



# Astrodienst Ephemeris Tables for the year 2080

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 2080

## geocentric

JANUARY 2080

00:00 UT

Day	Sid.t	☉	☽	♀	♂	♂	♂	♂	♂	♂	♂	♂	♂	♂	♂	Day
M 1	6 42 20	10 <sup>3</sup> 27'23	18 <sup>1</sup> 16	14 <sup>3</sup> 35	6 <sup>2</sup> 40	6 <sup>1</sup> 5	25 <sup>3</sup> 4	3 <sup>2</sup> 28	0 <sup>2</sup> 29	2 <sup>2</sup> 25	12 <sup>1</sup> 10	18 <sup>1</sup> R 7	17 <sup>1</sup> 46	8 <sup>3</sup> 28	6 <sup>1</sup> R53	M 1
T 2	6 46 16	11 <sup>1</sup> 28'32	1 <sup>8</sup> 44	16 <sup>1</sup> 12	7 <sup>1</sup> 54	6 <sup>1</sup> 40	25 <sup>1</sup> 18	3 <sup>1</sup> 34	0 <sup>1</sup> 32	2 <sup>1</sup> 24	12 <sup>1</sup> 10	18 <sup>1</sup> Y 7	17 <sup>1</sup> 43	8 <sup>1</sup> 35	6 <sup>1</sup> 52	T 2
W 3	6 50 13	12 <sup>1</sup> 29'40	15 <sup>1</sup> 40	17 <sup>1</sup> 50	9 <sup>1</sup> 8	7 <sup>1</sup> 15	25 <sup>1</sup> 32	3 <sup>1</sup> 41	0 <sup>1</sup> 36	2 <sup>1</sup> 22	12 <sup>1</sup> 10	18 <sup>1</sup> 5	17 <sup>1</sup> 39	8 <sup>1</sup> 41	6 <sup>1</sup> 51	W 3
T 4	6 54 9	13 <sup>1</sup> 30'49	0 <sup>1</sup> II 5	19 <sup>1</sup> 27	10 <sup>1</sup> 22	7 <sup>1</sup> 51	25 <sup>1</sup> 45	3 <sup>1</sup> 48	0 <sup>1</sup> 39	2 <sup>1</sup> 21	12 <sup>1</sup> 10	18 <sup>1</sup> 0	17 <sup>1</sup> 36	8 <sup>1</sup> 48	6 <sup>1</sup> 51	T 4
F 5	6 58 6	14 <sup>1</sup> 31'57	14 <sup>1</sup> 57	21 <sup>1</sup> 6	11 <sup>1</sup> 36	8 <sup>1</sup> 26	25 <sup>1</sup> 59	3 <sup>1</sup> 55	0 <sup>1</sup> 42	2 <sup>1</sup> 19	12 <sup>1</sup> 11	17 <sup>1</sup> 53	17 <sup>1</sup> 33	8 <sup>1</sup> 55	6 <sup>1</sup> 50	F 5
S 6	7 2 3	15 <sup>1</sup> 33'06	0 <sup>1</sup> 9	22 <sup>1</sup> 44	12 <sup>1</sup> 50	9 <sup>1</sup> 1	26 <sup>1</sup> 13	4 <sup>1</sup> 2	0 <sup>1</sup> 46	2 <sup>1</sup> 18	12 <sup>1</sup> 11	17 <sup>1</sup> 43	17 <sup>1</sup> 30	9 <sup>1</sup> 1	6 <sup>1</sup> 49	S 6
S 7	7 5 59	16 <sup>1</sup> 34'14	15 <sup>1</sup> 31	24 <sup>1</sup> 23	14 <sup>1</sup> 4	9 <sup>1</sup> 36	26 <sup>1</sup> 27	4 <sup>1</sup> 9	0 <sup>1</sup> 49	2 <sup>1</sup> 16	12 <sup>1</sup> 11	17 <sup>1</sup> 31	17 <sup>1</sup> 27	9 <sup>1</sup> 8	6 <sup>1</sup> 49	S 7
M 8	7 9 56	17 <sup>1</sup> 35'22	0 <sup>1</sup> 151	26 <sup>1</sup> 2	15 <sup>1</sup> 18	10 <sup>1</sup> 11	26 <sup>1</sup> 41	4 <sup>1</sup> 16	0 <sup>1</sup> 53	2 <sup>1</sup> 14	12 <sup>1</sup> 11	17 <sup>1</sup> 19	17 <sup>1</sup> 23	9 <sup>1</sup> 15	6 <sup>1</sup> 48	M 8
T 9	7 13 52	18 <sup>1</sup> 36'30	15 <sup>1</sup> 58	27 <sup>1</sup> 41	16 <sup>1</sup> 32	10 <sup>1</sup> 46	26 <sup>1</sup> 55	4 <sup>1</sup> 23	0 <sup>1</sup> 56	2 <sup>1</sup> 13	12 <sup>1</sup> 12	17 <sup>1</sup> 9	17 <sup>1</sup> 20	9 <sup>1</sup> 22	6 <sup>1</sup> 48	T 9
W10	7 17 49	19 <sup>1</sup> 37'38	0 <sup>1</sup> 143	29 <sup>1</sup> 20	17 <sup>1</sup> 46	11 <sup>1</sup> 21	27 <sup>1</sup> 10	4 <sup>1</sup> 30	1 <sup>1</sup> 0	2 <sup>1</sup> 11	12 <sup>1</sup> 12	17 <sup>1</sup> 0	17 <sup>1</sup> 17	9 <sup>1</sup> 28	6 <sup>1</sup> 47	W10
T 11	7 21 45	20 <sup>1</sup> 38'46	14 <sup>1</sup> 58	0 <sup>1</sup> 159	19 <sup>1</sup> 0	11 <sup>1</sup> 56	27 <sup>1</sup> 24	4 <sup>1</sup> 37	1 <sup>1</sup> 3	2 <sup>1</sup> 9	12 <sup>1</sup> 12	16 <sup>1</sup> 55	17 <sup>1</sup> 14	9 <sup>1</sup> 35	6 <sup>1</sup> 47	T 11
F 12	7 25 42	21 <sup>1</sup> 39'53	28 <sup>1</sup> 44	2 <sup>1</sup> 39	20 <sup>1</sup> 14	12 <sup>1</sup> 31	27 <sup>1</sup> 38	4 <sup>1</sup> 44	1 <sup>1</sup> 7	2 <sup>1</sup> 8	12 <sup>1</sup> 13	16 <sup>1</sup> 52	17 <sup>1</sup> 11	9 <sup>1</sup> 42	6 <sup>1</sup> 47	F 12
S 13	7 29 38	22 <sup>1</sup> 41'01	11 <sup>1</sup> 159	4 <sup>1</sup> 18	21 <sup>1</sup> 28	13 <sup>1</sup> 5	27 <sup>1</sup> 52	4 <sup>1</sup> 51	1 <sup>1</sup> 10	2 <sup>1</sup> 6	12 <sup>1</sup> 13	16 <sup>1</sup> 51	17 <sup>1</sup> 8	9 <sup>1</sup> 49	6 <sup>1</sup> 46	S 13
S 14	7 33 35	23 <sup>1</sup> 42'09	24 <sup>1</sup> 50	5 <sup>1</sup> 57	22 <sup>1</sup> 42	13 <sup>1</sup> 40	28 <sup>1</sup> 6	4 <sup>1</sup> 58	1 <sup>1</sup> 14	2 <sup>1</sup> 4	12 <sup>1</sup> 14	16 <sup>1</sup> 51	17 <sup>1</sup> 4	9 <sup>1</sup> 55	6 <sup>1</sup> 46	S 14
M15	7 37 32	24 <sup>1</sup> 43'17	7 <sup>1</sup> 119	7 <sup>1</sup> 36	23 <sup>1</sup> 56	14 <sup>1</sup> 15	28 <sup>1</sup> 20	5 <sup>1</sup> 5	1 <sup>1</sup> 17	2 <sup>1</sup> 3	12 <sup>1</sup> 14	16 <sup>1</sup> 51	17 <sup>1</sup> 1	10 <sup>1</sup> 2	6 <sup>1</sup> 46	M15
T 16	7 41 28	25 <sup>1</sup> 44'25	19 <sup>1</sup> 32	9 <sup>1</sup> 14	25 <sup>1</sup> 11	14 <sup>1</sup> 49	28 <sup>1</sup> 34	5 <sup>1</sup> 12	1 <sup>1</sup> 21	2 <sup>1</sup> 1	12 <sup>1</sup> 14	16 <sup>1</sup> 49	16 <sup>1</sup> 58	10 <sup>1</sup> 9	6 <sup>1</sup> D46	T 16
W17	7 45 25	26 <sup>1</sup> 45'32	1 <sup>1</sup> 133	10 <sup>1</sup> 52	26 <sup>1</sup> 25	15 <sup>1</sup> 24	28 <sup>1</sup> 48	5 <sup>1</sup> 19	1 <sup>1</sup> 24	1 <sup>1</sup> 59	12 <sup>1</sup> 15	16 <sup>1</sup> 44	16 <sup>1</sup> 55	10 <sup>1</sup> 15	6 <sup>1</sup> 46	W17
T 18	7 49 21	27 <sup>1</sup> 46'40	13 <sup>1</sup> 28	12 <sup>1</sup> 28	27 <sup>1</sup> 39	15 <sup>1</sup> 58	29 <sup>1</sup> 2	5 <sup>1</sup> 26	1 <sup>1</sup> 28	1 <sup>1</sup> 58	12 <sup>1</sup> 15	16 <sup>1</sup> 37	16 <sup>1</sup> 52	10 <sup>1</sup> 22	6 <sup>1</sup> 46	T 18
F 19	7 53 18	28 <sup>1</sup> 47'47	25 <sup>1</sup> 19	14 <sup>1</sup> 4	28 <sup>1</sup> 54	16 <sup>1</sup> 33	29 <sup>1</sup> 16	5 <sup>1</sup> 33	1 <sup>1</sup> 31	1 <sup>1</sup> 56	12 <sup>1</sup> 16	16 <sup>1</sup> 26	16 <sup>1</sup> 49	10 <sup>1</sup> 29	6 <sup>1</sup> 46	F 19
S 20	7 57 14	29 <sup>1</sup> 48'53	7 <sup>1</sup> 10	15 <sup>1</sup> 38	0 <sup>1</sup> 8	17 <sup>1</sup> 7	29 <sup>1</sup> 31	5 <sup>1</sup> 40	1 <sup>1</sup> 35	1 <sup>1</sup> 54	12 <sup>1</sup> 17	16 <sup>1</sup> 13	16 <sup>1</sup> 45	10 <sup>1</sup> 36	6 <sup>1</sup> 46	S 20
S 21	8 1 11	0 <sup>1</sup> 149'59	19 <sup>1</sup> 2	17 <sup>1</sup> 11	1 <sup>1</sup> 22	17 <sup>1</sup> 41	29 <sup>1</sup> 45	5 <sup>1</sup> 47	1 <sup>1</sup> 38	1 <sup>1</sup> 53	12 <sup>1</sup> 17	15 <sup>1</sup> 59	16 <sup>1</sup> 42	10 <sup>1</sup> 42	6 <sup>1</sup> 47	S 21
M22	8 5 7	1 <sup>1</sup> 51'05	0 <sup>1</sup> 158	18 <sup>1</sup> 41	2 <sup>1</sup> 37	18 <sup>1</sup> 15	29 <sup>1</sup> 59	5 <sup>1</sup> 54	1 <sup>1</sup> 42	1 <sup>1</sup> 51	12 <sup>1</sup> 18	15 <sup>1</sup> 44	16 <sup>1</sup> 39	10 <sup>1</sup> 49	6 <sup>1</sup> 47	M22
T 23	8 9 4	2 <sup>1</sup> 52'10	12 <sup>1</sup> 58	20 <sup>1</sup> 9	3 <sup>1</sup> 51	18 <sup>1</sup> 49	0 <sup>1</sup> 113	6 <sup>1</sup> 2	1 <sup>1</sup> 45	1 <sup>1</sup> 49	12 <sup>1</sup> 18	15 <sup>1</sup> 31	16 <sup>1</sup> 36	10 <sup>1</sup> 56	6 <sup>1</sup> 47	T 23
W24	8 13 1	3 <sup>1</sup> 53'14	25 <sup>1</sup> 3	21 <sup>1</sup> 33	5 <sup>1</sup> 5	19 <sup>1</sup> 24	0 <sup>1</sup> 27	6 <sup>1</sup> 9	1 <sup>1</sup> 49	1 <sup>1</sup> 48	12 <sup>1</sup> 19	15 <sup>1</sup> 19	16 <sup>1</sup> 33	11 <sup>1</sup> 2	6 <sup>1</sup> 48	W24
T 25	8 16 57	4 <sup>1</sup> 54'18	7 <sup>1</sup> 15	22 <sup>1</sup> 54	6 <sup>1</sup> 20	19 <sup>1</sup> 57	0 <sup>1</sup> 41	6 <sup>1</sup> 16	1 <sup>1</sup> 52	1 <sup>1</sup> 46	12 <sup>1</sup> 20	15 <sup>1</sup> 10	16 <sup>1</sup> 29	11 <sup>1</sup> 9	6 <sup>1</sup> 48	T 25
F 26	8 20 54	5 <sup>1</sup> 55'20	19 <sup>1</sup> 35	24 <sup>1</sup> 10	7 <sup>1</sup> 34	20 <sup>1</sup> 31	0 <sup>1</sup> 55	6 <sup>1</sup> 23	1 <sup>1</sup> 56	1 <sup>1</sup> 44	12 <sup>1</sup> 20	15 <sup>1</sup> 4	16 <sup>1</sup> 26	11 <sup>1</sup> 16	6 <sup>1</sup> 49	F 26
S 27	8 24 50	6 <sup>1</sup> 56'21	2 <sup>1</sup> Y 6	25 <sup>1</sup> 21	8 <sup>1</sup> 48	21 <sup>1</sup> 5	1 <sup>1</sup> 9	6 <sup>1</sup> 30	2 <sup>1</sup> 0	1 <sup>1</sup> 42	12 <sup>1</sup> 21	15 <sup>1</sup> 1	16 <sup>1</sup> 23	11 <sup>1</sup> 23	6 <sup>1</sup> 49	S 27
S 28	8 28 47	7 <sup>1</sup> 57'22	14 <sup>1</sup> 50	26 <sup>1</sup> 26	10 <sup>1</sup> 3	21 <sup>1</sup> 39	1 <sup>1</sup> 24	6 <sup>1</sup> 37	2 <sup>1</sup> 3	1 <sup>1</sup> 41	12 <sup>1</sup> 22	15 <sup>1</sup> D 1	16 <sup>1</sup> 20	11 <sup>1</sup> 29	6 <sup>1</sup> 50	S 28
M29	8 32 43	8 <sup>1</sup> 58'21	27 <sup>1</sup> 52	27 <sup>1</sup> 25	11 <sup>1</sup> 17	22 <sup>1</sup> 12	1 <sup>1</sup> 38	6 <sup>1</sup> 45	2 <sup>1</sup> 7	1 <sup>1</sup> 39	12 <sup>1</sup> 22	15 <sup>1</sup> 1	16 <sup>1</sup> 17	11 <sup>1</sup> 36	6 <sup>1</sup> 51	M29
T 30	8 36 40	9 <sup>1</sup> 59'19	11 <sup>1</sup> 113	28 <sup>1</sup> 16	12 <sup>1</sup> 32	22 <sup>1</sup> 46	1 <sup>1</sup> 52	6 <sup>1</sup> 52	2 <sup>1</sup> 10	1 <sup>1</sup> 37	12 <sup>1</sup> 23	15 <sup>1</sup> R 1	16 <sup>1</sup> 14	11 <sup>1</sup> 43	6 <sup>1</sup> 52	T 30
W31	8 40 36	11 <sup>1</sup> 11	24 <sup>1</sup> 58	28 <sup>1</sup> 58	13 <sup>1</sup> 46	23 <sup>1</sup> 119	2 <sup>1</sup> 11	6 <sup>1</sup> 59	2 <sup>1</sup> 14	1 <sup>1</sup> 36	12 <sup>1</sup> Y24	15 <sup>1</sup> Y 0	16 <sup>1</sup> Y10	11 <sup>1</sup> 50	6 <sup>1</sup> 52	W31

