



# Astrodienst Ephemeris Tables for the year 1613

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 D5EPX

# ASTRODIENST EPHEMERIS for the year 1613

## geocentric

JANUARY 1613 GC

00:00 UT

| Day  | Sid.t   | ☉          | ☽       | ♊         | ♋         | ♌       | ♍         | ♎         | ♏       | ♐         | ♑     | ♒      | ♓      | ♈      | ♉      | Day  |
|------|---------|------------|---------|-----------|-----------|---------|-----------|-----------|---------|-----------|-------|--------|--------|--------|--------|------|
| T 1  | 6 42 45 | 10°35'03"1 | 0°8'32" | 16°35'52" | 25°11'27" | 9°R31   | 26°11'24" | 13°11'00" | 23°R40  | 26°R30    | 3°R55 | 21°R25 | 20°R0  | 26°R35 | 21°R43 | T 1  |
| W 2  | 6 46 41 | 11°51'41"  | 12°44'  | 18°31'    | 26°35'    | 9°II22  | 26°26'    | 13°5'     | 23°II38 | 26°11'29" | 3°R55 | 21°26' | 19°57' | 26°42' | 21°48' | W 2  |
| T 3  | 6 50 38 | 12°52'50"  | 25°15'  | 20°11'    | 27°43'    | 9°13    | 26°28'    | 13°10'    | 23°35'  | 26°29'    | 3°54' | 21°R27 | 19°54' | 26°49' | 21°53' | T 3  |
| F 4  | 6 54 35 | 13°53'58"  | 8°II6   | 21°51'    | 28°51'    | 9°4     | 26°29'    | 13°14'    | 23°33'  | 26°29'    | 3°54' | 21°25' | 19°51' | 26°55' | 21°59' | F 4  |
| S 5  | 6 58 31 | 14°55'07"  | 21°21'  | 23°31'    | 29°59'    | 8°57    | 26°30'    | 13°19'    | 23°31'  | 26°29'    | 3°54' | 21°21' | 19°48' | 27°2'  | 22°4'  | S 5  |
| S 6  | 7 2 28  | 15°56'14"  | 4°59'   | 25°11'    | 1°X8      | 8°51    | 26°31'    | 13°24'    | 23°28'  | 26°29'    | 3°53' | 21°15' | 19°45' | 27°9'  | 22°9'  | S 6  |
| M 7  | 7 6 24  | 16°57'22"  | 18°58'  | 26°51'    | 2°16'     | 8°45    | 26°32'    | 13°29'    | 23°26'  | 26°28'    | 3°53' | 21°7'  | 19°41' | 27°15' | 22°15' | M 7  |
| T 8  | 7 10 21 | 17°58'29"  | 3°11'   | 28°32'    | 3°25'     | 8°40    | 26°33'    | 13°35'    | 23°24'  | 26°28'    | 3°53' | 20°57' | 19°38' | 27°22' | 22°20' | T 8  |
| W 9  | 7 14 17 | 18°59'35"  | 17°43'  | 0°12'     | 4°34'     | 8°36    | 26°33'    | 13°40'    | 23°21'  | 26°27'    | 3°53' | 20°48' | 19°35' | 27°29' | 22°25' | W 9  |
| T 10 | 7 18 14 | 20°0'42"   | 2°16'   | 1°52'     | 5°43'     | 8°33    | 26°33'    | 13°45'    | 23°19'  | 26°27'    | 3°53' | 20°39' | 19°32' | 27°35' | 22°31' | T 10 |
| F 11 | 7 22 10 | 21°1'47"   | 16°47'  | 3°32'     | 6°53'     | 8°30    | 26°R33    | 13°51'    | 23°17'  | 26°27'    | 3°52' | 20°32' | 19°29' | 27°42' | 22°36' | F 11 |
| S 12 | 7 26 7  | 22°2'53"   | 1°10'   | 5°12'     | 8°2'      | 8°29    | 26°33'    | 13°56'    | 23°15'  | 26°26'    | 3°52' | 20°28' | 19°26' | 27°49' | 22°41' | S 12 |
| S 13 | 7 30 4  | 23°3'58"   | 15°23'  | 6°51'     | 9°12'     | 8°28    | 26°33'    | 14°2'     | 23°13'  | 26°26'    | 3°52' | 20°26' | 19°22' | 27°56' | 22°47' | S 13 |
| M14  | 7 34 0  | 24°5'03"   | 29°24'  | 8°29'     | 10°21'    | 8°D28   | 26°32'    | 14°7'     | 23°10'  | 26°25'    | 3°52' | 20°D26 | 19°19' | 28°2'  | 22°52' | M14  |
| T 15 | 7 37 57 | 25°6'08"   | 13°11'  | 10°6'     | 11°31'    | 8°28    | 26°32'    | 14°13'    | 23°8'   | 26°24'    | 3°52' | 20°R26 | 19°16' | 28°9'  | 22°57' | T 15 |
| W16  | 7 41 53 | 26°7'12"   | 26°48'  | 11°41'    | 12°41'    | 8°30    | 26°31'    | 14°19'    | 23°6'   | 26°24'    | 3°52' | 20°26' | 19°13' | 28°16' | 23°3'  | W16  |
| T 17 | 7 45 50 | 27°8'16"   | 10°11'  | 13°15'    | 13°51'    | 8°32    | 26°30'    | 14°24'    | 23°4'   | 26°23'    | 3°D52 | 20°25' | 19°10' | 28°22' | 23°8'  | T 17 |
| F 18 | 7 49 46 | 28°9'19"   | 23°27'  | 14°46'    | 15°1'     | 8°34    | 26°28'    | 14°30'    | 23°2'   | 26°23'    | 3°52' | 20°20' | 19°6'  | 28°29' | 23°13' | F 18 |
| S 19 | 7 53 43 | 29°10'22"  | 6°31'   | 16°15'    | 16°12'    | 8°38    | 26°27'    | 14°36'    | 23°0'   | 26°22'    | 3°52' | 20°13' | 19°3'  | 28°36' | 23°18' | S 19 |
| S 20 | 7 57 40 | 0°11'24"   | 19°23'  | 17°41'    | 17°22'    | 8°42    | 26°25'    | 14°42'    | 22°59'  | 26°21'    | 3°52' | 20°3'  | 19°0'  | 28°42' | 23°24' | S 20 |
| M21  | 8 1 36  | 1°12'25"   | 2°4'    | 19°2'     | 18°33'    | 8°47    | 26°23'    | 14°48'    | 22°57'  | 26°20'    | 3°52' | 19°50' | 18°57' | 28°49' | 23°29' | M21  |
| T 22 | 8 5 33  | 2°13'26"   | 14°34'  | 20°20'    | 19°43'    | 8°53    | 26°21'    | 14°54'    | 22°55'  | 26°20'    | 3°52' | 19°37' | 18°54' | 28°56' | 23°34' | T 22 |
| W23  | 8 9 29  | 3°14'25"   | 26°51'  | 21°32'    | 20°54'    | 8°59    | 26°19'    | 15°0'     | 22°53'  | 26°19'    | 3°52' | 19°23' | 18°51' | 29°2'  | 23°40' | W23  |
| T 24 | 8 13 26 | 4°15'23"   | 8°58'   | 22°38'    | 22°5'     | 9°6     | 26°17'    | 15°6'     | 22°51'  | 26°18'    | 3°53' | 19°11' | 18°47' | 29°9'  | 23°45' | T 24 |
| F 25 | 8 17 22 | 5°16'20"   | 20°56'  | 23°38'    | 23°15'    | 9°14    | 26°14'    | 15°13'    | 22°50'  | 26°17'    | 3°53' | 19°1'  | 18°44' | 29°16' | 23°50' | F 25 |
| S 26 | 8 21 19 | 6°17'15"   | 2°47'   | 24°30'    | 24°26'    | 9°22    | 26°11'    | 15°19'    | 22°48'  | 26°16'    | 3°53' | 18°53' | 18°41' | 29°23' | 23°55' | S 26 |
| S 27 | 8 25 15 | 7°18'10"   | 14°35'  | 25°13'    | 25°37'    | 9°31    | 26°8'     | 15°25'    | 22°46'  | 26°15'    | 3°53' | 18°49' | 18°38' | 29°29' | 24°1'  | S 27 |
| M28  | 8 29 12 | 8°19'03"   | 26°25'  | 25°48'    | 26°48'    | 9°41    | 26°5'     | 15°32'    | 22°45'  | 26°14'    | 3°53' | 18°46' | 18°35' | 29°36' | 24°6'  | M28  |
| T 29 | 8 33 8  | 9°19'54"   | 8°22'   | 26°13'    | 28°0'     | 9°51    | 26°2'     | 15°38'    | 22°43'  | 26°13'    | 3°54' | 18°D46 | 18°31' | 29°43' | 24°11' | T 29 |
| W30  | 8 37 5  | 10°20'44"  | 20°32'  | 26°27'    | 29°11'    | 10°2    | 25°58'    | 15°45'    | 22°42'  | 26°12'    | 3°54' | 18°R46 | 18°28' | 29°49' | 24°16' | W30  |
| T 31 | 8 41 2  | 11°21'33"  | 2°11'   | 26°R30    | 0°22'     | 10°II13 | 25°11'    | 15°51'    | 22°II40 | 26°11'    | 3°54' | 18°R45 | 18°25' | 29°56' | 24°21' | T 31 |

| Day  | ☉     | ☾     |      | ♊     |      | ♋     |      | ♌     |      | ♍    |      | ♎    |      | ♏     |      | ♐    |      | ♑    |       | ♒     | ♓     | ♈    | ♉     | ♊    | ♋   | ♌    | ♍   | ♎    | ♏   | ♐    | ♑   | ♒    | ♓   |      |     |
|------|-------|-------|------|-------|------|-------|------|-------|------|------|------|------|------|-------|------|------|------|------|-------|-------|-------|------|-------|------|-----|------|-----|------|-----|------|-----|------|-----|------|-----|
|      | decl  | decl  | lat  | decl  | lat  | decl  | lat  | decl  | lat  | decl | lat  | decl | lat  | decl  | lat  | decl | lat  | decl | lat   | decl  | lat   | decl | lat   | decl | lat | decl | lat | decl | lat | decl | lat | decl | lat | decl | lat |
| T 1  | 23s 3 | 9n57  | 1s50 | 24s30 | 2s 6 | 16s23 | 2n51 | 24n52 | 2n58 | 2n39 | 1n19 | 8s34 | 2s 2 | 23n31 | 0n11 | 2n37 | 1n20 | 2s32 | 16s19 | 18n 9 | 17n47 | 5s 9 | 15s20 | 6n29 |     |      |     |      |     |      |     |      |     |      |     |
| W 2  | 22 58 | 14 57 | 0 47 | 24 18 | 2 7  | 16 40 | 2 50 | 24 50 | 2 58 | 2 38 | 1 20 | 8 32 | 2 2  | 23 31 | 0 11 | 2 37 | 1 20 | 2 32 | 16 19 | 18 10 | 17 46 | 5 6  | 15 19 | 6 29 |     |      |     |      |     |      |     |      |     |      |     |
| T 3  | 22 52 | 19 27 | 0n20 | 24 4  | 2 7  | 16 57 | 2 49 | 24 49 | 2 58 | 2 38 | 1 20 | 8 30 | 2 2  | 23 31 | 0 11 | 2 38 | 1 20 | 2 32 | 16 19 | 18 10 | 17 45 | 5 3  | 15 19 | 6 29 |     |      |     |      |     |      |     |      |     |      |     |
| F 4  | 22 46 | 23 9  | 1 28 | 23 48 | 2 7  | 17 13 | 2 48 | 24 48 | 2 59 | 2 38 | 1 20 | 8 28 | 2 2  | 23 31 | 0 11 | 2 38 | 1 20 | 2 32 | 16 18 | 18 9  | 17 44 | 5 0  | 15 18 | 6 29 |     |      |     |      |     |      |     |      |     |      |     |
| S 5  | 22 39 | 25 45 | 2 33 | 23 31 | 2 7  | 17 29 | 2 46 | 24 47 | 2 59 | 2 37 | 1 20 | 8 26 | 2 2  | 23 30 | 0 11 | 2 38 | 1 20 | 2 31 | 16 18 | 18 8  | 17 43 | 4 57 | 15 17 | 6 29 |     |      |     |      |     |      |     |      |     |      |     |
| S 6  | 22 32 | 26 55 | 3 31 | 23 12 | 2 6  | 17 45 | 2 45 | 24 46 | 2 59 | 2 37 | 1 21 | 8 24 | 2 1  | 23 30 | 0 11 | 2 38 | 1 20 | 2 31 | 16 18 | 18 7  | 17 43 | 4 53 | 15 16 | 6 29 |     |      |     |      |     |      |     |      |     |      |     |
| M 7  | 22 25 | 26 24 | 4 18 | 22 52 | 2 4  | 18 0  | 2 43 | 24 45 | 2 59 | 2 37 | 1 21 | 8 22 | 2 1  | 23 30 | 0 11 | 2 38 | 1 20 | 2 31 | 16 17 | 18 5  | 17 42 | 4 50 | 15 15 | 6 29 |     |      |     |      |     |      |     |      |     |      |     |
| T 8  | 22 17 | 24 10 | 4 50 | 22 30 | 2 2  | 18 15 | 2 41 | 24 44 | 2 58 | 2 37 | 1 21 | 8 20 | 2 1  | 23 30 | 0 11 | 2 38 | 1 20 | 2 31 | 16 17 | 18 2  | 17 41 | 4 47 | 15 15 | 6 29 |     |      |     |      |     |      |     |      |     |      |     |
| W 9  | 22 9  | 20 22 | 5 4  | 22 6  | 2 0  | 18 29 | 2 39 | 24 43 | 2 58 | 2 37 | 1 22 | 8 18 | 2 1  | 23 30 | 0 11 | 2 39 | 1 21 | 2 30 | 16 17 | 17 59 | 17 40 | 4 44 | 15 14 | 6 29 |     |      |     |      |     |      |     |      |     |      |     |
| T 10 | 22 0  | 15 19 | 4 58 | 21 41 | 1 57 | 18 43 | 2 38 | 24 42 | 2 58 | 2 37 | 1 22 | 8 16 | 2 1  | 23 30 | 0 11 | 2 39 | 1 21 | 2 30 | 16 16 | 17 57 | 17 39 | 4 41 | 15 13 | 6 28 |     |      |     |      |     |      |     |      |     |      |     |
| F 11 | 21 51 | 9 25  | 4 33 | 21 14 | 1 53 | 18 57 | 2 35 | 24 42 | 2 58 | 2 38 | 1 22 | 8 14 | 2 1  | 23 30 | 0 11 | 2 39 | 1 21 | 2 30 | 16 16 | 17 55 | 17 38 | 4 38 | 15 12 | 6 28 |     |      |     |      |     |      |     |      |     |      |     |
| S 12 | 21 41 | 3 4   | 3 51 | 20 46 | 1 48 | 19 10 | 2 33 | 24 41 | 2 58 | 2 38 | 1 22 | 8 11 | 2 1  | 23 30 | 0 11 | 2 39 | 1 21 | 2 30 | 16 16 | 17 54 | 17 37 | 4 34 | 15 11 | 6 28 |     |      |     |      |     |      |     |      |     |      |     |
| S 13 | 21 31 | 3s22  | 2 55 | 20 16 | 1 43 | 19 23 | 2 31 | 24 41 | 2 57 | 2 38 | 1 23 | 8 9  | 2 1  | 23 30 | 0 11 | 2 39 | 1 21 | 2 29 | 16 15 | 17 54 | 17 37 | 4 31 | 15 10 | 6 28 |     |      |     |      |     |      |     |      |     |      |     |
| M14  | 21 20 | 9 34  | 1 50 | 19 45 | 1 37 | 19 36 | 2 29 | 24 40 | 2 57 | 2 39 | 1 23 | 8 7  | 2 0  | 23 30 | 0 11 | 2 40 | 1 21 | 2 29 | 16 15 | 17 54 | 17 36 | 4 28 | 15 10 | 6 28 |     |      |     |      |     |      |     |      |     |      |     |
| T 15 | 21 10 | 15 13 | 0 39 | 19 13 | 1 31 | 19 48 | 2 27 | 24 40 | 2 57 | 2 39 | 1 23 | 8 5  | 2 0  | 23 29 | 0 11 | 2 40 | 1 21 | 2 29 | 16 14 | 17 54 | 17 35 | 4 25 | 15 9  | 6 29 |     |      |     |      |     |      |     |      |     |      |     |
| W16  | 20 58 | 20 2  | 0s34 | 18 39 | 1 24 | 19 59 | 2 24 | 24 40 | 2 56 | 2 40 | 1 24 | 8 2  | 2 0  | 23 29 | 0 11 | 2 40 | 1 21 | 2 28 | 16 14 | 17 54 | 17 34 | 4 22 | 15 8  | 6 29 |     |      |     |      |     |      |     |      |     |      |     |
| T 17 | 20 47 | 23 44 | 1 43 | 18 5  | 1 15 | 20 10 | 2 22 | 24 40 | 2 56 | 2 41 | 1 24 | 8 0  | 2 0  | 23 29 | 0 11 | 2 41 | 1 21 | 2 28 | 16 14 | 17 53 | 17 33 | 4 19 | 15 7  | 6 29 |     |      |     |      |     |      |     |      |     |      |     |
| F 18 | 20 35 | 26 5  | 2 46 | 17 30 | 1 6  | 20 21 | 2 19 | 24 40 | 2 55 | 2 41 | 1 24 | 7 58 | 2 0  | 23 29 | 0 11 | 2 41 | 1 21 | 2 28 | 16 13 | 17 52 | 17 32 | 4 15 | 15 6  | 6 29 |     |      |     |      |     |      |     |      |     |      |     |
| S 19 | 20 22 | 26 58 | 3 39 | 16 54 | 0 57 | 20 31 | 2 16 | 24 40 | 2 55 | 2 42 | 1 24 | 7 55 | 2 0  | 23 29 | 0 11 | 2 41 | 1 21 | 2 27 | 16 13 | 17 50 | 17 31 | 4 12 | 15 5  | 6 29 |     |      |     |      |     |      |     |      |     |      |     |
| S 20 | 20 9  | 26 22 | 4 19 | 16 18 | 0 46 | 20 40 | 2 14 | 24 40 | 2 54 | 2 43 | 1 25 | 7 53 | 2 0  | 23 29 | 0 11 | 2 42 | 1 21 | 2 27 | 16 13 | 17 47 | 17 30 | 4 9  | 15 4  | 6 29 |     |      |     |      |     |      |     |      |     |      |     |
| M21  | 19 56 | 24 24 | 4 47 | 15 41 | 0 34 | 20 49 | 2 11 | 24 40 | 2 54 | 2 44 | 1 25 | 7 50 | 2 0  | 23 29 | 0 11 | 2 42 | 1 21 | 2 27 | 16 12 | 17 44 | 17 30 | 4 6  | 15 3  | 6 29 |     |      |     |      |     |      |     |      |     |      |     |
| T 22 | 19 42 | 21 16 | 5 0  | 15 5  | 0 22 | 20 58 | 2 8  | 24 41 | 2 53 | 2 45 | 1 25 | 7 48 | 2 0  | 23 29 | 0 11 | 2 42 | 1 21 | 2 26 | 16 12 | 17 40 | 17 29 | 4 3  | 15 2  | 6 29 |     |      |     |      |     |      |     |      |     |      |     |
| W23  | 19 28 | 17 15 | 4 58 | 14 29 | 0 8  | 21 6  | 2 5  | 24 41 | 2 53 | 2 46 | 1 26 | 7 45 | 2 0  | 23 29 | 0 11 | 2 43 | 1 21 | 2 26 | 16 12 | 17 37 | 17 28 | 3 59 | 15 1  | 6 29 |     |      |     |      |     |      |     |      |     |      |     |
| T 24 | 19 14 | 12 36 | 4 43 | 13 54 | 0n 6 | 21 13 | 2 2  | 24 42 | 2 52 | 2 48 | 1 26 | 7 43 | 1 59 | 23 29 | 0 11 | 2 43 | 1 21 | 2 26 | 16 11 | 17 33 | 17 27 | 3 56 | 15 0  | 6 29 |     |      |     |      |     |      |     |      |     |      |     |
| F 25 | 19 0  | 7 31  | 4 16 | 13 21 | 0 21 | 21 20 | 1 59 | 24 42 | 2 51 | 2 49 | 1 26 | 7 40 | 1 59 | 23 28 | 0 11 | 2 43 | 1 21 | 2 25 | 16 11 | 17 31 | 17 26 | 3 53 | 15 0  | 6 29 |     |      |     |      |     |      |     |      |     |      |     |
| S 26 | 18 45 | 2 13  | 3 38 | 12 49 | 0 36 | 21 27 | 1 56 | 24 43 | 2 51 | 2 50 | 1 26 | 7 38 | 1 59 | 23 28 | 0 11 | 2 44 | 1 21 | 2 25 | 16 11 | 17 29 | 17 25 | 3 50 | 14 59 | 6 29 |     |      |     |      |     |      |     |      |     |      |     |
| S 27 | 18 29 | 3n 8  | 2 50 | 12 19 | 0 53 | 21 32 | 1 53 | 24 44 | 2 50 | 2 52 | 1 27 | 7 35 | 1 59 | 23 28 | 0 11 | 2 44 | 1 21 | 2 24 | 16 10 | 17 27 | 17 24 | 3 47 | 14 58 | 6 29 |     |      |     |      |     |      |     |      |     |      |     |
| M28  | 18 13 | 8 25  | 1 55 | 11 51 | 1 9  | 21 37 | 1 50 | 24 45 | 2 50 | 2 53 | 1 27 | 7 33 | 1 59 | 23 28 | 0 11 | 2 45 | 1 21 | 2 24 | 16 10 | 17 27 | 17 23 | 3 43 | 14 57 | 6 29 |     |      |     |      |     |      |     |      |     |      |     |
| T 29 | 17 57 | 13 28 | 0 55 | 11 27 | 1 27 | 21 42 | 1 47 | 24 46 | 2 49 | 2 55 | 1 27 | 7 30 | 1 59 | 23 28 | 0 11 | 2 45 | 1 21 | 2 24 | 16 10 | 17 27 | 17 23 | 3 40 | 14 56 | 6 30 |     |      |     |      |     |      |     |      |     |      |     |
| W30  | 17 41 | 18 4  | 0n 9 | 11 6  | 1 44 | 21 46 | 1 43 | 24 47 | 2 48 | 2 56 | 1 27 | 7 28 | 1 59 | 23 28 | 0 11 | 2 46 | 1 22 | 2 23 | 16 9  | 17 27 | 17 22 | 3 37 | 14 55 | 6 30 |     |      |     |      |     |      |     |      |     |      |     |
| T 31 | 17s25 | 22n 1 | 1n15 | 10s49 | 2n 1 | 21s49 | 1n40 | 24n48 | 2n48 | 2n58 | 1n28 | 7s25 | 1s59 | 23n28 | 0n11 | 2n46 | 1n22 | 2s23 | 16s 9 | 17n26 | 17n21 | 3s34 | 14s54 | 6n30 |     |      |     |      |     |      |     |      |     |      |     |

