



# Astrodienst Ephemeris Tables for the year 2083

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 2083  
geocentric

JANUARY 2083

00:00 UT

Day	Sid.t	☉	☽	♀	♂	♂	♂	♂	♂	♂	♂	♂	♂	♂	♂	Day
F 1	6 43 25	10♌44'08	5♊26	27°R13	24♊30	11°V19	25°V13	5♊17	12♌6	9°R13	15°V19	18°R19	19♌44	10♌34	20°R 7	F 1
S 2	6 47 22	11°45'16	17°37	26♌36	25°36	11°55	25°15	5°22	12°9	9♊12	15°19	18♌12	19°41	10°41	20♌6	S 2
S 3	6 51 19	12°46'24	29°59	26°10	26°42	12°31	25°18	5°27	12°12	9°10	15°19	18°5	19°37	10°47	20°4	S 3
M 4	6 55 15	13°47'32	12♌33	25°54	27°48	13°7	25°21	5°33	12°15	9°9	15°19	18°0	19°34	10°54	20°2	M 4
T 5	6 59 12	14°48'40	25°19	25°D48	28°55	13°43	25°25	5°38	12°18	9°8	15°19	17°56	19°31	11°1	20°1	T 5
W 6	7 3 8	15°49'47	8♊17	25°51	0♌2	14°19	25°28	5°44	12°22	9°6	15°20	17°54	19°28	11°8	20°0	W 6
T 7	7 7 5	16°50'55	21°27	26°2	1°9	14°56	25°32	5°49	12°25	9°4	15°20	17°D54	19°25	11°14	19°58	T 7
F 8	7 11 1	17°52'03	4♊49	26°21	2°16	15°32	25°35	5°55	12°28	9°3	15°20	17°55	19°22	11°21	19°57	F 8
S 9	7 14 58	18°53'11	18°22	26°48	3°23	16°8	25°39	6°1	12°31	9°1	15°20	17°56	19°18	11°28	19°56	S 9
S 10	7 18 54	19°54'19	2♊7	27°20	4°31	16°45	25°44	6°6	12°35	9°0	15°21	17°58	19°15	11°34	19°54	S 10
M 11	7 22 51	20°55'27	16°4	27°59	5°39	17°21	25°48	6°12	12°38	8°58	15°21	17°R59	19°12	11°41	19°53	M 11
T 12	7 26 48	21°56'36	0♊11	28°42	6°47	17°58	25°53	6°18	12°41	8°57	15°21	17°59	19°9	11°48	19°52	T 12
W 13	7 30 44	22°57'44	14°28	29°31	7°55	18°35	25°57	6°24	12°45	8°55	15°21	17°57	19°6	11°55	19°51	W 13
T 14	7 34 41	23°58'52	28°51	0♌23	9°4	19°12	26°2	6°30	12°48	8°53	15°22	17°55	19°2	12°1	19°50	T 14
F 15	7 38 37	25°0'01	13♌17	1°19	10°12	19°48	26°7	6°36	12°51	8°52	15°22	17°52	18°59	12°8	19°49	F 15
S 16	7 42 34	26°1'09	27°41	2°19	11°21	20°25	26°13	6°42	12°55	8°50	15°23	17°48	18°56	12°15	19°49	S 16
S 17	7 46 30	27°2'17	11♌56	3°21	12°30	21°2	26°18	6°48	12°58	8°49	15°23	17°45	18°53	12°22	19°48	S 17
M 18	7 50 27	28°3'24	25°59	4°26	13°39	21°39	26°24	6°55	13°1	8°47	15°23	17°43	18°50	12°28	19°47	M 18
T 19	7 54 24	29°4'31	9♌45	5°34	14°48	22°17	26°30	7°1	13°5	8°45	15°24	17°42	18°47	12°35	19°47	T 19
W 20	7 58 20	0♌5'38	23°11	6°43	15°57	22°54	26°36	7°7	13°8	8°44	15°24	17°D42	18°43	12°42	19°46	W 20
T 21	8 2 17	1°6'43	6♊16	7°55	17°6	23°31	26°42	7°14	13°12	8°42	15°25	17°43	18°40	12°48	19°46	T 21
F 22	8 6 13	2°7'48	19°0	9°9	18°16	24°8	26°48	7°20	13°15	8°40	15°25	17°44	18°37	12°55	19°45	F 22
S 23	8 10 10	3°8'52	1°V26	10°24	19°26	24°45	26°55	7°27	13°19	8°39	15°26	17°45	18°34	13°2	19°45	S 23
S 24	8 14 6	4°9'55	13°37	11°41	20°35	25°23	27°2	7°33	13°22	8°37	15°26	17°47	18°31	13°9	19°44	S 24
M 25	8 18 3	5°10'57	25°37	12°59	21°45	26°0	27°8	7°40	13°26	8°35	15°27	17°47	18°28	13°15	19°44	M 25
T 26	8 21 59	6°11'58	7♌31	14°18	22°55	26°38	27°15	7°46	13°29	8°33	15°28	17°R48	18°24	13°22	19°44	T 26
W 27	8 25 56	7°12'58	19°24	15°39	24°5	27°15	27°23	7°53	13°33	8°32	15°28	17°47	18°21	13°29	19°44	W 27
T 28	8 29 52	8°13'57	1♊19	17°0	25°16	27°53	27°30	7°59	13°36	8°30	15°29	17°46	18°18	13°36	19°D44	T 28
F 29	8 33 49	9°14'55	13°22	18°23	26°26	28°30	27°37	8°6	13°39	8°28	15°30	17°45	18°15	13°42	19°44	F 29
S 30	8 37 46	10°15'51	25°37	19°47	27°36	29°8	27°45	8°13	13°43	8°27	15°30	17°44	18°12	13°49	19°44	S 30
S 31	8 41 42	11°16'47	8♌6	21♌12	28♌47	29°V46	27°V53	8♊20	13°46	8♊25	15°V31	17°43	18°8	13♌56	19♌44	S 31

Delta T = 85.88 sec

FEBRUARY 2083

00:00 UT

Day	Sid.t	☉	☽	♀	♂	♂	♂	♂	♂	♂	♂	♂	♂	♂	♂	Day
M 1	8 45 39	12°17'42	20♌52	22♌38	29♌57	0♌23	28°V 1	8♊27	13°50	8°R22	15°V32	17°R43	18°5	14♌2	19♌44	M 1
T 2	8 49 35	13°18'35	3♊55	24°4	1♌8	1°1	28°9	8°33	13°53	8♊22	15°33	17°42	18°2	14°9	19°45	T 2
W 3	8 53 32	14°19'27	17°15	25°32	2°19	1°39	28°17	8°40	13°57	8°20	15°33	17°D42	17°59	14°16	19°45	W 3
T 4	8 57 28	15°20'19	0♊51	27°0	3°30	2°17	28°26	8°47	14°0	8°18	15°34	17°42	17°56	14°23	19°45	T 4
F 5	9 1 25	16°21'09	14°41	28°29	4°41	2°54	28°34	8°54	14°4	8°17	15°35	17°42	17°53	14°29	19°46	F 5
S 6	9 5 22	17°21'58	28°41	29°59	5°52	3°32	28°43	9°1	14°7	8°15	15°36	17°R42	17°49	14°36	19°46	S 6
S 7	9 9 18	18°22'46	12♌49	1♌30	7°3	4°10	28°51	9°8	14°11	8°13	15°37	17°42	17°46	14°43	19°47	S 7
M 8	9 13 15	19°23'33	27°1	3°1	8°14	4°48	29°0	9°15	14°14	8°12	15°37	17°42	17°43	14°49	19°48	M 8
T 9	9 17 11	20°24'20	11♊14	4°34	9°26	5°26	29°9	9°22	14°18	8°10	15°38	17°42	17°40	14°56	19°48	T 9
W 10	9 21 8	21°25'05	25°26	6°7	10°37	6°4	29°19	9°29	14°21	8°8	15°39	17°D42	17°37	15°3	19°49	W 10
T 11	9 25 4	22°25'50	9♌35	7°41	11°48	6°42	29°28	9°36	14°25	8°7	15°40	17°42	17°34	15°10	19°50	T 11
F 12	9 29 1	23°26'34	23°38	9°16	13°0	7°20	29°37	9°44	14°28	8°5	15°41	17°43	17°30	15°16	19°51	F 12
S 13	9 32 57	24°27'16	7♌33	10°51	14°11	7°58	29°47	9°51	14°32	8°3	15°42	17°43	17°27	15°23	19°52	S 13
S 14	9 36 54	25°27'58	21°19	12°28	15°23	8°36	29°57	9°58	14°35	8°2	15°43	17°44	17°24	15°30	19°53	S 14
M 15	9 40 51	26°28'38	4♌53	14°5	16°35	9°14	0♌7	10°5	14°39	8°0	15°44	17°44	17°21	15°37	19°54	M 15
T 16	9 44 47	27°29'17	18°15	15°43	17°47	9°52	0°17	10°12	14°42	7°59	15°45	17°R45	17°18	15°43	19°55	T 16
W 17	9 48 44	28°29'54	1♊22	17°22	18°58	10°30	0°27	10°20	14°46	7°57	15°46	17°44	17°14	15°50	19°56	W 17
T 18	9 52 40	29°30'30	14°14	19°2	20°10	11°8	0°37	10°27	14°49	7°56	15°47	17°43	17°11	15°57	19°58	T 18
F 19	9 56 37	0♊31'04	26°51	20°43	21°22	11°46	0°47	10°34	14°52	7°54	15°48	17°42	17°8	16°3	19°59	F 19
S 20	10 0 33	1°31'37	9°V14	22°25	22°34	12°24	0°58	10°41	14°56	7°52	15°49	17°40	17°5	16°10	20°0	S 20
S 21	10 4 30	2°32'08	21°25	24°7	23°46	13°2	1°8	10°49	14°59	7°51	15°50	17°38	17°2	16°17	20°2	S 21
M 22	10 8 26	3°32'37	3♌25	25°51	24°58	13°41	1°19	10°56	15°3	7°49	15°51	17°35	16°59	16°24	20°3	M 22
T 23	10 12 23	4°33'05	15°20	27°35	26°10	14°19	1°30	11°3	15°6	7°48	15°53	17°34	16°55	16°30	20°5	T 23
W 24	10 16 19	5°33'30	27°12	29°21	27°22	14°57	1°40	11°10	15°9	7°46	15°54	17°33	16°52	16°37	20°7	W 24
T 25	10 20 16	6°33'54	9♊6	1♊7	28°35	15°35	1°51	11°18	15°13	7°45	15°55	17°D32	16°49	16°44	20°8	T 25
F 26	10 24 13	7°34'16	21°8	2°54	29°47	16°13	2°2	11°25	15°16	7°44	15°56	17°33	16°46	16°51	20°10	F 26
S 27	10 28 9	8°34'36	3♌22	4°43	0♌59	16°52	2°14	11°32	15°19	7°42	15°57	17°34	16°43	16°57	20°12	S 27
S 28	10 32 6	9♊34'54	15♌51	6♊32	2♌11	17♌30	2♌25	11♊40	15°23	7♊41	15°V58	17°43	16°39	17♌4	20♌14	S 28

