



# Astrodienst Ephemeris Tables for the year 2029

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 2029

## geocentric

JANUARY 2029

00:00 UT

Day	Sid.t	☉	☽	♀	♂	♂	♂	♂	♂	♂	♂	♂	♂	♂	♂	Day
M 1	6 43 44	10°51'08	14°39	0°22	21°5	4°18	24°58	4°R26	11°R 5	6°V 9	7°35	13°D59	14°8	3°V21	3°R58	M 1
T 2	6 47 41	11°52'16	28°30	1°15	22°20	4°41	25° 4	4°B26	11°II 3	6°10	7°37	13°B59	14° 5	3°28	3°B57	T 2
W 3	6 51 37	12°53'24	12°33	2° 1	23°35	5° 3	25°11	4°25	11° 1	6°11	7°39	13°59	14° 2	3°35	3°56	W 3
T 4	6 55 34	13°54'32	26°46	2°39	24°50	5°25	25°18	4°25	10°59	6°11	7°41	13°R59	13°59	3°42	3°56	T 4
F 5	6 59 31	14°55'40	11°12	3° 8	26° 6	5°47	25°24	4°25	10°57	6°12	7°42	13°59	13°55	3°48	3°55	F 5
S 6	7 3 27	15°56'49	25°20	3°28	27°21	6° 8	25°31	4°D25	10°55	6°13	7°44	13°59	13°52	3°55	3°55	S 6
S 7	7 7 24	16°57'57	9°35	3°R37	28°36	6°29	25°37	4°25	10°53	6°13	7°46	13°58	13°49	4° 2	3°54	S 7
M 8	7 11 20	17°59'06	23°45	3°35	29°51	6°49	25°43	4°25	10°51	6°14	7°48	13°D58	13°46	4° 8	3°54	M 8
T 9	7 15 17	19° 0'15	7°48	3°22	1°3	7°10	25°49	4°26	10°50	6°15	7°49	13°59	13°43	4°15	3°54	T 9
W10	7 19 13	20° 1'24	21°43	2°56	2°22	7°29	25°54	4°26	10°48	6°16	7°51	13°59	13°40	4°22	3°53	W10
T11	7 23 10	21° 2'34	5°27	2°19	3°37	7°49	26° 0	4°27	10°46	6°16	7°53	14° 0	13°36	4°29	3°53	T11
F12	7 27 6	22° 3'43	19° 0	1°31	4°52	8° 8	26° 5	4°27	10°44	6°17	7°55	14° 1	13°33	4°35	3°53	F12
S13	7 31 3	23° 4'52	2°30	0°33	6° 7	8°27	26°10	4°28	10°43	6°18	7°57	14° 1	13°30	4°42	3°D53	S13
S14	7 35 0	24° 6'00	15°28	29°36	7°23	8°45	26°15	4°29	10°41	6°19	7°58	14°R 1	13°27	4°49	3°53	S14
M15	7 38 56	25° 7'09	28°21	28°13	8°38	9° 3	26°20	4°30	10°39	6°20	8° 0	14° 1	13°24	4°56	3°53	M15
T16	7 42 53	26° 8'17	11°1	26°56	9°53	9°20	26°25	4°31	10°38	6°21	8° 2	14° 0	13°21	5° 2	3°53	T16
W17	7 46 49	27° 9'24	23°27	25°38	11° 8	9°37	26°30	4°32	10°36	6°22	8° 4	13°58	13°17	5° 9	3°54	W17
T18	7 50 46	28°10'30	5°41	24°20	12°24	9°54	26°34	4°34	10°35	6°23	8° 6	13°56	13°14	5°16	3°54	T18
F19	7 54 42	29°11'36	17°45	23° 5	13°39	10°10	26°38	4°35	10°33	6°24	8° 8	13°54	13°11	5°22	3°54	F19
S20	7 58 39	0°12'41	29°41	21°55	14°54	10°25	26°42	4°37	10°32	6°26	8°10	13°51	13° 8	5°29	3°54	S20
S21	8 2 35	1°13'45	11°V33	20°52	16° 9	10°40	26°46	4°38	10°30	6°27	8°11	13°50	13° 5	5°36	3°55	S21
M22	8 6 32	2°14'49	23°25	19°57	17°25	10°55	26°50	4°40	10°29	6°28	8°13	13°48	13° 1	5°43	3°55	M22
T23	8 10 29	3°15'51	5°B23	19°10	18°40	11° 9	26°53	4°42	10°28	6°29	8°15	13°D48	12°58	5°49	3°56	T23
W24	8 14 25	4°16'52	17°29	18°33	19°55	11°23	26°57	4°44	10°27	6°30	8°17	13°49	12°55	5°56	3°57	W24
T25	8 18 22	5°17'53	29°50	18° 5	21°10	11°36	27° 0	4°46	10°25	6°32	8°19	13°50	12°52	6° 3	3°57	T25
F26	8 22 18	6°18'52	12°II30	17°45	22°25	11°49	27° 3	4°48	10°24	6°33	8°21	13°52	12°49	6° 9	3°58	F26
S27	8 26 15	7°19'51	25°31	17°35	23°41	12° 1	27° 5	4°51	10°23	6°34	8°23	13°53	12°46	6°16	3°59	S27
S28	8 30 11	8°20'48	8°B57	17°D33	24°56	12°12	27° 8	4°53	10°22	6°36	8°25	13°R54	12°42	6°23	4° 0	S28
M29	8 34 8	9°21'44	22°47	17°38	26°11	12°23	27°11	4°56	10°21	6°37	8°26	13°54	12°39	6°30	4° 0	M29
T30	8 38 5	10°22'39	7°L 0	17°51	27°26	12°34	27°13	4°58	10°20	6°38	8°28	13°52	12°36	6°36	4° 1	T30
W31	8 42 1	11°23'33	21°L30	18°310	28°B42	12°B44	27°B15	5°B 1	10°II19	6°V40	8°B30	13°B50	12°B33	6°V43	4°B 2	W31

Delta T = 69.04 sec

FEBRUARY 2029

00:00 UT

Day	Sid.t	☉	☽	♀	♂	♂	♂	♂	♂	♂	♂	♂	♂	♂	♂	Day
T 1	8 45 58	12°24'26	6°13	18°36	29°B57	12°B53	27°B17	5°B 4	10°R19	6°V41	8°B32	13°R46	12°B30	6°V50	4°B 3	T 1
F 2	8 49 54	13°25'19	21° 0	19° 7	1°12	13° 2	27°18	5° 7	10°II18	6°43	8°34	13°B41	12°27	6°57	4° 5	F 2
S 3	8 53 51	14°26'10	5°B43	19°44	2°27	13°10	27°20	5°10	10°17	6°44	8°36	13°37	12°23	7° 3	4° 6	S 3
S 4	8 57 47	15°27'00	20°16	20°25	3°42	13°17	27°21	5°13	10°16	6°46	8°38	13°33	12°20	7°10	4° 7	S 4
M 5	9 1 44	16°27'50	4°13	21°10	4°57	13°24	27°23	5°16	10°16	6°48	8°40	13°31	12°17	7°17	4° 8	M 5
T 6	9 5 40	17°28'39	18°37	21°59	6°13	13°30	27°23	5°20	10°15	6°49	8°41	13°D31	12°14	7°23	4°10	T 6
W 7	9 9 37	18°29'27	2°21	22°52	7°28	13°36	27°24	5°23	10°15	6°51	8°43	13°31	12°11	7°30	4°11	W 7
T 8	9 13 33	19°30'14	15°48	23°48	8°43	13°41	27°25	5°27	10°14	6°52	8°45	13°33	12° 7	7°37	4°12	T 8
F 9	9 17 30	20°31'00	28°59	24°47	9°58	13°45	27°25	5°30	10°14	6°54	8°47	13°35	12° 4	7°44	4°14	F 9
S10	9 21 27	21°31'45	11°B56	25°48	11°13	13°48	27°25	5°34	10°13	6°56	8°49	13°R35	12° 1	7°50	4°16	S10
S11	9 25 23	22°32'29	24°40	26°52	12°29	13°51	27°R25	5°38	10°13	6°58	8°51	13°35	11°58	7°57	4°17	S11
M12	9 29 20	23°33'12	7°B14	27°59	13°44	13°53	27°25	5°42	10°13	6°59	8°53	13°32	11°55	8° 4	4°19	M12
T13	9 33 16	24°33'53	19°37	29° 8	14°59	13°55	27°25	5°46	10°13	7° 1	8°54	13°27	11°52	8°10	4°21	T13
W14	9 37 13	25°34'33	1°B52	0°B18	16°14	13°R55	27°24	5°50	10°12	7° 3	8°56	13°21	11°48	8°17	4°22	W14
T15	9 41 9	26°35'12	13°58	1°31	17°29	13°55	27°24	5°54	10°12	7° 5	8°58	13°13	11°45	8°24	4°24	T15
F16	9 45 6	27°35'49	25°58	2°45	18°44	13°54	27°23	5°58	10°D12	7° 7	9° 0	13° 4	11°42	8°31	4°26	F16
S17	9 49 2	28°36'24	7°V52	4° 1	19°59	13°53	27°21	6° 3	10°12	7° 8	9° 2	12°55	11°39	8°37	4°28	S17
S18	9 52 59	29°36'58	19°44	5°18	21°14	13°50	27°20	6° 7	10°12	7°10	9° 3	12°47	11°36	8°44	4°30	S18
M19	9 56 56	0°37'30	1°B35	6°37	22°30	13°47	27°19	6°12	10°13	7°12	9° 5	12°41	11°33	8°51	4°32	M19
T20	10 0 52	1°38'00	13°30	7°57	23°45	13°43	27°17	6°16	10°13	7°14	9° 7	12°37	11°29	8°58	4°34	T20
W21	10 4 49	2°38'28	25°33	9°19	25° 0	13°39	27°15	6°21	10°13	7°16	9° 9	12°35	11°26	9° 4	4°36	W21
T22	10 8 45	3°38'55	7°II49	10°42	26°15	13°33	27°13	6°26	10°13	7°18	9°10	12°D35	11°23	9°11	4°38	T22
F23	10 12 42	4°39'20	20°24	12° 6	27°30	13°27	27°11	6°31	10°13	7°20	9°12	12°35	11°20	9°18	4°41	F23
S24	10 16 38	5°39'43	3°B20	13°31	28°45	13°20	27° 8	6°36	10°14	7°22	9°14	12°37	11°17	9°24	4°43	S24
S25	10 20 35	6°40'04	16°43	14°58	29°59	13°12	27° 6	6°41	10°14	7°24	9°16	12°R37	11°13	9°31	4°45	S25
M26	10 24 31	7°40'23	0°B35	16°25	1°B15	13° 4	27° 3	6°46	10°15	7°26	9°17	12°35	11°10	9°38	4°47	M26
T27	10 28 28	8°40'40	14°55	17°54	2°30	12°54	27° 0	6°51	10°15	7°28	9°19	12°32	11° 7	9°45	4°50	T27
W28	10 32 25	9°40'55	29°L39	19°B24	3°B45	12°B44	26°B57	6°B56	10°II16	7°V30	9°B21	12°B25	11°B 4	9°V51	4°B52	W28

