



Astrodienst Ephemeris Tables for the year 2082

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 2082

geocentric

JANUARY 2082

00:00 UT

| Day | Sid.t | ☉ | ☽ | ♀ | ♂ | ♂ | ♂ | ♂ | ♂ | ♂ | ♂ | ♂ | ♂ | ♂ | ♂ | Day |
|------|---------|----------|-------|--------|-------|-------|-------|-------|------|-------|--------|-------|------|-------|--------|------|
| T 1 | 6 44 22 | 10♌58'46 | 2♌37 | 27°R58 | 13♌58 | 21♌15 | 22♌1 | 24♌25 | 8♌15 | 6°R57 | 14°P16 | 7°R30 | 9♌3 | 29♌52 | 15°R27 | T 1 |
| F 2 | 6 48 19 | 11°59'56 | 15° 8 | 27♌57 | 15°13 | 21°53 | 22°10 | 24°31 | 8°19 | 6♌56 | 14°16 | 7♌25 | 9° 0 | 29°58 | 15♌26 | F 2 |
| S 3 | 6 52 16 | 13° 1'06 | 27°24 | 27°44 | 16°29 | 22°32 | 22°19 | 24°37 | 8°22 | 6°54 | 14°17 | 7°23 | 8°57 | 0°P 5 | 15°25 | S 3 |
| S 4 | 6 56 12 | 14° 2'15 | 9♌26 | 27°19 | 17°44 | 23°11 | 22°28 | 24°43 | 8°25 | 6°52 | 14°17 | 7°D22 | 8°54 | 0°12 | 15°23 | S 4 |
| M 5 | 7 0 9 | 15° 3'25 | 21°19 | 26°43 | 19° 0 | 23°50 | 22°38 | 24°49 | 8°28 | 6°51 | 14°17 | 7°23 | 8°51 | 0°18 | 15°22 | M 5 |
| T 6 | 7 4 5 | 16° 4'34 | 3°P 8 | 25°55 | 20°15 | 24°29 | 22°47 | 24°55 | 8°32 | 6°49 | 14°17 | 7°24 | 8°47 | 0°25 | 15°21 | T 6 |
| W 7 | 7 8 2 | 17° 5'43 | 14°56 | 24°57 | 21°31 | 25° 7 | 22°57 | 25° 1 | 8°35 | 6°48 | 14°17 | 7°R25 | 8°44 | 0°32 | 15°20 | W 7 |
| T 8 | 7 11 58 | 18° 6'52 | 26°51 | 23°50 | 22°46 | 25°46 | 23° 7 | 25° 8 | 8°38 | 6°46 | 14°17 | 7°24 | 8°41 | 0°38 | 15°19 | T 8 |
| F 9 | 7 15 55 | 19° 8'00 | 8♌57 | 22°36 | 24° 2 | 26°25 | 23°17 | 25°14 | 8°42 | 6°45 | 14°18 | 7°22 | 8°38 | 0°45 | 15°18 | F 9 |
| S 10 | 7 19 51 | 20° 9'08 | 21°19 | 21°18 | 25°17 | 27° 4 | 23°27 | 25°20 | 8°45 | 6°43 | 14°18 | 7°18 | 8°35 | 0°52 | 15°17 | S 10 |
| S 11 | 7 23 48 | 21°10'16 | 4♌1 | 19°58 | 26°32 | 27°43 | 23°37 | 25°27 | 8°48 | 6°41 | 14°18 | 7°11 | 8°32 | 0°58 | 15°16 | S 11 |
| M12 | 7 27 45 | 22°11'23 | 17° 4 | 18°38 | 27°48 | 28°21 | 23°47 | 25°33 | 8°52 | 6°40 | 14°19 | 7° 4 | 8°28 | 1° 5 | 15°16 | M12 |
| T 13 | 7 31 41 | 23°12'29 | 0♌31 | 17°22 | 29° 3 | 29° 0 | 23°58 | 25°40 | 8°55 | 6°38 | 14°19 | 6°56 | 8°25 | 1°12 | 15°15 | T 13 |
| W14 | 7 35 38 | 24°13'35 | 14°19 | 16°10 | 0♌19 | 29°39 | 24° 8 | 25°46 | 8°59 | 6°37 | 14°19 | 6°49 | 8°22 | 1°18 | 15°14 | W14 |
| T 15 | 7 39 34 | 25°14'41 | 28°26 | 15° 6 | 1°34 | 0♌18 | 24°19 | 25°53 | 9° 2 | 6°35 | 14°20 | 6°42 | 8°19 | 1°25 | 15°14 | T 15 |
| F 16 | 7 43 31 | 26°15'46 | 12♌46 | 14°10 | 2°49 | 0°57 | 24°29 | 25°59 | 9° 5 | 6°33 | 14°20 | 6°38 | 8°16 | 1°32 | 15°13 | F 16 |
| S 17 | 7 47 27 | 27°16'51 | 27°13 | 13°23 | 4° 5 | 1°36 | 24°40 | 26° 6 | 9° 9 | 6°32 | 14°21 | 6°36 | 8°13 | 1°38 | 15°13 | S 17 |
| S 18 | 7 51 24 | 28°17'56 | 11♌43 | 12°45 | 5°20 | 2°14 | 24°51 | 26°13 | 9°12 | 6°30 | 14°21 | 6°D36 | 8° 9 | 1°45 | 15°12 | S 18 |
| M19 | 7 55 20 | 29°19'00 | 26°10 | 12°17 | 6°36 | 2°53 | 25° 2 | 26°19 | 9°16 | 6°28 | 14°22 | 6°37 | 8° 6 | 1°52 | 15°12 | M19 |
| T 20 | 7 59 17 | 0♌20'04 | 10♌30 | 11°58 | 7°51 | 3°32 | 25°13 | 26°26 | 9°19 | 6°27 | 14°22 | 6°38 | 8° 3 | 1°58 | 15°12 | T 20 |
| W21 | 8 3 14 | 1°21'08 | 24°41 | 11°49 | 9° 6 | 4°11 | 25°25 | 26°33 | 9°23 | 6°25 | 14°23 | 6°39 | 8° 0 | 2° 5 | 15°12 | W21 |
| T 22 | 8 7 10 | 2°22'11 | 8♌42 | 11°D48 | 10°22 | 4°50 | 25°36 | 26°40 | 9°26 | 6°23 | 14°23 | 6°R39 | 7°57 | 2°12 | 15°11 | T 22 |
| F 23 | 8 11 7 | 3°23'14 | 22°31 | 11°55 | 11°37 | 5°29 | 25°48 | 26°47 | 9°30 | 6°22 | 14°24 | 6°38 | 7°53 | 2°18 | 15°11 | F 23 |
| S 24 | 8 15 3 | 4°24'17 | 6♌8 | 12° 9 | 12°52 | 6° 7 | 25°59 | 26°53 | 9°33 | 6°20 | 14°24 | 6°35 | 7°50 | 2°25 | 15°D11 | S 24 |
| S 25 | 8 19 0 | 5°25'20 | 19°32 | 12°30 | 14° 8 | 6°46 | 26°11 | 27° 0 | 9°37 | 6°18 | 14°25 | 6°30 | 7°47 | 2°32 | 15°11 | S 25 |
| M26 | 8 22 56 | 6°26'21 | 2♌44 | 12°58 | 15°23 | 7°25 | 26°22 | 27° 7 | 9°40 | 6°16 | 14°26 | 6°25 | 7°44 | 2°38 | 15°11 | M26 |
| T 27 | 8 26 53 | 7°27'23 | 15°43 | 13°31 | 16°38 | 8° 4 | 26°34 | 27°14 | 9°44 | 6°15 | 14°26 | 6°20 | 7°41 | 2°45 | 15°12 | T 27 |
| W28 | 8 30 50 | 8°28'23 | 28°29 | 14° 9 | 17°54 | 8°43 | 26°46 | 27°21 | 9°47 | 6°13 | 14°27 | 6°16 | 7°38 | 2°52 | 15°12 | W28 |
| T 29 | 8 34 46 | 9°29'23 | 11♌1 | 14°52 | 19° 9 | 9°22 | 26°58 | 27°28 | 9°51 | 6°11 | 14°28 | 6°12 | 7°34 | 2°58 | 15°12 | T 29 |
| F 30 | 8 38 43 | 10°30'21 | 23°20 | 15°39 | 20°24 | 10° 0 | 27°10 | 27°35 | 9°54 | 6°10 | 14°28 | 6°10 | 7°31 | 3° 5 | 15°13 | F 30 |
| S 31 | 8 42 39 | 11♌31'19 | 5♌28 | 16♌30 | 21♌39 | 10♌39 | 27♌23 | 27♌42 | 9♌58 | 6♌8 | 14°P29 | 6°D 9 | 7♌28 | 3°P11 | 15♌13 | S 31 |

