



# Astrodienst Ephemeris Tables for the year 2129

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 2129

geocentric

JANUARY 2129

00:00 UT

Day	Sid.t	☉	☽	♀	♂	♂	♂	♂	♂	♂	♂	♂	♂	♂	♂	Day
S 1	6 42 51	10°33'34	19°59	29°R13	25°56	18°M45	8°H39	20°A58	27°R42	19°M52	0°R11	28°R43	0°M3	22°D23	4°R18	S 1
S 2	6 46 48	11°34'42	2°II15	28°A24	26°44	19°23	8°49	21° 1	27°A41	19°53	0°II11	28°A35	29°A59	22°30	4°A17	S 2
M 3	6 50 44	12°35'49	14°22	27°45	27°32	20° 1	9° 0	21° 4	27°39	19°55	0°10	28°26	29°57	22°37	4°16	M 3
T 4	6 54 41	13°36'57	26°23	27°17	28°18	20°40	9°11	21° 7	27°38	19°56	0° 9	28°17	29°53	22°43	4°16	T 4
W 5	6 58 37	14°38'05	8°D18	26°59	29° 3	21°18	9°23	21°10	27°36	19°58	0° 8	28° 8	29°50	22°50	4°15	W 5
T 6	7 2 34	15°39'13	20° 9	26°D51	29°47	21°56	9°34	21°12	27°34	19°59	0° 7	28° 1	29°47	22°57	4°15	T 6
F 7	7 6 30	16°40'21	1°A58	26°52	0°H31	22°34	9°45	21°15	27°32	20° 1	0° 7	27°56	29°44	23° 3	4°14	F 7
S 8	7 10 27	17°41'29	13°47	27° 1	1°13	23°13	9°57	21°17	27°31	20° 2	0° 6	27°52	29°41	23°10	4°14	S 8
S 9	7 14 24	18°42'36	25°38	27°19	1°54	23°51	10° 8	21°20	27°29	20° 4	0° 5	27°D51	29°38	23°17	4°13	S 9
M10	7 18 20	19°43'44	7°M34	27°44	2°34	24°29	10°20	21°22	27°27	20° 5	0° 5	27°52	29°34	23°23	4°13	M10
T 11	7 22 17	20°44'52	19°39	28°15	3°12	25° 7	10°32	21°24	27°25	20° 6	0° 4	27°53	29°31	23°30	4°13	T 11
W12	7 26 13	21°46'00	1°A57	28°52	3°49	25°45	10°43	21°26	27°23	20° 8	0° 3	27°55	29°28	23°37	4°13	W12
T 13	7 30 10	22°47'08	14°32	29°35	4°25	26°24	10°55	21°28	27°21	20° 9	0° 3	27°56	29°25	23°43	4°13	T 13
F 14	7 34 6	23°48'15	27°29	0°B22	5° 0	27° 2	11° 7	21°30	27°19	20°10	0° 2	27°R56	29°22	23°50	4°D13	F 14
S 15	7 38 3	24°49'23	10°M51	1°13	5°33	27°40	11°19	21°31	27°17	20°11	0° 1	27°55	29°18	23°57	4°13	S 15
S 16	7 41 59	25°50'31	24°41	2° 9	6° 4	28°18	11°32	21°33	27°15	20°13	0° 1	27°53	29°15	24° 3	4°13	S 16
M17	7 45 56	26°51'39	8°A59	3° 7	6°34	28°57	11°44	21°34	27°13	20°14	0° 0	27°49	29°12	24°10	4°13	M17
T 18	7 49 53	27°52'46	23°43	4° 9	7° 2	29°35	11°56	21°36	27°11	20°15	29°B59	27°44	29° 9	24°17	4°13	T 18
W19	7 53 49	28°53'54	8°B47	5°14	7°29	0°A13	12° 9	21°37	27° 8	20°16	29°59	27°40	29° 6	24°23	4°14	W19
T 20	7 57 46	29°55'01	24° 1	6°21	7°54	0°51	12°21	21°38	27° 6	20°17	29°59	27°36	29° 3	24°30	4°14	T 20
F 21	8 1 42	0°56'07	9°A17	7°30	8°17	1°29	12°34	21°39	27° 4	20°18	29°58	27°34	28°59	24°37	4°14	F 21
S 22	8 5 39	1°57'13	24°23	8°41	8°38	2° 7	12°47	21°40	27° 2	20°19	29°58	27°D33	28°56	24°44	4°15	S 22
S 23	8 9 35	2°58'18	9°H10	9°54	8°57	2°46	12°59	21°41	26°59	20°20	29°57	27°33	28°53	24°50	4°15	S 23
M24	8 13 32	3°59'22	23°34	11° 9	9°14	3°24	13°12	21°42	26°57	20°21	29°57	27°34	28°50	24°57	4°16	M24
T 25	8 17 28	5° 0'25	7°Y31	12°25	9°29	4° 2	13°25	21°42	26°55	20°22	29°56	27°36	28°47	25° 4	4°17	T 25
W26	8 21 25	6° 1'27	21° 0	13°43	9°42	4°40	13°38	21°43	26°52	20°23	29°56	27°37	28°44	25°10	4°17	W26
T 27	8 25 22	7° 2'28	4°B 5	15° 2	9°53	5°18	13°51	21°43	26°50	20°24	29°56	27°R38	28°40	25°17	4°18	T 27
F 28	8 29 18	8° 3'28	16°47	16°22	10° 1	5°56	14° 4	21°44	26°47	20°24	29°55	27°38	28°37	25°24	4°19	F 28
S 29	8 33 15	9° 4'27	29°12	17°44	10° 7	6°34	14°17	21°44	26°45	20°25	29°55	27°37	28°34	25°30	4°20	S 29
S 30	8 37 11	10° 5'25	11°II22	19° 6	10°11	7°12	14°30	21°R44	26°42	20°26	29°55	27°35	28°31	25°37	4°21	S 30
M31	8 41 8	11°6'22	23°II22	20°B30	10°R12	7°A50	14°H44	21°A44	26°A40	20°M27	29°B54	27°A32	28°A28	25°B44	4°B22	M31

Delta T = 108.37 sec

FEBRUARY 2129

00:00 UT

Day	Sid.t	☉	☽	♀	♂	♂	♂	♂	♂	♂	♂	♂	♂	♂	♂	Day
T 1	8 45 4	12°57'17	5°D16	21°B55	10°R11	8°A28	14°H57	21°R44	26°R37	20°M27	29°R54	27°R29	28°A24	25°B50	4°B23	T 1
W 2	8 49 1	13° 8'12	17° 6	23°20	10°H 7	9° 6	15°10	21°A44	26°A35	20°28	29°B54	27°A27	28°21	25°57	4°24	W 2
T 3	8 52 57	14° 9'05	28°55	24°47	10° 0	9°44	15°24	21°43	26°32	20°29	29°54	27°25	28°18	26° 4	4°25	T 3
F 4	8 56 54	15° 9'57	10°A45	26°14	9°51	10°22	15°37	21°43	26°30	20°29	29°54	27°24	28°15	26°10	4°26	F 4
S 5	9 0 51	16°10'49	22°38	27°42	9°40	11° 0	15°51	21°42	26°27	20°30	29°53	27°D23	28°12	26°17	4°27	S 5
S 6	9 4 47	17°11'39	4°M37	29°11	9°26	11°38	16° 5	21°42	26°25	20°30	29°53	27°23	28° 9	26°24	4°29	S 6
M 7	9 8 44	18°12'28	16°43	0°A41	9°10	12°16	16°18	21°41	26°22	20°31	29°53	27°24	28° 5	26°30	4°30	M 7
T 8	9 12 40	19°13'16	28°58	2°11	8°51	12°54	16°32	21°40	26°19	20°31	29°53	27°25	28° 2	26°37	4°32	T 8
W 9	9 16 37	20°14'03	11°A25	3°43	8°30	13°32	16°46	21°39	26°17	20°31	29°53	27°25	27°59	26°44	4°33	W 9
T 10	9 20 33	21°14'48	24° 7	5°15	8° 6	14°10	16°59	21°38	26°14	20°32	29°53	27°26	27°56	26°50	4°35	T 10
F 11	9 24 30	22°15'33	7°M 6	6°48	7°41	14°48	17°13	21°37	26°12	20°32	29°53	27°27	27°53	26°57	4°36	F 11
S 12	9 28 26	23°16'17	20°24	8°22	7°13	15°26	17°27	21°35	26° 9	20°32	29°D53	27°R27	27°50	27° 4	4°38	S 12
S 13	9 32 23	24°17'00	4°A 5	9°57	6°43	16° 4	17°41	21°34	26° 6	20°33	29°53	27°27	27°46	27°10	4°40	S 13
M14	9 36 20	25°17'43	18° 8	11°32	6°12	16°42	17°55	21°32	26° 4	20°33	29°53	27°27	27°43	27°17	4°41	M14
T 15	9 40 16	26°18'24	2°B32	13° 8	5°39	17°20	18° 9	21°31	26° 1	20°33	29°53	27°26	27°40	27°24	4°43	T 15
W16	9 44 13	27°19'03	17°16	14°45	5° 5	17°58	18°23	21°29	25°58	20°33	29°53	27°D26	27°37	27°30	4°45	W16
T 17	9 48 9	28°19'42	2°A12	16°23	4°30	18°35	18°37	21°27	25°56	20°34	29°53	27°26	27°34	27°37	4°47	T 17
F 18	9 52 6	29°20'20	17°14	18° 2	3°54	19°13	18°51	21°26	25°53	20°34	29°53	27°26	27°30	27°44	4°49	F 18
S 19	9 56 2	0°H20'55	2°H14	19°42	3°17	19°51	19° 6	21°24	25°51	20°34	29°53	27°R26	27°27	27°50	4°51	S 19
S 20	9 59 59	1°21'30	17° 2	21°23	2°40	20°29	19°20	21°21	25°48	20°R34	29°53	27°26	27°24	27°57	4°53	S 20
M21	10 3 55	2°22'03	1°Y32	23° 4	2° 2	21° 6	19°34	21°19	25°45	20°34	29°54	27°26	27°21	28° 3	4°55	M21
T 22	10 7 52	3°22'34	15°38	24°47	1°25	21°44	19°48	21°17	25°43	20°34	29°54	27°25	27°18	28°10	4°57	T 22
W23	10 11 48	4°23'03	29°18	26°30	0°48	22°22	20° 2	21°15	25°40	20°34	29°54	27°24	27°15	28°17	5° 0	W23
T 24	10 15 45	5°23'30	12°B31	28°14	0°12	22°59	20°17	21°12	25°38	20°33	29°54	27°24	27°11	28°23	5° 2	T 24
F 25	10 19 42	6°23'56	25°20	29°59	29°A36	23°37	20°31	21°10	25°35	20°33	29°54	27°23	27° 8	28°30	5° 4	F 25
S 26	10 23 38	7°24'20	7°II48	1°H46	29° 2	24°15	20°45	21° 7	25°32	20°33	29°55	27°D23	27° 5	28°37	5° 7	S 26
S 27	10 27 35	8°24'41	19°59	3°33	28°29	24°52	21° 0	21° 4	25°30	20°33	29°55	27°23	27° 2	28°43	5° 9	S 27
M28	10 31 31	9°A25'01	1°B58	5°H21	27°A57	25°A30	21°H14	21°A 1	25°A27	20°M33	29°B55	27°A24	26°A59	28°B50	5°B11	M28

