



Astrodienst Ephemeris Tables for the year 2090

tropical geocentric zodiac

contains Sun, Moon, Mercury, Venus, Mars, Jupiter, Saturn, Uranus, Neptune, Pluto, True Node, Moon's Node, Lilith, Chiron

Programming
Dieter Koch and Alois Treindl
based on Swiss Ephemeris
Code D5EPH

ASTRODIENST EPHEMERIS for the year 2090

geocentric

JANUARY 2090

00:00 UT

Day	Sid.t	☉	☽	♀	♂	♂	♂	♂	♂	♂	♂	♂	♂	♂	♂	Day
S 1	6 44 37	11°23'	12°56'	19°51'	14°39'	20°00'	8°25'	5°R25	8°52'	25°R 1	22°R28	3°R52	4°19'	25°34'	6°R18	S 1
M 2	6 48 33	12° 3'43	25° 9'	20°20'	15°54'	20°46'	8°37'	5°II21	8°54'	25°R 0	22°Y28	3°R38	4°16'	25°41'	6°R14	M 2
T 3	6 52 30	13° 4'53	7°12'	20°55'	17°10'	21°33'	8°50'	5°18'	8°56'	24°59'	22°28'	3°25'	4°13'	25°48'	6°10'	T 3
W 4	6 56 27	14° 6'03	19° 7'	21°36'	18°25'	22°19'	9° 2'	5°15'	8°59'	24°58'	22°28'	3°15'	4°10'	25°54'	6° 6'	W 4
T 5	7 0 23	15° 7'13	0°56'	22°23'	19°40'	23° 6'	9°14'	5°11'	9° 1'	24°57'	22°D28	3° 7'	4° 7'	26° 1'	6° 2'	T 5
F 6	7 4 20	16° 8'23	12°43'	23°13'	20°56'	23°52'	9°26'	5° 8'	9° 3'	24°56'	22°28'	3° 3'	4° 4'	26° 8'	5°58'	F 6
S 7	7 8 16	17° 9'33	24°31'	24° 8'	22°11'	24°39'	9°38'	5° 5'	9° 6'	24°54'	22°28'	3° 1'	4° 0'	26°14'	5°54'	S 7
S 8	7 12 13	18°10'42	6°Y26	25° 7'	23°27'	25°26'	9°50'	5° 2'	9° 8'	24°53'	22°28'	3°D 1	3°57'	26°21'	5°50'	S 8
M 9	7 16 9	19°11'51	18°33'	26° 9'	24°42'	26°12'	10° 1'	4°59'	9°11'	24°52'	22°28'	3°R 1	3°54'	26°28'	5°47'	M 9
T 10	7 20 6	20°12'59	0°57'	27°14'	25°58'	26°59'	10°13'	4°57'	9°13'	24°50'	22°28'	3° 1'	3°51'	26°34'	5°43'	T 10
W11	7 24 2	21°14'07	13°44'	28°21'	27°13'	27°46'	10°25'	4°54'	9°16'	24°49'	22°29'	2°59'	3°48'	26°41'	5°39'	W11
T 12	7 27 59	22°15'14	26°58'	29°30'	28°29'	28°33'	10°36'	4°52'	9°18'	24°48'	22°29'	2°54'	3°44'	26°48'	5°35'	T 12
F 13	7 31 56	23°16'21	10°II42	0°342	29°44'	29°20'	10°48'	4°49'	9°21'	24°46'	22°29'	2°47'	3°41'	26°54'	5°32'	F 13
S 14	7 35 52	24°17'27	24°55'	1°56'	0°559	0°56'	10°59'	4°47'	9°24'	24°45'	22°29'	2°37'	3°38'	27° 1'	5°28'	S 14
S 15	7 39 49	25°18'33	9°34	3°11'	2°15'	0°53'	11°11'	4°45'	9°26'	24°44'	22°29'	2°27'	3°35'	27° 8'	5°24'	S 15
M16	7 43 45	26°19'38	24°32'	4°28'	3°30'	1°40'	11°22'	4°42'	9°29'	24°42'	22°30'	2°16'	3°32'	27°14'	5°21'	M16
T 17	7 47 42	27°20'43	9°R40	5°46'	4°46'	2°27'	11°33'	4°40'	9°32'	24°41'	22°30'	2° 7'	3°29'	27°21'	5°17'	T 17
W18	7 51 38	28°21'48	24°47'	7° 6'	6° 1'	3°14'	11°44'	4°39'	9°34'	24°39'	22°30'	2° 0'	3°25'	27°28'	5°13'	W18
T 19	7 55 35	29°22'52	9°II45	8°26'	7°16'	4° 1'	11°56'	4°37'	9°37'	24°38'	22°30'	1°55'	3°22'	27°34'	5°10'	T 19
F 20	7 59 32	0°23'55	24°25'	9°48'	8°32'	4°48'	12° 6'	4°35'	9°40'	24°36'	22°31'	1°53'	3°19'	27°41'	5° 6'	F 20
S 21	8 3 28	1°24'58	8°44	11°11'	9°47'	5°35'	12°17'	4°33'	9°43'	24°35'	22°31'	1°D53	3°16'	27°48'	5° 3'	S 21
S 22	8 7 25	2°26'01	22°39'	12°35'	11° 2'	6°22'	12°28'	4°32'	9°46'	24°33'	22°31'	1°54'	3°13'	27°54'	5° 0'	S 22
M23	8 11 21	3°27'04	6°II12	13°59'	12°18'	7° 9'	12°39'	4°30'	9°49'	24°32'	22°32'	1°R54	3°10'	28° 1'	4°56'	M23
T 24	8 15 18	4°28'06	19°25'	15°25'	13°33'	7°56'	12°50'	4°29'	9°52'	24°30'	22°32'	1°53'	3° 6'	28° 8'	4°53'	T 24
W25	8 19 14	5°29'08	2°X20	16°51'	14°48'	8°43'	13° 0'	4°28'	9°55'	24°29'	22°33'	1°49'	3° 3'	28°14'	4°50'	W25
T 26	8 23 11	6°30'09	15° 0'	18°19'	16° 4'	9°31'	13°11'	4°27'	9°58'	24°27'	22°33'	1°44'	3° 0'	28°21'	4°47'	T 26
F 27	8 27 7	7°31'10	27°28'	19°47'	17°19'	10°18'	13°21'	4°26'	10° 1'	24°26'	22°34'	1°35'	2°57'	28°28'	4°43'	F 27
S 28	8 31 4	8°32'10	9°346	21°15'	18°34'	11° 5'	13°31'	4°25'	10° 4'	24°24'	22°34'	1°25'	2°54'	28°34'	4°40'	S 28
S 29	8 35 1	9°33'10	21°54'	22°45'	19°49'	11°52'	13°41'	4°25'	10° 7'	24°22'	22°35'	1°15'	2°50'	28°41'	4°37'	S 29
M30	8 38 57	10°34'08	3°56	24°15'	21° 5'	12°39'	13°51'	4°24'	10°10'	24°21'	22°35'	1° 4'	2°47'	28°48'	4°34'	M30
T 31	8 42 54	11°35'06	15°51	25°346	22°20'	13°27'	14°X 1	4°II23	10°X13	24°R19	22°Y36	0°55	2°44	28°54	4°31	T 31

Delta T = 88.76 sec

FEBRUARY 2090

00:00 UT

Day	Sid.t	☉	☽	♀	♂	♂	♂	♂	♂	♂	♂	♂	♂	♂	♂	Day
W 1	8 46 50	12°36'02	27°42	27°18	23°35	14°14	14°X11	4°R23	10°X16	24°R17	22°Y36	0°R48	2°41	29° 1	4°R29	W 1
T 2	8 50 47	13°36'58	9°X29	28°50	24°50	15° 1	14°21	4°II23	10°19	24°R16	22°37	0°43	2°38	29° 8	4°R26	T 2
F 3	8 54 43	14°37'52	21°17	0°23	26° 6	15°49	14°31	4°23	10°22	24°14	22°37	0°41	2°35	29°14	4°23	F 3
S 4	8 58 40	15°38'45	3°Y 7	1°57	27°21	16°36	14°40	4°D23	10°26	24°13	22°38	0°D40	2°31	29°21	4°21	S 4
S 5	9 2 36	16°39'37	15° 3	3°31	28°36	17°23	14°49	4°23	10°29	24°11	22°39	0°41	2°28	29°28	4°18	S 5
M 6	9 6 33	17°40'27	27° 9	5° 7	29°51	18°10	14°59	4°23	10°32	24° 9	22°39	0°43	2°25	29°34	4°15	M 6
T 7	9 10 29	18°41'16	9°31	6°43	1°X 6	18°58	15° 8	4°23	10°35	24° 7	22°40	0°44	2°22	29°41	4°13	T 7
W 8	9 14 26	19°42'04	22°13	8°19	2°21	19°45	15°17	4°24	10°39	24° 6	22°41	0°R44	2°19	29°48	4°11	W 8
T 9	9 18 23	20°42'50	5°II20	9°57	3°36	20°32	15°26	4°24	10°42	24° 4	22°42	0°43	2°16	29°54	4° 8	T 9
F 10	9 22 19	21°43'34	18°55	11°35	4°51	21°20	15°35	4°25	10°45	24° 2	22°42	0°40	2°12	0°X 1	4° 6	F 10
S 11	9 26 16	22°44'17	2°59	13°14	6° 6	22° 7	15°43	4°26	10°48	24° 1	22°43	0°36	2° 9	0° 8	4° 4	S 11
S 12	9 30 12	23°44'59	17°31	14°54	7°22	22°55	15°52	4°26	10°52	23°59	22°44	0°30	2° 6	0°14	4° 2	S 12
M13	9 34 9	24°45'39	2°R27	16°35	8°37	23°42	16° 0	4°27	10°55	23°57	22°45	0°25	2° 3	0°21	4° 0	M13
T 14	9 38 5	25°46'17	17°38	18°16	9°52	24°29	16° 9	4°29	10°58	23°56	22°46	0°20	2° 0	0°28	3°58	T 14
W15	9 42 2	26°46'54	2°II55	19°59	11° 6	25°17	16°17	4°30	11° 2	23°54	22°46	0°16	1°56	0°34	3°56	W15
T 16	9 45 58	27°47'29	18° 8	21°42	12°21	26° 4	16°25	4°31	11° 5	23°52	22°47	0°14	1°53	0°41	3°54	T 16
F 17	9 49 55	28°48'03	3°4	23°26	13°36	26°51	16°33	4°32	11° 9	23°51	22°48	0°D13	1°50	0°48	3°53	F 17
S 18	9 53 52	29°48'36	17°43	25°11	14°51	27°39	16°41	4°34	11°12	23°49	22°49	0°14	1°47	0°54	3°51	S 18
S 19	9 57 48	0°X49'08	1°II54	26°57	16° 6	28°26	16°49	4°36	11°15	23°47	22°50	0°16	1°44	1° 1	3°50	S 19
M20	10 1 45	1°49'38	15°38	28°44	17°21	29°14	16°56	4°37	11°19	23°46	22°51	0°17	1°41	1° 8	3°48	M20
T 21	10 5 41	2°50'07	28°57	0°X31	18°36	0°X 1	17° 3	4°39	11°22	23°44	22°52	0°R18	1°37	1°14	3°47	T 21
W22	10 9 38	3°50'35	11°X53	2°20	19°51	0°48	17°11	4°41	11°26	23°42	22°53	0°18	1°34	1°21	3°45	W22
T 23	10 13 34	4°51'02	24°30	4°10	21° 5	1°36	17°18	4°43	11°29	23°41	22°54	0°16	1°31	1°28	3°44	T 23
F 24	10 17 31	5°51'27	6°350	6° 0	22°20	2°23	17°25	4°46	11°32	23°39	22°55	0°14	1°28	1°34	3°43	F 24
S 25	10 21 27	6°51'51	18°59	7°51	23°35	3°11	17°32	4°48	11°36	23°37	22°56	0°10	1°25	1°41	3°42	S 25
S 26	10 25 24	7°52'13	0°58	9°43	24°50	3°58	17°38	4°50	11°39	23°36	22°57	0° 6	1°22	1°48	3°41	S 26
M27	10 29 21	8°52'34	12°51	11°36	26° 4	4°45	17°45	4°53	11°43	23°34	22°58	0° 3	1°18	1°54	3°40	M27
T 28	10 33 17	9°X52'53	24°41	13°X29	27°X19	5°X33	17°X51	4°II55	11°X46	23°R33	22°Y59	29°II59	1°15	2°X 1	3°X39	T 28