Delta T = 85.49 sec

FEBRUARY 2082

00:00 UT

| Day | Sid.t | ☉ | ☽ | ♀ | ♂ | ♂ | ♂ | ♂ | ♂ | ♂ | ♂ | ♂ | ♂ | ♂ | ♂ | Day |
|------|----------|----------|--------|-------|-------|-------|-------|-------|-------|-------|--------|-------|------|-------|-------|------|
| S 1 | 8 46 36 | 12♌32'15 | 17♌26 | 17♌25 | 22♌55 | 11♌18 | 27♌35 | 27♌50 | 10♌1 | 6°R 6 | 14°P30 | 6♌10 | 7♌25 | 3°P18 | 15♌13 | S 1 |
| M 2 | 8 50 32 | 13°33'10 | 29°18 | 18°22 | 24°10 | 11°57 | 27°47 | 27°57 | 10° 5 | 6♌5 | 14°31 | 6°11 | 7°22 | 3°25 | 15°14 | M 2 |
| T 3 | 8 54 29 | 14°34'04 | 11°P 6 | 19°23 | 25°25 | 12°36 | 28° 0 | 28° 4 | 10° 8 | 6° 3 | 14°32 | 6°13 | 7°19 | 3°31 | 15°15 | T 3 |
| W 4 | 8 58 25 | 15°34'57 | 22°54 | 20°26 | 26°40 | 13°14 | 28°12 | 28°11 | 10°12 | 6° 1 | 14°32 | 6°15 | 7°15 | 3°38 | 15°15 | W 4 |
| T 5 | 9 2 22 | 16°35'49 | 4♌48 | 21°32 | 27°55 | 13°53 | 28°25 | 28°18 | 10°15 | 6° 0 | 14°33 | 6°16 | 7°12 | 3°45 | 15°16 | T 5 |
| F 6 | 9 6 18 | 17°36'39 | 16°52 | 22°40 | 29°11 | 14°32 | 28°37 | 28°25 | 10°19 | 5°58 | 14°34 | 6°R16 | 7° 9 | 3°51 | 15°17 | F 6 |
| S 7 | 9 10 15 | 18°37'28 | 29°11 | 23°50 | 0♌26 | 15°11 | 28°50 | 28°32 | 10°22 | 5°56 | 14°35 | 6°16 | 7° 6 | 3°58 | 15°18 | S 7 |
| S 8 | 9 14 12 | 19°38'15 | 11♌49 | 25° 1 | 1°41 | 15°50 | 29° 3 | 28°40 | 10°26 | 5°55 | 14°36 | 6°15 | 7° 3 | 4° 5 | 15°19 | S 8 |
| M 9 | 9 18 8 | 20°39'01 | 24°51 | 26°15 | 2°56 | 16°28 | 29°16 | 28°47 | 10°29 | 5°53 | 14°37 | 6°13 | 6°59 | 4°11 | 15°20 | M 9 |
| T 10 | 9 22 5 | 21°39'45 | 8♌18 | 27°30 | 4°11 | 17° 7 | 29°29 | 28°54 | 10°33 | 5°51 | 14°38 | 6°11 | 6°56 | 4°18 | 15°21 | T 10 |
| W11 | 9 26 1 | 22°40'28 | 22°11 | 28°47 | 5°26 | 17°46 | 29°42 | 29° 1 | 10°36 | 5°50 | 14°39 | 6° 9 | 6°53 | 4°25 | 15°22 | W11 |
| T 12 | 9 29 58 | 23°41'09 | 6♌28 | 0♌5 | 6°41 | 18°25 | 29°55 | 29° 8 | 10°40 | 5°48 | 14°40 | 6° 8 | 6°50 | 4°31 | 15°23 | T 12 |
| F 13 | 9 33 54 | 24°41'49 | 21° 5 | 1°25 | 7°56 | 19° 3 | 0°P 8 | 29°16 | 10°43 | 5°47 | 14°41 | 6° 7 | 6°47 | 4°38 | 15°24 | F 13 |
| S 14 | 9 37 51 | 25°42'28 | 5♌56 | 2°45 | 9°11 | 19°42 | 0°21 | 29°23 | 10°47 | 5°45 | 14°42 | 6°D 6 | 6°44 | 4°45 | 15°25 | S 14 |
| S 15 | 9 41 48 | 26°43'05 | 20°52 | 4° 8 | 10°26 | 20°21 | 0°35 | 29°30 | 10°50 | 5°43 | 14°43 | 6° 6 | 6°40 | 4°51 | 15°27 | S 15 |
| M16 | 9 45 44 | 27°43'41 | 5♌46 | 5°31 | 11°41 | 21° 0 | 0°48 | 29°38 | 10°53 | 5°42 | 14°44 | 6° 7 | 6°37 | 4°58 | 15°28 | M16 |
| T 17 | 9 49 41 | 28°44'15 | 20°31 | 6°55 | 12°56 | 21°38 | 1° 1 | 29°45 | 10°57 | 5°40 | 14°45 | 6° 8 | 6°34 | 5° 5 | 15°30 | T 17 |
| W18 | 9 53 37 | 29°44'48 | 5♌1 | 8°21 | 14°11 | 22°17 | 1°15 | 29°52 | 11° 0 | 5°39 | 14°46 | 6° 8 | 6°31 | 5°11 | 15°31 | W18 |
| T 19 | 9 57 34 | 0♌45'21 | 19°11 | 9°48 | 15°26 | 22°56 | 1°28 | 29°59 | 11° 4 | 5°37 | 14°47 | 6° 9 | 6°28 | 5°18 | 15°33 | T 19 |
| F 20 | 10 1 30 | 1°45'52 | 3♌2 | 11°15 | 16°41 | 23°34 | 1°42 | 0♌7 | 11° 7 | 5°36 | 14°48 | 6°R 9 | 6°25 | 5°25 | 15°34 | F 20 |
| S 21 | 10 5 27 | 2°46'22 | 16°32 | 12°44 | 17°56 | 24°13 | 1°55 | 0°14 | 11°10 | 5°34 | 14°49 | 6° 9 | 6°21 | 5°31 | 15°36 | S 21 |
| S 22 | 10 9 23 | 3°46'50 | 29°43 | 14°14 | 19°10 | 24°52 | 2° 9 | 0°21 | 11°14 | 5°33 | 14°50 | 6° 9 | 6°18 | 5°38 | 15°38 | S 22 |
| M23 | 10 13 20 | 4°47'18 | 12♌37 | 15°45 | 20°25 | 25°31 | 2°23 | 0°28 | 11°17 | 5°31 | 14°51 | 6° 8 | 6°15 | 5°45 | 15°39 | M23 |
| T 24 | 10 17 17 | 5°47'43 | 25°16 | 17°17 | 21°40 | 26° 9 | 2°37 | 0°36 | 11°20 | 5°30 | 14°52 | 6°D 8 | 6°12 | 5°51 | 15°41 | T 24 |
| W25 | 10 21 13 | 6°48'08 | 7♌42 | 18°50 | 22°55 | 26°48 | 2°50 | 0°43 | 11°23 | 5°29 | 14°54 | 6° 8 | 6° 9 | 5°58 | 15°43 | W25 |
| T 26 | 10 25 10 | 7°48'31 | 19°56 | 20°23 | 24°10 | 27°26 | 3° 4 | 0°50 | 11°27 | 5°27 | 14°55 | 6° 8 | 6° 5 | 6° 5 | 15°45 | T 26 |
| F 27 | 10 29 6 | 8°48'52 | 2♌2 | 21°58 | 25°24 | 28° 5 | 3°18 | 0°57 | 11°30 | 5°26 | 14°56 | 6°R 8 | 6° 2 | 6°11 | 15°47 | F 27 |
| S 28 | 10 33 3 | 9♌49'11 | 14♌0 | 23♌34 | 26♌39 | 28♌44 | 3°P32 | 1♌5 | 11♌33 | 5♌25 | 14°P57 | 6♌8 | 5♌59 | 6°P18 | 15♌49 | S 28 |

Delta T = 85.52 sec

ASTRODIENST EPHEMERIS for the year 2082

geocentric

MARCH 2082

00:00 UT

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

Delta T = 85.55 sec

APRIL 2082

00:00 UT

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

Delta T = 85.58 sec

ASTRODIENST EPHEMERIS for the year 2082

geocentric

MAY 2082

00:00 UT

| Day | Sid.t | ☉ | ☾ | ♂ | ♀ | ♂ | ♂ | ♂ | ♂ | ♂ | ♂ | ♂ | ♂ | ♂ | ♂ | Day |
|------|----------|----------|-------|--------|-------|-------|-------|------|-------|------|-------|-------|------|-------|-------|------|
| F 1 | 14 37 29 | 11♈ 5'16 | 13♏46 | 18♍8 | 12♏36 | 7♏38 | 18♏21 | 7♏27 | 13♏47 | 4♏56 | 16♏23 | 3♏27 | 2♏42 | 13♏12 | 19♏13 | F 1 |
| S 2 | 14 41 26 | 12° 3'34 | 26°16 | 17♏37 | 13°48 | 8°14 | 18°35 | 7°32 | 13°48 | 4°57 | 16°24 | 3♏18 | 2°39 | 13°18 | 19°17 | S 2 |
| S 3 | 14 45 22 | 13° 1'49 | 8♏57 | 17° 4 | 15° 0 | 8°49 | 18°48 | 7°36 | 13°49 | 4°57 | 16°26 | 3°11 | 2°36 | 13°25 | 19°21 | S 3 |
| M 4 | 14 49 19 | 14° 0'02 | 21°52 | 16°28 | 16°12 | 9°25 | 19° 2 | 7°40 | 13°50 | 4°58 | 16°27 | 3° 6 | 2°33 | 13°32 | 19°25 | M 4 |
| T 5 | 14 53 15 | 14°58'14 | 5♏ 2 | 15°51 | 17°24 | 10° 1 | 19°16 | 7°44 | 13°50 | 4°58 | 16°28 | 3° 4 | 2°29 | 13°38 | 19°29 | T 5 |
| W 6 | 14 57 12 | 15°56'23 | 18°32 | 15°14 | 18°35 | 10°36 | 19°30 | 7°49 | 13°51 | 4°59 | 16°30 | 3°D 4 | 2°26 | 13°45 | 19°33 | W 6 |
| T 7 | 15 1 8 | 16°54'30 | 2♏22 | 14°36 | 19°47 | 11°11 | 19°44 | 7°53 | 13°51 | 5° 0 | 16°31 | 3°R 4 | 2°23 | 13°52 | 19°37 | T 7 |
| F 8 | 15 5 5 | 17°52'35 | 16°33 | 13°58 | 20°59 | 11°47 | 19°57 | 7°57 | 13°52 | 5° 1 | 16°32 | 3° 4 | 2°20 | 13°58 | 19°41 | F 8 |
| S 9 | 15 9 2 | 18°50'38 | 1♏ 5 | 13°22 | 22°10 | 12°22 | 20°11 | 8° 0 | 13°52 | 5° 1 | 16°33 | 3° 1 | 2°17 | 14° 5 | 19°45 | S 9 |
| S 10 | 15 12 58 | 19°48'40 | 15°55 | 12°48 | 23°21 | 12°57 | 20°24 | 8° 4 | 13°53 | 5° 2 | 16°35 | 2°56 | 2°13 | 14°12 | 19°49 | S 10 |
| M11 | 15 16 55 | 20°46'39 | 0♏56 | 12°16 | 24°33 | 13°32 | 20°38 | 8° 8 | 13°53 | 5° 3 | 16°36 | 2°49 | 2°10 | 14°18 | 19°53 | M11 |
| T 12 | 15 20 51 | 21°44'37 | 15°59 | 11°47 | 25°44 | 14° 6 | 20°51 | 8°12 | 13°54 | 5° 4 | 16°37 | 2°39 | 2° 7 | 14°25 | 19°57 | T 12 |
| W13 | 15 24 48 | 22°42'34 | 0♏56 | 11°21 | 26°55 | 14°41 | 21° 5 | 8°15 | 13°54 | 5° 5 | 16°38 | 2°28 | 2° 4 | 14°32 | 20° 1 | W13 |
| T 14 | 15 28 44 | 23°40'29 | 15°36 | 10°59 | 28° 7 | 15°16 | 21°18 | 8°19 | 13°54 | 5° 6 | 16°40 | 2°17 | 2° 1 | 14°38 | 20° 6 | T 14 |
| F 15 | 15 32 41 | 24°38'22 | 29°52 | 10°41 | 29°18 | 15°50 | 21°31 | 8°22 | 13°54 | 5° 7 | 16°41 | 2° 8 | 1°58 | 14°45 | 20°10 | F 15 |
| S 16 | 15 36 37 | 25°36'14 | 13♏41 | 10°27 | 0♏29 | 16°24 | 21°45 | 8°25 | 13°54 | 5° 8 | 16°42 | 2° 0 | 1°54 | 14°52 | 20°14 | S 16 |
| S 17 | 15 40 34 | 26°34'05 | 27° 1 | 10°18 | 1°40 | 16°59 | 21°58 | 8°29 | 13°54 | 5° 9 | 16°43 | 1°55 | 1°51 | 14°58 | 20°18 | S 17 |
| M18 | 15 44 31 | 27°31'55 | 9♏54 | 10°12 | 2°50 | 17°33 | 22°11 | 8°32 | 13°55 | 5°10 | 16°44 | 1°53 | 1°48 | 15° 5 | 20°22 | M18 |
| T 19 | 15 48 27 | 28°29'44 | 22°23 | 10°D12 | 4° 1 | 18° 6 | 22°24 | 8°35 | 13°54 | 5°11 | 16°45 | 1°52 | 1°45 | 15°12 | 20°26 | T 19 |
| W20 | 15 52 24 | 29°27'31 | 4♏35 | 10°16 | 5°12 | 18°40 | 22°37 | 8°38 | 13°54 | 5°12 | 16°47 | 1°52 | 1°42 | 15°19 | 20°30 | W20 |
| T 21 | 15 56 20 | 0♏25'17 | 16°20 | 10°25 | 6°22 | 19°14 | 22°50 | 8°41 | 13°54 | 5°13 | 16°48 | 1°52 | 1°39 | 15°25 | 20°34 | T 21 |
| F 22 | 16 0 17 | 1°23'02 | 28°24 | 10°38 | 7°33 | 19°47 | 23° 3 | 8°43 | 13°54 | 5°14 | 16°49 | 1°50 | 1°35 | 15°32 | 20°38 | F 22 |
| S 23 | 16 4 13 | 2°20'46 | 10♏12 | 10°55 | 8°44 | 20°20 | 23°16 | 8°46 | 13°54 | 5°15 | 16°50 | 1°46 | 1°32 | 15°39 | 20°42 | S 23 |
| S 24 | 16 8 10 | 3°18'29 | 22° 1 | 11°17 | 9°54 | 20°53 | 23°28 | 8°49 | 13°54 | 5°17 | 16°51 | 1°39 | 1°29 | 15°45 | 20°46 | S 24 |
| M25 | 16 12 6 | 4°16'10 | 3♏56 | 11°43 | 11° 4 | 21°26 | 23°41 | 8°51 | 13°53 | 5°18 | 16°52 | 1°29 | 1°26 | 15°52 | 20°50 | M25 |
| T 26 | 16 16 3 | 5°13'51 | 16° 0 | 12°14 | 12°14 | 21°59 | 23°54 | 8°53 | 13°53 | 5°19 | 16°53 | 1°17 | 1°23 | 15°59 | 20°54 | T 26 |
| W27 | 16 20 0 | 6°11'30 | 28°12 | 12°48 | 13°25 | 22°31 | 24° 6 | 8°56 | 13°53 | 5°20 | 16°54 | 1° 4 | 1°19 | 16° 5 | 20°58 | W27 |
| T 28 | 16 23 56 | 7° 9'09 | 10♏36 | 13°27 | 14°35 | 23° 4 | 24°19 | 8°58 | 13°52 | 5°22 | 16°55 | 0°51 | 1°16 | 16°12 | 21° 2 | T 28 |
| F 29 | 16 27 53 | 8° 6'46 | 23°11 | 14° 9 | 15°45 | 23°36 | 24°31 | 9° 0 | 13°52 | 5°23 | 16°56 | 0°38 | 1°13 | 16°19 | 21° 6 | F 29 |
| S 30 | 16 31 49 | 9° 4'22 | 5♏57 | 14°55 | 16°54 | 24° 8 | 24°43 | 9° 2 | 13°51 | 5°24 | 16°57 | 0°28 | 1°10 | 16°25 | 21° 9 | S 30 |
| S 31 | 16 35 46 | 10♏ 1'57 | 18♏54 | 15♏45 | 18♏ 4 | 24♏39 | 24♏56 | 9♏ 4 | 13♏50 | 5♏26 | 16♏58 | 0♏20 | 1♏ 7 | 16♏32 | 21♏13 | S 31 |

