.96	8 25 20
	24	2 35 10.847	+14 07 49.05	2.65	4.97	8 24 14
	25	2 38 01.466	+14 21 46.42	2.65	4.99	8 23 08
	26	2 40 52.179	+14 35 34.90	2.66	5.00	8 22 03
	27	2 43 42.985	+14 49 14.34	2.67	5.01	8 20 57
	28	2 46 33.884	+15 02 44.63	2.67	5.02	8 19 51
	29	2 49 24.873	+15 16 05.64	2.68	5.03	8 18 46
	30	2 52 15.952	+15 29 17.27	2.68	5.05	8 17 40

MARTE 2024
PARA 0^h DE TIEMPO TERRESTRE

Fecha		Asc. Recta Aparente	Declinación Aparente	Semi Diámetro	Paralaje Horiz.	Paso Mer. Efemérides
		h m s	° ' "	"	"	h m s
Julio	01	2 55 07.116	+15 42 19.39	2.69	5.06	8 16 35
	02	2 57 58.362	+15 55 11.90	2.70	5.07	8 15 30
	03	3 00 49.683	+16 07 54.70	2.70	5.08	8 14 25
	04	3 03 41.073	+16 20 27.66	2.71	5.09	8 13 20
	05	3 06 32.523	+16 32 50.70	2.72	5.11	8 12 15
	06	3 09 24.026	+16 45 03.68	2.72	5.12	8 11 10
	07	3 12 15.574	+16 57 06.52	2.73	5.13	8 10 05
	08	3 15 07.162	+17 08 59.12	2.74	5.15	8 08 60
	09	3 17 58.784	+17 20 41.37	2.75	5.16	8 07 55
	10	3 20 50.435	+17 32 13.20	2.75	5.17	8 06 50
	11	3 23 42.111	+17 43 34.52	2.76	5.19	8 05 45
	12	3 26 33.808	+17 54 45.28	2.77	5.20	8 04 40
	13	3 29 25.523	+18 05 45.41	2.77	5.21	8 03 36
	14	3 32 17.252	+18 16 34.84	2.78	5.23	8 02 31
	15	3 35 08.991	+18 27 13.53	2.79	5.24	8 01 26
	16	3 38 00.737	+18 37 41.43	2.80	5.26	8 00 21
	17	3 40 52.484	+18 47 58.49	2.80	5.27	7 59 16
	18	3 43 44.229	+18 58 04.67	2.81	5.28	7 58 12
	19	3 46 35.966	+19 07 59.93	2.82	5.30	7 57 07
	20	3 49 27.689	+19 17 44.23	2.83	5.31	7 56 02
	21	3 52 19.390	+19 27 17.52	2.84	5.33	7 54 57
	22	3 55 11.062	+19 36 39.75	2.84	5.34	7 53 52
	23	3 58 02.698	+19 45 50.87	2.85	5.36	7 52 48
	24	4 00 54.290	+19 54 50.82	2.86	5.37	7 51 43
	25	4 03 45.832	+20 03 39.54	2.87	5.39	7 50 38
	26	4 06 37.315	+20 12 16.99	2.88	5.40	7 49 33
	27	4 09 28.732	+20 20 43.14	2.88	5.42	7 48 27
	28	4 12 20.073	+20 28 57.95	2.89	5.44	7 47 22
	29	4 15 11.328	+20 37 01.40	2.90	5.45	7 46 17
	30	4 18 02.482	+20 44 53.47	2.91	5.47	7 45 12
	31	4 20 53.522	+20 52 34.13	2.92	5.49	7 44 06
Agosto	01	4 23 44.433	+21 00 03.38	2.93	5.50	7 43 00
	02	4 26 35.199	+21 07 21.19	2.94	5.52	7 41 55
	03	4 29 25.806	+21 14 27.54	2.95	5.54	7 40 49
	04	4 32 16.238	+21 21 22.42	2.96	5.55	7 39 43
	05	4 35 06.484	+21 28 05.83	2.97	5.57	7 38 36
	06	4 37 56.529	+21 34 37.76	2.98	5.59	7 37 30
	07	4 40 46.364	+21 40 58.23	2.98	5.61	7 36 23
	08	4 43 35.975	+21 47 07.25	2.99	5.63	7 35 16
	09	4 46 25.353	+21 53 04.83	3.00	5.65	7 34 09
	10	4 49 14.488	+21 58 51.02	3.01	5.66	7 33 01
	11	4 52 03.368	+22 04 25.85	3.02	5.68	7 31 54
	12	4 54 51.984	+22 09 49.36	3.03	5.70	7 30 46
	13	4 57 40.325	+22 15 01.59	3.05	5.72	7 29 37
	14	5 00 28.380	+22 20 02.61	3.06	5.74	7 28 29
	15	5 03 16.139	+22 24 52.46	3.07	5.76	7 27 20
	16	5 06 03.591	+22 29 31.19	3.08	5.78	7 26 11
	17	5 08 50.722	+22 33 58.87	3.09	5.80	7 25 01
	18	5 11 37.522	+22 38 15.54	3.10	5.82	7 23 52
	19	5 14 23.979	+22 42 21.26	3.11	5.84	7 22 41
	20	5 17 10.079	+22 46 16.06	3.12	5.87	7 21 31
	21	5 19 55.813	+22 49 59.99	3.13	5.89	7 20 20
	22	5 22 41.170	+22 53 33.09	3.14	5.91	7 19 09
	23	5 25 26.138	+22 56 55.43	3.16	5.93	7 17 57
	24	5 28 10.705	+23 00 07.08	3.17	5.95	7 16 45
	25	5 30 54.855	+23 03 08.11	3.18	5.98	7 15 33
	26	5 33 38.573	+23 05 58.62	3.19	6.00	7 14 20
	27	5 36 21.839	+23 08 38.69	3.21	6.02	7 13 06
	28	5 39 04.633	+23 11 08.42	3.22	6.05	7 11 53
	29	5 41 46.935	+23 13 27.90	3.23	6.07	7 10 38
	30	5 44 28.727	+23 15 37.22	3.24	6.09	7 09 23
	31	5 47 09.988	+23 17 36.48	3.26	6.12	7 08 08

MARTE 2024
PARA 0h DE TIEMPO TERRESTRE

Fecha		Asc. Recta Aparente	Declinación Aparente	Semi Diámetro	Paralaje Horiz.	Paso Mer. Efemérides
		h m s	° ' "	"	"	h m s
Septiembre	01	5 49 50.701	+23 19 25.78	3.27	6.14	7 06 52
	02	5 52 30.849	+23 21 05.22	3.28	6.17	7 05 35
	03	5 55 10.415	+23 22 34.91	3.30	6.20	7 04 18
	04	5 57 49.384	+23 23 54.98	3.31	6.22	7 03 01
	05	6 00 27.740	+23 25 05.53	3.33	6.25	7 01 42
	06	6 03 05.470	+23 26 06.71	3.34	6.28	7 00 23
	07	6 05 42.560	+23 26 58.66	3.35	6.30	6 59 04
	08	6 08 18.995	+23 27 41.50	3.37	6.33	6 57 44
	09	6 10 54.762	+23 28 15.40	3.38	6.36	6 56 23
	10	6 13 29.848	+23 28 40.50	3.40	6.39	6 55 01
	11	6 16 04.238	+23 28 56.95	3.41	6.42	6 53 39
	12	6 18 37.919	+23 29 04.92	3.43	6.44	6 52 16
	13	6 21 10.876	+23 29 04.55	3.45	6.47	6 50 52
	14	6 23 43.097	+23 28 56.00	3.46	6.50	6 49 28
	15	6 26 14.566	+23 28 39.43	3.48	6.53	6 48 02
	16	6 28 45.270	+23 28 14.98	3.49	6.57	6 46 36
	17	6 31 15.196	+23 27 42.78	3.51	6.60	6 45 10
	18	6 33 44.333	+23 27 02.98	3.53	6.63	6 43 42
	19	6 36 12.668	+23 26 15.73	3.55	6.66	6 42 14
	20	6 38 40.189	+23 25 21.19	3.56	6.69	6 40 45
	21	6 41 06.882	+23 24 19.53	3.58	6.73	6 39 15
	22	6 43 32.728	+23 23 10.95	3.60	6.76	6 37 44
	23	6 45 57.707	+23 21 55.63	3.62	6.80	6 36 12
	24	6 48 21.797	+23 20 33.79	3.63	6.83	6 34 39
	25	6 50 44.974	+23 19 05.61	3.65	6.87	6 33 06
	26	6 53 07.216	+23 17 31.30	3.67	6.90	6 31 31
	27	6 55 28.500	+23 15 51.05	3.69	6.94	6 29 56
	28	6 57 48.805	+23 14 05.07	3.71	6.97	6 28 20
	29	7 00 08.109	+23 12 13.56	3.73	7.01	6 26 42
	30	7 02 26.393	+23 10 16.72	3.75	7.05	6 25 04
Octubre	01	7 04 43.636	+23 08 14.78	3.77	7.09	6 23 24
	02	7 06 59.821	+23 06 07.95	3.79	7.13	6 21 44
	03	7 09 14.927	+23 03 56.46	3.81	7.17	6 20 02
	04	7 11 28.938	+23 01 40.53	3.84	7.21	6 18 19
	05	7 13 41.836	+22 59 20.40	3.86	7.25	6 16 36
	06	7 15 53.601	+22 56 56.30	3.88	7.29	6 14 51
	07	7 18 04.216	+22 54 28.48	3.90	7.33	6 13 05
	08	7 20 13.663	+22 51 57.18	3.93	7.38	6 11 17
	09	7 22 21.923	+22 49 22.64	3.95	7.42	6 09 29
	10	7 24 28.979	+22 46 45.11	3.97	7.46	6 07 39
	11	7 26 34.810	+22 44 04.84	4.00	7.51	6 05 48
	12	7 28 39.399	+22 41 22.06	4.02	7.56	6 03 56
	13	7 30 42.727	+22 38 37.01	4.05	7.60	6 02 03
	14	7 32 44.775	+22 35 49.92	4.07	7.65	6 00 08
	15	7 34 45.528	+22 33 01.01	4.10	7.70	5 58 12
	16	7 36 44.968	+22 30 10.51	4.12	7.74	5 56 15
	17	7 38 43.077	+22 27 18.66	4.15	7.79	5 54 16
	18	7 40 39.838	+22 24 25.70	4.17	7.84	5 52 16
	19	7 42 35.228	+22 21 31.91	4.20	7.89	5 50 15
	20	7 44 29.221	+22 18 37.56	4.23	7.95	5 48 12
	21	7 46 21.789	+22 15 42.95	4.26	8.00	5 46 08
	22	7 48 12.900	+22 12 48.39	4.28	8.05	5 44 02
	23	7 50 02.520	+22 09 54.16	4.31	8.11	5 41 55
	24	7 51 50.618	+22 07 00.55	4.34	8.16	5 39 47
	25	7 53 37.161	+22 04 07.88	4.37	8.22	5 37 36
	26	7 55 22.117	+22 01 16.43	4.40	8.27	5 35 25
	27	7 57 05.455	+21 58 26.50	4.43	8.33	5 33 11
	28	7 58 47.142	+21 55 38.41	4.46	8.39	5 30 56
	29	8 00 27.148	+21 52 52.44	4.50	8.45	5 28 39
	30	8 02 05.442	+21 50 08.93	4.53	8.51	5 26 21
	31	8 03 41.992	+21 47 28.17	4.56	8.57	5 24 01

MARTE 2024
PARA 0^h DE TIEMPO TERRESTRE

Fecha		Asc. Recta Aparente	Declinación Aparente	Semi Diámetro	Paralaje Horiz.	Paso Mer. Efemérides
		h m s	° ' "	"	"	h m s
Noviembre	01	8 05 16.767	+21 44 50.48	4.59	8.63	5 21 39
	02	8 06 49.735	+21 42 16.19	4.63	8.69	5 19 15
	03	8 08 20.863	+21 39 45.62	4.66	8.76	5 16 50
	04	8 09 50.119	+21 37 19.09	4.69	8.82	5 14 22
	05	8 11 17.471	+21 34 56.91	4.73	8.89	5 11 53
	06	8 12 42.883	+21 32 39.42	4.76	8.95	5 09 21
	07	8 14 06.324	+21 30 26.92	4.80	9.02	5 06 48
	08	8 15 27.758	+21 28 19.73	4.84	9.09	5 04 13
	09	8 16 47.152	+21 26 18.15	4.87	9.16	5 01 35
	10	8 18 04.471	+21 24 22.47	4.91	9.23	4 58 56
	11	8 19 19.683	+21 22 32.98	4.95	9.30	4 56 15
	12	8 20 32.754	+21 20 49.96	4.99	9.37	4 53 31
	13	8 21 43.651	+21 19 13.70	5.03	9.44	4 50 45
	14	8 22 52.338	+21 17 44.49	5.07	9.52	4 47 57
	15	8 23 58.778	+21 16 22.62	5.11	9.59	4 45 07
	16	8 25 02.931	+21 15 08.43	5.15	9.67	4 42 14
	17	8 26 04.751	+21 14 02.23	5.19	9.75	4 39 20
	18	8 27 04.189	+21 13 04.37	5.23	9.82	4 36 22
	19	8 28 01.193	+21 12 15.19	5.27	9.90	4 33 23
	20	8 28 55.708	+21 11 35.02	5.31	9.98	4 30 21
	21	8 29 47.682	+21 11 04.18	5.35	10.06	4 27 16
	22	8 30 37.062	+21 10 42.99	5.40	10.14	4 24 09
	23	8 31 23.796	+21 10 31.75	5.44	10.23	4 20 59
	24	8 32 07.832	+21 10 30.76	5.49	10.31	4 17 46
	25	8 32 49.118	+21 10 40.30	5.53	10.39	4 14 31
	26	8 33 27.604	+21 11 00.67	5.58	10.48	4 11 13
	27	8 34 03.240	+21 11 32.13	5.62	10.56	4 07 52
	28	8 34 35.976	+21 12 14.93	5.67	10.65	4 04 28
	29	8 35 05.764	+21 13 09.32	5.71	10.73	4 01 01
	30	8 35 32.555	+21 14 15.54	5.76	10.82	3 57 31
Diciembre	01	8 35 56.303	+21 15 33.78	5.81	10.91	3 53 59
	02	8 36 16.960	+21 17 04.25	5.85	11.00	3 50 23
	03	8 36 34.484	+21 18 47.10	5.90	11.09	3 46 44
	04	8 36 48.830	+21 20 42.49	5.95	11.18	3 43 02
	05	8 36 59.958	+21 22 50.51	6.00	11.27	3 39 16
	06	8 37 07.830	+21 25 11.25	6.04	11.35	3 35 28
	07	8 37 12.409	+21 27 44.76	6.09	11.44	3 31 36
	08	8 37 13.664	+21 30 31.04	6.14	11.53	3 27 41
	09	8 37 11.564	+21 33 30.07	6.19	11.62	3 23 42
	10	8 37 06.084	+21 36 41.79	6.23	11.71	3 19 40
	11	8 36 57.199	+21 40 06.15	6.28	11.80	3 15 35
	12	8 36 44.886	+21 43 43.03	6.33	11.89	3 11 27
	13	8 36 29.124	+21 47 32.32	6.38	11.98	3 07 15
	14	8 36 09.890	+21 51 33.90	6.42	12.07	3 02 59
	15	8 35 47.163	+21 55 47.61	6.47	12.16	2 58 40
	16	8 35 20.922	+22 00 13.27	6.52	12.24	2 54 18
	17	8 34 51.149	+22 04 50.65	6.56	12.33	2 49 52
	18	8 34 17.832	+22 09 39.48	6.61	12.41	2 45 22
	19	8 33 40.963	+22 14 39.46	6.65	12.50	2 40 49
	20	8 33 00.543	+22 19 50.20	6.69	12.58	2 36 13
	21	8 32 16.580	+22 25 11.31	6.74	12.66	2 31 33
	22	8 31 29.090	+22 30 42.32	6.78	12.74	2 26 49
	23	8 30 38.098	+22 36 22.72	6.82	12.81	2 22 03
	24	8 29 43.638	+22 42 11.95	6.86	12.89	2 17 12
	25	8 28 45.751	+22 48 09.42	6.90	12.96	2 12 18
	26	8 27 44.491	+22 54 14.48	6.93	13.03	2 07 21
	27	8 26 39.918	+23 00 26.43	6.97	13.10	2 02 21
	28	8 25 32.105	+23 06 44.54	7.01	13.16	1 57 17
	29	8 24 21.134	+23 13 08.04	7.04	13.22	1 52 11
	30	8 23 07.098	+23 19 36.10	7.07	13.28	1 47 01
	31	8 21 50.098	+23 26 07.88	7.10	13.34	1 41 48

VOLVER AL INDICE

JÚPITER 2024
PARA 0^h DE TIEMPO TERRESTRE

Fecha		Asc. Recta Aparente	Declinación Aparente	Semi Diámetro	Paralaje Horiz.	Paso Mer. Efemérides
		h m s	° ' "	"	"	h m s
Enero	01	2 14 44.527	+12 15 50.36	20.54	1.96	19 30 56
	02	2 14 45.223	+12 16 13.48	20.48	1.96	19 27 02
	03	2 14 46.719	+12 16 40.71	20.41	1.95	19 23 08
	04	2 14 49.018	+12 17 12.05	20.34	1.94	19 19 15
	05	2 14 52.120	+12 17 47.48	20.27	1.94	19 15 23
	06	2 14 56.023	+12 18 27.00	20.21	1.93	19 11 32
	07	2 15 00.729	+12 19 10.61	20.14	1.92	19 07 41
	08	2 15 06.235	+12 19 58.30	20.07	1.92	19 03 51
	09	2 15 12.539	+12 20 50.05	20.01	1.91	19 00 02
	10	2 15 19.639	+12 21 45.84	19.94	1.90	18 56 14
	11	2 15 27.530	+12 22 45.66	19.87	1.90	18 52 26
	12	2 15 36.207	+12 23 49.45	19.81	1.89	18 48 40
	13	2 15 45.664	+12 24 57.18	19.74	1.89	18 44 54
	14	2 15 55.895	+12 26 08.80	19.67	1.88	18 41 09
	15	2 16 06.898	+12 27 24.26	19.61	1.87	18 37 24
	16	2 16 18.667	+12 28 43.52	19.54	1.87	18 33 41
	17	2 16 31.201	+12 30 06.54	19.48	1.86	18 29 58
	18	2 16 44.494	+12 31 33.29	19.41	1.85	18 26 16
	19	2 16 58.541	+12 33 03.74	19.35	1.85	18 22 34
	20	2 17 13.338	+12 34 37.85	19.28	1.84	18 18 54
	21	2 17 28.877	+12 36 15.58	19.22	1.84	18 15 14
	22	2 17 45.150	+12 37 56.87	19.15	1.83	18 11 35
	23	2 18 02.150	+12 39 41.68	19.09	1.82	18 07 56
	24	2 18 19.869	+12 41 29.95	19.03	1.82	18 04 18
	25	2 18 38.298	+12 43 21.63	18.96	1.81	18 00 41
	26	2 18 57.432	+12 45 16.67	18.90	1.81	17 57 05
	27	2 19 17.264	+12 47 15.00	18.84	1.80	17 53 29
	28	2 19 37.787	+12 49 16.58	18.78	1.79	17 49 54
	29	2 19 58.996	+12 51 21.36	18.71	1.79	17 46 20
	30	2 20 20.886	+12 53 29.31	18.65	1.78	17 42 46
	31	2 20 43.452	+12 55 40.36	18.59	1.78	17 39 14
Febrero	01	2 21 06.688	+12 57 54.49	18.53	1.77	17 35 41
	02	2 21 30.591	+13 00 11.66	18.47	1.76	17 32 10
	03	2 21 55.154	+13 02 31.82	18.41	1.76	17 28 39
	04	2 22 20.373	+13 04 54.94	18.35	1.75	17 25 08
	05	2 22 46.241	+13 07 20.98	18.30	1.75	17 21 38
	06	2 23 12.752	+13 09 49.89	18.24	1.74	17 18 09
	07	2 23 39.898	+13 12 21.63	18.18	1.74	17 14 41
	08	2 24 07.672	+13 14 56.14	18.12	1.73	17 11 13
	09	2 24 36.064	+13 17 33.35	18.07	1.73	17 07 46
	10	2 25 05.066	+13 20 13.20	18.01	1.72	17 04 19
	11	2 25 34.670	+13 22 55.62	17.96	1.72	17 00 53
	12	2 26 04.871	+13 25 40.55	17.90	1.71	16 57 28
	13	2 26 35.662	+13 28 27.93	17.85	1.70	16 54 03
	14	2 27 07.039	+13 31 17.71	17.79	1.70	16 50 39
	15	2 27 38.994	+13 34 09.84	17.74	1.69	16 47 15
	16	2 28 11.521	+13 37 04.29	17.69	1.69	16 43 52
	17	2 28 44.611	+13 40 00.99	17.64	1.68	16 40 29
	18	2 29 18.255	+13 42 59.89	17.59	1.68	16 37 07
	19	2 29 52.443	+13 46 00.93	17.53	1.67	16 33 46
	20	2 30 27.168	+13 49 04.05	17.48	1.67	16 30 25
	21	2 31 02.419	+13 52 09.18	17.43	1.67	16 27 04
	22	2 31 38.190	+13 55 16.26	17.39	1.66	16 23 44
	23	2 32 14.472	+13 58 25.23	17.34	1.66	16 20 25
	24	2 32 51.259	+14 01 36.03	17.29	1.65	16 17 06
	25	2 33 28.545	+14 04 48.62	17.24	1.65	16 13 47
	26	2 34 06.323	+14 08 02.94	17.19	1.64	16 10 29
	27	2 34 44.588	+14 11 18.94	17.15	1.64	16 07 12
	28	2 35 23.336	+14 14 36.59	17.10	1.63	16 03 55
	29	2 36 02.560	+14 17 55.83	17.06	1.63	16 00 38

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PARA 0^h DE TIEMPO TERRESTRE

Fecha		Asc. Recta Aparente	Declinación Aparente	Semi Diámetro	Paralaje Horiz.	Paso Mer. Efemérides
		h m s	° ' "	"	"	h m s
Marzo	01	2 36 42.256	+14 21 16.63	17.01	1.63	15 57 22
	02	2 37 22.418	+14 24 38.95	16.97	1.62	15 54 06
	03	2 38 03.041	+14 28 02.75	16.93	1.62	15 50 51
	04	2 38 44.117	+14 31 27.98	16.88	1.61	15 47 36
	05	2 39 25.641	+14 34 54.61	16.84	1.61	15 44 22
	06	2 40 07.605	+14 38 22.58	16.80	1.60	15 41 08
	07	2 40 50.000	+14 41 51.84	16.76	1.60	15 37 55
	08	2 41 32.820	+14 45 22.32	16.72	1.60	15 34 42
	09	2 42 16.055	+14 48 53.96	16.68	1.59	15 31 29
	10	2 42 59.701	+14 52 26.70	16.64	1.59	15 28 17
	11	2 43 43.752	+14 56 00.48	16.60	1.59	15 25 05
	12	2 44 28.203	+14 59 35.25	16.56	1.58	15 21 54
	13	2 45 13.051	+15 03 10.98	16.52	1.58	15 18 43
	14	2 45 58.288	+15 06 47.63	16.49	1.57	15 15 32
	15	2 46 43.908	+15 10 25.16	16.45	1.57	15 12 22
	16	2 47 29.903	+15 14 03.52	16.41	1.57	15 09 12
	17	2 48 16.263	+15 17 42.65	16.38	1.56	15 06 02
	18	2 49 02.980	+15 21 22.50	16.34	1.56	15 02 53
	19	2 49 50.047	+15 25 03.02	16.31	1.56	14 59 44
	20	2 50 37.456	+15 28 44.16	16.28	1.55	14 56 36
	21	2 51 25.200	+15 32 25.85	16.24	1.55	14 53 27
	22	2 52 13.274	+15 36 08.05	16.21	1.55	14 50 20
	23	2 53 01.671	+15 39 50.72	16.18	1.55	14 47 12
	24	2 53 50.388	+15 43 33.81	16.15	1.54	14 44 05
	25	2 54 39.419	+15 47 17.29	16.12	1.54	14 40 58
	26	2 55 28.760	+15 51 01.11	16.09	1.54	14 37 51
	27	2 56 18.407	+15 54 45.24	16.06	1.53	14 34 45
	28	2 57 08.356	+15 58 29.66	16.03	1.53	14 31 39
	29	2 57 58.602	+16 02 14.32	16.00	1.53	14 28 33
	30	2 58 49.141	+16 05 59.21	15.97	1.53	14 25 28
	31	2 59 39.968	+16 09 44.29	15.95	1.52	14 22 23
Abril	01	3 00 31.076	+16 13 29.53	15.92	1.52	14 19 18
	02	3 01 22.459	+16 17 14.89	15.89	1.52	14 16 13
	03	3 02 14.111	+16 21 00.32	15.87	1.52	14 13 09
	04	3 03 06.025	+16 24 45.79	15.84	1.51	14 10 05
	05	3 03 58.195	+16 28 31.23	15.82	1.51	14 07 01
	06	3 04 50.615	+16 32 16.60	15.80	1.51	14 03 57
	07	3 05 43.281	+16 36 01.85	15.77	1.51	14 00 54
	08	3 06 36.189	+16 39 46.94	15.75	1.50	13 57 51
	09	3 07 29.335	+16 43 31.84	15.73	1.50	13 54 48
	10	3 08 22.716	+16 47 16.52	15.71	1.50	13 51 45
	11	3 09 16.327	+16 51 00.96	15.68	1.50	13 48 43
	12	3 10 10.159	+16 54 45.12	15.66	1.50	13 45 41
	13	3 11 04.206	+16 58 28.98	15.64	1.49	13 42 39
	14	3 11 58.458	+17 02 12.48	15.62	1.49	13 39 37
	15	3 12 52.910	+17 05 55.58	15.61	1.49	13 36 35
	16	3 13 47.554	+17 09 38.24	15.59	1.49	13 33 34
	17	3 14 42.384	+17 13 20.42	15.57	1.49	13 30 32
	18	3 15 37.394	+17 17 02.08	15.55	1.49	13 27 31
	19	3 16 32.581	+17 20 43.18	15.53	1.48	13 24 30
	20	3 17 27.939	+17 24 23.69	15.52	1.48	13 21 30
	21	3 18 23.465	+17 28 03.59	15.50	1.48	13 18 29
	22	3 19 19.155	+17 31 42.84	15.49	1.48	13 15 29
	23	3 20 15.006	+17 35 21.42	15.47	1.48	13 12 29
	24	3 21 11.015	+17 38 59.32	15.46	1.48	13 09 29
	25	3 22 07.177	+17 42 36.50	15.45	1.48	13 06 29
	26	3 23 03.489	+17 46 12.97	15.43	1.47	13 03 29
	27	3 23 59.947	+17 49 48.69	15.42	1.47	13 00 29
	28	3 24 56.544	+17 53 23.65	15.41	1.47	12 57 30
	29	3 25 53.277	+17 56 57.83	15.40	1.47	12 54 30
	30	3 26 50.139	+18 00 31.19	15.39	1.47	12 51 31

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PARA 0^h DE TIEMPO TERRESTRE

Fecha		Asc. Recta Aparente	Declinación Aparente	Semi Diámetro	Paralaje Horiz.	Paso Mer. Efemérides
		h m s	° ' "	"	"	h m s
Mayo	01	3 27 47.123	+18 04 03.69	15.37	1.47	12 48 32
	02	3 28 44.225	+18 07 35.32	15.36	1.47	12 45 33
	03	3 29 41.439	+18 11 06.02	15.36	1.47	12 42 34
	04	3 30 38.761	+18 14 35.75	15.35	1.47	12 39 35
	05	3 31 36.188	+18 18 04.50	15.34	1.47	12 36 36
	06	3 32 33.716	+18 21 32.23	15.33	1.46	12 33 38
	07	3 33 31.344	+18 24 58.92	15.32	1.46	12 30 39
	08	3 34 29.065	+18 28 24.58	15.32	1.46	12 27 41
	09	3 35 26.876	+18 31 49.17	15.31	1.46	12 24 43
	10	3 36 24.768	+18 35 12.68	15.30	1.46	12 21 44
	11	3 37 22.734	+18 38 35.09	15.30	1.46	12 18 46
	12	3 38 20.766	+18 41 56.37	15.29	1.46	12 15 48
	13	3 39 18.858	+18 45 16.47	15.29	1.46	12 12 50
	14	3 40 17.003	+18 48 35.38	15.28	1.46	12 09 52
	15	3 41 15.197	+18 51 53.06	15.28	1.46	12 06 54
	16	3 42 13.434	+18 55 09.47	15.28	1.46	12 03 56
	17	3 43 11.712	+18 58 24.57	15.28	1.46	12 00 58
	18	3 44 10.025	+19 01 38.24	15.27	1.46	11 58 00
	19	3 45 08.342	+19 04 50.54	15.27	1.46	11 55 02
	20	3 46 06.695	+19 08 02.01	15.27	1.46	11 52 05
	21	3 47 05.089	+19 11 12.04	15.27	1.46	11 49 07
	22	3 48 03.506	+19 14 20.64	15.27	1.46	11 46 09
	23	3 49 01.939	+19 17 27.87	15.27	1.46	11 43 11
	24	3 50 00.385	+19 20 33.74	15.27	1.46	11 40 13
	25	3 50 58.840	+19 23 38.24	15.28	1.46	11 37 16
	26	3 51 57.298	+19 26 41.37	15.28	1.46	11 34 18
	27	3 52 55.753	+19 29 43.11	15.28	1.46	11 31 20
	28	3 53 54.199	+19 32 43.44	15.28	1.46	11 28 22
	29	3 54 52.631	+19 35 42.35	15.29	1.46	11 25 25
	30	3 55 51.043	+19 38 39.79	15.29	1.46	11 22 27
	31	3 56 49.432	+19 41 35.75	15.30	1.46	11 19 29
Junio	01	3 57 47.793	+19 44 30.21	15.30	1.46	11 16 31
	02	3 58 46.123	+19 47 23.15	15.31	1.46	11 13 33
	03	3 59 44.420	+19 50 14.57	15.31	1.46	11 10 36
	04	4 00 42.679	+19 53 04.46	15.32	1.46	11 07 38
	05	4 01 40.895	+19 55 52.81	15.33	1.46	11 04 40
	06	4 02 39.061	+19 58 39.63	15.34	1.46	11 01 41
	07	4 03 37.170	+20 01 24.91	15.34	1.47	10 58 43
	08	4 04 35.214	+20 04 08.64	15.35	1.47	10 55 45
	09	4 05 33.184	+20 06 50.78	15.36	1.47	10 52 47
	10	4 06 31.074	+20 09 31.33	15.37	1.47	10 49 49
	11	4 07 28.878	+20 12 10.27	15.38	1.47	10 46 50
	12	4 08 26.590	+20 14 47.57	15.39	1.47	10 43 52
	13	4 09 24.204	+20 17 23.22	15.40	1.47	10 40 53
	14	4 10 21.718	+20 19 57.22	15.42	1.47	10 37 54
	15	4 11 19.127	+20 22 29.56	15.43	1.47	10 34 55
	16	4 12 16.426	+20 25 00.23	15.44	1.47	10 31 57
	17	4 13 13.613	+20 27 29.24	15.45	1.48	10 28 58
	18	4 14 10.683	+20 29 56.58	15.47	1.48	10 25 58
	19	4 15 07.632	+20 32 22.27	15.48	1.48	10 22 59
	20	4 16 04.456	+20 34 46.31	15.50	1.48	10 19 60
	21	4 17 01.149	+20 37 08.70	15.51	1.48	10 17 00
	22	4 17 57.706	+20 39 29.44	15.53	1.48	10 14 00
	23	4 18 54.121	+20 41 48.55	15.54	1.48	10 11 01
	24	4 19 50.386	+20 44 06.00	15.56	1.49	10 08 01
	25	4 20 46.495	+20 46 21.79	15.58	1.49	10 05 00
	26	4 21 42.443	+20 48 35.89	15.60	1.49	10 02 00
	27	4 22 38.223	+20 50 48.30	15.61	1.49	9 58 60
	28	4 23 33.832	+20 52 59.01	15.63	1.49	9 55 59
	29	4 24 29.266	+20 55 07.99	15.65	1.50	9 52 58
	30	4 25 24.521	+20 57 15.27	15.67	1.50	9 49 57

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PARA 0^h DE TIEMPO TERRESTRE

Fecha		Asc. Recta Aparente	Declinación Aparente	Semi Diámetro	Paralaje Horiz.	Paso Mer. Efemérides
		h m s	° ' "	"	"	h m s
Julio	01	4 26 19.593	+20 59 20.84	15.69	1.50	9 46 56
	02	4 27 14.476	+21 01 24.72	15.71	1.50	9 43 55
	03	4 28 09.163	+21 03 26.91	15.74	1.50	9 40 53
	04	4 29 03.645	+21 05 27.42	15.76	1.51	9 37 51
	05	4 29 57.915	+21 07 26.25	15.78	1.51	9 34 49
	06	4 30 51.962	+21 09 23.40	15.80	1.51	9 31 47
	07	4 31 45.779	+21 11 18.85	15.83	1.51	9 28 45
	08	4 32 39.359	+21 13 12.60	15.85	1.51	9 25 42
	09	4 33 32.693	+21 15 04.64	15.87	1.52	9 22 39
	10	4 34 25.777	+21 16 54.97	15.90	1.52	9 19 36
	11	4 35 18.604	+21 18 43.58	15.93	1.52	9 16 32
	12	4 36 11.170	+21 20 30.48	15.95	1.52	9 13 29
	13	4 37 03.469	+21 22 15.68	15.98	1.53	9 10 25
	14	4 37 55.497	+21 23 59.18	16.00	1.53	9 07 20
	15	4 38 47.248	+21 25 40.99	16.03	1.53	9 04 16
	16	4 39 38.718	+21 27 21.14	16.06	1.53	9 01 11
	17	4 40 29.901	+21 28 59.63	16.09	1.54	8 58 06
	18	4 41 20.791	+21 30 36.48	16.12	1.54	8 55 01
	19	4 42 11.382	+21 32 11.71	16.15	1.54	8 51 55
	20	4 43 01.666	+21 33 45.33	16.18	1.55	8 48 49
	21	4 43 51.635	+21 35 17.34	16.21	1.55	8 45 43
	22	4 44 41.283	+21 36 47.75	16.24	1.55	8 42 36
	23	4 45 30.600	+21 38 16.55	16.27	1.55	8 39 29
	24	4 46 19.581	+21 39 43.73	16.31	1.56	8 36 22
	25	4 47 08.221	+21 41 09.29	16.34	1.56	8 33 14
	26	4 47 56.514	+21 42 33.23	16.37	1.56	8 30 06
	27	4 48 44.456	+21 43 55.56	16.41	1.57	8 26 58
	28	4 49 32.041	+21 45 16.29	16.44	1.57	8 23 49
	29	4 50 19.263	+21 46 35.45	16.48	1.57	8 20 40
	30	4 51 06.114	+21 47 53.05	16.51	1.58	8 17 31
	31	4 51 52.583	+21 49 09.11	16.55	1.58	8 14 21
Agosto	01	4 52 38.662	+21 50 23.65	16.58	1.58	8 11 11
	02	4 53 24.341	+21 51 36.66	16.62	1.59	8 08 00
	03	4 54 09.609	+21 52 48.17	16.66	1.59	8 04 49
	04	4 54 54.457	+21 53 58.15	16.70	1.59	8 01 38
	05	4 55 38.878	+21 55 06.63	16.74	1.60	7 58 26
	06	4 56 22.862	+21 56 13.60	16.78	1.60	7 55 14
	07	4 57 06.403	+21 57 19.07	16.82	1.61	7 52 01
	08	4 57 49.495	+21 58 23.04	16.86	1.61	7 48 48
	09	4 58 32.131	+21 59 25.54	16.90	1.61	7 45 34
	10	4 59 14.304	+22 00 26.57	16.94	1.62	7 42 20
	11	4 59 56.009	+22 01 26.16	16.98	1.62	7 39 05
	12	5 00 37.239	+22 02 24.33	17.02	1.63	7 35 50
	13	5 01 17.988	+22 03 21.10	17.07	1.63	7 32 35
	14	5 01 58.248	+22 04 16.49	17.11	1.63	7 29 19
	15	5 02 38.012	+22 05 10.53	17.15	1.64	7 26 02
	16	5 03 17.272	+22 06 03.23	17.20	1.64	7 22 45
	17	5 03 56.019	+22 06 54.63	17.24	1.65	7 19 28
	18	5 04 34.245	+22 07 44.72	17.29	1.65	7 16 10
	19	5 05 11.940	+22 08 33.51	17.33	1.66	7 12 51
	20	5 05 49.097	+22 09 21.01	17.38	1.66	7 09 32
	21	5 06 25.709	+22 10 07.21	17.43	1.66	7 06 12
	22	5 07 01.769	+22 10 52.11	17.48	1.67	7 02 52
	23	5 07 37.272	+22 11 35.72	17.52	1.67	6 59 31
	24	5 08 12.213	+22 12 18.06	17.57	1.68	6 56 10
	25	5 08 46.584	+22 12 59.17	17.62	1.68	6 52 48
	26	5 09 20.377	+22 13 39.07	17.67	1.69	6 49 26
	27	5 09 53.580	+22 14 17.78	17.72	1.69	6 46 03
	28	5 10 26.184	+22 14 55.32	17.77	1.70	6 42 39
	29	5 10 58.177	+22 15 31.70	17.82	1.70	6 39 15
	30	5 11 29.548	+22 16 06.94	17.87	1.71	6 35 50
	31	5 12 00.288	+22 16 41.05	17.93	1.71	6 32 25

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PARA 0^h DE TIEMPO TERRESTRE

Fecha		Asc. Recta Aparente	Declinación Aparente	Semi Diámetro	Paralaje Horiz.	Paso Mer. Efemérides
		h m s	° ' "	"	"	h m s
Septiembre	01	5 12 30.387	+22 17 14.02	17.98	1.72	6 28 58
	02	5 12 59.837	+22 17 45.86	18.03	1.72	6 25 32
	03	5 13 28.628	+22 18 16.59	18.09	1.73	6 22 04
	04	5 13 56.755	+22 18 46.22	18.14	1.73	6 18 36
	05	5 14 24.210	+22 19 14.75	18.19	1.74	6 15 07
	06	5 14 50.987	+22 19 42.22	18.25	1.74	6 11 38
	07	5 15 17.078	+22 20 08.63	18.30	1.75	6 08 08
	08	5 15 42.478	+22 20 34.00	18.36	1.75	6 04 37
	09	5 16 07.180	+22 20 58.37	18.41	1.76	6 01 05
	10	5 16 31.177	+22 21 21.76	18.47	1.76	5 57 33
	11	5 16 54.462	+22 21 44.18	18.53	1.77	5 54 00
	12	5 17 17.026	+22 22 05.67	18.58	1.78	5 50 27
	13	5 17 38.864	+22 22 26.23	18.64	1.78	5 46 52
	14	5 17 59.965	+22 22 45.90	18.70	1.79	5 43 17
	15	5 18 20.322	+22 23 04.66	18.76	1.79	5 39 41
	16	5 18 39.928	+22 23 22.53	18.82	1.80	5 36 05
	17	5 18 58.775	+22 23 39.50	18.88	1.80	5 32 27
	18	5 19 16.859	+22 23 55.56	18.93	1.81	5 28 49
	19	5 19 34.176	+22 24 10.72	18.99	1.81	5 25 10
	20	5 19 50.720	+22 24 24.99	19.05	1.82	5 21 31
	21	5 20 06.488	+22 24 38.40	19.11	1.83	5 17 50
	22	5 20 21.473	+22 24 50.96	19.17	1.83	5 14 09
	23	5 20 35.666	+22 25 02.70	19.23	1.84	5 10 27
	24	5 20 49.058	+22 25 13.64	19.29	1.84	5 06 45
	25	5 21 01.640	+22 25 23.79	19.35	1.85	5 03 01
	26	5 21 13.403	+22 25 33.15	19.42	1.85	4 59 17
	27	5 21 24.340	+22 25 41.73	19.48	1.86	4 55 31
	28	5 21 34.443	+22 25 49.52	19.54	1.87	4 51 45
	29	5 21 43.707	+22 25 56.52	19.60	1.87	4 47 59
	30	5 21 52.127	+22 26 02.73	19.66	1.88	4 44 11
Octubre	01	5 21 59.698	+22 26 08.17	19.72	1.88	4 40 22
	02	5 22 06.418	+22 26 12.82	19.78	1.89	4 36 33
	03	5 22 12.283	+22 26 16.70	19.85	1.90	4 32 43
	04	5 22 17.291	+22 26 19.82	19.91	1.90	4 28 52
	05	5 22 21.440	+22 26 22.19	19.97	1.91	4 24 60
	06	5 22 24.729	+22 26 23.83	20.03	1.91	4 21 07
	07	5 22 27.155	+22 26 24.74	20.09	1.92	4 17 13
	08	5 22 28.716	+22 26 24.94	20.15	1.93	4 13 19
	09	5 22 29.411	+22 26 24.44	20.21	1.93	4 09 23
	10	5 22 29.239	+22 26 23.26	20.28	1.94	4 05 27
	11	5 22 28.197	+22 26 21.39	20.34	1.94	4 01 30
	12	5 22 26.283	+22 26 18.83	20.40	1.95	3 57 32
	13	5 22 23.498	+22 26 15.57	20.46	1.95	3 53 33
	14	5 22 19.841	+22 26 11.61	20.52	1.96	3 49 34
	15	5 22 15.315	+22 26 06.93	20.58	1.97	3 45 33
	16	5 22 09.921	+22 26 01.50	20.64	1.97	3 41 32
	17	5 22 03.665	+22 25 55.34	20.70	1.98	3 37 29
	18	5 21 56.550	+22 25 48.43	20.76	1.98	3 33 26
	19	5 21 48.580	+22 25 40.80	20.82	1.99	3 29 22
	20	5 21 39.756	+22 25 32.45	20.87	1.99	3 25 17
	21	5 21 30.080	+22 25 23.39	20.93	2.00	3 21 12
	22	5 21 19.550	+22 25 13.64	20.99	2.01	3 17 05
	23	5 21 08.167	+22 25 03.17	21.05	2.01	3 12 58
	24	5 20 55.934	+22 24 51.97	21.10	2.02	3 08 50
	25	5 20 42.854	+22 24 40.04	21.16	2.02	3 04 41
	26	5 20 28.933	+22 24 27.36	21.21	2.03	3 00 31
	27	5 20 14.178	+22 24 13.92	21.27	2.03	2 56 20
	28	5 19 58.595	+22 23 59.71	21.32	2.04	2 52 09
	29	5 19 42.194	+22 23 44.72	21.38	2.04	2 47 56
	30	5 19 24.985	+22 23 28.95	21.43	2.05	2 43 43
	31	5 19 06.979	+22 23 12.40	21.48	2.05	2 39 29

JÚPITER 2024
PARA 0h DE TIEMPO TERRESTRE

Fecha		Asc. Recta Aparente	Declinación Aparente	Semi Diámetro	Paralaje Horiz.	Paso Mer. Efemérides
		h m s	° ' "	"	"	h m s
Noviembre	01	5 18 48.187	+22 22 55.08	21.53	2.06	2 35 15
	02	5 18 28.620	+22 22 36.98	21.58	2.06	2 30 59
	03	5 18 08.292	+22 22 18.12	21.63	2.07	2 26 43
	04	5 17 47.215	+22 21 58.50	21.68	2.07	2 22 26
	05	5 17 25.402	+22 21 38.13	21.72	2.08	2 18 08
	06	5 17 02.866	+22 21 17.01	21.77	2.08	2 13 50
	07	5 16 39.621	+22 20 55.14	21.81	2.08	2 09 31
	08	5 16 15.681	+22 20 32.53	21.86	2.09	2 05 11
	09	5 15 51.060	+22 20 09.15	21.90	2.09	2 00 51
	10	5 15 25.776	+22 19 45.00	21.94	2.10	1 56 30
	11	5 14 59.845	+22 19 20.07	21.98	2.10	1 52 08
	12	5 14 33.287	+22 18 54.34	22.02	2.10	1 47 46
	13	5 14 06.120	+22 18 27.81	22.06	2.11	1 43 23
	14	5 13 38.368	+22 18 00.49	22.09	2.11	1 38 59
	15	5 13 10.048	+22 17 32.38	22.13	2.11	1 34 35
	16	5 12 41.182	+22 17 03.51	22.16	2.12	1 30 10
	17	5 12 11.787	+22 16 33.89	22.19	2.12	1 25 45
	18	5 11 41.881	+22 16 03.55	22.23	2.12	1 21 19
	19	5 11 11.479	+22 15 32.47	22.25	2.13	1 16 53
	20	5 10 40.601	+22 15 00.68	22.28	2.13	1 12 27
	21	5 10 09.266	+22 14 28.17	22.31	2.13	1 07 60
	22	5 09 37.495	+22 13 54.93	22.33	2.13	1 03 32
	23	5 09 05.312	+22 13 20.97	22.36	2.14	0 59 04
	24	5 08 32.741	+22 12 46.31	22.38	2.14	0 54 36
	25	5 07 59.808	+22 12 10.95	22.40	2.14	0 50 07
	26	5 07 26.538	+22 11 34.92	22.42	2.14	0 45 38
	27	5 06 52.957	+22 10 58.24	22.44	2.14	0 41 09
	28	5 06 19.094	+22 10 20.92	22.45	2.14	0 36 39
	29	5 05 44.974	+22 09 43.02	22.46	2.15	0 32 09
	30	5 05 10.627	+22 09 04.55	22.48	2.15	0 27 39
Diciembre	01	5 04 36.078	+22 08 25.56	22.49	2.15	0 23 09
	02	5 04 01.356	+22 07 46.08	22.50	2.15	0 18 39
	03	5 03 26.488	+22 07 06.15	22.50	2.15	0 14 08
	04	5 02 51.499	+22 06 25.80	22.51	2.15	0 09 37
	05	5 02 16.417	+22 05 45.07	22.51	2.15	0 05 07
	06	5 01 41.270	+22 05 03.97	22.51	2.15	******00
	07	5 01 06.084	+22 04 22.53	22.51	2.15	23 51 34
	08	5 00 30.888	+22 03 40.77	22.51	2.15	23 47 03
	09	4 59 55.711	+22 02 58.73	22.51	2.15	23 42 32
	10	4 59 20.582	+22 02 16.43	22.50	2.15	23 38 02
	11	4 58 45.530	+22 01 33.91	22.49	2.15	23 33 31
	12	4 58 10.585	+22 00 51.22	22.48	2.15	23 29 00
	13	4 57 35.773	+22 00 08.42	22.47	2.15	23 24 30
	14	4 57 01.121	+21 59 25.55	22.46	2.15	23 19 60
	15	4 56 26.653	+21 58 42.67	22.45	2.14	23 15 30
	16	4 55 52.390	+21 57 59.83	22.43	2.14	23 11 00
	17	4 55 18.355	+21 57 17.06	22.42	2.14	23 06 31
	18	4 54 44.572	+21 56 34.41	22.40	2.14	23 02 01
	19	4 54 11.063	+21 55 51.91	22.38	2.14	22 57 32
	20	4 53 37.853	+21 55 09.59	22.35	2.14	22 53 04
	21	4 53 04.969	+21 54 27.50	22.33	2.13	22 48 35
	22	4 52 32.434	+21 53 45.68	22.30	2.13	22 44 08
	23	4 52 00.276	+21 53 04.18	22.28	2.13	22 39 40
	24	4 51 28.520	+21 52 23.06	22.25	2.13	22 35 13
	25	4 50 57.189	+21 51 42.38	22.22	2.12	22 30 46
	26	4 50 26.310	+21 51 02.18	22.19	2.12	22 26 20
	27	4 49 55.905	+21 50 22.53	22.15	2.12	22 21 55
	28	4 49 25.998	+21 49 43.50	22.12	2.11	22 17 29
	29	4 48 56.610	+21 49 05.14	22.08	2.11	22 13 05
	30	4 48 27.763	+21 48 27.50	22.05	2.11	22 08 41
	31	4 47 59.477	+21 47 50.65	22.01	2.10	22 04 17

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SATURNO 2024
PARA 0^h DE TIEMPO TERRESTRE

Fecha		Asc. Recta Aparente	Declinación Aparente	Semi Diámetro	Paralaje Horiz.	Paso Mer. Efemérides
		h m s	° ' "	"	"	h m s
Enero	01	22 23 06.780	-11 50 20.74	7.17	0.85	15 40 09
	02	22 23 27.007	-11 48 20.46	7.16	0.85	15 36 34
	03	22 23 47.486	-11 46 18.74	7.15	0.85	15 32 58
	04	22 24 08.215	-11 44 15.58	7.14	0.85	15 29 23
	05	22 24 29.190	-11 42 11.01	7.13	0.85	15 25 48
	06	22 24 50.408	-11 40 05.04	7.13	0.85	15 22 14
	07	22 25 11.867	-11 37 57.69	7.12	0.85	15 18 39
	08	22 25 33.562	-11 35 48.97	7.11	0.85	15 15 05
	09	22 25 55.491	-11 33 38.92	7.10	0.85	15 11 31
	10	22 26 17.646	-11 31 27.57	7.09	0.85	15 07 57
	11	22 26 40.024	-11 29 14.96	7.09	0.84	15 04 24
	12	22 27 02.615	-11 27 01.11	7.08	0.84	15 00 50
	13	22 27 25.414	-11 24 46.08	7.07	0.84	14 57 17
	14	22 27 48.414	-11 22 29.87	7.06	0.84	14 53 44
	15	22 28 11.610	-11 20 12.53	7.06	0.84	14 50 12
	16	22 28 34.999	-11 17 54.05	7.05	0.84	14 46 39
	17	22 28 58.577	-11 15 34.45	7.04	0.84	14 43 07
	18	22 29 22.342	-11 13 13.75	7.03	0.84	14 39 35
	19	22 29 46.290	-11 10 51.97	7.03	0.84	14 36 03
	20	22 30 10.418	-11 08 29.14	7.02	0.84	14 32 31
	21	22 30 34.720	-11 06 05.29	7.01	0.84	14 28 59
	22	22 30 59.192	-11 03 40.45	7.01	0.83	14 25 28
	23	22 31 23.828	-11 01 14.66	7.00	0.83	14 21 56
	24	22 31 48.622	-10 58 47.95	7.00	0.83	14 18 25
	25	22 32 13.568	-10 56 20.35	6.99	0.83	14 14 54
	26	22 32 38.662	-10 53 51.88	6.99	0.83	14 11 23
	27	22 33 03.899	-10 51 22.57	6.98	0.83	14 07 53
	28	22 33 29.274	-10 48 52.44	6.97	0.83	14 04 22
	29	22 33 54.785	-10 46 21.50	6.97	0.83	14 00 52
	30	22 34 20.427	-10 43 49.77	6.96	0.83	13 57 21
	31	22 34 46.197	-10 41 17.26	6.96	0.83	13 53 51
Febrero	01	22 35 12.092	-10 38 44.00	6.96	0.83	13 50 21
	02	22 35 38.110	-10 36 10.00	6.95	0.83	13 46 51
	03	22 36 04.246	-10 33 35.28	6.95	0.83	13 43 21
	04	22 36 30.498	-10 30 59.86	6.94	0.83	13 39 52
	05	22 36 56.861	-10 28 23.77	6.94	0.83	13 36 22
	06	22 37 23.330	-10 25 47.05	6.93	0.83	13 32 52
	07	22 37 49.901	-10 23 09.72	6.93	0.83	13 29 23
	08	22 38 16.566	-10 20 31.82	6.93	0.83	13 25 54
	09	22 38 43.319	-10 17 53.40	6.92	0.82	13 22 24
	10	22 39 10.153	-10 15 14.50	6.92	0.82	13 18 55
	11	22 39 37.062	-10 12 35.12	6.92	0.82	13 15 26
	12	22 40 04.041	-10 09 55.31	6.91	0.82	13 11 57
	13	22 40 31.089	-10 07 15.06	6.91	0.82	13 08 28
	14	22 40 58.202	-10 04 34.40	6.91	0.82	13 04 59
	15	22 41 25.378	-10 01 53.35	6.91	0.82	13 01 30
	16	22 41 52.612	- 9 59 11.93	6.91	0.82	12 58 02
	17	22 42 19.902	- 9 56 30.18	6.90	0.82	12 54 33
	18	22 42 47.240	- 9 53 48.13	6.90	0.82	12 51 04
	19	22 43 14.622	- 9 51 05.82	6.90	0.82	12 47 36
	20	22 43 42.043	- 9 48 23.29	6.90	0.82	12 44 07
	21	22 44 09.496	- 9 45 40.56	6.90	0.82	12 40 38
	22	22 44 36.977	- 9 42 57.67	6.90	0.82	12 37 10
	23	22 45 04.482	- 9 40 14.64	6.89	0.82	12 33 41
	24	22 45 32.006	- 9 37 31.48	6.89	0.82	12 30 13
	25	22 45 59.546	- 9 34 48.23	6.89	0.82	12 26 44
	26	22 46 27.099	- 9 32 04.91	6.89	0.82	12 23 16
	27	22 46 54.661	- 9 29 21.55	6.89	0.82	12 19 47
	28	22 47 22.228	- 9 26 38.19	6.89	0.82	12 16 19
	29	22 47 49.791	- 9 23 54.80	6.89	0.82	12 12 50

SATURNO 2024
PARA 0h DE TIEMPO TERRESTRE

Fecha		Asc. Recta Aparente	Declinación Aparente	Semi Diámetro	Paralaje Horiz.	Paso Mer. Efemérides
		h m s	° ' "	"	"	h m s
Marzo	01	22 48 17.353	- 9 21 11.29	6.89	0.82	12 09 22
	02	22 48 44.918	- 9 18 27.74	6.89	0.82	12 05 53
	03	22 49 12.478	- 9 15 44.26	6.89	0.82	12 02 25
	04	22 49 40.029	- 9 13 00.87	6.89	0.82	11 58 56
	05	22 50 07.564	- 9 10 17.59	6.89	0.82	11 55 28
	06	22 50 35.077	- 9 07 34.46	6.90	0.82	11 51 59
	07	22 51 02.564	- 9 04 51.51	6.90	0.82	11 48 31
	08	22 51 30.016	- 9 02 08.78	6.90	0.82	11 45 02
	09	22 51 57.428	- 8 59 26.30	6.90	0.82	11 41 33
	10	22 52 24.796	- 8 56 44.10	6.90	0.82	11 38 05
	11	22 52 52.116	- 8 54 02.19	6.90	0.82	11 34 36
	12	22 53 19.386	- 8 51 20.59	6.90	0.82	11 31 07
	13	22 53 46.603	- 8 48 39.31	6.91	0.82	11 27 38
	14	22 54 13.766	- 8 45 58.39	6.91	0.82	11 24 09
	15	22 54 40.869	- 8 43 17.84	6.91	0.82	11 20 40
	16	22 55 07.909	- 8 40 37.71	6.91	0.82	11 17 11
	17	22 55 34.879	- 8 37 58.03	6.92	0.82	11 13 42
	18	22 56 01.775	- 8 35 18.84	6.92	0.82	11 10 13
	19	22 56 28.590	- 8 32 40.18	6.92	0.82	11 06 44
	20	22 56 55.321	- 8 30 02.07	6.93	0.83	11 03 14
	21	22 57 21.963	- 8 27 24.53	6.93	0.83	10 59 45
	22	22 57 48.513	- 8 24 47.60	6.93	0.83	10 56 15
	23	22 58 14.966	- 8 22 11.28	6.94	0.83	10 52 46
	24	22 58 41.319	- 8 19 35.61	6.94	0.83	10 49 16
	25	22 59 07.571	- 8 17 00.59	6.94	0.83	10 45 46
	26	22 59 33.717	- 8 14 26.25	6.95	0.83	10 42 16
	27	22 59 59.757	- 8 11 52.59	6.95	0.83	10 38 46
	28	23 00 25.687	- 8 09 19.65	6.96	0.83	10 35 16
	29	23 00 51.504	- 8 06 47.43	6.96	0.83	10 31 46
	30	23 01 17.205	- 8 04 15.98	6.97	0.83	10 28 15
	31	23 01 42.786	- 8 01 45.30	6.97	0.83	10 24 45
Abril	01	23 02 08.243	- 7 59 15.45	6.98	0.83	10 21 14
	02	23 02 33.571	- 7 56 46.44	6.98	0.83	10 17 43
	03	23 02 58.763	- 7 54 18.32	6.99	0.83	10 14 13
	04	23 03 23.815	- 7 51 51.12	6.99	0.83	10 10 42
	05	23 03 48.721	- 7 49 24.88	7.00	0.83	10 07 10
	06	23 04 13.476	- 7 46 59.63	7.00	0.83	10 03 39
	07	23 04 38.076	- 7 44 35.38	7.01	0.84	10 00 07
	08	23 05 02.519	- 7 42 12.15	7.02	0.84	9 56 36
	09	23 05 26.802	- 7 39 49.96	7.02	0.84	9 53 04
	10	23 05 50.925	- 7 37 28.83	7.03	0.84	9 49 32
	11	23 06 14.883	- 7 35 08.77	7.04	0.84	9 45 60
	12	23 06 38.673	- 7 32 49.83	7.04	0.84	9 42 28
	13	23 07 02.290	- 7 30 32.04	7.05	0.84	9 38 55
	14	23 07 25.727	- 7 28 15.44	7.06	0.84	9 35 22
	15	23 07 48.981	- 7 26 00.06	7.06	0.84	9 31 50
	16	23 08 12.046	- 7 23 45.94	7.07	0.84	9 28 17
	17	23 08 34.917	- 7 21 33.09	7.08	0.84	9 24 43
	18	23 08 57.593	- 7 19 21.54	7.09	0.84	9 21 10
	19	23 09 20.068	- 7 17 11.30	7.09	0.85	9 17 36
	20	23 09 42.342	- 7 15 02.40	7.10	0.85	9 14 02
	21	23 10 04.410	- 7 12 54.85	7.11	0.85	9 10 28
	22	23 10 26.272	- 7 10 48.67	7.12	0.85	9 06 54
	23	23 10 47.924	- 7 08 43.87	7.13	0.85	9 03 20
	24	23 11 09.364	- 7 06 40.46	7.14	0.85	8 59 45
	25	23 11 30.591	- 7 04 38.46	7.14	0.85	8 56 10
	26	23 11 51.601	- 7 02 37.90	7.15	0.85	8 52 35
	27	23 12 12.391	- 7 00 38.80	7.16	0.85	8 48 60
	28	23 12 32.957	- 6 58 41.19	7.17	0.85	8 45 24
	29	23 12 53.294	- 6 56 45.10	7.18	0.86	8 41 48
	30	23 13 13.397	- 6 54 50.55	7.19	0.86	8 38 12

SATURNO 2024
PARA 0^h DE TIEMPO TERRESTRE

Fecha		Asc. Recta Aparente	Declinación Aparente	Semi Diámetro	Paralaje Horiz.	Paso Mer. Efemérides
		h m s	° ' "	"	"	h m s
Mayo	01	23 13 33.261	- 6 52 57.60	7.20	0.86	8 34 36
	02	23 13 52.882	- 6 51 06.26	7.21	0.86	8 30 60
	03	23 14 12.254	- 6 49 16.57	7.22	0.86	8 27 23
	04	23 14 31.374	- 6 47 28.53	7.23	0.86	8 23 46
	05	23 14 50.239	- 6 45 42.18	7.24	0.86	8 20 09
	06	23 15 08.848	- 6 43 57.52	7.25	0.86	8 16 31
	07	23 15 27.199	- 6 42 14.57	7.26	0.86	8 12 54
	08	23 15 45.290	- 6 40 33.33	7.27	0.87	8 09 16
	09	23 16 03.117	- 6 38 53.85	7.28	0.87	8 05 37
	10	23 16 20.677	- 6 37 16.15	7.29	0.87	8 01 59
	11	23 16 37.964	- 6 35 40.26	7.30	0.87	7 58 20
	12	23 16 54.974	- 6 34 06.21	7.31	0.87	7 54 41
	13	23 17 11.702	- 6 32 34.04	7.32	0.87	7 51 02
	14	23 17 28.144	- 6 31 03.77	7.33	0.87	7 47 22
	15	23 17 44.297	- 6 29 35.41	7.34	0.87	7 43 42
	16	23 18 00.158	- 6 28 08.99	7.36	0.88	7 40 02
	17	23 18 15.726	- 6 26 44.50	7.37	0.88	7 36 21
	18	23 18 30.997	- 6 25 21.97	7.38	0.88	7 32 40
	19	23 18 45.971	- 6 24 01.40	7.39	0.88	7 28 59
	20	23 19 00.646	- 6 22 42.80	7.40	0.88	7 25 18
	21	23 19 15.021	- 6 21 26.18	7.41	0.88	7 21 36
	22	23 19 29.094	- 6 20 11.55	7.43	0.88	7 17 54
	23	23 19 42.862	- 6 18 58.92	7.44	0.89	7 14 12
	24	23 19 56.325	- 6 17 48.32	7.45	0.89	7 10 29
	25	23 20 09.478	- 6 16 39.75	7.46	0.89	7 06 46
	26	23 20 22.317	- 6 15 33.25	7.47	0.89	7 03 03
	27	23 20 34.840	- 6 14 28.84	7.49	0.89	6 59 20
	28	23 20 47.041	- 6 13 26.56	7.50	0.89	6 55 36
	29	23 20 58.916	- 6 12 26.41	7.51	0.89	6 51 51
	30	23 21 10.461	- 6 11 28.43	7.52	0.90	6 48 07
	31	23 21 21.673	- 6 10 32.62	7.54	0.90	6 44 22
Junio	01	23 21 32.552	- 6 09 39.00	7.55	0.90	6 40 37
	02	23 21 43.096	- 6 08 47.58	7.56	0.90	6 36 51
	03	23 21 53.303	- 6 07 58.35	7.57	0.90	6 33 06
	04	23 22 03.173	- 6 07 11.32	7.59	0.90	6 29 19
	05	23 22 12.705	- 6 06 26.51	7.60	0.91	6 25 33
	06	23 22 21.895	- 6 05 43.94	7.61	0.91	6 21 46
	07	23 22 30.741	- 6 05 03.62	7.63	0.91	6 17 59
	08	23 22 39.237	- 6 04 25.59	7.64	0.91	6 14 11
	09	23 22 47.382	- 6 03 49.86	7.65	0.91	6 10 23
	10	23 22 55.171	- 6 03 16.44	7.67	0.91	6 06 35
	11	23 23 02.604	- 6 02 45.35	7.68	0.91	6 02 46
	12	23 23 09.678	- 6 02 16.59	7.69	0.92	5 58 57
	13	23 23 16.392	- 6 01 50.17	7.71	0.92	5 55 08
	14	23 23 22.746	- 6 01 26.07	7.72	0.92	5 51 18
	15	23 23 28.740	- 6 01 04.30	7.73	0.92	5 47 28
	16	23 23 34.374	- 6 00 44.86	7.75	0.92	5 43 38
	17	23 23 39.648	- 6 00 27.73	7.76	0.92	5 39 47
	18	23 23 44.563	- 6 00 12.92	7.77	0.93	5 35 56
	19	23 23 49.117	- 6 00 00.42	7.79	0.93	5 32 05
	20	23 23 53.312	- 5 59 50.24	7.80	0.93	5 28 13
	21	23 23 57.145	- 5 59 42.38	7.81	0.93	5 24 21
	22	23 24 00.616	- 5 59 36.84	7.83	0.93	5 20 28
	23	23 24 03.721	- 5 59 33.64	7.84	0.93	5 16 35
	24	23 24 06.460	- 5 59 32.80	7.85	0.94	5 12 42
	25	23 24 08.828	- 5 59 34.31	7.87	0.94	5 08 48
	26	23 24 10.825	- 5 59 38.20	7.88	0.94	5 04 54
	27	23 24 12.448	- 5 59 44.45	7.90	0.94	5 00 60
	28	23 24 13.700	- 5 59 53.06	7.91	0.94	4 57 05
	29	23 24 14.580	- 6 00 04.02	7.92	0.94	4 53 10
	30	23 24 15.091	- 6 00 17.32	7.94	0.95	4 49 15