Delta T = 84.70 sec

FEBRUARY 2080

00:00 UT

Day	Sid.t	☉	☽	♀	♂	♂	♂	♂	♂	♂	♂	♂	♂	♂	♂	Day
T 1	8 44 33	12 <sup>1</sup> 11	9 <sup>1</sup> II 8	29 <sup>1</sup> 31	15 <sup>1</sup> 3	23 <sup>1</sup> 1153	2 <sup>1</sup> 20	7 <sup>1</sup> 11	2 <sup>1</sup> 17	1 <sup>1</sup> R34	12 <sup>1</sup> Y25	14 <sup>1</sup> R57	16 <sup>1</sup> Y 7	11 <sup>1</sup> 56	6 <sup>1</sup> 53	T 1
F 2	8 48 30	13 <sup>1</sup> 2'06	23 <sup>1</sup> 41	29 <sup>1</sup> 55	16 <sup>1</sup> 15	24 <sup>1</sup> 26	2 <sup>1</sup> 34	7 <sup>1</sup> 13	2 <sup>1</sup> 21	1 <sup>1</sup> 32	12 <sup>1</sup> 26	14 <sup>1</sup> Y52	16 <sup>1</sup> 4	12 <sup>1</sup> 3	6 <sup>1</sup> 54	F 2
S 3	8 52 26	14 <sup>1</sup> 2'59	8 <sup>1</sup> 34	0 <sup>1</sup> 8	17 <sup>1</sup> 30	24 <sup>1</sup> 59	2 <sup>1</sup> 48	7 <sup>1</sup> 20	2 <sup>1</sup> 24	1 <sup>1</sup> 31	12 <sup>1</sup> 26	14 <sup>1</sup> 44	16 <sup>1</sup> 1	12 <sup>1</sup> 10	6 <sup>1</sup> 55	S 3
S 4	8 56 23	15 <sup>1</sup> 3'51	23 <sup>1</sup> 40	0 <sup>1</sup> R10	18 <sup>1</sup> 44	25 <sup>1</sup> 33	3 <sup>1</sup> 2	7 <sup>1</sup> 27	2 <sup>1</sup> 28	1 <sup>1</sup> 29	12 <sup>1</sup> 27	14 <sup>1</sup> 35	15 <sup>1</sup> 58	12 <sup>1</sup> 16	6 <sup>1</sup> 56	S 4
M 5	9 0 19	16 <sup>1</sup> 4'42	8 <sup>1</sup> 49	0 <sup>1</sup> 1	19 <sup>1</sup> 59	26 <sup>1</sup> 6	3 <sup>1</sup> 16	7 <sup>1</sup> 34	2 <sup>1</sup> 31	1 <sup>1</sup> 27	12 <sup>1</sup> 28	14 <sup>1</sup> 26	15 <sup>1</sup> 55	12 <sup>1</sup> 23	6 <sup>1</sup> 58	M 5
T 6	9 4 16	17 <sup>1</sup> 5'31	23 <sup>1</sup> 51	29 <sup>1</sup> 41	21 <sup>1</sup> 13	26 <sup>1</sup> 39	3 <sup>1</sup> 30	7 <sup>1</sup> 42	2 <sup>1</sup> 34	1 <sup>1</sup> 26	12 <sup>1</sup> 29	14 <sup>1</sup> 17	15 <sup>1</sup> 51	12 <sup>1</sup> 30	6 <sup>1</sup> 59	T 6
W 7	9 8 12	18 <sup>1</sup> 6'19	8 <sup>1</sup> 119	29 <sup>1</sup> 10	22 <sup>1</sup> 28	27 <sup>1</sup> 11	3 <sup>1</sup> 44	7 <sup>1</sup> 49	2 <sup>1</sup> 38	1 <sup>1</sup> 24	12 <sup>1</sup> 30	14 <sup>1</sup> 10	15 <sup>1</sup> 48	12 <sup>1</sup> 37	7 <sup>1</sup> 0	W 7
T 8	9 12 9	19 <sup>1</sup> 7'07	22 <sup>1</sup> 36	28 <sup>1</sup> 29	23 <sup>1</sup> 42	27 <sup>1</sup> 44	3 <sup>1</sup> 58	7 <sup>1</sup> 56	2 <sup>1</sup> 41	1 <sup>1</sup> 23	12 <sup>1</sup> 31	14 <sup>1</sup> 6	15 <sup>1</sup> 45	12 <sup>1</sup> 43	7 <sup>1</sup> 1	T 8
F 9	9 16 6	20 <sup>1</sup> 7'53	6 <sup>1</sup> 151	27 <sup>1</sup> 39	24 <sup>1</sup> 57	28 <sup>1</sup> 17	4 <sup>1</sup> 12	8 <sup>1</sup> 3	2 <sup>1</sup> 45	1 <sup>1</sup> 21	12 <sup>1</sup> 32	14 <sup>1</sup> 4	15 <sup>1</sup> 42	12 <sup>1</sup> 50	7 <sup>1</sup> 3	F 9
S 10	9 20 2	21 <sup>1</sup> 8'38	20 <sup>1</sup> 15	26 <sup>1</sup> 41	26 <sup>1</sup> 11	28 <sup>1</sup> 49	4 <sup>1</sup> 25	8 <sup>1</sup> 10	2 <sup>1</sup> 48	1 <sup>1</sup> 19	12 <sup>1</sup> 33	14 <sup>1</sup> D 4	15 <sup>1</sup> 39	12 <sup>1</sup> 57	7 <sup>1</sup> 4	S 10
S 11	9 23 59	22 <sup>1</sup> 9'22	3 <sup>1</sup> 113	25 <sup>1</sup> 37	27 <sup>1</sup> 26	29 <sup>1</sup> 22	4 <sup>1</sup> 39	8 <sup>1</sup> 17	2 <sup>1</sup> 52	1 <sup>1</sup> 18	12 <sup>1</sup> 34	14 <sup>1</sup> 5	15 <sup>1</sup> 35	13 <sup>1</sup> 3	7 <sup>1</sup> 5	S 11
M12	9 27 55	23 <sup>1</sup> 10'05	15 <sup>1</sup> 48	24 <sup>1</sup> 30	28 <sup>1</sup> 40	29 <sup>1</sup> 54	4 <sup>1</sup> 53	8 <sup>1</sup> 24	2 <sup>1</sup> 55	1 <sup>1</sup> 16	12 <sup>1</sup> 35	14 <sup>1</sup> 6	15 <sup>1</sup> 32	13 <sup>1</sup> 10	7 <sup>1</sup> 7	M12
T 13	9 31 52	24 <sup>1</sup> 10'47	28 <sup>1</sup> 4	23 <sup>1</sup> 19	29 <sup>1</sup> 55	0 <sup>1</sup> 127	5 <sup>1</sup> 7	8 <sup>1</sup> 31	2 <sup>1</sup> 58	1 <sup>1</sup> 15	12 <sup>1</sup> 36	14 <sup>1</sup> R 6	15 <sup>1</sup> 29	13 <sup>1</sup> 17	7 <sup>1</sup> 9	T 13
W14	9 35 48	25 <sup>1</sup> 11'28	10 <sup>1</sup> 11	22 <sup>1</sup> 9	1 <sup>1</sup> 11	0 <sup>1</sup> 59	5 <sup>1</sup> 21	8 <sup>1</sup> 38	3 <sup>1</sup> 2	1 <sup>1</sup> 13	12 <sup>1</sup> 37	14 <sup>1</sup> 5	15 <sup>1</sup> 26	13 <sup>1</sup> 24	7 <sup>1</sup> 10	W14
T 15	9 39 45	26 <sup>1</sup> 12'08	22 <sup>1</sup> 2	21 <sup>1</sup> 0	2 <sup>1</sup> 24	1 <sup>1</sup> 31	5 <sup>1</sup> 34	8 <sup>1</sup> 45	3 <sup>1</sup> 5	1 <sup>1</sup> 12	12 <sup>1</sup> 38	14 <sup>1</sup> 1	15 <sup>1</sup> 23	13 <sup>1</sup> 30	7 <sup>1</sup> 12	T 15
F 16	9 43 41	27 <sup>1</sup> 12'47	3 <sup>1</sup> 53	19 <sup>1</sup> 54	3 <sup>1</sup> 39	2 <sup>1</sup> 3	5 <sup>1</sup> 48	8 <sup>1</sup> 52	3 <sup>1</sup> 8	1 <sup>1</sup> 10	12 <sup>1</sup> 39	13 <sup>1</sup> 56	15 <sup>1</sup> 20	13 <sup>1</sup> 37	7 <sup>1</sup> 14	F 16