Delta T = 85.92 sec

## ASTRODIENST EPHEMERIS for the year 2083

geocentric

MARCH 2083

00:00 UT

Day	Sid.t	☉	☽	♀	♂	♂	♂	♂	♂	♂	♂	♂	♂	♂	♂	Day
M 1	10 36 2	10 <sup>h</sup> 35'10"	28 <sup>h</sup> 41'	8 <sup>h</sup> 22'	3 <sup>h</sup> 24'	18 <sup>h</sup> 8'	2 <sup>h</sup> 36'	11 <sup>h</sup> 47'	15 <sup>h</sup> 26'	7 <sup>h</sup> R39	16 <sup>h</sup> 0'	17 <sup>h</sup> 37'	16 <sup>h</sup> 36'	17 <sup>h</sup> 11'	20 <sup>h</sup> 16'	M 1
T 2	10 39 59	11 <sup>h</sup> 35'24"	11 <sup>h</sup> 53'	10 <sup>h</sup> 13'	4 <sup>h</sup> 36'	18 <sup>h</sup> 46'	2 <sup>h</sup> 48'	11 <sup>h</sup> 54'	15 <sup>h</sup> 29'	7 <sup>h</sup> 38'	16 <sup>h</sup> 1'	17 <sup>h</sup> R38	16 <sup>h</sup> 33'	17 <sup>h</sup> 17'	20 <sup>h</sup> 18'	T 2
W 3	10 43 55	12 <sup>h</sup> 35'36"	25 <sup>h</sup> 28'	12 <sup>h</sup> 5'	5 <sup>h</sup> 49'	19 <sup>h</sup> 24'	2 <sup>h</sup> 59'	12 <sup>h</sup> 2'	15 <sup>h</sup> 32'	7 <sup>h</sup> 37'	16 <sup>h</sup> 2'	17 <sup>h</sup> 38'	16 <sup>h</sup> 30'	17 <sup>h</sup> 24'	20 <sup>h</sup> 20'	W 3
T 4	10 47 52	13 <sup>h</sup> 35'46"	9 <sup>h</sup> 26'	13 <sup>h</sup> 59'	7 <sup>h</sup> 1'	20 <sup>h</sup> 3'	3 <sup>h</sup> 11'	12 <sup>h</sup> 9'	15 <sup>h</sup> 35'	7 <sup>h</sup> 35'	16 <sup>h</sup> 3'	17 <sup>h</sup> 37'	16 <sup>h</sup> 27'	17 <sup>h</sup> 31'	20 <sup>h</sup> 22'	T 4
F 5	10 51 48	14 <sup>h</sup> 35'54"	23 <sup>h</sup> 42'	15 <sup>h</sup> 52'	8 <sup>h</sup> 13'	20 <sup>h</sup> 41'	3 <sup>h</sup> 22'	12 <sup>h</sup> 16'	15 <sup>h</sup> 39'	7 <sup>h</sup> 34'	16 <sup>h</sup> 5'	17 <sup>h</sup> 34'	16 <sup>h</sup> 24'	17 <sup>h</sup> 38'	20 <sup>h</sup> 24'	F 5
S 6	10 55 45	15 <sup>h</sup> 36'01"	8 <sup>h</sup> 12'	17 <sup>h</sup> 47'	9 <sup>h</sup> 26'	21 <sup>h</sup> 19'	3 <sup>h</sup> 34'	12 <sup>h</sup> 24'	15 <sup>h</sup> 42'	7 <sup>h</sup> 33'	16 <sup>h</sup> 6'	17 <sup>h</sup> 30'	16 <sup>h</sup> 20'	17 <sup>h</sup> 44'	20 <sup>h</sup> 26'	S 6
S 7	10 59 42	16 <sup>h</sup> 36'05"	22 <sup>h</sup> 50'	19 <sup>h</sup> 43'	10 <sup>h</sup> 39'	21 <sup>h</sup> 57'	3 <sup>h</sup> 46'	12 <sup>h</sup> 31'	15 <sup>h</sup> 45'	7 <sup>h</sup> 32'	16 <sup>h</sup> 7'	17 <sup>h</sup> 26'	16 <sup>h</sup> 17'	17 <sup>h</sup> 51'	20 <sup>h</sup> 28'	S 7
M 8	11 3 38	17 <sup>h</sup> 36'09"	7 <sup>h</sup> 28'	21 <sup>h</sup> 39'	11 <sup>h</sup> 51'	22 <sup>h</sup> 36'	3 <sup>h</sup> 58'	12 <sup>h</sup> 38'	15 <sup>h</sup> 48'	7 <sup>h</sup> 30'	16 <sup>h</sup> 8'	17 <sup>h</sup> 22'	16 <sup>h</sup> 14'	17 <sup>h</sup> 58'	20 <sup>h</sup> 31'	M 8
T 9	11 7 35	18 <sup>h</sup> 36'10"	22 <sup>h</sup> 1'	23 <sup>h</sup> 35'	13 <sup>h</sup> 4'	23 <sup>h</sup> 14'	4 <sup>h</sup> 10'	12 <sup>h</sup> 46'	15 <sup>h</sup> 51'	7 <sup>h</sup> 29'	16 <sup>h</sup> 10'	17 <sup>h</sup> 18'	16 <sup>h</sup> 11'	18 <sup>h</sup> 4'	20 <sup>h</sup> 33'	T 9
W10	11 11 31	19 <sup>h</sup> 36'11"	6 <sup>h</sup> 22'	25 <sup>h</sup> 32'	14 <sup>h</sup> 16'	23 <sup>h</sup> 52'	4 <sup>h</sup> 22'	12 <sup>h</sup> 53'	15 <sup>h</sup> 54'	7 <sup>h</sup> 28'	16 <sup>h</sup> 11'	17 <sup>h</sup> 16'	16 <sup>h</sup> 8'	18 <sup>h</sup> 11'	20 <sup>h</sup> 36'	W10
T 11	11 15 28	20 <sup>h</sup> 36'09"	20 <sup>h</sup> 30'	27 <sup>h</sup> 30'	15 <sup>h</sup> 29'	24 <sup>h</sup> 31'	4 <sup>h</sup> 35'	13 <sup>h</sup> 0'	15 <sup>h</sup> 57'	7 <sup>h</sup> 27'	16 <sup>h</sup> 12'	17 <sup>h</sup> D16	16 <sup>h</sup> 5'	18 <sup>h</sup> 18'	20 <sup>h</sup> 38'	T 11
F 12	11 19 24	21 <sup>h</sup> 36'06"	4 <sup>h</sup> 23'	29 <sup>h</sup> 27'	16 <sup>h</sup> 42'	25 <sup>h</sup> 9'	4 <sup>h</sup> 47'	13 <sup>h</sup> 8'	16 <sup>h</sup> 0'	7 <sup>h</sup> 26'	16 <sup>h</sup> 14'	17 <sup>h</sup> 16'	16 <sup>h</sup> 1'	18 <sup>h</sup> 25'	20 <sup>h</sup> 40'	F 12
S 13	11 23 21	22 <sup>h</sup> 36'02"	18 <sup>h</sup> 1'	1 <sup>h</sup> 24'	17 <sup>h</sup> 55'	25 <sup>h</sup> 47'	4 <sup>h</sup> 59'	13 <sup>h</sup> 15'	16 <sup>h</sup> 3'	7 <sup>h</sup> 25'	16 <sup>h</sup> 15'	17 <sup>h</sup> 18'	15 <sup>h</sup> 58'	18 <sup>h</sup> 31'	20 <sup>h</sup> 43'	S 13
S 14	11 27 17	23 <sup>h</sup> 35'56"	1 <sup>h</sup> 24'	3 <sup>h</sup> 21'	19 <sup>h</sup> 7'	26 <sup>h</sup> 25'	5 <sup>h</sup> 12'	13 <sup>h</sup> 22'	16 <sup>h</sup> 6'	7 <sup>h</sup> 24'	16 <sup>h</sup> 16'	17 <sup>h</sup> 19'	15 <sup>h</sup> 55'	18 <sup>h</sup> 38'	20 <sup>h</sup> 46'	S 14
M15	11 31 14	24 <sup>h</sup> 35'48"	14 <sup>h</sup> 33'	5 <sup>h</sup> 16'	20 <sup>h</sup> 20'	27 <sup>h</sup> 4'	5 <sup>h</sup> 24'	13 <sup>h</sup> 29'	16 <sup>h</sup> 9'	7 <sup>h</sup> 23'	16 <sup>h</sup> 18'	17 <sup>h</sup> R20	15 <sup>h</sup> 52'	18 <sup>h</sup> 45'	20 <sup>h</sup> 48'	M15
T 16	11 35 11	25 <sup>h</sup> 35'38"	27 <sup>h</sup> 30'	7 <sup>h</sup> 11'	21 <sup>h</sup> 33'	27 <sup>h</sup> 42'	5 <sup>h</sup> 37'	13 <sup>h</sup> 37'	16 <sup>h</sup> 12'	7 <sup>h</sup> 22'	16 <sup>h</sup> 19'	17 <sup>h</sup> 20'	15 <sup>h</sup> 49'	18 <sup>h</sup> 52'	20 <sup>h</sup> 51'	T 16
W17	11 39 7	26 <sup>h</sup> 35'26"	10 <sup>h</sup> 16'	9 <sup>h</sup> 4'	22 <sup>h</sup> 46'	28 <sup>h</sup> 20'	5 <sup>h</sup> 49'	13 <sup>h</sup> 44'	16 <sup>h</sup> 15'	7 <sup>h</sup> 21'	16 <sup>h</sup> 20'	17 <sup>h</sup> 17'	15 <sup>h</sup> 45'	18 <sup>h</sup> 58'	20 <sup>h</sup> 54'	W17
T 18	11 43 4	27 <sup>h</sup> 35'12"	22 <sup>h</sup> 50'	10 <sup>h</sup> 56'	23 <sup>h</sup> 59'	28 <sup>h</sup> 58'	6 <sup>h</sup> 2'	13 <sup>h</sup> 51'	16 <sup>h</sup> 18'	7 <sup>h</sup> 20'	16 <sup>h</sup> 22'	17 <sup>h</sup> 13'	15 <sup>h</sup> 42'	19 <sup>h</sup> 5'	20 <sup>h</sup> 57'	T 18
F 19	11 47 0	28 <sup>h</sup> 34'57"	5 <sup>h</sup> 14'	12 <sup>h</sup> 45'	25 <sup>h</sup> 11'	29 <sup>h</sup> 37'	6 <sup>h</sup> 15'	13 <sup>h</sup> 58'	16 <sup>h</sup> 21'	7 <sup>h</sup> 19'	16 <sup>h</sup> 23'	17 <sup>h</sup> 7'	15 <sup>h</sup> 39'	19 <sup>h</sup> 12'	20 <sup>h</sup> 59'	F 19
S 20	11 50 57	29 <sup>h</sup> 34'39"	17 <sup>h</sup> 28'	14 <sup>h</sup> 31'	26 <sup>h</sup> 24'	0 <sup>h</sup> 15'	6 <sup>h</sup> 28'	14 <sup>h</sup> 6'	16 <sup>h</sup> 23'	7 <sup>h</sup> 18'	16 <sup>h</sup> 24'	16 <sup>h</sup> 59'	15 <sup>h</sup> 36'	19 <sup>h</sup> 18'	21 <sup>h</sup> 2'	S 20
S 21	11 54 53	0 <sup>h</sup> 34'20"	29 <sup>h</sup> 33'	16 <sup>h</sup> 14'	27 <sup>h</sup> 37'	0 <sup>h</sup> 53'	6 <sup>h</sup> 41'	14 <sup>h</sup> 13'	16 <sup>h</sup> 26'	7 <sup>h</sup> 17'	16 <sup>h</sup> 26'	16 <sup>h</sup> 50'	15 <sup>h</sup> 33'	19 <sup>h</sup> 25'	21 <sup>h</sup> 5'	S 21
M22	11 58 50	1 <sup>h</sup> 33'58"	11 <sup>h</sup> 32'	17 <sup>h</sup> 54'	28 <sup>h</sup> 50'	1 <sup>h</sup> 32'	6 <sup>h</sup> 54'	14 <sup>h</sup> 20'	16 <sup>h</sup> 29'	7 <sup>h</sup> 16'	16 <sup>h</sup> 27'	16 <sup>h</sup> 42'	15 <sup>h</sup> 30'	19 <sup>h</sup> 32'	21 <sup>h</sup> 8'	M22
T 23	12 2 46	2 <sup>h</sup> 33'34"	23 <sup>h</sup> 25'	19 <sup>h</sup> 29'	0 <sup>h</sup> 3'	2 <sup>h</sup> 10'	7 <sup>h</sup> 7'	14 <sup>h</sup> 27'	16 <sup>h</sup> 31'	7 <sup>h</sup> 15'	16 <sup>h</sup> 29'	16 <sup>h</sup> 35'	15 <sup>h</sup> 26'	19 <sup>h</sup> 39'	21 <sup>h</sup> 11'	T 23
W24	12 6 43	3 <sup>h</sup> 33'08"	5 <sup>h</sup> 16'	20 <sup>h</sup> 59'	1 <sup>h</sup> 16'	2 <sup>h</sup> 48'	7 <sup>h</sup> 20'	14 <sup>h</sup> 34'	16 <sup>h</sup> 34'	7 <sup>h</sup> 14'	16 <sup>h</sup> 30'	16 <sup>h</sup> 29'	15 <sup>h</sup> 23'	19 <sup>h</sup> 45'	21 <sup>h</sup> 14'	W24
T 25	12 10 40	4 <sup>h</sup> 32'40"	1 <sup>h</sup> 9'	22 <sup>h</sup> 25'	2 <sup>h</sup> 29'	3 <sup>h</sup> 26'	7 <sup>h</sup> 33'	14 <sup>h</sup> 41'	16 <sup>h</sup> 37'	7 <sup>h</sup> 14'	16 <sup>h</sup> 31'	16 <sup>h</sup> 25'	15 <sup>h</sup> 20'	19 <sup>h</sup> 52'	21 <sup>h</sup> 17'	T 25
F 26	12 14 36	5 <sup>h</sup> 32'09"	29 <sup>h</sup> 8'	23 <sup>h</sup> 45'	3 <sup>h</sup> 42'	4 <sup>h</sup> 5'	7 <sup>h</sup> 46'	14 <sup>h</sup> 48'	16 <sup>h</sup> 39'	7 <sup>h</sup> 13'	16 <sup>h</sup> 33'	16 <sup>h</sup> 23'	15 <sup>h</sup> 17'	19 <sup>h</sup> 59'	21 <sup>h</sup> 21'	F 26
S 27	12 18 33	6 <sup>h</sup> 31'37"	11 <sup>h</sup> 18'	25 <sup>h</sup> 0'	4 <sup>h</sup> 55'	4 <sup>h</sup> 43'	7 <sup>h</sup> 59'	14 <sup>h</sup> 55'	16 <sup>h</sup> 42'	7 <sup>h</sup> 12'	16 <sup>h</sup> 34'	16 <sup>h</sup> D23	15 <sup>h</sup> 14'	20 <sup>h</sup> 6'	21 <sup>h</sup> 24'	S 27
S 28	12 22 29	7 <sup>h</sup> 31'01"	23 <sup>h</sup> 44'	26 <sup>h</sup> 8'	6 <sup>h</sup> 8'	5 <sup>h</sup> 21'	8 <sup>h</sup> 13'	15 <sup>h</sup> 2'	16 <sup>h</sup> 44'	7 <sup>h</sup> 11'	16 <sup>h</sup> 36'	16 <sup>h</sup> 24'	15 <sup>h</sup> 11'	20 <sup>h</sup> 12'	21 <sup>h</sup> 27'	S 28
M29	12 26 26	8 <sup>h</sup> 30'24"	6 <sup>h</sup> 13'	27 <sup>h</sup> 10'	7 <sup>h</sup> 21'	6 <sup>h</sup> 0'	8 <sup>h</sup> 26'	15 <sup>h</sup> 9'	16 <sup>h</sup> 47'	7 <sup>h</sup> 11'	16 <sup>h</sup> 37'	16 <sup>h</sup> 25'	15 <sup>h</sup> 7'	20 <sup>h</sup> 19'	21 <sup>h</sup> 30'	M29
T 30	12 30 22	9 <sup>h</sup> 29'44"	19 <sup>h</sup> 42'	28 <sup>h</sup> 5'	8 <sup>h</sup> 34'	6 <sup>h</sup> 38'	8 <sup>h</sup> 39'	15 <sup>h</sup> 16'	16 <sup>h</sup> 49'	7 <sup>h</sup> 10'	16 <sup>h</sup> 39'	16 <sup>h</sup> R25	15 <sup>h</sup> 4'	20 <sup>h</sup> 26'	21 <sup>h</sup> 33'	T 30
W31	12 34 19	10 <sup>h</sup> 29'02"	3 <sup>h</sup> 21'	28 <sup>h</sup> 53'	9 <sup>h</sup> 47'	7 <sup>h</sup> 16'	8 <sup>h</sup> 53'	15 <sup>h</sup> 23'	16 <sup>h</sup> 52'	7 <sup>h</sup> 10'	16 <sup>h</sup> 40'	16 <sup>h</sup> 24'	15 <sup>h</sup> 1'	20 <sup>h</sup> 32'	21 <sup>h</sup> 37'	W31