SATURNO 2024
PARA 0h DE TIEMPO TERRESTRE

Fecha		Asc. Recta Aparente	Declinación Aparente	Semi Diámetro	Paralaje Horiz.	Paso Mer. Efemérides
		h m s	° ' "	"	"	h m s
Julio	01	23 24 15.233	- 6 00 32.95	7.95	0.95	4 45 19
	02	23 24 15.007	- 6 00 50.89	7.96	0.95	4 41 23
	03	23 24 14.414	- 6 01 11.15	7.98	0.95	4 37 26
	04	23 24 13.452	- 6 01 33.73	7.99	0.95	4 33 29
	05	23 24 12.122	- 6 01 58.64	8.00	0.95	4 29 32
	06	23 24 10.421	- 6 02 25.86	8.02	0.95	4 25 34
	07	23 24 08.350	- 6 02 55.41	8.03	0.96	4 21 36
	08	23 24 05.909	- 6 03 27.27	8.04	0.96	4 17 38
	09	23 24 03.099	- 6 04 01.42	8.05	0.96	4 13 39
	10	23 23 59.922	- 6 04 37.85	8.07	0.96	4 09 40
	11	23 23 56.380	- 6 05 16.53	8.08	0.96	4 05 40
	12	23 23 52.476	- 6 05 57.44	8.09	0.96	4 01 40
	13	23 23 48.214	- 6 06 40.55	8.11	0.97	3 57 40
	14	23 23 43.597	- 6 07 25.84	8.12	0.97	3 53 40
	15	23 23 38.627	- 6 08 13.27	8.13	0.97	3 49 39
	16	23 23 33.309	- 6 09 02.83	8.14	0.97	3 45 37
	17	23 23 27.645	- 6 09 54.48	8.16	0.97	3 41 36
	18	23 23 21.639	- 6 10 48.21	8.17	0.97	3 37 34
	19	23 23 15.292	- 6 11 44.00	8.18	0.97	3 33 32
	20	23 23 08.606	- 6 12 41.83	8.19	0.98	3 29 29
	21	23 23 01.582	- 6 13 41.69	8.20	0.98	3 25 26
	22	23 22 54.221	- 6 14 43.57	8.21	0.98	3 21 23
	23	23 22 46.525	- 6 15 47.45	8.23	0.98	3 17 19
	24	23 22 38.495	- 6 16 53.31	8.24	0.98	3 13 15
	25	23 22 30.136	- 6 18 01.11	8.25	0.98	3 09 11
	26	23 22 21.452	- 6 19 10.83	8.26	0.98	3 05 06
	27	23 22 12.449	- 6 20 22.41	8.27	0.99	3 01 02
	28	23 22 03.131	- 6 21 35.82	8.28	0.99	2 56 56
	29	23 21 53.505	- 6 22 51.03	8.29	0.99	2 52 51
	30	23 21 43.573	- 6 24 08.01	8.30	0.99	2 48 45
	31	23 21 33.340	- 6 25 26.73	8.31	0.99	2 44 39
Agosto	01	23 21 22.809	- 6 26 47.17	8.32	0.99	2 40 32
	02	23 21 11.982	- 6 28 09.30	8.33	0.99	2 36 26
	03	23 21 00.864	- 6 29 33.09	8.34	0.99	2 32 19
	04	23 20 49.459	- 6 30 58.51	8.35	0.99	2 28 11
	05	23 20 37.772	- 6 32 25.51	8.36	1.00	2 24 04
	06	23 20 25.809	- 6 33 54.04	8.37	1.00	2 19 56
	07	23 20 13.577	- 6 35 24.07	8.38	1.00	2 15 48
	08	23 20 01.082	- 6 36 55.53	8.39	1.00	2 11 40
	09	23 19 48.331	- 6 38 28.38	8.40	1.00	2 07 31
	10	23 19 35.333	- 6 40 02.55	8.40	1.00	2 03 22
	11	23 19 22.095	- 6 41 37.99	8.41	1.00	1 59 13
	12	23 19 08.624	- 6 43 14.66	8.42	1.00	1 55 04
	13	23 18 54.929	- 6 44 52.49	8.43	1.00	1 50 54
	14	23 18 41.015	- 6 46 31.45	8.43	1.00	1 46 44
	15	23 18 26.890	- 6 48 11.48	8.44	1.01	1 42 34
	16	23 18 12.559	- 6 49 52.54	8.45	1.01	1 38 24
	17	23 17 58.029	- 6 51 34.59	8.45	1.01	1 34 14
	18	23 17 43.305	- 6 53 17.60	8.46	1.01	1 30 03
	19	23 17 28.392	- 6 55 01.52	8.47	1.01	1 25 53
	20	23 17 13.295	- 6 56 46.31	8.47	1.01	1 21 42
	21	23 16 58.023	- 6 58 31.92	8.48	1.01	1 17 31
	22	23 16 42.583	- 7 00 18.29	8.48	1.01	1 13 19
	23	23 16 26.984	- 7 02 05.34	8.49	1.01	1 09 08
	24	23 16 11.237	- 7 03 53.03	8.49	1.01	1 04 56
	25	23 15 55.350	- 7 05 41.29	8.50	1.01	1 00 45
	26	23 15 39.332	- 7 07 30.07	8.50	1.01	0 56 33
	27	23 15 23.189	- 7 09 19.33	8.50	1.01	0 52 21
	28	23 15 06.929	- 7 11 09.02	8.51	1.01	0 48 09
	29	23 14 50.558	- 7 12 59.09	8.51	1.01	0 43 56
	30	23 14 34.084	- 7 14 49.50	8.51	1.01	0 39 44
	31	23 14 17.515	- 7 16 40.19	8.52	1.01	0 35 32

SATURNO 2024
PARA 0h DE TIEMPO TERRESTRE

Fecha		Asc. Recta Aparente	Declinación Aparente	Semi Diámetro	Paralaje Horiz.	Paso Mer. Efemérides
		h m s	° ' "	"	"	h m s
Septiembre	01	23 14 00.858	- 7 18 31.10	8.52	1.01	0 31 19
	02	23 13 44.124	- 7 20 22.17	8.52	1.02	0 27 07
	03	23 13 27.321	- 7 22 13.34	8.52	1.02	0 22 54
	04	23 13 10.459	- 7 24 04.53	8.52	1.02	0 18 41
	05	23 12 53.549	- 7 25 55.69	8.52	1.02	0 14 29
	06	23 12 36.600	- 7 27 46.74	8.53	1.02	0 10 16
	07	23 12 19.625	- 7 29 37.61	8.53	1.02	0 06 03
	08	23 12 02.632	- 7 31 28.24	8.53	1.02	******00
	09	23 11 45.632	- 7 33 18.57	8.53	1.02	23 53 25
	10	23 11 28.634	- 7 35 08.54	8.53	1.02	23 49 12
	11	23 11 11.648	- 7 36 58.09	8.53	1.02	23 44 59
	12	23 10 54.681	- 7 38 47.17	8.52	1.02	23 40 46
	13	23 10 37.743	- 7 40 35.74	8.52	1.02	23 36 34
	14	23 10 20.840	- 7 42 23.74	8.52	1.02	23 32 21
	15	23 10 03.979	- 7 44 11.13	8.52	1.01	23 28 08
	16	23 09 47.168	- 7 45 57.87	8.52	1.01	23 23 56
	17	23 09 30.415	- 7 47 43.89	8.51	1.01	23 19 43
	18	23 09 13.729	- 7 49 29.16	8.51	1.01	23 15 31
	19	23 08 57.119	- 7 51 13.59	8.51	1.01	23 11 19
	20	23 08 40.598	- 7 52 57.12	8.51	1.01	23 07 06
	21	23 08 24.174	- 7 54 39.70	8.50	1.01	23 02 54
	22	23 08 07.859	- 7 56 21.27	8.50	1.01	22 58 42
	23	23 07 51.659	- 7 58 01.79	8.49	1.01	22 54 30
	24	23 07 35.581	- 7 59 41.22	8.49	1.01	22 50 19
	25	23 07 19.634	- 8 01 19.52	8.49	1.01	22 46 07
	26	23 07 03.823	- 8 02 56.66	8.48	1.01	22 41 55
	27	23 06 48.157	- 8 04 32.57	8.47	1.01	22 37 44
	28	23 06 32.644	- 8 06 07.22	8.47	1.01	22 33 33
	29	23 06 17.292	- 8 07 40.55	8.46	1.01	22 29 22
	30	23 06 02.111	- 8 09 12.50	8.46	1.01	22 25 11
Octubre	01	23 05 47.108	- 8 10 43.02	8.45	1.01	22 21 00
	02	23 05 32.295	- 8 12 12.05	8.44	1.01	22 16 50
	03	23 05 17.680	- 8 13 39.54	8.44	1.01	22 12 40
	04	23 05 03.272	- 8 15 05.44	8.43	1.00	22 08 30
	05	23 04 49.080	- 8 16 29.69	8.42	1.00	22 04 20
	06	23 04 35.114	- 8 17 52.25	8.42	1.00	22 00 10
	07	23 04 21.381	- 8 19 13.07	8.41	1.00	21 56 01
	08	23 04 07.888	- 8 20 32.12	8.40	1.00	21 51 52
	09	23 03 54.642	- 8 21 49.37	8.39	1.00	21 47 43
	10	23 03 41.649	- 8 23 04.77	8.38	1.00	21 43 34
	11	23 03 28.915	- 8 24 18.31	8.37	1.00	21 39 26
	12	23 03 16.444	- 8 25 29.96	8.36	1.00	21 35 18
	13	23 03 04.243	- 8 26 39.68	8.36	1.00	21 31 10
	14	23 02 52.315	- 8 27 47.47	8.35	0.99	21 27 03
	15	23 02 40.666	- 8 28 53.27	8.34	0.99	21 22 55
	16	23 02 29.304	- 8 29 57.05	8.33	0.99	21 18 48
	17	23 02 18.236	- 8 30 58.77	8.32	0.99	21 14 42
	18	23 02 07.469	- 8 31 58.40	8.31	0.99	21 10 35
	19	23 01 57.010	- 8 32 55.89	8.30	0.99	21 06 29
	20	23 01 46.866	- 8 33 51.23	8.29	0.99	21 02 24
	21	23 01 37.039	- 8 34 44.41	8.27	0.99	20 58 18
	22	23 01 27.533	- 8 35 35.41	8.26	0.98	20 54 13
	23	23 01 18.352	- 8 36 24.22	8.25	0.98	20 50 08
	24	23 01 09.498	- 8 37 10.83	8.24	0.98	20 46 04
	25	23 01 00.976	- 8 37 55.21	8.23	0.98	20 41 60
	26	23 00 52.790	- 8 38 37.34	8.22	0.98	20 37 56
	27	23 00 44.946	- 8 39 17.18	8.21	0.98	20 33 53
	28	23 00 37.448	- 8 39 54.72	8.20	0.98	20 29 50
	29	23 00 30.303	- 8 40 29.92	8.18	0.97	20 25 47
	30	23 00 23.514	- 8 41 02.75	8.17	0.97	20 21 45
	31	23 00 17.087	- 8 41 33.20	8.16	0.97	20 17 43

SATURNO 2024
PARA 0h DE TIEMPO TERRESTRE

Fecha		Asc. Recta Aparente	Declinación Aparente	Semi Diámetro	Paralaje Horiz.	Paso Mer. Efemérides
		h m s	° ' "	"	"	h m s
Noviembre	01	23 00 11.026	- 8 42 01.24	8.15	0.97	20 13 41
	02	23 00 05.337	- 8 42 26.85	8.13	0.97	20 09 40
	03	23 00 00.022	- 8 42 50.02	8.12	0.97	20 05 39
	04	22 59 55.085	- 8 43 10.73	8.11	0.97	20 01 38
	05	22 59 50.528	- 8 43 28.98	8.10	0.96	19 57 38
	06	22 59 46.353	- 8 43 44.78	8.08	0.96	19 53 38
	07	22 59 42.560	- 8 43 58.11	8.07	0.96	19 49 39
	08	22 59 39.150	- 8 44 08.98	8.06	0.96	19 45 40
	09	22 59 36.124	- 8 44 17.40	8.04	0.96	19 41 42
	10	22 59 33.482	- 8 44 23.36	8.03	0.96	19 37 43
	11	22 59 31.225	- 8 44 26.87	8.02	0.96	19 33 45
	12	22 59 29.355	- 8 44 27.90	8.00	0.95	19 29 48
	13	22 59 27.874	- 8 44 26.45	7.99	0.95	19 25 51
	14	22 59 26.786	- 8 44 22.51	7.98	0.95	19 21 54
	15	22 59 26.093	- 8 44 16.07	7.96	0.95	19 17 58
	16	22 59 25.796	- 8 44 07.13	7.95	0.95	19 14 02
	17	22 59 25.895	- 8 43 55.70	7.94	0.95	19 10 07
	18	22 59 26.390	- 8 43 41.80	7.92	0.94	19 06 11
	19	22 59 27.279	- 8 43 25.45	7.91	0.94	19 02 17
	20	22 59 28.560	- 8 43 06.65	7.90	0.94	18 58 22
	21	22 59 30.232	- 8 42 45.42	7.88	0.94	18 54 28
	22	22 59 32.295	- 8 42 21.75	7.87	0.94	18 50 35
	23	22 59 34.750	- 8 41 55.64	7.86	0.94	18 46 42
	24	22 59 37.597	- 8 41 27.10	7.84	0.93	18 42 49
	25	22 59 40.837	- 8 40 56.11	7.83	0.93	18 38 57
	26	22 59 44.471	- 8 40 22.67	7.82	0.93	18 35 05
	27	22 59 48.500	- 8 39 46.79	7.80	0.93	18 31 13
	28	22 59 52.924	- 8 39 08.46	7.79	0.93	18 27 22
	29	22 59 57.743	- 8 38 27.69	7.78	0.93	18 23 31
	30	23 00 02.957	- 8 37 44.48	7.76	0.92	18 19 41
Diciembre	01	23 00 08.565	- 8 36 58.85	7.75	0.92	18 15 51
	02	23 00 14.566	- 8 36 10.81	7.73	0.92	18 12 01
	03	23 00 20.956	- 8 35 20.38	7.72	0.92	18 08 12
	04	23 00 27.734	- 8 34 27.58	7.71	0.92	18 04 23
	05	23 00 34.896	- 8 33 32.43	7.69	0.92	18 00 34
	06	23 00 42.438	- 8 32 34.97	7.68	0.92	17 56 46
	07	23 00 50.357	- 8 31 35.20	7.67	0.91	17 52 58
	08	23 00 58.651	- 8 30 33.14	7.66	0.91	17 49 11
	09	23 01 07.318	- 8 29 28.80	7.64	0.91	17 45 24
	10	23 01 16.356	- 8 28 22.20	7.63	0.91	17 41 37
	11	23 01 25.764	- 8 27 13.34	7.62	0.91	17 37 51
	12	23 01 35.542	- 8 26 02.22	7.60	0.91	17 34 05
	13	23 01 45.687	- 8 24 48.87	7.59	0.90	17 30 20
	14	23 01 56.199	- 8 23 33.31	7.58	0.90	17 26 34
	15	23 02 07.072	- 8 22 15.57	7.56	0.90	17 22 49
	16	23 02 18.302	- 8 20 55.67	7.55	0.90	17 19 05
	17	23 02 29.884	- 8 19 33.66	7.54	0.90	17 15 21
	18	23 02 41.814	- 8 18 09.55	7.53	0.90	17 11 37
	19	23 02 54.089	- 8 16 43.37	7.51	0.90	17 07 54
	20	23 03 06.704	- 8 15 15.13	7.50	0.89	17 04 10
	21	23 03 19.659	- 8 13 44.83	7.49	0.89	17 00 28
	22	23 03 32.952	- 8 12 12.51	7.48	0.89	16 56 45
	23	23 03 46.580	- 8 10 38.15	7.47	0.89	16 53 03
	24	23 04 00.541	- 8 09 01.77	7.45	0.89	16 49 21
	25	23 04 14.834	- 8 07 23.39	7.44	0.89	16 45 40
	26	23 04 29.457	- 8 05 43.03	7.43	0.89	16 41 59
	27	23 04 44.406	- 8 04 00.69	7.42	0.88	16 38 18
	28	23 04 59.679	- 8 02 16.41	7.41	0.88	16 34 37
	29	23 05 15.273	- 8 00 30.20	7.40	0.88	16 30 57
	30	23 05 31.182	- 7 58 42.09	7.39	0.88	16 27 17
	31	23 05 47.402	- 7 56 52.13	7.37	0.88	16 23 38

VOLVER AL INDICE

Las siguientes estrellas están contenidas en 81 páginas con cuatro estrellas cada página.
La estrella subrayada permite el acceso a la página correspondiente.

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NÚMERO	ESTRELLA	ASCENSIÓN RECTA h	m
902	ω Piscium	00	00
903	ε Tucanae	00	01
904	ϑ Octantis	00	02
1	α Andromedae	00	09
3	ε Phoenicis	00	10
7	γ Pegasi	00	14
9	ι Ceti	00	20
11	β Hydri	00	26
12	α Phoenicis	00	27
20	δ Andromedae	00	40
22	β Ceti	00	44
33	μ Andromedae	00	57
40	η Ceti	01	09
42	β Andromedae	01	10
47	ϑ Ceti	01	25
49	γ Phoenicis	01	29
50	η Piscium	01	32
54	α Eridani (Achernar)	01	38
59	τ Ceti	01	45
62	ζ Ceti	01	52
64	α Trianguli	01	54
66	β Arietis	01	55
68	χ Eridani	01	56
72	α Hydri	01	59
73	γ Andromedae**p.*	02	05
74	α Arietis	02	08
75	β Trianguli	02	10
82	φ Eridani	02	17
79	γ Trianguli	02	18
1065	δ Hydri	02	21
86	χ Eridani	02	27
1075	ι Eridani	02	41
101	β Fornacis	02	49
100	41 Arietis	02	51
104	η Eridani	02	57
106	ϑ Eridani**p*	02	59
107	α Ceti	03	03
111	β Persei (Algol)	03	09
119	82 G.Eridani	03	20
120	α Persei	03	25
121	ο Tauri	03	25
123	ξ Tauri	03	28
127	ε Eridani	03	33
1099	τ^5 Eridani	03	34
135	δ Eridani	03	44
141	β Reticuli	03	44
136	17 Tauri	03	46
146	γ Hydri	03	46
139	η Tauri	03	48
142	27 Tauri	03	50
144	ζ Persei	03	55

149	γ Eridani	03 59
147	ε Persei*	03 59
148	ξ Persei	04 00
150	λ Tauri	04 01
151	ν Tauri	04 04
154	o^1 Eridani	04 12
156	α Reticuli	04 14
155	α Horologii	04 14
157	γ Doradus	04 16
159	γ Tauri	04 21
162	δ Tauri	04 24
1121	43 Eridani	04 24
164	ε Tauri	04 29
171	α Doradus	04 34
168	α Tauri (Aldebaran)	04 37
172	53 Eridani*	04 39
176	μ Eridani	04 46
179	π^4 Orionis	04 52
181	ι Aurigae	04 58
186	ε Leporis	05 06
185	η Aurigae	05 08
188	β Eridani	05 08
1144	μ Leporis	05 13
194	β Orionis (Rigel)	05 15
193	α Aurigae (Capella)	05 18
195	τ Orionis	05 18
201	γ Orionis (Bellatrix)	05 26
202	β Tauri	05 27
204	β Leporis*	05 29
206	δ Orionis	05 33
207	α Leporis	05 33
209	ι Orionis*	05 36
211	ζ Tauri	05 38
215	α Columbae	05 40
217	γ Leporis	05 45
220	χ Orionis	05 48
223	β Columbae	05 51
222	δ Leporis	05 52
224	α Orionis (Betelgeuse)	05 56
227	β Aurigae	06 01
225	δ Aurigae	06 01
240	ζ Canis Majoris	06 21
243	β Canis Majoris	06 23
241	μ Geminorum	06 23
245	α Carinae (Canopus)	06 24
252	ν Puppis	06 38
251	γ Geminorum	06 38
263	τ Puppis	06 50
261	ϑ Geminorum	06 54
268	ε Canis Majoris	06 59
270	o^2 Canis Majoris	07 03
273	δ Canis Majoris	07 09
278	π Puppis	07 17
279	δ Geminorum*	07 21
283	η Canis Majoris	07 24
297	ζ Volantis	07 41
295	β Geminorum (Pollux)	07 46

1204	ξ Puppis	07 50
303	χ Carinae	07 57
306	ζ Puppis	08 04
308	ρ Puppis	08 08
309	γ Velorum*	08 10
312	β Cancri	08 17
315	ε Carinae	08 22
319	β Volantis	08 25
1223	δ Hydrae	08 38
1227	ο Velorum	08 40
327	α Pyxidis	08 44
326	δ Cancri	08 45
332	γ Pyxidis	08 51
336	108 G. Carinae	08 55
334	ζ Hydrae	08 56
342	97 G. Velorum	09 04
345	λ Velorum	09 08
348	β Carinae	09 13
351	ι Carinae	09 17
352	α Lyncis	09 22
353	χ Velorum	09 22
354	α Hydrae	09 28
361	N.Velorum	09 31
1250	ι Hydrae	09 40
365	ο Leonis	09 42
371	μ Leonis	09 54
375	φ Velorum	09 57
380	α Leonis (Regulus)	10 09
381	λ Hydrae	10 11
385	ω Carinae	10 14
384	ζ Leonis	10 17
1264	187 G. Carinae	10 17
389	μ Hydrae	10 27
397	203 G. Carinae	10 32
396	ρ Leonis	10 33
401	γ Chamaeleontis	10 35
406	ϑ Carinae	10 43
410	ν Hydrae	10 50
1283	α Crateris	11 00
1289	260 G. Carinae	11 09
422	δ Leonis	11 15
426	δ Crateris	11 20
427	σ Leonis	11 22
431	γ Crateri*	11 25
434	ξ Hydrae	11 34
436	λ Centauri	11 36
437	υ Leonis	11 38
442	λ Muscae	11 46
444	β Leonis (Denebola)	11 50
445	β Virginis	11 51
450	ο Virginis	12 06
452	δ Centauri	12 09
453	ε Corvi	12 10
455	δ Crucis	12 15
457	γ Corvi	12 16

462	α Crucis A*	12 27
465	δ Corvi	12 30
468	γ Crucis	12 32
471	β Corvi	12 35
474	α Muscae	12 38
481	β Crucis	12 48
484	δ Virginis	12 56
485	α Canum Venat*f.	12 56
488	ε Virginis	13 02
487	δ Muscae	13 02
495	γ Hydrae	13 19
496	ι Centauri	13 20
498	α Virginis (Spica)	13 25
501	ζ Virginis	13 35
504	ε Centauri	13 40
509	η Ursae Majoris	13 48
508	μ Centauri	13 50
513	η Bootis	13 55
512	ζ Centauri	13 56
518	β Centauri*	14 04
519	π Hydrae	14 07
520	ϑ Centauri	14 07
535	γ Bootis	14 32
547	109 Virginis	14 46
542	α Apodis	14 49
548	α^2 Librae	14 51
552	β Lupi	14 59
553	χ Centauri	15 00
555	β Bootis	15 02
556	σ Librae	15 04
558	ζ Lupi	15 13
563	δ Bootis	15 16
564	β Librae	15 17
560	γ Trianguli Australis	15 20
1402	δ Lupi	15 22
566	φ1 Lupi	15 22
572	β Coronae Borealis	15 28
578	α Coronae Borealis	15 35
577	γ Librae	15 36
579	υ Librae	15 37
574	ε Trianguli Australis	15 38
582	α Serpentis	15 44
583	β Serpentis	15 46
589	β Trianguli Australis	15 56
591	γ Serpentis	15 57
592	π Scorpii	15 59
594	δ Scorpii	16 01
618	β Herculis	16 30
611	γ Apodis	16 35
620	τ Scorpii	16 36
622	ζ Ophiuchi	16 37
626	η Herculis	16 43
625	α Trianguli Australis	16 50
628	ε Scorpii	16 51
633	χ Ophiuchi	16 58
631	ζ Arae	16 59
634	ε Herculis	17 00

638	η Scorpii	17 13
643	π Herculis	17 15
641	δ Herculis*	17 15
644	ϑ Ophiuchi	17 22
645	β Arae	17 26
649	υ Scorpii	17 31
648	δ Arae	17 32
651	α Arae	17 32
652	λ Scorpii	17 34
656	α Ophiuchi	17 35
654	ϑ Scorpii	17 38
660	χ Scorpii	17 43
665	β Ophiuchi	17 44
667	μ Herculis	17 47
661	η Pavonis	17 47
666	ι^{1} Scorpii	17 48
668	γ Ophiuchi	17 48
669	G Scorpii	17 50
673	ν Ophiuchi	17 59
679	γ Sagittarii	18 06
1471	ϑ Arae	18 07
680	72 Ophiuchi	18 08
683	η Sagittarii*	18 18
687	δ Sagittarii	18 21
688	η Serpentis	18 22
689	ε Sagittarii	18 25
691	α Telescopii	18 28
692	λ Sagittarii	18 28
699	α Lyrae (Vega)	18 37
1487	φ Sagittarii	18 46
705	β Lyrae	18 50
706	σ Sagittarii	18 56
1495	114 G.Sagittarii	18 56
710	ξ^{2} Sagittarii	18 58
713	γ Lyrae	18 59
716	ζ Aquilae	19 06
717	λ Aquilae	19 07
1496	τ Sagittarii	19 07
720	π Sagittarii*	19 10
1502	β^{1} Sagittarii*	19 23
728	α Sagittarii	19 24
730	δ Aquilae	19 26
732	β Cygni*p.	19 31
1513	β Sagittae	19 41
741	γ Aquilae	19 46
743	δ Sagittae	19 48
745	α Aquilae (Altair)	19 51
746	η Aquilae	19 53
749	β Aquilae	19 56
752	γ Sagittae	19 59
748	ε Pavonis	20 02
754	δ Pavonis	20 10
756	ϑ Aquilae	20 12
761	α^{2} Capricorni	20 18
762	β Capricorni	20 21
765	γ Cygni	20 22
764	α Pavonis	20 26

768	ε Delphini	20	33
769	α Indi	20	38
774	α Delphini	20	40
777	α Cygni (Deneb)	20	41
775	β Pavonis	20	46
780	ε Cygni	20	46
781	ε Aquarii	20	48
785	β Indi	20	55
792	ξ Cygni	21	05
1552	ϑ Capricorni	21	06
797	ζ Cygni	21	13
800	α Equulei	21	16
804	1 Pegasi	21	22
1561	ι Capricorni	21	23
806	ζ Capricorni	21	27
808	β Aquarii	21	32
1568	ρ Cygni	21	34
812	γ Capricorni	21	40
810	ν Octantis	21	42
815	ε Pegasi	21	44
819	δ Capricorni	21	47
822	γ Gruis	21	54
827	α Aquarii	22	06
829	α Gruis	22	09
834	ϑ Pegasi	22	10
841	α Tucanae	22	19
842	γ Aquarii	22	22
846	δ^1 Gruis	22	30
850	η Aquarii	22	36
855	ζ Pegasi	22	42
856	β Gruis	22	43
857	η Pegasi	22	43
860	ε Gruis	22	49
862	μ Pegasi	22	50
864	λ Aquarii	22	53
866	δ Aquarii	22	55
867	α Piscis Austrini(Fomalhaut)	22	58
869	ο Andromedae	23	02
871	α Pegasi	23	05
1605	ι Gruis	23	11
878	γ Piscium	23	17
879	γ Sculptoris	23	19
1612	98 Aquarii	23	23
1614	ϑ Piscium	23	28
886	β Sculptoris	23	33
892	ι Piscium	23	40
1619	χ Andromedae	23	41
923	σ Octantis	21	13

POSICIONES APARENTES AL PASO SUPERIOR POR GREENWICH

NUM.	902		903		904		1	
EST.	ω Piscium		ε Tucanae		ϑ Octantis		α Andromedae	
MAG.	4.01		4.50		4.78		2.06	
UT	AR.	DEC.	AR.	DEC.	AR.	DEC.	AR.	DEC.
	h m	° ′	h m	° ′	h m	° ′	h m	° ′
	0 0	+ 6 59	0 1	-65 26	0 2	-76 55	0 9	+29 13
mes d	s	"	s	"	s	"	s	"
1 -.3	32.133	44.99	9.153	58.85	48.835	82.42	37.203	29.28
1 9.7	32.035	44.27	8.770	57.89	48.028	81.17	37.069	28.48
1 19.7	31.942	43.52	8.419	56.36	47.286	79.31	36.940	27.41
1 29.6	31.862	42.78	8.114	54.34	46.635	76.96	36.823	26.13
2 8.6	31.795	42.06	7.857	51.87	46.081	74.15	36.721	24.67
2 18.6	31.749	41.43	7.663	49.00	45.648	70.94	36.643	23.11
2 28.6	31.729	40.93	7.536	45.83	45.346	67.46	36.596	21.53
3 9.5	31.738	40.59	7.478	42.41	45.175	63.76	36.584	19.99
3 19.5	31.782	40.50	7.500	38.81	45.154	59.91	36.614	18.59
3 29.5	31.861	40.56	7.602	35.14	45.276	56.04	36.689	17.40
4 8.5	31.985	40.91	7.782	31.44	45.540	52.18	36.810	16.45
4 18.4	32.149	41.57	8.048	27.81	45.954	48.45	36.981	15.84
4 28.4	32.352	42.51	8.387	24.33	46.499	44.92	37.196	15.59
5 8.4	32.590	43.73	8.800	21.04	47.171	41.64	37.452	15.72
5 18.3	32.862	45.22	9.281	18.05	47.961	38.71	37.746	16.26
5 28.3	33.157	46.92	9.813	15.42	48.841	36.19	38.068	17.18
6 7.3	33.472	48.81	10.391	13.17	49.802	34.10	38.410	18.47
6 17.3	33.797	50.84	10.999	11.40	50.817	32.55	38.765	20.10
6 27.2	34.124	52.95	11.618	10.13	51.854	31.52	39.121	22.01
7 7.2	34.446	55.10	12.239	9.38	52.899	31.04	39.471	24.17
7 17.2	34.753	57.23	12.840	9.20	53.912	31.16	39.806	26.53
7 27.2	35.038	59.27	13.404	9.55	54.865	31.83	40.117	29.00
8 6.1	35.297	61.21	13.921	10.43	55.739	33.03	40.400	31.57
8 16.1	35.523	62.98	14.369	11.83	56.496	34.76	40.648	34.14
8 26.1	35.713	64.56	14.741	13.65	57.120	36.89	40.857	36.68
9 5.0	35.865	65.94	15.028	15.87	57.593	39.41	41.027	39.15
9 15.0	35.978	67.08	15.218	18.38	57.892	42.20	41.154	41.48
9 25.0	36.054	67.99	15.314	21.07	58.019	45.13	41.241	43.65
10 5.0	36.095	68.68	15.314	23.88	57.966	48.13	41.291	45.63
10 14.9	36.103	69.13	15.218	26.66	57.734	51.06	41.304	47.38
10 24.9	36.084	69.38	15.042	29.28	57.347	53.78	41.286	48.88
11 3.9	36.041	69.45	14.789	31.69	56.809	56.23	41.239	50.12
11 13.9	35.978	69.33	14.473	33.72	56.147	58.24	41.168	51.06
11 23.8	35.901	69.07	14.113	35.32	55.395	59.77	41.078	51.70
12 3.8	35.812	68.67	13.718	36.43	54.570	60.75	40.970	52.03
12 13.8	35.716	68.16	13.307	36.96	53.711	61.09	40.851	52.03
12 23.7	35.617	67.56	12.897	36.94	52.851	60.83	40.724	51.73
12 33.7	35.517	66.87	12.495	36.33	52.007	59.94	40.592	51.11
12 43.7	35.422	66.14	12.121	35.13	51.218	58.44	40.462	50.20
Pos. Med.	34.295	56.03	10.333	27.28	49.178	49.89	39.581	32.23
Secδ tanδ	1.008	.123	2.406	-2.188	4.422	-4.308	1.146	.559
Dob.Tran.	Sep 20		Sep 20		Sep 21		Sep 23	

VOLVER AL INDICE

VOLVER A LISTA DE ESTRELLAS

POSICIONES APARENTES AL PASO SUPERIOR POR GREENWICH

NUM.	3		7		9		11	
EST.	ε Phoenicis		γ Pegasi		ι Ceti		β Hydri	
MAG.	3.88		2.83		3.56		2.80	
UT	AR.	DEC.	AR.	DEC.	AR.	DEC.	AR.	DEC.
	h m	° ′	h m	° ′	h m	° ′	h m	° ′
	0 10	-45 36	0 14	+15 18	0 20	- 8 41	0 26	-77 6
mes d	s	"	s	"	s	"	s	"
1 -.3	37.311	72.24	27.872	63.07	38.676	33.84	60.492	91.73
1 9.7	37.125	71.93	27.763	62.33	38.574	34.35	59.648	90.76
1 19.7	36.953	71.14	27.657	61.46	38.475	34.73	58.850	89.18
1 29.7	36.801	69.92	27.561	60.52	38.385	34.93	58.131	87.05
2 8.6	36.673	68.30	27.477	59.53	38.307	34.97	57.496	84.45
2 18.6	36.576	66.28	27.414	58.55	38.247	34.81	56.974	81.40
2 28.6	36.515	63.95	27.376	57.65	38.210	34.43	56.576	78.04
3 9.5	36.492	61.33	27.368	56.85	38.201	33.86	56.306	74.41
3 19.5	36.518	58.47	27.397	56.24	38.226	33.05	56.184	70.59
3 29.5	36.591	55.45	27.464	55.85	38.284	31.98	56.209	66.70
4 8.5	36.714	52.31	27.573	55.69	38.384	30.67	56.378	62.78
4 18.4	36.891	49.11	27.728	55.84	38.526	29.12	56.705	58.94
4 28.4	37.117	45.94	27.923	56.32	38.708	27.38	57.171	55.27
5 8.4	37.392	42.83	28.157	57.10	38.927	25.47	57.774	51.80
5 18.4	37.712	39.87	28.426	58.22	39.183	23.40	58.508	48.66
5 28.3	38.066	37.14	28.722	59.61	39.465	21.25	59.345	45.89
6 7.3	38.451	34.66	29.039	61.26	39.771	19.05	60.278	43.53
6 17.3	38.857	32.53	29.370	63.14	40.092	16.85	61.282	41.68
6 27.2	39.270	30.78	29.702	65.17	40.419	14.73	62.324	40.35
7 7.2	39.685	29.45	30.032	67.33	40.745	12.70	63.390	39.56
7 17.2	40.087	28.60	30.349	69.55	41.061	10.86	64.442	39.38
7 27.2	40.466	28.22	30.645	71.77	41.358	9.22	65.449	39.76
8 6.1	40.815	28.32	30.916	73.96	41.633	7.83	66.392	40.70
8 16.1	41.122	28.90	31.155	76.05	41.876	6.72	67.232	42.19
8 26.1	41.381	29.91	31.358	78.01	42.086	5.90	67.948	44.13
9 5.1	41.589	31.32	31.526	79.82	42.259	5.37	68.524	46.49
9 15.0	41.740	33.08	31.653	81.43	42.393	5.14	68.929	49.18
9 25.0	41.835	35.08	31.744	82.83	42.489	5.16	69.163	52.07
10 5.0	41.874	37.28	31.800	84.02	42.549	5.43	69.218	55.09
10 14.9	41.860	39.55	31.821	84.97	42.574	5.92	69.088	58.09
10 24.9	41.799	41.79	31.815	85.71	42.571	6.55	68.792	60.94
11 3.9	41.697	43.94	31.782	86.23	42.540	7.31	68.336	63.57
11 13.9	41.559	45.88	31.727	86.51	42.487	8.13	67.738	65.81
11 23.8	41.398	47.52	31.656	86.60	42.417	8.97	67.035	67.59
12 3.8	41.216	48.82	31.569	86.49	42.333	9.81	66.240	68.86
12 13.8	41.023	49.69	31.472	86.17	42.239	10.58	65.391	69.50
12 23.7	40.829	50.13	31.369	85.69	42.140	11.28	64.522	69.54
12 33.7	40.635	50.11	31.261	85.03	42.037	11.87	63.650	68.96
12 43.7	40.454	49.60	31.155	84.25	41.936	12.33	62.816	67.73
Pos. Med.	38.825	44.67	30.041	70.64	40.553	17.87	60.178	59.69
Secδ tanδ	1.430	-1.022	1.037	.274	1.012	-.153	4.485	-4.372
Dob.Tran.	Sep 23		Sep 24		Sep 25		Sep 27	

VOLVER AL INDICE

VOLVER A LISTA DE ESTRELLAS

POSICIONES APARENTES AL PASO SUPERIOR POR GREENWICH

NUM.	12		20		22		33	
EST.	α Phoenicis		δ Andromedae		β Ceti		μ Andromedae	
MAG.	2.39		3.27		2.04		3.87	
UT	AR.	DEC.	AR.	DEC.	AR.	DEC.	AR.	DEC.
	h m	° ′	h m	° ′	h m	° ′	h m	° ′
	0 27	-42 10	0 40	+30 59	0 44	-17 50	0 58	+38 37
mes d	s	"	s	"	s	"	s	"
1 -.3	27.960	49.87	36.455	39.65	47.476	87.28	5.063	56.01
1 9.7	27.784	49.81	36.316	39.10	47.361	87.76	4.901	55.69
1 19.7	27.615	49.30	36.175	38.24	47.246	87.99	4.732	54.99
1 29.7	27.462	48.34	36.039	37.15	47.138	87.95	4.566	53.98
2 8.6	27.327	46.99	35.913	35.85	47.038	87.66	4.407	52.68
2 18.6	27.219	45.23	35.806	34.40	46.954	87.09	4.268	51.14
2 28.6	27.142	43.15	35.727	32.89	46.892	86.26	4.157	49.46
3 9.6	27.101	40.75	35.681	31.37	46.856	85.18	4.080	47.69
3 19.5	27.103	38.08	35.676	29.92	46.854	83.82	4.048	45.93
3 29.5	27.151	35.23	35.717	28.64	46.887	82.23	4.067	44.28
4 8.5	27.246	32.21	35.805	27.56	46.961	80.40	4.138	42.78
4 18.4	27.394	29.09	35.945	26.77	47.079	78.35	4.266	41.54
4 28.4	27.591	25.96	36.134	26.30	47.239	76.15	4.449	40.60
5 8.4	27.835	22.85	36.368	26.18	47.440	73.81	4.683	40.01
5 18.4	28.126	19.85	36.646	26.46	47.681	71.39	4.966	39.82
5 28.3	28.452	17.02	36.955	27.11	47.953	68.94	5.286	40.02
6 7.3	28.811	14.41	37.292	28.12	48.253	66.51	5.639	40.62
6 17.3	29.193	12.11	37.647	29.50	48.573	64.16	6.014	41.64
6 27.3	29.585	10.17	38.008	31.17	48.903	61.97	6.400	43.00
7 7.2	29.982	8.61	38.370	33.11	49.238	59.95	6.789	44.70
7 17.2	30.371	7.51	38.722	35.27	49.567	58.19	7.171	46.69
7 27.2	30.740	6.86	39.054	37.58	49.881	56.73	7.535	48.91
8 6.1	31.085	6.69	39.364	40.02	50.176	55.58	7.878	51.32
8 16.1	31.393	7.01	39.642	42.51	50.442	54.79	8.189	53.87
8 26.1	31.658	7.77	39.884	44.99	50.677	54.34	8.464	56.48
9 5.1	31.877	8.95	40.090	47.44	50.876	54.25	8.704	59.14
9 15.0	32.043	10.51	40.255	49.80	51.036	54.51	8.900	61.76
9 25.0	32.157	12.34	40.382	52.02	51.157	55.06	9.057	64.31
10 5.0	32.220	14.41	40.470	54.09	51.241	55.88	9.173	66.75
10 15.0	32.232	16.60	40.520	55.96	51.288	56.92	9.247	69.03
10 24.9	32.200	18.81	40.539	57.61	51.302	58.09	9.285	71.11
11 3.9	32.127	20.98	40.525	59.02	51.286	59.36	9.287	72.98
11 13.9	32.018	22.98	40.482	60.16	51.243	60.65	9.255	74.57
11 23.8	31.884	24.73	40.416	61.02	51.180	61.89	9.194	75.87
12 3.8	31.728	26.19	40.327	61.58	51.098	63.06	9.103	76.85
12 13.8	31.557	27.25	40.219	61.83	51.002	64.07	8.988	77.48
12 23.8	31.380	27.91	40.098	61.77	50.897	64.89	8.853	77.75
12 33.7	31.200	28.14	39.964	61.39	50.783	65.52	8.700	77.65
12 43.7	31.026	27.89	39.826	60.71	50.669	65.90	8.537	77.17
Pos. Med.	29.341	23.85	38.704	40.76	49.086	69.10	7.348	54.09
Secδ tanδ	1.349	-.906	1.167	.601	1.051	-.322	1.280	.799
Dob.Tran.	Sep 27		Sep 30		Oct 2		Oct 5	

VOLVER AL INDICE

VOLVER A LISTA DE ESTRELLAS

POSICIONES APARENTES AL PASO SUPERIOR POR GREENWICH

NUM.	40		42		47		49	
EST.	η Ceti		β Andromedae		ϑ Ceti		γ Phoenicis	
MAG.	3.45		2.06		3.60		3.41	
UT	AR.	DEC.	AR.	DEC.	AR.	DEC.	AR.	DEC.
	h m	° ′	h m	° ′	h m	° ′	h m	° ′
	1 9	-10 2	1 11	+35 44	1 25	- 8 3	1 29	-43 11
mes d	s	"	s	"	s	"	s	"
1 -1.2	47.827	84.85	4.588	60.86	13.477	40.26	24.948	59.14
1 8.7	47.720	85.50	4.441	60.63	13.372	40.95	24.754	59.75
1 18.7	47.607	85.97	4.282	60.06	13.258	41.48	24.551	59.87
1 28.7	47.494	86.25	4.122	59.19	13.141	41.84	24.350	59.49
2 7.7	47.385	86.33	3.966	58.06	13.024	42.02	24.153	58.67
2 17.6	47.285	86.19	3.824	56.69	12.915	41.98	23.971	57.37
2 27.6	47.204	85.83	3.706	55.19	12.823	41.74	23.812	55.66
3 8.6	47.145	85.24	3.619	53.60	12.750	41.27	23.680	53.57
3 18.6	47.117	84.39	3.572	52.00	12.707	40.56	23.586	51.11
3 28.5	47.123	83.32	3.573	50.49	12.698	39.62	23.536	48.38
4 7.5	47.166	82.00	3.623	49.12	12.726	38.45	23.532	45.41
4 17.5	47.254	80.42	3.728	47.97	12.797	37.01	23.583	42.25
4 27.4	47.385	78.65	3.887	47.11	12.913	35.36	23.688	38.99
5 7.4	47.558	76.68	4.097	46.56	13.071	33.51	23.845	35.66
5 17.4	47.773	74.57	4.357	46.38	13.272	31.49	24.058	32.35
5 27.4	48.022	72.36	4.657	46.58	13.509	29.37	24.318	29.16
6 6.3	48.301	70.08	4.990	47.15	13.778	27.15	24.620	26.10
6 16.3	48.604	67.80	5.349	48.10	14.073	24.91	24.960	23.30
6 26.3	48.921	65.58	5.722	49.39	14.384	22.70	25.324	20.82
7 6.3	49.247	63.46	6.101	50.99	14.705	20.57	25.707	18.68
7 16.2	49.571	61.51	6.477	52.88	15.028	18.59	26.098	16.99
7 26.2	49.886	59.78	6.839	54.97	15.344	16.80	26.484	15.77
8 5.2	50.186	58.29	7.183	57.24	15.647	15.24	26.859	15.03
8 15.1	50.462	57.11	7.500	59.63	15.929	13.96	27.212	14.83
8 25.1	50.711	56.23	7.784	62.08	16.186	12.98	27.533	15.14
9 4.1	50.929	55.67	8.035	64.57	16.414	12.31	27.819	15.94
9 14.1	51.112	55.44	8.246	67.03	16.609	11.97	28.060	17.23
9 24.0	51.260	55.51	8.419	69.40	16.770	11.92	28.255	18.90
10 4.0	51.373	55.86	8.554	71.68	16.898	12.16	28.401	20.93
10 14.0	51.450	56.46	8.648	73.81	16.991	12.66	28.495	23.21
10 24.0	51.497	57.24	8.708	75.75	17.053	13.34	28.542	25.63
11 2.9	51.513	58.16	8.732	77.50	17.085	14.20	28.542	28.12
11 12.9	51.501	59.19	8.721	78.99	17.088	15.16	28.497	30.56
11 22.9	51.467	60.23	8.682	80.22	17.067	16.16	28.415	32.84
12 2.8	51.411	61.27	8.613	81.17	17.023	17.17	28.298	34.90
12 12.8	51.336	62.24	8.518	81.79	16.957	18.15	28.151	36.61
12 22.8	51.247	63.10	8.401	82.10	16.875	19.03	27.982	37.94
12 32.8	51.146	63.85	8.264	82.07	16.778	19.81	27.794	38.84
12 42.7	51.036	64.43	8.114	81.69	16.669	20.45	27.595	39.26
Pos. Med.	49.362	70.75	6.741	59.20	14.932	27.72	25.603	36.22
Secδ tanδ	1.016	-.177	1.232	.720	1.010	-.142	1.372	-.939
Dob.Tran.	Oct 8		Oct 8		Oct 12		Oct 13	

VOLVER AL INDICE

VOLVER A LISTA DE ESTRELLAS

POSICIONES APARENTES AL PASO SUPERIOR POR GREENWICH

NUM.	50		54		59		62	
EST.	η Piscium		α Eridani (Achernar)		τ Ceti		ζ Ceti	
MAG.	3.62		0.46		3.50		3.73	
UT	**AR.**	**DEC.**	**AR.**	**DEC.**	**AR.**	**DEC.**	**AR.**	**DEC.**
	h m	° ′	h m	° ′	h m	° ′	h m	° ′
	1 32	+15 28	1 38	−57 6	1 45	−15 48	1 52	−10 12
mes d	s	"	s	"	s	"	s	"
1 -1.2	46.193	12.51	37.532	71.61	11.257	47.77	39.009	65.42
1 8.8	46.089	12.06	37.226	72.14	11.143	48.53	38.906	66.21
1 18.7	45.971	11.50	36.909	72.09	11.015	49.04	38.789	66.81
1 28.7	45.849	10.87	36.595	71.49	10.883	49.29	38.665	67.21
2 7.7	45.724	10.17	36.289	70.35	10.749	49.28	38.536	67.40
2 17.7	45.606	9.44	36.003	68.69	10.621	48.98	38.411	67.35
2 27.6	45.504	8.73	35.749	66.56	10.506	48.40	38.298	67.06
3 8.6	45.422	8.07	35.532	64.03	10.410	47.56	38.201	66.55
3 18.6	45.371	7.52	35.365	61.12	10.343	46.42	38.132	65.76
3 28.5	45.358	7.12	35.255	57.93	10.309	45.03	38.095	64.74
4 7.5	45.384	6.91	35.205	54.51	10.312	43.39	38.095	63.48
4 17.5	45.452	6.96	35.224	50.92	10.359	41.50	38.138	61.96
4 27.5	45.571	7.14	35.313	47.27	10.451	39.41	38.225	60.22
5 7.4	45.736	7.65	35.470	43.60	10.588	37.15	38.356	58.29
5 17.4	45.945	8.45	35.698	40.01	10.769	34.75	38.532	56.18
5 27.4	46.191	9.50	35.988	36.59	10.989	32.29	38.747	53.97
6 6.4	46.469	10.79	36.336	33.38	11.243	29.78	38.997	51.68
6 16.3	46.774	12.32	36.735	30.50	11.527	27.31	39.277	49.37
6 26.3	47.096	14.01	37.170	28.00	11.831	24.93	39.577	47.11
7 6.3	47.428	15.84	37.634	25.91	12.149	22.70	39.892	44.92
7 16.2	47.761	17.76	38.115	24.35	12.472	20.68	40.214	42.89
7 26.2	48.086	19.71	38.594	23.32	12.791	18.92	40.532	41.08
8 5.2	48.400	21.66	39.066	22.84	13.101	17.45	40.843	39.50
8 15.2	48.693	23.56	39.513	22.95	13.393	16.35	41.138	38.23
8 25.1	48.960	25.35	39.924	23.62	13.660	15.60	41.410	37.28
9 4.1	49.200	27.01	40.291	24.83	13.902	15.21	41.658	36.65
9 14.1	49.408	28.51	40.602	26.55	14.111	15.21	41.876	36.38
9 24.1	49.583	29.83	40.851	28.67	14.286	15.55	42.062	36.43
10 4.0	49.727	30.97	41.036	31.16	14.428	16.22	42.216	36.79
10 14.0	49.836	31.89	41.149	33.90	14.534	17.16	42.336	37.43
10 24.0	49.915	32.63	41.194	36.75	14.607	18.30	42.425	38.28
11 2.9	49.965	33.18	41.173	39.65	14.648	19.61	42.484	39.30
11 12.9	49.984	33.54	41.086	42.45	14.657	21.00	42.511	40.45
11 22.9	49.979	33.74	40.944	45.02	14.640	22.40	42.511	41.63
12 2.9	49.948	33.78	40.749	47.31	14.597	23.77	42.485	42.83
12 12.8	49.894	33.66	40.510	49.17	14.529	25.02	42.434	43.96
12 22.8	49.819	33.41	40.240	50.56	14.442	26.11	42.363	44.99
12 32.8	49.725	33.03	39.942	51.45	14.336	27.02	42.270	45.89
12 42.8	49.616	32.53	39.629	51.76	14.216	27.69	42.162	46.61
Pos. Med.	47.933	16.55	37.403	46.36	12.413	33.15	40.262	53.67
Secδ tanδ	1.038	.277	1.842	-1.547	1.039	-.283	1.016	-.180
Dob.Tran.	Oct 14		Oct 15		Oct 17		Oct 19	

VOLVER AL INDICE

VOLVER A LISTA DE ESTRELLAS

POSICIONES APARENTES AL PASO SUPERIOR POR GREENWICH

NUM.	64		66		68		72	
EST.	α Trianguli		β Arietis		χ Eridani		α Hydri	
MAG.	3.41		2.64		3.70		2.86	
UT	AR.	DEC.	AR.	DEC.	AR.	DEC.	AR.	DEC.
	h m	° ′	h m	° ′	h m	° ′	h m	° ′
	1 54	+29 41	1 55	+20 55	1 56	-51 28	1 59	-61 26
mes d	s	"	s	"	s	"	s	"
1 -1.2	27.317	51.43	58.231	35.13	54.539	98.76	33.276	88.86
1 8.8	27.199	51.36	58.128	34.87	54.292	99.58	32.914	89.61
1 18.8	27.061	51.04	58.006	34.44	54.029	99.85	32.531	89.76
1 28.7	26.913	50.49	57.874	33.88	53.762	99.58	32.146	89.33
2 7.7	26.759	49.73	57.737	33.20	53.495	98.80	31.764	88.36
2 17.7	26.608	48.78	57.602	32.43	53.241	97.49	31.399	86.82
2 27.6	26.473	47.70	57.480	31.62	53.009	95.71	31.067	84.79
3 8.6	26.358	46.54	57.376	30.79	52.806	93.51	30.772	82.33
3 18.6	26.277	45.36	57.302	30.01	52.643	90.90	30.531	79.46
3 28.6	26.236	44.24	57.266	29.34	52.529	87.99	30.351	76.28
4 7.5	26.238	43.21	57.269	28.81	52.466	84.80	30.236	72.85
4 17.5	26.293	42.36	57.321	28.49	52.465	81.40	30.199	69.21
4 27.5	26.398	41.73	57.417	28.37	52.526	77.89	30.239	65.50
5 7.5	26.555	41.33	57.565	28.46	52.648	74.31	30.357	61.75
5 17.4	26.763	41.24	57.760	28.87	52.836	70.75	30.557	58.05
5 27.4	27.014	41.46	57.996	29.54	53.080	67.31	30.830	54.51
6 6.4	27.304	41.99	58.268	30.48	53.379	64.01	31.171	51.16
6 16.3	27.625	42.84	58.571	31.68	53.725	60.99	31.575	48.12
6 26.3	27.967	43.96	58.893	33.09	54.107	58.30	32.027	45.47
7 6.3	28.323	45.34	59.230	34.68	54.518	55.99	32.519	43.22
7 16.3	28.685	46.95	59.572	36.43	54.947	54.15	33.036	41.50
7 26.2	29.041	48.72	59.909	38.25	55.379	52.81	33.562	40.31
8 5.2	29.387	50.64	60.237	40.13	55.807	52.00	34.087	39.69
8 15.2	29.715	52.64	60.548	42.02	56.218	51.78	34.594	39.68
8 25.2	30.019	54.67	60.836	43.85	56.599	52.10	35.066	40.25
9 4.1	30.296	56.72	61.099	45.62	56.948	52.98	35.497	41.38
9 14.1	30.542	58.72	61.332	47.28	57.249	54.39	35.870	43.06
9 24.1	30.754	60.63	61.534	48.79	57.500	56.23	36.178	45.18
10 4.0	30.934	62.46	61.706	50.16	57.697	58.47	36.416	47.70
10 14.0	31.078	64.15	61.843	51.35	57.834	61.02	36.574	50.51
10 24.0	31.189	65.69	61.950	52.37	57.914	63.73	36.654	53.48
11 3.0	31.267	67.08	62.026	53.23	57.937	66.55	36.656	56.52
11 12.9	31.311	68.27	62.071	53.89	57.902	69.33	36.580	59.49
11 22.9	31.324	69.26	62.087	54.39	57.817	71.95	36.435	62.27
12 2.9	31.306	70.05	62.075	54.72	57.685	74.35	36.225	64.77
12 12.9	31.256	70.61	62.034	54.87	57.511	76.38	35.957	66.87
12 22.8	31.180	70.93	61.969	54.86	57.305	77.99	35.647	68.49
12 32.8	31.077	71.01	61.879	54.68	57.068	79.14	35.297	69.61
12 42.8	30.953	70.83	61.769	54.34	56.813	79.75	34.923	70.13
Pos. Med.	29.140	49.81	59.928	36.27	54.564	75.83	32.481	64.63
Secδ tanδ	1.151	.570	1.071	.382	1.606	-1.257	2.092	-1.838
Dob.Tran.	Oct 19		Oct 20		Oct 20		Oct 20	

VOLVER AL INDICE

VOLVER A LISTA DE ESTRELLAS

POSICIONES APARENTES AL PASO SUPERIOR POR GREENWICH

NUM.	73		74		75		82	
EST.	γ Andromedae*p		α Arietis		β Trianguli		φ Eridani	
MAG.	2.26		2.00		3.00		3.56	
UT	AR.	DEC.	AR.	DEC.	AR.	DEC.	AR.	DEC.
	h m	° ′	h m	° ′	h m	° ′	h m	° ′
	2 5	+42 26	2 8	+23 34	2 10	+35 5	2 17	-51 23
mes d	s	"	s	"	s	"	s	"
1 -1.2	22.913	51.42	31.956	37.87	58.810	70.80	23.312	79.69
1 8.8	22.764	51.79	31.855	37.73	58.688	71.00	23.069	80.77
1 18.8	22.588	51.79	31.732	37.39	58.541	70.89	22.803	81.32
1 28.7	22.398	51.43	31.596	36.90	58.379	70.50	22.528	81.32
2 7.7	22.199	50.73	31.452	36.26	58.207	69.85	22.248	80.81
2 17.7	22.003	49.71	31.308	35.50	58.036	68.94	21.973	79.74
2 27.7	21.824	48.43	31.175	34.66	57.877	67.85	21.718	78.20
3 8.6	21.668	46.95	31.060	33.78	57.739	66.61	21.486	76.21
3 18.6	21.551	45.32	30.973	32.92	57.634	65.28	21.292	73.79
3 28.6	21.481	43.66	30.923	32.13	57.570	63.95	21.143	71.02
4 7.5	21.463	42.01	30.914	31.45	57.552	62.67	21.044	67.96
4 17.5	21.505	40.47	30.953	30.96	57.589	61.52	21.006	64.65
4 27.5	21.608	39.11	31.039	30.67	57.680	60.56	21.029	61.20
5 7.5	21.770	37.98	31.175	30.58	57.825	59.81	21.114	57.64
5 17.4	21.992	37.15	31.362	30.77	58.026	59.35	21.266	54.05
5 27.4	22.265	36.65	31.592	31.25	58.275	59.19	21.478	50.56
6 6.4	22.583	36.50	31.860	31.99	58.565	59.35	21.745	47.18
6 16.4	22.941	36.72	32.161	33.00	58.892	59.85	22.064	44.03
6 26.3	23.323	37.30	32.483	34.24	59.243	60.65	22.423	41.20
7 6.3	23.724	38.22	32.821	35.69	59.613	61.74	22.816	38.71
7 16.3	24.133	39.48	33.168	37.31	59.990	63.11	23.232	36.68
7 26.2	24.539	41.02	33.511	39.03	60.366	64.69	23.656	35.14
8 5.2	24.936	42.81	33.848	40.85	60.734	66.47	24.082	34.12
8 15.2	25.315	44.81	34.169	42.69	61.087	68.39	24.496	33.69
8 25.2	25.668	46.97	34.469	44.52	61.417	70.40	24.887	33.82
9 4.1	25.995	49.25	34.746	46.31	61.722	72.48	25.249	34.52
9 14.1	26.287	51.61	34.994	48.01	61.996	74.57	25.570	35.77
9 24.1	26.542	53.98	35.211	49.59	62.238	76.63	25.843	37.49
10 4.1	26.762	56.35	35.399	51.06	62.447	78.65	26.067	39.65
10 14.0	26.940	58.67	35.553	52.36	62.619	80.58	26.233	42.16
10 24.0	27.080	60.89	35.676	53.51	62.757	82.39	26.342	44.88
11 3.0	27.180	63.00	35.769	54.51	62.860	84.07	26.394	47.75
11 12.9	27.239	64.93	35.828	55.33	62.925	85.58	26.387	50.64
11 22.9	27.259	66.66	35.858	55.98	62.957	86.91	26.328	53.40
12 2.9	27.240	68.16	35.857	56.46	62.952	88.03	26.219	55.98
12 12.9	27.180	69.37	35.825	56.76	62.912	88.91	26.062	58.22
12 22.8	27.086	70.28	35.767	56.89	62.840	89.54	25.869	60.08
12 32.8	26.956	70.86	35.681	56.84	62.736	89.89	25.640	61.49
12 42.8	26.798	71.06	35.572	56.60	62.605	89.95	25.386	62.37
Pos. Med.	24.866	45.89	33.627	37.59	60.625	67.06	23.078	58.76
Secδ tanδ	1.355	.915	1.091	.436	1.222	.703	1.603	-1.253
Dob.Tran.	Oct 22		Oct 23		Oct 23		Oct 25	

VOLVER AL INDICE

VOLVER A LISTA DE ESTRELLAS

POSICIONES APARENTES AL PASO SUPERIOR POR GREENWICH

NUM.	79		1065		86		1075	
EST.	γ Trianguli		δ Hydri		χ Eridani		ι Eridani	
MAG.	4.01		4.09		4.25		4.11	
UT	AR.	DEC.	AR.	DEC.	AR.	DEC.	AR.	DEC.
	h m	° ′	h m	° ′	h m	° ′	h m	° ′
	2 18	+33 57	2 22	-68 32	2 27	-47 35	2 41	-39 44
mes d	s	"	s	"	s	"	s	"
1 -1.2	45.014	37.06	13.773	76.97	53.114	60.61	37.888	82.07
1 8.8	44.899	37.27	13.265	77.93	52.903	61.84	37.725	83.43
1 18.8	44.757	37.19	12.721	78.28	52.667	62.55	37.537	84.35
1 28.7	44.599	36.85	12.167	78.02	52.418	62.74	37.333	84.79
2 7.7	44.429	36.25	11.612	77.19	52.162	62.43	37.118	84.77
2 17.7	44.259	35.42	11.072	75.78	51.908	61.59	36.899	84.25
2 27.7	44.099	34.40	10.569	73.85	51.668	60.26	36.690	83.28
3 8.6	43.958	33.24	10.110	71.47	51.448	58.49	36.496	81.88
3 18.6	43.848	31.99	9.715	68.64	51.260	56.28	36.327	80.05
3 28.6	43.778	30.74	9.396	65.48	51.114	53.72	36.194	77.86
4 7.6	43.753	29.53	9.157	62.05	51.013	50.85	36.100	75.35
4 17.5	43.781	28.44	9.015	58.40	50.968	47.70	36.056	72.54
4 27.5	43.863	27.54	8.972	54.65	50.981	44.38	36.063	69.52
5 7.5	43.998	26.83	9.028	50.83	51.052	40.93	36.123	66.34
5 17.4	44.189	26.40	9.190	47.05	51.186	37.42	36.240	63.06
5 27.4	44.428	26.26	9.449	43.42	51.377	33.97	36.408	59.77
6 6.4	44.710	26.43	9.801	39.97	51.621	30.60	36.625	56.51
6 16.4	45.028	26.92	10.241	36.81	51.915	27.42	36.888	53.39
6 26.3	45.372	27.70	10.750	34.03	52.247	24.53	37.187	50.49
7 6.3	45.735	28.76	11.320	31.66	52.612	21.95	37.515	47.84
7 16.3	46.108	30.09	11.936	29.80	53.000	19.80	37.866	45.57
7 26.3	46.480	31.62	12.574	28.49	53.398	18.11	38.226	43.70
8 5.2	46.846	33.33	13.225	27.75	53.800	16.92	38.591	42.29
8 15.2	47.198	35.18	13.865	27.64	54.192	16.31	38.950	41.40
8 25.2	47.529	37.11	14.472	28.12	54.564	16.24	39.292	41.04
9 4.1	47.836	39.11	15.038	29.20	54.912	16.74	39.616	41.21
9 14.1	48.114	41.11	15.538	30.85	55.224	17.80	39.909	41.93
9 24.1	48.361	43.08	15.959	32.97	55.494	19.33	40.168	43.13
10 4.1	48.576	45.00	16.295	35.52	55.719	21.32	40.391	44.78
10 14.0	48.756	46.84	16.528	38.41	55.892	23.68	40.570	46.83
10 24.0	48.902	48.56	16.659	41.47	56.015	26.28	40.707	49.15
11 3.0	49.013	50.16	16.685	44.66	56.086	29.06	40.800	51.69
11 13.0	49.087	51.60	16.601	47.80	56.103	31.89	40.847	54.32
11 22.9	49.128	52.86	16.422	50.76	56.071	34.64	40.853	56.92
12 2.9	49.133	53.93	16.148	53.48	55.992	37.23	40.817	59.44
12 12.9	49.101	54.78	15.788	55.79	55.868	39.54	40.739	61.72
12 22.8	49.038	55.39	15.362	57.63	55.708	41.48	40.627	63.71
12 32.8	48.941	55.75	14.876	58.96	55.512	43.02	40.481	65.35
12 42.8	48.816	55.82	14.349	59.69	55.289	44.06	40.307	66.55
Pos. Med.	46.769	33.36	11.559	54.01	52.994	41.37	38.035	65.76
Secδ tanδ	1.206	.673	2.734	-2.545	1.483	-1.095	1.301	-.832
Dob.Tran.	Oct 25		Oct 26		Oct 28		Oct 31	

VOLVER AL INDICE

VOLVER A LISTA DE ESTRELLAS

POSICIONES APARENTES AL PASO SUPERIOR POR GREENWICH

NUM.	101		100		104		106	
EST.	β Fornacis		41 Arietis		η Eridani		ϑ Eridani*p	
MAG.	4.46		3.63		3.89		3.25	
UT	AR.	DEC.	AR.	DEC.	AR.	DEC.	AR.	DEC.
	h m	° ′	h m	° ′	h m	° ′	h m	° ′
	2 50	-32 18	2 51	+27 21	2 57	- 8 48	2 59	-40 12
mes d	s	"	s	"	s	"	s	"
1 -1.2	6.597	88.90	24.454	39.06	36.650	73.96	11.461	42.11
1 8.8	6.468	90.29	24.370	39.20	36.571	74.98	11.305	43.66
1 18.8	6.311	91.28	24.255	39.15	36.466	75.82	11.118	44.76
1 28.8	6.137	91.86	24.118	38.93	36.341	76.44	10.911	45.38
2 7.7	5.950	92.03	23.964	38.53	36.201	76.87	10.689	45.54
2 17.7	5.758	91.74	23.800	37.96	36.052	77.06	10.460	45.20
2 27.7	5.571	91.04	23.641	37.27	35.906	77.00	10.237	44.39
3 8.7	5.395	89.95	23.493	36.47	35.767	76.72	10.026	43.14
3 18.6	5.242	88.44	23.368	35.61	35.647	76.17	9.838	41.44
3 28.6	5.121	86.59	23.276	34.75	35.554	75.38	9.683	39.36
4 7.6	5.035	84.43	23.223	33.94	35.493	74.35	9.566	36.95
4 17.5	4.994	81.95	23.218	33.22	35.473	73.06	9.498	34.21
4 27.5	5.002	79.26	23.263	32.66	35.496	71.55	9.480	31.25
5 7.5	5.058	76.37	23.358	32.29	35.563	69.83	9.516	28.10
5 17.5	5.167	73.35	23.505	32.10	35.678	67.91	9.609	24.82
5 27.4	5.325	70.28	23.703	32.16	35.836	65.86	9.755	21.52
6 6.4	5.528	67.20	23.943	32.47	36.034	63.69	9.951	18.22
6 16.4	5.774	64.20	24.223	33.04	36.270	61.47	10.196	15.04
6 26.4	6.053	61.37	24.531	33.85	36.534	59.25	10.478	12.05
7 6.3	6.360	58.74	24.862	34.88	36.821	57.08	10.794	9.31
7 16.3	6.688	56.43	25.209	36.10	37.125	55.02	11.135	6.91
7 26.3	7.025	54.47	25.560	37.47	37.436	53.14	11.489	4.92
8 5.2	7.367	52.91	25.912	38.96	37.749	51.47	11.852	3.38
8 15.2	7.704	51.84	26.255	40.53	38.057	50.09	12.213	2.36
8 25.2	8.027	51.24	26.584	42.13	38.353	49.01	12.561	1.86
9 4.2	8.333	51.14	26.895	43.74	38.634	48.26	12.894	1.91
9 14.1	8.613	51.56	27.184	45.32	38.894	47.87	13.200	2.52
9 24.1	8.864	52.44	27.446	46.84	39.130	47.83	13.474	3.63
10 4.1	9.082	53.77	27.683	48.28	39.341	48.11	13.715	5.22
10 14.1	9.264	55.49	27.888	49.62	39.522	48.72	13.914	7.23
10 24.0	9.408	57.50	28.064	50.85	39.675	49.58	14.071	9.55
11 3.0	9.515	59.74	28.209	51.96	39.799	50.66	14.186	12.11
11 13.0	9.580	62.11	28.319	52.94	39.891	51.90	14.253	14.81
11 22.9	9.609	64.49	28.397	53.80	39.953	53.22	14.278	17.50
12 2.9	9.599	66.82	28.440	54.51	39.983	54.58	14.259	20.14
12 12.9	9.551	68.99	28.445	55.07	39.981	55.91	14.196	22.57
12 22.9	9.471	70.90	28.418	55.48	39.950	57.16	14.095	24.71
12 32.8	9.358	72.53	28.355	55.72	39.888	58.29	13.957	26.53
12 42.8	9.217	73.77	28.259	55.77	39.798	59.25	13.787	27.92
Pos. Med.	6.962	75.00	25.952	35.93	37.567	67.09	11.452	27.36
Secδ tanδ	1.183	-.632	1.126	.517	1.012	-.155	1.309	-.845
Dob.Tran.	Nov 2		Nov 3		Nov 4		Nov 5	

