



Astrodienst Ephemeris Tables for the year 1413

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 1413

geocentric

JANUARY 1413 JC

00:00 UT

| Day | Sid.t | ☉ | ☽ | ♀ | ♂ | ♂ | ♂ | ♂ | ♂ | ♂ | ♂ | ♂ | ♂ | ♂ | ♂ | Day |
|------|---------|----------|--------|-------|-------|-------|-------|--------|-------|-------|---------|--------|-------|-------|------|------|
| S 1 | 7 16 5 | 19°34'35 | 25°23 | 0°13 | 6°44 | 7°11 | 9°32 | 3°R 5 | 11°42 | 4°R35 | 16°R58 | 16°R29 | 17°48 | 19°22 | 7°48 | S 1 |
| M 2 | 7 20 1 | 20°35'43 | 10°3 | 1°38 | 7°26 | 7°59 | 9°40 | 3°II 2 | 11°45 | 4°33 | 16°II57 | 16°25 | 17°45 | 19°29 | 7°52 | M 2 |
| T 3 | 7 23 58 | 21°36'49 | 25°8 | 3°4 | 8°9 | 8°46 | 9°47 | 3°0 | 11°48 | 4°32 | 16°56 | 16°23 | 17°41 | 19°35 | 7°57 | T 3 |
| W 4 | 7 27 55 | 22°37'55 | 10°14 | 4°31 | 8°52 | 9°34 | 9°55 | 2°57 | 11°52 | 4°30 | 16°55 | 16°D22 | 17°38 | 19°42 | 8°1 | W 4 |
| T 5 | 7 31 51 | 23°39'00 | 25°15 | 5°59 | 9°37 | 10°21 | 10°3 | 2°55 | 11°55 | 4°28 | 16°54 | 16°22 | 17°35 | 19°48 | 8°5 | T 5 |
| F 6 | 7 35 48 | 24°40'04 | 10°5 | 7°27 | 10°23 | 11°9 | 10°10 | 2°53 | 11°58 | 4°27 | 16°53 | 16°23 | 17°32 | 19°55 | 8°9 | F 6 |
| S 7 | 7 39 44 | 25°41'07 | 24°37 | 8°56 | 11°10 | 11°56 | 10°17 | 2°51 | 12°2 | 4°25 | 16°52 | 16°24 | 17°29 | 20°2 | 8°13 | S 7 |
| S 8 | 7 43 41 | 26°42'09 | 8°48 | 10°26 | 11°57 | 12°44 | 10°24 | 2°49 | 12°5 | 4°24 | 16°51 | 16°25 | 17°26 | 20°8 | 8°17 | S 8 |
| M 9 | 7 47 37 | 27°43'09 | 22°37 | 11°56 | 12°46 | 13°31 | 10°31 | 2°47 | 12°8 | 4°22 | 16°51 | 16°R26 | 17°22 | 20°15 | 8°21 | M 9 |
| T 10 | 7 51 34 | 28°44'09 | 6°4 | 13°28 | 13°35 | 14°18 | 10°38 | 2°46 | 12°12 | 4°21 | 16°50 | 16°26 | 17°19 | 20°22 | 8°25 | T 10 |
| W11 | 7 55 30 | 29°45'07 | 19°10 | 14°59 | 14°25 | 15°6 | 10°45 | 2°44 | 12°15 | 4°19 | 16°49 | 16°25 | 17°16 | 20°28 | 8°28 | W11 |
| T 12 | 7 59 27 | 0°46'04 | 1°II59 | 16°32 | 15°16 | 15°53 | 10°51 | 2°43 | 12°19 | 4°18 | 16°48 | 16°24 | 17°13 | 20°35 | 8°32 | T 12 |
| F 13 | 8 3 24 | 1°47'00 | 14°32 | 18°5 | 16°8 | 16°41 | 10°58 | 2°41 | 12°22 | 4°16 | 16°47 | 16°21 | 17°10 | 20°42 | 8°35 | F 13 |
| S 14 | 8 7 20 | 2°47'54 | 26°52 | 19°39 | 17°0 | 17°28 | 11°4 | 2°40 | 12°26 | 4°15 | 16°47 | 16°19 | 17°7 | 20°48 | 8°38 | S 14 |
| S 15 | 8 11 17 | 3°48'48 | 9°2 | 21°14 | 17°53 | 18°16 | 11°10 | 2°39 | 12°29 | 4°13 | 16°46 | 16°17 | 17°3 | 20°55 | 8°41 | S 15 |
| M16 | 8 15 13 | 4°49'40 | 21°3 | 22°49 | 18°47 | 19°3 | 11°16 | 2°38 | 12°32 | 4°12 | 16°45 | 16°16 | 17°0 | 21°2 | 8°45 | M16 |
| T 17 | 8 19 10 | 5°50'30 | 2°58 | 24°25 | 19°41 | 19°50 | 11°22 | 2°37 | 12°36 | 4°10 | 16°44 | 16°15 | 16°57 | 21°8 | 8°47 | T 17 |
| W18 | 8 23 6 | 6°51'20 | 14°48 | 26°1 | 20°36 | 20°38 | 11°27 | 2°36 | 12°39 | 4°9 | 16°44 | 16°D14 | 16°54 | 21°15 | 8°50 | W18 |
| T 19 | 8 27 3 | 7°52'08 | 26°36 | 27°39 | 21°32 | 21°25 | 11°33 | 2°35 | 12°43 | 4°8 | 16°43 | 16°15 | 16°51 | 21°21 | 8°53 | T 19 |
| F 20 | 8 31 0 | 8°52'55 | 8°24 | 29°17 | 22°28 | 22°13 | 11°38 | 2°35 | 12°46 | 4°6 | 16°42 | 16°15 | 16°47 | 21°28 | 8°56 | F 20 |
| S 21 | 8 34 56 | 9°53'42 | 20°14 | 0°56 | 23°24 | 23°0 | 11°43 | 2°34 | 12°50 | 4°5 | 16°42 | 16°16 | 16°44 | 21°35 | 8°58 | S 21 |
| S 22 | 8 38 53 | 10°54'26 | 2°10 | 2°36 | 24°22 | 23°47 | 11°48 | 2°34 | 12°53 | 4°4 | 16°41 | 16°17 | 16°41 | 21°41 | 9°1 | S 22 |
| M23 | 8 42 49 | 11°55'10 | 14°15 | 4°16 | 25°19 | 24°35 | 11°53 | 2°34 | 12°57 | 4°2 | 16°40 | 16°17 | 16°38 | 21°48 | 9°3 | M23 |
| T 24 | 8 46 46 | 12°55'53 | 26°33 | 5°58 | 26°17 | 25°22 | 11°58 | 2°33 | 13°0 | 4°1 | 16°40 | 16°17 | 16°35 | 21°55 | 9°5 | T 24 |
| W25 | 8 50 42 | 13°56'34 | 9°8 | 7°40 | 27°16 | 26°10 | 12°2 | 2°D33 | 13°4 | 4°0 | 16°39 | 16°R18 | 16°32 | 22°1 | 9°7 | W25 |
| T 26 | 8 54 39 | 14°57'15 | 22°4 | 9°23 | 28°15 | 26°57 | 12°7 | 2°34 | 13°7 | 3°59 | 16°39 | 16°18 | 16°28 | 22°8 | 9°9 | T 26 |
| F 27 | 8 58 35 | 15°57'54 | 5°24 | 11°7 | 29°15 | 27°44 | 12°11 | 2°34 | 13°11 | 3°58 | 16°38 | 16°D18 | 16°25 | 22°15 | 9°11 | F 27 |
| S 28 | 9 2 32 | 16°58'33 | 19°11 | 12°52 | 0°14 | 28°32 | 12°15 | 2°34 | 13°14 | 3°56 | 16°37 | 16°18 | 16°22 | 22°21 | 9°13 | S 28 |
| S 29 | 9 6 29 | 17°59'10 | 3°25 | 14°37 | 1°15 | 29°19 | 12°18 | 2°35 | 13°18 | 3°55 | 16°37 | 16°18 | 16°19 | 22°28 | 9°14 | S 29 |
| M30 | 9 10 25 | 18°59'46 | 18°3 | 16°24 | 2°16 | 0°6 | 12°22 | 2°35 | 13°21 | 3°54 | 16°36 | 16°18 | 16°16 | 22°35 | 9°16 | M30 |
| T 31 | 9 14 22 | 20°0'20 | 3°2 | 18°11 | 3°17 | 0°53 | 12°25 | 2°II36 | 13°25 | 3°53 | 16°II36 | 16°18 | 16°13 | 22°41 | 9°17 | T 31 |