Delta T = 85.62 sec

JUNE 2082

00:00 UT

| Day | Sid.t | ☉ | ☾ | ♂ | ♀ | ♂ | ♂ | ♂ | ♂ | ♂ | ♂ | ♂ | ♂ | ♂ | ♂ | Day |
|------|----------|----------|-------|-------|-------|-------|-------|-------|--------|------|-------|--------|-------|-------|-------|------|
| M 1 | 16 39 42 | 10♏59'30 | 2♏ 3 | 16♏38 | 19♏14 | 25♏11 | 25♏ 8 | 9♏ 6 | 13°R50 | 5♏27 | 16♏59 | 0°R14 | 1♏ 4 | 16♏39 | 21♏17 | M 1 |
| T 2 | 16 43 39 | 11°57'02 | 15°24 | 17°35 | 20°23 | 25°42 | 25°20 | 9° 8 | 13°48 | 5°29 | 17° 0 | 0♏12 | 1° 0 | 16°45 | 21°21 | T 2 |
| W 3 | 16 47 35 | 12°54'33 | 28°58 | 18°35 | 21°33 | 26°13 | 25°32 | 9° 9 | 13°48 | 5°30 | 17° 1 | 0°D11 | 0°57 | 16°52 | 21°25 | W 3 |
| T 4 | 16 51 32 | 13°52'02 | 12♏46 | 19°38 | 22°42 | 26°44 | 25°44 | 9°11 | 13°48 | 5°32 | 17° 2 | 0°R11 | 0°54 | 16°59 | 21°29 | T 4 |
| F 5 | 16 55 29 | 14°49'30 | 26°49 | 20°45 | 23°52 | 27°14 | 25°56 | 9°12 | 13°47 | 5°33 | 17° 2 | 0°11 | 0°51 | 17° 5 | 21°33 | F 5 |
| S 6 | 16 59 25 | 15°46'57 | 11♏ 6 | 21°55 | 25° 1 | 27°45 | 26° 8 | 9°14 | 13°46 | 5°35 | 17° 3 | 0° 9 | 0°48 | 17°12 | 21°36 | S 6 |
| S 7 | 17 3 22 | 16°44'22 | 25°36 | 23° 7 | 26°10 | 28°15 | 26°19 | 9°15 | 13°45 | 5°36 | 17° 4 | 0° 5 | 0°45 | 17°19 | 21°40 | S 7 |
| M 8 | 17 7 18 | 17°41'47 | 10♏15 | 24°23 | 27°19 | 28°44 | 26°31 | 9°16 | 13°44 | 5°38 | 17° 5 | 29♏58 | 0°41 | 17°26 | 21°44 | M 8 |
| T 9 | 17 11 15 | 18°39'10 | 24°56 | 25°42 | 28°27 | 29°14 | 26°42 | 9°17 | 13°43 | 5°40 | 17° 6 | 29°49 | 0°38 | 17°32 | 21°48 | T 9 |
| W10 | 17 15 11 | 19°36'33 | 9♏32 | 27° 4 | 29°36 | 29°43 | 26°54 | 9°18 | 13°42 | 5°41 | 17° 6 | 29°38 | 0°35 | 17°39 | 21°51 | W10 |
| T 11 | 17 19 8 | 20°33'54 | 23°56 | 28°29 | 0♏45 | 0♏12 | 27° 5 | 9°19 | 13°41 | 5°43 | 17° 7 | 29°28 | 0°32 | 17°46 | 21°55 | T 11 |
| F 12 | 17 23 4 | 21°31'15 | 8♏ 2 | 29°56 | 1°53 | 0°41 | 27°16 | 9°20 | 13°40 | 5°45 | 17° 8 | 29°19 | 0°29 | 17°52 | 21°59 | F 12 |
| S 13 | 17 27 1 | 22°28'35 | 21°44 | 1♏27 | 3° 1 | 1°10 | 27°27 | 9°20 | 13°39 | 5°46 | 17° 9 | 29°12 | 0°25 | 17°59 | 22° 2 | S 13 |
| S 14 | 17 30 58 | 23°25'55 | 5♏ 1 | 3° 0 | 4°10 | 1°38 | 27°38 | 9°21 | 13°37 | 5°48 | 17° 9 | 29° 7 | 0°22 | 18° 6 | 22° 6 | S 14 |
| M15 | 17 34 54 | 24°23'14 | 17°54 | 4°36 | 5°18 | 2° 6 | 27°49 | 9°21 | 13°36 | 5°50 | 17°10 | 29° 5 | 0°19 | 18°12 | 22°10 | M15 |
| T 16 | 17 38 51 | 25°20'32 | 0♏26 | 6°15 | 6°26 | 2°33 | 28° 0 | 9°22 | 13°35 | 5°52 | 17°11 | 29°D 4 | 0°16 | 18°19 | 22°13 | T 16 |
| W17 | 17 42 47 | 26°17'50 | 12°39 | 7°57 | 7°33 | 3° 0 | 28°11 | 9°22 | 13°33 | 5°53 | 17°11 | 29° 5 | 0°13 | 18°26 | 22°17 | W17 |
| T 18 | 17 46 44 | 27°15'08 | 24°40 | 9°41 | 8°41 | 3°27 | 28°22 | 9°22 | 13°32 | 5°55 | 17°12 | 29°R 5 | 0°10 | 18°32 | 22°20 | T 18 |
| F 19 | 17 50 40 | 28°12'25 | 6♏32 | 11°29 | 9°49 | 3°54 | 28°32 | 9°R22 | 13°31 | 5°57 | 17°13 | 29° 5 | 0° 6 | 18°39 | 22°24 | F 19 |
| S 20 | 17 54 37 | 29° 9'43 | 18°23 | 13°19 | 10°56 | 4°20 | 28°43 | 9°22 | 13°29 | 5°59 | 17°13 | 29° 3 | 0° 3 | 18°46 | 22°27 | S 20 |
| S 21 | 17 58 33 | 0♏ 6'59 | 0♏15 | 15°11 | 12° 3 | 4°46 | 28°53 | 9°22 | 13°28 | 6° 1 | 17°14 | 28°59 | 0° 0 | 18°53 | 22°31 | S 21 |
| M22 | 18 2 30 | 1° 4'16 | 12°14 | 17° 6 | 13°10 | 5°11 | 29° 3 | 9°22 | 13°26 | 6° 3 | 17°14 | 28°52 | 29♏57 | 18°59 | 22°34 | M22 |
| T 23 | 18 6 27 | 2° 1'33 | 24°24 | 19° 4 | 14°17 | 5°36 | 29°13 | 9°22 | 13°25 | 6° 5 | 17°15 | 28°44 | 29°54 | 19° 6 | 22°37 | T 23 |
| W24 | 18 10 23 | 2°58'49 | 6♏46 | 21° 4 | 15°24 | 6° 1 | 29°23 | 9°21 | 13°23 | 6° 6 | 17°15 | 28°35 | 29°51 | 19°13 | 22°41 | W24 |
| T 25 | 18 14 20 | 3°56'05 | 19°23 | 23° 5 | 16°31 | 6°25 | 29°33 | 9°21 | 13°21 | 6° 8 | 17°16 | 28°25 | 29°47 | 19°19 | 22°44 | T 25 |
| F 26 | 18 18 16 | 4°53'20 | 2♏14 | 25° 9 | 17°37 | 6°49 | 29°43 | 9°20 | 13°20 | 6°10 | 17°16 | 28°16 | 29°44 | 19°26 | 22°47 | F 26 |
| S 27 | 18 22 13 | 5°50'36 | 15°20 | 27°15 | 18°43 | 7°12 | 29°53 | 9°19 | 13°18 | 6°12 | 17°17 | 28° 8 | 29°41 | 19°33 | 22°51 | S 27 |
| S 28 | 18 26 9 | 6°47'51 | 28°38 | 29°22 | 19°50 | 7°35 | 0♏ 2 | 9°19 | 13°16 | 6°14 | 17°17 | 28° 2 | 29°38 | 19°39 | 22°54 | S 28 |
| M29 | 18 30 6 | 7°45'06 | 12♏ 9 | 1♏31 | 20°55 | 7°58 | 0°11 | 9°18 | 13°14 | 6°16 | 17°18 | 27°59 | 29°35 | 19°46 | 22°57 | M29 |
| T 30 | 18 34 3 | 8°42'20 | 25♏50 | 3♏40 | 22♏ 1 | 8♏20 | 0♏21 | 9♏17 | 13♏13 | 6♏18 | 17♏18 | 27°D58 | 29♏31 | 19♏53 | 23♏ 0 | T 30 |