Delta T = 69.06 sec

## ASTRODIENST EPHEMERIS for the year 2029

geocentric

MARCH 2029

00:00 UT

Day	Sid.t	☉	☽	♀	♂	♂	♂	♂	♂	♂	♂	♂	♂	♂	♂	Day
T 1	10 36 21	10°41'08	14°42'42	20°55'55	5°41'00	12°R33	26°R53	7°8'1	10°II17	7°Y32	9°22	12°R17	11°3'1	9°Y58	4°8'55	T 1
F 2	10 40 18	11°41'19	29°53	22°27	6°15	12°22	26°50	7°7	10°17	7°34	9°24	12°3'8	10°58	10°5	4°57	F 2
S 3	10 44 14	12°41'29	15°2	24°0	7°30	12°9	26°46	7°12	10°18	7°36	9°26	11°59	10°54	10°12	5°0	S 3
S 4	10 48 11	13°41'38	29°59	25°34	8°45	11°56	26°42	7°18	10°19	7°38	9°27	11°51	10°51	10°18	5°2	S 4
M 5	10 52 7	14°41'44	14°36	27°10	10°0	11°43	26°38	7°23	10°20	7°41	9°29	11°45	10°48	10°25	5°5	M 5
T 6	10 56 4	15°41'49	28°49	28°46	11°14	11°28	26°34	7°29	10°21	7°43	9°30	11°41	10°45	10°32	5°8	T 6
W 7	11 0 0	16°41'53	12°36	0°23	12°29	11°13	26°30	7°35	10°22	7°45	9°32	11°D40	10°42	10°38	5°11	W 7
T 8	11 3 57	17°41'55	25°59	2°2	13°44	10°57	26°25	7°41	10°23	7°47	9°34	11°40	10°39	10°45	5°13	T 8
F 9	11 7 54	18°41'56	9°3	3°42	14°59	10°40	26°21	7°47	10°24	7°49	9°35	11°R41	10°35	10°52	5°16	F 9
S 10	11 11 50	19°41'55	21°44	5°23	16°14	10°23	26°16	7°53	10°25	7°51	9°37	11°40	10°32	10°59	5°19	S 10
S 11	11 15 47	20°41'52	4°14	7°5	17°29	10°5	26°11	7°59	10°26	7°53	9°38	11°38	10°29	11°5	5°22	S 11
M12	11 19 43	21°41'48	16°32	8°48	18°44	9°46	26°6	8°5	10°27	7°56	9°40	11°33	10°26	11°12	5°25	M12
T 13	11 23 40	22°41'41	28°42	10°32	19°59	9°27	26°0	8°11	10°28	7°58	9°41	11°25	10°23	11°19	5°28	T 13
W14	11 27 36	23°41'33	10°45	12°17	21°13	9°7	25°55	8°17	10°30	8°0	9°43	11°14	10°19	11°25	5°31	W14
T 15	11 31 33	24°41'23	22°43	14°4	22°28	8°47	25°49	8°23	10°31	8°2	9°44	11°2	10°16	11°32	5°34	T 15
F 16	11 35 29	25°41'11	4°Y38	15°52	23°43	8°26	25°44	8°30	10°32	8°5	9°45	10°48	10°13	11°39	5°37	F 16
S 17	11 39 26	26°40'57	16°30	17°41	24°58	8°5	25°38	8°36	10°34	8°7	9°47	10°33	10°10	11°46	5°40	S 17
S 18	11 43 23	27°40'41	28°22	19°31	26°13	7°44	25°32	8°42	10°35	8°9	9°48	10°21	10°7	11°52	5°43	S 18
M19	11 47 19	28°40'23	10°14	21°22	27°27	7°22	25°26	8°49	10°37	8°11	9°50	10°10	10°4	11°59	5°46	M19
T 20	11 51 16	29°40'02	22°10	23°15	28°42	7°0	25°20	8°55	10°38	8°14	9°51	10°2	10°0	12°6	5°49	T 20
W21	11 55 12	0°Y39'40	4°II13	25°9	29°57	6°37	25°13	9°2	10°40	8°16	9°52	9°57	9°57	12°13	5°53	W21
T 22	11 59 9	1°39'15	16°28	27°4	1°Y11	6°14	25°7	9°9	10°42	8°18	9°54	9°54	9°54	12°19	5°56	T 22
F 23	12 3 5	2°38'48	28°58	29°0	2°26	5°51	25°0	9°15	10°44	8°20	9°55	9°53	9°51	12°26	5°59	F 23
S 24	12 7 2	3°38'19	11°48	0°Y57	3°41	5°28	24°54	9°22	10°45	8°23	9°56	9°53	9°48	12°33	6°2	S 24
S 25	12 10 58	4°37'47	25°3	2°56	4°55	5°5	24°47	9°29	10°47	8°25	9°57	9°53	9°44	12°39	6°6	S 25
M26	12 14 55	5°37'13	8°14	4°55	6°10	4°41	24°40	9°36	10°49	8°27	9°59	9°51	9°41	12°46	6°9	M26
T 27	12 18 52	6°36'37	23°1	6°56	7°25	4°18	24°33	9°42	10°51	8°29	10°0	9°46	9°38	12°53	6°12	T 27
W28	12 22 48	7°35'58	7°43	8°57	8°39	3°55	24°26	9°49	10°53	8°32	10°1	9°39	9°35	13°0	6°16	W28
T 29	12 26 45	8°35'17	22°48	10°59	9°54	3°31	24°19	9°56	10°55	8°34	10°2	9°29	9°32	13°6	6°19	T 29
F 30	12 30 41	9°34'34	8°7	13°2	11°8	3°8	24°12	10°3	10°57	8°36	10°3	9°18	9°29	13°13	6°23	F 30
S 31	12 34 38	10°Y33'49	23°28	15°Y5	12°Y23	2°45	24°4	10°10	10°II59	8°Y38	10°4	9°3	9°25	13°Y20	6°26	S 31

Delta T = 69.08 sec

APRIL 2029

00:00 UT

Day	Sid.t	☉	☽	♀	♂	♂	♂	♂	♂	♂	♂	♂	♂	♂	♂	Day
S 1	12 38 34	11°Y33'02	8°M41	17°Y8	13°Y37	2°R22	23°R57	10°17	11°II1	8°Y41	10°5	8°R57	9°22	13°Y26	6°8'30	S 1
M 2	12 42 31	12°32'14	23°34	19°11	14°52	2°0	23°50	10°25	11°3	8°43	10°6	8°49	9°19	13°33	6°33	M 2
T 3	12 46 27	13°31'23	8°1	21°14	16°6	1°37	23°42	10°32	11°6	8°45	10°7	8°44	9°16	13°40	6°37	T 3
W 4	12 50 24	14°30'31	21°59	23°16	17°21	1°15	23°35	10°39	11°8	8°48	10°8	8°42	9°13	13°47	6°40	W 4
T 5	12 54 21	15°29'37	5°38	25°18	18°35	0°53	23°27	10°46	11°10	8°50	10°9	8°D41	9°10	13°53	6°44	T 5
F 6	12 58 17	16°28'41	18°32	27°18	19°49	0°32	23°20	10°53	11°12	8°52	10°10	8°R41	9°6	14°0	6°47	F 6
S 7	13 2 14	17°27'43	1°14	29°17	21°4	0°11	23°12	11°1	11°15	8°54	10°11	8°40	9°3	14°7	6°51	S 7
S 8	13 6 10	18°26'44	13°38	1°13	22°18	29°51	23°5	11°8	11°17	8°57	10°12	8°38	9°0	14°14	6°55	S 8
M 9	13 10 7	19°25'43	25°49	3°8	23°33	29°31	22°57	11°15	11°20	8°59	10°13	8°33	8°57	14°20	6°58	M 9
T 10	13 14 3	20°24'40	7°51	4°59	24°47	29°11	22°49	11°23	11°22	9°1	10°14	8°26	8°54	14°27	7°2	T 10
W11	13 18 0	21°23'35	19°47	6°48	26°1	28°53	22°41	11°30	11°25	9°3	10°15	8°15	8°50	14°34	7°6	W11
T 12	13 21 56	22°22'28	1°Y40	8°33	27°16	28°34	22°34	11°37	11°27	9°6	10°16	8°3	8°47	14°40	7°9	T 12
F 13	13 25 53	23°21'20	13°32	10°15	28°30	28°17	22°26	11°45	11°30	9°8	10°16	7°49	8°44	14°47	7°13	F 13
S 14	13 29 49	24°20'09	25°24	11°52	29°44	28°0	22°18	11°52	11°32	9°10	10°17	7°36	8°41	14°54	7°17	S 14
S 15	13 33 46	25°18'56	7°17	13°25	0°58	27°43	22°11	12°0	11°35	9°12	10°18	7°23	8°38	15°1	7°20	S 15
M16	13 37 43	26°17'42	19°14	14°54	2°13	27°28	22°3	12°7	11°38	9°14	10°18	7°12	8°35	15°7	7°24	M16
T 17	13 41 39	27°16'25	1°II16	16°18	3°27	27°13	21°55	12°15	11°41	9°17	10°19	7°4	8°31	15°14	7°28	T 17
W18	13 45 36	28°15'07	13°25	17°38	4°41	26°59	21°48	12°22	11°43	9°19	10°20	6°59	8°28	15°21	7°32	W18
T 19	13 49 32	29°13'46	25°44	18°52	5°55	26°45	21°40	12°30	11°46	9°21	10°20	6°57	8°25	15°28	7°35	T 19
F 20	13 53 29	0°12'23	8°17	20°1	7°9	26°32	21°33	12°38	11°49	9°23	10°21	6°D56	8°22	15°34	7°39	F 20
S 21	13 57 25	1°10'58	21°7	21°5	8°24	26°20	21°25	12°45	11°52	9°25	10°22	6°57	8°19	15°41	7°43	S 21
S 22	14 1 22	2°9'31	4°18	22°3	9°38	26°9	21°18	12°53	11°55	9°27	10°22	6°R57	8°16	15°48	7°47	S 22
M23	14 5 18	3°8'01	17°54	22°56	10°52	25°59	21°10	13°0	11°58	9°29	10°23	6°56	8°12	15°54	7°50	M23
T 24	14 9 15	4°6'29	1°17	23°44	12°6	25°49	21°3	13°8	12°1	9°32	10°23	6°53	8°9	16°1	7°54	T 24
W25	14 13 12	5°4'55	16°26	24°26	13°20	25°41	20°55	13°16	12°3	9°34	10°24	6°48	8°6	16°8	7°58	W25
T 26	14 17 8	6°3'19	1°18	25°2	14°34	25°33	20°48	13°23	12°6	9°36	10°24	6°40	8°3	16°15	8°2	T 26
F 27	14 21 5	7°1'41	16°27	25°32	15°48	25°25	20°41	13°31	12°9	9°38	10°24	6°32	8°0	16°21	8°6	F 27
S 28	14 25 1	8°0'01	1°42	25°57	17°2	25°19	20°34	13°39	12°13	9°40	10°25	6°23	7°56	16°28	8°9	S 28
S 29	14 28 58	8°58'19	16°53	26°16	18°16	25°13	20°27	13°47	12°16	9°42	10°25	6°15	7°53	16°35	8°13	S 29
M30	14 32 54	9°56'36	1°49	26°30	19°30	25°19	20°20	13°54	12°II19	9°Y44	10°25	6°3	7°50	16°Y41	8°17	M30