Delta T = 85.95 sec

APRIL 2083

00:00 UT

Day	Sid.t	☉	☽	♀	♀	♂	♂	♂	♂	♂	♂	♂	♂	♂	♂	Day
T 1	12 38 15	11°28'18	17°28'28	29°34'	11°0'	7°11'54	9°8'6	15°30'30	16°54'54	7°R 9	16°41'41	16°R20	14°58'58	20°39'39	21°40'40	T 1
F 2	12 42 12	12°27'31	2°21'0	0°8'8	12°13'	8°32'32	9°20'20	15°37'37	16°56'56	7°R 9	16°43'43	16°15'15	14°55'55	20°46'46	21°44'44	F 2
S 3	12 46 9	13°26'43	16°52'52	0°35'35	13°26'26	9°11'11	9°33'33	15°43'43	16°59'59	7°8'8	16°44'44	16°7'7	14°51'51	20°53'53	21°47'47	S 3
S 4	12 50 5	14°25'52	1°55'55	0°55'55	14°39'39	9°49'49	9°47'47	15°50'50	17°1'1	7°8'8	16°46'46	15°58'58	14°48'48	20°59'59	21°50'50	S 4
M 5	12 54 2	15°24'59	16°59'59	1°7'7	15°52'52	10°27'27	10°1'1	15°57'57	17°3'3	7°7'7	16°47'47	15°49'49	14°45'45	21°6'6	21°54'54	M 5
T 6	12 57 58	16°24'05	1°55'55	1°R12	17°5'5	11°5'5	10°14'14	16°4'4	17°5'5	7°7'7	16°49'49	15°41'41	14°42'42	21°13'13	21°58'58	T 6
W 7	13 1 55	17°23'09	16°35'35	1°11'11	18°18'18	11°43'43	10°28'28	16°10'10	17°8'8	7°6'6	16°50'50	15°35'35	14°39'39	21°19'19	22°1'1	W 7
T 8	13 5 51	18°22'11	0°54'54	1°2'2	19°32'32	12°22'22	10°42'42	16°17'17	17°10'10	7°6'6	16°51'51	15°32'32	14°36'36	21°26'26	22°5'5	T 8
F 9	13 9 48	19°21'12	14°50'50	0°48'48	20°45'45	13°0'0	10°56'56	16°23'23	17°12'12	7°6'6	16°53'53	15°D31	14°32'32	21°33'33	22°8'8	F 9
S 10	13 13 44	20°20'11	28°24'24	0°27'27	21°58'58	13°38'38	11°10'10	16°30'30	17°14'14	7°6'6	16°54'54	15°31'31	14°29'29	21°40'40	22°12'12	S 10
S 11	13 17 41	21°19'08	11°36'36	0°1'1	23°11'11	14°16'16	11°23'23	16°37'37	17°16'16	7°5'5	16°56'56	15°R31	14°26'26	21°46'46	22°16'16	S 11
M12	13 21 38	22°18'03	24°31'31	29°30'30	24°24'24	14°54'54	11°37'37	16°43'43	17°18'18	7°5'5	16°57'57	15°31'31	14°23'23	21°53'53	22°19'19	M12
T 13	13 25 34	23°16'56	7°11'11	28°55'55	25°37'37	15°33'33	11°51'51	16°49'49	17°20'20	7°5'5	16°59'59	15°29'29	14°20'20	22°0'0	22°23'23	T 13
W14	13 29 31	24°15'48	19°39'39	28°17'17	26°51'51	16°11'11	12°5'5	16°56'56	17°21'21	7°5'5	17°0'0	15°24'24	14°16'16	22°7'7	22°27'27	W14
T 15	13 33 27	25°14'37	1°58'58	27°36'36	28°4'4	16°49'49	12°19'19	17°2'2	17°23'23	7°5'5	17°2'2	15°17'17	14°13'13	22°13'13	22°31'31	T 15
F 16	13 37 24	26°13'25	14°8'8	26°53'53	29°17'17	17°27'27	12°33'33	17°8'8	17°25'25	7°5'5	17°3'3	15°6'6	14°10'10	22°20'20	22°35'35	F 16
S 17	13 41 20	27°12'11	26°12'12	26°9'9	0°30'30	18°5'5	12°47'47	17°15'15	17°27'27	7°D 5	17°4'4	14°54'54	14°7'7	22°27'27	22°38'38	S 17
S 18	13 45 17	28°10'55	8°11'11	25°25'25	1°43'43	18°43'43	13°1'1	17°21'21	17°28'28	7°5'5	17°6'6	14°41'41	14°4'4	22°33'33	22°42'42	S 18
M19	13 49 13	29°9'37	20°5'5	24°42'42	2°57'57	19°21'21	13°16'16	17°27'27	17°30'30	7°5'5	17°7'7	14°27'27	14°1'1	22°40'40	22°46'46	M19
T 20	13 53 10	0°8'8	1°11'11	24°0'0	4°10'10	20°0'0	13°30'30	17°33'33	17°32'32	7°5'5	17°9'9	14°15'15	13°57'57	22°47'47	22°50'50	T 20
W21	13 57 6	1°6'55	13°47'47	23°20'20	5°23'23	20°38'38	13°44'44	17°39'39	17°33'33	7°5'5	17°10'10	14°4'4	13°54'54	22°54'54	22°54'54	W21
T 22	14 1 3	2°5'31	25°40'40	22°43'43	6°36'36	21°16'16	13°58'58	17°45'45	17°35'35	7°5'5	17°11'11	13°57'57	13°51'51	23°0'0	22°58'58	T 22
F 23	14 5 0	3°4'05	7°39'39	22°9'9	7°49'49	21°54'54	14°12'12	17°51'51	17°36'36	7°5'5	17°13'13	13°52'52	13°48'48	23°7'7	23°2'2	F 23
S 24	14 8 56	4°2'37	19°47'47	21°39'39	9°3'3	22°32'32	14°26'26	17°57'57	17°38'38	7°5'5	17°14'14	13°49'49	13°45'45	23°14'14	23°6'6	S 24
S 25	14 12 53	5°1'06	2°19'19	21°13'13	10°16'16	23°10'10	14°41'41	18°2'2	17°39'39	7°6'6	17°16'16	13°D49	13°42'42	23°20'20	23°10'10	S 25
M26	14 16 49	5°59'34	14°51'51	20°52'52	11°29'29	23°48'48	14°55'55	18°8'8	17°40'40	7°6'6	17°17'17	13°R49	13°38'38	23°27'27	23°14'14	M26
T 27	14 20 46	6°57'59	27°57'57	20°35'35	12°42'42	24°26'26	15°9'9	18°14'14	17°42'42	7°6'6	17°18'18	13°48'48	13°35'35	23°34'34	23°18'18	T 27
W28	14 24 42	7°56'22	11°23'23	20°23'23	13°56'56	25°4'4	15°23'23	18°20'20	17°43'43	7°7'7	17°20'20	13°46'46	13°32'32	23°41'41	23°22'22	W28
T 29	14 28 39	8°54'43	25°35'35	20°16'16	15°9'9	25°42'42	15°38'38	18°25'25	17°44'44	7°7'7	17°21'21	13°42'42	13°29'29	23°47'47	23°26'26	T 29
F 30	14 32 35	9°53'01	10°5'8	20°D14	16°32'32	26°12'12	15°8'52	18°31'31	17°45'45	7°R 7	17°22'22	13°35'35	13°26'26	23°54'54	23°30'30	F 30