ASTRODIENST EPHEMERIS for the year 1613  
geocentric

FEBRUARY 1613 GC

00:00 UT

| Day  | Sid.t    | ☉                   | ☽                    | ♀                   | ♂                  | ♂                    | ♂                    | ♂                   | ♂                   | ♂                    | ♂                   | ♂                   | ♂                   | ♂                 | ♂                   | Day  |
|------|----------|---------------------|----------------------|---------------------|--------------------|----------------------|----------------------|---------------------|---------------------|----------------------|---------------------|---------------------|---------------------|-------------------|---------------------|------|
| F 1  | 8 44 58  | 12 <sup>22</sup> 20 | 15 <sup>II</sup> 49  | 26 <sup>R</sup> 23  | 1 <sup>3</sup> 34  | 10 <sup>II</sup> 25  | 25 <sup>R</sup> 51   | 15 <sup>II</sup> 58 | 22 <sup>R</sup> 39  | 26 <sup>R</sup> 10   | 3 <sup>8</sup> 54   | 18 <sup>R</sup> 43  | 18 <sup>8</sup> 22  | 0 <sup>Y</sup> 3  | 24 <sup>3</sup> 26  | F 1  |
| S 2  | 8 48 55  | 13 <sup>23</sup> 06 | 29 <sup>°</sup> 6    | 26 <sup>≈</sup> 5   | 2 <sup>°</sup> 45  | 10 <sup>°</sup> 38   | 25 <sup>II</sup> 47  | 16 <sup>°</sup> 4   | 22 <sup>II</sup> 37 | 26 <sup>II</sup> 9   | 3 <sup>°</sup> 55   | 18 <sup>8</sup> 38  | 18 <sup>°</sup> 19  | 0 <sup>°</sup> 9  | 24 <sup>°</sup> 31  | S 2  |
| S 3  | 8 52 51  | 14 <sup>23</sup> 51 | 12 <sup>28</sup> 52  | 25 <sup>°</sup> 36  | 3 <sup>°</sup> 56  | 10 <sup>°</sup> 51   | 25 <sup>°</sup> 42   | 16 <sup>°</sup> 11  | 22 <sup>°</sup> 36  | 26 <sup>°</sup> 8    | 3 <sup>°</sup> 55   | 18 <sup>°</sup> 31  | 18 <sup>°</sup> 16  | 0 <sup>°</sup> 16 | 24 <sup>°</sup> 37  | S 3  |
| M 4  | 8 56 48  | 15 <sup>24</sup> 33 | 27 <sup>°</sup> 5    | 24 <sup>°</sup> 57  | 5 <sup>°</sup> 8   | 11 <sup>°</sup> 4    | 25 <sup>°</sup> 38   | 16 <sup>°</sup> 18  | 22 <sup>°</sup> 35  | 26 <sup>°</sup> 7    | 3 <sup>°</sup> 55   | 18 <sup>°</sup> 20  | 18 <sup>°</sup> 12  | 0 <sup>°</sup> 23 | 24 <sup>°</sup> 42  | M 4  |
| T 5  | 9 0 44   | 16 <sup>25</sup> 15 | 11 <sup>29</sup> 41  | 24 <sup>°</sup> 9   | 6 <sup>°</sup> 20  | 11 <sup>°</sup> 18   | 25 <sup>°</sup> 33   | 16 <sup>°</sup> 25  | 22 <sup>°</sup> 33  | 26 <sup>°</sup> 6    | 3 <sup>°</sup> 56   | 18 <sup>°</sup> 9   | 18 <sup>°</sup> 9   | 0 <sup>°</sup> 29 | 24 <sup>°</sup> 47  | T 5  |
| W 6  | 9 4 41   | 17 <sup>25</sup> 55 | 26 <sup>°</sup> 34   | 23 <sup>°</sup> 13  | 7 <sup>°</sup> 31  | 11 <sup>°</sup> 33   | 25 <sup>°</sup> 29   | 16 <sup>°</sup> 31  | 22 <sup>°</sup> 32  | 26 <sup>°</sup> 4    | 3 <sup>°</sup> 56   | 17 <sup>°</sup> 57  | 18 <sup>°</sup> 6   | 0 <sup>°</sup> 36 | 24 <sup>°</sup> 52  | W 6  |
| T 7  | 9 8 38   | 18 <sup>26</sup> 33 | 11 <sup>30</sup> 33  | 22 <sup>°</sup> 12  | 8 <sup>°</sup> 43  | 11 <sup>°</sup> 48   | 25 <sup>°</sup> 24   | 16 <sup>°</sup> 38  | 22 <sup>°</sup> 31  | 26 <sup>°</sup> 3    | 3 <sup>°</sup> 57   | 17 <sup>°</sup> 46  | 18 <sup>°</sup> 3   | 0 <sup>°</sup> 43 | 24 <sup>°</sup> 57  | T 7  |
| F 8  | 9 12 34  | 19 <sup>27</sup> 10 | 26 <sup>°</sup> 31   | 21 <sup>°</sup> 6   | 9 <sup>°</sup> 55  | 12 <sup>°</sup> 3    | 25 <sup>°</sup> 19   | 16 <sup>°</sup> 45  | 22 <sup>°</sup> 30  | 26 <sup>°</sup> 2    | 3 <sup>°</sup> 57   | 17 <sup>°</sup> 37  | 18 <sup>°</sup> 0   | 0 <sup>°</sup> 49 | 25 <sup>°</sup> 2   | F 8  |
| S 9  | 9 16 31  | 20 <sup>27</sup> 46 | 11 <sup>31</sup> 17  | 19 <sup>°</sup> 57  | 11 <sup>°</sup> 7  | 12 <sup>°</sup> 19   | 25 <sup>°</sup> 14   | 16 <sup>°</sup> 52  | 22 <sup>°</sup> 29  | 26 <sup>°</sup> 1    | 3 <sup>°</sup> 58   | 17 <sup>°</sup> 31  | 17 <sup>°</sup> 57  | 0 <sup>°</sup> 56 | 25 <sup>°</sup> 7   | S 9  |
| S 10 | 9 20 27  | 21 <sup>28</sup> 21 | 25 <sup>°</sup> 46   | 18 <sup>°</sup> 48  | 12 <sup>°</sup> 19 | 12 <sup>°</sup> 36   | 25 <sup>°</sup> 8    | 16 <sup>°</sup> 59  | 22 <sup>°</sup> 28  | 25 <sup>°</sup> 59   | 3 <sup>°</sup> 58   | 17 <sup>°</sup> 27  | 17 <sup>°</sup> 53  | 1 <sup>°</sup> 3  | 25 <sup>°</sup> 11  | S 10 |
| M 11 | 9 24 24  | 22 <sup>28</sup> 54 | 9 <sup>32</sup> 56   | 17 <sup>°</sup> 40  | 13 <sup>°</sup> 31 | 12 <sup>°</sup> 53   | 25 <sup>°</sup> 3    | 17 <sup>°</sup> 6   | 22 <sup>°</sup> 27  | 25 <sup>°</sup> 58   | 3 <sup>°</sup> 59   | 17 <sup>°</sup> 26  | 17 <sup>°</sup> 50  | 1 <sup>°</sup> 10 | 25 <sup>°</sup> 16  | M 11 |
| T 12 | 9 28 20  | 23 <sup>29</sup> 26 | 23 <sup>°</sup> 45   | 16 <sup>°</sup> 35  | 14 <sup>°</sup> 43 | 13 <sup>°</sup> 10   | 24 <sup>°</sup> 57   | 17 <sup>°</sup> 13  | 22 <sup>°</sup> 26  | 25 <sup>°</sup> 57   | 3 <sup>°</sup> 59   | 17 <sup>°</sup> 26  | 17 <sup>°</sup> 47  | 1 <sup>°</sup> 16 | 25 <sup>°</sup> 21  | T 12 |
| W 13 | 9 32 17  | 24 <sup>29</sup> 57 | 7 <sup>33</sup> 14   | 15 <sup>°</sup> 33  | 15 <sup>°</sup> 55 | 13 <sup>°</sup> 28   | 24 <sup>°</sup> 52   | 17 <sup>°</sup> 20  | 22 <sup>°</sup> 25  | 25 <sup>°</sup> 55   | 4 <sup>°</sup> 0    | 17 <sup>°</sup> 26  | 17 <sup>°</sup> 44  | 1 <sup>°</sup> 23 | 25 <sup>°</sup> 26  | W 13 |
| T 14 | 9 36 13  | 25 <sup>30</sup> 27 | 20 <sup>°</sup> 26   | 14 <sup>°</sup> 37  | 17 <sup>°</sup> 7  | 13 <sup>°</sup> 46   | 24 <sup>°</sup> 46   | 17 <sup>°</sup> 27  | 22 <sup>°</sup> 25  | 25 <sup>°</sup> 54   | 4 <sup>°</sup> 0    | 17 <sup>°</sup> 24  | 17 <sup>°</sup> 41  | 1 <sup>°</sup> 30 | 25 <sup>°</sup> 31  | T 14 |
| F 15 | 9 40 10  | 26 <sup>30</sup> 56 | 3 <sup>34</sup> 24   | 13 <sup>°</sup> 48  | 18 <sup>°</sup> 19 | 14 <sup>°</sup> 4    | 24 <sup>°</sup> 40   | 17 <sup>°</sup> 34  | 22 <sup>°</sup> 24  | 25 <sup>°</sup> 53   | 4 <sup>°</sup> 1    | 17 <sup>°</sup> 19  | 17 <sup>°</sup> 37  | 1 <sup>°</sup> 36 | 25 <sup>°</sup> 36  | F 15 |
| S 16 | 9 44 7   | 27 <sup>31</sup> 23 | 16 <sup>°</sup> 8    | 13 <sup>°</sup> 5   | 19 <sup>°</sup> 31 | 14 <sup>°</sup> 23   | 24 <sup>°</sup> 33   | 17 <sup>°</sup> 41  | 22 <sup>°</sup> 23  | 25 <sup>°</sup> 51   | 4 <sup>°</sup> 2    | 17 <sup>°</sup> 12  | 17 <sup>°</sup> 34  | 1 <sup>°</sup> 43 | 25 <sup>°</sup> 40  | S 16 |
| S 17 | 9 48 3   | 28 <sup>31</sup> 48 | 28 <sup>°</sup> 42   | 12 <sup>°</sup> 29  | 20 <sup>°</sup> 44 | 14 <sup>°</sup> 42   | 24 <sup>°</sup> 27   | 17 <sup>°</sup> 48  | 22 <sup>°</sup> 22  | 25 <sup>°</sup> 50   | 4 <sup>°</sup> 2    | 17 <sup>°</sup> 1   | 17 <sup>°</sup> 31  | 1 <sup>°</sup> 50 | 25 <sup>°</sup> 45  | S 17 |
| M 18 | 9 52 0   | 29 <sup>32</sup> 12 | 11 <sup>32</sup> 6   | 12 <sup>°</sup> 1   | 21 <sup>°</sup> 56 | 15 <sup>°</sup> 2    | 24 <sup>°</sup> 21   | 17 <sup>°</sup> 56  | 22 <sup>°</sup> 22  | 25 <sup>°</sup> 48   | 4 <sup>°</sup> 3    | 16 <sup>°</sup> 49  | 17 <sup>°</sup> 28  | 1 <sup>°</sup> 56 | 25 <sup>°</sup> 50  | M 18 |
| T 19 | 9 55 56  | 0 <sup>33</sup> 23  | 23 <sup>°</sup> 21   | 11 <sup>°</sup> 40  | 23 <sup>°</sup> 8  | 15 <sup>°</sup> 22   | 24 <sup>°</sup> 14   | 18 <sup>°</sup> 3   | 22 <sup>°</sup> 21  | 25 <sup>°</sup> 47   | 4 <sup>°</sup> 4    | 16 <sup>°</sup> 35  | 17 <sup>°</sup> 25  | 2 <sup>°</sup> 3  | 25 <sup>°</sup> 54  | T 19 |
| W 20 | 9 59 53  | 1 <sup>32</sup> 55  | 5 <sup>33</sup> 28   | 11 <sup>°</sup> 26  | 24 <sup>°</sup> 21 | 15 <sup>°</sup> 43   | 24 <sup>°</sup> 8    | 18 <sup>°</sup> 10  | 22 <sup>°</sup> 21  | 25 <sup>°</sup> 46   | 4 <sup>°</sup> 4    | 16 <sup>°</sup> 20  | 17 <sup>°</sup> 22  | 2 <sup>°</sup> 10 | 25 <sup>°</sup> 59  | W 20 |
| T 21 | 10 3 49  | 2 <sup>33</sup> 14  | 17 <sup>°</sup> 27   | 11 <sup>°</sup> D19 | 25 <sup>°</sup> 33 | 16 <sup>°</sup> 3    | 24 <sup>°</sup> 1    | 18 <sup>°</sup> 17  | 22 <sup>°</sup> 20  | 25 <sup>°</sup> 44   | 4 <sup>°</sup> 5    | 16 <sup>°</sup> 8   | 17 <sup>°</sup> 18  | 2 <sup>°</sup> 16 | 26 <sup>°</sup> 3   | T 21 |
| F 22 | 10 7 46  | 3 <sup>33</sup> 31  | 29 <sup>°</sup> 20   | 11 <sup>°</sup> 19  | 26 <sup>°</sup> 46 | 16 <sup>°</sup> 25   | 23 <sup>°</sup> 54   | 18 <sup>°</sup> 25  | 22 <sup>°</sup> 20  | 25 <sup>°</sup> 43   | 4 <sup>°</sup> 6    | 15 <sup>°</sup> 57  | 17 <sup>°</sup> 15  | 2 <sup>°</sup> 23 | 26 <sup>°</sup> 8   | F 22 |
| S 23 | 10 11 42 | 4 <sup>33</sup> 46  | 11 <sup>°</sup> Y9   | 11 <sup>°</sup> 26  | 27 <sup>°</sup> 58 | 16 <sup>°</sup> 46   | 23 <sup>°</sup> 47   | 18 <sup>°</sup> 32  | 22 <sup>°</sup> 20  | 25 <sup>°</sup> 41   | 4 <sup>°</sup> 7    | 15 <sup>°</sup> 49  | 17 <sup>°</sup> 12  | 2 <sup>°</sup> 30 | 26 <sup>°</sup> 12  | S 23 |
| S 24 | 10 15 39 | 5 <sup>33</sup> 59  | 22 <sup>°</sup> 56   | 11 <sup>°</sup> 39  | 29 <sup>°</sup> 11 | 17 <sup>°</sup> 8    | 23 <sup>°</sup> 40   | 18 <sup>°</sup> 39  | 22 <sup>°</sup> 19  | 25 <sup>°</sup> 40   | 4 <sup>°</sup> 7    | 15 <sup>°</sup> 44  | 17 <sup>°</sup> 9   | 2 <sup>°</sup> 36 | 26 <sup>°</sup> 17  | S 24 |
| M 25 | 10 19 35 | 6 <sup>34</sup> 10  | 4 <sup>34</sup> 46   | 11 <sup>°</sup> 57  | 0 <sup>34</sup> 23 | 17 <sup>°</sup> 30   | 23 <sup>°</sup> 33   | 18 <sup>°</sup> 46  | 22 <sup>°</sup> 19  | 25 <sup>°</sup> 38   | 4 <sup>°</sup> 8    | 15 <sup>°</sup> 41  | 17 <sup>°</sup> 6   | 2 <sup>°</sup> 43 | 26 <sup>°</sup> 21  | M 25 |
| T 26 | 10 23 32 | 7 <sup>34</sup> 19  | 12 <sup>°</sup> 21   | 1 <sup>°</sup> 36   | 17 <sup>°</sup> 52 | 23 <sup>°</sup> 26   | 18 <sup>°</sup> 54   | 22 <sup>°</sup> 19  | 25 <sup>°</sup> 36  | 4 <sup>°</sup> 9     | 15 <sup>°</sup> D40 | 17 <sup>°</sup> 3   | 2 <sup>°</sup> 50   | 2 <sup>°</sup> 50 | 26 <sup>°</sup> 25  | T 26 |
| W 27 | 10 27 29 | 8 <sup>34</sup> 26  | 28 <sup>°</sup> 49   | 12 <sup>°</sup> 49  | 2 <sup>°</sup> 48  | 18 <sup>°</sup> 15   | 23 <sup>°</sup> 18   | 19 <sup>°</sup> 1   | 22 <sup>°</sup> 19  | 25 <sup>°</sup> 35   | 4 <sup>°</sup> 10   | 15 <sup>°</sup> 41  | 16 <sup>°</sup> 59  | 2 <sup>°</sup> 56 | 26 <sup>°</sup> 30  | W 27 |
| T 28 | 10 31 25 | 9 <sup>34</sup> 31  | 11 <sup>°</sup> II13 | 13 <sup>°</sup> ≈23 | 4 <sup>≈</sup> 1   | 18 <sup>°</sup> II38 | 23 <sup>°</sup> II11 | 19 <sup>°</sup> II8 | 22 <sup>°</sup> D19 | 25 <sup>°</sup> II33 | 4 <sup>°</sup> II1  | 15 <sup>°</sup> R41 | 16 <sup>°</sup> ≈56 | 3 <sup>°</sup> Y3 | 26 <sup>°</sup> ≈34 | T 28 |