Delta T = 69.10 sec

## ASTRODIENST EPHEMERIS for the year 2029

geocentric

MAY 2029

00:00 UT

Day	Sid.t	☉	☽	♀	♂	♂	♂	♂	♂	♂	♂	♂	♂	♂	♂	Day
T 1	14 36 51	10♈54'50	16♌23	26♈38	20♈44	25°R 4	20°R13	14♈2	12♈22	9♈46	10♈26	6°R 5	7♈47	16♈48	8♈21	T 1
W 2	14 40 47	11°53'04	0♈30	26°R40	21°58	25°R 1	20♈6	14°10	12°25	9°48	10°26	6°D 3	7°44	16°55	8°25	W 2
T 3	14 44 44	12°51'16	14° 8	26°38	23°12	24°59	20° 0	14°17	12°28	9°50	10°26	6° 3	7°41	17° 2	8°28	T 3
F 4	14 48 41	13°49'26	27°18	26°30	24°25	24°57	19°53	14°25	12°31	9°52	10°26	6° 4	7°37	17° 8	8°32	F 4
S 5	14 52 37	14°47'35	10♈4	26°17	25°39	24°56	19°47	14°33	12°35	9°54	10°27	6°R 5	7°34	17°15	8°36	S 5
S 6	14 56 34	15°45'42	22°31	26° 0	26°53	24°D56	19°40	14°40	12°38	9°56	10°27	6° 5	7°31	17°22	8°40	S 6
M 7	15 0 30	16°43'48	4♈42	25°38	28° 7	24°56	19°34	14°48	12°41	9°58	10°27	6° 3	7°28	17°29	8°43	M 7
T 8	15 4 27	17°41'52	16°42	25°13	29°21	24°58	19°28	14°56	12°44	10° 0	10°27	6° 0	7°25	17°35	8°47	T 8
W 9	15 8 23	18°39'55	28°36	24°45	0♈35	25° 0	19°22	15° 4	12°48	10° 2	10°27	5°54	7°21	17°42	8°51	W 9
T 10	15 12 20	19°37'57	10♈27	24°13	1°48	25° 2	19°16	15°11	12°51	10° 3	10°27	5°46	7°18	17°49	8°55	T 10
F 11	15 16 16	20°35'57	22°19	23°40	3° 2	25° 6	19°11	15°19	12°54	10° 5	10°R27	5°38	7°15	17°55	8°58	F 11
S 12	15 20 13	21°33'56	4♈13	23° 5	4°16	25°10	19° 5	15°27	12°58	10° 7	10°27	5°29	7°12	18° 2	9° 2	S 12
S 13	15 24 10	22°31'53	16°12	22°30	5°29	25°15	19° 0	15°34	13° 1	10° 9	10°27	5°22	7° 9	18° 9	9° 6	S 13
M14	15 28 6	23°29'49	28°17	21°54	6°43	25°20	18°54	15°42	13° 4	10°11	10°27	5°15	7° 6	18°16	9°10	M14
T 15	15 32 3	24°27'43	10♈29	21°18	7°57	25°27	18°49	15°50	13° 8	10°12	10°27	5°11	7° 2	18°22	9°13	T 15
W16	15 35 59	25°25'36	22°51	20°44	9°11	25°34	18°44	15°57	13°11	10°14	10°27	5° 8	6°59	18°29	9°17	W16
T 17	15 39 56	26°23'27	5♈22	20°10	10°24	25°41	18°39	16° 5	13°14	10°16	10°27	5°D 7	6°56	18°36	9°21	T 17
F 18	15 43 52	27°21'17	18° 7	19°39	11°38	25°49	18°34	16°13	13°18	10°18	10°27	5° 8	6°53	18°42	9°24	F 18
S 19	15 47 49	28°19'05	1♈6	19°11	12°51	25°58	18°30	16°20	13°21	10°19	10°26	5° 9	6°50	18°49	9°28	S 19
S 20	15 51 45	29°16'51	14°22	18°46	14° 5	26° 8	18°25	16°28	13°25	10°21	10°26	5°11	6°47	18°56	9°32	S 20
M21	15 55 42	0♈14'36	27°58	18°24	15°19	26°18	18°21	16°35	13°28	10°22	10°26	5°R11	6°43	19° 3	9°35	M21
T 22	15 59 39	1°12'19	11♈53	18° 5	16°32	26°29	18°17	16°43	13°32	10°24	10°26	5°11	6°40	19° 9	9°39	T 22
W23	16 3 35	2°10'00	26° 9	17°51	17°46	26°40	18°13	16°51	13°35	10°26	10°25	5° 9	6°37	19°16	9°42	W23
T 24	16 7 32	3° 7'40	10♈43	17°41	18°59	26°52	18° 9	16°58	13°39	10°27	10°25	5° 6	6°34	19°23	9°46	T 24
F 25	16 11 28	4° 5'18	25°31	17°35	20°12	27° 5	18° 6	17° 6	13°42	10°29	10°25	5° 2	6°31	19°29	9°50	F 25
S 26	16 15 25	5° 2'55	10♈25	17°D34	21°26	27°18	18° 2	17°13	13°46	10°30	10°24	4°58	6°27	19°36	9°53	S 26
S 27	16 19 21	6° 0'30	25°18	17°37	22°39	27°31	17°59	17°21	13°49	10°32	10°24	4°54	6°24	19°43	9°57	S 27
M28	16 23 18	6°58'04	10♈2	17°44	23°53	27°45	17°56	17°28	13°53	10°33	10°23	4°51	6°21	19°50	10° 0	M28
T 29	16 27 14	7°55'38	24°29	17°57	25° 6	28° 0	17°53	17°35	13°56	10°35	10°23	4°49	6°18	19°56	10° 4	T 29
W30	16 31 11	8°53'10	8♈33	18°13	26°19	28°15	17°50	17°43	14° 0	10°36	10°22	4°D49	6°15	20° 3	10° 7	W30
T 31	16 35 8	9♈50'41	22♈13	18♈34	27♈33	28♈31	17♈48	17♈50	14♈3	10♈37	10♈22	4♈50	6♈12	20♈10	10♈10	T 31

Delta T = 69.12 sec

JUNE 2029

00:00 UT

Day	Sid.t	☉	☽	♀	♂	♂	♂	♂	♂	♂	♂	♂	♂	♂	♂	Day
F 1	16 39 4	10♈48'11	5♈28	19♈0	28♈46	28♈47	17°R45	17♈58	14♈7	10♈39	10°R21	4♈51	6♈8	20♈17	10♈14	F 1
S 2	16 43 1	11°45'40	18°19	19°29	29°59	29° 4	17♈43	18° 5	14°10	10°40	10♈21	4°53	6° 5	20°23	10°17	S 2
S 3	16 46 57	12°43'09	0♈50	20° 3	1♈13	29°21	17°41	18°12	14°14	10°41	10°20	4°54	6° 2	20°30	10°21	S 3
M 4	16 50 54	13°40'37	13° 4	20°41	2°26	29°38	17°39	18°19	14°17	10°43	10°20	4°R54	5°59	20°37	10°24	M 4
T 5	16 54 50	14°38'04	25° 6	21°23	3°39	29°56	17°38	18°27	14°21	10°44	10°19	4°54	5°56	20°43	10°27	T 5
W 6	16 58 47	15°35'30	7♈1	22° 8	4°52	0♈15	17°36	18°34	14°24	10°45	10°18	4°53	5°53	20°50	10°30	W 6
T 7	17 2 43	16°32'56	18°53	22°58	6° 6	0°34	17°35	18°41	14°28	10°46	10°18	4°51	5°49	20°57	10°34	T 7
F 8	17 6 40	17°30'21	0♈46	23°51	7°19	0°53	17°34	18°48	14°32	10°47	10°17	4°48	5°46	21° 4	10°37	F 8
S 9	17 10 37	18°27'45	12°44	24°47	8°32	1°13	17°33	18°55	14°35	10°49	10°16	4°46	5°43	21°10	10°40	S 9
S 10	17 14 33	19°25'09	24°49	25°48	9°45	1°33	17°32	19° 2	14°39	10°50	10°16	4°43	5°40	21°17	10°43	S 10
M11	17 18 30	20°22'32	7♈3	26°51	10°58	1°54	17°31	19° 9	14°42	10°51	10°15	4°42	5°37	21°24	10°46	M11
T 12	17 22 26	21°19'55	19°29	27°58	12°11	2°15	17°31	19°16	14°46	10°52	10°14	4°40	5°33	21°30	10°49	T 12
W13	17 26 23	22°17'17	2♈7	29° 9	13°25	2°36	17°30	19°23	14°49	10°53	10°13	4°D40	5°30	21°37	10°53	W13
T 14	17 30 19	23°14'38	14°58	0♈23	14°38	2°58	17°D30	19°30	14°53	10°54	10°12	4°40	5°27	21°44	10°56	T 14
F 15	17 34 16	24°11'58	28° 2	1°39	15°51	3°20	17°31	19°37	14°56	10°55	10°12	4°41	5°24	21°51	10°59	F 15
S 16	17 38 13	25° 9'17	11♈20	3° 0	17° 4	3°43	17°31	19°44	15° 0	10°56	10°11	4°42	5°21	21°57	11° 2	S 16
S 17	17 42 9	26° 6'36	24°52	4°23	18°17	4° 6	17°31	19°50	15° 3	10°57	10°10	4°42	5°18	22° 4	11° 4	S 17
M18	17 46 6	27° 3'54	8♈37	5°49	19°30	4°29	17°32	19°57	15° 7	10°57	10° 9	4°43	5°14	22°11	11° 7	M18
T 19	17 50 2	28° 1'10	22°35	7°19	20°43	4°53	17°33	20° 4	15°10	10°58	10° 8	4°R43	5°11	22°17	11°10	T 19
W20	17 53 59	28°58'26	6♈45	8°51	21°56	5°17	17°34	20°10	15°14	10°59	10° 7	4°43	5° 8	22°24	11°13	W20
T 21	17 57 55	29°55'42	21° 5	10°27	23° 9	5°41	17°35	20°17	15°17	11° 0	10° 6	4°43	5° 5	22°31	11°16	T 21
F 22	18 1 52	0♈52'56	5♈31	12° 5	24°21	6° 6	17°36	20°23	15°21	11° 0	10° 5	4°43	5° 2	22°38	11°19	F 22
S 23	18 5 48	1°50'10	19°59	13°47	25°34	6°31	17°38	20°30	15°24	11° 1	10° 4	4°42	4°59	22°44	11°21	S 23
S 24	18 9 45	2°47'23	4♈26	15°31	26°47	6°56	17°40	20°36	15°27	11° 2	10° 3	4°42	4°55	22°51	11°24	S 24
M25	18 13 42	3°44'36	18°45	17°19	28° 0	7°22	17°42	20°43	15°31	11° 2	10° 2	4°42	4°52	22°58	11°27	M25
T 26	18 17 38	4°41'49	2♈52	19° 9	29°13	7°48	17°44	20°49	15°34	11° 3	10° 1	4°42	4°49	23° 4	11°29	T 26
W27	18 21 35	5°39'01	16°43	21° 2	0♈25	8°14	17°46	20°55	15°38	11° 4	10° 0	4°42	4°46	23°11	11°32	W27
T 28	18 25 31	6°36'13	0♈14	22°57	1°38	8°41	17°48	21° 1	15°41	11° 4	9°59	4°42	4°43	23°18	11°34	T 28
F 29	18 29 28	7°33'25	13°25	24°55	2°51	9° 7	17°51	21° 8	15°44	11° 5	9°58	4°42	4°39	23°25	11°37	F 29
S 30	18 33 24	8♈30'36	26♈16	26♈56	4♈3	9♈35	17♈54	21♈14	15♈48	11♈5	9♈56	4♈41	4♈36	23♈31	11♈39	S 30