Delta T = 07m32s

Julian Calendar 1 Jan. 1413 == Greg. Calendar 10 Jan. 1413

FEBRUARY 1413 JC

00:00 UT

| Day | Sid.t | ☉ | ☽ | ♀ | ♂ | ♂ | ♂ | ♂ | ♂ | ♂ | ♂ | ♂ | ♂ | ♂ | ♂ | Day |
|------|----------|---------|-------|-------|-------|-------|--------|--------|-------|-------|---------|--------|-------|-------|-------|------|
| W 1 | 9 18 18 | 21°0'53 | 18°13 | 20°0 | 4°18 | 1°41 | 12°29 | 2°1137 | 13°28 | 3°R52 | 16°R36 | 16°R18 | 16°9 | 22°48 | 9°18 | W 1 |
| T 2 | 9 22 15 | 22°1'24 | 3°26 | 21°49 | 5°20 | 2°28 | 12°32 | 2°37 | 13°32 | 3°51 | 16°1135 | 16°18 | 16°6 | 22°55 | 9°20 | T 2 |
| F 3 | 9 26 11 | 23°1'53 | 18°33 | 23°39 | 6°22 | 3°15 | 12°35 | 2°38 | 13°35 | 3°50 | 16°35 | 16°17 | 16°3 | 23°1 | 9°21 | F 3 |
| S 4 | 9 30 8 | 24°2'21 | 3°24 | 25°29 | 7°24 | 4°2 | 12°37 | 2°40 | 13°38 | 3°49 | 16°34 | 16°17 | 16°0 | 23°8 | 9°22 | S 4 |
| S 5 | 9 34 4 | 25°2'47 | 17°53 | 27°21 | 8°27 | 4°50 | 12°40 | 2°41 | 13°42 | 3°48 | 16°34 | 16°16 | 15°57 | 23°14 | 9°22 | S 5 |
| M 6 | 9 38 1 | 26°3'11 | 1°56 | 29°13 | 9°30 | 5°37 | 12°42 | 2°42 | 13°45 | 3°47 | 16°34 | 16°15 | 15°53 | 23°21 | 9°23 | M 6 |
| T 7 | 9 41 58 | 27°3'33 | 15°31 | 1°6 | 10°33 | 6°24 | 12°45 | 2°44 | 13°49 | 3°46 | 16°33 | 16°14 | 15°50 | 23°28 | 9°24 | T 7 |
| W 8 | 9 45 54 | 28°3'53 | 28°40 | 3°0 | 11°37 | 7°11 | 12°47 | 2°45 | 13°52 | 3°45 | 16°33 | 16°D14 | 15°47 | 23°34 | 9°24 | W 8 |
| T 9 | 9 49 51 | 29°4'10 | 11°27 | 4°54 | 12°40 | 7°58 | 12°48 | 2°47 | 13°56 | 3°45 | 16°33 | 16°14 | 15°44 | 23°41 | 9°25 | T 9 |
| F 10 | 9 53 47 | 0°4'26 | 23°53 | 6°48 | 13°44 | 8°45 | 12°50 | 2°49 | 13°59 | 3°44 | 16°33 | 16°15 | 15°41 | 23°48 | 9°25 | F 10 |
| S 11 | 9 57 44 | 1°4'40 | 6°5 | 8°42 | 14°49 | 9°32 | 12°51 | 2°51 | 14°2 | 3°43 | 16°32 | 16°16 | 15°38 | 23°54 | 9°25 | S 11 |
| S 12 | 10 1 40 | 2°4'52 | 18°5 | 10°37 | 15°53 | 10°19 | 12°53 | 2°53 | 14°6 | 3°42 | 16°32 | 16°18 | 15°34 | 24°1 | 9°R25 | S 12 |
| M13 | 10 5 37 | 3°5'02 | 29°58 | 12°31 | 16°58 | 11°6 | 12°54 | 2°55 | 14°9 | 3°42 | 16°32 | 16°19 | 15°31 | 24°8 | 9°25 | M13 |
| T 14 | 10 9 33 | 4°5'10 | 11°46 | 14°25 | 18°3 | 11°53 | 12°55 | 2°57 | 14°12 | 3°41 | 16°32 | 16°R20 | 15°28 | 24°14 | 9°25 | T 14 |
| W15 | 10 13 30 | 5°5'15 | 23°33 | 16°18 | 19°8 | 12°40 | 12°55 | 2°59 | 14°16 | 3°40 | 16°32 | 16°19 | 15°25 | 24°21 | 9°24 | W15 |
| T 16 | 10 17 27 | 6°5'19 | 5°22 | 18°10 | 20°14 | 13°27 | 12°56 | 3°2 | 14°19 | 3°40 | 16°32 | 16°18 | 15°22 | 24°28 | 9°24 | T 16 |
| F 17 | 10 21 23 | 7°5'21 | 17°14 | 20°0 | 21°19 | 14°14 | 12°56 | 3°4 | 14°22 | 3°39 | 16°32 | 16°16 | 15°19 | 24°34 | 9°23 | F 17 |
| S 18 | 10 25 20 | 8°5'21 | 29°11 | 21°49 | 22°25 | 15°1 | 12°R56 | 3°7 | 14°26 | 3°38 | 16°32 | 16°13 | 15°15 | 24°41 | 9°23 | S 18 |
| S 19 | 10 29 16 | 9°5'19 | 11°15 | 23°35 | 23°31 | 15°48 | 12°56 | 3°10 | 14°29 | 3°38 | 16°31 | 16°9 | 15°12 | 24°48 | 9°22 | S 19 |
| M20 | 10 33 13 | 10°5'16 | 23°28 | 25°19 | 24°37 | 16°34 | 12°56 | 3°13 | 14°32 | 3°37 | 16°D31 | 16°5 | 15°9 | 24°54 | 9°21 | M20 |
| T 21 | 10 37 9 | 11°5'10 | 5°53 | 26°59 | 25°44 | 17°21 | 12°56 | 3°15 | 14°35 | 3°37 | 16°31 | 16°2 | 15°6 | 25°1 | 9°20 | T 21 |
| W22 | 10 41 6 | 12°5'03 | 18°32 | 28°35 | 26°51 | 18°8 | 12°55 | 3°19 | 14°38 | 3°37 | 16°31 | 15°59 | 15°3 | 25°7 | 9°19 | W22 |
| T 23 | 10 45 2 | 13°4'55 | 1°28 | 0°7 | 27°57 | 18°55 | 12°54 | 3°22 | 14°42 | 3°36 | 16°32 | 15°57 | 14°59 | 25°14 | 9°18 | T 23 |
| F 24 | 10 48 59 | 14°4'45 | 14°42 | 1°34 | 29°4 | 19°41 | 12°53 | 3°25 | 14°45 | 3°36 | 16°32 | 15°D56 | 14°56 | 25°21 | 9°17 | F 24 |
| S 25 | 10 52 55 | 15°4'33 | 28°18 | 2°56 | 0°11 | 20°28 | 12°52 | 3°28 | 14°48 | 3°35 | 16°32 | 15°57 | 14°53 | 25°27 | 9°15 | S 25 |
| S 26 | 10 56 52 | 16°4'19 | 12°17 | 4°12 | 1°19 | 21°15 | 12°51 | 3°32 | 14°51 | 3°35 | 16°32 | 15°58 | 14°50 | 25°34 | 9°14 | S 26 |
| M27 | 11 0 49 | 17°4'04 | 26°39 | 5°22 | 2°26 | 22°1 | 12°49 | 3°35 | 14°54 | 3°35 | 16°32 | 16°0 | 14°47 | 25°41 | 9°12 | M27 |
| T 28 | 11 4 45 | 18°4'46 | 11°22 | 6°25 | 3°34 | 22°48 | 12°47 | 3°1139 | 14°57 | 3°35 | 16°1132 | 16°R 1 | 14°44 | 25°47 | 9°11 | T 28 |

Delta T = 07m32s

Julian Calendar

ASTRODIENST EPHEMERIS for the year 1413

geocentric

MARCH 1413 JC

00:00 UT

| Day | Sid.t | ☉ | ☽ | ♀ | ♂ | ♂ | ♂ | ♂ | ♂ | ♂ | ♂ | ♂ | ♂ | ♂ | ♂ | Day |
|------|----------|-----------|-----------|-----------|-----------|-----------|-----------|----------|-----------|----------|-----------|-----------|-----------|-----------|----------|------|
| W 1 | 11 8 42 | 19°32'27" | 26°20'20" | 7°21'21" | 4°44'41" | 23°34'34" | 12°45'45" | 3°43'43" | 15°00'00" | 3°35'35" | 16°32'32" | 16°R 0 | 14°40'40" | 25°54'54" | 9°R 9 | W 1 |
| T 2 | 11 12 38 | 20°30'06" | 11°27'27" | 8°09'09" | 5°49'49" | 24°21'21" | 12°44'44" | 3°47'47" | 15°03'03" | 3°36'36" | 16°33'33" | 15°58'58" | 14°37'37" | 26°01'01" | 9°M 7 | T 2 |
| F 3 | 11 16 35 | 21°24'33" | 26°33'33" | 8°50'50" | 6°57'57" | 25°07'07" | 12°41'41" | 3°50'50" | 15°06'06" | 3°34'34" | 16°33'33" | 15°55'55" | 14°34'34" | 26°07'07" | 9°F 5 | F 3 |
| S 4 | 11 20 31 | 22°21'18" | 11°30'30" | 9°24'24" | 8°05'05" | 25°54'54" | 12°39'39" | 3°54'54" | 15°09'09" | 3°34'34" | 16°33'33" | 15°50'50" | 14°31'31" | 26°14'14" | 9°S 3 | S 4 |
| S 5 | 11 24 28 | 23°15'51" | 26°08'08" | 9°49'49" | 9°13'13" | 26°40'40" | 12°36'36" | 3°59'59" | 15°12'12" | 3°34'34" | 16°33'33" | 15°44'44" | 14°28'28" | 26°21'21" | 9°S 0 | S 5 |
| M 6 | 11 28 24 | 24°12'21" | 10°21'21" | 10°06'06" | 10°21'21" | 27°26'26" | 12°33'33" | 4°03'03" | 15°15'15" | 3°34'34" | 16°34'34" | 15°38'38" | 14°24'24" | 26°27'27" | 8°58'58" | M 6 |
| T 7 | 11 32 21 | 25°04'49" | 24°06'06" | 10°16'16" | 11°30'30" | 28°13'13" | 12°30'30" | 4°07'07" | 15°18'18" | 3°34'34" | 16°34'34" | 15°33'33" | 14°21'21" | 26°34'34" | 8°56'56" | T 7 |
| W 8 | 11 36 18 | 26°01'15" | 7°11'23" | 10°R18 | 12°38'38" | 28°59'59" | 12°27'27" | 4°11'11" | 15°21'21" | 3°34'34" | 16°34'34" | 15°30'30" | 14°18'18" | 26°41'41" | 8°53'53" | W 8 |
| T 9 | 11 40 14 | 26°59'39" | 20°13'13" | 10°12'12" | 13°47'47" | 29°45'45" | 12°23'23" | 4°16'16" | 15°24'24" | 3°34'34" | 16°35'35" | 15°28'28" | 14°15'15" | 26°47'47" | 8°51'51" | T 9 |
| F 10 | 11 44 11 | 27°59'00" | 2°34'11" | 9°58'58" | 14°56'56" | 0°31'31" | 12°20'20" | 4°21'21" | 15°26'26" | 3°34'34" | 16°35'35" | 15°D28 | 14°12'12" | 26°54'54" | 8°48'48" | F 10 |
| S 11 | 11 48 07 | 28°58'19" | 14°51'51" | 9°38'38" | 16°05'05" | 1°17'17" | 12°16'16" | 4°25'25" | 15°29'29" | 3°35'35" | 16°35'35" | 15°29'29" | 14°09'09" | 27°00'00" | 8°45'45" | S 11 |
| S 12 | 11 52 04 | 29°57'36" | 26°49'49" | 9°12'12" | 17°13'13" | 2°03'03" | 12°12'12" | 4°30'30" | 15°32'32" | 3°35'35" | 16°36'36" | 15°31'31" | 14°05'05" | 27°07'07" | 8°42'42" | S 12 |
| M13 | 11 56 00 | 0°56'50" | 8°40'38" | 8°40'38" | 18°22'22" | 2°49'49" | 12°08'08" | 4°35'35" | 15°34'34" | 3°35'35" | 16°36'36" | 15°32'32" | 14°02'02" | 27°14'14" | 8°39'39" | M13 |
| T 14 | 11 59 57 | 1°56'02" | 20°24'24" | 8°02'02" | 19°32'32" | 3°35'35" | 12°04'04" | 4°40'40" | 15°37'37" | 3°35'35" | 16°37'37" | 15°R32 | 13°59'59" | 27°20'20" | 8°36'36" | T 14 |
| W15 | 12 03 53 | 2°55'12" | 2°12'12" | 7°21'21" | 20°41'41" | 4°21'21" | 12°00'00" | 4°45'45" | 15°40'40" | 3°35'35" | 16°37'37" | 15°30'30" | 13°56'56" | 27°27'27" | 8°33'33" | W15 |
| T 16 | 12 07 50 | 3°54'19" | 14°03'03" | 6°37'37" | 21°50'50" | 5°07'07" | 11°55'55" | 4°50'50" | 15°42'42" | 3°36'36" | 16°38'38" | 15°26'26" | 13°53'53" | 27°34'34" | 8°30'30" | T 16 |
| F 17 | 12 11 47 | 4°53'25" | 26°02'02" | 5°50'50" | 22°59'59" | 5°53'53" | 11°50'50" | 4°55'55" | 15°45'45" | 3°36'36" | 16°38'38" | 15°20'20" | 13°50'50" | 27°40'40" | 8°27'27" | F 17 |
| S 18 | 12 15 43 | 5°52'28" | 8°49'09" | 5°02'02" | 24°09'09" | 6°39'39" | 11°46'46" | 5°00'00" | 15°47'47" | 3°36'36" | 16°39'39" | 15°12'12" | 13°46'46" | 27°47'47" | 8°24'24" | S 18 |
| S 19 | 12 19 40 | 6°51'29" | 20°27'27" | 4°13'13" | 25°18'18" | 7°25'25" | 11°41'41" | 5°05'05" | 15°50'50" | 3°37'37" | 16°39'39" | 15°03'03" | 13°43'43" | 27°54'54" | 8°20'20" | S 19 |
| M20 | 12 23 36 | 7°50'28" | 2°15'55" | 3°25'25" | 26°28'28" | 8°10'10" | 11°36'36" | 5°11'11" | 15°52'52" | 3°37'37" | 16°40'40" | 14°53'53" | 13°40'40" | 28°00'00" | 8°17'17" | M20 |
| T 21 | 12 27 33 | 8°49'25" | 15°35'35" | 2°38'38" | 27°38'38" | 8°56'56" | 11°30'30" | 5°16'16" | 15°55'55" | 3°38'38" | 16°41'41" | 14°44'44" | 13°37'37" | 28°07'07" | 8°13'13" | T 21 |
| W22 | 12 31 29 | 9°48'21" | 28°27'27" | 1°54'54" | 28°47'47" | 9°42'42" | 11°25'25" | 5°22'22" | 15°57'57" | 3°38'38" | 16°41'41" | 14°36'36" | 13°34'34" | 28°14'14" | 8°10'10" | W22 |
| T 23 | 12 35 26 | 10°47'14" | 11°27'27" | 1°13'13" | 29°57'57" | 10°27'27" | 11°19'19" | 5°27'27" | 16°00'00" | 3°39'39" | 16°42'42" | 14°30'30" | 13°30'30" | 28°20'20" | 8°06'06" | T 23 |
| F 24 | 12 39 22 | 11°46'06" | 24°50'50" | 0°35'35" | 1°11'11" | 11°13'13" | 11°14'14" | 5°33'33" | 16°02'02" | 3°40'40" | 16°43'43" | 14°26'26" | 13°27'27" | 28°27'27" | 8°02'02" | F 24 |
| S 25 | 12 43 19 | 12°44'56" | 8°32'24" | 0°02'02" | 2°17'17" | 11°58'58" | 11°08'08" | 5°38'38" | 16°04'04" | 3°40'40" | 16°43'43" | 14°D25 | 13°24'24" | 28°34'34" | 7°58'58" | S 25 |
| S 26 | 12 47 16 | 13°43'45" | 22°14'14" | 29°33'33" | 3°27'27" | 12°44'44" | 11°02'02" | 5°44'44" | 16°06'06" | 3°41'41" | 16°44'44" | 14°25'25" | 13°21'21" | 28°40'40" | 7°55'55" | S 26 |
| M27 | 12 51 12 | 14°42'32" | 6°21'21" | 29°09'09" | 4°37'37" | 13°29'29" | 10°56'56" | 5°50'50" | 16°09'09" | 3°41'41" | 16°45'45" | 14°26'26" | 13°18'18" | 28°47'47" | 7°51'51" | M27 |
| T 28 | 12 55 09 | 15°41'17" | 20°44'44" | 28°50'50" | 5°48'48" | 14°15'15" | 10°50'50" | 5°56'56" | 16°11'11" | 3°42'42" | 16°46'46" | 14°R26 | 13°15'15" | 28°53'53" | 7°47'47" | T 28 |
| W29 | 12 59 05 | 16°40'00" | 5°21'21" | 28°36'36" | 6°58'58" | 15°00'00" | 10°43'43" | 6°02'02" | 16°13'13" | 3°43'43" | 16°46'46" | 14°24'24" | 13°11'11" | 29°00'00" | 7°43'43" | W29 |
| T 30 | 13 03 02 | 17°38'41" | 20°08'08" | 28°27'27" | 8°08'08" | 15°45'45" | 10°37'37" | 6°08'08" | 16°15'15" | 3°44'44" | 16°47'47" | 14°20'20" | 13°08'08" | 29°07'07" | 7°39'39" | T 30 |
| F 31 | 13 06 58 | 18°37'21" | 4°57'57" | 28°D24 | 9°19'19" | 16°31'31" | 10°M30 | 6°11'11" | 16°17'17" | 3°45'45" | 16°48'48" | 14°13'13" | 13°05'05" | 29°13'13" | 7°M34 | F 31 |