| Day  | ☉     | ☾     |      | ♀     |      | ♂     |      | ♂     |      | ♂    |      | ♂    |      | ♂     |      | ♂    |      | ♂    |       | ♂     |       | ♂    |       | ♂    |     |
|------|-------|-------|------|-------|------|-------|------|-------|------|------|------|------|------|-------|------|------|------|------|-------|-------|-------|------|-------|------|-----|
|      | decl  | decl  | lat  | decl  | lat  | decl  | lat  | decl  | lat  | decl | lat  | decl | lat  | decl  | lat  | decl | lat  | decl | lat   | decl  | lat   | decl | lat   | decl | lat |
| F 1  | 17s 8 | 25n 1 | 2n18 | 10s36 | 2n17 | 21s52 | 1n37 | 24n49 | 2n47 | 3n 0 | 1n28 | 7s22 | 1s59 | 23n28 | 0n11 | 2n46 | 1n22 | 2s22 | 16s 8 | 17n26 | 17n20 | 3s31 | 14s53 | 6n30 |     |
| S 2  | 16 50 | 26 45 | 3 16 | 10 27 | 2 33 | 21 54 | 1 33 | 24 50 | 2 46 | 3 2  | 1 28 | 7 20 | 1 59 | 23 28 | 0 11 | 2 47 | 1 22 | 2 22 | 16 8  | 17 24 | 17 19 | 3 27 | 14 52 | 6 30 |     |
| S 3  | 16 33 | 26 55 | 4 5  | 10 22 | 2 48 | 21 56 | 1 30 | 24 51 | 2 45 | 3 4  | 1 28 | 7 17 | 1 59 | 23 28 | 0 11 | 2 47 | 1 22 | 2 21 | 16 8  | 17 22 | 17 18 | 3 24 | 14 51 | 6 30 |     |
| M 4  | 16 15 | 25 22 | 4 40 | 10 22 | 3 2  | 21 57 | 1 27 | 24 52 | 2 45 | 3 6  | 1 29 | 7 14 | 1 59 | 23 28 | 0 11 | 2 48 | 1 22 | 2 21 | 16 7  | 17 20 | 17 17 | 3 21 | 14 50 | 6 30 |     |
| T 5  | 15 57 | 22 5  | 4 58 | 10 26 | 3 15 | 21 57 | 1 23 | 24 53 | 2 44 | 3 8  | 1 29 | 7 12 | 1 59 | 23 28 | 0 11 | 2 48 | 1 22 | 2 20 | 16 7  | 17 16 | 17 16 | 3 18 | 14 48 | 6 31 |     |
| W 6  | 15 39 | 17 20 | 4 57 | 10 35 | 3 25 | 21 57 | 1 20 | 24 55 | 2 43 | 3 10 | 1 29 | 7 9  | 1 59 | 23 28 | 0 11 | 2 49 | 1 22 | 2 20 | 16 7  | 17 13 | 17 16 | 3 15 | 14 47 | 6 31 |     |
| T 7  | 15 20 | 11 29 | 4 35 | 10 47 | 3 33 | 21 56 | 1 16 | 24 56 | 2 43 | 3 12 | 1 29 | 7 6  | 1 59 | 23 27 | 0 11 | 2 49 | 1 22 | 2 20 | 16 6  | 17 10 | 17 15 | 3 11 | 14 46 | 6 31 |     |
| F 8  | 15 1  | 4 58  | 3 54 | 11 2  | 3 39 | 21 54 | 1 13 | 24 58 | 2 42 | 3 14 | 1 30 | 7 4  | 1 58 | 23 27 | 0 11 | 2 50 | 1 22 | 2 19 | 16 6  | 17 7  | 17 14 | 3 8  | 14 45 | 6 31 |     |
| S 9  | 14 42 | 1s44  | 2 58 | 11 20 | 3 43 | 21 52 | 1 9  | 24 59 | 2 41 | 3 16 | 1 30 | 7 1  | 1 58 | 23 27 | 0 11 | 2 50 | 1 22 | 2 19 | 16 6  | 17 6  | 17 13 | 3 5  | 14 44 | 6 31 |     |
| S 10 | 14 23 | 8 15  | 1 52 | 11 40 | 3 44 | 21 50 | 1 6  | 25 0  | 2 40 | 3 19 | 1 30 | 6 58 | 1 58 | 23 27 | 0 11 | 2 51 | 1 22 | 2 18 | 16 5  | 17 5  | 17 12 | 3 2  | 14 43 | 6 32 |     |
| M 11 | 14 3  | 14 12 | 0 40 | 12 2  | 3 43 | 21 46 | 1 2  | 25 2  | 2 40 | 3 21 | 1 30 | 6 55 | 1 58 | 23 27 | 0 11 | 2 52 | 1 22 | 2 18 | 16 5  | 17 4  | 17 11 | 2 59 | 14 42 | 6 32 |     |
| T 12 | 13 43 | 19 17 | 0s33 | 12 24 | 3 40 | 21 42 | 0 59 | 25 3  | 2 39 | 3 23 | 1 30 | 6 53 | 1 58 | 23 27 | 0 11 | 2 52 | 1 22 | 2 17 | 16 5  | 17 4  | 17 10 | 2 55 | 14 41 | 6 32 |     |
| W 13 | 13 23 | 23 15 | 1 43 | 12 47 | 3 35 | 21 37 | 0 55 | 25 5  | 2 38 | 3 26 | 1 31 | 6 50 | 1 58 | 23 27 | 0 11 | 2 53 | 1 22 | 2 17 | 16 4  | 17 4  | 17 9  | 2 52 | 14 40 | 6 32 |     |
| T 14 | 13 3  | 25 53 | 2 45 | 13 10 | 3 28 | 21 32 | 0 52 | 25 6  | 2 37 | 3 28 | 1 31 | 6 47 | 1 58 | 23 27 | 0 11 | 2 53 | 1 22 | 2 16 | 16 4  | 17 4  | 17 8  | 2 49 | 14 39 | 6 33 |     |
| F 15 | 12 42 | 27 4  | 3 37 | 13 32 | 3 19 | 21 26 | 0 48 | 25 8  | 2 37 | 3 31 | 1 31 | 6 44 | 1 58 | 23 27 | 0 11 | 2 54 | 1 22 | 2 16 | 16 4  | 17 2  | 17 8  | 2 46 | 14 38 | 6 33 |     |
| S 16 | 12 22 | 26 47 | 4 18 | 13 54 | 3 9  | 21 20 | 0 45 | 25 9  | 2 36 | 3 34 | 1 31 | 6 41 | 1 58 | 23 27 | 0 11 | 2 54 | 1 22 | 2 15 | 16 3  | 17 0  | 17 7  | 2 42 | 14 37 | 6 33 |     |
| S 17 | 12 1  | 25 7  | 4 45 | 14 14 | 2 58 | 21 12 | 0 41 | 25 11 | 2 35 | 3 36 | 1 31 | 6 38 | 1 58 | 23 27 | 0 11 | 2 55 | 1 22 | 2 15 | 16 3  | 16 57 | 17 6  | 2 39 | 14 36 | 6 33 |     |
| M 18 | 11 40 | 22 16 | 4 59 | 14 34 | 2 47 | 21 5  | 0 38 | 25 12 | 2 34 | 3 39 | 1 32 | 6 36 | 1 58 | 23 27 | 0 11 | 2 56 | 1 22 | 2 14 | 16 3  | 16 54 | 17 5  | 2 36 | 14 35 | 6 34 |     |
| T 19 | 11 18 | 18 27 | 4 58 | 14 51 | 2 34 | 20 56 | 0 34 | 25 14 | 2 34 | 3 42 | 1 32 | 6 33 | 1 58 | 23 27 | 0 11 | 2 56 | 1 22 | 2 14 | 16 2  | 16 50 | 17 4  | 2 33 | 14 34 | 6 34 |     |
| W 20 | 10 57 | 13 56 | 4 44 | 15 7  | 2 21 | 20 47 | 0 31 | 25 15 | 2 33 | 3 45 | 1 32 | 6 30 | 1 58 | 23 27 | 0 11 | 2 57 | 1 22 | 2 13 | 16 2  | 16 46 | 17 3  | 2 29 | 14 32 | 6 34 |     |
| T 21 | 10 35 | 8 55  | 4 17 | 15 22 | 2 8  | 20 38 | 0 27 | 25 17 | 2 32 | 3 47 | 1 32 | 6 27 | 1 58 | 23 27 | 0 11 | 2 57 | 1 22 | 2 13 | 16 2  | 16 42 | 17 2  | 2 26 | 14 31 | 6 34 |     |
| F 22 | 10 13 | 3 37  | 3 40 | 15 35 | 1 55 | 20 27 | 0 24 | 25 18 | 2 31 | 3 50 | 1 32 | 6 24 | 1 58 | 23 27 | 0 11 | 2 58 | 1 22 | 2 12 | 16 2  | 16 39 | 17 1  | 2 23 | 14 30 | 6 35 |     |
| S 23 | 9 52  | 1n47  | 2 52 | 15 46 | 1 41 | 20 17 | 0 21 | 25 20 | 2 31 | 3 53 | 1 32 | 6 21 | 1 58 | 23 27 | 0 11 | 2 59 | 1 22 | 2 12 | 16 1  | 16 36 | 17 0  | 2 20 | 14 29 | 6 35 |     |
| S 24 | 9 29  | 7 7   | 1 58 | 15 55 | 1 28 | 20 5  | 0 17 | 25 21 | 2 30 | 3 56 | 1 32 | 6 18 | 1 58 | 23 27 | 0 11 | 2 59 | 1 22 | 2 11 | 16 1  | 16 35 | 16 59 | 2 17 | 14 28 | 6 35 |     |
| M 25 | 9 7   | 12 14 | 0 58 | 16 3  | 1 15 | 19 53 | 0 14 | 25 23 | 2 29 | 3 59 | 1 33 | 6 16 | 1 58 | 23 27 | 0 11 | 3 0  | 1 22 | 2 10 | 16 1  | 16 34 | 16 59 | 2 13 | 14 27 | 6 36 |     |
| T 26 | 8 45  | 16 57 | 0n 5 | 16 9  | 1 2  | 19 41 | 0 10 | 25 24 | 2 28 | 4 2  | 1 33 | 6 13 | 1 58 | 23 27 | 0 11 | 3 1  | 1 22 | 2 10 | 16 0  | 16 34 | 16 58 | 2 10 | 14 26 | 6 36 |     |
| W 27 | 8 22  | 21 4  | 1 9  | 16 13 | 0 49 | 19 28 | 0 7  | 25 25 | 2 28 | 4 5  | 1 33 | 6 10 | 1 58 | 23 27 | 0 11 | 3 1  | 1 22 | 2 9  | 16 0  | 16 34 | 16 57 | 2 7  | 14 25 | 6 36 |     |
| T 28 | 8s 0  | 24n21 | 2n12 | 16s15 | 0n37 | 19s14 | 0n 4 | 25n27 | 2n27 | 4n 8 | 1n33 | 6s 7 | 1s58 | 23n27 | 0n11 | 3n 2 | 1n22 | 2s 9 | 16s 0 | 16n34 | 16n56 | 2s 4 | 14s24 | 6n37 |     |