## ASTRODIENST EPHEMERIS for the year 2083

geocentric

MAY 2083

00:00 UT

Day	Sid.t	☉	☽	♀	♂	♂	♂	♂	♂	♂	♂	♂	♂	♂	♂	Day
S 1	14 36 32	10♈51'18	25♎6	20♏17	17♏35	26♏58	16♎6	18♏36	17♏46	7♏8	17♏24	13°R25	13♎22	24♎1	23♎34	S 1
S 2	14 40 29	11°49'33	10♏19	20°25	18°48	27°36	16°20	18°41	17°47	7°8	17°25	13♎14	13°19	24°7	23°38	S 2
M 3	14 44 25	12°47'47	25°39	20°37	20°2	28°14	16°35	18°47	17°48	7°9	17°26	13°3	13°16	24°14	23°42	M 3
T 4	14 48 22	13°45'59	10♏52	20°54	21°15	28°52	16°49	18°52	17°49	7°9	17°28	12°54	13°13	24°21	23°46	T 4
W 5	14 52 18	14°44'09	25°50	21°16	22°28	29°30	17°3	18°57	17°50	7°10	17°29	12°46	13°10	24°28	23°51	W 5
T 6	14 56 15	15°42'17	10♏23	21°42	23°41	0♏8	17°17	19°2	17°51	7°10	17°30	12°41	13°7	24°34	23°55	T 6
F 7	15 0 11	16°40'25	24°30	22°12	24°55	0°46	17°32	19°7	17°52	7°11	17°32	12°39	13°3	24°41	23°59	F 7
S 8	15 4 8	17°38'30	8♎9	22°46	26°8	1°24	17°46	19°12	17°52	7°12	17°33	12°38	13°0	24°48	24°3	S 8
S 9	15 8 5	18°36'35	21°22	23°24	27°21	2°2	18°0	19°17	17°53	7°12	17°34	12°38	12°57	24°55	24°7	S 9
M10	15 12 1	19°34'38	4♏14	24°6	28°34	2°40	18°15	19°22	17°54	7°13	17°35	12°37	12°54	25°1	24°11	M10
T 11	15 15 58	20°32'39	16°47	24°52	29°48	3°18	18°29	19°27	17°54	7°14	17°37	12°35	12°51	25°8	24°16	T 11
W12	15 19 54	21°30'40	29°6	25°41	1♎1	3°56	18°43	19°32	17°55	7°15	17°38	12°30	12°48	25°15	24°20	W12
T 13	15 23 51	22°28'38	11♏14	26°34	2°14	4°34	18°57	19°36	17°55	7°16	17°39	12°23	12°44	25°21	24°24	T 13
F 14	15 27 47	23°26'36	23°16	27°29	3°27	5°12	19°12	19°41	17°56	7°16	17°40	12°13	12°41	25°28	24°28	F 14
S 15	15 31 44	24°24'32	5♎12	28°28	4°41	5°50	19°26	19°45	17°56	7°17	17°42	12°0	12°38	25°35	24°32	S 15
S 16	15 35 40	25°22'27	17°5	29°30	5°54	6°28	19°40	19°50	17°56	7°18	17°43	11°47	12°35	25°42	24°36	S 16
M17	15 39 37	26°20'20	28°57	0♎35	7°7	7°6	19°54	19°54	17°57	7°19	17°44	11°33	12°32	25°48	24°41	M17
T 18	15 43 34	27°18'12	10♏49	1°43	8°21	7°44	20°9	19°58	17°57	7°20	17°45	11°21	12°28	25°55	24°45	T 18
W19	15 47 30	28°16'02	22°42	2°53	9°34	8°21	20°23	20°2	17°57	7°21	17°46	11°10	12°25	26°2	24°49	W19
T 20	15 51 27	29°13'51	4♎38	4°6	10°47	8°59	20°37	20°6	17°57	7°22	17°47	11°2	12°22	26°8	24°53	T 20
F 21	15 55 23	0♏11'39	16°41	5°22	12°1	9°37	20°51	20°10	17°57	7°23	17°49	10°57	12°19	26°15	24°57	F 21
S 22	15 59 20	1°9'24	28°52	6°40	13°14	10°15	21°5	20°14	17°58	7°24	17°50	10°55	12°16	26°22	25°2	S 22
S 23	16 3 16	2°7'08	11♎16	8°1	14°27	10°53	21°19	20°18	17°58	7°25	17°51	10°D54	12°13	26°29	25°6	S 23
M24	16 7 13	3°4'51	23°57	9°24	15°40	11°31	21°34	20°22	17°57	7°27	17°52	10°54	12°9	26°35	25°10	M24
T 25	16 11 9	4°2'32	7♎9	10°50	16°54	12°9	21°48	20°26	17°57	7°28	17°53	10°R54	12°6	26°42	25°14	T 25
W26	16 15 6	5°0'11	20°28	12°19	18°7	12°47	22°2	20°29	17°57	7°29	17°54	10°53	12°3	26°49	25°18	W26
T 27	16 19 3	5°57'49	4♎23	13°49	19°20	13°24	22°16	20°33	17°57	7°30	17°55	10°50	12°0	26°56	25°22	T 27
F 28	16 22 59	6°55'25	18°46	15°22	20°34	14°2	22°30	20°36	17°57	7°31	17°56	10°45	11°57	27°2	25°26	F 28
S 29	16 26 56	7°53'00	3♎35	16°58	21°47	14°40	22°44	20°39	17°56	7°33	17°57	10°38	11°54	27°9	25°31	S 29
S 30	16 30 52	8°50'33	18°43	18°36	23°0	15°18	22°58	20°43	17°56	7°34	17°58	10°29	11°50	27°16	25°35	S 30
M31	16 34 49	9♏48'06	4♎0	20♎16	24♎14	15♎56	23♎12	20♎46	17♎56	7♎35	17♎59	10♎20	11♎47	27♎22	25♎39	M31

Delta T = 86.01 sec

JUNE 2083

00:00 UT

Day	Sid.t	☉	☽	♀	♂	♂	♂	♂	♂	♂	♂	♂	♂	♂	♂	Day
T 1	16 38 45	10♏45'37	19♏15	21♏59	25♏27	16♏34	23♏26	20♏49	17°R55	7♏37	18♏0	10°R12	11♎44	27♎29	25♎43	T 1
W 2	16 42 42	11°43'07	4♎19	23°44	26°40	17°11	23°40	20°52	17°55	7°38	18°1	10°6	11°41	27°36	25°47	W 2
T 3	16 46 38	12°40'37	19°1	25°31	27°54	17°49	23°53	20°55	17°54	7°40	18°2	10°2	11°38	27°43	25°51	T 3
F 4	16 50 35	13°38'05	3♎18	27°21	29°7	18°27	24°7	20°58	17°54	7°41	18°3	10°0	11°34	27°49	25°55	F 4
S 5	16 54 32	14°35'33	17°5	29°13	0♏20	19°5	24°21	21°0	17°53	7°42	18°4	10°D 0	11°31	27°56	25°59	S 5
S 6	16 58 28	15°33'00	0♏25	1♏7	1°34	19°43	24°35	21°3	17°52	7°44	18°4	10°1	11°28	28°3	26°3	S 6
M 7	17 2 25	16°30'26	13°20	3°3	2°47	20°20	24°49	21°5	17°52	7°45	18°5	10°R 2	11°25	28°9	26°7	M 7
T 8	17 6 21	17°27'51	25°54	5°2	4°0	20°58	25°2	21°8	17°51	7°47	18°6	10°2	11°22	28°16	26°11	T 8
W 9	17 10 18	18°25'16	8♏11	7°3	5°14	21°36	25°16	21°10	17°50	7°49	18°7	9°59	11°19	28°23	26°15	W 9
T 10	17 14 14	19°22'40	20°17	9°5	6°27	22°14	25°30	21°12	17°49	7°50	18°8	9°55	11°15	28°30	26°19	T 10
F 11	17 18 11	20°20'04	2♎14	11°10	7°41	22°51	25°43	21°15	17°48	7°52	18°9	9°49	11°12	28°36	26°23	F 11
S 12	17 22 7	21°17'27	14°7	13°16	8°54	23°29	25°57	21°17	17°47	7°53	18°9	9°41	11°9	28°43	26°27	S 12
S 13	17 26 4	22°14'50	25°58	15°24	10°7	24°7	26°10	21°19	17°46	7°55	18°10	9°33	11°6	28°50	26°31	S 13
M14	17 30 1	23°12'12	7♏50	17°33	11°21	24°45	26°24	21°20	17°45	7°57	18°11	9°24	11°3	28°56	26°35	M14
T 15	17 33 57	24°9'33	19°44	19°43	12°34	25°22	26°37	21°22	17°44	7°58	18°12	9°16	11°0	29°3	26°39	T 15
W16	17 37 54	25°6'54	1♎43	21°55	13°48	26°0	26°50	21°24	17°43	8°0	18°12	9°9	10°56	29°10	26°42	W16
T 17	17 41 50	26°4'14	13°48	24°6	15°1	26°38	27°4	21°25	17°42	8°2	18°13	9°4	10°53	29°17	26°46	T 17
F 18	17 45 47	27°1'33	26°0	26°18	16°15	27°16	27°17	21°27	17°41	8°4	18°14	9°1	10°50	29°23	26°50	F 18
S 19	17 49 43	27°58'52	8♎21	28°30	17°28	27°54	27°30	21°28	17°40	8°5	18°14	9°D 0	10°47	29°30	26°54	S 19
S 20	17 53 40	28°56'09	20°55	0♎42	18°42	28°31	27°43	21°30	17°38	8°7	18°15	9°1	10°44	29°37	26°57	S 20
M21	17 57 36	29°53'26	3♎43	2°53	19°55	29°9	27°57	21°31	17°37	8°9	18°15	9°2	10°40	29°43	27°1	M21
T 22	18 1 33	0♎50'43	16°50	5°3	21°8	29°47	28°10	21°32	17°36	8°11	18°16	9°4	10°37	29°50	27°5	T 22
W23	18 5 30	1°47'58	0♎16	7°12	22°22	0♎25	28°23	21°33	17°34	8°13	18°17	9°R 4	10°34	29°57	27°8	W23
T 24	18 9 26	2°45'13	14°5	9°20	23°35	1°2	28°36	21°34	17°33	8°15	18°17	9°4	10°31	0♏4	27°12	T 24
F 25	18 13 23	3°42'27	28°17	11°27	24°49	1°40	28°48	21°35	17°31	8°16	18°18	9°2	10°28	0°10	27°16	F 25
S 26	18 17 19	4°39'41	12♎50	13°32	26°3	2°18	29°1	21°35	17°30	8°18	18°18	8°58	10°25	0°17	27°19	S 26
S 27	18 21 16	5°36'53	27°40	15°36	27°16	2°56	29°14	21°36	17°28	8°20	18°18	8°54	10°21	0°24	27°23	S 27
M28	18 25 12	6°34'06	12♎40	17°38	28°30	3°33	29°27	21°36	17°27	8°22	18°19	8°50	10°18	0°30	27°26	M28
T 29	18 29 9	7°31'18	27°41	19°37	29°43	4°11	29°39	21°37	17°25	8°24	18°19	8°45	10°15	0°37	27°30	T 29
W30	18 33 6	8°28'30	12♎36	21♎35	0♎57	4♎49	29♎52	21♎37	17°23	8♎26	18♎20	8°42	10°12	0♏44	27♎33	W30