VOLVER AL INDICE

VOLVER A LISTA DE ESTRELLAS

POSICIONES APARENTES AL PASO SUPERIOR POR GREENWICH

NUM.	107		111		119		120	
EST.	α Ceti		β Persei (Algol)		82 G.Eridani		α Persei	
MAG.	2.53		2.1 a 3.4		4.27		1.79	
UT	AR.	DEC.	AR.	DEC.	AR.	DEC.	AR.	DEC.
	h m	° ′	h m	° ′	h m	° ′	h m	° ′
	3 3	+ 4 10	3 9	+41 2	3 20	-42 58	3 25	+49 56
mes d	s	"	s	"	s	"	s	"
1 -1.1	32.684	60.93	44.806	60.81	54.511	52.19	3.539	55.94
1 8.8	32.617	60.29	44.708	61.58	54.359	53.95	3.428	57.18
1 18.8	32.522	59.69	44.570	62.05	54.172	55.26	3.265	58.07
1 28.8	32.405	59.17	44.402	62.23	53.960	56.07	3.064	58.61
2 7.7	32.271	58.72	44.210	62.09	53.728	56.41	2.831	58.77
2 17.7	32.127	58.37	44.004	61.65	53.484	56.23	2.578	58.53
2 27.7	31.984	58.13	43.800	60.92	53.244	55.55	2.323	57.93
3 8.7	31.847	58.01	43.606	59.95	53.011	54.41	2.077	56.99
3 18.6	31.728	58.04	43.437	58.78	52.799	52.80	1.857	55.73
3 28.6	31.637	58.23	43.305	57.48	52.619	50.79	1.678	54.26
4 7.6	31.577	58.60	43.217	56.10	52.476	48.41	1.548	52.63
4 17.6	31.559	59.16	43.184	54.71	52.381	45.68	1.479	50.90
4 27.5	31.584	59.91	43.209	53.40	52.338	42.71	1.477	49.17
5 7.5	31.652	60.87	43.292	52.21	52.349	39.52	1.543	47.50
5 17.5	31.768	62.06	43.438	51.20	52.419	36.18	1.681	45.97
5 27.4	31.929	63.42	43.640	50.42	52.546	32.80	1.885	44.65
6 6.4	32.130	64.94	43.895	49.89	52.725	29.40	2.150	43.55
6 16.4	32.369	66.59	44.197	49.65	52.957	26.10	2.473	42.75
6 26.4	32.635	68.31	44.535	49.71	53.232	22.99	2.840	42.26
7 6.3	32.925	70.10	44.903	50.06	53.544	20.10	3.245	42.08
7 16.3	33.231	71.87	45.292	50.70	53.887	17.56	3.678	42.24
7 26.3	33.544	73.59	45.690	51.60	54.249	15.42	4.127	42.71
8 5.3	33.859	75.21	46.092	52.74	54.624	13.72	4.585	43.48
8 15.2	34.170	76.68	46.490	54.09	55.002	12.56	5.043	44.55
8 25.2	34.468	77.96	46.874	55.60	55.372	11.94	5.490	45.86
9 4.2	34.754	79.03	47.244	57.25	55.730	11.87	5.924	47.39
9 14.1	35.019	79.85	47.590	59.02	56.066	12.40	6.335	49.13
9 24.1	35.261	80.42	47.910	60.84	56.372	13.45	6.720	51.01
10 4.1	35.480	80.74	48.202	62.72	56.646	15.01	7.075	53.03
10 14.1	35.672	80.81	48.461	64.60	56.880	17.03	7.394	55.14
10 24.0	35.837	80.67	48.686	66.46	57.071	19.39	7.674	57.30
11 3.0	35.975	80.35	48.875	68.29	57.219	22.04	7.914	59.50
11 13.0	36.081	79.86	49.023	70.04	57.317	24.85	8.105	61.67
11 23.0	36.159	79.28	49.131	71.68	57.369	27.70	8.248	63.78
12 2.9	36.205	78.61	49.196	73.21	57.373	30.50	8.339	65.80
12 12.9	36.218	77.90	49.214	74.55	57.328	33.13	8.372	67.66
12 22.9	36.202	77.20	49.190	75.69	57.241	35.48	8.352	69.31
12 32.8	36.153	76.51	49.119	76.61	57.112	37.51	8.275	70.71
12 42.8	36.075	75.86	49.007	77.24	56.944	39.11	8.145	71.80
Pos. Med.	33.795	63.78	46.376	53.77	54.369	38.68	5.111	46.74
Secδ tanδ	1.003	.073	1.326	.871	1.367	-.932	1.554	1.189
Dob.Tran.	Nov 6		Nov 7		Nov 10		Nov 11	

VOLVER AL INDICE

VOLVER A LISTA DE ESTRELLAS

POSICIONES APARENTES AL PASO SUPERIOR POR GREENWICH

NUM.	121		123		127		1099	
EST.	o Tauri		ξ Tauri		ε Eridani		τ^5 Eridani	
MAG.	3.60		3.74		3.73		4.27	
UT	AR.	DEC.	AR.	DEC.	AR.	DEC.	AR.	DEC.
	h m	° ′	h m	° ′	h m	° ′	h m	° ′
	3 26	+ 9 6	3 28	+ 9 48	3 34	- 9 22	3 34	-21 32
mes d	s	"	s	"	s	"	s	"
1 -1.1	7.032	48.29	28.953	59.43	4.508	40.87	51.840	74.78
1 8.8	6.979	47.80	28.902	58.97	4.444	42.04	51.761	76.32
1 18.8	6.893	47.32	28.818	58.51	4.347	43.02	51.649	77.57
1 28.8	6.782	46.88	28.707	58.09	4.226	43.77	51.511	78.49
2 7.8	6.649	46.47	28.575	57.68	4.084	44.30	51.352	79.10
2 17.7	6.502	46.10	28.427	57.32	3.927	44.59	51.178	79.33
2 27.7	6.351	45.80	28.276	57.01	3.767	44.62	51.000	79.21
3 8.7	6.204	45.56	28.128	56.76	3.610	44.41	50.826	78.75
3 18.7	6.071	45.42	27.994	56.60	3.466	43.92	50.664	77.92
3 28.6	5.964	45.40	27.885	56.55	3.346	43.19	50.527	76.76
4 7.6	5.887	45.51	27.806	56.63	3.254	42.22	50.418	75.30
4 17.6	5.849	45.78	27.767	56.87	3.201	40.98	50.348	73.52
4 27.5	5.856	46.22	27.772	57.27	3.190	39.52	50.322	71.49
5 7.5	5.907	46.83	27.822	57.82	3.222	37.85	50.340	69.23
5 17.5	6.004	47.65	27.917	58.59	3.302	35.98	50.408	66.77
5 27.5	6.148	48.68	28.059	59.58	3.426	33.97	50.522	64.19
6 6.4	6.335	49.86	28.244	60.71	3.593	31.83	50.680	61.51
6 16.4	6.560	51.20	28.469	62.00	3.800	29.63	50.881	58.81
6 26.4	6.817	52.63	28.725	63.40	4.038	27.43	51.116	56.18
7 6.4	7.099	54.16	29.006	64.89	4.304	25.26	51.382	53.64
7 16.3	7.400	55.72	29.308	66.42	4.591	23.20	51.672	51.29
7 26.3	7.711	57.27	29.619	67.95	4.890	21.31	51.976	49.21
8 5.3	8.028	58.77	29.937	69.43	5.196	19.63	52.290	47.41
8 15.2	8.344	60.18	30.253	70.83	5.503	18.22	52.606	46.01
8 25.2	8.651	61.44	30.562	72.08	5.803	17.13	52.917	45.01
9 4.2	8.948	62.54	30.860	73.19	6.093	16.37	53.219	44.43
9 14.2	9.228	63.43	31.142	74.10	6.368	15.99	53.505	44.34
9 24.1	9.488	64.12	31.405	74.80	6.622	15.97	53.770	44.68
10 4.1	9.728	64.60	31.648	75.31	6.856	16.29	54.014	45.45
10 14.1	9.943	64.86	31.865	75.59	7.064	16.96	54.230	46.63
10 24.1	10.133	64.94	32.058	75.70	7.246	17.90	54.416	48.14
11 3.0	10.296	64.84	32.225	75.64	7.400	19.09	54.573	49.93
11 13.0	10.428	64.60	32.361	75.43	7.522	20.45	54.694	51.91
11 23.0	10.532	64.25	32.467	75.13	7.614	21.91	54.782	53.99
12 2.9	10.603	63.82	32.541	74.73	7.674	23.43	54.834	56.11
12 12.9	10.638	63.34	32.580	74.28	7.697	24.92	54.848	58.16
12 22.9	10.642	62.83	32.586	73.82	7.688	26.33	54.827	60.07
12 32.9	10.610	62.32	32.556	73.33	7.644	27.62	54.769	61.79
12 42.8	10.544	61.81	32.492	72.85	7.567	28.73	54.677	63.23
Pos. Med.	8.116	48.51	30.041	59.36	5.219	36.26	52.281	67.53
Secδ tanδ	1.013	.160	1.015	.173	1.014	-.165	1.075	-.395
Dob.Tran.	Nov 11		Nov 12		Nov 13		Nov 14	

VOLVER AL INDICE

VOLVER A LISTA DE ESTRELLAS

POSICIONES APARENTES AL PASO SUPERIOR POR GREENWICH

NUM.	135		141		136		146	
EST.	δ Eridani		β Reticuli		17 Tauri		γ Hydri	
MAG.	3.54		3.85		3.70		3.24	
UT	AR.	DEC.	AR.	DEC.	AR.	DEC.	AR.	DEC.
	h m	° ′	h m	° ′	h m	° ′	h m	° ′
	3 44	- 9 40	3 44	-64 43	3 46	+24 11	3 46	-74 9
mes d	s	"	s	"	s	"	s	"
1 -1.1	24.763	59.31	33.465	62.53	18.935	22.95	58.587	61.90
1 8.9	24.708	60.52	33.116	64.63	18.893	23.12	57.970	63.94
1 18.8	24.619	61.54	32.704	66.21	18.812	23.19	57.256	65.46
1 28.8	24.503	62.33	32.248	67.23	18.699	23.15	56.477	66.40
2 7.8	24.364	62.90	31.759	67.70	18.558	22.99	55.650	66.79
2 17.7	24.208	63.22	31.248	67.57	18.398	22.72	54.796	66.58
2 27.7	24.047	63.28	30.740	66.87	18.230	22.35	53.949	65.80
3 8.7	23.886	63.10	30.243	65.66	18.063	21.88	53.121	64.50
3 18.7	23.737	62.65	29.775	63.90	17.909	21.36	52.339	62.66
3 28.6	23.610	61.93	29.354	61.69	17.780	20.81	51.630	60.38
4 7.6	23.510	60.98	28.987	59.08	17.682	20.27	51.001	57.70
4 17.6	23.447	59.76	28.691	56.09	17.626	19.78	50.478	54.66
4 27.6	23.426	58.31	28.474	52.84	17.617	19.38	50.075	51.37
5 7.5	23.448	56.65	28.339	49.35	17.656	19.11	49.792	47.86
5 17.5	23.517	54.78	28.298	45.72	17.747	19.06	49.651	44.21
5 27.5	23.631	52.76	28.347	42.05	17.880	19.04	49.646	40.55
6 6.4	23.787	50.62	28.484	38.38	18.068	19.26	49.776	36.90
6 16.4	23.985	48.40	28.712	34.83	18.298	19.69	50.047	33.38
6 26.4	24.215	46.18	29.018	31.50	18.562	20.30	50.440	30.09
7 6.4	24.474	43.98	29.397	28.42	18.855	21.08	50.949	27.07
7 16.3	24.756	41.89	29.841	25.74	19.172	22.01	51.564	24.45
7 26.3	25.052	39.96	30.331	23.50	19.502	23.05	52.256	22.29
8 5.3	25.357	38.24	30.860	21.76	19.841	24.17	53.017	20.63
8 15.3	25.664	36.79	31.412	20.61	20.182	25.34	53.820	19.56
8 25.2	25.966	35.66	31.966	20.05	20.516	26.53	54.634	19.09
9 4.2	26.261	34.86	32.516	20.12	20.843	27.70	55.447	19.25
9 14.2	26.542	34.44	33.040	20.84	21.156	28.82	56.225	20.06
9 24.1	26.805	34.38	33.523	22.15	21.451	29.88	56.942	21.44
10 4.1	27.049	34.68	33.959	24.02	21.728	30.86	57.584	23.40
10 14.1	27.268	35.33	34.326	26.41	21.981	31.74	58.119	25.85
10 24.1	27.463	36.26	34.620	29.18	22.208	32.53	58.534	28.68
11 3.0	27.630	37.45	34.834	32.28	22.409	33.23	58.820	31.82
11 13.0	27.766	38.82	34.955	35.56	22.578	33.84	58.955	35.13
11 23.0	27.872	40.30	34.989	38.88	22.716	34.38	58.947	38.47
12 3.0	27.944	41.85	34.931	42.16	22.818	34.83	58.790	41.75
12 12.9	27.981	43.38	34.781	45.24	22.880	35.20	58.485	44.82
12 22.9	27.983	44.82	34.551	48.02	22.905	35.50	58.052	47.57
12 32.9	27.949	46.16	34.242	50.43	22.888	35.71	57.495	49.93
12 42.8	27.881	47.31	33.864	52.34	22.831	35.82	56.833	51.78
Pos. Med.	25.446	55.13	30.873	49.28	20.135	18.60	53.173	48.36
Secδ tanδ	1.014	-.171	2.343	-2.118	1.096	.449	3.664	-3.525
Dob.Tran.	Nov 16		Nov 16		Nov 17		Nov 17	

VOLVER AL INDICE

VOLVER A LISTA DE ESTRELLAS

POSICIONES APARENTES AL PASO SUPERIOR POR GREENWICH

NUM.	139		142		144		149	
EST.	η Tauri		27 Tauri		ζ Persei		γ Eridani	
MAG.	2.87		3.63		2.85		2.95	
UT	AR.	DEC.	AR.	DEC.	AR.	DEC.	AR.	DEC.
	h m	° ′	h m	° ′	h m	° ′	h m	° ′
	3 48	+24 10	3 50	+24 7	3 55	+31 57	3 59	-13 26
mes d	s	"	s	"	s	"	s	"
1 -1.1	55.574	48.74	36.274	39.61	39.462	21.95	9.895	28.71
1 8.9	55.534	48.92	36.235	39.79	39.422	22.51	9.846	30.14
1 18.8	55.454	48.99	36.157	39.86	39.338	22.92	9.760	31.36
1 28.8	55.342	48.96	36.046	39.84	39.218	23.15	9.645	32.32
2 7.8	55.203	48.82	35.907	39.70	39.066	23.20	9.504	33.03
2 17.8	55.042	48.56	35.747	39.45	38.892	23.04	9.344	33.45
2 27.7	54.875	48.20	35.579	39.10	38.708	22.71	9.176	33.57
3 8.7	54.707	47.75	35.411	38.65	38.523	22.20	9.006	33.41
3 18.7	54.552	47.23	35.255	38.15	38.351	21.54	8.845	32.95
3 28.6	54.421	46.69	35.123	37.62	38.204	20.79	8.704	32.20
4 7.6	54.321	46.16	35.022	37.09	38.090	19.96	8.589	31.18
4 17.6	54.262	45.67	34.961	36.61	38.019	19.13	8.509	29.88
4 27.6	54.250	45.28	34.948	36.21	37.999	18.33	8.470	28.33
5 7.5	54.286	45.00	34.982	35.94	38.028	17.62	8.473	26.56
5 17.5	54.375	44.94	35.070	35.87	38.114	17.04	8.524	24.57
5 27.5	54.505	44.93	35.197	35.86	38.250	16.60	8.620	22.43
6 6.4	54.690	45.13	35.381	36.06	38.437	16.33	8.759	20.17
6 16.4	54.917	45.55	35.607	36.48	38.672	16.27	8.941	17.83
6 26.4	55.179	46.14	35.867	37.06	38.946	16.42	9.157	15.50
7 6.4	55.471	46.90	36.158	37.82	39.251	16.78	9.404	13.20
7 16.3	55.786	47.81	36.472	38.72	39.583	17.33	9.677	11.03
7 26.3	56.115	48.83	36.800	39.72	39.930	18.05	9.966	9.04
8 5.3	56.453	49.94	37.138	40.82	40.289	18.91	10.267	7.27
8 15.3	56.793	51.09	37.478	41.96	40.652	19.90	10.573	5.81
8 25.2	57.128	52.25	37.813	43.11	41.010	20.97	10.877	4.69
9 4.2	57.456	53.40	38.141	44.25	41.362	22.11	11.177	3.93
9 14.2	57.771	54.51	38.456	45.34	41.701	23.29	11.465	3.58
9 24.1	58.067	55.54	38.753	46.36	42.022	24.47	11.737	3.63
10 4.1	58.346	56.51	39.033	47.31	42.325	25.65	11.992	4.07
10 14.1	58.601	57.38	39.290	48.17	42.604	26.80	12.224	4.89
10 24.1	58.831	58.15	39.521	48.93	42.858	27.92	12.431	6.02
11 3.0	59.035	58.84	39.727	49.61	43.083	29.01	12.612	7.43
11 13.0	59.207	59.44	39.901	50.20	43.275	30.04	12.762	9.06
11 23.0	59.348	59.97	40.043	50.72	43.433	31.02	12.881	10.80
12 3.0	59.453	60.42	40.150	51.16	43.552	31.94	12.966	12.62
12 12.9	59.518	60.79	40.217	51.52	43.627	32.78	13.013	14.41
12 22.9	59.545	61.08	40.246	51.82	43.661	33.52	13.025	16.11
12 32.9	59.531	61.30	40.233	52.03	43.649	34.15	12.999	17.69
12 42.8	59.476	61.41	40.180	52.15	43.592	34.62	12.935	19.06
Pos. Med.	56.761	44.30	37.453	35.12	40.703	15.67	10.439	25.34
Secδ tanδ	1.096	.449	1.096	.448	1.179	.624	1.028	-.239
Dob.Tran.	Nov 17		Nov 18		Nov 19		Nov 20	

VOLVER AL INDICE

VOLVER A LISTA DE ESTRELLAS

POSICIONES APARENTES AL PASO SUPERIOR POR GREENWICH

NUM.	147		148		150		151	
EST.	ε Persei*		ξ Persei		λ Tauri		ν Tauri	
MAG.	2.89		4.04		3.47 Var		3.91	
UT	AR.	DEC.	AR.	DEC.	AR.	DEC.	AR.	DEC.
	h m	° ′	h m	° ′	h m	° ′	h m	° ′
	3 59	+40 4	4 0	+35 51	4 1	+12 33	4 4	+ 6 3
mes d	s	"	s	"	s	"	s	"
1 -1.1	29.056	51.99	32.444	40.71	1.481	30.34	26.859	20.94
1 8.9	29.009	52.95	32.404	41.48	1.453	29.98	26.831	20.28
1 18.8	28.911	53.70	32.317	42.06	1.387	29.63	26.766	19.68
1 28.8	28.774	54.21	32.191	42.44	1.289	29.29	26.668	19.16
2 7.8	28.601	54.47	32.032	42.61	1.163	28.97	26.544	18.72
2 17.8	28.403	54.44	31.848	42.53	1.015	28.66	26.398	18.37
2 27.7	28.194	54.14	31.653	42.24	.857	28.39	26.242	18.12
3 8.7	27.984	53.59	31.457	41.72	.698	28.14	26.083	17.96
3 18.7	27.787	52.80	31.273	41.02	.547	27.95	25.933	17.93
3 28.6	27.618	51.83	31.114	40.18	.417	27.83	25.802	18.02
4 7.6	27.485	50.73	30.989	39.23	.313	27.79	25.697	18.25
4 17.6	27.399	49.54	30.910	38.23	.246	27.88	25.628	18.65
4 27.6	27.368	48.35	30.881	37.25	.222	28.10	25.599	19.21
5 7.5	27.393	47.19	30.906	36.32	.241	28.46	25.613	19.93
5 17.5	27.479	46.14	30.988	35.51	.310	28.97	25.675	20.83
5 27.5	27.622	45.23	31.124	34.83	.420	29.66	25.780	21.90
6 6.5	27.819	44.49	31.312	34.32	.578	30.55	25.929	23.14
6 16.4	28.070	43.96	31.551	34.02	.778	31.56	26.121	24.50
6 26.4	28.363	43.67	31.831	33.93	1.012	32.69	26.346	25.94
7 6.4	28.692	43.61	32.144	34.07	1.275	33.91	26.601	27.45
7 16.3	29.051	43.80	32.486	34.42	1.563	35.20	26.880	28.98
7 26.3	29.428	44.21	32.845	34.96	1.866	36.50	27.174	30.46
8 5.3	29.819	44.83	33.217	35.68	2.179	37.78	27.479	31.88
8 15.3	30.215	45.65	33.594	36.56	2.497	39.00	27.789	33.17
8 25.2	30.607	46.62	33.967	37.56	2.811	40.12	28.097	34.30
9 4.2	30.994	47.74	34.335	38.66	3.121	41.12	28.400	35.24
9 14.2	31.368	48.98	34.690	39.85	3.419	41.94	28.692	35.95
9 24.2	31.723	50.30	35.028	41.07	3.703	42.60	28.970	36.42
10 4.1	32.059	51.70	35.348	42.33	3.971	43.07	29.233	36.66
10 14.1	32.369	53.14	35.643	43.60	4.218	43.36	29.475	36.66
10 24.1	32.651	54.61	35.912	44.87	4.443	43.49	29.695	36.45
11 3.0	32.902	56.10	36.153	46.14	4.644	43.47	29.891	36.06
11 13.0	33.116	57.58	36.358	47.37	4.816	43.31	30.059	35.51
11 23.0	33.291	59.03	36.527	48.57	4.958	43.07	30.198	34.86
12 3.0	33.423	60.43	36.656	49.72	5.068	42.76	30.305	34.14
12 12.9	33.505	61.75	36.739	50.78	5.140	42.40	30.375	33.39
12 22.9	33.541	62.95	36.777	51.75	5.177	42.03	30.409	32.65
12 32.9	33.525	64.01	36.767	52.59	5.173	41.64	30.405	31.93
12 42.9	33.459	64.87	36.709	53.26	5.131	41.26	30.362	31.27
Pos. Med.	30.353	44.05	33.699	33.55	2.469	27.92	27.747	19.81
Secδ tanδ	1.307	.841	1.234	.723	1.025	.223	1.006	.106
Dob.Tran.	Nov 20		Nov 20		Nov 21		Nov 21	

VOLVER AL INDICE

VOLVER A LISTA DE ESTRELLAS

POSICIONES APARENTES AL PASO SUPERIOR POR GREENWICH

NUM.	154		156		155		157	
EST.	o¹ Eridani		α Reticuli		αHorologii		γ Doradus	
MAG.	4.04		3.35		3.86		4.25	
UT	AR.	DEC.	AR.	DEC.	AR.	DEC.	AR.	DEC.
	h m	° ′	h m	° ′	h m	° ′	h m	° ′
	4 13	- 6 46	4 14	-62 24	4 14	-42 13	4 16	-51 25
mes d	s	"	s	"	s	"	s	"
1 -1.1	3.174	32.31	47.229	55.91	49.459	73.66	41.433	40.88
1 8.9	3.143	33.54	46.956	58.37	49.345	75.97	41.269	43.31
1 18.8	3.073	34.62	46.613	60.37	49.185	77.90	41.052	45.32
1 28.8	2.972	35.49	46.220	61.85	48.988	79.36	40.794	46.83
2 7.8	2.843	36.16	45.783	62.80	48.760	80.38	40.500	47.85
2 17.8	2.691	36.61	45.316	63.17	48.508	80.89	40.180	48.32
2 27.7	2.530	36.83	44.840	62.97	48.246	80.89	39.850	48.25
3 8.7	2.364	36.82	44.364	62.24	47.981	80.43	39.518	47.66
3 18.7	2.204	36.57	43.905	60.94	47.726	79.45	39.197	46.54
3 28.7	2.063	36.07	43.481	59.17	47.493	78.03	38.902	44.95
4 7.6	1.945	35.36	43.100	56.96	47.289	76.20	38.640	42.92
4 17.6	1.862	34.39	42.778	54.32	47.125	73.96	38.425	40.47
4 27.6	1.818	33.20	42.526	51.36	47.009	71.41	38.263	37.70
5 7.5	1.815	31.81	42.346	48.11	46.942	68.57	38.158	34.63
5 17.5	1.859	30.21	42.252	44.65	46.932	65.49	38.118	31.32
5 27.5	1.947	28.45	42.241	41.08	46.979	62.28	38.143	27.90
6 6.5	2.078	26.55	42.312	37.45	47.079	58.97	38.231	24.39
6 16.4	2.252	24.55	42.470	33.86	47.235	55.66	38.384	20.90
6 26.4	2.460	22.52	42.703	30.42	47.439	52.45	38.594	17.53
7 6.4	2.699	20.48	43.009	27.18	47.686	49.38	38.856	14.33
7 16.4	2.965	18.52	43.381	24.26	47.973	46.57	39.167	11.42
7 26.3	3.247	16.69	43.804	21.75	48.287	44.10	39.513	8.88
8 5.3	3.543	15.02	44.270	19.68	48.625	42.02	39.889	6.76
8 15.3	3.845	13.60	44.768	18.17	48.978	40.42	40.286	5.17
8 25.2	4.147	12.46	45.278	17.24	49.335	39.35	40.690	4.13
9 4.2	4.446	11.62	45.794	16.92	49.693	38.82	41.097	3.68
9 14.2	4.735	11.14	46.299	17.26	50.041	38.91	41.494	3.87
9 24.2	5.012	11.00	46.775	18.22	50.371	39.56	41.870	4.66
10 4.1	5.274	11.21	47.218	19.77	50.681	40.77	42.222	6.03
10 14.1	5.515	11.76	47.608	21.90	50.959	42.51	42.536	7.97
10 24.1	5.734	12.59	47.937	24.46	51.204	44.69	42.808	10.35
11 3.1	5.930	13.69	48.199	27.43	51.411	47.24	43.032	13.12
11 13.0	6.097	14.98	48.380	30.66	51.572	50.08	43.201	16.18
11 23.0	6.234	16.40	48.481	34.01	51.687	53.05	43.313	19.37
12 3.0	6.338	17.89	48.498	37.40	51.754	56.10	43.365	22.63
12 12.9	6.405	19.40	48.426	40.68	51.768	59.07	43.352	25.80
12 22.9	6.436	20.83	48.275	43.72	51.734	61.86	43.282	28.76
12 32.9	6.428	22.19	48.044	46.47	51.649	64.41	43.151	31.45
12 42.9	6.381	23.38	47.740	48.77	51.516	66.59	42.965	33.74
Pos. Med.	3.810	31.26	44.776	46.78	48.922	66.80	40.263	32.89
Secδ tanδ	1.007	-.119	2.159	-1.914	1.351	-.908	1.604	-1.254
Dob.Tran.	Nov 23		Nov 24		Nov 24		Nov 24	

VOLVER AL INDICE

VOLVER A LISTA DE ESTRELLAS

POSICIONES APARENTES AL PASO SUPERIOR POR GREENWICH

NUM.	159		162		1121		164	
EST.	γ Tauri		δ Tauri		43 Eridani		ε Tauri	
MAG.	3.65		3.76		3.96		3.54	
UT	AR.	DEC.	AR.	DEC.	AR.	DEC.	AR.	DEC.
	h m	° ′	h m	° ′	h m	° ′	h m	° ′
	4 21	+15 41	4 24	+17 35	4 24	-33 57	4 30	+19 14
mes d	s	"	s	"	s	"	s	"
1 -1.1	10.500	9.29	20.101	57.10	57.685	45.47	2.072	2.71
1 8.9	10.488	9.08	20.092	56.98	57.611	47.69	2.068	2.68
1 18.9	10.434	8.86	20.040	56.85	57.492	49.58	2.019	2.62
1 28.8	10.345	8.64	19.952	56.70	57.338	51.07	1.934	2.54
2 7.8	10.224	8.41	19.831	56.52	57.152	52.15	1.814	2.42
2 17.8	10.078	8.18	19.684	56.32	56.941	52.78	1.667	2.26
2 27.7	9.919	7.94	19.523	56.10	56.718	52.96	1.505	2.07
3 8.7	9.754	7.70	19.356	55.86	56.490	52.70	1.336	1.83
3 18.7	9.594	7.48	19.194	55.61	56.268	51.97	1.170	1.57
3 28.7	9.453	7.30	19.050	55.38	56.064	50.83	1.022	1.31
4 7.6	9.336	7.16	18.931	55.18	55.885	49.31	.898	1.07
4 17.6	9.254	7.11	18.846	55.05	55.742	47.38	.809	.87
4 27.6	9.214	7.16	18.804	55.00	55.642	45.15	.762	.75
5 7.6	9.218	7.33	18.805	55.06	55.587	42.63	.758	.72
5 17.5	9.271	7.63	18.856	55.26	55.583	39.86	.805	.81
5 27.5	9.367	8.03	18.953	55.49	55.630	36.94	.903	.95
6 6.5	9.508	8.69	19.090	56.06	55.726	33.89	1.030	1.38
6 16.4	9.695	9.46	19.278	56.71	55.873	30.80	1.215	1.91
6 26.4	9.919	10.34	19.502	57.47	56.063	27.78	1.437	2.56
7 6.4	10.173	11.32	19.757	58.34	56.292	24.85	1.690	3.32
7 16.4	10.454	12.38	20.039	59.30	56.556	22.13	1.972	4.17
7 26.3	10.753	13.48	20.339	60.31	56.846	19.70	2.272	5.08
8 5.3	11.065	14.58	20.653	61.34	57.157	17.60	2.587	6.03
8 15.3	11.384	15.65	20.975	62.36	57.482	15.94	2.910	6.98
8 25.3	11.703	16.65	21.297	63.32	57.811	14.75	3.235	7.89
9 4.2	12.020	17.55	21.618	64.21	58.142	14.07	3.559	8.74
9 14.2	12.329	18.33	21.931	64.98	58.465	13.95	3.876	9.49
9 24.2	12.625	18.96	22.231	65.64	58.775	14.36	4.182	10.14
10 4.1	12.909	19.45	22.520	66.16	59.069	15.31	4.477	10.68
10 14.1	13.174	19.77	22.790	66.55	59.337	16.77	4.753	11.09
10 24.1	13.419	19.96	23.040	66.81	59.578	18.66	5.011	11.40
11 3.1	13.642	20.03	23.268	66.96	59.788	20.92	5.246	11.60
11 13.0	13.836	19.98	23.468	67.01	59.959	23.47	5.454	11.72
11 23.0	14.002	19.86	23.639	67.00	60.092	26.18	5.632	11.79
12 3.0	14.134	19.69	23.776	66.93	60.182	28.98	5.777	11.80
12 13.0	14.228	19.47	23.874	66.82	60.226	31.75	5.882	11.78
12 22.9	14.284	19.25	23.934	66.71	60.226	34.37	5.948	11.75
12 32.9	14.298	19.01	23.951	66.57	60.179	36.80	5.971	11.70
12 42.9	14.270	18.77	23.926	66.42	60.087	38.92	5.950	11.63
Pos. Med.	11.464	5.36	21.078	52.67	57.509	40.78	3.047	-2.24
Secδ tanδ	1.039	.281	1.049	.317	1.206	-.674	1.059	.349
Dob.Tran.	Nov 25		Nov 26		Nov 26		Nov 28	

VOLVER AL INDICE

VOLVER A LISTA DE ESTRELLAS

POSICIONES APARENTES AL PASO SUPERIOR POR GREENWICH

NUM.	171		168		172		176	
EST.	α Doradus		α Tauri (Aldebaran)		53 Eridani*		μ Eridani	
MAG.	3.27		0.85		3.87		4.02	
UT	AR.	DEC.	AR.	DEC.	AR.	DEC.	AR.	DEC.
	h m	° ′	h m	° ′	h m	° ′	h m	° ′
	4 34	-54 59	4 37	+16 33	4 39	-14 15	4 46	- 3 12
mes d	s	"	s	"	s	"	s	"
1 -1.1	33.306	48.81	18.847	28.30	17.817	27.70	43.157	39.50
1 8.9	33.137	51.46	18.849	28.12	17.796	29.37	43.156	40.70
1 18.9	32.905	53.70	18.806	27.94	17.733	30.82	43.112	41.77
1 28.8	32.625	55.46	18.726	27.77	17.634	32.02	43.031	42.66
2 7.8	32.303	56.72	18.611	27.58	17.504	32.96	42.918	43.38
2 17.8	31.948	57.43	18.468	27.39	17.347	33.59	42.776	43.90
2 27.8	31.579	57.59	18.309	27.20	17.176	33.92	42.618	44.22
3 8.7	31.203	57.23	18.141	27.00	16.996	33.96	42.450	44.34
3 18.7	30.835	56.31	17.976	26.80	16.819	33.68	42.283	44.26
3 28.7	30.491	54.90	17.827	26.62	16.656	33.10	42.129	43.96
4 7.6	30.179	53.03	17.700	26.47	16.514	32.25	41.995	43.47
4 17.6	29.912	50.72	17.607	26.40	16.403	31.09	41.890	42.75
4 27.6	29.701	48.05	17.554	26.40	16.329	29.68	41.822	41.84
5 7.6	29.547	45.06	17.544	26.51	16.295	28.03	41.793	40.74
5 17.5	29.463	41.81	17.582	26.74	16.307	26.15	41.809	39.44
5 27.5	29.447	38.41	17.668	27.05	16.364	24.11	41.870	37.98
6 6.5	29.498	34.90	17.791	27.56	16.464	21.92	41.972	36.38
6 16.5	29.622	31.37	17.966	28.23	16.608	19.63	42.118	34.66
6 26.4	29.807	27.94	18.177	28.99	16.790	17.33	42.300	32.89
7 6.4	30.053	24.65	18.421	29.84	17.005	15.04	42.515	31.08
7 16.4	30.354	21.64	18.694	30.78	17.250	12.86	42.759	29.32
7 26.3	30.698	18.97	18.985	31.74	17.517	10.84	43.024	27.65
8 5.3	31.080	16.71	19.292	32.73	17.801	9.02	43.306	26.11
8 15.3	31.490	14.97	19.609	33.68	18.097	7.50	43.599	24.77
8 25.3	31.914	13.78	19.928	34.57	18.397	6.31	43.897	23.67
9 4.2	32.347	13.17	20.247	35.37	18.698	5.48	44.197	22.84
9 14.2	32.775	13.22	20.561	36.06	18.995	5.08	44.493	22.33
9 24.2	33.187	13.88	20.865	36.61	19.282	5.08	44.781	22.13
10 4.2	33.576	15.16	21.158	37.02	19.559	5.50	45.060	22.26
10 14.1	33.929	17.02	21.435	37.29	19.817	6.32	45.324	22.72
10 24.1	34.239	19.36	21.693	37.43	20.055	7.49	45.569	23.44
11 3.1	34.500	22.13	21.930	37.46	20.271	8.97	45.796	24.43
11 13.0	34.700	25.23	22.140	37.38	20.458	10.70	45.995	25.61
11 23.0	34.839	28.50	22.322	37.25	20.615	12.58	46.167	26.93
12 3.0	34.912	31.87	22.471	37.07	20.739	14.57	46.308	28.33
12 13.0	34.914	35.18	22.582	36.86	20.823	16.56	46.410	29.75
12 22.9	34.850	38.32	22.653	36.65	20.869	18.48	46.476	31.13
12 32.9	34.718	41.22	22.682	36.43	20.873	20.29	46.500	32.44
12 42.9	34.522	43.74	22.666	36.22	20.836	21.90	46.482	33.62
Pos. Med.	31.720	42.86	19.767	23.46	18.209	27.47	43.760	41.51
Secδ tanδ	1.743	-1.428	1.043	.297	1.032	-.254	1.002	-.056
Dob.Tran.	Nov 29		Nov 29		Nov 30		Dic 2	

VOLVER AL INDICE

VOLVER A LISTA DE ESTRELLAS

POSICIONES APARENTES AL PASO SUPERIOR POR GREENWICH

NUM.	179		181		186		185	
EST.	π^4 Orionis		ι Aurigae		ε Leporis		η Aurigae	
MAG.	3.69		2.69		3.19		3.17	
UT	AR.	DEC.	AR.	DEC.	AR.	DEC.	AR.	DEC.
	h m	° ′	h m	° ′	h m	° ′	h m	° ′
	4 52	+ 5 38	4 58	+33 12	5 6	-22 19	5 8	+41 15
mes d	s	"	s	"	s	"	s	"
1 -1.1	30.055	45.89	34.597	16.98	29.833	81.89	13.254	63.17
1 8.9	30.065	45.11	34.618	17.73	29.823	84.03	13.283	64.37
1 18.9	30.031	44.42	34.586	18.39	29.766	85.93	13.251	65.47
1 28.8	29.960	43.84	34.507	18.95	29.669	87.52	13.166	66.41
2 7.8	29.853	43.35	34.385	19.37	29.536	88.80	13.032	67.17
2 17.8	29.717	42.97	34.226	19.63	29.371	89.72	12.856	67.69
2 27.8	29.563	42.71	34.045	19.71	29.187	90.26	12.653	67.97
3 8.7	29.398	42.56	33.850	19.62	28.990	90.45	12.433	67.98
3 18.7	29.234	42.52	33.655	19.34	28.791	90.25	12.211	67.73
3 28.7	29.081	42.62	33.474	18.91	28.603	89.69	12.002	67.24
4 7.7	28.948	42.83	33.315	18.34	28.432	88.79	11.816	66.53
4 17.6	28.844	43.20	33.191	17.68	28.288	87.53	11.668	65.64
4 27.6	28.777	43.70	33.111	16.96	28.180	85.97	11.566	64.63
5 7.6	28.750	44.36	33.077	16.23	28.110	84.12	11.514	63.54
5 17.5	28.767	45.17	33.097	15.53	28.086	82.02	11.521	62.42
5 27.5	28.829	46.11	33.170	14.91	28.107	79.72	11.586	61.34
6 6.5	28.933	47.21	33.292	14.38	28.172	77.26	11.706	60.31
6 16.5	29.081	48.43	33.465	13.94	28.283	74.69	11.882	59.38
6 26.4	29.266	49.72	33.683	13.63	28.435	72.10	12.108	58.58
7 6.4	29.484	51.08	33.941	13.48	28.623	69.53	12.379	57.94
7 16.4	29.732	52.44	34.233	13.48	28.846	67.07	12.689	57.46
7 26.4	30.000	53.77	34.549	13.62	29.096	64.80	13.028	57.16
8 5.3	30.285	55.03	34.887	13.88	29.367	62.75	13.393	57.03
8 15.3	30.582	56.17	35.239	14.25	29.657	61.05	13.776	57.07
8 25.3	30.884	57.14	35.597	14.71	29.955	59.71	14.167	57.26
9 4.2	31.189	57.93	35.960	15.23	30.261	58.79	14.567	57.59
9 14.2	31.490	58.48	36.322	15.82	30.567	58.36	14.966	58.06
9 24.2	31.785	58.80	36.675	16.43	30.868	58.39	15.359	58.64
10 4.2	32.071	58.87	37.021	17.08	31.162	58.91	15.746	59.34
10 14.1	32.343	58.70	37.352	17.75	31.441	59.91	16.117	60.13
10 24.1	32.599	58.31	37.665	18.44	31.702	61.31	16.470	61.02
11 3.1	32.836	57.74	37.957	19.15	31.942	63.10	16.801	62.01
11 13.1	33.048	57.00	38.220	19.88	32.153	65.19	17.100	63.08
11 23.0	33.233	56.17	38.452	20.63	32.333	67.48	17.365	64.21
12 3.0	33.387	55.26	38.648	21.40	32.479	69.92	17.589	65.42
12 13.0	33.503	54.34	38.798	22.17	32.582	72.39	17.763	66.65
12 22.9	33.581	53.45	38.903	22.95	32.645	74.80	17.886	67.89
12 32.9	33.618	52.59	38.956	23.69	32.662	77.09	17.951	69.10
12 42.9	33.611	51.82	38.957	24.38	32.633	79.16	17.957	70.24
Pos. Med.	30.785	42.18	35.590	9.14	29.958	82.94	14.246	54.25
Secδ tanδ	1.005	.099	1.195	.654	1.081	-.411	1.330	.877
Dob.Tran.	Dic 3		Dic 5		Dic 7		Dic 7	

VOLVER AL INDICE

VOLVER A LISTA DE ESTRELLAS

POSICIONES APARENTES AL PASO SUPERIOR POR GREENWICH

NUM.	188		1144		194		193	
EST.	β Eridani		μ Leporis		β Orionis (Rigel)		α Aurigae (Capella)	
MAG.	2.79		3.31 Var		0.12		0.08	
UT	AR.	DEC.	AR.	DEC.	AR.	DEC.	AR.	DEC.
	h m	° ′	h m	° ′	h m	° ′	h m	° ′
	5 9	- 5 3	5 14	-16 10	5 15	- 8 10	5 18	+46 1
mes d	s	"	s	"	s	"	s	"
1 -1.1	2.811	20.42	1.714	39.27	42.544	27.13	29.248	22.43
1 8.9	2.826	21.80	1.720	41.19	42.562	28.69	29.287	23.90
1 18.9	2.796	23.02	1.680	42.91	42.534	30.08	29.259	25.25
1 28.9	2.727	24.06	1.600	44.36	42.466	31.25	29.173	26.43
2 7.8	2.622	24.90	1.483	45.54	42.362	32.21	29.032	27.42
2 17.8	2.485	25.52	1.333	46.40	42.225	32.93	28.843	28.14
2 27.8	2.328	25.92	1.163	46.94	42.067	33.39	28.624	28.57
3 8.8	2.158	26.11	.979	47.18	41.894	33.62	28.384	28.70
3 18.7	1.986	26.06	.792	47.07	41.718	33.57	28.139	28.51
3 28.7	1.823	25.80	.614	46.65	41.551	33.28	27.907	28.03
4 7.7	1.677	25.32	.452	45.93	41.398	32.75	27.697	27.28
4 17.6	1.557	24.60	.316	44.89	41.272	31.96	27.525	26.30
4 27.6	1.472	23.68	.213	43.59	41.179	30.95	27.402	25.15
5 7.6	1.424	22.56	.148	42.02	41.123	29.72	27.331	23.88
5 17.6	1.419	21.24	.126	40.20	41.109	28.27	27.323	22.53
5 27.5	1.458	19.76	.149	38.21	41.139	26.66	27.376	21.18
6 6.5	1.539	18.14	.214	36.04	41.210	24.89	27.489	19.86
6 16.5	1.663	16.39	.324	33.77	41.325	23.01	27.663	18.62
6 26.5	1.824	14.60	.472	31.45	41.478	21.07	27.890	17.51
7 6.4	2.020	12.77	.657	29.13	41.665	19.11	28.166	16.53
7 16.4	2.247	10.98	.875	26.90	41.885	17.20	28.487	15.74
7 26.4	2.496	9.29	1.118	24.81	42.128	15.40	28.841	15.13
8 5.3	2.766	7.73	1.383	22.92	42.392	13.74	29.224	14.70
8 15.3	3.050	6.39	1.665	21.32	42.673	12.32	29.629	14.48
8 25.3	3.341	5.29	1.956	20.04	42.962	11.17	30.046	14.44
9 4.3	3.638	4.47	2.256	19.14	43.258	10.32	30.473	14.57
9 14.2	3.936	3.99	2.556	18.66	43.555	9.84	30.903	14.89
9 24.2	4.228	3.84	2.852	18.61	43.848	9.71	31.328	15.37
10 4.2	4.514	4.03	3.143	19.00	44.137	9.96	31.748	16.01
10 14.2	4.788	4.58	3.421	19.83	44.414	10.59	32.153	16.80
10 24.1	5.047	5.41	3.684	21.03	44.677	11.53	32.540	17.73
11 3.1	5.289	6.52	3.928	22.59	44.923	12.77	32.904	18.80
11 13.1	5.506	7.86	4.146	24.43	45.144	14.26	33.236	20.00
11 23.0	5.697	9.33	4.335	26.46	45.340	15.91	33.530	21.30
12 3.0	5.856	10.91	4.492	28.63	45.504	17.67	33.781	22.71
12 13.0	5.978	12.52	4.609	30.84	45.630	19.47	33.978	24.17
12 23.0	6.062	14.08	4.687	32.99	45.718	21.22	34.119	25.66
12 32.9	6.104	15.57	4.720	35.05	45.763	22.90	34.198	27.14
12 42.9	6.101	16.92	4.708	36.92	45.763	24.42	34.212	28.53
Pos. Med.	3.327	23.69	1.990	41.62	42.990	30.48	30.202	12.83
Secδ tanδ	1.004	-.088	1.041	-.290	1.010	-.144	1.440	1.036
Dob.Tran.	Dic 8		Dic 9		Dic 9		Dic 10	

VOLVER AL INDICE

VOLVER A LISTA DE ESTRELLAS

POSICIONES APARENTES AL PASO SUPERIOR POR GREENWICH

NUM.	195		201		202		204	
EST.	τ Orionis		γ Orionis (Bellatrix)		β Tauri		β Leporis*	
MAG.	3.60		1.64		1.65		2.84	
UT	AR.	DEC.	AR.	DEC.	AR.	DEC.	AR.	DEC.
	h m	° ′	h m	° ′	h m	° ′	h m	° ′
	5 18	- 6 48	5 26	+ 6 22	5 27	+28 37	5 29	-20 44
mes d	s	"	s	"	s	"	s	"
1 -1.1	47.381	67.28	26.128	16.98	49.697	40.58	17.629	26.28
1 8.9	47.403	68.78	26.169	16.15	49.750	41.05	17.642	28.48
1 18.9	47.380	70.12	26.162	15.43	49.748	41.51	17.607	30.46
1 28.9	47.316	71.26	26.113	14.82	49.698	41.95	17.529	32.15
2 7.8	47.214	72.19	26.025	14.32	49.603	42.31	17.412	33.56
2 17.8	47.080	72.89	25.902	13.94	49.468	42.59	17.260	34.61
2 27.8	46.924	73.35	25.755	13.68	49.306	42.76	17.084	35.31
3 8.8	46.753	73.58	25.592	13.52	49.124	42.80	16.893	35.67
3 18.7	46.578	73.56	25.423	13.48	48.936	42.72	16.695	35.64
3 28.7	46.411	73.30	25.262	13.55	48.756	42.52	16.504	35.27
4 7.7	46.259	72.81	25.114	13.73	48.592	42.21	16.327	34.56
4 17.6	46.132	72.07	24.991	14.04	48.456	41.82	16.173	33.50
4 27.6	46.039	71.12	24.902	14.47	48.358	41.38	16.053	32.13
5 7.6	45.981	69.96	24.848	15.03	48.302	40.92	15.968	30.48
5 17.6	45.967	68.59	24.838	15.74	48.294	40.47	15.926	28.56
5 27.5	45.995	67.05	24.871	16.56	48.337	40.06	15.928	26.44
6 6.5	46.065	65.37	24.946	17.50	48.427	39.74	15.973	24.14
6 16.5	46.178	63.56	25.063	18.56	48.559	39.51	16.064	21.71
6 26.5	46.329	61.71	25.219	19.69	48.741	39.29	16.194	19.25
7 6.4	46.515	59.82	25.410	20.89	48.962	39.21	16.362	16.77
7 16.4	46.733	57.97	25.633	22.09	49.218	39.24	16.566	14.37
7 26.4	46.974	56.23	25.879	23.26	49.501	39.36	16.797	12.14
8 5.3	47.237	54.62	26.147	24.37	49.807	39.55	17.053	10.10
8 15.3	47.516	53.24	26.431	25.36	50.131	39.80	17.330	8.38
8 25.3	47.804	52.11	26.723	26.20	50.465	40.08	17.618	7.00
9 4.3	48.100	51.27	27.024	26.86	50.808	40.39	17.917	6.02
9 14.2	48.397	50.79	27.327	27.29	51.155	40.70	18.221	5.50
9 24.2	48.690	50.66	27.628	27.50	51.498	41.00	18.522	5.44
10 4.2	48.980	50.88	27.926	27.47	51.840	41.29	18.821	5.85
10 14.2	49.259	51.47	28.215	27.20	52.171	41.57	19.109	6.75
10 24.1	49.523	52.37	28.492	26.72	52.490	41.84	19.383	8.06
11 3.1	49.772	53.56	28.754	26.05	52.793	42.10	19.640	9.76
11 13.1	49.997	55.00	28.995	25.23	53.072	42.38	19.871	11.79
11 23.0	50.196	56.58	29.211	24.31	53.324	42.69	20.073	14.03
12 3.0	50.364	58.28	29.397	23.32	53.543	43.03	20.242	16.44
12 13.0	50.494	60.02	29.547	22.32	53.720	43.40	20.371	18.91
12 23.0	50.586	61.71	29.659	21.36	53.854	43.82	20.458	21.34
12 32.9	50.636	63.33	29.727	20.45	53.939	44.26	20.500	23.68
12 42.9	50.640	64.80	29.749	19.64	53.971	44.70	20.494	25.82
Pos. Med.	47.848	71.00	26.793	11.43	50.570	32.70	17.767	29.56
Secδ tanδ	1.007	-.120	1.006	.112	1.139	.546	1.069	-.379
Dob.Tran.	Dic 10		Dic 12		Dic 12		Dic 13	

VOLVER AL INDICE

VOLVER A LISTA DE ESTRELLAS

POSICIONES APARENTES AL PASO SUPERIOR POR GREENWICH

NUM.	206		207		209		211	
EST.	δ Orionis		α Leporis		ι Orionis*		ζ Tauri	
MAG.	2.23		2.58		2.77		3.00	
UT	AR.	DEC.	AR.	DEC.	AR.	DEC.	AR.	DEC.
	h m	° ′	h m	° ′	h m	° ′	h m	° ′
	5 33	- 0 16	5 33	-17 47	5 36	- 5 53	5 39	+21 9
mes d	s	"	s	"	s	"	s	"
1 -1.0	15.020	53.15	48.488	79.21	37.491	39.31	5.837	26.18
1 8.9	15.062	54.36	48.510	81.30	37.530	40.84	5.899	26.20
1 18.9	15.056	55.45	48.484	83.19	37.521	42.21	5.909	26.25
1 28.9	15.008	56.37	48.415	84.81	37.471	43.38	5.872	26.34
2 7.8	14.921	57.12	48.307	86.16	37.381	44.35	5.791	26.44
2 17.8	14.798	57.70	48.163	87.18	37.255	45.09	5.671	26.52
2 27.8	14.652	58.10	47.995	87.87	37.105	45.60	5.522	26.58
3 8.8	14.488	58.32	47.810	88.24	36.937	45.88	5.354	26.59
3 18.7	14.317	58.36	47.618	88.25	36.762	45.92	5.177	26.56
3 28.7	14.152	58.22	47.432	87.94	36.592	45.73	5.006	26.49
4 7.7	14.000	57.91	47.259	87.31	36.435	45.33	4.847	26.39
4 17.7	13.871	57.41	47.109	86.34	36.300	44.68	4.714	26.26
4 27.6	13.774	56.74	46.992	85.10	36.197	43.82	4.615	26.14
5 7.6	13.712	55.90	46.908	83.58	36.128	42.76	4.553	26.03
5 17.6	13.691	54.89	46.867	81.79	36.100	41.50	4.536	25.98
5 27.5	13.713	53.74	46.870	79.81	36.114	40.08	4.566	25.97
6 6.5	13.776	52.45	46.914	77.66	36.169	38.50	4.641	26.03
6 16.5	13.881	51.04	47.003	75.37	36.267	36.80	4.753	26.00
6 26.5	14.025	49.57	47.131	73.04	36.403	35.05	4.914	26.41
7 6.4	14.203	48.05	47.297	70.69	36.574	33.25	5.112	26.73
7 16.4	14.414	46.54	47.497	68.40	36.778	31.49	5.344	27.10
7 26.4	14.650	45.10	47.725	66.27	37.008	29.82	5.602	27.51
8 5.4	14.907	43.75	47.977	64.31	37.260	28.27	5.883	27.94
8 15.3	15.182	42.57	48.249	62.65	37.530	26.93	6.183	28.37
8 25.3	15.467	41.60	48.533	61.31	37.812	25.83	6.494	28.76
9 4.3	15.761	40.86	48.829	60.34	38.103	25.02	6.814	29.11
9 14.2	16.059	40.41	49.129	59.81	38.399	24.55	7.140	29.39
9 24.2	16.356	40.25	49.428	59.72	38.694	24.41	7.464	29.58
10 4.2	16.650	40.39	49.725	60.08	38.988	24.63	7.789	29.69
10 14.2	16.937	40.84	50.013	60.90	39.274	25.21	8.106	29.70
10 24.1	17.213	41.56	50.288	62.12	39.549	26.10	8.412	29.64
11 3.1	17.474	42.52	50.547	63.72	39.810	27.28	8.705	29.52
11 13.1	17.714	43.68	50.781	65.63	40.049	28.70	8.977	29.36
11 23.1	17.931	44.97	50.989	67.75	40.264	30.28	9.225	29.18
12 3.0	18.118	46.36	51.164	70.04	40.449	31.99	9.443	29.02
12 13.0	18.268	47.78	51.300	72.38	40.597	33.73	9.622	28.88
12 23.0	18.380	49.15	51.395	74.69	40.707	35.43	9.760	28.80
12 32.9	18.449	50.47	51.446	76.91	40.774	37.07	9.852	28.75
12 42.9	18.472	51.66	51.449	78.95	40.795	38.56	9.894	28.76
Pos. Med.	15.577	58.44	48.698	83.08	37.950	44.33	6.631	18.80
Secδ tanδ	1.000	-.005	1.050	-.321	1.005	-.103	1.072	.387
Dob.Tran.	Dic 14		Dic 14		Dic 15		Dic 15	

VOLVER AL INDICE

VOLVER A LISTA DE ESTRELLAS

POSICIONES APARENTES AL PASO SUPERIOR POR GREENWICH

NUM.	215		217		220		223	
EST.	α Columbae		γ Leporis		χ Orionis		β Columbae	
MAG.	2.64		3.60		2.06		3.12	
UT	AR.	DEC.	AR.	DEC.	AR.	DEC.	AR.	DEC.
	h m	° ′	h m	° ′	h m	° ′	h m	° ′
	5 40	-34 3	5 45	-22 26	5 48	- 9 39	5 51	-35 45
mes d	s	"	s	"	s	"	s	"
1 -1.0	32.565	41.59	29.044	26.51	54.787	40.23	49.879	33.56
1 8.9	32.564	44.35	29.068	28.87	54.833	42.00	49.886	36.42
1 18.9	32.509	46.85	29.042	31.01	54.831	43.60	49.837	39.05
1 28.9	32.406	49.02	28.971	32.87	54.786	44.98	49.738	41.34
2 7.9	32.259	50.84	28.859	34.43	54.699	46.14	49.594	43.29
2 17.8	32.074	52.24	28.710	35.64	54.576	47.04	49.408	44.81
2 27.8	31.862	53.19	28.535	36.48	54.426	47.67	49.193	45.89
3 8.8	31.631	53.72	28.341	36.96	54.256	48.05	48.958	46.53
3 18.7	31.392	53.77	28.138	37.05	54.078	48.14	48.712	46.69
3 28.7	31.158	53.39	27.940	36.78	53.902	47.98	48.470	46.40
4 7.7	30.937	52.58	27.753	36.16	53.737	47.56	48.238	45.68
4 17.7	30.740	51.33	27.589	35.16	53.593	46.87	48.029	44.50
4 27.6	30.577	49.72	27.455	33.86	53.478	45.94	47.852	42.94
5 7.6	30.450	47.75	27.355	32.26	53.397	44.79	47.711	41.02
5 17.6	30.368	45.46	27.297	30.37	53.355	43.41	47.614	38.75
5 27.6	30.333	42.92	27.283	28.27	53.354	41.86	47.565	36.23
6 6.5	30.345	40.18	27.310	25.97	53.394	40.14	47.561	33.48
6 16.5	30.407	37.29	27.384	23.54	53.477	38.30	47.608	30.58
6 26.5	30.515	34.36	27.498	21.05	53.599	36.39	47.702	27.61
7 6.4	30.665	31.42	27.650	18.54	53.756	34.45	47.839	24.63
7 16.4	30.857	28.58	27.840	16.11	53.947	32.54	48.020	21.73
7 26.4	31.083	25.94	28.058	13.83	54.165	30.73	48.236	19.02
8 5.4	31.340	23.54	28.303	11.74	54.407	29.06	48.486	16.54
8 15.3	31.623	21.51	28.571	9.96	54.670	27.61	48.764	14.42
8 25.3	31.924	19.88	28.854	8.53	54.945	26.43	49.063	12.70
9 4.3	32.241	18.72	29.149	7.50	55.233	25.56	49.379	11.45
9 14.3	32.566	18.11	29.452	6.94	55.527	25.06	49.706	10.75
9 24.2	32.891	18.04	29.756	6.84	55.823	24.92	50.036	10.60
10 4.2	33.216	18.53	30.059	7.24	56.119	25.18	50.368	11.01
10 14.2	33.530	19.60	30.355	8.13	56.410	25.83	50.691	12.02
10 24.1	33.828	21.16	30.638	9.46	56.690	26.83	50.999	13.54
11 3.1	34.106	23.20	30.905	11.20	56.958	28.15	51.289	15.56
11 13.1	34.354	25.64	31.148	13.30	57.205	29.75	51.549	18.00
11 23.1	34.570	28.35	31.364	15.63	57.429	31.53	51.777	20.74
12 3.0	34.746	31.29	31.546	18.15	57.623	33.46	51.966	23.71
12 13.0	34.876	34.31	31.688	20.74	57.780	35.44	52.108	26.81
12 23.0	34.959	37.31	31.789	23.31	57.899	37.39	52.201	29.89
12 33.0	34.990	40.22	31.842	25.81	57.973	39.27	52.241	32.90
12 42.9	34.967	42.91	31.846	28.11	58.001	41.00	52.226	35.70
Pos. Med.	32.248	45.06	29.114	31.19	55.164	45.83	49.493	37.92
Secδ tanδ	1.207	-.676	1.082	-.413	1.014	-.170	1.232	-.720
Dob.Tran.	Dic 16		Dic 17		Dic 18		Dic 18	

VOLVER AL INDICE

VOLVER A LISTA DE ESTRELLAS

POSICIONES APARENTES AL PASO SUPERIOR POR GREENWICH

NUM.	222		224		227		225	
EST.	δ Leporis		α Orionis (Betel geuse)		βAurigae		δ Aurigae	
MAG.	3.81		0.4 A 1.3		1.90		3.72	
UT	AR.	DEC.	AR.	DEC.	AR.	DEC.	AR.	DEC.
	h m	° ′	h m	° ′	h m	° ′	h m	° ′
	5 52	-20 52	5 56	+ 7 24	6 1	+44 56	6 1	+54 16
mes d	s	"	s	"	s	"	s	"
1 -1.0	22.417	37.75	29.315	41.50	18.822	58.92	32.029	70.24
1 8.9	22.453	40.09	29.384	40.65	18.919	60.34	32.132	72.17
1 18.9	22.438	42.22	29.405	39.91	18.947	61.74	32.153	74.06
1 28.9	22.378	44.08	29.380	39.30	18.912	63.06	32.097	75.82
2 7.9	22.276	45.66	29.312	38.81	18.817	64.26	31.969	77.41
2 17.8	22.135	46.89	29.204	38.44	18.666	65.27	31.776	78.73
2 27.8	21.968	47.78	29.069	38.18	18.474	66.04	31.534	79.73
3 8.8	21.781	48.32	28.912	38.03	18.253	66.55	31.257	80.39
3 18.8	21.583	48.48	28.743	37.99	18.014	66.77	30.959	80.66
3 28.7	21.389	48.28	28.578	38.05	17.778	66.69	30.664	80.56
4 7.7	21.204	47.75	28.421	38.20	17.554	66.34	30.383	80.09
4 17.7	21.041	46.86	28.285	38.47	17.357	65.72	30.135	79.27
4 27.6	20.907	45.66	28.178	38.84	17.200	64.88	29.934	78.15
5 7.6	20.805	44.16	28.104	39.32	17.089	63.86	29.786	76.79
5 17.6	20.745	42.38	28.071	39.92	17.032	62.70	29.704	75.23
5 27.6	20.727	40.39	28.079	40.61	17.033	61.46	29.691	73.55
6 6.5	20.750	38.20	28.128	41.42	17.090	60.18	29.745	71.79
6 16.5	20.819	35.87	28.219	42.31	17.207	58.91	29.871	70.02
6 26.5	20.927	33.48	28.348	43.28	17.377	57.68	30.062	68.30
7 6.5	21.074	31.06	28.513	44.31	17.597	56.52	30.313	66.64
7 16.4	21.257	28.69	28.712	45.35	17.865	55.47	30.623	65.12
7 26.4	21.470	26.47	28.937	46.35	18.171	54.54	30.979	63.75
8 5.4	21.710	24.43	29.186	47.30	18.510	53.74	31.377	62.56
8 15.3	21.973	22.67	29.455	48.14	18.879	53.09	31.812	61.57
8 25.3	22.251	21.26	29.736	48.84	19.266	52.59	32.271	60.79
9 4.3	22.543	20.22	30.029	49.37	19.672	52.24	32.753	60.23
9 14.3	22.844	19.64	30.330	49.69	20.088	52.03	33.249	59.91
9 24.2	23.147	19.52	30.633	49.79	20.509	51.98	33.750	59.82
10 4.2	23.451	19.87	30.938	49.66	20.934	52.08	34.257	59.96
10 14.2	23.749	20.71	31.238	49.30	21.353	52.33	34.756	60.36
10 24.2	24.035	21.99	31.531	48.74	21.762	52.74	35.242	60.99
11 3.1	24.308	23.67	31.814	47.99	22.157	53.32	35.710	61.86
11 13.1	24.558	25.70	32.078	47.10	22.527	54.07	36.147	62.98
11 23.1	24.782	27.97	32.321	46.11	22.866	54.97	36.546	64.30
12 3.0	24.974	30.44	32.536	45.07	23.168	56.03	36.898	65.84
12 13.0	25.127	32.99	32.716	44.02	23.420	57.22	37.188	67.55
12 23.0	25.238	35.52	32.858	43.02	23.619	58.52	37.414	69.37
12 33.0	25.303	37.99	32.957	42.08	23.757	59.89	37.566	71.26
12 42.9	25.319	40.27	33.007	41.25	23.828	61.28	37.637	73.15
Pos. Med.	22.546	43.33	29.947	34.48	19.605	49.87	32.730	60.72
Secδ tanδ	1.070	-.381	1.008	.130	1.413	.998	1.713	1.391
Dob.Tran.	Dic 19		Dic 20		Dic 21		Dic 21	

VOLVER AL INDICE

VOLVER A LISTA DE ESTRELLAS

POSICIONES APARENTES AL PASO SUPERIOR POR GREENWICH

NUM.	240		243		241		245	
EST.	ζ Canis Majoris		β Canis Majoris		μ Geminorum		αCarinae (Canopus)	
MAG.	3.02		1.98		2.88		-0.72	
UT	AR.	DEC.	AR.	DEC.	AR.	DEC.	AR.	DEC.
	h m s	° ′ "	h m s	° ′ "	h m s	° ′ "	h m s	° ′ "
	6 21	-30 4	6 23	-17 57	6 24	+22 30	6 24	-52 42
mes d								
1 -1.0	15.420	24.97	46.542	63.14	25.825	3.79	31.172	27.66
1 9.0	15.471	27.80	46.612	65.46	25.933	3.79	31.172	31.11
1 18.9	15.467	30.44	46.632	67.62	25.988	3.88	31.098	34.37
1 28.9	15.412	32.80	46.603	69.52	25.991	4.05	30.956	37.31
2 7.9	15.310	34.86	46.529	71.18	25.946	4.26	30.752	39.90
2 17.9	15.164	36.54	46.413	72.52	25.853	4.49	30.491	42.05
2 27.8	14.986	37.82	46.266	73.53	25.725	4.72	30.188	43.72
3 8.8	14.782	38.71	46.094	74.23	25.570	4.91	29.854	44.91
3 18.8	14.562	39.15	45.906	74.57	25.397	5.07	29.498	45.56
3 28.7	14.341	39.18	45.717	74.58	25.221	5.16	29.140	45.69
4 7.7	14.125	38.80	45.532	74.28	25.051	5.20	28.787	45.31
4 17.7	13.925	38.00	45.363	73.62	24.898	5.18	28.454	44.40
4 27.7	13.752	36.82	45.219	72.68	24.773	5.12	28.154	43.03
5 7.6	13.609	35.29	45.104	71.45	24.680	5.03	27.890	41.22
5 17.6	13.506	33.41	45.025	69.94	24.627	4.94	27.676	38.98
5 27.6	13.444	31.27	44.986	68.21	24.617	4.84	27.516	36.41
6 6.6	13.423	28.89	44.985	66.28	24.649	4.77	27.411	33.54
6 16.5	13.449	26.31	45.027	64.18	24.728	4.73	27.370	30.44
6 26.5	13.518	23.65	45.108	62.01	24.853	4.21	27.389	27.22
7 6.5	13.628	20.92	45.227	59.77	24.995	4.76	27.466	23.93
7 16.4	13.779	18.23	45.382	57.57	25.190	4.83	27.606	20.68
7 26.4	13.964	15.68	45.568	55.46	25.413	4.91	27.799	17.59
8 5.4	14.182	13.30	45.782	53.50	25.663	4.99	28.044	14.69
8 15.4	14.430	11.21	46.021	51.78	25.937	5.06	28.337	12.15
8 25.3	14.700	9.48	46.280	50.36	26.228	5.10	28.667	10.02
9 4.3	14.990	8.16	46.556	49.29	26.535	5.08	29.032	8.37
9 14.3	15.296	7.35	46.846	48.63	26.854	5.00	29.422	7.30
9 24.3	15.610	7.04	47.143	48.40	27.179	4.85	29.827	6.83
10 4.2	15.930	7.26	47.446	48.63	27.511	4.62	30.242	7.00
10 14.2	16.249	8.05	47.749	49.34	27.843	4.31	30.654	7.84
10 24.2	16.560	9.35	48.046	50.46	28.172	3.95	31.051	9.27
11 3.1	16.860	11.13	48.336	51.99	28.494	3.55	31.428	11.30
11 13.1	17.138	13.34	48.607	53.88	28.801	3.14	31.769	13.86
11 23.1	17.390	15.88	48.857	56.03	29.089	2.76	32.066	16.81
12 3.1	17.610	18.67	49.079	58.39	29.351	2.41	32.312	20.11
12 13.0	17.788	21.62	49.264	60.85	29.577	2.14	32.494	23.62
12 23.0	17.921	24.60	49.409	63.33	29.763	1.96	32.611	27.19
12 33.0	18.004	27.54	49.510	65.76	29.903	1.87	32.656	30.76
12 43.0	18.034	30.33	49.560	68.05	29.991	1.88	32.627	34.17
Pos. Med.	15.277	32.66	46.742	71.07	26.550	-4.62	29.785	35.80
Secδ tanδ	1.156	-.579	1.051	-.324	1.082	.414	1.651	-1.313
Dob.Tran.	Dic 26		Dic 26		Dic 27		Dic 27	