Delta T = 88.79 sec

ASTRODIENST EPHEMERIS for the year 2090

geocentric

MARCH 2090

00:00 UT

Day	Sid.t	☉	☽	♀	♂	♂	♂	♂	♂	♂	♂	♂	♂	♂	♂	Day
W 1	10 37 14	10 ^h 53'10"	6 ^h 29'	15 ^h 24'	28 ^h 34'	6 ^h 20'	17 ^h 58'	4 ^h 58'	11 ^h 50'	23 ^h 31'	23 ^h 0'	29 ^h 57'	1 ^h 12'	2 ^h 8'	3 ^h 39'	W 1
T 2	10 41 10	11 ^h 53'26"	18 ^h 17'	17 ^h 18'	29 ^h 48'	7 ^h 8'	18 ^h 4'	5 ^h 1'	11 ^h 53'	23 ^h 29'	23 ^h 1'	29 ^h 55'	1 ^h 9'	2 ^h 14'	3 ^h 38'	T 2
F 3	10 45 7	12 ^h 53'40"	0 ^h 9'	19 ^h 13'	1 ^h 9'	7 ^h 55'	18 ^h 10'	5 ^h 4'	11 ^h 56'	23 ^h 28'	23 ^h 2'	29 ^h 55'	1 ^h 6'	2 ^h 21'	3 ^h 38'	F 3
S 4	10 49 3	13 ^h 53'52"	12 ^h 5'	21 ^h 8'	2 ^h 17'	8 ^h 42'	18 ^h 15'	5 ^h 7'	12 ^h 0'	23 ^h 26'	23 ^h 4'	29 ^h 55'	1 ^h 2'	2 ^h 28'	3 ^h 37'	S 4
S 5	10 53 0	14 ^h 54'02"	24 ^h 9'	23 ^h 4'	3 ^h 32'	9 ^h 30'	18 ^h 21'	5 ^h 10'	12 ^h 3'	23 ^h 25'	23 ^h 5'	29 ^h 56'	0 ^h 59'	2 ^h 34'	3 ^h 37'	S 5
M 6	10 56 56	15 ^h 54'10"	6 ^h 22'	24 ^h 59'	4 ^h 46'	10 ^h 17'	18 ^h 26'	5 ^h 13'	12 ^h 7'	23 ^h 23'	23 ^h 6'	29 ^h 58'	0 ^h 56'	2 ^h 41'	3 ^h 37'	M 6
T 7	11 0 53	16 ^h 54'17"	18 ^h 50'	26 ^h 53'	6 ^h 1'	11 ^h 4'	18 ^h 32'	5 ^h 17'	12 ^h 10'	23 ^h 22'	23 ^h 7'	29 ^h 59'	0 ^h 53'	2 ^h 48'	3 ^h 36'	T 7
W 8	11 4 50	17 ^h 54'21"	1 ^h 33'	28 ^h 47'	7 ^h 15'	11 ^h 52'	18 ^h 37'	5 ^h 20'	12 ^h 14'	23 ^h 20'	23 ^h 8'	29 ^h 59'	0 ^h 50'	2 ^h 54'	3 ^h 36'	W 8
T 9	11 8 46	18 ^h 54'23"	14 ^h 37'	0 ^h 40'	8 ^h 30'	12 ^h 39'	18 ^h 42'	5 ^h 24'	12 ^h 17'	23 ^h 19'	23 ^h 9'	0 ^h R 0	0 ^h 47'	3 ^h 1'	3 ^h D36	T 9
F 10	11 12 43	19 ^h 54'23"	28 ^h 4'	2 ^h 32'	9 ^h 44'	13 ^h 26'	18 ^h 47'	5 ^h 27'	12 ^h 21'	23 ^h 17'	23 ^h 11'	0 ^h 0	0 ^h 43'	3 ^h 8'	3 ^h 36'	F 10
S 11	11 16 39	20 ^h 54'20"	11 ^h 55'	4 ^h 22'	10 ^h 58'	14 ^h 14'	18 ^h 51'	5 ^h 31'	12 ^h 24'	23 ^h 16'	23 ^h 12'	29 ^h 59'	0 ^h 40'	3 ^h 14'	3 ^h 37'	S 11
S 12	11 20 36	21 ^h 54'16"	26 ^h 12'	6 ^h 9'	12 ^h 12'	15 ^h 1'	18 ^h 56'	5 ^h 35'	12 ^h 27'	23 ^h 14'	23 ^h 13'	29 ^h 59'	0 ^h 37'	3 ^h 21'	3 ^h 37'	S 12
M13	11 24 32	22 ^h 54'09"	10 ^h 51'	7 ^h 54'	13 ^h 27'	15 ^h 48'	19 ^h 0'	5 ^h 39'	12 ^h 31'	23 ^h 13'	23 ^h 14'	29 ^h 58'	0 ^h 34'	3 ^h 28'	3 ^h 37'	M13
T 14	11 28 29	23 ^h 54'00"	25 ^h 47'	9 ^h 36'	14 ^h 41'	16 ^h 35'	19 ^h 4'	5 ^h 43'	12 ^h 34'	23 ^h 11'	23 ^h 15'	29 ^h 57'	0 ^h 31'	3 ^h 34'	3 ^h 38'	T 14
W15	11 32 25	24 ^h 53'49"	10 ^h 55'	11 ^h 14'	15 ^h 55'	17 ^h 22'	19 ^h 8'	5 ^h 47'	12 ^h 38'	23 ^h 10'	23 ^h 17'	29 ^h 57'	0 ^h 27'	3 ^h 41'	3 ^h 38'	W15
T 16	11 36 22	25 ^h 53'36"	26 ^h 3'	12 ^h 47'	17 ^h 9'	18 ^h 10'	19 ^h 12'	5 ^h 51'	12 ^h 41'	23 ^h 9'	23 ^h 18'	29 ^h D57	0 ^h 24'	3 ^h 48'	3 ^h 39'	T 16
F 17	11 40 18	26 ^h 53'21"	11 ^h 5'	14 ^h 16'	18 ^h 23'	18 ^h 57'	19 ^h 15'	5 ^h 55'	12 ^h 44'	23 ^h 7'	23 ^h 19'	29 ^h 57'	0 ^h 21'	3 ^h 54'	3 ^h 39'	F 17
S 18	11 44 15	27 ^h 53'04"	25 ^h 50'	15 ^h 40'	19 ^h 37'	19 ^h 44'	19 ^h 19'	6 ^h 0'	12 ^h 48'	23 ^h 6'	23 ^h 21'	29 ^h 57'	0 ^h 18'	4 ^h 1'	3 ^h 40'	S 18
S 19	11 48 12	28 ^h 52'45"	10 ^h 12'	16 ^h 59'	20 ^h 51'	20 ^h 31'	19 ^h 22'	6 ^h 4'	12 ^h 51'	23 ^h 5'	23 ^h 22'	29 ^h 57'	0 ^h 15'	4 ^h 8'	3 ^h 41'	S 19
M20	11 52 8	29 ^h 52'25"	24 ^h 9'	18 ^h 11'	22 ^h 5'	21 ^h 18'	19 ^h 25'	6 ^h 9'	12 ^h 54'	23 ^h 3'	23 ^h 23'	29 ^h R57	0 ^h 12'	4 ^h 14'	3 ^h 42'	M20
T 21	11 56 5	0 ^h 52'03"	7 ^h 38'	19 ^h 16'	23 ^h 19'	22 ^h 5'	19 ^h 28'	6 ^h 13'	12 ^h 58'	23 ^h 2'	23 ^h 24'	29 ^h 57'	0 ^h 8'	4 ^h 21'	3 ^h 43'	T 21
W22	12 0 1	1 ^h 51'39"	20 ^h 42'	20 ^h 15'	24 ^h 33'	22 ^h 52'	19 ^h 31'	6 ^h 18'	13 ^h 1'	23 ^h 1'	23 ^h 26'	29 ^h 57'	0 ^h 5'	4 ^h 28'	3 ^h 44'	W22
T 23	12 3 58	2 ^h 51'13"	3 ^h 32'	21 ^h 7'	25 ^h 47'	23 ^h 39'	19 ^h 33'	6 ^h 23'	13 ^h 4'	23 ^h 0'	23 ^h 27'	29 ^h D57	0 ^h 2'	4 ^h 34'	3 ^h 45'	T 23
F 24	12 7 54	3 ^h 50'46"	15 ^h 43'	21 ^h 52'	27 ^h 1'	24 ^h 26'	19 ^h 36'	6 ^h 28'	13 ^h 8'	22 ^h 58'	23 ^h 28'	29 ^h 57'	29 ^h 59'	4 ^h 41'	3 ^h 47'	F 24
S 25	12 11 51	4 ^h 50'17"	27 ^h 49'	22 ^h 29'	28 ^h 15'	25 ^h 13'	19 ^h 38'	6 ^h 32'	13 ^h 11'	22 ^h 57'	23 ^h 30'	29 ^h 57'	29 ^h 56'	4 ^h 48'	3 ^h 48'	S 25
S 26	12 15 47	5 ^h 49'46"	9 ^h 45'	22 ^h 58'	29 ^h 28'	26 ^h 0'	19 ^h 40'	6 ^h 37'	13 ^h 14'	22 ^h 56'	23 ^h 31'	29 ^h 58'	29 ^h 53'	4 ^h 54'	3 ^h 49'	S 26
M27	12 19 44	6 ^h 49'13"	21 ^h 34'	23 ^h 19'	0 ^h 42'	26 ^h 47'	19 ^h 42'	6 ^h 43'	13 ^h 17'	22 ^h 55'	23 ^h 33'	29 ^h 59'	29 ^h 49'	5 ^h 1'	3 ^h 51'	M27
T 28	12 23 41	7 ^h 48'38"	3 ^h 22'	23 ^h 33'	1 ^h 56'	27 ^h 34'	19 ^h 43'	6 ^h 48'	13 ^h 21'	22 ^h 54'	23 ^h 34'	29 ^h 59'	29 ^h 46'	5 ^h 8'	3 ^h 53'	T 28
W29	12 27 37	8 ^h 48'02"	15 ^h 10'	23 ^h R39	3 ^h 9'	28 ^h 21'	19 ^h 45'	6 ^h 53'	13 ^h 24'	22 ^h 53'	23 ^h 35'	0 ^h 0	29 ^h 43'	5 ^h 14'	3 ^h 54'	W29
T 30	12 31 34	9 ^h 47'23"	27 ^h 2'	23 ^h 38'	4 ^h 23'	29 ^h 8'	19 ^h 46'	6 ^h 58'	13 ^h 27'	22 ^h 52'	23 ^h 37'	0 ^h R 0	29 ^h 40'	5 ^h 21'	3 ^h 56'	T 30
F 31	12 35 30	10 ^h 46'43"	9 ^h 1'	23 ^h Y29	5 ^h 37'	29 ^h 55'	19 ^h 47'	7 ^h 11'	13 ^h 30'	22 ^h 51'	23 ^h Y38	0 ^h 0	29 ^h 37'	5 ^h 28'	3 ^h 58'	F 31