Delta T = 86.05 sec

## ASTRODIENST EPHEMERIS for the year 2083

geocentric

JULY 2083

00:00 UT

Day	Sid.t	☉	☽	♀	♂	♂	♂	♂	♂	♂	♂	♂	♂	♂	♂	Day
T 1	18 37 2	9 <sup>25</sup> 42	27 <sup>3</sup> 14	23 <sup>25</sup> 31	2 <sup>25</sup> 10	5 <sup>0</sup> 27	0 <sup>11</sup> 4	21 <sup>1</sup> 37	17 <sup>2</sup> R22	8 <sup>0</sup> 28	18 <sup>1</sup> 20	8 <sup>0</sup> R41	10 <sup>2</sup> 9	0 <sup>11</sup> 51	27 <sup>2</sup> 37	T 1
F 2	18 40 59	10 <sup>22</sup> 53	11 <sup>22</sup> 31	25 <sup>25</sup> 25	3 <sup>24</sup>	6 <sup>4</sup>	0 <sup>17</sup>	21 <sup>0</sup> R37	17 <sup>2</sup> 20	8 <sup>30</sup>	18 <sup>21</sup>	8 <sup>0</sup> D40	10 <sup>6</sup>	0 <sup>57</sup>	27 <sup>2</sup> 40	F 2
S 3	18 44 55	11 <sup>20</sup> 05	25 <sup>22</sup>	27 <sup>17</sup>	4 <sup>37</sup>	6 <sup>42</sup>	0 <sup>29</sup>	21 <sup>37</sup>	17 <sup>18</sup>	8 <sup>32</sup>	18 <sup>21</sup>	8 <sup>2</sup> 41	10 <sup>2</sup>	1 <sup>4</sup>	27 <sup>2</sup> 43	S 3
S 4	18 48 52	12 <sup>17</sup> 16	8 <sup>1</sup> 47	29 <sup>7</sup>	5 <sup>51</sup>	7 <sup>20</sup>	0 <sup>42</sup>	21 <sup>37</sup>	17 <sup>16</sup>	8 <sup>34</sup>	18 <sup>21</sup>	8 <sup>42</sup>	9 <sup>59</sup>	1 <sup>11</sup>	27 <sup>2</sup> 46	S 4
M 5	18 52 48	13 <sup>14</sup> 28	21 <sup>47</sup>	0 <sup>0</sup> 55	7 <sup>5</sup>	7 <sup>57</sup>	0 <sup>54</sup>	21 <sup>37</sup>	17 <sup>15</sup>	8 <sup>36</sup>	18 <sup>22</sup>	8 <sup>44</sup>	9 <sup>56</sup>	1 <sup>17</sup>	27 <sup>2</sup> 50	M 5
T 6	18 56 45	14 <sup>11</sup> 40	4 <sup>1</sup> 25	2 <sup>40</sup>	8 <sup>18</sup>	8 <sup>35</sup>	1 <sup>6</sup>	21 <sup>37</sup>	17 <sup>13</sup>	8 <sup>38</sup>	18 <sup>22</sup>	8 <sup>45</sup>	9 <sup>53</sup>	1 <sup>24</sup>	27 <sup>2</sup> 53	T 6
W 7	19 0 41	15 <sup>8</sup> 52	16 <sup>45</sup>	4 <sup>24</sup>	9 <sup>32</sup>	9 <sup>13</sup>	1 <sup>18</sup>	21 <sup>36</sup>	17 <sup>11</sup>	8 <sup>40</sup>	18 <sup>22</sup>	8 <sup>45</sup>	9 <sup>50</sup>	1 <sup>31</sup>	27 <sup>2</sup> 56	W 7
T 8	19 4 38	16 <sup>6</sup> 04	28 <sup>52</sup>	6 <sup>6</sup>	10 <sup>46</sup>	9 <sup>51</sup>	1 <sup>30</sup>	21 <sup>36</sup>	17 <sup>9</sup>	8 <sup>42</sup>	18 <sup>22</sup>	8 <sup>45</sup>	9 <sup>46</sup>	1 <sup>38</sup>	27 <sup>2</sup> 59	T 8
F 9	19 8 35	17 <sup>3</sup> 17	10 <sup>2</sup> 49	7 <sup>45</sup>	11 <sup>59</sup>	10 <sup>28</sup>	1 <sup>42</sup>	21 <sup>35</sup>	17 <sup>7</sup>	8 <sup>45</sup>	18 <sup>22</sup>	8 <sup>43</sup>	9 <sup>43</sup>	1 <sup>44</sup>	28 <sup>2</sup>	F 9
S 10	19 12 31	18 <sup>0</sup> 30	22 <sup>42</sup>	9 <sup>22</sup>	13 <sup>13</sup>	11 <sup>6</sup>	1 <sup>54</sup>	21 <sup>34</sup>	17 <sup>5</sup>	8 <sup>47</sup>	18 <sup>23</sup>	8 <sup>41</sup>	9 <sup>40</sup>	1 <sup>51</sup>	28 <sup>2</sup> 5	S 10
S 11	19 16 28	18 <sup>57</sup> 44	4 <sup>11</sup> 33	10 <sup>58</sup>	14 <sup>27</sup>	11 <sup>44</sup>	2 <sup>6</sup>	21 <sup>33</sup>	17 <sup>3</sup>	8 <sup>49</sup>	18 <sup>23</sup>	8 <sup>38</sup>	9 <sup>37</sup>	1 <sup>58</sup>	28 <sup>2</sup> 8	S 11
M 12	19 20 24	19 <sup>54</sup> 58	16 <sup>27</sup>	12 <sup>31</sup>	15 <sup>40</sup>	12 <sup>22</sup>	2 <sup>18</sup>	21 <sup>33</sup>	17 <sup>1</sup>	8 <sup>51</sup>	18 <sup>23</sup>	8 <sup>35</sup>	9 <sup>34</sup>	2 <sup>4</sup>	28 <sup>2</sup> 11	M 12
T 13	19 24 21	20 <sup>52</sup> 12	28 <sup>26</sup>	14 <sup>2</sup>	16 <sup>54</sup>	13 <sup>0</sup>	2 <sup>29</sup>	21 <sup>32</sup>	16 <sup>59</sup>	8 <sup>53</sup>	18 <sup>23</sup>	8 <sup>32</sup>	9 <sup>31</sup>	2 <sup>11</sup>	28 <sup>2</sup> 14	T 13
W 14	19 28 17	21 <sup>49</sup> 27	10 <sup>2</sup> 33	15 <sup>31</sup>	18 <sup>8</sup>	13 <sup>37</sup>	2 <sup>41</sup>	21 <sup>30</sup>	16 <sup>57</sup>	8 <sup>55</sup>	18 <sup>23</sup>	8 <sup>30</sup>	9 <sup>27</sup>	2 <sup>18</sup>	28 <sup>2</sup> 17	W 14
T 15	19 32 14	22 <sup>46</sup> 41	22 <sup>49</sup>	16 <sup>57</sup>	19 <sup>22</sup>	14 <sup>15</sup>	2 <sup>52</sup>	21 <sup>29</sup>	16 <sup>55</sup>	8 <sup>57</sup>	18 <sup>23</sup>	8 <sup>28</sup>	9 <sup>24</sup>	2 <sup>25</sup>	28 <sup>2</sup> 20	T 15
F 16	19 36 10	23 <sup>43</sup> 56	5 <sup>0</sup> 15	18 <sup>22</sup>	20 <sup>36</sup>	14 <sup>53</sup>	3 <sup>4</sup>	21 <sup>28</sup>	16 <sup>53</sup>	8 <sup>59</sup>	18 <sup>23</sup>	8 <sup>0</sup> D28	9 <sup>21</sup>	2 <sup>31</sup>	28 <sup>2</sup> 23	F 16
S 17	19 40 7	24 <sup>41</sup> 12	17 <sup>54</sup>	19 <sup>44</sup>	21 <sup>49</sup>	15 <sup>31</sup>	3 <sup>15</sup>	21 <sup>27</sup>	16 <sup>50</sup>	9 <sup>2</sup>	18 <sup>23</sup>	8 <sup>28</sup>	9 <sup>18</sup>	2 <sup>38</sup>	28 <sup>2</sup> 26	S 17
S 18	19 44 4	25 <sup>38</sup> 27	0 <sup>11</sup> 45	21 <sup>5</sup>	23 <sup>3</sup>	16 <sup>8</sup>	3 <sup>26</sup>	21 <sup>25</sup>	16 <sup>48</sup>	9 <sup>4</sup>	18 <sup>23</sup>	8 <sup>29</sup>	9 <sup>15</sup>	2 <sup>45</sup>	28 <sup>2</sup> 28	S 18
M 19	19 48 0	26 <sup>35</sup> 43	13 <sup>50</sup>	22 <sup>23</sup>	24 <sup>17</sup>	16 <sup>46</sup>	3 <sup>37</sup>	21 <sup>24</sup>	16 <sup>46</sup>	9 <sup>6</sup>	18 <sup>23</sup>	8 <sup>30</sup>	9 <sup>12</sup>	2 <sup>51</sup>	28 <sup>2</sup> 31	M 19
T 20	19 51 57	27 <sup>32</sup> 59	27 <sup>10</sup>	23 <sup>38</sup>	25 <sup>31</sup>	17 <sup>24</sup>	3 <sup>48</sup>	21 <sup>22</sup>	16 <sup>44</sup>	9 <sup>8</sup>	18 <sup>23</sup>	8 <sup>31</sup>	9 <sup>8</sup>	2 <sup>58</sup>	28 <sup>2</sup> 34	T 20
W 21	19 55 53	28 <sup>30</sup> 15	10 <sup>2</sup> 45	24 <sup>51</sup>	26 <sup>45</sup>	18 <sup>2</sup>	3 <sup>59</sup>	21 <sup>20</sup>	16 <sup>42</sup>	9 <sup>10</sup>	18 <sup>23</sup>	8 <sup>31</sup>	9 <sup>5</sup>	3 <sup>5</sup>	28 <sup>2</sup> 36	W 21
T 22	19 59 50	29 <sup>27</sup> 31	24 <sup>35</sup>	26 <sup>2</sup>	27 <sup>59</sup>	18 <sup>40</sup>	4 <sup>10</sup>	21 <sup>18</sup>	16 <sup>39</sup>	9 <sup>12</sup>	18 <sup>23</sup>	8 <sup>0</sup> R32	9 <sup>2</sup>	3 <sup>12</sup>	28 <sup>2</sup> 39	T 22
F 23	20 3 46	0 <sup>0</sup> 24 <sup>47</sup>	8 <sup>11</sup> 40	27 <sup>10</sup>	29 <sup>12</sup>	19 <sup>18</sup>	4 <sup>21</sup>	21 <sup>16</sup>	16 <sup>37</sup>	9 <sup>15</sup>	18 <sup>23</sup>	8 <sup>32</sup>	8 <sup>59</sup>	3 <sup>18</sup>	28 <sup>2</sup> 41	F 23
S 24	20 7 43	1 <sup>22</sup> 04	22 <sup>59</sup>	28 <sup>16</sup>	0 <sup>0</sup> 26	19 <sup>55</sup>	4 <sup>31</sup>	21 <sup>14</sup>	16 <sup>35</sup>	9 <sup>17</sup>	18 <sup>23</sup>	8 <sup>31</sup>	8 <sup>56</sup>	3 <sup>25</sup>	28 <sup>2</sup> 44	S 24
S 25	20 11 39	2 <sup>19</sup> 21	7 <sup>2</sup> 29	29 <sup>18</sup>	1 <sup>40</sup>	20 <sup>33</sup>	4 <sup>42</sup>	21 <sup>12</sup>	16 <sup>33</sup>	9 <sup>19</sup>	18 <sup>23</sup>	8 <sup>31</sup>	8 <sup>52</sup>	3 <sup>32</sup>	28 <sup>2</sup> 46	S 25
M 26	20 15 36	3 <sup>16</sup> 39	22 <sup>5</sup>	0 <sup>11</sup> 18	2 <sup>54</sup>	21 <sup>11</sup>	4 <sup>52</sup>	21 <sup>10</sup>	16 <sup>30</sup>	9 <sup>21</sup>	18 <sup>23</sup>	8 <sup>30</sup>	8 <sup>49</sup>	3 <sup>38</sup>	28 <sup>2</sup> 49	M 26
T 27	20 19 33	4 <sup>13</sup> 56	6 <sup>2</sup> 41	1 <sup>16</sup>	4 <sup>8</sup>	21 <sup>49</sup>	5 <sup>3</sup>	21 <sup>8</sup>	16 <sup>28</sup>	9 <sup>24</sup>	18 <sup>23</sup>	8 <sup>30</sup>	8 <sup>46</sup>	3 <sup>45</sup>	28 <sup>2</sup> 51	T 27
W 28	20 23 29	5 <sup>11</sup> 15	21 <sup>13</sup>	2 <sup>10</sup>	5 <sup>22</sup>	22 <sup>27</sup>	5 <sup>13</sup>	21 <sup>5</sup>	16 <sup>26</sup>	9 <sup>26</sup>	18 <sup>22</sup>	8 <sup>29</sup>	8 <sup>43</sup>	3 <sup>52</sup>	28 <sup>2</sup> 53	W 28
T 29	20 27 26	6 <sup>8</sup> 34	5 <sup>2</sup> 34	3 <sup>1</sup>	6 <sup>36</sup>	23 <sup>5</sup>	5 <sup>23</sup>	21 <sup>3</sup>	16 <sup>23</sup>	9 <sup>28</sup>	18 <sup>22</sup>	8 <sup>0</sup> D29	8 <sup>40</sup>	3 <sup>59</sup>	28 <sup>2</sup> 55	T 29
F 30	20 31 22	7 <sup>5</sup> 53	19 <sup>39</sup>	3 <sup>48</sup>	7 <sup>50</sup>	23 <sup>42</sup>	5 <sup>33</sup>	21 <sup>0</sup>	16 <sup>21</sup>	9 <sup>30</sup>	18 <sup>22</sup>	8 <sup>29</sup>	8 <sup>37</sup>	4 <sup>5</sup>	28 <sup>2</sup> 57	F 30
S 31	20 35 19	8 <sup>0</sup> 14	3 <sup>1</sup> 24	4 <sup>11</sup> 32	9 <sup>0</sup> 4	24 <sup>0</sup> 20	5 <sup>11</sup> 43	20 <sup>1</sup> 57	16 <sup>2</sup> 19	9 <sup>0</sup> 32	18 <sup>22</sup>	8 <sup>0</sup> R29	8 <sup>2</sup> 33	4 <sup>11</sup> 12	29 <sup>2</sup> 0	S 31