Delta T = 07m32s

Julian Calendar 1 March 1413 == Greg. Calendar 10 March 1413

APRIL 1413 JC

00:00 UT

| Day | Sid.t | ☉ | ☾ | ♀ | ♂ | ♂ | ♂ | ♂ | ♂ | ♂ | ♂ | ♂ | ♂ | ♂ | ♂ | Day |
|------|----------|----------|-------|-------|-------|-------|--------|------|-------|------|-------|--------|-------|-------|-------|------|
| S 1 | 13 10 55 | 19°35'58 | 19°41 | 28°25 | 10°29 | 17°16 | 10°R24 | 6°11 | 16°19 | 3°45 | 16°49 | 14°R 4 | 13°02 | 29°12 | 7°R30 | S 1 |
| S 2 | 13 14 51 | 20°34'34 | 4°13 | 28°32 | 11°39 | 18°01 | 10°M17 | 6°27 | 16°21 | 3°46 | 16°50 | 13°54 | 12°59 | 29°27 | 7°M26 | S 2 |
| M 3 | 13 18 48 | 21°33'08 | 18°24 | 28°44 | 12°50 | 18°46 | 10°10 | 6°33 | 16°23 | 3°47 | 16°51 | 13°44 | 12°56 | 29°33 | 7°22 | M 3 |
| T 4 | 13 22 45 | 22°31'39 | 2°11 | 29°00 | 14°01 | 19°31 | 10°03 | 6°39 | 16°25 | 3°48 | 16°51 | 13°34 | 12°52 | 29°40 | 7°17 | T 4 |
| W 5 | 13 26 41 | 23°30'09 | 15°30 | 29°22 | 15°11 | 20°16 | 9°56 | 6°46 | 16°27 | 3°49 | 16°52 | 13°27 | 12°49 | 29°47 | 7°13 | W 5 |
| T 6 | 13 30 38 | 24°28'37 | 28°24 | 29°47 | 16°22 | 21°01 | 9°49 | 6°52 | 16°28 | 3°50 | 16°53 | 13°21 | 12°46 | 29°53 | 7°09 | T 6 |
| F 7 | 13 34 34 | 25°27'02 | 10°55 | 0°17 | 17°33 | 21°46 | 9°42 | 6°59 | 16°30 | 3°51 | 16°54 | 13°19 | 12°43 | 29°59 | 7°04 | F 7 |
| S 8 | 13 38 31 | 26°25'25 | 23°06 | 0°51 | 18°43 | 22°31 | 9°35 | 7°05 | 16°32 | 3°52 | 16°55 | 13°D18 | 12°40 | 0°17 | 7°00 | S 8 |
| S 9 | 13 42 27 | 27°23'46 | 5°02 | 1°29 | 19°54 | 23°15 | 9°27 | 7°12 | 16°34 | 3°53 | 16°56 | 13°18 | 12°36 | 0°13 | 6°55 | S 9 |
| M10 | 13 46 24 | 28°22'05 | 16°58 | 2°11 | 21°05 | 24°00 | 9°20 | 7°18 | 16°35 | 3°54 | 16°57 | 13°R18 | 12°33 | 0°20 | 6°51 | M10 |
| T 11 | 13 50 20 | 29°20'22 | 28°42 | 2°56 | 22°16 | 24°45 | 9°13 | 7°25 | 16°37 | 3°55 | 16°58 | 13°17 | 12°30 | 0°27 | 6°47 | T 11 |
| W12 | 13 54 17 | 0°18'37 | 10°18 | 3°45 | 23°27 | 25°30 | 9°05 | 7°32 | 16°38 | 3°57 | 16°59 | 13°14 | 12°27 | 0°33 | 6°42 | W12 |
| T 13 | 13 58 13 | 1°16'49 | 22°28 | 4°37 | 24°38 | 26°14 | 8°58 | 7°39 | 16°40 | 3°58 | 17°00 | 13°08 | 12°24 | 0°40 | 6°38 | T 13 |
| F 14 | 14 02 10 | 2°15'00 | 4°24 | 5°33 | 25°49 | 26°59 | 8°50 | 7°46 | 16°41 | 3°59 | 17°01 | 13°00 | 12°21 | 0°47 | 6°33 | F 14 |
| S 15 | 14 06 07 | 3°13'09 | 16°52 | 6°31 | 27°00 | 27°43 | 8°43 | 7°53 | 16°43 | 4°00 | 17°02 | 12°50 | 12°17 | 0°53 | 6°28 | S 15 |
| S 16 | 14 10 03 | 4°11'16 | 29°24 | 7°32 | 28°11 | 28°27 | 8°35 | 8°00 | 16°44 | 4°02 | 17°03 | 12°37 | 12°14 | 1°00 | 6°24 | S 16 |
| M17 | 14 14 00 | 5°09'22 | 12°11 | 8°37 | 29°22 | 29°12 | 8°28 | 8°07 | 16°45 | 4°03 | 17°04 | 12°24 | 12°11 | 1°07 | 6°19 | M17 |
| T 18 | 14 17 56 | 6°07'25 | 25°10 | 9°43 | 0°17 | 29°56 | 8°20 | 8°14 | 16°47 | 4°04 | 17°05 | 12°12 | 12°08 | 1°13 | 6°15 | T 18 |
| W19 | 14 21 53 | 7°05'28 | 8°23 | 10°53 | 1°44 | 0°40 | 8°12 | 8°21 | 16°48 | 4°06 | 17°06 | 12°01 | 12°05 | 1°20 | 6°10 | W19 |
| T 20 | 14 25 49 | 8°03'28 | 21°46 | 12°05 | 2°56 | 1°25 | 8°05 | 8°28 | 16°49 | 4°07 | 17°08 | 11°52 | 12°01 | 1°26 | 6°06 | T 20 |
| F 21 | 14 29 46 | 9°01'28 | 5°32 | 13°20 | 4°07 | 2°09 | 7°57 | 8°35 | 16°50 | 4°08 | 17°09 | 11°47 | 11°58 | 1°33 | 6°01 | F 21 |
| S 22 | 14 33 43 | 9°59'26 | 19°03 | 14°37 | 5°18 | 2°53 | 7°49 | 8°42 | 16°51 | 4°10 | 17°10 | 11°44 | 11°55 | 1°40 | 5°57 | S 22 |
| S 23 | 14 37 39 | 10°57'22 | 2°56 | 15°56 | 6°30 | 3°37 | 7°42 | 8°49 | 16°52 | 4°11 | 17°11 | 11°43 | 11°52 | 1°46 | 5°52 | S 23 |
| M24 | 14 41 36 | 11°55'18 | 16°58 | 17°18 | 7°41 | 4°21 | 7°34 | 8°57 | 16°53 | 4°13 | 17°12 | 11°43 | 11°49 | 1°53 | 5°48 | M24 |
| T 25 | 14 45 32 | 12°53'12 | 1°11 | 18°42 | 8°52 | 5°05 | 7°26 | 9°04 | 16°54 | 4°14 | 17°14 | 11°43 | 11°46 | 2°00 | 5°43 | T 25 |
| W26 | 14 49 29 | 13°51'04 | 15°26 | 20°09 | 10°04 | 5°49 | 7°19 | 9°11 | 16°55 | 4°16 | 17°15 | 11°40 | 11°42 | 2°06 | 5°39 | W26 |
| T 27 | 14 53 25 | 14°48'56 | 29°50 | 21°37 | 11°15 | 6°33 | 7°11 | 9°19 | 16°56 | 4°17 | 17°16 | 11°36 | 11°39 | 2°13 | 5°34 | T 27 |
| F 28 | 14 57 22 | 15°46'46 | 14°14 | 23°08 | 12°27 | 7°17 | 7°04 | 9°26 | 16°56 | 4°19 | 17°17 | 11°28 | 11°36 | 2°20 | 5°30 | F 28 |
| S 29 | 15 01 18 | 16°44'35 | 28°34 | 24°41 | 13°38 | 8°00 | 6°56 | 9°34 | 16°57 | 4°21 | 17°19 | 11°18 | 11°33 | 2°26 | 5°25 | S 29 |
| S 30 | 15 05 15 | 17°42'22 | 12°45 | 26°16 | 14°50 | 8°44 | 6°49 | 9°41 | 16°58 | 4°22 | 17°20 | 11°06 | 11°30 | 2°33 | 5°21 | S 30 |