Delta T = 88.82 sec

APRIL 2090

00:00 UT

Day	Sid.t	☉	☽	♂	♀	♂	♂	♂	♂	♂	♂	♂	♂	♂	♂	Day
S 1	12 39 27	11 ^h 46'00"	21 ^h Y 8	23 ^h R13	6 ^h 50'	0 ^h Y42	19 ^h 48'	7 ^h 11'	13 ^h 33'	22 ^h R50	23 ^h Y39	29 ^h R59	29 ^h 33'	5 ^h Y34	4 ^h 5 0	S 1
S 2	12 43 23	12 ^h 45'16"	3 ^h 25'	22 ^h Y51	8 ^h 4'	1 ^h 28'	19 ^h 49'	7 ^h 15'	13 ^h 36'	22 ^h Y49	23 ^h 41'	29 ^h 58'	29 ^h 30'	5 ^h 41'	4 ^h 2	S 2
M 3	12 47 20	13 ^h 44'29"	15 ^h 54'	22 ^h 23'	9 ^h 17'	2 ^h 15'	19 ^h 49'	7 ^h 20'	13 ^h 39'	22 ^h 48'	23 ^h 42'	29 ^h 56'	29 ^h 27'	5 ^h 47'	4 ^h 4	M 3
T 4	12 51 16	14 ^h 43'40"	28 ^h 35'	21 ^h 50'	10 ^h 30'	3 ^h 2'	19 ^h 49'	7 ^h 26'	13 ^h 43'	22 ^h 47'	23 ^h 44'	29 ^h 54'	29 ^h 24'	5 ^h 54'	4 ^h 6	T 4
W 5	12 55 13	15 ^h 42'49"	11 ^h 31'	21 ^h 13'	11 ^h 44'	3 ^h 49'	19 ^h R50	7 ^h 32'	13 ^h 46'	22 ^h 46'	23 ^h 45'	29 ^h 52'	29 ^h 21'	6 ^h 1'	4 ^h 9	W 5
T 6	12 59 10	16 ^h 41'56"	24 ^h 42'	20 ^h 31'	12 ^h 57'	4 ^h 35'	19 ^h 49'	7 ^h 38'	13 ^h 49'	22 ^h 45'	23 ^h 46'	29 ^h 50'	29 ^h 18'	6 ^h 7'	4 ^h 11	T 6
F 7	13 3 6	17 ^h 41'01"	8 ^h 5 9	19 ^h 47'	14 ^h 10'	5 ^h 22'	19 ^h 49'	7 ^h 44'	13 ^h 52'	22 ^h 44'	23 ^h 48'	29 ^h 49'	29 ^h 14'	6 ^h 14'	4 ^h 13	F 7
S 8	13 7 3	18 ^h 40'03"	21 ^h 55'	19 ^h 1'	15 ^h 23'	6 ^h 9'	19 ^h 49'	7 ^h 50'	13 ^h 55'	22 ^h 44'	23 ^h 49'	29 ^h D49	29 ^h 11'	6 ^h 21'	4 ^h 16	S 8
S 9	13 10 59	19 ^h 39'03"	5 ^h 58'	18 ^h 14'	16 ^h 36'	6 ^h 55'	19 ^h 48'	7 ^h 56'	13 ^h 58'	22 ^h 43'	23 ^h 51'	29 ^h 50'	29 ^h 8'	6 ^h 27'	4 ^h 18	S 9
M10	13 14 56	20 ^h 38'00"	20 ^h 18'	17 ^h 26'	17 ^h 50'	7 ^h 42'	19 ^h 47'	8 ^h 2'	14 ^h 1'	22 ^h 42'	23 ^h 52'	29 ^h 51'	29 ^h 5'	6 ^h 34'	4 ^h 21	M10
T 11	13 18 52	21 ^h 36'55"	4 ^h 52'	16 ^h 40'	19 ^h 3'	8 ^h 28'	19 ^h 46'	8 ^h 8'	14 ^h 3'	22 ^h 41'	23 ^h 53'	29 ^h 52'	29 ^h 2'	6 ^h 41'	4 ^h 24	T 11
W12	13 22 49	22 ^h 35'48"	19 ^h 36'	15 ^h 55'	20 ^h 16'	9 ^h 15'	19 ^h 45'	8 ^h 14'	14 ^h 6'	22 ^h 41'	23 ^h 55'	29 ^h 53'	28 ^h 58'	6 ^h 47'	4 ^h 27	W12
T 13	13 26 45	23 ^h 34'39"	4 ^h 25'	15 ^h 13'	21 ^h 28'	10 ^h 1'	19 ^h 44'	8 ^h 20'	14 ^h 9'	22 ^h 40'	23 ^h 56'	29 ^h R54	28 ^h 55'	6 ^h 54'	4 ^h 30	T 13
F 14	13 30 42	24 ^h 33'27"	19 ^h 12'	14 ^h 34'	22 ^h 41'	10 ^h 47'	19 ^h 42'	8 ^h 27'	14 ^h 12'	22 ^h 39'	23 ^h 58'	29 ^h 53'	28 ^h 52'	7 ^h 1'	4 ^h 33	F 14
S 15	13 34 38	25 ^h 32'14"	3 ^h 14'	13 ^h 59'	23 ^h 54'	11 ^h 34'	19 ^h 40'	8 ^h 33'	14 ^h 15'	22 ^h 39'	23 ^h 59'	29 ^h 50'	28 ^h 49'	7 ^h 7'	4 ^h 36	S 15
S 16	13 38 35	26 ^h 30'59"	18 ^h 9'	13 ^h 27'	25 ^h 7'	12 ^h 20'	19 ^h 39'	8 ^h 39'	14 ^h 18'	22 ^h 38'	24 ^h 0'	29 ^h 47'	28 ^h 46'	7 ^h 14'	4 ^h 39	S 16
M17	13 42 32	27 ^h 29'41"	2 ^h 7 8	13 ^h 1'	26 ^h 20'	13 ^h 6'	19 ^h 36'	8 ^h 46'	14 ^h 20'	22 ^h 38'	24 ^h 2'	29 ^h 43'	28 ^h 43'	7 ^h 21'	4 ^h 42	M17
T 18	13 46 28	28 ^h 28'23"	15 ^h 42'	12 ^h 39'	27 ^h 32'	13 ^h 52'	19 ^h 34'	8 ^h 52'	14 ^h 23'	22 ^h 37'	24 ^h 3'	29 ^h 39'	28 ^h 39'	7 ^h 27'	4 ^h 45	T 18
W19	13 50 25	29 ^h 27'02"	28 ^h 51'	12 ^h 22'	28 ^h 45'	14 ^h 39'	19 ^h 32'	8 ^h 59'	14 ^h 26'	22 ^h 37'	24 ^h 5'	29 ^h 35'	28 ^h 36'	7 ^h 34'	4 ^h 48	W19
T20	13 54 21	0 ^h 25'40"	11 ^h 36'	12 ^h 10'	29 ^h 57'	15 ^h 25'	19 ^h 29'	9 ^h 6'	14 ^h 28'	22 ^h 36'	24 ^h 6'	29 ^h 32'	28 ^h 33'	7 ^h 41'	4 ^h 52	T 20
F 21	13 58 18	1 ^h 24'16"	24 ^h 1'	12 ^h 3'	1 ^h 11 10	16 ^h 11'	19 ^h 26'	9 ^h 12'	14 ^h 31'	22 ^h 36'	24 ^h 7'	29 ^h 30'	28 ^h 30'	7 ^h 47'	4 ^h 55	F 21
S 22	14 2 14	2 ^h 22'50"	6 ^h 22 9	12 ^h D 1	2 ^h 22'	16 ^h 57'	19 ^h 23'	9 ^h 19'	14 ^h 33'	22 ^h 36'	24 ^h 9'	29 ^h D30	28 ^h 27'	7 ^h 54'	4 ^h 59	S 22
S 23	14 6 11	3 ^h 21'23"	18 ^h 5'	12 ^h 5'	3 ^h 35'	17 ^h 43'	19 ^h 20'	9 ^h 26'	14 ^h 36'	22 ^h 35'	24 ^h 10'	29 ^h 31'	28 ^h 24'	8 ^h 1'	5 ^h 2	S 23
M24	14 10 7	4 ^h 19'54"	29 ^h 54'	12 ^h 13'	4 ^h 47'	18 ^h 29'	19 ^h 17'	9 ^h 33'	14 ^h 39'	22 ^h 35'	24 ^h 12'	29 ^h 33'	28 ^h 20'	8 ^h 7'	5 ^h 6	M24
T 25	14 14 4	5 ^h 18'23"	11 ^h 42'	12 ^h 27'	5 ^h 59'	19 ^h 15'	19 ^h 13'	9 ^h 40'	14 ^h 41'	22 ^h 35'	24 ^h 13'	29 ^h 35'	28 ^h 17'	8 ^h 14'	5 ^h 10	T 25
W26	14 18 1	6 ^h 16'51"	23 ^h 32'	12 ^h 45'	7 ^h 12'	20 ^h 1'	19 ^h 9'	9 ^h 47'	14 ^h 43'	22 ^h 34'	24 ^h 14'	29 ^h R36	28 ^h 14'	8 ^h 21'	5 ^h 13	W26
T 27	14 21 57	7 ^h 15'17"	5 ^h Y29	13 ^h 7'	8 ^h 24'	20 ^h 47'	19 ^h 6'	9 ^h 54'	14 ^h 46'	22 ^h 34'	24 ^h 16'	29 ^h 36'	28 ^h 11'	8 ^h 27'	5 ^h 17	T 27
F 28	14 25 54	8 ^h 13'41"	17 ^h 37'	13 ^h 34'	9 ^h 36'	21 ^h 33'	19 ^h 1'	10 ^h 1'	14 ^h 48'	22 ^h 34'	24 ^h 17'	29 ^h 34'	28 ^h 8'	8 ^h 34'	5 ^h 21	F 28
S 29	14 29 50	9 ^h 12'04"	29 ^h 56'	14 ^h 5'	10 ^h 48'	22 ^h 18'	18 ^h 57'	10 ^h 8'	14 ^h 51'	22 ^h 34'	24 ^h 19'	29 ^h 31'	28 ^h 4'	8 ^h 40'	5 ^h 25	S 29
S 30	14 33 47	10 ^h 8'10'25"	12 ^h 30'	14 ^h Y41	12 ^h II 0	23 ^h Y 4	18 ^h 53'	10 ^h II15	14 ^h Y53	22 ^h Y34	24 ^h Y20	29 ^h Y25	28 ^h Y 1	8 ^h Y47	5 ^h Y29	S 30