Delta T = 85.65 sec

ASTRODIENST EPHEMERIS for the year 2082

geocentric

JULY 2082

00:00 UT

| Day | Sid.t | ☉ | ☽ | ♀ | ♂ | ♂ | ♂ | ♂ | ♂ | ♂ | ♂ | ♂ | ♂ | ♂ | ♂ | Day |
|------|----------|-----------------------|---------------------|--------------------|---------------------|--------------------|-------------------|---------------------|----------------------|--------------------|---------------------|---------------------|---------------------|---------------------|--------------------|------|
| W 1 | 18 37 59 | 9 ⁵⁵ 39'34 | 9 ¹¹ 39 | 5 ⁵⁵ 51 | 23 ¹² 7 | 8 ⁴⁴ 42 | 0 ⁸ 30 | 9 ¹⁶ R16 | 13 ¹¹ R11 | 6 ¹² 20 | 17 ¹⁸ 18 | 27 ⁵⁸ 58 | 29 ²⁸ 28 | 19 ⁵⁹ 59 | 23 ¹⁸ 3 | W 1 |
| T 2 | 18 41 56 | 10 ³⁶ 47 | 23 ³⁷ | 8 ¹ | 24 ¹² | 9 ³ | 0 ³⁹ | 9 ¹⁴ 14 | 13 ⁹ 9 | 6 ²² | 17 ¹⁹ | 27 ⁵⁹ | 29 ²⁵ | 20 ⁶ | 23 ⁶ | T 2 |
| F 3 | 18 45 52 | 11 ³⁴ 00 | 7 ⁵⁴ 43 | 10 ¹² | 25 ¹⁷ | 9 ²³ | 0 ⁴⁸ | 9 ¹³ | 13 ⁷ | 6 ²⁴ | 17 ¹⁹ | 28 ⁰ R 0 | 29 ²² | 20 ¹³ | 23 ⁹ | F 3 |
| S 4 | 18 49 49 | 12 ³¹ 12 | 21 ⁵⁴ | 12 ²³ | 26 ²² | 9 ⁴³ | 0 ⁵⁷ | 9 ¹² | 13 ⁵ | 6 ²⁶ | 17 ¹⁹ | 28 ⁰ | 29 ¹⁹ | 20 ²⁰ | 23 ¹² | S 4 |
| S 5 | 18 53 45 | 13 ²⁸ 24 | 6 ¹¹ 10 | 14 ³³ | 27 ²⁷ | 10 ³ | 1 ⁵ | 9 ¹⁰ | 13 ³ | 6 ²⁹ | 17 ²⁰ | 27 ⁵⁸ | 29 ¹⁶ | 20 ²⁶ | 23 ¹⁵ | S 5 |
| M 6 | 18 57 42 | 14 ²⁵ 36 | 20 ²⁷ | 16 ⁴³ | 28 ³² | 10 ²² | 1 ¹⁴ | 9 ⁹ | 13 ¹ | 6 ³¹ | 17 ²⁰ | 27 ⁵⁴ | 29 ¹² | 20 ³³ | 23 ¹⁸ | M 6 |
| T 7 | 19 1 38 | 15 ²² 48 | 4 ⁴⁷ 43 | 18 ⁵² | 29 ³⁶ | 10 ⁴¹ | 1 ²² | 9 ⁷ | 12 ⁵⁹ | 6 ³³ | 17 ²⁰ | 27 ⁴⁹ | 29 ⁹ | 20 ⁴⁰ | 23 ²¹ | T 7 |
| W 8 | 19 5 35 | 16 ¹⁹ 59 | 18 ⁵² | 20 ⁵⁹ | 0 ¹¹ 40 | 10 ⁵⁹ | 1 ³⁰ | 9 ⁵ | 12 ⁵⁷ | 6 ³⁵ | 17 ²⁰ | 27 ⁴² | 29 ⁶ | 20 ⁴⁶ | 23 ²⁴ | W 8 |
| T 9 | 19 9 32 | 17 ¹⁷ 11 | 2 ³⁵ 50 | 23 ⁶ | 1 ⁴⁴ | 11 ¹⁶ | 1 ³⁹ | 9 ³ | 12 ⁵⁵ | 6 ³⁷ | 17 ²⁰ | 27 ³⁶ | 29 ³ | 20 ⁵³ | 23 ²⁷ | T 9 |
| F 10 | 19 13 28 | 18 ¹⁴ 22 | 16 ³⁴ | 25 ¹¹ | 2 ⁴⁸ | 11 ³³ | 1 ⁴⁷ | 9 ¹ | 12 ⁵³ | 6 ³⁹ | 17 ²¹ | 27 ³⁰ | 29 ⁰ | 21 ⁰ | 23 ²⁹ | F 10 |
| S 11 | 19 17 25 | 19 ¹¹ 34 | 29 ⁵⁹ | 27 ¹⁵ | 3 ⁵¹ | 11 ⁵⁰ | 1 ⁵⁴ | 8 ⁵⁹ | 12 ⁵¹ | 6 ⁴¹ | 17 ²¹ | 27 ²⁶ | 28 ⁵⁷ | 21 ⁶ | 23 ³² | S 11 |
| S 12 | 19 21 21 | 20 ⁸ 45 | 13 ⁵⁵ 5 | 29 ¹⁷ | 4 ⁵⁴ | 12 ⁵ | 2 ² | 8 ⁵⁷ | 12 ⁴⁹ | 6 ⁴³ | 17 ²¹ | 27 ²³ | 28 ⁵³ | 21 ¹³ | 23 ³⁵ | S 12 |
| M 13 | 19 25 18 | 21 ⁵ 57 | 25 ⁵² | 1 ¹¹ 17 | 5 ⁵⁷ | 12 ²¹ | 2 ¹⁰ | 8 ⁵⁵ | 12 ⁴⁶ | 6 ⁴⁵ | 17 ²¹ | 27 ⁰ D23 | 28 ⁵⁰ | 21 ²⁰ | 23 ³⁷ | M 13 |
| T 14 | 19 29 14 | 22 ³ 10 | 8 ⁴⁴ 20 | 3 ¹⁶ | 7 ⁰ | 12 ³⁵ | 2 ¹⁷ | 8 ⁵³ | 12 ⁴⁴ | 6 ⁴⁸ | 17 ²¹ | 27 ²³ | 28 ⁴⁷ | 21 ²⁶ | 23 ⁴⁰ | T 14 |
| W 15 | 19 33 11 | 23 ⁰ 22 | 20 ³³ | 5 ¹³ | 8 ² | 12 ⁴⁹ | 2 ²⁴ | 8 ⁵⁰ | 12 ⁴² | 6 ⁵⁰ | 17 ²¹ | 27 ²⁴ | 28 ⁴⁴ | 21 ³³ | 23 ⁴² | W 15 |
| T 16 | 19 37 7 | 23 ⁵⁷ 35 | 2 ¹⁷ 34 | 7 ⁸ | 9 ⁴ | 13 ² | 2 ³¹ | 8 ⁴⁸ | 12 ⁴⁰ | 6 ⁵² | 17 ²¹ | 27 ²⁶ | 28 ⁴¹ | 21 ⁴⁰ | 23 ⁴⁵ | T 16 |
| F 17 | 19 41 4 | 24 ⁵⁴ 49 | 14 ²⁸ | 9 ¹ | 10 ⁶ | 13 ¹⁵ | 2 ³⁸ | 8 ⁴⁵ | 12 ³⁸ | 6 ⁵⁴ | 17 ²¹ | 27 ²⁷ | 28 ³⁷ | 21 ⁴⁷ | 23 ⁴⁷ | F 17 |
| S 18 | 19 45 1 | 25 ⁵² 04 | 26 ¹⁹ | 10 ⁵³ | 11 ⁸ | 13 ²⁷ | 2 ⁴⁵ | 8 ⁴³ | 12 ³⁵ | 6 ⁵⁶ | 17 ²¹ | 27 ⁰ R28 | 28 ³⁴ | 21 ⁵³ | 23 ⁵⁰ | S 18 |
| S 19 | 19 48 57 | 26 ⁴⁹ 19 | 8 ¹⁴ 15 | 12 ⁴² | 12 ⁹ | 13 ³⁸ | 2 ⁵² | 8 ⁴⁰ | 12 ³³ | 6 ⁵⁹ | 17 ²¹ | 27 ²⁷ | 28 ³¹ | 22 ⁰ | 23 ⁵² | S 19 |
| M 20 | 19 52 54 | 27 ⁴⁶ 35 | 20 ¹⁵ | 14 ³⁰ | 13 ¹⁰ | 13 ⁴⁸ | 2 ⁵⁸ | 8 ³⁷ | 12 ³¹ | 7 ¹ | 17 ²¹ | 27 ²⁵ | 28 ²⁸ | 22 ⁷ | 23 ⁵⁴ | M 20 |
| T 21 | 19 56 50 | 28 ⁴³ 51 | 2 ¹¹ 28 | 16 ¹⁶ | 14 ¹⁰ | 13 ⁵⁸ | 3 ⁵ | 8 ³⁴ | 12 ²⁹ | 7 ³ | 17 ²¹ | 27 ²² | 28 ²⁵ | 22 ¹³ | 23 ⁵⁶ | T 21 |
| W 22 | 20 0 47 | 29 ⁴¹ 08 | 14 ⁵⁶ | 18 ⁰ | 15 ¹¹ | 14 ⁷ | 3 ¹¹ | 8 ³¹ | 12 ²⁶ | 7 ⁵ | 17 ²¹ | 27 ¹⁸ | 28 ²² | 22 ²⁰ | 23 ⁵⁹ | W 22 |
| T 23 | 20 4 43 | 0 ¹³ 38'26 | 27 ⁴¹ | 19 ⁴² | 16 ¹¹ | 14 ¹⁶ | 3 ¹⁷ | 8 ²⁸ | 12 ²⁴ | 7 ⁷ | 17 ²¹ | 27 ¹⁴ | 28 ¹⁸ | 22 ²⁷ | 24 ¹ | T 23 |
| F 24 | 20 8 40 | 1 ³⁵ 45 | 10 ⁵⁴ 6 | 21 ²³ | 17 ¹⁰ | 14 ²³ | 3 ²³ | 8 ²⁵ | 12 ²² | 7 ¹⁰ | 17 ²¹ | 27 ¹⁰ | 28 ¹⁵ | 22 ³³ | 24 ³ | F 24 |
| S 25 | 20 12 36 | 2 ³³ 04 | 24 ⁹ | 23 ¹ | 18 ⁹ | 14 ³⁰ | 3 ²⁸ | 8 ²² | 12 ¹⁹ | 7 ¹² | 17 ²¹ | 27 ⁷ | 28 ¹² | 22 ⁴⁰ | 24 ⁵ | S 25 |
| S 26 | 20 16 33 | 3 ³⁰ 24 | 7 ¹⁴ 49 | 24 ³⁸ | 19 ⁸ | 14 ³⁶ | 3 ³⁴ | 8 ¹⁹ | 12 ¹⁷ | 7 ¹⁴ | 17 ²⁰ | 27 ⁵ | 28 ⁹ | 22 ⁴⁷ | 24 ⁷ | S 26 |
| M 27 | 20 20 30 | 4 ²⁷ 45 | 21 ⁴⁴ | 26 ¹³ | 20 ⁷ | 14 ⁴¹ | 3 ³⁹ | 8 ¹⁶ | 12 ¹⁵ | 7 ¹⁶ | 17 ²⁰ | 27 ⁰ D 4 | 28 ⁶ | 22 ⁵⁴ | 24 ⁹ | M 27 |
| T 28 | 20 24 26 | 5 ²⁵ 06 | 5 ¹¹ 51 | 27 ⁴⁶ | 21 ⁵ | 14 ⁴⁶ | 3 ⁴⁴ | 8 ¹² | 12 ¹² | 7 ¹⁸ | 17 ²⁰ | 27 ⁴ | 28 ³ | 23 ⁰ | 24 ¹¹ | T 28 |
| W 29 | 20 28 23 | 6 ²² 27 | 20 ⁵ | 29 ¹⁸ | 22 ³ | 14 ⁴⁹ | 3 ⁵⁰ | 8 ⁹ | 12 ¹⁰ | 7 ²¹ | 17 ²⁰ | 27 ⁵ | 27 ⁵⁹ | 23 ⁷ | 24 ¹³ | W 29 |
| T 30 | 20 32 19 | 7 ¹⁹ 50 | 4 ⁵⁴ 23 | 0 ¹¹ 47 | 23 ⁰ | 14 ⁵² | 3 ⁵⁴ | 8 ⁵ | 12 ⁷ | 7 ²³ | 17 ¹⁹ | 27 ⁶ | 27 ⁵⁶ | 23 ¹⁴ | 24 ¹⁴ | T 30 |
| F 31 | 20 36 16 | 8 ¹⁷ 12 | 18 ⁵⁴ 42 | 2 ¹¹ 15 | 23 ¹¹ 57 | 14 ⁵⁴ | 3 ⁵⁹ | 8 ⁴ | 12 ⁵⁵ | 7 ¹² 25 | 17 ¹⁹ | 27 ⁷ | 27 ⁵³ | 23 ¹⁶ 20 | 24 ¹⁶ | F 31 |