# ASTRODIENST EPHEMERIS for the year 1613

## geocentric

MARCH 1613 GC

00:00 UT

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

| Day  | ☉    | ☽     |      | ♂     |      | ♀     |      | ♂     |      | ♂    |      | ♂    |      | ♂     |      | ♂    |      | ♂    |       | ♂     |       | ♂    |       | ♂    |     |
|------|------|-------|------|-------|------|-------|------|-------|------|------|------|------|------|-------|------|------|------|------|-------|-------|-------|------|-------|------|-----|
|      | decl | decl  | lat  | decl  | lat  | decl  | lat  | decl  | lat  | decl | lat  | decl | lat  | decl  | lat  | decl | lat  | decl | lat   | decl  | lat   | decl | lat   | decl | lat |
| F 1  | 7s37 | 26n30 | 3n 9 | 16s16 | 0n25 | 19s 0 | 0n 0 | 25n28 | 2n26 | 4n11 | 1n33 | 6s 4 | 1s58 | 23n27 | 0n11 | 3n 3 | 1n23 | 2s 8 | 15s59 | 16n34 | 16n55 | 2s 0 | 14s23 | 6n37 |     |
| S 2  | 7 14 | 27 16 | 3 59 | 16 15 | 0 13 | 18 45 | 0s 3 | 25 29 | 2 25 | 4 14 | 1 33 | 6 1  | 1 58 | 23 27 | 0 11 | 3 3  | 1 23 | 2 8  | 15 59 | 16 33 | 16 54 | 1 57 | 14 21 | 6 37 |     |
| S 3  | 6 51 | 26 26 | 4 37 | 16 13 | 0 2  | 18 30 | 0 6  | 25 30 | 2 25 | 4 17 | 1 33 | 5 58 | 1 58 | 23 27 | 0 11 | 3 4  | 1 23 | 2 7  | 15 59 | 16 32 | 16 53 | 1 54 | 14 20 | 6 38 |     |
| M 4  | 6 28 | 23 53 | 4 59 | 16 8  | 0s 9 | 18 14 | 0 9  | 25 31 | 2 24 | 4 20 | 1 33 | 5 55 | 1 58 | 23 27 | 0 11 | 3 5  | 1 23 | 2 7  | 15 59 | 16 29 | 16 52 | 1 51 | 14 19 | 6 38 |     |
| T 5  | 6 5  | 19 44 | 5 3  | 16 3  | 0 20 | 17 58 | 0 12 | 25 32 | 2 23 | 4 23 | 1 34 | 5 52 | 1 58 | 23 27 | 0 11 | 3 5  | 1 23 | 2 6  | 15 58 | 16 27 | 16 51 | 1 47 | 14 18 | 6 38 |     |
| W 6  | 5 42 | 14 15 | 4 47 | 15 55 | 0 30 | 17 41 | 0 15 | 25 33 | 2 22 | 4 27 | 1 34 | 5 49 | 1 58 | 23 27 | 0 11 | 3 6  | 1 23 | 2 6  | 15 58 | 16 24 | 16 50 | 1 44 | 14 17 | 6 39 |     |
| T 7  | 5 19 | 7 50  | 4 10 | 15 47 | 0 40 | 17 23 | 0 19 | 25 34 | 2 22 | 4 30 | 1 34 | 5 47 | 1 58 | 23 27 | 0 11 | 3 7  | 1 23 | 2 5  | 15 58 | 16 21 | 16 50 | 1 41 | 14 16 | 6 39 |     |
| F 8  | 4 55 | 0 56  | 3 15 | 15 36 | 0 49 | 17 5  | 0 22 | 25 35 | 2 21 | 4 33 | 1 34 | 5 44 | 1 58 | 23 27 | 0 11 | 3 7  | 1 23 | 2 4  | 15 58 | 16 19 | 16 49 | 1 38 | 14 15 | 6 39 |     |
| S 9  | 4 32 | 5s59  | 2 7  | 15 24 | 0 58 | 16 47 | 0 25 | 25 36 | 2 20 | 4 36 | 1 34 | 5 41 | 1 58 | 23 27 | 0 11 | 3 8  | 1 23 | 2 4  | 15 57 | 16 18 | 16 48 | 1 34 | 14 14 | 6 40 |     |
| S 10 | 4 9  | 12 26 | 0 51 | 15 11 | 1 7  | 16 28 | 0 27 | 25 37 | 2 19 | 4 39 | 1 34 | 5 38 | 1 58 | 23 27 | 0 11 | 3 9  | 1 23 | 2 3  | 15 57 | 16 17 | 16 47 | 1 31 | 14 13 | 6 40 |     |
| M11  | 3 45 | 18 4  | 0s26 | 14 56 | 1 15 | 16 9  | 0 30 | 25 37 | 2 19 | 4 42 | 1 34 | 5 35 | 1 58 | 23 27 | 0 11 | 3 9  | 1 23 | 2 3  | 15 57 | 16 17 | 16 46 | 1 28 | 14 12 | 6 41 |     |
| T 12 | 3 22 | 22 32 | 1 39 | 14 40 | 1 22 | 15 49 | 0 33 | 25 38 | 2 18 | 4 45 | 1 34 | 5 32 | 1 58 | 23 27 | 0 11 | 3 10 | 1 23 | 2 2  | 15 57 | 16 18 | 16 45 | 1 25 | 14 11 | 6 41 |     |
| W13  | 2 58 | 25 36 | 2 45 | 14 22 | 1 30 | 15 29 | 0 36 | 25 39 | 2 17 | 4 48 | 1 34 | 5 29 | 1 58 | 23 27 | 0 11 | 3 11 | 1 23 | 2 2  | 15 56 | 16 18 | 16 44 | 1 21 | 14 10 | 6 41 |     |
| T 14 | 2 34 | 27 10 | 3 40 | 14 3  | 1 36 | 15 8  | 0 39 | 25 39 | 2 17 | 4 51 | 1 34 | 5 26 | 1 58 | 23 27 | 0 11 | 3 11 | 1 23 | 2 1  | 15 56 | 16 18 | 16 43 | 1 18 | 14 8  | 6 42 |     |
| F 15 | 2 11 | 27 11 | 4 22 | 13 43 | 1 43 | 14 47 | 0 41 | 25 39 | 2 16 | 4 55 | 1 34 | 5 23 | 1 58 | 23 27 | 0 11 | 3 12 | 1 23 | 2 1  | 15 56 | 16 17 | 16 42 | 1 15 | 14 7  | 6 42 |     |
| S 16 | 1 47 | 25 47 | 4 51 | 13 21 | 1 49 | 14 26 | 0 44 | 25 40 | 2 15 | 4 58 | 1 34 | 5 20 | 1 58 | 23 27 | 0 11 | 3 13 | 1 23 | 2 0  | 15 56 | 16 16 | 16 41 | 1 12 | 14 6  | 6 43 |     |
| S 17 | 1 23 | 23 10 | 5 5  | 12 58 | 1 54 | 14 4  | 0 47 | 25 40 | 2 14 | 5 1  | 1 34 | 5 18 | 1 59 | 23 27 | 0 11 | 3 13 | 1 23 | 1 59 | 15 55 | 16 14 | 16 40 | 1 8  | 14 5  | 6 43 |     |
| M18  | 1 0  | 19 33 | 5 6  | 12 33 | 1 59 | 13 42 | 0 49 | 25 40 | 2 14 | 5 4  | 1 34 | 5 15 | 1 59 | 23 27 | 0 11 | 3 14 | 1 23 | 1 59 | 15 55 | 16 12 | 16 39 | 1 5  | 14 4  | 6 43 |     |
| T 19 | 0 36 | 15 10 | 4 52 | 12 7  | 2 4  | 13 19 | 0 52 | 25 40 | 2 13 | 5 7  | 1 34 | 5 12 | 1 59 | 23 27 | 0 11 | 3 15 | 1 23 | 1 58 | 15 55 | 16 9  | 16 39 | 1 2  | 14 3  | 6 44 |     |
| W20  | 0 12 | 10 15 | 4 26 | 11 40 | 2 8  | 12 56 | 0 54 | 25 40 | 2 12 | 5 10 | 1 34 | 5 9  | 1 59 | 23 27 | 0 11 | 3 15 | 1 23 | 1 57 | 15 55 | 16 7  | 16 38 | 0 59 | 14 2  | 6 44 |     |
| T 21 | 0n11 | 4 59  | 3 48 | 11 11 | 2 11 | 12 33 | 0 56 | 25 40 | 2 12 | 5 13 | 1 34 | 5 6  | 1 59 | 23 27 | 0 11 | 3 16 | 1 23 | 1 57 | 15 55 | 16 4  | 16 37 | 0 55 | 14 1  | 6 45 |     |
| F 22 | 0 35 | 0n26  | 3 1  | 10 41 | 2 14 | 12 9  | 0 59 | 25 40 | 2 11 | 5 16 | 1 34 | 5 3  | 1 59 | 23 28 | 0 11 | 3 17 | 1 23 | 1 57 | 15 54 | 16 2  | 16 36 | 0 52 | 14 0  | 6 45 |     |
| S 23 | 0 59 | 5 51  | 2 6  | 10 10 | 2 17 | 11 45 | 1 1  | 25 39 | 2 10 | 5 19 | 1 34 | 5 0  | 1 59 | 23 28 | 0 11 | 3 17 | 1 23 | 1 56 | 15 54 | 16 1  | 16 35 | 0 49 | 13 59 | 6 46 |     |
| S 24 | 1 22 | 11 5  | 1 5  | 9 37  | 2 19 | 11 21 | 1 3  | 25 39 | 2 10 | 5 22 | 1 34 | 4 58 | 1 59 | 23 28 | 0 11 | 3 18 | 1 23 | 1 56 | 15 54 | 16 0  | 16 34 | 0 45 | 13 58 | 6 46 |     |
| M25  | 1 46 | 15 57 | 0 1  | 9 4   | 2 21 | 10 56 | 1 5  | 25 38 | 2 9  | 5 24 | 1 34 | 4 55 | 1 59 | 23 28 | 0 11 | 3 18 | 1 23 | 1 55 | 15 54 | 16 0  | 16 33 | 0 42 | 13 57 | 6 47 |     |
| T 26 | 2 9  | 20 14 | 1n 4 | 8 29  | 2 22 | 10 31 | 1 7  | 25 38 | 2 8  | 5 27 | 1 34 | 4 52 | 1 59 | 23 28 | 0 11 | 3 19 | 1 23 | 1 54 | 15 54 | 16 0  | 16 32 | 0 39 | 13 56 | 6 47 |     |
| W27  | 2 33 | 23 45 | 2 7  | 7 52  | 2 23 | 10 6  | 1 9  | 25 37 | 2 7  | 5 30 | 1 34 | 4 49 | 1 59 | 23 28 | 0 11 | 3 20 | 1 23 | 1 54 | 15 53 | 16 0  | 16 31 | 0 36 | 13 55 | 6 47 |     |
| T 28 | 2 56 | 26 13 | 3 6  | 7 15  | 2 24 | 9 40  | 1 11 | 25 36 | 2 7  | 5 33 | 1 34 | 4 46 | 1 59 | 23 28 | 0 11 | 3 20 | 1 23 | 1 53 | 15 53 | 16 1  | 16 30 | 0 32 | 13 53 | 6 48 |     |
| F 29 | 3 20 | 27 24 | 3 57 | 6 36  | 2 23 | 9 14  | 1 13 | 25 35 | 2 6  | 5 36 | 1 34 | 4 43 | 1 59 | 23 28 | 0 11 | 3 21 | 1 23 | 1 53 | 15 53 | 16 1  | 16 29 | 0 29 | 13 53 | 6 48 |     |
| S 30 | 3 43 | 27 6  | 4 37 | 5 57  | 2 23 | 8 48  | 1 15 | 25 34 | 2 5  | 5 38 | 1 34 | 4 41 | 1 59 | 23 28 | 0 11 | 3 22 | 1 23 | 1 52 | 15 53 | 16 1  | 16 28 | 0 26 | 13 52 | 6 49 |     |
| S 31 | 4n 6 | 25n13 | 5n 3 | 5s16  | 2s22 | 8s22  | 1s16 | 25n33 | 2n 5 | 5n41 | 1n34 | 4s38 | 2s 0 | 23n28 | 0n11 | 3n22 | 1n23 | 1s52 | 15s53 | 16n 1 | 16n27 | 0s23 | 13s51 | 6n49 |     |



# ASTRODIENST EPHEMERIS for the year 1613

## geocentric

MAY 1613 GC

00:00 UT

| Day  | Sid.t    | ☉          | ☽        | ♀       | ♂        | ♂        | ♂        | ♂        | ♂        | ♂        | ♂      | ♂       | ♂       | ♂        | ♂      | Day  |
|------|----------|------------|----------|---------|----------|----------|----------|----------|----------|----------|--------|---------|---------|----------|--------|------|
| W 1  | 14 35 52 | 10°34'35   | 21°17'52 | 24°8'2  | 19°17'31 | 18°53'38 | 16°R50   | 26°12'25 | 23°11'53 | 24°R 1   | 5°8'25 | 13°R18  | 13°8'39 | 9°17'57  | 29°8'4 | W 1  |
| T 2  | 14 39 48 | 11°32'36   | 6°14'42  | 25°58   | 20°44    | 19°10    | 16°17'48 | 26°31    | 23°56    | 24°17'0  | 5°27   | 13°8'18 | 13°36   | 10°4     | 29°4   | T 2  |
| F 3  | 14 43 45 | 12°30'34   | 21°41    | 27°51   | 21°58    | 19°43    | 16°46    | 26°37    | 23°59    | 23°59    | 5°28   | 13°18   | 13°33   | 10°10    | 29°4   | F 3  |
| S 4  | 14 47 41 | 13°28'31   | 6°14'42  | 29°42   | 23°11    | 20°16    | 16°44    | 26°43    | 24°2     | 23°58    | 5°30   | 13°18   | 13°30   | 10°17    | 29°4   | S 4  |
| S 5  | 14 51 38 | 14°26'27   | 21°36    | 1°12'29 | 24°24    | 20°49    | 16°42    | 26°49    | 24°5     | 23°57    | 5°31   | 13°18   | 13°26   | 10°24    | 29°R 4 | S 5  |
| M 6  | 14 55 34 | 15°24'21   | 6°15     | 3°13    | 25°37    | 21°23    | 16°41    | 26°55    | 24°8     | 23°56    | 5°32   | 13°17   | 13°23   | 10°30    | 29°4   | M 6  |
| T 7  | 14 59 31 | 16°22'14   | 20°34    | 4°54    | 26°51    | 21°56    | 16°40    | 27°1     | 24°11    | 23°55    | 5°34   | 13°17   | 13°20   | 10°37    | 29°4   | T 7  |
| W 8  | 15 3 27  | 17°20'05   | 4°32'28  | 6°31    | 28°4     | 22°29    | 16°38    | 27°6     | 24°14    | 23°54    | 5°35   | 13°17   | 13°17   | 10°44    | 29°4   | W 8  |
| T 9  | 15 7 24  | 18°17'55   | 17°57    | 8°6     | 29°17    | 23°2     | 16°38    | 27°12    | 24°17    | 23°54    | 5°36   | 13°16   | 13°14   | 10°50    | 29°3   | T 9  |
| F 10 | 15 11 21 | 19°15'44   | 1°18'0   | 9°36    | 0°8'30   | 23°36    | 16°37    | 27°17    | 24°20    | 23°53    | 5°38   | 13°16   | 13°11   | 10°57    | 29°3   | F 10 |
| S 11 | 15 15 17 | 20°13'31   | 13°40    | 11°3    | 1°44     | 24°9     | 16°36    | 27°23    | 24°23    | 23°52    | 5°39   | 13°16   | 13°7    | 11°4     | 29°3   | S 11 |
| S 12 | 15 19 14 | 21°11'18   | 26°1     | 12°27   | 2°57     | 24°43    | 16°36    | 27°28    | 24°26    | 23°51    | 5°40   | 13°D16  | 13°4    | 11°10    | 29°2   | S 12 |
| M13  | 15 23 10 | 22°9'03    | 8°17'7   | 13°46   | 4°10     | 25°17    | 16°D36   | 27°34    | 24°29    | 23°51    | 5°42   | 13°16   | 13°1    | 11°17    | 29°2   | M13  |
| T 14 | 15 27 7  | 23°6'47    | 20°2     | 15°2    | 5°24     | 25°50    | 16°36    | 27°39    | 24°32    | 23°50    | 5°43   | 13°17   | 12°58   | 11°24    | 29°1   | T 14 |
| W15  | 15 31 3  | 24°4'30    | 1°17'52  | 16°15   | 6°37     | 26°24    | 16°36    | 27°44    | 24°35    | 23°49    | 5°44   | 13°18   | 12°55   | 11°30    | 29°0   | W15  |
| T 16 | 15 35 0  | 25°2'11    | 13°40    | 17°23   | 7°50     | 26°58    | 16°36    | 27°49    | 24°39    | 23°49    | 5°46   | 13°19   | 12°52   | 11°37    | 28°59  | T 16 |
| F 17 | 15 38 56 | 25°59'52   | 25°31    | 18°28   | 9°4      | 27°32    | 16°37    | 27°54    | 24°42    | 23°48    | 5°47   | 13°20   | 12°48   | 11°44    | 28°59  | F 17 |
| S 18 | 15 42 53 | 26°57'31   | 7°8'26   | 19°29   | 10°17    | 28°6     | 16°38    | 27°59    | 24°45    | 23°48    | 5°48   | 13°R20  | 12°45   | 11°50    | 28°58  | S 18 |
| S 19 | 15 46 49 | 27°55'10   | 19°30    | 20°25   | 11°30    | 28°40    | 16°39    | 28°4     | 24°48    | 23°47    | 5°49   | 13°20   | 12°42   | 11°57    | 28°57  | S 19 |
| M20  | 15 50 46 | 28°52'47   | 1°14'43  | 21°18   | 12°43    | 29°14    | 16°40    | 28°9     | 24°52    | 23°46    | 5°51   | 13°20   | 12°39   | 12°4     | 28°56  | M20  |
| T 21 | 15 54 43 | 29°50'23   | 14°8     | 22°6    | 13°57    | 29°48    | 16°41    | 28°14    | 24°55    | 23°46    | 5°52   | 13°18   | 12°36   | 12°10    | 28°54  | T 21 |
| W22  | 15 58 39 | 0°11'47'58 | 26°46    | 22°50   | 15°10    | 0°12'22  | 16°42    | 28°19    | 24°58    | 23°46    | 5°53   | 13°16   | 12°32   | 12°17    | 28°53  | W22  |
| T 23 | 16 2 36  | 1°45'31    | 9°23'37  | 23°30   | 16°23    | 0°56     | 16°44    | 28°23    | 25°2     | 23°45    | 5°55   | 13°13   | 12°29   | 12°24    | 28°52  | T 23 |
| F 24 | 16 6 32  | 2°43'03    | 22°43    | 24°6    | 17°37    | 1°31     | 16°46    | 28°28    | 25°5     | 23°45    | 5°56   | 13°10   | 12°26   | 12°30    | 28°51  | F 24 |
| S 25 | 16 10 29 | 3°40'34    | 6°13     | 24°37   | 18°50    | 2°5      | 16°48    | 28°32    | 25°9     | 23°44    | 5°57   | 13°8    | 12°23   | 12°37    | 28°49  | S 25 |
| S 26 | 16 14 25 | 4°38'04    | 19°38    | 25°4    | 20°3     | 2°40     | 16°50    | 28°37    | 25°12    | 23°44    | 5°58   | 13°7    | 12°20   | 12°44    | 28°48  | S 26 |
| M27  | 16 18 22 | 5°35'32    | 3°17'28  | 25°26   | 21°17    | 3°14     | 16°52    | 28°41    | 25°15    | 23°44    | 5°59   | 13°D 6  | 12°17   | 12°50    | 28°46  | M27  |
| T 28 | 16 22 19 | 6°32'59    | 17°32    | 25°43   | 22°30    | 3°49     | 16°55    | 28°45    | 25°19    | 23°44    | 6°1    | 13°6    | 12°13   | 12°57    | 28°45  | T 28 |
| W29  | 16 26 15 | 7°30'24    | 1°14'49  | 25°56   | 23°43    | 4°23     | 16°58    | 28°50    | 25°22    | 23°43    | 6°2    | 13°7    | 12°10   | 13°4     | 28°43  | W29  |
| T 30 | 16 30 12 | 8°27'48    | 16°17    | 26°4    | 24°57    | 4°58     | 17°0     | 28°54    | 25°26    | 23°43    | 6°3    | 13°9    | 12°7    | 13°10    | 28°41  | T 30 |
| F 31 | 16 34 8  | 9°11'25'11 | 0°11'52  | 26°R 7  | 26°8'10  | 5°12'33  | 17°17'3  | 28°11'58 | 25°11'29 | 23°17'43 | 6°8'4  | 13°8'10 | 12°8'4  | 13°17'17 | 28°39  | F 31 |