## ASTRODIENST EPHEMERIS for the year 2080

geocentric

MARCH 2080

00:00 UT

Day	Sid.t	☉	☽	♀	♂	♂	♂	♂	♂	♂	♂	♂	♂	♂	♂	Day
F 1	10 38 53	11°19'07	3°37	16°00	21°22	9°16	8°55	10°26	3°52	0°51	12°55	13°09	14°35	15°11	7°43	F 1
S 2	10 42 50	12°19'20	18° 7	16°31	22°17	9°46	9° 8	10°32	3°55	0°50	12°57	13°06	14°32	15°18	7°46	S 2
S 3	10 46 46	13°19'31	2°04	17° 6	23°32	10°16	9°21	10°39	3°58	0°49	12°58	13° 2	14°29	15°25	7°48	S 3
M 4	10 50 43	14°19'40	17°30	17°46	24°46	10°46	9°34	10°45	4° 1	0°48	12°59	12°57	14°26	15°31	7°51	M 4
T 5	10 54 39	15°19'47	2°08	18°29	26° 1	11°15	9°47	10°51	4° 4	0°47	13° 1	12°53	14°22	15°38	7°53	T 5
W 6	10 58 36	16°19'52	16°36	19°16	27°15	11°44	10° 0	10°58	4° 7	0°46	13° 2	12°50	14°19	15°45	7°56	W 6
T 7	11 2 32	17°19'55	0°47	20° 7	28°30	12°13	10°12	11° 4	4°10	0°45	13° 3	12°49	14°16	15°52	7°59	T 7
F 8	11 6 29	18°19'57	14°36	21° 1	29°44	12°42	10°25	11°10	4°12	0°43	13° 5	12°D48	14°13	15°58	8° 1	F 8
S 9	11 10 26	19°19'56	28° 1	21°57	0°59	13°11	10°38	11°16	4°15	0°42	13° 6	12°49	14°10	16° 5	8° 4	S 9
S 10	11 14 22	20°19'54	11°12	22°57	2°13	13°39	10°50	11°22	4°18	0°41	13° 7	12°50	14° 7	16°12	8° 7	S 10
M 11	11 18 19	21°19'51	23°42	23°59	3°28	14° 8	11° 3	11°28	4°21	0°41	13° 9	12°52	14° 3	16°18	8°10	M 11
T 12	11 22 15	22°19'45	6°14	25° 4	4°42	14°36	11°15	11°34	4°23	0°40	13°10	12°53	14° 0	16°25	8°13	T 12
W 13	11 26 12	23°19'38	18°11	26°11	5°57	15° 4	11°27	11°40	4°26	0°39	13°11	12°R54	13°57	16°32	8°15	W 13
T 14	11 30 8	24°19'30	0°38	27°20	7°11	15°32	11°39	11°46	4°29	0°38	13°13	12°54	13°54	16°39	8°18	T 14
F 15	11 34 5	25°19'20	12° 2	28°31	8°26	15°59	11°52	11°52	4°31	0°37	13°14	12°53	13°51	16°45	8°21	F 15
S 16	11 38 1	26°19'08	23°54	29°44	9°40	16°27	12° 4	11°58	4°34	0°36	13°15	12°51	13°47	16°52	8°24	S 16
S 17	11 41 58	27°18'54	5°50	0°59	10°55	16°54	12°16	12° 4	4°36	0°35	13°17	12°49	13°44	16°59	8°27	S 17
M 18	11 45 55	28°18'38	17°55	2°16	12° 9	17°21	12°28	12° 9	4°38	0°35	13°18	12°47	13°41	17° 6	8°31	M 18
T 19	11 49 51	29°18'21	0°18	3°35	13°24	17°47	12°40	12°15	4°41	0°34	13°20	12°45	13°38	17°12	8°34	T 19
W 20	11 53 48	0°18'01	12°36	4°56	14°38	18°14	12°51	12°20	4°43	0°33	13°21	12°43	13°35	17°19	8°37	W 20
T 21	11 57 44	1°17'40	25°18	6°17	15°52	18°40	13° 3	12°26	4°46	0°33	13°23	12°42	13°32	17°26	8°40	T 21
F 22	12 1 41	2°17'17	8°14	7°41	17° 7	19° 6	13°15	12°31	4°48	0°32	13°24	12°D41	13°28	17°32	8°43	F 22
S 23	12 5 37	3°16'52	21°24	9° 6	18°21	19°32	13°26	12°37	4°50	0°31	13°25	12°42	13°25	17°39	8°46	S 23
S 24	12 9 34	4°16'24	4°48	10°33	19°36	19°57	13°38	12°42	4°52	0°31	13°27	12°42	13°22	17°46	8°50	S 24
M 25	12 13 30	5°15'55	18°24	12° 1	20°50	20°22	13°49	12°47	4°54	0°30	13°28	12°43	13°19	17°53	8°53	M 25
T 26	12 17 27	6°15'23	2°12	13°30	22° 5	20°47	14° 0	12°53	4°57	0°30	13°30	12°43	13°16	17°59	8°56	T 26
W 27	12 21 24	7°14'49	16° 9	15° 1	23°19	21°12	14°11	12°58	4°59	0°29	13°31	12°44	13°12	18° 6	9° 0	W 27
T 28	12 25 20	8°14'13	0°35	16°34	24°33	21°36	14°22	13° 3	5° 1	0°29	13°33	12°44	13° 9	18°13	9° 3	T 28
F 29	12 29 17	9°13'34	14°26	18° 8	25°48	22° 0	14°33	13° 8	5° 3	0°28	13°34	12°R44	13° 6	18°20	9° 7	F 29
S 30	12 33 13	10°12'53	28°42	19°43	27° 2	22°24	14°44	13°13	5° 5	0°28	13°36	12°44	13° 3	18°26	9°10	S 30
S 31	12 37 10	11°12'10	12°58	21°19	28°16	22°47	14°55	13°18	5° 7	0°28	13°37	12°Y44	13°Y 0	18°33	9°13	S 31