Delta T = 108.42 sec

## ASTRODIENST EPHEMERIS for the year 2129

geocentric

MARCH 2129

00:00 UT

Day	Sid.t	☉	☽	♀	♂	♂	♂	♂	♂	♂	♂	♂	♂	♂	♂	Day
T 1	10 35 28	10°15'19"	13°49'	7°10'	27°R27	26°17'	21°12'	20°R59	25°R25	20°R32	29°R56	27°R25	26°R56	28°R57	5°R14	T 1
W 2	10 39 24	11°25'35"	25°37'	9° 1'	26°R59	26°45'	21°43'	20°R56	25°R22	20°R32	29°R56	27°R26	26°R52	29° 3'	5°16'	W 2
T 3	10 43 21	12°25'49"	7°R26	10°52'	26°33'	27°22'	21°57'	20°53'	25°20'	20°32	29°57	27°28	26°49	29°10'	5°19'	T 3
F 4	10 47 17	13°26'01"	19°19'	12°44'	26° 9'	28° 0'	22°12'	20°49	25°17'	20°31	29°57	27°29	26°46	29°17'	5°22'	F 4
S 5	10 51 14	14°26'11"	1°R19	14°37'	25°47'	28°37'	22°26'	20°46	25°15'	20°31	29°57	27°R29	26°43	29°23'	5°24'	S 5
S 6	10 55 11	15°26'20"	13°29'	16°31'	25°27'	29°14'	22°41'	20°43	25°12'	20°31	29°58	27°28	26°40	29°30'	5°27'	S 6
M 7	10 59 7	16°26'26"	25°49'	18°25'	25°10'	29°52'	22°55'	20°39	25°10'	20°30	29°58	27°26	26°36	29°37'	5°30'	M 7
T 8	11 3 4	17°26'31"	8°R21	20°21'	24°56'	0°R29	23°10'	20°36	25° 8'	20°30	29°59	27°24	26°33	29°43'	5°33'	T 8
W 9	11 7 0	18°26'34"	21° 7'	22°17'	24°43'	1° 6'	23°24'	20°33	25° 5'	20°29	29°59	27°20	26°30	29°50'	5°35'	W 9
T 10	11 10 57	19°26'35"	4°R6	24°13'	24°34'	1°43'	23°39'	20°29	25° 3'	20°29	29°59	27°17	26°27	29°57'	5°38'	T 10
F 11	11 14 53	20°26'35"	17°18'	26°10'	24°27'	2°21'	23°53'	20°25	25° 1'	20°28	0°R0	27°14	26°24	0°R3	5°41'	F 11
S 12	11 18 50	21°26'33"	0°R45	28° 8'	24°22'	2°58'	24° 8'	20°22	24°58	20°27	0° 1'	27°11	26°21	0°10'	5°44'	S 12
S 13	11 22 46	22°26'29"	14°26'	0°R5	24°D20	3°35'	24°23'	20°18	24°56	20°27	0° 2'	27°10	26°17	0°17'	5°47'	S 13
M14	11 26 43	23°26'24"	28°21'	2° 2'	24°20'	4°12'	24°37'	20°14	24°54	20°26	0° 2'	27°D10	26°14	0°23'	5°50'	M14
T 15	11 30 40	24°26'17"	12°R30	3°59'	24°22'	4°49'	24°52'	20°10	24°52	20°25	0° 3'	27°11	26°11	0°30'	5°53'	T 15
W16	11 34 36	25°26'09"	26°52'	5°55'	24°27'	5°26'	25° 6'	20° 6'	24°49	20°25	0° 3'	27°12	26° 8'	0°37'	5°56'	W16
T 17	11 38 33	26°25'59"	11°R23	7°50'	24°34'	6° 3'	25°21'	20° 2'	24°47	20°24	0° 4'	27°14	26° 5'	0°43'	5°59'	T 17
F 18	11 42 29	27°25'47"	26° 0'	9°44'	24°44'	6°40'	25°35'	19°58	24°45	20°23	0° 5'	27°R14	26° 1'	0°50'	6° 2'	F 18
S 19	11 46 26	28°25'33"	10°R37	11°36'	24°56'	7°17'	25°50'	19°54	24°43	20°22	0° 6'	27°14	25°58	0°57'	6° 6'	S 19
S 20	11 50 22	29°25'18"	25° 8'	13°25'	25° 9'	7°54'	26° 4'	19°50	24°41	20°21	0° 6'	27°12	25°55	1° 3'	6° 9'	S 20
M21	11 54 19	0°R25'00"	9°R28	15°12'	25°25'	8°31'	26°19'	19°45	24°39	20°20	0° 7'	27° 8'	25°52	1°10'	6°12'	M21
T 22	11 58 15	1°24'41"	23°29'	16°56'	25°43'	9° 8'	26°33'	19°41	24°37	20°19	0° 8'	27° 3'	25°49	1°17'	6°15'	T 22
W23	12 2 12	2°24'19"	7°R10	18°36'	26° 2'	9°44'	26°48'	19°37	24°35	20°19	0° 9'	26°57	25°46	1°23'	6°19'	W23
T 24	12 6 8	3°23'55"	20°26'	20°13'	26°24'	10°21'	27° 2'	19°33	24°33	20°18	0° 9'	26°51	25°42	1°30'	6°22'	T 24
F 25	12 10 5	4°23'29"	3°R19	21°44'	26°47'	10°57'	27°17'	19°28	24°32	20°17	0°10	26°46	25°39	1°37'	6°25'	F 25
S 26	12 14 2	5°23'01"	15°51'	23°11'	27°12'	11°34'	27°31'	19°24	24°30	20°16	0°11	26°42	25°36	1°43'	6°29'	S 26
S 27	12 17 58	6°22'30"	28° 4'	24°32'	27°39'	12°11'	27°46'	19°19	24°28	20°15	0°12	26°40	25°33	1°50'	6°32'	S 27
M28	12 21 55	7°21'58"	10°R5	25°48'	28° 7'	12°47'	28° 0'	19°15	24°26	20°13	0°13	26°D40	25°30	1°57'	6°35'	M28
T 29	12 25 51	8°21'23"	21°56'	26°58'	28°37'	13°23'	28°15'	19°10	24°25	20°12	0°14	26°41	25°27	2° 3'	6°39'	T 29
W30	12 29 48	9°20'45"	3°R44	28° 1'	29° 8'	14° 0'	28°29'	19° 6'	24°23	20°11	0°15	26°42	25°23	2°10'	6°42'	W30
T 31	12 33 44	10°R20'05"	15°R34	28°R57	29°R41	14°R36	28°R44	19°R1	24°R21	20°R10	0°R15	26°R44	25°R20	2°R17	6°R46	T 31