| Day  | ☉     | ☽     | ♀    | ♂     | ♂    | ♂     | ♂    | ♂     | ♂    | ♂    | ♂    | ♂    | ♂    | ♂     | ♂    | ♂    |
|------|-------|-------|------|-------|------|-------|------|-------|------|------|------|------|------|-------|------|------|
|      | decl  | decl  | lat  | decl  | lat  | decl  | lat  | decl  | lat  | decl | lat  | decl | lat  | decl  | lat  | lat  |
| W 1  | 15n 2 | 7n 2  | 4n 8 | 20n21 | 1n35 | 6n13  | 1s34 | 23n55 | 1n45 | 6n34 | 1n29 | 3s19 | 2s 4 | 23n32 | 0n11 | 3n38 |
| T 2  | 15 20 | 0 14  | 3 10 | 20 58 | 1 43 | 6 41  | 1 33 | 23 50 | 1 44 | 6 35 | 1 28 | 3 17 | 2 4  | 23 32 | 0 11 | 3 39 |
| F 3  | 15 38 | 6s39  | 1 57 | 21 31 | 1 51 | 7 9   | 1 32 | 23 45 | 1 44 | 6 36 | 1 28 | 3 14 | 2 4  | 23 32 | 0 11 | 3 39 |
| S 4  | 15 55 | 13 12 | 0 37 | 22 3  | 1 58 | 7 37  | 1 32 | 23 39 | 1 43 | 6 36 | 1 28 | 3 12 | 2 4  | 23 32 | 0 11 | 3 39 |
| S 5  | 16 12 | 18 57 | 0s46 | 22 31 | 2 4  | 8 4   | 1 31 | 23 34 | 1 42 | 6 36 | 1 28 | 3 10 | 2 4  | 23 32 | 0 11 | 3 40 |
| M 6  | 16 29 | 23 26 | 2 4  | 22 58 | 2 9  | 8 32  | 1 30 | 23 28 | 1 42 | 6 37 | 1 28 | 3 8  | 2 5  | 23 32 | 0 11 | 3 40 |
| T 7  | 16 46 | 26 21 | 3 13 | 23 21 | 2 14 | 8 59  | 1 29 | 23 22 | 1 41 | 6 37 | 1 27 | 3 6  | 2 5  | 23 33 | 0 11 | 3 40 |
| W 8  | 17 3  | 27 32 | 4 8  | 23 42 | 2 18 | 9 26  | 1 28 | 23 16 | 1 41 | 6 37 | 1 27 | 3 4  | 2 5  | 23 33 | 0 11 | 3 41 |
| T 9  | 17 19 | 27 1  | 4 47 | 24 1  | 2 21 | 9 53  | 1 27 | 23 10 | 1 40 | 6 37 | 1 27 | 3 2  | 2 5  | 23 33 | 0 11 | 3 41 |
| F 10 | 17 35 | 25 1  | 5 10 | 24 18 | 2 23 | 10 20 | 1 26 | 23 3  | 1 39 | 6 38 | 1 27 | 3 0  | 2 5  | 23 33 | 0 11 | 3 41 |
| S 11 | 17 50 | 21 49 | 5 17 | 24 32 | 2 24 | 10 46 | 1 25 | 22 57 | 1 39 | 6 38 | 1 26 | 2 58 | 2 6  | 23 33 | 0 11 | 3 42 |
| S 12 | 18 6  | 17 43 | 5 10 | 24 44 | 2 25 | 11 13 | 1 24 | 22 50 | 1 38 | 6 37 | 1 26 | 2 56 | 2 6  | 23 33 | 0 11 | 3 42 |
| M13  | 18 21 | 13 0  | 4 48 | 24 53 | 2 24 | 11 39 | 1 22 | 22 44 | 1 38 | 6 37 | 1 26 | 2 54 | 2 6  | 23 33 | 0 11 | 3 42 |
| T 14 | 18 35 | 7 51  | 4 14 | 25 1  | 2 23 | 12 4  | 1 21 | 22 37 | 1 37 | 6 37 | 1 26 | 2 52 | 2 6  | 23 34 | 0 11 | 3 42 |
| W15  | 18 50 | 2 28  | 3 30 | 25 7  | 2 21 | 12 30 | 1 20 | 22 30 | 1 36 | 6 37 | 1 26 | 2 50 | 2 6  | 23 34 | 0 11 | 3 43 |
| T 16 | 19 4  | 3n 0  | 2 37 | 25 10 | 2 18 | 12 55 | 1 18 | 22 23 | 1 36 | 6 36 | 1 25 | 2 48 | 2 7  | 23 34 | 0 11 | 3 43 |
| F 17 | 19 18 | 8 23  | 1 37 | 25 12 | 2 14 | 13 20 | 1 17 | 22 15 | 1 35 | 6 36 | 1 25 | 2 46 | 2 7  | 23 34 | 0 11 | 3 43 |
| S 18 | 19 31 | 13 31 | 0 33 | 25 13 | 2 9  | 13 45 | 1 15 | 22 8  | 1 35 | 6 36 | 1 25 | 2 44 | 2 7  | 23 34 | 0 11 | 3 43 |
| S 19 | 19 44 | 18 11 | 0n34 | 25 11 | 2 3  | 14 9  | 1 14 | 22 1  | 1 34 | 6 35 | 1 25 | 2 43 | 2 7  | 23 34 | 0 11 | 3 43 |
| M20  | 19 57 | 22 11 | 1 40 | 25 8  | 1 56 | 14 33 | 1 12 | 21 53 | 1 34 | 6 34 | 1 24 | 2 41 | 2 7  | 23 34 | 0 11 | 3 44 |
| T 21 | 20 10 | 25 14 | 2 42 | 25 4  | 1 49 | 14 56 | 1 10 | 21 45 | 1 33 | 6 34 | 1 24 | 2 39 | 2 8  | 23 34 | 0 11 | 3 44 |
| W22  | 20 22 | 27 4  | 3 37 | 24 58 | 1 40 | 15 19 | 1 9  | 21 37 | 1 32 | 6 33 | 1 24 | 2 38 | 2 8  | 23 35 | 0 11 | 3 44 |
| T 23 | 20 34 | 27 31 | 4 23 | 24 50 | 1 31 | 15 42 | 1 7  | 21 29 | 1 32 | 6 32 | 1 24 | 2 36 | 2 8  | 23 35 | 0 11 | 3 44 |
| F 24 | 20 45 | 26 25 | 4 55 | 24 42 | 1 20 | 16 5  | 1 5  | 21 21 | 1 31 | 6 31 | 1 24 | 2 34 | 2 8  | 23 35 | 0 11 | 3 44 |
| S 25 | 20 56 | 23 51 | 5 13 | 24 32 | 1 9  | 16 27 | 1 3  | 21 13 | 1 31 | 6 30 | 1 23 | 2 33 | 2 9  | 23 35 | 0 11 | 3 44 |
| S 26 | 21 7  | 19 54 | 5 13 | 24 21 | 0 57 | 16 48 | 1 1  | 21 4  | 1 30 | 6 29 | 1 23 | 2 31 | 2 9  | 23 35 | 0 11 | 3 44 |
| M27  | 21 17 | 14 51 | 4 55 | 24 9  | 0 44 | 17 10 | 1 0  | 20 56 | 1 29 | 6 28 | 1 23 | 2 30 | 2 9  | 23 35 | 0 11 | 3 44 |
| T 28 | 21 27 | 8 56  | 4 20 | 23 56 | 0 31 | 17 30 | 0 58 | 20 47 | 1 29 | 6 27 | 1 23 | 2 28 | 2 9  | 23 35 | 0 11 | 3 45 |
| W29  | 21 37 | 2 28  | 3 28 | 23 42 | 0 17 | 17 51 | 0 56 | 20 38 | 1 28 | 6 25 | 1 22 | 2 27 | 2 9  | 23 36 | 0 11 | 3 45 |
| T 30 | 21 46 | 4s13  | 2 23 | 23 28 | 0 2  | 18 11 | 0 54 | 20 29 | 1 28 | 6 24 | 1 22 | 2 25 | 2 10 | 23 36 | 0 11 | 3 45 |
| F 31 | 21n55 | 10s45 | 1n 7 | 23n12 | 0s14 | 18n30 | 0s51 | 20n20 | 1n27 | 6n23 | 1n22 | 2s24 | 2s10 | 23n36 | 0n11 | 3n45 |

Julian Day Number = 2310316.5, Delta T = 73.10 sec  
 Ecliptic obliquity = 23°29'29", Nutation = - 0°00'13", out-of-bounds declination in red  
 Ayanamsha: Fagan/Bradley = 19°20'37", Lahiri = 18°27'38"Greg. Calendar



ASTRODIENST EPHEMERIS for the year 1613  
geocentric

JUNE 1613 GC

00:00 UT

| Day  | Sid.t    | ☉         | ☽       | ♀      | ♂      | ♂     | ♂      | ♂      | ♂      | ♂      | ♂    | ♂      | ♂     | ♂      | ♂      | Day  |
|------|----------|-----------|---------|--------|--------|-------|--------|--------|--------|--------|------|--------|-------|--------|--------|------|
| S 1  | 16 38 5  | 10II22'33 | 15III30 | 26°R 6 | 27°R24 | 6Ω 7  | 17°R 7 | 29°R 2 | 25II33 | 23°R43 | 6Ω 5 | 13°R10 | 12Ω 1 | 13°R24 | 28°R38 | S 1  |
| S 2  | 16 42 1  | 11°19'55  | 0♂ 5    | 26II 1 | 28°37  | 6°42  | 17°10  | 29° 6  | 25°36  | 23°R43 | 6° 7 | 13Ω 9  | 11°58 | 13°30  | 28°R36 | S 2  |
| M 3  | 16 45 58 | 12°17'15  | 14°31   | 25°51  | 29°50  | 7°17  | 17°13  | 29° 9  | 25°40  | 23°43  | 6° 8 | 13° 7  | 11°54 | 13°37  | 28°34  | M 3  |
| T 4  | 16 49 54 | 13°14'34  | 28°41   | 25°37  | 1II 4  | 7°52  | 17°17  | 29°13  | 25°43  | 23°D43 | 6° 9 | 13° 3  | 11°51 | 13°44  | 28°32  | T 4  |
| W 5  | 16 53 51 | 14°11'53  | 12Ω32   | 25°20  | 2°17   | 8°27  | 17°21  | 29°17  | 25°47  | 23°43  | 6°10 | 12°59  | 11°48 | 13°50  | 28°30  | W 5  |
| T 6  | 16 57 48 | 15° 9'11  | 26° 0   | 24°58  | 3°30   | 9° 2  | 17°25  | 29°20  | 25°50  | 23°43  | 6°11 | 12°54  | 11°45 | 13°57  | 28°27  | T 6  |
| F 7  | 17 1 44  | 16° 6'29  | 9♂ 5    | 24°34  | 4°44   | 9°37  | 17°29  | 29°24  | 25°54  | 23°43  | 6°12 | 12°50  | 11°42 | 14° 4  | 28°25  | F 7  |
| S 8  | 17 5 41  | 17° 3'46  | 21°47   | 24° 6  | 5°57   | 10°12 | 17°34  | 29°27  | 25°57  | 23°43  | 6°13 | 12°46  | 11°38 | 14°10  | 28°23  | S 8  |
| S 9  | 17 9 37  | 18° 1'03  | 4Ω11    | 23°36  | 7°11   | 10°47 | 17°38  | 29°30  | 26° 1  | 23°43  | 6°14 | 12°43  | 11°35 | 14°17  | 28°21  | S 9  |
| M10  | 17 13 34 | 18°58'19  | 16°18   | 23° 4  | 8°24   | 11°23 | 17°43  | 29°33  | 26° 5  | 23°43  | 6°15 | 12°D42 | 11°32 | 14°24  | 28°18  | M10  |
| T 11 | 17 17 30 | 19°55'35  | 28°14   | 22°31  | 9°38   | 11°58 | 17°47  | 29°36  | 26° 8  | 23°43  | 6°16 | 12°43  | 11°29 | 14°30  | 28°16  | T 11 |
| W12  | 17 21 27 | 20°52'51  | 10°V 4  | 21°57  | 10°51  | 12°33 | 17°52  | 29°39  | 26°12  | 23°44  | 6°17 | 12°44  | 11°26 | 14°37  | 28°13  | W12  |
| T 13 | 17 25 23 | 21°50'06  | 21°53   | 21°23  | 12° 5  | 13° 9 | 17°57  | 29°42  | 26°15  | 23°44  | 6°18 | 12°45  | 11°23 | 14°44  | 28°11  | T 13 |
| F 14 | 17 29 20 | 22°47'21  | 3Ω46    | 20°49  | 13°18  | 13°44 | 18° 3  | 29°45  | 26°19  | 23°44  | 6°19 | 12°47  | 11°19 | 14°50  | 28° 8  | F 14 |
| S 15 | 17 33 17 | 23°44'36  | 15°47   | 20°16  | 14°32  | 14°19 | 18° 8  | 29°48  | 26°23  | 23°45  | 6°20 | 12°R47 | 11°16 | 14°57  | 28° 6  | S 15 |
| S 16 | 17 37 13 | 24°41'51  | 27°59   | 19°45  | 15°45  | 14°55 | 18°14  | 29°51  | 26°26  | 23°45  | 6°21 | 12°46  | 11°13 | 15° 4  | 28° 3  | S 16 |
| M17  | 17 41 10 | 25°39'05  | 10II26  | 19°15  | 16°59  | 15°31 | 18°19  | 29°53  | 26°30  | 23°45  | 6°22 | 12°43  | 11°10 | 15°10  | 28° 0  | M17  |
| T 18 | 17 45 6  | 26°36'20  | 23° 8   | 18°48  | 18°12  | 16° 6 | 18°25  | 29°55  | 26°33  | 23°46  | 6°23 | 12°38  | 11° 7 | 15°17  | 27°58  | T 18 |
| W19  | 17 49 3  | 27°33'34  | 6Ω 6    | 18°24  | 19°26  | 16°42 | 18°31  | 29°58  | 26°37  | 23°46  | 6°24 | 12°31  | 11° 4 | 15°24  | 27°55  | W19  |
| T 20 | 17 52 59 | 28°30'47  | 19°21   | 18° 4  | 20°39  | 17°18 | 18°37  | 0°V 0  | 26°40  | 23°47  | 6°25 | 12°24  | 11° 0 | 15°30  | 27°52  | T 20 |
| F 21 | 17 56 56 | 29°28'01  | 2Ω49    | 17°47  | 21°53  | 17°53 | 18°44  | 0° 2   | 26°44  | 23°47  | 6°26 | 12°16  | 10°57 | 15°37  | 27°49  | F 21 |
| S 22 | 18 0 53  | 0Ω25'13   | 16°30   | 17°34  | 23° 6  | 18°29 | 18°50  | 0° 4   | 26°48  | 23°48  | 6°27 | 12° 9  | 10°54 | 15°44  | 27°46  | S 22 |
| S 23 | 18 4 49  | 1°22'26   | 0III20  | 17°26  | 24°20  | 19° 5 | 18°56  | 0° 6   | 26°51  | 23°48  | 6°28 | 12° 4  | 10°51 | 15°50  | 27°43  | S 23 |
| M24  | 18 8 46  | 2°19'37   | 14°19   | 17°D22 | 25°34  | 19°41 | 19° 3  | 0° 8   | 26°55  | 23°49  | 6°29 | 12° 0  | 10°48 | 15°57  | 27°40  | M24  |
| T 25 | 18 12 42 | 3°16'49   | 28°23   | 17°23  | 26°47  | 20°17 | 19°10  | 0°10   | 26°58  | 23°50  | 6°30 | 11°D59 | 10°44 | 16° 4  | 27°37  | T 25 |
| W26  | 18 16 39 | 4°14'00   | 12Ω32   | 17°29  | 28° 1  | 20°53 | 19°17  | 0°11   | 27° 2  | 23°50  | 6°30 | 11°59  | 10°41 | 16°10  | 27°34  | W26  |
| T 27 | 18 20 35 | 5°11'10   | 26°45   | 17°39  | 29°14  | 21°29 | 19°24  | 0°13   | 27° 6  | 23°51  | 6°31 | 12° 0  | 10°38 | 16°17  | 27°31  | T 27 |
| F 28 | 18 24 32 | 6° 8'21   | 10III58 | 17°55  | 0Ω28   | 22° 5 | 19°31  | 0°15   | 27° 9  | 23°52  | 6°32 | 12°R 0 | 10°35 | 16°24  | 27°28  | F 28 |
| S 29 | 18 28 28 | 7° 5'31   | 25°11   | 18°16  | 1°42   | 22°41 | 19°38  | 0°16   | 27°13  | 23°53  | 6°33 | 12° 0  | 10°32 | 16°30  | 27°25  | S 29 |
| S 30 | 18 32 25 | 8Ω 2'41   | 9♂20    | 18II41 | 2Ω55   | 23Ω17 | 19°R46 | 0°V17  | 27II16 | 23°R53 | 6Ω33 | 11Ω57  | 10Ω29 | 16°V37 | 27Ω21  | S 30 |