Delta T = 84.77 sec

APRIL 2080

00:00 UT

Day	Sid.t	☉	☽	♀	♂	♂	♂	♂	♂	♂	♂	♂	♂	♂	♂	Day
M 1	12 41 6	12°11'24	27°13	22°57	29°31	23°10	15°56	13°23	5° 8	0°R27	13°Y38	12°R44	12°Y57	18°340	9°817	M 1
T 2	12 45 3	13°10'36	11°02	24°37	0°Y45	23°33	15°16	13°27	5°10	0°L27	13°40	12°D44	12°53	18°46	9°20	T 2
W 3	12 48 59	14° 9'45	25°22	26°18	1°59	23°56	15°27	13°32	5°12	0°27	13°41	12°Y44	12°50	18°53	9°24	W 3
T 4	12 52 56	15° 8'53	9° 9	28° 0	3°14	24°18	15°37	13°37	5°14	0°27	13°43	12°R44	12°47	19° 0	9°28	T 4
F 5	12 56 53	16° 7'58	22°40	29°43	4°28	24°40	15°47	13°41	5°16	0°26	13°44	12°44	12°44	19° 7	9°31	F 5
S 6	13 0 49	17° 7'02	5°15	1°Y29	5°42	25° 1	15°57	13°46	5°17	0°26	13°46	12°44	12°41	19°13	9°35	S 6
S 7	13 4 46	18° 6'03	18°51	3°15	6°57	25°23	16° 7	13°50	5°19	0°26	13°47	12°43	12°38	19°20	9°38	S 7
M 8	13 8 42	19° 5'03	1°29	5° 3	8°11	25°43	16°17	13°54	5°20	0°26	13°49	12°42	12°34	19°27	9°42	M 8
T 9	13 12 39	20° 4'01	13°51	6°53	9°25	26° 4	16°27	13°58	5°22	0°26	13°50	12°41	12°31	19°33	9°46	T 9
W 10	13 16 35	21° 2'57	26° 1	8°43	10°39	26°24	16°37	14° 3	5°23	0°D26	13°51	12°40	12°28	19°40	9°49	W 10
T 11	13 20 32	22° 1'52	8° 0	10°36	11°54	26°44	16°46	14° 7	5°25	0°26	13°53	12°40	12°25	19°47	9°53	T 11
F 12	13 24 28	23° 0'44	19°54	12°30	13° 8	27° 3	16°56	14°11	5°26	0°26	13°54	12°D39	12°22	19°54	9°57	F 12
S 13	13 28 25	23°59'35	1°47	14°25	14°22	27°22	17° 5	14°15	5°27	0°26	13°56	12°40	12°18	20° 0	10° 0	S 13
S 14	13 32 22	24°58'24	13°44	16°22	15°36	27°40	17°15	14°18	5°29	0°26	13°57	12°40	12°15	20° 7	10° 4	S 14
M 15	13 36 18	25°57'12	25°50	18°20	16°50	27°58	17°24	14°22	5°30	0°26	13°59	12°41	12°12	20°14	10° 8	M 15
T 16	13 40 15	26°55'57	8°18	20°20	18° 5	28°16	17°33	14°26	5°31	0°27	14° 0	12°42	12° 9	20°21	10°12	T 16
W 17	13 44 11	27°54'41	20°42	22°21	19°19	28°33	17°42	14°29	5°32	0°27	14° 2	12°44	12° 6	20°27	10°15	W 17
T 18	13 48 8	28°53'23	3°Y34	24°24	20°33	28°50	17°50	14°33	5°33	0°27	14° 3	12°44	12° 3	20°34	10°19	T 18
F 19	13 52 4	29°52'03	16°46	26°27	21°47	29° 6	17°59	14°36	5°34	0°27	14° 4	12°R45	11°59	20°41	10°23	F 19
S 20	13 56 1	0°50'41	0°18	28°32	23° 1	29°22	18° 7	14°40	5°35	0°28	14° 6	12°44	11°56	20°47	10°27	S 20
S 21	13 59 57	1°49'18	14° 8	0°38	24°15	29°37	18°16	14°43	5°36	0°28	14° 7	12°42	11°53	20°54	10°30	S 21
M 22	14 3 54	2°47'52	28°13	2°45	25°29	29°52	18°24	14°46	5°37	0°28	14° 9	12°40	11°50	21° 1	10°34	M 22
T 23	14 7 51	3°46'25	12°28	4°52	26°44	0° 6	18°32	14°49	5°38	0°29	14°10	12°37	11°47	21° 8	10°38	T 23
W 24	14 11 47	4°44'55	26°49	7° 0	27°58	0°20	18°40	14°52	5°39	0°29	14°11	12°34	11°44	21°14	10°42	W 24
T 25	14 15 44	5°43'23	11°31	9° 9	29°12	0°33	18°48	14°55	5°40	0°30	14°13	12°32	11°40	21°21	10°46	T 25
F 26	14 19 40	6°41'49	25°30	11°17	0°26	0°46	18°55	14°58	5°40	0°30	14°14	12°30	11°37	21°28	10°50	F 26
S 27	14 23 37	7°40'13	9°04	13°25	1°40	0°58	19° 3	15° 0	5°41	0°31	14°15	12°D30	11°34	21°34	10°53	S 27
S 28	14 27 33	8°38'35	23°47	15°33	2°54	1° 9	19°10	15° 3	5°41	0°31	14°17	12°31	11°31	21°41	10°57	S 28
M 29	14 31 30	9°36'55	7°04	17°40	4° 8	1°20	19°17	15° 6	5°42	0°32	14°18	12°32	11°28	21°48	11° 1	M 29
T 30	14 35 26	10°35'12	21°05	19°04	5°22	1°30	19°25	15° 8	5°42	0°23	14°19	12°Y33	11°Y24	21°55	11° 5	T 30

Delta T = 84.80 sec

ASTRODIENST EPHEMERIS for the year 2080  
geocentric

MAY 2080

00:00 UT

Day	Sid.t	☉	☽	♀	♂	♂	♂	♂	♂	♂	♂	♂	♂	♂	♂	Day
W 1	14 39 23	11♂33'27	4♂58	21♂50	6♂36	1♂40	19♂31	15♂10	5♂43	0♂233	14♂21	12♂34	11♂21	22♂1	11♂9	W 1
T 2	14 43 20	12°31'41	18°19	23°53	7°50	1°49	19°38	15°13	5°43	0°34	14°22	12°R35	11°18	22°8	11°13	T 2
F 3	14 47 16	13°29'53	1♂27	25°53	9°4	1°58	19°45	15°15	5°44	0°35	14°23	12°33	11°15	22°15	11°16	F 3
S 4	14 51 13	14°28'02	14°23	27°52	10°18	2°6	19°51	15°17	5°44	0°36	14°25	12°30	11°12	22°22	11°20	S 4
S 5	14 55 9	15°26'11	27°5	29°48	11°32	2°13	19°58	15°19	5°44	0°36	14°26	12°26	11°9	22°28	11°24	S 5
M 6	14 59 6	16°24'17	9♂35	1♂41	12°46	2°20	20°4	15°21	5°44	0°37	14°27	12°20	11°5	22°35	11°28	M 6
T 7	15 3 2	17°22'22	21°52	3°31	14°0	2°26	20°10	15°23	5°45	0°38	14°28	12°14	11°2	22°42	11°32	T 7
W 8	15 6 59	18°20'26	3♂59	5°18	15°14	2°31	20°16	15°24	5°45	0°39	14°30	12°8	10°59	22°48	11°36	W 8
T 9	15 10 55	19°18'28	15°57	7°2	16°28	2°36	20°21	15°26	5°R45	0°40	14°31	12°3	10°56	22°55	11°39	T 9
F 10	15 14 52	20°16'28	27°51	8°42	17°42	2°40	20°27	15°27	5°45	0°41	14°32	11°59	10°53	23°2	11°43	F 10
S 11	15 18 49	21°14'28	9♂44	10°20	18°56	2°43	20°32	15°29	5°45	0°42	14°33	11°56	10°50	23°9	11°47	S 11
S 12	15 22 45	22°12'26	21°39	11°53	20°9	2°46	20°38	15°30	5°44	0°43	14°35	11°D56	10°46	23°15	11°51	S 12
M13	15 26 42	23°10'22	3♂43	13°23	21°23	2°47	20°43	15°31	5°44	0°44	14°36	11°56	10°43	23°22	11°55	M13
T 14	15 30 38	24°8'17	16°1	14°49	22°37	2°48	20°47	15°32	5°44	0°45	14°37	11°57	10°40	23°29	11°58	T 14
W15	15 34 35	25°6'11	28°35	16°11	23°51	2°R49	20°52	15°33	5°44	0°46	14°38	11°59	10°37	23°35	12°2	W15
T 16	15 38 31	26°4'04	11♂32	17°30	25°5	2°48	20°57	15°34	5°44	0°47	14°39	12°R0	10°34	23°42	12°6	T 16
F 17	15 42 28	27°1'55	24°53	18°45	26°19	2°47	21°1	15°35	5°43	0°48	14°40	11°59	10°30	23°49	12°10	F 17
S 18	15 46 24	27°59'46	8♂39	19°55	27°33	2°45	21°5	15°36	5°43	0°50	14°42	11°56	10°27	23°56	12°13	S 18
S 19	15 50 21	28°57'35	22°49	21°2	28°47	2°43	21°9	15°36	5°42	0°51	14°43	11°51	10°24	24°2	12°17	S 19
M20	15 54 18	29°55'22	7♂18	22°5	0♂11	2°39	21°13	15°37	5°42	0°52	14°44	11°45	10°21	24°9	12°21	M20
T 21	15 58 14	0♂53'09	22°1	23°3	1°14	2°35	21°17	15°37	5°41	0°53	14°45	11°38	10°18	24°16	12°25	T 21
W22	16 2 11	1°50'54	6♂49	23°58	2°28	2°30	21°20	15°38	5°41	0°55	14°46	11°30	10°15	24°22	12°28	W22
T 23	16 6 7	2°48'37	21°34	24°48	3°42	2°24	21°23	15°38	5°40	0°56	14°47	11°23	10°11	24°29	12°32	T 23
F 24	16 10 4	3°46'19	6♂9	25°34	4°56	2°18	21°27	15°38	5°39	0°57	14°48	11°19	10°8	24°36	12°36	F 24
S 25	16 14 0	4°43'59	20°31	26°15	6°10	2°10	21°29	15°R38	5°39	0°59	14°49	11°16	10°5	24°43	12°39	S 25
S 26	16 17 57	5°41'37	4♂34	26°53	7°23	2°2	21°32	15°38	5°38	1°0	14°50	11°D15	10°2	24°49	12°43	S 26
M27	16 21 53	6°39'14	18°20	27°25	8°37	1°54	21°35	15°38	5°37	1°2	14°51	11°15	9°59	24°56	12°47	M27
T 28	16 25 50	7°36'50	1♂49	27°53	9°51	1°44	21°37	15°38	5°36	1°3	14°52	11°16	9°56	25°3	12°50	T 28
W29	16 29 47	8°34'24	15°3	28°16	11°5	1°34	21°39	15°37	5°35	1°5	14°53	11°R16	9°52	25°10	12°54	W29
T 30	16 33 43	9°31'56	28°2	28°35	12°18	1°23	21°41	15°37	5°34	1°6	14°54	11°15	9°49	25°16	12°57	T 30
F 31	16 37 40	10♂29'28	10♂50	28♂49	13♂32	1♂12	21♂43	15♂36	5♂33	1♂8	14♂55	11♂11	9♂46	25♂23	13♂1	F 31