VOLVER AL INDICE

VOLVER A LISTA DE ESTRELLAS

POSICIONES APARENTES AL PASO SUPERIOR POR GREENWICH

NUM.	252		251		263		261	
EST.	ν Puppis		γ Geminorum		τ Puppis		ϑ Geminorum	
MAG.	3.17		1.93		2.93		3.60	
UT	AR.	DEC.	AR.	DEC.	AR.	DEC.	AR.	DEC.
	h m	° ′	h m	° ′	h m	° ′	h m	° ′
	6 38	-43 12	6 39	+16 22	6 50	-50 38	6 54	+33 55
mes d	s	"	s	"	s	"	s	"
1 -1.0	31.374	57.35	6.954	43.10	33.780	29.98	23.409	53.96
1 9.0	31.422	60.68	7.073	42.68	33.828	33.52	23.562	54.59
1 18.9	31.405	63.83	7.139	42.37	33.803	36.91	23.655	55.34
1 28.9	31.328	66.70	7.154	42.18	33.709	40.03	23.689	56.15
2 7.9	31.196	69.26	7.121	42.08	33.553	42.85	23.666	56.99
2 17.9	31.012	71.41	7.041	42.07	33.336	45.28	23.587	57.81
2 27.8	30.789	73.12	6.926	42.12	33.074	47.24	23.465	58.56
3 8.8	30.535	74.39	6.782	42.20	32.776	48.76	23.306	59.19
3 18.8	30.260	75.15	6.618	42.32	32.452	49.75	23.122	59.68
3 28.8	29.979	75.42	6.450	42.44	32.119	50.23	22.929	60.00
4 7.7	29.701	75.22	6.284	42.56	31.785	50.22	22.735	60.14
4 17.7	29.437	74.52	6.133	42.69	31.464	49.67	22.554	60.09
4 27.7	29.200	73.38	6.006	42.82	31.169	48.64	22.399	59.88
5 7.6	28.993	71.81	5.907	42.97	30.905	47.16	22.273	59.52
5 17.6	28.826	69.83	5.845	43.15	30.683	45.23	22.188	59.02
5 27.6	28.705	67.53	5.823	43.35	30.509	42.94	22.147	58.43
6 6.6	28.629	64.92	5.841	43.59	30.385	40.32	22.150	57.76
6 16.5	28.605	62.08	5.901	43.87	30.318	37.43	22.201	57.05
6 26.5	28.631	59.10	6.000	44.15	30.307	34.37	22.297	56.34
7 6.5	28.705	56.03	6.131	44.51	30.351	31.20	22.433	55.60
7 16.5	28.830	52.98	6.303	44.89	30.454	28.01	22.612	54.85
7 26.4	28.999	50.05	6.504	45.24	30.609	24.92	22.828	54.13
8 5.4	29.209	47.28	6.732	45.56	30.815	21.98	23.075	53.44
8 15.4	29.460	44.83	6.985	45.82	31.069	19.34	23.353	52.78
8 25.3	29.741	42.75	7.255	46.00	31.363	17.08	23.653	52.14
9 4.3	30.052	41.11	7.543	46.08	31.695	15.24	23.976	51.53
9 14.3	30.387	40.01	7.844	46.03	32.058	13.96	24.316	50.94
9 24.3	30.735	39.48	8.154	45.84	32.440	13.25	24.669	50.38
10 4.2	31.096	39.54	8.472	45.52	32.839	13.17	25.033	49.85
10 14.2	31.457	40.25	8.794	45.05	33.242	13.75	25.404	49.38
10 24.2	31.812	41.53	9.113	44.47	33.640	14.94	25.775	48.96
11 3.2	32.155	43.38	9.429	43.80	34.025	16.73	26.145	48.63
11 13.1	32.473	45.75	9.733	43.05	34.382	19.09	26.503	48.41
11 23.1	32.759	48.52	10.020	42.29	34.703	21.89	26.844	48.31
12 3.1	33.007	51.63	10.283	41.53	34.981	25.07	27.160	48.36
12 13.0	33.204	54.95	10.513	40.82	35.200	28.52	27.439	48.57
12 23.0	33.349	58.36	10.706	40.20	35.359	32.08	27.677	48.93
12 33.0	33.435	61.78	10.854	39.67	35.451	35.70	27.864	49.46
12 43.0	33.457	65.07	10.952	39.26	35.470	39.22	27.994	50.11
Pos. Med.	30.696	66.98	7.631	34.48	32.668	41.22	24.110	45.48
Secδ tanδ	1.372	-.940	1.042	.294	1.577	-1.219	1.205	.673
Dob.Tran.	Ene 0	Dic 30	Ene 0	Dic 30	Ene 3		Ene 4	

VOLVER AL INDICE

VOLVER A LISTA DE ESTRELLAS

POSICIONES APARENTES AL PASO SUPERIOR POR GREENWICH

NUM.	268		270		273		278	
EST.	ε Canis Majoris		o^2 CanisMajoris		δ Canis Majoris		π Puppis	
MAG.	1.50		3.02		1.86		2.70	
UT	AR.	DEC.	AR.	DEC.	AR.	DEC.	AR.	DEC.
	h m	° ′	h m	° ′	h m	° ′	h m	° ′
	6 59	-29 00	7 4	-23 51	7 9	-26 25	7 17	-37 8
mes d	s	"	s	"	s	"	s	"
1 -1.0	35.394	13.49	2.756	63.01	23.219	48.98	60.760	20.71
1 9.0	35.489	16.43	2.862	65.75	23.328	51.85	60.867	23.99
1 19.0	35.528	19.24	2.914	68.35	23.382	54.58	60.914	27.17
1 28.9	35.514	21.79	2.914	70.73	23.384	57.09	60.903	30.12
2 7.9	35.450	24.09	2.865	72.85	23.335	59.35	60.836	32.82
2 17.9	35.337	26.05	2.768	74.66	23.237	61.29	60.716	35.18
2 27.9	35.187	27.63	2.634	76.12	23.100	62.87	60.553	37.14
3 8.8	35.005	28.84	2.468	77.24	22.932	64.10	60.355	38.71
3 18.8	34.802	29.62	2.281	77.96	22.740	64.92	60.130	39.83
3 28.8	34.590	30.00	2.084	78.31	22.538	65.34	59.893	40.49
4 7.7	34.376	29.98	1.886	78.30	22.334	65.40	59.651	40.71
4 17.7	34.173	29.53	1.697	77.90	22.137	65.04	59.415	40.46
4 27.7	33.989	28.71	1.527	77.16	21.959	64.32	59.198	39.78
5 7.7	33.830	27.53	1.380	76.09	21.804	63.25	59.002	38.68
5 17.6	33.704	25.98	1.265	74.68	21.679	61.84	58.838	37.17
5 27.6	33.616	24.15	1.185	73.01	21.590	60.14	58.711	35.32
6 6.6	33.564	22.05	1.142	71.09	21.537	58.18	58.621	33.15
6 16.6	33.555	19.72	1.139	68.97	21.525	55.99	58.576	30.71
6 26.5	33.588	17.26	1.175	66.72	21.552	53.67	58.573	28.10
7 6.5	33.659	14.69	1.248	64.37	21.617	51.24	58.613	25.35
7 16.5	33.771	12.12	1.360	62.00	21.721	48.79	58.697	22.54
7 26.4	33.919	9.62	1.505	59.71	21.860	46.40	58.822	19.80
8 5.4	34.100	7.25	1.683	57.53	22.032	44.13	58.985	17.15
8 15.4	34.315	5.12	1.892	55.58	22.237	42.08	59.187	14.74
8 25.4	34.555	3.31	2.125	53.92	22.468	40.32	59.422	12.64
9 4.3	34.821	1.85	2.383	52.59	22.724	38.90	59.687	10.90
9 14.3	35.109	.87	2.661	51.70	23.003	37.93	59.981	9.65
9 24.3	35.410	.36	2.954	51.26	23.297	37.43	60.294	8.90
10 4.3	35.726	.38	3.260	51.31	23.606	37.42	60.625	8.71
10 14.2	36.048	.96	3.574	51.88	23.924	37.96	60.968	9.13
10 24.2	36.370	2.04	3.888	52.93	24.243	38.99	61.312	10.11
11 3.2	36.687	3.64	4.201	54.45	24.560	40.51	61.656	11.65
11 13.1	36.991	5.69	4.501	56.40	24.866	42.49	61.985	13.73
11 23.1	37.274	8.11	4.782	58.68	25.154	44.82	62.294	16.22
12 3.1	37.529	10.83	5.040	61.25	25.417	47.45	62.575	19.09
12 13.1	37.747	13.75	5.262	63.99	25.644	50.29	62.815	22.22
12 23.0	37.923	16.75	5.445	66.81	25.831	53.21	63.010	25.49
12 33.0	38.051	19.78	5.582	69.63	25.972	56.15	63.153	28.83
12 43.0	38.125	22.70	5.666	72.36	26.060	59.00	63.237	32.11
Pos. Med.	35.360	24.67	2.876	74.27	23.286	60.83	60.507	34.03
Secδ tanδ	1.143	-.554	1.094	-.443	1.117	-.497	1.254	-.757
Dob.Tran.	Ene 5		Ene 6		Ene 8		Ene 10	

VOLVER AL INDICE

VOLVER A LISTA DE ESTRELLAS

POSICIONES APARENTES AL PASO SUPERIOR POR GREENWICH

NUM.	279		283		297		295	
EST.	δ Geminorum*		η Canis Majoris		ζ Volantis		β Geminorum (Pollux)	
MAG.	3.53		2.45		3.95		1.14	
UT	AR.	DEC.	AR.	DEC.	AR.	DEC.	AR.	DEC.
	h m	° ′	h m	° ′	h m	° ′	h m	° ′
	7 21	+21 56	7 24	-29 20	7 41	-72 39	7 46	+27 57
mes d	s	"	s	"	s	"	s	"
1 -1.0	34.364	15.31	3.845	54.89	34.369	33.88	48.036	62.42
1 9.0	34.531	15.09	3.969	57.92	34.475	37.66	48.236	62.46
1 19.0	34.644	15.02	4.036	60.84	34.431	41.45	48.380	62.70
1 29.0	34.703	15.10	4.050	63.55	34.246	45.11	48.468	63.11
2 7.9	34.709	15.30	4.010	66.02	33.930	48.57	48.499	63.64
2 17.9	34.662	15.58	3.920	68.17	33.486	51.75	48.473	64.27
2 27.9	34.573	15.93	3.788	69.96	32.939	54.55	48.399	64.94
3 8.8	34.448	16.28	3.622	71.39	32.306	56.95	48.284	65.60
3 18.8	34.296	16.64	3.430	72.41	31.600	58.87	48.136	66.22
3 28.8	34.131	16.95	3.225	73.02	30.853	60.28	47.970	66.76
4 7.8	33.961	17.22	3.014	73.24	30.078	61.20	47.795	67.19
4 17.7	33.798	17.42	2.809	73.02	29.298	61.56	47.621	67.49
4 27.7	33.653	17.56	2.620	72.43	28.539	61.39	47.462	67.66
5 7.7	33.532	17.63	2.450	71.46	27.810	60.71	47.323	67.70
5 17.7	33.442	17.66	2.310	70.12	27.135	59.49	47.212	67.61
5 27.6	33.388	17.64	2.204	68.48	26.532	57.82	47.137	67.41
6 6.6	33.372	17.59	2.132	66.55	26.006	55.72	47.097	67.11
6 16.6	33.396	17.52	2.100	64.37	25.580	53.22	47.097	66.73
6 26.5	33.460	17.42	2.107	62.03	25.259	50.43	47.137	66.28
7 6.5	33.565	17.30	2.152	59.55	25.046	47.38	47.215	65.79
7 16.5	33.687	17.20	2.238	57.04	24.959	44.19	47.328	65.27
7 26.5	33.859	17.04	2.359	54.57	24.990	40.96	47.475	64.63
8 5.4	34.058	16.85	2.516	52.19	25.143	37.75	47.656	63.96
8 15.4	34.285	16.60	2.707	50.02	25.422	34.71	47.870	63.25
8 25.4	34.534	16.30	2.926	48.13	25.809	31.94	48.108	62.50
9 4.4	34.806	15.91	3.175	46.58	26.305	29.50	48.373	61.70
9 14.3	35.098	15.44	3.448	45.48	26.896	27.53	48.661	60.84
9 24.3	35.404	14.88	3.741	44.84	27.558	26.10	48.968	59.94
10 4.3	35.726	14.22	4.051	44.71	28.284	25.25	49.295	58.99
10 14.2	36.058	13.48	4.373	45.14	29.046	25.08	49.636	58.02
10 24.2	36.395	12.68	4.700	46.09	29.816	25.55	49.988	57.05
11 3.2	36.735	11.84	5.028	47.56	30.578	26.69	50.346	56.10
11 13.2	37.070	11.00	5.346	49.52	31.297	28.49	50.704	55.21
11 23.1	37.393	10.19	5.647	51.85	31.951	30.84	51.053	54.43
12 3.1	37.698	9.45	5.926	54.53	32.520	33.70	51.388	53.77
12 13.1	37.974	8.82	6.169	57.45	32.975	36.98	51.694	53.28
12 23.1	38.214	8.32	6.372	60.48	33.307	40.53	51.968	52.98
12 33.0	38.411	7.97	6.528	63.57	33.504	44.30	52.198	52.87
12 43.0	38.557	7.79	6.630	66.59	33.551	48.12	52.376	52.97
Pos. Med.	35.049	6.33	3.881	68.23	30.187	52.14	48.699	53.93
Secδ tanδ	1.078	.403	1.147	-.562	3.356	-3.204	1.132	.531
Dob.Tran.	Ene 11		Ene 12		Ene 16		Ene 17	

VOLVER AL INDICE

VOLVER A LISTA DE ESTRELLAS

POSICIONES APARENTES AL PASO SUPERIOR POR GREENWICH

NUM.	1204		303		306		308	
EST.	ξ Puppis		χ Carinae		ζ Puppis		ρ Puppis	
MAG.	3.34		3.47		2.25		2.81	
UT	AR.	DEC.	AR.	DEC.	AR.	DEC.	AR.	DEC.
	h m	° ′	h m	° ′	h m	° ′	h m	° ′
	7 50	-24 55	7 57	-53 2	8 4	-40 4	8 8	-24 22
mes d	s	"	s	"	s	"	s	"
1 -.9	19.270	6.97	24.905	37.51	26.881	6.58	34.954	18.76
1 9.0	19.425	9.87	25.058	41.21	27.045	10.01	35.128	21.66
1 19.0	19.526	12.69	25.133	44.93	27.148	13.44	35.249	24.51
1 29.0	19.573	15.33	25.133	48.50	27.190	16.71	35.317	27.18
2 7.9	19.569	17.75	25.062	51.89	27.173	19.79	35.333	29.66
2 17.9	19.512	19.88	24.919	54.99	27.095	22.59	35.295	31.87
2 27.9	19.413	21.69	24.718	57.71	26.969	25.04	35.213	33.75
3 8.9	19.277	23.17	24.466	60.06	26.799	27.12	35.093	35.33
3 18.8	19.112	24.27	24.173	61.93	26.594	28.78	34.941	36.53
3 28.8	18.930	24.99	23.855	63.32	26.368	29.98	34.770	37.38
4 7.8	18.739	25.36	23.521	64.23	26.129	30.76	34.587	37.87
4 17.8	18.549	25.33	23.182	64.60	25.886	31.05	34.402	37.97
4 27.7	18.371	24.95	22.855	64.47	25.653	30.89	34.225	37.73
5 7.7	18.208	24.23	22.544	63.85	25.433	30.29	34.062	37.14
5 17.7	18.070	23.15	22.261	62.72	25.236	29.24	33.919	36.21
5 27.6	17.961	21.79	22.015	61.16	25.070	27.80	33.804	34.98
6 6.6	17.883	20.15	21.808	59.18	24.934	26.00	33.716	33.47
6 16.6	17.841	18.26	21.650	56.83	24.838	23.86	33.662	31.72
6 26.6	17.834	16.21	21.542	54.19	24.782	21.48	33.641	29.79
7 6.5	17.862	14.01	21.486	51.32	24.764	18.89	33.654	27.70
7 16.5	17.927	11.76	21.489	48.29	24.792	16.18	33.702	25.53
7 26.5	18.026	9.52	21.546	45.24	24.860	13.44	33.784	23.37
8 5.5	18.159	7.35	21.658	42.20	24.970	10.73	33.899	21.25
8 15.4	18.325	5.34	21.828	39.31	25.123	8.17	34.048	19.28
8 25.4	18.521	3.58	22.049	36.68	25.314	5.85	34.227	17.53
9 4.4	18.745	2.11	22.321	34.37	25.543	3.83	34.436	16.05
9 14.3	18.997	1.05	22.640	32.52	25.808	2.25	34.675	14.95
9 24.3	19.270	.41	22.997	31.18	26.103	1.13	34.937	14.27
10 4.3	19.566	.24	23.388	30.40	26.426	.55	35.224	14.04
10 14.3	19.876	.59	23.804	30.28	26.771	.57	35.529	14.32
10 24.2	20.197	1.43	24.232	30.78	27.129	1.16	35.847	15.08
11 3.2	20.523	2.77	24.666	31.93	27.495	2.35	36.175	16.34
11 13.2	20.846	4.57	25.089	33.72	27.857	4.13	36.503	18.07
11 23.2	21.158	6.75	25.490	36.05	28.206	6.38	36.823	20.18
12 3.1	21.452	9.27	25.859	38.87	28.534	9.08	37.129	22.64
12 13.1	21.716	12.03	26.178	42.10	28.826	12.14	37.407	25.35
12 23.1	21.944	14.91	26.441	45.59	29.077	15.42	37.652	28.21
12 33.0	22.130	17.86	26.640	49.28	29.277	18.86	37.856	31.16
12 43.0	22.264	20.77	26.763	53.03	29.419	22.33	38.010	34.08
Pos. Med.	19.513	21.72	24.056	56.01	26.760	24.27	35.283	34.57
Secδ tanδ	1.103	-.465	1.664	-1.329	1.307	-.841	1.098	-.453
Dob.Tran.	Ene 18		Ene 20		Ene 22		Ene 23	

VOLVER AL INDICE

VOLVER A LISTA DE ESTRELLAS

POSICIONES APARENTES AL PASO SUPERIOR POR GREENWICH

NUM.	309		312		315		319	
EST.	γ Velorum*		β Cancri		ε Carinae		β Volantis	
MAG.	1.78		3.52		1.86		3.77	
UT	AR.	DEC.	AR.	DEC.	AR.	DEC.	AR.	DEC.
	h m	° ′	h m	° ′	h m	° ′	h m	° ′
	8 10	-47 24	8 17	+ 9 6	8 22	-59 34	8 25	-66 12
mes d	s	"	s	"	s	"	s	"
1 -.9	17.692	16.34	49.839	41.00	61.989	59.03	61.661	46.07
1 9.0	17.864	19.95	50.045	39.76	62.192	62.78	61.885	49.85
1 19.0	17.968	23.58	50.203	38.70	62.307	66.62	62.001	53.73
1 29.0	18.004	27.08	50.310	37.85	62.334	70.39	62.009	57.57
2 8.0	17.975	30.41	50.367	37.18	62.277	74.04	61.914	61.31
2 17.9	17.879	33.47	50.371	36.73	62.135	77.46	61.716	64.84
2 27.9	17.729	36.18	50.329	36.45	61.922	80.55	61.430	68.05
3 8.9	17.531	38.53	50.249	36.33	61.647	83.29	61.068	70.94
3 18.8	17.292	40.42	50.136	36.35	61.317	85.59	60.638	73.38
3 28.8	17.029	41.86	50.002	36.48	60.952	87.42	60.164	75.36
4 7.8	16.750	42.84	49.855	36.69	60.561	88.78	59.656	76.87
4 17.8	16.465	43.30	49.705	36.99	60.156	89.60	59.129	77.83
4 27.7	16.188	43.28	49.563	37.33	59.756	89.90	58.604	78.27
5 7.7	15.923	42.79	49.434	37.72	59.365	89.70	58.088	78.19
5 17.7	15.682	41.80	49.325	38.16	58.998	88.95	57.598	77.55
5 27.7	15.472	40.40	49.243	38.62	58.666	87.73	57.148	76.42
6 6.6	15.295	38.59	49.187	39.10	58.372	86.05	56.743	74.82
6 16.6	15.160	36.40	49.164	39.61	58.128	83.93	56.398	72.76
6 26.6	15.069	33.95	49.172	40.11	57.939	81.49	56.122	70.36
7 6.5	15.022	31.24	49.211	40.60	57.806	78.73	55.915	67.62
7 16.5	15.024	28.37	49.282	41.05	57.740	75.77	55.793	64.64
7 26.5	15.074	25.47	49.381	41.45	57.739	72.70	55.753	61.55
8 5.5	15.172	22.56	49.509	41.81	57.804	69.59	55.799	58.38
8 15.4	15.321	19.79	49.668	42.05	57.940	66.56	55.936	55.28
8 25.4	15.514	17.25	49.853	42.14	58.141	63.73	56.158	52.37
9 4.4	15.752	15.00	50.062	42.06	58.408	61.16	56.464	49.70
9 14.4	16.034	13.19	50.298	41.79	58.737	59.01	56.852	47.42
9 24.3	16.350	11.86	50.554	41.31	59.118	57.33	57.306	45.62
10 4.3	16.701	11.08	50.832	40.61	59.547	56.19	57.822	44.35
10 14.3	17.076	10.92	51.130	39.69	60.014	55.69	58.385	43.72
10 24.2	17.467	11.37	51.441	38.58	60.502	55.83	58.975	43.73
11 3.2	17.867	12.44	51.765	37.28	61.005	56.62	59.582	44.41
11 13.2	18.263	14.14	52.093	35.83	61.502	58.09	60.180	45.78
11 23.2	18.644	16.37	52.418	34.31	61.979	60.15	60.751	47.74
12 3.1	19.000	19.09	52.735	32.73	62.424	62.76	61.279	50.28
12 13.1	19.316	22.21	53.031	31.18	62.815	65.84	61.739	53.31
12 23.1	19.585	25.59	53.300	29.71	63.143	69.25	62.120	56.71
12 33.1	19.797	29.18	53.533	28.34	63.399	72.94	62.410	60.40
12 43.0	19.944	32.83	53.721	27.15	63.569	76.77	62.593	64.26
Pos. Med.	17.294	35.43	50.552	30.03	60.866	80.63	59.763	68.66
Secδ tanδ	1.478	-1.088	1.013	.160	1.976	-1.704	2.480	-2.269
Dob.Tran.	Ene 23		Ene 25		Ene 26		Ene 27	

VOLVER AL INDICE

VOLVER A LISTA DE ESTRELLAS

POSICIONES APARENTES AL PASO SUPERIOR POR GREENWICH

NUM.	1223		1227		327		326	
EST.	δ Hydrae		o Velorum		α Pyxidis		δ Cancri	
MAG.	4.16		3.62		3.68		3.94	
UT	AR.	DEC.	AR.	DEC.	AR.	DEC.	AR.	DEC.
	h m	° ′	h m	° ′	h m	° ′	h m	° ′
	8 38	+ 5 36	8 40	-53 00	8 44	-33 16	8 46	+18 3
mes d	s	"	s	"	s	"	s	"
1 -.9	56.353	72.24	60.135	12.95	34.341	13.55	3.663	55.07
1 9.1	56.574	70.72	60.359	16.60	34.553	16.78	3.906	54.22
1 19.0	56.749	69.38	60.510	20.37	34.711	20.04	4.100	53.60
1 29.0	56.874	68.25	60.585	24.08	34.813	23.19	4.243	53.22
2 8.0	56.948	67.33	60.588	27.69	34.859	26.20	4.334	53.05
2 18.0	56.971	66.62	60.517	31.09	34.847	28.97	4.369	53.08
2 27.9	56.947	66.13	60.381	34.19	34.785	31.44	4.355	53.28
3 8.9	56.883	65.82	60.190	36.96	34.679	33.60	4.298	53.60
3 18.9	56.783	65.70	59.948	39.32	34.535	35.38	4.202	54.03
3 28.8	56.661	65.72	59.673	41.23	34.365	36.77	4.081	54.49
4 7.8	56.524	65.86	59.373	42.69	34.177	37.78	3.941	54.97
4 17.8	56.380	66.11	59.058	43.63	33.978	38.35	3.794	55.45
4 27.8	56.240	66.45	58.743	44.08	33.782	38.52	3.649	55.88
5 7.7	56.109	66.87	58.434	44.04	33.592	38.29	3.513	56.27
5 17.7	55.996	67.36	58.142	43.47	33.417	37.64	3.394	56.59
5 27.7	55.905	67.90	57.876	42.44	33.264	36.63	3.298	56.85
6 6.7	55.837	68.48	57.639	40.95	33.133	35.27	3.226	57.04
6 16.6	55.799	69.10	57.442	39.04	33.033	33.58	3.184	57.17
6 26.6	55.790	69.73	57.288	36.80	32.965	31.65	3.173	57.22
7 6.6	55.809	70.36	57.178	34.24	32.927	29.48	3.191	57.20
7 16.5	55.860	70.96	57.121	31.45	32.927	27.17	3.242	57.10
7 26.5	55.938	71.50	57.116	28.55	32.962	24.79	3.326	56.90
8 5.5	56.043	71.98	57.164	25.58	33.032	22.39	3.422	56.67
8 15.5	56.179	72.36	57.271	22.67	33.141	20.08	3.566	56.25
8 25.4	56.341	72.58	57.431	19.93	33.286	17.96	3.733	55.73
9 4.4	56.531	72.63	57.646	17.42	33.467	16.06	3.928	55.08
9 14.4	56.747	72.44	57.915	15.29	33.685	14.53	4.151	54.27
9 24.4	56.986	72.04	58.231	13.60	33.934	13.40	4.399	53.32
10 4.3	57.251	71.38	58.591	12.43	34.217	12.74	4.673	52.22
10 14.3	57.537	70.47	58.988	11.87	34.526	12.62	4.970	50.97
10 24.3	57.840	69.32	59.409	11.92	34.856	13.03	5.286	49.62
11 3.2	58.159	67.96	59.850	12.61	35.203	13.99	5.619	48.16
11 13.2	58.486	66.41	60.293	13.97	35.557	15.51	5.962	46.67
11 23.2	58.813	64.73	60.726	15.89	35.907	17.49	6.307	45.17
12 3.2	59.135	62.98	61.138	18.38	36.248	19.92	6.649	43.72
12 13.1	59.440	61.20	61.512	21.34	36.564	22.71	6.974	42.38
12 23.1	59.720	59.48	61.838	24.64	36.848	25.74	7.276	41.18
12 33.1	59.967	57.85	62.105	28.22	37.092	28.95	7.544	40.18
12 43.0	60.170	56.38	62.302	31.96	37.284	32.23	7.768	39.39
Pos. Med.	57.105	60.44	59.719	35.31	34.685	33.04	4.445	45.49
Secδ tanδ	1.005	.098	1.662	-1.328	1.196	-.656	1.052	.326
Dob.Tran.	Ene 31		Ene 31		Feb 1		Feb 1	

VOLVER AL INDICE

VOLVER A LISTA DE ESTRELLAS

POSICIONES APARENTES AL PASO SUPERIOR POR GREENWICH

NUM.	332		336		334		342	
EST.	γ Pyxidis		108 G. Carinae		ζ Hydrae		97 G. Velorum	
MAG.	4.01		3.84		3.11		3.75	
UT	AR.	DEC.	AR.	DEC.	AR.	DEC.	AR.	DEC.
	h m	° ′	h m	° ′	h m	° ′	h m	° ′
	8 51	-27 47	8 55	-60 43	8 56	+ 5 50	9 4	-47 11
mes d	s	"	s	"	s	"	s	"
1 -.9	33.897	48.05	36.823	55.35	40.436	74.98	59.972	23.18
1 9.1	34.115	51.11	37.094	59.02	40.672	73.42	60.222	26.70
1 19.0	34.283	54.17	37.276	62.86	40.864	72.03	60.408	30.35
1 29.0	34.396	57.11	37.370	66.71	41.006	70.87	60.528	33.96
2 8.0	34.456	59.90	37.377	70.51	41.098	69.91	60.583	37.51
2 18.0	34.461	62.46	37.295	74.15	41.138	69.19	60.569	40.88
2 27.9	34.416	64.73	37.135	77.52	41.131	68.68	60.496	43.97
3 8.9	34.330	66.70	36.906	80.59	41.082	68.37	60.369	46.77
3 18.9	34.205	68.32	36.614	83.28	40.996	68.24	60.194	49.19
3 28.9	34.055	69.57	36.279	85.53	40.885	68.27	59.986	51.19
4 7.8	33.886	70.47	35.908	87.33	40.757	68.42	59.751	52.78
4 17.8	33.707	70.97	35.513	88.61	40.618	68.68	59.498	53.88
4 27.8	33.530	71.10	35.113	89.39	40.481	69.03	59.242	54.52
5 7.7	33.358	70.87	34.713	89.65	40.351	69.45	58.986	54.69
5 17.7	33.200	70.27	34.327	89.37	40.234	69.93	58.741	54.35
5 27.7	33.062	69.34	33.967	88.59	40.138	70.45	58.516	53.58
6 6.7	32.945	68.09	33.636	87.32	40.063	71.02	58.313	52.36
6 16.6	32.856	66.55	33.347	85.58	40.014	71.61	58.139	50.72
6 26.6	32.796	64.79	33.108	83.46	39.993	72.19	58.001	48.75
7 6.6	32.766	62.82	32.920	80.98	39.998	72.78	57.897	46.46
7 16.6	32.769	60.72	32.795	78.22	40.033	73.33	57.837	43.92
7 26.5	32.805	58.57	32.733	75.29	40.096	73.82	57.819	41.25
8 5.5	32.874	56.40	32.738	72.24	40.184	74.23	57.846	38.48
8 15.5	32.978	54.33	32.816	69.20	40.302	74.55	57.923	35.73
8 25.4	33.115	52.43	32.963	66.28	40.448	74.71	58.046	33.12
9 4.4	33.286	50.75	33.182	63.56	40.622	74.70	58.218	30.70
9 14.4	33.492	49.41	33.472	61.17	40.824	74.46	58.440	28.61
9 24.4	33.729	48.45	33.821	59.21	41.051	73.99	58.706	26.93
10 4.3	33.997	47.93	34.231	57.73	41.304	73.29	59.015	25.72
10 14.3	34.292	47.92	34.690	56.86	41.582	72.32	59.363	25.08
10 24.3	34.607	48.41	35.182	56.61	41.880	71.13	59.739	25.02
11 3.2	34.941	49.41	35.701	57.00	42.196	69.71	60.139	25.57
11 13.2	35.283	50.92	36.226	58.09	42.524	68.11	60.549	26.77
11 23.2	35.625	52.87	36.741	59.78	42.855	66.38	60.958	28.52
12 3.2	35.959	55.22	37.233	62.08	43.183	64.57	61.356	30.83
12 13.1	36.272	57.90	37.680	64.90	43.497	62.75	61.727	33.61
12 23.1	36.556	60.79	38.071	68.12	43.789	60.97	62.060	36.74
12 33.1	36.804	63.84	38.393	71.68	44.050	59.29	62.347	40.18
12 43.1	37.003	66.92	38.631	75.46	44.269	57.78	62.573	43.78
Pos. Med.	34.389	66.84	36.038	79.85	41.240	63.07	60.079	46.39
Secδ tanδ	1.130	-.527	2.046	-1.785	1.005	.102	1.472	-1.080
Dob.Tran.	Feb 3		Feb 4		Feb 4		Feb 6	

VOLVER AL INDICE

VOLVER A LISTA DE ESTRELLAS

POSICIONES APARENTES AL PASO SUPERIOR POR GREENWICH

NUM.	345		348		351		352	
EST.	λ Velorum		β Carinae		ι Carinae		α Lyncis	
MAG.	2.21		1.68		2.25		3.13	
UT	AR.	DEC.	AR.	DEC.	AR.	DEC.	AR.	DEC.
	h m	° ′	h m	° ′	h m	° ′	h m	° ′
	9 8	-43 31	9 13	-69 48	9 17	-59 22	9 22	+34 17
mes d	s	"	s	"	s	"	s	"
1 -.9	53.679	34.05	29.059	39.27	45.080	17.47	31.702	20.70
1 9.1	53.928	37.49	29.431	42.86	45.386	21.05	32.008	20.52
1 19.1	54.117	41.05	29.685	46.68	45.612	24.84	32.266	20.69
1 29.0	54.245	44.58	29.819	50.59	45.753	28.68	32.468	21.17
2 8.0	54.310	48.02	29.836	54.51	45.811	32.51	32.612	21.91
2 18.0	54.311	51.28	29.730	58.33	45.783	36.23	32.693	22.89
2 27.9	54.254	54.28	29.517	61.95	45.678	39.72	32.716	24.02
3 8.9	54.147	56.98	29.206	65.32	45.504	42.95	32.685	25.24
3 18.9	53.994	59.31	28.804	68.35	45.266	45.82	32.606	26.49
3 28.9	53.808	61.24	28.336	70.96	44.980	48.28	32.490	27.68
4 7.8	53.596	62.76	27.812	73.16	44.657	50.32	32.348	28.78
4 17.8	53.368	63.82	27.245	74.85	44.305	51.86	32.187	29.73
4 27.8	53.136	64.42	26.659	76.03	43.942	52.90	32.021	30.49
5 7.8	52.905	64.57	26.063	76.71	43.573	53.45	31.858	31.03
5 17.7	52.683	64.24	25.474	76.81	43.210	53.45	31.706	31.34
5 27.7	52.480	63.48	24.910	76.39	42.867	52.95	31.573	31.41
6 6.7	52.297	62.31	24.377	75.46	42.545	51.96	31.462	31.26
6 16.6	52.142	60.73	23.895	74.00	42.258	50.48	31.380	30.87
6 26.6	52.019	58.83	23.474	72.12	42.013	48.59	31.329	30.28
7 6.6	51.928	56.62	23.120	69.83	41.811	46.33	31.308	29.49
7 16.6	51.877	54.18	22.852	67.20	41.665	43.74	31.322	28.51
7 26.5	51.865	51.61	22.672	64.33	41.577	40.95	31.369	27.38
8 5.5	51.894	48.95	22.587	61.28	41.549	38.00	31.447	26.09
8 15.5	51.969	46.32	22.609	58.18	41.590	35.01	31.560	24.65
8 25.5	52.087	43.82	22.733	55.13	41.697	32.11	31.706	23.09
9 4.4	52.250	41.50	22.963	52.21	41.874	29.34	31.886	21.42
9 14.4	52.460	39.52	23.300	49.58	42.121	26.87	32.101	19.65
9 24.4	52.711	37.93	23.729	47.32	42.430	24.78	32.346	17.83
10 4.3	53.003	36.80	24.248	45.51	42.801	23.14	32.626	15.95
10 14.3	53.332	36.23	24.844	44.28	43.226	22.07	32.937	14.07
10 24.3	53.689	36.22	25.492	43.65	43.690	21.60	33.274	12.21
11 3.3	54.069	36.81	26.184	43.66	44.188	21.77	33.638	10.41
11 13.2	54.462	38.02	26.890	44.38	44.701	22.62	34.019	8.73
11 23.2	54.854	39.78	27.585	45.73	45.212	24.09	34.409	7.22
12 3.2	55.239	42.06	28.253	47.71	45.710	26.17	34.803	5.92
12 13.2	55.599	44.81	28.862	50.28	46.172	28.80	35.186	4.90
12 23.1	55.926	47.89	29.396	53.30	46.585	31.87	35.549	4.17
12 33.1	56.209	51.26	29.838	56.73	46.939	35.31	35.881	3.77
12 43.1	56.436	54.78	30.167	60.44	47.215	39.01	36.169	3.71
Pos. Med.	53.947	56.84	27.490	66.11	44.732	43.42	32.448	15.04
Secδ tanδ	1.379	-.950	2.899	-2.721	1.963	-1.689	1.210	.682
Dob.Tran.	Feb 7		Feb 8		Feb 9		Feb 11	

VOLVER AL INDICE

VOLVER A LISTA DE ESTRELLAS

POSICIONES APARENTES AL PASO SUPERIOR POR GREENWICH

NUM.	353		354		361		1250	
EST.	χ Velorum		α Hydrae		N.Velorum		ι Hydrae	
MAG.	2.50		1.98		3.13		3.91	
UT	AR.	DEC.	AR.	DEC.	AR.	DEC.	AR.	DEC.
	h m	° ′	h m	° ′	h m	° ′	h m	° ′
	9 22	-55 6	9 28	- 8 45	9 31	-57 8	9 41	- 1 15
mes d	s	"	s	"	s	"	s	"
1 -.9	52.441	32.31	46.590	41.81	58.062	8.89	5.422	4.85
1 9.1	52.738	35.85	46.843	44.15	58.382	12.40	5.689	6.89
1 19.1	52.963	39.59	47.054	46.40	58.628	16.13	5.914	8.80
1 29.0	53.112	43.37	47.217	48.49	58.795	19.93	6.094	10.50
2 8.0	53.188	47.13	47.333	50.40	58.886	23.75	6.227	12.01
2 18.0	53.184	50.78	47.396	52.08	58.894	27.47	6.307	13.26
2 28.0	53.110	54.20	47.412	53.50	58.828	30.98	6.340	14.27
3 8.9	52.974	57.36	47.386	54.67	58.697	34.25	6.330	15.05
3 18.9	52.779	60.16	47.321	55.58	58.502	37.19	6.280	15.59
3 28.9	52.541	62.57	47.227	56.23	58.261	39.73	6.201	15.91
4 7.8	52.268	64.56	47.113	56.65	57.981	41.87	6.099	16.05
4 17.8	51.968	66.06	46.984	56.82	57.671	43.53	5.981	16.00
4 27.8	51.659	67.08	46.851	56.78	57.348	44.70	5.857	15.81
5 7.8	51.344	67.61	46.719	56.53	57.016	45.39	5.733	15.48
5 17.7	51.035	67.61	46.595	56.07	56.687	45.54	5.614	15.01
5 27.7	50.742	67.12	46.485	55.46	56.372	45.19	5.509	14.46
6 6.7	50.469	66.16	46.391	54.67	56.074	44.36	5.417	13.81
6 16.7	50.225	64.72	46.317	53.74	55.805	43.03	5.344	13.09
6 26.6	50.018	62.89	46.266	52.71	55.572	41.30	5.293	12.33
7 6.6	49.848	60.68	46.238	51.58	55.377	39.18	5.263	11.52
7 16.6	49.727	58.17	46.236	50.40	55.231	36.72	5.257	10.72
7 26.5	49.656	55.47	46.259	49.23	55.136	34.05	5.277	9.95
8 5.5	49.637	52.60	46.309	48.08	55.095	31.19	5.321	9.24
8 15.5	49.678	49.70	46.388	47.02	55.118	28.28	5.392	8.65
8 25.5	49.777	46.88	46.494	46.11	55.202	25.41	5.490	8.18
9 4.4	49.936	44.19	46.631	45.37	55.351	22.67	5.618	7.88
9 14.4	50.158	41.80	46.799	44.90	55.566	20.19	5.777	7.82
9 24.4	50.435	39.79	46.996	44.71	55.842	18.07	5.966	8.02
10 4.4	50.769	38.21	47.225	44.85	56.179	16.37	6.185	8.50
10 14.3	51.152	37.21	47.483	45.35	56.570	15.23	6.435	9.30
10 24.3	51.572	36.78	47.765	46.21	57.002	14.66	6.711	10.38
11 3.3	52.024	36.98	48.071	47.42	57.471	14.72	7.012	11.76
11 13.2	52.493	37.85	48.393	48.98	57.960	15.45	7.332	13.40
11 23.2	52.963	39.33	48.724	50.82	58.452	16.80	7.662	15.25
12 3.2	53.424	41.41	49.056	52.91	58.937	18.76	7.998	17.28
12 13.2	53.856	44.02	49.379	55.17	59.394	21.28	8.326	19.40
12 23.1	54.247	47.06	49.682	57.51	59.810	24.24	8.638	21.54
12 33.1	54.586	50.46	49.959	59.90	60.172	27.60	8.926	23.66
12 43.1	54.856	54.11	50.196	62.23	60.465	31.23	9.177	25.67
Pos. Med.	52.417	57.95	47.481	57.53	58.057	35.38	6.394	18.76
Secδ tanδ	1.749	-1.434	1.012	-.154	1.843	-1.548	1.000	-.022
Dob.Tran.	Feb 11		Feb 12		Feb 13		Feb 15	

VOLVER AL INDICE

VOLVER A LISTA DE ESTRELLAS

POSICIONES APARENTES AL PASO SUPERIOR POR GREENWICH

NUM.	365		371		375		380	
EST.	ο Leonis		μ Leonis		φ Velorum		α Leonis (Regulus)	
MAG.	3.52		3.88		3.54		1.35	
UT	AR.	DEC.	AR.	DEC.	AR.	DEC.	AR.	DEC.
	h m	° ′	h m	° ′	h m	° ′	h m	° ′
	9 42	+ 9 46	9 54	+25 53	9 57	-54 40	10 9	+11 50
mes d	s	"	s	"	s	"	s	"
1 -.9	26.401	57.92	8.211	32.14	43.070	39.01	39.397	57.49
1 9.1	26.677	56.38	8.520	31.31	43.417	42.35	39.693	55.93
1 19.1	26.912	55.05	8.788	30.81	43.700	45.97	39.952	54.62
1 29.0	27.101	53.97	9.008	30.64	43.912	49.69	40.167	53.57
2 8.0	27.242	53.14	9.175	30.76	44.053	53.46	40.336	52.78
2 18.0	27.330	52.57	9.286	31.17	44.116	57.18	40.452	52.28
2 28.0	27.369	52.23	9.343	31.80	44.109	60.73	40.520	52.03
3 8.9	27.364	52.10	9.349	32.60	44.038	64.09	40.541	52.01
3 18.9	27.317	52.16	9.309	33.53	43.904	67.14	40.519	52.19
3 28.9	27.239	52.37	9.232	34.50	43.723	69.84	40.463	52.52
4 7.9	27.137	52.68	9.127	35.48	43.501	72.17	40.381	52.96
4 17.8	27.019	53.09	9.000	36.41	43.246	74.05	40.277	53.48
4 27.8	26.895	53.55	8.864	37.23	42.973	75.46	40.164	54.04
5 7.8	26.770	54.03	8.725	37.93	42.686	76.42	40.045	54.61
5 17.7	26.651	54.53	8.590	38.48	42.394	76.85	39.928	55.17
5 27.7	26.546	55.02	8.468	38.85	42.111	76.79	39.820	55.69
6 6.7	26.455	55.50	8.360	39.06	41.837	76.26	39.722	56.17
6 16.7	26.384	55.95	8.273	39.08	41.583	75.23	39.640	56.59
6 26.6	26.335	56.34	8.210	38.92	41.356	73.78	39.577	56.93
7 6.6	26.308	56.70	8.169	38.60	41.159	71.92	39.532	57.20
7 16.6	26.306	56.98	8.157	38.08	41.002	69.71	39.510	57.37
7 26.6	26.330	57.17	8.171	37.41	40.888	67.25	39.510	57.43
8 5.5	26.379	57.25	8.213	36.59	40.822	64.56	39.534	57.37
8 15.5	26.454	57.12	8.284	35.59	40.811	61.78	39.588	57.15
8 25.5	26.554	57.04	8.384	34.41	40.856	59.00	39.650	56.90
9 4.4	26.688	56.69	8.515	33.07	40.961	56.28	39.764	56.28
9 14.4	26.852	56.12	8.681	31.58	41.131	53.79	39.903	55.53
9 24.4	27.044	55.35	8.879	29.97	41.360	51.60	40.071	54.58
10 4.4	27.267	54.36	9.110	28.21	41.650	49.78	40.273	53.42
10 14.3	27.521	53.14	9.375	26.36	41.997	48.48	40.508	52.04
10 24.3	27.801	51.72	9.669	24.44	42.389	47.72	40.773	50.48
11 3.3	28.107	50.11	9.993	22.48	42.824	47.56	41.068	48.74
11 13.3	28.431	48.35	10.340	20.55	43.287	48.06	41.386	46.86
11 23.2	28.768	46.50	10.701	18.68	43.762	49.16	41.721	44.91
12 3.2	29.110	44.59	11.071	16.94	44.239	50.88	42.067	42.92
12 13.2	29.446	42.71	11.438	15.40	44.698	53.17	42.412	40.97
12 23.1	29.767	40.91	11.792	14.08	45.126	55.92	42.746	39.13
12 33.1	30.064	39.24	12.122	13.05	45.510	59.09	43.061	37.43
12 43.1	30.325	37.76	12.415	12.34	45.835	62.57	43.343	35.95
Pos. Med.	27.363	46.96	9.124	25.49	43.545	66.40	40.456	47.47
Secδ tanδ	1.015	.172	1.112	.485	1.730	-1.412	1.022	.210
Dob.Tran.	Feb 16		Feb 19		Feb 20		Feb 23	

VOLVER AL INDICE

VOLVER A LISTA DE ESTRELLAS

POSICIONES APARENTES AL PASO SUPERIOR POR GREENWICH

NUM.	381		385		1264		384	
EST.	λ Hydrae		ω Carinae		187 G. Carinae		ζ Leonis	
MAG.	3.61		3.32		3.40		3.44	
UT	AR.	DEC.	AR.	DEC.	AR.	DEC.	AR.	DEC.
	h m	° ′	h m	° ′	h m	° ′	h m	° ′
	10 11	-12 28	10 14	-70 9	10 17	-61 26	10 18	+23 17
mes d	s	"	s	"	s	"	s	"
1 -.8	45.881	16.36	19.100	5.40	53.731	49.65	1.877	46.12
1 9.1	46.166	18.86	19.635	8.57	54.155	52.85	2.197	45.02
1 19.1	46.413	21.32	20.070	12.12	54.508	56.39	2.480	44.24
1 29.1	46.616	23.66	20.394	15.88	54.780	60.12	2.717	43.80
2 8.0	46.773	25.84	20.607	19.80	54.971	63.97	2.907	43.68
2 18.0	46.880	27.82	20.698	23.76	55.073	67.84	3.041	43.86
2 28.0	46.938	29.56	20.677	27.65	55.091	71.60	3.123	44.31
3 9.0	46.952	31.05	20.551	31.41	55.032	75.22	3.156	44.96
3 18.9	46.925	32.26	20.321	34.95	54.898	78.59	3.141	45.79
3 28.9	46.866	33.21	20.008	38.18	54.704	81.63	3.089	46.70
4 7.9	46.780	33.92	19.620	41.07	54.456	84.34	3.006	47.65
4 17.9	46.675	34.35	19.168	43.53	54.163	86.62	2.898	48.61
4 27.8	46.559	34.55	18.672	45.53	53.841	88.44	2.779	49.49
5 7.8	46.438	34.52	18.141	47.07	53.494	89.80	2.652	50.28
5 17.8	46.316	34.26	17.588	48.05	53.135	90.63	2.524	50.95
5 27.7	46.202	33.80	17.034	48.51	52.776	90.96	2.405	51.46
6 6.7	46.096	33.16	16.483	48.45	52.420	90.78	2.296	51.82
6 16.7	46.004	32.34	15.954	47.82	52.080	90.06	2.203	52.01
6 26.7	45.929	31.38	15.462	46.70	51.767	88.89	2.129	52.01
7 6.6	45.870	30.30	15.013	45.10	51.483	87.26	2.073	51.85
7 16.6	45.832	29.14	14.629	43.05	51.242	85.22	2.042	51.51
7 26.6	45.818	27.95	14.317	40.66	51.051	82.86	2.035	50.99
8 5.6	45.825	26.74	14.086	37.96	50.913	80.22	2.052	50.30
8 15.5	45.861	25.60	13.953	35.05	50.843	77.41	2.097	49.44
8 25.5	45.924	24.57	13.921	32.06	50.841	74.54	2.169	48.40
9 4.5	46.017	23.68	13.996	29.05	50.912	71.66	2.271	47.15
9 14.4	46.144	23.03	14.187	26.17	51.064	68.94	2.409	45.73
9 24.4	46.304	22.64	14.484	23.53	51.290	66.48	2.578	44.15
10 4.4	46.499	22.57	14.891	21.21	51.595	64.34	2.783	42.41
10 14.4	46.730	22.86	15.399	19.35	51.972	62.67	3.023	40.53
10 24.3	46.991	23.52	15.987	18.02	52.410	61.53	3.296	38.56
11 3.3	47.282	24.56	16.649	17.27	52.903	60.97	3.601	36.51
11 13.3	47.597	25.98	17.359	17.19	53.435	61.06	3.932	34.44
11 23.3	47.928	27.72	18.092	17.76	53.987	61.79	4.283	32.41
12 3.2	48.269	29.76	18.830	18.98	54.548	63.15	4.647	30.46
12 13.2	48.606	32.03	19.540	20.86	55.093	65.14	5.012	28.69
12 23.2	48.932	34.44	20.202	23.28	55.605	67.64	5.369	27.12
12 33.1	49.237	36.94	20.796	26.21	56.072	70.63	5.707	25.82
12 43.1	49.508	39.45	21.297	29.56	56.472	74.00	6.013	24.83
Pos. Med.	46.992	33.60	19.017	35.86	54.274	78.99	2.904	39.47
Secδ tanδ	1.024	-.221	2.946	-2.772	2.093	-1.838	1.089	.431
Dob.Tran.	Feb 23		Feb 24		Feb 25		Feb 25	

VOLVER AL INDICE

VOLVER A LISTA DE ESTRELLAS

POSICIONES APARENTES AL PASO SUPERIOR POR GREENWICH

NUM.	389		397		396		401	
EST.	μ Hydrae		203 G. Carinae		ρ Leonis		γ Chamaeleontis	
MAG.	3.81		3.32		3.85		4.11	
UT	AR.	DEC.	AR.	DEC.	AR.	DEC.	AR.	DEC.
	h m	° ′	h m	° ′	h m	° ′	h m	° ′
	10 27	-16 57	10 32	-61 48	10 34	+ 9 10	10 35	-78 43
mes d	s	"	s	"	s	"	s	"
1 -.8	15.409	25.05	53.199	12.87	4.777	57.55	44.748	33.64
1 9.1	15.706	27.66	53.652	15.95	5.085	55.78	45.669	36.50
1 19.1	15.966	30.29	54.036	19.39	5.360	54.24	46.434	39.80
1 29.1	16.184	32.83	54.342	23.06	5.594	52.96	47.022	43.40
2 8.1	16.356	35.26	54.568	26.87	5.784	51.94	47.433	47.22
2 18.0	16.477	37.51	54.705	30.73	5.924	51.22	47.647	51.19
2 28.0	16.550	39.52	54.759	34.52	6.016	50.76	47.672	55.16
3 9.0	16.579	41.30	54.734	38.20	6.063	50.55	47.520	59.09
3 18.9	16.565	42.80	54.632	41.66	6.065	50.57	47.188	62.86
3 28.9	16.517	44.03	54.467	44.82	6.032	50.77	46.704	66.38
4 7.9	16.442	44.99	54.246	47.67	5.971	51.11	46.082	69.63
4 17.9	16.344	45.67	53.975	50.10	5.886	51.57	45.332	72.50
4 27.8	16.233	46.07	53.670	52.10	5.787	52.09	44.488	74.94
5 7.8	16.114	46.23	53.338	53.65	5.680	52.65	43.563	76.94
5 17.8	15.992	46.11	52.987	54.68	5.571	53.23	42.576	78.41
5 27.8	15.875	45.77	52.631	55.21	5.466	53.79	41.564	79.36
6 6.7	15.763	45.20	52.273	55.23	5.367	54.33	40.535	79.77
6 16.7	15.662	44.41	51.927	54.72	5.279	54.83	39.524	79.60
6 26.7	15.575	43.45	51.602	53.73	5.206	55.26	38.558	78.91
7 6.6	15.503	42.33	51.302	52.28	5.147	55.64	37.651	77.69
7 16.6	15.450	41.08	51.041	50.39	5.108	55.92	36.841	75.97
7 26.6	15.418	39.77	50.826	48.17	5.088	56.10	36.150	73.85
8 5.6	15.409	38.41	50.663	45.64	5.090	56.16	35.592	71.35
8 15.5	15.427	37.09	50.564	42.90	5.117	56.08	35.204	68.56
8 25.5	15.472	35.85	50.533	40.06	5.174	55.81	34.990	65.61
9 4.5	15.548	34.74	50.576	37.20	5.241	55.46	34.965	62.55
9 14.5	15.660	33.84	50.700	34.44	5.356	54.81	35.147	59.54
9 24.4	15.806	33.20	50.901	31.91	5.500	53.97	35.522	56.69
10 4.4	15.989	32.88	51.183	29.67	5.678	52.89	36.093	54.08
10 14.4	16.211	32.93	51.543	27.87	5.892	51.58	36.849	51.86
10 24.3	16.465	33.37	51.967	26.57	6.138	50.06	37.756	50.13
11 3.3	16.753	34.21	52.452	25.83	6.417	48.33	38.801	48.92
11 13.3	17.067	35.47	52.983	25.74	6.724	46.43	39.942	48.37
11 23.3	17.400	37.09	53.539	26.27	7.051	44.42	41.134	48.45
12 3.2	17.745	39.05	54.110	27.44	7.394	42.33	42.349	49.20
12 13.2	18.091	41.30	54.671	29.24	7.740	40.26	43.531	50.62
12 23.2	18.426	43.74	55.204	31.58	8.080	38.25	44.644	52.63
12 33.2	18.741	46.33	55.697	34.42	8.404	36.36	45.658	55.20
12 43.1	19.025	48.97	56.126	37.67	8.700	34.67	46.527	58.26
Pos. Med.	16.615	43.69	54.012	42.75	5.967	47.16	44.242	65.73
Secδ tanδ	1.045	-.305	2.117	-1.866	1.013	.162	5.119	-5.020
Dob.Tran.	Feb 27		Feb 28		Feb 29		Feb 29	

VOLVER AL INDICE

VOLVER A LISTA DE ESTRELLAS

POSICIONES APARENTES AL PASO SUPERIOR POR GREENWICH

NUM.	406		410		1283		1289	
EST.	ϑ Carinae		ν Hydrae		α Crateris		260 G. Carinae	
MAG.	2.76		3.11		4.08		3.91	
UT	AR.	DEC.	AR.	DEC.	AR.	DEC.	AR.	DEC.
	h m	° ′	h m	° ′	h m	° ′	h m	° ′
	10 43	-64 30	10 50	-16 19	11 0	-18 25	11 9	-59 5
mes d	s	"	s	"	s	"	s	"
1 -.8	49.205	53.11	48.761	2.56	56.794	28.08	37.141	59.25
1 9.1	49.708	56.07	49.073	5.10	57.112	30.64	37.617	62.01
1 19.1	50.140	59.43	49.352	7.68	57.399	33.27	38.040	65.17
1 29.1	50.488	63.04	49.591	10.18	57.646	35.84	38.398	68.60
2 8.1	50.752	66.84	49.787	12.57	57.851	38.32	38.688	72.23
2 18.0	50.921	70.72	49.934	14.79	58.008	40.66	38.901	75.97
2 28.0	51.000	74.57	50.034	16.78	58.117	42.78	39.037	79.70
3 9.0	50.994	78.33	50.089	18.56	58.182	44.69	39.102	83.37
3 19.0	50.902	81.91	50.101	20.07	58.203	46.33	39.094	86.88
3 28.9	50.740	85.21	50.078	21.31	58.188	47.71	39.023	90.15
4 7.9	50.515	88.22	50.025	22.29	58.143	48.84	38.897	93.17
4 17.9	50.232	90.83	49.947	23.00	58.071	49.68	38.718	95.83
4 27.8	49.909	93.02	49.854	23.46	57.982	50.26	38.502	98.09
5 7.8	49.551	94.77	49.749	23.67	57.880	50.59	38.252	99.95
5 17.8	49.167	96.00	49.638	23.63	57.770	50.64	37.974	101.34
5 27.8	48.774	96.73	49.527	23.37	57.658	50.47	37.683	102.24
6 6.7	48.375	96.95	49.417	22.90	57.546	50.07	37.380	102.67
6 16.7	47.982	96.63	49.315	22.22	57.439	49.44	37.076	102.58
6 26.7	47.609	95.81	49.223	21.38	57.341	48.63	36.780	102.01
7 6.7	47.259	94.51	49.142	20.37	57.252	47.64	36.496	100.97
7 16.6	46.949	92.75	49.077	19.24	57.177	46.51	36.237	99.47
7 26.6	46.687	90.62	49.030	18.05	57.120	45.29	36.011	97.60
8 5.6	46.479	88.16	49.002	16.79	57.081	43.99	35.822	95.39
8 15.5	46.341	85.45	49.000	15.56	57.067	42.70	35.685	92.91
8 25.5	46.277	82.62	49.024	14.40	57.079	41.46	35.604	90.28
9 4.5	46.292	79.72	49.077	13.35	57.120	40.31	35.587	87.55
9 14.5	46.399	76.89	49.166	12.50	57.197	39.35	35.643	84.85
9 24.4	46.591	74.25	49.289	11.88	57.310	38.61	35.772	82.29
10 4.4	46.873	71.88	49.451	11.54	57.462	38.15	35.978	79.96
10 14.4	47.243	69.92	49.653	11.57	57.656	38.04	36.262	77.99
10 24.4	47.686	68.44	49.891	11.96	57.887	38.31	36.614	76.46
11 3.3	48.200	67.50	50.166	12.74	58.156	38.96	37.033	75.42
11 13.3	48.766	67.20	50.471	13.92	58.458	40.04	37.507	75.00
11 23.3	49.365	67.53	50.798	15.46	58.784	41.48	38.017	75.16
12 3.2	49.983	68.50	51.143	17.33	59.129	43.29	38.556	75.95
12 13.2	50.594	70.13	51.492	19.50	59.480	45.41	39.099	77.37
12 23.2	51.179	72.30	51.835	21.86	59.827	47.75	39.631	79.34
12 33.2	51.722	75.00	52.163	24.38	60.161	50.27	40.137	81.83
12 43.1	52.202	78.15	52.464	26.96	60.468	52.88	40.596	84.76
Pos. Med.	50.151	83.69	50.135	20.81	58.224	46.96	38.677	89.22
Secδ tanδ	2.325	-2.099	1.042	-.293	1.054	-.333	1.948	-1.671
Dob.Tran.	Mar 2		Mar 4		Mar 7		Mar 9	

VOLVER AL INDICE

VOLVER A LISTA DE ESTRELLAS

POSICIONES APARENTES AL PASO SUPERIOR POR GREENWICH

NUM.	422		426		427		431	
EST.	δ Leonis		δ Crateris		σ Leonis		γ Crateris*	
MAG.	2.56		3.56		4.05		4.08	
UT	AR.	DEC.	AR.	DEC.	AR.	DEC.	AR.	DEC.
	h m	° ′	h m	° ′	h m	° ′	h m	° ′
	11 15	+20 23	11 20	-14 54	11 22	+ 5 53	11 26	-17 48
mes d	s	"	s	"	s	"	s	"
1 -.8	23.184	26.41	32.511	23.89	22.502	51.34	4.902	49.44
1 9.2	23.526	24.84	32.838	26.34	22.829	49.33	5.233	51.93
1 19.1	23.842	23.61	33.137	28.82	23.131	47.50	5.537	54.49
1 29.1	24.120	22.73	33.400	31.24	23.399	45.92	5.806	57.00
2 8.1	24.358	22.19	33.623	33.56	23.629	44.60	6.035	59.44
2 18.1	24.547	22.03	33.801	35.71	23.813	43.57	6.219	61.74
2 28.0	24.687	22.18	33.932	37.64	23.951	42.84	6.356	63.83
3 9.0	24.779	22.62	34.020	39.36	24.046	42.37	6.450	65.72
3 19.0	24.824	23.30	34.065	40.82	24.097	42.18	6.500	67.37
3 29.0	24.828	24.15	34.073	42.03	24.111	42.20	6.513	68.76
4 7.9	24.798	25.11	34.050	43.00	24.092	42.40	6.495	69.90
4 17.9	24.738	26.15	33.999	43.71	24.046	42.76	6.447	70.78
4 27.9	24.658	27.17	33.930	44.18	23.981	43.22	6.380	71.41
5 7.8	24.562	28.15	33.845	44.43	23.900	43.76	6.297	71.80
5 17.8	24.456	29.05	33.748	44.45	23.810	44.35	6.201	71.94
5 27.8	24.348	29.82	33.648	44.28	23.716	44.95	6.100	71.86
6 6.8	24.240	30.45	33.545	43.91	23.620	45.55	5.995	71.56
6 16.7	24.136	30.92	33.444	43.35	23.527	46.13	5.890	71.05
6 26.7	24.043	31.20	33.348	42.65	23.441	46.66	5.791	70.37
7 6.7	23.958	31.31	33.258	41.79	23.361	47.14	5.696	69.52
7 16.6	23.889	31.21	33.180	40.83	23.293	47.54	5.611	68.52
7 26.6	23.836	30.91	33.115	39.80	23.240	47.84	5.540	67.43
8 5.6	23.801	30.42	33.066	38.71	23.201	48.05	5.484	66.27
8 15.6	23.789	29.71	33.039	37.63	23.183	48.10	5.450	65.09
8 25.5	23.801	28.81	33.037	36.61	23.188	48.01	5.440	63.95
9 4.5	23.840	27.70	33.061	35.69	23.220	47.74	5.458	62.88
9 14.5	23.911	26.34	33.120	34.94	23.271	47.36	5.510	61.98
9 24.5	24.016	24.78	33.212	34.40	23.368	46.58	5.597	61.28
10 4.4	24.159	23.02	33.345	34.11	23.499	45.62	5.725	60.82
10 14.4	24.342	21.07	33.520	34.15	23.669	44.42	5.896	60.70
10 24.4	24.563	18.97	33.733	34.53	23.875	42.98	6.108	60.92
11 3.3	24.822	16.74	33.986	35.27	24.120	41.30	6.360	61.51
11 13.3	25.117	14.44	34.275	36.40	24.400	39.41	6.648	62.51
11 23.3	25.440	12.12	34.591	37.86	24.707	37.37	6.965	63.87
12 3.3	25.787	9.84	34.929	39.66	25.038	35.21	7.306	65.58
12 13.2	26.146	7.67	35.278	41.73	25.381	33.00	7.658	67.60
12 23.2	26.507	5.69	35.626	44.00	25.727	30.81	8.010	69.85
12 33.2	26.861	3.93	35.966	46.42	26.065	28.70	8.354	72.29
12 43.2	27.193	2.49	36.283	48.90	26.384	26.74	8.677	74.82
Pos. Med.	24.479	20.63	34.080	41.30	23.954	41.04	6.526	67.84
Secδ tanδ	1.067	.372	1.035	-.266	1.005	.103	1.050	-.321
Dob.Tran.	Mar 10		Mar 12		Mar 12		Mar 13	

VOLVER AL INDICE

VOLVER A LISTA DE ESTRELLAS

POSICIONES APARENTES AL PASO SUPERIOR POR GREENWICH

NUM.	434		436		437		442	
EST.	ξ Hydrae		λ Centauri		υ Leonis		λ Muscae	
MAG.	3.54		3.13		4.30		3.64	
UT	AR.	DEC.	AR.	DEC.	AR.	DEC.	AR.	DEC.
	h m	° ′	h m	° ′	h m	° ′	h m	° ′
	11 34	-31 59	11 36	-63 8	11 38	- 0 57	11 46	-66 51
mes d	s	"	s	"	s	"	s	"
1 -.8	10.962	13.36	53.326	49.22	10.638	21.07	44.350	21.59
1 9.2	11.319	15.95	53.885	51.64	10.969	23.27	44.986	23.84
1 19.2	11.648	18.74	54.393	54.53	11.276	25.34	45.569	26.59
1 29.1	11.938	21.63	54.836	57.75	11.551	27.24	46.081	29.72
2 8.1	12.186	24.57	55.210	61.25	11.790	28.92	46.519	33.15
2 18.1	12.386	27.47	55.502	64.93	11.986	30.35	46.866	36.81
2 28.0	12.536	30.25	55.712	68.67	12.138	31.51	47.122	40.57
3 9.0	12.640	32.89	55.844	72.42	12.247	32.41	47.290	44.37
3 19.0	12.696	35.32	55.893	76.09	12.313	33.04	47.364	48.13
3 29.0	12.712	37.51	55.870	79.57	12.342	33.43	47.356	51.73
4 7.9	12.692	39.44	55.781	82.85	12.340	33.61	47.270	55.16
4 17.9	12.639	41.07	55.627	85.83	12.308	33.59	47.109	58.30
4 27.9	12.563	42.40	55.423	88.44	12.257	33.43	46.886	61.11
5 7.9	12.467	43.43	55.174	90.69	12.188	33.14	46.608	63.56
5 17.8	12.354	44.11	54.885	92.48	12.107	32.73	46.279	65.57
5 27.8	12.232	44.47	54.570	93.81	12.020	32.26	45.915	67.11
6 6.8	12.103	44.51	54.232	94.67	11.929	31.72	45.521	68.18
6 16.7	11.971	44.21	53.881	94.99	11.837	31.14	45.106	68.71
6 26.7	11.842	43.62	53.530	94.82	11.748	30.55	44.688	68.74
7 6.7	11.716	42.73	53.182	94.16	11.664	29.95	44.268	68.25
7 16.7	11.599	41.57	52.853	92.99	11.588	29.36	43.867	67.24
7 26.6	11.497	40.20	52.553	91.41	11.524	28.83	43.496	65.79
8 5.6	11.411	38.64	52.288	89.43	11.473	28.34	43.163	63.90
8 15.6	11.349	36.96	52.077	87.11	11.440	27.95	42.889	61.64
8 25.6	11.316	35.23	51.926	84.57	11.429	27.69	42.684	59.12
9 4.5	11.314	33.50	51.843	81.86	11.443	27.58	42.556	56.39
9 14.5	11.353	31.86	51.843	79.09	11.489	27.74	42.522	53.57
9 24.5	11.433	30.39	51.926	76.40	11.559	27.94	42.585	50.79
10 4.4	11.558	29.16	52.098	73.85	11.675	28.48	42.750	48.11
10 14.4	11.733	28.25	52.363	71.59	11.830	29.30	43.023	45.69
10 24.4	11.954	27.72	52.711	69.71	12.023	30.39	43.393	43.62
11 3.4	12.222	27.61	53.140	68.29	12.257	31.76	43.858	41.98
11 13.3	12.531	27.98	53.640	67.43	12.527	33.39	44.406	40.89
11 23.3	12.871	28.81	54.190	67.15	12.827	35.25	45.015	40.37
12 3.3	13.238	30.10	54.782	67.49	13.152	37.30	45.674	40.47
12 13.3	13.618	31.85	55.390	68.47	13.492	39.49	46.356	41.23
12 23.2	13.998	33.95	55.994	70.03	13.837	41.72	47.037	42.58
12 33.2	14.370	36.39	56.580	72.15	14.177	43.96	47.702	44.51
12 43.2	14.718	39.07	57.124	74.78	14.499	46.12	48.323	46.98
Pos. Med.	12.729	36.25	55.396	79.86	12.234	33.29	46.705	52.70
Secδ tanδ	1.179	-.625	2.214	-1.976	1.000	-.017	2.545	-2.340
Dob.Tran.	Mar 15		Mar 16		Mar 16		Mar 18	