| Day  | ☉     | ☾     |      |       | ♀    |       | ♀    |       | ♂    |      | ♂    |      | ♂    |       | ♂    |      | ♂    |      | ♂     |       | ♂     |      | ♂     |      | ♂   |      | ♂   |      | ♂   |      | ♂   |  |
|------|-------|-------|------|-------|------|-------|------|-------|------|------|------|------|------|-------|------|------|------|------|-------|-------|-------|------|-------|------|-----|------|-----|------|-----|------|-----|--|
|      | decl  | decl  | lat  | decl  | lat  | decl  | lat  | decl  | lat  | decl | lat  | decl | lat  | decl  | lat  | decl | lat  | decl | lat   | decl  | lat   | decl | lat   | decl | lat | decl | lat | decl | lat | decl | lat |  |
| S 1  | 22n 3 | 16s43 | 0s13 | 22n56 | 0s30 | 18n49 | 0s49 | 20n11 | 1n27 | 6n21 | 1n22 | 2s23 | 2s10 | 23n36 | 0n11 | 3n45 | 1n21 | 1s27 | 15s53 | 15n50 | 15n28 | 3n 1 | 13s17 | 7n21 |     |      |     |      |     |      |     |  |
| S 2  | 22 11 | 21 42 | 1 32 | 22 40 | 0 46 | 19 8  | 0 47 | 20 2  | 1 26 | 6 20 | 1 21 | 2 21 | 2 10 | 23 36 | 0 11 | 3 45 | 1 21 | 1 26 | 15 53 | 15 49 | 15 27 | 3 5  | 13 17 | 7 21 |     |      |     |      |     |      |     |  |
| M 3  | 22 19 | 25 18 | 2 43 | 22 22 | 1 3  | 19 26 | 0 45 | 19 52 | 1 25 | 6 18 | 1 21 | 2 20 | 2 11 | 23 36 | 0 11 | 3 45 | 1 21 | 1 26 | 15 54 | 15 49 | 15 26 | 3 8  | 13 17 | 7 22 |     |      |     |      |     |      |     |  |
| T 4  | 22 26 | 27 13 | 3 44 | 22 5  | 1 20 | 19 43 | 0 43 | 19 42 | 1 25 | 6 17 | 1 21 | 2 19 | 2 11 | 23 36 | 0 11 | 3 45 | 1 21 | 1 26 | 15 54 | 15 48 | 15 25 | 3 11 | 13 17 | 7 22 |     |      |     |      |     |      |     |  |
| W 5  | 22 33 | 27 22 | 4 29 | 21 47 | 1 37 | 20 0  | 0 41 | 19 33 | 1 24 | 6 15 | 1 21 | 2 18 | 2 11 | 23 36 | 0 11 | 3 45 | 1 21 | 1 26 | 15 54 | 15 46 | 15 24 | 3 15 | 13 17 | 7 22 |     |      |     |      |     |      |     |  |
| T 6  | 22 40 | 25 53 | 4 59 | 21 29 | 1 54 | 20 16 | 0 38 | 19 23 | 1 24 | 6 13 | 1 21 | 2 16 | 2 11 | 23 36 | 0 11 | 3 45 | 1 21 | 1 26 | 15 54 | 15 45 | 15 23 | 3 18 | 13 17 | 7 23 |     |      |     |      |     |      |     |  |
| F 7  | 22 46 | 23 2  | 5 11 | 21 12 | 2 11 | 20 32 | 0 36 | 19 13 | 1 23 | 6 11 | 1 20 | 2 15 | 2 12 | 23 37 | 0 11 | 3 44 | 1 21 | 1 26 | 15 54 | 15 43 | 15 23 | 3 21 | 13 17 | 7 23 |     |      |     |      |     |      |     |  |
| S 8  | 22 52 | 19 8  | 5 8  | 20 54 | 2 28 | 20 47 | 0 34 | 19 3  | 1 23 | 6 9  | 1 20 | 2 14 | 2 12 | 23 37 | 0 11 | 3 44 | 1 21 | 1 25 | 15 54 | 15 42 | 15 22 | 3 25 | 13 17 | 7 24 |     |      |     |      |     |      |     |  |
| S 9  | 22 57 | 14 30 | 4 51 | 20 37 | 2 44 | 21 2  | 0 32 | 18 53 | 1 22 | 6 7  | 1 20 | 2 13 | 2 12 | 23 37 | 0 11 | 3 44 | 1 21 | 1 25 | 15 55 | 15 41 | 15 21 | 3 28 | 13 17 | 7 24 |     |      |     |      |     |      |     |  |
| M10  | 23 2  | 9 25  | 4 20 | 20 20 | 2 59 | 21 16 | 0 29 | 18 43 | 1 22 | 6 5  | 1 20 | 2 12 | 2 12 | 23 37 | 0 11 | 3 44 | 1 21 | 1 25 | 15 55 | 15 41 | 15 20 | 3 31 | 13 17 | 7 24 |     |      |     |      |     |      |     |  |
| T 11 | 23 6  | 4 3   | 3 39 | 20 3  | 3 14 | 21 30 | 0 27 | 18 32 | 1 21 | 6 3  | 1 20 | 2 11 | 2 13 | 23 37 | 0 11 | 3 44 | 1 21 | 1 25 | 15 55 | 15 41 | 15 19 | 3 34 | 13 17 | 7 25 |     |      |     |      |     |      |     |  |
| W12  | 23 11 | 1n25  | 2 49 | 19 48 | 3 28 | 21 43 | 0 25 | 18 22 | 1 20 | 6 1  | 1 19 | 2 10 | 2 13 | 23 37 | 0 11 | 3 44 | 1 21 | 1 25 | 15 55 | 15 42 | 15 18 | 3 38 | 13 17 | 7 25 |     |      |     |      |     |      |     |  |
| T 13 | 23 14 | 6 50  | 1 51 | 19 33 | 3 40 | 21 55 | 0 22 | 18 11 | 1 20 | 5 59 | 1 19 | 2 9  | 2 13 | 23 37 | 0 11 | 3 44 | 1 21 | 1 25 | 15 55 | 15 42 | 15 17 | 3 41 | 13 18 | 7 25 |     |      |     |      |     |      |     |  |
| F 14 | 23 18 | 12 2  | 0 49 | 19 19 | 3 52 | 22 7  | 0 20 | 18 0  | 1 19 | 5 57 | 1 19 | 2 8  | 2 13 | 23 37 | 0 11 | 3 44 | 1 21 | 1 25 | 15 56 | 15 42 | 15 16 | 3 44 | 13 18 | 7 26 |     |      |     |      |     |      |     |  |
| S 15 | 23 21 | 16 52 | 0n16 | 19 7  | 4 2  | 22 18 | 0 17 | 17 49 | 1 19 | 5 54 | 1 19 | 2 7  | 2 14 | 23 38 | 0 11 | 3 43 | 1 21 | 1 25 | 15 56 | 15 43 | 15 15 | 3 48 | 13 18 | 7 26 |     |      |     |      |     |      |     |  |
| S 16 | 23 23 | 21 5  | 1 22 | 18 56 | 4 11 | 22 29 | 0 15 | 17 38 | 1 18 | 5 52 | 1 18 | 2 7  | 2 14 | 23 38 | 0 11 | 3 43 | 1 21 | 1 24 | 15 56 | 15 42 | 15 14 | 3 51 | 13 18 | 7 26 |     |      |     |      |     |      |     |  |
| M17  | 23 25 | 24 26 | 2 24 | 18 46 | 4 18 | 22 39 | 0 13 | 17 27 | 1 18 | 5 50 | 1 18 | 2 6  | 2 14 | 23 38 | 0 11 | 3 43 | 1 21 | 1 24 | 15 56 | 15 41 | 15 13 | 3 54 | 13 18 | 7 27 |     |      |     |      |     |      |     |  |
| T 18 | 23 27 | 26 39 | 3 21 | 18 38 | 4 24 | 22 48 | 0 10 | 17 16 | 1 17 | 5 47 | 1 18 | 2 5  | 2 15 | 23 38 | 0 11 | 3 43 | 1 21 | 1 24 | 15 57 | 15 40 | 15 12 | 3 58 | 13 19 | 7 27 |     |      |     |      |     |      |     |  |
| W19  | 23 28 | 27 29 | 4 8  | 18 31 | 4 29 | 22 56 | 0 8  | 17 5  | 1 16 | 5 45 | 1 18 | 2 5  | 2 15 | 23 38 | 0 11 | 3 43 | 1 21 | 1 24 | 15 57 | 15 38 | 15 11 | 4 1  | 13 19 | 7 27 |     |      |     |      |     |      |     |  |
| T 20 | 23 29 | 26 46 | 4 43 | 18 27 | 4 32 | 23 4  | 0 5  | 16 53 | 1 16 | 5 42 | 1 18 | 2 4  | 2 15 | 23 38 | 0 11 | 3 42 | 1 21 | 1 24 | 15 57 | 15 35 | 15 10 | 4 4  | 13 19 | 7 28 |     |      |     |      |     |      |     |  |
| F 21 | 23 29 | 24 29 | 5 3  | 18 23 | 4 33 | 23 11 | 0 3  | 16 42 | 1 15 | 5 39 | 1 17 | 2 3  | 2 15 | 23 38 | 0 11 | 3 42 | 1 21 | 1 24 | 15 57 | 15 33 | 15 9  | 4 7  | 13 19 | 7 28 |     |      |     |      |     |      |     |  |
| S 22 | 23 29 | 20 48 | 5 7  | 18 22 | 4 34 | 23 18 | 0 1  | 16 30 | 1 15 | 5 37 | 1 17 | 2 3  | 2 16 | 23 38 | 0 11 | 3 42 | 1 20 | 1 24 | 15 57 | 15 31 | 15 8  | 4 11 | 13 20 | 7 28 |     |      |     |      |     |      |     |  |
| S 23 | 23 29 | 15 56 | 4 52 | 18 22 | 4 32 | 23 24 | 0n 2 | 16 18 | 1 14 | 5 34 | 1 17 | 2 2  | 2 16 | 23 38 | 0 11 | 3 42 | 1 20 | 1 24 | 15 58 | 15 29 | 15 7  | 4 14 | 13 20 | 7 28 |     |      |     |      |     |      |     |  |
| M24  | 23 28 | 10 11 | 4 20 | 18 25 | 4 30 | 23 29 | 0 4  | 16 7  | 1 14 | 5 31 | 1 17 | 2 2  | 2 16 | 23 38 | 0 11 | 3 41 | 1 20 | 1 24 | 15 58 | 15 28 | 15 6  | 4 17 | 13 20 | 7 29 |     |      |     |      |     |      |     |  |
| T 25 | 23 27 | 3 53  | 3 33 | 18 28 | 4 26 | 23 34 | 0 7  | 15 55 | 1 13 | 5 28 | 1 17 | 2 1  | 2 16 | 23 39 | 0 11 | 3 41 | 1 20 | 1 24 | 15 58 | 15 28 | 15 5  | 4 21 | 13 21 | 7 29 |     |      |     |      |     |      |     |  |
| W26  | 23 25 | 2s38  | 2 32 | 18 34 | 4 22 | 23 38 | 0 9  | 15 43 | 1 13 | 5 25 | 1 16 | 2 1  | 2 17 | 23 39 | 0 11 | 3 41 | 1 20 | 1 24 | 15 58 | 15 28 | 15 4  | 4 24 | 13 21 | 7 29 |     |      |     |      |     |      |     |  |
| T 27 | 23 23 | 9 4   | 1 21 | 18 40 | 4 16 | 23 41 | 0 11 | 15 30 | 1 12 | 5 22 | 1 16 | 2 0  | 2 17 | 23 39 | 0 11 | 3 41 | 1 20 | 1 24 | 15 59 | 15 28 | 15 3  | 4 27 | 13 21 | 7 29 |     |      |     |      |     |      |     |  |
| F 28 | 23 21 | 15 4  | 0 6  | 18 49 | 4 9  | 23 43 | 0 14 | 15 18 | 1 11 | 5 19 | 1 16 | 2 0  | 2 17 | 23 39 | 0 11 | 3 40 | 1 20 | 1 24 | 15 59 | 15 28 | 15 2  | 4 31 | 13 22 | 7 30 |     |      |     |      |     |      |     |  |
| S 29 | 23 18 | 20 14 | 1s10 | 18 58 | 4 1  | 23 45 | 0 16 | 15 6  | 1 11 | 5 16 | 1 16 | 2 0  | 2 18 | 23 39 | 0 11 | 3 40 | 1 20 | 1 24 | 15 59 | 15 28 | 15 1  | 4 34 | 13 22 | 7 30 |     |      |     |      |     |      |     |  |
| S 30 | 23n15 | 24s13 | 2s21 | 19n 9 | 3s52 | 23n46 | 0n18 | 14n53 | 1n10 | 5n13 | 1n16 | 2s 0 | 2s18 | 23n39 | 0n11 | 3n40 | 1n20 | 1s24 | 16s 0 | 15n27 | 15n 0 | 4n37 | 13s22 | 7n30 |     |      |     |      |     |      |     |  |

# ASTRODIENST EPHEMERIS for the year 1613

## geocentric

JULY 1613 GC

00:00 UT

| Day  | Sid.t    | ☉        | ☽      | ♊     | ♋      | ♌      | ♍      | ♎     | ♏      | ♐      | ♑     | ♒      | ♓     | ♈      | ♉      | Day  |
|------|----------|----------|--------|-------|--------|--------|--------|-------|--------|--------|-------|--------|-------|--------|--------|------|
| M 1  | 18 36 22 | 8°59'51  | 23°22  | 19°12 | 4°59   | 23°54  | 19°53  | 0°18  | 27°20  | 23°54  | 6°34  | 11°R52 | 10°25 | 16°Y44 | 27°R18 | M 1  |
| T 2  | 18 40 18 | 9°57'01  | 7°31   | 19°47 | 5°23   | 24°30  | 20° 1  | 0°19  | 27°23  | 23°55  | 6°35  | 11°R44 | 10°22 | 16°50  | 27°R15 | T 2  |
| W 3  | 18 44 15 | 10°54'11 | 20°49  | 20°28 | 6°36   | 25° 6  | 20° 9  | 0°20  | 27°27  | 23°56  | 6°36  | 11°35  | 10°19 | 16°57  | 27°12  | W 3  |
| T 4  | 18 48 11 | 11°51'21 | 4°38   | 21°13 | 7°50   | 25°43  | 20°17  | 0°21  | 27°30  | 23°57  | 6°36  | 11°25  | 10°16 | 17° 4  | 27° 8  | T 4  |
| F 5  | 18 52 8  | 12°48'31 | 17° 7  | 22° 3 | 9° 4   | 26°19  | 20°25  | 0°22  | 27°34  | 23°58  | 6°37  | 11°16  | 10°13 | 17°10  | 27° 5  | F 5  |
| S 6  | 18 56 4  | 13°45'42 | 29°46  | 22°58 | 10°17  | 26°55  | 20°33  | 0°23  | 27°37  | 23°59  | 6°38  | 11° 7  | 10°10 | 17°17  | 27° 2  | S 6  |
| S 7  | 19 0 1   | 14°42'53 | 12°38  | 23°58 | 11°31  | 27°32  | 20°41  | 0°23  | 27°41  | 24° 0  | 6°38  | 11° 0  | 10° 6 | 17°24  | 26°58  | S 7  |
| M 8  | 19 3 57  | 15°40'05 | 24°15  | 25° 3 | 12°45  | 28° 8  | 20°50  | 0°24  | 27°44  | 24° 1  | 6°39  | 10°56  | 10° 3 | 17°30  | 26°55  | M 8  |
| T 9  | 19 7 14  | 16°37'17 | 6°Y11  | 26°12 | 13°59  | 28°45  | 20°58  | 0°24  | 27°48  | 24° 2  | 6°39  | 10°53  | 10° 0 | 17°37  | 26°51  | T 9  |
| W10  | 19 11 51 | 17°34'30 | 18° 1  | 27°25 | 15°13  | 29°22  | 21° 7  | 0°24  | 27°51  | 24° 3  | 6°40  | 10°D53 | 9°57  | 17°43  | 26°48  | W10  |
| T 11 | 19 15 47 | 18°31'44 | 29°50  | 28°43 | 16°26  | 29°58  | 21°16  | 0°24  | 27°55  | 24° 4  | 6°40  | 10°53  | 9°54  | 17°50  | 26°45  | T 11 |
| F 12 | 19 19 44 | 19°28'58 | 11°R44 | 0°36  | 17°40  | 0°35   | 21°24  | 0°R24 | 27°58  | 24° 5  | 6°41  | 10°R53 | 9°50  | 17°57  | 26°41  | F 12 |
| S 13 | 19 23 40 | 20°26'13 | 23°48  | 1°32  | 18°54  | 1°12   | 21°33  | 0°24  | 28° 1  | 24° 7  | 6°42  | 10°53  | 9°47  | 18° 3  | 26°38  | S 13 |
| S 14 | 19 27 37 | 21°23'29 | 6°II 7 | 3° 3  | 20° 8  | 1°49   | 21°42  | 0°24  | 28° 5  | 24° 8  | 6°42  | 10°50  | 9°44  | 18°10  | 26°34  | S 14 |
| M15  | 19 31 33 | 22°20'45 | 18°43  | 4°38  | 21°22  | 2°25   | 21°52  | 0°24  | 28° 8  | 24° 9  | 6°42  | 10°45  | 9°41  | 18°17  | 26°31  | M15  |
| T 16 | 19 35 30 | 23°18'03 | 1°34   | 6°17  | 22°36  | 3° 2   | 22° 1  | 0°24  | 28°12  | 24°10  | 6°43  | 10°37  | 9°38  | 18°23  | 26°27  | T 16 |
| W17  | 19 39 26 | 24°15'20 | 14°58  | 7°59  | 23°49  | 3°39   | 22°10  | 0°23  | 28°15  | 24°12  | 6°43  | 10°28  | 9°35  | 18°30  | 26°24  | W17  |
| T 18 | 19 43 23 | 25°12'39 | 28°35  | 9°45  | 25° 3  | 4°16   | 22°20  | 0°23  | 28°18  | 24°13  | 6°44  | 10°16  | 9°31  | 18°37  | 26°20  | T 18 |
| F 19 | 19 47 20 | 26° 9'58 | 12°R29 | 11°34 | 26°17  | 4°53   | 22°29  | 0°22  | 28°22  | 24°14  | 6°44  | 10° 5  | 9°28  | 18°43  | 26°17  | F 19 |
| S 20 | 19 51 16 | 27° 7'18 | 26°36  | 13°27 | 27°31  | 5°30   | 22°39  | 0°21  | 28°25  | 24°16  | 6°45  | 9°55   | 9°25  | 18°50  | 26°13  | S 20 |
| S 21 | 19 55 13 | 28° 4'38 | 10°34  | 15°22 | 28°45  | 6° 7   | 22°49  | 0°20  | 28°28  | 24°17  | 6°45  | 9°46   | 9°22  | 18°57  | 26°10  | S 21 |
| M22  | 19 59 9  | 29° 1'59 | 25° 6  | 17°19 | 29°59  | 6°45   | 22°58  | 0°19  | 28°31  | 24°18  | 6°45  | 9°40   | 9°19  | 19° 3  | 26° 6  | M22  |
| T 23 | 20 3 6   | 29°59'20 | 9°R22  | 19°19 | 1°R13  | 7°22   | 23° 8  | 0°18  | 28°34  | 24°20  | 6°46  | 9°37   | 9°16  | 19°10  | 26° 3  | T 23 |
| W24  | 20 7 2   | 0°R56'41 | 23°33  | 21°20 | 2°27   | 7°59   | 23°18  | 0°17  | 28°38  | 24°21  | 6°46  | 9°36   | 9°12  | 19°17  | 25°59  | W24  |
| T 25 | 20 10 59 | 1°54'04  | 7°R40  | 23°23 | 3°41   | 8°36   | 23°28  | 0°16  | 28°41  | 24°23  | 6°46  | 9°36   | 9° 9  | 19°23  | 25°56  | T 25 |
| F 26 | 20 14 55 | 2°51'26  | 21°40  | 25°27 | 4°55   | 9°14   | 23°39  | 0°15  | 28°44  | 24°24  | 6°46  | 9°36   | 9° 6  | 19°30  | 25°52  | F 26 |
| S 27 | 20 18 52 | 3°48'50  | 5°R34  | 27°32 | 6° 9   | 9°51   | 23°49  | 0°13  | 28°47  | 24°26  | 6°47  | 9°34   | 9° 3  | 19°37  | 25°49  | S 27 |
| S 28 | 20 22 49 | 4°46'14  | 19°20  | 29°37 | 7°23   | 10°29  | 23°59  | 0°12  | 28°50  | 24°27  | 6°47  | 9°30   | 9° 0  | 19°43  | 25°46  | S 28 |
| M29  | 20 26 45 | 5°43'39  | 2°R57  | 1°R42 | 8°37   | 11° 6  | 24°10  | 0°10  | 28°53  | 24°29  | 6°47  | 9°23   | 8°56  | 19°50  | 25°42  | M29  |
| T 30 | 20 30 42 | 6°41'04  | 16°24  | 3°47  | 9°51   | 11°44  | 24°20  | 0° 8  | 28°56  | 24°31  | 6°47  | 9°13   | 8°53  | 19°57  | 25°39  | T 30 |
| W31  | 20 34 38 | 7°R38'31 | 29°R39 | 5°R52 | 11°R 5 | 12°R21 | 24°R31 | 0°Y 6 | 28°R59 | 24°R32 | 6°R47 | 9°R 2  | 8°R50 | 20°Y 3 | 25°R35 | W31  |

