



Astrodienst Ephemeris Tables for the year 2181

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 2181

geocentric

JANUARY 2181

00:00 UT

| Day | Sid.t | ☉ | ☽ | ♀ | ♂ | ♂ | ♂ | ♂ | ♂ | ♂ | ♂ | ♂ | ♂ | ♂ | ♂ | Day |
|-----|---------|----------|---------|--------|-------|---------|--------|--------|-------|--------|--------|--------|--------|---------|--------|-----|
| M 1 | 6 44 29 | 10°35'12 | 10°26 | 21°R35 | 2°33 | 16°R47 | 21°R38 | 17°R22 | 7°V 4 | 10°H15 | 26°R 9 | 15°R55 | 14°M18 | 8°II 4 | 17°R 6 | M 1 |
| T 2 | 6 48 25 | 11°58'19 | 22°37 | 20°339 | 3°49 | 16°II33 | 21°R33 | 17°317 | 7° 5 | 10°17 | 26° 7 | 15°M44 | 14°15 | 8°11 | 17° 4 | T 2 |
| W 3 | 6 52 22 | 12°59'26 | 4°27 | 19°34 | 5° 4 | 16°20 | 21°28 | 17°12 | 7° 6 | 10°18 | 26° 6 | 15°33 | 14°12 | 8°17 | 17° 3 | W 3 |
| T 4 | 6 56 18 | 14° 0'34 | 17°27 | 18°21 | 6°20 | 16° 7 | 21°23 | 17° 7 | 7° 7 | 10°19 | 26° 5 | 15°22 | 14° 9 | 8°24 | 17° 2 | T 4 |
| F 5 | 7 0 15 | 15° 1'41 | 0°18 8 | 17° 3 | 7°35 | 15°56 | 21°18 | 17° 2 | 7° 8 | 10°21 | 26° 4 | 15°12 | 14° 6 | 8°31 | 17° 0 | F 5 |
| S 6 | 7 4 11 | 16° 2'49 | 13° 1 | 15°42 | 8°51 | 15°45 | 21°13 | 16°57 | 7° 9 | 10°22 | 26° 2 | 15° 5 | 14° 3 | 8°37 | 16°59 | S 6 |
| S 7 | 7 8 8 | 17° 3'57 | 26° 8 | 14°21 | 10° 6 | 15°34 | 21° 7 | 16°52 | 7°10 | 10°24 | 26° 1 | 15° 0 | 13°59 | 8°44 | 16°58 | S 7 |
| M 8 | 7 12 5 | 18° 5'05 | 9°29 | 13° 3 | 11°22 | 15°25 | 21° 2 | 16°47 | 7°11 | 10°25 | 26° 0 | 14°58 | 13°56 | 8°51 | 16°57 | M 8 |
| T 9 | 7 16 1 | 19° 6'14 | 23° 7 | 11°49 | 12°37 | 15°17 | 20°56 | 16°42 | 7°12 | 10°27 | 25°58 | 14°D58 | 13°53 | 8°57 | 16°56 | T 9 |
| W10 | 7 19 58 | 20° 7'22 | 7°M 4 | 10°42 | 13°53 | 15° 9 | 20°50 | 16°38 | 7°14 | 10°29 | 25°57 | 14°59 | 13°50 | 9° 4 | 16°55 | W10 |
| T11 | 7 23 54 | 21° 8'31 | 21°19 | 9°43 | 15° 8 | 15° 2 | 20°44 | 16°33 | 7°15 | 10°30 | 25°56 | 14°R59 | 13°47 | 9°11 | 16°54 | T11 |
| F12 | 7 27 51 | 22° 9'40 | 5°27 52 | 8°53 | 16°24 | 14°56 | 20°38 | 16°28 | 7°16 | 10°32 | 25°55 | 14°57 | 13°44 | 9°17 | 16°53 | F12 |
| S13 | 7 31 47 | 23°10'50 | 20°39 | 8°13 | 17°39 | 14°51 | 20°32 | 16°23 | 7°18 | 10°34 | 25°53 | 14°53 | 13°40 | 9°24 | 16°52 | S13 |
| S14 | 7 35 44 | 24°11'59 | 5°33 | 7°43 | 18°54 | 14°46 | 20°25 | 16°18 | 7°19 | 10°35 | 25°52 | 14°46 | 13°37 | 9°31 | 16°51 | S14 |
| M15 | 7 39 40 | 25°13'08 | 20°27 | 7°22 | 20°10 | 14°43 | 20°19 | 16°13 | 7°21 | 10°37 | 25°51 | 14°36 | 13°34 | 9°37 | 16°51 | M15 |
| T16 | 7 43 37 | 26°14'16 | 5°22 | 7°12 | 21°25 | 14°40 | 20°12 | 16° 8 | 7°22 | 10°39 | 25°49 | 14°25 | 13°31 | 9°44 | 16°50 | T16 |
| W17 | 7 47 34 | 27°15'24 | 19°38 | 7°D10 | 22°41 | 14°38 | 20° 5 | 16° 3 | 7°24 | 10°40 | 25°48 | 14°13 | 13°28 | 9°51 | 16°50 | W17 |
| T18 | 7 51 30 | 28°16'31 | 3°H1 | 7°16 | 23°56 | 14°37 | 19°58 | 15°59 | 7°26 | 10°42 | 25°47 | 14° 2 | 13°24 | 9°57 | 16°49 | T18 |
| F19 | 7 55 27 | 29°17'38 | 17°1 | 7°30 | 25°12 | 14°D36 | 19°51 | 15°54 | 7°27 | 10°44 | 25°46 | 13°54 | 13°21 | 10° 4 | 16°49 | F19 |
| S20 | 7 59 23 | 0°28'14 | 0°V24 | 7°52 | 26°27 | 14°37 | 19°44 | 15°49 | 7°29 | 10°46 | 25°44 | 13°47 | 13°18 | 10°11 | 16°48 | S20 |
| S21 | 8 3 20 | 1°19'49 | 13° 6 | 8°19 | 27°43 | 14°38 | 19°37 | 15°44 | 7°31 | 10°48 | 25°43 | 13°44 | 13°15 | 10°17 | 16°48 | S21 |
| M22 | 8 7 16 | 2°20'54 | 25°27 | 8°53 | 28°58 | 14°40 | 19°30 | 15°40 | 7°33 | 10°50 | 25°42 | 13°43 | 13°12 | 10°24 | 16°48 | M22 |
| T23 | 8 11 13 | 3°21'58 | 7°B1 | 9°32 | 0°22 | 14°42 | 19°22 | 15°35 | 7°34 | 10°51 | 25°40 | 13°43 | 13° 9 | 10°31 | 16°48 | T23 |
| W24 | 8 15 9 | 4°23'00 | 19°24 | 10°15 | 1°29 | 14°46 | 19°15 | 15°31 | 7°36 | 10°53 | 25°39 | 13°42 | 13° 5 | 10°37 | 16°47 | W24 |
| T25 | 8 19 6 | 5°24'02 | 1°II1 | 11° 3 | 2°44 | 14°50 | 19° 7 | 15°26 | 7°38 | 10°55 | 25°38 | 13°41 | 13° 2 | 10°44 | 16°D47 | T25 |
| F26 | 8 23 3 | 6°25'03 | 12°59 | 11°55 | 4° 0 | 14°55 | 19° 0 | 15°22 | 7°40 | 10°57 | 25°36 | 13°38 | 12°59 | 10°51 | 16°47 | F26 |
| S27 | 8 26 59 | 7°26'03 | 24°51 | 12°51 | 5°15 | 15° 0 | 18°52 | 15°17 | 7°42 | 10°59 | 25°35 | 13°32 | 12°56 | 10°57 | 16°47 | S27 |
| S28 | 8 30 56 | 8°27'02 | 6°51 | 13°49 | 6°31 | 15° 6 | 18°44 | 15°13 | 7°44 | 11° 1 | 25°34 | 13°23 | 12°53 | 11° 4 | 16°48 | S28 |
| M29 | 8 34 52 | 9°28'00 | 19° 2 | 14°51 | 7°46 | 15°13 | 18°37 | 15° 9 | 7°47 | 11° 3 | 25°33 | 13°12 | 12°50 | 11°11 | 16°48 | M29 |
| T30 | 8 38 49 | 10°28'57 | 1°D25 | 15°55 | 9° 1 | 15°21 | 18°29 | 15° 4 | 7°49 | 11° 5 | 25°31 | 12°58 | 12°46 | 11°17 | 16°48 | T30 |
| W31 | 8 42 45 | 11°29'53 | 14°D 2 | 17°B 1 | 10°22 | 15°II29 | 18°D21 | 15° 0 | 7°V51 | 11°H 7 | 25°30 | 12°M44 | 12°M43 | 11°II24 | 16°B48 | W31 |

Delta T = 145.56 sec

FEBRUARY 2181

00:00 UT

| Day | Sid.t | ☉ | ☽ | ♀ | ♂ | ♂ | ♂ | ♂ | ♂ | ♂ | ♂ | ♂ | ♂ | ♂ | ♂ | Day |
|-----|----------|----------|--------|--------|--------|---------|--------|--------|-------|--------|--------|--------|--------|---------|--------|-----|
| T 1 | 8 46 42 | 12°30'48 | 26°D51 | 18°B10 | 11°23 | 15°II38 | 18°R13 | 14°R56 | 7°V53 | 11°H 9 | 25°R29 | 12°R30 | 12°M40 | 11°II31 | 16°B49 | T 1 |
| F 2 | 8 50 38 | 13°31'43 | 9°M53 | 19°21 | 12°47 | 15°47 | 18° 5 | 14°52 | 7°55 | 11°11 | 25°28 | 12°M18 | 12°37 | 11°37 | 16°49 | F 2 |
| S 3 | 8 54 35 | 14°32'36 | 23° 5 | 20°33 | 14° 3 | 15°57 | 17°57 | 14°48 | 7°58 | 11°13 | 25°27 | 12° 8 | 12°34 | 11°44 | 16°50 | S 3 |
| S 4 | 8 58 32 | 15°33'29 | 6°28 | 21°47 | 15°18 | 16° 8 | 17°49 | 14°44 | 8° 0 | 11°16 | 25°25 | 12° 2 | 12°30 | 11°51 | 16°50 | S 4 |
| M 5 | 9 2 28 | 16°34'20 | 20° 1 | 23° 3 | 16°33 | 16°19 | 17°41 | 14°40 | 8° 3 | 11°18 | 25°24 | 11°58 | 12°27 | 11°57 | 16°51 | M 5 |
| T 6 | 9 6 25 | 17°35'11 | 3°M43 | 24°21 | 17°49 | 16°30 | 17°33 | 14°37 | 8° 5 | 11°20 | 25°23 | 11°57 | 12°24 | 12° 4 | 16°52 | T 6 |
| W 7 | 9 10 21 | 18°36'02 | 17°36 | 25°39 | 19° 4 | 16°43 | 17°25 | 14°33 | 8° 7 | 11°22 | 25°22 | 11°57 | 12°21 | 12°11 | 16°53 | W 7 |
| T 8 | 9 14 18 | 19°36'51 | 1°H40 | 26°59 | 20°19 | 16°55 | 17°17 | 14°29 | 8°10 | 11°24 | 25°21 | 11°57 | 12°18 | 12°17 | 16°53 | T 8 |
| F 9 | 9 18 14 | 20°37'40 | 15°54 | 28°21 | 21°35 | 17° 9 | 17° 9 | 14°26 | 8°12 | 11°26 | 25°19 | 11°55 | 12°15 | 12°24 | 16°54 | F 9 |
| S10 | 9 22 11 | 21°38'28 | 0°B17 | 29°43 | 22°50 | 17°23 | 17° 1 | 14°22 | 8°15 | 11°28 | 25°18 | 11°50 | 12°11 | 12°31 | 16°55 | S10 |
| S11 | 9 26 7 | 22°39'14 | 14°45 | 1°27 7 | 24° 5 | 17°37 | 16°53 | 14°19 | 8°18 | 11°30 | 25°17 | 11°43 | 12° 8 | 12°37 | 16°56 | S11 |
| M12 | 9 30 4 | 23°40'00 | 29°13 | 2°31 | 25°20 | 17°52 | 16°45 | 14°16 | 8°20 | 11°33 | 25°16 | 11°33 | 12° 5 | 12°44 | 16°57 | M12 |
| T13 | 9 34 1 | 24°40'44 | 13°23 | 3°57 | 26°36 | 18° 7 | 16°37 | 14°13 | 8°23 | 11°35 | 25°15 | 11°22 | 12° 2 | 12°51 | 16°59 | T13 |
| W14 | 9 37 57 | 25°41'28 | 27°44 | 5°24 | 27°51 | 18°23 | 16°30 | 14°10 | 8°26 | 11°37 | 25°14 | 11° 9 | 11°59 | 12°57 | 17° 0 | W14 |
| T15 | 9 41 54 | 26°42'09 | 11°H35 | 6°51 | 29° 6 | 18°39 | 16°22 | 14° 7 | 8°28 | 11°39 | 25°13 | 10°58 | 11°56 | 13° 4 | 17° 1 | T15 |
| F16 | 9 45 50 | 27°42'50 | 25° 4 | 8°20 | 0°H21 | 18°56 | 16°14 | 14° 4 | 8°31 | 11°42 | 25°12 | 10°48 | 11°52 | 13°11 | 17° 2 | F16 |
| S17 | 9 49 47 | 28°43'28 | 8°V10 | 9°50 | 1°37 | 19°13 | 16° 6 | 14° 1 | 8°34 | 11°44 | 25°10 | 10°41 | 11°49 | 13°17 | 17° 4 | S17 |
| S18 | 9 53 43 | 29°44'06 | 20°53 | 11°20 | 2°52 | 19°31 | 15°59 | 13°58 | 8°37 | 11°46 | 25° 9 | 10°37 | 11°46 | 13°24 | 17° 5 | S18 |
| M19 | 9 57 40 | 0°H44'41 | 3°B15 | 12°52 | 4° 7 | 19°49 | 15°51 | 13°56 | 8°40 | 11°48 | 25° 8 | 10°35 | 11°43 | 13°31 | 17° 7 | M19 |
| T20 | 10 1 36 | 1°45'15 | 15°22 | 14°24 | 5°22 | 20° 8 | 15°44 | 13°53 | 8°42 | 11°50 | 25° 7 | 10°D35 | 11°40 | 13°37 | 17° 8 | T20 |
| W21 | 10 5 33 | 2°45'47 | 27°17 | 15°57 | 6°37 | 20°27 | 15°37 | 13°51 | 8°45 | 11°53 | 25° 6 | 10°R36 | 11°36 | 13°44 | 17°10 | W21 |
| T22 | 10 9 30 | 3°46'17 | 9°II 6 | 17°31 | 7°52 | 20°46 | 15°29 | 13°48 | 8°48 | 11°55 | 25° 5 | 10°36 | 11°33 | 13°51 | 17°12 | T22 |
| F23 | 10 13 26 | 4°46'46 | 20°55 | 19° 7 | 9° 8 | 21° 6 | 15°22 | 13°46 | 8°51 | 11°57 | 25° 4 | 10°34 | 11°30 | 13°57 | 17°13 | F23 |
| S24 | 10 17 23 | 5°47'12 | 2°549 | 20°43 | 10°23 | 21°26 | 15°15 | 13°44 | 8°54 | 12° 0 | 25° 4 | 10°30 | 11°27 | 14° 4 | 17°15 | S24 |
| S25 | 10 21 19 | 6°47'37 | 14°53 | 22°20 | 11°38 | 21°46 | 15° 8 | 13°42 | 8°57 | 12° 2 | 25° 3 | 10°24 | 11°24 | 14°11 | 17°17 | S25 |
| M26 | 10 25 16 | 7°48'00 | 27°10 | 23°58 | 12°53 | 22° 7 | 15° 1 | 13°40 | 9° 0 | 12° 4 | 25° 2 | 10°16 | 11°21 | 14°17 | 17°19 | M26 |
| T27 | 10 29 12 | 8°48'21 | 9°D43 | 25°37 | 14° 8 | 22°28 | 14°54 | 13°38 | 9° 3 | 12° 6 | 25° 1 | 10° 5 | 11°17 | 14°24 | 17°21 | T27 |
| W28 | 10 33 9 | 9°H48'41 | 22°D33 | 27°27 | 15°H23 | 22°II49 | 14°D48 | 13°37 | 9°V 6 | 12°H 9 | 25° 0 | 9°M54 | 11°M14 | 14°II31 | 17°B23 | W28 |