ASTRODIENST EPHEMERIS for the year 1413

geocentric

MAY 1413 JC

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| Day | Sid.t | ☉ | ☽ | ♀ | ♂ | ♂ | ♂ | ♂ | ♂ | ♂ | ♂ | ♂ | ♂ | ♂ | ♂ | Day |
|------|----------|----------|-------|-------|-------|-------|------|-------|--------|------|-------|--------|-------|------|-------|------|
| M 1 | 15 9 11 | 18°40'09 | 26°40 | 27°53 | 16°2 | 9°28 | 6°42 | 9°49 | 16°59 | 4°24 | 17°21 | 10°R55 | 11°27 | 2°40 | 5°R17 | M 1 |
| T 2 | 15 13 8 | 19°37'54 | 10°11 | 29°33 | 17°13 | 10°11 | 6°34 | 9°56 | 16°59 | 4°26 | 17°22 | 10°44 | 11°23 | 2°46 | 5°M12 | T 2 |
| W 3 | 15 17 5 | 20°35'37 | 23°29 | 1°14 | 18°25 | 10°55 | 6°27 | 10° 4 | 17° 0 | 4°27 | 17°24 | 10°35 | 11°20 | 2°53 | 5° 8 | W 3 |
| T 4 | 15 21 1 | 21°33'19 | 6°20 | 2°58 | 19°37 | 11°38 | 6°20 | 10°11 | 17° 0 | 4°29 | 17°25 | 10°28 | 11°17 | 3° 0 | 5° 4 | T 4 |
| F 5 | 15 24 58 | 22°30'59 | 18°50 | 4°44 | 20°48 | 12°22 | 6°13 | 10°19 | 17° 1 | 4°31 | 17°26 | 10°24 | 11°14 | 3° 6 | 4°59 | F 5 |
| S 6 | 15 28 54 | 23°28'38 | 1°2 | 6°32 | 22° 0 | 13° 5 | 6° 6 | 10°26 | 17° 1 | 4°33 | 17°28 | 10°22 | 11°11 | 3°13 | 4°55 | S 6 |
| S 7 | 15 32 51 | 24°26'15 | 13° 1 | 8°23 | 23°12 | 13°48 | 5°59 | 10°34 | 17° 1 | 4°34 | 17°29 | 10°D22 | 11° 7 | 3°20 | 4°51 | S 7 |
| M 8 | 15 36 47 | 25°23'51 | 24°53 | 10°15 | 24°24 | 14°32 | 5°52 | 10°42 | 17° 2 | 4°36 | 17°30 | 10°R22 | 11° 4 | 3°26 | 4°47 | M 8 |
| T 9 | 15 40 44 | 26°21'25 | 6°42 | 12° 9 | 25°35 | 15°15 | 5°45 | 10°49 | 17° 2 | 4°38 | 17°32 | 10°22 | 11° 1 | 3°33 | 4°43 | T 9 |
| W10 | 15 44 41 | 27°18'58 | 18°33 | 14° 6 | 26°47 | 15°58 | 5°38 | 10°57 | 17° 2 | 4°40 | 17°33 | 10°20 | 10°58 | 3°40 | 4°39 | W10 |
| T 11 | 15 48 37 | 28°16'30 | 0°33 | 16° 4 | 27°59 | 16°41 | 5°32 | 11° 5 | 17° 2 | 4°42 | 17°34 | 10°16 | 10°55 | 3°46 | 4°35 | T 11 |
| F 12 | 15 52 34 | 29°14'00 | 12°44 | 18° 5 | 29°11 | 17°24 | 5°25 | 11°13 | 17° 2 | 4°44 | 17°36 | 10° 9 | 10°52 | 3°53 | 4°31 | F 12 |
| S 13 | 15 56 30 | 0°11'28 | 25°11 | 20° 7 | 0°23 | 18° 7 | 5°19 | 11°20 | 17°R 2 | 4°45 | 17°37 | 10° 0 | 10°48 | 4° 0 | 4°28 | S 13 |
| S 14 | 16 0 27 | 1° 8'56 | 7°56 | 22°12 | 1°35 | 18°50 | 5°12 | 11°28 | 17° 2 | 4°47 | 17°38 | 9°49 | 10°45 | 4° 6 | 4°24 | S 14 |
| M15 | 16 4 23 | 2° 6'22 | 20°59 | 24°18 | 2°47 | 19°33 | 5° 6 | 11°36 | 17° 2 | 4°49 | 17°40 | 9°38 | 10°42 | 4°13 | 4°20 | M15 |
| T 16 | 16 8 20 | 3° 3'48 | 4°19 | 26°25 | 3°59 | 20°16 | 5° 0 | 11°44 | 17° 2 | 4°51 | 17°41 | 9°27 | 10°39 | 4°20 | 4°17 | T 16 |
| W17 | 16 12 16 | 4° 1'12 | 17°54 | 28°34 | 5°11 | 20°58 | 4°54 | 11°51 | 17° 2 | 4°53 | 17°42 | 9°18 | 10°36 | 4°26 | 4°13 | W17 |
| T 18 | 16 16 13 | 4°58'36 | 1°34 | 0°14 | 6°23 | 21°41 | 4°49 | 11°59 | 17° 2 | 4°55 | 17°44 | 9°11 | 10°33 | 4°33 | 4°10 | T 18 |
| F 19 | 16 20 10 | 5°55'59 | 15°39 | 2°55 | 7°35 | 22°24 | 4°43 | 12° 7 | 17° 1 | 4°57 | 17°45 | 9° 6 | 10°29 | 4°39 | 4° 6 | F 19 |
| S 20 | 16 24 6 | 6°53'21 | 29°42 | 5° 6 | 8°47 | 23° 6 | 4°37 | 12°15 | 17° 1 | 4°59 | 17°47 | 9° 4 | 10°26 | 4°46 | 4° 3 | S 20 |
| S 21 | 16 28 3 | 7°50'42 | 13°48 | 7°18 | 9°59 | 23°49 | 4°32 | 12°23 | 17° 1 | 5° 1 | 17°48 | 9°D 4 | 10°23 | 4°53 | 4° 0 | S 21 |
| M22 | 16 31 59 | 8°48'03 | 27°57 | 9°30 | 11°11 | 24°32 | 4°27 | 12°31 | 17° 0 | 5° 3 | 17°49 | 9° 5 | 10°20 | 4°59 | 3°56 | M22 |
| T 23 | 16 35 56 | 9°45'23 | 12°16 | 11°42 | 12°23 | 25°14 | 4°21 | 12°38 | 17° 0 | 5° 5 | 17°51 | 9°R 5 | 10°17 | 5° 6 | 3°53 | T 23 |
| W24 | 16 39 52 | 10°42'43 | 26°14 | 13°53 | 13°35 | 25°56 | 4°16 | 12°46 | 17° 0 | 5° 7 | 17°52 | 9° 4 | 10°13 | 5°13 | 3°50 | W24 |
| T 25 | 16 43 49 | 11°40'02 | 10°40 | 16° 4 | 14°47 | 26°39 | 4°12 | 12°54 | 16°59 | 5° 9 | 17°54 | 9° 1 | 10°10 | 5°19 | 3°47 | T 25 |
| F 26 | 16 47 45 | 12°37'21 | 24°22 | 18°14 | 16° 0 | 27°21 | 4° 7 | 13° 2 | 16°58 | 5°11 | 17°55 | 8°55 | 10° 7 | 5°26 | 3°45 | F 26 |
| S 27 | 16 51 42 | 13°34'40 | 8°16 | 20°23 | 17°12 | 28° 3 | 4° 2 | 13°10 | 16°58 | 5°14 | 17°57 | 8°48 | 10° 4 | 5°33 | 3°42 | S 27 |
| S 28 | 16 55 39 | 14°31'58 | 22° 1 | 22°30 | 18°24 | 28°45 | 3°58 | 13°18 | 16°57 | 5°16 | 17°58 | 8°40 | 10° 1 | 5°39 | 3°39 | S 28 |
| M29 | 16 59 35 | 15°29'15 | 5°12 | 24°36 | 19°37 | 29°28 | 3°54 | 13°26 | 16°56 | 5°18 | 17°59 | 8°31 | 9°58 | 5°46 | 3°36 | M29 |
| T 30 | 17 3 32 | 16°26'32 | 18°47 | 26°40 | 20°49 | 0°11 | 3°50 | 13°33 | 16°56 | 5°20 | 18° 1 | 8°22 | 9°54 | 5°53 | 3°34 | T 30 |
| W31 | 17 7 28 | 17°23'49 | 1°45 | 28°14 | 22°1 | 0°11 | 3°46 | 13°41 | 16°55 | 5°22 | 18°12 | 8°16 | 9°51 | 5°59 | 3°31 | W31 |