| Day  | ☉     | ☽     |      | ♊     |      | ♋     |      | ♌     |      | ♍    |      | ♎    |      | ♏     |      | ♐    |      | ♑    |       | ♒     | ♓     | ♈    | ♉     | ♊    | ♋   | ♌    | ♍   | ♎    | ♏   | ♐    | ♑   | ♒    | ♓   |  |
|------|-------|-------|------|-------|------|-------|------|-------|------|------|------|------|------|-------|------|------|------|------|-------|-------|-------|------|-------|------|-----|------|-----|------|-----|------|-----|------|-----|--|
|      | decl  | decl  | lat  | decl  | lat  | decl  | lat  | decl  | lat  | decl | lat  | decl | lat  | decl  | lat  | decl | lat  | decl | lat   | decl  | lat   | decl | lat   | decl | lat | decl | lat | decl | lat | decl | lat | decl | lat |  |
| M 1  | 23n11 | 26s42 | 3s23 | 19n21 | 3s43 | 23n46 | 0n21 | 14n41 | 1n10 | 5n10 | 1n15 | 1s59 | 2s18 | 23n39 | 0n11 | 3n39 | 1n20 | 1s24 | 16s 0 | 15n26 | 14n59 | 4n40 | 13s23 | 7n30 |     |      |     |      |     |      |     |      |     |  |
| T 2  | 23 7  | 27 29 | 4 11 | 19 34 | 3 32 | 23 46 | 0 23 | 14 28 | 1 9  | 5 7  | 1 15 | 1 59 | 2 18 | 23 39 | 0 11 | 3 39 | 1 20 | 1 24 | 16 0  | 15 23 | 14 58 | 4 44 | 13 23 | 7 30 |     |      |     |      |     |      |     |      |     |  |
| W 3  | 23 3  | 26 34 | 4 45 | 19 48 | 3 22 | 23 45 | 0 25 | 14 16 | 1 9  | 5 4  | 1 15 | 1 59 | 2 19 | 23 39 | 0 11 | 3 38 | 1 20 | 1 24 | 16 0  | 15 21 | 14 57 | 4 47 | 13 24 | 7 30 |     |      |     |      |     |      |     |      |     |  |
| T 4  | 22 58 | 24 9  | 5 2  | 20 2  | 3 10 | 23 43 | 0 27 | 14 3  | 1 8  | 5 0  | 1 15 | 1 59 | 2 19 | 23 39 | 0 11 | 3 38 | 1 20 | 1 24 | 16 1  | 15 17 | 14 56 | 4 50 | 13 24 | 7 31 |     |      |     |      |     |      |     |      |     |  |
| F 5  | 22 52 | 20 32 | 5 3  | 20 17 | 2 58 | 23 41 | 0 30 | 13 50 | 1 7  | 4 57 | 1 15 | 1 59 | 2 19 | 23 39 | 0 11 | 3 38 | 1 20 | 1 24 | 16 1  | 15 14 | 14 55 | 4 54 | 13 25 | 7 31 |     |      |     |      |     |      |     |      |     |  |
| S 6  | 22 47 | 16 4  | 4 48 | 20 33 | 2 46 | 23 37 | 0 32 | 13 37 | 1 7  | 4 54 | 1 15 | 1 59 | 2 20 | 23 39 | 0 11 | 3 37 | 1 20 | 1 24 | 16 1  | 15 12 | 14 54 | 4 57 | 13 25 | 7 31 |     |      |     |      |     |      |     |      |     |  |
| S 7  | 22 41 | 11 2  | 4 21 | 20 48 | 2 33 | 23 33 | 0 34 | 13 24 | 1 6  | 4 50 | 1 14 | 1 59 | 2 20 | 23 40 | 0 11 | 3 37 | 1 20 | 1 24 | 16 1  | 15 10 | 14 53 | 5 0  | 13 26 | 7 31 |     |      |     |      |     |      |     |      |     |  |
| M 8  | 22 34 | 5 41  | 3 42 | 21 4  | 2 20 | 23 29 | 0 36 | 13 10 | 1 6  | 4 47 | 1 14 | 1 59 | 2 20 | 23 40 | 0 11 | 3 36 | 1 20 | 1 24 | 16 2  | 15 8  | 14 52 | 5 3  | 13 26 | 7 31 |     |      |     |      |     |      |     |      |     |  |
| T 9  | 22 27 | 0 12  | 2 54 | 21 20 | 2 7  | 23 24 | 0 38 | 12 57 | 1 5  | 4 43 | 1 14 | 1 59 | 2 20 | 23 40 | 0 11 | 3 36 | 1 20 | 1 25 | 16 2  | 15 8  | 14 51 | 5 7  | 13 27 | 7 31 |     |      |     |      |     |      |     |      |     |  |
| W10  | 22 20 | 5n15  | 1 59 | 21 35 | 1 53 | 23 18 | 0 41 | 12 44 | 1 5  | 4 40 | 1 14 | 1 59 | 2 21 | 23 40 | 0 11 | 3 35 | 1 20 | 1 25 | 16 2  | 15 7  | 14 50 | 5 10 | 13 27 | 7 31 |     |      |     |      |     |      |     |      |     |  |
| T 11 | 22 12 | 10 31 | 0 59 | 21 50 | 1 40 | 23 11 | 0 43 | 12 30 | 1 4  | 4 36 | 1 14 | 1 59 | 2 21 | 23 40 | 0 11 | 3 35 | 1 20 | 1 25 | 16 3  | 15 7  | 14 49 | 5 13 | 13 28 | 7 31 |     |      |     |      |     |      |     |      |     |  |
| F 12 | 22 4  | 15 28 | 0n 5 | 22 4  | 1 26 | 23 4  | 0 45 | 12 17 | 1 4  | 4 32 | 1 14 | 2 0  | 2 21 | 23 40 | 0 11 | 3 34 | 1 20 | 1 25 | 16 3  | 15 8  | 14 48 | 5 17 | 13 28 | 7 32 |     |      |     |      |     |      |     |      |     |  |
| S 13 | 21 56 | 19 52 | 1 8  | 22 17 | 1 12 | 22 55 | 0 47 | 12 3  | 1 3  | 4 29 | 1 13 | 2 0  | 2 21 | 23 40 | 0 11 | 3 34 | 1 20 | 1 25 | 16 3  | 15 7  | 14 47 | 5 20 | 13 29 | 7 32 |     |      |     |      |     |      |     |      |     |  |
| S 14 | 21 47 | 23 30 | 2 10 | 22 29 | 0 59 | 22 47 | 0 49 | 11 50 | 1 2  | 4 25 | 1 13 | 2 0  | 2 22 | 23 40 | 0 11 | 3 33 | 1 20 | 1 25 | 16 3  | 15 6  | 14 46 | 5 23 | 13 30 | 7 32 |     |      |     |      |     |      |     |      |     |  |
| M15  | 21 38 | 26 7  | 3 7  | 22 39 | 0 45 | 22 37 | 0 50 | 11 36 | 1 2  | 4 21 | 1 13 | 2 1  | 2 22 | 23 40 | 0 11 | 3 33 | 1 20 | 1 25 | 16 4  | 15 5  | 14 45 | 5 27 | 13 30 | 7 32 |     |      |     |      |     |      |     |      |     |  |
| T 16 | 21 29 | 27 24 | 3 55 | 22 49 | 0 32 | 22 27 | 0 52 | 11 22 | 1 1  | 4 17 | 1 13 | 2 1  | 2 22 | 23 40 | 0 11 | 3 32 | 1 20 | 1 25 | 16 4  | 15 3  | 14 44 | 5 30 | 13 31 | 7 32 |     |      |     |      |     |      |     |      |     |  |
| W17  | 21 19 | 27 10 | 4 32 | 22 56 | 0 19 | 22 17 | 0 54 | 11 8  | 1 1  | 4 14 | 1 13 | 2 2  | 2 23 | 23 40 | 0 11 | 3 32 | 1 20 | 1 26 | 16 4  | 14 59 | 14 43 | 5 33 | 13 31 | 7 32 |     |      |     |      |     |      |     |      |     |  |
| T 18 | 21 8  | 25 18 | 4 55 | 23 1  | 0 7  | 22 5  | 0 56 | 10 54 | 1 0  | 4 10 | 1 13 | 2 2  | 2 23 | 23 40 | 0 11 | 3 31 | 1 20 | 1 26 | 16 5  | 14 56 | 14 42 | 5 36 | 13 32 | 7 32 |     |      |     |      |     |      |     |      |     |  |
| F 19 | 20 58 | 21 54 | 5 1  | 23 5  | 0n 6 | 21 53 | 0 58 | 10 40 | 1 0  | 4 6  | 1 12 | 2 2  | 2 23 | 23 40 | 0 11 | 3 31 | 1 20 | 1 26 | 16 5  | 14 52 | 14 41 | 5 40 | 13 33 | 7 32 |     |      |     |      |     |      |     |      |     |  |
| S 20 | 20 47 | 17 12 | 4 49 | 23 6  | 0 17 | 21 40 | 1 0  | 10 26 | 0 59 | 4 2  | 1 12 | 2 3  | 2 23 | 23 40 | 0 11 | 3 30 | 1 20 | 1 26 | 16 5  | 14 49 | 14 40 | 5 43 | 13 33 | 7 32 |     |      |     |      |     |      |     |      |     |  |
| S 21 | 20 35 | 11 30 | 4 19 | 23 4  | 0 28 | 21 27 | 1 1  | 10 12 | 0 59 | 3 58 | 1 12 | 2 4  | 2 24 | 23 40 | 0 11 | 3 30 | 1 20 | 1 26 | 16 6  | 14 46 | 14 39 | 5 46 | 13 34 | 7 32 |     |      |     |      |     |      |     |      |     |  |
| M22  | 20 24 | 5 12  | 3 32 | 23 1  | 0 39 | 21 13 | 1 3  | 9 57  | 0 58 | 3 54 | 1 12 | 2 4  | 2 24 | 23 40 | 0 11 | 3 29 | 1 19 | 1 26 | 16 6  | 14 45 | 14 38 | 5 50 | 13 34 | 7 32 |     |      |     |      |     |      |     |      |     |  |
| T 23 | 20 12 | 1s23  | 2 33 | 22 54 | 0 49 | 20 59 | 1 4  | 9 43  | 0 57 | 3 50 | 1 12 | 2 5  | 2 24 | 23 40 | 0 11 | 3 28 | 1 19 | 1 27 | 16 6  | 14 43 | 14 37 | 5 53 | 13 35 | 7 32 |     |      |     |      |     |      |     |      |     |  |
| W24  | 19 59 | 7 52  | 1 24 | 22 45 | 0 58 | 20 44 | 1 6  | 9 28  | 0 57 | 3 46 | 1 12 | 2 6  | 2 24 | 23 41 | 0 11 | 3 28 | 1 19 | 1 27 | 16 7  | 14 43 | 14 36 | 5 56 | 13 36 | 7 32 |     |      |     |      |     |      |     |      |     |  |
| T 25 | 19 47 | 13 56 | 0 10 | 22 33 | 1 6  | 20 28 | 1 7  | 9 14  | 0 56 | 3 42 | 1 12 | 2 6  | 2 25 | 23 41 | 0 11 | 3 27 | 1 19 | 1 27 | 16 7  | 14 43 | 14 35 | 5 59 | 13 37 | 7 31 |     |      |     |      |     |      |     |      |     |  |
| F 26 | 19 34 | 19 14 | 1s 3 | 22 18 | 1 14 | 20 11 | 1 9  | 8 59  | 0 56 | 3 37 | 1 12 | 2 7  | 2 25 | 23 41 | 0 11 | 3 26 | 1 19 | 1 27 | 16 7  | 14 43 | 14 34 | 6 3  | 13 37 | 7 31 |     |      |     |      |     |      |     |      |     |  |
| S 27 | 19 20 | 23 27 | 2 13 | 22 1  | 1 21 | 19 55 | 1 10 | 8 45  | 0 55 | 3 33 | 1 11 | 2 8  | 2 25 | 23 41 | 0 12 | 3 26 | 1 19 | 1 27 | 16 7  | 14 42 | 14 33 | 6 6  | 13 38 | 7 31 |     |      |     |      |     |      |     |      |     |  |
| S 28 | 19 7  | 26 16 | 3 13 | 21 41 | 1 27 | 19 37 | 1 12 | 8 30  | 0 55 | 3 29 | 1 11 | 2 9  | 2 26 | 23 41 | 0 12 | 3 25 | 1 19 | 1 28 | 16 8  | 14 41 | 14 32 | 6 9  | 13 39 | 7 31 |     |      |     |      |     |      |     |      |     |  |
| M29  | 18 53 | 27 30 | 4 2  | 21 19 | 1 32 | 19 19 | 1 13 | 8 15  | 0 54 | 3 25 | 1 11 | 2 10 | 2 26 | 23 41 | 0 12 | 3 25 | 1 19 | 1 28 | 16 8  | 14 39 | 14 31 | 6 13 | 13 39 | 7 31 |     |      |     |      |     |      |     |      |     |  |
| T 30 | 18 39 | 27 4  | 4 37 | 20 54 | 1 36 | 19 0  | 1 14 | 8 0   | 0 54 | 3 20 | 1 11 | 2 11 | 2 26 | 23 41 | 0 12 | 3 24 | 1 19 | 1 28 | 16 8  | 14 36 | 14 30 | 6 16 | 13 40 | 7 31 |     |      |     |      |     |      |     |      |     |  |
| W31  | 18n24 | 25s 6 | 4s56 | 20n27 | 1n40 | 18n41 | 1n15 | 7n45  | 0n53 | 3n16 | 1n11 | 2s12 | 2s26 | 23n41 | 0n12 | 3n23 | 1n19 | 1s28 | 16s 9 | 14n32 | 14n29 | 6n19 | 13s41 | 7n31 |     |      |     |      |     |      |     |      |     |  |



# ASTRODIENST EPHEMERIS for the year 1613

## geocentric

AUGUST 1613 GC

00:00 UT

| Day  | Sid.t    | ☉        | ☽     | ♂     | ♀     | ♂     | ♂     | ♂     | ♂     | ♂     | ♂     | ♂     | ♂    | ♂     | ♂      | Day  |
|------|----------|----------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|------|-------|--------|------|
| T 1  | 20 38 35 | 8♂35'58  | 12♂40 | 7♂56  | 12♂19 | 12♂59 | 24♂41 | 0°R 4 | 29♂2  | 24♂34 | 6♂47  | 8°R49 | 8♂47 | 20♂10 | 25°R32 | T 1  |
| F 2  | 20 42 31 | 9°33'27  | 25°25 | 10° 0 | 13°34 | 13°36 | 24°52 | 0°Y 2 | 29° 5 | 24°36 | 6°47  | 8♂36  | 8°44 | 20°17 | 25°♂29 | F 2  |
| S 3  | 20 46 28 | 10°30'57 | 7♂55  | 12° 2 | 14°48 | 14°14 | 25° 3 | 0° 0  | 29° 8 | 24°37 | 6°48  | 8°25  | 8°41 | 20°23 | 25°25  | S 3  |
| S 4  | 20 50 24 | 11°28'27 | 20°11 | 14° 4 | 16° 2 | 14°52 | 25°14 | 29♂58 | 29°11 | 24°39 | 6°48  | 8°16  | 8°37 | 20°30 | 25°22  | S 4  |
| M 5  | 20 54 21 | 12°26'00 | 2♂14  | 16° 4 | 17°16 | 15°30 | 25°25 | 29°56 | 29°14 | 24°41 | 6°48  | 8° 9  | 8°34 | 20°36 | 25°19  | M 5  |
| T 6  | 20 58 18 | 13°23'33 | 14° 8 | 18° 3 | 18°30 | 16° 7 | 25°36 | 29°53 | 29°17 | 24°43 | 6°R48 | 8° 5  | 8°31 | 20°43 | 25°16  | T 6  |
| W 7  | 21 2 14  | 14°21'08 | 25°57 | 20° 1 | 19°44 | 16°45 | 25°47 | 29°51 | 29°19 | 24°44 | 6°48  | 8° 3  | 8°28 | 20°50 | 25°12  | W 7  |
| T 8  | 21 6 11  | 15°18'44 | 7♂45  | 21°58 | 20°58 | 17°23 | 25°58 | 29°48 | 29°22 | 24°46 | 6°48  | 8°D 3 | 8°25 | 20°56 | 25° 9  | T 8  |
| F 9  | 21 10 7  | 16°16'22 | 19°39 | 23°53 | 22°12 | 18° 1 | 26° 9 | 29°46 | 29°25 | 24°48 | 6°48  | 8°R 3 | 8°21 | 21° 3 | 25° 6  | F 9  |
| S 10 | 21 14 4  | 17°14'02 | 1♂43  | 25°46 | 23°27 | 18°39 | 26°21 | 29°43 | 29°28 | 24°50 | 6°48  | 8° 2  | 8°18 | 21°10 | 25° 3  | S 10 |
| S 11 | 21 18 0  | 18°11'43 | 14° 3 | 27°39 | 24°41 | 19°17 | 26°32 | 29°40 | 29°30 | 24°52 | 6°47  | 8° 0  | 8°15 | 21°16 | 25° 0  | S 11 |
| M12  | 21 21 57 | 19° 9'26 | 26°44 | 29°30 | 25°55 | 19°55 | 26°44 | 29°37 | 29°33 | 24°53 | 6°47  | 7°55  | 8°12 | 21°23 | 24°57  | M12  |
| T 13 | 21 25 53 | 20° 7'10 | 9♂48  | 1♂19  | 27° 9 | 20°33 | 26°55 | 29°34 | 29°35 | 24°55 | 6°47  | 7°48  | 8° 9 | 21°30 | 24°54  | T 13 |
| W14  | 21 29 50 | 21° 4'56 | 23°17 | 3° 7  | 28°23 | 21°12 | 27° 7 | 29°31 | 29°38 | 24°57 | 6°47  | 7°39  | 8° 6 | 21°36 | 24°51  | W14  |
| T 15 | 21 33 47 | 22° 2'44 | 7♂11  | 4°54  | 29°38 | 21°50 | 27°18 | 29°28 | 29°41 | 24°59 | 6°47  | 7°28  | 8° 2 | 21°43 | 24°48  | T 15 |
| F 16 | 21 37 43 | 23° 0'33 | 21°27 | 6°39  | 0♂52  | 22°28 | 27°30 | 29°25 | 29°43 | 25° 1 | 6°47  | 7°16  | 7°59 | 21°50 | 24°45  | F 16 |
| S 17 | 21 41 40 | 23°58'23 | 5♂57  | 8°23  | 2° 6  | 23° 7 | 27°42 | 29°21 | 29°45 | 25° 3 | 6°46  | 7° 6  | 7°56 | 21°56 | 24°42  | S 17 |
| S 18 | 21 45 36 | 24°56'15 | 20°37 | 10° 5 | 3°20  | 23°45 | 27°54 | 29°18 | 29°48 | 25° 5 | 6°46  | 6°58  | 7°53 | 22° 3 | 24°39  | S 18 |
| M19  | 21 49 33 | 25°54'08 | 5♂17  | 11°46 | 4°35  | 24°23 | 28° 5 | 29°15 | 29°50 | 25° 7 | 6°46  | 6°52  | 7°50 | 22°10 | 24°37  | M19  |
| T 20 | 21 53 29 | 26°52'02 | 19°52 | 13°26 | 5°49  | 25° 2 | 28°17 | 29°11 | 29°53 | 25° 9 | 6°46  | 6°49  | 7°47 | 22°16 | 24°34  | T 20 |
| W21  | 21 57 26 | 27°49'58 | 4♂17  | 15° 4 | 7° 3  | 25°40 | 28°29 | 29° 8 | 29°55 | 25°11 | 6°45  | 6°D48 | 7°43 | 22°23 | 24°31  | W21  |
| T 22 | 22 1 22  | 28°47'55 | 18°29 | 16°41 | 8°18  | 26°19 | 28°41 | 29° 4 | 29°57 | 25°13 | 6°45  | 6°48  | 7°40 | 22°30 | 24°29  | T 22 |
| F 23 | 22 5 19  | 29°45'53 | 2♂28  | 18°17 | 9°32  | 26°58 | 28°53 | 29° 0 | 29°59 | 25°15 | 6°45  | 6°R48 | 7°37 | 22°36 | 24°26  | F 23 |
| S 24 | 22 9 16  | 0♂43'53  | 16°12 | 19°52 | 10°46 | 27°36 | 29° 5 | 28°56 | 0♂2   | 25°17 | 6°44  | 6°47  | 7°34 | 22°43 | 24°23  | S 24 |
| S 25 | 22 13 12 | 1°41'54  | 29°42 | 21°25 | 12° 0 | 28°15 | 29°18 | 28°53 | 0° 4  | 25°19 | 6°44  | 6°44  | 7°31 | 22°50 | 24°21  | S 25 |
| M26  | 22 17 9  | 2°39'56  | 13♂0  | 22°57 | 13°15 | 28°54 | 29°30 | 28°49 | 0° 6  | 25°21 | 6°44  | 6°38  | 7°27 | 22°56 | 24°19  | M26  |
| T 27 | 22 21 5  | 3°38'00  | 26° 6 | 24°27 | 14°29 | 29°32 | 29°42 | 28°45 | 0° 8  | 25°24 | 6°43  | 6°30  | 7°24 | 23° 3 | 24°16  | T 27 |
| W28  | 22 25 2  | 4°36'05  | 8♂59  | 25°57 | 15°43 | 0♂11  | 29°54 | 28°41 | 0°10  | 25°26 | 6°43  | 6°21  | 7°21 | 23° 9 | 24°14  | W28  |
| T 29 | 22 28 58 | 5°34'12  | 21°40 | 27°25 | 16°58 | 0°50  | 0♂1   | 28°37 | 0°12  | 25°28 | 6°42  | 6°10  | 7°18 | 23°16 | 24°12  | T 29 |
| F 30 | 22 32 55 | 6°32'21  | 4♂9   | 28°51 | 18°12 | 1°29  | 0°19  | 28°32 | 0°14  | 25°30 | 6°42  | 5°59  | 7°15 | 23°23 | 24° 9  | F 30 |
| S 31 | 22 36 51 | 7♂30'31  | 16♂27 | 0♂17  | 19♂26 | 2♂8   | 0♂31  | 28♂28 | 0♂16  | 25♂32 | 6♂41  | 5♂49  | 7♂12 | 23♂29 | 24♂7   | S 31 |