VOLVER AL INDICE

VOLVER A LISTA DE ESTRELLAS

POSICIONES APARENTES AL PASO SUPERIOR POR GREENWICH

NUM.	444		445		450		452	
EST.	β Leonis (Denebola)		β Virginis		o Virginis		δ Centauri	
MAG.	2.14		3.61		4.12		2.60	
UT	AR.	DEC.	AR.	DEC.	AR.	DEC.	AR.	DEC.
	h m	° ′	h m	° ′	h m	° ′	h m	° ′
	11 50	+14 25	11 51	+ 1 37	12 6	+ 8 35	12 9	-50 51
mes d	s	"	s	"	s	"	s	"
1 -.8	16.962	72.51	56.639	46.53	25.727	56.70	35.949	4.24
1 9.2	17.304	70.62	56.975	44.36	26.068	54.63	36.408	6.45
1 19.2	17.627	68.99	57.291	42.34	26.392	52.78	36.839	9.07
1 29.1	17.919	67.69	57.576	40.52	26.688	51.20	37.229	11.98
2 8.1	18.175	66.72	57.827	38.94	26.952	49.91	37.573	15.12
2 18.1	18.389	66.10	58.037	37.63	27.176	48.94	37.861	18.43
2 28.1	18.557	65.83	58.203	36.60	27.356	48.30	38.090	21.77
3 9.0	18.681	65.85	58.327	35.85	27.495	47.95	38.264	25.11
3 19.0	18.760	66.17	58.408	35.37	27.591	47.91	38.377	28.37
3 29.0	18.799	66.70	58.452	35.14	27.648	48.10	38.438	31.47
4 7.9	18.804	67.41	58.463	35.10	27.671	48.49	38.450	34.39
4 17.9	18.777	68.25	58.444	35.26	27.663	49.05	38.414	37.04
4 27.9	18.727	69.14	58.403	35.56	27.630	49.71	38.339	39.39
5 7.9	18.658	70.06	58.345	35.96	27.578	50.44	38.229	41.43
5 17.8	18.574	70.95	58.272	36.45	27.509	51.20	38.087	43.07
5 27.8	18.483	71.78	58.191	36.99	27.430	51.95	37.923	44.33
6 6.8	18.386	72.52	58.104	37.56	27.343	52.67	37.736	45.18
6 16.8	18.287	73.15	58.014	38.15	27.250	53.33	37.534	45.58
6 26.7	18.192	73.63	57.927	38.72	27.158	53.89	37.324	45.56
7 6.7	18.099	73.99	57.841	39.27	27.066	54.38	37.109	45.12
7 16.7	18.015	74.17	57.762	39.77	26.979	54.74	36.898	44.24
7 26.6	17.942	74.17	57.693	40.20	26.900	54.97	36.698	42.99
8 5.6	17.881	74.01	57.635	40.56	26.830	55.07	36.514	41.39
8 15.6	17.838	73.64	57.594	40.80	26.777	55.00	36.358	39.48
8 25.6	17.817	73.07	57.574	40.90	26.742	54.75	36.238	37.37
9 4.5	17.819	72.31	57.578	40.84	26.729	54.32	36.159	35.09
9 14.5	17.852	71.31	57.615	40.57	26.747	53.68	36.134	32.76
9 24.5	17.915	70.07	57.669	40.18	26.793	52.83	36.166	30.47
10 4.5	18.018	68.60	57.775	39.43	26.877	51.68	36.261	28.29
10 14.4	18.161	66.89	57.919	38.44	27.004	50.30	36.425	26.36
10 24.4	18.344	65.00	58.102	37.20	27.170	48.71	36.654	24.76
11 3.4	18.569	62.92	58.326	35.70	27.380	46.88	36.948	23.55
11 13.3	18.833	60.69	58.589	33.96	27.630	44.86	37.303	22.84
11 23.3	19.130	58.38	58.883	32.02	27.914	42.70	37.705	22.64
12 3.3	19.455	56.02	59.205	29.90	28.228	40.42	38.148	22.98
12 13.3	19.798	53.70	59.544	27.68	28.564	38.12	38.616	23.91
12 23.2	20.149	51.49	59.890	25.44	28.909	35.86	39.092	25.35
12 33.2	20.499	49.45	60.234	23.21	29.256	33.69	39.565	27.28
12 43.2	20.835	47.65	60.563	21.09	29.592	31.70	40.017	29.67
Pos. Med.	18.465	66.02	58.314	35.54	27.389	48.85	38.345	31.60
Secδ tanδ	1.033	.257	1.000	.028	1.011	.151	1.584	-1.229
Dob.Tran.	Mar 19		Mar 19		Mar 23		Mar 24	

VOLVER AL INDICE

VOLVER A LISTA DE ESTRELLAS

POSICIONES APARENTES AL PASO SUPERIOR POR GREENWICH

NUM.	453		455		457		462	
EST.	ε Corvi		δ Crucis		γ Corvi		α Crucis A*	
MAG.	3.00		2.80		2.59		1.33	
UT	AR.	DEC.	AR.	DEC.	AR.	DEC.	AR.	DEC.
	h m	° ′	h m	° ′	h m	° ′	h m	° ′
	12 11	-22 45	12 16	-58 52	12 17	-17 40	12 27	-63 13
mes d	s	"	s	"	s	"	s	"
1 -.8	21.331	2.43	24.911	37.22	2.178	23.25	55.662	35.07
1 9.2	21.686	4.77	25.449	39.24	2.527	25.56	56.270	36.87
1 19.2	22.022	7.26	25.956	41.74	2.859	27.95	56.849	39.19
1 29.2	22.328	9.77	26.416	44.60	3.164	30.33	57.378	41.92
2 8.1	22.600	12.28	26.824	47.75	3.436	32.66	57.851	44.98
2 18.1	22.831	14.72	27.168	51.14	3.668	34.88	58.256	48.32
2 28.1	23.019	17.02	27.443	54.63	3.859	36.92	58.586	51.81
3 9.0	23.164	19.15	27.652	58.17	4.008	38.79	58.843	55.40
3 19.0	23.266	21.09	27.791	61.69	4.116	40.43	59.021	59.01
3 29.0	23.329	22.79	27.865	65.08	4.185	41.83	59.126	62.52
4 8.0	23.359	24.27	27.880	68.33	4.221	43.02	59.162	65.93
4 17.9	23.355	25.49	27.835	71.33	4.226	43.96	59.128	69.13
4 27.9	23.326	26.47	27.741	74.04	4.205	44.68	59.035	72.05
5 7.9	23.276	27.21	27.601	76.44	4.163	45.18	58.887	74.68
5 17.9	23.206	27.69	27.418	78.44	4.101	45.46	58.685	76.94
5 27.8	23.123	27.94	27.204	80.03	4.027	45.55	58.442	78.78
6 6.8	23.028	27.95	26.959	81.20	3.940	45.44	58.161	80.20
6 16.8	22.925	27.72	26.692	81.88	3.845	45.13	57.848	81.13
6 26.7	22.819	27.29	26.413	82.10	3.746	44.67	57.518	81.58
7 6.7	22.709	26.64	26.125	81.85	3.644	44.05	57.173	81.54
7 16.7	22.602	25.81	25.839	81.11	3.543	43.28	56.826	80.99
7 26.7	22.502	24.83	25.567	79.95	3.448	42.42	56.492	79.99
8 5.6	22.411	23.72	25.313	78.37	3.360	41.47	56.176	78.53
8 15.6	22.336	22.52	25.094	76.43	3.287	40.47	55.897	76.67
8 25.6	22.282	21.31	24.918	74.23	3.234	39.49	55.666	74.51
9 4.6	22.254	20.10	24.794	71.79	3.204	38.54	55.493	72.07
9 14.5	22.259	18.99	24.737	69.24	3.206	37.70	55.395	69.46
9 24.5	22.300	18.03	24.749	66.70	3.241	37.03	55.377	66.82
10 4.5	22.382	17.26	24.839	64.21	3.316	36.56	55.448	64.19
10 14.4	22.511	16.77	25.014	61.94	3.437	36.34	55.615	61.73
10 24.4	22.686	16.58	25.267	59.97	3.602	36.43	55.875	59.54
11 3.4	22.908	16.76	25.600	58.37	3.813	36.85	56.226	57.69
11 13.4	23.174	17.33	26.006	57.28	4.068	37.65	56.664	56.32
11 23.3	23.476	18.29	26.470	56.70	4.359	38.79	57.170	55.46
12 3.3	23.810	19.62	26.984	56.69	4.682	40.27	57.736	55.16
12 13.3	24.164	21.32	27.529	57.29	5.026	42.06	58.340	55.48
12 23.3	24.527	23.30	28.084	58.45	5.381	44.09	58.962	56.38
12 33.2	24.891	25.53	28.639	60.16	5.737	46.32	59.586	57.85
12 43.2	25.240	27.94	29.170	62.39	6.082	48.66	60.188	59.87
Pos. Med.	23.344	21.31	27.622	66.16	4.177	40.17	58.771	64.43
Secδ tanδ	1.084	-.419	1.935	-1.657	1.050	-.319	2.221	-1.983
Dob.Tran.	Mar 24		Mar 26		Mar 26		Mar 29	

VOLVER AL INDICE

VOLVER A LISTA DE ESTRELLAS

POSICIONES APARENTES AL PASO SUPERIOR POR GREENWICH

NUM.	465		468		471		474	
EST.	δ Corvi		γ Crucis		β Corvi		α Muscae	
MAG.	2.95		1.63 Var		2.65		2.69	
UT	AR.	DEC.	AR.	DEC.	AR.	DEC.	AR.	DEC.
	h m	° ′	h m	° ′	h m	° ′	h m	° ′
	12 31	-16 38	12 32	-57 14	12 35	-23 31	12 38	-69 15
mes d	s	"	s	"	s	"	s	"
1 -.8	6.045	49.57	29.449	32.11	38.530	36.71	36.493	42.70
1 9.2	6.396	51.82	29.978	33.97	38.892	38.92	37.243	44.24
1 19.2	6.733	54.16	30.484	36.31	39.240	41.29	37.962	46.34
1 29.2	7.044	56.47	30.948	39.01	39.563	43.72	38.625	48.89
2 8.1	7.325	58.74	31.366	42.02	39.855	46.16	39.224	51.83
2 18.1	7.569	60.89	31.726	45.27	40.110	48.55	39.742	55.11
2 28.1	7.772	62.86	32.023	48.64	40.323	50.82	40.170	58.59
3 9.1	7.936	64.66	32.258	52.08	40.496	52.96	40.510	62.22
3 19.0	8.059	66.23	32.427	55.52	40.626	54.91	40.753	65.92
3 29.0	8.143	67.57	32.535	58.85	40.718	56.64	40.902	69.59
4 8.0	8.195	68.70	32.586	62.05	40.775	58.17	40.965	73.17
4 17.9	8.213	69.59	32.578	65.04	40.798	59.46	40.936	76.59
4 27.9	8.206	70.27	32.522	67.76	40.794	60.52	40.828	79.77
5 7.9	8.177	70.74	32.420	70.20	40.766	61.36	40.646	82.67
5 17.9	8.126	71.00	32.274	72.26	40.715	61.95	40.390	85.21
5 27.8	8.061	71.09	32.095	73.95	40.647	62.31	40.077	87.35
6 6.8	7.983	70.99	31.884	75.23	40.565	62.45	39.709	89.07
6 16.8	7.893	70.72	31.647	76.04	40.469	62.35	39.295	90.29
6 26.8	7.797	70.30	31.394	76.41	40.366	62.05	38.853	91.01
7 6.7	7.696	69.74	31.127	76.32	40.255	61.54	38.387	91.23
7 16.7	7.593	69.04	30.857	75.75	40.142	60.84	37.915	90.90
7 26.7	7.494	68.26	30.596	74.77	40.033	59.98	37.455	90.08
8 5.6	7.401	67.39	30.347	73.37	39.928	58.97	37.015	88.78
8 15.6	7.320	66.48	30.126	71.60	39.836	57.87	36.620	87.02
8 25.6	7.256	65.59	29.943	69.55	39.762	56.72	36.285	84.90
9 4.6	7.215	64.73	29.805	67.25	39.711	55.55	36.021	82.46
9 14.5	7.204	63.98	29.729	64.82	39.692	54.45	35.853	79.80
9 24.5	7.226	63.38	29.718	62.36	39.709	53.47	35.786	77.04
10 4.5	7.286	62.97	29.779	59.93	39.766	52.66	35.831	74.25
10 14.5	7.392	62.80	29.923	57.68	39.871	52.08	36.000	71.58
10 24.4	7.543	62.92	30.143	55.71	40.022	51.79	36.285	69.14
11 3.4	7.741	63.36	30.442	54.07	40.224	51.83	36.689	67.00
11 13.4	7.984	64.16	30.816	52.90	40.472	52.25	37.202	65.31
11 23.3	8.265	65.29	31.249	52.23	40.760	53.04	37.804	64.12
12 3.3	8.580	66.75	31.735	52.10	41.085	54.21	38.483	63.49
12 13.3	8.919	68.50	32.256	52.56	41.434	55.74	39.216	63.48
12 23.3	9.271	70.49	32.793	53.57	41.797	57.56	39.974	64.06
12 33.2	9.627	72.67	33.335	55.12	42.166	59.65	40.741	65.25
12 43.2	9.974	74.96	33.860	57.18	42.525	61.92	41.487	67.02
Pos. Med.	8.133	65.64	32.373	60.22	40.748	54.93	40.278	72.59
Secδ tanδ	1.044	-.299	1.849	-1.555	1.091	-.435	2.825	-2.642
Dob.Tran.	Mar 29		Mar 30		Mar 31		Mar 31	

VOLVER AL INDICE

VOLVER A LISTA DE ESTRELLAS

POSICIONES APARENTES AL PASO SUPERIOR POR GREENWICH

NUM.	481		484		485		488	
EST.	β Crucis		δ Virginis		αCanumVenat*ƒ		ε Virginis	
MAG.	1.25		3.38		2.90		2.83	
UT	AR.	DEC.	AR.	DEC.	AR.	DEC.	AR.	DEC.
	h m	° ′	h m	° ′	h m	° ′	h m	° ′
	12 49	-59 48	12 56	+ 3 15	12 57	+38 10	13 3	+10 49
mes d	s	"	s	"	s	"	s	"
1 -.7	6.888	52.17	48.324	60.79	8.683	67.75	21.836	45.32
1 9.2	7.457	53.76	48.666	58.60	9.083	65.86	22.181	43.14
1 19.2	8.006	55.87	49.001	56.55	9.477	64.47	22.521	41.18
1 29.2	8.518	58.37	49.317	54.71	9.852	63.60	22.843	39.51
2 8.2	8.985	61.21	49.608	53.11	10.201	63.25	23.142	38.16
2 18.1	9.394	64.34	49.867	51.81	10.510	63.45	23.408	37.17
2 28.1	9.739	67.63	50.088	50.82	10.774	64.14	23.638	36.54
3 9.1	10.022	71.03	50.273	50.12	10.991	65.27	23.831	36.25
3 19.0	10.235	74.48	50.418	49.73	11.156	66.80	23.983	36.30
3 29.0	10.382	77.85	50.526	49.61	11.271	68.60	24.097	36.63
4 8.0	10.469	81.14	50.601	49.72	11.340	70.60	24.177	37.19
4 18.0	10.492	84.26	50.642	50.03	11.362	72.72	24.223	37.96
4 27.9	10.460	87.13	50.657	50.49	11.345	74.84	24.240	38.84
5 7.9	10.376	89.75	50.647	51.06	11.295	76.89	24.232	39.81
5 17.9	10.241	92.02	50.615	51.71	11.213	78.80	24.200	40.81
5 27.9	10.066	93.92	50.567	52.39	11.109	80.48	24.151	41.79
6 6.8	9.852	95.43	50.503	53.09	10.985	81.90	24.085	42.72
6 16.8	9.604	96.48	50.425	53.78	10.846	83.01	24.005	43.57
6 26.8	9.334	97.09	50.340	54.41	10.698	83.76	23.916	44.30
7 6.7	9.043	97.23	50.246	55.00	10.542	84.16	23.818	44.91
7 16.7	8.745	96.88	50.147	55.50	10.385	84.17	23.715	45.36
7 26.7	8.449	96.10	50.049	55.91	10.233	83.80	23.612	45.64
8 5.7	8.163	94.87	49.953	56.22	10.085	83.06	23.510	45.75
8 15.6	7.902	93.24	49.865	56.39	9.952	81.93	23.416	45.66
8 25.6	7.679	91.29	49.790	56.41	9.838	80.46	23.335	45.37
9 4.6	7.500	89.05	49.733	56.28	9.746	78.65	23.271	44.87
9 14.6	7.385	86.62	49.701	55.94	9.686	76.50	23.231	44.13
9 24.5	7.339	84.12	49.700	55.40	9.662	74.08	23.222	43.17
10 4.5	7.371	81.61	49.732	54.66	9.679	71.39	23.246	41.96
10 14.5	7.490	79.23	49.805	53.61	9.745	68.49	23.311	40.48
10 24.4	7.693	77.07	49.922	52.32	9.860	65.43	23.420	38.77
11 3.4	7.983	75.21	50.085	50.79	10.029	62.25	23.576	36.83
11 13.4	8.356	73.79	50.293	49.02	10.252	59.05	23.777	34.69
11 23.4	8.797	72.84	50.541	47.07	10.522	55.89	24.020	32.41
12 3.3	9.298	72.42	50.827	44.94	10.839	52.84	24.302	30.02
12 13.3	9.843	72.59	51.142	42.70	11.193	50.02	24.614	27.60
12 23.3	10.411	73.31	51.474	40.44	11.573	47.49	24.947	25.22
12 33.3	10.990	74.58	51.818	38.19	11.969	45.33	25.292	22.93
12 43.2	11.557	76.39	52.159	36.05	12.367	43.64	25.636	20.84
Pos. Med.	10.204	79.89	50.326	53.10	10.211	71.46	23.786	40.65
Secδ tanδ	1.989	-1.720	1.002	.057	1.272	.787	1.018	.191
Dob.Tran.	Abr	3	Abr	5	Abr	5	Abr	7

VOLVER AL INDICE

VOLVER A LISTA DE ESTRELLAS

POSICIONES APARENTES AL PASO SUPERIOR POR GREENWICH

NUM.	487		495		496		498	
EST.	δ Muscae		γ Hydrae		ι Centauri		α Virginia (Spica)	
MAG.	3.62		3.00		2.75		0.98	
UT	AR.	DEC.	AR.	DEC.	AR.	DEC.	AR.	DEC.
	h m	° ′	h m	° ′	h m	° ′	h m	°
	13 3	-71 40	13 20	-23 17	13 21	-36 50	13 26	-11 17
mes d	s	"	s	"	s	"	s	"
1 -.7	54.883	20.03	12.970	44.63	56.110	6.84	26.839	7.04
1 9.2	55.734	21.16	13.336	46.56	56.514	8.53	27.187	9.11
1 19.2	56.565	22.88	13.698	48.67	56.914	10.54	27.532	11.21
1 29.2	57.347	25.09	14.042	50.86	57.293	12.76	27.863	13.26
2 8.2	58.069	27.73	14.363	53.08	57.648	15.16	28.173	15.23
2 18.1	58.713	30.75	14.654	55.28	57.969	17.67	28.454	17.05
2 28.1	59.263	34.04	14.908	57.38	58.251	20.21	28.702	18.67
3 9.1	59.722	37.53	15.127	59.37	58.493	22.74	28.916	20.09
3 19.1	60.077	41.16	15.307	61.20	58.692	25.20	29.094	21.28
3 29.0	60.328	44.80	15.450	62.85	58.850	27.55	29.235	22.24
4 8.0	60.483	48.43	15.559	64.33	58.970	29.76	29.345	22.99
4 18.0	60.532	51.95	15.633	65.59	59.049	31.80	29.422	23.52
4 27.9	60.488	55.28	15.677	66.66	59.095	33.63	29.470	23.87
5 7.9	60.354	58.39	15.695	67.53	59.108	35.25	29.493	24.06
5 17.9	60.130	61.18	15.684	68.19	59.089	36.62	29.490	24.09
5 27.9	59.830	63.61	15.652	68.67	59.044	37.74	29.466	23.99
6 6.8	59.459	65.65	15.599	68.95	58.972	38.59	29.423	23.79
6 16.8	59.024	67.21	15.526	69.02	58.875	39.15	29.360	23.48
6 26.8	58.545	68.29	15.437	68.91	58.761	39.42	29.284	23.10
7 6.8	58.026	68.87	15.334	68.62	58.628	39.39	29.193	22.63
7 16.7	57.487	68.91	15.220	68.14	58.482	39.06	29.092	22.11
7 26.7	56.949	68.43	15.102	67.52	58.331	38.46	28.986	21.56
8 5.7	56.422	67.45	14.980	66.75	58.176	37.58	28.876	20.97
8 15.6	55.934	65.97	14.865	65.86	58.029	36.47	28.770	20.38
8 25.6	55.503	64.09	14.761	64.91	57.896	35.17	28.673	19.82
9 4.6	55.144	61.82	14.673	63.90	57.783	33.71	28.591	19.32
9 14.6	54.885	59.27	14.614	62.92	57.703	32.17	28.533	18.91
9 24.5	54.735	56.56	14.586	62.02	57.662	30.63	28.505	18.64
10 4.5	54.708	53.74	14.598	61.23	57.665	29.12	28.512	18.55
10 14.5	54.821	50.97	14.656	60.64	57.723	27.76	28.564	18.77
10 24.5	55.066	48.35	14.760	60.26	57.836	26.61	28.649	18.98
11 3.4	55.448	45.97	14.918	60.15	58.008	25.73	28.793	19.60
11 13.4	55.962	43.99	15.128	60.39	58.238	25.20	28.985	20.52
11 23.4	56.584	42.45	15.383	60.95	58.520	25.04	29.220	21.70
12 3.3	57.305	41.43	15.680	61.87	58.849	25.30	29.496	23.15
12 13.3	58.099	41.01	16.011	63.13	59.215	26.00	29.805	24.85
12 23.3	58.935	41.18	16.364	64.67	59.605	27.09	30.137	26.72
12 33.3	59.796	41.95	16.731	66.47	60.011	28.56	30.484	28.73
12 43.2	60.648	43.32	17.098	68.48	60.416	30.38	30.833	30.82
Pos. Med.	59.676	48.90	15.533	60.47	58.967	26.88	29.238	18.39
Secδ tanδ	3.181	-3.020	1.089	-.431	1.250	-.749	1.020	-.200
Dob.Tran.	Abr 7		Abr 11		Abr 11		Abr 12	

VOLVER AL INDICE

VOLVER A LISTA DE ESTRELLAS

POSICIONES APARENTES AL PASO SUPERIOR POR GREENWICH

NUM.	501		504		509		508	
EST.	ζ Virginis		ε Centauri		η Ursae Majoris		μ Centauri	
MAG.	3.37		2.30		1.86		3.04 Var.	
UT	AR.	DEC.	AR.	DEC.	AR.	DEC.	AR.	DEC.
	h m	° ′	h m	° ′	h m	° ′	h m	° ′
	13 35	- 0 43	13 41	-53 35	13 48	+49 10	13 51	-42 35
mes d	s	"	s	"	s	"	s	"
1 -.7	54.325	6.45	23.604	.79	28.602	81.95	2.860	21.63
1 9.3	54.664	8.61	24.113	1.87	29.036	79.72	3.291	22.88
1 19.2	55.004	10.68	24.622	3.42	29.481	78.04	3.723	24.51
1 29.2	55.331	12.60	25.112	5.35	29.920	76.96	4.142	26.43
2 8.2	55.640	14.31	25.577	7.61	30.343	76.47	4.540	28.59
2 18.2	55.922	15.78	26.004	10.17	30.736	76.62	4.909	30.95
2 28.1	56.173	16.95	26.386	12.91	31.087	77.36	5.241	33.40
3 9.1	56.391	17.85	26.721	15.79	31.392	78.63	5.535	35.93
3 19.1	56.573	18.45	27.003	18.76	31.642	80.39	5.786	38.47
3 29.0	56.720	18.79	27.233	21.72	31.836	82.52	5.995	40.95
4 8.0	56.835	18.88	27.412	24.65	31.974	84.92	6.165	43.36
4 18.0	56.917	18.76	27.538	27.48	32.055	87.52	6.291	45.65
4 28.0	56.970	18.46	27.616	30.15	32.083	90.16	6.379	47.77
5 7.9	56.998	18.04	27.646	32.65	32.063	92.78	6.430	49.73
5 17.9	57.000	17.50	27.628	34.90	31.996	95.26	6.442	51.46
5 27.9	56.980	16.91	27.568	36.87	31.891	97.51	6.421	52.96
6 6.9	56.941	16.28	27.467	38.54	31.751	99.50	6.367	54.20
6 16.8	56.882	15.64	27.326	39.84	31.580	101.12	6.281	55.14
6 26.8	56.809	15.02	27.153	40.78	31.388	102.34	6.168	55.79
7 6.8	56.721	14.42	26.951	41.33	31.175	103.16	6.029	56.12
7 16.7	56.621	13.87	26.725	41.45	30.950	103.50	5.870	56.12
7 26.7	56.516	13.39	26.488	41.17	30.719	103.40	5.698	55.80
8 5.7	56.407	12.97	26.243	40.48	30.486	102.84	5.517	55.16
8 15.7	56.299	12.67	26.004	39.40	30.260	101.80	5.337	54.22
8 25.6	56.200	12.48	25.783	37.99	30.049	100.34	5.168	53.03
9 4.6	56.114	12.42	25.586	36.27	29.857	98.45	5.015	51.60
9 14.6	56.049	12.54	25.433	34.31	29.696	96.16	4.894	50.01
9 24.6	56.012	12.83	25.330	32.22	29.573	93.54	4.812	48.34
10 4.5	56.008	13.33	25.287	30.03	29.494	90.58	4.776	46.62
10 14.5	56.044	14.04	25.317	27.87	29.470	87.35	4.799	44.97
10 24.5	56.121	15.04	25.420	25.84	29.503	83.94	4.880	43.47
11 3.4	56.248	16.29	25.601	24.01	29.599	80.36	5.026	42.17
11 13.4	56.424	17.79	25.861	22.50	29.763	76.74	5.238	41.17
11 23.4	56.643	19.50	26.191	21.37	29.988	73.15	5.509	40.51
12 3.4	56.903	21.41	26.585	20.66	30.275	69.67	5.835	40.25
12 13.3	57.199	23.47	27.031	20.46	30.617	66.43	6.207	40.43
12 23.3	57.518	25.61	27.513	20.74	31.002	63.50	6.611	41.02
12 33.3	57.855	27.79	28.021	21.51	31.421	60.98	7.038	42.03
12 43.3	58.196	29.91	28.535	22.77	31.859	58.97	7.473	43.43
Pos. Med.	56.614	13.53	27.343	23.81	30.218	90.19	6.193	41.21
Secδ tanδ	1.000	-.013	1.685	-1.356	1.530	1.158	1.358	-.919
Dob.Tran.	Abr 15		Abr 16		Abr 18		Abr 19	

VOLVER AL INDICE

VOLVER A LISTA DE ESTRELLAS

POSICIONES APARENTES AL PASO SUPERIOR POR GREENWICH

NUM.	513		512		518		519	
EST.	η Bootis		ζ Centauri		β Centauri*		π Hydrae	
MAG.	2.68		2.55		0.61		3.27	
UT	AR.	DEC.	AR.	DEC.	AR.	DEC.	AR.	DEC.
	h m	° ′	h m	° ′	h m	° ′	h m	° ′
	13 55	+18 16	13 57	-47 24	14 5	-60 29	14 7	-26 47
mes d	s	"	s	"	s	"	s	"
1 -.7	48.943	32.60	1.268	7.96	29.924	.98	43.420	43.57
1 9.3	49.284	30.26	1.727	9.01	30.513	1.55	43.789	45.10
1 19.3	49.631	28.20	2.189	10.49	31.111	2.63	44.163	46.84
1 29.2	49.971	26.49	2.638	12.30	31.697	4.16	44.528	48.72
2 8.2	50.296	25.17	3.068	14.39	32.260	6.09	44.879	50.69
2 18.2	50.598	24.28	3.467	16.74	32.789	8.39	45.207	52.69
2 28.1	50.869	23.83	3.828	19.23	33.270	10.96	45.505	54.65
3 9.1	51.109	23.80	4.150	21.84	33.702	13.75	45.773	56.56
3 19.1	51.312	24.17	4.427	24.50	34.077	16.71	46.006	58.37
3 29.1	51.478	24.89	4.658	27.15	34.391	19.73	46.204	60.04
4 8.0	51.609	25.89	4.847	29.75	34.648	22.80	46.370	61.59
4 18.0	51.705	27.13	4.989	32.26	34.840	25.85	46.501	62.97
4 28.0	51.768	28.51	5.089	34.63	34.972	28.79	46.600	64.19
5 8.0	51.802	29.98	5.148	36.84	35.046	31.61	46.669	65.26
5 17.9	51.805	31.47	5.164	38.82	35.056	34.22	46.707	66.14
5 27.9	51.785	32.92	5.143	40.57	35.011	36.59	46.717	66.86
6 6.9	51.741	34.28	5.083	42.06	34.910	38.69	46.699	67.41
6 16.8	51.675	35.50	4.987	43.23	34.754	40.43	46.654	67.76
6 26.8	51.592	36.54	4.861	44.09	34.553	41.80	46.585	67.95
7 6.8	51.491	37.39	4.705	44.60	34.309	42.77	46.494	67.95
7 16.8	51.377	38.00	4.526	44.75	34.030	43.29	46.382	67.75
7 26.7	51.256	38.37	4.331	44.54	33.730	43.38	46.258	67.39
8 5.7	51.127	38.49	4.126	43.98	33.413	43.02	46.121	66.85
8 15.7	50.999	38.33	3.920	43.07	33.097	42.20	45.982	66.16
8 25.7	50.878	37.90	3.726	41.87	32.796	40.98	45.848	65.35
9 4.6	50.767	37.20	3.550	40.38	32.520	39.38	45.723	64.43
9 14.6	50.677	36.20	3.407	38.69	32.289	37.46	45.621	63.47
9 24.6	50.612	34.94	3.305	36.88	32.116	35.31	45.547	62.51
10 4.5	50.579	33.39	3.255	34.98	32.012	32.99	45.510	61.59
10 14.5	50.587	31.56	3.266	33.11	31.992	30.60	45.519	60.80
10 24.5	50.638	29.50	3.342	31.36	32.060	28.27	45.576	60.17
11 3.5	50.737	27.19	3.488	29.78	32.220	26.05	45.686	59.75
11 13.4	50.887	24.70	3.705	28.50	32.477	24.09	45.853	59.58
11 23.4	51.084	22.09	3.986	27.56	32.820	22.46	46.073	59.72
12 3.4	51.326	19.38	4.327	27.01	33.244	21.22	46.341	60.18
12 13.4	51.608	16.69	4.720	26.91	33.738	20.47	46.651	60.97
12 23.3	51.920	14.07	5.147	27.25	34.280	20.20	46.992	62.06
12 33.3	52.254	11.59	5.601	28.03	34.861	20.44	47.355	63.44
12 43.3	52.599	9.36	6.065	29.25	35.460	21.21	47.729	65.05
Pos. Med.	51.079	32.72	4.863	28.30	34.513	23.39	46.406	57.39
Secδ tanδ	1.053	.330	1.478	-1.088	2.030	-1.767	1.120	-.505
Dob.Tran.	Abr 20		Abr 20		Abr 22		Abr 23	

VOLVER AL INDICE

VOLVER A LISTA DE ESTRELLAS

POSICIONES APARENTES AL PASO SUPERIOR POR GREENWICH

NUM.	520		535		547		542	
EST.	ϑ Centauri		γ Bootis		109 Virginis		α Apodis	
MAG.	2.06		3.03		3.72		3.83	
UT	AR.	DEC.	AR.	DEC.	AR.	DEC.	AR.	DEC.
	h m	° ′	h m	° ′	h m	° ′	h m	° ′
	14 8	-36 29	14 33	+38 11	14 47	+ 1 47	14 50	-79 8
mes d	s	"	s	"	s	"	s	"
1 -.7	4.749	5.02	1.778	59.98	26.747	29.14	50.298	24.17
1 9.3	5.148	6.29	2.137	57.35	27.064	27.02	51.614	23.53
1 19.3	5.552	7.87	2.514	55.16	27.394	24.99	53.005	23.47
1 29.2	5.947	9.69	2.895	53.48	27.725	23.14	54.415	23.96
2 8.2	6.326	11.70	3.270	52.33	28.050	21.49	55.822	24.97
2 18.2	6.681	13.84	3.629	51.78	28.361	20.12	57.191	26.51
2 28.2	7.004	16.04	3.961	51.81	28.652	19.05	58.483	28.48
3 9.1	7.294	18.28	4.263	52.38	28.919	18.29	59.690	30.85
3 19.1	7.547	20.49	4.525	53.49	29.159	17.86	60.779	33.57
3 29.1	7.761	22.63	4.746	55.03	29.369	17.73	61.732	36.55
4 8.0	7.940	24.68	4.927	56.93	29.551	17.86	62.549	39.75
4 18.0	8.081	26.61	5.062	59.12	29.703	18.25	63.201	43.09
4 28.0	8.185	28.40	5.155	61.47	29.825	18.81	63.688	46.48
5 8.0	8.257	30.03	5.209	63.91	29.920	19.53	64.010	49.90
5 17.9	8.292	31.46	5.221	66.34	29.985	20.35	64.146	53.24
5 27.9	8.296	32.70	5.198	68.66	30.023	21.22	64.111	56.42
6 6.9	8.268	33.73	5.141	70.82	30.034	22.11	63.905	59.42
6 16.9	8.209	34.51	5.051	72.73	30.018	22.98	63.524	62.12
6 26.8	8.124	35.06	4.935	74.34	29.977	23.80	62.995	64.47
7 6.8	8.012	35.34	4.793	75.63	29.912	24.57	62.322	66.44
7 16.8	7.878	35.35	4.629	76.53	29.825	25.24	61.526	67.93
7 26.7	7.729	35.11	4.451	77.04	29.721	25.80	60.644	68.93
8 5.7	7.568	34.60	4.260	77.15	29.601	26.26	59.690	69.41
8 15.7	7.404	33.84	4.065	76.82	29.471	26.57	58.708	69.32
8 25.7	7.246	32.88	3.873	76.09	29.340	26.74	57.738	68.71
9 4.6	7.100	31.72	3.689	74.95	29.211	26.76	56.806	67.56
9 14.6	6.979	30.43	3.523	73.39	29.095	26.59	55.967	65.90
9 24.6	6.891	29.08	3.384	71.48	28.998	26.24	55.254	63.83
10 4.6	6.844	27.70	3.277	69.19	28.929	25.69	54.695	61.39
10 14.5	6.848	26.40	3.215	66.57	28.896	24.90	54.337	58.68
10 24.5	6.907	25.22	3.200	63.70	28.904	23.91	54.190	55.83
11 3.5	7.024	24.24	3.238	60.57	28.957	22.67	54.271	52.91
11 13.4	7.204	23.52	3.337	57.28	29.061	21.17	54.598	50.07
11 23.4	7.440	23.11	3.491	53.91	29.213	19.48	55.150	47.43
12 3.4	7.730	23.06	3.702	50.51	29.413	17.60	55.922	45.06
12 13.4	8.066	23.39	3.966	47.22	29.657	15.58	56.897	43.11
12 23.3	8.434	24.09	4.273	44.11	29.935	13.48	58.027	41.60
12 33.3	8.827	25.15	4.616	41.27	30.241	11.36	59.294	40.61
12 43.3	9.232	26.54	4.983	38.83	30.565	9.29	60.653	40.19
Pos. Med.	7.992	21.84	3.838	67.31	29.391	26.99	61.369	44.37
Secδ tanδ	1.244	-.740	1.273	.787	1.000	.031	5.310	-5.215
Dob.Tran.	Abr 23		Abr 29		May 3		May 4	

VOLVER AL INDICE

VOLVER A LISTA DE ESTRELLAS

POSICIONES APARENTES AL PASO SUPERIOR POR GREENWICH

NUM.	548		552		553		555	
EST.	α^2 Librae		β Lupi		χ Centauri		β Bootis	
MAG.	2.75		2.68		3.13		3.50	
UT	AR.	DEC.	AR.	DEC.	AR.	DEC.	AR.	DEC.
	h m	° ′	h m	° ′	h m	° ′	h m	° ′
	14 52	-16 8	15 0	-43 13	15 0	-42 11	15 2	+40 17
mes d	s	"	s	"	s	"	s	"
1 -.7	11.298	24.64	4.900	38.00	42.034	49.96	49.947	33.28
1 9.3	11.630	26.20	5.313	38.49	42.441	50.49	50.290	30.45
1 19.3	11.976	27.86	5.744	39.34	42.866	51.36	50.659	28.04
1 29.3	12.322	29.54	6.178	40.48	43.295	52.52	51.039	26.14
2 8.2	12.662	31.21	6.608	41.89	43.719	53.93	51.421	24.76
2 18.2	12.989	32.80	7.024	43.53	44.129	55.56	51.794	24.00
2 28.2	13.294	34.27	7.415	45.32	44.515	57.34	52.146	23.84
3 9.2	13.577	35.59	7.781	47.25	44.876	59.24	52.473	24.26
3 19.1	13.833	36.75	8.114	49.26	45.206	61.22	52.766	25.25
3 29.1	14.059	37.72	8.412	51.30	45.501	63.21	53.020	26.72
4 8.1	14.258	38.53	8.677	53.35	45.762	65.22	53.235	28.60
4 18.0	14.426	39.15	8.902	55.38	45.985	67.19	53.406	30.83
4 28.0	14.564	39.63	9.088	57.34	46.170	69.10	53.534	33.26
5 8.0	14.675	39.97	9.237	59.23	46.318	70.93	53.621	35.82
5 18.0	14.755	40.18	9.344	61.01	46.425	72.65	53.664	38.43
5 27.9	14.807	40.29	9.411	62.64	46.493	74.23	53.667	40.95
6 6.9	14.831	40.31	9.438	64.12	46.521	75.66	53.631	43.36
6 16.9	14.824	40.24	9.422	65.40	46.507	76.88	53.558	45.53
6 26.9	14.790	40.10	9.368	66.45	46.456	77.90	53.452	47.42
7 6.8	14.730	39.89	9.276	67.27	46.367	78.68	53.315	49.00
7 16.8	14.645	39.61	9.148	67.81	46.244	79.19	53.149	50.18
7 26.8	14.540	39.28	8.993	68.07	46.093	79.43	52.964	50.97
8 5.7	14.417	38.89	8.813	68.03	45.917	79.38	52.760	51.36
8 15.7	14.284	38.46	8.618	67.68	45.727	79.03	52.546	51.29
8 25.7	14.147	38.00	8.419	67.06	45.532	78.41	52.330	50.79
9 4.7	14.013	37.53	8.223	66.16	45.339	77.53	52.116	49.87
9 14.6	13.891	37.08	8.044	65.01	45.164	76.41	51.917	48.49
9 24.6	13.791	36.68	7.893	63.69	45.016	75.12	51.741	46.73
10 4.6	13.719	36.36	7.780	62.23	44.905	73.70	51.594	44.58
10 14.6	13.686	36.17	7.719	60.70	44.845	72.22	51.489	42.05
10 24.5	13.697	36.13	7.714	59.18	44.840	70.75	51.431	39.23
11 3.5	13.762	36.29	7.772	57.74	44.898	69.36	51.426	36.13
11 13.5	13.861	36.62	7.900	56.46	45.023	68.14	51.482	32.82
11 23.4	14.027	37.24	8.093	55.39	45.213	67.13	51.597	29.40
12 3.4	14.240	38.09	8.350	54.61	45.466	66.39	51.771	25.91
12 13.4	14.498	39.18	8.665	54.16	45.777	66.00	52.003	22.49
12 23.4	14.791	40.47	9.026	54.05	46.133	65.94	52.283	19.23
12 33.3	15.113	41.93	9.425	54.31	46.527	66.23	52.606	16.20
12 43.3	15.453	43.52	9.849	54.93	46.945	66.88	52.960	13.55
Pos. Med.	14.303	31.82	8.854	51.57	45.942	63.23	52.146	41.87
Secδ tanδ	1.041	-.289	1.372	-.940	1.350	-.907	1.311	.848
Dob.Tran.	May 4		May 6		May 6		May 7	

VOLVER AL INDICE

VOLVER A LISTA DE ESTRELLAS

POSICIONES APARENTES AL PASO SUPERIOR POR GREENWICH

NUM.	556		558		563		564	
EST.	σ Librae		ζ Lupi		δ Bootis		β Librae	
MAG.	3.29		3.41		3.47		2.61	
UT	AR.	DEC.	AR.	DEC.	AR.	DEC.	AR.	DEC.
	h m	° ′	h m	° ′	h m	° ′	h m	° ′
	15 5	-25 22	15 13	-52 11	15 16	+33 13	15 18	- 9 28
mes d	s	"	s	"	s	"	s	"
1 -.6	27.300	27.40	58.975	11.89	27.111	20.95	16.735	15.13
1 9.3	27.645	28.54	59.440	11.88	27.428	18.12	17.045	16.80
1 19.3	28.006	29.87	59.931	12.28	27.771	15.65	17.374	18.50
1 29.3	28.370	31.32	60.431	13.06	28.124	13.63	17.707	20.16
2 8.2	28.730	32.85	60.929	14.17	28.482	12.08	18.040	21.73
2 18.2	29.079	34.42	61.416	15.61	28.833	11.09	18.364	23.15
2 28.2	29.407	35.97	61.879	17.29	29.167	10.67	18.671	24.39
3 9.2	29.714	37.47	62.316	19.20	29.480	10.80	18.961	25.43
3 19.1	29.995	38.89	62.718	21.28	29.764	11.48	19.227	26.23
3 29.1	30.246	40.20	63.082	23.48	30.016	12.64	19.467	26.81
4 8.1	30.470	41.41	63.406	25.77	30.234	14.21	19.683	27.19
4 18.1	30.663	42.50	63.686	28.10	30.415	16.14	19.871	27.36
4 28.0	30.825	43.46	63.920	30.42	30.557	18.30	20.030	27.37
5 8.0	30.958	44.32	64.108	32.72	30.664	20.63	20.163	27.25
5 18.0	31.058	45.06	64.245	34.94	30.731	23.03	20.265	27.00
5 27.9	31.126	45.68	64.333	37.03	30.761	25.40	20.339	26.68
6 6.9	31.163	46.20	64.371	38.98	30.757	27.68	20.383	26.30
6 16.9	31.166	46.59	64.355	40.73	30.715	29.79	20.396	25.88
6 26.9	31.139	46.86	64.292	42.24	30.643	31.66	20.381	25.46
7 6.8	31.081	47.01	64.180	43.48	30.540	33.27	20.337	25.01
7 16.8	30.994	47.02	64.023	44.40	30.407	34.54	20.265	24.58
7 26.8	30.884	46.91	63.831	44.99	30.253	35.46	20.170	24.16
8 5.8	30.753	46.65	63.607	45.23	30.079	36.02	20.054	23.75
8 15.7	30.608	46.27	63.363	45.09	29.891	36.17	19.923	23.38
8 25.7	30.457	45.77	63.111	44.59	29.699	35.93	19.784	23.05
9 4.7	30.306	45.16	62.860	43.74	29.506	35.29	19.644	22.76
9 14.6	30.168	44.48	62.627	42.55	29.323	34.24	19.511	22.56
9 24.6	30.051	43.77	62.426	41.10	29.159	32.81	19.396	22.44
10 4.6	29.962	43.04	62.267	39.42	29.021	31.00	19.304	22.44
10 14.6	29.915	42.38	62.167	37.58	28.921	28.83	19.248	22.59
10 24.5	29.913	41.81	62.133	35.69	28.863	26.35	19.232	22.90
11 3.5	29.962	41.40	62.171	33.79	28.854	23.57	19.262	23.39
11 13.5	30.065	41.19	62.291	32.00	28.902	20.57	19.341	24.08
11 23.5	30.224	41.14	62.488	30.40	29.004	17.41	19.470	25.04
12 3.4	30.438	41.36	62.760	29.04	29.162	14.14	19.652	26.20
12 13.4	30.700	41.87	63.103	28.02	29.374	10.89	19.879	27.54
12 23.4	31.001	42.62	63.502	27.36	29.632	7.73	20.144	29.02
12 33.3	31.334	43.62	63.948	27.08	29.930	4.74	20.442	30.64
12 43.3	31.688	44.82	64.428	27.22	30.258	2.07	20.761	32.30
Pos. Med.	30.611	36.05	63.594	25.86	29.471	28.41	19.732	18.45
Secδ tanδ	1.107	-.474	1.631	-1.289	1.195	.655	1.014	-.167
Dob.Tran.	May 8		May 10		May 10		May 11	

VOLVER AL INDICE

VOLVER A LISTA DE ESTRELLAS

POSICIONES APARENTES AL PASO SUPERIOR POR GREENWICH

NUM.	560		1402		566		572	
EST.	γ Trianguli Australis		δ Lupi		φ^1 Lupi		β Coronae Borealis	
MAG.	2.89		3.22		3.56		3.68	
UT	AR.	DEC.	AR.	DEC.	AR.	DEC.	AR.	DEC.
	h m	° ′	h m	° ′	h m	° ′	h m	° ′
	15 21	-68 45	15 22	-40 43	15 23	-36 20	15 28	+29 0
mes d	s	"	s	"	s	"	s	"
1 -.6	6.993	47.02	55.386	53.39	18.345	44.76	47.933	73.91
1 9.3	7.701	46.30	55.773	53.75	18.713	45.30	48.235	71.11
1 19.3	8.461	46.07	56.184	54.42	19.104	46.12	48.562	68.63
1 29.3	9.241	46.33	56.602	55.37	19.501	47.17	48.902	66.54
2 8.3	10.029	47.04	57.021	56.55	19.899	48.42	49.246	64.90
2 18.2	10.807	48.23	57.430	57.93	20.288	49.82	49.587	63.79
2 28.2	11.553	49.80	57.821	59.46	20.659	51.32	49.914	63.21
3 9.2	12.262	51.72	58.192	61.11	21.010	52.90	50.222	63.16
3 19.1	12.919	53.97	58.535	62.84	21.336	54.51	50.506	63.65
3 29.1	13.513	56.46	58.847	64.60	21.632	56.12	50.759	64.62
4 8.1	14.044	59.16	59.129	66.38	21.899	57.72	50.983	65.99
4 18.1	14.496	62.01	59.376	68.14	22.134	59.28	51.173	67.74
4 28.0	14.869	64.93	59.586	69.86	22.335	60.77	51.327	69.73
5 8.0	15.162	67.90	59.762	71.54	22.503	62.20	51.448	71.91
5 18.0	15.362	70.84	59.897	73.12	22.633	63.54	51.531	74.19
5 28.0	15.474	73.68	59.994	74.61	22.728	64.78	51.580	76.45
6 6.9	15.496	76.39	60.050	75.97	22.785	65.91	51.594	78.67
6 16.9	15.423	78.87	60.063	77.18	22.801	66.89	51.572	80.74
6 26.9	15.266	81.09	60.038	78.21	22.781	67.72	51.519	82.60
7 6.8	15.025	83.00	59.972	79.04	22.723	68.37	51.434	84.24
7 16.8	14.706	84.51	59.867	79.64	22.630	68.82	51.319	85.57
7 26.8	14.328	85.60	59.733	80.00	22.507	69.06	51.181	86.58
8 5.8	13.896	86.25	59.569	80.10	22.357	69.08	51.020	87.26
8 15.7	13.431	86.40	59.386	79.92	22.188	68.87	50.844	87.56
8 25.7	12.956	86.08	59.193	79.49	22.010	68.44	50.661	87.50
9 4.7	12.482	85.27	58.998	78.80	21.829	67.80	50.475	87.06
9 14.7	12.039	83.99	58.815	77.87	21.659	66.96	50.297	86.22
9 24.6	11.650	82.32	58.654	76.77	21.510	65.98	50.135	85.03
10 4.6	11.329	80.28	58.526	75.51	21.391	64.88	49.996	83.46
10 14.6	11.105	77.97	58.444	74.18	21.315	63.74	49.892	81.53
10 24.5	10.988	75.49	58.415	72.82	21.289	62.61	49.829	79.30
11 3.5	10.990	72.91	58.445	71.51	21.320	61.54	49.812	76.76
11 13.5	11.123	70.36	58.541	70.33	21.413	60.62	49.850	73.98
11 23.5	11.381	67.95	58.701	69.33	21.565	59.87	49.940	71.02
12 3.4	11.763	65.76	58.925	68.55	21.778	59.35	50.085	67.93
12 13.4	12.261	63.90	59.208	68.07	22.048	59.11	50.283	64.81
12 23.4	12.853	62.42	59.539	67.89	22.363	59.16	50.525	61.75
12 33.4	13.528	61.38	59.910	68.04	22.716	59.51	50.807	58.82
12 43.3	14.263	60.83	60.310	68.51	23.097	60.15	51.120	56.17
Pos. Med.	13.983	62.65	59.374	64.07	22.135	54.46	50.393	80.96
Secδ tanδ	2.761	-2.574	1.320	-.861	1.242	-.736	1.144	.555
Dob.Tran.	May 12		May 12		May 12		May 13	

VOLVER AL INDICE

VOLVER A LISTA DE ESTRELLAS

POSICIONES APARENTES AL PASO SUPERIOR POR GREENWICH

NUM.	578		577		579		574	
EST.	α Coronae Borealis		γ Librae		υ Librae		ε Trianguli Australis	
MAG.	2.23		3.91		3.58		4.11	
UT	AR.	DEC.	AR.	DEC.	AR.	DEC.	AR.	DEC.
	h m	° ′	h m	° ′	h m	° ′	h m	° ′
	15 35	+26 37	15 36	-14 52	15 38	-28 12	15 38	-66 23
mes d	s	"	s	"	s	"	s	"
1 -.6	41.039	54.09	50.845	7.18	27.480	45.32	52.830	34.99
1 9.3	41.333	51.32	51.153	8.54	27.814	46.09	53.462	34.12
1 19.3	41.654	48.84	51.482	9.99	28.170	47.05	54.146	33.72
1 29.3	41.988	46.73	51.818	11.44	28.536	48.17	54.856	33.78
2 8.3	42.327	45.04	52.157	12.87	28.904	49.39	55.579	34.27
2 18.2	42.664	43.86	52.490	14.22	29.267	50.69	56.300	35.21
2 28.2	42.987	43.20	52.810	15.44	29.615	52.00	56.998	36.53
3 9.2	43.294	43.05	53.114	16.52	29.948	53.30	57.667	38.20
3 19.2	43.578	43.44	53.398	17.42	30.258	54.58	58.296	40.19
3 29.1	43.834	44.29	53.657	18.15	30.543	55.78	58.871	42.42
4 8.1	44.062	45.55	53.894	18.71	30.804	56.92	59.393	44.87
4 18.1	44.257	47.19	54.103	19.10	31.036	57.99	59.849	47.50
4 28.0	44.419	49.07	54.286	19.35	31.238	58.96	60.236	50.22
5 8.0	44.548	51.15	54.441	19.48	31.411	59.87	60.552	53.00
5 18.0	44.641	53.34	54.566	19.50	31.550	60.69	60.785	55.79
5 28.0	44.700	55.53	54.661	19.46	31.655	61.42	60.939	58.52
6 6.9	44.725	57.69	54.725	19.34	31.727	62.08	61.011	61.15
6 16.9	44.714	59.72	54.756	19.18	31.761	62.63	60.995	63.60
6 26.9	44.672	61.56	54.756	18.98	31.761	63.09	60.899	65.81
7 6.9	44.597	63.19	54.724	18.75	31.725	63.43	60.724	67.76
7 16.8	44.492	64.53	54.660	18.49	31.654	63.65	60.472	69.35
7 26.8	44.363	65.57	54.571	18.21	31.554	63.74	60.160	70.56
8 5.8	44.211	66.30	54.457	17.90	31.426	63.69	59.793	71.35
8 15.7	44.042	66.66	54.325	17.58	31.278	63.49	59.387	71.67
8 25.7	43.865	66.67	54.182	17.25	31.119	63.15	58.964	71.54
9 4.7	43.683	66.33	54.034	16.91	30.954	62.67	58.534	70.93
9 14.7	43.508	65.60	53.891	16.60	30.795	62.08	58.125	69.86
9 24.6	43.348	64.52	53.764	16.32	30.653	61.41	57.757	68.39
10 4.6	43.209	63.08	53.658	16.10	30.535	60.68	57.445	66.55
10 14.6	43.105	61.28	53.587	15.99	30.456	59.94	57.216	64.41
10 24.6	43.040	59.19	53.556	16.00	30.420	59.25	57.080	62.08
11 3.5	43.020	56.78	53.571	16.15	30.436	58.64	57.050	59.62
11 13.5	43.053	54.12	53.640	16.46	30.508	58.19	57.138	57.16
11 23.5	43.139	51.28	53.751	17.00	30.632	57.90	57.341	54.80
12 3.4	43.278	48.29	53.921	17.78	30.816	57.78	57.658	52.60
12 13.4	43.469	45.25	54.140	18.74	31.054	57.93	58.085	50.70
12 23.4	43.705	42.26	54.398	19.86	31.335	58.31	58.602	49.14
12 33.4	43.980	39.37	54.691	21.14	31.653	58.93	59.200	47.98
12 43.3	44.286	36.73	55.009	22.52	31.999	59.76	59.859	47.28
Pos. Med.	43.569	60.78	54.047	10.43	31.053	51.63	59.504	48.18
Secδ tanδ	1.119	.501	1.035	-.266	1.135	-.537	2.497	-2.289
Dob.Tran.	May 15		May 16		May 16		May 16	

VOLVER AL INDICE

VOLVER A LISTA DE ESTRELLAS

POSICIONES APARENTES AL PASO SUPERIOR POR GREENWICH

NUM.	582		583		589		591	
EST.	α Serpentis		β Serpentis		βTrianguli Australis		γ Serpentis	
MAG.	2.65		3.67		2.85		3.85	
UT	AR.	DEC.	AR.	DEC.	AR.	DEC.	AR.	DEC.
	h m	° ′	h m	° ′	h m	° ′	h m	° ′
	15 45	+ 6 20	15 47	+15 20	15 57	-63 30	15 57	+15 34
mes d	s	"	s	"	s	"	s	"
1 -.6	25.767	57.87	16.473	43.11	13.146	1.87	32.430	54.87
1 9.4	26.051	55.69	16.753	40.63	13.703	.90	32.704	52.34
1 19.3	26.357	53.63	17.059	38.33	14.312	.36	33.004	50.00
1 29.3	26.674	51.76	17.376	36.31	14.950	.25	33.318	47.93
2 8.3	26.995	50.12	17.700	34.60	15.605	.54	33.640	46.17
2 18.2	27.314	48.81	18.022	33.30	16.263	1.25	33.962	44.81
2 28.2	27.621	47.83	18.333	32.43	16.907	2.33	34.275	43.89
3 9.2	27.915	47.21	18.631	31.99	17.530	3.73	34.576	43.40
3 19.2	28.189	46.97	18.908	32.01	18.121	5.46	34.859	43.37
3 29.1	28.440	47.08	19.162	32.43	18.669	7.42	35.119	43.76
4 8.1	28.669	47.49	19.393	33.23	19.174	9.61	35.357	44.52
4 18.1	28.870	48.21	19.595	34.36	19.623	11.98	35.568	45.63
4 28.1	29.044	49.13	19.768	35.73	20.012	14.46	35.750	46.99
5 8.0	29.192	50.24	19.913	37.30	20.342	17.03	35.905	48.55
5 18.0	29.309	51.46	20.025	39.00	20.598	19.63	36.027	50.26
5 28.0	29.396	52.74	20.106	40.73	20.784	22.20	36.117	52.00
6 6.9	29.453	54.03	20.156	42.47	20.897	24.71	36.177	53.75
6 16.9	29.477	55.30	20.172	44.13	20.928	27.09	36.201	55.44
6 26.9	29.472	56.47	20.158	45.67	20.886	29.27	36.193	57.00
7 6.9	29.435	57.56	20.111	47.06	20.768	31.22	36.153	58.41
7 16.8	29.368	58.50	20.034	48.25	20.578	32.86	36.081	59.63
7 26.8	29.276	59.29	19.932	49.22	20.328	34.16	35.983	60.62
8 5.8	29.160	59.92	19.805	49.96	20.021	35.08	35.858	61.38
8 15.8	29.026	60.36	19.659	50.42	19.673	35.56	35.713	61.86
8 25.7	28.880	60.60	19.503	50.61	19.302	35.62	35.557	62.07
9 4.7	28.729	60.65	19.341	50.54	18.917	35.22	35.392	62.00
9 14.7	28.581	60.47	19.182	50.15	18.544	34.38	35.230	61.63
9 24.6	28.446	60.08	19.036	49.49	18.201	33.14	35.078	60.97
10 4.6	28.330	59.45	18.909	48.53	17.902	31.52	34.945	60.01
10 14.6	28.246	58.57	18.813	47.26	17.672	29.60	34.841	58.75
10 24.6	28.198	57.47	18.754	45.73	17.524	27.46	34.774	57.21
11 3.5	28.192	56.12	18.738	43.91	17.467	25.17	34.748	55.39
11 13.5	28.236	54.53	18.771	41.84	17.517	22.83	34.772	53.31
11 23.5	28.329	52.75	18.854	39.57	17.670	20.56	34.845	51.02
12 3.5	28.471	50.77	18.988	37.12	17.928	18.42	34.970	48.55
12 13.4	28.662	48.66	19.172	34.57	18.288	16.53	35.144	45.98
12 23.4	28.893	46.48	19.397	32.00	18.733	14.94	35.360	43.38
12 33.4	29.160	44.29	19.659	29.46	19.255	13.70	35.616	40.80
12 43.3	29.454	42.17	19.951	27.07	19.837	12.88	35.901	38.36
Pos. Med.	28.608	60.43	19.190	47.79	19.426	12.59	35.193	59.47
Secδ tanδ	1.006	.111	1.037	.274	2.241	-2.006	1.038	.279
Dob.Tran.	May 18		May 18		May 21		May 21	

VOLVER AL INDICE

VOLVER A LISTA DE ESTRELLAS

POSICIONES APARENTES AL PASO SUPERIOR POR GREENWICH

NUM.	592		594		618		611	
EST.	π Scorpii		δ Scorpii		β Herculis		γ Apodis	
MAG.	2.89		2.32		2.77		3.89	
UT	AR.	DEC.	AR.	DEC.	AR.	DEC.	AR.	DEC.
	h m	° ′	h m	° ′	h m	° ′	h m	° ′
	16 0	-26 10	16 1	-22 41	16 31	+21 25	16 37	-78 56
mes d	s	"	s	"	s	"	s	"
1 -.6	16.741	53.85	43.689	19.21	13.657	68.12	4.065	42.27
1 9.4	17.055	54.55	43.994	20.07	13.902	65.42	5.091	40.25
1 19.3	17.395	55.42	44.325	21.07	14.180	62.91	6.275	38.65
1 29.3	17.747	56.41	44.669	22.15	14.479	60.69	7.566	37.50
2 8.3	18.107	57.48	45.019	23.29	14.792	58.81	8.940	36.81
2 18.3	18.465	58.61	45.368	24.44	15.112	57.36	10.368	36.61
2 28.2	18.813	59.73	45.707	25.55	15.431	56.40	11.803	36.89
3 9.2	19.148	60.83	46.035	26.60	15.743	55.90	13.230	37.61
3 19.2	19.466	61.89	46.345	27.56	16.043	55.93	14.618	38.79
3 29.1	19.762	62.87	46.634	28.42	16.325	56.43	15.934	40.35
4 8.1	20.037	63.78	46.903	29.18	16.588	57.36	17.170	42.27
4 18.1	20.286	64.61	47.146	29.84	16.827	58.70	18.294	44.53
4 28.1	20.507	65.37	47.362	30.41	17.038	60.34	19.286	47.04
5 8.0	20.700	66.06	47.552	30.90	17.222	62.23	20.143	49.78
5 18.0	20.861	66.69	47.710	31.31	17.373	64.29	20.830	52.69
5 28.0	20.989	67.25	47.836	31.66	17.492	66.43	21.346	55.68
6 7.0	21.083	67.75	47.930	31.96	17.576	68.60	21.685	58.72
6 16.9	21.139	68.19	47.986	32.19	17.622	70.71	21.824	61.71
6 26.9	21.159	68.56	48.008	32.38	17.634	72.69	21.780	64.57
7 6.9	21.142	68.85	47.993	32.51	17.608	74.53	21.548	67.27
7 16.8	21.088	69.06	47.942	32.58	17.546	76.14	21.128	69.69
7 26.8	21.002	69.16	47.860	32.58	17.452	77.49	20.554	71.77
8 5.8	20.886	69.16	47.748	32.49	17.327	78.59	19.828	73.47
8 15.8	20.745	69.04	47.613	32.33	17.177	79.36	18.983	74.69
8 25.7	20.590	68.81	47.462	32.09	17.009	79.82	18.060	75.41
9 4.7	20.424	68.46	47.302	31.76	16.828	79.96	17.079	75.61
9 14.7	20.261	68.02	47.143	31.37	16.643	79.73	16.093	75.24
9 24.7	20.110	67.50	46.996	30.94	16.465	79.18	15.147	74.34
10 4.6	19.980	66.92	46.868	30.49	16.300	78.28	14.270	72.93
10 14.6	19.884	66.33	46.774	30.06	16.161	77.03	13.522	71.04
10 24.6	19.829	65.77	46.719	29.67	16.055	75.47	12.931	68.77
11 3.5	19.821	65.28	46.711	29.37	15.988	73.58	12.525	66.18
11 13.5	19.870	64.92	46.757	29.21	15.969	71.41	12.343	63.37
11 23.5	19.971	64.75	46.858	29.37	16.000	69.01	12.386	60.48
12 3.5	20.125	64.64	47.002	29.35	16.082	66.39	12.664	57.57
12 13.4	20.339	64.79	47.209	29.72	16.216	63.66	13.182	54.79
12 23.4	20.595	65.15	47.458	30.27	16.396	60.89	13.908	52.22
12 33.4	20.892	65.71	47.746	31.01	16.619	58.14	14.833	49.95
12 43.4	21.219	66.46	48.064	31.91	16.879	55.53	15.931	48.06
Pos. Med.	20.345	57.64	47.194	22.13	16.464	75.77	17.201	48.76
Secδ tanδ	1.114	-.492	1.084	-.418	1.074	.393	5.216	-5.119
Dob.Tran.	May 21		May 22		May 29		May 31	

VOLVER AL INDICE

VOLVER A LISTA DE ESTRELLAS

POSICIONES APARENTES AL PASO SUPERIOR POR GREENWICH

NUM.	620		622		626		625	
EST.	τ Scorpii		ζ Ophiuchi		η Herculis		α Trianguli Australis	
MAG.	2.82		2.56		3.53		1.92	
UT	AR.	DEC.	AR.	DEC.	AR.	DEC.	AR.	DEC.
	h m	° ′	h m	° ′	h m	° ′	h m	° ′
	16 37	-28 15	16 38	-10 36	16 43	+38 52	16 51	-69 3
mes d	s	"	s	"	s	"	s	"
1 -.6	20.918	52.41	27.314	55.78	41.524	26.68	8.922	64.52
1 9.4	21.209	52.74	27.573	57.04	41.766	23.46	9.494	62.71
1 19.4	21.531	53.23	27.860	58.34	42.050	20.51	10.154	61.26
1 29.3	21.873	53.84	28.166	59.60	42.365	17.94	10.873	60.20
2 8.3	22.227	54.54	28.483	60.80	42.703	15.81	11.638	59.52
2 18.3	22.588	55.31	28.806	61.88	43.055	14.22	12.435	59.28
2 28.3	22.945	56.11	29.126	62.79	43.410	13.23	13.238	59.44
3 9.2	23.296	56.91	29.441	63.52	43.763	12.82	14.040	59.98
3 19.2	23.636	57.69	29.745	64.04	44.104	13.05	14.825	60.91
3 29.2	23.959	58.44	30.034	64.35	44.426	13.85	15.576	62.17
4 8.1	24.266	59.15	30.308	64.47	44.726	15.18	16.291	63.74
4 18.1	24.550	59.82	30.562	64.40	44.996	17.01	16.951	65.62
4 28.1	24.810	60.46	30.793	64.18	45.232	19.21	17.548	67.72
5 8.1	25.045	61.06	31.002	63.84	45.434	21.71	18.078	70.03
5 18.0	25.248	61.64	31.182	63.40	45.595	24.43	18.524	72.50
5 28.0	25.418	62.20	31.333	62.92	45.714	27.23	18.882	75.06
6 7.0	25.553	62.73	31.453	62.40	45.790	30.07	19.149	77.68
6 17.0	25.648	63.24	31.537	61.88	45.820	32.84	19.311	80.29
6 26.9	25.704	63.71	31.586	61.38	45.807	35.44	19.373	82.82
7 6.9	25.719	64.14	31.599	60.90	45.750	37.85	19.331	85.22
7 16.9	25.692	64.51	31.575	60.46	45.649	39.96	19.185	87.39
7 26.8	25.627	64.80	31.517	60.07	45.512	41.74	18.948	89.29
8 5.8	25.526	65.00	31.427	59.71	45.338	43.17	18.623	90.87
8 15.8	25.394	65.08	31.309	59.41	45.134	44.18	18.224	92.04
8 25.8	25.240	65.06	31.171	59.16	44.910	44.77	17.774	92.79
9 4.7	25.069	64.90	31.018	58.94	44.669	44.94	17.283	93.07
9 14.7	24.894	64.62	30.860	58.80	44.424	44.63	16.780	92.85
9 24.7	24.725	64.23	30.708	58.71	44.184	43.89	16.291	92.17
10 4.7	24.570	63.75	30.568	58.70	43.957	42.70	15.833	91.01
10 14.6	24.445	63.20	30.453	58.80	43.758	41.06	15.438	89.42
10 24.6	24.356	62.62	30.370	58.99	43.593	39.03	15.125	87.49
11 3.6	24.313	62.05	30.328	59.33	43.470	36.61	14.911	85.25
11 13.5	24.323	61.55	30.333	59.81	43.401	33.85	14.817	82.82
11 23.5	24.388	61.14	30.387	60.43	43.386	30.83	14.847	80.28
12 3.5	24.506	60.90	30.490	61.23	43.430	27.58	15.005	77.73
12 13.5	24.681	60.70	30.644	62.21	43.535	24.23	15.296	75.27
12 23.4	24.907	60.72	30.843	63.30	43.695	20.86	15.702	73.00
12 33.4	25.177	60.92	31.082	64.51	43.908	17.55	16.218	70.96
12 43.4	25.482	61.29	31.353	65.76	44.167	14.46	16.831	69.26
Pos. Med.	24.719	52.94	30.638	53.21	44.243	37.03	16.810	68.36
Secδ tanδ	1.135	-.538	1.017	-.187	1.285	.806	2.799	-2.614
Dob.Tran.	May 31		May 31		Jun 1		Jun 3	