Delta T = 145.63 sec

ASTRODIENST EPHEMERIS for the year 2181

geocentric

MARCH 2181

00:00 UT

| Day | Sid.t | ☉ | ☽ | ♀ | ♂ | ♂ | ♂ | ♂ | ♂ | ♂ | ♂ | ♂ | ♂ | ♂ | ♂ | Day |
|------|----------|------------------------|---------------------|---------------------|---------------------|--------------------|---------------------|---------------------|---------------------|---------------------|---------------------|--------------------|---------------------|----------------------|---------------------|------|
| T 1 | 10 37 5 | 10 ^h 48'58 | 5 ^m 41 | 28 ^s 57 | 16 ^h 38 | 23 ^h 11 | 14 ^h R41 | 13 ^h R35 | 9 ^h Y10 | 12 ^h X11 | 24 ^h R59 | 9 ^h R44 | 11 ^h M11 | 14 ^h II37 | 17 ^h 825 | T 1 |
| F 2 | 10 41 2 | 11 ^h 49'14 | 19 ^m 5 | 0 ^s X39 | 17 ^h 53 | 23 ^h 33 | 14 ^h Q35 | 13 ^h Q34 | 9 ^h 13 | 12 ^h 13 | 24 ^h Q58 | 9 ^h M34 | 11 ^h 8 | 14 ^h 44 | 17 ^h 27 | F 2 |
| S 3 | 10 44 58 | 12 ^h 49'28 | 2 ^m 42 | 2 ^s 22 | 19 ^h 8 | 23 ^h 56 | 14 ^h 28 | 13 ^h 32 | 9 ^h 16 | 12 ^h 15 | 24 ^h 57 | 9 ^h 27 | 11 ^h 5 | 14 ^h 51 | 17 ^h 29 | S 3 |
| S 4 | 10 48 55 | 13 ^h 49'40 | 16 ^m 30 | 4 ^s 6 | 20 ^h 23 | 24 ^h 18 | 14 ^h 22 | 13 ^h 31 | 9 ^h 19 | 12 ^h 18 | 24 ^h 57 | 9 ^h 22 | 11 ^h 1 | 14 ^h 57 | 17 ^h 31 | S 4 |
| M 5 | 10 52 52 | 14 ^h 49'51 | 0 ^m M26 | 5 ^s 51 | 21 ^h 38 | 24 ^h 41 | 14 ^h 16 | 13 ^h 30 | 9 ^h 22 | 12 ^h 20 | 24 ^h 56 | 9 ^h 20 | 10 ^h 58 | 15 ^h 4 | 17 ^h 34 | M 5 |
| T 6 | 10 56 48 | 15 ^h 50'00 | 14 ^m 27 | 7 ^s 37 | 22 ^h 53 | 25 ^h 5 | 14 ^h 10 | 13 ^h 29 | 9 ^h 25 | 12 ^h 22 | 24 ^h 55 | 9 ^h D19 | 10 ^h 55 | 15 ^h 11 | 17 ^h 36 | T 6 |
| W 7 | 11 0 45 | 16 ^h 50'08 | 28 ^m 32 | 9 ^s 24 | 24 ^h 7 | 25 ^h 28 | 14 ^h 5 | 13 ^h 28 | 9 ^h 29 | 12 ^h 25 | 24 ^h 54 | 9 ^h 20 | 10 ^h 52 | 15 ^h 17 | 17 ^h 38 | W 7 |
| T 8 | 11 4 41 | 17 ^h 50'14 | 12 ^m X19 | 11 ^s 12 | 25 ^h 22 | 25 ^h 52 | 13 ^h 59 | 13 ^h 27 | 9 ^h 32 | 12 ^h 27 | 24 ^h 54 | 9 ^h R21 | 10 ^h 49 | 15 ^h 24 | 17 ^h 41 | T 8 |
| F 9 | 11 8 38 | 18 ^h 50'19 | 26 ^m 46 | 13 ^s 2 | 26 ^h 37 | 26 ^h 16 | 13 ^h 54 | 13 ^h 26 | 9 ^h 35 | 12 ^h 29 | 24 ^h 53 | 9 ^h 21 | 10 ^h 46 | 15 ^h 31 | 17 ^h 43 | F 9 |
| S 10 | 11 12 34 | 19 ^h 50'22 | 10 ^m Q54 | 14 ^s 52 | 27 ^h 52 | 26 ^h 40 | 13 ^h 48 | 13 ^h 26 | 9 ^h 38 | 12 ^h 31 | 24 ^h 52 | 9 ^h 19 | 10 ^h 42 | 15 ^h 37 | 17 ^h 46 | S 10 |
| S 11 | 11 16 31 | 20 ^h 50'24 | 25 ^m 0 | 16 ^s 43 | 29 ^h 7 | 27 ^h 5 | 13 ^h 43 | 13 ^h 25 | 9 ^h 42 | 12 ^h 34 | 24 ^h 52 | 9 ^h 15 | 10 ^h 39 | 15 ^h 44 | 17 ^h 49 | S 11 |
| M12 | 11 20 27 | 21 ^h 50'24 | 9 ^m 0 | 18 ^s 36 | 0 ^h Y22 | 27 ^h 30 | 13 ^h 38 | 13 ^h 25 | 9 ^h 45 | 12 ^h 36 | 24 ^h 51 | 9 ^h 9 | 10 ^h 36 | 15 ^h 51 | 17 ^h 51 | M12 |
| T 13 | 11 24 24 | 22 ^h 50'22 | 22 ^m 53 | 20 ^s 29 | 1 ^s 36 | 27 ^h 55 | 13 ^h 33 | 13 ^h 25 | 9 ^h 48 | 12 ^h 38 | 24 ^h 50 | 9 ^h 1 | 10 ^h 33 | 15 ^h 57 | 17 ^h 54 | T 13 |
| W14 | 11 28 21 | 23 ^h 50'19 | 6 ^m X35 | 22 ^s 24 | 2 ^s 51 | 28 ^h 21 | 13 ^h 29 | 13 ^h 25 | 9 ^h 51 | 12 ^h 40 | 24 ^h 50 | 8 ^h 53 | 10 ^h 30 | 16 ^h 4 | 17 ^h 57 | W14 |
| T 15 | 11 32 17 | 24 ^h 50'14 | 20 ^m 3 | 24 ^s 20 | 4 ^s 6 | 28 ^h 46 | 13 ^h 24 | 13 ^h D25 | 9 ^h 55 | 12 ^h 43 | 24 ^h 49 | 8 ^h 46 | 10 ^h 27 | 16 ^h 11 | 17 ^h 59 | T 15 |
| F 16 | 11 36 14 | 25 ^h 50'06 | 3 ^m Y14 | 26 ^s 16 | 5 ^s 21 | 29 ^h 12 | 13 ^h 20 | 13 ^h 25 | 9 ^h 58 | 12 ^h 45 | 24 ^h 49 | 8 ^h 40 | 10 ^h 23 | 16 ^h 17 | 18 ^h 2 | F 16 |
| S 17 | 11 40 10 | 26 ^h 49'57 | 16 ^m 7 | 28 ^s 14 | 6 ^s 35 | 29 ^h 38 | 13 ^h 16 | 13 ^h 25 | 10 ^h 1 | 12 ^h 47 | 24 ^h 48 | 8 ^h 35 | 10 ^h 20 | 16 ^h 24 | 18 ^h 5 | S 17 |
| S 18 | 11 44 7 | 27 ^h 49'46 | 28 ^m 43 | 0 ^s Y12 | 7 ^s 50 | 0 ^h Q 4 | 13 ^h 12 | 13 ^h 25 | 10 ^h 5 | 12 ^h 49 | 24 ^h 48 | 8 ^h 33 | 10 ^h 17 | 16 ^h 31 | 18 ^h 8 | S 18 |
| M19 | 11 48 3 | 28 ^h 49'32 | 11 ^m 8 2 | 2 ^s 11 | 9 ^s 5 | 0 ^h 31 | 13 ^h 8 | 13 ^h 26 | 10 ^h 8 | 12 ^h 52 | 24 ^h 47 | 8 ^h D32 | 10 ^h 14 | 16 ^h 37 | 18 ^h 11 | M19 |
| T 20 | 11 52 0 | 29 ^h 49'17 | 23 ^m 8 | 4 ^s 10 | 10 ^h 19 | 0 ^h 58 | 13 ^h 4 | 13 ^h 26 | 10 ^h 12 | 12 ^h 54 | 24 ^h 47 | 8 ^h 33 | 10 ^h 11 | 16 ^h 44 | 18 ^h 14 | T 20 |
| W21 | 11 55 56 | 0 ^h Y48'59 | 5 ^m II 4 | 6 ^s 10 | 11 ^h 34 | 1 ^s 25 | 13 ^h 1 | 13 ^h 27 | 10 ^h 15 | 12 ^h 56 | 24 ^h 46 | 8 ^h 35 | 10 ^h 7 | 16 ^h 51 | 18 ^h 17 | W21 |
| T 22 | 11 59 53 | 1 ^h 48'40 | 16 ^m 54 | 8 ^s 10 | 12 ^h 49 | 1 ^s 52 | 12 ^h 58 | 13 ^h 27 | 10 ^h 18 | 12 ^h 58 | 24 ^h 46 | 8 ^h 36 | 10 ^h 4 | 16 ^h 57 | 18 ^h 20 | T 22 |
| F 23 | 12 3 50 | 2 ^h 48'18 | 28 ^m 44 | 10 ^s 10 | 14 ^s 3 | 2 ^s 19 | 12 ^h 55 | 13 ^h 28 | 10 ^h 22 | 13 ^h 0 | 24 ^h 45 | 8 ^h R37 | 10 ^h 1 | 17 ^h 4 | 18 ^h 23 | F 23 |
| S 24 | 12 7 46 | 3 ^h 47'53 | 10 ^m Q39 | 12 ^s 10 | 15 ^s 18 | 2 ^s 47 | 12 ^h 52 | 13 ^h 29 | 10 ^h 25 | 13 ^h 2 | 24 ^h 45 | 8 ^h 37 | 9 ^h 58 | 17 ^h 11 | 18 ^h 26 | S 24 |
| S 25 | 12 11 43 | 4 ^h 47'27 | 22 ^m 43 | 14 ^s 9 | 16 ^s 32 | 3 ^s 14 | 12 ^h 49 | 13 ^h 30 | 10 ^h 29 | 13 ^h 5 | 24 ^h 45 | 8 ^h 36 | 9 ^h 55 | 17 ^h 17 | 18 ^h 29 | S 25 |
| M26 | 12 15 39 | 5 ^h 46'58 | 5 ^m Q 1 | 16 ^s 7 | 17 ^s 47 | 3 ^s 42 | 12 ^h 46 | 13 ^h 32 | 10 ^h 32 | 13 ^h 7 | 24 ^h 44 | 8 ^h 33 | 9 ^h 52 | 17 ^h 24 | 18 ^h 33 | M26 |
| T 27 | 12 19 36 | 6 ^h 46'27 | 17 ^m 38 | 18 ^s 5 | 19 ^s 1 | 4 ^s 10 | 12 ^h 44 | 13 ^h 33 | 10 ^h 35 | 13 ^h 9 | 24 ^h 44 | 8 ^h 28 | 9 ^h 48 | 17 ^h 31 | 18 ^h 36 | T 27 |
| W28 | 12 23 32 | 7 ^h 45'53 | 0 ^m M35 | 20 ^s 0 | 20 ^s 15 | 4 ^s 38 | 12 ^h 42 | 13 ^h 34 | 10 ^h 39 | 13 ^h 11 | 24 ^h 44 | 8 ^h 23 | 9 ^h 45 | 17 ^h 37 | 18 ^h 39 | W28 |
| T 29 | 12 27 29 | 8 ^h 45'17 | 13 ^m 54 | 21 ^s 54 | 21 ^s 30 | 5 ^s 7 | 12 ^h 40 | 13 ^h 36 | 10 ^h 42 | 13 ^h 13 | 24 ^h 44 | 8 ^h 18 | 9 ^h 42 | 17 ^h 44 | 18 ^h 42 | T 29 |
| F 30 | 12 31 25 | 9 ^h 44'40 | 27 ^m 33 | 23 ^s 45 | 22 ^s 44 | 5 ^s 35 | 12 ^h 38 | 13 ^h 38 | 10 ^h 46 | 13 ^h 15 | 24 ^h 43 | 8 ^h 14 | 9 ^h 39 | 17 ^h 51 | 18 ^h 46 | F 30 |
| S 31 | 12 35 22 | 10 ^h Y44'00 | 11 ^m Q32 | 25 ^s Y34 | 23 ^s Y59 | 6 ^s Q 4 | 12 ^h Q37 | 13 ^h Q39 | 10 ^h Y49 | 13 ^h X17 | 24 ^h Q43 | 8 ^h M11 | 9 ^h M36 | 17 ^h II57 | 18 ^h Q49 | S 31 |