Delta T = 108.47 sec

APRIL 2129

00:00 UT

Day	Sid.t	☉	☽	♀	♂	♂	♂	♂	♂	♂	♂	♂	♂	♂	♂	Day
F 1	12 37 41	11°R19'23"	27°R31	29°R47	0°R15	15°R12	28°R58	18°R57	24°R20	20°R 9	0°R16	26°R45	25°R17	2°R23	6°R49	F 1
S 2	12 41 37	12°18'39"	9°R38	0°R30	0°51'	15°48'	29°12'	18°R52	24°R18	20°R 8	0°17	26°R44	25°14	2°30'	6°53'	S 2
S 3	12 45 34	13°17'53"	21°58'	1° 6'	1°27'	16°24'	29°27'	18°47	24°17	20° 7	0°18	26°41	25°11	2°37'	6°56'	S 3
M 4	12 49 31	14°17'04"	4°R33	1°34'	2° 5'	17° 0'	29°41'	18°43	24°15	20° 5	0°19	26°35	25° 7	2°43'	7° 0'	M 4
T 5	12 53 27	15°16'14"	17°25'	1°56'	2°44'	17°36'	29°55'	18°38	24°14	20° 4	0°20	26°28	25° 4	2°50'	7° 4'	T 5
W 6	12 57 24	16°15'21"	0°R34	2°10'	3°25'	18°12'	0°R 9	18°33	24°13	20° 3	0°21	26°20	25° 1	2°56'	7° 7'	W 6
T 7	13 1 20	17°14'26"	13°57'	2°17'	4° 6'	18°48'	0°24	18°29	24°11	20° 2	0°22	26°11	24°58	3° 3'	7°11'	T 7
F 8	13 5 17	18°13'30"	27°32'	2°R17	4°48'	19°24'	0°38	18°24	24°10	20° 0	0°23	26° 3	24°55	3°10'	7°15'	F 8
S 9	13 9 13	19°12'32"	11°R18	2°10'	5°32'	20° 0'	0°52	18°20	24° 9	19°59	0°24	25°56	24°52	3°16'	7°18'	S 9
S 10	13 13 10	20°11'32"	25°13'	1°57'	6°16'	20°35'	1° 6'	18°15	24° 8	19°58	0°25	25°51	24°48	3°23'	7°22'	S 10
M11	13 17 6	21°10'30"	9°R13	1°38'	7° 1'	21°11'	1°20	18°10	24° 7	19°56	0°26	25°49	24°45	3°30'	7°26'	M11
T 12	13 21 3	22° 9'26"	23°18'	1°13'	7°47'	21°46'	1°34	18° 6	24° 6	19°55	0°28	25°D48	24°42	3°36'	7°29'	T 12
W13	13 25 0	23° 8'21"	7°R27	0°44'	8°35'	22°22'	1°48	18° 1	24° 5	19°53	0°29	25°48	24°39	3°43'	7°33'	W13
T 14	13 28 56	24° 7'14"	21°38'	0°10'	9°22'	22°57'	2° 2	17°56	24° 4	19°52	0°30	25°R49	24°36	3°50'	7°37'	T 14
F 15	13 32 53	25° 6'06"	5°R50	29°R32	10°11'	23°32'	2°16	17°52	24° 3	19°51	0°31	25°49	24°32	3°56'	7°41'	F 15
S 16	13 36 49	26° 4'55"	20° 0'	28°52'	11° 0'	24° 7'	2°30	17°47	24° 2	19°49	0°32	25°46	24°29	4° 3'	7°44'	S 16
S 17	13 40 46	27° 3'43"	4°R 6	28°10'	11°50'	24°42'	2°44	17°43	24° 1	19°48	0°33	25°42	24°26	4°10'	7°48'	S 17
M18	13 44 42	28° 2'29"	18° 3	27°26'	12°41'	25°17'	2°58	17°38	24° 1	19°46	0°34	25°34	24°23	4°16'	7°52'	M18
T 19	13 48 39	29° 1'13"	1°R47	26°42'	13°33'	25°52'	3°12	17°34	24° 0	19°45	0°36	25°24	24°20	4°23'	7°56'	T 19
W20	13 52 35	29°59'55"	15°14'	25°59'	14°25'	26°27'	3°26	17°29	23°59	19°43	0°37	25°13	24°17	4°30'	7°59'	W20
T 21	13 56 32	0°R58'35"	28°23'	25°17'	15°18'	27° 1'	3°39	17°25	23°59	19°42	0°38	25° 2	24°13	4°36'	8° 3'	T 21
F 22	14 0 29	1°57'13"	11°R12	24°36'	16°11'	27°36'	3°53	17°20	23°58	19°40	0°39	24°52	24°10	4°43'	8° 7'	F 22
S 23	14 4 25	2°55'49"	23°43'	23°59'	17° 5'	28°10'	4° 7	17°16	23°58	19°39	0°40	24°44	24° 7	4°50'	8°11'	S 23
S 24	14 8 22	3°54'23"	5°R56	23°24'	17°59'	28°45'	4°20	17°11	23°57	19°37	0°42	24°38	24° 4	4°56'	8°15'	S 24
M25	14 12 18	4°52'55"	17°56'	22°53'	18°54'	29°19'	4°34	17° 7	23°57	19°35	0°43	24°34	24° 1	5° 3'	8°19'	M25
T 26	14 16 15	5°51'25"	29°48'	22°26'	19°49'	29°53'	4°47	17° 3	23°57	19°34	0°44	24°33	23°58	5°10'	8°22'	T 26
W27	14 20 11	6°49'52"	11°R27	22° 4'	20°45'	0°R27	5° 1	16°58	23°56	19°32	0°45	24°D33	23°54	5°16'	8°26'	W27
T 28	14 24 8	7°48'17"	23°27'	21°46'	21°42'	1° 1'	5°14	16°54	23°56	19°31	0°47	24°R33	23°51	5°23'	8°30'	T 28
F 29	14 28 4	8°46'40"	5°R26	21°33'	22°39'	1°35'	5°27	16°50	23°56	19°29	0°48	24°33	23°48	5°29'	8°34'	F 29
S 30	14 32 1	9°R45'01"	17°R36	21°R25	23°R36	2°R 8	5°R41	16°R46	23°R56	19°R28	0°R49	24°R31	23°R45	5°R36	8°R38	S 30

Delta T = 108.52 sec

# ASTRODIENST EPHEMERIS for the year 2129

## geocentric

MAY 2129

00:00 UT

Day	Sid.t	☉	☽	♀	♂	♂	♂	♂	♂	♂	♂	♂	♂	♂	♂	Day
S 1	14 35 57	10♈43'20	0♈ 3	21°D21	24♈34	2♈42	5♈54	16°R42	23°D56	19°R26	0♈50	24°R26	23°Ω42	5♈43	8♈42	S 1
M 2	14 39 54	11°41'38	12°50	21°Y23	25°32	3°15	6° 7	16♈38	23°Ω56	19°M24	0°52	24°Ω19	23°38	5°49	8°45	M 2
T 3	14 43 51	12°39'53	25°59	21°29	26°30	3°48	6°20	16°34	23°56	19°23	0°53	24° 9	23°35	5°56	8°49	T 3
W 4	14 47 47	13°38'06	9♈28	21°41	27°29	4°21	6°33	16°33	23°56	19°21	0°54	23°58	23°32	6° 3	8°53	W 4
T 5	14 51 44	14°36'18	23°15	21°57	28°29	4°54	6°46	16°26	23°56	19°19	0°55	23°46	23°29	6° 9	8°57	T 5
F 6	14 55 40	15°34'27	7♈17	22°17	29°28	5°27	6°59	16°23	23°56	19°18	0°57	23°35	23°26	6°16	9° 1	F 6
S 7	14 59 37	16°32'36	21°29	22°42	0°Y28	6° 0	7°12	16°19	23°57	19°16	0°58	23°25	23°23	6°23	9° 5	S 7
S 8	15 3 33	17°30'43	5♈46	23°11	1°29	6°32	7°25	16°15	23°57	19°15	0°59	23°18	23°19	6°29	9° 8	S 8
M 9	15 7 30	18°28'48	20° 3	23°44	2°29	7° 4	7°37	16°12	23°57	19°13	1° 1	23°13	23°16	6°36	9°12	M 9
T 10	15 11 27	19°26'52	4♈17	24°21	3°30	7°37	7°50	16° 8	23°58	19°11	1° 2	23°11	23°13	6°43	9°16	T 10
W11	15 15 23	20°24'55	18°26	25° 2	4°32	8° 9	8° 3	16° 5	23°58	19°10	1° 3	23°11	23°10	6°49	9°20	W11
T 12	15 19 20	21°22'56	2♈29	25°47	5°33	8°41	8°15	16° 1	23°59	19° 8	1° 5	23°11	23° 7	6°56	9°24	T 12
F 13	15 23 16	22°20'56	16°25	26°35	6°35	9°12	8°27	15°58	23°59	19° 6	1° 6	23°10	23° 4	7° 3	9°27	F 13
S 14	15 27 13	23°18'55	0°Y14	27°27	7°37	9°44	8°40	15°55	24° 0	19° 5	1° 7	23° 7	23° 0	7° 9	9°31	S 14
S 15	15 31 9	24°16'52	13°55	28°22	8°40	10°15	8°52	15°52	24° 1	19° 3	1° 9	23° 1	22°57	7°16	9°35	S 15
M16	15 35 6	25°14'48	27°27	29°20	9°42	10°46	9° 4	15°49	24° 2	19° 2	1°10	22°52	22°54	7°23	9°39	M16
T 17	15 39 2	26°12'43	10♈47	0♈21	10°45	11°17	9°16	15°46	24° 2	19° 0	1°11	22°41	22°51	7°29	9°42	T 17
W18	15 42 59	27°10'36	23°54	1°25	11°49	11°48	9°28	15°43	24° 3	18°58	1°13	22°28	22°48	7°36	9°46	W18
T 19	15 46 55	28° 8'28	6♈47	2°32	12°52	12°18	9°40	15°40	24° 4	18°57	1°14	22°15	22°44	7°43	9°50	T 19
F 20	15 50 52	29° 6'19	19°25	3°42	13°56	12°48	9°52	15°37	24° 5	18°55	1°16	22° 3	22°41	7°49	9°53	F 20
S 21	15 54 49	0♈40'8	1♈47	4°54	14°59	13°18	10° 4	15°34	24° 6	18°53	1°17	21°53	22°38	7°56	9°57	S 21
S 22	15 58 45	1° 1'55	13°55	6° 9	16° 4	13°48	10°16	15°32	24° 7	18°52	1°18	21°45	22°35	8° 2	10° 1	S 22
M23	16 2 42	1°59'41	25°53	7°27	17° 8	14°18	10°27	15°29	24° 8	18°50	1°20	21°41	22°32	8° 9	10° 4	M23
T 24	16 6 38	2°57'25	7♈44	8°47	18°12	14°47	10°39	15°27	24°10	18°49	1°21	21°38	22°29	8°16	10° 8	T 24
W25	16 10 35	3°55'08	19°31	10°10	19°17	15°16	10°50	15°25	24°11	18°47	1°22	21°D37	22°25	8°22	10°12	W25
T 26	16 14 31	4°52'49	1♈21	11°35	20°22	15°45	11° 2	15°22	24°12	18°46	1°24	21°R37	22°22	8°29	10°15	T 26
F 27	16 18 28	5°50'29	13°19	13° 3	21°27	16°14	11°13	15°20	24°13	18°44	1°25	21°37	22°19	8°36	10°19	F 27
S 28	16 22 24	6°48'07	25°30	14°33	22°32	16°42	11°24	15°18	24°15	18°43	1°26	21°36	22°16	8°42	10°22	S 28
S 29	16 26 21	7°45'43	8♈ 0	16° 6	23°37	17°10	11°35	15°16	24°16	18°41	1°28	21°32	22°13	8°49	10°26	S 29
M30	16 30 18	8°43'18	20°52	17°41	24°43	17°38	11°46	15°14	24°18	18°39	1°29	21°27	22°10	8°56	10°29	M30
T 31	16 34 14	9♈40'52	4♈ 8	19♈18	25°Y48	18° 5	11°Y57	15♈13	24♈19	18♈38	1°30	21♈18	22♈ 6	9♈ 2	10♈33	T 31