VOLVER AL INDICE

VOLVER A LISTA DE ESTRELLAS

POSICIONES APARENTES AL PASO SUPERIOR POR GREENWICH

NUM.	628		633		631		634	
EST.	ε Scorpii		χ Ophiuchi		ζ Arae		ε Herculis	
MAG.	2.29		3.20		3.13		3.92	
UT	AR.	DEC.	AR.	DEC.	AR.	DEC.	AR.	DEC.
	h m	° ′	h m	° ′	h m	° ′	h m	° ′
	16 51	-34 20	16 58	+ 9 20	17 0	-56 1	17 1	+30 53
mes d	s	"	s	"	s	"	s	"
1 -.6	41.248	7.63	46.735	12.15	33.794	31.78	10.854	20.51
1 9.4	41.541	7.53	46.959	9.96	34.181	30.46	11.072	17.49
1 19.4	41.871	7.62	47.215	7.87	34.625	29.43	11.330	14.66
1 29.3	42.223	7.87	47.494	5.96	35.107	28.71	11.617	12.16
2 8.3	42.591	8.26	47.789	4.29	35.618	28.28	11.926	10.03
2 18.3	42.969	8.77	48.094	2.93	36.149	28.18	12.250	8.38
2 28.3	43.345	9.37	48.400	1.93	36.684	28.37	12.579	7.26
3 9.2	43.719	10.04	48.705	1.30	37.218	28.84	12.909	6.68
3 19.2	44.083	10.76	49.004	1.09	37.743	29.58	13.232	6.70
3 29.2	44.432	11.52	49.289	1.27	38.247	30.56	13.540	7.25
4 8.2	44.766	12.29	49.562	1.81	38.732	31.77	13.833	8.31
4 18.1	45.077	13.09	49.816	2.70	39.185	33.19	14.102	9.86
4 28.1	45.364	13.90	50.048	3.85	39.601	34.77	14.344	11.77
5 8.1	45.626	14.73	50.258	5.23	39.978	36.51	14.558	14.00
5 18.0	45.854	15.58	50.439	6.79	40.305	38.37	14.736	16.46
5 28.0	46.047	16.42	50.591	8.42	40.579	40.31	14.879	19.03
6 7.0	46.204	17.28	50.712	10.10	40.797	42.30	14.984	21.66
6 17.0	46.317	18.11	50.797	11.77	40.948	44.30	15.047	24.26
6 26.9	46.388	18.92	50.846	13.35	41.036	46.24	15.069	26.73
7 6.9	46.413	19.68	50.859	14.85	41.057	48.11	15.050	29.05
7 16.9	46.393	20.36	50.834	16.19	41.009	49.81	14.988	31.13
7 26.9	46.331	20.95	50.774	17.34	40.899	51.31	14.890	32.91
8 5.8	46.228	21.41	50.681	18.32	40.730	52.57	14.755	34.41
8 15.8	46.089	21.73	50.559	19.07	40.508	53.51	14.588	35.52
8 25.8	45.926	21.88	50.415	19.60	40.249	54.13	14.400	36.27
9 4.7	45.741	21.85	50.254	19.90	39.959	54.38	14.192	36.64
9 14.7	45.549	21.63	50.085	19.94	39.656	54.24	13.976	36.58
9 24.7	45.362	21.25	49.918	19.74	39.359	53.73	13.763	36.12
10 4.7	45.188	20.70	49.759	19.28	39.079	52.85	13.558	35.26
10 14.6	45.041	20.02	49.622	18.55	38.837	51.62	13.376	33.97
10 24.6	44.933	19.25	49.514	17.58	38.648	50.13	13.224	32.32
11 3.6	44.870	18.42	49.441	16.35	38.521	48.40	13.110	30.28
11 13.6	44.863	17.59	49.413	14.86	38.474	46.51	13.043	27.91
11 23.5	44.914	16.82	49.430	13.17	38.507	44.57	13.026	25.27
12 3.5	45.022	16.14	49.497	11.26	38.624	42.62	13.063	22.38
12 13.5	45.189	15.57	49.613	9.21	38.827	40.75	13.156	19.35
12 23.4	45.411	15.14	49.774	7.07	39.107	39.05	13.298	16.26
12 33.4	45.680	14.91	49.976	4.89	39.458	37.55	13.490	13.18
12 43.4	45.990	14.86	50.215	2.76	39.872	36.31	13.725	10.26
Pos. Med.	45.291	7.69	49.762	19.12	39.366	33.23	13.686	30.26
Secδ tanδ	1.211	-.683	1.013	.164	1.789	-1.484	1.165	.598
Dob.Tran.	Jun 4		Jun 5		Jun 6		Jun 6	

VOLVER AL INDICE

VOLVER A LISTA DE ESTRELLAS

POSICIONES APARENTES AL PASO SUPERIOR POR GREENWICH

NUM.	638		643		641		644	
EST.	η Scorpii		π Herculis		δ Herculis*		ϑ Ophiuchi	
MAG.	3.33		3.16		3.14		3.27	
UT	AR.	DEC.	AR.	DEC.	AR.	DEC.	AR.	DEC.
	h m	° ′	h m	° ′	h m	° ′	h m	° ′
	17 13	-43 16	17 15	+36 46	17 15	+24 48	17 23	-25 1
mes d	s	"	s	"	s	"	s	"
1 -.6	50.204	9.30	51.249	47.81	59.435	33.31	27.209	22.62
1 9.4	50.505	8.54	51.452	44.60	59.638	30.49	27.452	22.84
1 19.4	50.852	7.98	51.701	41.60	59.879	27.83	27.731	23.16
1 29.4	51.228	7.64	51.983	38.92	60.149	25.43	28.035	23.55
2 8.3	51.628	7.49	52.292	36.62	60.441	23.36	28.358	23.98
2 18.3	52.043	7.53	52.623	34.83	60.750	21.71	28.695	24.43
2 28.3	52.464	7.75	52.963	33.60	61.064	20.55	29.036	24.87
3 9.3	52.885	8.13	53.306	32.93	61.381	19.88	29.380	25.28
3 19.2	53.301	8.66	53.647	32.89	61.695	19.76	29.720	25.64
3 29.2	53.704	9.31	53.975	33.44	61.998	20.15	30.052	25.94
4 8.2	54.094	10.08	54.288	34.53	62.288	21.02	30.375	26.19
4 18.1	54.463	10.97	54.578	36.14	62.560	22.35	30.682	26.40
4 28.1	54.807	11.95	54.840	38.16	62.808	24.04	30.971	26.56
5 8.1	55.123	13.03	55.073	40.53	63.032	26.04	31.239	26.72
5 18.1	55.404	14.19	55.268	43.16	63.225	28.27	31.481	26.86
5 28.0	55.645	15.41	55.424	45.94	63.385	30.63	31.692	27.01
6 7.0	55.846	16.69	55.540	48.80	63.510	33.06	31.871	27.19
6 17.0	55.996	17.98	55.610	51.64	63.595	35.48	32.011	27.38
6 27.0	56.098	19.26	55.636	54.37	63.641	37.80	32.112	27.60
7 6.9	56.148	20.51	55.616	56.95	63.647	40.00	32.170	27.84
7 16.9	56.142	21.67	55.550	59.28	63.611	41.99	32.183	28.08
7 26.9	56.087	22.72	55.444	61.31	63.538	43.73	32.156	28.31
8 5.8	55.983	23.62	55.297	63.03	63.428	45.20	32.087	28.52
8 15.8	55.836	24.31	55.116	64.36	63.285	46.34	31.981	28.69
8 25.8	55.655	24.79	54.909	65.29	63.118	47.16	31.847	28.80
9 4.8	55.447	25.02	54.680	65.82	62.931	47.63	31.688	28.83
9 14.7	55.226	24.98	54.440	65.88	62.733	47.72	31.516	28.78
9 24.7	55.005	24.68	54.200	65.52	62.534	47.45	31.342	28.65
10 4.7	54.794	24.12	53.967	64.71	62.342	46.80	31.174	28.44
10 14.7	54.611	23.33	53.754	63.44	62.169	45.77	31.026	28.17
10 24.6	54.465	22.34	53.571	61.77	62.023	44.39	30.908	27.85
11 3.6	54.367	21.19	53.425	59.69	61.912	42.66	30.827	27.52
11 13.6	54.330	19.95	53.327	57.23	61.846	40.59	30.793	27.21
11 23.5	54.354	18.68	53.280	54.49	61.826	38.27	30.810	26.95
12 3.5	54.444	17.42	53.288	51.46	61.856	35.69	30.881	26.76
12 13.5	54.600	16.25	53.355	48.28	61.940	32.94	30.999	26.91
12 23.5	54.817	15.19	53.476	45.03	62.072	30.12	31.172	26.68
12 33.4	55.090	14.28	53.649	41.77	62.250	27.28	31.392	26.80
12 43.4	55.412	13.58	53.872	38.67	62.469	24.54	31.651	27.04
Pos. Med.	54.761	7.94	54.103	58.30	62.357	42.66	30.994	18.17
Secδ tanδ	1.373	-.941	1.249	.748	1.102	.462	1.104	-.467
Dob.Tran.	Jun 9		Jun 10		Jun 10		Jun 12	

VOLVER AL INDICE

VOLVER A LISTA DE ESTRELLAS

POSICIONES APARENTES AL PASO SUPERIOR POR GREENWICH

NUM.	645		649		648		651	
EST.	β Arae		υ Scorpii		δ Arae		α Arae	
MAG.	2.85		2.69		3.62		2.95	
UT	AR.	DEC.	AR.	DEC.	AR.	DEC.	AR.	DEC.
	h m	° ′	h m	° ′	h m	° ′	h m	° ′
	17 27	-55 32	17 32	-37 18	17 33	-60 41	17 33	-49 53
mes d	s	"	s	"	s	"	s	"
1 -.5	14.950	62.21	21.673	50.69	12.720	65.94	39.325	37.49
1 9.4	15.296	60.69	21.934	50.12	13.094	64.12	39.629	36.21
1 19.4	15.702	59.40	22.238	49.71	13.541	62.54	39.987	35.13
1 29.4	16.152	58.38	22.572	49.44	14.040	61.24	40.384	34.28
2 8.3	16.636	57.62	22.930	49.31	14.581	60.23	40.812	33.65
2 18.3	17.147	57.15	23.305	49.31	15.157	59.54	41.263	33.25
2 28.3	17.668	56.97	23.688	49.42	15.747	59.17	41.725	33.09
3 9.3	18.196	57.05	24.075	49.62	16.348	59.11	42.194	33.13
3 19.2	18.722	57.40	24.462	49.91	16.950	59.37	42.662	33.40
3 29.2	19.235	58.00	24.839	50.27	17.538	59.93	43.120	33.86
4 8.2	19.734	58.84	25.208	50.70	18.111	60.76	43.567	34.51
4 18.2	20.209	59.91	25.561	51.20	18.657	61.87	43.995	35.36
4 28.1	20.652	61.17	25.894	51.77	19.167	63.22	44.396	36.36
5 8.1	21.061	62.62	26.205	52.42	19.638	64.80	44.770	37.52
5 18.1	21.424	64.24	26.485	53.14	20.057	66.57	45.105	38.83
5 28.0	21.737	65.98	26.731	53.92	20.418	68.50	45.397	40.25
6 7.0	21.997	67.82	26.941	54.76	20.716	70.56	45.644	41.77
6 17.0	22.192	69.72	27.106	55.65	20.940	72.69	45.835	43.36
6 27.0	22.324	71.62	27.226	56.56	21.091	74.83	45.969	44.96
7 6.9	22.388	73.49	27.298	57.47	21.163	76.95	46.044	46.55
7 16.9	22.380	75.26	27.318	58.36	21.152	78.96	46.056	48.07
7 26.9	22.308	76.88	27.290	59.19	21.067	80.82	46.010	49.48
8 5.9	22.172	78.30	27.215	59.93	20.907	82.47	45.905	50.73
8 15.8	21.978	79.45	27.096	60.54	20.679	83.82	45.748	51.76
8 25.8	21.740	80.31	26.944	61.00	20.400	84.85	45.550	52.55
9 4.8	21.464	80.83	26.762	61.28	20.076	85.51	45.316	53.04
9 14.7	21.168	80.97	26.564	61.35	19.726	85.76	45.063	53.21
9 24.7	20.869	80.74	26.362	61.22	19.372	85.59	44.805	53.07
10 4.7	20.578	80.14	26.165	60.88	19.025	85.00	44.553	52.59
10 14.7	20.318	79.17	25.990	60.35	18.711	84.00	44.326	51.80
10 24.6	20.103	77.89	25.846	59.66	18.446	82.64	44.137	50.74
11 3.6	19.944	76.34	25.742	58.84	18.244	80.96	43.998	49.43
11 13.6	19.858	74.59	25.692	57.94	18.123	79.03	43.922	47.95
11 23.6	19.849	72.71	25.697	57.00	18.089	76.95	43.913	46.37
12 3.5	19.921	70.78	25.762	56.07	18.147	74.76	43.975	44.73
12 13.5	20.078	68.86	25.887	55.21	18.303	72.57	44.113	43.12
12 23.5	20.312	67.05	26.066	54.41	18.547	70.47	44.318	41.58
12 33.4	20.619	65.37	26.300	53.73	18.876	68.49	44.588	40.17
12 43.4	20.992	63.91	26.580	53.20	19.282	66.73	44.917	38.94
Pos. Med.	20.505	60.13	25.933	46.49	18.928	63.45	44.353	34.17
Secδ tanδ	1.768	-1.458	1.257	-.762	2.043	-1.782	1.552	-1.187
Dob.Tran.	Jun 13		Jun 14		Jun 14		Jun 14	

VOLVER AL INDICE

VOLVER A LISTA DE ESTRELLAS

POSICIONES APARENTES AL PASO SUPERIOR POR GREENWICH

NUM.	652		656		654		660	
EST.	λ Scorpii		α Ophiuchi		ϑ Scorpii		χ Scorpii	
MAG.	1.63		2.08		1.87		2.41	
UT	AR.	DEC.	AR.	DEC.	AR.	DEC.	AR.	DEC.
	h m	° ′	h m	° ′	h m	° ′	h m	° ′
	17 35	-37 7	17 36	+12 32	17 39	-43 0	17 44	-39 2
mes d	s	"	s	"	s	"	s	"
1 -.5	12.236	13.62	1.286	29.38	.360	43.40	6.733	29.79
1 9.4	12.493	13.04	1.475	27.11	.631	42.46	6.986	29.05
1 19.4	12.794	12.62	1.701	24.93	.950	41.69	7.284	28.45
1 29.4	13.125	12.34	1.954	22.93	1.302	41.10	7.614	28.00
2 8.3	13.479	12.18	2.228	21.16	1.682	40.67	7.971	27.68
2 18.3	13.853	12.16	2.519	19.72	2.083	40.42	8.348	27.50
2 28.3	14.234	12.24	2.818	18.64	2.494	40.33	8.735	27.44
3 9.3	14.620	12.41	3.121	17.97	2.911	40.38	9.128	27.48
3 19.2	15.005	12.67	3.425	17.73	3.329	40.59	9.523	27.63
3 29.2	15.382	12.99	3.721	17.92	3.738	40.92	9.912	27.88
4 8.2	15.752	13.39	4.010	18.51	4.139	41.39	10.294	28.21
4 18.2	16.106	13.86	4.286	19.48	4.525	41.98	10.661	28.64
4 28.1	16.440	14.40	4.543	20.76	4.888	42.69	11.009	29.16
5 8.1	16.752	15.01	4.781	22.31	5.228	43.52	11.337	29.78
5 18.1	17.035	15.69	4.993	24.06	5.536	44.46	11.634	30.48
5 28.0	17.284	16.45	5.177	25.93	5.807	45.49	11.898	31.28
6 7.0	17.496	17.26	5.330	27.87	6.038	46.62	12.126	32.15
6 17.0	17.664	18.13	5.447	29.81	6.221	47.80	12.307	33.10
6 27.0	17.787	19.02	5.526	31.68	6.354	49.02	12.442	34.08
7 6.9	17.862	19.93	5.568	33.47	6.435	50.24	12.528	35.08
7 16.9	17.885	20.81	5.567	35.09	6.459	51.43	12.560	36.07
7 26.9	17.860	21.63	5.530	36.53	6.431	52.54	12.542	37.01
8 5.9	17.788	22.38	5.454	37.77	6.351	53.54	12.475	37.86
8 15.8	17.671	23.00	5.345	38.76	6.223	54.38	12.361	38.59
8 25.8	17.521	23.46	5.209	39.51	6.058	55.02	12.210	39.17
9 4.8	17.341	23.76	5.050	40.00	5.860	55.44	12.028	39.55
9 14.7	17.144	23.85	4.877	40.21	5.642	55.61	11.826	39.72
9 24.7	16.943	23.74	4.701	40.14	5.419	55.52	11.618	39.68
10 4.7	16.745	23.42	4.528	39.80	5.200	55.16	11.413	39.41
10 14.7	16.569	22.92	4.370	39.15	5.003	54.55	11.226	38.92
10 24.6	16.423	22.25	4.237	38.24	4.839	53.73	11.070	38.25
11 3.6	16.318	21.45	4.134	37.04	4.717	52.71	10.953	37.41
11 13.6	16.265	20.56	4.072	35.57	4.651	51.56	10.889	36.46
11 23.6	16.267	19.64	4.054	33.87	4.645	50.33	10.880	35.45
12 3.5	16.328	18.72	4.082	31.94	4.701	49.07	10.931	34.42
12 13.5	16.450	17.86	4.160	29.85	4.824	47.84	11.044	33.42
12 23.5	16.625	17.07	4.283	27.66	5.007	46.69	11.212	32.48
12 33.4	16.855	16.38	4.448	25.40	5.247	45.63	11.435	31.63
12 43.4	17.132	15.84	4.654	23.20	5.539	44.73	11.708	30.92
Pos. Med.	16.488	9.08	4.373	38.21	4.919	38.89	11.078	24.41
Secδ tanδ	1.254	-.757	1.024	.222	1.368	-.933	1.287	-.811
Dob.Tran.	Jun 15		Jun 15		Jun 16		Jun 17	

VOLVER AL INDICE

VOLVER A LISTA DE ESTRELLAS

POSICIONES APARENTES AL PASO SUPERIOR POR GREENWICH

NUM.	665		667		661		668	
EST.	β Ophiuchi		μ Herculis		η Pavonis		γ Ophiuchi	
MAG.	2.77		3.42		3.62		3.75	
UT	AR.	DEC.	AR.	DEC.	AR.	DEC.	AR.	DEC.
	h m	° ′	h m	° ′	h m	° ′	h m	° ′
	17 44	+ 4 33	17 47	+27 42	17 48	-64 43	17 49	+ 2 41
mes d	s	"	s	"	s	"	s	"
1 -.5	37.837	23.30	22.144	18.04	1.591	59.36	4.104	51.01
1 9.4	38.023	21.48	22.314	15.12	1.977	57.23	4.288	49.29
1 19.4	38.245	19.69	22.527	12.34	2.449	55.32	4.507	47.61
1 29.4	38.494	18.04	22.772	9.80	2.986	53.70	4.754	46.04
2 8.4	38.764	16.57	23.044	7.55	3.577	52.36	5.022	44.64
2 18.3	39.051	15.34	23.339	5.73	4.213	51.35	5.307	43.47
2 28.3	39.346	14.43	23.646	4.39	4.872	50.69	5.602	42.59
3 9.3	39.647	13.83	23.962	3.55	5.549	50.35	5.902	42.01
3 19.2	39.949	13.60	24.281	3.28	6.231	50.38	6.205	41.79
3 29.2	40.246	13.72	24.594	3.54	6.904	50.72	6.502	41.89
4 8.2	40.537	14.17	24.900	4.32	7.563	51.39	6.795	42.31
4 18.2	40.816	14.95	25.192	5.59	8.196	52.38	7.077	43.05
4 28.1	41.080	15.99	25.463	7.27	8.790	53.65	7.344	44.02
5 8.1	41.327	17.24	25.713	9.30	9.343	55.19	7.595	45.21
5 18.1	41.549	18.67	25.933	11.61	9.838	56.97	7.822	46.56
5 28.1	41.745	20.19	26.120	14.08	10.267	58.94	8.023	47.99
6 7.0	41.912	21.77	26.274	16.67	10.628	61.08	8.196	49.48
6 17.0	42.043	23.35	26.386	19.29	10.903	63.33	8.332	50.97
6 27.0	42.139	24.86	26.457	21.83	11.093	65.63	8.433	52.40
7 6.9	42.196	26.30	26.486	24.28	11.194	67.93	8.496	53.75
7 16.9	42.211	27.62	26.469	26.53	11.199	70.15	8.517	54.98
7 26.9	42.189	28.77	26.412	28.54	11.117	72.22	8.500	56.07
8 5.9	42.128	29.78	26.314	30.30	10.947	74.10	8.444	57.01
8 15.8	42.032	30.58	26.179	31.72	10.696	75.69	8.352	57.76
8 25.8	41.909	31.20	26.015	32.80	10.383	76.95	8.232	58.34
9 4.8	41.761	31.63	25.825	33.54	10.014	77.83	8.086	58.74
9 14.8	41.598	31.83	25.620	33.87	9.611	78.27	7.926	58.94
9 24.7	41.430	31.84	25.410	33.82	9.196	78.27	7.759	58.95
10 4.7	41.264	31.63	25.201	33.38	8.784	77.81	7.594	58.77
10 14.7	41.112	31.20	25.006	32.53	8.404	76.90	7.442	58.38
10 24.6	40.983	30.56	24.835	31.31	8.074	75.58	7.312	57.79
11 3.6	40.884	29.69	24.693	29.69	7.809	73.90	7.212	57.00
11 13.6	40.824	28.61	24.594	27.72	7.633	71.90	7.151	56.00
11 23.6	40.807	27.33	24.539	25.46	7.552	69.70	7.132	54.83
12 3.5	40.835	25.86	24.533	22.91	7.574	67.35	7.158	53.47
12 13.5	40.912	24.24	24.579	20.16	7.707	64.94	7.233	51.96
12 23.5	41.033	22.52	24.674	17.31	7.940	62.58	7.351	50.35
12 33.5	41.197	20.72	24.818	14.39	8.272	60.32	7.512	48.66
12 43.4	41.399	18.93	25.006	11.55	8.696	58.25	7.712	46.98
Pos. Med.	41.028	32.08	25.119	27.97	8.482	55.07	7.327	59.77
Secδ tanδ	1.003	.080	1.130	.525	2.343	-2.119	1.001	.047
Dob.Tran.	Jun 17		Jun 18		Jun 18		Jun 18	

VOLVER AL INDICE

VOLVER A LISTA DE ESTRELLAS

POSICIONES APARENTES AL PASO SUPERIOR POR GREENWICH

NUM.	666		669		673		679	
EST.	ι¹ Scorpii		G Scorpii		ν Ophiuchi		γ Sagittarii	
MAG.	3.03		3.21		3.34		2.99	
UT	AR.	DEC.	AR.	DEC.	AR.	DEC.	AR.	DEC.
	h m	° ′	h m	° ′	h m	° ′	h m	° ′
	17 49	-40 8	17 51	-37 2	18 0	- 9 46	18 7	-30 25
mes d	s	"	s	"	s	"	s	"
1 -.5	13.589	8.20	27.377	61.33	19.133	37.23	18.975	25.37
1 9.4	13.838	7.36	27.617	60.66	19.318	38.21	19.184	25.00
1 19.4	14.135	6.66	27.901	60.11	19.540	39.18	19.434	24.73
1 29.4	14.465	6.11	28.217	59.69	19.790	40.10	19.716	24.53
2 8.4	14.822	5.69	28.560	59.39	20.062	40.95	20.023	24.38
2 18.3	15.202	5.42	28.925	59.19	20.352	41.67	20.352	24.28
2 28.3	15.592	5.28	29.299	59.10	20.652	42.22	20.694	24.21
3 9.3	15.991	5.25	29.682	59.09	20.959	42.58	21.045	24.16
3 19.3	16.391	5.33	30.067	59.16	21.271	42.72	21.402	24.11
3 29.2	16.786	5.53	30.447	59.31	21.579	42.66	21.756	24.07
4 8.2	17.175	5.82	30.822	59.53	21.884	42.39	22.109	24.03
4 18.2	17.551	6.23	31.184	59.83	22.181	41.94	22.453	24.02
4 28.1	17.908	6.73	31.529	60.21	22.465	41.33	22.782	24.04
5 8.1	18.244	7.34	31.854	60.67	22.734	40.61	23.097	24.10
5 18.1	18.550	8.06	32.152	61.23	22.981	39.79	23.388	24.22
5 28.1	18.823	8.88	32.417	61.86	23.203	38.95	23.651	24.41
6 7.0	19.059	9.78	32.647	62.59	23.397	38.09	23.882	24.68
6 17.0	19.248	10.76	32.833	63.38	23.556	37.26	24.074	25.03
6 27.0	19.391	11.79	32.974	64.23	23.678	36.48	24.224	25.44
7 6.9	19.483	12.85	33.067	65.11	23.762	35.78	24.330	25.92
7 16.9	19.520	13.90	33.107	65.99	23.802	35.16	24.385	26.45
7 26.9	19.506	14.90	33.098	66.84	23.802	34.64	24.395	26.99
8 5.9	19.441	15.82	33.040	67.64	23.761	34.21	24.357	27.52
8 15.8	19.328	16.61	32.935	68.33	23.682	33.88	24.274	28.02
8 25.8	19.178	17.25	32.794	68.88	23.572	33.64	24.155	28.46
9 4.8	18.995	17.69	32.621	69.28	23.435	33.48	24.003	28.80
9 14.8	18.790	17.91	32.427	69.48	23.279	33.40	23.828	29.03
9 24.7	18.579	17.90	32.225	69.49	23.117	33.39	23.644	29.12
10 4.7	18.368	17.66	32.025	69.28	22.953	33.46	23.458	29.08
10 14.7	18.176	17.19	31.841	68.88	22.801	33.61	23.284	28.90
10 24.6	18.014	16.51	31.686	68.31	22.671	33.84	23.134	28.60
11 3.6	17.890	15.66	31.568	67.58	22.570	34.16	23.016	28.20
11 13.6	17.819	14.68	31.500	66.75	22.507	34.59	22.942	27.71
11 23.6	17.804	13.62	31.485	65.85	22.488	35.12	22.915	27.19
12 3.5	17.848	12.52	31.528	64.93	22.514	35.76	22.941	26.65
12 13.5	17.956	11.45	31.631	64.04	22.589	36.50	23.023	26.15
12 23.5	18.120	10.43	31.788	63.20	22.707	37.33	23.152	25.72
12 33.5	18.339	9.49	31.998	62.43	22.868	38.25	23.331	25.26
12 43.4	18.610	8.68	32.258	61.78	23.070	39.20	23.557	24.91
Pos. Med.	17.987	2.31	31.627	54.98	22.569	28.58	22.948	17.10
Secδ tanδ	1.308	-.843	1.253	-.755	1.015	-.172	1.160	-.587
Dob.Tran.	Jun 18		Jun 19		Jun 21		Jun 23	

VOLVER AL INDICE

VOLVER A LISTA DE ESTRELLAS

POSICIONES APARENTES AL PASO SUPERIOR POR GREENWICH

NUM.	1471		680		683		687	
EST.	ϑ Arae		72 Ophiuchi		η Sagittarii*		δ Sagittarii	
MAG.	3.66		3.73		3.11		2.70	
UT	AR.	DEC.	AR.	DEC.	AR.	DEC.	AR.	DEC.
	h m	° ′	h m	° ′	h m	° ′	h m	° ′
	18 8	-50 5	18 8	+ 9 33	18 19	-36 45	18 22	-29 49
mes d	s	"	s	"	s	"	s	"
1 -.5	27.285	21.30	27.556	58.77	12.891	15.99	29.804	5.28
1 9.5	27.541	19.78	27.716	56.75	13.097	15.19	29.994	4.86
1 19.4	27.856	18.40	27.914	54.77	13.350	14.47	30.228	4.52
1 29.4	28.215	17.19	28.141	52.94	13.638	13.84	30.494	4.24
2 8.4	28.611	16.15	28.392	51.30	13.957	13.30	30.788	4.00
2 18.3	29.039	15.32	28.665	49.94	14.300	12.84	31.106	3.79
2 28.3	29.484	14.69	28.950	48.92	14.659	12.47	31.438	3.60
3 9.3	29.944	14.26	29.244	48.26	15.031	12.17	31.782	3.41
3 19.3	30.412	14.05	29.544	48.00	15.411	11.94	32.134	3.21
3 29.2	30.878	14.04	29.843	48.15	15.790	11.78	32.486	3.02
4 8.2	31.340	14.23	30.140	48.67	16.170	11.70	32.839	2.84
4 18.2	31.790	14.63	30.428	49.57	16.542	11.71	33.186	2.67
4 28.2	32.221	15.23	30.703	50.78	16.901	11.81	33.522	2.53
5 8.1	32.630	16.03	30.964	52.24	17.245	12.01	33.844	2.44
5 18.1	33.005	17.02	31.202	53.92	17.565	12.32	34.145	2.41
5 28.1	33.342	18.17	31.414	55.72	17.855	12.74	34.419	2.46
6 7.0	33.636	19.47	31.599	57.61	18.113	13.29	34.664	2.60
6 17.0	33.876	20.91	31.747	59.51	18.329	13.94	34.870	2.83
6 27.0	34.061	22.42	31.859	61.36	18.501	14.68	35.035	3.16
7 7.0	34.185	24.00	31.932	63.14	18.624	15.50	35.156	3.56
7 16.9	34.243	25.57	31.963	64.77	18.694	16.36	35.227	4.03
7 26.9	34.241	27.08	31.953	66.24	18.713	17.24	35.251	4.54
8 5.9	34.175	28.51	31.904	67.53	18.681	18.10	35.227	5.06
8 15.9	34.050	29.77	31.816	68.59	18.599	18.90	35.156	5.58
8 25.8	33.878	30.82	31.699	69.43	18.476	19.59	35.047	6.04
9 4.8	33.663	31.62	31.553	70.04	18.317	20.16	34.904	6.44
9 14.8	33.418	32.12	31.389	70.38	18.131	20.55	34.736	6.73
9 24.7	33.160	32.31	31.217	70.48	17.933	20.76	34.555	6.90
10 4.7	32.898	32.16	31.043	70.33	17.729	20.77	34.369	6.95
10 14.7	32.652	31.68	30.879	69.89	17.537	20.57	34.193	6.86
10 24.7	32.436	30.89	30.734	69.22	17.367	20.17	34.037	6.64
11 3.6	32.261	29.82	30.615	68.28	17.229	19.61	33.910	6.31
11 13.6	32.144	28.51	30.534	67.09	17.136	18.90	33.825	5.90
11 23.6	32.089	27.02	30.492	65.68	17.093	18.08	33.786	5.42
12 3.6	32.101	25.41	30.494	64.05	17.104	17.20	33.796	4.92
12 13.5	32.188	23.74	30.543	62.25	17.175	16.30	33.862	4.42
12 23.5	32.342	22.09	30.636	60.33	17.298	15.42	33.977	3.99
12 33.5	32.562	20.48	30.772	58.34	17.473	14.55	34.135	3.52
12 43.4	32.843	18.98	30.949	56.36	17.700	13.75	34.345	3.11
Pos. Med.	32.295	13.67	30.716	68.81	17.094	6.74	33.743	-4.58
Secδ tanδ	1.559	-1.195	1.014	.169	1.248	-.747	1.153	-.573
Dob.Tran.	Jun 23		Jun 23		Jun 26		Jun 27	

VOLVER AL INDICE

VOLVER A LISTA DE ESTRELLAS

POSICIONES APARENTES AL PASO SUPERIOR POR GREENWICH

NUM.	688		689		691		692	
EST.	η Serpentis		ε Sagittarii		α Telescopii		λ Sagittarii	
MAG.	3.26		1.85		3.51		2.81	
UT	AR.	DEC.	AR.	DEC.	AR.	DEC.	AR.	DEC.
	h m	° ′	h m	° ′	h m	° ′	h m	° ′
	18 22	- 2 53	18 25	-34 22	18 28	-45 57	18 29	-25 24
mes d	s	"	s	"	s	"	s	"
1 -.5	31.391	35.96	43.759	24.36	42.657	18.29	25.145	31.87
1 9.5	31.547	37.27	43.952	23.66	42.872	16.90	25.326	31.62
1 19.4	31.741	38.56	44.192	23.04	43.142	15.59	25.545	31.52
1 29.4	31.964	39.77	44.467	22.49	43.454	14.40	25.795	31.44
2 8.4	32.212	40.86	44.771	22.00	43.803	13.34	26.072	31.37
2 18.4	32.481	41.76	45.101	21.58	44.185	12.43	26.372	31.30
2 28.3	32.763	42.44	45.446	21.21	44.586	11.67	26.688	31.19
3 9.3	33.056	42.87	45.805	20.89	45.004	11.06	27.016	31.04
3 19.3	33.356	43.01	46.173	20.62	45.434	10.61	27.352	30.85
3 29.2	33.658	42.87	46.542	20.39	45.866	10.33	27.691	30.61
4 8.2	33.959	42.46	46.912	20.22	46.300	10.22	28.031	30.32
4 18.2	34.255	41.79	47.277	20.10	46.727	10.29	28.367	30.01
4 28.2	34.541	40.92	47.630	20.07	47.140	10.53	28.693	29.70
5 8.1	34.815	39.87	47.969	20.12	47.536	10.95	29.007	29.39
5 18.1	35.069	38.68	48.286	20.27	47.906	11.56	29.301	29.12
5 28.1	35.300	37.43	48.576	20.52	48.243	12.34	29.571	28.92
6 7.1	35.505	36.13	48.835	20.89	48.543	13.29	29.812	28.78
6 17.0	35.675	34.85	49.053	21.37	48.795	14.40	30.017	28.73
6 27.0	35.810	33.63	49.228	21.95	48.997	15.61	30.183	28.77
7 7.0	35.907	32.49	49.357	22.61	49.144	16.92	30.307	28.90
7 16.9	35.960	31.45	49.433	23.34	49.229	18.28	30.382	29.11
7 26.9	35.972	30.55	49.461	24.09	49.256	19.63	30.412	29.38
8 5.9	35.943	29.78	49.437	24.85	49.222	20.94	30.395	29.70
8 15.9	35.875	29.17	49.364	25.57	49.132	22.15	30.333	30.04
8 25.8	35.774	28.70	49.251	26.21	48.993	23.20	30.233	30.37
9 4.8	35.643	28.37	49.101	26.75	48.811	24.07	30.099	30.67
9 14.8	35.491	28.20	48.924	27.14	48.596	24.69	29.940	30.92
9 24.8	35.329	28.17	48.733	27.38	48.365	25.04	29.768	31.09
10 4.7	35.162	28.28	48.537	27.44	48.125	25.10	29.590	31.18
10 14.7	35.004	28.54	48.349	27.31	47.895	24.86	29.419	31.18
10 24.7	34.863	28.93	48.183	27.01	47.688	24.33	29.268	31.10
11 3.6	34.747	29.48	48.046	26.56	47.515	23.54	29.143	30.94
11 13.6	34.667	30.18	47.951	25.97	47.391	22.51	29.057	30.73
11 23.6	34.626	31.01	47.905	25.28	47.322	21.29	29.014	30.49
12 3.6	34.627	31.99	47.910	24.54	47.313	19.94	29.018	30.23
12 13.5	34.675	33.09	47.972	23.77	47.371	18.51	29.075	29.99
12 23.5	34.766	34.27	48.086	23.03	47.491	17.05	29.183	29.81
12 33.5	34.898	35.54	48.249	22.29	47.671	15.60	29.321	29.62
12 43.5	35.071	36.81	48.463	21.59	47.909	14.21	29.519	29.45
Pos. Med.	34.698	25.97	47.856	14.35	47.327	8.16	28.941	21.30
Secδ tanδ	1.001	-.050	1.212	-.684	1.438	-1.034	1.107	-.475
Dob.Tran.	Jun 27		Jun 27		Jun 28		Jun 28	

VOLVER AL INDICE

VOLVER A LISTA D ESTRELLAS

POSICIONES APARENTES AL PASO SUPERIOR POR GREENWICH

NUM.	699		1487		705		706	
EST.	α Lyrae (Vega)		φ Sagittarii		β Lyrae		σ Sagittarii	
MAG.	0.03		3.17		3.3 a 4.3		2.02	
UT	AR.	DEC.	AR.	DEC.	AR.	DEC.	AR.	DEC.
	h m	° ′	h m	° ′	h m	° ′	h m	° ′
	18 37	+38 47	18 47	-26 57	18 50	+33 23	18 56	-26 15
mes d	s	"	s	"	s	"	s	"
1 -.5	43.027	77.10	7.347	60.20	56.004	22.39	43.214	63.62
1 9.5	43.133	73.93	7.498	59.83	56.097	19.43	43.352	63.32
1 19.4	43.290	70.82	7.701	59.53	56.239	16.49	43.544	63.00
1 29.4	43.490	67.90	7.937	59.25	56.421	13.72	43.768	62.71
2 8.4	43.730	65.25	8.201	58.97	56.640	11.18	44.023	62.41
2 18.4	44.007	63.00	8.492	58.69	56.894	8.99	44.304	62.09
2 28.3	44.308	61.23	8.801	58.38	57.173	7.26	44.604	61.73
3 9.3	44.632	59.99	9.125	58.04	57.474	6.00	44.921	61.34
3 19.3	44.970	59.35	9.461	57.67	57.792	5.32	45.251	60.90
3 29.3	45.314	59.32	9.802	57.26	58.117	5.21	45.588	60.41
4 8.2	45.659	59.87	10.147	56.83	58.447	5.65	45.931	59.90
4 18.2	45.997	61.01	10.492	56.39	58.774	6.66	46.275	59.37
4 28.2	46.320	62.66	10.828	55.96	59.090	8.15	46.613	58.84
5 8.1	46.625	64.75	11.157	55.56	59.393	10.09	46.943	58.35
5 18.1	46.901	67.25	11.467	55.22	59.672	12.41	47.257	57.91
5 28.1	47.143	70.00	11.754	54.96	59.922	15.00	47.550	57.55
6 7.1	47.349	72.97	12.015	54.80	60.140	17.80	47.817	57.29
6 17.0	47.509	76.06	12.240	54.74	60.317	20.73	48.050	57.14
6 27.0	47.623	79.14	12.426	54.79	60.451	23.67	48.244	57.11
7 7.0	47.689	82.19	12.570	54.95	60.540	26.60	48.396	57.20
7 17.0	47.700	85.11	12.665	55.21	60.579	29.40	48.500	57.40
7 26.9	47.664	87.80	12.713	55.55	60.570	32.01	48.557	57.69
8 5.9	47.577	90.26	12.712	55.95	60.514	34.42	48.566	58.05
8 15.9	47.444	92.40	12.664	56.39	60.411	36.52	48.526	58.47
8 25.8	47.272	94.17	12.576	56.82	60.270	38.29	48.445	58.90
9 4.8	47.066	95.58	12.450	57.23	60.094	39.73	48.327	59.32
9 14.8	46.833	96.54	12.297	57.58	59.890	40.75	48.178	59.69
9 24.8	46.586	97.08	12.126	57.85	59.671	41.38	48.012	60.00
10 4.7	46.331	97.16	11.947	58.02	59.441	41.58	47.834	60.22
10 14.7	46.082	96.76	11.771	58.09	59.214	41.33	47.659	60.34
10 24.7	45.849	95.92	11.612	58.05	59.000	40.66	47.498	60.35
11 3.7	45.639	94.61	11.476	57.91	58.806	39.56	47.358	60.27
11 13.6	45.465	92.85	11.376	57.68	58.645	38.02	47.253	60.11
11 23.6	45.333	90.71	11.317	57.39	58.521	36.12	47.188	59.87
12 3.6	45.248	88.20	11.305	57.06	58.440	33.85	47.166	59.58
12 13.5	45.217	85.40	11.343	56.71	58.408	31.30	47.195	59.27
12 23.5	45.237	82.41	11.430	56.37	58.424	28.54	47.271	58.95
12 33.5	45.311	79.28	11.556	56.11	58.489	25.63	47.391	58.75
12 43.5	45.438	76.16	11.733	55.69	58.603	22.70	47.552	58.32
Pos. Med.	46.129	87.86	11.151	48.03	59.104	32.97	46.975	50.72
Secδ tanδ	1.283	.804	1.122	-.509	1.198	.659	1.115	-.493
Dob.Tran.	Jun 30		Jul 3		Jul 4		Jul 5	

VOLVER AL INDICE

VOLVER A LISTA DE ESTRELLAS

POSICIONES APARENTES AL PASO SUPERIOR POR GREENWICH

NUM.	1495		710		713		716	
EST.	114 G.Sagittarii		ξ^2 Sagittarii		γ Lyrae		ζ Aquilae	
MAG.	5.58		3.51		3.24		2.99	
UT	AR.	DEC.	AR.	DEC.	AR.	DEC.	AR.	DEC.
	h m	° ′	h m	° ′	h m	° ′	h m	° ′
	18 56	-16 20	18 59	-21 4	18 59	+32 43	19 6	+13 53
mes d	s	"	s	"	s	"	s	"
1 -.5	52.107	53.72	7.788	33.24	48.530	17.75	29.035	53.89
1 9.5	52.238	54.06	7.916	33.28	48.614	14.84	29.133	51.82
1 19.5	52.415	54.43	8.100	33.32	48.746	11.95	29.272	49.77
1 29.4	52.624	54.73	8.313	33.33	48.919	9.20	29.444	47.83
2 8.4	52.860	54.98	8.555	33.30	49.128	6.66	29.647	46.05
2 18.4	53.122	55.13	8.824	33.21	49.374	4.48	29.878	44.54
2 28.4	53.401	55.17	9.110	33.04	49.645	2.72	30.130	43.37
3 9.3	53.696	55.08	9.413	32.78	49.939	1.43	30.400	42.55
3 19.3	54.005	54.83	9.730	32.42	50.252	.71	30.687	42.17
3 29.3	54.319	54.45	10.054	31.97	50.574	.55	30.982	42.21
4 8.2	54.640	53.93	10.384	31.43	50.902	.93	31.284	42.67
4 18.2	54.961	53.29	10.714	30.82	51.230	1.89	31.588	43.56
4 28.2	55.276	52.56	11.040	30.17	51.548	3.33	31.886	44.80
5 8.2	55.585	51.77	11.359	29.50	51.854	5.22	32.178	46.37
5 18.1	55.879	50.95	11.663	28.84	52.139	7.50	32.453	48.22
5 28.1	56.152	50.15	11.946	28.23	52.396	10.05	32.708	50.24
6 7.1	56.401	49.39	12.205	27.69	52.622	12.83	32.939	52.41
6 17.1	56.618	48.69	12.431	27.24	52.808	15.74	33.136	54.64
6 27.0	56.799	48.09	12.620	26.90	52.953	18.68	33.298	56.86
7 7.0	56.941	47.59	12.769	26.67	53.052	21.61	33.421	59.04
7 17.0	57.037	47.21	12.871	26.55	53.101	24.43	33.499	61.10
7 26.9	57.089	46.95	12.928	26.55	53.103	27.06	33.536	63.00
8 5.9	57.096	46.78	12.938	26.63	53.057	29.50	33.528	64.73
8 15.9	57.058	46.72	12.902	26.80	52.964	31.65	33.477	66.22
8 25.9	56.982	46.74	12.826	27.01	52.832	33.48	33.389	67.46
9 4.8	56.870	46.81	12.713	27.25	52.663	34.97	33.267	68.46
9 14.8	56.731	46.94	12.572	27.50	52.467	36.06	33.118	69.16
9 24.8	56.575	47.08	12.413	27.73	52.253	36.77	32.952	69.59
10 4.8	56.408	47.24	12.242	27.92	52.027	37.05	32.775	69.73
10 14.7	56.244	47.40	12.074	28.07	51.803	36.89	32.599	69.56
10 24.7	56.094	47.57	11.919	28.17	51.590	36.32	32.434	69.11
11 3.7	55.963	47.73	11.785	28.23	51.396	35.30	32.285	68.37
11 13.6	55.865	47.91	11.683	28.24	51.232	33.86	32.164	67.33
11 23.6	55.804	48.10	11.619	28.23	51.104	32.05	32.077	66.04
12 3.6	55.783	48.32	11.596	28.21	51.018	29.87	32.026	64.50
12 13.6	55.809	48.57	11.622	28.18	50.979	27.39	32.019	62.75
12 23.5	55.879	48.84	11.693	28.16	50.987	24.71	32.052	60.85
12 33.5	55.989	49.09	11.813	27.99	51.043	21.86	32.127	58.84
12 43.5	56.140	49.45	11.957	28.16	51.148	18.98	32.243	56.80
Pos. Med.	55.635	41.25	11.413	20.36	51.640	28.33	32.187	65.48
Secδ tanδ	1.042	-.293	1.072	-.385	1.189	.643	1.030	.248
Dob.Tran.	Jul 5		Jul 6		Jul 6		Jul 8	

VOLVER AL INDICE

VOLVER A LISTA DE ESTRELLAS

POSICIONES APARENTES AL PASO SUPERIOR POR GREENWICH

NUM.	717		1496		720		1502	
EST.	λ Aquilae		τ Sagittarii		π Sagittarii*		β^1 Sagittarii*	
MAG.	3.44		3.32		2.89		4.01	
UT	AR.	DEC.	AR.	DEC.	AR.	DEC.	AR.	DEC.
	h m	° ′	h m	° ′	h m	° ′	h m	° ′
	19 7	- 4 50	19 8	-27 38	19 11	-20 59	19 24	-44 24
mes d	s	"	s	"	s	"	s	"
1 -.5	29.597	50.72	24.299	10.56	9.560	11.05	19.293	53.87
1 9.5	29.711	51.72	24.429	10.18	9.670	10.97	19.427	52.38
1 19.5	29.864	52.73	24.609	9.71	9.847	11.04	19.616	50.86
1 29.4	30.049	53.66	24.824	9.27	10.049	10.99	19.851	49.36
2 8.4	30.263	54.48	25.070	8.83	10.280	10.90	20.127	47.89
2 18.4	30.502	55.14	25.345	8.36	10.538	10.73	20.443	46.49
2 28.4	30.760	55.59	25.641	7.87	10.816	10.49	20.786	45.18
3 9.3	31.035	55.81	25.954	7.34	11.112	10.16	21.156	43.96
3 19.3	31.325	55.77	26.284	6.77	11.424	9.71	21.548	42.86
3 29.3	31.623	55.47	26.622	6.18	11.744	9.18	21.954	41.89
4 8.2	31.928	54.92	26.968	5.57	12.073	8.55	22.372	41.07
4 18.2	32.235	54.13	27.317	4.96	12.404	7.85	22.796	40.42
4 28.2	32.539	53.14	27.661	4.37	12.732	7.11	23.217	39.96
5 8.2	32.836	51.98	28.000	3.82	13.056	6.36	23.634	39.70
5 18.1	33.121	50.70	28.324	3.35	13.366	5.62	24.034	39.66
5 28.1	33.386	49.36	28.627	2.98	13.656	4.93	24.411	39.84
6 7.1	33.629	47.99	28.906	2.71	13.924	4.31	24.760	40.24
6 17.1	33.841	46.63	29.151	2.58	14.160	3.79	25.068	40.88
6 27.0	34.019	45.35	29.358	2.58	14.359	3.39	25.332	41.71
7 7.0	34.159	44.15	29.523	2.71	14.519	3.11	25.546	42.72
7 17.0	34.255	43.07	29.639	2.96	14.633	2.96	25.700	43.89
7 26.9	34.309	42.13	29.708	3.32	14.701	2.93	25.796	45.16
8 5.9	34.320	41.33	29.727	3.77	14.722	3.01	25.831	46.49
8 15.9	34.286	40.70	29.696	4.27	14.696	3.17	25.804	47.83
8 25.9	34.216	40.21	29.623	4.79	14.629	3.40	25.723	49.10
9 4.8	34.110	39.87	29.510	5.30	14.523	3.66	25.590	50.28
9 14.8	33.977	39.68	29.365	5.76	14.388	3.94	25.416	51.29
9 24.8	33.827	39.62	29.201	6.15	14.233	4.20	25.213	52.09
10 4.8	33.666	39.68	29.022	6.45	14.064	4.44	24.989	52.64
10 14.7	33.505	39.88	28.844	6.63	13.896	4.64	24.760	52.90
10 24.7	33.355	40.18	28.678	6.68	13.739	4.78	24.542	52.88
11 3.7	33.222	40.60	28.532	6.63	13.600	4.88	24.343	52.56
11 13.6	33.119	41.14	28.419	6.46	13.491	4.92	24.180	51.94
11 23.6	33.049	41.78	28.344	6.20	13.419	4.93	24.060	51.08
12 3.6	33.016	42.54	28.311	5.86	13.387	4.92	23.990	50.00
12 13.6	33.027	43.39	28.329	5.48	13.402	4.90	23.978	48.73
12 23.5	33.079	44.30	28.393	5.07	13.460	4.86	24.022	47.35
12 33.5	33.170	45.27	28.504	4.69	13.566	4.80	24.122	45.86
12 43.5	33.301	46.25	28.652	4.21	13.698	4.79	24.279	44.33
Pos. Med.	32.922	38.04	28.068	-3.25	13.156	-2.73	23.647	37.77
Secδ tanδ	1.004	-.085	1.129	-.524	1.071	-.384	1.400	-.980
Dob.Tran.	Jul 8		Jul 8		Jul 9		Jul 12	

VOLVER AL INDICE

VOLVER A LISTA DE ESTRELLAS

POSICIONES APARENTES AL PASO SUPERIOR POR GREENWICH

NUM.	728		730		732		1513	
EST.	α Sagittarii		δ Aquilae		β Cygni*p.		β Sagittae	
MAG.	3.97		3.36		3.08		4.37	
UT	AR.	DEC.	AR.	DEC.	AR.	DEC.	AR.	DEC.
	h m	° ′	h m	° ′	h m	° ′	h m	° ′
	19 25	-40 34	19 26	+ 3 9	19 31	+28 0	19 42	+17 31
mes d	s	"	s	"	s	"	s	"
1 -.5	30.564	19.15	40.771	42.37	39.489	34.36	5.853	51.78
1 9.5	30.692	17.89	40.861	40.97	39.545	31.75	5.913	49.68
1 19.5	30.872	16.59	40.989	39.57	39.645	29.12	6.012	47.55
1 29.5	31.095	15.30	41.150	38.25	39.785	26.58	6.146	45.51
2 8.4	31.356	14.03	41.340	37.06	39.961	24.20	6.314	43.60
2 18.4	31.654	12.80	41.559	36.07	40.172	22.10	6.513	41.94
2 28.4	31.978	11.63	41.800	35.34	40.412	20.38	6.739	40.59
3 9.3	32.327	10.52	42.060	34.89	40.678	19.08	6.989	39.61
3 19.3	32.697	9.50	42.338	34.77	40.967	18.29	7.261	39.06
3 29.3	33.081	8.57	42.626	34.99	41.270	18.01	7.547	38.96
4 8.3	33.476	7.74	42.926	35.53	41.585	18.25	7.847	39.30
4 18.2	33.877	7.06	43.230	36.40	41.907	19.04	8.155	40.10
4 28.2	34.276	6.52	43.533	37.54	42.226	20.29	8.463	41.30
5 8.2	34.672	6.15	43.833	38.92	42.539	21.98	8.769	42.86
5 18.2	35.052	5.97	44.121	40.49	42.838	24.07	9.065	44.75
5 28.1	35.411	5.99	44.392	42.19	43.115	26.44	9.343	46.87
6 7.1	35.745	6.21	44.643	43.98	43.368	29.05	9.600	49.17
6 17.1	36.040	6.64	44.863	45.79	43.585	31.82	9.826	51.59
6 27.0	36.293	7.26	45.050	47.55	43.764	34.64	10.019	54.03
7 7.0	36.499	8.06	45.201	49.26	43.901	37.48	10.173	56.47
7 17.0	36.649	9.02	45.308	50.84	43.991	40.24	10.283	58.82
7 27.0	36.744	10.07	45.373	52.28	44.034	42.85	10.350	61.03
8 5.9	36.781	11.21	45.394	53.55	44.030	45.30	10.371	63.07
8 15.9	36.759	12.37	45.371	54.63	43.978	47.49	10.346	64.89
8 25.9	36.687	13.50	45.310	55.51	43.885	49.41	10.281	66.46
9 4.9	36.566	14.55	45.213	56.20	43.753	51.02	10.178	67.77
9 14.8	36.404	15.46	45.086	56.67	43.590	52.28	10.044	68.78
9 24.8	36.216	16.20	44.940	56.95	43.405	53.18	9.888	69.49
10 4.8	36.008	16.73	44.780	57.02	43.204	53.70	9.715	69.90
10 14.7	35.796	17.00	44.617	56.89	42.999	53.80	9.537	69.97
10 24.7	35.594	17.03	44.462	56.57	42.801	53.53	9.364	69.73
11 3.7	35.409	16.80	44.321	56.06	42.614	52.84	9.201	69.17
11 13.7	35.258	16.31	44.206	55.35	42.452	51.75	9.061	68.28
11 23.6	35.149	15.61	44.121	54.48	42.320	50.31	8.948	67.12
12 3.6	35.086	14.71	44.070	53.44	42.223	48.50	8.868	65.66
12 13.6	35.077	13.64	44.060	52.26	42.169	46.39	8.826	63.96
12 23.6	35.122	12.48	44.088	50.98	42.155	44.05	8.823	62.08
12 33.5	35.219	11.22	44.155	49.62	42.185	41.53	8.858	60.04
12 43.5	35.368	9.92	44.262	48.24	42.261	38.93	8.935	57.95
Pos. Med.	34.730	3.16	43.996	55.38	42.611	45.10	8.975	63.58
Secδ tanδ	1.316	-.856	1.002	.055	1.133	.532	1.049	.316
Dob.Tran.	Jul 13		Jul 13		Jul 14		Jul 17	

VOLVER AL INDICE

VOLVER A LISTA DE ESTRELLAS

POSICIONES APARENTES AL PASO SUPERIOR POR GREENWICH

NUM.	741		743		745		746	
EST.	γ Aquilae		δ Sagittae		α Aquilae (Altair)		η Aquilae	
MAG.	2.72		3.82		0.77		3.5 a 4.3	
UT	AR.	DEC.	AR.	DEC.	AR.	DEC.	AR.	DEC.
	h m	° ′	h m	° ′	h m	° ′	h m	° ′
	19 47	+10 40	19 48	+18 35	19 51	+ 8 55	19 53	+ 1 3
mes d	s	"	s	"	s	"	s	"
1 -.4	22.321	15.76	25.712	34.60	55.536	51.60	40.023	58.79
1 9.5	22.383	14.02	25.763	32.47	55.599	49.98	40.088	57.59
1 19.5	22.483	12.27	25.855	30.32	55.699	48.35	40.191	56.41
1 29.5	22.617	10.59	25.983	28.24	55.833	46.80	40.326	55.29
2 8.4	22.782	9.04	26.143	26.29	55.998	45.37	40.491	54.27
2 18.4	22.978	7.71	26.337	24.58	56.194	44.15	40.686	53.45
2 28.4	23.200	6.66	26.558	23.19	56.414	43.21	40.906	52.86
3 9.4	23.444	5.93	26.803	22.15	56.658	42.58	41.148	52.52
3 19.3	23.710	5.59	27.072	21.56	56.924	42.32	41.412	52.50
3 29.3	23.991	5.63	27.357	21.42	57.205	42.43	41.691	52.79
4 8.3	24.286	6.07	27.657	21.72	57.499	42.92	41.985	53.38
4 18.2	24.590	6.90	27.965	22.50	57.803	43.79	42.288	54.28
4 28.2	24.895	8.08	28.275	23.68	58.109	44.99	42.594	55.44
5 8.2	25.200	9.57	28.584	25.24	58.415	46.48	42.902	56.82
5 18.2	25.496	11.33	28.882	27.14	58.713	48.23	43.203	58.39
5 28.1	25.776	13.27	29.165	29.27	58.996	50.15	43.489	60.07
6 7.1	26.038	15.36	29.426	31.61	59.260	52.21	43.759	61.84
6 17.1	26.271	17.53	29.658	34.07	59.496	54.33	44.002	63.62
6 27.1	26.471	19.69	29.856	36.56	59.700	56.44	44.213	65.36
7 7.0	26.635	21.83	30.016	39.06	59.868	58.51	44.390	67.04
7 17.0	26.755	23.87	30.131	41.48	59.993	60.48	44.524	68.59
7 27.0	26.833	25.76	30.202	43.75	60.076	62.30	44.616	69.99
8 5.9	26.866	27.49	30.228	45.88	60.114	63.97	44.663	71.24
8 15.9	26.854	29.01	30.208	47.77	60.106	65.41	44.665	72.29
8 25.9	26.803	30.30	30.147	49.42	60.059	66.64	44.627	73.15
9 4.9	26.713	31.37	30.047	50.81	59.974	67.65	44.550	73.82
9 14.8	26.591	32.17	29.915	51.88	59.857	68.39	44.440	74.28
9 24.8	26.448	32.72	29.761	52.67	59.718	68.90	44.308	74.56
10 4.8	26.287	33.01	29.588	53.13	59.561	69.17	44.158	74.65
10 14.8	26.120	33.02	29.410	53.26	59.398	69.17	44.000	74.56
10 24.7	25.958	32.79	29.235	53.07	59.239	68.94	43.847	74.31
11 3.7	25.805	32.29	29.070	52.54	59.089	68.46	43.702	73.88
11 13.7	25.674	31.52	28.925	51.69	58.961	67.74	43.578	73.29
11 23.6	25.570	30.54	28.808	50.54	58.859	66.82	43.481	72.55
12 3.6	25.497	29.31	28.722	49.09	58.788	65.67	43.414	71.67
12 13.6	25.462	27.90	28.674	47.39	58.755	64.34	43.385	70.67
12 23.6	25.463	26.34	28.663	45.50	58.757	62.89	43.391	69.58
12 33.5	25.503	24.65	28.692	43.45	58.798	61.32	43.434	68.43
12 43.5	25.581	22.93	28.761	41.33	58.877	59.72	43.516	67.26
Pos. Med.	25.461	28.44	28.826	46.34	58.699	64.86	43.211	72.79
Secδ tanδ	1.018	.188	1.055	.336	1.012	.157	1.000	.019
Dob.Tran.	Jul 18		Jul 18		Jul 19		Jul 20	

VOLVER AL INDICE

VOLVER A LISTA DE ESTRELLAS

POSICIONES APARENTES AL PASO SUPERIOR POR GREENWICH

NUM.	749		752		748		754	
EST.	β Aquilae		γ Sagittae		ε Pavonis		δ Pavonis	
MAG.	3.71		3.47		3.96		3.56	
UT	AR.	DEC.	AR.	DEC.	AR.	DEC.	AR.	DEC.
	h m	° ′	h m	° ′	h m	° ′	h m	° ′
	19 56	+ 6 27	19 59	+19 33	20 3	-72 50	20 10	-66 6
mes d	s	"	s	"	s	"	s	"
1 -.4	27.840	57.22	47.707	24.92	15.163	53.07	.243	80.63
1 9.5	27.899	55.72	47.747	22.80	15.230	50.12	.309	77.99
1 19.5	27.994	54.22	47.827	20.64	15.435	47.06	.474	75.22
1 29.5	28.123	52.79	47.942	18.54	15.765	44.01	.729	72.43
2 8.4	28.283	51.47	48.091	16.56	16.210	41.01	1.065	69.66
2 18.4	28.474	50.36	48.274	14.81	16.769	38.13	1.483	66.98
2 28.4	28.689	49.50	48.486	13.37	17.419	35.47	1.966	64.46
3 9.4	28.928	48.94	48.724	12.28	18.150	33.05	2.508	62.12
3 19.3	29.190	48.73	48.987	11.64	18.955	30.92	3.105	60.04
3 29.3	29.467	48.87	49.268	11.44	19.809	29.15	3.740	58.25
4 8.3	29.759	49.36	49.565	11.69	20.707	27.72	4.409	56.77
4 18.3	30.061	50.21	49.874	12.42	21.630	26.71	5.101	55.64
4 28.2	30.367	51.37	50.186	13.57	22.558	26.10	5.799	54.89
5 8.2	30.673	52.81	50.498	15.10	23.482	25.92	6.499	54.51
5 18.2	30.973	54.48	50.803	16.99	24.379	26.19	7.183	54.55
5 28.1	31.258	56.31	51.092	19.13	25.228	26.87	7.836	54.98
6 7.1	31.527	58.26	51.362	21.49	26.021	27.96	8.451	55.80
6 17.1	31.767	60.26	51.602	23.98	26.728	29.45	9.006	57.00
6 27.1	31.977	62.25	51.810	26.53	27.338	31.27	9.491	58.53
7 7.0	32.151	64.19	51.980	29.08	27.840	33.39	9.899	60.36
7 17.0	32.283	66.03	52.106	31.57	28.210	35.74	10.211	62.44
7 27.0	32.372	67.71	52.187	33.93	28.450	38.23	10.427	64.69
8 6.0	32.417	69.24	52.223	36.14	28.552	40.82	10.540	67.05
8 15.9	32.417	70.56	52.212	38.13	28.507	43.39	10.545	69.43
8 25.9	32.376	71.68	52.160	39.87	28.333	45.85	10.453	71.74
9 4.9	32.297	72.58	52.068	41.36	28.029	48.12	10.264	73.92
9 14.8	32.185	73.23	51.942	42.53	27.610	50.10	9.989	75.84
9 24.8	32.050	73.67	51.792	43.41	27.106	51.71	9.649	77.45
10 4.8	31.897	73.88	51.623	43.97	26.528	52.89	9.254	78.69
10 14.8	31.736	73.85	51.446	44.18	25.911	53.56	8.829	79.47
10 24.7	31.579	73.61	51.270	44.07	25.286	53.71	8.398	79.77
11 3.7	31.431	73.15	51.103	43.62	24.674	53.32	7.975	79.58
11 13.7	31.302	72.47	50.954	42.83	24.113	52.37	7.590	78.88
11 23.7	31.200	71.60	50.830	41.74	23.628	50.93	7.259	77.71
12 3.6	31.127	70.53	50.736	40.34	23.235	49.02	6.995	76.10
12 13.6	31.091	69.30	50.678	38.68	22.962	46.70	6.818	74.09
12 23.6	31.091	67.96	50.657	36.81	22.812	44.08	6.730	71.79
12 33.5	31.127	66.51	50.674	34.77	22.794	41.20	6.735	69.22
12 43.5	31.202	65.03	50.731	32.66	22.915	38.17	6.841	66.50
Pos. Med.	30.990	70.38	50.813	36.59	22.810	31.85	6.275	59.42
Secδ tanδ	1.006	.113	1.061	.355	3.390	-3.239	2.470	-2.258
Dob.Tran.	Jul 20		Jul 21		Jul 22		Jul 24	

VOLVER AL INDICE

VOLVER A LISTA DE ESTRELLAS

POSICIONES APARENTES AL PASO SUPERIOR POR GREENWICH

NUM.	756		761		762		765	
EST.	ϑ Aquilae		α^2 Capricorni		β Capricorni		γ Cygni	
MAG.	3.23		3.57		3.08		2.20	
UT	AR.	DEC.	AR.	DEC.	AR.	DEC.	AR.	DEC.
	h m	° ′	h m	° ′	h m	° ′	h m	° ′
	20 12	- 0 44	20 19	-12 28	20 22	-14 42	20 23	+40 19
mes d	s	"	s	"	s	"	s	"
1 -.4	30.909	64.67	21.432	18.79	19.842	25.67	3.301	62.08
1 9.5	30.958	65.70	21.485	19.12	19.892	25.87	3.275	59.34
1 19.5	31.044	66.72	21.573	19.38	19.980	25.98	3.298	56.46
1 29.5	31.161	67.67	21.691	19.60	20.093	26.06	3.367	53.57
2 8.5	31.310	68.53	21.844	19.75	20.247	26.06	3.482	50.75
2 18.4	31.489	69.21	22.028	19.72	20.430	25.89	3.644	48.14
2 28.4	31.694	69.67	22.238	19.54	20.639	25.57	3.847	45.85
3 9.4	31.924	69.88	22.473	19.18	20.874	25.10	4.090	43.94
3 19.3	32.177	69.80	22.732	18.62	21.133	24.44	4.370	42.53
3 29.3	32.448	69.44	23.009	17.87	21.412	23.61	4.678	41.67
4 8.3	32.737	68.78	23.305	16.95	21.709	22.62	5.010	41.35
4 18.3	33.038	67.84	23.615	15.85	22.021	21.49	5.360	41.64
4 28.2	33.345	66.65	23.932	14.63	22.342	20.25	5.717	42.50
5 8.2	33.657	65.25	24.255	13.31	22.668	18.93	6.077	43.88
5 18.2	33.965	63.68	24.576	11.92	22.993	17.58	6.428	45.77
5 28.2	34.261	62.00	24.887	10.54	23.308	16.24	6.761	48.07
6 7.1	34.543	60.25	25.184	9.18	23.610	14.94	7.072	50.72
6 17.1	34.801	58.49	25.458	7.89	23.889	13.74	7.347	53.67
6 27.1	35.029	56.78	25.702	6.72	24.139	12.66	7.583	56.78
7 7.0	35.223	55.14	25.913	5.67	24.355	11.73	7.775	60.02
7 17.0	35.375	53.63	26.082	4.79	24.529	10.97	7.914	63.28
7 27.0	35.486	52.27	26.208	4.09	24.660	10.38	8.001	66.49
8 6.0	35.552	51.08	26.288	3.56	24.745	9.97	8.034	69.60
8 15.9	35.572	50.08	26.321	3.20	24.782	9.74	8.012	72.52
8 25.9	35.551	49.26	26.310	3.00	24.775	9.66	7.940	75.18
9 4.9	35.490	48.64	26.258	2.95	24.726	9.71	7.821	77.58
9 14.9	35.394	48.21	26.169	3.02	24.638	9.89	7.660	79.62
9 24.8	35.273	47.96	26.052	3.19	24.523	10.14	7.467	81.29
10 4.8	35.131	47.88	25.913	3.44	24.385	10.45	7.248	82.56
10 14.8	34.980	47.97	25.763	3.75	24.234	10.80	7.013	83.37
10 24.7	34.829	48.21	25.612	4.08	24.083	11.16	6.774	83.73
11 3.7	34.684	48.60	25.467	4.45	23.936	11.53	6.538	83.62
11 13.7	34.557	49.13	25.339	4.82	23.806	11.88	6.315	83.00
11 23.7	34.453	49.77	25.235	5.20	23.700	12.21	6.115	81.95
12 3.6	34.378	50.55	25.158	5.59	23.621	12.52	5.943	80.42
12 13.6	34.336	51.42	25.117	5.97	23.578	12.80	5.808	78.48
12 23.6	34.329	52.37	25.111	6.33	23.569	13.05	5.712	76.20
12 33.6	34.357	53.37	25.141	6.67	23.597	13.27	5.660	73.62
12 43.5	34.422	54.37	25.209	6.95	23.663	13.41	5.655	70.84
Pos. Med.	34.068	49.87	24.682	1.92	23.105	8.33	6.503	70.45
Secδ tanδ	1.000	-.013	1.024	-.221	1.034	-.262	1.312	.849
Dob.Tran.	Jul 24		Jul 26		Jul 27		Jul 27	