Delta T = 85.68 sec

AUGUST 2082

00:00 UT

| Day | Sid.t | ☉ | ☽ | ♀ | ♂ | ♂ | ♂ | ♂ | ♂ | ♂ | ♂ | ♂ | ♂ | ♂ | ♂ | Day |
|------|----------|----------|--------|--------|-------|--------|-------|-------|--------|------|--------|--------|-------|--------|-------|------|
| S 1 | 20 40 12 | 9♌14°35 | 2♌58 | 3♍40 | 24♍53 | 14♋56 | 4♊4 | 7°R58 | 12°R 3 | 7♎27 | 17°R19 | 27°R 8 | 27≈50 | 23°V27 | 24♊18 | S 1 |
| S 2 | 20 44 9 | 10°11'59 | 17° 9 | 5° 4 | 25°49 | 14°R56 | 4° 8 | 7♋54 | 12≈0 | 7°30 | 17°V18 | 27≈8 | 27°47 | 23°34 | 24°19 | S 2 |
| M 3 | 20 48 5 | 11° 9'23 | 1♌12 | 6°26 | 26°44 | 14°56 | 4°12 | 7°51 | 11°58 | 7°32 | 17°18 | 27° 7 | 27°43 | 23°40 | 24°21 | M 3 |
| T 4 | 20 52 2 | 12° 6'48 | 15° 7 | 7°46 | 27°39 | 14°55 | 4°16 | 7°47 | 11°55 | 7°34 | 17°18 | 27° 6 | 27°40 | 23°47 | 24°22 | T 4 |
| W 5 | 20 55 59 | 13° 4'13 | 28°51 | 9° 4 | 28°33 | 14°53 | 4°20 | 7°43 | 11°53 | 7°36 | 17°17 | 27° 4 | 27°37 | 23°54 | 24°24 | W 5 |
| T 6 | 20 59 55 | 14° 1'40 | 12♊22 | 10°20 | 29°27 | 14°51 | 4°23 | 7°39 | 11°51 | 7°38 | 17°17 | 27° 2 | 27°34 | 24° 1 | 24°25 | T 6 |
| F 7 | 21 3 52 | 14°59'07 | 25°40 | 11°33 | 0♌21 | 14°47 | 4°27 | 7°35 | 11°48 | 7°41 | 17°17 | 27° 1 | 27°31 | 24° 7 | 24°27 | F 7 |
| S 8 | 21 7 48 | 15°56'34 | 8≈43 | 12°45 | 1°13 | 14°43 | 4°30 | 7°31 | 11°46 | 7°43 | 17°16 | 27° 0 | 27°28 | 24°14 | 24°28 | S 8 |
| S 9 | 21 11 45 | 16°54'03 | 21°32 | 13°54 | 2° 5 | 14°38 | 4°33 | 7°27 | 11°43 | 7°45 | 17°16 | 26°D59 | 27°24 | 24°21 | 24°29 | S 9 |
| M10 | 21 15 41 | 17°51'33 | 4♋5 | 15° 1 | 2°57 | 14°32 | 4°36 | 7°23 | 11°41 | 7°47 | 17°15 | 26°59 | 27°21 | 24°27 | 24°30 | M10 |
| T 11 | 21 19 38 | 18°49'04 | 16°25 | 16° 5 | 3°47 | 14°26 | 4°39 | 7°19 | 11°39 | 7°49 | 17°15 | 27° 0 | 27°18 | 24°34 | 24°32 | T 11 |
| W12 | 21 23 34 | 19°46'36 | 28°34 | 17° 7 | 4°38 | 14°19 | 4°41 | 7°14 | 11°36 | 7°52 | 17°14 | 27° 0 | 27°15 | 24°41 | 24°33 | W12 |
| T 13 | 21 27 31 | 20°44'09 | 10°V33 | 18° 7 | 5°27 | 14°11 | 4°43 | 7°10 | 11°34 | 7°54 | 17°14 | 27° 1 | 27°12 | 24°47 | 24°34 | T 13 |
| F 14 | 21 31 28 | 21°41'44 | 22°26 | 19° 3 | 6°16 | 14° 2 | 4°45 | 7° 6 | 11°32 | 7°56 | 17°13 | 27° 2 | 27° 9 | 24°54 | 24°35 | F 14 |
| S 15 | 21 35 24 | 22°39'21 | 4♊18 | 19°56 | 7° 4 | 13°53 | 4°47 | 7° 2 | 11°29 | 7°58 | 17°12 | 27° 2 | 27° 5 | 25° 1 | 24°35 | S 15 |
| S 16 | 21 39 21 | 23°36'58 | 16°12 | 20°47 | 7°51 | 13°43 | 4°49 | 6°57 | 11°27 | 8° 0 | 17°12 | 27° 2 | 27° 2 | 25° 8 | 24°36 | S 16 |
| M17 | 21 43 17 | 24°34'38 | 28°13 | 21°34 | 8°37 | 13°32 | 4°51 | 6°53 | 11°25 | 8° 3 | 17°11 | 27°R 2 | 26°59 | 25°14 | 24°37 | M17 |
| T 18 | 21 47 14 | 25°32'18 | 10♌25 | 22°18 | 9°23 | 13°21 | 4°52 | 6°49 | 11°22 | 8° 5 | 17°11 | 27° 2 | 26°56 | 25°21 | 24°38 | T 18 |
| W19 | 21 51 10 | 26°30'01 | 22°53 | 22°58 | 10° 7 | 13° 9 | 4°53 | 6°44 | 11°20 | 8° 7 | 17°10 | 27° 2 | 26°53 | 25°28 | 24°38 | W19 |
| T 20 | 21 55 7 | 27°27'45 | 5♌41 | 23°35 | 10°51 | 12°57 | 4°54 | 6°40 | 11°18 | 8° 9 | 17° 9 | 27°D 2 | 26°49 | 25°34 | 24°39 | T 20 |
| F 21 | 21 59 4 | 28°25'30 | 18°50 | 24° 7 | 11°34 | 12°44 | 4°55 | 6°35 | 11°16 | 8°11 | 17° 9 | 27° 2 | 26°46 | 25°41 | 24°40 | F 21 |
| S 22 | 22 3 0 | 29°23'18 | 2♌23 | 24°35 | 12°16 | 12°30 | 4°55 | 6°31 | 11°13 | 8°13 | 17° 8 | 27° 2 | 26°43 | 25°48 | 24°40 | S 22 |
| S 23 | 22 6 57 | 0♍21'06 | 16°19 | 24°59 | 12°57 | 12°16 | 4°55 | 6°26 | 11°11 | 8°15 | 17° 7 | 27° 2 | 26°40 | 25°54 | 24°40 | S 23 |
| M24 | 22 10 53 | 1°18'56 | 0♍35 | 25°18 | 13°37 | 12° 2 | 4°R56 | 6°22 | 11° 9 | 8°17 | 17° 6 | 27°R 3 | 26°37 | 26° 1 | 24°41 | M24 |
| T 25 | 22 14 50 | 2°16'48 | 15° 6 | 25°31 | 14°16 | 11°47 | 4°56 | 6°17 | 11° 7 | 8°19 | 17° 6 | 27° 2 | 26°34 | 26° 8 | 24°41 | T 25 |
| W26 | 22 18 46 | 3°14'40 | 29°47 | 25°40 | 14°53 | 11°32 | 4°55 | 6°13 | 11° 4 | 8°22 | 17° 5 | 27° 2 | 26°30 | 26°15 | 24°41 | W26 |
| T 27 | 22 22 43 | 4°12'34 | 14♌31 | 25°R43 | 15°30 | 11°16 | 4°55 | 6° 8 | 11° 2 | 8°24 | 17° 4 | 27° 1 | 26°27 | 26°21 | 24°41 | T 27 |
| F 28 | 22 26 39 | 5°10'30 | 29°12 | 25°41 | 16° 5 | 11° 1 | 4°54 | 6° 4 | 11° 0 | 8°26 | 17° 3 | 27° 0 | 26°24 | 26°28 | 24°42 | F 28 |
| S 29 | 22 30 36 | 6° 8'27 | 13♌42 | 25°32 | 16°39 | 10°45 | 4°53 | 5°59 | 10°58 | 8°28 | 17° 2 | 27° 0 | 26°21 | 26°35 | 24°42 | S 29 |
| S 30 | 22 34 32 | 7° 6'25 | 27°59 | 25°18 | 17°12 | 10°29 | 4°52 | 5°54 | 10°56 | 8°30 | 17° 2 | 26°59 | 26°18 | 26°41 | 24°42 | S 30 |
| M31 | 22 38 29 | 8♍4'24 | 12♊0 | 24♍57 | 17♌43 | 10♋13 | 4♊51 | 5♋50 | 10≈54 | 8♌32 | 17°V 1 | 26°D59 | 26≈15 | 26°V48 | 24♊41 | M31 |