ASTRODIENST EPHEMERIS for the year 2090

geocentric

MAY 2090

00:00 UT

Day	Sid.t	☉	☽	♀	♂	♂	♂	♂	♂	♂	♂	♂	♂	♂	♂	Day
M 1	14 37 43	11♈ 8'44	25♈18	15♉20	13♊12	23♋50	18♌48	10♍22	14♎55	22♏34	24♐21	29♑19	27♒58	8♓54	5♈33	M 1
T 2	14 41 40	12° 7'01	8♊21	16° 3	14°24	24°35	18♌44	10°29	14°57	22♏34	24°23	29♑11	27°55	9° 0	5°37	T 2
W 3	14 45 36	13° 5'17	21°37	16°49	15°35	25°21	18°39	10°36	15° 0	22°D34	24°24	29° 4	27°52	9° 7	5°42	W 3
T 4	14 49 33	14° 3'30	5♈ 6	17°39	16°47	26° 7	18°34	10°44	15° 2	22°34	24°25	28°58	27°49	9°14	5°46	T 4
F 5	14 53 30	15° 1'42	18°46	18°32	17°59	26°52	18°29	10°51	15° 4	22°34	24°27	28°53	27°45	9°20	5°50	F 5
S 6	14 57 26	15°59'52	2♌36	19°29	19°10	27°38	18°23	10°58	15° 6	22°34	24°28	28°50	27°42	9°27	5°55	S 6
S 7	15 1 23	16°57'59	16°36	20°28	20°22	28°23	18°18	11° 5	15° 8	22°34	24°29	28°D50	27°39	9°34	5°59	S 7
M 8	15 5 19	17°56'05	0♍45	21°30	21°33	29° 8	18°13	11°13	15°10	22°34	24°31	28°50	27°36	9°40	6° 3	M 8
T 9	15 9 16	18°54'08	15° 0	22°35	22°45	29°54	18° 7	11°20	15°12	22°34	24°32	28°51	27°33	9°47	6° 8	T 9
W10	15 13 12	19°52'10	29°21	23°43	23°56	0♎39	18° 1	11°28	15°14	22°34	24°33	28°R52	27°30	9°54	6°13	W10
T11	15 17 9	20°50'10	13♌44	24°54	25° 7	1°24	17°55	11°35	15°16	22°35	24°35	28°51	27°26	10° 0	6°17	T11
F12	15 21 5	21°48'08	28° 6	26° 7	26°19	2° 9	17°49	11°43	15°18	22°35	24°36	28°48	27°23	10° 7	6°22	F12
S13	15 25 2	22°46'04	12♍21	27°22	27°30	2°54	17°43	11°50	15°19	22°35	24°37	28°42	27°20	10°14	6°27	S13
S14	15 28 59	23°43'59	26°25	28°40	28°41	3°39	17°37	11°58	15°21	22°36	24°38	28°35	27°17	10°20	6°31	S14
M15	15 32 55	24°41'52	10♌13	0♎ 1	29°52	4°24	17°30	12° 5	15°23	22°36	24°40	28°26	27°14	10°27	6°36	M15
T16	15 36 52	25°39'44	23°41	1°23	1♈ 2	5° 9	17°24	12°13	15°24	22°36	24°41	28°16	27°10	10°34	6°41	T16
W17	15 40 48	26°37'35	6♈47	2°49	2°13	5°54	17°17	12°20	15°26	22°37	24°42	28° 7	27° 7	10°40	6°46	W17
T18	15 44 45	27°35'24	19°32	4°16	3°24	6°39	17°10	12°28	15°28	22°37	24°43	28° 0	27° 4	10°47	6°51	T18
F19	15 48 41	28°33'12	1♎58	5°46	4°35	7°24	17° 3	12°36	15°29	22°38	24°45	27°54	27° 1	10°54	6°56	F19
S20	15 52 38	29°30'59	14° 7	7°18	5°45	8° 9	16°57	12°43	15°31	22°38	24°46	27°51	26°58	11° 0	7° 1	S20
S21	15 56 34	0♊28'45	26° 4	8°52	6°55	8°53	16°50	12°51	15°32	22°39	24°47	27°D49	26°55	11° 7	7° 6	S21
M22	16 0 31	1°26'29	7♈54	10°28	8° 6	9°38	16°43	12°59	15°34	22°40	24°48	27°50	26°51	11°13	7°11	M22
T23	16 4 28	2°24'13	19°42	12° 7	9°16	10°23	16°35	13° 6	15°35	22°40	24°49	27°50	26°48	11°20	7°16	T23
W24	16 8 24	3°21'55	1♉35	13°48	10°26	11° 7	16°28	13°14	15°36	22°41	24°51	27°R50	26°45	11°27	7°22	W24
T25	16 12 21	4°19'36	13°36	15°31	11°36	11°52	16°21	13°22	15°37	22°42	24°52	27°49	26°42	11°33	7°27	T25
F26	16 16 17	5°17'17	25°50	17°16	12°46	12°36	16°14	13°30	15°39	22°42	24°53	27°46	26°39	11°40	7°32	F26
S27	16 20 14	6°14'56	8♎21	19° 4	13°56	13°21	16° 6	13°37	15°40	22°43	24°54	27°40	26°35	11°47	7°38	S27
S28	16 24 10	7°12'34	21°10	20°54	15° 6	14° 5	15°59	13°45	15°41	22°44	24°55	27°31	26°32	11°53	7°43	S28
M29	16 28 7	8°10'11	4♊18	22°45	16°16	14°49	15°51	13°53	15°42	22°45	24°56	27°21	26°29	12° 0	7°48	M29
T30	16 32 3	9° 7'48	17°44	24°40	17°26	15°33	15°44	14° 1	15°43	22°46	24°57	27°10	26°26	12° 7	7°54	T30
W31	16 36 0	10♊ 5'22	1♈25	26♈36	18♈35	16♈18	15♌36	14♍ 9	15♎44	22♏46	24♐58	26♑59	26♒23	12♓13	7♈59	W31

Delta T = 88.89 sec

JUNE 2090

00:00 UT

Day	Sid.t	☉	☽	♀	♂	♂	♂	♂	♂	♂	♂	♂	♂	♂	♂	Day
T 1	16 39 57	11♊ 2'56	15♈18	28♈34	19♈45	17♈ 2	15°R29	14♊16	15♎45	22♏47	24♐59	26°R48	26♑20	12♒20	8♓ 5	T 1
F 2	16 43 53	12° 0'29	29°20	0♊34	20°54	17°46	15♌21	14°24	15°46	22°48	25° 0	26♑41	26°16	12°27	8°10	F 2
S 3	16 47 50	12°58'00	13♌26	2°37	22° 3	18°30	15°13	14°32	15°47	22°49	25° 1	26°35	26°13	12°33	8°16	S 3
S 4	16 51 46	13°55'30	27°34	4°41	23°12	19°14	15° 6	14°40	15°48	22°50	25° 2	26°33	26°10	12°40	8°21	S 4
M 5	16 55 43	14°52'58	11♑43	6°46	24°21	19°58	14°58	14°48	15°48	22°51	25° 3	26°D32	26° 7	12°47	8°27	M 5
T 6	16 59 39	15°50'25	25°50	8°54	25°30	20°41	14°50	14°55	15°49	22°52	25° 4	26°R32	26° 4	12°53	8°33	T 6
W 7	17 3 36	16°47'51	9♌55	11° 2	26°39	21°25	14°43	15° 3	15°50	22°54	25° 5	26°32	26° 1	13° 0	8°38	W 7
T 8	17 7 32	17°45'16	23°56	13°12	27°48	22° 9	14°35	15°11	15°50	22°55	25° 6	26°29	25°57	13° 7	8°44	T 8
F 9	17 11 29	18°42'40	7♍53	15°23	28°56	22°53	14°27	15°19	15°51	22°56	25° 7	26°25	25°54	13°13	8°50	F 9
S10	17 15 26	19°40'02	21°43	17°35	0♌ 5	23°36	14°20	15°27	15°51	22°57	25° 8	26°18	25°51	13°20	8°55	S10
S11	17 19 22	20°37'24	5♌23	19°47	1°13	24°20	14°12	15°34	15°52	22°58	25° 9	26° 8	25°48	13°26	9° 1	S11
M12	17 23 19	21°34'45	18°50	21°59	2°21	25° 3	14° 5	15°42	15°52	22°59	25°10	25°56	25°45	13°33	9° 7	M12
T13	17 27 15	22°32'05	2♈ 2	24°11	3°29	25°47	13°57	15°50	15°52	23° 1	25°11	25°43	25°41	13°40	9°13	T13
W14	17 31 12	23°29'25	14°57	26°22	4°37	26°30	13°50	15°58	15°53	23° 2	25°11	25°31	25°38	13°46	9°19	W14
T15	17 35 8	24°26'43	27°34	28°33	5°45	27°13	13°42	16° 5	15°53	23° 3	25°12	25°21	25°35	13°53	9°25	T15
F16	17 39 5	25°24'02	9♎55	0♎43	6°52	27°56	13°35	16°13	15°53	23° 5	25°13	25°13	25°32	14° 0	9°30	F16
S17	17 43 1	26°21'19	22° 2	2°52	8° 0	28°40	13°28	16°21	15°53	23° 6	25°14	25° 7	25°29	14° 6	9°36	S17
S18	17 46 58	27°18'37	3♈58	5° 0	9° 7	29°23	13°20	16°29	15°54	23° 7	25°15	25° 4	25°26	14°13	9°42	S18
M19	17 50 55	28°15'54	15°47	7° 6	10°14	0♊ 6	13°13	16°36	15°54	23° 9	25°15	25° 3	25°22	14°20	9°48	M19
T20	17 54 51	29°13'11	27°36	9°10	11°21	0°49	13° 6	16°44	15°R54	23°10	25°16	25° 3	25°19	14°26	9°54	T20
W21	17 58 48	0♎10'27	9♉29	11°13	12°28	1°32	12°59	16°52	15°54	23°12	25°17	25° 3	25°16	14°33	10° 0	W21
T22	18 2 44	1° 7'43	21°32	13°14	13°35	2°15	12°52	16°59	15°54	23°13	25°18	25° 1	25°13	14°40	10° 6	T22
F23	18 6 41	2° 4'59	3♈49	15°12	14°42	2°58	12°45	17° 7	15°53	23°15	25°18	24°58	25°10	14°46	10°12	F23
S24	18 10 37	3° 2'15	16°26	17° 9	15°48	3°40	12°38	17°15	15°53	23°16	25°19	24°52	25° 7	14°53	10°18	S24
S25	18 14 34	3°59'31	29°25	19° 4	16°54	4°23	12°32	17°22	15°53	23°18	25°20	24°44	25° 3	15° 0	10°24	S25
M26	18 18 30	4°56'47	12♊47	20°56	18° 0	5° 6	12°25	17°30	15°53	23°19	25°20	24°34	25° 0	15° 6	10°30	M26
T27	18 22 27	5°54'02	26°32	22°47	19° 6	5°48	12°19	17°37	15°52	23°21	25°21	24°23	24°57	15°13	10°36	T27
W28	18 26 24	6°51'18	10♎36	24°35	20°12	6°31	12°12	17°45	15°52	23°23	25°21	24°11	24°54	15°19	10°42	W28
T29	18 30 20	7°48'33	24°54	26°21	21°17	7°14	12° 6	17°53	15°52	23°24	25°22	24° 1	24°51	15°26	10°48	T29
F30	18 34 17	8♎45'47	9♌21	28♎ 5	22♌23	7♊56	12♌ 0	18♊ 0	15♎51	23♏26	25♐22	23♑53	24♒47	15♓33	10♈54	F30