Delta T = 86.08 sec

AUGUST 2083

00:00 UT

Day	Sid.t	☉	☽	♀	♂	♂	♂	♂	♂	♂	♂	♂	♂	♂	♂	Day
S 1	20 39 15	9♌ 0°35	16♋48	5♎13	10♏18	24♌58	5♐53	20°R55	16°R16	9♌35	18°R21	8°R29	8≈30	4♐19	29♌ 2	S 1
M 2	20 43 12	9°57'57	29°49	5°50	11°32	25°36	6° 2	20♋52	16≈14	9°37	18°Y21	8≈29	8°27	4°25	29° 4	M 2
T 3	20 47 8	10°55'20	12°Y29	6°22	12°46	26°14	6°12	20°49	16°11	9°39	18°21	8°29	8°24	4°32	29° 5	T 3
W 4	20 51 5	11°52'44	24°52	6°51	14° 0	26°52	6°21	20°46	16° 9	9°41	18°21	8°29	8°21	4°39	29° 7	W 4
T 5	20 55 2	12°50'10	7♌ 1	7°15	15°14	27°30	6°31	20°43	16° 7	9°44	18°20	8°28	8°18	4°46	29° 9	T 5
F 6	20 58 58	13°47'37	18°59	7°35	16°28	28° 8	6°40	20°40	16° 4	9°46	18°20	8°D28	8°14	4°52	29°11	F 6
S 7	21 2 55	14°45'05	0♐52	7°50	17°42	28°46	6°49	20°37	16° 2	9°48	18°19	8°29	8°11	4°59	29°13	S 7
S 8	21 6 51	15°42'34	12°45	8° 0	18°56	29°24	6°58	20°33	16° 0	9°50	18°19	8°29	8° 8	5° 6	29°14	S 8
M 9	21 10 48	16°40'04	24°41	8°R 5	20°10	0♐ 2	7° 7	20°30	15°57	9°52	18°19	8°30	8° 5	5°12	29°16	M 9
T 10	21 14 44	17°37'36	6♌44	8° 5	21°24	0°39	7°15	20°27	15°55	9°55	18°18	8°31	8° 2	5°19	29°17	T 10
W 11	21 18 41	18°35'09	18°58	8° 0	22°38	1°17	7°24	20°23	15°52	9°57	18°18	8°32	7°58	5°26	29°19	W 11
T 12	21 22 37	19°32'43	1♌26	7°49	23°52	1°55	7°32	20°20	15°50	9°59	18°17	8°32	7°55	5°32	29°20	T 12
F 13	21 26 34	20°30'19	14° 9	7°33	25° 6	2°33	7°41	20°16	15°48	10° 1	18°17	8°R32	7°52	5°39	29°22	F 13
S 14	21 30 31	21°27'55	27° 7	7°11	26°21	3°11	7°49	20°12	15°45	10° 3	18°16	8°32	7°49	5°46	29°23	S 14
S 15	21 34 27	22°25'33	10♐22	6°44	27°35	3°49	7°57	20° 9	15°43	10° 6	18°15	8°30	7°46	5°53	29°24	S 15
M 16	21 38 24	23°23'12	23°51	6°12	28°49	4°28	8° 5	20° 5	15°40	10° 8	18°15	8°29	7°43	5°59	29°26	M 16
T 17	21 42 20	24°20'51	7♌33	5°35	0♐ 3	5° 6	8°12	20° 1	15°38	10°10	18°14	8°27	7°39	6° 6	29°27	T 17
W 18	21 46 17	25°18'32	21°27	4°54	1°17	5°44	8°20	19°57	15°36	10°12	18°14	8°25	7°36	6°13	29°28	W 18
T 19	21 50 13	26°16'14	5♐29	4° 9	2°31	6°22	8°28	19°53	15°33	10°14	18°13	8°23	7°33	6°19	29°29	T 19
F 20	21 54 10	27°13'57	19°37	3°20	3°46	7° 0	8°35	19°49	15°31	10°16	18°12	8°22	7°30	6°26	29°30	F 20
S 21	21 58 6	28°11'41	3♌50	2°30	5° 0	7°38	8°42	19°45	15°29	10°19	18°12	8°D22	7°27	6°33	29°31	S 21
S 22	22 2 3	29° 9'26	18° 4	1°38	6°14	8°16	8°49	19°41	15°26	10°21	18°11	8°23	7°24	6°40	29°31	S 22
M 23	22 6 0	0♐ 7'13	2♌18	0°45	7°28	8°54	8°56	19°37	15°24	10°23	18°10	8°24	7°20	6°46	29°32	M 23
T 24	22 9 56	1° 5'00	16≈33	29♌53	8°43	9°32	9° 3	19°32	15°22	10°25	18°10	8°25	7°17	6°53	29°33	T 24
W 25	22 13 53	2° 2'49	0♐28	29° 2	9°57	10°10	9° 9	19°28	15°20	10°27	18° 9	8°26	7°14	7° 0	29°34	W 25
T 26	22 17 49	3° 0'39	14°28	28°14	11°11	10°49	9°16	19°24	15°17	10°29	18° 8	8°R26	7°11	7° 6	29°34	T 26
F 27	22 21 46	3°58'30	28°12	27°30	12°25	11°27	9°22	19°20	15°15	10°31	18° 7	8°25	7° 8	7°13	29°35	F 27
S 28	22 25 42	4°56'22	11♋41	26°51	13°39	12° 5	9°28	19°15	15°13	10°33	18° 7	8°23	7° 4	7°20	29°35	S 28
S 29	22 29 39	5°54'16	24°53	26°17	14°54	12°43	9°34	19°11	15°11	10°35	18° 6	8°19	7° 1	7°26	29°36	S 29
M 30	22 33 35	6°52'12	7°Y48	25°49	16° 8	13°21	9°40	19° 6	15° 9	10°37	18° 5	8°15	6°58	7°33	29°36	M 30
T 31	22 37 32	7♎50'09	20°Y26	25♌29	17♎22	14♎ 0	9♐45	19♋ 2	15≈ 6	10♌39	18°Y 4	8≈10	6≈55	7♐40	29♌36	T 31