ASTRODIENST EPHEMERIS for the year 2082
geocentric

SEPTEMBER 2082

00:00 UT

| Day | Sid.t | ☉ | ☾ | ♂ | ♀ | ♂ | ♂ | ♂ | ♂ | ♂ | ♂ | ♂ | ♂ | ♂ | ♂ | Day |
|------|----------|----------|-------|--------|--------|-------|-------|-------|--------|-------|--------|--------|-------|-------|--------|------|
| T 1 | 22 42 26 | 9♉ 2'25 | 25♊43 | 24°R31 | 18♋13 | 9°R57 | 4°R49 | 5°R45 | 10°R52 | 8♌234 | 17°R 0 | 26♍59 | 26♎11 | 26♏55 | 24°R41 | T 1 |
| W 2 | 22 46 22 | 10° 0'27 | 9♉ 9 | 23♉58 | 18°41 | 9♉41 | 4♊48 | 5♉41 | 10♋50 | 8°36 | 16♌59 | 27° 0 | 26° 8 | 27° 1 | 24♋41 | W 2 |
| T 3 | 22 50 19 | 10°58'30 | 22°19 | 23°20 | 19° 8 | 9°25 | 4°46 | 5°36 | 10°48 | 8°38 | 16°58 | 27° 1 | 26° 5 | 27° 8 | 24°41 | T 3 |
| F 4 | 22 54 15 | 11°56'35 | 5♋14 | 22°36 | 19°33 | 9° 9 | 4°44 | 5°32 | 10°46 | 8°39 | 16°57 | 27° 2 | 26° 2 | 27°15 | 24°41 | F 4 |
| S 5 | 22 58 12 | 12°54'41 | 17°56 | 21°47 | 19°57 | 8°53 | 4°41 | 5°27 | 10°44 | 8°41 | 16°56 | 27° 3 | 25°59 | 27°22 | 24°40 | S 5 |
| S 6 | 23 2 8 | 13°52'49 | 0♉25 | 20°54 | 20°19 | 8°38 | 4°39 | 5°23 | 10°42 | 8°43 | 16°55 | 27°R 3 | 25°55 | 27°28 | 24°40 | S 6 |
| M 7 | 23 6 5 | 14°50'58 | 12°44 | 19°58 | 20°39 | 8°22 | 4°36 | 5°18 | 10°40 | 8°45 | 16°54 | 27° 3 | 25°52 | 27°35 | 24°39 | M 7 |
| T 8 | 23 10 1 | 15°49'09 | 24°53 | 19° 0 | 20°57 | 8° 7 | 4°33 | 5°14 | 10°39 | 8°47 | 16°53 | 27° 1 | 25°49 | 27°42 | 24°39 | T 8 |
| W 9 | 23 13 58 | 16°47'22 | 6♌55 | 18° 0 | 21°13 | 7°52 | 4°30 | 5°10 | 10°37 | 8°49 | 16°52 | 26°59 | 25°46 | 27°48 | 24°38 | W 9 |
| T 10 | 23 17 55 | 17°45'37 | 18°51 | 17° 1 | 21°27 | 7°38 | 4°27 | 5° 5 | 10°35 | 8°51 | 16°51 | 26°55 | 25°43 | 27°55 | 24°37 | T 10 |
| F 11 | 23 21 51 | 18°43'53 | 0♉43 | 16° 3 | 21°40 | 7°24 | 4°24 | 5° 1 | 10°33 | 8°53 | 16°50 | 26°52 | 25°40 | 28° 2 | 24°37 | F 11 |
| S 12 | 23 25 48 | 19°42'12 | 12°34 | 15° 8 | 21°50 | 7°10 | 4°20 | 4°56 | 10°32 | 8°54 | 16°49 | 26°48 | 25°36 | 28° 9 | 24°36 | S 12 |
| S 13 | 23 29 44 | 20°40'33 | 24°27 | 14°17 | 21°58 | 6°57 | 4°16 | 4°52 | 10°30 | 8°56 | 16°48 | 26°45 | 25°33 | 28°15 | 24°35 | S 13 |
| M14 | 23 33 41 | 21°38'55 | 6♉27 | 13°32 | 22° 4 | 6°44 | 4°12 | 4°48 | 10°28 | 8°58 | 16°47 | 26°43 | 25°30 | 28°22 | 24°34 | M14 |
| T 15 | 23 37 37 | 22°37'20 | 18°36 | 12°54 | 22° 8 | 6°32 | 4° 8 | 4°44 | 10°27 | 9° 0 | 16°46 | 26°D42 | 25°27 | 28°29 | 24°33 | T 15 |
| W16 | 23 41 34 | 23°35'47 | 1♉ 1 | 12°23 | 22°R 9 | 6°21 | 4° 4 | 4°39 | 10°25 | 9° 1 | 16°45 | 26°42 | 25°24 | 28°35 | 24°32 | W16 |
| T 17 | 23 45 30 | 24°34'17 | 13°44 | 12° 0 | 22° 8 | 6°10 | 3°59 | 4°35 | 10°24 | 9° 3 | 16°44 | 26°44 | 25°21 | 28°42 | 24°31 | T 17 |
| F 18 | 23 49 27 | 25°32'48 | 26°51 | 11°46 | 22° 5 | 5°59 | 3°55 | 4°31 | 10°22 | 9° 5 | 16°43 | 26°45 | 25°17 | 28°49 | 24°30 | F 18 |
| S 19 | 23 53 24 | 26°31'21 | 10♌23 | 11°D42 | 21°59 | 5°50 | 3°50 | 4°27 | 10°21 | 9° 6 | 16°42 | 26°47 | 25°14 | 28°55 | 24°29 | S 19 |
| S 20 | 23 57 20 | 27°29'57 | 24°22 | 11°48 | 21°52 | 5°41 | 3°45 | 4°23 | 10°19 | 9° 8 | 16°41 | 26°R47 | 25°11 | 29° 2 | 24°27 | S 20 |
| M21 | 0 1 17 | 28°28'35 | 8♉47 | 12° 3 | 21°41 | 5°32 | 3°40 | 4°19 | 10°18 | 9° 9 | 16°40 | 26°47 | 25° 8 | 29° 9 | 24°26 | M21 |
| T 22 | 0 5 13 | 29°27'14 | 23°34 | 12°27 | 21°28 | 5°25 | 3°34 | 4°15 | 10°17 | 9°11 | 16°39 | 26°45 | 25° 5 | 29°16 | 24°25 | T 22 |
| W23 | 0 9 10 | 0♉25'56 | 8♉36 | 13° 1 | 21°13 | 5°18 | 3°29 | 4°11 | 10°15 | 9°13 | 16°38 | 26°41 | 25° 1 | 29°22 | 24°23 | W23 |
| T 24 | 0 13 6 | 1°24'39 | 23°44 | 13°43 | 20°56 | 5°11 | 3°23 | 4° 8 | 10°14 | 9°14 | 16°37 | 26°37 | 24°58 | 29°29 | 24°22 | T 24 |
| F 25 | 0 17 3 | 2°23'25 | 8♉48 | 14°34 | 20°36 | 5° 6 | 3°17 | 4° 4 | 10°13 | 9°16 | 16°36 | 26°31 | 24°55 | 29°36 | 24°20 | F 25 |
| S 26 | 0 20 59 | 3°22'12 | 23°39 | 15°33 | 20°15 | 5° 2 | 3°11 | 4° 0 | 10°12 | 9°17 | 16°34 | 26°26 | 24°52 | 29°42 | 24°19 | S 26 |
| S 27 | 0 24 56 | 4°21'01 | 8♉10 | 16°39 | 19°51 | 4°58 | 3° 5 | 3°57 | 10°11 | 9°19 | 16°33 | 26°23 | 24°49 | 29°49 | 24°17 | S 27 |
| M28 | 0 28 53 | 5°19'52 | 22°17 | 17°51 | 19°24 | 4°55 | 2°59 | 3°53 | 10°10 | 9°20 | 16°32 | 26°20 | 24°46 | 29°56 | 24°15 | M28 |
| T 29 | 0 32 49 | 6°18'44 | 6♉ 0 | 19° 9 | 18°56 | 4°53 | 2°52 | 3°50 | 10° 9 | 9°21 | 16°31 | 26°D19 | 24°42 | 0♉ 3 | 24°14 | T 29 |
| W30 | 0 36 46 | 7♉17'38 | 19♉19 | 20♉33 | 18♉27 | 4♉51 | 2♉46 | 3♉46 | 10♋ 8 | 9♌23 | 16♌30 | 26♍20 | 24♎39 | 0♉ 8 | 24♋12 | W30 |