Delta T = 88.93 sec

ASTRODIENST EPHEMERIS for the year 2090

geocentric

JULY 2090

00:00 UT

Day	Sid.t	☉	☽	♀	♂	♂	♂	♂	♂	♂	♂	♂	♂	♂	♂	Day
S 1	18 38 13	9 ⁵³ 43'01	23 ⁰² 50	29 ⁵⁶ 46	23 ⁰² 28	8 ¹¹ 38	11 ⁰⁵ 54	18 ¹¹ 7	15 ⁰⁵ 51	23 ⁰² 28	25 ⁰⁷ 23	23 ⁰⁴ 48	24 ⁰⁴ 44	15 ⁰³ 39	11 ⁰⁵ 0	S 1
S 2	18 42 10	10 ⁴⁰ 15	8 ⁰⁴ 16	1 ⁰² 26	24 ³³	9 ²¹	11 ⁰⁷ 48	18 ¹⁵	15 ⁰⁵ 50	23 ²⁹	25 ²³	23 ⁰⁴ 45	24 ⁴¹	15 ⁴⁶	11 ⁰⁶	S 2
M 3	18 46 6	11 ³⁷ 28	22 ³⁶	3 ⁰³	25 ³⁸	10 ⁰³	11 ⁴²	18 ²²	15 ⁴⁹	23 ³¹	25 ²⁴	23 ⁰⁴ 44	24 ³⁸	15 ⁵³	11 ¹²	M 3
T 4	18 50 3	12 ³⁴ 41	6 ⁴⁶	4 ³⁸	26 ⁴²	10 ⁴⁵	11 ³⁶	18 ³⁰	15 ⁴⁹	23 ³³	25 ²⁴	23 ⁰⁴ 44	24 ³⁵	15 ⁵⁹	11 ¹⁸	T 4
W 5	18 53 59	13 ³¹ 54	20 ⁴⁷	6 ¹⁰	27 ⁴⁶	11 ²⁷	11 ³¹	18 ³⁷	15 ⁴⁸	23 ³⁵	25 ²⁵	23 ⁴⁴	24 ³²	16 ⁰⁶	11 ²⁴	W 5
T 6	18 57 56	14 ²⁹ 06	4 ⁰³ 36	7 ⁴¹	28 ⁵⁰	12 ⁰⁹	11 ²⁵	18 ⁴⁴	15 ⁴⁷	23 ³⁷	25 ²⁵	23 ⁴³	24 ²⁸	16 ¹³	11 ³⁰	T 6
F 7	19 1 53	15 ²⁶ 18	18 ¹⁵	9 ⁰⁹	29 ⁵⁴	12 ⁵¹	11 ²⁰	18 ⁵²	15 ⁴⁷	23 ³⁸	25 ²⁶	23 ³⁹	24 ²⁵	16 ¹⁹	11 ³⁶	F 7
S 8	19 5 49	16 ²³ 30	1 ⁰⁷ 43	10 ³⁵	0 ⁰⁴ 58	13 ³³	11 ¹⁵	18 ⁵⁹	15 ⁴⁶	23 ⁴⁰	25 ²⁶	23 ³³	24 ²²	16 ²⁶	11 ⁴²	S 8
S 9	19 9 46	17 ²⁰ 42	15 ⁰⁰	11 ⁵⁸	2 ⁰¹	14 ¹⁵	11 ¹⁰	19 ⁰⁶	15 ⁴⁵	23 ⁴²	25 ²⁶	23 ²⁴	24 ¹⁹	16 ³³	11 ⁴⁸	S 9
M10	19 13 42	18 ¹⁷ 53	28 ⁰⁴	13 ²⁰	3 ⁰⁴	14 ⁵⁷	11 ⁰⁵	19 ¹³	15 ⁴⁴	23 ⁴⁴	25 ²⁷	23 ¹⁴	24 ¹⁶	16 ³⁹	11 ⁵⁴	M10
T 11	19 17 39	19 ¹⁵ 05	10 ⁵⁵	14 ³⁸	4 ⁰⁷	15 ³⁹	11 ⁰⁰	19 ²⁰	15 ⁴³	23 ⁴⁶	25 ²⁷	23 ⁰³	24 ¹³	16 ⁴⁶	12 ⁰⁰	T 11
W12	19 21 35	20 ¹² 17	23 ³³	15 ⁵⁵	5 ¹⁰	16 ²⁰	10 ⁵⁶	19 ²⁸	15 ⁴²	23 ⁴⁸	25 ²⁷	22 ⁵²	24 ⁰⁹	16 ⁵³	12 ⁰⁶	W12
T 13	19 25 32	21 ⁰⁹ 29	5 ⁵⁸	17 ⁰⁹	6 ¹²	17 ⁰²	10 ⁵²	19 ³⁵	15 ⁴¹	23 ⁵⁰	25 ²⁸	22 ⁴³	24 ⁰⁶	16 ⁵⁹	12 ¹²	T 13
F 14	19 29 29	22 ⁰⁶ 41	18 ⁰⁹	18 ²⁰	7 ¹⁴	17 ⁴³	10 ⁴⁷	19 ⁴²	15 ⁴⁰	23 ⁵²	25 ²⁸	22 ³⁶	24 ⁰³	17 ⁰⁶	12 ¹⁸	F 14
S 15	19 33 25	23 ⁰³ 53	0 ⁰⁸ 10	19 ²⁹	8 ¹⁵	18 ²⁵	10 ⁴³	19 ⁴⁹	15 ³⁹	23 ⁵⁴	25 ²⁸	22 ³¹	24 ⁰⁰	17 ¹²	12 ²⁴	S 15
S 16	19 37 22	24 ⁰¹ 06	12 ⁰³	20 ³⁵	9 ¹⁷	19 ⁰⁶	10 ³⁹	19 ⁵⁶	15 ³⁸	23 ⁵⁶	25 ²⁸	22 ²⁸	23 ⁵⁷	17 ¹⁹	12 ³⁰	S 16
M17	19 41 18	24 ⁵⁸ 20	23 ⁵¹	21 ³⁸	10 ¹⁸	19 ⁴⁸	10 ³⁶	20 ⁰²	15 ³⁶	23 ⁵⁷	25 ²⁸	22 ⁰² 28	23 ⁵³	17 ²⁶	12 ³⁶	M17
T 18	19 45 15	25 ⁵⁵ 34	5 ⁰³ 39	22 ³⁸	11 ¹⁹	20 ²⁹	10 ³²	20 ⁰⁹	15 ³⁵	23 ⁵⁹	25 ²⁹	22 ²⁸	23 ⁵⁰	17 ³²	12 ⁴²	T 18
W19	19 49 11	26 ⁵² 48	17 ³¹	23 ³⁶	12 ¹⁹	21 ¹⁰	10 ²⁹	20 ¹⁶	15 ³⁴	24 ⁰²	25 ²⁹	22 ²⁹	23 ⁴⁷	17 ³⁹	12 ⁴⁸	W19
T 20	19 53 8	27 ⁵⁰ 04	29 ³⁴	24 ³⁰	13 ¹⁹	21 ⁵²	10 ²⁶	20 ²³	15 ³²	24 ⁰⁴	25 ²⁹	22 ⁰³ 30	23 ⁴⁴	17 ⁴⁶	12 ⁵⁴	T 20
F 21	19 57 4	28 ⁴⁷ 20	11 ⁵¹	25 ²¹	14 ¹⁹	22 ³³	10 ²³	20 ³⁰	15 ³¹	24 ⁰⁶	25 ²⁹	22 ²⁹	23 ⁴¹	17 ⁵²	13 ⁰⁰	F 21
S 22	20 1 1	29 ⁴⁴ 37	24 ²⁹	26 ⁰⁹	15 ¹⁸	23 ¹⁴	10 ²⁰	20 ³⁶	15 ³⁰	24 ⁰⁸	25 ²⁹	22 ²⁶	23 ³⁸	17 ⁵⁹	13 ⁰⁶	S 22
S 23	20 4 57	0 ⁰⁴ 15'4	7 ¹¹ 30	26 ⁵³	16 ¹⁷	23 ⁵⁵	10 ¹⁷	20 ⁴³	15 ²⁸	24 ¹⁰	25 ²⁹	22 ²¹	23 ³⁴	18 ⁰⁶	13 ¹²	S 23
M24	20 8 54	1 ³⁹ 13	20 ⁵⁷	27 ³³	17 ¹⁶	24 ³⁶	10 ¹⁵	20 ⁵⁰	15 ²⁷	24 ¹²	25 ²⁹	22 ¹⁵	23 ³¹	18 ¹²	13 ¹⁸	M24
T 25	20 12 51	2 ³⁶ 32	4 ⁵¹	28 ¹⁰	18 ¹⁴	25 ¹⁷	10 ¹²	20 ⁵⁶	15 ²⁵	24 ¹⁴	25 ⁰² 29	22 ⁰⁷	23 ²⁸	18 ¹⁹	13 ²³	T 25
W26	20 16 47	3 ³³ 52	19 ⁰⁹	28 ⁴³	19 ¹²	25 ⁵⁷	10 ¹⁰	21 ⁰³	15 ²⁴	24 ¹⁶	25 ²⁹	21 ⁵⁹	23 ²⁵	18 ²⁶	13 ²⁹	W26
T 27	20 20 44	4 ³¹ 13	3 ⁰⁴ 45	29 ¹²	20 ¹⁰	26 ³⁸	10 ⁰⁸	21 ⁰⁹	15 ²²	24 ¹⁸	25 ²⁹	21 ⁵²	23 ²²	18 ³²	13 ³⁵	T 27
F 28	20 24 40	5 ²⁸ 34	18 ³³	29 ³⁶	21 ⁰⁷	27 ¹⁹	10 ⁰⁶	21 ¹⁵	15 ²⁰	24 ²⁰	25 ²⁹	21 ⁴⁷	23 ¹⁹	18 ³⁹	13 ⁴¹	F 28
S 29	20 28 37	6 ²⁵ 56	3 ⁰⁴ 26	29 ⁵⁶	22 ⁰³	28 ⁰⁰	10 ⁰⁵	21 ²²	15 ¹⁹	24 ²²	25 ²⁹	21 ⁴⁴	23 ¹⁵	18 ⁴⁶	13 ⁴⁷	S 29
S 30	20 32 33	7 ²³ 18	18 ¹⁴	0 ⁰⁴ 11	23 ⁰⁰	28 ⁴⁰	10 ⁰³	21 ²⁸	15 ¹⁷	24 ²⁴	25 ²⁹	21 ⁰⁴ 43	23 ¹²	18 ⁵²	13 ⁵²	S 30
M31	20 36 30	8 ⁰² 41	2 ⁵²	0 ⁰⁴ 22	23 ⁰⁵	29 ¹¹ 21	10 ⁰²	21 ³⁴	15 ¹⁵	24 ⁰² 27	25 ⁰² 29	21 ⁰⁴ 43	23 ⁰⁹	18 ⁵⁹	13 ⁵⁸	M31