## ASTRODIENST EPHEMERIS for the year 2083

geocentric

SEPTEMBER 2083

00:00 UT

Day	Sid.t	☉	☽	♀	♂	♂	♂	♂	♂	♂	♂	♂	♂	♂	♂	Day
W 1	22 41 29	8 <sup>h</sup> 48'09"	2 <sup>h</sup> 48'	25°R16	18 <sup>h</sup> 37'	14 <sup>h</sup> 38'	9 <sup>h</sup> 51'	18°R57	15°R 4	10 <sup>h</sup> 41'	18°R 3	8°R 5	6 <sup>h</sup> 52'	7 <sup>h</sup> 47'	29 <sup>h</sup> 36'	W 1
T 2	22 45 25	9°46'10"	14°56'	25°D11	19°51'	15°16'	9°56'	18 <sup>h</sup> 53'	15 <sup>h</sup> 22'	10°43'	18°R 2	8 <sup>h</sup> 22'	6°49'	7°53'	29°37'	T 2
F 3	22 49 22	10°44'13"	26°55'	25°Q15	21° 5'	15°54'	10° 1'	18°48'	15° 0'	10°45'	18° 2'	7°59'	6°45'	8° 0'	29°37'	F 3
S 4	22 53 18	11°42'18"	8 <sup>h</sup> 47'	25°27'	22°19'	16°33'	10° 6'	18°44'	14°58'	10°47'	18° 1'	7°D58	6°42'	8° 7'	29°R37'	S 4
S 5	22 57 15	12°40'25"	20°39'	25°48'	23°34'	17°11'	10°11'	18°39'	14°56'	10°49'	18° 0'	7°59'	6°39'	8°13'	29°37'	S 5
M 6	23 1 11	13°38'33"	26°35'	26°17'	24°48'	17°49'	10°16'	18°35'	14°54'	10°51'	17°59'	8° 0'	6°36'	8°20'	29°37'	M 6
T 7	23 5 8	14°36'44"	14°40'	26°55'	26° 2'	18°28'	10°20'	18°30'	14°52'	10°53'	17°58'	8° 1'	6°33'	8°27'	29°36'	T 7
W 8	23 9 4	15°34'57"	26°58'	27°40'	27°17'	19° 6'	10°24'	18°26'	14°50'	10°55'	17°57'	8° 3'	6°29'	8°34'	29°36'	W 8
T 9	23 13 1	16°33'12"	9 <sup>h</sup> 43'	28°34'	28°31'	19°44'	10°28'	18°21'	14°48'	10°57'	17°56'	8°R 3	6°26'	8°40'	29°36'	T 9
F 10	23 16 58	17°31'28"	22°29'	29°34'	29°45'	20°23'	10°32'	18°16'	14°46'	10°59'	17°55'	8° 2'	6°23'	8°47'	29°36'	F 10
S 11	23 20 54	18°29'47"	5 <sup>h</sup> 46'	0 <sup>h</sup> 42'	1 <sup>h</sup> 00'	21° 1'	10°36'	18°12'	14°44'	11° 1'	17°54'	8° 0'	6°20'	8°54'	29°35'	S 11
S 12	23 24 51	19°28'07"	19°24'	1°56'	2°14'	21°40'	10°39'	18° 7'	14°42'	11° 3'	17°53'	7°55'	6°17'	9° 0'	29°35'	S 12
M13	23 28 47	20°26'29"	3 <sup>h</sup> 20'	3°16'	3°28'	22°18'	10°43'	18° 3'	14°41'	11° 4'	17°52'	7°49'	6°14'	9° 7'	29°34'	M13
T 14	23 32 44	21°24'53"	17°30'	4°42'	4°43'	22°57'	10°46'	17°58'	14°39'	11° 6'	17°51'	7°42'	6°10'	9°14'	29°34'	T 14
W15	23 36 40	22°23'18"	1 <sup>h</sup> 50'	6°12'	5°57'	23°35'	10°49'	17°53'	14°37'	11° 8'	17°50'	7°35'	6° 7'	9°20'	29°33'	W15
T 16	23 40 37	23°21'46"	16°14'	7°46'	7°11'	24°14'	10°52'	17°49'	14°35'	11°10'	17°49'	7°29'	6° 4'	9°27'	29°32'	T 16
F 17	23 44 33	24°20'15"	0 <sup>h</sup> 36'	9°24'	8°26'	24°52'	10°54'	17°44'	14°34'	11°12'	17°48'	7°25'	6° 1'	9°34'	29°31'	F 17
S 18	23 48 30	25°18'45"	14°53'	11° 5'	9°40'	25°31'	10°57'	17°40'	14°32'	11°13'	17°47'	7°23'	5°58'	9°40'	29°31'	S 18
S 19	23 52 27	26°17'17"	29° 3'	12°49'	10°54'	26° 9'	10°59'	17°35'	14°30'	11°15'	17°46'	7°D22	5°55'	9°47'	29°30'	S 19
M20	23 56 23	27°15'51"	13°3'	14°35'	12° 9'	26°48'	11° 1'	17°31'	14°29'	11°17'	17°45'	7°23'	5°51'	9°54'	29°29'	M20
T 21	0 0 20	28°14'27"	26°53'	16°22'	13°23'	27°26'	11° 3'	17°26'	14°27'	11°18'	17°44'	7°24'	5°48'	10° 1'	29°28'	T 21
W22	0 4 16	29°13'04"	10 <sup>h</sup> 33'	18°11'	14°37'	28° 5'	11° 4'	17°22'	14°26'	11°20'	17°43'	7°R24	5°45'	10° 7'	29°27'	W22
T 23	0 8 13	0 <sup>h</sup> 11'42"	24° 3'	20° 0'	15°52'	28°44'	11° 6'	17°17'	14°24'	11°22'	17°42'	7°23'	5°42'	10°14'	29°26'	T 23
F 24	0 12 9	1°10'23"	7 <sup>h</sup> 22'	21°51'	17° 6'	29°22'	11° 7'	17°13'	14°23'	11°23'	17°41'	7°20'	5°39'	10°21'	29°24'	F 24
S 25	0 16 6	2° 9'05"	20°29'	23°41'	18°20'	0 <sup>h</sup> 1'	11° 8'	17° 9'	14°22'	11°25'	17°39'	7°13'	5°35'	10°27'	29°23'	S 25
S 26	0 20 2	3° 7'49"	3 <sup>h</sup> 25'	25°32'	19°35'	0°40'	11° 9'	17° 4'	14°20'	11°26'	17°38'	7° 5'	5°32'	10°34'	29°22'	S 26
M27	0 23 59	4° 6'35"	16° 7'	27°22'	20°49'	1°18'	11° 9'	17° 0'	14°19'	11°28'	17°37'	6°55'	5°29'	10°41'	29°20'	M27
T 28	0 27 55	5° 5'23"	28°36'	29°13'	22° 3'	1°57'	11°10'	16°56'	14°18'	11°29'	17°36'	6°44'	5°26'	10°47'	29°19'	T 28
W29	0 31 52	6° 4'13"	10 <sup>h</sup> 52'	1 <sup>h</sup> 3'	23°18'	2°36'	11°10'	16°51'	14°17'	11°31'	17°35'	6°34'	5°23'	10°54'	29°17'	W29
T 30	0 35 49	7 <sup>h</sup> 3'06"	22 <sup>h</sup> 57'	2 <sup>h</sup> 52'	24°32'	3 <sup>h</sup> 15'	11°R10	16 <sup>h</sup> 47'	14 <sup>h</sup> 15'	11 <sup>h</sup> 32'	17 <sup>h</sup> 34'	6 <sup>h</sup> 25'	5 <sup>h</sup> 20'	11 <sup>h</sup> 11'	29 <sup>h</sup> 16'	T 30

Delta T = 86.15 sec

OCTOBER 2083

00:00 UT

Day	Sid.t	☉	☽	♀	♂	♂	♂	♂	♂	♂	♂	♂	♂	♂	♂	Day
F 1	0 39 45	8 <sup>h</sup> 2'01"	4 <sup>h</sup> 53'	4 <sup>h</sup> 41'	25°46'	3 <sup>h</sup> 54'	11°R10	16°R43	14°R14	11°Q34	17°R33	6°R17	5 <sup>h</sup> 16'	11 <sup>h</sup> 11'	29°R14	F 1
S 2	0 43 42	9° 0'58"	16°44'	6°29'	27° 0'	4°32'	11 <sup>h</sup> 11'	16 <sup>h</sup> 39'	14 <sup>h</sup> 13'	11°35'	17°R31	6 <sup>h</sup> 12'	5°13'	11°14'	29°R13	S 2
S 3	0 47 38	9°59'57"	28°34'	8°17'	28°15'	5°11'	11° 9'	16°35'	14°12'	11°36'	17°30'	6°10'	5°10'	11°21'	29°11'	S 3
M 4	0 51 35	10°58'59"	10 <sup>h</sup> 28'	10° 3'	29°29'	5°50'	11° 8'	16°31'	14°11'	11°38'	17°29'	6°D 9	5° 7'	11°28'	29° 9'	M 4
T 5	0 55 31	11°58'02"	22°31'	11°49'	0 <sup>h</sup> 43'	6°29'	11° 7'	16°27'	14°10'	11°39'	17°28'	6° 9'	5° 4'	11°34'	29° 7'	T 5
W 6	0 59 28	12°57'08"	4 <sup>h</sup> 48'	13°35'	1°58'	7° 8'	11° 6'	16°23'	14° 9'	11°40'	17°27'	6°R10	5° 1'	11°41'	29° 5'	W 6
T 7	1 3 24	13°56'17"	17°25'	15°19'	3°12'	7°47'	11° 4'	16°19'	14° 9'	11°41'	17°26'	6° 9'	4°57'	11°48'	29° 4'	T 7
F 8	1 7 21	14°55'27"	0 <sup>h</sup> 25'	17° 3'	4°26'	8°26'	11° 3'	16°16'	14° 8'	11°43'	17°25'	6° 7'	4°54'	11°54'	29° 2'	F 8
S 9	1 11 18	15°54'40"	13°51'	18°46'	5°41'	9° 5'	11° 1'	16°12'	14° 7'	11°44'	17°23'	6° 2'	4°51'	12° 1'	29° 0'	S 9
S 10	1 15 14	16°53'55"	27°44'	20°28'	6°55'	9°44'	10°59'	16° 8'	14° 6'	11°45'	17°22'	5°54'	4°48'	12° 8'	28°57'	S 10
M11	1 19 11	17°53'12"	12 <sup>h</sup> 1'	22° 9'	8° 9'	10°23'	10°57'	16° 5'	14° 6'	11°46'	17°21'	5°44'	4°45'	12°15'	28°55'	M11
T 12	1 23 7	18°52'32"	26°37'	23°49'	9°24'	11° 2'	10°54'	16° 1'	14° 5'	11°47'	17°20'	5°33'	4°41'	12°21'	28°53'	T 12
W13	1 27 4	19°51'53"	11 <sup>h</sup> 24'	25°29'	10°38'	11°41'	10°52'	15°58'	14° 5'	11°48'	17°19'	5°22'	4°38'	12°28'	28°51'	W13
T 14	1 31 0	20°51'16"	26°14'	27° 8'	11°52'	12°20'	10°49'	15°54'	14° 4'	11°49'	17°18'	5°13'	4°35'	12°35'	28°49'	T 14
F 15	1 34 57	21°50'42"	10 <sup>h</sup> 59'	28°47'	13° 6'	13° 0'	10°46'	15°51'	14° 4'	11°50'	17°16'	5° 5'	4°32'	12°41'	28°46'	F 15
S 16	1 38 53	22°50'09"	25°31'	0 <sup>h</sup> 24'	14°21'	13°39'	10°43'	15°48'	14° 3'	11°51'	17°15'	5° 0'	4°29'	12°48'	28°44'	S 16
S 17	1 42 50	23°49'38"	9 <sup>h</sup> 38'	2° 1'	15°35'	14°18'	10°40'	15°45'	14° 3'	11°52'	17°14'	4°58'	4°26'	12°55'	28°42'	S 17
M18	1 46 47	24°49'08"	23°47'	3°37'	16°49'	14°57'	10°36'	15°42'	14° 2'	11°53'	17°13'	4°D57	4°22'	13° 1'	28°39'	M18
T 19	1 50 43	25°48'40"	7 <sup>h</sup> 29'	5°13'	18° 4'	15°36'	10°32'	15°39'	14° 2'	11°54'	17°12'	4°R57	4°19'	13° 8'	28°37'	T 19
W20	1 54 40	26°48'14"	20°54'	6°48'	19°18'	16°16'	10°28'	15°36'	14° 2'	11°55'	17°11'	4°57'	4°16'	13°15'	28°34'	W20
T 21	1 58 36	27°47'50"	4 <sup>h</sup> 5'	8°22'	20°32'	16°55'	10°24'	15°33'	14° 2'	11°56'	17°10'	4°54'	4°13'	13°21'	28°32'	T 21
F 22	2 2 33	28°47'27"	17° 4'	9°56'	21°46'	17°34'	10°20'	15°30'	14° 2'	11°57'	17° 8'	4°49'	4°10'	13°28'	28°29'	F 22
S 23	2 6 29	29°47'06"	29°50'	11°29'	23° 0'	18°14'	10°15'	15°28'	14° 2'	11°57'	17° 7'	4°40'	4° 6'	13°35'	28°26'	S 23
S 24	2 10 26	0 <sup>h</sup> 46'47"	12 <sup>h</sup> 27'	13° 2'	24°15'	18°53'	10°11'	15°25'	14°D 2	11°58'	17° 6'	4°29'	4° 3'	13°42'	28°24'	S 24
M25	2 14 22	1°46'30"	24°53'	14°34'	25°29'	19°32'	10° 6'	15°23'	14° 2'	11°59'	17° 5'	4°16'	4° 0'	13°48'	28°21'	M25
T 26	2 18 19	2°46'14"	7 <sup>h</sup> 10'	16° 5'	26°43'	20°12'	10° 1'	15°20'	14° 2'	12° 0'	17° 4'	4° 2'	3°57'	13°55'	28°18'	T 26
W27	2 22 16	3°46'01"	19°18'	17°36'	27°57'	20°51'	9°56'	15°18'	14° 2'	12° 0'	17° 3'	3°47'	3°54'	14° 2'	28°15'	W27
T 28	2 26 12	4°45'50"	1 <sup>h</sup> 17'	19° 6'	29°12'	21°31'	9°50'	15°16'	14° 2'	12° 1'	17° 2'	3°35'	3°51'	14° 8'	28°13'	T 28
F 29	2 30 9	5°45'41"	13°10'	20°36'	0 <sup>h</sup> 26'	22°10'	9°45'	15°14'	14° 2'	12° 1'	17° 1'	3°24'	3°47'	14°15'	28°10'	F 29
S 30	2 34 5	6°45'34"	24°59'	22° 5'	1°40'	22°50'	9°39'	15°12'	14° 3'	12° 2'	17° 0'	3°16'	3°44'	14°22'	28° 7'	S 30
S 31	2 38 2	7 <sup>h</sup> 45'30"	6 <sup>h</sup> 47'	23 <sup>h</sup> 34'	2 <sup>h</sup> 54'	23°29'	9 <sup>h</sup> 33'	15 <sup>h</sup> 10'	14 <sup>h</sup> 32'	12 <sup>h</sup> 22'	16 <sup>h</sup> 59'	3 <sup>h</sup> 12'	3 <sup>h</sup> 41'	14 <sup>h</sup> 28'	28 <sup>h</sup> 4'	S 31