Delta T = 07m32s

Julian Calendar 1 May 1413 == Greg. Calendar 10 May 1413

JUNE 1413 JC

00:00 UT

| Day | Sid.t | ☉ | ☽ | ♀ | ♂ | ♂ | ♂ | ♂ | ♂ | ♂ | ♂ | ♂ | ♂ | ♂ | ♂ | Day |
|------|----------|----------|-------|-------|-------|-------|-------|-------|--------|------|-------|-------|------|------|-------|------|
| T 1 | 17 11 25 | 18°11'05 | 14°25 | 0°43 | 23°14 | 1°14 | 3°R42 | 13°49 | 16°R54 | 5°24 | 18°11 | 8°R11 | 9°48 | 6°13 | 3°R29 | T 1 |
| F 2 | 17 15 21 | 19°18'20 | 26°48 | 2°41 | 24°26 | 2°16 | 3°M39 | 13°57 | 16°55 | 5°26 | 18° 5 | 8°R 8 | 9°45 | 6°13 | 3°M27 | F 2 |
| S 3 | 17 19 18 | 20°15'35 | 8°57 | 4°38 | 25°38 | 2°58 | 3°35 | 14° 5 | 16°52 | 5°28 | 18° 7 | 8°D 7 | 9°42 | 6°19 | 3°25 | S 3 |
| S 4 | 17 23 14 | 21°12'49 | 20°55 | 6°32 | 26°51 | 3°39 | 3°32 | 14°13 | 16°51 | 5°31 | 18° 8 | 8° 8 | 9°39 | 6°26 | 3°23 | S 4 |
| M 5 | 17 27 11 | 22°10'02 | 2°47 | 8°24 | 28° 3 | 4°21 | 3°29 | 14°20 | 16°50 | 5°33 | 18° 9 | 8° 9 | 9°35 | 6°33 | 3°21 | M 5 |
| T 6 | 17 31 8 | 23° 7'14 | 14°36 | 10°14 | 29°16 | 5° 3 | 3°26 | 14°28 | 16°49 | 5°35 | 18°11 | 8°11 | 9°32 | 6°39 | 3°19 | T 6 |
| W 7 | 17 35 4 | 24° 4'26 | 26°28 | 12° 1 | 0°11 | 5°44 | 3°23 | 14°36 | 16°48 | 5°37 | 18°12 | 8°R11 | 9°29 | 6°46 | 3°17 | W 7 |
| T 8 | 17 39 1 | 25° 1'38 | 8°29 | 13°47 | 1°41 | 6°26 | 3°21 | 14°44 | 16°47 | 5°39 | 18°14 | 8°10 | 9°26 | 6°53 | 3°15 | T 8 |
| F 9 | 17 42 57 | 25°58'49 | 20°43 | 15°30 | 2°53 | 7° 8 | 3°18 | 14°52 | 16°46 | 5°42 | 18°15 | 8° 7 | 9°23 | 6°59 | 3°14 | F 9 |
| S 10 | 17 46 54 | 26°55'59 | 3°13 | 17°11 | 4° 6 | 7°49 | 3°16 | 14°59 | 16°44 | 5°44 | 18°16 | 8° 3 | 9°19 | 7° 6 | 3°12 | S 10 |
| S 11 | 17 50 50 | 27°53'09 | 16° 4 | 18°49 | 5°19 | 8°31 | 3°14 | 15° 7 | 16°43 | 5°46 | 18°18 | 7°57 | 9°16 | 7°13 | 3°11 | S 11 |
| M12 | 17 54 47 | 28°50'19 | 29°17 | 20°26 | 6°31 | 9°12 | 3°12 | 15°15 | 16°42 | 5°48 | 18°19 | 7°51 | 9°13 | 7°19 | 3°10 | M12 |
| T 13 | 17 58 43 | 29°47'28 | 12°56 | 22° 0 | 7°44 | 9°53 | 3°11 | 15°22 | 16°40 | 5°50 | 18°21 | 7°45 | 9°10 | 7°26 | 3° 8 | T 13 |
| W14 | 18 2 40 | 0°44'38 | 26°46 | 23°32 | 8°57 | 10°35 | 3° 9 | 15°30 | 16°39 | 5°53 | 18°22 | 7°40 | 9° 7 | 7°33 | 3° 7 | W14 |
| T 15 | 18 6 37 | 1°41'47 | 10°57 | 25° 1 | 10° 9 | 11°16 | 3° 8 | 15°38 | 16°37 | 5°55 | 18°24 | 7°36 | 9° 4 | 7°39 | 3° 6 | T 15 |
| F 16 | 18 10 33 | 2°38'56 | 25°19 | 26°28 | 11°22 | 11°57 | 3° 7 | 15°45 | 16°36 | 5°57 | 18°25 | 7°34 | 9° 0 | 7°46 | 3° 5 | F 16 |
| S 17 | 18 14 30 | 3°36'06 | 9°48 | 27°53 | 12°35 | 12°38 | 3° 6 | 15°53 | 16°34 | 5°59 | 18°26 | 7°D33 | 8°57 | 7°53 | 3° 5 | S 17 |
| S 18 | 18 18 26 | 4°33'15 | 24°17 | 29°15 | 13°48 | 13°19 | 3° 5 | 16° 1 | 16°33 | 6° 2 | 18°28 | 7°34 | 8°54 | 7°59 | 3° 4 | S 18 |
| M19 | 18 22 23 | 5°30'25 | 8°43 | 0°35 | 15° 0 | 14° 0 | 3° 4 | 16° 8 | 16°31 | 6° 4 | 18°29 | 7°35 | 8°51 | 8° 6 | 3° 3 | M19 |
| T 20 | 18 26 19 | 6°27'35 | 23° 2 | 1°53 | 16°13 | 14°41 | 3° 4 | 16°16 | 16°30 | 6° 6 | 18°30 | 7°36 | 8°48 | 8°13 | 3° 3 | T 20 |
| W21 | 18 30 16 | 7°24'45 | 7°12 | 3° 8 | 17°26 | 15°22 | 3° 4 | 16°23 | 16°28 | 6° 8 | 18°32 | 7°R37 | 8°45 | 8°19 | 3° 2 | W21 |
| T 22 | 18 34 13 | 8°21'56 | 21°10 | 4°20 | 18°39 | 16° 3 | 3°D 4 | 16°31 | 16°26 | 6°11 | 18°33 | 7°36 | 8°41 | 8°26 | 3° 2 | T 22 |
| F 23 | 18 38 9 | 9°19'08 | 4°57 | 5°30 | 19°52 | 16°44 | 3° 4 | 16°38 | 16°25 | 6°13 | 18°34 | 7°35 | 8°38 | 8°33 | 3° 2 | F 23 |
| S 24 | 18 42 6 | 10°16'20 | 18°31 | 6°37 | 21° 5 | 17°25 | 3° 4 | 16°46 | 16°23 | 6°15 | 18°36 | 7°32 | 8°35 | 8°39 | 3°D 2 | S 24 |
| S 25 | 18 46 2 | 11°13'32 | 1°11 | 7°42 | 22°18 | 18° 5 | 3° 5 | 16°53 | 16°21 | 6°17 | 18°37 | 7°28 | 8°32 | 8°46 | 3° 2 | S 25 |
| M26 | 18 49 59 | 12°10'45 | 14°57 | 8°43 | 23°31 | 18°46 | 3° 5 | 17° 1 | 16°19 | 6°19 | 18°38 | 7°24 | 8°29 | 8°53 | 3° 2 | M26 |
| T 27 | 18 53 55 | 13° 7'59 | 27°50 | 9°41 | 24°44 | 19°27 | 3° 6 | 17° 8 | 16°17 | 6°22 | 18°40 | 7°20 | 8°25 | 8°59 | 3° 2 | T 27 |
| W28 | 18 57 52 | 14° 5'13 | 10°28 | 10°37 | 25°57 | 20° 7 | 3° 7 | 17°15 | 16°16 | 6°24 | 18°41 | 7°17 | 8°22 | 9° 6 | 3° 3 | W28 |
| T 29 | 19 1 48 | 15° 2'27 | 22°54 | 11°29 | 27°10 | 20°48 | 3° 9 | 17°23 | 16°14 | 6°26 | 18°42 | 7°16 | 8°19 | 9°13 | 3° 3 | T 29 |
| F 30 | 19 5 45 | 15°59'41 | 5°16 | 12°18 | 28°11 | 21°11 | 3°10 | 17°30 | 16°12 | 6°28 | 18°44 | 7°D15 | 8°16 | 9°19 | 3°11 | F 30 |

Delta T = 07m32s

Julian Calendar

ASTRODIENST EPHEMERIS for the year 1413

geocentric

JULY 1413 JC

00:00 UT

| Day | Sid.t | ☉ | ☽ | ♀ | ♂ | ♂ | ♂ | ♂ | ♂ | ♂ | ♂ | ♂ | ♂ | ♂ | ♂ | Day |
|------|----------|----------|-------|-------|-------|-------|------|-------|-------|------|-------|------|------|-------|------|------|
| S 1 | 19 9 42 | 16°56'56 | 17°09 | 13°03 | 29°11 | 22°11 | 3°12 | 17°11 | 16°10 | 6°31 | 18°11 | 7°15 | 8°13 | 9°26 | 3°15 | S 1 |
| S 2 | 19 13 38 | 17°54'12 | 29° 3 | 13°45 | 0°50 | 22°49 | 3°13 | 17°44 | 16°08 | 6°33 | 18°46 | 7°16 | 8°10 | 9°33 | 3° 5 | S 2 |
| M 3 | 19 17 35 | 18°51'27 | 10°53 | 14°23 | 2° 3 | 23°29 | 3°15 | 17°51 | 16° 6 | 6°35 | 18°48 | 7°18 | 8° 6 | 9°39 | 3° 6 | M 3 |
| T 4 | 19 21 31 | 19°48'43 | 22°42 | 14°57 | 3°16 | 24°10 | 3°17 | 17°58 | 16° 4 | 6°37 | 18°49 | 7°19 | 8° 3 | 9°46 | 3° 7 | T 4 |
| W 5 | 19 25 28 | 20°45'59 | 4°34 | 15°27 | 4°30 | 24°50 | 3°20 | 18° 5 | 16° 2 | 6°39 | 18°50 | 7°20 | 8° 0 | 9°53 | 3° 8 | W 5 |
| T 6 | 19 29 24 | 21°43'16 | 16°34 | 15°53 | 5°43 | 25°30 | 3°22 | 18°12 | 15°59 | 6°41 | 18°51 | 7°21 | 7°57 | 9°59 | 3° 9 | T 6 |
| F 7 | 19 33 21 | 22°40'33 | 28°46 | 16°14 | 6°56 | 26°10 | 3°25 | 18°19 | 15°57 | 6°44 | 18°53 | 7°21 | 7°54 | 10° 6 | 3°11 | F 7 |
| S 8 | 19 37 17 | 23°37'50 | 11°16 | 16°31 | 8° 9 | 26°50 | 3°28 | 18°26 | 15°55 | 6°46 | 18°54 | 7°20 | 7°51 | 10°13 | 3°12 | S 8 |
| S 9 | 19 41 14 | 24°35'08 | 24° 7 | 16°43 | 9°23 | 27°30 | 3°31 | 18°33 | 15°53 | 6°48 | 18°55 | 7°19 | 7°47 | 10°19 | 3°14 | S 9 |
| M10 | 19 45 11 | 25°32'26 | 7°21 | 16°50 | 10°36 | 28°10 | 3°34 | 18°40 | 15°51 | 6°50 | 18°56 | 7°18 | 7°44 | 10°26 | 3°15 | M10 |
| T 11 | 19 49 7 | 26°29'45 | 21° 0 | 16°53 | 11°50 | 28°50 | 3°37 | 18°47 | 15°49 | 6°52 | 18°57 | 7°16 | 7°41 | 10°33 | 3°17 | T 11 |
| W12 | 19 53 4 | 27°27'05 | 5°35 | 16°50 | 13° 3 | 29°30 | 3°41 | 18°54 | 15°46 | 6°54 | 18°58 | 7°15 | 7°38 | 10°39 | 3°19 | W12 |
| T 13 | 19 57 0 | 28°24'25 | 19°30 | 16°42 | 14°17 | 0°10 | 3°44 | 19° 0 | 15°44 | 6°56 | 19° 0 | 7°14 | 7°35 | 10°46 | 3°21 | T 13 |
| F 14 | 20 0 57 | 29°21'46 | 4°12 | 16°29 | 15°30 | 0°49 | 3°48 | 19° 7 | 15°42 | 6°59 | 19° 1 | 7°14 | 7°31 | 10°53 | 3°23 | F 14 |
| S 15 | 20 4 53 | 0°19'08 | 19° 4 | 16°11 | 16°44 | 1°29 | 3°52 | 19°14 | 15°40 | 7° 1 | 19° 2 | 7°14 | 7°28 | 10°59 | 3°25 | S 15 |
| S 16 | 20 8 50 | 1°16'31 | 3°58 | 15°47 | 17°57 | 2° 9 | 3°56 | 19°20 | 15°37 | 7° 3 | 19° 3 | 7°15 | 7°25 | 11° 6 | 3°27 | S 16 |
| M17 | 20 12 46 | 2°13'55 | 18°47 | 15°19 | 19°11 | 2°48 | 4° 1 | 19°27 | 15°35 | 7° 5 | 19° 4 | 7°15 | 7°22 | 11°13 | 3°30 | M17 |
| T 18 | 20 16 43 | 3°11'20 | 3°24 | 14°47 | 20°25 | 3°28 | 4° 5 | 19°33 | 15°33 | 7° 7 | 19° 5 | 7°15 | 7°19 | 11°19 | 3°32 | T 18 |
| W19 | 20 20 40 | 4° 8'46 | 17°44 | 14°10 | 21°38 | 4° 7 | 4°10 | 19°39 | 15°30 | 7° 9 | 19° 6 | 7°16 | 7°16 | 11°26 | 3°35 | W19 |
| T 20 | 20 24 36 | 5° 6'14 | 18°46 | 13°30 | 22°52 | 4°47 | 4°15 | 19°46 | 15°28 | 7°11 | 19° 7 | 7°16 | 7°12 | 11°33 | 3°37 | T 20 |
| F 21 | 20 28 33 | 6° 3'43 | 15°28 | 12°46 | 24° 6 | 5°26 | 4°19 | 19°52 | 15°26 | 7°13 | 19° 8 | 7°16 | 7° 9 | 11°39 | 3°40 | F 21 |
| S 22 | 20 32 29 | 7° 1'14 | 28°50 | 12° 1 | 25°19 | 6° 6 | 4°25 | 19°58 | 15°23 | 7°15 | 19° 9 | 7°16 | 7° 6 | 11°46 | 3°43 | S 22 |
| S 23 | 20 36 26 | 7°58'46 | 11°11 | 11°13 | 26°33 | 6°45 | 4°30 | 20° 4 | 15°21 | 7°17 | 19°10 | 7°16 | 7° 3 | 11°53 | 3°46 | S 23 |
| M24 | 20 40 22 | 8°56'19 | 24°41 | 10°25 | 27°47 | 7°24 | 4°35 | 20°11 | 15°19 | 7°19 | 19°11 | 7°16 | 7° 0 | 11°59 | 3°49 | M24 |
| T 25 | 20 44 19 | 9°53'54 | 7°14 | 9°36 | 29° 1 | 8° 3 | 4°41 | 20°17 | 15°16 | 7°21 | 19°12 | 7°16 | 6°57 | 12° 6 | 3°52 | T 25 |
| W26 | 20 48 15 | 10°51'30 | 19°35 | 8°49 | 0°15 | 8°43 | 4°47 | 20°23 | 15°14 | 7°23 | 19°13 | 7°16 | 6°53 | 12°13 | 3°55 | W26 |
| T 27 | 20 52 12 | 11°49'07 | 18°45 | 8° 3 | 1°29 | 9°22 | 4°52 | 20°28 | 15°12 | 7°25 | 19°14 | 7°17 | 6°50 | 12°19 | 3°58 | T 27 |
| F 28 | 20 56 9 | 12°46'46 | 13°47 | 7°20 | 2°43 | 10° 1 | 4°58 | 20°34 | 15° 9 | 7°27 | 19°15 | 7°17 | 6°47 | 12°26 | 4° 2 | F 28 |
| S 29 | 21 0 5 | 13°44'26 | 25°42 | 6°41 | 3°57 | 10°40 | 5° 5 | 20°40 | 15° 7 | 7°28 | 19°16 | 7°16 | 6°44 | 12°33 | 4° 5 | S 29 |
| S 30 | 21 4 2 | 14°42'07 | 7°33 | 6° 7 | 5°11 | 11°19 | 5°11 | 20°46 | 15° 4 | 7°30 | 19°17 | 7°16 | 6°41 | 12°39 | 4° 9 | S 30 |
| M31 | 21 7 58 | 15°39'49 | 19°21 | 5°37 | 6°12 | 11°58 | 5°17 | 20°51 | 15°02 | 7°32 | 19°18 | 7°15 | 6°37 | 12°46 | 4°13 | M31 |