Delta T = 69.14 sec

## ASTRODIENST EPHEMERIS for the year 2029

geocentric

JULY 2029

00:00 UT

Day	Sid.t	☉	☽	♀	♂	♂	♂	♂	♂	♂	♂	♂	♂	♂	♂	Day
S 1	18 37 21	9°27'48	8°48'	28°58'	5°16'	10°12'	17°56'	21°20'	15°51'	11°06'	9°55'	4°R41	4°33'	23°38'	11°42'	S 1
M 2	18 41 17	10°25'00	21° 4'	18° 2'	6°29'	10°30'	18° 0'	21°26'	15°54'	11° 6'	9°54'	4°340	4°30'	23°45'	11°44'	M 2
T 3	18 45 14	11°22'12	3°09'	3° 8'	7°41'	10°57'	18° 3'	21°32'	15°58'	11° 6'	9°53'	4°40'	4°27'	23°52'	11°46'	T 3
W 4	18 49 11	12°19'24	15° 5'	5°16'	8°54'	11°26'	18° 6'	21°37'	16° 1'	11° 7'	9°52'	4°D40	4°24'	23°58'	11°49'	W 4
T 5	18 53 7	13°16'36	26°58'	7°24'	10° 6'	11°54'	18°10'	21°43'	16° 4'	11° 7'	9°51'	4°40'	4°20'	24° 5'	11°51'	T 5
F 6	18 57 4	14°13'49	8°52'	9°33'	11°19'	12°23'	18°14'	21°49'	16° 7'	11° 7'	9°49'	4°41'	4°17'	24°12'	11°53'	F 6
S 7	19 1 0	15°11'02	20°52'	11°43'	12°31'	12°52'	18°17'	21°55'	16°11'	11° 8'	9°48'	4°42'	4°14'	24°18'	11°55'	S 7
S 8	19 4 57	16° 8'15	3°11'	13°53'	13°44'	13°21'	18°22'	22° 0'	16°14'	11° 8'	9°47'	4°43'	4°11'	24°25'	11°57'	S 8
M 9	19 8 53	17° 5'29	15°23'	16° 3'	14°56'	13°50'	18°26'	22° 6'	16°17'	11° 8'	9°46'	4°44'	4° 8'	24°32'	11°59'	M 9
T 10	19 12 50	18° 2'43	28° 1'	18°13'	16° 9'	14°20'	18°30'	22°11'	16°20'	11° 8'	9°44'	4°44'	4° 5'	24°39'	12° 1'	T 10
W 11	19 16 46	18°59'57	10°56'	20°22'	17°21'	14°50'	18°35'	22°17'	16°23'	11° 8'	9°43'	4°R44	4° 1'	24°45'	12° 3'	W 11
T 12	19 20 43	19°57'11	24° 9'	22°31'	18°33'	15°20'	18°39'	22°22'	16°26'	11° 8'	9°42'	4°43'	3°58'	24°52'	12° 5'	T 12
F 13	19 24 40	20°54'26	7°13'	24°38'	19°46'	15°51'	18°44'	22°27'	16°29'	11° 8'	9°41'	4°42'	3°55'	24°59'	12° 7'	F 13
S 14	19 28 36	21°51'40	21°22'	26°45'	20°58'	16°21'	18°49'	22°32'	16°32'	11°R 8'	9°39'	4°40'	3°52'	25° 5'	12° 9'	S 14
S 15	19 32 33	22°48'55	5°18'	28°50'	22°10'	16°52'	18°54'	22°37'	16°35'	11° 8'	9°38'	4°38'	3°49'	25°12'	12°11'	S 15
M 16	19 36 29	23°46'10	19°23'	0°15'	23°22'	17°23'	19° 0'	22°42'	16°38'	11° 8'	9°37'	4°35'	3°45'	25°19'	12°12'	M 16
T 17	19 40 26	24°43'25	3°43'	2°55'	24°35'	17°55'	19° 5'	22°47'	16°41'	11° 8'	9°35'	4°34'	3°42'	25°26'	12°14'	T 17
W 18	19 44 22	25°40'40	17°48'	4°56'	25°47'	18°26'	19°11'	22°52'	16°44'	11° 8'	9°34'	4°33'	3°39'	25°32'	12°16'	W 18
T 19	19 48 19	26°37'55	2°13'	6°55'	26°59'	18°58'	19°17'	22°57'	16°47'	11° 8'	9°33'	4°D32	3°36'	25°39'	12°17'	T 19
F 20	19 52 15	27°35'10	16°13'	8°52'	28°11'	19°30'	19°22'	23° 2'	16°50'	11° 8'	9°31'	4°33'	3°33'	25°46'	12°19'	F 20
S 21	19 56 12	28°32'26	0°20'	10°47'	29°23'	20° 2'	19°29'	23° 6'	16°53'	11° 8'	9°30'	4°35'	3°30'	25°52'	12°20'	S 21
S 22	20 0 9	29°29'41	14°20'	12°41'	0°13'	20°34'	19°35'	23°11'	16°56'	11° 7'	9°29'	4°36'	3°26'	25°59'	12°22'	S 22
M 23	20 4 5	0°12'58	28°12'	14°33'	1°47'	21° 7'	19°41'	23°16'	16°59'	11° 7'	9°27'	4°R37	3°23'	26° 6'	12°23'	M 23
T 24	20 8 2	1°24'14	11°53'	16°23'	2°59'	21°39'	19°48'	23°20'	17° 1'	11° 7'	9°26'	4°37'	3°20'	26°13'	12°24'	T 24
W 25	20 11 58	2°21'31	25°22'	18°12'	4°11'	22°12'	19°54'	23°24'	17° 4'	11° 7'	9°25'	4°35'	3°17'	26°19'	12°26'	W 25
T 26	20 15 55	3°18'49	8°37'	19°58'	5°22'	22°45'	20° 1'	23°28'	17° 7'	11° 6'	9°23'	4°33'	3°14'	26°26'	12°27'	T 26
F 27	20 19 51	4°16'07	21°36'	21°43'	6°34'	23°19'	20° 8'	23°33'	17°10'	11° 6'	9°22'	4°29'	3°11'	26°33'	12°28'	F 27
S 28	20 23 48	5°13'26	4°19'	23°26'	7°46'	23°52'	20°15'	23°37'	17°12'	11° 5'	9°20'	4°24'	3° 7'	26°39'	12°29'	S 28
S 29	20 27 44	6°10'46	16°47'	25° 8'	8°58'	24°26'	20°22'	23°41'	17°15'	11° 5'	9°19'	4°19'	3° 4'	26°46'	12°30'	S 29
M 30	20 31 41	7° 8'07	29° 2'	26°47'	10° 9'	25° 0'	20°29'	23°45'	17°17'	11° 4'	9°18'	4°14'	3° 1'	26°53'	12°31'	M 30
T 31	20 35 38	8°15'29	11°05'	28°15'	11°21'	25°13'	20°37'	23°48'	17°12'	11°04'	9°16'	4°10'	2°58'	26°59'	12°32'	T 31

Delta T = 69.16 sec

AUGUST 2029

00:00 UT

Day	Sid.t	☉	☽	♀	♂	♂	♂	♂	♂	♂	♂	♂	♂	♂	♂	Day
W 1	20 39 34	9°12'51	23°01'	0°13'	12°32'	26°18'	20°44'	23°52'	17°12'	11°R 3'	9°R15	4°R 7'	2°55'	27°06'	12°33'	W 1
T 2	20 43 31	10° 0'15	4°53'	1°36'	13°44'	26°42'	20°52'	23°56'	17°25'	11°03'	9°14'	4°D 5'	2°51'	27°13'	12°34'	T 2
F 3	20 47 27	10°57'40	16°46'	3° 9'	14°55'	27°17'	20°59'	23°59'	17°27'	11° 2'	9°12'	4°3 5'	2°48'	27°20'	12°35'	F 3
S 4	20 51 24	11°55'07	28°46'	4°40'	16° 7'	27°51'	21° 7'	24° 3'	17°30'	11° 2'	9°11'	4° 7'	2°45'	27°26'	12°35'	S 4
S 5	20 55 20	12°52'34	10°15'	6° 9'	17°18'	28°26'	21°15'	24° 6'	17°32'	11° 1'	9° 9'	4° 8'	2°42'	27°33'	12°36'	S 5
M 6	20 59 17	13°50'03	23°23'	7°37'	18°30'	29° 1'	21°23'	24° 9'	17°34'	11° 0'	9° 8'	4° 9'	2°39'	27°40'	12°37'	M 6
T 7	21 3 13	14°47'33	6°58'	9° 3'	19°41'	29°36'	21°32'	24°13'	17°37'	10°59'	9° 7'	4°R10	2°36'	27°46'	12°37'	T 7
W 8	21 7 10	15°45'04	19°15'	10°27'	20°52'	0°12'	21°40'	24°16'	17°39'	10°59'	9° 5'	4° 9'	2°32'	27°53'	12°38'	W 8
T 9	21 11 7	16°42'36	2°14'	11°49'	22° 3'	0°47'	21°49'	24°19'	17°41'	10°58'	9° 4'	4° 6'	2°29'	28° 0'	12°38'	T 9
F 10	21 15 3	17°40'10	16°37'	13° 9'	23°15'	1°23'	21°57'	24°22'	17°43'	10°57'	9° 3'	4° 1'	2°26'	28° 7'	12°38'	F 10
S 11	21 19 0	18°37'44	0°14'	14°28'	24°26'	1°59'	22° 6'	24°24'	17°45'	10°56'	9° 1'	3°55'	2°23'	28°13'	12°39'	S 11
S 12	21 22 56	19°35'20	15°12'	15°44'	25°37'	2°35'	22°15'	24°27'	17°47'	10°55'	9° 0'	3°48'	2°20'	28°20'	12°39'	S 12
M 13	21 26 53	20°32'56	29°43'	16°59'	26°48'	3°11'	22°24'	24°30'	17°50'	10°54'	8°58'	3°41'	2°17'	28°27'	12°39'	M 13
T 14	21 30 49	21°30'34	14°16'	18°11'	27°59'	3°47'	22°33'	24°32'	17°52'	10°53'	8°57'	3°35'	2°13'	28°33'	12°39'	T 14
W 15	21 34 46	22°28'12	28°43'	19°22'	29°10'	4°24'	22°42'	24°35'	17°53'	10°53'	8°56'	3°31'	2°10'	28°40'	12°39'	W 15
T 16	21 38 42	23°25'52	13°12'	20°30'	0°12'	5° 0'	22°51'	24°37'	17°55'	10°52'	8°54'	3°29'	2° 7'	28°47'	12°R40	T 16
F 17	21 42 39	24°23'32	27°10'	21°35'	1°31'	5°37'	23° 0'	24°39'	17°57'	10°51'	8°53'	3°D28	2° 4'	28°54'	12°40'	F 17
S 18	21 46 36	25°21'14	11°14'	22°39'	2°42'	6°14'	23°10'	24°41'	17°59'	10°50'	8°52'	3°29'	2° 1'	29° 0'	12°39'	S 18
S 19	21 50 32	26°18'57	24°46'	23°40'	3°52'	6°51'	23°19'	24°43'	18° 1'	10°48'	8°50'	3°30'	1°57'	29° 7'	12°39'	S 19
M 20	21 54 29	27°16'40	8°15'	24°38'	5° 3'	7°28'	23°29'	24°45'	18° 3'	10°47'	8°49'	3°R30	1°54'	29°14'	12°39'	M 20
T 21	21 58 25	28°14'25	21°32'	25°33'	6°14'	8° 5'	23°39'	24°47'	18° 4'	10°46'	8°48'	3°29'	1°51'	29°20'	12°39'	T 21
W 22	22 2 22	29°12'11	4°37'	26°25'	7°24'	8°43'	23°48'	24°48'	18° 6'	10°45'	8°47'	3°25'	1°48'	29°27'	12°39'	W 22
T 23	22 6 18	0°13'58	17°31'	27°15'	8°34'	9°20'	23°58'	24°50'	18° 8'	10°44'	8°45'	3°18'	1°45'	29°34'	12°38'	T 23
F 24	22 10 15	1° 7'47	0°14'	28° 1'	9°45'	9°58'	24° 8'	24°52'	18° 9'	10°43'	8°44'	3°10'	1°42'	29°40'	12°38'	F 24
S 25	22 14 11	2° 5'37	12°45'	28°43'	10°55'	10°36'	24°18'	24°53'	18°11'	10°42'	8°43'	3° 0'	1°38'	29°47'	12°37'	S 25
S 26	22 18 8	3° 3'28	25° 4'	29°22'	12° 5'	11°14'	24°29'	24°54'	18°12'	10°40'	8°42'	2°49'	1°35'	29°54'	12°37'	S 26
M 27	22 22 5	4° 1'21	7°13'	29°57'	13°15'	11°52'	24°39'	24°55'	18°14'	10°39'	8°40'	2°38'	1°32'	0° 1'	12°36'	M 27
T 28	22 26 1	4°59'16	19°13'	0°12'	14°25'	12°30'	24°49'	24°56'	18°15'	10°38'	8°39'	2°29'	1°29'	0° 7'	12°36'	T 28
W 29	22 29 58	5°57'12	1° 6'	0°54'	15°35'	13° 8'	25° 0'	24°57'	18°16'	10°37'	8°38'	2°21'	1°26'	0°14'	12°35'	W 29
T 30	22 33 54	6°55'11	12°56'	1°15'	16°45'	13°47'	25°10'	24°58'	18°18'	10°35'	8°37'	2°16'	1°23'	0°21'	12°34'	T 30
F 31	22 37 51	7°13'11	24°48'	1°12'	17°15'	14°12'	25°12'	24°59'	18°19'	10°34'	8°36'	2°13'	1°19'	0°27'	12°33'	F 31