VOLVER AL INDICE

VOLVER A LISTA DE ESTRELLAS

POSICIONES APARENTES AL PASO SUPERIOR POR GREENWICH

NUM.	764		768		769		774	
EST.	α Pavonis		ε Delphini		α Indi		α Delphini	
MAG.	1.94		4.03		3.11		3.77	
UT	AR.	DEC.	AR.	DEC.	AR.	DEC.	AR.	DEC.
	h m	° ′	h m	° ′	h m	° ′	h m	° ′
	20 27	-56 39	20 34	+11 22	20 39	-47 12	20 40	+15 59
mes d	s	"	s	"	s	"	s	"
1 -.4	29.565	38.29	19.947	63.54	12.843	37.74	43.544	46.98
1 9.6	29.602	36.11	19.966	61.95	12.873	36.06	43.551	45.21
1 19.5	29.708	33.75	20.020	60.32	12.956	34.21	43.594	43.38
1 29.5	29.877	31.32	20.107	58.74	13.089	32.24	43.670	41.58
2 8.5	30.105	28.85	20.225	57.25	13.268	30.19	43.779	39.86
2 18.4	30.393	26.39	20.377	55.95	13.495	28.10	43.923	38.31
2 28.4	30.730	24.01	20.558	54.90	13.761	26.02	44.097	37.03
3 9.4	31.113	21.73	20.766	54.14	14.066	23.97	44.301	36.05
3 19.4	31.539	19.60	21.003	53.74	14.407	21.98	44.534	35.45
3 29.3	31.997	17.68	21.262	53.72	14.777	20.12	44.790	35.26
4 8.3	32.486	15.98	21.541	54.08	15.174	18.38	45.069	35.48
4 18.3	32.998	14.55	21.837	54.85	15.593	16.82	45.367	36.14
4 28.3	33.522	13.42	22.143	55.97	16.026	15.48	45.674	37.20
5 8.2	34.054	12.59	22.455	57.41	16.469	14.37	45.990	38.62
5 18.2	34.580	12.12	22.767	59.16	16.911	13.54	46.305	40.38
5 28.2	35.091	12.00	23.069	61.11	17.344	13.00	46.611	42.39
6 7.1	35.579	12.24	23.358	63.24	17.761	12.76	46.905	44.62
6 17.1	36.027	12.85	23.624	65.48	18.149	12.85	47.175	47.00
6 27.1	36.428	13.78	23.862	67.74	18.500	13.25	47.417	49.43
7 7.1	36.774	15.02	24.066	70.01	18.807	13.95	47.626	51.90
7 17.0	37.051	16.55	24.230	72.20	19.059	14.93	47.793	54.31
7 27.0	37.256	18.28	24.352	74.26	19.253	16.14	47.918	56.61
8 6.0	37.385	20.19	24.429	76.17	19.384	17.55	47.999	58.78
8 16.0	37.432	22.18	24.460	77.89	19.448	19.10	48.032	60.75
8 25.9	37.404	24.18	24.449	79.39	19.450	20.71	48.022	62.50
9 4.9	37.301	26.13	24.396	80.66	19.390	22.34	47.971	64.02
9 14.9	37.131	27.92	24.307	81.67	19.273	23.89	47.882	65.26
9 24.8	36.909	29.49	24.191	82.43	19.113	25.30	47.765	66.23
10 4.8	36.642	30.78	24.052	82.93	18.915	26.52	47.624	66.91
10 14.8	36.349	31.70	23.899	83.15	18.693	27.47	47.469	67.28
10 24.8	36.047	32.24	23.744	83.13	18.463	28.12	47.309	67.37
11 3.7	35.747	32.35	23.590	82.83	18.233	28.43	47.150	67.16
11 13.7	35.471	32.02	23.450	82.28	18.020	28.38	47.002	66.63
11 23.7	35.231	31.27	23.329	81.50	17.836	27.98	46.874	65.84
12 3.6	35.037	30.12	23.232	80.48	17.686	27.24	46.767	64.77
12 13.6	34.903	28.59	23.165	79.26	17.583	26.17	46.690	63.45
12 23.6	34.831	26.77	23.130	77.88	17.529	24.84	46.644	61.94
12 33.6	34.825	24.68	23.128	76.36	17.525	23.26	46.630	60.25
12 43.5	34.889	22.40	23.161	74.78	17.576	21.48	46.653	58.47
Pos. Med.	34.188	15.44	23.000	76.61	16.794	14.77	46.582	59.20
Secδ tanδ	1.819	-1.520	1.020	.201	1.472	-1.080	1.040	.287
Dob.Tran.	Jul 28		Jul 30		Jul 31		Ago 1	

VOLVER AL INDICE

VOLVER A LISTA DE ESTRELLAS

POSICIONES APARENTES AL PASO SUPERIOR POR GREENWICH

NUM.	777		775		780		781	
EST.	α Cygni (Deneb)		β Pavonis		ε Cygni		ε Aquarii	
MAG.	1.25		3.42		2.46		3.77	
UT	AR.	DEC.	AR.	DEC.	AR.	DEC.	AR.	DEC.
	h m	° ′	h m	° ′	h m	° ′	h m	° ′
	20 42	+45 21	20 47	-66 6	20 47	+34 3	20 48	- 9 24
mes d	s	"	s	"	s	"	s	"
1 -.4	12.799	61.00	2.766	70.98	9.096	38.52	56.900	33.83
1 9.6	12.734	58.29	2.734	68.40	9.064	36.12	56.923	34.29
1 19.5	12.721	55.37	2.797	65.59	9.074	33.57	56.980	34.69
1 29.5	12.758	52.40	2.948	62.67	9.125	30.99	57.068	34.97
2 8.5	12.844	49.44	3.181	59.69	9.216	28.45	57.184	35.22
2 18.5	12.984	46.65	3.500	56.71	9.350	26.07	57.336	35.29
2 28.4	13.172	44.15	3.891	53.83	9.523	23.98	57.515	35.17
3 9.4	13.405	42.00	4.348	51.07	9.733	22.22	57.721	34.86
3 19.4	13.682	40.32	4.871	48.51	9.980	20.91	57.955	34.32
3 29.3	13.994	39.19	5.442	46.20	10.256	20.09	58.212	33.57
4 8.3	14.337	38.60	6.058	44.16	10.559	19.78	58.490	32.60
4 18.3	14.703	38.64	6.711	42.47	10.884	20.03	58.787	31.43
4 28.3	15.081	39.26	7.384	41.13	11.221	20.81	59.097	30.10
5 8.2	15.465	40.43	8.073	40.17	11.566	22.09	59.416	28.64
5 18.2	15.844	42.16	8.760	39.64	11.909	23.85	59.738	27.08
5 28.2	16.206	44.34	9.429	39.53	12.241	26.00	60.055	25.48
6 7.2	16.546	46.92	10.074	39.83	12.556	28.49	60.363	23.89
6 17.1	16.851	49.83	10.671	40.58	12.844	31.26	60.650	22.35
6 27.1	17.115	52.97	11.208	41.70	13.098	34.20	60.912	20.91
7 7.1	17.334	56.28	11.678	43.19	13.314	37.28	61.143	19.59
7 17.0	17.497	59.68	12.058	45.02	13.483	40.39	61.335	18.43
7 27.0	17.605	63.05	12.347	47.08	13.604	43.44	61.486	17.46
8 6.0	17.656	66.37	12.537	49.35	13.676	46.42	61.592	16.67
8 16.0	17.647	69.53	12.618	51.73	13.695	49.23	61.651	16.08
8 25.9	17.585	72.47	12.598	54.12	13.666	51.82	61.667	15.68
9 4.9	17.471	75.16	12.477	56.46	13.592	54.16	61.639	15.45
9 14.9	17.309	77.52	12.261	58.63	13.475	56.17	61.572	15.39
9 24.9	17.112	79.51	11.969	60.55	13.327	57.86	61.476	15.45
10 4.8	16.882	81.10	11.610	62.15	13.150	59.17	61.354	15.64
10 14.8	16.632	82.22	11.204	63.33	12.956	60.07	61.216	15.92
10 24.8	16.373	82.89	10.777	64.06	12.755	60.57	61.073	16.26
11 3.7	16.111	83.07	10.341	64.30	12.551	60.63	60.930	16.67
11 13.7	15.860	82.72	9.925	64.01	12.358	60.23	60.799	17.11
11 23.7	15.627	81.89	9.548	63.22	12.182	59.43	60.686	17.57
12 3.7	15.418	80.56	9.222	61.94	12.027	58.20	60.596	18.06
12 13.6	15.245	78.76	8.970	60.20	11.903	56.57	60.536	18.56
12 23.6	15.110	76.59	8.796	58.08	11.813	54.62	60.506	19.04
12 33.6	15.018	74.05	8.706	55.63	11.758	52.37	60.508	19.51
12 43.6	14.975	71.27	8.711	52.93	11.744	49.93	60.546	19.92
Pos. Med.	16.076	68.02	8.095	45.72	12.224	47.46	60.003	16.48
Secδ tanδ	1.423	1.013	2.470	-2.258	1.207	.676	1.014	-.166
Dob.Tran.	Ago	1	Ago	2	Ago	2	Ago	3

VOLVER AL INDICE

VOLVER A LISTA DE ESTRELLAS

POSICIONES APARENTES AL PASO SUPERIOR POR GREENWICH

NUM.	785		792		1552		797	
EST.	β Indi		ξ Cygni		ϑ Capricorni		ζ Cygni	
MAG.	3.65		3.72		4.07		3.20	
UT	AR.	DEC.	AR.	DEC.	AR.	DEC.	AR.	DEC.
	h m	° ′	h m	° ′	h m	° ′	h m	° ′
	20 56	-58 21	21 5	+44 1	21 7	-17 8	21 13	+30 19
mes d	s	"	s	"	s	"	s	"
1 -.4	37.913	60.34	46.188	29.19	16.181	22.06	55.797	33.89
1 9.6	37.893	58.15	46.104	26.68	16.190	22.08	55.749	31.77
1 19.5	37.942	55.71	46.066	23.94	16.233	22.00	55.738	29.48
1 29.5	38.058	53.14	46.076	21.10	16.312	21.78	55.765	27.14
2 8.5	38.235	50.47	46.132	18.24	16.406	21.51	55.827	24.81
2 18.5	38.477	47.75	46.241	15.49	16.548	21.01	55.931	22.61
2 28.4	38.774	45.08	46.397	12.98	16.717	20.38	56.072	20.64
3 9.4	39.123	42.47	46.600	10.78	16.914	19.58	56.251	18.95
3 19.4	39.523	39.99	46.849	9.02	17.142	18.61	56.468	17.67
3 29.4	39.963	37.69	47.137	7.76	17.394	17.49	56.716	16.85
4 8.3	40.442	35.60	47.459	7.02	17.671	16.22	56.996	16.48
4 18.3	40.953	33.78	47.810	6.88	17.970	14.81	57.301	16.65
4 28.3	41.483	32.26	48.178	7.32	18.284	13.32	57.623	17.31
5 8.2	42.030	31.06	48.558	8.30	18.612	11.77	57.958	18.45
5 18.2	42.580	30.23	48.939	9.85	18.946	10.21	58.298	20.06
5 28.2	43.121	29.79	49.308	11.85	19.278	8.68	58.632	22.05
6 7.2	43.645	29.72	49.661	14.27	19.603	7.22	58.956	24.37
6 17.1	44.137	30.07	49.985	17.05	19.910	5.88	59.258	26.98
6 27.1	44.584	30.78	50.272	20.08	20.194	4.69	59.531	29.77
7 7.1	44.981	31.87	50.517	23.31	20.449	3.68	59.771	32.69
7 17.1	45.309	33.28	50.711	26.66	20.664	2.88	59.968	35.67
7 27.0	45.567	34.96	50.852	30.01	20.839	2.29	60.120	38.61
8 6.0	45.747	36.87	50.938	33.35	20.969	1.91	60.225	41.49
8 16.0	45.842	38.94	50.965	36.56	21.050	1.74	60.280	44.23
8 25.9	45.857	41.06	50.938	39.58	21.086	1.76	60.287	46.77
9 4.9	45.792	43.18	50.860	42.39	21.076	1.94	60.249	49.09
9 14.9	45.652	45.20	50.732	44.88	21.024	2.27	60.168	51.11
9 24.9	45.452	47.04	50.567	47.04	20.939	2.69	60.054	52.82
10 4.8	45.197	48.62	50.367	48.83	20.825	3.18	59.909	54.21
10 14.8	44.905	49.86	50.143	50.17	20.692	3.70	59.743	55.21
10 24.8	44.594	50.71	49.906	51.07	20.550	4.22	59.566	55.84
11 3.8	44.276	51.13	49.661	51.50	20.406	4.72	59.383	56.07
11 13.7	43.971	51.08	49.421	51.41	20.269	5.17	59.205	55.88
11 23.7	43.695	50.59	49.195	50.85	20.149	5.55	59.039	55.31
12 3.7	43.456	49.65	48.986	49.79	20.048	5.87	58.889	54.33
12 13.6	43.273	48.27	48.807	48.26	19.976	6.10	58.764	52.98
12 23.6	43.147	46.54	48.661	46.33	19.934	6.24	58.666	51.31
12 33.6	43.084	44.48	48.553	44.02	19.922	6.31	58.598	49.34
12 43.6	43.092	42.16	48.489	41.43	19.946	6.26	58.567	47.18
Pos. Med.	42.303	34.91	49.420	35.57	19.266	2.58	58.831	42.69
Secδ tanδ	1.906	-1.623	1.391	.967	1.046	-.308	1.159	.585
Dob.Tran.	Ago 5		Ago 7		Ago 7		Ago 9	

VOLVER AL INDICE

VOLVER A LISTA DE ESTRELLAS

POSICIONES APARENTES AL PASO SUPERIOR POR GREENWICH

NUM.	800		804		1561		806	
EST.	α Equulei		1 Pegasi		ι Capricorni		ζ Capricorni	
MAG.	3.92		4.08		4.28		3.74	
UT	AR.	DEC.	AR.	DEC.	AR.	DEC.	AR.	DEC.
	h m	° ′	h m	° ′	h m	° ′	h m	° ′
	21 16	+ 5 20	21 23	+19 54	21 23	-16 43	21 28	-22 18
mes d	s	"	s	"	s	"	s	"
1 -.4	59.956	46.80	10.285	26.57	33.457	64.12	.686	35.45
1 9.6	59.945	45.65	10.251	24.85	33.451	64.16	.675	35.20
1 19.6	59.965	44.49	10.249	23.03	33.479	64.08	.698	34.80
1 29.5	60.016	43.38	10.280	21.18	33.539	63.87	.755	34.26
2 8.5	60.095	42.35	10.342	19.37	33.616	63.78	.838	33.61
2 18.5	60.208	41.46	10.441	17.69	33.741	63.05	.956	32.71
2 28.4	60.350	40.79	10.573	16.23	33.893	62.38	1.108	31.68
3 9.4	60.523	40.36	10.738	15.04	34.074	61.54	1.290	30.52
3 19.4	60.726	40.24	10.939	14.20	34.286	60.52	1.504	29.20
3 29.4	60.957	40.44	11.170	13.77	34.525	59.34	1.747	27.77
4 8.3	61.213	40.96	11.429	13.74	34.790	58.01	2.018	26.22
4 18.3	61.493	41.83	11.714	14.17	35.081	56.53	2.314	24.58
4 28.3	61.789	43.00	12.017	15.03	35.389	54.96	2.630	22.91
5 8.3	62.099	44.45	12.335	16.28	35.713	53.32	2.962	21.22
5 18.2	62.415	46.14	12.659	17.92	36.046	51.66	3.305	19.56
5 28.2	62.730	48.02	12.982	19.86	36.379	50.04	3.648	17.99
6 7.2	63.038	50.03	13.297	22.07	36.708	48.47	3.989	16.54
6 17.1	63.331	52.12	13.595	24.49	37.022	47.03	4.315	15.25
6 27.1	63.600	54.21	13.868	27.02	37.315	45.74	4.619	14.16
7 7.1	63.841	56.29	14.112	29.64	37.580	44.63	4.897	13.29
7 17.1	64.045	58.27	14.318	32.25	37.808	43.73	5.137	12.67
7 27.0	64.210	60.12	14.482	34.80	37.997	43.06	5.336	12.28
8 6.0	64.333	61.82	14.603	37.25	38.142	42.60	5.490	12.14
8 16.0	64.410	63.32	14.677	39.54	38.238	42.38	5.595	12.24
8 26.0	64.443	64.61	14.706	41.63	38.289	42.35	5.653	12.53
9 4.9	64.435	65.70	14.691	43.50	38.294	42.51	5.663	12.99
9 14.9	64.387	66.54	14.636	45.09	38.257	42.82	5.628	13.60
9 24.9	64.307	67.16	14.548	46.42	38.185	43.24	5.557	14.29
10 4.8	64.200	67.57	14.431	47.46	38.082	43.75	5.454	15.03
10 14.8	64.074	67.74	14.294	48.17	37.958	44.31	5.327	15.77
10 24.8	63.939	67.72	14.145	48.58	37.822	44.86	5.187	16.46
11 3.8	63.799	67.50	13.991	48.66	37.681	45.41	5.041	17.09
11 13.7	63.665	67.08	13.840	48.41	37.546	45.91	4.899	17.61
11 23.7	63.544	66.51	13.700	47.87	37.423	46.34	4.769	18.01
12 3.7	63.439	65.76	13.574	47.01	37.317	46.71	4.657	18.27
12 13.7	63.358	64.86	13.471	45.87	37.237	46.98	4.570	18.38
12 23.6	63.302	63.87	13.392	44.49	37.183	47.16	4.510	18.34
12 33.6	63.274	62.77	13.341	42.89	37.159	47.24	4.480	18.17
12 43.6	63.276	61.64	13.321	41.15	37.167	47.21	4.483	17.83
Pos. Med.	62.890	61.30	13.229	37.60	36.449	44.22	3.697	14.14
Secδ tanδ	1.004	.094	1.064	.362	1.044	-.301	1.081	-.410
Dob.Tran.	Ago 10		Ago 11		Ago 11		Ago 13	

VOLVER AL INDICE

VOLVER A LISTA DE ESTRELLAS

POSICIONES APARENTES AL PASO SUPERIOR POR GREENWICH

NUM.	808		1568		812		810	
EST.	β Aquarii		ρ Cygni		γ Capricorni		ν Octantis	
MAG.	2.91		4.02		3.68		3.76	
UT	AR.	DEC.	AR.	DEC.	AR.	DEC.	AR.	DEC.
	h m	° ′	h m	° ′	h m	° ′	h m	° ′
	21 32	- 5 27	21 34	+45 41	21 41	-16 32	21 43	-77 16
mes d	s	"	s	"	s	"	s	"
1 -.4	47.929	61.36	51.058	58.73	23.802	82.06	60.110	74.35
1 9.6	47.913	61.96	50.937	56.45	23.781	82.11	59.721	71.63
1 19.6	47.927	62.50	50.860	53.86	23.791	82.03	59.488	68.55
1 29.5	47.970	62.94	50.829	51.13	23.833	81.81	59.415	65.23
2 8.5	48.040	63.26	50.844	48.30	23.907	81.50	59.496	61.75
2 18.5	48.140	63.46	50.913	45.53	23.997	80.95	59.742	58.17
2 28.5	48.274	63.48	51.032	42.93	24.131	80.22	60.137	54.62
3 9.4	48.436	63.27	51.201	40.58	24.294	79.34	60.672	51.13
3 19.4	48.630	62.81	51.423	38.62	24.489	78.26	61.348	47.81
3 29.4	48.852	62.10	51.688	37.12	24.713	77.01	62.140	44.73
4 8.4	49.101	61.15	51.995	36.11	24.966	75.61	63.040	41.91
4 18.3	49.376	59.95	52.338	35.68	25.246	74.05	64.036	39.45
4 28.3	49.669	58.55	52.706	35.82	25.547	72.40	65.099	37.40
5 8.3	49.979	56.97	53.092	36.51	25.867	70.68	66.219	35.75
5 18.2	50.299	55.25	53.485	37.78	26.198	68.93	67.371	34.61
5 28.2	50.620	53.45	53.874	39.53	26.532	67.20	68.524	33.95
6 7.2	50.939	51.60	54.252	41.73	26.865	65.54	69.665	33.78
6 17.2	51.244	49.77	54.606	44.33	27.186	64.00	70.757	34.15
6 27.1	51.528	48.02	54.926	47.23	27.488	62.61	71.774	34.99
7 7.1	51.787	46.36	55.208	50.38	27.765	61.41	72.700	36.31
7 17.1	52.012	44.85	55.441	53.69	28.008	60.42	73.497	38.07
7 27.0	52.198	43.53	55.621	57.07	28.211	59.67	74.150	40.18
8 6.0	52.342	42.39	55.748	60.47	28.373	59.15	74.644	42.61
8 16.0	52.441	41.47	55.814	63.80	28.487	58.88	74.954	45.27
8 26.0	52.496	40.77	55.826	66.99	28.555	58.81	75.085	48.03
9 4.9	52.507	40.27	55.783	70.00	28.578	58.95	75.028	50.85
9 14.9	52.478	39.97	55.688	72.74	28.557	59.26	74.784	53.57
9 24.9	52.415	39.85	55.551	75.18	28.501	59.70	74.379	56.10
10 4.9	52.322	39.89	55.375	77.28	28.412	60.24	73.818	58.37
10 14.8	52.208	40.08	55.169	78.95	28.298	60.83	73.131	60.22
10 24.8	52.082	40.37	54.944	80.20	28.171	61.44	72.355	61.61
11 3.8	51.950	40.77	54.705	80.99	28.036	62.04	71.513	62.48
11 13.7	51.821	41.24	54.464	81.26	27.903	62.60	70.650	62.74
11 23.7	51.702	41.76	54.229	81.06	27.779	63.09	69.804	62.42
12 3.7	51.598	42.33	54.006	80.34	27.669	63.51	69.001	61.51
12 13.7	51.516	42.92	53.805	79.13	27.581	63.82	68.284	59.99
12 23.6	51.457	43.52	53.631	77.49	27.517	64.03	67.674	57.98
12 33.6	51.424	44.12	53.489	75.42	27.479	64.14	67.190	55.49
12 43.6	51.421	44.68	53.389	73.03	27.471	64.11	66.858	52.59
Pos. Med.	50.815	44.04	54.280	63.60	26.696	61.80	66.323	44.44
Secδ tanδ	1.005	-.096	1.432	1.025	1.043	-.297	4.541	-4.430
Dob.Tran.	Ago 14		Ago 14		Ago 16		Ago 17	

VOLVER AL INDICE

VOLVER A LISTA DE ESTRELLAS

POSICIONES APARENTES AL PASO SUPERIOR POR GREENWICH

NUM.	815		819		822		827	
EST.	ε Pegasi		δ Capricorni		γ Gruis		α Aquarii	
MAG.	0.7 A 3.5		2.87		3.01		2.96	
UT	AR.	DEC.	AR.	DEC.	AR.	DEC.	AR.	DEC.
	h m	° ′	h m	° ′	h m	° ′	h m	° ′
	21 45	+ 9 58	21 48	-16 0	21 55	-37 14	22 6	- 0 11
mes d	s	"	s	"	s	"	s	"
1 -.4	20.536	64.67	20.530	74.17	21.274	80.15	59.765	75.74
1 9.6	20.499	63.44	20.504	74.25	21.225	79.21	59.722	76.50
1 19.6	20.490	62.15	20.508	74.20	21.212	78.01	59.703	77.25
1 29.6	20.510	60.88	20.542	74.01	21.235	76.58	59.711	77.92
2 8.5	20.558	59.66	20.608	73.70	21.294	74.95	59.746	78.50
2 18.5	20.639	58.57	20.693	73.23	21.392	73.12	59.810	78.91
2 28.5	20.751	57.67	20.819	72.50	21.527	71.16	59.903	79.18
3 9.4	20.895	57.01	20.975	71.63	21.699	69.08	60.029	79.23
3 19.4	21.073	56.66	21.164	70.56	21.911	66.91	60.189	79.01
3 29.4	21.282	56.64	21.382	69.32	22.158	64.71	60.381	78.51
4 8.4	21.521	56.96	21.629	67.92	22.439	62.50	60.603	77.74
4 18.3	21.788	57.66	21.905	66.35	22.754	60.32	60.856	76.67
4 28.3	22.075	58.70	22.202	64.69	23.095	58.23	61.133	75.36
5 8.3	22.381	60.05	22.519	62.94	23.459	56.26	61.431	73.81
5 18.2	22.698	61.71	22.848	61.16	23.840	54.47	61.745	72.06
5 28.2	23.018	63.59	23.182	59.41	24.227	52.90	62.065	70.18
6 7.2	23.335	65.66	23.515	57.71	24.616	51.58	62.387	68.19
6 17.2	23.640	67.87	23.838	56.12	24.994	50.56	62.701	66.17
6 27.1	23.925	70.13	24.143	54.69	25.353	49.86	62.999	64.16
7 7.1	24.185	72.41	24.423	53.44	25.686	49.48	63.276	62.21
7 17.1	24.411	74.64	24.670	52.41	25.981	49.45	63.522	60.38
7 27.1	24.599	76.77	24.879	51.61	26.232	49.74	63.732	58.70
8 6.0	24.746	78.77	25.046	51.05	26.435	50.34	63.904	57.19
8 16.0	24.848	80.59	25.165	50.73	26.583	51.22	64.032	55.89
8 26.0	24.907	82.21	25.240	50.64	26.677	52.32	64.118	54.82
9 4.9	24.923	83.61	25.269	50.74	26.716	53.61	64.160	53.95
9 14.9	24.898	84.77	25.255	51.04	26.701	55.01	64.161	53.33
9 24.9	24.839	85.69	25.204	51.47	26.641	56.44	64.126	52.91
10 4.9	24.751	86.37	25.120	52.00	26.539	57.87	64.060	52.69
10 14.8	24.640	86.80	25.012	52.61	26.403	59.20	63.969	52.66
10 24.8	24.515	86.99	24.889	53.23	26.247	60.36	63.861	52.78
11 3.8	24.382	86.95	24.757	53.85	26.076	61.33	63.742	53.06
11 13.8	24.249	86.67	24.625	54.44	25.902	62.04	63.620	53.46
11 23.7	24.124	86.19	24.502	54.95	25.737	62.46	63.503	53.96
12 3.7	24.009	85.50	24.391	55.40	25.584	62.59	63.393	54.57
12 13.7	23.913	84.62	24.300	55.75	25.456	62.39	63.299	55.24
12 23.6	23.838	83.59	24.233	56.00	25.355	61.89	63.222	55.95
12 33.6	23.786	82.42	24.190	56.14	25.283	61.11	63.165	56.70
12 43.6	23.761	81.18	24.177	56.15	25.248	60.04	63.132	57.44
Pos. Med.	23.368	77.93	23.384	54.05	24.254	54.70	62.483	59.76
Secδ tanδ	1.015	.176	1.040	-.287	1.256	-.760	1.000	-.003
Dob.Tran.	Ago 17		Ago 18		Ago 20		Ago 22	

VOLVER AL INDICE

VOLVER A LISTA DE ESTRELLAS

POSICIONES APARENTES AL PASO SUPERIOR POR GREENWICH

NUM.	829		834		841		842	
EST.	α Gruis		ϑ Pegasi		α Tucanae		γ Aquarii	
MAG.	1.74		3.53		2.86		3.84	
UT	AR.	DEC.	AR.	DEC.	AR.	DEC.	AR.	DEC.
	h m	° ′	h m	° ′	h m	° ′	h m	° ′
	22 9	-46 50	22 11	+ 6 18	22 20	-60 8	22 22	- 1 15
mes d	s	"	s	"	s	"	s	"
1 -.4	42.949	56.49	23.414	55.23	6.334	41.53	52.607	63.41
1 9.6	42.862	55.18	23.363	54.23	6.160	39.72	52.554	64.10
1 19.6	42.815	53.52	23.338	53.19	6.043	37.50	52.524	64.76
1 29.6	42.812	51.59	23.338	52.19	5.986	34.97	52.520	65.34
2 8.5	42.849	49.43	23.365	51.25	5.987	32.17	52.540	65.83
2 18.5	42.933	47.06	23.422	50.45	6.054	29.16	52.590	66.14
2 28.5	43.061	44.56	23.510	49.81	6.184	26.03	52.667	66.29
3 9.5	43.233	41.95	23.630	49.38	6.375	22.84	52.778	66.28
3 19.4	43.451	39.30	23.785	49.24	6.632	19.64	52.924	65.97
3 29.4	43.711	36.65	23.973	49.40	6.946	16.52	53.102	65.40
4 8.4	44.012	34.05	24.193	49.87	7.317	13.52	53.313	64.56
4 18.3	44.354	31.55	24.444	50.69	7.742	10.71	53.556	63.44
4 28.3	44.727	29.22	24.719	51.80	8.211	8.16	53.825	62.08
5 8.3	45.129	27.08	25.017	53.21	8.719	5.89	54.118	60.49
5 18.3	45.552	25.21	25.330	54.88	9.257	4.00	54.428	58.72
5 28.2	45.984	23.64	25.650	56.75	9.810	2.50	54.748	56.81
6 7.2	46.422	22.39	25.973	58.78	10.372	1.41	55.072	54.82
6 17.2	46.851	21.52	26.287	60.92	10.925	.80	55.391	52.78
6 27.2	47.261	21.04	26.586	63.09	11.456	.64	55.696	50.78
7 7.1	47.644	20.95	26.863	65.27	11.955	.94	55.982	48.83
7 17.1	47.987	21.26	27.110	67.38	12.403	1.72	56.240	47.01
7 27.1	48.282	21.94	27.321	69.37	12.792	2.90	56.463	45.35
8 6.0	48.525	22.98	27.494	71.22	13.113	4.48	56.649	43.86
8 16.0	48.706	24.32	27.623	72.89	13.354	6.38	56.793	42.60
8 26.0	48.825	25.89	27.710	74.35	13.513	8.52	56.894	41.56
9 5.0	48.881	27.66	27.754	75.59	13.588	10.84	56.952	40.74
9 14.9	48.874	29.53	27.756	76.60	13.576	13.24	56.968	40.16
9 24.9	48.813	31.41	27.723	77.38	13.488	15.61	56.948	39.79
10 4.9	48.700	33.25	27.659	77.93	13.327	17.88	56.896	39.62
10 14.9	48.545	34.93	27.569	78.25	13.103	19.92	56.816	39.63
10 24.8	48.362	36.39	27.463	78.37	12.834	21.65	56.719	39.79
11 3.8	48.156	37.58	27.344	78.29	12.528	23.02	56.607	40.10
11 13.8	47.944	38.41	27.222	78.02	12.205	23.92	56.491	40.52
11 23.7	47.736	38.87	27.103	77.58	11.882	24.35	56.376	41.02
12 3.7	47.538	38.94	26.990	76.98	11.567	24.28	56.267	41.61
12 13.7	47.364	38.59	26.892	76.23	11.279	23.66	56.169	42.25
12 23.7	47.220	37.85	26.810	75.38	11.027	22.58	56.087	42.92
12 33.6	47.107	36.73	26.747	74.43	10.819	21.01	56.022	43.61
12 43.6	47.036	35.25	26.708	73.43	10.665	19.02	55.980	44.28
Pos. Med.	45.939	28.73	26.137	69.28	9.511	11.23	55.248	47.19
Secδ tanδ	1.462	-1.066	1.006	.111	2.008	-1.742	1.000	-.022
Dob.Tran.	Ago 23		Ago 24		Ago 26		Ago 27	

VOLVER AL INDICE

VOLVER A LISTA DE ESTRELLAS

POSICIONES APARENTES AL PASO SUPERIOR POR GREENWICH

NUM.	846		850		855		856	
EST.	δ^1 Gruis		η Aquarii		ζ Pegasi		β Gruis	
MAG.	3.97		4.02		3.40		2.11 Var.	
UT	AR.	DEC.	AR.	DEC.	AR.	DEC.	AR.	DEC.
	h m	° ′	h m	° ′	h m	° ′	h m	° ′
	22 30	-43 22	22 36	+ 0 0	22 42	+10 57	22 44	-46 45
mes d	s	"	s	"	s	"	s	"
1 -.3	40.757	38.30	34.315	18.40	38.511	23.43	4.603	49.67
1 9.6	40.657	37.26	34.254	17.68	38.437	22.39	4.478	48.58
1 19.6	40.593	35.87	34.213	16.98	38.384	21.27	4.388	47.10
1 29.6	40.565	34.18	34.196	16.36	38.354	20.14	4.336	45.30
2 8.6	40.573	32.23	34.202	15.82	38.347	19.04	4.320	43.20
2 18.5	40.623	30.04	34.238	15.44	38.371	18.03	4.348	40.84
2 28.5	40.714	27.67	34.301	15.26	38.424	17.18	4.420	38.29
3 9.5	40.846	25.16	34.395	15.21	38.510	16.51	4.536	35.59
3 19.4	41.023	22.54	34.528	15.44	38.634	16.10	4.700	32.77
3 29.4	41.242	19.90	34.693	15.95	38.793	15.99	4.909	29.93
4 8.4	41.503	17.24	34.892	16.73	38.988	16.21	5.164	27.08
4 18.4	41.805	14.64	35.125	17.80	39.219	16.78	5.464	24.30
4 28.3	42.141	12.17	35.385	19.12	39.478	17.68	5.801	21.65
5 8.3	42.509	9.83	35.672	20.67	39.765	18.90	6.175	19.17
5 18.3	42.902	7.72	35.979	22.44	40.073	20.44	6.577	16.93
5 28.3	43.308	5.88	36.296	24.34	40.392	22.22	6.997	14.97
6 7.2	43.724	4.33	36.621	26.36	40.719	24.21	7.430	13.34
6 17.2	44.137	3.14	36.942	28.42	41.042	26.37	7.863	12.09
6 27.2	44.535	2.32	37.252	30.47	41.354	28.62	8.284	11.24
7 7.1	44.913	1.88	37.545	32.48	41.648	30.92	8.686	10.80
7 17.1	45.256	1.86	37.810	34.38	41.916	33.20	9.055	10.80
7 27.1	45.558	2.22	38.043	36.12	42.151	35.40	9.383	11.21
8 6.1	45.813	2.95	38.241	37.70	42.350	37.51	9.664	12.01
8 16.0	46.011	4.02	38.396	39.06	42.507	39.46	9.886	13.19
8 26.0	46.152	5.37	38.510	40.19	42.623	41.22	10.050	14.66
9 5.0	46.234	6.95	38.581	41.10	42.697	42.78	10.153	16.39
9 15.0	46.257	8.69	38.610	41.77	42.729	44.10	10.192	18.29
9 24.9	46.226	10.49	38.604	42.23	42.724	45.19	10.174	20.27
10 4.9	46.146	12.31	38.563	42.47	42.686	46.04	10.102	22.27
10 14.9	46.024	14.03	38.494	42.52	42.619	46.64	9.982	24.17
10 24.8	45.871	15.59	38.406	42.41	42.532	47.02	9.828	25.90
11 3.8	45.694	16.92	38.303	42.15	42.428	47.16	9.644	27.40
11 13.8	45.505	17.95	38.191	41.76	42.315	47.08	9.444	28.57
11 23.8	45.316	18.63	38.080	41.27	42.200	46.80	9.240	29.37
12 3.7	45.132	18.96	37.970	40.69	42.086	46.31	9.036	29.79
12 13.7	44.964	18.88	37.870	40.05	41.979	45.63	8.847	29.76
12 23.7	44.818	18.42	37.783	39.37	41.883	44.81	8.677	29.32
12 33.7	44.699	17.59	37.711	38.66	41.800	43.84	8.532	28.46
12 43.6	44.613	16.39	37.658	37.96	41.735	42.78	8.420	27.20
Pos. Med.	43.451	10.60	36.886	34.02	41.105	35.46	7.176	21.04
Secδ tanδ	1.376	-.945	1.000	.000	1.019	.194	1.460	-1.063
Dob.Tran.	Ago 28		Ago 30		Sep 1		Sep 1	

VOLVER AL INDICE

VOLVER A LISTA DE ESTRELLAS

POSICIONES APARENTES AL PASO SUPERIOR POR GREENWICH

NUM.	857		860		862		864	
EST.	η Pegasi		ε Gruis		μ Pegasi		λ Aquarii	
MAG.	2.94		3.49		3.48		3.74	
UT	AR.	DEC.	AR.	DEC.	AR.	DEC.	AR.	DEC.
	h m	° ′	h m	° ′	h m	° ′	h m	° ′
	22 44	+30 20	22 49	-51 11	22 51	+24 43	22 53	- 7 26
mes d	s	"	s	"	s	"	s	"
1 -.3	6.490	53.88	58.774	44.19	8.646	45.92	51.019	73.19
1 9.6	6.380	52.42	58.622	42.97	8.547	44.61	50.949	73.64
1 19.6	6.292	50.71	58.508	41.33	8.468	43.09	50.899	73.99
1 29.6	6.231	48.85	58.434	39.34	8.412	41.45	50.869	74.22
2 8.6	6.199	46.87	58.402	37.04	8.383	39.74	50.863	74.31
2 18.5	6.202	44.89	58.417	34.46	8.386	38.03	50.884	74.23
2 28.5	6.243	43.00	58.480	31.70	8.424	36.44	50.944	73.92
3 9.5	6.323	41.26	58.591	28.78	8.498	35.00	51.008	73.52
3 19.5	6.448	39.79	58.756	25.76	8.615	33.82	51.126	72.78
3 29.4	6.614	38.65	58.970	22.73	8.771	32.96	51.277	71.83
4 8.4	6.823	37.88	59.234	19.72	8.967	32.44	51.463	70.64
4 18.4	7.072	37.56	59.547	16.79	9.203	32.35	51.684	69.22
4 28.3	7.354	37.69	59.902	14.03	9.472	32.67	51.935	67.61
5 8.3	7.666	38.27	60.296	11.46	9.770	33.40	52.214	65.83
5 18.3	8.001	39.31	60.722	9.17	10.091	34.56	52.517	63.90
5 28.3	8.346	40.76	61.169	7.20	10.425	36.08	52.834	61.91
6 7.2	8.699	42.59	61.631	5.58	10.767	37.93	53.161	59.87
6 17.2	9.045	44.76	62.093	4.38	11.106	40.09	53.488	57.85
6 27.2	9.378	47.18	62.545	3.60	11.432	42.45	53.807	55.91
7 7.2	9.690	49.82	62.978	3.26	11.741	44.99	54.112	54.08
7 17.1	9.971	52.61	63.377	3.39	12.021	47.63	54.392	52.42
7 27.1	10.216	55.45	63.732	3.95	12.268	50.30	54.641	50.96
8 6.1	10.421	58.33	64.038	4.92	12.477	52.97	54.857	49.72
8 16.0	10.580	61.15	64.282	6.28	12.642	55.55	55.032	48.74
8 26.0	10.694	63.86	64.463	7.94	12.765	58.01	55.165	48.01
9 5.0	10.763	66.44	64.578	9.87	12.843	60.32	55.256	47.52
9 15.0	10.786	68.81	64.623	11.97	12.878	62.41	55.304	47.28
9 24.9	10.769	70.94	64.606	14.14	12.874	64.27	55.315	47.24
10 4.9	10.716	72.82	64.528	16.31	12.835	65.89	55.290	47.40
10 14.9	10.630	74.38	64.398	18.38	12.764	67.20	55.235	47.73
10 24.9	10.521	75.62	64.227	20.24	12.670	68.22	55.158	48.17
11 3.8	10.391	76.52	64.023	21.85	12.557	68.94	55.063	48.70
11 13.8	10.250	77.04	63.797	23.10	12.432	69.31	54.957	49.29
11 23.8	10.103	77.21	63.565	23.94	12.302	69.38	54.849	49.90
12 3.7	9.955	77.00	63.332	24.36	12.169	69.12	54.740	50.53
12 13.7	9.812	76.40	63.112	24.29	12.041	68.53	54.638	51.12
12 23.7	9.679	75.47	62.913	23.78	11.922	67.66	54.546	51.67
12 33.7	9.559	74.20	62.739	22.81	11.813	66.50	54.467	52.16
12 43.6	9.460	72.65	62.601	21.40	11.724	65.12	54.405	52.56
Pos. Med.	9.255	59.88	61.311	14.64	11.324	53.37	53.463	55.34
Secδ tanδ	1.159	.586	1.595	-1.243	1.101	.461	1.009	-.131
Dob.Tran.	Sep 1		Sep 2		Sep 3		Sep 3	

VOLVER AL INDICE

VOLVER A LISTA DE ESTRELLAS

POSICIONES APARENTES AL PASO SUPERIOR POR GREENWICH

NUM.	866		867		869		871	
EST.	δ Aquarii		α Piscis Austrini (Fomalhaut)		o Andromedae		α Pegasi	
MAG.	3.27		1.16		3.62		2.49	
UT	AR.	DEC.	AR.	DEC.	AR.	DEC.	AR.	DEC.
	h m	° ′	h m	° ′	h m	° ′	h m	° ′
	22 55	-15 41	22 58	-29 29	23 2	+42 27	23 5	+15 19
mes d	s	"	s	"	s	"	s	"
1 -.3	54.459	44.41	57.576	55.23	60.341	27.11	56.478	65.03
1 9.7	54.386	44.58	57.487	54.90	60.177	25.70	56.389	63.98
1 19.6	54.332	44.58	57.422	54.28	60.035	23.92	56.315	62.81
1 29.6	54.301	44.39	57.382	53.39	59.922	21.87	56.263	61.59
2 8.6	54.294	44.02	57.368	52.25	59.841	19.61	56.231	60.35
2 18.5	54.315	43.45	57.386	50.85	59.802	17.24	56.229	59.16
2 28.5	54.364	42.71	57.436	49.23	59.808	14.88	56.257	58.10
3 9.5	54.442	41.70	57.520	47.41	59.861	12.61	56.318	57.21
3 19.5	54.560	40.46	57.643	45.39	59.969	10.54	56.418	56.55
3 29.4	54.712	39.04	57.805	43.24	60.129	8.78	56.556	56.18
4 8.4	54.899	37.43	58.004	40.97	60.339	7.38	56.732	56.12
4 18.4	55.123	35.65	58.243	38.63	60.600	6.43	56.947	56.44
4 28.4	55.378	33.74	58.515	36.27	60.902	5.96	57.196	57.10
5 8.3	55.662	31.72	58.818	33.93	61.240	5.98	57.474	58.11
5 18.3	55.970	29.64	59.149	31.66	61.608	6.53	57.778	59.47
5 28.3	56.294	27.58	59.496	29.53	61.991	7.56	58.097	61.11
6 7.2	56.628	25.55	59.856	27.56	62.383	9.06	58.427	63.01
6 17.2	56.963	23.62	60.218	25.84	62.773	11.00	58.757	65.12
6 27.2	57.290	21.85	60.573	24.39	63.148	13.29	59.079	67.37
7 7.2	57.604	20.26	60.913	23.24	63.503	15.91	59.386	69.72
7 17.1	57.893	18.91	61.229	22.43	63.825	18.78	59.669	72.10
7 27.1	58.152	17.81	61.512	21.96	64.109	21.81	59.922	74.45
8 6.1	58.376	16.99	61.758	21.84	64.350	24.97	60.142	76.74
8 16.1	58.558	16.46	61.958	22.08	64.541	28.17	60.320	78.91
8 26.0	58.698	16.20	62.112	22.61	64.682	31.34	60.459	80.91
9 5.0	58.794	16.21	62.218	23.42	64.773	34.44	60.556	82.74
9 15.0	58.845	16.47	62.273	24.48	64.812	37.39	60.610	84.33
9 24.9	58.857	16.91	62.285	25.69	64.806	40.14	60.627	85.70
10 4.9	58.832	17.53	62.254	27.02	64.756	42.66	60.610	86.84
10 14.9	58.774	18.26	62.186	28.39	64.667	44.86	60.562	87.71
10 24.9	58.694	19.05	62.092	29.72	64.548	46.74	60.490	88.34
11 3.8	58.595	19.88	61.974	30.98	64.401	48.25	60.399	88.72
11 13.8	58.484	20.68	61.842	32.07	64.234	49.32	60.295	88.84
11 23.8	58.369	21.42	61.706	32.97	64.056	49.98	60.185	88.74
12 3.8	58.255	22.09	61.569	33.64	63.868	50.18	60.071	88.39
12 13.7	58.147	22.62	61.440	34.04	63.681	49.91	59.959	87.82
12 23.7	58.050	23.03	61.324	34.16	63.499	49.20	59.854	87.06
12 33.7	57.967	23.29	61.222	33.99	63.326	48.05	59.757	86.11
12 43.6	57.902	23.38	61.143	33.53	63.173	46.50	59.675	85.02
Pos. Med.	56.864	23.98	59.957	30.77	63.239	29.00	58.997	75.01
Secδ tanδ	1.039	-.281	1.149	-.566	1.355	.915	1.037	.274
Dob.Tran.	Sep 4		Sep 5		Sep 6		Sep 6	

VOLVER AL INDICE

VOLVER A LISTA DE ESTRELLAS

POSICIONES APARENTES AL PASO SUPERIOR POR GREENWICH

NUM.	1605		878		879		1612	
EST.	ι Gruis		γ Piscium		γ Sculptoris		98 Aquarii	
MAG.	3.90		3.69		4.41		3.97	
UT	AR.	DEC.	AR.	DEC.	AR.	DEC.	AR.	DEC.
	h m	° ′	h m	° ′	h m	° ′	h m	° ′
	23 11	-45 6	23 18	+ 3 24	23 20	-32 23	23 24	-19 57
mes d	s	"	s	"	s	"	s	"
1 -.3	41.962	77.58	23.795	45.63	6.316	78.70	13.065	80.87
1 9.7	41.819	76.76	23.713	44.89	6.207	78.38	12.973	80.98
1 19.6	41.703	75.52	23.645	44.14	6.117	77.73	12.897	80.86
1 29.6	41.620	73.93	23.594	43.45	6.051	76.77	12.840	80.50
2 8.6	41.568	72.01	23.563	42.81	6.009	75.53	12.803	79.93
2 18.6	41.556	69.77	23.558	42.30	5.999	74.00	12.794	79.11
2 28.5	41.584	67.31	23.581	41.96	6.020	72.23	12.813	78.07
3 9.5	41.654	64.65	23.633	41.82	6.076	70.23	12.861	76.81
3 19.5	41.773	61.83	23.721	41.85	6.173	68.03	12.948	75.29
3 29.4	41.937	58.94	23.848	42.16	6.309	65.68	13.071	73.59
4 8.4	42.147	56.00	24.011	42.76	6.486	63.21	13.233	71.70
4 18.4	42.406	53.07	24.213	43.66	6.706	60.66	13.434	69.66
4 28.4	42.706	50.24	24.447	44.84	6.962	58.11	13.670	67.51
5 8.3	43.045	47.54	24.714	46.27	7.255	55.57	13.939	65.28
5 18.3	43.419	45.04	25.006	47.94	7.578	53.13	14.237	63.02
5 28.3	43.815	42.81	25.316	49.79	7.922	50.83	14.556	60.80
6 7.3	44.230	40.87	25.640	51.80	8.284	48.72	14.891	58.64
6 17.2	44.651	39.30	25.967	53.90	8.652	46.87	15.232	56.63
6 27.2	45.067	38.12	26.289	56.03	9.017	45.32	15.569	54.81
7 7.2	45.471	37.35	26.599	58.16	9.372	44.08	15.898	53.20
7 17.1	45.848	37.04	26.889	60.22	9.706	43.23	16.207	51.88
7 27.1	46.190	37.15	27.151	62.15	10.009	42.74	16.489	50.84
8 6.1	46.491	37.69	27.381	63.95	10.279	42.63	16.739	50.12
8 16.1	46.739	38.64	27.574	65.54	10.504	42.91	16.949	49.73
8 26.0	46.933	39.92	27.727	66.92	10.683	43.51	17.118	49.65
9 5.0	47.069	41.52	27.840	68.08	10.814	44.44	17.244	49.86
9 15.0	47.144	43.35	27.911	68.99	10.894	45.63	17.325	50.35
9 25.0	47.163	45.31	27.946	69.68	10.928	47.00	17.365	51.05
10 4.9	47.128	47.35	27.946	70.14	10.918	48.51	17.366	51.93
10 14.9	47.043	49.36	27.914	70.38	10.866	50.08	17.331	52.94
10 24.9	46.921	51.25	27.859	70.44	10.785	51.62	17.269	54.00
11 3.8	46.766	52.95	27.784	70.32	10.675	53.08	17.184	55.08
11 13.8	46.588	54.36	27.694	70.05	10.548	54.37	17.082	56.11
11 23.8	46.399	55.44	27.597	69.66	10.411	55.45	16.972	57.03
12 3.8	46.205	56.15	27.495	69.14	10.268	56.27	16.855	57.84
12 13.7	46.017	56.42	27.395	68.54	10.128	56.79	16.741	58.47
12 23.7	45.841	56.28	27.299	67.87	9.997	56.99	16.633	58.90
12 33.7	45.682	55.71	27.211	67.15	9.876	56.87	16.533	59.14
12 43.7	45.549	54.71	27.135	66.42	9.774	56.41	16.447	59.15
Pos. Med.	44.194	49.11	26.181	59.33	8.483	53.51	15.246	59.49
Secδ tanδ	1.417	-1.004	1.002	.060	1.184	-.635	1.064	-.363
Dob.Tran.	Sep 8		Sep 10		Sep 10		Sep 11	

VOLVER AL INDICE

VOLVER A LISTA DE ESTRELLAS

POSICIONES APARENTES AL PASO SUPERIOR POR GREENWICH

NUM.	1614		886		892		1619	
EST.	ϑ Piscium		β Sculptoris		ι Piscium		χ Andromedae	
MAG.	4.28		4.37		4.13		4.14	
UT	AR.	DEC.	AR.	DEC.	AR.	DEC.	AR.	DEC.
	h m s	° ′ "	h m s	° ′ "	h m s	° ′ "	h m s	° ′ "
	23 29	+ 6 30	23 34	-37 40	23 41	+ 5 45	23 41	+44 27
mes d								
1 -.3	10.420	37.27	14.693	84.49	10.459	21.10	34.615	71.42
1 9.7	10.331	36.49	14.560	84.10	10.367	20.34	34.427	70.40
1 19.6	10.253	35.67	14.447	83.32	10.284	19.57	34.253	68.97
1 29.6	10.191	34.87	14.357	82.18	10.217	18.81	34.101	67.22
2 8.6	10.148	34.11	14.291	80.73	10.166	18.10	33.974	65.19
2 18.6	10.130	33.44	14.257	78.94	10.139	17.49	33.886	62.97
2 28.5	10.139	32.93	14.258	76.90	10.138	17.03	33.841	60.68
3 9.5	10.179	32.60	14.294	74.62	10.168	16.75	33.843	58.40
3 19.5	10.252	32.48	14.374	72.12	10.230	16.70	33.901	56.24
3 29.5	10.366	32.59	14.496	69.49	10.334	16.83	34.015	54.31
4 8.4	10.519	33.00	14.661	66.75	10.476	17.27	34.185	52.66
4 18.4	10.710	33.73	14.873	63.94	10.658	18.02	34.411	51.41
4 28.4	10.936	34.75	15.125	61.16	10.877	19.05	34.687	50.59
5 8.3	11.195	36.04	15.417	58.42	11.129	20.35	35.008	50.23
5 18.3	11.482	37.60	15.744	55.81	11.411	21.91	35.366	50.38
5 28.3	11.789	39.38	16.096	53.38	11.714	23.67	35.750	51.01
6 7.3	12.110	41.33	16.469	51.18	12.034	25.61	36.151	52.10
6 17.2	12.436	43.42	16.853	49.28	12.361	27.68	36.559	53.67
6 27.2	12.759	45.57	17.236	47.71	12.685	29.80	36.960	55.62
7 7.2	13.072	47.75	17.612	46.51	13.002	31.95	37.348	57.93
7 17.2	13.365	49.88	17.968	45.72	13.302	34.05	37.710	60.54
7 27.1	13.632	51.93	18.296	45.34	13.576	36.06	38.039	63.37
8 6.1	13.869	53.85	18.590	45.38	13.822	37.95	38.330	66.38
8 16.1	14.068	55.60	18.840	45.84	14.032	39.65	38.575	69.50
8 26.0	14.229	57.16	19.042	46.65	14.205	41.16	38.772	72.64
9 5.0	14.351	58.50	19.195	47.81	14.339	42.45	38.920	75.78
9 15.0	14.431	59.60	19.294	49.26	14.432	43.50	39.016	78.82
9 25.0	14.475	60.48	19.344	50.89	14.488	44.32	39.066	81.72
10 4.9	14.483	61.13	19.345	52.68	14.509	44.91	39.070	84.45
10 14.9	14.460	61.55	19.302	54.52	14.498	45.28	39.030	86.91
10 24.9	14.412	61.77	19.223	56.31	14.461	45.45	38.955	89.09
11 3.9	14.343	61.79	19.112	58.01	14.402	45.43	38.846	90.94
11 13.8	14.258	61.64	18.978	59.50	14.325	45.24	38.709	92.40
11 23.8	14.163	61.34	18.830	60.74	14.238	44.92	38.552	93.46
12 3.8	14.062	60.89	18.673	61.69	14.141	44.45	38.377	94.09
12 13.7	13.960	60.32	18.515	62.26	14.042	43.88	38.191	94.24
12 23.7	13.860	59.66	18.364	62.48	13.944	43.24	38.002	93.95
12 33.7	13.765	58.91	18.221	62.32	13.848	42.51	37.812	93.21
12 43.7	13.681	58.12	18.095	61.76	13.760	41.75	37.632	92.03
Pos. Med.	12.741	49.56	16.695	58.00	12.728	33.10	37.399	71.07
Secδ tanδ	1.006	.114	1.264	-.772	1.005	.101	1.401	.982
Dob.Tran.	Sep 12		Sep 14		Sep 15		Sep 15	

VOLVER AL INDICE

VOLVER A LISTA DE ESTRELLAS VOLVER AL INICIO DE LA LISTA DE ESTRELLAS

POSICIONES APARENTES AL PASO SUPERIOR POR GREENWICH

923 σ Octantis Mag. 5.47 Tipo esp. F0

Día	ENERO		FEBRERO		MARZO		ABRIL		MAYO		JUNIO	
	A.R.	Dec.	A.R.	Dec.	A.R.	Dec.	A.R.	Dec.	A.R.	Dec.	A.R.	Dec.
	h m	- ° ′	h m	- ° ′	h m	- ° ′	h m	- ° ′	h m	- ° ′	h m	- ° ′
	21 27	-88 51	21 27	-88 51	21 27	-88 51	21 27	-88 50	21 28	-88 50	21 29	-88 50
	s	″	s	″	s	″	s	″	s	″	s	″
1	34.81	37.18	27.03	26.44	35.94	15.58	59.99	65.54	32.90	59.37	9.46	57.86
2	34.25	36.92	26.92	26.06	36.38	15.19	61.11	65.24	34.23	59.27	10.46	57.91
3	33.65	36.65	26.85	25.66	36.91	14.79	62.28	64.97	35.50	59.19	11.41	57.95
4	33.02	36.35	26.85	25.24	37.54	14.38	63.47	64.73	36.68	59.12	12.37	57.96
5	32.38	36.04	26.94	24.80	38.26	13.99	64.63	64.51	37.76	59.05	13.37	57.96
6	31.77	35.70	27.15	24.37	39.08	13.61	65.70	64.31	38.78	58.95	14.45	57.96
7	31.21	35.34	27.46	23.96	39.94	13.27	66.68	64.11	39.77	58.83	15.61	57.96
8	30.74	34.96	27.85	23.56	40.80	12.95	67.58	63.90	40.80	58.69	16.84	57.99
9	30.37	34.57	28.26	23.20	41.60	12.65	68.43	63.66	41.90	58.54	18.09	58.04
10	30.12	34.18	28.64	22.86	42.31	12.36	69.30	63.40	43.09	58.39	19.35	58.12
11	29.95	33.82	28.95	22.53	42.93	12.07	70.23	63.12	44.36	58.26	20.56	58.23
12	29.84	33.47	29.16	22.20	43.49	11.75	71.25	62.84	45.68	58.15	21.72	58.35
13	29.72	33.16	29.30	21.85	44.04	11.40	72.36	62.57	47.03	58.07	22.81	58.49
14	29.55	32.86	29.41	21.48	44.64	11.04	73.55	62.31	48.36	58.02	23.83	58.63
15	29.29	32.56	29.55	21.08	45.31	10.66	74.77	62.09	49.65	57.99	24.78	58.77
16	28.95	32.25	29.74	20.66	46.08	10.28	76.01	61.89	50.89	57.98	25.68	58.90
17	28.57	31.91	30.02	20.23	46.94	9.92	77.23	61.71	52.07	57.98	26.55	59.01
18	28.17	31.55	30.40	19.81	47.86	9.57	78.42	61.55	53.19	57.97	27.40	59.12
19	27.81	31.17	30.85	19.40	48.81	9.25	79.56	61.40	54.25	57.97	28.28	59.21
20	27.52	30.76	31.37	19.01	49.78	8.95	80.65	61.26	55.27	57.95	29.20	59.28
21	27.32	30.35	31.92	18.64	50.73	8.68	81.68	61.12	56.28	57.92	30.18	59.36
22	27.22	29.95	32.48	18.29	51.65	8.41	82.66	60.97	57.29	57.87	31.24	59.45
23	27.19	29.55	33.02	17.95	52.52	8.16	83.63	60.81	58.35	57.81	32.36	59.55
24	27.22	29.17	33.53	17.63	53.35	7.91	84.59	60.63	59.46	57.75	33.52	59.69
25	27.28	28.81	34.00	17.31	54.13	7.65	85.58	60.44	60.65	57.69	34.67	59.85
26	27.34	28.46	34.42	16.99	54.88	7.39	86.63	60.24	61.92	57.64	35.76	60.04
27	27.38	28.13	34.81	16.66	55.61	7.10	87.74	60.04	63.24	57.62	36.76	60.24
28	27.38	27.81	35.17	16.32	56.37	6.81	88.94	59.84	64.59	57.63	37.65	60.45
29	27.34	27.48	35.54	15.96	57.16	6.50	90.21	59.66	65.92	57.66	38.45	60.65
30	27.25	27.15			58.02	6.18	91.55	59.50	67.19	57.72	39.18	60.82
31	27.15	26.80			58.96	5.86			68.37	57.79		

POSICIONES APARENTES AL PASO SUPERIOR POR GREENWICH

923 σ Octantis Mag. 5.47 Tipo esp. F0

Día	JULIO		AGOSTO		SEPTIEMBRE		OCTUBRE		NOVIEMBRE		DICIEMBRE	
	A.R.	Dec.	A.R.	Dec.	A.R.	Dec.	A.R.	Dec.	A.R.	Dec.	A.R.	Dec.
	h m s	- ° ′ ″	h m s	- ° ′ ″	h m s	- ° ′ ″	h m s	- ° ′ ″	h m s	- ° ′ ″	h m s	- ° ′ ″
	21 29	-88 51	21 29	-88 51	21 29	-88 51	21 29	-88 51	21 28	-88 51	21 28	-88 51
1	39.89	.98	59.93	8.02	63.22	17.49	47.91	25.34	78.60	29.24	47.75	27.24
2	40.62	1.12	60.44	8.27	63.01	17.83	47.01	25.57	77.43	29.24	46.86	27.03
3	41.41	1.25	60.96	8.54	62.72	18.17	46.07	25.79	76.31	29.22	46.03	26.83
4	42.27	1.38	61.46	8.84	62.34	18.50	45.11	25.99	75.25	29.20	45.27	26.65
5	43.20	1.53	61.92	9.15	61.90	18.82	44.15	26.16	74.27	29.17	44.54	26.47
6	44.16	1.70	62.30	9.49	61.41	19.12	43.21	26.31	73.34	29.15	43.80	26.32
7	45.13	1.90	62.60	9.82	60.91	19.40	42.32	26.46	72.46	29.14	43.02	26.17
8	46.08	2.12	62.82	10.16	60.40	19.66	41.48	26.59	71.59	29.14	42.16	26.03
9	46.96	2.36	62.96	10.49	59.92	19.90	40.71	26.72	70.70	29.16	41.23	25.87
10	47.78	2.62	63.04	10.81	59.48	20.14	39.99	26.86	69.73	29.19	40.23	25.68
11	48.51	2.89	63.08	11.11	59.11	20.37	39.29	27.02	68.68	29.21	39.21	25.47
12	49.17	3.15	63.11	11.39	58.79	20.61	38.58	27.19	67.53	29.21	38.21	25.21
13	49.77	3.40	63.15	11.66	58.51	20.86	37.82	27.38	66.31	29.18	37.29	24.94
14	50.31	3.65	63.35	12.17	58.25	21.14	36.96	27.58	65.08	29.12	36.47	24.65
15	50.83	3.87	63.55	12.42	57.94	21.43	35.99	27.76	63.89	29.02	35.76	24.36
16	51.35	4.09	63.79	12.69	57.54	21.74	34.92	27.92	62.79	28.90	35.13	24.08
17	51.89	4.29	64.07	12.98	57.02	22.05	33.79	28.05	61.79	28.77	34.56	23.83
18	52.49	4.48	64.33	13.30	56.38	22.35	32.66	28.14	60.88	28.65	33.99	23.59
19	53.15	4.67	64.51	13.64	55.65	22.62	31.59	28.20	60.02	28.54	33.39	23.37
20	53.88	4.88	64.59	13.99	54.89	22.85	30.60	28.24	59.18	28.46	32.74	23.16
21	54.66	5.10	64.54	14.34	54.15	23.05	29.70	28.29	58.32	28.39	32.03	22.95
22	55.44	5.36	64.38	14.67	53.47	23.24	28.86	28.36	57.41	28.33	31.27	22.73
23	56.18	5.64	64.15	14.97	52.86	23.42	28.04	28.44	56.44	28.28	30.47	22.49
24	56.83	5.95	63.92	15.24	52.31	23.61	27.21	28.54	55.40	28.21	29.65	22.23
25	57.36	6.26	63.71	15.49	51.80	23.82	26.34	28.65	54.32	28.14	28.84	21.95
26	57.79	6.56	63.57	15.74	51.29	24.05	25.40	28.77	53.19	28.04	28.06	21.65
27	58.12	6.85	63.49	15.98	50.75	24.30	24.40	28.89	52.04	27.93	27.33	21.33
28	58.42	7.10	63.46	16.25	50.15	24.56	23.32	28.99	50.90	27.78	26.67	20.99
29	58.72	7.34	63.44	16.53	49.48	24.82	22.19	29.09	49.79	27.62	26.11	20.65
30	59.06	7.57	63.42	16.83	48.73	25.08	21.00	29.16	48.74	27.43	25.63	20.31
31	59.47	7.79	63.35	17.15			19.80	29.21			25.24	19.98

VOLVER AL INDICE

VOLVER A LISTA DE ESTRELLAS

VOLVER AL EJEMPLO 1 VOLVER AL EJEMPLO 3

Tabla 1. CONVERSIÓN DE TIEMPO SOLAR MEDIO A TIEMPO SIDÉREO MEDIO (corrección aditiva)

TM	Correc.	TM	Correc.	TM	Correc.	TM	Correc.	TM	Correc.
h	m s	m	s	m	s	s	s	s	s
1	0 09 856	1	0 164	31	5 093	1	0 003	31	0 085
2	0 19.713	2	0.329	32	5.257	2	0.005	32	0.088
3	0 29.569	3	0.493	33	5.421	3	0.008	33	0.090
4	0 39.426	4	0.657	34	5.585	4	0.011	34	0.093
5	0 49.282	5	0.821	35	5.750	5	0.014	35	0.096
6	0 59.139	6	0.986	36	5.914	6	0.016	36	0.099
7	1 08.995	7	1.150	37	6.078	7	0.019	37	0.101
8	1 18.852	8	1.314	38	6.242	8	0.022	38	0.104
9	1 28.708	9	1.478	39	6.407	9	0.025	39	0.107
10	1 38.565	10	1.643	40	6.571	10	0.027	40	0.110
11	1 48.421	11	1.807	41	6.735	11	0.030	41	0.112
12	1 58.278	12	1.971	42	6.900	12	0.033	42	0.115
13	2 08.134	13	2.136	43	7.064	13	0.036	43	0.118
14	2 17.991	14	2.300	44	7.228	14	0.038	44	0.120
15	2 27.847	15	2.464	45	7.392	15	0.041	45	0.123
16	2 37.704	16	2.628	46	7.557	16	0.044	46	0.126
17	2 47.560	17	2.793	47	7.721	17	0.047	47	0.129
18	2 57.417	18	2.957	48	7.885	18	0.049	48	0.131
19	3 07.273	19	3.121	49	8.049	19	0.052	49	0.134
20	3 17.129	20	3.285	50	8.214	20	0.055	50	0.137
21	3 26.986	21	3.450	51	8.378	21	0.057	51	0.140
22	3 36.842	22	3.614	52	8.542	22	0.060	52	0.142
23	3 46.699	23	3.778	53	8.707	23	0.063	53	0.145
24	3 56.555	24	3.943	54	8.871	24	0.066	54	0.148
		25	4.107	55	9.035	25	0.068	55	0.151
		26	4.271	56	9.199	26	0.071	56	0.153
		27	4.435	57	9.364	27	0.074	57	0.156
		28	4.600	58	9.528	28	0.077	58	0.159
		29	4.764	59	9.692	29	0.079	59	0.162
		30	4.928	60	9.856	30	0.082	60	0.164

VOLVER AL INDICE

VOLVER AL EJEMPLO 2

Tabla 2. CONVERSIÓN DE TIEMPO SIDÉREO MEDIO
A TIEMPO SOLAR MEDIO
(corrección sustractiva)