Delta T = 108.56 sec

JUNE 2129

00:00 UT

Day	Sid.t	☉	☽	♀	♂	♂	♂	♂	♂	♂	♂	♂	♂	♂	♂	Day
W 1	16 38 11	10♈38'24	17♈50	20♈58	26°Y54	18°32	12°Y 7	15°R11	24°Ω21	18°R37	1°33	21°R 8	22°Ω 3	9♈ 9	10♈36	W 1
T 2	16 42 7	11°35'56	1♈56	22°40	28° 0	18°59	12°18	15° 9	24°22	18°M35	1°33	20°Ω58	22° 0	9°16	10°40	T 2
F 3	16 46 4	12°33'26	16°20	24°24	29° 6	19°26	12°29	15° 8	24°24	18°34	1°34	20°48	21°57	9°22	10°43	F 3
S 4	16 50 0	13°30'55	0♈56	26°11	0♈13	19°52	12°39	15° 7	24°26	18°32	1°36	20°39	21°54	9°29	10°46	S 4
S 5	16 53 57	14°28'24	15°38	28° 0	1°19	20°18	12°49	15° 5	24°28	18°31	1°37	20°33	21°50	9°36	10°50	S 5
M 6	16 57 54	15°25'51	0♈18	29°52	2°26	20°44	13° 0	15° 4	24°29	18°29	1°38	20°29	21°47	9°42	10°53	M 6
T 7	17 1 50	16°23'18	14°50	1♈46	3°32	21° 9	13°10	15° 3	24°31	18°28	1°40	20°D27	21°44	9°49	10°56	T 7
W 8	17 5 47	17°20'44	29°11	3°42	4°39	21°34	13°20	15° 2	24°33	18°26	1°41	20°27	21°41	9°55	11° 0	W 8
T 9	17 9 43	18°18'09	13♈18	5°40	5°46	21°59	13°30	15° 1	24°35	18°25	1°42	20°R28	21°38	10° 2	11° 3	T 9
F 10	17 13 40	19°15'34	27°10	7°40	6°53	22°23	13°39	15° 0	24°37	18°24	1°44	20°28	21°35	10° 9	11° 6	F 10
S 11	17 17 36	20°12'58	10°Y48	9°43	8° 1	22°47	13°49	15° 0	24°39	18°22	1°45	20°26	21°31	10°15	11° 9	S 11
S 12	17 21 33	21°10'21	24°12	11°47	9° 8	23°11	13°59	14°59	24°41	18°21	1°46	20°22	21°28	10°22	11°12	S 12
M13	17 25 29	22° 7'44	7♈24	13°53	10°15	23°34	14° 8	14°59	24°43	18°20	1°48	20°15	21°25	10°29	11°16	M13
T 14	17 29 26	23° 5'07	20°23	16° 0	11°23	23°56	14°17	14°58	24°46	18°19	1°49	20° 7	21°22	10°35	11°19	T 14
W15	17 33 23	24° 2'29	3♈ 9	18° 9	12°31	24°19	14°26	14°58	24°48	18°17	1°50	19°57	21°19	10°42	11°22	W15
T 16	17 37 19	24°59'50	15°43	20°19	13°39	24°40	14°35	14°58	24°50	18°16	1°51	19°47	21°16	10°49	11°25	T 16
F 17	17 41 16	25°57'11	28° 5	22°30	14°46	25° 2	14°44	14°D58	24°52	18°15	1°53	19°38	21°12	10°55	11°28	F 17
S 18	17 45 12	26°54'31	10♈15	24°42	15°54	25°23	14°53	14°58	24°55	18°14	1°54	19°30	21° 9	11° 2	11°31	S 18
S 19	17 49 9	27°51'51	22°16	26°54	17° 3	25°43	15° 2	14°58	24°57	18°12	1°55	19°25	21° 6	11° 9	11°34	S 19
M20	17 53 5	28°49'10	4♈ 9	29° 6	18°11	26° 3	15°10	14°58	25° 0	18°11	1°56	19°21	21° 3	11°15	11°37	M20
T 21	17 57 2	29°46'28	15°57	1♈17	19°19	26°23	15°19	14°58	25° 2	18°10	1°58	19°D20	21° 0	11°22	11°39	T 21
W22	18 0 58	0♈43'45	27°43	3°28	20°28	26°42	15°27	14°59	25° 4	18° 9	1°59	19°20	20°56	11°29	11°42	W22
T 23	18 4 55	1°41'01	9♈33	5°39	21°36	27° 0	15°35	14°59	25° 7	18° 8	2° 0	19°21	20°53	11°35	11°45	T 23
F 24	18 8 52	2°38'17	21°30	7°48	22°45	27°18	15°43	15° 0	25°10	18° 7	2° 1	19°23	20°50	11°42	11°48	F 24
S 25	18 12 48	3°35'32	3♈41	9°57	23°53	27°35	15°51	15° 0	25°12	18° 6	2° 2	19°R23	20°47	11°48	11°50	S 25
S 26	18 16 45	4°32'47	16° 9	12° 4	25° 2	27°52	15°58	15° 1	25°15	18° 5	2° 4	19°22	20°44	11°55	11°53	S 26
M27	18 20 41	5°30'01	28°59	14° 9	26°11	28° 9	16° 6	15° 2	25°18	18° 4	2° 5	19°20	20°41	12° 2	11°56	M27
T 28	18 24 38	6°27'14	12♈16	16°13	27°20	28°24	16°13	15° 3	25°20	18° 3	2° 6	19°16	20°37	12° 8	11°58	T 28
W29	18 28 34	7°24'27	26° 1	18°15	28°29	28°40	16°21	15° 4	25°23	18° 2	2° 7	19°10	20°34	12°15	12° 1	W29
T 30	18 32 31	8♈21'39	10♈12	20♈15	29♈38	28°54	16°Y28	15♈ 5	25♈26	18♈ 1	2°8	19♈ 4	20♈31	12♈22	12♈ 3	T 30