Delta T = 69.18 sec

## ASTRODIENST EPHEMERIS for the year 2029

geocentric

SEPTEMBER 2029

00:00 UT

Day	Sid.t	☉	☽	♀	♂	♂	♂	♂	♂	♂	♂	♂	♂	♂	♂	Day
S 1	22 41 47	8 <sup>h</sup> 51'13	6 <sup>h</sup> 45	1 <sup>h</sup> 43	19 <sup>h</sup> 5	15 <sup>h</sup> 4	25 <sup>h</sup> 32	25 <sup>h</sup> 8	18 <sup>h</sup> 20	10 <sup>h</sup> 33	8 <sup>h</sup> 34	2 <sup>h</sup> D12	1 <sup>h</sup> 316	0 <sup>h</sup> 34	12 <sup>h</sup> R33	S 1
S 2	22 45 44	9 <sup>h</sup> 49'17	18 <sup>h</sup> 54	1 <sup>h</sup> 49	20 <sup>h</sup> 14	15 <sup>h</sup> 43	25 <sup>h</sup> 42	25 <sup>h</sup> 0	18 <sup>h</sup> 21	10 <sup>h</sup> 31	8 <sup>h</sup> 33	2 <sup>h</sup> 312	1 <sup>h</sup> 13	0 <sup>h</sup> 41	12 <sup>h</sup> 32	S 2
M 3	22 49 40	10 <sup>h</sup> 47'23	1 <sup>h</sup> 58	1 <sup>h</sup> R49	21 <sup>h</sup> 24	16 <sup>h</sup> 22	25 <sup>h</sup> 53	25 <sup>h</sup> 1	18 <sup>h</sup> 22	10 <sup>h</sup> 30	8 <sup>h</sup> 32	2 <sup>h</sup> R13	1 <sup>h</sup> 10	0 <sup>h</sup> 48	12 <sup>h</sup> 31	M 3
T 4	22 53 37	11 <sup>h</sup> 45'31	14 <sup>h</sup> 4	1 <sup>h</sup> 43	22 <sup>h</sup> 33	17 <sup>h</sup> 1	26 <sup>h</sup> 4	25 <sup>h</sup> 1	18 <sup>h</sup> 23	10 <sup>h</sup> 28	8 <sup>h</sup> 31	2 <sup>h</sup> 12	1 <sup>h</sup> 7	0 <sup>h</sup> 54	12 <sup>h</sup> 30	T 4
W 5	22 57 34	12 <sup>h</sup> 43'41	27 <sup>h</sup> 15	1 <sup>h</sup> 31	23 <sup>h</sup> 43	17 <sup>h</sup> 40	26 <sup>h</sup> 15	25 <sup>h</sup> 1	18 <sup>h</sup> 24	10 <sup>h</sup> 27	8 <sup>h</sup> 30	2 <sup>h</sup> 10	1 <sup>h</sup> 3	1 <sup>h</sup> 1	12 <sup>h</sup> 29	W 5
T 6	23 1 30	13 <sup>h</sup> 41'53	10 <sup>h</sup> 54	1 <sup>h</sup> 13	24 <sup>h</sup> 52	18 <sup>h</sup> 20	26 <sup>h</sup> 26	25 <sup>h</sup> R 1	18 <sup>h</sup> 25	10 <sup>h</sup> 26	8 <sup>h</sup> 29	2 <sup>h</sup> 5	1 <sup>h</sup> 0	1 <sup>h</sup> 8	12 <sup>h</sup> 28	T 6
F 7	23 5 27	14 <sup>h</sup> 40'06	24 <sup>h</sup> 59	0 <sup>h</sup> 48	26 <sup>h</sup> 1	18 <sup>h</sup> 59	26 <sup>h</sup> 37	25 <sup>h</sup> 1	18 <sup>h</sup> 26	10 <sup>h</sup> 24	8 <sup>h</sup> 28	1 <sup>h</sup> 57	0 <sup>h</sup> 57	1 <sup>h</sup> 14	12 <sup>h</sup> 26	F 7
S 8	23 9 23	15 <sup>h</sup> 38'22	9 <sup>h</sup> 29	0 <sup>h</sup> 16	27 <sup>h</sup> 11	19 <sup>h</sup> 39	26 <sup>h</sup> 49	25 <sup>h</sup> 1	18 <sup>h</sup> 27	10 <sup>h</sup> 23	8 <sup>h</sup> 27	1 <sup>h</sup> 48	0 <sup>h</sup> 54	1 <sup>h</sup> 21	12 <sup>h</sup> 25	S 8
S 9	23 13 20	16 <sup>h</sup> 36'39	24 <sup>h</sup> 17	29 <sup>h</sup> 39	28 <sup>h</sup> 20	20 <sup>h</sup> 18	27 <sup>h</sup> 0	25 <sup>h</sup> 1	18 <sup>h</sup> 28	10 <sup>h</sup> 21	8 <sup>h</sup> 26	1 <sup>h</sup> 37	0 <sup>h</sup> 51	1 <sup>h</sup> 28	12 <sup>h</sup> 24	S 9
M10	23 17 16	17 <sup>h</sup> 34'58	9 <sup>h</sup> 14	28 <sup>h</sup> 56	29 <sup>h</sup> 29	20 <sup>h</sup> 58	27 <sup>h</sup> 11	25 <sup>h</sup> 0	18 <sup>h</sup> 28	10 <sup>h</sup> 20	8 <sup>h</sup> 25	1 <sup>h</sup> 26	0 <sup>h</sup> 48	1 <sup>h</sup> 34	12 <sup>h</sup> 22	M10
T 11	23 21 13	18 <sup>h</sup> 33'18	24 <sup>h</sup> 10	28 <sup>h</sup> 7	0 <sup>h</sup> M38	21 <sup>h</sup> 38	27 <sup>h</sup> 23	25 <sup>h</sup> 0	18 <sup>h</sup> 29	10 <sup>h</sup> 18	8 <sup>h</sup> 24	1 <sup>h</sup> 17	0 <sup>h</sup> 44	1 <sup>h</sup> 41	12 <sup>h</sup> 21	T 11
W12	23 25 9	19 <sup>h</sup> 31'41	8 <sup>h</sup> M59	27 <sup>h</sup> 13	1 <sup>h</sup> 46	22 <sup>h</sup> 18	27 <sup>h</sup> 34	24 <sup>h</sup> 59	18 <sup>h</sup> 30	10 <sup>h</sup> 17	8 <sup>h</sup> 23	1 <sup>h</sup> 10	0 <sup>h</sup> 41	1 <sup>h</sup> 48	12 <sup>h</sup> 20	W12
T 13	23 29 6	20 <sup>h</sup> 30'04	23 <sup>h</sup> 32	26 <sup>h</sup> 16	2 <sup>h</sup> 55	22 <sup>h</sup> 58	27 <sup>h</sup> 46	24 <sup>h</sup> 59	18 <sup>h</sup> 30	10 <sup>h</sup> 15	8 <sup>h</sup> 22	1 <sup>h</sup> 5	0 <sup>h</sup> 38	1 <sup>h</sup> 55	12 <sup>h</sup> 18	T 13
F 14	23 33 3	21 <sup>h</sup> 28'30	7 <sup>h</sup> 46	25 <sup>h</sup> 15	4 <sup>h</sup> 4	23 <sup>h</sup> 39	27 <sup>h</sup> 57	24 <sup>h</sup> 58	18 <sup>h</sup> 31	10 <sup>h</sup> 14	8 <sup>h</sup> 21	1 <sup>h</sup> 3	0 <sup>h</sup> 35	2 <sup>h</sup> 1	12 <sup>h</sup> 17	F 14
S 15	23 36 59	22 <sup>h</sup> 26'57	21 <sup>h</sup> 40	24 <sup>h</sup> 14	5 <sup>h</sup> 12	24 <sup>h</sup> 19	28 <sup>h</sup> 9	24 <sup>h</sup> 57	18 <sup>h</sup> 31	10 <sup>h</sup> 12	8 <sup>h</sup> 20	1 <sup>h</sup> D 3	0 <sup>h</sup> 32	2 <sup>h</sup> 8	12 <sup>h</sup> 15	S 15
S 16	23 40 56	23 <sup>h</sup> 25'26	5 <sup>h</sup> 313	23 <sup>h</sup> 11	6 <sup>h</sup> 21	24 <sup>h</sup> 59	28 <sup>h</sup> 21	24 <sup>h</sup> 56	18 <sup>h</sup> 32	10 <sup>h</sup> 10	8 <sup>h</sup> 19	1 <sup>h</sup> R 3	0 <sup>h</sup> 28	2 <sup>h</sup> 15	12 <sup>h</sup> 13	S 16
M17	23 44 52	24 <sup>h</sup> 23'56	18 <sup>h</sup> 29	22 <sup>h</sup> 10	7 <sup>h</sup> 29	25 <sup>h</sup> 40	28 <sup>h</sup> 33	24 <sup>h</sup> 55	18 <sup>h</sup> 32	10 <sup>h</sup> 9	8 <sup>h</sup> 18	1 <sup>h</sup> 2	0 <sup>h</sup> 25	2 <sup>h</sup> 21	12 <sup>h</sup> 12	M17
T 18	23 48 49	25 <sup>h</sup> 22'28	1 <sup>h</sup> 30	21 <sup>h</sup> 12	8 <sup>h</sup> 37	26 <sup>h</sup> 21	28 <sup>h</sup> 44	24 <sup>h</sup> 54	18 <sup>h</sup> 32	10 <sup>h</sup> 7	8 <sup>h</sup> 17	0 <sup>h</sup> 59	0 <sup>h</sup> 22	2 <sup>h</sup> 28	12 <sup>h</sup> 10	T 18
W19	23 52 45	26 <sup>h</sup> 21'01	14 <sup>h</sup> 17	20 <sup>h</sup> 18	9 <sup>h</sup> 45	27 <sup>h</sup> 2	28 <sup>h</sup> 56	24 <sup>h</sup> 53	18 <sup>h</sup> 33	10 <sup>h</sup> 6	8 <sup>h</sup> 16	0 <sup>h</sup> 54	0 <sup>h</sup> 19	2 <sup>h</sup> 35	12 <sup>h</sup> 8	W19
T 20	23 56 42	27 <sup>h</sup> 19'37	26 <sup>h</sup> 53	19 <sup>h</sup> 29	10 <sup>h</sup> 53	27 <sup>h</sup> 42	29 <sup>h</sup> 8	24 <sup>h</sup> 51	18 <sup>h</sup> 33	10 <sup>h</sup> 4	8 <sup>h</sup> 16	0 <sup>h</sup> 45	0 <sup>h</sup> 16	2 <sup>h</sup> 41	12 <sup>h</sup> 6	T 20
F 21	0 3 38	28 <sup>h</sup> 18'13	9 <sup>h</sup> 19	18 <sup>h</sup> 47	12 <sup>h</sup> 1	28 <sup>h</sup> 24	29 <sup>h</sup> 20	24 <sup>h</sup> 50	18 <sup>h</sup> 33	10 <sup>h</sup> 2	8 <sup>h</sup> 15	0 <sup>h</sup> 34	0 <sup>h</sup> 13	2 <sup>h</sup> 48	12 <sup>h</sup> 5	F 21
S 22	0 4 35	29 <sup>h</sup> 16'52	21 <sup>h</sup> 36	18 <sup>h</sup> 13	13 <sup>h</sup> 9	29 <sup>h</sup> 5	29 <sup>h</sup> 32	24 <sup>h</sup> 48	18 <sup>h</sup> 33	10 <sup>h</sup> 1	8 <sup>h</sup> 14	0 <sup>h</sup> 21	0 <sup>h</sup> 9	2 <sup>h</sup> 55	12 <sup>h</sup> 3	S 22
S 23	0 8 31	0 <sup>h</sup> 15'33	3 <sup>h</sup> Y44	17 <sup>h</sup> 48	14 <sup>h</sup> 16	29 <sup>h</sup> 46	29 <sup>h</sup> 45	24 <sup>h</sup> 46	18 <sup>h</sup> 33	9 <sup>h</sup> 59	8 <sup>h</sup> 13	0 <sup>h</sup> 7	0 <sup>h</sup> 6	3 <sup>h</sup> 2	12 <sup>h</sup> 1	S 23
M24	0 12 28	1 <sup>h</sup> 14'16	15 <sup>h</sup> 46	17 <sup>h</sup> 33	15 <sup>h</sup> 24	0 <sup>h</sup> 27	29 <sup>h</sup> 57	24 <sup>h</sup> 44	18 <sup>h</sup> R33	9 <sup>h</sup> 58	8 <sup>h</sup> 13	29 <sup>h</sup> 53	0 <sup>h</sup> 3	3 <sup>h</sup> 8	11 <sup>h</sup> 59	M24
T 25	0 16 25	2 <sup>h</sup> 13'00	27 <sup>h</sup> 41	17 <sup>h</sup> D27	16 <sup>h</sup> 31	1 <sup>h</sup> 9	0 <sup>h</sup> M 9	24 <sup>h</sup> 43	18 <sup>h</sup> 33	9 <sup>h</sup> 56	8 <sup>h</sup> 12	29 <sup>h</sup> 40	29 <sup>h</sup> 59	3 <sup>h</sup> 15	11 <sup>h</sup> 57	T 25
W26	0 20 21	3 <sup>h</sup> 11'47	9 <sup>h</sup> 32	17 <sup>h</sup> 31	17 <sup>h</sup> 38	1 <sup>h</sup> 50	0 <sup>h</sup> 21	24 <sup>h</sup> 41	18 <sup>h</sup> 33	9 <sup>h</sup> 54	8 <sup>h</sup> 11	29 <sup>h</sup> 30	29 <sup>h</sup> 57	3 <sup>h</sup> 22	11 <sup>h</sup> 55	W26
T 27	0 24 18	4 <sup>h</sup> 10'36	21 <sup>h</sup> 21	17 <sup>h</sup> 45	18 <sup>h</sup> 45	2 <sup>h</sup> 32	0 <sup>h</sup> 34	24 <sup>h</sup> 38	18 <sup>h</sup> 33	9 <sup>h</sup> 53	8 <sup>h</sup> 11	29 <sup>h</sup> 23	29 <sup>h</sup> 54	3 <sup>h</sup> 28	11 <sup>h</sup> 52	T 27
F 28	0 28 14	5 <sup>h</sup> 9'27	3 <sup>h</sup> II11	18 <sup>h</sup> 9	19 <sup>h</sup> 52	3 <sup>h</sup> 13	0 <sup>h</sup> 46	24 <sup>h</sup> 36	18 <sup>h</sup> 33	9 <sup>h</sup> 51	8 <sup>h</sup> 10	29 <sup>h</sup> 18	29 <sup>h</sup> 50	3 <sup>h</sup> 35	11 <sup>h</sup> 50	F 28
S 29	0 32 11	6 <sup>h</sup> 8'21	15 <sup>h</sup> 7	18 <sup>h</sup> 43	20 <sup>h</sup> 59	3 <sup>h</sup> 55	0 <sup>h</sup> 58	24 <sup>h</sup> 34	18 <sup>h</sup> 32	9 <sup>h</sup> 49	8 <sup>h</sup> 9	29 <sup>h</sup> 16	29 <sup>h</sup> 47	3 <sup>h</sup> 42	11 <sup>h</sup> 48	S 29
S 30	0 36 7	7 <sup>h</sup> 17'17	27 <sup>h</sup> II13	19 <sup>h</sup> 25	22 <sup>h</sup> M 5	4 <sup>h</sup> 37	1 <sup>h</sup> M11	24 <sup>h</sup> 32	18 <sup>h</sup> II32	9 <sup>h</sup> Y48	8 <sup>h</sup> 9	29 <sup>h</sup> D15	29 <sup>h</sup> 44	3 <sup>h</sup> 48	11 <sup>h</sup> 46	S 30