Delta T = 85.75 sec

OCTOBER 2082

00:00 UT

| Day | Sid.t | ☉ | ☾ | ♂ | ♀ | ♂ | ♂ | ♂ | ♂ | ♂ | ♂ | ♂ | ♂ | ♂ | ♂ | Day |
|------|---------|----------|-------|-------|--------|-------|-------|-------|--------|-------|--------|--------|-------|------|--------|------|
| T 1 | 0 40 42 | 8♉16'34 | 2♋17 | 22♉ 0 | 17°R55 | 4°D51 | 2°R39 | 3°R43 | 10°R 7 | 9♌24 | 16°R29 | 26♍21 | 24♎36 | 0♉16 | 24°R10 | T 1 |
| F 2 | 0 44 39 | 9°15'32 | 14°57 | 23°32 | 17♋22 | 4♉51 | 2♉32 | 3♉40 | 10♋ 6 | 9°25 | 16♌28 | 26°23 | 24°33 | 0°23 | 24♋ 8 | F 2 |
| S 3 | 0 48 35 | 10°14'31 | 27°23 | 25° 7 | 16°48 | 4°52 | 2°25 | 3°36 | 10° 5 | 9°27 | 16°26 | 26°R23 | 24°30 | 0°29 | 24° 6 | S 3 |
| S 4 | 0 52 32 | 11°13'32 | 9♉37 | 26°45 | 16°13 | 4°54 | 2°18 | 3°33 | 10° 4 | 9°28 | 16°25 | 26°22 | 24°26 | 0°36 | 24° 4 | S 4 |
| M 5 | 0 56 28 | 12°12'35 | 21°43 | 28°24 | 15°37 | 4°57 | 2°11 | 3°30 | 10° 4 | 9°29 | 16°24 | 26°19 | 24°23 | 0°43 | 24° 2 | M 5 |
| T 6 | 1 0 25 | 13°11'40 | 3♌42 | 0♉ 6 | 15° 1 | 5° 0 | 2° 4 | 3°27 | 10° 3 | 9°30 | 16°23 | 26°14 | 24°20 | 0°50 | 24° 0 | T 6 |
| W 7 | 1 4 22 | 14°10'46 | 15°38 | 1°49 | 14°24 | 5° 4 | 1°57 | 3°24 | 10° 2 | 9°32 | 16°22 | 26° 6 | 24°17 | 0°56 | 23°58 | W 7 |
| T 8 | 1 8 18 | 15° 9'55 | 27°30 | 3°33 | 13°47 | 5° 9 | 1°49 | 3°22 | 10° 2 | 9°33 | 16°21 | 25°57 | 24°14 | 1° 3 | 23°56 | T 8 |
| F 9 | 1 12 15 | 16° 9'06 | 9♉22 | 5°18 | 13°10 | 5°15 | 1°42 | 3°19 | 10° 1 | 9°34 | 16°20 | 25°48 | 24°11 | 1°10 | 23°54 | F 9 |
| S 10 | 1 16 11 | 17° 8'20 | 21°14 | 7° 3 | 12°34 | 5°21 | 1°34 | 3°16 | 10° 1 | 9°35 | 16°18 | 25°38 | 24° 7 | 1°16 | 23°51 | S 10 |
| S 11 | 1 20 8 | 18° 7'35 | 3♉ 9 | 8°48 | 11°58 | 5°29 | 1°27 | 3°14 | 10° 0 | 9°36 | 16°17 | 25°29 | 24° 4 | 1°23 | 23°49 | S 11 |
| M12 | 1 24 4 | 19° 6'53 | 15°10 | 10°34 | 11°23 | 5°37 | 1°19 | 3°11 | 10° 0 | 9°37 | 16°16 | 25°22 | 24° 1 | 1°30 | 23°47 | M12 |
| T 13 | 1 28 1 | 20° 6'13 | 27°19 | 12°19 | 10°50 | 5°45 | 1°11 | 3° 9 | 10° 0 | 9°38 | 16°15 | 25°17 | 23°58 | 1°37 | 23°44 | T 13 |
| W14 | 1 31 57 | 21° 5'35 | 9♉40 | 14° 5 | 10°17 | 5°55 | 1° 3 | 3° 7 | 9°59 | 9°39 | 16°14 | 25°14 | 23°55 | 1°43 | 23°42 | W14 |
| T 15 | 1 35 54 | 22° 5'00 | 22°18 | 15°50 | 9°46 | 6° 5 | 0°55 | 3° 4 | 9°59 | 9°40 | 16°13 | 25°D13 | 23°52 | 1°50 | 23°39 | T 15 |
| F 16 | 1 39 51 | 23° 4'27 | 5♌18 | 17°34 | 9°17 | 6°16 | 0°47 | 3° 2 | 9°59 | 9°41 | 16°11 | 25°14 | 23°48 | 1°57 | 23°37 | F 16 |
| S 17 | 1 43 47 | 24° 3'56 | 18°42 | 19°18 | 8°50 | 6°27 | 0°39 | 3° 0 | 9°59 | 9°42 | 16°10 | 25°R14 | 23°45 | 2° 3 | 23°34 | S 17 |
| S 18 | 1 47 44 | 25° 3'27 | 2♉34 | 21° 2 | 8°25 | 6°39 | 0°31 | 2°58 | 9°59 | 9°43 | 16° 9 | 25°14 | 23°42 | 2°10 | 23°32 | S 18 |
| M19 | 1 51 40 | 26° 3'01 | 16°54 | 22°45 | 8° 1 | 6°52 | 0°23 | 2°56 | 9°D58 | 9°43 | 16° 8 | 25°13 | 23°39 | 2°17 | 23°29 | M19 |
| T 20 | 1 55 37 | 27° 2'37 | 1♉41 | 24°28 | 7°41 | 7° 6 | 0°15 | 2°55 | 9°58 | 9°44 | 16° 7 | 25° 8 | 23°36 | 2°24 | 23°26 | T 20 |
| W21 | 1 59 33 | 28° 2'15 | 16°48 | 26°10 | 7°22 | 7°20 | 0° 7 | 2°53 | 9°59 | 9°45 | 16° 6 | 25° 1 | 23°32 | 2°30 | 23°24 | W21 |
| T 22 | 2 3 30 | 29° 1'55 | 2♌ 6 | 27°51 | 7° 5 | 7°35 | 29♌59 | 2°52 | 9°59 | 9°46 | 16° 5 | 24°52 | 23°29 | 2°37 | 23°21 | T 22 |
| F 23 | 2 7 26 | 0♌ 1'37 | 17°25 | 29°32 | 6°52 | 7°50 | 29♌ 1 | 2°50 | 9°59 | 9°46 | 16° 3 | 24°42 | 23°26 | 2°44 | 23°18 | F 23 |
| S 24 | 2 11 23 | 1° 1'21 | 2♉33 | 1♌13 | 6°40 | 8° 6 | 29°42 | 2°49 | 9°59 | 9°47 | 16° 2 | 24°33 | 23°23 | 2°50 | 23°15 | S 24 |
| S 25 | 2 15 19 | 2° 1'07 | 17°20 | 2°52 | 6°31 | 8°23 | 29°34 | 2°47 | 9°59 | 9°48 | 16° 1 | 24°24 | 23°20 | 2°57 | 23°13 | S 25 |
| M26 | 2 19 16 | 3° 0'55 | 1♉40 | 4°32 | 6°24 | 8°40 | 29°26 | 2°46 | 10° 0 | 9°48 | 16° 0 | 24°18 | 23°17 | 3° 4 | 23°10 | M26 |
| T 27 | 2 23 13 | 4° 0'44 | 15°30 | 6°10 | 6°20 | 8°58 | 29°18 | 2°45 | 10° 0 | 9°49 | 15°59 | 24°15 | 23°13 | 3°11 | 23° 7 | T 27 |
| W28 | 2 27 9 | 5° 0'35 | 28°52 | 7°48 | 6°D18 | 9°16 | 29°10 | 2°44 | 10° 0 | 9°49 | 15°58 | 24°13 | 23°10 | 3°17 | 23° 4 | W28 |
| T 29 | 2 31 6 | 6° 0'28 | 11♋48 | 9°26 | 6°19 | 9°35 | 29° 2 | 2°44 | 10° 1 | 9°50 | 15°57 | 24°D13 | 23° 7 | 3°24 | 23° 1 | T 29 |
| F 30 | 2 35 2 | 7° 0'22 | 24°23 | 11° 2 | 6°22 | 9°55 | 28°54 | 2°43 | 10° 1 | 9°50 | 15°56 | 24°R13 | 23° 4 | 3°31 | 22°58 | F 30 |
| S 31 | 2 38 59 | 8♌ 0'18 | 6♉41 | 12♌39 | 6♉27 | 10♉15 | 28♌46 | 2♉42 | 10♋ 2 | 9♌251 | 15♌55 | 24♎13 | 23♎ 1 | 3♉37 | 22♋55 | S 31 |

Delta T = 85.78 sec

ASTRODIENST EPHEMERIS for the year 2082

geocentric

NOVEMBER 2082

00:00 UT

| Day | Sid.t | ☉ | ☽ | ♀ | ♂ | ♂ | ♂ | ♂ | ♂ | ♂ | ♂ | ♂ | ♂ | ♂ | ♂ | Day |
|------|---------|----------|--------|--------|--------|--------|--------|-------|-------|-------|--------|--------|--------|-------|--------|------|
| S 1 | 2 42 55 | 9♈ 0'16 | 18♋ 47 | 14♈ 15 | 6♈ 35 | 10♈ 35 | 28°R38 | 2°R42 | 10♈ 3 | 9♈ 51 | 15°R54 | 24°R10 | 22♈ 58 | 3♈ 44 | 22°R52 | S 1 |
| M 2 | 2 46 52 | 10° 0'15 | 0♈ 45 | 15°50 | 6°45 | 10°56 | 28°Y30 | 2♈ 41 | 10° 3 | 9°51 | 15°Y53 | 24° 5 | 22°54 | 3°51 | 22°R49 | M 2 |
| T 3 | 2 50 48 | 11° 0'16 | 12°38 | 17°25 | 6°57 | 11°17 | 28°23 | 2°41 | 10° 4 | 9°52 | 15°52 | 23°57 | 22°51 | 3°58 | 22°46 | T 3 |
| W 4 | 2 54 45 | 12° 0'18 | 24°30 | 19° 0 | 7°11 | 11°39 | 28°15 | 2°41 | 10° 5 | 9°52 | 15°51 | 23°46 | 22°48 | 4° 4 | 22°43 | W 4 |
| T 5 | 2 58 42 | 13° 0'23 | 6♈ 22 | 20°34 | 7°27 | 12° 2 | 28° 7 | 2°40 | 10° 6 | 9°52 | 15°49 | 23°33 | 22°45 | 4°11 | 22°40 | T 5 |
| F 6 | 3 2 38 | 14° 0'29 | 18°15 | 22° 8 | 7°46 | 12°24 | 28° 0 | 2°D40 | 10° 6 | 9°52 | 15°48 | 23°18 | 22°42 | 4°18 | 22°37 | F 6 |
| S 7 | 3 6 35 | 15° 0'37 | 0♈ 12 | 23°41 | 8° 6 | 12°48 | 27°52 | 2°40 | 10° 7 | 9°53 | 15°47 | 23° 4 | 22°38 | 4°24 | 22°34 | S 7 |
| S 8 | 3 10 31 | 16° 0'47 | 12°13 | 25°14 | 8°28 | 13°11 | 27°45 | 2°41 | 10° 8 | 9°53 | 15°47 | 22°50 | 22°35 | 4°31 | 22°31 | S 8 |
| M 9 | 3 14 28 | 17° 0'59 | 24°20 | 26°47 | 8°52 | 13°35 | 27°38 | 2°41 | 10° 9 | 9°53 | 15°46 | 22°39 | 22°32 | 4°38 | 22°28 | M 9 |
| T 10 | 3 18 24 | 18° 1'13 | 6♈ 34 | 28°19 | 9°18 | 14° 0 | 27°31 | 2°41 | 10°10 | 9°53 | 15°45 | 22°31 | 22°29 | 4°45 | 22°25 | T 10 |
| W 11 | 3 22 21 | 19° 1'29 | 18°59 | 29°51 | 9°45 | 14°25 | 27°24 | 2°42 | 10°12 | 9°53 | 15°44 | 22°25 | 22°26 | 4°51 | 22°22 | W 11 |
| T 12 | 3 26 18 | 20° 1'47 | 1♈ 37 | 1♈ 22 | 10°15 | 14°50 | 27°17 | 2°42 | 10°13 | 9°R53 | 15°43 | 22°22 | 22°23 | 4°58 | 22°19 | T 12 |
| F 13 | 3 30 14 | 21° 2'06 | 14°33 | 2°54 | 10°45 | 15°16 | 27°10 | 2°43 | 10°14 | 9°53 | 15°42 | 22°22 | 22°19 | 5° 5 | 22°16 | F 13 |
| S 14 | 3 34 11 | 22° 2'28 | 27°49 | 4°24 | 11°18 | 15°42 | 27° 3 | 2°44 | 10°15 | 9°53 | 15°41 | 22°22 | 22°16 | 5°11 | 22°13 | S 14 |
| S 15 | 3 38 7 | 23° 2'52 | 11♈ 30 | 5°55 | 11°52 | 16° 8 | 26°57 | 2°45 | 10°17 | 9°53 | 15°40 | 22°21 | 22°13 | 5°18 | 22° 9 | S 15 |
| M 16 | 3 42 4 | 24° 3'17 | 25°37 | 7°25 | 12°27 | 16°35 | 26°50 | 2°46 | 10°18 | 9°53 | 15°39 | 22°19 | 22°10 | 5°25 | 22° 6 | M 16 |
| T 17 | 3 46 0 | 25° 3'44 | 10♈ 9 | 8°55 | 13° 3 | 17° 2 | 26°44 | 2°47 | 10°19 | 9°52 | 15°38 | 22°14 | 22° 7 | 5°32 | 22° 3 | T 17 |
| W 18 | 3 49 57 | 26° 4'14 | 25° 5 | 10°25 | 13°41 | 17°29 | 26°38 | 2°48 | 10°21 | 9°52 | 15°37 | 22° 6 | 22° 4 | 5°38 | 22° 0 | W 18 |
| T 19 | 3 53 53 | 27° 4'45 | 10♈ 15 | 11°54 | 14°20 | 17°57 | 26°32 | 2°50 | 10°22 | 9°52 | 15°37 | 21°55 | 22° 0 | 5°45 | 21°57 | T 19 |
| F 20 | 3 57 50 | 28° 5'18 | 25°31 | 13°22 | 15° 1 | 18°25 | 26°26 | 2°51 | 10°24 | 9°52 | 15°36 | 21°44 | 21°57 | 5°52 | 21°54 | F 20 |
| S 21 | 4 1 47 | 29° 5'52 | 10♈ 41 | 14°51 | 15°42 | 18°53 | 26°20 | 2°53 | 10°25 | 9°51 | 15°35 | 21°32 | 21°54 | 5°58 | 21°51 | S 21 |
| S 22 | 4 5 43 | 0♈ 6'28 | 25°34 | 16°19 | 16°25 | 19°22 | 26°15 | 2°54 | 10°27 | 9°51 | 15°34 | 21°22 | 21°51 | 6° 5 | 21°48 | S 22 |
| M 23 | 4 9 40 | 1° 7'05 | 10♈ 3 | 17°46 | 17° 9 | 19°50 | 26°10 | 2°56 | 10°29 | 9°51 | 15°33 | 21°14 | 21°48 | 6°12 | 21°45 | M 23 |
| T 24 | 4 13 36 | 2° 7'43 | 24° 2 | 19°13 | 17°54 | 20°20 | 26° 4 | 2°58 | 10°31 | 9°50 | 15°33 | 21° 9 | 21°44 | 6°19 | 21°42 | T 24 |
| W 25 | 4 17 33 | 3° 8'23 | 7♈ 32 | 20°39 | 18°39 | 20°49 | 25°59 | 3° 0 | 10°32 | 9°50 | 15°32 | 21° 7 | 21°41 | 6°25 | 21°39 | W 25 |
| T 26 | 4 21 29 | 4° 9'04 | 20°34 | 22° 4 | 19°26 | 21°19 | 25°55 | 3° 2 | 10°34 | 9°49 | 15°31 | 21°D 6 | 21°38 | 6°32 | 21°36 | T 26 |
| F 27 | 4 25 26 | 5° 9'45 | 3♈ 12 | 23°29 | 20°14 | 21°49 | 25°50 | 3° 4 | 10°36 | 9°49 | 15°30 | 21°R 6 | 21°35 | 6°39 | 21°33 | F 27 |
| S 28 | 4 29 22 | 6°10'28 | 15°30 | 24°52 | 21° 2 | 22°19 | 25°46 | 3° 6 | 10°38 | 9°48 | 15°30 | 21° 6 | 21°32 | 6°45 | 21°30 | S 28 |
| S 29 | 4 33 19 | 7°11'11 | 27°34 | 26°15 | 21°52 | 22°50 | 25°41 | 3° 9 | 10°40 | 9°48 | 15°29 | 21° 4 | 21°29 | 6°52 | 21°27 | S 29 |
| M 30 | 4 37 16 | 8♈ 11'56 | 9♈ 30 | 27♈ 36 | 22♈ 42 | 23♈ 21 | 25°Y37 | 3♈ 11 | 10°42 | 9♈ 47 | 15°Y29 | 21° 0 | 21°25 | 6♈ 59 | 21°R24 | M 30 |