Delta T = 108.61 sec

## ASTRODIENST EPHEMERIS for the year 2129

geocentric

JULY 2129

00:00 UT

Day	Sid.t	☉	☽	♀	♂	♂	♂	♂	♂	♂	♂	♂	♂	♂	♂	Day
F 1	18 36 27	9♌18'51	24♌46	22♌14	0♏47	29♏8	16♏35	15♏7	25♏29	18°R 0	2♏9	18°R58	20♏28	12♏28	12♏6	F 1
S 2	18 40 24	10°16'03	9♌38	24°10	1°57	29°22	16°41	15°8	25°32	17♏59	2°10	18♏53	20°25	12°35	12°8	S 2
S 3	18 44 21	11°13'15	24°39	26°4	3°6	29°35	16°48	15°10	25°34	17°59	2°12	18°50	20°22	12°42	12°11	S 3
M 4	18 48 17	12°10'26	9♌40	27°57	4°15	29°47	16°55	15°11	25°37	17°58	2°13	18°48	20°18	12°48	12°13	M 4
T 5	18 52 14	13°7'38	24°33	29°47	5°25	29°58	17°1	15°13	25°40	17°57	2°14	18°D48	20°15	12°55	12°15	T 5
W 6	18 56 10	14°4'50	9♌12	1♏35	6°35	0♏9	17°7	15°15	25°43	17°56	2°15	18°49	20°12	13°2	12°17	W 6
T 7	19 0 7	15°2'01	23°31	3°21	7°44	0°19	17°13	15°17	25°46	17°55	2°16	18°50	20°9	13°8	12°20	T 7
F 8	19 4 3	15°59'13	7♏30	5°5	8°54	0°29	17°19	15°19	25°49	17°55	2°17	18°51	20°6	13°15	12°22	F 8
S 9	19 8 0	16°56'26	21°8	6°47	10°4	0°38	17°25	15°21	25°53	17°54	2°18	18°R52	20°2	13°22	12°24	S 9
S 10	19 11 56	17°53'39	4♏26	8°27	11°14	0°46	17°30	15°23	25°56	17°53	2°19	18°50	19°59	13°28	12°26	S 10
M 11	19 15 53	18°50'52	17°26	10°5	12°24	0°53	17°35	15°25	25°59	17°53	2°20	18°48	19°56	13°35	12°28	M 11
T 12	19 19 50	19°48'05	0♏9	11°40	13°34	1°0	17°41	15°27	26°2	17°52	2°21	18°44	19°53	13°41	12°30	T 12
W 13	19 23 46	20°45'19	12°39	13°14	14°44	1°6	17°46	15°30	26°5	17°52	2°22	18°40	19°50	13°48	12°32	W 13
T 14	19 27 43	21°42'34	24°57	14°45	15°54	1°11	17°51	15°32	26°8	17°51	2°23	18°35	19°47	13°55	12°34	T 14
F 15	19 31 39	22°39'48	7♏5	16°15	17°4	1°15	17°55	15°35	26°12	17°51	2°24	18°31	19°43	14°1	12°36	F 15
S 16	19 35 36	23°37'03	19°4	17°42	18°15	1°19	18°0	15°38	26°15	17°50	2°25	18°28	19°40	14°8	12°37	S 16
S 17	19 39 32	24°34'19	0♏57	19°7	19°25	1°22	18°4	15°41	26°18	17°50	2°26	18°26	19°37	14°15	12°39	S 17
M 18	19 43 29	25°31'34	12°46	20°30	20°36	1°24	18°8	15°44	26°22	17°49	2°26	18°D25	19°34	14°21	12°41	M 18
T 19	19 47 25	26°28'50	24°32	21°51	21°46	1°25	18°12	15°47	26°25	17°49	2°27	18°25	19°31	14°28	12°42	T 19
W 20	19 51 22	27°26'06	6♏20	23°9	22°57	1°R26	18°16	15°50	26°28	17°49	2°28	18°25	19°27	14°35	12°44	W 20
T 21	19 55 19	28°23'22	18°11	24°25	24°8	1°25	18°19	15°53	26°32	17°48	2°29	18°27	19°24	14°41	12°46	T 21
F 22	19 59 15	29°20'39	0♏10	25°39	25°18	1°24	18°23	15°56	26°35	17°48	2°30	18°28	19°21	14°48	12°47	F 22
S 23	20 3 12	0♏17'55	12°21	26°50	26°29	1°23	18°26	15°59	26°38	17°48	2°31	18°30	19°18	14°55	12°48	S 23
S 24	20 7 8	1°15'12	24°48	27°59	27°40	1°20	18°29	16°3	26°42	17°48	2°31	18°30	19°15	15°1	12°50	S 24
M 25	20 11 5	2°12'30	7♏36	29°5	28°51	1°17	18°32	16°6	26°45	17°48	2°32	18°R30	19°12	15°8	12°51	M 25
T 26	20 15 1	3°9'47	20°48	0♏9	0♏2	1°13	18°35	16°10	26°49	17°47	2°33	18°30	19°8	15°15	12°52	T 26
W 27	20 18 58	4°7'05	4♏26	1°9	1°13	1°8	18°37	16°14	26°52	17°47	2°34	18°29	19°5	15°21	12°54	W 27
T 28	20 22 54	5°4'23	18°32	2°7	2°24	1°2	18°39	16°17	26°56	17°47	2°34	18°27	19°2	15°28	12°55	T 28
F 29	20 26 51	6°1'42	3♏3	3°2	3°35	0°56	18°41	16°21	26°59	17°47	2°35	18°25	18°59	15°34	12°56	F 29
S 30	20 30 48	6°59'01	17°57	3°54	4°46	0°49	18°43	16°25	27°3	17°D47	2°36	18°24	18°56	15°41	12°57	S 30
S 31	20 34 44	7♏56'21	3♏3	4♏42	5♏58	0♏41	18°Y45	16♏29	27♏7	17♏47	2♏36	18♏23	18♏53	15♏48	12♏58	S 31

Delta T = 108.66 sec

AUGUST 2129

00:00 UT

Day	Sid.t	☉	☽	♀	♂	♂	♂	♂	♂	♂	♂	♂	♂	♂	♂	Day
M 1	20 38 41	8♏53'42	18♏15	5♏27	7♏9	0°R33	18°Y47	16♏33	27♏10	17♏47	2♏37	18°D23	18♏49	15♏54	12♏59	M 1
T 2	20 42 37	9°51'03	3♏23	6°9	8°20	0♏24	18°48	16°37	27°14	17°47	2°38	18♏23	18°46	16°1	13°0	T 2
W 3	20 46 34	10°48'26	18°18	6°46	9°32	0°14	18°49	16°42	27°17	17°47	2°38	18°24	18°43	16°8	13°0	W 3
T 4	20 50 30	11°45'49	2♏Y53	7°20	10°44	0°4	18°50	16°46	27°21	17°48	2°39	18°24	18°40	16°14	13°1	T 4
F 5	20 54 27	12°43'13	17°3	7°50	11°55	29♏53	18°51	16°50	27°25	17°48	2°40	18°25	18°37	16°21	13°2	F 5
S 6	20 58 23	13°40'39	0♏49	8°15	13°7	29°41	18°51	16°55	27°28	17°48	2°40	18°25	18°33	16°28	13°3	S 6
S 7	21 2 20	14°38'05	14°9	8°36	14°19	29°29	18°52	16°59	27°32	17°48	2°41	18°R25	18°30	16°34	13°3	S 7
M 8	21 6 17	15°35'34	27°6	8°52	15°30	29°16	18°R52	17°4	27°36	17°49	2°41	18°25	18°27	16°41	13°4	M 8
T 9	21 10 13	16°33'03	9♏43	9°4	16°42	29°3	18°52	17°9	27°39	17°49	2°42	18°25	18°24	16°48	13°4	T 9
W 10	21 14 10	17°30'34	22°3	9°10	17°54	28°49	18°51	17°14	27°43	17°49	2°42	18°25	18°21	16°54	13°5	W 10
T 11	21 18 6	18°28'06	4♏11	9°R11	19°6	28°35	18°51	17°18	27°47	17°50	2°43	18°D25	18°18	17°1	13°5	T 11
F 12	21 22 3	19°25'39	16°9	9°7	20°18	28°21	18°50	17°23	27°51	17°50	2°43	18°25	18°14	17°7	13°5	F 12
S 13	21 25 59	20°23'13	28°0	8°57	21°30	28°6	18°49	17°28	27°54	17°50	2°43	18°25	18°11	17°14	13°6	S 13
S 14	21 29 56	21°20'49	9♏48	8°42	22°42	27°51	18°48	17°33	27°58	17°51	2°44	18°25	18°8	17°21	13°6	S 14
M 15	21 33 52	22°18'26	21°35	8°22	23°55	27°36	18°47	17°38	28°2	17°51	2°44	18°R25	18°5	17°27	13°6	M 15
T 16	21 37 49	23°16'04	3♏23	7°56	25°7	27°20	18°46	17°44	28°5	17°52	2°45	18°25	18°2	17°34	13°6	T 16
W 17	21 41 46	24°13'43	15°15	7°25	26°19	27°4	18°44	17°49	28°9	17°52	2°45	18°25	17°59	17°41	13°R 6	W 17
T 18	21 45 42	25°11'23	27°12	6°50	27°32	26°48	18°42	17°54	28°13	17°53	2°45	18°24	17°55	17°47	13°6	T 18
F 19	21 49 39	26°9'04	9♏18	6°9	28°44	26°33	18°40	17°59	28°17	17°54	2°46	18°23	17°52	17°54	13°6	F 19
S 20	21 53 35	27°6'47	21°35	5°25	29°57	26°17	18°38	18°5	28°20	17°54	2°46	18°22	17°49	18°1	13°6	S 20
S 21	21 57 32	28°4'30	4♏6	4°37	1♏9	26°1	18°35	18°10	28°24	17°55	2°46	18°21	17°46	18°7	13°6	S 21
M 22	22 1 28	29°2'15	16°54	3°47	2°22	25°45	18°33	18°16	28°28	17°56	2°46	18°20	17°43	18°14	13°5	M 22
T 23	22 5 25	0♏0'00	0♏2	2°55	3°34	25°29	18°30	18°22	28°32	17°56	2°47	18°D20	17°39	18°21	13°5	T 23
W 24	22 9 21	0°57'47	13°32	2°2	4°47	25°14	18°27	18°27	28°35	17°57	2°47	18°20	17°36	18°27	13°5	W 24
T 25	22 13 18	1°55'35	27°27	1°10	6°0	24°59	18°24	18°33	28°39	17°58	2°47	18°21	17°33	18°34	13°4	T 25
F 26	22 17 15	2°53'25	11♏46	0°18	7°13	24°44	18°20	18°39	28°43	17°59	2°47	18°22	17°30	18°40	13°4	F 26
S 27	22 21 11	3°51'15	26°26	29♏30	8°25	24°29	18°17	18°45	28°47	18°0	2°47	18°23	17°27	18°47	13°3	S 27
S 28	22 25 8	4°49'07	11♏24	28°44	9°38	24°15	18°13	18°50	28°50	18°1	2°47	18°R24	17°24	18°54	13°3	S 28
M 29	22 29 4	5°47'00	26°31	28°4	10°51	24°1	18°9	18°56	28°54	18°2	2°47	18°24	17°20	19°0	13°2	M 29
T 30	22 33 1	6°44'54	11♏40	27°28	12°4	23°47	18°5	19°2	28°58	18°3	2°47	18°23	17°17	19°7	13°1	T 30
W 31	22 36 57	7♏42'50	26♏41	26♏59	13♏17	23♏34	18°Y1	19♏8	29♏2	18♏4	2♏48	18♏21	17♏14	19♏14	13♏0	W 31