Delta T = 07m31s

Julian Calendar 1 July 1413 == Greg. Calendar 10 July 1413

AUGUST 1413 JC

00:00 UT

| Day | Sid.t | ☉ | ☽ | ♀ | ♂ | ♂ | ♂ | ♂ | ♂ | ♂ | ♂ | ♂ | ♂ | ♂ | ♂ | Day |
|------|----------|----------|-------|-------|-------|-------|------|-------|-------|------|-------|-------|------|-------|------|------|
| T 1 | 21 11 55 | 16°37'33 | 1°10 | 5°14 | 7°13 | 12°37 | 5°12 | 20°11 | 15°10 | 7°34 | 19°11 | 7°13 | 6°34 | 12°53 | 4°16 | T 1 |
| W 2 | 21 15 51 | 17°35'17 | 13° 3 | 4°57 | 8°53 | 13°15 | 5°31 | 21° 2 | 14°57 | 7°36 | 19°20 | 7°12 | 6°31 | 12°59 | 4°20 | W 2 |
| T 3 | 21 19 48 | 18°33'03 | 25° 3 | 4°47 | 10° 7 | 13°54 | 5°37 | 21° 8 | 14°55 | 7°38 | 19°20 | 7°11 | 6°28 | 13° 6 | 4°24 | T 3 |
| F 4 | 21 23 44 | 19°30'50 | 7°14 | 4°D44 | 11°21 | 14°33 | 5°45 | 21°13 | 14°52 | 7°39 | 19°21 | 7°10 | 6°25 | 13°13 | 4°28 | F 4 |
| S 5 | 21 27 41 | 20°28'39 | 19°41 | 4°49 | 12°35 | 15°11 | 5°52 | 21°19 | 14°50 | 7°41 | 19°22 | 7°D 9 | 6°22 | 13°19 | 4°32 | S 5 |
| S 6 | 21 31 38 | 21°26'28 | 2°27 | 5° 2 | 13°49 | 15°50 | 5°59 | 21°24 | 14°48 | 7°43 | 19°23 | 7°10 | 6°18 | 13°26 | 4°37 | S 6 |
| M 7 | 21 35 34 | 22°24'19 | 15°36 | 5°23 | 15° 3 | 16°29 | 6° 6 | 21°29 | 14°45 | 7°45 | 19°23 | 7°11 | 6°15 | 13°33 | 4°41 | M 7 |
| T 8 | 21 39 31 | 23°22'11 | 29°11 | 5°51 | 16°18 | 17° 7 | 6°14 | 21°34 | 14°43 | 7°46 | 19°24 | 7°12 | 6°12 | 13°39 | 4°45 | T 8 |
| W 9 | 21 43 27 | 24°20'05 | 13°12 | 6°27 | 17°32 | 17°46 | 6°22 | 21°39 | 14°41 | 7°48 | 19°25 | 7°13 | 6° 9 | 13°46 | 4°50 | W 9 |
| T 10 | 21 47 24 | 25°18'00 | 27°40 | 7°11 | 18°46 | 18°24 | 6°29 | 21°44 | 14°38 | 7°50 | 19°26 | 7°14 | 6° 6 | 13°53 | 4°54 | T 10 |
| F 11 | 21 51 20 | 26°15'56 | 12°29 | 8° 2 | 20° 0 | 19° 2 | 6°37 | 21°49 | 14°36 | 7°51 | 19°26 | 7°R14 | 6° 3 | 13°59 | 4°59 | F 11 |
| S 12 | 21 55 17 | 27°13'53 | 27°34 | 9° 1 | 21°15 | 19°41 | 6°45 | 21°53 | 14°34 | 7°53 | 19°27 | 7°13 | 5°59 | 14° 6 | 5° 4 | S 12 |
| S 13 | 21 59 13 | 28°11'53 | 12°46 | 10° 6 | 22°29 | 20°19 | 6°53 | 21°58 | 14°31 | 7°54 | 19°28 | 7°11 | 5°56 | 14°13 | 5° 8 | S 13 |
| M14 | 22 3 10 | 29° 9'53 | 27°55 | 11°18 | 23°43 | 20°57 | 7° 2 | 22° 3 | 14°29 | 7°56 | 19°28 | 7° 9 | 5°53 | 14°20 | 5°13 | M14 |
| T 15 | 22 7 7 | 0°17'56 | 12°51 | 12°36 | 24°58 | 21°35 | 7°10 | 22° 7 | 14°27 | 7°57 | 19°29 | 7° 6 | 5°50 | 14°26 | 5°18 | T 15 |
| W16 | 22 11 3 | 1° 6'01 | 27°28 | 13°59 | 26°12 | 22°13 | 7°19 | 22°11 | 14°24 | 7°59 | 19°29 | 7° 3 | 5°47 | 14°33 | 5°23 | W16 |
| T 17 | 22 15 0 | 2° 4'08 | 11°40 | 15°28 | 27°27 | 22°51 | 7°27 | 22°16 | 14°22 | 8° 0 | 19°30 | 7° 1 | 5°43 | 14°40 | 5°28 | T 17 |
| F 18 | 22 18 56 | 3° 2'16 | 25°26 | 17° 1 | 28°41 | 23°29 | 7°36 | 22°20 | 14°20 | 8° 2 | 19°30 | 6°59 | 5°40 | 14°46 | 5°34 | F 18 |
| S 19 | 22 22 53 | 4° 0'27 | 8°14 | 18°38 | 29°56 | 24° 7 | 7°45 | 22°24 | 14°18 | 8° 3 | 19°31 | 6°D59 | 5°37 | 14°53 | 5°39 | S 19 |
| S 20 | 22 26 49 | 4°58'40 | 21°43 | 20°19 | 1°10 | 24°45 | 7°54 | 22°28 | 14°15 | 8° 5 | 19°31 | 7° 0 | 5°34 | 15° 0 | 5°44 | S 20 |
| M21 | 22 30 46 | 5°56'55 | 4°20 | 22° 3 | 2°25 | 25°23 | 8° 3 | 22°32 | 14°13 | 8° 6 | 19°32 | 7° 2 | 5°31 | 15° 6 | 5°50 | M21 |
| T 22 | 22 34 42 | 6°55'13 | 16°40 | 23°50 | 3°39 | 26° 1 | 8°12 | 22°36 | 14°11 | 8° 7 | 19°32 | 7° 3 | 5°28 | 15°13 | 5°55 | T 22 |
| W23 | 22 38 39 | 7°53'32 | 28°48 | 25°39 | 4°54 | 26°39 | 8°22 | 22°40 | 14° 9 | 8° 9 | 19°33 | 7° 4 | 5°24 | 15°20 | 6° 1 | W23 |
| T 24 | 22 42 36 | 8°51'53 | 10°47 | 27°29 | 6° 8 | 27°16 | 8°31 | 22°44 | 14° 7 | 8°10 | 19°33 | 7°R 5 | 5°21 | 15°26 | 6° 6 | T 24 |
| F 25 | 22 46 32 | 9°50'16 | 22°41 | 29°21 | 7°23 | 27°54 | 8°40 | 22°47 | 14° 5 | 8°11 | 19°34 | 7° 4 | 5°18 | 15°33 | 6°12 | F 25 |
| S 26 | 22 50 29 | 10°48'41 | 4°31 | 1°13 | 8°38 | 28°32 | 8°50 | 22°51 | 14° 3 | 8°13 | 19°34 | 7° 1 | 5°15 | 15°40 | 6°18 | S 26 |
| S 27 | 22 54 25 | 11°47'07 | 16°19 | 3° 7 | 9°52 | 29° 9 | 9° 0 | 22°54 | 14° 1 | 8°14 | 19°34 | 6°56 | 5°12 | 15°46 | 6°24 | S 27 |
| M28 | 22 58 22 | 12°45'36 | 28° 9 | 5° 0 | 11° 7 | 29°47 | 9°10 | 22°57 | 13°59 | 8°15 | 19°35 | 6°50 | 5° 8 | 15°53 | 6°30 | M28 |
| T 29 | 23 2 18 | 13°44'06 | 10°11 | 6°54 | 12°22 | 0°12 | 9°20 | 23° 1 | 13°57 | 8°16 | 19°35 | 6°43 | 5° 5 | 16° 0 | 6°36 | T 29 |
| W30 | 23 6 15 | 14°42'39 | 21°59 | 8°47 | 13°36 | 1° 1 | 9°30 | 23° 4 | 13°55 | 8°17 | 19°35 | 6°36 | 5° 2 | 16° 6 | 6°42 | W30 |
| T 31 | 23 10 11 | 15°41'13 | 4°11 | 10°41 | 14°51 | 1°39 | 9°40 | 23°11 | 13°53 | 8°18 | 19°35 | 6°30 | 4°59 | 16°13 | 6°48 | T 31 |