Delta T = 84.83 sec

JUNE 2080

00:00 UT

Day	Sid.t	☉	☽	♀	♂	♂	♂	♂	♂	♂	♂	♂	♂	♂	♂	Day
S 1	16 41 36	11♂26'58	23♂26	28♂58	14♂46	1°R0	21♂45	15°R36	5°R32	1♂9	14♂56	11°R5	9♂43	25♂30	13♂4	S 1
S 2	16 45 33	12°24'27	5♂53	29°3	16°0	0♂47	21°46	15♂35	5♂31	1°11	14°56	10♂57	9°40	25°36	13°8	S 2
M 3	16 49 29	13°21'55	18°10	29°R3	17°13	0°33	21°47	15°34	5°30	1°12	14°57	10°46	9°36	25°43	13°11	M 3
T 4	16 53 26	14°19'22	0♂19	28°58	18°27	0°19	21°49	15°33	5°29	1°14	14°58	10°35	9°33	25°50	13°15	T 4
W 5	16 57 22	15°16'48	12°21	28°49	19°41	0°5	21°49	15°32	5°28	1°16	14°59	10°23	9°30	25°57	13°18	W 5
T 6	17 1 19	16°14'14	24°16	28°36	20°55	29♂49	21°50	15°31	5°26	1°17	15°0	10°13	9°27	26°3	13°21	T 6
F 7	17 5 16	17°11'38	6♂8	28°19	22°8	29°34	21°51	15°30	5°25	1°19	15°1	10°4	9°24	26°10	13°25	F 7
S 8	17 9 12	18°9'02	17°59	27°59	23°22	29°17	21°51	15°29	5°24	1°21	15°1	9°57	9°21	26°17	13°28	S 8
S 9	17 13 9	19°6'25	29°54	27°35	24°36	29°1	21°R51	15°27	5°22	1°22	15°2	9°53	9°17	26°23	13°31	S 9
M10	17 17 5	20°3'48	11♂56	27°8	25°49	28°44	21°51	15°26	5°21	1°24	15°3	9°52	9°14	26°30	13°35	M10
T 11	17 21 2	21°1'10	24°10	26°39	27°3	28°26	21°51	15°24	5°19	1°26	15°4	9°D51	9°11	26°37	13°38	T 11
W12	17 24 58	21°58'31	6♂43	26°8	28°17	28°8	21°50	15°22	5°18	1°28	15°4	9°R52	9°8	26°44	13°41	W12
T 13	17 28 55	22°55'52	19°37	25°35	29°31	27°50	21°49	15°21	5°16	1°30	15°5	9°51	9°5	26°50	13°44	T 13
F 14	17 32 51	23°53'13	2♂59	25°2	0♂44	27°31	21°49	15°19	5°15	1°31	15°6	9°50	9°2	26°57	13°47	F 14
S 15	17 36 48	24°50'33	16°49	24°28	1°58	27°12	21°48	15°17	5°13	1°33	15°6	9°45	8°58	27°4	13°51	S 15
S 16	17 40 45	25°47'53	1♂7	23°54	3°12	26°53	21°46	15°15	5°12	1°35	15°7	9°39	8°55	27°10	13°54	S 16
M17	17 44 41	26°45'12	15°50	23°22	4°25	26°34	21°45	15°13	5°10	1°37	15°7	9°30	8°52	27°17	13°57	M17
T 18	17 48 38	27°42'31	0♂50	22°50	5°39	26°15	21°43	15°10	5°8	1°39	15°8	9°19	8°49	27°24	14°0	T 18
W19	17 52 34	28°39'50	15°59	22°21	6°53	25°55	21°41	15°8	5°6	1°41	15°9	9°9	8°46	27°31	14°3	W19
T 20	17 56 31	29°37'07	1♂5	21°54	8°6	25°36	21°39	15°6	5°5	1°43	15°9	8°59	8°42	27°37	14°6	T 20
F 21	18 0 27	0♂34'25	16°0	21°30	9°20	25°16	21°37	15°3	5°3	1°45	15°10	8°52	8°39	27°44	14°9	F 21
S 22	18 4 24	1°31'41	0♂36	21°9	10°34	24°57	21°35	15°1	5°1	1°47	15°10	8°47	8°36	27°51	14°12	S 22
S 23	18 8 21	2°28'56	14°48	20°52	11°47	24°38	21°32	14°58	4°59	1°49	15°11	8°44	8°33	27°57	14°14	S 23
M24	18 12 17	3°26'11	28°36	20°38	13°1	24°19	21°30	14°56	4°57	1°51	15°11	8°43	8°30	28°4	14°17	M24
T 25	18 16 14	4°23'25	12♂2	20°29	14°15	24°0	21°27	14°53	4°55	1°53	15°12	8°43	8°27	28°11	14°20	T 25
W26	18 20 10	5°20'39	25°6	20°25	15°28	23°42	21°24	14°50	4°53	1°55	15°12	8°43	8°23	28°18	14°23	W26
T 27	18 24 7	6°17'52	7♂54	20°D25	16°42	23°24	21°20	14°47	4°51	1°57	15°12	8°41	8°20	28°24	14°25	T 27
F 28	18 28 3	7°15'04	20°27	20°29	17°56	23°6	21°17	14°44	4°49	1°59	15°13	8°36	8°17	28°31	14°28	F 28
S 29	18 32 0	8°12'16	2♂50	20°39	19°9	22°49	21°13	14°41	4°47	2°1	15°13	8°28	8°14	28°38	14°31	S 29
S 30	18 35 56	9♂29'28	15♂3	20♂53	20♂23	22♂32	21♂9	14♂38	4♂45	2♂3	15♂13	8♂18	8♂11	28♂44	14♂33	S 30

Delta T = 84.87 sec

ASTRODIENST EPHEMERIS for the year 2080  
geocentric

JULY 2080

00:00 UT

Day	Sid.t	☉	☽	♀	♂	♂	♂	♂	♂	♂	♂	♂	♂	♂	♂	Day
M 1	18 39 53	10°56'39"	27°19'09"	21°11'12"	21°53'37"	22°15'15"	21°18'05"	14°18'35"	4°18'43"	2°18'05"	15°14'14"	8°18'06"	8°18'08"	28°51'51"	14°18'36"	M 1
T 2	18 43 50	11°03'51"	9°38'09"	21°36'22"	22°50'21"	21°59'59"	21°18'01"	14°38'31"	4°48'41"	2°07'15"	15°14'14"	7°15'52"	8°04'28"	28°58'14"	14°38'38"	T 2
W 3	18 47 46	12°01'02"	21°05'22"	22°05'24"	24°04'21"	21°44'20"	20°57'14"	14°28'43"	4°39'29"	2°09'15"	15°14'14"	7°39'08"	8°01'29"	29°05'14"	14°41'41"	W 3
T 4	18 51 43	12°58'13"	22°58'22"	22°39'25"	25°17'21"	21°29'20"	20°52'14"	14°25'43"	4°37'29"	2°11'15"	15°14'14"	7°26'07"	7°58'29"	29°11'14"	14°43'43"	T 4
F 5	18 55 39	13°55'24"	14°49'23"	23°18'26"	26°31'21"	21°15'20"	20°48'14"	14°21'43"	4°35'29"	2°13'15"	15°15'15"	7°15'07"	7°55'29"	29°18'14"	14°46'46"	F 5
S 6	18 59 36	14°52'35"	26°40'24"	24°01'27"	27°45'21"	21°01'20"	20°43'14"	14°18'43"	4°32'29"	2°16'15"	15°15'15"	7°07'07"	7°52'29"	29°25'14"	14°48'48"	S 6
S 7	19 03 32	15°49'47"	8°36'36"	24°49'28"	28°58'20"	20°48'20"	20°38'14"	14°14'43"	4°30'29"	2°18'15"	15°15'15"	7°02'07"	7°48'29"	29°31'14"	14°50'50"	S 7
M 8	19 07 29	16°46'58"	20°38'25"	25°42'00"	0°12'20"	20°36'20"	20°33'14"	14°10'42"	4°28'29"	2°20'15"	15°15'15"	6°59'07"	7°45'29"	29°38'14"	14°53'53"	M 8
T 9	19 11 25	17°44'10"	2°15'26"	26°39'12"	1°25'20"	20°24'20"	20°28'14"	14°07'42"	4°26'29"	2°22'15"	15°15'15"	6°58'07"	7°42'29"	29°45'14"	14°55'55"	T 9
W10	19 15 22	18°41'23"	15°22'27"	27°41'29"	2°39'20"	20°14'20"	20°22'14"	14°03'42"	4°23'29"	2°24'15"	15°15'15"	6°58'07"	7°39'07"	29°52'14"	14°57'57"	W10
T 11	19 19 19	19°38'35"	28°14'28"	28°47'35"	3°53'20"	20°04'20"	20°17'13"	13°59'42"	4°21'29"	2°26'15"	15°16'15"	6°58'07"	7°36'07"	29°58'14"	14°59'59"	T 11
F 12	19 23 15	20°35'49"	11°18'31"	29°57'05"	5°06'19"	19°54'20"	20°11'13"	13°55'49"	4°19'29"	2°29'15"	15°16'15"	6°57'07"	7°33'00"	0°55'15"	1°01'15"	F 12
S 13	19 27 12	21°33'03"	25°16'19"	0°12'6"	6°20'19"	19°46'20"	20°05'13"	13°51'49"	4°16'29"	2°31'15"	15°16'15"	6°53'07"	7°29'00"	1°02'15"	1°03'33"	S 13
S 14	19 31 08	22°30'17"	9°11'31"	2°32'7"	7°33'19"	19°38'19"	19°59'13"	13°47'49"	4°14'29"	2°33'15"	15°16'15"	6°47'07"	7°26'00"	1°08'15"	1°05'55"	S 14
M15	19 35 05	23°27'32"	24°13'35"	3°55'8"	8°47'19"	19°31'19"	19°53'13"	13°43'49"	4°12'29"	2°35'15"	15°16'15"	6°39'07"	7°23'00"	1°05'25"	1°07'15"	M15
T 16	19 39 01	24°24'47"	9°51'17"	5°23'10"	10°00'19"	19°25'19"	19°47'13"	13°39'49"	4°09'29"	2°37'15"	15°16'15"	6°29'07"	7°20'00"	1°03'25"	1°09'15"	T 16
W17	19 42 58	25°22'03"	24°33'6"	6°54'11"	11°14'19"	19°19'19"	19°40'13"	13°35'49"	4°07'29"	2°40'15"	15°16'15"	6°19'07"	7°17'00"	1°03'39"	1°11'15"	W17
T 18	19 46 55	26°19'20"	9°15'08"	8°30'12"	12°28'19"	19°15'19"	19°34'13"	13°31'49"	4°05'29"	2°42'15"	15°16'15"	6°10'07"	7°14'00"	1°04'55"	1°12'15"	T 18
F 19	19 50 51	27°16'36"	24°58'10"	9°09'13"	13°41'19"	19°11'19"	19°27'13"	13°27'49"	4°02'29"	2°44'15"	15°15'15"	6°03'07"	7°10'00"	1°05'52"	1°14'15"	F 19
S 20	19 54 48	28°13'53"	9°14'47"	11°52'14"	14°55'19"	19°09'19"	19°21'13"	13°23'49"	4°00'29"	2°46'15"	15°15'15"	5°58'07"	7°07'00"	1°05'59"	1°16'15"	S 20
S 21	19 58 44	29°11'09"	24°11'13"	13°38'16"	16°08'19"	19°07'19"	19°14'13"	13°18'39"	3°58'29"	2°48'15"	15°15'15"	5°55'07"	7°04'00"	1°05'15"	1°17'15"	S 21
M22	20 02 41	0°18'27"	8°15'07"	15°28'17"	17°22'19"	19°06'19"	19°07'13"	13°14'39"	3°55'29"	2°51'15"	15°15'15"	5°55'07"	7°01'00"	1°12'15"	1°19'15"	M22
T 23	20 06 37	1°05'44"	21°37'17"	17°20'18"	18°35'19"	19°05'19"	19°00'13"	13°10'39"	3°53'29"	2°53'15"	15°15'15"	5°55'07"	6°58'00"	1°19'15"	1°21'15"	T 23
W24	20 10 34	2°03'02"	4°14'19"	19°16'19"	19°49'19"	19°05'18"	18°53'13"	13°05'39"	3°50'29"	2°55'15"	15°15'15"	5°55'07"	6°54'00"	1°26'15"	1°22'15"	W24
T 25	20 14 30	3°02'20"	17°27'21"	21°14'21"	2°02'19"	19°08'18"	18°46'13"	13°01'39"	3°48'29"	2°57'15"	15°15'15"	5°55'07"	6°51'00"	1°32'15"	1°23'15"	T 25
F 26	20 18 27	3°57'38"	29°54'23"	23°13'22"	16°19'10"	18°38'12"	18°38'12"	12°57'39"	3°46'00"	3°00'15"	15°14'15"	5°52'07"	6°48'00"	1°39'15"	1°25'15"	F 26
S 27	20 22 24	4°54'57"	12°19'09"	25°15'23"	23°29'19"	18°31'18"	18°31'12"	12°52'39"	3°43'00"	3°02'15"	15°14'15"	5°46'07"	6°45'00"	1°46'15"	1°26'15"	S 27
S 28	20 26 20	5°52'16"	24°14'27"	27°18'24"	24°43'19"	18°24'18"	18°24'12"	12°48'39"	3°41'00"	3°04'15"	15°14'15"	5°38'07"	6°42'00"	1°52'15"	1°27'15"	S 28
M29	20 30 17	6°49'36"	6°13'23"	29°23'25"	25°56'19"	18°16'18"	18°16'12"	12°44'39"	3°38'00"	3°06'15"	15°13'15"	5°29'07"	6°39'00"	1°59'15"	1°29'15"	M29
T 30	20 34 13	7°46'57"	18°07'14"	27°10'27"	27°10'19"	18°09'18"	18°09'12"	12°39'39"	3°36'00"	3°08'15"	15°13'15"	5°18'07"	6°35'00"	2°06'15"	1°30'15"	T 30
W31	20 38 10	8°44'18"	29°35'29"	3°14'28"	28°12'34"	19°18'34"	18°18'12"	12°35'39"	3°34'00"	3°11'15"	15°13'15"	5°17'07"	6°32'00"	2°13'15"	1°31'15"	W31