Delta T = 88.97 sec

AUGUST 2090

00:00 UT

Day	Sid.t	☉	☾	♀	♂	♂	♂	♂	♂	♂	♂	♂	♂	♂	♂	Day
T 1	20 40 26	9♌18'05	17♊16	0♍27	24♍50	0♋1	10°R 1	21♐40	15°R14	24♏29	25°R29	21♍44	23♍6	19♏5	14♋4	T 1
W 2	20 44 23	10°15'29	1♌22	0°R28	25°45	0°41	10♌0	21°46	15♏12	24°31	25♍29	21°45	23°3	19°12	14°10	W 2
T 3	20 48 20	11°12'53	15°10	0°23	26°39	1°22	9°59	21°52	15°10	24°33	25°28	21°R45	22°59	19°19	14°15	T 3
F 4	20 52 16	12°10'18	28°41	0°13	27°33	2°2	9°59	21°58	15°8	24°35	25°28	21°44	22°56	19°25	14°21	F 4
S 5	20 56 13	13°7'44	11♌56	29♌58	28°26	2°42	9°59	22°4	15°6	24°37	25°28	21°41	22°53	19°32	14°26	S 5
S 6	21 0 9	14°5'11	24°55	29°38	29°18	3°22	9°D59	22°10	15°4	24°40	25°28	21°37	22°50	19°39	14°32	S 6
M 7	21 4 6	15°2'38	7♌40	29°13	0♊10	4°2	9°59	22°16	15°2	24°42	25°27	21°31	22°47	19°45	14°37	M 7
T 8	21 8 2	16°0'06	20°13	28°43	1°1	4°42	9°59	22°21	15°0	24°44	25°27	21°25	22°44	19°52	14°43	T 8
W 9	21 11 59	16°57'35	2♌33	28°8	1°52	5°22	9°59	22°27	14°58	24°46	25°27	21°19	22°40	19°59	14°48	W 9
T 10	21 15 56	17°55'05	14°44	27°29	2°42	6°2	10°0	22°33	14°56	24°48	25°27	21°14	22°37	20°5	14°54	T 10
F 11	21 19 52	18°52'36	26°45	26°47	3°31	6°42	10°1	22°38	14°54	24°51	25°26	21°10	22°34	20°12	14°59	F 11
S 12	21 23 49	19°50'08	8♏40	26°1	4°19	7°21	10°2	22°43	14°52	24°53	25°26	21°8	22°31	20°19	15°5	S 12
S 13	21 27 45	20°47'41	20°29	25°14	5°7	8°1	10°3	22°49	14°50	24°55	25°25	21°D 7	22°28	20°25	15°10	S 13
M14	21 31 42	21°45'15	2♍16	24°25	5°53	8°40	10°4	22°54	14°48	24°57	25°25	21°8	22°25	20°32	15°15	M14
T 15	21 35 38	22°42'51	14°3	23°35	6°39	9°20	10°6	22°59	14°46	25°0	25°25	21°9	22°21	20°38	15°20	T 15
W16	21 39 35	23°40'28	25°56	22°45	7°25	9°59	10°7	23°4	14°44	25°2	25°24	21°11	22°18	20°45	15°26	W16
T 17	21 43 31	24°38'07	7♌59	21°57	8°9	10°39	10°9	23°9	14°41	25°4	25°24	21°12	22°15	20°52	15°31	T 17
F 18	21 47 28	25°35'47	20°15	21°12	8°52	11°18	10°11	23°14	14°39	25°6	25°23	21°R13	22°12	20°58	15°36	F 18
S 19	21 51 24	26°33'29	2♐51	20°29	9°35	11°57	10°14	23°19	14°37	25°8	25°23	21°13	22°9	21°5	15°41	S 19
S 20	21 55 21	27°31'13	15°49	19°51	10°16	12°36	10°16	23°24	14°35	25°11	25°22	21°12	22°5	21°12	15°46	S 20
M21	21 59 18	28°28'58	29°13	19°17	10°56	13°16	10°19	23°29	14°32	25°13	25°22	21°10	22°2	21°18	15°51	M21
T 22	22 3 14	29°26'45	13♋4	18°50	11°36	13°55	10°21	23°34	14°30	25°15	25°21	21°7	21°59	21°25	15°56	T 22
W23	22 7 11	0♍24'33	27°22	18°29	12°14	14°34	10°24	23°38	14°28	25°17	25°21	21°4	21°56	21°32	16°1	W23
T 24	22 11 7	1°22'23	12♌4	18°14	12°51	15°12	10°27	23°43	14°26	25°20	25°20	21°2	21°53	21°38	16°6	T 24
F 25	22 15 4	2°20'14	27°2	18°D 7	13°27	15°51	10°31	23°47	14°23	25°22	25°19	21°0	21°50	21°45	16°11	F 25
S 26	22 19 0	3°18'07	12♍9	18°8	14°2	16°30	10°34	23°51	14°21	25°24	25°19	20°59	21°46	21°52	16°15	S 26
S 27	22 22 57	4°16'02	27°16	18°17	14°35	17°9	10°38	23°56	14°19	25°26	25°18	20°D59	21°43	21°58	16°20	S 27
M28	22 26 53	5°13'57	12♊13	18°33	15°7	17°47	10°42	24°0	14°16	25°28	25°17	21°0	21°40	22°5	16°25	M28
T 29	22 30 50	6°11'54	26°54	18°58	15°38	18°26	10°46	24°4	14°14	25°31	25°17	21°1	21°37	22°11	16°30	T 29
W30	22 34 47	7°9'52	11♌14	19°30	16°7	19°4	10°50	24°8	14°11	25°33	25°16	21°2	21°34	22°18	16°34	W30
T 31	22 38 43	8♍7'52	25♌10	20♌11	16♊35	19♋43	10♌54	24♐12	14♏9	25♏35	25♍15	21♍3	21♍30	22♏25	16♋39	T 31