Delta T = 145.70 sec

APRIL 2181

00:00 UT

| Day | Sid.t | ☉ | ☽ | ♀ | ♀ | ♂ | ♂ | ♂ | ♂ | ♂ | ♂ | ♂ | ♂ | ♂ | ♂ | Day |
|------|----------|-----------|--------|--------|--------|--------|--------|--------|--------|--------|--------|-------|-------|---------|--------|------|
| S 1 | 12 39 18 | 11°43'18 | 25°45 | 27°19 | 25°13 | 6°33 | 12°R35 | 13°Q41 | 10°Y53 | 13°X19 | 24°R43 | 8°R 9 | 9°M32 | 18°II 4 | 18°853 | S 1 |
| M 2 | 12 43 15 | 12°42'34 | 10°M 9 | 29° 1 | 26°27 | 7° 2 | 12°Q34 | 13°43 | 10°56 | 13°21 | 24°Q43 | 8°D 9 | 9°29 | 18°11 | 18°56 | M 2 |
| T 3 | 12 47 12 | 13°41'48 | 24°37 | 0°X38 | 27°41 | 7°31 | 12°33 | 13°45 | 10°59 | 13°23 | 24°43 | 8°M 9 | 9°26 | 18°17 | 19° 0 | T 3 |
| W 4 | 12 51 8 | 14°41'01 | 9°X 5 | 2°12 | 28°56 | 8° 1 | 12°32 | 13°47 | 11° 3 | 13°25 | 24°43 | 8°11 | 9°23 | 18°24 | 19° 3 | W 4 |
| T 5 | 12 55 5 | 15°40'12 | 23°28 | 3°40 | 0°X10 | 8°30 | 12°32 | 13°50 | 11° 6 | 13°27 | 24°43 | 8°12 | 9°20 | 18°31 | 19° 7 | T 5 |
| F 6 | 12 59 1 | 16°39'21 | 7°Q44 | 5° 4 | 1°24 | 9° 0 | 12°31 | 13°52 | 11°10 | 13°29 | 24°43 | 8°13 | 9°17 | 18°37 | 19°10 | F 6 |
| S 7 | 13 2 58 | 17°38'28 | 21°50 | 6°22 | 2°38 | 9°29 | 12°31 | 13°54 | 11°13 | 13°31 | 24°D43 | 8°R13 | 9°13 | 18°44 | 19°14 | S 7 |
| S 8 | 13 6 54 | 18°37'34 | 5°Q45 | 7°35 | 3°52 | 9°59 | 12°D31 | 13°57 | 11°17 | 13°33 | 24°43 | 8°12 | 9°10 | 18°51 | 19°18 | S 8 |
| M 9 | 13 10 51 | 19°36'37 | 19°27 | 8°41 | 5° 6 | 10°29 | 12°31 | 14° 0 | 11°20 | 13°35 | 24°43 | 8°11 | 9° 7 | 18°57 | 19°21 | M 9 |
| T 10 | 13 14 47 | 20°35'39 | 2°X57 | 9°42 | 6°20 | 10°59 | 12°31 | 14° 3 | 11°23 | 13°37 | 24°43 | 8° 8 | 9° 4 | 19° 4 | 19°25 | T 10 |
| W11 | 13 18 44 | 21°34'39 | 16°12 | 10°37 | 7°34 | 11°30 | 12°32 | 14° 5 | 11°27 | 13°39 | 24°43 | 8° 6 | 9° 1 | 19°11 | 19°29 | W11 |
| T 12 | 13 22 41 | 22°33'38 | 29°15 | 11°25 | 8°48 | 12° 0 | 12°33 | 14° 8 | 11°30 | 13°41 | 24°43 | 8° 4 | 8°58 | 19°17 | 19°32 | T 12 |
| F 13 | 13 26 37 | 23°32'34 | 12°Y 3 | 12° 7 | 10° 2 | 12°31 | 12°33 | 14°11 | 11°33 | 13°43 | 24°43 | 8° 2 | 8°54 | 19°24 | 19°36 | F 13 |
| S 14 | 13 30 34 | 24°31'29 | 24°38 | 12°43 | 11°16 | 13° 1 | 12°35 | 14°15 | 11°37 | 13°45 | 24°43 | 8° 1 | 8°51 | 19°31 | 19°40 | S 14 |
| S 15 | 13 34 30 | 25°30'21 | 7°Q 0 | 13°12 | 12°30 | 13°32 | 12°36 | 14°18 | 11°40 | 13°47 | 24°44 | 8°D 0 | 8°48 | 19°37 | 19°44 | S 15 |
| M16 | 13 38 27 | 26°29'12 | 19°10 | 13°34 | 13°44 | 14° 3 | 12°37 | 14°21 | 11°44 | 13°48 | 24°44 | 8° 1 | 8°45 | 19°44 | 19°48 | M16 |
| T 17 | 13 42 23 | 27°28'00 | 1°II11 | 13°51 | 14°58 | 14°34 | 12°39 | 14°25 | 11°47 | 13°50 | 24°44 | 8° 1 | 8°42 | 19°51 | 19°51 | T 17 |
| W18 | 13 46 20 | 28°26'47 | 13° 5 | 14° 0 | 16°12 | 15° 5 | 12°41 | 14°28 | 11°50 | 13°52 | 24°44 | 8° 2 | 8°38 | 19°58 | 19°55 | W18 |
| T 19 | 13 50 16 | 29°25'31 | 24°55 | 14°R 4 | 17°26 | 15°36 | 12°43 | 14°32 | 11°54 | 13°54 | 24°45 | 8° 3 | 8°35 | 20° 4 | 19°59 | T 19 |
| F 20 | 13 54 13 | 0°X24'13 | 6°Q45 | 14° 1 | 18°39 | 16° 8 | 12°45 | 14°36 | 11°57 | 13°55 | 24°45 | 8° 4 | 8°32 | 20°11 | 20° 3 | F 20 |
| S 21 | 13 58 10 | 1°22'53 | 18°40 | 13°52 | 19°53 | 16°39 | 12°47 | 14°40 | 12° 0 | 13°57 | 24°45 | 8° 5 | 8°29 | 20°18 | 20° 7 | S 21 |
| S 22 | 14 2 6 | 2°21'31 | 0°Q43 | 13°38 | 21° 7 | 17°11 | 12°50 | 14°44 | 12° 3 | 13°59 | 24°46 | 8°R 5 | 8°26 | 20°24 | 20°11 | S 22 |
| M23 | 14 6 3 | 3°20'06 | 13° 0 | 13°19 | 22°21 | 17°42 | 12°53 | 14°48 | 12° 7 | 14° 0 | 24°46 | 8° 5 | 8°23 | 20°31 | 20°15 | M23 |
| T 24 | 14 9 59 | 4°18'39 | 25°34 | 12°54 | 23°34 | 18°14 | 12°55 | 14°52 | 12°10 | 14° 2 | 24°46 | 8° 5 | 8°19 | 20°38 | 20°19 | T 24 |
| W25 | 14 13 56 | 5°17'10 | 8°M30 | 12°26 | 24°48 | 18°46 | 12°59 | 14°56 | 12°13 | 14° 4 | 24°47 | 8° 4 | 8°16 | 20°44 | 20°23 | W25 |
| T 26 | 14 17 52 | 6°15'39 | 21°50 | 11°54 | 26° 1 | 19°18 | 13° 2 | 15° 0 | 12°16 | 14° 5 | 24°47 | 8° 4 | 8°13 | 20°51 | 20°27 | T 26 |
| F 27 | 14 21 49 | 7°14'06 | 5°Q35 | 11°19 | 27°15 | 19°50 | 13° 5 | 15° 5 | 12°19 | 14° 7 | 24°48 | 8° 4 | 8°10 | 20°58 | 20°31 | F 27 |
| S 28 | 14 25 45 | 8°12'31 | 19°44 | 10°42 | 28°28 | 20°22 | 13° 9 | 15° 9 | 12°23 | 14° 8 | 24°48 | 8°D 4 | 8° 7 | 21° 4 | 20°35 | S 28 |
| S 29 | 14 29 42 | 9°10'54 | 4°M14 | 10° 3 | 29°42 | 20°54 | 13°13 | 15°14 | 12°26 | 14°10 | 24°49 | 8°R 4 | 8° 4 | 21°11 | 20°39 | S 29 |
| M30 | 14 33 39 | 10°X 9'15 | 19°M 0 | 9°X23 | 0°II55 | 21°Q26 | 13°Q16 | 15°Q18 | 12°Y29 | 14°X11 | 24°Q49 | 8°M 4 | 8°M 0 | 21°II18 | 20°X43 | M30 |