Delta T = 108.71 sec

ASTRODIENST EPHEMERIS for the year 2129  
geocentric

SEPTEMBER 2129

00:00 UT

Day	Sid.t	☉	☽	♀	♂	♂	♂	♂	♂	♂	♂	♂	♂	♂	♂	Day
T 1	22 40 54	8♐40'47	11♏25	26°R37	14♏30	23°R22	17°R56	19♏15	29♏5	18♏5	2♐48	18°R18	17♏11	19♏20	13°R 0	T 1
F 2	22 44 50	9°38'47	25°46	26♏22	15°44	23°R 9	17°Y52	19°21	29° 9	18° 6	2°R48	18♏16	17° 8	19°27	12♏59	F 2
S 3	22 48 47	10°36'48	9♏41	26°D16	16°57	22°58	17°47	19°27	29°13	18° 7	2°48	18°13	17° 5	19°34	12°58	S 3
S 4	22 52 43	11°34'51	23° 7	26°17	18°10	22°47	17°42	19°33	29°16	18° 8	2°48	18°11	17° 1	19°40	12°57	S 4
M 5	22 56 40	12°32'56	6♐ 7	26°28	19°23	22°37	17°37	19°39	29°20	18° 9	2°47	18°10	16°58	19°47	12°56	M 5
T 6	23 0 37	13°31'03	18°44	26°46	20°37	22°27	17°31	19°46	29°24	18°10	2°47	18°D10	16°55	19°54	12°55	T 6
W 7	23 4 33	14°29'12	1♏ 2	27°14	21°50	22°18	17°26	19°52	29°27	18°11	2°47	18°11	16°52	20° 0	12°54	W 7
T 8	23 8 30	15°27'23	13° 5	27°49	23° 4	22°10	17°20	19°59	29°31	18°13	2°47	18°12	16°49	20° 7	12°52	T 8
F 9	23 12 26	16°25'36	24°58	28°33	24°17	22° 2	17°14	20° 5	29°35	18°14	2°47	18°14	16°45	20°14	12°51	F 9
S 10	23 16 23	17°23'51	6♏46	29°25	25°31	21°55	17° 9	20°12	29°38	18°15	2°47	18°15	16°42	20°20	12°50	S 10
S 11	23 20 19	18°22'08	18°33	0♐24	26°44	21°49	17° 2	20°18	29°42	18°16	2°47	18°R16	16°39	20°27	12°49	S 11
M12	23 24 16	19°20'26	0♐21	1°30	27°58	21°44	16°56	20°25	29°45	18°18	2°46	18°15	16°36	20°33	12°47	M12
T 13	23 28 12	20°18'47	12°14	2°43	29°12	21°39	16°50	20°31	29°49	18°19	2°46	18°13	16°33	20°40	12°46	T 13
W14	23 32 9	21°17'09	24°14	4° 2	0♐26	21°35	16°43	20°38	29°53	18°21	2°46	18° 9	16°30	20°47	12°44	W14
T 15	23 36 6	22°15'33	6♏22	5°26	1°39	21°32	16°37	20°45	29°56	18°22	2°46	18° 4	16°26	20°53	12°43	T 15
F 16	23 40 2	23°13'59	18°41	6°56	2°53	21°30	16°30	20°51	29°59	18°23	2°45	17°58	16°23	21° 0	12°41	F 16
S 17	23 43 59	24°12'27	1♐11	8°29	4° 7	21°28	16°23	20°58	0♐ 3	18°25	2°45	17°52	16°20	21° 7	12°39	S 17
S 18	23 47 55	25°10'56	13°53	10° 6	5°21	21°D28	16°16	21° 5	0° 7	18°26	2°45	17°46	16°17	21°13	12°38	S 18
M19	23 51 52	26° 9'27	26°49	11°47	6°35	21°28	16° 9	21°12	0°10	18°28	2°44	17°41	16°14	21°20	12°36	M19
T 20	23 55 48	27° 8'00	10♏ 0	13°30	7°49	21°29	16° 2	21°19	0°14	18°29	2°44	17°38	16°10	21°27	12°34	T 20
W21	23 59 45	28° 6'34	23°28	15°15	9° 3	21°31	15°55	21°26	0°17	18°31	2°44	17°D37	16° 7	21°33	12°32	W21
T 22	0 3 41	29° 5'10	7♏13	17° 2	10°17	21°34	15°47	21°33	0°20	18°33	2°43	17°37	16° 4	21°40	12°30	T 22
F 23	0 7 38	0♏ 3'48	21°18	18°51	11°31	21°37	15°40	21°40	0°24	18°34	2°43	17°38	16° 1	21°47	12°28	F 23
S 24	0 11 35	1° 2'27	5♏40	20°40	12°45	21°41	15°32	21°47	0°27	18°36	2°42	17°39	15°58	21°53	12°26	S 24
S 25	0 15 31	2° 1'08	20°18	22°30	14° 0	21°47	15°25	21°54	0°31	18°38	2°42	17°R39	15°55	22° 0	12°24	S 25
M26	0 19 28	2°59'51	5♏ 7	24°20	15°14	21°52	15°17	22° 1	0°34	18°39	2°42	17°38	15°51	22° 6	12°22	M26
T 27	0 23 24	3°58'35	20° 1	26°11	16°28	21°59	15° 9	22° 8	0°37	18°41	2°41	17°35	15°48	22°13	12°20	T 27
W28	0 27 21	4°57'21	4♏Y33	28° 1	17°42	22° 6	15° 2	22°15	0°40	18°43	2°41	17°30	15°45	22°20	12°18	W28
T 29	0 31 17	5°56'09	19°33	29°52	18°57	22°15	14°54	22°22	0°44	18°44	2°40	17°22	15°42	22°26	12°16	T 29
F 30	0 35 14	6♏55'00	3♏55	1♏42	20♐11	22°R23	14°Y46	22♏29	0♐47	18♏46	2♐39	17♏15	15♏39	22♏33	12♏14	F 30