TS	Correc.	TS	Correc.	TS	Correc.	TS	Correc.	TS	Correc.
h	m s	m	s	m	s	s	s	s	s
1	0 09 830	1	0 164	31	5 079	1	0 003	31	0 085
2	0 19.659	2	0.328	32	5.242	2	0.005	32	0.087
3	0 29.489	3	0.491	33	5.406	3	0.008	33	0.090
4	0 39.318	4	0.655	34	5.570	4	0.011	34	0.093
5	0 49.148	5	0.819	35	5.734	5	0.014	35	0.096
6	0 58.977	6	0.983	36	5.898	6	0.016	36	0.098
7	1 08.807	7	1.147	37	6.062	7	0.019	37	0.101
8	1 18.636	8	1.311	38	6.225	8	0.022	38	0.104
9	1 28.466	9	1.474	39	6.389	9	0.025	39	0.106
10	1 38.296	10	1.638	40	6.553	10	0.027	40	0.109
11	1 48.125	11	1.802	41	6.717	11	0.030	41	0.112
12	1 57.955	12	1.966	42	6.881	12	0.033	42	0.115
13	2 07.784	13	2.130	43	7.045	13	0.035	43	0.117
14	2 17.614	14	2.294	44	7.208	14	0.038	44	0.120
15	2 27.443	15	2.457	45	7.372	15	0.041	45	0.123
16	2 37.273	16	2.621	46	7.536	16	0.044	46	0.126
17	2 47.103	17	2.785	47	7.700	17	0.046	47	0.128
18	2 56.932	18	2.949	48	7.864	18	0.049	48	0.131
19	3 06.762	19	3.113	49	8.027	19	0.052	49	0.134
20	3 16.591	20	3.277	50	8.191	20	0.055	50	0.137
21	3 26.421	21	3.440	51	8.355	21	0.057	51	0.139
22	3 36.250	22	3.604	52	8.519	22	0.060	52	0.142
23	3 46.080	23	3.768	53	8.683	23	0.063	53	0.145
24	3 55.909	24	3.932	54	8.847	24	0.066	54	0.147
		25	4.096	55	9.010	25	0.068	55	0.150
		26	4.259	56	9.174	26	0.071	56	0.153
		27	4.423	57	9.338	27	0.074	57	0.156
		28	4.587	58	9.502	28	0.076	58	0.158
		29	4.751	59	9.666	29	0.079	59	0.161
		30	4.915	60	9.830	30	0.082	60	0.164

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Tabla3 CONVERSIÓN DE MAGNITUDES EN EL SISTEMA SEXAGESIMAL AL SISTEMA HORARIO

o	h m	o	h m	o	h m	o	h m	o	h m	o	h m	o	h m
0	0 00	60	4 00	120	8 00	180	12 00	240	16 00	300	20 00		
1	0 04	61	4 04	121	8 04	181	12 04	241	16 04	301	20 04		
2	0 08	62	4 08	122	8 08	182	12 08	242	16 08	302	20 08		
3	0 12	63	4 12	123	8 12	183	12 12	243	16 12	303	20 12		
4	0 16	64	4 16	124	8 16	184	12 16	244	16 16	304	20 16		
5	0 20	65	4 20	125	8 20	185	12 20	245	16 20	305	20 20		
6	0 24	66	4 24	126	8 24	186	12 24	246	16 24	306	20 24		
7	0 28	67	4 28	127	8 28	187	12 28	247	16 28	307	20 28		
8	0 32	68	4 32	128	8 32	188	12 32	248	16 32	308	20 32		
9	0 36	69	4 36	129	8 36	189	12 36	249	16 36	309	20 36		
10	0 40	70	4 40	130	8 40	190	12 40	250	16 40	310	20 40		
11	0 44	71	4 44	131	8 44	191	12 44	251	16 44	311	20 44		
12	0 48	72	4 48	132	8 48	192	12 48	252	16 48	312	20 48		
13	0 52	73	4 52	133	8 52	193	12 52	253	16 52	313	20 52		
14	0 56	74	4 56	134	8 56	194	12 56	254	16 56	314	20 56		
15	1 00	75	5 00	135	9 00	195	13 00	255	17 00	315	21 00		
16	1 04	76	5 04	136	9 04	196	13 04	256	17 04	316	21 04		
17	1 08	77	5 08	137	9 08	197	13 08	257	17 08	317	21 08		
18	1 12	78	5 12	138	9 12	198	13 12	258	17 12	318	21 12		
19	1 16	79	5 16	139	9 16	199	13 16	259	17 16	319	21 16		
20	1 20	80	5 20	140	9 20	200	13 20	260	17 20	320	21 20		
21	1 24	81	5 24	141	9 24	201	13 24	261	17 24	321	21 24		
22	1 28	82	5 28	142	9 28	202	13 28	262	17 28	322	21 28		
23	1 32	83	5 32	143	9 32	203	13 32	263	17 32	323	21 32		
24	1 36	84	5 36	144	9 36	204	13 36	264	17 36	324	21 36		
25	1 40	85	5 40	145	9 40	205	13 40	265	17 40	325	21 40		
26	1 44	86	5 44	146	9 44	206	13 44	266	17 44	326	21 44		
27	1 48	87	5 48	147	9 48	207	13 48	267	17 48	327	21 48		
28	1 52	88	5 52	148	9 52	208	13 52	268	17 52	328	21 52		
29	1 56	89	5 56	149	9 56	209	13 56	269	17 56	329	21 56		
30	2 00	90	6 00	150	10 00	210	14 00	270	18 00	330	22 00		
31	2 04	91	6 04	151	10 04	211	14 04	271	18 04	331	22 04		
32	2 08	92	6 08	152	10 08	212	14 08	272	18 08	332	22 08		
33	2 12	93	6 12	153	10 12	213	14 12	273	18 12	333	22 12		
34	2 16	94	6 16	154	10 16	214	14 16	274	18 16	334	22 16		
35	2 20	95	6 20	155	10 20	215	14 20	275	18 20	335	22 20		
36	2 24	96	6 24	156	10 24	216	14 24	276	18 24	336	22 24		
37	2 28	97	6 28	157	10 28	217	14 28	277	18 28	337	22 28		
38	2 32	98	6 32	158	10 32	218	14 32	278	18 32	338	22 32		
39	2 36	99	6 36	159	10 36	219	14 36	279	18 36	339	22 36		
40	2 40	100	6 40	160	10 40	220	14 40	280	18 40	340	22 40		
41	2 44	101	6 44	161	10 44	221	14 44	281	18 44	341	22 44		
42	2 48	102	6 48	162	10 48	222	14 48	282	18 48	342	22 48		
43	2 52	103	6 52	163	10 52	223	14 52	283	18 52	343	22 52		
44	2 56	104	6 56	164	10 56	224	14 56	284	18 56	344	22 56		
45	3 00	105	7 00	165	11 00	225	15 00	285	19 00	345	23 00		
46	3 04	106	7 04	166	11 04	226	15 04	286	19 04	346	23 04		
47	3 08	107	7 08	167	11 08	227	15 08	287	19 08	347	23 08		
48	3 12	108	7 12	168	11 12	228	15 12	288	19 12	348	23 12		
49	3 16	109	7 16	169	11 16	229	15 16	289	19 16	349	23 16		
50	3 20	110	7 20	170	11 20	230	15 20	290	19 20	350	23 20		
51	3 24	111	7 24	171	11 24	231	15 24	291	19 24	351	23 24		
52	3 28	112	7 28	172	11 28	232	15 28	292	19 28	352	23 28		
53	3 32	113	7 32	173	11 32	233	15 32	293	19 32	353	23 32		
54	3 36	114	7 36	174	11 36	234	15 36	294	19 36	354	23 36		
55	3 40	115	7 40	175	11 40	235	15 40	295	19 40	355	23 40		
56	3 44	116	7 44	176	11 44	236	15 44	296	19 44	356	23 44		
57	3 48	117	7 48	177	11 48	237	15 48	297	19 48	357	23 48		
58	3 52	118	7 52	178	11 52	238	15 52	298	19 52	358	23 52		
59	3 56	119	7 56	179	11 56	239	15 56	299	19 56	359	23 56		
60	4 00	120	8 00	180	12 00	240	16 00	300	20 00	360	24 00		

'	m s
0	0 00
1	0 04
2	0 08
3	0 12
4	0 16
5	0 20
6	0 24
7	0 28
8	0 32
9	0 36
10	0 40
11	0 44
12	0 48
13	0 52
14	0 56
15	1 00
16	1 04
17	1 08
18	1 12
19	1 16
20	1 20
21	1 24
22	1 28
23	1 32
24	1 36
25	1 40
26	1 44
27	1 48
28	1 52
29	1 56
30	2 00
31	2 04
32	2 08
33	2 12
34	2 16
35	2 20
36	2 24
37	2 28
38	2 32
39	2 36
40	2 40
41	2 44
42	2 48
43	2 52
44	2 56
45	3 00
46	3 04
47	3 08
48	3 12
49	3 16
50	3 20
51	3 24
52	3 28
53	3 32
54	3 36
55	3 40
56	3 44
57	3 48
58	3 52
59	3 56
60	4 00

"	s
0	0.00
1	0.07
2	0.13
3	0.20
4	0.27
5	0.33
6	0.40
7	0.47
8	0.53
9	0.60
10	0.67
11	0.73
12	0.80
13	0.87
14	0.93
15	1.00
16	1.07
17	1.13
18	1.20
19	1.27
20	1.33
21	1.40
22	1.47
23	1.53
24	1.60
25	1.67
26	1.73
27	1.80
28	1.87
29	1.93
30	2.00
31	2.07
32	2.13
33	2.20
34	2.27
35	2.33
36	2.40
37	2.47
38	2.53
39	2.60
40	2.67
41	2.73
42	2.80
43	2.87
44	2.93
45	3.00
46	3.07
47	3.13
48	3.20
49	3.27
50	3.33
51	3.40
52	3.47
53	3.53
54	3.60
55	3.67
56	3.73
57	3.80
58	3.87
59	3.93
60	4.00

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Tabla 4

CONVERSIÓN DE MAGNITUDES EN EL SISTEMA HORARIO AL SISTEMA SEXAGESIMAL

Horas		Minutos		Segundos		Centésimos de segundo			
h	°	m	° '	s	' "	s	"	s	"
0	0	0	0 00	0	0 00	0.00	0.00	0.50	7.50
1	15	1	0 15	1	0 15	0.01	0.15	0.51	7.65
2	30	2	0 30	2	0 30	0.02	0.30	0.52	7.80
3	45	3	0 45	3	0 45	0.03	0.45	0.53	7.95
4	60	4	1 00	4	1 00	0.04	0.60	0.54	8.10
		5	1 15	5	1 15				
5	75	6	1 30	6	1 30	0.05	0.75	0.55	8.25
6	90	7	1 45	7	1 45	0.06	0.90	0.56	8.40
7	105	8	2 00	8	2 00	0.07	1.05	0.57	8.55
8	120	9	2 15	9	2 15	0.08	1.20	0.58	8.70
9	135					0.09	1.35	0.59	8.85
		10	2 30	10	2 30				
10	150	11	2 45	11	2 45	0.10	1.50	0.60	9.00
11	165	12	3 00	12	3 00	0.11	1.65	0.61	9.15
12	180	13	3 15	13	3 15	0.12	1.80	0.62	9.30
13	195	14	3 30	14	3 30	0.13	1.95	0.63	9.45
14	210	15	3 45	15	3 45	0.14	2.10	0.64	9.60
		16	4 00	16	4 00				
15	225	17	4 15	17	4 15	0.15	2.25	0.65	9.75
16	240	18	4 30	18	4 30	0.16	2.40	0.66	9.90
17	255	19	4 45	19	4 45	0.17	2.55	0.67	10.05
18	270					0.18	2.70	0.68	10.20
19	285	20	5 00	20	5 00	0.19	2.85	0.69	10.35
		21	5 15	21	5 15				
20	300	22	5 30	22	5 30	0.20	3.00	0.70	10.50
21	315	23	5 45	23	5 45	0.21	3.15	0.71	10.65
22	330	24	6 00	24	6 00	0.22	3.30	0.72	10.80
23	345	25	6 15	25	6 15	0.23	3.45	0.73	10.95
24	360	26	6 30	26	6 30	0.24	3.60	0.74	11.10
		27	6 45	27	6 45				
		28	7 00	28	7 00	0.25	3.75	0.75	11.25
		29	7 15	29	7 15	0.26	3.90	0.76	11.40
						0.27	4.05	0.77	11.55
		30	7 30	30	7 30	0.28	4.20	0.78	11.70
		31	7 45	31	7 45	0.29	4.35	0.79	11.85
		32	8 00	32	8 00				
		33	8 15	33	8 15	0.30	4.50	0.80	12.00
		34	8 30	34	8 30	0.31	4.65	0.81	12.15
		35	8 45	35	8 45	0.32	4.80	0.82	12.30
		36	9 00	36	9 00	0.33	4.95	0.83	12.45
		37	9 15	37	9 15	0.34	5.15	0.84	12.60
		38	9 30	38	9 30				
		39	9 45	39	9 45	0.35	5.25	0.85	12.75
						0.36	5.40	0.86	12.90
		40	10 00	40	10 00	0.37	5.55	0.87	13.05
		41	10 15	41	10 15	0.38	5.70	0.88	13.20
		42	10 30	42	10 30	0.39	5.85	0.89	13.35
		43	10 45	43	10 45				
		44	11 00	44	11 00	0.40	6.00	0.90	13.50
		45	11 15	45	11 15	0.41	6.15	0.91	13.65
		46	11 30	46	11 30	0.42	6.30	0.92	13.80
		47	11 45	47	11 45	0.43	6.45	0.93	13.95
		48	12 00	48	12 00	0.44	6.60	0.94	14.10
		49	12 15	49	12 15				
						0.45	6.75	0.95	14.25
		50	12 30	50	12 30	0.46	6.90	0.96	14.40
		51	12 45	51	12 45	0.47	7.05	0.97	14.55
		52	13 00	52	13 00	0.48	7.20	0.98	14.70
		53	13 15	53	13 15	0.49	7.35	0.99	14.85
		54	13 30	54	13 30				
		55	13 45	55	13 45	0.50	7.50	1.00	15.00
		56	14 00	56	14 00				
		57	14 15	57	14 15				
		58	14 30	58	14 30				
		59	14 45	59	14 45				
		60	15 00	60	15 00				

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Tabla 5.TRANSFORMACIÓN DE HORAS, MINUTOS Y SEGUNDOS A FRACCIÓN DECIMAL DEL DÍA

	0^h	1^h	2^h	3^h	4^h	5^h	Segundos	
m	d	d	d	d	d	d	s	d
0	0.00000	0.04167	0.08333	0.12500	0.16667	0.20833	0	0.00000
1	.00069	.04236	.08403	.12569	.16736	.20903	1	.00001
2	.00139	.04306	.08472	.12639	.16806	.20972	2	.00002
3	.00208	.04375	.08542	.12708	.16875	.21042	3	.00003
4	.00278	.04444	.08611	.12778	.16944	.21111	4	.00005
5	0.00347	0.04514	0.08681	0.12847	0.17014	0.21181	5	0.00006
6	.00417	.04583	.08750	.12917	.17083	.21250	6	.00007
7	.00486	.04653	.08819	.12986	.17153	.21319	7	.00008
8	.00556	.04722	.08889	.13056	.17222	.21389	8	.00009
9	.00625	.04792	.08958	.13125	.17292	.21458	9	.00010
10	0.00694	0.04861	0.09028	0.13194	0.17361	0.21528	10	0.00012
11	.00764	.04931	.09097	.13264	.17431	.21597	11	.00013
12	.00833	.05000	.09167	.13333	.17500	.21667	12	.00014
13	.00903	.05069	.09236	.13403	.17569	.21736	13	.00015
14	.00972	.05139	.09306	.13472	.17639	.21806	14	.00016
15	0.01042	0.05208	0.09375	0.13542	0.17708	0.21875	15	0.00017
16	.01111	.05278	.09444	.13611	.17778	.21944	16	.00019
17	.01181	.05347	.09514	.13681	.17847	.22014	17	.00020
18	.01250	.05417	.09583	.13750	.17917	.22083	18	.00021
19	.01319	.05486	.09653	.13819	.17986	.22153	19	.00022
20	0.01389	0.05556	0.09722	0.13889	0.18056	0.22222	20	0.00023
21	.01458	.05625	.09792	.13958	.18125	.22292	21	.00024
22	.01528	.05694	.09861	.14028	.18194	.22361	22	.00025
23	.01597	.05764	.09931	.14097	.18264	.22431	23	.00027
24	.01667	.05833	.10000	.14167	.18333	.22500	24	.00028
25	0.01736	0.05903	0.10069	0.14236	0.18403	0.22569	25	0.00029
26	.01806	.05972	.10139	.14306	.18472	.22639	26	.00030
27	.01875	.06042	.10208	.14375	.18542	.22708	27	.00031
28	.01944	.06111	.10278	.14444	.18611	.22778	28	.00032
29	.02014	.06181	.10347	.14514	.18681	.22847	29	.00034
30	0.02083	0.06250	0.10417	0.14583	0.18750	0.22917	30	0.00035
31	.02153	.06319	.10486	.14653	.18819	.22986	31	.00036
32	.02222	.06389	.10556	.14722	.18889	.23056	32	.00037
33	.02292	.06458	.10625	.14792	.18958	.23125	33	.00038
34	.02361	.06528	.10694	.14861	.19028	.23194	34	.00039
35	0.02431	0.06597	0.10764	0.14931	0.19097	0.23264	35	0.00041
36	.02500	.06667	.10833	.15000	.19167	.23333	36	.00042
37	.02569	.06736	.10903	.15069	.19236	.23403	37	.00043
38	.02639	.06806	.10972	.15139	.19306	.23472	38	.00044
39	.02708	.06875	.11042	.15208	.19375	.23542	39	.00045
40	0.02778	0.06944	0.11111	0.15278	0.19444	0.23611	40	0.00046
41	.02847	.07014	.11181	.15347	.19514	.23681	41	.00047
42	.02917	.07083	.11250	.15417	.19583	.23750	42	.00049
43	.02986	.07153	.11319	.15486	.19653	.23819	43	.00050
44	.03056	.07222	.11389	.15556	.19722	.23889	44	.00051
45	0.03125	0.07292	0.11458	0.15625	0.19792	0.23958	45	0.00052
46	.03194	.07361	.11528	.15694	.19861	.24028	46	.00053
47	.03264	.07431	.11597	.15764	.19931	.24097	47	.00054
48	.03333	.07500	.11667	.15833	.20000	.24167	48	.00056
49	.03403	.07569	.11736	.15903	.20069	.24236	49	.00057
50	0.03472	0.07639	0.11806	0.15972	0.20139	0.24306	50	0.00058
51	.03542	.07708	.11875	.16042	.20208	.24375	51	.00059
52	.03611	.07778	.11944	.16111	.20278	.24444	52	.00060
53	.03681	.07847	.12014	.16181	.20347	.24514	53	.00061
54	.03750	.07917	.12083	.16250	.20417	.24583	54	.00062
55	0.03819	0.07986	0.12153	0.16319	0.20486	0.24653	55	0.00064
56	.03889	.08056	.12222	.16389	.20556	.24722	56	.00065
57	.03958	.08125	.12292	.16458	.20625	.24792	57	.00066
58	.04028	.08194	.12361	.16528	.20694	.24861	58	.00067
59	0.04097	0.08264	0.12431	0.16597	0.20764	0.24931	59	0.00068

Interv.	6^h	12^h	18^h	24^h
Frac.Día	0^d25	0^d50	0^d75	1^d00

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Tabla 6. TRANSFORMACIÓN DE INTERVALOS DE TIEMPO EXPRESADOS EN FRACCIONES DECIMALES DE DÍA A UNIDADES HORARIAS

Intervalo	Unidades Horarias	Intervalo	Unidades Horarias	Intervalo	Unidades Horarias	Intervalo	Unidades Horarias	Intervalo	Un. Hor.
d	h m s	d	h m s	d	m s	d	m s	d	s
0 00	0 00 00	0 50	12 00 00	0 0000	0 00 00	0 0050	7 12 00	0 000 00	0 00
1	14 24	51	14 24	1	08.64	51	20.64		
2	28 48	52	28 48	2	17.28	52	29.28	. 1	0.86
3	43 12	53	43 12	3	25.92	53	37.92		
4	57 36	54	57 36	4	34.56	54	46.56	. 2	1.73
5	1 12 00	55	13 12 00	5	43.20	55	55.20		
6	26 24	56	26 24	6	51.84	56	8 03.84	. 3	2.59
7	40 48	57	40 48	7	1 00.48	57	12.48		
8	55 12	58	55 12	8	09.12	58	21.12	. 4	3.46
9	2 09 36	59	14 09 36	9	17.76	59	29.76		
								0.000 05	4.32
0.10	24 00	0.60	24 00	0.0010	26.40	0.0060	38.40		
11	38 24	61	38 24	11	35.04	61	47.04	. 6	5.18
12	52 48	62	52 48	12	43.68	62	55.68		
13	3 07 12	63	15 07 12	13	52.32	63	9 04.32	. 7	6.05
14	21 36	64	21 36	14	2 00.96	64	12.96		
15	36 00	65	36 00	15	09.60	65	21.60	. 8	6.91
16	50 24	66	50 24	16	18.24	66	30.24		
17	4 04 48	67	16 04 48	17	26.88	67	38.88	. 9	7.78
18	19 12	68	19 12	18	35.52	68	47.52		
19	33 36	69	33 36	19	44.16	69	56.16	0.000 10	8.64
0.20	48 00	0.70	16 48 00	0.0020	52.80	0.0070	10 04.80		
21	5 02 24	71	17 02 24	21	3 01.44	71	13.44		
22	16 48	72	16 48	22	10.08	72	22.08		
23	31 12	73	31 12	23	18.72	73	30.72		
24	45 36	74	45 36	24	27.36	74	39.36		
25	6 00 00	75	18 00 00	25	36.00	75	48.00		
26	14 24	76	14 24	26	44.64	76	56.64		
27	28 48	77	28 48	27	53.28	77	11 05.28		
28	43 12	78	43 12	28	4 01.92	78	13.92		
29	57 36	79	57 36	29	10.56	79	22.56		
0.30	7 12 00	0.80	19 12 00	0.0030	19.20	0.0080	31.20		
31	26 24	81	26 24	31	27.84	81	39.84		
32	40 48	82	40 48	32	36.48	82	48.48		
33	55 12	83	55 12	33	45.12	83	57.12		
34	8 09 36	84	20 09 36	34	53.76	84	12 05.76		
35	24 00	85	24 00	35	5 02.40	85	14.40		
36	38 24	86	38 24	36	11.04	86	23.04		
37	52 48	87	52 48	37	19.68	87	31.68		
38	9 07 12	88	21 07 12	38	28.32	88	40.32		
39	21 36	89	21 36	39	36.96	89	48.96		
0.40	36 00	0.90	36 00	0.0040	45.60	0.0090	57.60		
41	50 24	91	50 24	41	54.24	91	13 06.24		
42	10 04 48	92	22 04 48	42	6 02.88	92	14.88		
43	19 12	93	19 12	43	11.52	93	23.52		
44	33 36	94	33 36	44	20.16	94	31.16		
45	48 00	95	48 00	45	28.80	95	40.80		
46	11 02 24	96	23 02 24	46	37.44	96	49.44		
47	16 48	97	16 48	47	46.08	97	58.08		
48	31 12	98	31 12	48	54.72	98	14 06.72		
0.49	45 36	0.99	45 36	0.0049	7 03.36	099	15.36		

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TABLAS DE REFRACCIÓN

Las tablas que se dan a continuación han sido tomadas del Almanaque Náutico de San Fernando (España), deducidas a su vez de las tablas de refracción de la Connaissance des Temps. La **Tabla 7** provee los valores de las correcciones M, N y P, a la lectura del barómetro H', para obtener la presión barométrica H, reducida a la temperatura del aire y corregida de la variación de la gravedad por la influencia de la latitud φ y de la altitud (dada en metros), conforme a la expresión:

$$H = H' [1 - 0.00264 \cos 2\varphi - 0.000\,000\,196\, a - 0.000\,163\, (t' - t)]$$

En la que t y t' son las temperaturas del aire y del termómetro adjunto al barómetro en grados centígrados, supuesta la escala barométrica del latón. La presión barométrica corregida será:

H = H' + M + N + P
Su valor será el argumento para entrar en la tabla que da el factor B.

La Refracción Normal Ro, que se obtiene de la **Tabla 8** en función de la distancia cenital aparente, corresponde a las siguientes condiciones: φ = 45°; altitud = 0 metros; temperatura del aire ambiente = 0°C; presión barométrica = 760 mm a 0°C; tensión del vapor de agua = 6 mm.

En la **tabla 9** se dan las correcciones que deben efectuarse a la Refracción Normal Ro para obtener la Refracción Verdadera R, en cualquier condición de observación, despreciando la influencia muy pequeña del mayor o menor grado de humedad del aire.

El factor corrección A se da en función de la temperatura t del aire. El factor B en función de la presión barométrica reducida H. el factor α en función de la distancia cenital para Z<81° y de Z y t para Z>81°. El factor β en función de la Refracción Normal corregida por temperatura R'.

La Refracción Verdadera será:

$$R = Ro\ (1 + A\alpha)\ (1 + B\beta) = R'\ (1 + B\beta)$$

Los factores α y β se consideran iguales a la unidad cuando Z<45° para α y cuando es Z<60° para β. Podrá prescindirse de dichos factores aún para mayores distancias cenitales, cuando no se requiera un valor extremadamente aproximado de la refracción.

Ejemplo 1:

Z = 23° 27'.6; φ = - 35°.5; H' = 757.6 mm; a = 50 m; t = 12°.6; t'= 18°.6

H'	= 757.6 mm		Ro	= 26″ 08	
M	= -1.29	A	= -0,0461	1 + A = 0.9539	
N	= -0.11	R'	= Ro (1 + A) = 24″ 88		
P	= -0.01	B	= -0,0053	1 + B = 0.9947	
			R	= R' (1 + B) = 24″ 75	
H	= 756 mm				

Ejemplo 2

Z = 85°15'.2; φ = -47°; H'= 750.8 mm; a = 400 m; t = 12°.5; t'= 20°.5

H'	= 750.8 mm		Ro	= 10'40″.2 = 640″.2
M	= -0.79	A	= -0.0458	
N	= -0.06	α	= 1. 121	
P	= -0.06	R'	= Ro (1 + Aα) = 640″.2 x 0,9487 = 607″.4	
		B	= -0.0132	
H	= 749.90 mm	β	= 1.012	
		R	= R'(1 + Bβ) = 607″.4 x 0,9866=599″.26 =9'59″.3	

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Tabla 7. **VOLVER A TABLAS DE REFRACCION**

Corrección a las lecturas barométricas (H') para deducir la (H) que ha de servir de argumento de entrada en la Tabla de Refracción

H = H' + M + N + P

PRIMERA CORRECCIÓN (M)

φ	t' - t													Var.
	+16°	+14°	+12°	+10°	+8°	+6°	+4°	+2°	0°	-2°	-4°	-6°	-8°	-10°	Por 1°deφ
0	-3,67	-3,44	-3,22	-2,99	-2,76	-2.53	-2.30	-2,08	-1,85	-1,62	-1,39	-1,16	-0,94	-0,71	0,011
10	3,56	3,33	3,11	2.88	2,65	2,42	2,19	1,97	1,74	1,51	1,28	1,05	0,83	0,60	0,026
15	3,38	3,20	2.97	2,74	2,51	2,28	2,05	1,83	1,60	1,37	1,14	0,91	0,69	0,45	0,034
18	3,32	3,09	2,86	2,63	2,40	2,18	1,95	1,72	1,49	1,26	1,04	0,80	0,58	0,34	0,040
20	3,24	3,01	2,79	2,55	2,32	2,10	1,87	1,64	1,41	1,18	0,96	0,73	0,50	0,26	
22	-3,16	-2,93	-2,70	-2,47	-2,24	-2,02	-1,78	-1,56	-1,33	-1,10	-0,87	-0,64	-0,42	-0,17	0,043
24	3,06	2,83	2,60	2,37	2,14	1,92	1,69	1,46	1,23	1,00	0,78	0,55	0,32	-0,08	0,046
26	2,97	2,74	2,51	2,28	2,05	1,83	1,60	1,37	1,14	0,91	0,69	0,45	0,23	+0,01	0,049
28	2,86	2,62	2,40	2,17	1,94	1,71	1,48	1,26	1,03	0,80	0,57	0,34	0,12	0,11	0,052
30	2,75	2,52	2,30	2,06	1,83	1,61	1,38	1,15	0,92	0,69	0,47	0,24	-0,01	0,22	0,055
32	-2,64	-2,41	-2,18	-1,95	-1,72	-1,50	-1,27	-1,04	-0,81	-0,58	-0,36	-0,13	+0,10	+0,33	0,057
34	2,52	2,29	2,06	1,83	1,60	1,38	1,15	0,92	0,69	0,46	0,24	-0,01	0,22	0,45	0,059
36	2,39	2,16	1,93	1,71	1,48	1,25	1,02	0,80	0,57	0,34	-0,11	+0,12	0,34	0,57	0,060
38	2,27	2,04	1,82	1,59	1,36	1,13	0,90	0,68	0,45	0,22	+0,01	0,24	0,46	0,69	0,062
40	2,15	1,92	1,69	1,46	1,23	1,01	0,78	0,55	0,32	-0,09	0,13	0,36	0,59	0,82	0,063
42	-2,02	-1,79	-1,57	-1,34	-1,11	-0,88	-0,65	-0,43	-0,20	+0,03	+0,26	+0,49	+0,71	+0,94	0,064
44	1,89	1,66	1,43	1,20	0,97	0,75	0,52	0,29	-0,06	0,17	0,39	0,62	0,85	1,08	0,064
46	1,76	1,53	1,31	1,08	0,85	0,62	0,39	0,17	+0,06	0,29	0,52	0,75	0,97	1,20	0,065
48	1,63	1,40	1,18	0,94	0,71	0,49	0,26	-0,03	0,20	0,43	0,65	0,88	1,11	1,34	0,064
50	1,S0	1,27	1,05	0,82	0,59	0,36	0,13	+0,09	0,32	0,55	0,78	1,01	1,23	1,46	0,064
52	-1,38	-1,15	-0,92	-0,69	-0,46	-0,24	-0,01	+0,22	+0,45	+0,68	+0,90	+1,13	+1.36	+1,59	0,063
54	1,26	1,03	0,80	0,57	0,34	0,12	+0,11	0,34	0,57	0,80	1,02	1,25	1,48	1,71	0,062
56	1,13	0,90	0,68	0,45	0,22	+0,01	0,24	0,46	0,69	0,92	1,15	1,38	1,60	1,83	0,060
58	1,01	0,78	0,56	0,33	-0,10	0,13	0,36	0,58	0,81	1,04	1,27	1,50	1,72	1,95	0,059
60	0,90	0,67	0,45	0,22	+0,01	0,24	0,47	0,69	0,92	1,15	1,38	1,61	1,83	2,06	0,057

Variación por 1° en (t'- t) = 0,114

SEGUNDA CORRECCIÓN (N)

H'	560	580	600	620	640	660	680	700	720	740	760	780
M												
0,0	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0	0,00	0,00	0,00	0,00
0,5	0,01	0,09	0,07	0,06	0,04	0,02	0,01	0	0,01	0,02	0,04	0,06
1,0	0,02	0,17	0,14	0,11	0,09	0,06	0,03	0	0,03	0,06	0,09	0,11
1,5	0,03	0,25	0,21	0,17	0,13	0,09	0,05	0	0,05	0,09	0,13	0,17
2,0	0,04	0,34	0,29	0,23	0,17	0,11	0,06	0	0,06	0,11	0,17	0,23
2,5	0,05	0,43	0,35	0,29	0,21	0,14	0,07	0	0,07	0,14	0,21	0,29
3,0	0,0ó	0,51	0,43	0,34	0,26	0,17	0,09	0	0,09	0,17	0,26	0,34
3,5	0,07	0,ó0	0,50	0,40	0,30	0,20	0,10	0	0,10	0,20	0,30	0,40
4,0	0,08	0,68	0,57	0,46	0,35	0,23	0,11	0	0,11	0,23	0,35	0,46

Para H' > 700 + si M es > 0 y - si M es < 0

Signo de corrección

Para H' < 700 + si M es < 0 y - si M es > 0

TERCERA CORRECCIÓN (P)

Altitud	P	Altitud	P	Altitud	P	Altitud	P	Altitud	P	Altitud	P
0		340		835		1430		2035		2755	
25	0,00	410	0,06	930	0,12	1530	0,18	2140	0,24	2925	0,30
80	0,01	485	0,07	1030	0,13	1630	0,19	2245	0,25	3115	0,31
140	0,02	570	0,08	1130	0,14	1730	0,20	2355	0,26		
205	0,03	655	0,09	1230	0,15	1830	0,21	2475	0,27		
270	0,04	745	0,10	1330	0,16	1930	0,22	2605	0,28		
340	0,05	835	0,11	1430	0,17	2035	0,23	2755	0,29		

Corrección negativa

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Tabla 8. **VOLVER A TABLAS DE REFRACCION**

REFRACCIÓN ASTRONÓMICA NORMAL (R_0)

Para 760 m/m del Barómetro y 0° del Termómetro centígrado

Distancia Zenital Aparente	Refrac-ción	Variación por 10'	Distancia Zenital Aparente	Refracción	Variación por 10'	Distancia Zenital Aparente	Refracción	Variación por 10'	Distancia Zenital Aparente	Refracción	Variación por 1'
°	"	"	° '	' "	"	° '	' "	"	° '	' "	"
0	0,00		**45 00**	1 0,04		**68 00**	2 27,8		**83 00**	7 39,3	
		0,175			0,35			1,20			1,00
1	1,05	0,175	**45 30**	1 0,09	0,36	**68 20**	2 30,2	1,30	**83 10**	7 49,3	1,04
2	2,10	0,175	**46 00**	1 2,17	0,36	**68 40**	2 32,8	1,30	**83 20**	7 59,7	1,09
3	3,15	0,175	**46 30**	1 3,26	0,37	**69 00**	2 35,4	1,35	**83 30**	8 10,6	1,13
4	4,20		**47 00**	1 4,37		**69 20**	2 38,1		**83 40**	8 21,9	
		0,175			0,38			1,40			1,19
5	5,25		**47 30**	1 5,51		**69 40**	2 40,9		**83 50**	8 33,8	
		0,177			0,39			1,45			1,23
6	6,31	0,178	**48 00**	1 6,67	0,39	**70 00**	2 43,8	1,45	**84 00**	8 46,1	1,29
7	7,38	0,178	**48 30**	1 7,84	0,40	**70 20**	2 46,7	1,55	**84 10**	8 59,0	1,35
8	8,45	0,178	**49 00**	1 9,04	0,41	**70 40**	2 49,8	1,60	**84 20**	9 12,5	1,42
9	9,52		**49 30**	1 10,27		**71 00**	2 53,0		**84 30**	9 26,7	
		0,180			0,41			1,60			1,49
10	10,60		**50 00**	1 11,51		**71 20**	2 56,2		**84 40**	9 41,6	
		0,180			0,43			1,70			1,56
11	11,68	0,182	**50 30**	1 12,80	0,43	**71 40**	2 59,6	1,75	**84 50**	9 57,2	1,63
12	12,77	0,183	**51 00**	1 14,10	0,44	**72 00**	3 3,1	1,80	**85 00**	10 13,5	1,72
13	13,87	0,185	**51 30**	1 15,42	0,46	**72 20**	3 6,7	1,90	**85 10**	10 30,7	1,82
14	14,98		**52 00**	1 16,79		**72 40**	3 10,5		**85 20**	10 48,9	
		0,187			0,46			1,90			1,91
15	16,10		**52 30**	1 18,18		**73 00**	3 14,3		**85 30**	11 8,0	
		0,188			0,47			2,05			2,01
16	17,23	0,190	**53 00**	1 19,60	0,49	**73 20**	3 18,4	2,05	**85 40**	11 28,1	2,12
17	18,37	0,193	**53 30**	1 21,06	0,50	**73 40**	3 22,5	2,05	**85 50**	11 49,3	2,25
18	19,53	0,193	**54 00**	1 22,56	0,51	**74 00**	3 26,9	2,20	**86 00**	12 11,8	2,38
19	20,69		**54 30**	1 24,08		**74 20**	3 31,4	2,25	**86 10**	12 35,6	
		0,197			0,52			2,35			2,53
20	21,87		**55 00**	1 25,64		**74 40**	3 36,1		**86 20**	13 0,9	
		0,200			0,54			2,45			2,68
21	23,07	0,202	**55 30**	1 27,26	0,54	**75 00**	3 41,0	2,55	**86 30**	13 27,7	2,85
22	24,28	0,205	**56 00**	1 28,89	0,56	**75 20**	3 46,1	2,65	**86 40**	13 56,2	3,03
23	25,51	0,207	**56 30**	1 30,58	0,58	**75 40**	3 51,4	2,80	**86 50**	14 26,5	3,23
24	26,75		**57 00**	1 32,31		**76 00**	3 57,0		**87 00**	14 58,8	
		0,212			0,59			2,90			3,45
25	28,02		**57 30**	1 34,09		**76 20**	4 2,8		**87 10**	15 33,3	
		0,215			0,61			3,05			3,69
26	29,31	0,217	**58 00**	1 35,92	0,62	**76 40**	4 8,9	3,15	**87 20**	16 10,2	3,95
27	30,61	0,223	**58 30**	1 37,79	0,65	**77 00**	4 15,2	3,35	**87 30**	16 49,7	4,24
28	31,95	0,227	**59 00**	1 39,73	0,66	**77 20**	4 21,9	3,50	**87 40**	17 32,1	4,55
29	33,31		**59 30**	1 41,72		**77 40**	4 28,9		**87 50**	18,17,6	
		0,230			0,68			3,70			4,90
30	34,69		**60 00**	1 43,76		**78 00**	4 36,3		**88 00**	19 6,6	
		0,235			0,70			3,85			5,28
31	36,10	0,240	**60 30**	1 45,87	0,72	**78 20**	4 44,0	4,10	**88 10**	19 59,4	5,70
32	37,54	0,245	**61 00**	1 48,04	0,75	**78 40**	4 52,2	4,30	**88 20**	20 56,4	6,18
33	39,01	0,252	**61 30**	1 50,29	0,77	**79 00**	5 0,8	4,53	**88 30**	21 58,2	6,69
34	40,52		**62 00**	1 52,60		**79 20**	5 9,9		**88 40**	23 5,1	
		0,258			0,80			4,85			7,27
35	42,07		**62 30**	1 54,99		**79 40**	5 19,6		**88 50**	24 17,8	
		0,262			0,83			5,10			7,92
36	43,64	0,270	**63 00**	1 57,47	0,85	**80 00**	5 29,8	5,40	**89 00**	25 37,0	8,44
37	45,26	0,277	**63 30**	2 0,02	0,88	**80 20**	5 40,6	5,80	**89 05**	26 19,2	8,82
38	46,92	0,287	**64 00**	2 2,67	0,91	**80 40**	5 52,2	6,15	**89 10**	27 3,3	9,22
39	48,64		**64 30**	2 5,41		**81 00**	6 4,5		**89 15**	27 49,4	
		0,293			0,95			6,60			9,64
40	50,40		**65 00**	2 8,25		**81 20**	6 17,7		**89 20**	28 37,6	
		0,302			0,98			7,00			10,10
41	52,21	0,310	**65 30**	2 11,19	1,02	**81 40**	6 31,7	7,55	**89 25**	29 28,1	10,56
42	54,07	0,322	**66 00**	2 14,26	1,06	**82 00**	6 46,8	8,10	**89 30**	30 20,9	11,06
43	56,00	0,330	**66 30**	2 17,44	1,10	**82 20**	7 3,0	8,70	**89 35**	31 16,2	11,60
44	57,98		**67 00**	2 20,74		**82 40**	7 20,4		**89 40**	32 14,2	
		0,343			1,15			9,45			12,16
45	60,04		**67 30**	2 24,19		**83 00**	7 39,2		**89 45**	33 15,0	
		0,355			1,20			10,20			12,76
46	62,17	0,367	**68 00**	2 27,78	1,24	**83 20**	7 59,7	11,10	**89 50**	34 18,8	13,38
47	64,37		**68 30**	2 31,51		**83 40**	8 21,9		**89 55**	35 25,7	

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Tabla 9. **VOLVER A TABLAS DE REFRACCION**

CORRECCIÓN DE LAS REFRACCIONES NORMALES

FACTOR A								FACTOR B			
t	A Variación Por 0°,1 - 0,00045	t	A variación Por 0°,1 - 0,00038	t	A variación por 0°,1 - 0,00033	T	A variación por 0°,1 - 0,00029	Barómetro	B Variación por m/m + 0,0013	Barómetro	B Variación Por m/m + 0,0013
°		°		°		°		m/m		m/m	
-30	+ 0,1291	-10	+ 0,0398	+10	- 0,0369	+30	- 0,1035	630	- 0,1711	710	- 0,0658
29	0,1243	9	0,0357	11	0,0405	31	0,1066	634	0,1658	714	0,0605
28	0,1195	8	0,0316	12	0,0440	32	0,1097	638	0,1605	718	0,0553
27	0,1148	7	0,0275	13	0,0475	33	0,1127	642	0,1533	722	0,0500
26	0,1101	6	0,0235	14	0,0510	34	0,1158	646	0,1500	726	0,0447
-25	+ 0,1054	- 5	+ 0,0195	+15	- 0,0545	+35	- 0,1188	650	- 0,1447	730	- 0,0395
24	0,1008	4	0,0155	16	0,0579	36	0,1218	654	0,1395	734	0,0342
23	0,0962	3	0,0116	17	0,0613	37	0,1248	658	0,1342	738	0,0289
22	0,0917	2	0,0077	18	0,0647	38	0,1277	662	0,1289	742	0,0237
21	0,0872	- 1	+ 0,0038	19	0,0680	39	0,1307	666	0,1237	746	0,0184
-20	+ 0,0827	0	0,0000	+20	- 0,0714	+40	- 0,1336	670	- 0,1184	750	- 0,0132
19	0,0782	+ 1	- 0,0038	21	0,0747	41	0,1365	674	0,1132	754	0,0079
18	0,0738	2	0,0076	22	0,0780	42	0,1394	678	0,1079	758	- 0,0026
17	0,0694	3	0,0114	23	0,0812	43	0,1422	682	0,1026	762	+ 0,0026
16	0,0651	4	0,0151	24	0,0845	44	0,1451	686	0,0974	766	0,0079
-15	+ 0,0668	+ 5	- 0,0188	+25	- 0,0877	+45	- 0,1479	690	- 0,0921	770	+ 0,0132
14	0,0565	6	0,0225	26	0,0909	46	0,1507	694	0,0868	774	0,0184
13	0,0523	7	0,0261	27	0,0941	47	0,1535	698	0,0816	778	0,0237
12	0,0481	8	0,0298	28	0,0972	48	0,1563	702	0,0763	782	0,0289
11	0,0439	9	0,0334	29	0,1004	49	0,1591	706	0,0711	786	0,0342
10	0,0398	10	0,0369	30	0,1035	50	0,1618	710	0,0658	790	0,0395

FACTOR α												FACTOR β		
Para zenitales > 45° < 81°												Refracción corregida de temperatura	β	
z	α	z	α	z	α	z	α	z	α	z	α			
°		°		°		°		°		°		6'	1,004	Para zenitales > 60°
45	1,000	55	1,002	63	1,004	68	1,007	72	1,011	76	1,020	8	1,008	
46	1,001	56	1,003	64	1,005	69	1,008	73	1,013	77	1,023	10	1,012	
49	1,001	59	1,003	65	1,005	70	1,009	74	1,015	78	1,026	12	1,017	
50	1,002	60	1,004	66	1,006	71	1,010	75	1,017	79	],031	14	1,023	
55	1,002	63	1,004	67	1,007	72	1,011	76	1,020	80	1,037	16	1,029	
												18	1,035	
												20	1,041	
												22	1,048	
												24	1,055	
												26	1,062	
												28	1,069	
												30	1,076	
												32	1,083	
												34	1,091	
												36	1,098	
												38	1,106	
												40	1,114	
												42	1,121	
												44	1,129	

Para zenitales > 81°

z	t -30°	-20°	-10°	0°	+10°	+20°	+30°	+40°	+50°
°									
81	1,046	1,046	1,045	1,045	1,045	1,044	1,044	1,044	1,043
82	1,057	1,056	1,056	1,055	1,054	1,054	1,053	1,053	1,052
83	1,071	1,071	1,070	1,069	1,068	1,067	1,067	1,066	1,065
84	1,091	1,090	1,088	1,087	1,086	1,085	1,084	1,083	1,082
85	1,120	1,118	1,116	1,114	1,112	1,111	1,109	1,108	1,107
86	1,162	1,158	1,155	1,152	1,149	1,147	1,144	1,142	1,140
87	1,226	1,220	1,215	1,210	1,206	1,202	1,198	1,194	1,191
88	1,327	1,317	1,307	1,299	1,291	1,284	1,278	1,271	1,266
89	1,499	1,479	1,460	1,444	1,429	1,416	1,403	1,392	1,381

(Refracción)" = $R"_0 (1 + A\,\alpha)\,(1 + B\,\beta)$

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SEÑALES HORARIAS GENERADAS POR EL ONBA

a) TELEFONÍA: Anuncios parlantes precediendo los segundos 10, 20, 30, 40, 50 y 00 durante las 24 horas y emitidos por la red telefónica de todo el país (n° telefónico 113).

b) RADIOTELEFONÍA: Señal audible indicativa de hora y media hora, emitida por todas las estaciones del Servicio de Radiodifusión Sonora con modulación de amplitud, en ondas hectométricas de la Capital Federal (ver gráfico).

c) FRECUENCIAS PATRONES Y HORA: Modulación de pulsos de 5 ciclos de 1000Hz cada segundo, omitiendo el segundo 59, anuncios parlantes de horas y minutos cada cinco minutos seguidos de la modulación de 1000 y 440Hz alternativos, identificación de la estación (LOL, LOL, LOL) e información de DUT1 según código CCIR, pulso alargado (500 ms), emitidos directamente desde el Observatorio Naval (ver gráfico).

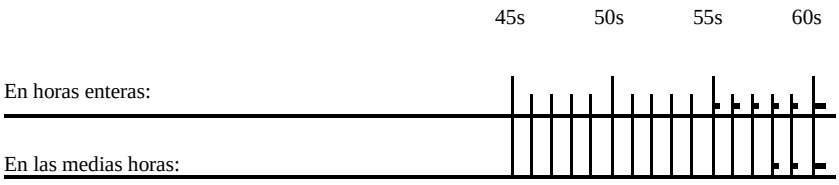
CUADRO DE SEÑALES HORARIAS

Estación Transmisora	Caracte-rísticas	Hora UTC de emisión Inicia	Termina	Frecuencia kHz	Tipo de onda	Sistema y origen De la señal
Observatorio Naval (Buenos Aires)	LOL	(1)	(1)	10000	A1, A2, A3,	Patrones de frecuencia y hora
Caracas (Venezuela)	YVTO	*		5000		
Fort Collins (EE.UU)	WWV	*		2500,5000 10000,15000 20000	6 A9	Patrón de frecuencia y hora Bureau of Standards
Playa Ancha Radio (Chile)	CBV	08 55 12 55 16 55 21 55	09 00 13 00 17 00 22 00	4228 8677	A2	Americano Inst. Hid. Armada

***** Emisión continua

(1) Ver gráfico de una hora de transmisión en páginas siguientes.

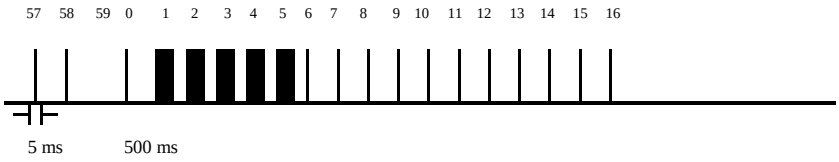
HORA OFICIAL ARGENTINA POR RADIOTELEFONÍA



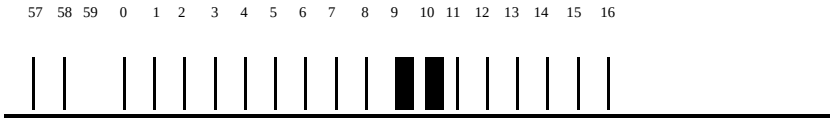
(Señales horarias)

EJEMPLOS DE CÓDIGO DUT 1

DUT 1 = +0,5s



DUT 1 = - 0,2s



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SERVICIO DE FRECUENCIAS PATRONES Y HORA

ESTACIÓN EMISORA: (LOL) Observatorio Naval Buenos. Aires. Av. España 2099. Cap. Fed.

HORAS DE EMISIÓN: 14:00 a 15::00 Tiempo Universal Coordinado (UTC) los días hábiles.

RADIOFRECUENCIAS PATRONES: 10 MHz .

POTENCIA DE ANTENA: 2 Kw.

AUDIOFRECUENCIAS PATRONES: Las portadoras se modularán en 1000 y 440 Hz alternativamente.

RELOJ PATRÓN: Atómico de Cesio Symmetricom 5071 A.

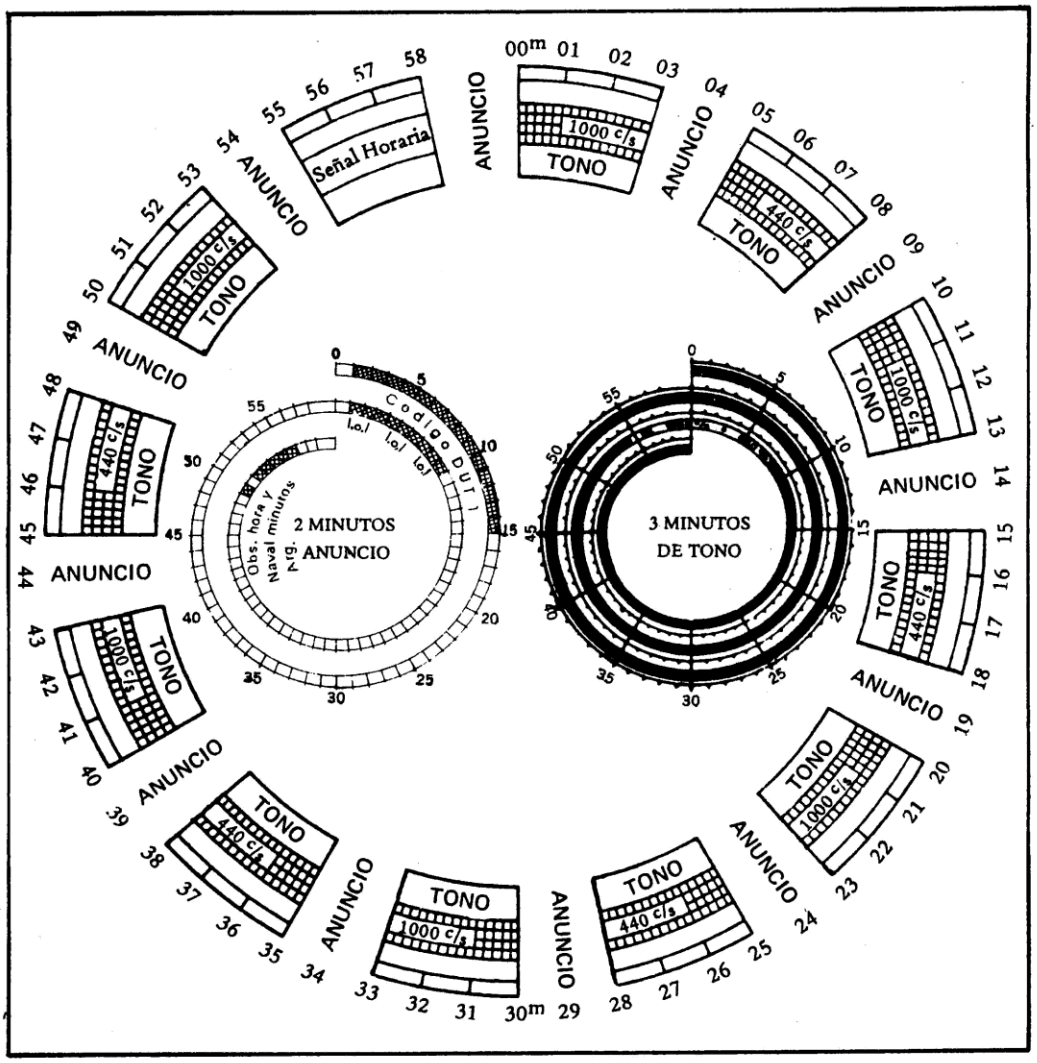

Gráfico de una hora de transmisión

INTERVALOS DE MODULACIÓN: 3 minutos sobre 5 minutos, iniciando en todos los minutos múltiplos de cinco, excepto en los 55 minutos, intervalo destinado a señal horaria especial de precisión.

EXACTITUD DE LAS FRECUENCIAS: ± 2×10^{-10}

SEÑAL HORARIA DE PRECISIÓN: Durante toda la señal se emite un top de cinco milisegundos de duración en cada segundo, excepto en los segundos 59 (que se suprime). El top consiste en la emisión de 5 ciclos de una modulación de 1000 Hz.

SEÑAL HORARIA: De tiempo uniforme coordinado (UTC).

PRECISIÓN EN LOS INTERVALOS DE TIEMPO PATRÓN: El intervalo entre la iniciación de dos tops consecutivos es de un segundo de tiempo atómico, con una precisión del microsegundo. La iniciación y fin de las modulaciones están sincronizadas con los pulsos horarios, quedando así definidos intervalos exactos de 1,3 y 5 minutos o mayores.

ANUNCIOS: Al término de los 3 minutos de tono se emite información del código DUT1, al comenzar el minuto siguiente en código morse, la característica de la estación, y antes de la iniciación del tono siguiente se anuncia el origen de la señal con la frase "Observatorio Naval Argentina", seguida por el anuncio de la hora y minuto exacto correspondiente al inicio de los próximos 3 minutos del tono siguiente.

PATRÓN MUSICAL: La modulación de 440 Hz. corresponde a la nota "la" de la quinta octava de la escala musical, pudiendo adoptarse como patrón musical.

El servicio de Frecuencias Patrones y Hora está operado por el Observatorio Naval de Buenos Aires, y controlado en colaboración con el laboratorio de Electrónica de la Dirección General del Material de Comunicaciones Navales.

Para todo lo relacionado con este servicio, dirigirse al Observatorio Naval Buenos Aires
Avenida España 2099, (C1107 AMA) Ciudad Autónoma de Buenos Aires.
onba@hidro.gov.ar

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TABLA 10. HORA OFICIAL EN DIVERSOS LUGARES DEL MUNDO
(Actualizados a Diciembre de 2022)

(La columna de la derecha indica el intervalo que debe sumarse algebraicamente a la hora oficial de un lugar para obtener la hora correspondiente en UTC)

Afganistán	-	04h	30m
Albania*	-	01	00
Alemania*	-	01	00
Almirantazgo, Is.	-	10	00
Amirante, Is.	-	04	00
Andamán, Is.	-	05	30
Angola	-	01	00
Antártida, Sector Antártico Argentino	+	03	00
Antigua	+	04	00
Arabia Saudita	-	03	00
Argelia	-	01	00
Argentina, República.	+	03	00
Malvinas Is.	+	03	00
Antártida, Sector Antártico Argentino	+	03	00
Armenia	-	04	00
Aruba	+	04	00
Ascensión, I.		00	00
Australia:			
Occidental	-	08	00
Del Norte y del Sur*	-	09	30
Queensland, Nva. Gales del Sur*, Victoria*, Tasmania*, Capital*, Whitsunday Is.	-	10	00
Austria*	-	01	00
Azerbaiján*	-	04	00
Azores, Is.*	+	01	00
Bahamas*	+	05	00
Bahrein	-	03	00
Baleares, Is.*	-	01	00
Bangladesh	-	06	00
Barbados	+	04	00
Barbuda	+	04	00
Barlovento Is.			
Antigua, San Martín, San Cristóbal	+	04	00
Bélgica*	-	01	00
Bélice	+	06	00
Benin	-	01	00
Bermudas*	+	04	00
Bielorrusia	-	03	00
Birmania (Myanmar)	-	06	30
Bolivia	+	04	00
Bosnia y Herzegovina*	-	01	00
Botswana, República de	-	02	00
Brasil			
Fernando de Noronha I, Trinidad I., Is. Océanicas	+	02	00
Norte y Noreste de los Estados Costeros, Mina Gerais*, Goiás*, Brasilia*, Tocantins, Sur y Este de los Estados de la costa*	+	03	00

Matto Grosso do Sul*, Matto Grosso*, Este del Amazonas, Rondonia, Matto Grosso*,Roraima……..+	04h	00m		
Acre y Oeste del Amazonas……+	05	00		
Brunei .....-	08	00		
Bulgaria* .....-	02	00		
Burkina Faso.....			00	00
Burundi .....-	02	00		
Bután .....-	06	00		
Cabo verde, Is. .....+	01	00		
Caimán Is. .....+	05	00		
Camboya .....-	07	00		
Camerún, República de .....-	01	00		
Canadá:				
Terranova, I. .....+	03	30		
Labrador*, Nueva Brunswich*, Nueva Escocia*, Isla Príncipe Eduardo*, y Québec al este del Meridiano 63° W .....+	04	00		
Nunavut* al este del meridiano 85° W, Ontario al este del meridiano 90° W* y Quebec al oeste del meridiano 63°W*.....+	05	00		
Manitoba*, Nunavut* entre los meridianos 85°W y 102° W, Ontario al oeste del meridiano 90°W* y Saskatchewan.....+	06	00		
Alberta*,Nunavut* oeste del meridiano 102° W y territorios del Noroeste* .....+	07	00		
Columbia Británica* y Yukón* .....+	08	00		
Centroafricana , República de.....-	01	00		
Chad.....-	01	00		
Chagos, Archipiélago y Diego García .....-	06	00		
Chatham, Is.* .....-	12	45		
Channel, I.*.....			00	00
Checa, República* .....-	01	00		
Chile* .....+	04	00		
China, República Popular de .....-	08	00		
Chipre: Ercan*, Larnaca* .....-	02	00		
Christmas, I. (Océano Índico) .....-	07	00		
Cocos, Is. .....-	06	30		
Colombia .....+	05	00		
Comores, Is. .....-	03	00		
Congo, República Democrática:				
Oeste: Kinsahasa, Equateur .....-	01	00		
Este: Orientale, Kasai, Kivu, Shaba.....-	02	00		
Congo, República .....-	01	00		
Cook, Is. .....+	10	00		
Córcega* .....-	01	00		
Corea del Norte.....-	09	00		
Corea, República de (sur) .....-	09	00		
Costa de Márfil			00	00
Costa Rica.....+	06	00		
Croacia* .....-	01	00		

Cuba*	+	05h	00 m
Curaçao, I.	+	04	00
Dinamarca*	-	01	00
Djibouti	-	03	00
Dominica Is.	+	04	00
Dominicana, República	+	04	00
Ecuador	+	05	00
El Salvador, República del	+	06	00
Egipto, República Árabe de*	-	02	00
Emiratos Árabes Unidos	-	04	00
Eritrea	-	03	00
Eslovaquia, República*	-	01	00
Eslovenia*	-	01	00
España*:	-	01	00
Canarias, Is.*		00	00
Estados Unidos de América*:			
Connecticut, Delaware, distrito de Columbia, Florida, Georgia, Indiana, Kentucky este, Maine, Maryland, Massachusetts, Michigan, Nueva Hasmpshire, Nueva Yersey, Nueva York, Carolina del Norte, Ohio, Pennsylvania, Rhode Island, Carolina del Sur, Tennessee este, Vermont, Virginia,Washington D.C, Oeste de Virginia	+	05	00
Alabama,Arkansas,Illinois,Iowa,Kansas,Kentucky Oeste,Luisiana, Minnesota,Mississippi,Missouri, Nebraska este, Dakota del Norte este, Oklahoma, Dakota del Sur este, Tennessee oeste, Texas y Wisconsin	+	06	00
Arizona, Colorado, Idaho sur, Montana,Nebraska oeste, Nueva México, Dakota del Norte oeste, Dakota del Sur oeste, Utah y Wyoming	+	07	00
California, Idaho norte,Nevada, Oregón y Washington.	+	08	00
Alaska, Islas Aleutianas al este del meridiano 169° 30’W.	+	09	00
Islas Aleutianas al oeste del meridiano 169° 30’W e Islas Hawaii.	+	10	00
Estonia*	-	02	00
Etiopía	-	03	00
Fanning, I.	+	14	00
Faeroes, I.*		00	00
Fidji, I*.	-	12	00
Filipinas, República de	-	08	00
Finlandia*	-	02	00
Francia*	-	01	00
Gabón	-	01	00
Galápagos, Is.	+	06	00
Gambia		00	00
Georgia	-	04	00
Georgias del Sur, Islas	+	02	00
Ghana		00	00
Granada, I.	+	04	00

Grecia*	-	02h	00m
Groenlandia:			
Danmarkshav, Mesters Vig		00	00
Scoresby Sound*	+	01	00
General*	+	03	00
Thule*, Pituffik*	+	04	00
Guadalupe, I.	+	04	00
Guam, I.	-	10	00
Guatemala	+	06	00
Guayana Francesa	+	03	00
Guyana, República de	+	04	00
Guinea Bissau		00	00
Guinea Ecuatorial, República de		00	00
Haití*	+	05	00
Holanda*	-	01	00
Honduras	+	06	00
Hong Kong	-	08	00
Hungría*	-	01	00
India	-	05	30
Indonesia, República de:			
Bangka, Billiton, Java, oeste y centro de Kalimantan, Madura y Sumatra	-	07	00
Bali, Flores, sur y este de Kalimantan, Lombok, Sulawesi, Sumba, Sumbawa y Timor	-	08	00
Aru, Irian Jaya, Kai, Molucas y Tanimbar	-	09	00
Irak	-	03	00
Irán*	-	03	30
Irlanda, República de*		00	00
Irlanda del Norte*		00	00
Islandia		00	00
Israel*	-	02	00
Italia*	-	01	00
Jamaica	+	05	00
Jan Mayen, I.*	-	01	00
Japón	-	09	00
Jordania	-	02	00
Juan Fernandez, I.*	+	04	00
Kazajstán			
Oeste: Aktau, Uralsk, Atyrau	-	05	00
Este y Centro: Kzyl-Orda, Astana	-	06	00
Kenia	-	03	00
Kergulen Is.	-	05	00
Kirguistán	-	06	00
Kiribati, República :			
Gilbert Is.	-	12	00
Phoenix, Is.	-	13	00
Line, Is.	-	14	00
Kuwait	-	03	00
Laos	-	07	00

Laquedivias, Is.	-	05h	30m
Lesotho	-	02	00
Letonia*	-	02	00
Líbano*	-	02	00
Liberia		00	00
Libia*	-	02	00
Liechtenstein*	-	01	00
Lituania*	-	02	00
Lord Hawe Is*.	-	10	30
Luxemburgo*	-	01	00
Macao	-	08	00
Macedonia*	-	01	00
Macias Nguema (Fernando Poo)	-	01	00
Madagascar, República Democrática de	-	03	00
Madeira, I.*		00	00
Malasia, Malaya,Sabah, Sarawak	-	08	00
Malawi	-	02	00
Maldivas, República de	-	05	00
Malí, República de		00	00
Malta, I.*	-	01	00
Malvinas, Is.	+	03	00
Marquesas, Is.	+	09	30
Marruecos	+	01	00
Martinica, I.	+	04	00
Mauricio, Is.	-	04	00
Mauritania		00	00
Méjico*			
General*	+	06	00
Sonora, Sinaloa*, Nayarit*, Chihuahua*, Sur del distrito Baja California*	+	07	00
Norte del Distrito de Baja California*……..	+	08	00
Micronesia:			
Carolinas, Is., Marianas, Is.	-	10	00
Marshall, Is.	-	12	00
Midway, I.	+	11	00
Moldavia*	-	02	00
Mónaco*	-	01	00
Mongolia	-	08	00
Montenegro*	-	01	00
Mozambique	-	02	00
Namibia*	-	02	00
Naurú	-	12	00
Nepal	-	05	45
Nicaragua	+	06	00
Nicobar, I.	-	05	30
Niger	-	01	00
Nigeria, República de	-	01	00
Niue, I.	+	11	00
Norfolk, I.	-	11	00

Noruega*	-	01h	00 m
Novaya Zemlya	-	03	00
Nueva Caledonia	-	11	00
Nueva Zelanda*	-	12	00
Okinawa	-	09	00
Omán	-	04	00
Pagalu (Annobon, Is.)	-	01	00
Pakistán	-	05	00
Palau, Is.	-	09	00
Panamá, República de	+	05	00
Papua (Nueva Guinea)	-	10	00
Paraguay*	+	04	00
Pascua, I.*	+	06	00
Pescadores, Is.	-	08	00
Perú	+	05	00
Polonia*	-	01	00
Portugal*		00	00
Príncipe, I.		00	00
Puerto Rico	+	04	00
Qatar	-	03	00
Reino Unido*		00	00
Reunión, I.	-	04	00
Ruanda	-	02	00
Rumania*	-	02	00
Rusia*:			
Kaliningrado	-	02	00
Moscú, San Petesburgo, Arkangel……..	-	03	00
Samara, Astrakhan, Saratov, Volgograd	-	04	00
Ekaterinburg,Ufa, Perm, Novyy Port	-	05	00
Omsk,	-	06	00
Norilsk,Krasnoyarsk, Dikson, Novosibirsk,Tomsk	-	07	00
Irkutsk, Bratsk, Ulan Ude	-	08	00
Yakutsk, Tiksi, Chita	-	09	00
Khabarovsk, Vladivostok , Oshotsk……..	-	10	00
Sakhalin Is, Is. Kuriles, Magadan	-	11	00
Petropavlovsk-K, Anadyr,	-	12	00
Ryukyu, Is.	-	09	00
Salomón , I.	-	11	00
Samoa	-	13	00
San Pedro y Miquelón*	+	03	00
San Cruz, I.	-	11	00
Santa Elena, I.		00	00
Santo Tomé		00	00
Schouten, Is.	-	09	00
Senegal		00	00
Serbia*	-	01	00
Seychelles	-	04	00

+Sierra Leona		00	00
Singapur	-	08	00
Siria, República Árabe*	-	02	00
Sociedad, I.	+	10h	00m
Socotra	-	03	00
Somalía, República de	-	03	00
Spitzbergen*(Svalbard)*	-	01	00
Sri Lanka	-	05	30
Sudán, República de	-	02	00
Sudán del Sur	-	03	00
Sudáfrica, República de	-	02	00
Suecia*	-	01	00
Suiza*	-	01	00
Surinam	+	03	00
Swazilandia	-	02	00
Taiwan	-	08	00
Tadgikistán	-	05	00
Tanzania	-	03	00
Thailandia	-	07	00
Timor-Leste	-	09	00
Togo, República de		00	00
Tonga, I.	-	13	00
Trinidad Tobago	+	04	00
Tristán de Cunha		00	00
Tuamotu, Is.	+	10	00
Tubuai Is	+	10	00
Túnez	-	01	00
Turks y Caicos, Is.*	+	05	00
Turkemenistán	-	05	00
Turquia*	-	03	00
Tuvalu	-	12	00
Ucrania*	-	02	00
Uganda	-	03	00
Uruguay*	+	03	00
Uzbekistán	-	05	00
Vanuatu, República de	-	11	00
Venezuela	+	04	00
Vietnam, República Socialista de	-	07	00
Vírgines, Is.	+	04	00
Yemen	-	03	00
Zambia, República de	-	02	00
Zimbawe	-	02	00

*Suele modificarse los meses de verano.

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