Delta T = 84.90 sec

AUGUST 2080

00:00 UT

Day	Sid.t	☉	☽	♀	♂	♂	♂	♂	♂	♂	♂	♂	♂	♂	♂	Day
T 1	20 42 06	9°14'41"	11°51'51"	5°14'40"	29°13'36"	19°18'41"	17°18'53"	12°18'30"	3°18'31"	3°18'13"	15°18'12"	4°18'58"	6°18'29"	2°18'19"	15°18'33"	T 1
F 2	20 46 03	10°39'02"	23°44'23"	7°46'00"	0°18'50"	19°19'49"	17°18'46"	12°18'26"	3°18'29"	3°15'15"	15°18'12"	4°18'49"	6°18'26"	2°26'23"	15°33'33"	F 2
S 3	20 49 59	11°36'26"	5°14'40"	9°52'29"	2°03'30"	19°18'58"	17°18'38"	12°18'21"	3°16'26"	3°17'15"	15°18'12"	4°18'43"	6°18'23"	2°33'23"	15°34'34"	S 3
S 4	20 53 56	12°33'50"	17°41'11"	11°57'03"	3°17'20"	20°08'17"	17°30'22"	12°17'12"	3°24'22"	3°19'22"	15°18'12"	4°18'39"	6°18'20"	2°39'23"	15°35'35"	S 4
M 5	20 57 53	13°31'16"	29°49'14"	14°01'43"	4°30'20"	20°18'17"	17°22'12"	12°12'12"	3°22'22"	3°22'15"	15°18'12"	4°18'38"	6°18'16"	2°46'23"	15°35'35"	M 5
T 6	21 01 49	14°28'43"	12°18'08"	16°04'54"	5°43'20"	20°29'17"	17°15'12"	12°08'12"	3°19'22"	3°24'22"	15°18'12"	4°18'38"	6°18'13"	2°53'23"	15°36'36"	T 6
W 7	21 05 46	15°26'11"	24°41'18"	18°07'6"	6°57'20"	20°41'17"	17°07'12"	12°03'12"	3°17'22"	3°26'22"	15°18'12"	4°18'39"	6°18'10"	3°00'23"	15°37'37"	W 7
T 8	21 09 42	16°23'40"	7°18'33"	20°08'8"	8°10'20"	20°53'16"	17°59'11"	11°59'11"	3°15'28"	3°28'28"	15°09'09"	4°18'40"	6°07'07"	3°06'23"	15°38'38"	T 8
F 9	21 13 39	17°21'11"	20°47'22"	8°22'09"	9°24'21"	21°06'16"	16°51'11"	11°55'11"	3°12'30"	3°30'30"	15°09'09"	4°18'40"	6°04'04"	3°13'23"	15°38'38"	F 9
S 10	21 17 35	18°18'43"	4°11'26"	24°07'24"	10°37'21"	21°20'16"	16°43'11"	11°50'11"	3°10'33"	3°33'33"	15°08'08"	4°18'39"	6°00'00"	3°20'20"	15°39'39"	S 10
S 11	21 21 32	19°16'16"	18°31'26"	26°04'11"	11°50'21"	21°35'16"	16°36'11"	11°46'11"	3°08'33"	3°35'35"	15°08'08"	4°18'36"	5°57'07"	3°26'26"	15°39'39"	S 11
M12	21 25 28	20°13'51"	3°18'02"	28°00'13"	13°04'21"	21°50'16"	16°28'11"	11°41'11"	3°06'33"	3°37'37"	15°07'07"	4°18'31"	5°54'07"	3°33'33"	15°40'40"	M12
T 13	21 29 25	21°11'28"	17°55'29"	29°55'14"	15°17'22"	22°06'16"	16°20'11"	11°37'11"	3°03'33"	3°39'39"	15°07'07"	4°18'26"	5°51'07"	3°40'40"	15°40'40"	T 13
W14	21 33 22	22°09'05"	3°18'02"	18°48'11"	14°30'22"	22°22'16"	16°12'11"	11°33'11"	3°01'34"	3°41'41"	15°06'06"	4°19'26"	5°48'07"	3°46'46"	15°40'40"	W14
T 15	21 37 18	23°06'44"	18°14'33"	16°43'22"	16°43'22"	22°39'16"	16°04'11"	11°28'11"	2°59'34"	3°43'43"	15°05'05"	4°18'13"	5°45'07"	3°53'53"	15°41'41"	T 15
F 16	21 41 15	24°04'24"	3°18'21"	17°52'09"	17°57'22"	22°57'15"	15°57'11"	11°24'11"	2°57'34"	3°45'45"	15°05'05"	4°09'13"	5°41'07"	4°00'00"	15°41'41"	F 16
S 17	21 45 11	25°02'06"	18°13'07"	19°18'23"	23°15'15"	15°49'11"	11°20'11"	11°20'11"	2°55'34"	3°48'48"	15°04'04"	4°06'13"	5°38'07"	4°07'07"	15°41'41"	S 17
S 18	21 49 08	25°59'48"	2°14'48"	9°05'20"	20°23'23"	15°41'11"	11°15'11"	11°15'11"	2°52'35"	3°50'50"	15°03'03"	4°05'13"	5°35'07"	4°13'13"	15°41'41"	S 18
M19	21 53 04	26°57'32"	16°48'10"	10°51'21"	21°36'23"	15°34'11"	11°11'11"	11°11'11"	2°50'35"	3°52'52"	15°03'03"	4°06'13"	5°32'07"	4°20'20"	15°41'41"	M19
T 20	21 57 01	27°55'16"	0°18'25"	12°35'22"	22°50'24"	15°26'11"	11°07'11"	11°07'11"	2°48'35"	3°54'54"	15°02'02"	4°07'13"	5°29'07"	4°27'27"	15°41'41"	T 20
W21	22 00 57	28°53'02"	13°36'14"	14°18'24"	24°03'24"	15°19'11"	11°03'11"	11°03'11"	2°46'35"	3°56'56"	15°01'01"	4°09'13"	5°25'07"	4°33'33"	15°41'41"	W21
T 22	22 04 54	29°50'49"	26°24'16"	0°00'25"	25°16'24"	15°12'11"	10°59'11"	10°59'11"	2°44'35"	3°58'58"	15°00'00"	4°09'13"	5°22'07"	4°40'40"	15°41'41"	T 22
F 23	22 08 51	0°18'48"	8°15'52"	17°40'26"	26°29'25"	15°18'15"	10°55'11"	10°55'11"	2°42'34"	3°00'34"	15°00'00"	4°09'13"	5°19'07"	4°47'47"	15°40'40"	F 23
S 24	22 12 47	1°46'26"	21°05'19"	19°18'27"	27°42'25"	14°57'14"	10°51'11"	10°51'11"	2°40'34"	3°02'34"	14°59'07"	4°07'13"	5°16'07"	4°54'54"	15°40'40"	S 24
S 25	22 16 44	2°44'17"	3°18'07"	20°56'28"	28°55'26"	14°50'14"	10°47'11"	10°47'11"	2°38'34"	3°04'34"	14°58'07"	4°04'04"	5°13'07"	5°00'00"	15°40'40"	S 25
M26	22 20 40	3°42'08"	15°03'22"	22°32'00"	0°18'26"	26°27'14"	14°43'10"	10°43'10"	2°36'34"	3°06'34"	14°57'07"	4°00'00"	5°10'07"	5°07'07"	15°40'40"	M26