Delta T = 69.20 sec

OCTOBER 2029

00:00 UT

Day	Sid.t	☉	☽	♀	♂	♂	♂	♂	♂	♂	♂	♂	♂	♂	♂	Day
M 1	0 40 4	8 <sup>h</sup> 16'15	9 <sup>h</sup> 34	20 <sup>h</sup> 16	23 <sup>h</sup> M12	5 <sup>h</sup> 19	1 <sup>h</sup> M23	24 <sup>h</sup> R29	18 <sup>h</sup> R32	9 <sup>h</sup> R46	8 <sup>h</sup> R 8	29 <sup>h</sup> R15	29 <sup>h</sup> 41	3 <sup>h</sup> 55	11 <sup>h</sup> R44	M 1
T 2	0 44 0	9 <sup>h</sup> 5'15	22 <sup>h</sup> 16	21 <sup>h</sup> 15	24 <sup>h</sup> 18	6 <sup>h</sup> 1	1 <sup>h</sup> 36	24 <sup>h</sup> 26	18 <sup>h</sup> II31	9 <sup>h</sup> Y44	8 <sup>h</sup> 8	29 <sup>h</sup> 15	29 <sup>h</sup> 38	4 <sup>h</sup> 2	11 <sup>h</sup> 41	T 2
W 3	0 47 57	10 <sup>h</sup> 4'18	5 <sup>h</sup> 23	22 <sup>h</sup> 21	25 <sup>h</sup> 24	6 <sup>h</sup> 43	1 <sup>h</sup> 48	24 <sup>h</sup> 24	18 <sup>h</sup> 31	9 <sup>h</sup> 43	8 <sup>h</sup> 7	29 <sup>h</sup> 12	29 <sup>h</sup> 34	4 <sup>h</sup> 9	11 <sup>h</sup> 39	W 3
T 4	0 51 54	11 <sup>h</sup> 3'23	19 <sup>h</sup> 0	23 <sup>h</sup> 33	26 <sup>h</sup> 30	7 <sup>h</sup> 26	2 <sup>h</sup> 1	24 <sup>h</sup> 21	18 <sup>h</sup> 30	9 <sup>h</sup> 41	8 <sup>h</sup> 7	29 <sup>h</sup> 8	29 <sup>h</sup> 31	4 <sup>h</sup> 15	11 <sup>h</sup> 36	T 4
F 5	0 55 50	12 <sup>h</sup> 2'30	3 <sup>h</sup> 26	24 <sup>h</sup> 51	27 <sup>h</sup> 36	8 <sup>h</sup> 8	2 <sup>h</sup> 14	24 <sup>h</sup> 18	18 <sup>h</sup> 30	9 <sup>h</sup> 39	8 <sup>h</sup> 6	29 <sup>h</sup> 1	29 <sup>h</sup> 28	4 <sup>h</sup> 22	11 <sup>h</sup> 34	F 5
S 6	0 59 47	13 <sup>h</sup> 1'39	17 <sup>h</sup> 40	26 <sup>h</sup> 13	28 <sup>h</sup> 42	8 <sup>h</sup> 51	2 <sup>h</sup> 26	24 <sup>h</sup> 15	18 <sup>h</sup> 29	9 <sup>h</sup> 38	8 <sup>h</sup> 6	28 <sup>h</sup> 51	29 <sup>h</sup> 25	4 <sup>h</sup> 29	11 <sup>h</sup> 32	S 6
S 7	1 3 43	14 <sup>h</sup> 0'51	2 <sup>h</sup> 38	27 <sup>h</sup> 40	29 <sup>h</sup> 47	9 <sup>h</sup> 33	2 <sup>h</sup> 39	24 <sup>h</sup> 12	18 <sup>h</sup> 29	9 <sup>h</sup> 36	8 <sup>h</sup> 5	28 <sup>h</sup> 41	29 <sup>h</sup> 22	4 <sup>h</sup> 35	11 <sup>h</sup> 29	S 7
M 8	1 7 40	15 <sup>h</sup> 0'05	17 <sup>h</sup> 50	29 <sup>h</sup> 11	0 <sup>h</sup> 252	10 <sup>h</sup> 16	2 <sup>h</sup> 52	24 <sup>h</sup> 9	18 <sup>h</sup> 28	9 <sup>h</sup> 34	8 <sup>h</sup> 5	28 <sup>h</sup> 30	29 <sup>h</sup> 19	4 <sup>h</sup> 42	11 <sup>h</sup> 27	M 8
T 9	1 11 36	15 <sup>h</sup> 59'20	3 <sup>h</sup> M 5	0 <sup>h</sup> 45	1 <sup>h</sup> 57	10 <sup>h</sup> 59	3 <sup>h</sup> 5	24 <sup>h</sup> 6	18 <sup>h</sup> 27	9 <sup>h</sup> 33	8 <sup>h</sup> 5	28 <sup>h</sup> 20	29 <sup>h</sup> 15	4 <sup>h</sup> 49	11 <sup>h</sup> 24	T 9
W10	1 15 33	16 <sup>h</sup> 58'38	18 <sup>h</sup> 12	2 <sup>h</sup> 21	3 <sup>h</sup> 2	11 <sup>h</sup> 41	3 <sup>h</sup> 17	24 <sup>h</sup> 2	18 <sup>h</sup> 26	9 <sup>h</sup> 31	8 <sup>h</sup> 4	28 <sup>h</sup> 13	29 <sup>h</sup> 12	4 <sup>h</sup> 55	11 <sup>h</sup> 21	W10
T 11	1 19 29	17 <sup>h</sup> 57'58	3 <sup>h</sup> 3	3 <sup>h</sup> 59	4 <sup>h</sup> 7	12 <sup>h</sup> 24	3 <sup>h</sup> 30	23 <sup>h</sup> 59	18 <sup>h</sup> 26	9 <sup>h</sup> 29	8 <sup>h</sup> 4	28 <sup>h</sup> 8	29 <sup>h</sup> 9	5 <sup>h</sup> 2	11 <sup>h</sup> 19	T 11
F 12	1 23 26	18 <sup>h</sup> 57'19	17 <sup>h</sup> 32	5 <sup>h</sup> 39	5 <sup>h</sup> 11	13 <sup>h</sup> 7	3 <sup>h</sup> 43	23 <sup>h</sup> 55	18 <sup>h</sup> 25	9 <sup>h</sup> 28	8 <sup>h</sup> 4	28 <sup>h</sup> 6	29 <sup>h</sup> 6	5 <sup>h</sup> 9	11 <sup>h</sup> 16	F 12
S 13	1 27 23	19 <sup>h</sup> 56'43	1 <sup>h</sup> 35	7 <sup>h</sup> 20	6 <sup>h</sup> 15	13 <sup>h</sup> 51	3 <sup>h</sup> 56	23 <sup>h</sup> 52	18 <sup>h</sup> 24	9 <sup>h</sup> 26	8 <sup>h</sup> 4	28 <sup>h</sup> D 6	29 <sup>h</sup> 3	5 <sup>h</sup> 16	11 <sup>h</sup> 14	S 13
S 14	1 31 19	20 <sup>h</sup> 56'08	15 <sup>h</sup> 12	9 <sup>h</sup> 2	7 <sup>h</sup> 19	14 <sup>h</sup> 34	4 <sup>h</sup> 9	23 <sup>h</sup> 48	18 <sup>h</sup> 23	9 <sup>h</sup> 24	8 <sup>h</sup> 3	28 <sup>h</sup> R 6	29 <sup>h</sup> 0	5 <sup>h</sup> 22	11 <sup>h</sup> 11	S 14
M15	1 35 16	21 <sup>h</sup> 55'34	28 <sup>h</sup> 26	10 <sup>h</sup> 45	8 <sup>h</sup> 23	15 <sup>h</sup> 17	4 <sup>h</sup> 22	23 <sup>h</sup> 45	18 <sup>h</sup> 22	9 <sup>h</sup> 23	8 <sup>h</sup> 3	28 <sup>h</sup> 6	28 <sup>h</sup> 56	5 <sup>h</sup> 29	11 <sup>h</sup> 8	M15