ASTRODIENST EPHEMERIS for the year 2181
geocentric

MAY 2181

00:00 UT

| Day | Sid.t | ☉ | ☽ | ♀ | ♂ | ♂ | ♂ | ♂ | ♂ | ♂ | ♂ | ♂ | ♂ | ♂ | ♂ | Day |
|------|----------|----------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|------|-------|-------|------|
| T 1 | 14 37 35 | 11♈ 7°35 | 3♊53 | 8°R43 | 2♊ 9 | 21♈59 | 13♈21 | 15♈23 | 12♊32 | 14♈13 | 24♈50 | 8°R 4 | 7♊57 | 21♊24 | 20♈47 | T 1 |
| W 2 | 14 41 32 | 12° 5'52 | 18°47 | 8♈ 3 | 3°22 | 22°31 | 13°25 | 15°28 | 12°35 | 14°14 | 24°50 | 8♊ 3 | 7°54 | 21°31 | 20°51 | W 2 |
| T 3 | 14 45 28 | 13° 4'09 | 3♈34 | 7°25 | 4°35 | 23° 4 | 13°29 | 15°33 | 12°38 | 14°16 | 24°51 | 8° 3 | 7°51 | 21°38 | 20°55 | T 3 |
| F 4 | 14 49 25 | 14° 2'23 | 18° 8 | 6°49 | 5°49 | 23°36 | 13°34 | 15°38 | 12°41 | 14°17 | 24°52 | 8° 2 | 7°48 | 21°44 | 20°59 | F 4 |
| S 5 | 14 53 21 | 15° 0'37 | 2♈24 | 6°15 | 7° 2 | 24° 9 | 13°39 | 15°43 | 12°44 | 14°18 | 24°52 | 8° 2 | 7°44 | 21°51 | 21° 4 | S 5 |
| S 6 | 14 57 18 | 15°58'48 | 16°20 | 5°44 | 8°15 | 24°42 | 13°43 | 15°48 | 12°47 | 14°20 | 24°53 | 8°D 2 | 7°41 | 21°58 | 21° 8 | S 6 |
| M 7 | 15 1 14 | 16°56'59 | 29°56 | 5°16 | 9°28 | 25°14 | 13°49 | 15°53 | 12°50 | 14°21 | 24°54 | 8° 2 | 7°38 | 22° 4 | 21°12 | M 7 |
| T 8 | 15 5 11 | 17°55'07 | 13♈11 | 4°53 | 10°42 | 25°47 | 13°54 | 15°58 | 12°53 | 14°22 | 24°55 | 8° 2 | 7°35 | 22°11 | 21°16 | T 8 |
| W 9 | 15 9 8 | 18°53'15 | 26° 9 | 4°33 | 11°55 | 26°20 | 13°59 | 16° 3 | 12°56 | 14°23 | 24°55 | 8° 3 | 7°32 | 22°18 | 21°20 | W 9 |
| T 10 | 15 13 4 | 19°51'21 | 8♊52 | 4°18 | 13° 8 | 26°53 | 14° 5 | 16° 9 | 12°59 | 14°25 | 24°56 | 8° 4 | 7°29 | 22°25 | 21°24 | T 10 |
| F 11 | 15 17 1 | 20°49'25 | 21°21 | 4° 7 | 14°21 | 27°26 | 14°10 | 16°14 | 13° 2 | 14°26 | 24°57 | 8° 5 | 7°25 | 22°31 | 21°28 | F 11 |
| S 12 | 15 20 57 | 21°47'28 | 3♈38 | 4° 1 | 15°34 | 28° 0 | 14°16 | 16°20 | 13° 5 | 14°27 | 24°58 | 8°R 6 | 7°22 | 22°38 | 21°32 | S 12 |
| S 13 | 15 24 54 | 22°45'30 | 15°46 | 4°D 0 | 16°47 | 28°33 | 14°22 | 16°25 | 13° 8 | 14°28 | 24°59 | 8° 6 | 7°19 | 22°45 | 21°36 | S 13 |
| M14 | 15 28 50 | 23°43'30 | 27°46 | 4° 3 | 18° 0 | 29° 6 | 14°28 | 16°31 | 13°10 | 14°29 | 24°59 | 8° 5 | 7°16 | 22°51 | 21°41 | M14 |
| T 15 | 15 32 47 | 24°41'28 | 9♊41 | 4°11 | 19°13 | 29°40 | 14°35 | 16°37 | 13°13 | 14°30 | 25° 0 | 8° 3 | 7°13 | 22°58 | 21°45 | T 15 |
| W16 | 15 36 43 | 25°39'25 | 21°32 | 4°24 | 20°26 | 0♊13 | 14°41 | 16°43 | 13°16 | 14°31 | 25° 1 | 8° 1 | 7° 9 | 23° 5 | 21°49 | W16 |
| T 17 | 15 40 40 | 26°37'21 | 3♈22 | 4°41 | 21°39 | 0°47 | 14°48 | 16°48 | 13°19 | 14°32 | 25° 2 | 7°58 | 7° 6 | 23°11 | 21°53 | T 17 |
| F 18 | 15 44 37 | 27°35'14 | 15°13 | 5° 2 | 22°52 | 1°20 | 14°54 | 16°54 | 13°21 | 14°33 | 25° 3 | 7°55 | 7° 3 | 23°18 | 21°57 | F 18 |
| S 19 | 15 48 33 | 28°33'06 | 27° 8 | 5°28 | 24° 4 | 1°54 | 15° 1 | 17° 0 | 13°24 | 14°34 | 25° 4 | 7°52 | 7° 0 | 23°25 | 22° 1 | S 19 |
| S 20 | 15 52 30 | 29°30'57 | 9♊11 | 5°58 | 25°17 | 2°28 | 15° 8 | 17° 6 | 13°27 | 14°35 | 25° 5 | 7°50 | 6°57 | 23°31 | 22° 5 | S 20 |
| M21 | 15 56 26 | 0♊28'45 | 21°26 | 6°32 | 26°30 | 3° 2 | 15°15 | 17°13 | 13°29 | 14°36 | 25° 6 | 7°49 | 6°54 | 23°38 | 22° 9 | M21 |
| T 22 | 16 0 23 | 1°26'32 | 3♊57 | 7°10 | 27°42 | 3°36 | 15°22 | 17°19 | 13°32 | 14°37 | 25° 7 | 7°D48 | 6°50 | 23°45 | 22°14 | T 22 |
| W23 | 16 4 19 | 2°24'17 | 16°47 | 7°52 | 28°55 | 4°10 | 15°30 | 17°25 | 13°34 | 14°37 | 25° 8 | 7°49 | 6°47 | 23°51 | 22°18 | W23 |
| T 24 | 16 8 16 | 3°22'01 | 0♊ 2 | 8°37 | 0°58 | 4°43 | 15°37 | 17°31 | 13°37 | 14°38 | 25° 9 | 7°50 | 6°44 | 23°58 | 22°22 | T 24 |
| F 25 | 16 12 12 | 4°19'43 | 13°42 | 9°26 | 1°20 | 5°18 | 15°45 | 17°38 | 13°39 | 14°39 | 25°10 | 7°52 | 6°41 | 24° 5 | 22°26 | F 25 |
| S 26 | 16 16 9 | 5°17'24 | 27°50 | 10°19 | 2°33 | 5°52 | 15°53 | 17°44 | 13°42 | 14°40 | 25°11 | 7°53 | 6°38 | 24°11 | 22°30 | S 26 |
| S 27 | 16 20 6 | 6°15'03 | 12♊23 | 11°14 | 3°45 | 6°26 | 16° 0 | 17°51 | 13°44 | 14°40 | 25°12 | 7°R53 | 6°35 | 24°18 | 22°34 | S 27 |
| M28 | 16 24 2 | 7°12'40 | 27°18 | 12°14 | 4°58 | 7° 0 | 16° 8 | 17°57 | 13°46 | 14°41 | 25°14 | 7°52 | 6°31 | 24°25 | 22°38 | M28 |
| T 29 | 16 27 59 | 8°10'17 | 12♊26 | 13°16 | 6°10 | 7°34 | 16°17 | 18° 4 | 13°49 | 14°42 | 25°15 | 7°50 | 6°28 | 24°32 | 22°42 | T 29 |
| W30 | 16 31 55 | 9° 7'52 | 27°39 | 14°21 | 7°22 | 8° 9 | 16°25 | 18°10 | 13°51 | 14°42 | 25°16 | 7°46 | 6°25 | 24°38 | 22°46 | W30 |
| T 31 | 16 35 52 | 10♊ 5'27 | 12♈46 | 15♈30 | 8♈35 | 8♊43 | 16♊33 | 18♈17 | 13♊53 | 14♈43 | 25♈17 | 7♊41 | 6♊22 | 24♊45 | 22♈50 | T 31 |

Delta T = 145.84 sec

JUNE 2181

00:00 UT

| Day | Sid.t | ☉ | ☽ | ♀ | ♂ | ♂ | ♂ | ♂ | ♂ | ♂ | ♂ | ♂ | ♂ | ♂ | ♂ | Day |
|------|----------|----------|-------|-------|-------|-------|-------|-------|-------|--------|-------|-------|------|-------|-------|------|
| F 1 | 16 39 48 | 11♊ 3'00 | 27♈39 | 16♈41 | 9♈47 | 9♊17 | 16♊42 | 18♈24 | 13♊56 | 14♈43 | 25♈18 | 7°R37 | 6♊19 | 24♊52 | 22♈54 | F 1 |
| S 2 | 16 43 45 | 12° 0'32 | 12♈10 | 17°55 | 10°59 | 9°52 | 16°50 | 18°30 | 13°58 | 14°44 | 25°19 | 7♊33 | 6°15 | 24°58 | 22°58 | S 2 |
| S 3 | 16 47 41 | 12°58'04 | 26°15 | 19°12 | 12°11 | 10°26 | 16°59 | 18°37 | 14° 0 | 14°44 | 25°21 | 7°31 | 6°12 | 25° 5 | 23° 2 | S 3 |
| M 4 | 16 51 38 | 13°55'35 | 9♈53 | 20°32 | 13°23 | 11° 1 | 17° 8 | 18°44 | 14° 2 | 14°45 | 25°22 | 7°D29 | 6° 9 | 25°12 | 23° 6 | M 4 |
| T 5 | 16 55 35 | 14°53'05 | 23° 6 | 21°55 | 14°35 | 11°36 | 17°17 | 18°51 | 14° 4 | 14°45 | 25°23 | 7°30 | 6° 6 | 25°18 | 23°10 | T 5 |
| W 6 | 16 59 31 | 15°50'34 | 5♊56 | 23°20 | 15°47 | 12°10 | 17°26 | 18°58 | 14° 6 | 14°46 | 25°24 | 7°31 | 6° 3 | 25°25 | 23°14 | W 6 |
| T 7 | 17 3 28 | 16°48'03 | 18°48 | 24°49 | 16°59 | 12°45 | 17°35 | 19° 5 | 14° 8 | 14°46 | 25°26 | 7°32 | 6° 0 | 25°32 | 23°17 | T 7 |
| F 8 | 17 7 24 | 17°45'30 | 0♈44 | 26°19 | 18°11 | 13°20 | 17°44 | 19°12 | 14°10 | 14°46 | 25°27 | 7°33 | 5°56 | 25°38 | 23°21 | F 8 |
| S 9 | 17 11 21 | 18°42'58 | 12°49 | 27°53 | 19°23 | 13°55 | 17°53 | 19°19 | 14°12 | 14°46 | 25°28 | 7°R34 | 5°53 | 25°45 | 23°25 | S 9 |
| S 10 | 17 15 17 | 19°40'24 | 24°47 | 29°29 | 20°35 | 14°30 | 18° 3 | 19°26 | 14°14 | 14°47 | 25°30 | 7°32 | 5°50 | 25°52 | 23°29 | S 10 |
| M11 | 17 19 14 | 20°37'50 | 6♊40 | 1♊ 8 | 21°47 | 15° 5 | 18°12 | 19°33 | 14°16 | 14°47 | 25°31 | 7°28 | 5°47 | 25°59 | 23°33 | M11 |
| T 12 | 17 23 10 | 21°35'15 | 18°30 | 2°49 | 22°59 | 15°40 | 18°22 | 19°40 | 14°17 | 14°47 | 25°32 | 7°23 | 5°44 | 26° 5 | 23°37 | T 12 |
| W13 | 17 27 7 | 22°32'39 | 0♈20 | 4°33 | 24°10 | 16°15 | 18°32 | 19°47 | 14°19 | 14°47 | 25°34 | 7°15 | 5°41 | 26°12 | 23°40 | W13 |
| T 14 | 17 31 4 | 23°30'03 | 12°11 | 6°20 | 25°22 | 16°50 | 18°41 | 19°55 | 14°21 | 14°47 | 25°35 | 7° 7 | 5°37 | 26°19 | 23°44 | T 14 |
| F 15 | 17 35 0 | 24°27'25 | 24° 5 | 8° 9 | 26°34 | 17°25 | 18°51 | 20° 2 | 14°22 | 14°47 | 25°37 | 6°58 | 5°34 | 26°25 | 23°48 | F 15 |
| S 16 | 17 38 57 | 25°24'47 | 6♊ 5 | 10° 1 | 27°45 | 18° 0 | 19° 1 | 20° 9 | 14°24 | 14°47 | 25°38 | 6°50 | 5°31 | 26°32 | 23°51 | S 16 |
| S 17 | 17 42 53 | 26°22'08 | 18°11 | 11°55 | 28°57 | 18°36 | 19°11 | 20°17 | 14°26 | 14°R47 | 25°39 | 6°43 | 5°28 | 26°39 | 23°55 | S 17 |
| M18 | 17 46 50 | 27°19'28 | 0♊18 | 13°51 | 0♊ 8 | 19°11 | 19°22 | 20°24 | 14°27 | 14°47 | 25°41 | 6°37 | 5°25 | 26°45 | 23°59 | M18 |
| T 19 | 17 50 46 | 28°16'47 | 12°59 | 15°50 | 1°19 | 19°46 | 19°32 | 20°31 | 14°29 | 14°47 | 25°42 | 6°34 | 5°21 | 26°52 | 24° 2 | T 19 |
| W20 | 17 54 43 | 29°14'05 | 25°46 | 17°51 | 2°31 | 20°22 | 19°42 | 20°39 | 14°30 | 14°47 | 25°44 | 6°D33 | 5°18 | 26°59 | 24° 6 | W20 |
| T 21 | 17 58 39 | 0♈11'22 | 8♈54 | 19°54 | 3°42 | 20°57 | 19°53 | 20°46 | 14°31 | 14°47 | 25°45 | 6°33 | 5°15 | 27° 5 | 24° 9 | T 21 |
| F 22 | 18 2 36 | 1° 8'39 | 22°27 | 21°59 | 4°53 | 21°33 | 20° 3 | 20°54 | 14°33 | 14°47 | 25°47 | 6°34 | 5°12 | 27°12 | 24°13 | F 22 |
| S 23 | 18 6 33 | 2° 5'55 | 6♊25 | 24° 5 | 6° 4 | 22° 8 | 20°14 | 21° 1 | 14°34 | 14°47 | 25°48 | 6°R34 | 5° 9 | 27°19 | 24°16 | S 23 |
| S 24 | 18 10 29 | 3° 3'10 | 20°50 | 26°13 | 7°15 | 22°44 | 20°24 | 21° 9 | 14°35 | 14°47 | 25°50 | 6°34 | 5° 6 | 27°26 | 24°20 | S 24 |
| M25 | 18 14 26 | 4° 0'25 | 5♊39 | 28°22 | 8°26 | 23°19 | 20°35 | 21°16 | 14°37 | 14°46 | 25°51 | 6°31 | 5° 2 | 27°32 | 24°23 | M25 |
| T 26 | 18 18 22 | 4°57'39 | 20°47 | 0♈33 | 9°37 | 23°55 | 20°46 | 21°24 | 14°38 | 14°46 | 25°53 | 6°26 | 4°59 | 27°39 | 24°27 | T 26 |
| W27 | 18 22 19 | 5°54'52 | 6♈ 3 | 2°43 | 10°48 | 24°31 | 20°57 | 21°31 | 14°39 | 14°46 | 25°54 | 6°18 | 4°56 | 27°46 | 24°30 | W27 |
| T 28 | 18 26 15 | 6°52'05 | 21°19 | 4°55 | 11°59 | 25° 6 | 21° 8 | 21°39 | 14°40 | 14°45 | 25°56 | 6°10 | 4°53 | 27°52 | 24°33 | T 28 |
| F 29 | 18 30 12 | 7°49'18 | 6♈22 | 7° 6 | 13°10 | 25°42 | 21°19 | 21°47 | 14°41 | 14°45 | 25°57 | 6° 1 | 4°50 | 27°59 | 24°37 | F 29 |
| S 30 | 18 34 8 | 8°46'31 | 21♈ 4 | 9♈17 | 14♊21 | 26♊18 | 21♊30 | 21♈54 | 14♊42 | 14♈45 | 25♈59 | 5♊53 | 4♊47 | 28♊ 6 | 24♈40 | S 30 |