Delta T = 85.82 sec

DECEMBER 2082

00:00 UT

| Day | Sid.t | ☉ | ☽ | ♀ | ♂ | ♂ | ♂ | ♂ | ♂ | ♂ | ♂ | ♂ | ♂ | ♂ | ♂ | Day |
|------|---------|----------|--------|--------|--------|--------|--------|-------|-------|-------|--------|--------|-------|--------|--------|------|
| T 1 | 4 41 12 | 9♈ 12'42 | 21°Y21 | 28♈ 56 | 23♈ 33 | 23♈ 52 | 25°R33 | 3♈ 14 | 10°44 | 9°R47 | 15°R28 | 20°R53 | 21°22 | 7♈ 6 | 21°R21 | T 1 |
| W 2 | 4 45 9 | 10°13'29 | 3♈ 12 | 0♈ 15 | 24°25 | 24°23 | 25°Y30 | 3°16 | 10°46 | 9♈ 46 | 15°Y27 | 20°43 | 21°19 | 7°12 | 21°R18 | W 2 |
| T 3 | 4 49 5 | 11°14'16 | 15° 5 | 1°32 | 25°18 | 24°54 | 25°26 | 3°19 | 10°48 | 9°45 | 15°27 | 20°31 | 21°16 | 7°19 | 21°15 | T 3 |
| F 4 | 4 53 2 | 12°15'05 | 27° 3 | 2°46 | 26°11 | 25°26 | 25°23 | 3°22 | 10°50 | 9°45 | 15°26 | 20°18 | 21°13 | 7°26 | 21°12 | F 4 |
| S 5 | 4 56 58 | 13°15'55 | 9♈ 7 | 3°58 | 27° 5 | 25°58 | 25°20 | 3°25 | 10°53 | 9°44 | 15°26 | 20° 4 | 21°10 | 7°32 | 21° 9 | S 5 |
| S 6 | 5 0 55 | 14°16'47 | 21°18 | 5° 8 | 27°59 | 26°30 | 25°17 | 3°28 | 10°55 | 9°43 | 15°25 | 19°52 | 21° 6 | 7°39 | 21° 7 | S 6 |
| M 7 | 5 4 51 | 15°17'39 | 3♈ 37 | 6°14 | 28°55 | 27° 2 | 25°14 | 3°31 | 10°57 | 9°42 | 15°25 | 19°42 | 21° 3 | 7°46 | 21° 4 | M 7 |
| T 8 | 5 8 48 | 16°18'32 | 16° 4 | 7°16 | 29°51 | 27°34 | 25°11 | 3°34 | 10°59 | 9°41 | 15°24 | 19°34 | 21° 0 | 7°53 | 21° 1 | T 8 |
| W 9 | 5 12 45 | 17°19'27 | 28°42 | 8°15 | 0♈ 47 | 28° 7 | 25° 9 | 3°37 | 11° 2 | 9°41 | 15°24 | 19°29 | 20°57 | 7°59 | 20°58 | W 9 |
| T 10 | 5 16 41 | 18°20'22 | 11♈ 31 | 9° 8 | 1°44 | 28°40 | 25° 7 | 3°41 | 11° 4 | 9°40 | 15°23 | 19°27 | 20°54 | 8° 6 | 20°56 | T 10 |
| F 11 | 5 20 38 | 19°21'19 | 24°33 | 9°56 | 2°42 | 29°13 | 25° 5 | 3°44 | 11° 7 | 9°39 | 15°23 | 19°D27 | 20°50 | 8°13 | 20°53 | F 11 |
| S 12 | 5 24 34 | 20°22'17 | 7♈ 51 | 10°38 | 3°40 | 29°46 | 25° 3 | 3°48 | 11° 9 | 9°38 | 15°22 | 19°28 | 20°47 | 8°20 | 20°50 | S 12 |
| S 13 | 5 28 31 | 21°23'16 | 21°27 | 11°12 | 4°39 | 0♈ 19 | 25° 2 | 3°51 | 11°12 | 9°37 | 15°22 | 19°R28 | 20°44 | 8°26 | 20°48 | S 13 |
| M 14 | 5 32 27 | 22°24'16 | 5♈ 23 | 11°39 | 5°38 | 0°53 | 25° 0 | 3°55 | 11°14 | 9°36 | 15°22 | 19°27 | 20°41 | 8°33 | 20°45 | M 14 |
| T 15 | 5 36 24 | 23°25'17 | 19°39 | 11°57 | 6°38 | 1°26 | 24°59 | 3°59 | 11°17 | 9°35 | 15°21 | 19°25 | 20°38 | 8°40 | 20°43 | T 15 |
| W 16 | 5 40 20 | 24°26'20 | 4♈ 13 | 12°R 5 | 7°38 | 2° 0 | 24°58 | 4° 3 | 11°19 | 9°34 | 15°21 | 19°19 | 20°35 | 8°46 | 20°40 | W 16 |
| T 17 | 5 44 17 | 25°27'23 | 19° 0 | 12° 3 | 8°38 | 2°34 | 24°58 | 4° 7 | 11°22 | 9°33 | 15°21 | 19°12 | 20°31 | 8°53 | 20°38 | T 17 |
| F 18 | 5 48 14 | 26°28'27 | 3♈ 55 | 11°50 | 9°39 | 3° 8 | 24°57 | 4°11 | 11°25 | 9°31 | 15°20 | 19° 4 | 20°28 | 9° 0 | 20°36 | F 18 |
| S 19 | 5 52 10 | 27°29'33 | 18°48 | 11°25 | 10°41 | 3°42 | 24°57 | 4°15 | 11°28 | 9°30 | 15°20 | 18°55 | 20°25 | 9° 7 | 20°33 | S 19 |
| S 20 | 5 56 7 | 28°30'39 | 3♈ 30 | 10°48 | 11°42 | 4°17 | 24°D57 | 4°20 | 11°30 | 9°29 | 15°20 | 18°47 | 20°22 | 9°13 | 20°31 | S 20 |
| M 21 | 6 0 3 | 29°31'45 | 17°54 | 10° 0 | 12°45 | 4°51 | 24°57 | 4°24 | 11°33 | 9°28 | 15°20 | 18°41 | 20°19 | 9°20 | 20°29 | M 21 |
| T 22 | 6 4 0 | 0♈ 32'52 | 1♈ 54 | 9° 2 | 13°47 | 5°26 | 24°58 | 4°28 | 11°36 | 9°27 | 15°20 | 18°38 | 20°16 | 9°27 | 20°26 | T 22 |
| W 23 | 6 7 56 | 1°33'59 | 15°27 | 7°54 | 14°50 | 6° 1 | 24°58 | 4°33 | 11°39 | 9°26 | 15°19 | 18°D36 | 20°12 | 9°33 | 20°24 | W 23 |
| T 24 | 6 11 53 | 2°35'06 | 28°35 | 6°39 | 15°53 | 6°36 | 24°59 | 4°37 | 11°42 | 9°24 | 15°19 | 18°37 | 20° 9 | 9°40 | 20°22 | T 24 |
| F 25 | 6 15 50 | 3°36'14 | 11♈ 18 | 5°19 | 16°57 | 7°11 | 25° 0 | 4°42 | 11°45 | 9°23 | 15°19 | 18°38 | 20° 6 | 9°47 | 20°20 | F 25 |
| S 26 | 6 19 46 | 4°37'21 | 23°41 | 3°57 | 18° 1 | 7°46 | 25° 1 | 4°47 | 11°48 | 9°22 | 15°19 | 18°40 | 20° 3 | 9°54 | 20°18 | S 26 |
| S 27 | 6 23 43 | 5°38'29 | 5♈ 49 | 2°35 | 19° 5 | 8°21 | 25° 3 | 4°52 | 11°50 | 9°20 | 15°19 | 18°R40 | 20° 0 | 10° 0 | 20°16 | S 27 |
| M 28 | 6 27 39 | 6°39'37 | 17°46 | 1°16 | 20° 9 | 8°56 | 25° 4 | 4°57 | 11°53 | 9°19 | 15°19 | 18°39 | 19°56 | 10° 7 | 20°14 | M 28 |
| T 29 | 6 31 36 | 7°40'44 | 29°38 | 0° 3 | 21°14 | 9°32 | 25° 6 | 5° 1 | 11°56 | 9°18 | 15°D19 | 18°37 | 19°53 | 10°14 | 20°12 | T 29 |
| W 30 | 6 35 32 | 8°41'52 | 11♈ 30 | 28♈ 57 | 22°19 | 10° 8 | 25° 8 | 5° 7 | 12° 0 | 9°16 | 15°19 | 18°32 | 19°50 | 10°21 | 20°11 | W 30 |
| T 31 | 6 39 29 | 9♈ 43'00 | 23♈ 24 | 28♈ 0 | 23♈ 25 | 10°Y43 | 25°Y10 | 5♈ 12 | 12° 3 | 9♈ 15 | 15°Y19 | 18°26 | 19°47 | 10♈ 27 | 20°R 9 | T 31 |

Delta T = 85.85 sec