T 16	1 39 12	22 <sup>h</sup> 55'03	11 <sup>h</sup> 30	12 <sup>h</sup> 28	9 <sup>h</sup> 27	16 <sup>h</sup> 0	4 <sup>h</sup> 35	23 <sup>h</sup> 41	18 <sup>h</sup> 21	9 <sup>h</sup> 21	8 <sup>h</sup> 3	28 <sup>h</sup> 4	28 <sup>h</sup> 53	5 <sup>h</sup> 36	11 <sup>h</sup> 5	T 16
W17	1 43 9	23 <sup>h</sup> 54'33	23 <sup>h</sup> 58	14 <sup>h</sup> 12	10 <sup>h</sup> 30	16 <sup>h</sup> 44	4 <sup>h</sup> 48	23 <sup>h</sup> 37	18 <sup>h</sup> 19	9 <sup>h</sup> 19	8 <sup>h</sup> 3	28 <sup>h</sup> 0	28 <sup>h</sup> 50	5 <sup>h</sup> 42	11 <sup>h</sup> 3	W17
T 18	1 47 5	24 <sup>h</sup> 54'05	6 <sup>h</sup> 22	15 <sup>h</sup> 55	11 <sup>h</sup> 33	17 <sup>h</sup> 27	5 <sup>h</sup> 1	23 <sup>h</sup> 33	18 <sup>h</sup> 18	9 <sup>h</sup> 18	8 <sup>h</sup> 3	27 <sup>h</sup> 54	28 <sup>h</sup> 47	5 <sup>h</sup> 49	11 <sup>h</sup> 0	T 18
F 19	1 51 2	25 <sup>h</sup> 53'38	18 <sup>h</sup> 35	17 <sup>h</sup> 39	12 <sup>h</sup> 36	18 <sup>h</sup> 11	5 <sup>h</sup> 14	23 <sup>h</sup> 29	18 <sup>h</sup> 17	9 <sup>h</sup> 16	8 <sup>h</sup> 3	27 <sup>h</sup> 45	28 <sup>h</sup> 44	5 <sup>h</sup> 56	10 <sup>h</sup> 57	F 19
S 20	1 54 58	26 <sup>h</sup> 53'14	0 <sup>h</sup> Y41	19 <sup>h</sup> 22	13 <sup>h</sup> 38	18 <sup>h</sup> 55	5 <sup>h</sup> 27	23 <sup>h</sup> 25	18 <sup>h</sup> 16	9 <sup>h</sup> 15	8 <sup>h</sup> 3	27 <sup>h</sup> 34	28 <sup>h</sup> 40	6 <sup>h</sup> 2	10 <sup>h</sup> 54	S 20
S 21	1 58 55	27 <sup>h</sup> 52'51	12 <sup>h</sup> 40	21 <sup>h</sup> 5	14 <sup>h</sup> 40	19 <sup>h</sup> 38	5 <sup>h</sup> 40	23 <sup>h</sup> 21	18 <sup>h</sup> 14	9 <sup>h</sup> 13	8 <sup>h</sup> D 3	27 <sup>h</sup> 22	28 <sup>h</sup> 37	6 <sup>h</sup> 9	10 <sup>h</sup> 51	S 21
M22	2 2 52	28 <sup>h</sup> 52'31	24 <sup>h</sup> 35	22 <sup>h</sup> 48	15 <sup>h</sup> 42	20 <sup>h</sup> 22	5 <sup>h</sup> 53	23 <sup>h</sup> 17	18 <sup>h</sup> 13	9 <sup>h</sup> 12	8 <sup>h</sup> 3	27 <sup>h</sup> 11	28 <sup>h</sup> 34	6 <sup>h</sup> 16	10 <sup>h</sup> 49	M22
T 23	2 6 48	29 <sup>h</sup> 52'12	6 <sup>h</sup> 27	24 <sup>h</sup> 30	16 <sup>h</sup> 43	21 <sup>h</sup> 6	6 <sup>h</sup> 6	23 <sup>h</sup> 12	18 <sup>h</sup> 12	9 <sup>h</sup> 10	8 <sup>h</sup> 3	27 <sup>h</sup> 0	28 <sup>h</sup> 31	6 <sup>h</sup> 22	10 <sup>h</sup> 46	T 23
W24	2 10 45	0 <sup>h</sup> M51'55	18 <sup>h</sup> 17	26 <sup>h</sup> 12	17 <sup>h</sup> 44	21 <sup>h</sup> 50	6 <sup>h</sup> 19	23 <sup>h</sup> 8	18 <sup>h</sup> 10	9 <sup>h</sup> 9	8 <sup>h</sup> 3	26 <sup>h</sup> 52	28 <sup>h</sup> 28	6 <sup>h</sup> 29	10 <sup>h</sup> 43	W24
T 25	2 14 41	1 <sup>h</sup> 51'41	0 <sup>h</sup> II 7	27 <sup>h</sup> 54	18 <sup>h</sup> 45	22 <sup>h</sup> 34	6 <sup>h</sup> 32	23 <sup>h</sup> 4	18 <sup>h</sup> 9	9 <sup>h</sup> 7	8 <sup>h</sup> 3	26 <sup>h</sup> 45	28 <sup>h</sup> 25	6 <sup>h</sup> 36	10 <sup>h</sup> 40	T 25
F 26	2 18 38	2 <sup>h</sup> 51'28	12 <sup>h</sup> 0	29 <sup>h</sup> 35	19 <sup>h</sup> 46	23 <sup>h</sup> 18	6 <sup>h</sup> 45	22 <sup>h</sup> 59	18 <sup>h</sup> 7	9 <sup>h</sup> 6	8 <sup>h</sup> 3	26 <sup>h</sup> 42	28 <sup>h</sup> 21	6 <sup>h</sup> 43	10 <sup>h</sup> 37	F 26
S 27	2 22 34	3 <sup>h</sup> 51'18	23 <sup>h</sup> 59	1 <sup>h</sup> M15	20 <sup>h</sup> 46	24 <sup>h</sup> 3	6 <sup>h</sup> 58	22 <sup>h</sup> 55	18 <sup>h</sup> 5	9 <sup>h</sup> 4	8 <sup>h</sup> 3	26 <sup>h</sup> D41	28 <sup>h</sup> 18	6 <sup>h</sup> 49	10 <sup>h</sup> 34	S 27
S 28	2 26 31	4 <sup>h</sup> 51'10	6 <sup>h</sup> 26	2 <sup>h</sup> 55	21 <sup>h</sup> 46	24 <sup>h</sup> 47	7 <sup>h</sup> 11	22 <sup>h</sup> 51	18 <sup>h</sup> 4	9 <sup>h</sup> 3	8 <sup>h</sup> 3	26 <sup>h</sup> 41	28 <sup>h</sup> 15	6 <sup>h</sup> 56	10 <sup>h</sup> 31	S 28
M29	2 30 27	5 <sup>h</sup> 51'04	18 <sup>h</sup> 28	4 <sup>h</sup> 35	22 <sup>h</sup> 45	25 <sup>h</sup> 31	7 <sup>h</sup> 25	22 <sup>h</sup> 46	18 <sup>h</sup> 2	9 <sup>h</sup> 1	8 <sup>h</sup> 4	26 <sup>h</sup> 42	28 <sup>h</sup> 12	7 <sup>h</sup> 3	10 <sup>h</sup> 28	M29
T 30	2 34 24	6 <sup>h</sup> 51'00	1 <sup>h</sup> 2	6 <sup>h</sup> 14	23 <sup>h</sup> 44	26 <sup>h</sup> 16	7 <sup>h</sup> 38	22 <sup>h</sup> 41	18 <sup>h</sup> 0	9 <sup>h</sup> 0	8 <sup>h</sup> 4	26 <sup>h</sup> R43	28 <sup>h</sup> 9	7 <sup>h</sup> 9	10 <sup>h</sup> 25	T 30
W31	2 38 21	7 <sup>h</sup> M50'59	14 <sup>h</sup> Ω 9	7 <sup>h</sup> M52	24 <sup>h</sup> 242	27 <sup>h</sup> 27 0	7 <sup>h</sup> M51	22 <sup>h</sup> 837	17 <sup>h</sup> II59	8 <sup>h</sup> Y58	8 <sup>h</sup> 8 4	26 <sup>h</sup> 243	28 <sup>h</sup> 27 5	7 <sup>h</sup> 816	10 <sup>h</sup> 23	W31