Delta T = 108.76 sec

OCTOBER 2129

00:00 UT

Day	Sid.t	☉	☽	♀	♂	♂	♂	♂	♂	♂	♂	♂	♂	♂	♂	Day
S 1	0 39 10	7♏53'52	17♏53	3♏31	21♐25	22°R33	14°R38	22♏36	0♐50	18♏48	2°R39	17°R 7	15♏36	22♏40	12°R11	S 1
S 2	0 43 7	8°52'47	1♐24	5°20	22°40	22°43	14°Y30	22°43	0°53	18°50	2♐38	17♏ 0	15°32	22°46	12♏ 9	S 2
M 3	0 47 3	9°51'44	14°28	7° 8	23°54	22°54	14°22	22°50	0°56	18°52	2°38	16°55	15°29	22°53	12° 7	M 3
T 4	0 51 0	10°50'43	27° 7	8°56	25° 9	23° 6	14°14	22°58	0°59	18°53	2°37	16°52	15°26	23° 0	12° 4	T 4
W 5	0 54 57	11°49'45	9♏26	10°42	26°23	23°18	14° 6	23° 5	1° 2	18°55	2°36	16°D51	15°23	23° 6	12° 2	W 5
T 6	0 58 53	12°48'49	21°29	12°28	27°38	23°32	13°58	23°12	1° 6	18°57	2°36	16°51	15°20	23°13	11°59	T 6
F 7	1 2 50	13°47'55	3♏22	14°14	28°53	23°45	13°50	23°19	1° 9	18°59	2°35	16°52	15°16	23°20	11°57	F 7
S 8	1 6 46	14°47'03	15° 9	15°58	0♏ 7	24° 0	13°42	23°26	1°11	19° 1	2°34	16°R52	15°13	23°26	11°54	S 8
S 9	1 10 43	15°46'14	26°57	17°42	1°22	24°15	13°34	23°34	1°14	19° 3	2°34	16°52	15°10	23°33	11°52	S 9
M10	1 14 39	16°45'27	8♐48	19°25	2°37	24°30	13°25	23°41	1°17	19° 5	2°33	16°49	15° 7	23°39	11°49	M10
T 11	1 18 36	17°44'42	20°47	21° 7	3°51	24°47	13°17	23°48	1°20	19° 7	2°32	16°44	15° 4	23°46	11°47	T 11
W12	1 22 32	18°43'59	2♏58	22°49	5° 6	25° 4	13° 9	23°56	1°23	19° 9	2°31	16°37	15° 1	23°53	11°44	W12
T 13	1 26 29	19°43'18	15°20	24°29	6°21	25°21	13° 1	24° 3	1°26	19°11	2°31	16°27	14°57	23°59	11°41	T 13
F 14	1 30 26	20°42'39	27°56	26° 9	7°36	25°39	12°53	24°10	1°29	19°13	2°30	16°15	14°54	24° 6	11°39	F 14
S 15	1 34 22	21°42'03	10♐45	27°48	8°51	25°58	12°46	24°17	1°31	19°15	2°29	16° 3	14°51	24°13	11°36	S 15
S 16	1 38 19	22°41'28	23°47	29°27	10° 6	26°17	12°38	24°25	1°34	19°17	2°28	15°52	14°48	24°19	11°33	S 16
M17	1 42 15	23°40'55	7♏ 0	1♐ 4	11°20	26°37	12°30	24°32	1°37	19°19	2°27	15°43	14°45	24°26	11°30	M17
T 18	1 46 12	24°40'24	20°25	2°41	12°35	26°57	12°22	24°39	1°39	19°21	2°27	15°36	14°41	24°33	11°28	T 18
W19	1 50 8	25°39'55	4♏ 0	4°18	13°50	27°18	12°15	24°47	1°42	19°23	2°26	15°31	14°38	24°39	11°25	W19
T 20	1 54 5	26°39'28	17°46	5°53	15° 5	27°40	12° 7	24°54	1°44	19°25	2°25	15°30	14°35	24°46	11°22	T 20
F 21	1 58 1	27°39'02	1♏43	7°28	16°20	28° 2	11°59	25° 1	1°47	19°27	2°24	15°D29	14°32	24°53	11°19	F 21
S 22	2 1 58	28°38'38	15°50	9° 3	17°35	28°24	11°52	25° 9	1°49	19°29	2°23	15°R30	14°29	24°59	11°16	S 22
S 23	2 5 55	29°38'16	0♐ 8	10°37	18°50	28°47	11°45	25°16	1°52	19°32	2°22	15°29	14°26	25° 6	11°13	S 23
M24	2 9 51	0♐37'55	14°33	12°10	20° 5	29°10	11°38	25°23	1°54	19°34	2°21	15°26	14°22	25°13	11°11	M24
T 25	2 13 48	1°37'36	29° 3	13°43	21°20	29°34	11°30	25°31	1°56	19°36	2°20	15°21	14°19	25°19	11° 8	T 25
W26	2 17 44	2°37'19	13°Y32	15°15	22°35	29°58	11°23	25°38	1°59	19°38	2°19	15°13	14°16	25°26	11° 5	W26
T 27	2 21 41	3°37'03	27°54	16°46	23°50	0♐X23	11°17	25°45	2° 1	19°40	2°18	15° 2	14°13	25°32	11° 2	T 27
F 28	2 25 37	4°36'50	12♏ 2	18°17	25° 6	0°48	11°10	25°52	2° 3	19°42	2°17	14°50	14°10	25°39	10°59	F 28
S 29	2 29 34	5°36'39	25°52	19°48	26°21	1°13	11° 3	26° 0	2° 5	19°45	2°16	14°38	14° 7	25°46	10°56	S 29
S 30	2 33 30	6°36'29	9♐19	21°17	27°36	1°39	10°57	26° 7	2° 7	19°47	2°15	14°27	14° 3	25°52	10°53	S 30
M31	2 37 27	7♐36'22	22♐22	22♐47	28♏51	2°X 5	10°Y50	26♏14	2♐ 9	19♐49	2♐14	14♏18	14♏ 0	25♏59	10♏50	M31

Delta T = 108.81 sec

## ASTRODIENST EPHEMERIS for the year 2129

geocentric

NOVEMBER 2129

00:00 UT

Day	Sid.t	☉	☽	♀	♂	♂	♂	♂	♂	♂	♂	♂	♂	♂	♂	Day
T 1	2 41 24	8♉36°17'	5♊ 3	24♉16	0♉ 6	2♉32	10°R44	26♉21	2♉11	19♉51	2°R13	14°R11	13♉57	26♉ 6	10°R47	T 1
W 2	2 45 20	9°36'14"	17°23'	25°44'	1°21'	2°59'	10°Y38	26°28'	2°13'	19°53'	2♉12	14♉ 8	13°54'	26°12'	10♉44	W 2
T 3	2 49 17	10°36'14"	29°27'	27°11'	2°37'	3°26'	10°32'	26°36'	2°15'	19°56'	2°11'	14° 6'	13°51'	26°19'	10°41'	T 3
F 4	2 53 13	11°36'15"	11♉20	28°38'	3°52'	3°54'	10°26'	26°43'	2°17'	19°58'	2°10'	14° 6'	13°47'	26°26'	10°38'	F 4
S 5	2 57 10	12°36'18"	23° 8'	0♉ 5	5° 7'	4°22'	10°20'	26°50'	2°19'	20° 0'	2° 9'	14° 6'	13°44'	26°32'	10°35'	S 5
S 6	3 1 6	13°36'24"	4♉57	1°31'	6°22'	4°50'	10°15'	26°57'	2°21'	20° 2'	2° 8'	14° 5'	13°41'	26°39'	10°32'	S 6
M 7	3 5 3	14°36'32"	16°51'	2°56'	7°38'	5°19'	10° 9'	27° 4'	2°23'	20° 5'	2° 7'	14° 2'	13°38'	26°46'	10°29'	M 7
T 8	3 8 59	15°36'41"	28°55'	4°20'	8°53'	5°48'	10° 4'	27°11'	2°24'	20° 7'	2° 6'	13°56'	13°35'	26°52'	10°26'	T 8
W 9	3 12 56	16°36'53"	11♉13	5°44'	10° 8'	6°17'	9°59'	27°18'	2°26'	20° 9'	2° 5'	13°47'	13°32'	26°59'	10°23'	W 9
T 10	3 16 53	17°37'06"	23°48'	7° 7'	11°23'	6°47'	9°54'	27°25'	2°27'	20°11'	2° 4'	13°36'	13°28'	27° 6'	10°21'	T 10
F 11	3 20 49	18°37'22"	6♉40	8°29'	12°39'	7°17'	9°50'	27°32'	2°29'	20°14'	2° 3'	13°23'	13°25'	27°12'	10°18'	F 11
S 12	3 24 46	19°37'39"	19°50'	9°50'	13°54'	7°47'	9°45'	27°39'	2°30'	20°16'	2° 2'	13°10'	13°22'	27°19'	10°15'	S 12
S 13	3 28 42	20°37'58"	3♉15	11° 9'	15° 9'	8°17'	9°41'	27°46'	2°32'	20°18'	2° 1'	12°57'	13°19'	27°25'	10°12'	S 13
M14	3 32 39	21°38'19"	16°53'	12°28'	16°25'	8°48'	9°37'	27°53'	2°33'	20°20'	1°59'	12°46'	13°16'	27°32'	10° 9'	M14
T 15	3 36 35	22°38'41"	0♉42	13°45'	17°40'	9°19'	9°33'	28° 0'	2°35'	20°23'	1°58'	12°38'	13°13'	27°39'	10° 6'	T 15
W16	3 40 32	23°39'05"	14°37'	15° 1'	18°56'	9°50'	9°29'	28° 7'	2°36'	20°25'	1°57'	12°32'	13° 9'	27°45'	10° 3'	W16
T 17	3 44 28	24°39'30"	28°36'	16°15'	20°11'	10°22'	9°25'	28°14'	2°37'	20°27'	1°56'	12°30'	13° 6'	27°52'	10° 0'	T 17
F 18	3 48 25	25°39'56"	12♉39	17°27'	21°26'	10°54'	9°22'	28°20'	2°38'	20°29'	1°55'	12°D29	13° 3'	27°59'	9°57'	F 18
S 19	3 52 22	26°40'24"	26°43'	18°37'	22°42'	11°26'	9°19'	28°27'	2°39'	20°32'	1°54'	12°R29	13° 0'	28° 5'	9°55'	S 19
S 20	3 56 18	27°40'53"	10♉49	19°45'	23°57'	11°58'	9°16'	28°34'	2°40'	20°34'	1°53'	12°29'	12°57'	28°12'	9°52'	S 20
M21	4 0 15	28°41'23"	24°55'	20°50'	25°12'	12°30'	9°13'	28°41'	2°41'	20°36'	1°52'	12°26'	12°53'	28°19'	9°49'	M21
T 22	4 4 11	29°41'54"	9♉ 1	21°51'	26°28'	13° 3'	9°10'	28°47'	2°42'	20°38'	1°50'	12°21'	12°50'	28°25'	9°46'	T 22
W23	4 8 8	0♉42'27"	23° 2'	22°49'	27°43'	13°36'	9° 8'	28°54'	2°43'	20°41'	1°49'	12°13'	12°47'	28°32'	9°44'	W23
T 24	4 12 4	1°43'01"	6♉57	23°44'	28°59'	14° 9'	9° 6'	29° 0'	2°44'	20°43'	1°48'	12° 3'	12°44'	28°39'	9°41'	T 24
F 25	4 16 1	2°43'36"	20°51'	24°33'	0♉14	14°42'	9° 4'	29° 7'	2°45'	20°45'	1°47'	11°52'	12°41'	28°45'	9°38'	F 25
S 26	4 19 57	3°44'13"	4♉11	25°18'	1°29'	15°16'	9° 2'	29°13'	2°45'	20°47'	1°46'	11°40'	12°38'	28°52'	9°36'	S 26
S 27	4 23 54	4°44'51"	17°23'	25°56'	2°45'	15°49'	9° 1'	29°20'	2°46'	20°49'	1°45'	11°29'	12°34'	28°59'	9°33'	S 27
M28	4 27 51	5°45'31"	0♉17	26°29'	4° 0'	16°23'	8°59'	29°26'	2°47'	20°52'	1°44'	11°20'	12°31'	29° 5'	9°30'	M28
T 29	4 31 47	6°46'12"	12°52'	26°53'	5°16'	16°57'	8°58'	29°33'	2°47'	20°54'	1°43'	11°13'	12°28'	29°12'	9°28'	T 29
W30	4 35 44	7°46'54"	25♉10	27°10'	6♉31	17°32'	8°Y57	29°39'	2♉48	20♉56	1♉41	11°10'	12°25'	29♉19	9♉25	W30