Delta T = 07m31s

Julian Calendar

ASTRODIENST EPHEMERIS for the year 1413

geocentric

SEPTEMBER 1413 JC

00:00 UT

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

Delta T = 07m31s

Julian Calendar 1 Sept. 1413 == Greg. Calendar 10 Sept. 1413

OCTOBER 1413 JC

00:00 UT

| Day | Sid.t | ☉ | ☽ | ♀ | ♀ | ♂ | ♂ | ♂ | ♂ | ♂ | ♂ | ♂ | ♂ | ♂ | ♂ | Day |
|------|---------|----------|-------|-------|-------|-------|-------|---------|--------|-------|---------|-------|------|-------|-------|------|
| S 1 | 1 12 25 | 16♌13'12 | 21♌6 | 2♍39 | 23♎33 | 20♏26 | 15♐34 | 23♑R48 | 13♑R11 | 8♒37 | 19♒R32 | 4♒5 | 3♒20 | 19♓40 | 10♓23 | S 1 |
| M 2 | 1 16 21 | 17°12'51 | 4♒7 | 4°8 | 24°48 | 21°1 | 15°46 | 23♑II47 | 13♑11 | 8°37 | 19♑II32 | 4♒3 | 3°17 | 19°47 | 10°31 | M 2 |
| T 3 | 1 20 18 | 18°12'32 | 17°27 | 5°35 | 26°3 | 21°36 | 15°59 | 23°47 | 13°10 | 8°R37 | 19°31 | 4°D 2 | 3°14 | 19°54 | 10°38 | T 3 |
| W 4 | 1 24 14 | 19°12'14 | 1♒7 | 7°2 | 27°18 | 22°12 | 16°11 | 23°46 | 13°9 | 8°37 | 19°31 | 4°R 2 | 3°11 | 20°0 | 10°46 | W 4 |
| T 5 | 1 28 11 | 20°11'59 | 15°10 | 8°29 | 28°33 | 22°47 | 16°24 | 23°45 | 13°9 | 8°37 | 19°30 | 4°2 | 3°8 | 20°7 | 10°54 | T 5 |
| F 6 | 1 32 7 | 21°11'45 | 29°35 | 9°54 | 29°48 | 23°22 | 16°36 | 23°44 | 13°8 | 8°37 | 19°30 | 4°0 | 3°5 | 20°14 | 11°1 | F 6 |
| S 7 | 1 36 4 | 22°11'32 | 14♋21 | 11°19 | 1♌3 | 23°57 | 16°49 | 23°43 | 13°8 | 8°36 | 19°29 | 3°55 | 3°1 | 20°20 | 11°9 | S 7 |
| S 8 | 1 40 0 | 23°11'22 | 29°21 | 12°43 | 2°18 | 24°32 | 17°2 | 23°42 | 13°8 | 8°36 | 19°29 | 3°48 | 2°58 | 20°27 | 11°17 | S 8 |
| M 9 | 1 43 57 | 24°11'13 | 14♍28 | 14°6 | 3°33 | 25°6 | 17°15 | 23°41 | 13°7 | 8°36 | 19°28 | 3°38 | 2°55 | 20°34 | 11°25 | M 9 |
| T 10 | 1 47 54 | 25°11'06 | 29°32 | 15°28 | 4°48 | 25°41 | 17°27 | 23°40 | 13°7 | 8°36 | 19°28 | 3°27 | 2°52 | 20°40 | 11°32 | T 10 |
| W11 | 1 51 50 | 26°11'01 | 14♎22 | 16°49 | 6°3 | 26°16 | 17°40 | 23°38 | 13°7 | 8°36 | 19°27 | 3°15 | 2°49 | 20°47 | 11°40 | W11 |
| T 12 | 1 55 47 | 27°10'59 | 28°50 | 18°10 | 7°19 | 26°50 | 17°53 | 23°37 | 13°7 | 8°35 | 19°26 | 3°5 | 2°45 | 20°54 | 11°48 | T 12 |
| F 13 | 1 59 43 | 28°10'58 | 12♐51 | 19°29 | 8°34 | 27°25 | 18°6 | 23°35 | 13°7 | 8°35 | 19°26 | 2°56 | 2°42 | 21°0 | 11°56 | F 13 |
| S 14 | 2 3 40 | 29°11'00 | 26°22 | 20°47 | 9°49 | 27°59 | 18°19 | 23°33 | 13°7 | 8°35 | 19°25 | 2°51 | 2°39 | 21°7 | 12°4 | S 14 |
| S 15 | 2 7 36 | 0♐11'04 | 9♑25 | 22°3 | 11°4 | 28°33 | 18°32 | 23°32 | 13°D 7 | 8°34 | 19°24 | 2°48 | 2°36 | 21°14 | 12°12 | S 15 |
| M16 | 2 11 33 | 1°11'10 | 22°3 | 23°19 | 12°19 | 29°8 | 18°45 | 23°30 | 13°7 | 8°34 | 19°24 | 2°47 | 2°33 | 21°20 | 12°20 | M16 |
| T 17 | 2 15 29 | 2°11'18 | 4♒20 | 24°32 | 13°34 | 29°42 | 18°58 | 23°28 | 13°7 | 8°34 | 19°23 | 2°46 | 2°30 | 21°27 | 12°27 | T 17 |
| W18 | 2 19 26 | 3°11'28 | 16°23 | 25°44 | 14°49 | 0♓16 | 19°11 | 23°25 | 13°7 | 8°33 | 19°22 | 2°46 | 2°26 | 21°34 | 12°35 | W18 |
| T 19 | 2 23 23 | 4°11'40 | 28°15 | 26°54 | 16°4 | 0°50 | 19°24 | 23°23 | 13°7 | 8°33 | 19°21 | 2°45 | 2°23 | 21°41 | 12°43 | T 19 |
| F 20 | 2 27 19 | 5°11'54 | 10♐4 | 28°2 | 17°19 | 1°24 | 19°37 | 23°21 | 13°7 | 8°32 | 19°20 | 2°41 | 2°20 | 21°47 | 12°51 | F 20 |
| S 21 | 2 31 16 | 6°12'11 | 21°53 | 29°7 | 18°34 | 1°57 | 19°51 | 23°18 | 13°8 | 8°31 | 19°20 | 2°34 | 2°17 | 21°54 | 12°59 | S 21 |
| S 22 | 2 35 12 | 7°12'29 | 3♌45 | 0♌10 | 19°49 | 2°31 | 20°4 | 23°16 | 13°8 | 8°31 | 19°19 | 2°24 | 2°14 | 22°1 | 13°7 | S 22 |
| M23 | 2 39 9 | 8°12'49 | 15°45 | 1°10 | 21°4 | 3°5 | 20°17 | 23°13 | 13°8 | 8°30 | 19°18 | 2°12 | 2°11 | 22°7 | 13°15 | M23 |
| T 24 | 2 43 5 | 9°13'11 | 27°53 | 2°6 | 22°19 | 3°38 | 20°30 | 23°10 | 13°9 | 8°29 | 19°17 | 1°58 | 2°7 | 22°14 | 13°23 | T 24 |
| W25 | 2 47 2 | 10°13'35 | 10♌12 | 2°58 | 23°34 | 4°12 | 20°44 | 23°7 | 13°9 | 8°29 | 19°16 | 1°44 | 2°4 | 22°21 | 13°31 | W25 |
| T 26 | 2 50 58 | 11°14'00 | 22°40 | 3°46 | 24°50 | 4°45 | 20°57 | 23°4 | 13°10 | 8°28 | 19°15 | 1°30 | 2°1 | 22°27 | 13°39 | T 26 |
| F 27 | 2 54 55 | 12°14'27 | 5♌20 | 4°30 | 26°5 | 5°18 | 21°10 | 23°1 | 13°11 | 8°27 | 19°14 | 1°18 | 1°58 | 22°34 | 13°47 | F 27 |
| S 28 | 2 58 52 | 13°14'56 | 18°10 | 5°8 | 27°20 | 5°51 | 21°23 | 22°58 | 13°11 | 8°27 | 19°14 | 1°9 | 1°55 | 22°41 | 13°55 | S 28 |
| S 29 | 3 2 48 | 14°15'27 | 1♌10 | 5°40 | 28°35 | 6°24 | 21°37 | 22°55 | 13°12 | 8°26 | 19°13 | 1°3 | 1°51 | 22°47 | 14°3 | S 29 |
| M30 | 3 6 45 | 15°15'58 | 14°22 | 6°5 | 29°50 | 6°57 | 21°50 | 22°51 | 13°13 | 8°25 | 19°12 | 0°59 | 1°48 | 22°54 | 14°11 | M30 |
| T 31 | 3 10 41 | 16♌16'31 | 27♌47 | 6♌22 | 1♌5 | 7♓30 | 22♌3 | 22♐I48 | 13♐14 | 8♑24 | 19♑II11 | 0°D58 | 1♒45 | 23♓1 | 14♓19 | T 31 |