Delta T = 145.91 sec

ASTRODIENST EPHEMERIS for the year 2181

geocentric

JULY 2181

00:00 UT

| Day | Sid.t | ☉ | ☽ | ♀ | ♂ | ♂ | ♂ | ♂ | ♂ | ♂ | ♂ | ♂ | ♂ | ♂ | ♂ | Day |
|------|----------|----------|-------|-------|--------|-------|-------|-------|--------|-------|-------|-------|------|-------|-------|------|
| S 1 | 18 38 5 | 9♂43'44 | 5♂19 | 11♂28 | 15♂231 | 26♂54 | 21♂41 | 22♂2 | 14♂43 | 14♂44 | 26♂0 | 5♂47 | 4♂43 | 28♂12 | 24♂43 | S 1 |
| M 2 | 18 42 2 | 10♂40'57 | 19° 5 | 13°38 | 16°42 | 27°30 | 21°53 | 22°10 | 14°44 | 14♂44 | 26° 2 | 5♂43 | 4°40 | 28°19 | 24°46 | M 2 |
| T 3 | 18 45 58 | 11°38'10 | 2♂21 | 15°47 | 17°52 | 28° 6 | 22° 4 | 22°17 | 14°45 | 14°43 | 26° 3 | 5°41 | 4°37 | 28°26 | 24°49 | T 3 |
| W 4 | 18 49 55 | 12°35'23 | 15°11 | 17°55 | 19° 3 | 28°42 | 22°15 | 22°25 | 14°45 | 14°43 | 26° 5 | 5°D40 | 4°34 | 28°32 | 24°53 | W 4 |
| T 5 | 18 53 51 | 13°32'36 | 27°40 | 20° 2 | 20°13 | 29°18 | 22°27 | 22°33 | 14°46 | 14°42 | 26° 7 | 5°41 | 4°31 | 28°39 | 24°56 | T 5 |
| F 6 | 18 57 48 | 14°29'49 | 9♂52 | 22° 8 | 21°23 | 29°54 | 22°38 | 22°41 | 14°47 | 14°41 | 26° 8 | 5°R41 | 4°27 | 28°46 | 24°59 | F 6 |
| S 7 | 19 1 44 | 15°27'03 | 21°52 | 24°11 | 22°33 | 0♂30 | 22°50 | 22°48 | 14°47 | 14°41 | 26°10 | 5°39 | 4°24 | 28°53 | 25° 2 | S 7 |
| S 8 | 19 5 41 | 16°24'17 | 3♂45 | 26°14 | 23°43 | 1° 6 | 23° 1 | 22°56 | 14°48 | 14°40 | 26°11 | 5°36 | 4°21 | 28°59 | 25° 5 | S 8 |
| M 9 | 19 9 37 | 17°21'31 | 15°34 | 28°14 | 24°54 | 1°42 | 23°13 | 23° 4 | 14°49 | 14°39 | 26°13 | 5°30 | 4°18 | 29° 6 | 25° 8 | M 9 |
| T 10 | 19 13 34 | 18°18'45 | 27°23 | 0♂13 | 26° 4 | 2°19 | 23°25 | 23°12 | 14°49 | 14°39 | 26°15 | 5°21 | 4°15 | 29°13 | 25°10 | T 10 |
| W 11 | 19 17 31 | 19°15'59 | 9♂14 | 2°10 | 27°13 | 2°55 | 23°37 | 23°19 | 14°50 | 14°38 | 26°16 | 5°10 | 4°12 | 29°19 | 25°13 | W 11 |
| T 12 | 19 21 27 | 20°13'14 | 21°10 | 4° 5 | 28°23 | 3°31 | 23°49 | 23°27 | 14°50 | 14°37 | 26°18 | 4°58 | 4° 8 | 29°26 | 25°16 | T 12 |
| F 13 | 19 25 24 | 21°10'28 | 3♂11 | 5°58 | 29°33 | 4° 8 | 24° 1 | 23°35 | 14°50 | 14°36 | 26°19 | 4°45 | 4° 5 | 29°33 | 25°19 | F 13 |
| S 14 | 19 29 20 | 22° 7'43 | 15°18 | 7°49 | 0♂43 | 4°44 | 24°13 | 23°43 | 14°51 | 14°36 | 26°21 | 4°32 | 4° 2 | 29°39 | 25°21 | S 14 |
| S 15 | 19 33 17 | 23° 4'58 | 27°34 | 9°38 | 1°52 | 5°21 | 24°25 | 23°50 | 14°51 | 14°35 | 26°23 | 4°21 | 3°59 | 29°46 | 25°24 | S 15 |
| M 16 | 19 37 13 | 24° 2'13 | 9♂59 | 11°25 | 3° 2 | 5°57 | 24°37 | 23°58 | 14°51 | 14°34 | 26°24 | 4°12 | 3°56 | 29°53 | 25°27 | M 16 |
| T 17 | 19 41 10 | 24°59'28 | 22°36 | 13°11 | 4°11 | 6°34 | 24°49 | 24° 6 | 14°51 | 14°33 | 26°26 | 4° 6 | 3°53 | 29°59 | 25°29 | T 17 |
| W 18 | 19 45 6 | 25°56'43 | 5♂27 | 14°54 | 5°20 | 7°10 | 25° 1 | 24°14 | 14°51 | 14°32 | 26°27 | 4° 3 | 3°49 | 0♂6 | 25°32 | W 18 |
| T 19 | 19 49 3 | 26°53'58 | 18°35 | 16°36 | 6°30 | 7°47 | 25°13 | 24°22 | 14°51 | 14°31 | 26°29 | 4° 1 | 3°46 | 0°13 | 25°34 | T 19 |
| F 20 | 19 53 0 | 27°51'13 | 2♂2 | 18°15 | 7°39 | 8°24 | 25°25 | 24°29 | 14°R51 | 14°30 | 26°31 | 4° 1 | 3°43 | 0°20 | 25°37 | F 20 |
| S 21 | 19 56 56 | 28°48'28 | 15°51 | 19°53 | 8°48 | 9° 0 | 25°38 | 24°37 | 14°51 | 14°29 | 26°32 | 4° 1 | 3°40 | 0°26 | 25°39 | S 21 |
| S 22 | 20 0 53 | 29°45'44 | 0♂4 | 21°29 | 9°57 | 9°37 | 25°50 | 24°45 | 14°51 | 14°28 | 26°34 | 4° 0 | 3°37 | 0°33 | 25°41 | S 22 |
| M 23 | 20 4 49 | 0♂43'00 | 14°38 | 23° 2 | 11° 5 | 10°14 | 26° 3 | 24°53 | 14°51 | 14°27 | 26°35 | 3°56 | 3°33 | 0°40 | 25°44 | M 23 |
| T 24 | 20 8 46 | 1°40'16 | 29°32 | 24°34 | 12°14 | 10°51 | 26°15 | 25° 0 | 14°51 | 14°26 | 26°37 | 3°49 | 3°30 | 0°46 | 25°46 | T 24 |
| W 25 | 20 12 42 | 2°37'32 | 14♂37 | 26° 4 | 13°23 | 11°28 | 26°27 | 25° 8 | 14°51 | 14°25 | 26°39 | 3°40 | 3°27 | 0°53 | 25°48 | W 25 |
| T 26 | 20 16 39 | 3°34'49 | 29°44 | 27°32 | 14°31 | 12° 5 | 26°40 | 25°16 | 14°50 | 14°24 | 26°40 | 3°30 | 3°24 | 1° 0 | 25°50 | T 26 |
| F 27 | 20 20 35 | 4°32'06 | 14♂44 | 28°58 | 15°39 | 12°42 | 26°52 | 25°24 | 14°50 | 14°23 | 26°42 | 3°19 | 3°21 | 1° 7 | 25°52 | F 27 |
| S 28 | 20 24 32 | 5°29'24 | 29°26 | 0♂22 | 16°48 | 13°19 | 27° 5 | 25°31 | 14°50 | 14°21 | 26°43 | 3° 9 | 3°18 | 1°13 | 25°54 | S 28 |
| S 29 | 20 28 29 | 6°26'43 | 13♂44 | 1°44 | 17°56 | 13°56 | 27°18 | 25°39 | 14°49 | 14°20 | 26°45 | 3° 1 | 3°14 | 1°20 | 25°56 | S 29 |
| M 30 | 20 32 25 | 7°24'02 | 27°43 | 3° 4 | 19° 4 | 14°33 | 27°30 | 25°47 | 14°49 | 14°19 | 26°47 | 2°55 | 3°11 | 1°27 | 25°58 | M 30 |
| T 31 | 20 36 22 | 8♂21'23 | 10♂53 | 4♂21 | 20♂11 | 15♂10 | 27♂43 | 25♂54 | 14♂48 | 14♂18 | 26♂48 | 2♂51 | 3♂8 | 1♂33 | 26♂0 | T 31 |