# ASTRODIENST EPHEMERIS for the year 2029

## geocentric

NOVEMBER 2029

00:00 UT

Day	Sid.t	☉	☽	♀	♂	♂	♂	♂	♂	♂	♂	♂	♂	♂	♂	Day
T 1	2 42 17	8♉50°59	27♊37	9♉30	25♈40	27♈45	8♉4	22°R32	17°R57	8°R57	8♉4	26°R41	28♈2	7♈23	10°R20	T 1
F 2	2 46 14	9°51'02	11♉34	11°8	26°38	28°29	8°17	22♈28	17♉55	8°Y55	8°5	26♈38	27°59	7°29	10♈17	F 2
S 3	2 50 10	10°51'07	25°59	12°45	27°35	29°14	8°30	22°23	17°53	8°54	8°5	26°32	27°56	7°36	10°14	S 3
S 4	2 54 7	11°51'14	10♉49	14°22	28°32	29°59	8°43	22°18	17°51	8°53	8°5	26°25	27°53	7°43	10°11	S 4
M 5	2 58 3	12°51'23	25°57	15°58	29°28	0♉44	8°57	22°13	17°49	8°51	8°6	26°19	27°50	7°49	10°8	M 5
T 6	3 2 0	13°51'33	11♉14	17°34	0♉24	1°29	9°10	22°8	17°47	8°50	8°6	26°12	27°46	7°56	10°5	T 6
W 7	3 5 56	14°51'46	26°29	19°9	1°19	2°14	9°23	22°4	17°45	8°49	8°7	26°8	27°43	8°3	10°2	W 7
T 8	3 9 53	15°52'01	11♈32	20°44	2°14	2°59	9°36	21°59	17°43	8°48	8°7	26°5	27°40	8°10	9°59	T 8
F 9	3 13 50	16°52'17	26°13	22°19	3°8	3°44	9°49	21°54	17°41	8°46	8°8	26°D 4	27°37	8°16	9°56	F 9
S 10	3 17 46	17°52'35	10♈29	23°53	4°1	4°29	10°2	21°49	17°39	8°45	8°8	26°5	27°34	8°23	9°53	S 10
S 11	3 21 43	18°52'54	24°18	25°27	4°54	5°14	10°15	21°44	17°37	8°44	8°9	26°6	27°31	8°30	9°50	S 11
M12	3 25 39	19°53'14	7♉39	27°1	5°46	6°0	10°28	21°39	17°35	8°43	8°9	26°7	27°27	8°36	9°47	M12
T 13	3 29 36	20°53'36	20°36	28°34	6°38	6°45	10°41	21°34	17°33	8°42	8°10	26°R 8	27°24	8°43	9°45	T 13
W14	3 33 32	21°53'59	3♈13	0♈7	7°28	7°31	10°54	21°30	17°31	8°40	8°11	26°7	27°21	8°50	9°42	W14
T 15	3 37 29	22°54'24	15°33	1°40	8°18	8°16	11°7	21°25	17°28	8°39	8°11	26°5	27°18	8°56	9°39	T 15
F 16	3 41 25	23°54'50	27°41	3°12	9°7	9°2	11°20	21°20	17°26	8°38	8°12	26°1	27°15	9°3	9°36	F 16
S 17	3 45 22	24°55'17	9♈40	4°45	9°56	9°47	11°33	21°15	17°24	8°37	8°13	25°56	27°11	9°10	9°33	S 17
S 18	3 49 19	25°55'46	21°33	6°17	10°43	10°33	11°46	21°10	17°22	8°36	8°14	25°51	27°8	9°16	9°30	S 18
M19	3 53 15	26°56'16	3♈24	7°48	11°30	11°19	11°59	21°5	17°19	8°35	8°14	25°45	27°5	9°23	9°28	M19
T 20	3 57 12	27°56'48	15°15	9°20	12°15	12°4	12°12	21°0	17°17	8°34	8°15	25°40	27°2	9°30	9°25	T 20
W21	4 1 8	28°57'21	27°7	10°51	13°0	12°50	12°25	20°55	17°15	8°33	8°16	25°37	26°59	9°37	9°22	W21
T 22	4 5 5	29°57'55	9♈3	12°22	13°44	13°36	12°38	20°51	17°12	8°32	8°17	25°34	26°56	9°43	9°19	T 22
F 23	4 9 1	0♈58°31	21°3	13°52	14°26	14°22	12°51	20°46	17°10	8°32	8°18	25°D33	26°52	9°50	9°17	F 23
S 24	4 12 58	1°59'09	3♈11	15°23	15°8	15°8	13°4	20°41	17°7	8°31	8°19	25°33	26°49	9°57	9°14	S 24
S 25	4 16 54	2°59'48	15°29	16°53	15°49	15°54	13°16	20°36	17°5	8°30	8°20	25°34	26°46	10°3	9°11	S 25
M26	4 20 51	4°0'29	27°59	18°23	16°28	16°40	13°29	20°32	17°2	8°29	8°21	25°36	26°43	10°10	9°9	M26
T 27	4 24 48	5°1'11	10♈43	19°52	17°6	17°26	13°42	20°27	17°0	8°28	8°22	25°37	26°40	10°17	9°6	T 27
W28	4 28 44	6°1'55	23°46	21°21	17°43	18°12	13°55	20°22	16°57	8°28	8°23	25°38	26°37	10°23	9°4	W28
T 29	4 32 41	7°2'40	7♈9	22°50	18°18	18°58	14°7	20°18	16°55	8°27	8°24	25°R39	26°33	10°30	9°1	T 29
F 30	4 36 37	8♈3'27	20♈55	24♈18	18♈52	19♈45	14♈20	20♈13	16♈52	8°Y26	8♈25	25♈38	26♈30	10♈37	8♈59	F 30

Delta T = 69.24 sec

DECEMBER 2029

00:00 UT

Day	Sid.t	☉	☽	♀	♂	♂	♂	♂	♂	♂	♂	♂	♂	♂	♂	Day
S 1	4 40 34	9♈4'15	5♉4	25♈46	19♈25	20♈31	14♈32	20°R 9	16°R50	8°R26	8♈26	25°R37	26♈27	10♈43	8°R56	S 1
S 2	4 44 30	10°5'05	19°35	27°13	19°56	21°17	14°45	20♈4	16♈47	8°Y25	8°27	25♈35	26°24	10°50	8♈54	S 2
M 3	4 48 27	11°5'56	4♉24	28°39	20°25	22°4	14°57	20°0	16°45	8°25	8°28	25°33	26°21	10°57	8°51	M 3
T 4	4 52 23	12°6'49	19°25	0♈4	20°53	22°50	15°10	19°56	16°42	8°24	8°29	25°32	26°17	11°3	8°49	T 4
W 5	4 56 20	13°7'43	4♈28	1°29	21°20	23°36	15°22	19°51	16°40	8°23	8°30	25°30	26°14	11°10	8°47	W 5
T 6	5 0 17	14°8'38	19°26	2°52	21°44	24°23	15°35	19°47	16°37	8°23	8°32	25°D30	26°11	11°17	8°44	T 6
F 7	5 4 13	15°9'34	4♈9	4°14	22°7	25°9	15°47	19°43	16°35	8°23	8°33	25°30	26°8	11°24	8°42	F 7
S 8	5 8 10	16°10'31	18°31	5°34	22°28	25°56	15°59	19°39	16°32	8°22	8°34	25°30	26°5	11°30	8°40	S 8
S 9	5 12 6	17°11'29	2♉29	6°53	22°47	26°43	16°11	19°35	16°30	8°22	8°35	25°31	26°2	11°37	8°38	S 9
M10	5 16 3	18°12'28	15°59	8°10	23°4	27°29	16°24	19°31	16°27	8°21	8°37	25°32	25°58	11°44	8°36	M10
T 11	5 19 59	19°13'27	29°4	9°24	23°19	28°16	16°36	19°27	16°25	8°21	8°38	25°33	25°55	11°50	8°34	T 11
W12	5 23 56	20°14'26	11♈47	10°35	23°32	29°3	16°48	19°23	16°22	8°21	8°39	25°33	25°52	11°57	8°32	W12
T 13	5 27 52	21°15'27	24°9	11°43	23°43	29°49	17°0	19°19	16°19	8°21	8°41	25°R33	25°49	12°4	8°30	T 13
F 14	5 31 49	22°16'27	6♈17	12°47	23°51	0♈36	17°12	19°16	16°17	8°20	8°42	25°33	25°46	12°10	8°28	F 14
S 15	5 35 46	23°17'28	18°14	13°47	23°57	1°23	17°23	19°12	16°14	8°20	8°44	25°33	25°43	12°17	8°26	S 15
S 16	5 39 42	24°18'30	0♈6	14°42	24°1	2°10	17°35	19°8	16°12	8°20	8°45	25°32	25°39	12°24	8°24	S 16
M17	5 43 39	25°19'32	11°55	15°31	24°R 2	2°57	17°47	19°5	16°9	8°20	8°46	25°D32	25°36	12°30	8°22	M17
T 18	5 47 35	26°20'35	23°46	16°14	24°0	3°44	17°59	19°2	16°7	8°20	8°48	25°32	25°33	12°37	8°20	T 18
W19	5 51 32	27°21'38	5♈42	16°49	23°57	4°30	18°10	18°58	16°4	8°D20	8°49	25°33	25°30	12°44	8°19	W19
T 20	5 55 28	28°22'42	17°46	17°16	23°50	5°17	18°22	18°55	16°2	8°20	8°51	25°33	25°27	12°50	8°17	T 20
F 21	5 59 25	29°23'46	29°58	17°34	23°42	6°4	18°33	18°52	15°59	8°20	8°52	25°R33	25°23	12°57	8°16	F 21
S 22	6 3 21	0♈24°51	12♈22	17°R42	23°30	6°51	18°45	18°49	15°57	8°20	8°54	25°33	25°20	13°4	8°14	S 22
S 23	6 7 18	1°25'56	24°57	17°39	23°17	7°38	18°56	18°46	15°55	8°20	8°55	25°32	25°17	13°10	8°13	S 23
M24	6 11 15	2°27'02	7♈44	17°25	23°0	8°25	19°7	18°43	15°52	8°20	8°57	25°31	25°14	13°17	8°11	M24
T 25	6 15 11	3°28'09	20°46	16°59	22°42	9°12	19°18	18°40	15°50	8°20	8°58	25°30	25°11	13°24	8°10	T 25
W26	6 19 8	4°29'15	4♈1	16°21	22°21	9°59	19°30	18°38	15°47	8°21	9°0	25°29	25°8	13°30	8°8	W26
T 27	6 23 4	5°30'23	17°30	15°32	21°58	10°46	19°41	18°35	15°45	8°21	9°2	25°28	25°4	13°37	8°7	T 27
F 28	6 27 1	6°31'31	1♈15	14°33	21°32	11°34	19°52	18°33	15°43	8°21	9°3	25°D28	25°1	13°44	8°6	F 28
S 29	6 30 57	7°32'39	15°14	13°24	21°5	12°21	20°2	18°30	15°40	8°22	9°5	25°28	24°58	13°51	8°5	S 29
S 30	6 34 54	8°33'49	29°27	12°9	20°36	13°8	20°13	18°28	15°38	8°22	9°7	25°28	24°55	13°57	8°4	S 30
M31	6 38 51	9♈34°58	13♈52	10♈49	20♈5	13♈55	20♈24	18♈26	15♈36	8°Y22	9♈8	25♈29	24♈52	14♈4	8♈3	M31

Delta T = 69.26 sec