ASTRODIENST EPHEMERIS for the year 2090
geocentric

SEPTEMBER 2090

00:00 UT

Day	Sid.t	☉	☽	♀	♂	♂	♂	♂	♂	♂	♂	♂	♂	♂	♂	Day
F 1	22 42 40	9♍ 5'53	8♌43	20♌59	17♌ 1	20♌21	10♌59	24♌15	14°R 7	25♌37	25°R15	21°R 3	21♍27	22♌31	16♌43	F 1
S 2	22 46 36	10° 3'55	21°53	21°55	17°26	20°59	11° 3	24°19	14°R 4	25°39	25°Y14	21°R 3	21°24	22°38	16°47	S 2
S 3	22 50 33	11° 1'59	4♌43	22°57	17°48	21°37	11° 8	24°23	14° 2	25°41	25°13	21° 2	21°21	22°45	16°52	S 3
M 4	22 54 29	12° 0'04	17°16	24° 7	18° 9	22°15	11°13	24°26	13°59	25°44	25°12	21° 1	21°18	22°51	16°56	M 4
T 5	22 58 26	12°58'10	29°35	25°22	18°29	22°53	11°18	24°30	13°57	25°46	25°12	21° 0	21°15	22°58	17° 0	T 5
W 6	23 2 22	13°56'18	11♌43	26°44	18°46	23°31	11°24	24°33	13°55	25°48	25°11	20°59	21°11	23° 5	17° 5	W 6
T 7	23 6 19	14°54'28	23°42	28°10	19° 1	24° 9	11°29	24°36	13°52	25°50	25°10	20°58	21° 8	23°11	17° 9	T 7
F 8	23 10 16	15°52'39	5♌35	29°42	19°15	24°47	11°35	24°39	13°50	25°52	25° 9	20°57	21° 5	23°18	17°13	F 8
S 9	23 14 12	16°50'52	17°24	1♍17	19°26	25°24	11°41	24°43	13°48	25°54	25° 8	20°D57	21° 2	23°25	17°17	S 9
S 10	23 18 9	17°49'06	29°12	2°57	19°36	26° 2	11°46	24°45	13°45	25°56	25° 7	20°57	20°59	23°31	17°21	S 10
M 11	23 22 5	18°47'22	11°Y 0	4°40	19°43	26°40	11°53	24°48	13°43	25°58	25° 7	20°57	20°56	23°38	17°25	M 11
T 12	23 26 2	19°45'40	22°52	6°25	19°48	27°17	11°59	24°51	13°40	26° 0	25° 6	20°58	20°52	23°44	17°28	T 12
W 13	23 29 58	20°44'01	4♌49	8°12	19°50	27°54	12° 5	24°54	13°38	26° 3	25° 5	20°R58	20°49	23°51	17°32	W 13
T 14	23 33 55	21°42'23	16°55	10° 2	19°R51	28°32	12°12	24°56	13°36	26° 5	25° 4	20°58	20°46	23°58	17°36	T 14
F 15	23 37 51	22°40'47	29°14	11°52	19°49	29° 9	12°18	24°59	13°33	26° 7	25° 3	20°57	20°43	24° 4	17°39	F 15
S 16	23 41 48	23°39'14	11♌49	13°44	19°44	29°46	12°25	25° 1	13°31	26° 9	25° 2	20°57	20°40	24°11	17°43	S 16
S 17	23 45 44	24°37'42	24°43	15°36	19°38	0♌23	12°32	25° 3	13°29	26°11	25° 1	20°D57	20°36	24°18	17°46	S 17
M 18	23 49 41	25°36'13	8♌ 0	17°29	19°29	1° 0	12°39	25° 5	13°26	26°13	25° 0	20°57	20°33	24°24	17°50	M 18
T 19	23 53 38	26°34'46	21°42	19°22	19°17	1°37	12°47	25° 7	13°24	26°15	24°59	20°58	20°30	24°31	17°53	T 19
W 20	23 57 34	27°33'21	5♌50	21°14	19° 4	2°14	12°54	25° 9	13°22	26°17	24°58	20°58	20°27	24°38	17°57	W 20
T 21	0 1 31	28°31'59	20°23	23° 7	18°47	2°51	13° 1	25°11	13°19	26°19	24°57	20°59	20°24	24°44	18° 0	T 21
F 22	0 5 27	29°30'38	5♍16	24°59	18°29	3°27	13° 9	25°13	13°17	26°21	24°56	20°59	20°21	24°51	18° 3	F 22
S 23	0 9 24	0♌29'19	20°22	26°50	18° 8	4° 4	13°17	25°15	13°15	26°22	24°55	21°R 0	20°17	24°58	18° 6	S 23
S 24	0 13 20	1°28'03	5♌34	28°41	17°46	4°40	13°25	25°16	13°13	26°24	24°54	20°59	20°14	25° 4	18° 9	S 24
M 25	0 17 17	2°26'48	20°42	0♌31	17°21	5°17	13°33	25°17	13°10	26°26	24°53	20°59	20°11	25°11	18°12	M 25
T 26	0 21 13	3°25'35	5♍36	2°21	16°54	5°53	13°41	25°19	13° 8	26°28	24°52	20°57	20° 8	25°17	18°15	T 26
W 27	0 25 10	4°24'24	20°10	4° 9	16°25	6°29	13°49	25°20	13° 6	26°30	24°51	20°56	20° 5	25°24	18°17	W 27
T 28	0 29 7	5°23'15	4♌18	5°57	15°55	7° 5	13°58	25°21	13° 4	26°32	24°50	20°54	20° 2	25°31	18°20	T 28
F 29	0 33 3	6°22'08	17°58	7°44	15°23	7°41	14° 6	25°22	13° 2	26°34	24°49	20°53	19°58	25°37	18°23	F 29
S 30	0 37 0	7♌21'02	1♌12	9♌30	14♌49	8♌17	14♌15	25♌23	12♌59	26♌35	24°Y48	20♌52	19♌55	25♌44	18♌25	S 30

Delta T = 89.04 sec

OCTOBER 2090

00:00 UT

Day	Sid.t	☉	☽	♀	♂	♂	♂	♂	♂	♂	♂	♂	♂	♂	♂	Day
S 1	0 40 56	8♌19'59	14♌ 1	11♌15	14°R15	8♌53	14♌24	25♌23	12°R57	26♌37	24°R47	20°D52	19♌52	25♌51	18♌28	S 1
M 2	0 44 53	9°18'56	26°30	12°59	13♌39	9°29	14°33	25°24	12°R55	26°39	24°Y45	20°R53	19°49	25°57	18°30	M 2
T 3	0 48 49	10°17'56	8♌43	14°43	13° 3	10° 4	14°42	25°25	12°53	26°41	24°44	20°54	19°46	26° 4	18°32	T 3
W 4	0 52 46	11°16'57	20°43	16°25	12°26	10°40	14°51	25°25	12°51	26°42	24°43	20°56	19°42	26°11	18°35	W 4
T 5	0 56 42	12°16'01	2♌35	18° 7	11°50	11°15	15° 0	25°25	12°49	26°44	24°42	20°57	19°39	26°17	18°37	T 5
F 6	1 0 39	13°15'05	14°24	19°48	11°13	11°51	15°10	25°25	12°47	26°46	24°41	20°58	19°36	26°24	18°39	F 6
S 7	1 4 36	14°14'12	26°11	21°28	10°36	12°26	15°19	25°R26	12°45	26°47	24°40	20°R58	19°33	26°31	18°41	S 7
S 8	1 8 32	15°13'21	8°Y 0	23° 7	10° 0	13° 1	15°29	25°25	12°43	26°49	24°39	20°57	19°30	26°37	18°43	S 8
M 9	1 12 29	16°12'32	19°53	24°45	9°24	13°36	15°39	25°25	12°42	26°51	24°38	20°55	19°27	26°44	18°44	M 9
T 10	1 16 25	17°11'45	1♌53	26°23	8°50	14°11	15°48	25°25	12°40	26°52	24°36	20°51	19°23	26°51	18°46	T 10
W 11	1 20 22	18°11'00	14° 0	28° 0	8°17	14°46	15°58	25°25	12°38	26°54	24°35	20°47	19°20	26°57	18°48	W 11
T 12	1 24 18	19°10'17	26°17	29°36	7°45	15°21	16° 8	25°24	12°36	26°55	24°34	20°42	19°17	27° 4	18°49	T 12
F 13	1 28 15	20° 9'37	8♌45	1♌11	7°14	15°55	16°18	25°24	12°34	26°57	24°33	20°37	19°14	27°10	18°51	F 13
S 14	1 32 11	21° 8'58	21°26	2°46	6°46	16°30	16°29	25°23	12°33	26°58	24°32	20°33	19°11	27°17	18°52	S 14
S 15	1 36 8	22° 8'22	4♌22	4°20	6°19	17° 4	16°39	25°22	12°31	27° 0	24°31	20°30	19° 7	27°24	18°53	S 15
M 16	1 40 4	23° 7'49	17°36	5°53	5°55	17°38	16°50	25°21	12°29	27° 1	24°30	20°D29	19° 4	27°30	18°55	M 16
T 17	1 44 1	24° 7'17	1♌10	7°25	5°32	18°13	17° 0	25°20	12°28	27° 2	24°28	20°29	19° 1	27°37	18°56	T 17
W 18	1 47 58	25° 6'48	15° 4	8°57	5°12	18°47	17°11	25°19	12°26	27° 4	24°27	20°30	18°58	27°44	18°57	W 18
T 19	1 51 54	26° 6'22	29°20	10°29	4°55	19°21	17°21	25°18	12°25	27° 5	24°26	20°31	18°55	27°50	18°58	T 19
F 20	1 55 51	27° 5'57	13♌55	11°59	4°39	19°54	17°32	25°16	12°23	27° 6	24°25	20°R32	18°52	27°57	18°59	F 20
S 21	1 59 47	28° 5'35	28°46	13°29	4°26	20°28	17°43	25°15	12°22	27° 8	24°24	20°32	18°48	28° 4	18°59	S 21
S 22	2 3 44	29° 5'15	13♌47	14°59	4°16	21° 2	17°54	25°13	12°20	27° 9	24°23	20°31	18°45	28°10	19° 0	S 22
M 23	2 7 40	0♌ 4'57	28°49	16°27	4° 7	21°35	18° 5	25°12	12°19	27°10	24°22	20°27	18°42	28°17	19° 1	M 23
T 24	2 11 37	1° 4'41	13♌43	17°56	4° 2	22° 8	18°16	25°10	12°17	27°11	24°20	20°21	18°39	28°24	19° 1	T 24
W 25	2 15 33	2° 4'27	28°21	19°23	3°59	22°42	18°28	25° 8	12°16	27°13	24°19	20°15	18°36	28°30	19° 1	W 25
T 26	2 19 30	3° 4'15	12♌36	20°50	3°D58	23°15	18°39	25° 6	12°15	27°14	24°18	20° 8	18°33	28°37	19° 2	T 26
F 27	2 23 27	4° 4'05	26°24	22°16	3°59	23°48	18°50	25° 4	12°14	27°15	24°17	20° 2	18°29	28°43	19° 2	F 27
S 28	2 27 23	5° 3'56	9♌44	23°41	4° 3	24°20	19° 2	25° 2	12°12	27°16	24°16	19°57	18°26	28°50	19° 2	S 28
S 29	2 31 20	6° 3'49	22°38	25° 6	4°10	24°53	19°14	24°59	12°11	27°17	24°15	19°54	18°23	28°57	19°R 2	S 29
M 30	2 35 16	7° 3'44	5♌ 8	26°29	4°18	25°26	19°25	24°57	12°10	27°18	24°14	19°D53	18°20	29° 3	19° 2	M 30
T 31	2 39 13	8♌ 3'40	17♌20	27♌52	4♌29	25♌58	19♌37	24♌54	12♌ 9	27♌19	24°Y13	19♌53	18♌17	29♌10	19♌ 2	T 31