Delta T = 145.99 sec

AUGUST 2181

00:00 UT

| Day | Sid.t | ☉ | ☽ | ♀ | ♂ | ♂ | ♂ | ♂ | ♂ | ♂ | ♂ | ♂ | ♂ | ♂ | ♂ | Day |
|------|----------|----------|-------|--------|-------|-------|-------|-------|--------|--------|-------|-------|------|------|--------|------|
| W 1 | 20 40 18 | 9♂18'44 | 23♂47 | 5♂37 | 21♂19 | 15♂47 | 27♂56 | 26♂2 | 14°R48 | 14°R17 | 26♂50 | 2°R50 | 3♂5 | 1♂40 | 26♂2 | W 1 |
| T 2 | 20 44 15 | 10°16'06 | 6♂18 | 6°50 | 22°27 | 16°24 | 28° 8 | 26°10 | 14°47 | 14°15 | 26°51 | 2♂50 | 3° 2 | 1°47 | 26° 4 | T 2 |
| F 3 | 20 48 11 | 11°13'30 | 18°30 | 8° 1 | 23°34 | 17° 2 | 28°21 | 26°17 | 14°46 | 14°14 | 26°53 | 2°50 | 2°59 | 1°53 | 26° 5 | F 3 |
| S 4 | 20 52 8 | 12°10'55 | 0♂30 | 9°10 | 24°42 | 17°39 | 28°34 | 26°25 | 14°46 | 14°13 | 26°55 | 2°49 | 2°55 | 2° 0 | 26° 7 | S 4 |
| S 5 | 20 56 4 | 13° 8'21 | 12°22 | 10°16 | 25°49 | 18°16 | 28°47 | 26°33 | 14°45 | 14°11 | 26°56 | 2°46 | 2°52 | 2° 7 | 26° 9 | S 5 |
| M 6 | 21 0 1 | 14° 5'48 | 24°12 | 11°20 | 26°56 | 18°54 | 29° 0 | 26°40 | 14°44 | 14°10 | 26°58 | 2°40 | 2°49 | 2°14 | 26°10 | M 6 |
| T 7 | 21 3 58 | 15° 3'16 | 6♂2 | 12°21 | 28° 3 | 19°31 | 29°12 | 26°48 | 14°43 | 14° 9 | 26°59 | 2°32 | 2°46 | 2°20 | 26°12 | T 7 |
| W 8 | 21 7 54 | 16° 0'45 | 17°58 | 13°19 | 29°10 | 20° 9 | 29°25 | 26°55 | 14°43 | 14° 7 | 27° 1 | 2°21 | 2°43 | 2°27 | 26°13 | W 8 |
| T 9 | 21 11 51 | 16°58'15 | 29°59 | 14°15 | 0♂16 | 20°46 | 29°38 | 27° 3 | 14°42 | 14° 6 | 27° 2 | 2° 8 | 2°39 | 2°34 | 26°14 | T 9 |
| F 10 | 21 15 47 | 17°55'46 | 12♂10 | 15° 7 | 1°23 | 21°24 | 29°51 | 27°10 | 14°41 | 14° 4 | 27° 4 | 1°55 | 2°36 | 2°40 | 26°16 | F 10 |
| S 11 | 21 19 44 | 18°53'19 | 24°30 | 15°56 | 2°29 | 22° 1 | 0♂4 | 27°18 | 14°40 | 14° 3 | 27° 5 | 1°43 | 2°33 | 2°47 | 26°17 | S 11 |
| S 12 | 21 23 40 | 19°50'52 | 7♂0 | 16°42 | 3°35 | 22°39 | 0°17 | 27°25 | 14°39 | 14° 1 | 27° 7 | 1°32 | 2°30 | 2°54 | 26°18 | S 12 |
| M 13 | 21 27 37 | 20°48'26 | 19°40 | 17°25 | 4°42 | 23°17 | 0°30 | 27°32 | 14°37 | 14° 0 | 27° 8 | 1°23 | 2°27 | 3° 1 | 26°19 | M 13 |
| T 14 | 21 31 33 | 21°46'02 | 2♂31 | 18° 3 | 5°47 | 23°54 | 0°43 | 27°40 | 14°36 | 13°58 | 27°10 | 1°18 | 2°24 | 3° 7 | 26°20 | T 14 |
| W 15 | 21 35 30 | 22°43'38 | 15°34 | 18°38 | 6°53 | 24°32 | 0°56 | 27°47 | 14°35 | 13°57 | 27°11 | 1°14 | 2°20 | 3°14 | 26°21 | W 15 |
| T 16 | 21 39 27 | 23°41'15 | 28°51 | 19° 9 | 7°59 | 25°10 | 1° 9 | 27°54 | 14°34 | 13°55 | 27°13 | 1°D13 | 2°17 | 3°21 | 26°22 | T 16 |
| F 17 | 21 43 23 | 24°38'53 | 12♂21 | 19°35 | 9° 4 | 25°48 | 1°22 | 28° 2 | 14°33 | 13°54 | 27°14 | 1°14 | 2°14 | 3°27 | 26°23 | F 17 |
| S 18 | 21 47 20 | 25°36'32 | 26° 8 | 19°57 | 10° 9 | 26°26 | 1°35 | 28° 9 | 14°31 | 13°52 | 27°16 | 1°R14 | 2°11 | 3°34 | 26°24 | S 18 |
| S 19 | 21 51 16 | 26°34'12 | 10♂12 | 20°14 | 11°14 | 27° 4 | 1°48 | 28°16 | 14°30 | 13°51 | 27°17 | 1°13 | 2° 8 | 3°41 | 26°25 | S 19 |
| M 20 | 21 55 13 | 27°31'53 | 24°32 | 20°27 | 12°19 | 27°42 | 2° 1 | 28°23 | 14°29 | 13°49 | 27°19 | 1°11 | 2° 4 | 3°47 | 26°25 | M 20 |
| T 21 | 21 59 9 | 28°29'36 | 9♂6 | 20°34 | 13°23 | 28°20 | 2°14 | 28°30 | 14°27 | 13°48 | 27°20 | 1° 6 | 2° 1 | 3°54 | 26°26 | T 21 |
| W 22 | 22 3 6 | 29°27'19 | 23°49 | 20°R35 | 14°28 | 28°58 | 2°27 | 28°37 | 14°26 | 13°46 | 27°21 | 0°58 | 1°58 | 4° 1 | 26°27 | W 22 |
| T 23 | 22 7 2 | 0♂25'03 | 8♂35 | 20°31 | 15°32 | 29°36 | 2°40 | 28°44 | 14°24 | 13°45 | 27°23 | 0°50 | 1°55 | 4° 8 | 26°27 | T 23 |
| F 24 | 22 10 59 | 1°22'48 | 23°16 | 20°21 | 16°36 | 0♂14 | 2°53 | 28°51 | 14°23 | 13°43 | 27°24 | 0°41 | 1°52 | 4°14 | 26°28 | F 24 |
| S 25 | 22 14 56 | 2°20'35 | 7♂44 | 20° 6 | 17°39 | 0°52 | 3° 7 | 28°58 | 14°21 | 13°41 | 27°26 | 0°32 | 1°49 | 4°21 | 26°28 | S 25 |
| S 26 | 22 18 52 | 3°18'23 | 21°52 | 19°44 | 18°43 | 1°31 | 3°20 | 29° 5 | 14°19 | 13°40 | 27°27 | 0°25 | 1°45 | 4°28 | 26°29 | S 26 |
| M 27 | 22 22 49 | 4°16'13 | 5♂37 | 19°17 | 19°46 | 2° 9 | 3°33 | 29°12 | 14°18 | 13°38 | 27°28 | 0°20 | 1°42 | 4°34 | 26°29 | M 27 |
| T 28 | 22 26 45 | 5°14'04 | 18°56 | 18°45 | 20°49 | 2°47 | 3°46 | 29°19 | 14°16 | 13°36 | 27°30 | 0°18 | 1°39 | 4°41 | 26°29 | T 28 |
| W 29 | 22 30 42 | 6°11'57 | 1♂51 | 18° 6 | 21°52 | 3°26 | 3°59 | 29°26 | 14°14 | 13°35 | 27°31 | 0°D17 | 1°36 | 4°48 | 26°29 | W 29 |
| T 30 | 22 34 38 | 7° 9'52 | 14°24 | 17°23 | 22°54 | 4° 4 | 4°12 | 29°33 | 14°13 | 13°33 | 27°32 | 0°18 | 1°33 | 4°55 | 26°29 | T 30 |
| F 31 | 22 38 35 | 8♂7'49 | 26♂39 | 16♂36 | 23♂56 | 4♂42 | 4♂25 | 29♂39 | 14♂11 | 13♂32 | 27♂33 | 0♂19 | 1♂30 | 5♂1 | 26°R29 | F 31 |

Delta T = 146.06 sec

ASTRODIENST EPHEMERIS for the year 2181

geocentric

SEPTEMBER 2181

00:00 UT

| Day | Sid.t | ☉ | ☽ | ♀ | ♂ | ♂ | ♂ | ♂ | ♂ | ♂ | ♂ | ♂ | ♂ | ♂ | ♂ | Day |
|------|----------|----------|-------|--------|-------|-------|-------|-------|--------|--------|-------|--------|-------|------|--------|------|
| S 1 | 22 42 31 | 9♍ 5'47 | 8♏41 | 15°R45 | 24♌58 | 5♌21 | 4♍38 | 29♎46 | 14°R 9 | 13°R30 | 27♎35 | 0°R19 | 1♍26 | 5♎8 | 26°R29 | S 1 |
| S 2 | 22 46 28 | 10° 3'48 | 20°35 | 14♍50 | 26° 0 | 6° 0 | 4°51 | 29°52 | 14°Y 7 | 13°K28 | 27°36 | 0♍19 | 1°23 | 5°15 | 26°R29 | S 2 |
| M 3 | 22 50 25 | 11° 1'50 | 20°26 | 13°54 | 27° 1 | 6°38 | 5° 4 | 29°59 | 14° 5 | 13°27 | 27°37 | 0°16 | 1°20 | 5°21 | 26°29 | M 3 |
| T 4 | 22 54 21 | 11°59'54 | 14°19 | 12°57 | 28° 2 | 7°17 | 5°17 | 0♌6 | 14° 3 | 13°25 | 27°38 | 0°12 | 1°17 | 5°28 | 26°29 | T 4 |
| W 5 | 22 58 18 | 12°58'00 | 26°18 | 12° 1 | 29° 3 | 7°55 | 5°30 | 0°12 | 14° 1 | 13°23 | 27°40 | 0° 5 | 1°14 | 5°35 | 26°29 | W 5 |
| T 6 | 23 2 14 | 13°56'07 | 8♏26 | 11° 6 | 0♍3 | 8°34 | 5°43 | 0°18 | 13°59 | 13°22 | 27°41 | 29♌58 | 1°10 | 5°41 | 26°28 | T 6 |
| F 7 | 23 6 11 | 14°54'17 | 20°46 | 10°14 | 1° 4 | 9°13 | 5°56 | 0°25 | 13°57 | 13°20 | 27°42 | 29°49 | 1° 7 | 5°48 | 26°28 | F 7 |
| S 8 | 23 10 7 | 15°52'28 | 3♍18 | 9°26 | 2° 3 | 9°52 | 6° 9 | 0°31 | 13°55 | 13°18 | 27°43 | 29°41 | 1° 4 | 5°55 | 26°28 | S 8 |
| S 9 | 23 14 4 | 16°50'41 | 16° 5 | 8°43 | 3° 3 | 10°31 | 6°22 | 0°37 | 13°53 | 13°17 | 27°44 | 29°34 | 1° 1 | 6° 2 | 26°27 | S 9 |
| M10 | 23 18 0 | 17°48'56 | 29° 4 | 8° 6 | 4° 2 | 11°10 | 6°35 | 0°43 | 13°51 | 13°15 | 27°45 | 29°29 | 0°58 | 6° 8 | 26°26 | M10 |
| T 11 | 23 21 57 | 18°47'12 | 12♌17 | 7°37 | 5° 0 | 11°49 | 6°48 | 0°49 | 13°49 | 13°13 | 27°47 | 29°26 | 0°55 | 6°15 | 26°26 | T 11 |
| W12 | 23 25 53 | 19°45'30 | 25°41 | 7°15 | 5°59 | 12°28 | 7° 1 | 0°55 | 13°47 | 13°12 | 27°48 | 29°D24 | 0°51 | 6°22 | 26°25 | W12 |
| T 13 | 23 29 50 | 20°43'50 | 9♍16 | 7° 2 | 6°57 | 13° 7 | 7°14 | 1° 1 | 13°45 | 13°10 | 27°49 | 29°25 | 0°48 | 6°28 | 26°24 | T 13 |
| F 14 | 23 33 47 | 21°42'11 | 23° 2 | 6°D58 | 7°54 | 13°46 | 7°27 | 1° 7 | 13°43 | 13° 9 | 27°50 | 29°26 | 0°45 | 6°35 | 26°24 | F 14 |
| S 15 | 23 37 43 | 22°40'34 | 6♌57 | 7° 3 | 8°51 | 14°25 | 7°40 | 1°13 | 13°40 | 13° 7 | 27°51 | 29°27 | 0°42 | 6°42 | 26°23 | S 15 |
| S 16 | 23 41 40 | 23°38'59 | 21° 1 | 7°17 | 9°48 | 15° 4 | 7°52 | 1°19 | 13°38 | 13° 5 | 27°52 | 29°R28 | 0°39 | 6°49 | 26°22 | S 16 |
| M17 | 23 45 36 | 24°37'25 | 5♌13 | 7°40 | 10°44 | 15°44 | 8° 5 | 1°25 | 13°36 | 13° 4 | 27°53 | 29°28 | 0°36 | 6°55 | 26°21 | M17 |
| T 18 | 23 49 33 | 25°35'52 | 19°31 | 8°13 | 11°40 | 16°23 | 8°18 | 1°30 | 13°34 | 13° 2 | 27°54 | 29°26 | 0°32 | 7° 2 | 26°20 | T 18 |
| W19 | 23 53 29 | 26°34'21 | 3♌51 | 8°54 | 12°35 | 17° 2 | 8°31 | 1°36 | 13°31 | 13° 0 | 27°55 | 29°22 | 0°29 | 7° 9 | 26°19 | W19 |
| T 20 | 23 57 26 | 27°32'52 | 18°11 | 9°43 | 13°29 | 17°42 | 8°43 | 1°41 | 13°29 | 12°59 | 27°56 | 29°18 | 0°26 | 7°15 | 26°17 | T 20 |
| F 21 | 0 1 22 | 28°31'24 | 2♌24 | 10°40 | 14°23 | 18°21 | 8°56 | 1°47 | 13°27 | 12°57 | 27°57 | 29°13 | 0°23 | 7°22 | 26°16 | F 21 |
| S 22 | 0 5 19 | 29°29'58 | 16°27 | 11°44 | 15°17 | 19° 1 | 9° 9 | 1°52 | 13°24 | 12°56 | 27°57 | 29° 9 | 0°20 | 7°29 | 26°15 | S 22 |
| S 23 | 0 9 16 | 0♌28'34 | 0°Y15 | 12°56 | 16°10 | 19°40 | 9°21 | 1°57 | 13°22 | 12°54 | 27°58 | 29° 6 | 0°16 | 7°36 | 26°14 | S 23 |
| M24 | 0 13 12 | 1°27'12 | 13°44 | 14°13 | 17° 2 | 20°20 | 9°34 | 2° 3 | 13°20 | 12°53 | 27°59 | 29° 3 | 0°13 | 7°42 | 26°12 | M24 |
| T 25 | 0 17 9 | 2°25'52 | 26°54 | 15°35 | 17°54 | 20°59 | 9°47 | 2° 8 | 13°17 | 12°51 | 28° 0 | 29°D 2 | 0°10 | 7°49 | 26°11 | T 25 |
| W26 | 0 21 5 | 3°24'33 | 9♌44 | 17° 3 | 18°45 | 21°39 | 9°59 | 2°13 | 13°15 | 12°50 | 28° 1 | 29° 3 | 0° 7 | 7°56 | 26° 9 | W26 |
| T 27 | 0 25 2 | 4°23'17 | 22°15 | 18°35 | 19°35 | 22°19 | 10°12 | 2°18 | 13°13 | 12°48 | 28° 2 | 29° 4 | 0° 4 | 8° 2 | 26° 8 | T 27 |
| F 28 | 0 28 58 | 5°22'04 | 4♏31 | 20°10 | 20°25 | 22°58 | 10°24 | 2°23 | 13°10 | 12°47 | 28° 2 | 29° 6 | 0° 1 | 8° 9 | 26° 6 | F 28 |
| S 29 | 0 32 55 | 6°20'52 | 16°34 | 21°48 | 21°14 | 23°38 | 10°36 | 2°27 | 13° 8 | 12°45 | 28° 3 | 29° 7 | 29♌57 | 8°16 | 26° 4 | S 29 |
| S 30 | 0 36 51 | 7♌19'43 | 28♏29 | 23♍29 | 22♍2 | 24♌18 | 10♍49 | 2♌32 | 13°Y 5 | 12°K44 | 28♎4 | 29♌8 | 29♌54 | 8♎23 | 26°R 3 | S 30 |