# ASTRODIENST EPHEMERIS for the year 2080

## geocentric

SEPTEMBER 2080

00:00 UT

Day	Sid.t	☉	☽	♀	♂	♂	♂	♂	♂	♂	♂	♂	♂	♂	♂	Day
S 1	22 44 20	9 <sup>h</sup> 29'47"	26 <sup>h</sup> 53'	1 <sup>h</sup> 39'	7 <sup>h</sup> 27'	28 <sup>h</sup> 58'	14°R 3	10°R20	2°R25	4 <sup>h</sup> 18'	14°R52	3°R38	4 <sup>h</sup> 51'	5 <sup>h</sup> 47'	15°R36	S 1
M 2	22 48 16	10°27'49"	9 <sup>h</sup> Y14	3° 6	8°40	29°25	13 <sup>h</sup> 57'	10 <sup>h</sup> 17'	2 <sup>h</sup> 23	4°20	14°Y51	3°D38	4°47	5°54	15°R35	M 2
T 3	22 52 13	11°25'53"	21°46	4°31	9°53	29°52	13°51	10°13	2°22	4°21	14°50	3°Y39	4°44	6° 1	15°34	T 3
W 4	22 56 9	12°23'59"	4 <sup>h</sup> 31	5°54	11° 5	0 <sup>h</sup> 19	13°45	10°10	2°20	4°23	14°49	3°40	4°41	6° 7	15°34	W 4
T 5	23 0 6	13°22'06"	17°31	7°17	12°18	0°47	13°39	10° 6	2°18	4°25	14°48	3°42	4°38	6°14	15°33	T 5
F 6	23 4 2	14°20'16"	0 <sup>h</sup> II49	8°37	13°31	1°16	13°33	10° 3	2°17	4°27	14°47	3°43	4°35	6°21	15°32	F 6
S 7	23 7 59	15°18'27"	14°26	9°57	14°44	1°44	13°27	10° 0	2°15	4°29	14°46	3°R43	4°31	6°27	15°31	S 7
S 8	23 11 55	16°16'41"	28°23	11°14	15°57	2°13	13°22	9°57	2°14	4°30	14°45	3°43	4°28	6°34	15°29	S 8
M 9	23 15 52	17°14'57"	12 <sup>h</sup> 40	12°31	17°10	2°43	13°17	9°54	2°12	4°32	14°44	3°42	4°25	6°41	15°28	M 9
T 10	23 19 49	18°13'15"	27°13	13°45	18°22	3°13	13°12	9°51	2°11	4°34	14°43	3°40	4°22	6°47	15°27	T 10
W11	23 23 45	19°11'35"	12 <sup>h</sup> 0	14°58	19°35	3°43	13° 7	9°48	2° 9	4°36	14°42	3°38	4°19	6°54	15°26	W11
T 12	23 27 42	20° 9'57"	26°52	16° 9	20°48	4°14	13° 2	9°45	2° 8	4°37	14°41	3°37	4°16	7° 1	15°25	T 12
F 13	23 31 38	21° 8'20"	11 <sup>h</sup> 43	17°18	22° 1	4°45	12°57	9°42	2° 7	4°39	14°40	3°35	4°12	7° 8	15°23	F 13
S 14	23 35 35	22° 6'46"	26°25	18°25	23°13	5°16	12°53	9°39	2° 5	4°41	14°39	3°35	4° 9	7°14	15°22	S 14
S 15	23 39 31	23° 5'13"	10 <sup>h</sup> 51	19°29	24°26	5°48	12°48	9°37	2° 4	4°42	14°38	3°D35	4° 6	7°21	15°20	S 15
M16	23 43 28	24° 3'42"	24°55	20°32	25°39	6°20	12°44	9°34	2° 3	4°44	14°37	3°35	4° 3	7°28	15°19	M16
T 17	23 47 24	25° 2'13"	8 <sup>h</sup> 35	21°32	26°51	6°52	12°40	9°32	2° 2	4°45	14°36	3°36	4° 0	7°34	15°17	T 17
W18	23 51 21	26° 0'46"	21°51	22°30	28° 4	7°24	12°36	9°29	2° 1	4°47	14°35	3°37	3°57	7°41	15°16	W18
T 19	23 55 17	26°59'20"	4 <sup>h</sup> 43	23°25	29°17	7°57	12°33	9°27	2° 0	4°48	14°34	3°37	3°53	7°48	15°14	T 19
F 20	23 59 14	27°57'56"	17°14	24°17	0 <sup>h</sup> 29	8°31	12°29	9°25	1°59	4°50	14°33	3°38	3°50	7°54	15°12	F 20
S 21	0 3 11	28°56'34"	29°29	25° 5	1°42	9° 4	12°26	9°23	1°58	4°51	14°31	3°R38	3°47	8° 1	15°10	S 21
S 22	0 7 7	29°55'13"	11 <sup>h</sup> 32	25°50	2°54	9°38	12°23	9°21	1°57	4°53	14°30	3°38	3°44	8° 8	15° 9	S 22
M23	0 11 4	0 <sup>h</sup> 53'54"	23°27	26°32	4° 7	10°12	12°20	9°19	1°56	4°54	14°29	3°38	3°41	8°15	15° 7	M23
T 24	0 15 0	1°52'37"	5 <sup>h</sup> 19	27° 9	5°19	10°46	12°18	9°17	1°55	4°56	14°28	3°37	3°37	8°21	15° 5	T 24
W25	0 18 57	2°51'21"	17°11	27°43	6°32	11°21	12°15	9°15	1°54	4°57	14°27	3°37	3°34	8°28	15° 3	W25
T 26	0 22 53	3°50'08"	29° 8	28°11	7°44	11°56	12°13	9°13	1°53	4°58	14°26	3°D37	3°31	8°35	15° 1	T 26
F 27	0 26 50	4°48'55"	11 <sup>h</sup> 12	28°34	8°56	12°31	12°11	9°12	1°53	5° 0	14°25	3°37	3°28	8°41	14°59	F 27
S 28	0 30 46	5°47'45"	23°26	28°52	10° 9	13° 6	12° 9	9°10	1°52	5° 1	14°24	3°37	3°25	8°48	14°57	S 28
S 29	0 34 43	6°46'37"	5 <sup>h</sup> Y51	29° 4	11°21	13°42	12° 7	9° 9	1°52	5° 2	14°22	3°R37	3°22	8°55	14°55	S 29
M30	0 38 40	7 <sup>h</sup> 45'31"	18°Y30	29°R10	12 <sup>h</sup> 33	14 <sup>h</sup> 18	12 <sup>h</sup> 6	9 <sup>h</sup> 8	1 <sup>h</sup> 51	5 <sup>h</sup> 4	14°Y21	3°Y37	3°Y18	9 <sup>h</sup> 1	14 <sup>h</sup> 52	M30

Delta T = 84.96 sec

OCTOBER 2080

00:00 UT

Day	Sid.t	☉	☽	♀	♂	♂	♂	♂	♂	♂	♂	♂	♂	♂	♂	Day	
T 1	0 42 36	8 <sup>h</sup> 44'27	1 <sup>h</sup> 22	29°R 9	13 <sup>h</sup> 45	14 <sup>h</sup> 54	12°R 4	9°R 6	1°R50	5 <sup>h</sup> 5	14°R20	3°R37	3°Y15	9 <sup>h</sup> 8	14°R50	T 1	
W 2	0 46 33	9°43'25	14°27	29 <sup>h</sup> 1	14°58	15°30	12 <sup>h</sup> 3	9 <sup>h</sup> 5	1 <sup>h</sup> 50	5° 6	14°Y19	3°Y36	3°12	9°15	14 <sup>h</sup> 48	W 2	
T 3	0 50 29	10°42'25	27°46	28°45	16°10	16° 6	12° 2	9° 4	1°50	5° 7	14°18	3°35	3° 9	9°22	14°46	T 3	
F 4	0 54 26	11°41'28	11 <sup>h</sup> II19	28°22	17°22	16°43	12° 1	9° 3	1°49	5° 8	14°17	3°35	3° 6	9°28	14°43	F 4	
S 5	0 58 22	12°40'32	25° 4	27°51	18°34	17°20	12° 1	9° 3	1°49	5° 9	14°15	3°34	3° 2	9°35	14°41	S 5	
S 6	1 2 19	13°39'40	9 <sup>h</sup> 28	1	27°12	19°46	17°57	12° 0	9° 2	1°49	5°10	14°14	3°D33	2°59	9°42	14°39	S 6
M 7	1 6 15	14°38'49	23° 9	26°25	20°58	18°34	12°D 0	9° 1	1°49	5°11	14°13	3°33	2°56	9°48	14°36	M 7	
T 8	1 10 12	15°38'01	7 <sup>h</sup> 25	25°32	22°10	19°12	12° 0	9° 1	1°48	5°12	14°12	3°34	2°53	9°55	14°34	T 8	
W 9	1 14 9	16°37'15	21°48	24°32	23°22	19°50	12° 1	9° 0	1°48	5°13	14°11	3°35	2°50	10° 2	14°31	W 9	
T 10	1 18 5	17°36'32	6 <sup>h</sup> 14	23°27	24°34	20°28	12° 1	9° 0	1°48	5°14	14°10	3°36	2°47	10° 8	14°29	T 10	
F 11	1 22 2	18°35'50	20°39	22°18	25°46	21° 6	12° 2	9° 0	1°D48	5°15	14° 8	3°37	2°43	10°15	14°26	F 11	
S 12	1 25 58	19°35'11	4 <sup>h</sup> 58	21° 6	26°58	21°44	12° 3	9° 0	1°48	5°16	14° 7	3°R37	2°40	10°22	14°24	S 12	
S 13	1 29 55	20°34'34	19° 5	19°54	28°10	22°22	12° 4	9°D 0	1°48	5°17	14° 6	3°37	2°37	10°28	14°21	S 13	
M14	1 33 51	21°33'59	2 <sup>h</sup> 58	18°44	29°21	23° 1	12° 5	9° 0	1°49	5°18	14° 5	3°35	2°34	10°35	14°18	M14	
T 15	1 37 48	22°33'26	16°32	17°38	0 <sup>h</sup> 33	23°40	12° 6	9° 0	1°49	5°19	14° 4	3°33	2°31	10°42	14°16	T 15	
W16	1 41 44	23°32'55	29°45	16°37	1°45	24°19	12° 8	9° 0	1°49	5°19	14° 3	3°30	2°28	10°49	14°13	W16	
T 17	1 45 41	24°32'26	12 <sup>h</sup> 38	15°43	2°56	24°58	12°10	9° 1	1°49	5°20	14° 2	3°27	2°24	10°55	14°10	T 17	
F 18	1 49 38	25°31'59	25°11	14°58	4° 8	25°37	12°12	9° 1	1°50	5°21	14° 0	3°24	2°21	11° 2	14° 7	F 18	
S 19	1 53 34	26°31'33	7 <sup>h</sup> 28	14°23	5°20	26°17	12°14	9° 2	1°50	5°21	13°59	3°22	2°18	11° 9	14° 5	S 19	
S 20	1 57 31	27°31'09	19°32	13°59	6°31	26°56	12°17	9° 3	1°51	5°22	13°58	3°20	2°15	11°15	14° 2	S 20	
M21	2 1 27	28°30'47	1 <sup>h</sup> 27	13°47	7°43	27°36	12°19	9° 3	1°51	5°23	13°57	3°D20	2°12	11°22	13°59	M21	
T 22	2 5 24	29°30'27	13°18	13°D45	8°54	28°16	12°22	9° 4	1°52	5°23	13°56	3°21	2° 8	11°29	13°56	T 22	
W23	2 9 20	0 <sup>h</sup> 30'08	25°10	13°54	10° 5	28°56	12°25	9° 5	1°52	5°24	13°55	3°22	2° 5	11°35	13°53	W23	
T 24	2 13 17	1°29'52	7 <sup>h</sup> 8	14°14	11°17	29°36	12°28	9° 6	1°53	5°24	13°54	3°24	2° 2	11°42	13°50	T 24	
F 25	2 17 13	2°29'36	19°17	14°44	12°28	0 <sup>h</sup> 16	12°32	9° 8	1°54	5°25	13°53	3°26	1°59	11°49	13°48	F 25	
S 26	2 21 10	3°29'23	1°Y39	15°24	13°39	0°57	12°35	9° 9	1°54	5°25	13°51	3°R26	1°56	11°55	13°45	S 26	
S 27	2 25 7	4°29'11	14°17	16°11	14°50	1°37	12°39	9°10	1°55	5°25	13°50	3°26	1°53	12° 2	13°42	S 27	
M28	2 29 3	5°29'01	27°14	17° 6	16° 1	2°18	12°43	9°12	1°56	5°26	13°49	3°24	1°49	12° 9	13°39	M28	
T 29	2 33 0	6°28'54	10 <sup>h</sup> 29	18° 8	17°12	2°58	12°47	9°13	1°57	5°26	13°48	3°20	1°46	12°16	13°36	T 29	
W30	2 36 56	7°28'48	24° 1	19°15	18°23	3°39	12°51	9°15	1°58	5°26	13°47	3°15	1°43	12°22	13°33	W30	
T 31	2 40 53	8 <sup>h</sup> 28'44	7 <sup>h</sup> II47	20 <sup>h</sup> 28	19 <sup>h</sup> 34	4 <sup>h</sup> 20	12 <sup>h</sup> 56	9 <sup>h</sup> 17	1 <sup>h</sup> 59	5 <sup>h</sup> 27	13°Y46	3°Y10	1°Y40	12 <sup>h</sup> 29	13 <sup>h</sup> 30	T 31	