Delta T = 86.18 sec

# ASTRODIENST EPHEMERIS for the year 2083

## geocentric

NOVEMBER 2083

00:00 UT

Day	Sid.t	☉	☽	♀	♂	♂	♂	♂	♂	♂	♂	♂	♂	♂	♂	Day
M 1	2 41 58	8♈45'27	18♊39	25♈ 2	4♈ 8	24♈ 9	9°R27	15°R 8	14♈ 3	12♈ 3	16°R57	3°R 9	3♈38	14♈35	28°R 1	M 1
T 2	2 45 55	9°45'27	0♈39	26°29	5°22	24°48	9♈21	15°R 6	14° 4	12° 3	16°Y56	3°D 9	3°35	14°42	27°R58	T 2
W 3	2 49 51	10°45'28	12°53	27°56	6°37	25°28	9°15	15° 5	14° 4	12° 4	16°55	3°R 9	3°32	14°48	27°55	W 3
T 4	2 53 48	11°45'32	25°25	29°22	7°51	26° 8	9° 9	15° 3	14° 5	12° 4	16°54	3♈ 8	3°28	14°55	27°52	T 4
F 5	2 57 45	12°45'38	8♈22	0♈48	9° 5	26°47	9° 2	15° 2	14° 5	12° 4	16°53	3° 6	3°25	15° 2	27°49	F 5
S 6	3 1 41	13°45'46	21°47	2°13	10°19	27°27	8°55	15° 1	14° 6	12° 5	16°52	3° 1	3°22	15° 8	27°46	S 6
S 7	3 5 38	14°45'56	5♈42	3°37	11°33	28° 7	8°49	14°59	14° 7	12° 5	16°51	2°54	3°19	15°15	27°43	S 7
M 8	3 9 34	15°46'08	20° 6	5° 1	12°47	28°47	8°42	14°58	14° 8	12° 5	16°50	2°44	3°16	15°22	27°40	M 8
T 9	3 13 31	16°46'22	4♈54	6°23	14° 1	29°26	8°35	14°57	14° 8	12° 5	16°49	2°33	3°12	15°29	27°37	T 9
W10	3 17 27	17°46'37	19°59	7°45	15°15	0♈ 6	8°28	14°56	14° 9	12° 5	16°48	2°22	3° 9	15°35	27°34	W10
T 11	3 21 24	18°46'55	5♈10	9° 5	16°30	0°46	8°20	14°56	14°10	12° 6	16°47	2°12	3° 6	15°42	27°31	T 11
F 12	3 25 20	19°47'15	20°17	10°25	17°44	1°26	8°13	14°55	14°11	12° 6	16°46	2° 4	3° 3	15°49	27°27	F 12
S 13	3 29 17	20°47'36	5♈11	11°43	18°58	2° 6	8° 6	14°54	14°12	12° 6	16°45	1°59	3° 0	15°55	27°24	S 13
S 14	3 33 14	21°47'58	19°44	13° 0	20°12	2°46	7°58	14°54	14°13	12°R 6	16°44	1°56	2°57	16° 2	27°21	S 14
M15	3 37 10	22°48'22	3♈54	14°15	21°26	3°26	7°50	14°53	14°14	12° 6	16°44	1°D56	2°53	16° 9	27°18	M15
T 16	3 41 7	23°48'47	17°40	15°29	22°40	4° 6	7°43	14°53	14°15	12° 6	16°43	1°R56	2°50	16°15	27°15	T 16
W17	3 45 3	24°49'13	1♈ 3	16°41	23°54	4°46	7°35	14°53	14°17	12° 6	16°42	1°56	2°47	16°22	27°12	W17
T 18	3 49 0	25°49'40	14° 7	17°50	25° 8	5°26	7°27	14°D53	14°18	12° 6	16°41	1°54	2°44	16°29	27° 8	T 18
F 19	3 52 56	26°50'09	26°53	18°57	26°22	6° 6	7°19	14°53	14°19	12° 5	16°40	1°50	2°41	16°35	27° 5	F 19
S 20	3 56 53	27°50'39	9♈26	20° 1	27°36	6°46	7°11	14°53	14°20	12° 5	16°39	1°44	2°38	16°42	27° 2	S 20
S 21	4 0 49	28°51'11	21°48	21° 2	28°50	7°26	7° 3	14°53	14°22	12° 5	16°38	1°35	2°34	16°49	26°59	S 21
M22	4 4 46	29°51'44	4♈ 0	21°59	0♈ 4	8° 6	6°55	14°54	14°23	12° 5	16°38	1°23	2°31	16°55	26°56	M22
T 23	4 8 43	0♈52'18	16° 5	22°52	1°18	8°47	6°47	14°54	14°25	12° 4	16°37	1°11	2°28	17° 2	26°53	T 23
W24	4 12 39	1°52'54	28° 4	23°41	2°32	9°27	6°39	14°55	14°26	12° 4	16°36	0°59	2°25	17° 9	26°49	W24
T 25	4 16 36	2°53'31	9♈58	24°24	3°46	10° 7	6°31	14°56	14°28	12° 4	16°35	0°49	2°22	17°16	26°46	T 25
F 26	4 20 32	3°54'10	21°48	25° 2	4°59	10°47	6°23	14°56	14°30	12° 3	16°35	0°40	2°18	17°22	26°43	F 26
S 27	4 24 29	4°54'50	3♈37	25°32	6°13	11°28	6°14	14°57	14°31	12° 3	16°34	0°34	2°15	17°29	26°40	S 27
S 28	4 28 25	5°55'31	15°26	25°55	7°27	12° 8	6° 6	14°58	14°33	12° 3	16°33	0°30	2°12	17°36	26°37	S 28
M29	4 32 22	6°56'14	27°19	26°10	8°41	12°48	5°58	14°59	14°35	12° 2	16°32	0°D28	2° 9	17°42	26°34	M29
T 30	4 36 18	7°56'59	9♈20	26°R17	9♈55	13♈29	5♈50	15°R 1	14°R37	12°R 2	16°Y32	0°R29	2°R 6	17°R49	26°R30	T 30

Delta T = 86.21 sec

DECEMBER 2083

00:00 UT

Day	Sid.t	☉	☽	♀	♂	♂	♂	♂	♂	♂	♂	♂	♂	♂	♂	Day
W 1	4 40 15	8♈57'45	21♈33	26°R13	11♈ 8	14♈ 9	5°R42	15°R 2	14♈38	12°R 1	16°R31	0°R30	2°R 3	17♈56	26°R27	W 1
T 2	4 44 12	9°58'32	4♈ 3	25°59	12°22	14°50	5♈34	15° 3	14°40	12°R 0	16°Y31	0°R31	1°59	18° 2	26°R24	T 2
F 3	4 48 8	10°59'21	16°54	25°33	13°36	15°30	5°25	15° 5	14°42	12° 0	16°30	0°31	1°56	18° 9	26°21	F 3
S 4	4 52 5	12° 0'11	0♈11	24°57	14°50	16°11	5°17	15° 6	14°44	11°59	16°29	0°29	1°53	18°16	26°18	S 4
S 5	4 56 1	13° 1'03	13°57	24°10	16° 3	16°51	5° 9	15° 8	14°46	11°59	16°29	0°25	1°50	18°22	26°15	S 5
M 6	4 59 58	14° 1'56	28°12	23°12	17°17	17°32	5° 1	15°10	14°48	11°58	16°28	0°20	1°47	18°29	26°12	M 6
T 7	5 3 54	15° 2'50	12♈55	22° 5	18°31	18°13	4°53	15°12	14°50	11°57	16°28	0°13	1°44	18°36	26° 9	T 7
W 8	5 7 51	16° 3'46	27°59	20°51	19°44	18°53	4°45	15°14	14°53	11°56	16°27	0° 6	1°40	18°42	26° 6	W 8
T 9	5 11 48	17° 4'43	13♈15	19°31	20°58	19°34	4°38	15°16	14°55	11°56	16°27	29°R59	1°37	18°49	26° 3	T 9
F 10	5 15 44	18° 5'41	28°32	18° 9	22°11	20°15	4°30	15°18	14°57	11°55	16°26	29°54	1°34	18°56	26° 0	F 10
S 11	5 19 41	19° 6'40	13♈41	16°46	23°25	20°55	4°22	15°21	14°59	11°54	16°26	29°51	1°31	19° 2	25°57	S 11
S 12	5 23 37	20° 7'40	28°31	15°26	24°38	21°36	4°15	15°23	15° 2	11°53	16°25	29°D50	1°28	19° 9	25°55	S 12
M13	5 27 34	21° 8'40	12♈57	14°11	25°52	22°17	4° 7	15°26	15° 4	11°52	16°25	29°51	1°24	19°16	25°52	M13
T 14	5 31 30	22° 9'41	26°56	13° 4	27° 5	22°58	4° 0	15°28	15° 6	11°51	16°25	29°52	1°21	19°23	25°49	T 14
W15	5 35 27	23°10'42	10♈28	12° 7	28°19	23°39	3°52	15°31	15° 9	11°50	16°24	29°53	1°18	19°29	25°46	W15
T 16	5 39 23	24°11'44	23°35	11°19	29°32	24°19	3°45	15°34	15°11	11°49	16°24	29°R54	1°15	19°36	25°44	T 16
F 17	5 43 20	25°12'46	6♈20	10°43	0°45	25° 0	3°38	15°37	15°14	11°48	16°24	29°53	1°12	19°43	25°41	F 17
S 18	5 47 17	26°13'48	18°48	10°18	1°59	25°41	3°31	15°40	15°16	11°47	16°23	29°51	1° 9	19°49	25°38	S 18
S 19	5 51 13	27°14'51	1♈ 2	10° 3	3°12	26°22	3°24	15°43	15°19	11°46	16°23	29°47	1° 5	19°56	25°36	S 19
M20	5 55 10	28°15'55	13° 6	9°D59	4°25	27° 3	3°17	15°46	15°22	11°45	16°23	29°42	1° 2	20° 3	25°33	M20
T 21	5 59 6	29°16'59	25° 3	10° 5	5°38	27°44	3°11	15°50	15°24	11°44	16°22	29°37	0°59	20° 9	25°31	T 21
W22	6 3 3	0♈18'03	6♈55	10°20	6°51	28°25	3° 4	15°53	15°27	11°43	16°22	29°31	0°56	20°16	25°28	W22
T 23	6 6 59	1°19'08	18°45	10°43	8° 4	29° 6	2°58	15°57	15°30	11°41	16°22	29°26	0°53	20°23	25°26	T 23
F 24	6 10 56	2°20'13	0♈35	11°14	9°17	29°47	2°52	16° 0	15°32	11°40	16°22	29°22	0°50	20°29	25°23	F 24
S 25	6 14 52	3°21'19	12°27	11°51	10°30	0♈29	2°46	16° 4	15°35	11°39	16°22	29°19	0°46	20°36	25°21	S 25
S 26	6 18 49	4°22'25	24°22	12°35	11°43	1°10	2°40	16° 8	15°38	11°38	16°22	29°D18	0°43	20°43	25°19	S 26
M27	6 22 46	5°23'31	6♈23	13°23	12°56	1°51	2°34	16°11	15°41	11°36	16°22	29°R18	0°40	20°49	25°16	M27
T 28	6 26 42	6°24'38	18°32	14°17	14° 9	2°32	2°28	16°15	15°44	11°35	16°22	29°19	0°37	20°56	25°14	T 28
W29	6 30 39	7°25'45	0♈51	15°14	15°22	3°13	2°23	16°19	15°46	11°34	16°21	29°21	0°34	21° 3	25°12	W29
T 30	6 34 35	8°26'53	13°25	16°15	16°34	3°55	2°18	16°24	15°49	11°32	16°21	29°22	0°30	21° 9	25°10	T 30
F 31	6 38 32	9♈28'02	26♈17	17♈19	17°R47	4♈36	2♈13	16°R28	15°R52	11°R31	16°D21	29°R24	0°R27	21°R16	25°R 8	F 31

Delta T = 86.25 sec