ASTRODIENST EPHEMERIS for the year 1413
geocentric

NOVEMBER 1413 JC

00:00 UT

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

Delta T = 07m31s

Julian Calendar 1 Nov. 1413 == Greg. Calendar 10 Nov. 1413

DECEMBER 1413 JC

00:00 UT

| Day | Sid.t | ☉ | ☽ | ♀ | ♂ | ♂ | ♂ | ♂ | ♂ | ♂ | ♂ | ♂ | ♂ | ♂ | ♂ | Day |
|------|---------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|--------------------|---------------------|---------------------|---------------------|---------------------|---------------------|------|
| F 1 | 5 12 55 | 17 ⁴³ 47 | 20 ¹⁸ 18 | 26 ¹¹ 22 | 9 ⁵⁰ 50 | 23 ¹⁷ 20 | 28 ¹¹ 57 | 20 ³¹ 31 | 14 ³ 3 | 7 ¹⁹ 44 | 18 ³⁶ 36 | 28 ¹⁹ 46 | 0 ⁷ 7 | 26 ¹⁷ 28 | 18 ¹¹ 18 | F 1 |
| S 2 | 5 16 51 | 18 ⁴⁴ 54 | 4 ¹⁹ 29 | 27 ²⁸ 28 | 11 ⁵ 5 | 23 ⁴⁸ 48 | 29 ¹⁰ 10 | 20 ²⁶ 26 | 14 ⁵ 5 | 7 ⁵⁴ 43 | 18 ³⁵ 35 | 28 ³⁴ 45 | 0 ³ 3 | 26 ³⁵ 35 | 18 ²⁶ 26 | S 2 |
| S 3 | 5 20 48 | 19 ⁴⁶ 02 | 18 ⁴⁴ 44 | 28 ³⁶ 36 | 12 ²⁰ 20 | 24 ¹⁶ 16 | 29 ²³ 23 | 20 ²¹ 21 | 14 ⁷ 7 | 7 ⁴¹ 41 | 18 ³⁴ 34 | 28 ⁴² 42 | 0 ⁰ 0 | 26 ⁴² 42 | 18 ³³ 33 | S 3 |
| M 4 | 5 24 44 | 20 ⁴⁷ 09 | 2 ⁵⁹ 59 | 29 ⁴⁷ 47 | 13 ³⁴ 34 | 24 ⁴⁴ 44 | 29 ³⁶ 36 | 20 ¹⁶ 16 | 14 ¹⁰ 10 | 7 ⁴⁰ 40 | 18 ³³ 33 | 28 ³⁷ 37 | 29 ⁵⁷ 57 | 26 ⁴⁹ 49 | 18 ⁴⁰ 40 | M 4 |
| T 5 | 5 28 41 | 21 ⁴⁸ 17 | 17 ¹² 12 | 1 ⁰ 0 | 14 ⁴⁹ 49 | 25 ¹¹ 11 | 29 ⁴⁹ 49 | 20 ¹¹ 11 | 14 ¹² 12 | 7 ³⁸ 38 | 18 ³² 32 | 28 ³¹ 31 | 29 ⁵⁴ 54 | 26 ⁵⁵ 55 | 18 ⁴⁷ 47 | T 5 |
| W 6 | 5 32 37 | 22 ⁴⁹ 25 | 1 ¹⁶ 16 | 2 ¹⁶ 16 | 16 ⁴ 4 | 25 ³⁸ 38 | 0 ² 2 | 20 ⁶ 6 | 14 ¹⁴ 14 | 7 ³⁶ 36 | 18 ³⁰ 30 | 28 ²⁵ 25 | 29 ⁵¹ 51 | 27 ² 2 | 18 ⁵⁴ 54 | W 6 |
| T 7 | 5 36 34 | 23 ⁵⁰ 34 | 15 ⁹ 9 | 3 ³³ 33 | 17 ¹⁹ 19 | 26 ⁵ 5 | 0 ¹⁵ 15 | 20 ¹ 1 | 14 ¹⁷ 17 | 7 ³⁵ 35 | 18 ²⁹ 29 | 28 ²⁰ 20 | 29 ⁴⁸ 48 | 27 ⁹ 9 | 19 ¹ 1 | T 7 |
| F 8 | 5 40 30 | 24 ⁵¹ 43 | 28 ⁴⁵ 45 | 4 ⁵² 52 | 18 ³⁴ 34 | 26 ³² 32 | 0 ²⁸ 28 | 19 ⁵⁶ 56 | 14 ¹⁹ 19 | 7 ³³ 33 | 18 ²⁸ 28 | 28 ¹⁵ 15 | 29 ⁴⁴ 44 | 27 ¹⁵ 15 | 19 ⁸ 8 | F 8 |
| S 9 | 5 44 27 | 25 ⁵² 52 | 12 ⁵ 3 | 6 ¹² 12 | 19 ⁴⁸ 48 | 26 ⁵⁹ 59 | 0 ⁴¹ 41 | 19 ⁵¹ 51 | 14 ²² 22 | 7 ³¹ 31 | 18 ²⁷ 27 | 28 ¹² 12 | 29 ⁴¹ 41 | 27 ²² 22 | 19 ¹⁵ 15 | S 9 |
| S 10 | 5 48 24 | 26 ⁵⁴ 01 | 25 ¹ 1 | 7 ³⁴ 34 | 21 ³ 3 | 27 ²⁵ 25 | 0 ⁵³ 53 | 19 ⁴⁶ 46 | 14 ²⁵ 25 | 7 ³⁰ 30 | 18 ²⁶ 26 | 28 ¹¹ 11 | 29 ³⁸ 38 | 27 ²⁹ 29 | 19 ²² 22 | S 10 |
| M 11 | 5 52 20 | 27 ⁵⁵ 11 | 7 ³⁹ 39 | 8 ⁵⁶ 56 | 22 ¹⁸ 18 | 27 ⁵¹ 51 | 1 ⁶ 6 | 19 ⁴² 42 | 14 ²⁷ 27 | 7 ²⁸ 28 | 18 ²⁵ 25 | 28 ¹² 12 | 29 ³⁵ 35 | 27 ³⁵ 35 | 19 ²⁹ 29 | M 11 |
| T 12 | 5 56 17 | 28 ⁵⁶ 21 | 20 ¹ 1 | 10 ²⁰ 20 | 23 ³³ 33 | 28 ¹⁷ 17 | 1 ¹⁹ 19 | 19 ³⁷ 37 | 14 ³⁰ 30 | 7 ²⁶ 26 | 18 ²³ 23 | 28 ¹³ 13 | 29 ³² 32 | 27 ⁴² 42 | 19 ³⁶ 36 | T 12 |
| W 13 | 6 0 13 | 29 ⁵⁷ 32 | 2 ¹¹ 8 | 11 ⁴⁴ 44 | 24 ⁴⁷ 47 | 28 ⁴³ 43 | 1 ³¹ 31 | 19 ³² 32 | 14 ³³ 33 | 7 ²⁵ 25 | 18 ²² 22 | 28 ¹⁵ 15 | 29 ²⁹ 29 | 27 ⁴⁹ 49 | 19 ⁴² 42 | W 13 |
| T 14 | 6 4 10 | 0 ⁵⁸ 42 | 14 ⁵ 5 | 13 ¹⁰ 10 | 26 ² 2 | 29 ⁸ 8 | 1 ⁴⁴ 44 | 19 ²⁷ 27 | 14 ³⁵ 35 | 7 ²³ 23 | 18 ²¹ 21 | 28 ¹⁷ 17 | 29 ²⁵ 25 | 27 ⁵⁶ 56 | 19 ⁴⁹ 49 | T 14 |
| F 15 | 6 8 6 | 1 ⁵⁹ 53 | 25 ⁵⁷ 57 | 14 ³⁶ 36 | 27 ¹⁷ 17 | 29 ³³ 33 | 1 ⁵⁷ 57 | 19 ²² 22 | 14 ³⁸ 38 | 7 ²¹ 21 | 18 ²⁰ 20 | 28 ¹⁸ 18 | 29 ²² 22 | 28 ² 2 | 19 ⁵⁶ 56 | F 15 |
| S 16 | 6 12 3 | 3 ¹ 05 | 7 ⁴⁸ 48 | 16 ² 2 | 28 ³¹ 31 | 29 ⁵⁸ 58 | 2 ⁹ 9 | 19 ¹⁷ 17 | 14 ⁴¹ 41 | 7 ²⁰ 20 | 18 ¹⁹ 19 | 28 ¹⁸ 18 | 29 ¹⁹ 19 | 28 ⁹ 9 | 20 ² 2 | S 16 |
| S 17 | 6 15 59 | 4 ² 16 | 19 ⁴⁴ 44 | 17 ³⁰ 30 | 29 ⁴⁶ 46 | 0 ²³ 23 | 2 ²² 22 | 19 ¹³ 13 | 14 ⁴⁴ 44 | 7 ¹⁸ 18 | 18 ¹⁸ 18 | 28 ¹⁷ 17 | 29 ¹⁶ 16 | 28 ¹⁶ 16 | 20 ⁹ 9 | S 17 |
| M 18 | 6 19 56 | 5 ³ 28 | 1 ¹¹ 50 | 18 ⁵⁸ 58 | 1 ¹ 1 | 0 ⁴⁷ 47 | 2 ³⁴ 34 | 19 ⁸ 8 | 14 ⁴⁶ 46 | 7 ¹⁶ 16 | 18 ¹⁶ 16 | 28 ¹⁴ 14 | 29 ¹³ 13 | 28 ²² 22 | 20 ¹⁵ 15 | M 18 |
| T 19 | 6 23 53 | 6 ⁴ 40 | 14 ⁸ 8 | 20 ²⁶ 26 | 2 ¹⁵ 15 | 1 ¹¹ 11 | 2 ⁴⁶ 46 | 19 ³ 3 | 14 ⁴⁹ 49 | 7 ¹⁵ 15 | 18 ¹⁵ 15 | 28 ¹¹ 11 | 29 ⁹ 9 | 28 ²⁹ 29 | 20 ²² 22 | T 19 |
| W 20 | 6 27 49 | 7 ⁵ 52 | 2 ⁵² 52 | 21 ⁵⁵ 55 | 3 ³⁰ 30 | 1 ³⁵ 35 | 2 ⁵⁹ 59 | 18 ⁵⁹ 59 | 14 ⁵² 52 | 7 ¹³ 13 | 18 ¹⁴ 14 | 28 ⁸ 8 | 29 ⁶ 6 | 28 ³⁶ 36 | 20 ²⁸ 28 | W 20 |
| T 21 | 6 31 46 | 8 ⁷ 05 | 9 ³⁷ 37 | 23 ²⁵ 25 | 4 ⁴⁴ 44 | 1 ⁵⁹ 59 | 3 ¹¹ 11 | 18 ⁵⁴ 54 | 14 ⁵⁵ 55 | 7 ¹¹ 11 | 18 ¹³ 13 | 28 ⁵ 5 | 29 ³ 3 | 28 ⁴³ 43 | 20 ³⁴ 34 | T 21 |
| F 22 | 6 35 42 | 9 ⁸ 17 | 22 ⁵¹ 51 | 24 ⁵⁵ 55 | 5 ⁵⁹ 59 | 2 ²² 22 | 3 ²³ 23 | 18 ⁵⁰ 50 | 14 ⁵⁸ 58 | 7 ⁹ 9 | 18 ¹² 12 | 28 ² 2 | 29 ⁰ 0 | 28 ⁴⁹ 49 | 20 ⁴⁰ 40 | F 22 |
| S 23 | 6 39 39 | 10 ⁹ 29 | 6 ²³ 23 | 26 ²⁶ 26 | 7 ¹³ 13 | 2 ⁴⁵ 45 | 3 ³⁵ 35 | 18 ⁴⁵ 45 | 15 ¹ 1 | 7 ⁸ 8 | 18 ¹¹ 11 | 28 ⁰ 0 | 28 ⁵⁷ 57 | 28 ⁵⁶ 56 | 20 ⁴⁶ 46 | S 23 |
| S 24 | 6 43 35 | 11 ¹⁰ 41 | 20 ¹² 12 | 27 ⁵⁷ 57 | 8 ²⁸ 28 | 3 ⁸ 8 | 3 ⁴⁷ 47 | 18 ⁴¹ 41 | 15 ⁴ 4 | 7 ⁶ 6 | 18 ¹⁰ 10 | 27 ⁵⁹ 59 | 28 ⁵⁴ 54 | 29 ³ 3 | 20 ⁵² 52 | S 24 |
| M 25 | 6 47 32 | 12 ¹¹ 52 | 4 ¹⁴ 14 | 29 ²⁸ 28 | 9 ⁴² 42 | 3 ³⁰ 30 | 3 ⁵⁹ 59 | 18 ³⁶ 36 | 15 ⁷ 7 | 7 ⁴ 4 | 18 ⁹ 9 | 27 ⁵⁹ 59 | 28 ⁵⁰ 50 | 29 ⁹ 9 | 20 ⁵⁸ 58 | M 25 |
| T 26 | 6 51 28 | 13 ¹³ 03 | 18 ²⁶ 26 | 1 ³ 0 | 10 ⁵⁷ 57 | 3 ⁵² 52 | 4 ¹¹ 11 | 18 ³² 32 | 15 ¹⁰ 10 | 7 ³ 3 | 18 ⁸ 8 | 27 ⁵⁹ 59 | 28 ⁴⁷ 47 | 29 ¹⁶ 16 | 21 ⁴ 4 | T 26 |
| W 27 | 6 55 25 | 14 ¹⁴ 13 | 2 ³⁴ 34 | 2 ³³ 33 | 12 ¹¹ 11 | 4 ¹³ 13 | 4 ²³ 23 | 18 ²⁸ 28 | 15 ¹³ 13 | 7 ¹ 1 | 18 ⁷ 7 | 28 ⁰ 0 | 28 ⁴⁴ 44 | 29 ²³ 23 | 21 ¹⁰ 10 | W 27 |
| T 28 | 6 59 22 | 15 ¹⁵ 23 | 17 ² 2 | 4 ⁶ 6 | 13 ²⁵ 25 | 4 ³⁵ 35 | 4 ³⁵ 35 | 18 ²⁴ 24 | 15 ¹⁶ 16 | 6 ⁵⁹ 59 | 18 ⁶ 6 | 28 ² 2 | 28 ⁴¹ 41 | 29 ²⁹ 29 | 21 ¹⁶ 16 | T 28 |
| F 29 | 7 3 18 | 16 ¹⁶ 32 | 1 ¹⁹ 19 | 5 ³⁹ 39 | 14 ⁴⁰ 40 | 4 ⁵⁶ 56 | 4 ⁴⁶ 46 | 18 ²⁰ 20 | 15 ¹⁹ 19 | 6 ⁵⁸ 58 | 18 ⁵ 5 | 28 ² 2 | 28 ³⁸ 38 | 29 ³⁶ 36 | 21 ²² 22 | F 29 |
| S 30 | 7 7 15 | 17 ¹⁷ 40 | 15 ³¹ 31 | 7 ¹³ 13 | 15 ⁵⁴ 54 | 5 ¹⁶ 16 | 4 ⁵⁸ 58 | 18 ¹⁵ 15 | 15 ²³ 23 | 6 ⁵⁶ 56 | 18 ⁴ 4 | 28 ¹⁸ 18 | 28 ³⁵ 35 | 29 ⁴³ 43 | 21 ²⁷ 27 | S 30 |
| S 31 | 7 11 11 | 18 ¹⁸ 47 | 29 ¹⁹ 36 | 8 ³⁴ 34 | 17 ¹ 1 | 5 ¹ 36 | 5 ¹ 9 | 18 ¹² 12 | 15 ¹ 26 | 6 ⁵⁴ 54 | 18 ³ 3 | 28 ³ 3 | 28 ³¹ 31 | 29 ¹ 50 | 21 ¹ 33 | S 31 |