Delta T = 146.13 sec

OCTOBER 2181

00:00 UT

| Day | Sid.t | ☉ | ☽ | ♀ | ♂ | ♂ | ♂ | ♂ | ♂ | ♂ | ♂ | ♂ | ♂ | ♂ | ♂ | Day |
|------|---------|----------|-------|-------|-------|-------|-------|------|--------|--------|--------|--------|-------|-------|--------|------|
| M 1 | 0 40 48 | 8♌18'36 | 10♎22 | 25♍12 | 22♍50 | 24♌58 | 11♍1 | 2♌37 | 13°R 3 | 12°R42 | 28♎5 | 29°R 9 | 29♌51 | 8♎29 | 26°R 1 | M 1 |
| T 2 | 0 44 45 | 9°17'31 | 22°16 | 26°56 | 23°36 | 25°38 | 11°13 | 2°41 | 13°Y 1 | 12°K41 | 28° 5 | 29♌8 | 29°48 | 8°36 | 25°R59 | T 2 |
| W 3 | 0 48 41 | 10°16'28 | 4♏16 | 28°42 | 24°22 | 26°18 | 11°26 | 2°46 | 12°58 | 12°39 | 28° 6 | 29° 7 | 29°45 | 8°43 | 25°57 | W 3 |
| T 4 | 0 52 38 | 11°15'28 | 16°27 | 0♌28 | 25° 7 | 26°58 | 11°38 | 2°50 | 12°56 | 12°38 | 28° 7 | 29° 4 | 29°41 | 8°49 | 25°55 | T 4 |
| F 5 | 0 56 34 | 12°14'30 | 28°51 | 2°15 | 25°51 | 27°38 | 11°50 | 2°55 | 12°53 | 12°36 | 28° 7 | 29° 2 | 29°38 | 8°56 | 25°53 | F 5 |
| S 6 | 1 0 31 | 13°13'34 | 11♍33 | 4° 2 | 26°34 | 28°18 | 12° 2 | 2°59 | 12°51 | 12°35 | 28° 8 | 28°59 | 29°35 | 9° 3 | 25°51 | S 6 |
| S 7 | 1 4 27 | 14°12'40 | 24°33 | 5°50 | 27°16 | 28°59 | 12°14 | 3° 3 | 12°48 | 12°34 | 28° 8 | 28°57 | 29°32 | 9°10 | 25°49 | S 7 |
| M 8 | 1 8 24 | 15°11'48 | 7♌51 | 7°37 | 27°57 | 29°39 | 12°26 | 3° 7 | 12°46 | 12°32 | 28° 9 | 28°56 | 29°29 | 9°16 | 25°47 | M 8 |
| T 9 | 1 12 20 | 16°10'59 | 21°26 | 9°25 | 28°37 | 0♍19 | 12°38 | 3°11 | 12°44 | 12°31 | 28° 9 | 28°55 | 29°26 | 9°23 | 25°45 | T 9 |
| W10 | 1 16 17 | 17°10'11 | 5♍16 | 11°12 | 29°16 | 1° 0 | 12°50 | 3°15 | 12°41 | 12°30 | 28°10 | 28°D55 | 29°22 | 9°30 | 25°43 | W10 |
| T 11 | 1 20 13 | 18° 9'26 | 19°19 | 12°58 | 29°54 | 1°40 | 13° 1 | 3°19 | 12°39 | 12°29 | 28°10 | 28°56 | 29°19 | 9°36 | 25°40 | T 11 |
| F 12 | 1 24 10 | 19° 8'42 | 3♌29 | 14°44 | 0♌30 | 2°20 | 13°13 | 3°22 | 12°36 | 12°27 | 28°11 | 28°56 | 29°16 | 9°43 | 25°38 | F 12 |
| S 13 | 1 28 7 | 20° 8'00 | 17°45 | 16°30 | 1° 6 | 3° 1 | 13°25 | 3°26 | 12°34 | 12°26 | 28°11 | 28°57 | 29°13 | 9°50 | 25°36 | S 13 |
| S 14 | 1 32 3 | 21° 7'20 | 2♌2 | 18°15 | 1°40 | 3°42 | 13°36 | 3°29 | 12°32 | 12°25 | 28°11 | 28°58 | 29°10 | 9°57 | 25°33 | S 14 |
| M15 | 1 36 0 | 22° 6'42 | 16°17 | 19°59 | 2°12 | 4°22 | 13°48 | 3°33 | 12°29 | 12°24 | 28°12 | 28°R58 | 29° 7 | 10° 3 | 25°31 | M15 |
| T 16 | 1 39 56 | 23° 6'05 | 0♌28 | 21°43 | 2°43 | 5° 3 | 13°59 | 3°36 | 12°27 | 12°22 | 28°12 | 28°58 | 29° 3 | 10°10 | 25°28 | T 16 |
| W17 | 1 43 53 | 24° 5'30 | 14°33 | 23°26 | 3°13 | 5°44 | 14°11 | 3°39 | 12°24 | 12°21 | 28°12 | 28°58 | 29° 0 | 10°17 | 25°26 | W17 |
| T 18 | 1 47 49 | 25° 4'57 | 28°29 | 25° 8 | 3°41 | 6°24 | 14°22 | 3°42 | 12°22 | 12°20 | 28°13 | 28°58 | 28°57 | 10°23 | 25°23 | T 18 |
| F 19 | 1 51 46 | 26° 4'25 | 12♌15 | 26°50 | 4° 8 | 7° 5 | 14°33 | 3°45 | 12°20 | 12°19 | 28°13 | 28°57 | 28°54 | 10°30 | 25°21 | F 19 |
| S 20 | 1 55 42 | 27° 3'55 | 25°49 | 28°31 | 4°33 | 7°46 | 14°45 | 3°48 | 12°17 | 12°18 | 28°13 | 28°57 | 28°51 | 10°37 | 25°18 | S 20 |
| S 21 | 1 59 39 | 28° 3'27 | 9°Y11 | 0♍11 | 4°56 | 8°27 | 14°56 | 3°51 | 12°15 | 12°17 | 28°13 | 28°57 | 28°47 | 10°44 | 25°15 | S 21 |
| M22 | 2 3 36 | 29° 3'01 | 22°18 | 1°51 | 5°17 | 9° 8 | 15° 7 | 3°54 | 12°13 | 12°16 | 28°14 | 28°57 | 28°44 | 10°50 | 25°13 | M22 |
| T 23 | 2 7 32 | 0♍23'57 | 5♌11 | 3°30 | 5°36 | 9°49 | 15°18 | 3°56 | 12°11 | 12°15 | 28°14 | 28°57 | 28°41 | 10°57 | 25°10 | T 23 |
| W24 | 2 11 29 | 1° 2'15 | 17°49 | 5° 9 | 5°54 | 10°30 | 15°29 | 3°59 | 12° 8 | 12°14 | 28°14 | 28°57 | 28°38 | 11° 4 | 25° 7 | W24 |
| T 25 | 2 15 25 | 2° 1'55 | 0♏13 | 6°46 | 6°10 | 11°11 | 15°40 | 4° 1 | 12° 6 | 12°13 | 28°14 | 28°56 | 28°35 | 11°10 | 25° 4 | T 25 |
| F 26 | 2 19 22 | 3° 1'37 | 12°25 | 8°24 | 6°23 | 11°52 | 15°50 | 4° 4 | 12° 4 | 12°12 | 28°14 | 28°56 | 28°32 | 11°17 | 25° 2 | F 26 |
| S 27 | 2 23 18 | 4° 1'22 | 24°28 | 10° 0 | 6°35 | 12°33 | 16° 1 | 4° 6 | 12° 2 | 12°11 | 28°14 | 28°55 | 28°28 | 11°24 | 24°59 | S 27 |
| S 28 | 2 27 15 | 5° 1'08 | 6♎23 | 11°36 | 6°44 | 13°15 | 16°12 | 4° 8 | 11°59 | 12°11 | 28°14 | 28°55 | 28°25 | 11°31 | 24°56 | S 28 |
| M29 | 2 31 11 | 6° 0'57 | 18°15 | 13°12 | 6°51 | 13°56 | 16°22 | 4°10 | 11°57 | 12°10 | 28°R14 | 28°54 | 28°22 | 11°37 | 24°53 | M29 |
| T 30 | 2 35 8 | 7° 0'48 | 0♌8 | 14°47 | 6°56 | 14°37 | 16°32 | 4°12 | 11°55 | 12° 9 | 28°14 | 28°54 | 28°19 | 11°44 | 24°50 | T 30 |
| W31 | 2 39 5 | 8♍0'41 | 12♌7 | 16♍22 | 6♌59 | 15♍19 | 16♍43 | 4♌13 | 11°Y53 | 12°K 8 | 28♎14 | 28°D54 | 28♌16 | 11♎51 | 24°R47 | W31 |