Delta T = 89.07 sec

ASTRODIENST EPHEMERIS for the year 2090
geocentric

NOVEMBER 2090

00:00 UT

Day	Sid.t	☉	☽	♀	♂	♂	♂	♂	♂	♂	♂	♂	♂	♂	♂	Day
W 1	2 43 9	9♉ 3'38	29♏18	29♉14	4♋42	26♊30	19♏49	24°R52	12°R 8	27♊20	24°R11	19♉55	18♉13	29♏17	19°R 2	W 1
T 2	2 47 6	10° 3'38	11♏ 8	0♏35	4°57	27° 2	20° 1	24♏49	12♏ 7	27°21	24°Y10	19°56	18°10	29°23	19° 1	T 2
F 3	2 51 2	11° 3'39	22°55	1°55	5°14	27°34	20°13	24°46	12° 6	27°22	24° 9	19°R56	18° 7	29°30	19° 1	F 3
S 4	2 54 59	12° 3'42	4°Y43	3°14	5°33	28° 6	20°25	24°43	12° 6	27°23	24° 8	19°55	18° 4	29°37	19° 1	S 4
S 5	2 58 56	13° 3'46	16°36	4°32	5°54	28°38	20°37	24°41	12° 5	27°24	24° 7	19°51	18° 1	29°43	19° 0	S 5
M 6	3 2 52	14° 3'53	28°36	5°48	6°17	29° 9	20°49	24°37	12° 4	27°24	24° 6	19°45	17°58	29°50	18°59	M 6
T 7	3 6 49	15° 4'01	10♏47	7° 3	6°41	29°40	21° 1	24°34	12° 3	27°25	24° 5	19°37	17°54	29°57	18°59	T 7
W 8	3 10 45	16° 4'11	23° 8	8°16	7° 8	0♉12	21°13	24°31	12° 3	27°26	24° 4	19°27	17°51	0°Y 3	18°58	W 8
T 9	3 14 42	17° 4'22	5♏42	9°28	7°36	0°43	21°26	24°28	12° 2	27°27	24° 3	19°16	17°48	0°10	18°57	T 9
F 10	3 18 38	18° 4'36	18°27	10°37	8° 6	1°13	21°38	24°24	12° 1	27°27	24° 2	19° 5	17°45	0°17	18°56	F 10
S 11	3 22 35	19° 4'52	1♏24	11°44	8°37	1°44	21°51	24°21	12° 1	27°28	24° 1	18°56	17°42	0°23	18°55	S 11
S 12	3 26 31	20° 5'09	14°33	12°48	9°10	2°15	22° 3	24°17	12° 0	27°28	24° 0	18°48	17°38	0°30	18°53	S 12
M13	3 30 28	21° 5'28	27°54	13°50	9°44	2°45	22°16	24°14	12° 0	27°29	23°59	18°43	17°35	0°36	18°52	M13
T 14	3 34 25	22° 5'50	11♏28	14°48	10°20	3°15	22°28	24°10	12° 0	27°30	23°58	18°41	17°32	0°43	18°51	T 14
W15	3 38 21	23° 6'13	25°15	15°42	10°57	3°45	22°41	24° 6	11°59	27°30	23°57	18°D40	17°29	0°50	18°49	W15
T 16	3 42 18	24° 6'38	9♉17	16°33	11°35	4°15	22°54	24° 2	11°59	27°31	23°56	18°41	17°26	0°56	18°48	T 16
F 17	3 46 14	25° 7'05	23°32	17°19	12°15	4°45	23° 7	23°58	11°59	27°31	23°55	18°R41	17°23	1° 3	18°46	F 17
S 18	3 50 11	26° 7'34	8♋ 0	17°59	12°56	5°14	23°20	23°54	11°59	27°31	23°54	18°39	17°19	1°10	18°45	S 18
S 19	3 54 7	27° 8'05	22°38	18°34	13°38	5°43	23°32	23°50	11°59	27°32	23°53	18°36	17°16	1°16	18°43	S 19
M20	3 58 4	28° 8'38	7♉19	19° 2	14°21	6°12	23°45	23°46	11°59	27°32	23°52	18°29	17°13	1°23	18°41	M20
T 21	4 2 0	29° 9'12	21°56	19°23	15° 5	6°41	23°58	23°42	11°D58	27°32	23°51	18°19	17°10	1°30	18°39	T 21
W22	4 5 57	0♏ 9'48	6♏23	19°35	15°50	7°10	24°11	23°37	11°59	27°33	23°50	18° 8	17° 7	1°36	18°37	W22
T 23	4 9 54	1°10'25	20°33	19°R39	16°36	7°38	24°25	23°33	11°59	27°33	23°49	17°56	17° 4	1°43	18°35	T 23
F 24	4 13 50	2°11'04	4♏20	19°33	17°23	8° 6	24°38	23°29	11°59	27°33	23°48	17°45	17° 0	1°50	18°33	F 24
S 25	4 17 47	3°11'44	17°41	19°18	18°11	8°34	24°51	23°24	11°59	27°33	23°48	17°36	16°57	1°56	18°30	S 25
S 26	4 21 43	4°12'25	0♏37	18°51	19° 0	9° 2	25° 4	23°20	11°59	27°33	23°47	17°29	16°54	2° 3	18°28	S 26
M27	4 25 40	5°13'08	13°10	18°14	19°50	9°30	25°17	23°15	11°59	27°34	23°46	17°24	16°51	2°10	18°25	M27
T 28	4 29 36	6°13'51	25°24	17°26	20°40	9°57	25°31	23°11	12° 0	27°34	23°45	17°22	16°48	2°16	18°23	T 28
W29	4 33 33	7°14'35	7♏23	16°28	21°32	10°24	25°44	23° 6	12° 0	27°R34	23°44	17°D22	16°44	2°23	18°20	W29
T 30	4 37 29	8♏15'21	19♏13	15♏20	22♋24	10♉51	25♏57	23♏ 1	12♏ 1	27♏34	23°Y44	17°R22	16♉41	2°Y30	18° 18	T 30

Delta T = 89.11 sec

DECEMBER 2090

00:00 UT

Day	Sid.t	☉	☽	♀	♂	♂	♂	♂	♂	♂	♂	♂	♂	♂	♂	Day
F 1	4 41 26	9♏16'07	1°Y 1	14°R 6	23♋17	11♉17	26♏11	22°R56	12♏ 1	27°R34	23°R43	17°R21	16♉38	2°Y36	18°R15	F 1
S 2	4 45 23	10°16'54	12°50	12♏46	24°10	11°43	26°24	22♏52	12° 2	27♏33	23°Y42	17♉19	16°35	2°43	18° 12	S 2
S 3	4 49 19	11°17'42	24°46	11°24	25° 4	12°10	26°38	22°47	12° 2	27°33	23°41	17°14	16°32	2°49	18° 9	S 3
M 4	4 53 16	12°18'32	6♏54	10° 1	25°59	12°35	26°51	22°42	12° 3	27°33	23°41	17° 6	16°29	2°56	18° 6	M 4
T 5	4 57 12	13°19'22	19°15	8°42	26°55	13° 1	27° 5	22°37	12° 4	27°33	23°40	16°56	16°25	3° 3	18° 4	T 5
W 6	5 1 9	14°20'13	1♏51	7°28	27°51	13°26	27°18	22°32	12° 4	27°33	23°39	16°43	16°22	3° 9	18° 0	W 6
T 7	5 5 5	15°21'06	14°43	6°21	28°47	13°51	27°32	22°28	12° 5	27°33	23°39	16°29	16°19	3°16	17°57	T 7
F 8	5 9 2	16°21'59	27°50	5°24	29°45	14°16	27°45	22°23	12° 6	27°32	23°38	16°16	16°16	3°23	17°54	F 8
S 9	5 12 58	17°22'53	11♏11	4°38	0♉43	14°40	27°59	22°18	12° 7	27°32	23°37	16° 3	16°13	3°29	17°51	S 9
S 10	5 16 55	18°23'49	24°42	4° 3	1°41	15° 4	28°12	22°13	12° 8	27°32	23°37	15°54	16°10	3°36	17°48	S 10
M11	5 20 52	19°24'46	8♏22	3°39	2°40	15°28	28°26	22° 8	12° 9	27°31	23°36	15°47	16° 6	3°43	17°44	M11
T 12	5 24 48	20°25'43	22°10	3°26	3°39	15°52	28°40	22° 3	12°10	27°31	23°36	15°43	16° 3	3°49	17°41	T 12
W13	5 28 45	21°26'42	6♉ 3	3°D24	4°39	16°15	28°53	21°58	12°11	27°30	23°35	15°41	16° 0	3°56	17°37	W13
T 14	5 32 41	22°27'42	20° 3	3°32	5°39	16°38	29° 7	21°53	12°12	27°30	23°35	15°41	15°57	4° 3	17°34	T 14
F 15	5 36 38	23°28'43	4♋ 8	3°49	6°40	17° 0	29°21	21°48	12°14	27°29	23°34	15°41	15°54	4° 9	17°30	F 15
S 16	5 40 34	24°29'45	18°18	4°15	7°41	17°23	29°34	21°43	12°15	27°29	23°34	15°39	15°50	4°16	17°27	S 16
S 17	5 44 31	25°30'49	2♉31	4°48	8°43	17°44	29°48	21°38	12°16	27°28	23°33	15°35	15°47	4°23	17°23	S 17
M18	5 48 27	26°31'53	16°45	5°28	9°44	18° 6	0♏ 2	21°33	12°17	27°28	23°33	15°28	15°44	4°29	17°19	M18
T 19	5 52 24	27°32'58	0♏55	6°14	10°47	18°27	0°16	21°28	12°19	27°27	23°32	15°18	15°41	4°36	17°16	T 19
W20	5 56 21	28°34'04	14°58	7° 5	11°50	18°48	0°29	21°23	12°20	27°26	23°32	15° 6	15°38	4°43	17°12	W20
T 21	6 0 17	29°35'11	28°47	8° 1	12°53	19° 8	0°43	21°18	12°22	27°26	23°31	14°54	15°35	4°49	17° 8	T 21
F 22	6 4 14	0♏36'18	12♏20	9° 1	13°56	19°28	0°57	21°14	12°23	27°25	23°31	14°42	15°31	4°56	17° 4	F 22
S 23	6 8 10	1°37'25	25°32	10° 4	15° 0	19°48	1°11	21° 9	12°25	27°24	23°31	14°31	15°28	5° 3	17° 0	S 23
S 24	6 12 7	2°38'33	8♏24	11°11	16° 4	20° 7	1°24	21° 4	12°27	27°23	23°30	14°23	15°25	5° 9	16°56	S 24
M25	6 16 3	3°39'41	20°55	12°20	17° 8	20°26	1°38	20°59	12°28	27°23	23°30	14°18	15°22	5°16	16°53	M25
T 26	6 20 0	4°40'50	3♏ 9	13°32	18°13	20°45	1°52	20°54	12°30	27°22	23°30	14°15	15°19	5°23	16°49	T 26
W27	6 23 56	5°41'58	15° 9	14°46	19°18	21° 3	2° 6	20°50	12°32	27°21	23°30	14°D15	15°16	5°29	16°45	W27
T 28	6 27 53	6°43'07	27° 0	16° 2	20°23	21°20	2°19	20°45	12°34	27°20	23°29	14°15	15°12	5°36	16°41	T 28
F 29	6 31 50	7°44'15	8°Y48	17°20	21°28	21°37	2°33	20°40	12°35	27°19	23°29	14°R15	15° 9	5°42	16°36	F 29
S 30	6 35 46	8°45'23	20°38	18°39	22°34	21°54	2°47	20°36	12°37	27°18	23°29	14°15	15° 6	5°49	16°32	S 30
S 31	6 39 43	9♏46'32	2♏36	20♏ 0	23♉40	22♉10	3♏ 0	20♏31	12♏39	27♏17	23°Y29	14♉12	15♉ 3	5°Y56	16° 28	S 31

Delta T = 89.14 sec