Delta T = 85.00 sec

ASTRODIENST EPHEMERIS for the year 2080  
geocentric

NOVEMBER 2080

00:00 UT

Day	Sid.t	☉	☽	♀	♂	♂	♂	♂	♂	♂	♂	♂	♂	♂	♂	Day
F 1	2 44 49	9♉28'42	21♊44	21♊45	20♊45	5♈1	13♈1	9♈19	2♈0	5♏27	13°R45	3°R 4	1°Y37	12♈36	13°R27	F 1
S 2	2 48 46	10°28'43	5♊49	23° 5	21°56	5°42	13° 5	9°21	2° 1	5°27	13°Y44	2°Y59	1°34	12°42	13♊24	S 2
S 3	2 52 42	11°28'45	19°59	24°29	23° 7	6°24	13°10	9°23	2° 2	5°27	13°43	2°55	1°30	12°49	13°21	S 3
M 4	2 56 39	12°28'50	4♊9	25°56	24°17	7° 5	13°16	9°25	2° 3	5°27	13°42	2°53	1°27	12°56	13°18	M 4
T 5	3 0 36	13°28'57	18°18	27°24	25°28	7°47	13°21	9°27	2° 5	5°27	13°41	2°D53	1°24	13° 2	13°15	T 5
W 6	3 4 32	14°29'06	2♊25	28°55	26°38	8°28	13°27	9°30	2° 6	5°27	13°40	2°54	1°21	13° 9	13°12	W 6
T 7	3 8 29	15°29'17	16°28	0♊27	27°49	9°10	13°32	9°32	2° 7	5°R27	13°39	2°56	1°18	13°16	13° 9	T 7
F 8	3 12 25	16°29'30	0♊25	2° 0	28°59	9°52	13°38	9°35	2° 9	5°27	13°38	2°R56	1°14	13°22	13° 6	F 8
S 9	3 16 22	17°29'45	14°16	3°34	0♊9	10°33	13°44	9°38	2°10	5°27	13°37	2°56	1°11	13°29	13° 3	S 9
S 10	3 20 18	18°30'01	27°58	5° 9	1°19	11°15	13°51	9°40	2°12	5°27	13°36	2°53	1° 8	13°36	13° 0	S 10
M11	3 24 15	19°30'20	11♊29	6°44	2°30	11°57	13°57	9°43	2°13	5°27	13°35	2°48	1° 5	13°43	12°57	M11
T 12	3 28 11	20°30'41	24°46	8°20	3°40	12°40	14° 3	9°46	2°15	5°27	13°34	2°41	1° 2	13°49	12°54	T 12
W13	3 32 8	21°31'03	7♊48	9°56	4°49	13°22	14°10	9°49	2°17	5°27	13°34	2°32	0°59	13°56	12°52	W13
T 14	3 36 5	22°31'27	20°34	11°32	5°59	14° 4	14°17	9°52	2°18	5°26	13°33	2°23	0°55	14° 3	12°49	T 14
F 15	3 40 1	23°31'53	3♊4	13° 8	7° 9	14°46	14°24	9°55	2°20	5°26	13°32	2°14	0°52	14° 9	12°46	F 15
S 16	3 43 58	24°32'20	15°19	14°44	8°19	15°29	14°31	9°59	2°22	5°26	13°31	2° 6	0°49	14°16	12°43	S 16
S 17	3 47 54	25°32'48	27°22	16°20	9°28	16°11	14°39	10° 2	2°24	5°26	13°30	1°59	0°46	14°23	12°40	S 17
M18	3 51 51	26°33'18	9♊16	17°57	10°38	16°54	14°46	10° 6	2°25	5°25	13°29	1°55	0°43	14°29	12°37	M18
T 19	3 55 47	27°33'48	21° 6	19°33	11°47	17°36	14°54	10° 9	2°27	5°25	13°29	1°53	0°40	14°36	12°34	T 19
W20	3 59 44	28°34'21	2♊56	21° 9	12°56	18°19	15° 2	10°13	2°29	5°24	13°28	1°D53	0°36	14°43	12°31	W20
T 21	4 3 40	29°34'54	14°53	22°45	14° 5	19° 2	15°10	10°17	2°31	5°24	13°27	1°54	0°33	14°49	12°29	T 21
F 22	4 7 37	0♊35'28	27° 1	24°20	15°14	19°45	15°18	10°21	2°33	5°23	13°26	1°R55	0°30	14°56	12°26	F 22
S 23	4 11 34	1°36'04	9°Y26	25°56	16°23	20°27	15°26	10°24	2°35	5°23	13°26	1°55	0°27	15° 3	12°23	S 23
S 24	4 15 30	2°36'41	22°11	27°31	17°32	21°10	15°35	10°28	2°38	5°22	13°25	1°53	0°24	15° 9	12°20	S 24
M25	4 19 27	3°37'19	5♊19	29° 6	18°40	21°53	15°43	10°33	2°40	5°22	13°24	1°48	0°20	15°16	12°18	M25
T 26	4 23 23	4°37'59	18°52	0♊41	19°48	22°36	15°52	10°37	2°42	5°21	13°23	1°41	0°17	15°23	12°15	T 26
W27	4 27 20	5°38'40	2♊47	2°16	20°57	23°19	16° 1	10°41	2°44	5°20	13°23	1°32	0°14	15°29	12°12	W27
T 28	4 31 16	6°39'22	17° 0	3°51	22° 5	24° 2	16°10	10°45	2°47	5°20	13°22	1°21	0°11	15°36	12°10	T 28
F 29	4 35 13	7°40'06	1♊27	5°26	23°13	24°46	16°19	10°50	2°49	5°19	13°22	1°10	0° 8	15°43	12° 7	F 29
S 30	4 39 9	8♊40'51	16♊1	7♊0	24♊20	25♊29	16♊28	10♊54	2♊51	5♏18	13°Y21	1°Y 1	0°Y 5	15♊50	12♊4	S 30

Delta T = 85.03 sec

DECEMBER 2080

00:00 UT

Day	Sid.t	☉	☽	♀	♂	♂	♂	♂	♂	♂	♂	♂	♂	♂	♂	Day
S 1	4 43 6	9♊41'37	0♊33	8♊34	25♊28	26♊12	16♊37	10♊59	2♊54	5°R18	13°R20	0°R53	0°Y 1	15♊56	12°R 2	S 1
M 2	4 47 3	10°42'25	15° 0	10° 9	26°35	26°55	16°47	11° 3	2°56	5♏17	13°Y20	0°Y48	29♊58	16° 3	11♊59	M 2
T 3	4 50 59	11°43'14	29°16	11°43	27°43	27°38	16°56	11° 8	2°59	5°16	13°19	0°45	29°55	16°10	11°57	T 3
W 4	4 54 56	12°44'05	13♊20	13°17	28°50	28°22	17° 6	11°13	3° 1	5°15	13°19	0°D45	29°52	16°16	11°54	W 4
T 5	4 58 52	13°44'57	27°12	14°52	29°56	29° 5	17°16	11°18	3° 4	5°14	13°18	0°R45	29°49	16°23	11°52	T 5
F 6	5 2 49	14°45'50	10♊51	16°26	1♊3	29°48	17°26	11°23	3° 6	5°13	13°18	0°45	29°46	16°30	11°49	F 6
S 7	5 6 45	15°46'45	24°19	18° 0	2°10	0♊32	17°36	11°28	3° 9	5°12	13°17	0°43	29°42	16°36	11°47	S 7
S 8	5 10 42	16°47'41	7♊36	19°34	3°16	1°15	17°46	11°33	3°12	5°11	13°17	0°38	29°39	16°43	11°45	S 8
M 9	5 14 38	17°48'39	20°42	21° 8	4°22	1°59	17°56	11°38	3°14	5°10	13°17	0°30	29°36	16°50	11°43	M 9
T 10	5 18 35	18°49'37	3♊38	22°42	5°28	2°42	18° 7	11°43	3°17	5° 9	13°16	0°19	29°33	16°56	11°40	T 10
W11	5 22 32	19°50'37	16°23	24°17	6°33	3°26	18°17	11°48	3°20	5° 8	13°16	0° 6	29°30	17° 3	11°38	W11
T 12	5 26 28	20°51'37	28°55	25°51	7°39	4° 9	18°28	11°54	3°23	5° 7	13°15	29♊52	29°26	17°10	11°36	T 12
F 13	5 30 25	21°52'38	11♊16	27°26	8°44	4°53	18°39	11°59	3°25	5° 6	13°15	29°38	29°23	17°16	11°34	F 13
S 14	5 34 21	22°53'40	23°25	29° 0	9°48	5°37	18°50	12° 4	3°28	5° 5	13°15	29°25	29°20	17°23	11°32	S 14
S 15	5 38 18	23°54'43	5♊24	0♊35	10°53	6°20	19° 1	12°10	3°31	5° 4	13°15	29°14	29°17	17°30	11°30	S 15
M16	5 42 14	24°55'46	17°16	2° 9	11°57	7° 4	19°12	12°16	3°34	5° 2	13°14	29° 6	29°14	17°36	11°28	M16
T 17	5 46 11	25°56'49	29° 3	3°44	13° 1	7°48	19°23	12°21	3°37	5° 1	13°14	29° 1	29°11	17°43	11°26	T 17
W18	5 50 8	26°57'53	10♊52	5°19	14° 5	8°31	19°34	12°27	3°40	5° 0	13°14	28°59	29° 7	17°50	11°24	W18
T 19	5 54 4	27°58'57	22°45	6°54	15° 8	9°15	19°46	12°33	3°43	4°59	13°14	28°58	29° 4	17°57	11°22	T 19
F 20	5 58 1	29° 0'02	4°Y50	8°29	16°11	9°59	19°57	12°38	3°46	4°57	13°13	28°58	29° 1	18° 3	11°20	F 20
S 21	6 1 57	0♊1'07	17°12	10° 4	17°14	10°42	20° 9	12°44	3°49	4°56	13°13	28°58	28°58	18°10	11°19	S 21
S 22	6 5 54	1° 2'12	29°55	11°39	18°16	11°26	20°21	12°50	3°52	4°55	13°13	28°55	28°55	18°17	11°17	S 22
M23	6 9 50	2° 3'18	13♊4	13°14	19°18	12°10	20°32	12°56	3°55	4°53	13°13	28°50	28°52	18°23	11°15	M23
T 24	6 13 47	3° 4'23	26°42	14°49	20°20	12°54	20°44	13° 2	3°58	4°52	13°13	28°43	28°48	18°30	11°14	T 24
W25	6 17 43	4° 5'29	10♊48	16°23	21°21	13°37	20°56	13° 8	4° 1	4°51	13°13	28°33	28°45	18°37	11°12	W25
T 26	6 21 40	5° 6'36	25°19	17°58	22°22	14°21	21° 8	13°15	4° 5	4°49	13°13	28°21	28°42	18°43	11°11	T 26
F 27	6 25 37	6° 7'42	10♊8	19°33	23°22	15° 5	21°20	13°21	4° 8	4°48	13°D13	28° 9	28°39	18°50	11° 9	F 27
S 28	6 29 33	7° 8'49	25° 8	21° 7	24°22	15°49	21°33	13°27	4°11	4°46	13°13	27°58	28°36	18°57	11° 8	S 28
S 29	6 33 30	8° 9'57	10♊7	22°40	25°22	16°32	21°45	13°33	4°14	4°45	13°13	27°49	28°32	19° 3	11° 7	S 29
M30	6 37 26	9°11'04	24°57	24°14	26°21	17°16	21°57	13°40	4°18	4°44	13°13	27°43	28°29	19°10	11° 6	M30
T 31	6 41 23	10♊12'12	9♊33	25♊46	27♊19	18♊0	22♊10	13♊46	4♊21	4♏42	13°Y13	27♊39	28♊26	19♊17	11♊4	T 31

Delta T = 85.06 sec