Delta T = 108.86 sec

DECEMBER 2129

00:00 UT

Day	Sid.t	☉	☽	♀	♂	♂	♂	♂	♂	♂	♂	♂	♂	♂	♂	Day
T 1	4 39 40	8♉47°38'	7♉13	27°R18	7♉47	18♉ 6	8°R56	29♉45	2♉48	20♉58	1°R40	11°D 8	12♉22	29♉25	9°R23	T 1
F 2	4 43 37	9°48'23"	19° 7'	27°17'	9° 2'	18°40'	8°Y56	29°51'	2°49'	21° 0'	1♉39	11♉ 8	12°19'	29°32'	9♉20	F 2
S 3	4 47 33	10°49'10"	0♉55	27° 5'	10°18'	19°15'	8°56'	29°57'	2°49'	21° 2'	1°38'	11° 9'	12°15'	29°38'	9°18'	S 3
S 4	4 51 30	11°49'59"	12°44'	26°42'	11°33'	19°50'	8°D55	0♉ 3	2°49'	21° 5'	1°37'	11°R10	12°12'	29°45'	9°15'	S 4
M 5	4 55 26	12°50'48"	24°38'	26° 8'	12°48'	20°25'	8°56'	0°10'	2°49'	21° 7'	1°36'	11° 9'	12° 9'	29°52'	9°13'	M 5
T 6	4 59 23	13°51'39"	6♉43	25°23'	14° 4'	21° 0'	8°56'	0°15'	2°49'	21° 9'	1°35'	11° 6'	12° 6'	29°58'	9°11'	T 6
W 7	5 3 20	14°52'32"	19° 4'	24°27'	15°19'	21°35'	8°56'	0°21'	2°50'	21°11'	1°34'	11° 1'	12° 3'	0♉ 5	9° 9'	W 7
T 8	5 7 16	15°53'25"	1♉44	23°22'	16°35'	22°11'	8°57'	0°27'	2°R50	21°13'	1°33'	10°53'	11°59'	0°12'	9° 6'	T 8
F 9	5 11 13	16°54'20"	14°46'	22° 9'	17°50'	22°46'	8°58'	0°33'	2°50'	21°15'	1°32'	10°44'	11°56'	0°18'	9° 4'	F 9
S 10	5 15 9	17°55'17"	28°10'	20°50'	19° 6'	23°22'	8°59'	0°39'	2°50'	21°17'	1°30'	10°35'	11°53'	0°25'	9° 2'	S 10
S 11	5 19 6	18°56'14"	11♉55	19°28'	20°21'	23°58'	9° 1'	0°44'	2°49'	21°19'	1°29'	10°26'	11°50'	0°32'	9° 0'	S 11
M12	5 23 2	19°57'12"	25°58'	18° 5'	21°37'	24°34'	9° 2'	0°50'	2°49'	21°21'	1°28'	10°18'	11°47'	0°38'	8°58'	M12
T 13	5 26 59	20°58'12"	10♉13	16°44'	22°52'	25°10'	9° 4'	0°56'	2°49'	21°23'	1°27'	10°12'	11°44'	0°45'	8°56'	T 13
W14	5 30 55	21°59'12"	24°35'	15°28'	24° 8'	25°46'	9° 6'	1° 1'	2°49'	21°25'	1°26'	10° 8'	11°40'	0°52'	8°54'	W14
T 15	5 34 52	23° 0'12"	9♉ 0	14°20'	25°23'	26°22'	9° 8'	1° 7'	2°48'	21°27'	1°25'	10°D 7	11°37'	0°58'	8°52'	T 15
F 16	5 38 49	24° 1'14"	23°22'	13°20'	26°39'	26°59'	9°10'	1°12'	2°48'	21°29'	1°24'	10° 8'	11°34'	1° 5'	8°50'	F 16
S 17	5 42 45	25° 2'15"	7♉38	12°30'	27°54'	27°35'	9°13'	1°17'	2°47'	21°31'	1°23'	10° 9'	11°31'	1°12'	8°48'	S 17
S 18	5 46 42	26° 3'17"	21°47'	11°52'	29°10'	28°12'	9°16'	1°22'	2°47'	21°33'	1°22'	10°R10	11°28'	1°18'	8°46'	S 18
M19	5 50 38	27° 4'20"	5♉47	11°24'	0♉25	28°49'	9°19'	1°28'	2°46'	21°35'	1°21'	10°10'	11°25'	1°25'	8°45'	M19
T 20	5 54 35	28° 5'22"	19°37'	11° 8'	1°41'	29°26'	9°22'	1°33'	2°46'	21°37'	1°20'	10° 8'	11°21'	1°32'	8°43'	T 20
W21	5 58 31	29° 6'25"	3♉18	11°D 2	2°56'	0°Y 2	9°25'	1°38'	2°45'	21°39'	1°19'	10° 4'	11°18'	1°38'	8°41'	W21
T 22	6 2 28	0♉ 7'29"	16°47'	11° 5'	4°12'	0°40'	9°29'	1°43'	2°44'	21°41'	1°18'	9°58'	11°15'	1°45'	8°40'	T 22
F 23	6 6 24	1° 8'33"	0♉ 4	11°19'	5°27'	1°17'	9°33'	1°48'	2°43'	21°43'	1°17'	9°51'	11°12'	1°52'	8°38'	F 23
S 24	6 10 21	2° 9'37"	13° 8'	11°40'	6°43'	1°54'	9°37'	1°52'	2°43'	21°44'	1°16'	9°44'	11° 9'	1°58'	8°37'	S 24
S 25	6 14 18	3°10'41"	25°59'	12° 9'	7°58'	2°31'	9°41'	1°57'	2°42'	21°46'	1°15'	9°38'	11° 5'	2° 5'	8°35'	S 25
M26	6 18 14	4°11'47"	8♉36	12°45'	9°13'	3° 8'	9°45'	2° 2'	2°41'	21°48'	1°14'	9°33'	11° 2'	2°12'	8°34'	M26
T 27	6 22 11	5°12'52"	20°59'	13°27'	10°29'	3°46'	9°50'	2° 6'	2°40'	21°50'	1°13'	9°29'	10°59'	2°18'	8°33'	T 27
W28	6 26 7	6°13'58"	3♉10	14°14'	11°44'	4°23'	9°54'	2°11'	2°39'	21°52'	1°12'	9°28'	10°56'	2°25'	8°31'	W28
T 29	6 30 4	7°15'04"	15°10'	15° 7'	13° 0'	5° 1'	9°59'	2°15'	2°38'	21°53'	1°12'	9°D28	10°53'	2°32'	8°30'	T 29
F 30	6 34 0	8°16'11"	27° 2'	16° 3'	14°15'	5°39'	10° 4'	2°19'	2°37'	21°55'	1°11'	9°29'	10°50'	2°38'	8°29'	F 30
S 31	6 37 57	9♉17°18'	8♉50	17°13'	15♉31	6°Y16	10°Y10	2♉24	2♉35	21♉57	1♉10	9♉21	10♉46	2♉45	8♉28	S 31

Delta T = 108.91 sec