Delta T = 146.20 sec

ASTRODIENST EPHEMERIS for the year 2181
geocentric

NOVEMBER 2181

00:00 UT

| Day | Sid.t | ☉ | ☽ | ♀ | ♂ | ♂ | ♂ | ♂ | ♂ | ♂ | ♂ | ♂ | ♂ | ♂ | ♂ | Day |
|------|---------|----------|-------|-------|-------|-------|-------|-------|--------|--------|--------|--------|-------|-------|--------|------|
| T 1 | 2 43 1 | 9♉ 0'36 | 24♏16 | 17♉56 | 6°R59 | 16♉ 0 | 16♉53 | 4♏15 | 11°R51 | 12°R 7 | 28°R14 | 28♏54 | 28♏12 | 11♏57 | 24°R44 | T 1 |
| F 2 | 2 46 58 | 10° 0'33 | 6♏40 | 19°29 | 6♏57 | 16°42 | 17° 3 | 4°17 | 11°Y49 | 12°R 7 | 28♏14 | 28°55 | 28° 9 | 12° 4 | 24♏41 | F 2 |
| S 3 | 2 50 54 | 11° 0'33 | 19°22 | 21° 2 | 6°52 | 17°23 | 17°13 | 4°18 | 11°47 | 12° 6 | 28°14 | 28°56 | 28° 6 | 12°11 | 24°38 | S 3 |
| S 4 | 2 54 51 | 12° 0'34 | 2♏27 | 22°35 | 6°45 | 18° 5 | 17°23 | 4°19 | 11°45 | 12° 5 | 28°14 | 28°57 | 28° 3 | 12°18 | 24°35 | S 4 |
| M 5 | 2 58 47 | 13° 0'38 | 15°55 | 24° 7 | 6°36 | 18°47 | 17°33 | 4°21 | 11°43 | 12° 5 | 28°14 | 28°58 | 28° 0 | 12°24 | 24°32 | M 5 |
| T 6 | 3 2 44 | 14° 0'43 | 29°47 | 25°39 | 6°24 | 19°28 | 17°43 | 4°22 | 11°41 | 12° 4 | 28°13 | 28°R58 | 27°57 | 12°31 | 24°29 | T 6 |
| W 7 | 3 6 40 | 15° 0'51 | 13♉59 | 27°10 | 6°10 | 20°10 | 17°52 | 4°23 | 11°39 | 12° 4 | 28°13 | 28°58 | 27°53 | 12°38 | 24°26 | W 7 |
| T 8 | 3 10 37 | 16° 1'00 | 28°29 | 28°41 | 5°54 | 20°52 | 18° 2 | 4°24 | 11°37 | 12° 3 | 28°13 | 28°56 | 27°50 | 12°44 | 24°23 | T 8 |
| F 9 | 3 14 34 | 17° 1'12 | 13♏ 9 | 0♏12 | 5°35 | 21°34 | 18°11 | 4°24 | 11°35 | 12° 3 | 28°13 | 28°54 | 27°47 | 12°51 | 24°20 | F 9 |
| S 10 | 3 18 30 | 18° 1'25 | 27°52 | 1°42 | 5°14 | 22°16 | 18°20 | 4°25 | 11°33 | 12° 2 | 28°12 | 28°52 | 27°44 | 12°58 | 24°16 | S 10 |
| S 11 | 3 22 27 | 19° 1'39 | 12♏33 | 3°12 | 4°50 | 22°58 | 18°30 | 4°26 | 11°32 | 12° 2 | 28°12 | 28°49 | 27°41 | 13° 5 | 24°13 | S 11 |
| M12 | 3 26 23 | 20° 1'55 | 27° 4 | 4°41 | 4°25 | 23°40 | 18°39 | 4°26 | 11°30 | 12° 1 | 28°12 | 28°47 | 27°38 | 13°11 | 24°10 | M12 |
| T 13 | 3 30 20 | 21° 2'12 | 11♏21 | 6°10 | 3°58 | 24°22 | 18°48 | 4°26 | 11°28 | 12° 1 | 28°11 | 28°46 | 27°34 | 13°18 | 24° 7 | T 13 |
| W14 | 3 34 16 | 22° 2'31 | 25°22 | 7°38 | 3°28 | 25° 4 | 18°57 | 4°26 | 11°27 | 12° 1 | 28°11 | 28°D45 | 27°31 | 13°25 | 24° 4 | W14 |
| T 15 | 3 38 13 | 23° 2'51 | 9♏ 6 | 9° 6 | 2°58 | 25°46 | 19° 5 | 4°R27 | 11°25 | 12° 0 | 28°11 | 28°46 | 27°28 | 13°31 | 24° 1 | T 15 |
| F 16 | 3 42 9 | 24° 3'12 | 22°33 | 10°33 | 2°25 | 26°28 | 19°14 | 4°27 | 11°23 | 12° 0 | 28°10 | 28°48 | 27°25 | 13°38 | 23°58 | F 16 |
| S 17 | 3 46 6 | 25° 3'35 | 5°Y44 | 12° 0 | 1°52 | 27°11 | 19°23 | 4°26 | 11°22 | 12° 0 | 28°10 | 28°49 | 27°22 | 13°45 | 23°54 | S 17 |
| S 18 | 3 50 3 | 26° 3'59 | 18°42 | 13°26 | 1°17 | 27°53 | 19°31 | 4°26 | 11°20 | 12° 0 | 28° 9 | 28°51 | 27°18 | 13°52 | 23°51 | S 18 |
| M19 | 3 53 59 | 27° 4'24 | 1♏26 | 14°52 | 0°41 | 28°35 | 19°39 | 4°26 | 11°19 | 12° 0 | 28° 9 | 28°R51 | 27°15 | 13°58 | 23°48 | M19 |
| T 20 | 3 57 56 | 28° 4'51 | 13°59 | 16°17 | 0° 5 | 29°18 | 19°47 | 4°25 | 11°17 | 12° 0 | 28° 8 | 28°50 | 27°12 | 14° 5 | 23°45 | T 20 |
| W21 | 4 1 52 | 29° 5'20 | 26°22 | 17°41 | 29♉29 | 0♏ 0 | 19°55 | 4°25 | 11°16 | 11°59 | 28° 8 | 28°47 | 27° 9 | 14°12 | 23°42 | W21 |
| T 22 | 4 5 49 | 0♏ 5'50 | 8♏36 | 19° 4 | 28°52 | 0°43 | 20° 3 | 4°24 | 11°15 | 11°59 | 28° 7 | 28°43 | 27° 6 | 14°19 | 23°39 | T 22 |
| F 23 | 4 9 45 | 1° 6'22 | 20°41 | 20°26 | 28°16 | 1°26 | 20°11 | 4°23 | 11°13 | 11°D59 | 28° 6 | 28°38 | 27° 3 | 14°25 | 23°36 | F 23 |
| S 24 | 4 13 42 | 2° 6'55 | 2♏40 | 21°48 | 27°40 | 2° 8 | 20°19 | 4°22 | 11°12 | 11°59 | 28° 6 | 28°31 | 26°59 | 14°32 | 23°32 | S 24 |
| S 25 | 4 17 38 | 3° 7'30 | 14°33 | 23° 8 | 27° 4 | 2°51 | 20°26 | 4°21 | 11°11 | 11°59 | 28° 5 | 28°25 | 26°56 | 14°39 | 23°29 | S 25 |
| M26 | 4 21 35 | 4° 8'06 | 26°25 | 24°26 | 26°30 | 3°34 | 20°33 | 4°20 | 11°10 | 12° 0 | 28° 5 | 28°19 | 26°53 | 14°45 | 23°26 | M26 |
| T 27 | 4 25 32 | 5° 8'44 | 8♏17 | 25°43 | 25°57 | 4°16 | 20°41 | 4°19 | 11° 8 | 12° 0 | 28° 4 | 28°14 | 26°50 | 14°52 | 23°23 | T 27 |
| W28 | 4 29 28 | 6° 9'24 | 20°13 | 26°59 | 25°25 | 4°59 | 20°48 | 4°17 | 11° 7 | 12° 0 | 28° 3 | 28°11 | 26°47 | 14°59 | 23°20 | W28 |
| T 29 | 4 33 25 | 7°10'05 | 2♏19 | 28°12 | 24°55 | 5°42 | 20°55 | 4°16 | 11° 6 | 12° 0 | 28° 2 | 28°D 9 | 26°44 | 15° 6 | 23°17 | T 29 |
| F 30 | 4 37 21 | 8♏10'48 | 14♏38 | 29♏23 | 24♉26 | 6♏25 | 21♏ 2 | 4♏14 | 11°Y 5 | 12°R 0 | 28♏ 2 | 28♏ 9 | 26♏40 | 15♏12 | 23♏14 | F 30 |

Delta T = 146.28 sec

DECEMBER 2181

00:00 UT

| Day | Sid.t | ☉ | ☽ | ♀ | ♂ | ♂ | ♂ | ♂ | ♂ | ♂ | ♂ | ♂ | ♂ | ♂ | ♂ | Day |
|------|---------|----------|-------|--------|--------|-------|-------|-------|--------|--------|--------|--------|-------|-------|--------|------|
| S 1 | 4 41 18 | 9♏11'32 | 27♏15 | 0♏31 | 23°R59 | 7♏ 8 | 21♏ 8 | 4°R13 | 11°R 4 | 12°R 1 | 28°R 1 | 28♏11 | 26♏37 | 15♏19 | 23°R11 | S 1 |
| S 2 | 4 45 14 | 10°12'18 | 10♏15 | 1°36 | 23♉35 | 7°51 | 21°15 | 4♏11 | 11°Y 3 | 12° 1 | 28♏ 0 | 28°12 | 26°34 | 15°26 | 23♏ 8 | S 2 |
| M 3 | 4 49 11 | 11°13'06 | 23°41 | 2°38 | 23°12 | 8°34 | 21°21 | 4° 9 | 11° 2 | 12° 1 | 27°59 | 28°R13 | 26°31 | 15°32 | 23° 5 | M 3 |
| T 4 | 4 53 7 | 12°13'55 | 7♉36 | 3°36 | 22°52 | 9°17 | 21°27 | 4° 7 | 11° 2 | 12° 2 | 27°58 | 28°13 | 26°28 | 15°39 | 23° 2 | T 4 |
| W 5 | 4 57 4 | 13°14'45 | 21°58 | 4°29 | 22°34 | 10° 1 | 21°33 | 4° 5 | 11° 1 | 12° 2 | 27°58 | 28°11 | 26°24 | 15°46 | 22°59 | W 5 |
| T 6 | 5 1 1 | 14°15'37 | 6♏43 | 5°17 | 22°19 | 10°44 | 21°39 | 4° 3 | 11° 0 | 12° 2 | 27°57 | 28° 6 | 26°21 | 15°53 | 22°56 | T 6 |
| F 7 | 5 4 57 | 15°16'29 | 21°45 | 5°59 | 22° 5 | 11°27 | 21°45 | 4° 0 | 10°59 | 12° 3 | 27°56 | 28° 0 | 26°18 | 15°59 | 22°53 | F 7 |
| S 8 | 5 8 54 | 16°17'23 | 6♏55 | 6°34 | 21°55 | 12°11 | 21°50 | 3°58 | 10°59 | 12° 3 | 27°55 | 27°52 | 26°15 | 16° 6 | 22°51 | S 8 |
| S 9 | 5 12 50 | 17°18'18 | 22° 1 | 7° 2 | 21°47 | 12°54 | 21°56 | 3°55 | 10°58 | 12° 4 | 27°54 | 27°44 | 26°12 | 16°13 | 22°48 | S 9 |
| M10 | 5 16 47 | 18°19'14 | 6♏55 | 7°22 | 21°41 | 13°37 | 22° 1 | 3°53 | 10°58 | 12° 4 | 27°53 | 27°37 | 26° 9 | 16°19 | 22°45 | M10 |
| T 11 | 5 20 43 | 19°20'10 | 21°29 | 7°32 | 21°38 | 14°21 | 22° 6 | 3°50 | 10°57 | 12° 5 | 27°52 | 27°32 | 26° 5 | 16°26 | 22°42 | T 11 |
| W12 | 5 24 40 | 20°21'07 | 5♏39 | 7°R32 | 21°D37 | 15° 5 | 22°11 | 3°47 | 10°57 | 12° 6 | 27°51 | 27°29 | 26° 2 | 16°33 | 22°40 | W12 |
| T 13 | 5 28 36 | 21°22'04 | 19°23 | 7°22 | 21°39 | 15°48 | 22°16 | 3°44 | 10°56 | 12° 6 | 27°50 | 27°D28 | 25°59 | 16°40 | 22°37 | T 13 |
| F 14 | 5 32 33 | 22°23'02 | 2°Y44 | 7° 0 | 21°43 | 16°32 | 22°21 | 3°41 | 10°56 | 12° 7 | 27°49 | 27°D28 | 25°56 | 16°46 | 22°34 | F 14 |
| S 15 | 5 36 30 | 23°24'01 | 15°44 | 6°27 | 21°49 | 17°15 | 22°25 | 3°38 | 10°56 | 12° 8 | 27°48 | 27°29 | 25°53 | 16°53 | 22°32 | S 15 |
| S 16 | 5 40 26 | 24°25'00 | 28°27 | 5°43 | 21°58 | 17°59 | 22°29 | 3°35 | 10°56 | 12° 9 | 27°47 | 27°R30 | 25°50 | 17° 0 | 22°29 | S 16 |
| M17 | 5 44 23 | 25°26'00 | 10♏55 | 4°48 | 22° 9 | 18°43 | 22°33 | 3°32 | 10°55 | 12° 9 | 27°46 | 27°29 | 25°46 | 17° 7 | 22°27 | M17 |
| T 18 | 5 48 19 | 26°27'00 | 23°12 | 3°43 | 22°22 | 19°27 | 22°37 | 3°29 | 10°55 | 12°10 | 27°45 | 27°25 | 25°43 | 17°13 | 22°24 | T 18 |
| W19 | 5 52 16 | 27°28'01 | 5♏21 | 2°30 | 22°37 | 20°11 | 22°41 | 3°25 | 10°55 | 12°11 | 27°44 | 27°19 | 25°40 | 17°20 | 22°22 | W19 |
| T 20 | 5 56 12 | 28°29'03 | 17°24 | 1°11 | 22°54 | 20°55 | 22°45 | 3°22 | 10°D55 | 12°12 | 27°43 | 27°10 | 25°37 | 17°27 | 22°19 | T 20 |
| F 21 | 6 0 9 | 29°30'05 | 29°22 | 29♏48 | 23°14 | 21°39 | 22°48 | 3°18 | 10°55 | 12°13 | 27°42 | 26°59 | 25°34 | 17°33 | 22°17 | F 21 |
| S 22 | 6 4 5 | 0♏31'08 | 11♏16 | 28°25 | 23°35 | 22°23 | 22°51 | 3°14 | 10°55 | 12°14 | 27°41 | 26°47 | 25°30 | 17°40 | 22°15 | S 22 |
| S 23 | 6 8 2 | 1°32'11 | 23° 9 | 27° 5 | 23°58 | 23° 7 | 22°54 | 3°11 | 10°56 | 12°15 | 27°39 | 26°34 | 25°27 | 17°47 | 22°12 | S 23 |
| M24 | 6 11 59 | 2°33'15 | 5♏ 1 | 25°49 | 24°23 | 23°51 | 22°57 | 3° 7 | 10°56 | 12°16 | 27°38 | 26°21 | 25°24 | 17°54 | 22°10 | M24 |
| T 25 | 6 15 55 | 3°34'20 | 16°54 | 24°40 | 24°50 | 24°35 | 23° 0 | 3° 3 | 10°56 | 12°17 | 27°37 | 26°10 | 25°21 | 18° 0 | 22° 8 | T 25 |
| W26 | 6 19 52 | 4°35'25 | 28°51 | 23°40 | 25°18 | 25°19 | 23° 2 | 2°59 | 10°56 | 12°18 | 27°36 | 26° 2 | 25°18 | 18° 7 | 22° 6 | W26 |
| T 27 | 6 23 48 | 5°36'31 | 10♏56 | 22°50 | 25°48 | 26° 4 | 23° 4 | 2°55 | 10°57 | 12°19 | 27°35 | 25°57 | 25°15 | 18°14 | 22° 4 | T 27 |
| F 28 | 6 27 45 | 6°37'37 | 23°12 | 22°10 | 26°20 | 26°48 | 23° 7 | 2°51 | 10°57 | 12°20 | 27°34 | 25°54 | 25°11 | 18°21 | 22° 2 | F 28 |
| S 29 | 6 31 41 | 7°38'44 | 5♏43 | 21°41 | 26°53 | 27°32 | 23° 8 | 2°47 | 10°57 | 12°22 | 27°32 | 25°D53 | 25° 8 | 18°27 | 22° 0 | S 29 |
| S 30 | 6 35 38 | 8°39'52 | 18°36 | 21°23 | 27°28 | 28°17 | 23°10 | 2°42 | 10°58 | 12°23 | 27°31 | 25°R53 | 25° 5 | 18°34 | 21°58 | S 30 |
| M31 | 6 39 34 | 9♏41'00 | 1♉53 | 21°D15 | 28♉ 4 | 29♏ 1 | 23♏12 | 2♏38 | 10°Y58 | 12°R24 | 27♏30 | 25♏53 | 25♏ 2 | 18♏41 | 21♏56 | M31 |

Delta T = 146.35 sec