| Day  | ☉     | ☽     | ♂    | ♀     | ♂    | ♂     | ♂    | ♂    | ♂    | ♂    | ♂    | ♂    | ♂    | ♂     | ♂    | ♂    |
|------|-------|-------|------|-------|------|-------|------|------|------|------|------|------|------|-------|------|------|
|      | decl  | decl  | lat  | decl  | lat  | decl  | lat  | decl | lat  | decl | lat  | decl | lat  | decl  | lat  | lat  |
| T 1  | 18n 9 | 21s50 | 4s59 | 19n58 | 1n42 | 18n22 | 1n16 | 7n30 | 0n52 | 3n12 | 1n11 | 2s13 | 2s27 | 23n41 | 0n12 | 3n23 |
| F 2  | 17 54 | 17 35 | 4 48 | 19 27 | 1 44 | 18 1  | 1 17 | 7 15 | 0 52 | 3 7  | 1 11 | 2 14 | 2 27 | 23 41 | 0 12 | 3 22 |
| S 3  | 17 38 | 12 40 | 4 22 | 18 55 | 1 46 | 17 41 | 1 18 | 7 0  | 0 51 | 3 3  | 1 10 | 2 15 | 2 27 | 23 41 | 0 12 | 3 21 |
| S 4  | 17 23 | 7 20  | 3 44 | 18 20 | 1 46 | 17 20 | 1 19 | 6 45 | 0 51 | 2 58 | 1 10 | 2 16 | 2 27 | 23 41 | 0 12 | 3 20 |
| M 5  | 17 7  | 1 49  | 2 57 | 17 44 | 1 46 | 16 58 | 1 20 | 6 30 | 0 50 | 2 54 | 1 10 | 2 17 | 2 28 | 23 41 | 0 12 | 3 20 |
| T 6  | 16 50 | 3n42  | 2 3  | 17 7  | 1 45 | 16 36 | 1 21 | 6 15 | 0 50 | 2 50 | 1 10 | 2 18 | 2 28 | 23 41 | 0 12 | 3 19 |
| W 7  | 16 34 | 9 3   | 1 4  | 16 29 | 1 44 | 16 13 | 1 22 | 6 0  | 0 49 | 2 45 | 1 10 | 2 19 | 2 28 | 23 41 | 0 12 | 3 18 |
| T 8  | 16 17 | 14 6  | 0 2  | 15 50 | 1 42 | 15 50 | 1 22 | 5 44 | 0 49 | 2 40 | 1 10 | 2 21 | 2 28 | 23 41 | 0 12 | 3 18 |
| F 9  | 16 0  | 18 40 | 1n 1 | 15 9  | 1 40 | 15 27 | 1 23 | 5 29 | 0 48 | 2 36 | 1 10 | 2 22 | 2 28 | 23 41 | 0 12 | 3 17 |
| S 10 | 15 42 | 22 33 | 2 2  | 14 28 | 1 37 | 15 3  | 1 24 | 5 13 | 0 47 | 2 31 | 1 10 | 2 23 | 2 29 | 23 41 | 0 12 | 3 16 |
| S 11 | 15 25 | 25 29 | 2 59 | 13 46 | 1 33 | 14 39 | 1 24 | 4 58 | 0 47 | 2 27 | 1 10 | 2 25 | 2 29 | 23 41 | 0 12 | 3 15 |
| M12  | 15 7  | 27 15 | 3 48 | 13 4  | 1 29 | 14 14 | 1 25 | 4 43 | 0 46 | 2 22 | 1 10 | 2 26 | 2 29 | 23 41 | 0 12 | 3 15 |
| T 13 | 14 49 | 27 34 | 4 27 | 12 21 | 1 25 | 13 49 | 1 25 | 4 27 | 0 46 | 2 17 | 1 9  | 2 27 | 2 29 | 23 41 | 0 12 | 3 14 |
| W14  | 14 30 | 26 17 | 4 52 | 11 38 | 1 20 | 13 23 | 1 25 | 4 11 | 0 45 | 2 13 | 1 9  | 2 29 | 2 30 | 23 41 | 0 12 | 3 13 |
| T 15 | 14 11 | 23 22 | 5 2  | 10 54 | 1 15 | 12 58 | 1 25 | 3 56 | 0 45 | 2 8  | 1 9  | 2 30 | 2 30 | 23 41 | 0 12 | 3 12 |
| F 16 | 13 53 | 19 0  | 4 53 | 10 10 | 1 10 | 12 31 | 1 26 | 3 40 | 0 44 | 2 3  | 1 9  | 2 32 | 2 30 | 23 41 | 0 12 | 3 11 |
| S 17 | 13 34 | 13 27 | 4 25 | 9 26  | 1 4  | 12 5  | 1 26 | 3 24 | 0 43 | 1 58 | 1 9  | 2 33 | 2 30 | 23 41 | 0 12 | 3 11 |
| S 18 | 13 14 | 7 5   | 3 39 | 8 42  | 0 58 | 11 38 | 1 26 | 3 9  | 0 43 | 1 54 | 1 9  | 2 35 | 2 30 | 23 41 | 0 12 | 3 10 |
| M19  | 12 55 | 0 20  | 2 39 | 7 57  | 0 51 | 11 11 | 1 26 | 2 53 | 0 42 | 1 49 | 1 9  | 2 36 | 2 31 | 23 41 | 0 12 | 3 9  |
| T 20 | 12 35 | 6s25  | 1 29 | 7 13  | 0 45 | 10 44 | 1 26 | 2 37 | 0 42 | 1 44 | 1 9  | 2 38 | 2 31 | 23 41 | 0 12 | 3 8  |
| W21  | 12 15 | 12 46 | 0 13 | 6 28  | 0 38 | 10 16 | 1 26 | 2 21 | 0 41 | 1 39 | 1 9  | 2 39 | 2 31 | 23 41 | 0 12 | 3 7  |
| T 22 | 11 55 | 18 22 | 1s 2 | 5 44  | 0 31 | 9 48  | 1 25 | 2 5  | 0 41 | 1 34 | 1 9  | 2 41 | 2 31 | 23 41 | 0 12 | 3 7  |
| F 23 | 11 35 | 22 51 | 2 12 | 5 0   | 0 24 | 9 20  | 1 25 | 1 49 | 0 40 | 1 29 | 1 9  | 2 43 | 2 31 | 23 41 | 0 12 | 3 6  |
| S 24 | 11 14 | 25 59 | 3 14 | 4 16  | 0 16 | 8 51  | 1 25 | 1 33 | 0 39 | 1 25 | 1 8  | 2 44 | 2 32 | 23 41 | 0 12 | 3 5  |
| S 25 | 10 54 | 27 33 | 4 3  | 3 32  | 0 8  | 8 22  | 1 24 | 1 18 | 0 39 | 1 20 | 1 8  | 2 46 | 2 32 | 23 41 | 0 12 | 3 4  |
| M26  | 10 33 | 27 28 | 4 39 | 2 49  | 0 1  | 7 53  | 1 24 | 1 2  | 0 38 | 1 15 | 1 8  | 2 48 | 2 32 | 23 42 | 0 12 | 3 3  |
| T 27 | 10 12 | 25 52 | 4 59 | 2 6   | 0s 7 | 7 24  | 1 23 | 0 46 | 0 38 | 1 10 | 1 8  | 2 49 | 2 32 | 23 42 | 0 12 | 3 2  |
| W28  | 9 51  | 22 55 | 5 3  | 1 23  | 0 15 | 6 55  | 1 23 | 0 30 | 0 37 | 1 5  | 1 8  | 2 51 | 2 32 | 23 42 | 0 12 | 3 2  |
| T 29 | 9 29  | 18 56 | 4 53 | 0 40  | 0 23 | 6 25  | 1 22 | 0 14 | 0 37 | 1 0  | 1 8  | 2 53 | 2 32 | 23 42 | 0 12 | 3 1  |
| F 30 | 9 8   | 14 10 | 4 28 | 0s 2  | 0 32 | 5 55  | 1 21 | 0s 2 | 0 36 | 0 55 | 1 8  | 2 55 | 2 32 | 23 42 | 0 12 | 3 0  |
| S 31 | 8n46  | 8s55  | 3s52 | 0s43  | 0s40 | 5n25  | 1n21 | 0s19 | 0n35 | 0n50 | 1n 8 | 2s57 | 2s33 | 23n42 | 0n12 | 2n59 |

Julian Day Number = 2310408.5, Delta T = 72.84 sec  
 Ecliptic obliquity = 23°29'29", Nutation = - 0°00'09", out-of-bounds declination in red  
 Ayanamsha: Fagan/Bradley = 19°20'50", Lahiri = 18°27'50"Greg. Calendar

# ASTRODIENST EPHEMERIS for the year 1613

## geocentric

SEPTEMBER 1613 GC

00:00 UT

| Day  | Sid.t    | ☉                      | ☽                   | ♀                  | ♂                   | ♂                  | ♂                  | ♂                   | ♂                  | ♂                   | ♂                  | ♂                  | ♂                  | ♂                   | ♂                   | Day  |
|------|----------|------------------------|---------------------|--------------------|---------------------|--------------------|--------------------|---------------------|--------------------|---------------------|--------------------|--------------------|--------------------|---------------------|---------------------|------|
| S 1  | 22 40 48 | 8 <sup>m</sup> 28'43"  | 28 <sup>h</sup> 33' | 1 <sup>h</sup> 40' | 20 <sup>m</sup> 41' | 2 <sup>h</sup> 47' | 0 <sup>h</sup> 44' | 28 <sup>h</sup> 24' | 0 <sup>h</sup> 17' | 25 <sup>m</sup> 34' | 6 <sup>h</sup> 41' | 5 <sup>h</sup> 41' | 7 <sup>h</sup> 8'  | 23 <sup>m</sup> 36' | 24 <sup>h</sup> 5'  | S 1  |
| M 2  | 22 44 45 | 9 <sup>m</sup> 26'56"  | 10 <sup>h</sup> 30' | 3° 3'              | 21°55'              | 3°26'              | 0°56'              | 28 <sup>h</sup> 20' | 0°19'              | 25°36'              | 6 <sup>h</sup> 40' | 5 <sup>h</sup> 36' | 7° 5'              | 23°43'              | 24 <sup>h</sup> 3'  | M 2  |
| T 3  | 22 48 41 | 10 <sup>m</sup> 25'12" | 22°21'              | 4°24'              | 23° 9'              | 4° 5'              | 1° 9'              | 28°16'              | 0°21'              | 25°38'              | 6°40'              | 5°33'              | 7° 2'              | 23°49'              | 24° 1'              | T 3  |
| W 4  | 22 52 38 | 11°23'30"              | 4 <sup>h</sup> 8'   | 5°44'              | 24°24'              | 4°45'              | 1°21'              | 28°11'              | 0°23'              | 25°41'              | 6°39'              | 5°D32'             | 6°59'              | 23°56'              | 23°59'              | W 4  |
| T 5  | 22 56 34 | 12°21'50"              | 15°55'              | 7° 2'              | 25°38'              | 5°24'              | 1°34'              | 28° 7'              | 0°24'              | 25°43'              | 6°39'              | 5°32'              | 6°56'              | 24° 3'              | 23°57'              | T 5  |
| F 6  | 23 0 31  | 13°20'12"              | 27°48'              | 8°19'              | 26°52'              | 6° 3'              | 1°47'              | 28° 2'              | 0°26'              | 25°45'              | 6°38'              | 5°33'              | 6°53'              | 24° 9'              | 23°56'              | F 6  |
| S 7  | 23 4 27  | 14°18'36"              | 9 <sup>h</sup> 15'  | 9°34'              | 28° 7'              | 6°42'              | 1°59'              | 27°58'              | 0°27'              | 25°47'              | 6°37'              | 5°R34'             | 6°49'              | 24°16'              | 23°54'              | S 7  |
| S 8  | 23 8 24  | 15°17'02"              | 22° 9'              | 10°47'             | 29°21'              | 7°22'              | 2°12'              | 27°53'              | 0°29'              | 25°49'              | 6°37'              | 5°34'              | 6°46'              | 24°23'              | 23°52'              | S 8  |
| M 9  | 23 12 20 | 16°15'31"              | 4 <sup>h</sup> 47'  | 11°59'             | 0 <sup>h</sup> 35'  | 8° 1'              | 2°25'              | 27°49'              | 0°30'              | 25°52'              | 6°36'              | 5°32'              | 6°43'              | 24°29'              | 23°51'              | M 9  |
| T 10 | 23 16 17 | 17°14'02"              | 17°51'              | 13° 9'             | 1°50'               | 8°41'              | 2°37'              | 27°44'              | 0°32'              | 25°54'              | 6°36'              | 5°28'              | 6°40'              | 24°36'              | 23°49'              | T 10 |
| W11  | 23 20 14 | 18°12'34"              | 1 <sup>h</sup> 22'  | 14°16'             | 3° 4'               | 9°20'              | 2°50'              | 27°40'              | 0°33'              | 25°56'              | 6°35'              | 5°23'              | 6°37'              | 24°43'              | 23°48'              | W11  |
| T 12 | 23 24 10 | 19°11'09"              | 15°21'              | 15°22'             | 4°18'               | 10° 0'             | 3° 3'              | 27°35'              | 0°34'              | 25°58'              | 6°34'              | 5°16'              | 6°33'              | 24°49'              | 23°46'              | T 12 |
| F 13 | 23 28 7  | 20° 9'46"              | 29°45'              | 16°26'             | 5°33'               | 10°39'             | 3°16'              | 27°31'              | 0°36'              | 26° 0'              | 6°33'              | 5° 9'              | 6°30'              | 24°56'              | 23°45'              | F 13 |
| S 14 | 23 32 3  | 21° 8'25"              | 14 <sup>h</sup> 30' | 17°27'             | 6°47'               | 11°19'             | 3°28'              | 27°26'              | 0°37'              | 26° 3'              | 6°33'              | 5° 2'              | 6°27'              | 25° 2'              | 23°44'              | S 14 |
| S 15 | 23 36 0  | 22° 7'06"              | 29°28'              | 18°26'             | 8° 1'               | 11°59'             | 3°41'              | 27°21'              | 0°38'              | 26° 5'              | 6°32'              | 4°57'              | 6°24'              | 25° 9'              | 23°42'              | S 15 |
| M16  | 23 39 56 | 23° 5'49"              | 14 <sup>h</sup> 30' | 19°22'             | 9°16'               | 12°39'             | 3°54'              | 27°17'              | 0°39'              | 26° 7'              | 6°31'              | 4°53'              | 6°21'              | 25°16'              | 23°41'              | M16  |
| T 17 | 23 43 53 | 24° 4'34"              | 29°27'              | 20°15'             | 10°30'              | 13°18'             | 4° 7'              | 27°12'              | 0°40'              | 26° 9'              | 6°30'              | 4°D52'             | 6°18'              | 25°22'              | 23°40'              | T 17 |
| W18  | 23 47 49 | 25° 3'21"              | 14 <sup>h</sup> 12' | 21° 5'             | 11°44'              | 13°58'             | 4°20'              | 27° 7'              | 0°41'              | 26°12'              | 6°30'              | 4°52'              | 6°14'              | 25°29'              | 23°39'              | W18  |
| T 19 | 23 51 46 | 26° 2'09"              | 28°40'              | 21°52'             | 12°59'              | 14°38'             | 4°33'              | 27° 3'              | 0°42'              | 26°14'              | 6°29'              | 4°53'              | 6°11'              | 25°36'              | 23°38'              | T 19 |
| F 20 | 23 55 43 | 27° 1'00"              | 12 <sup>h</sup> 47' | 22°35'             | 14°13'              | 15°18'             | 4°46'              | 26°58'              | 0°43'              | 26°16'              | 6°28'              | 4°54'              | 6° 8'              | 25°42'              | 23°38'              | F 20 |
| S 21 | 23 59 39 | 27°59'52"              | 26°33'              | 23°14'             | 15°27'              | 15°58'             | 4°59'              | 26°53'              | 0°44'              | 26°18'              | 6°27'              | 4°R55'             | 6° 5'              | 25°49'              | 23°37'              | S 21 |
| S 22 | 0 3 36   | 28°58'45"              | 9 <sup>h</sup> 35'  | 23°48'             | 16°42'              | 16°38'             | 5°12'              | 26°48'              | 0°45'              | 26°21'              | 6°26'              | 4°54'              | 6° 2'              | 25°56'              | 23°36'              | S 22 |
| M23  | 0 7 32   | 29°57'41"              | 23° 7'              | 24°19'             | 17°56'              | 17°18'             | 5°25'              | 26°44'              | 0°45'              | 26°23'              | 6°25'              | 4°52'              | 5°59'              | 26° 2'              | 23°35'              | M23  |
| T 24 | 0 11 29  | 0 <sup>h</sup> 56'38"  | 5 <sup>h</sup> 48'  | 24°44'             | 19°10'              | 17°59'             | 5°38'              | 26°39'              | 0°46'              | 26°25'              | 6°25'              | 4°49'              | 5°55'              | 26° 9'              | 23°35'              | T 24 |
| W25  | 0 15 25  | 1°55'37"               | 18°34'              | 25° 3'             | 20°25'              | 18°39'             | 5°51'              | 26°34'              | 0°47'              | 26°27'              | 6°24'              | 4°44'              | 5°52'              | 26°16'              | 23°34'              | W25  |
| T 26 | 0 19 22  | 2°54'38"               | 0 <sup>h</sup> 59'  | 25°17'             | 21°39'              | 19°19'             | 6° 4'              | 26°30'              | 0°47'              | 26°29'              | 6°23'              | 4°38'              | 5°49'              | 26°22'              | 23°34'              | T 26 |
| F 27 | 0 23 18  | 3°53'41"               | 13°12'              | 25°24'             | 22°53'              | 19°59'             | 6°17'              | 26°25'              | 0°48'              | 26°32'              | 6°22'              | 4°33'              | 5°46'              | 26°29'              | 23°34'              | F 27 |
| S 28 | 0 27 15  | 4°52'45"               | 25°17'              | 25°R25'            | 24° 8'              | 20°40'             | 6°30'              | 26°21'              | 0°48'              | 26°34'              | 6°21'              | 4°28'              | 5°43'              | 26°36'              | 23°33'              | S 28 |
| S 29 | 0 31 12  | 5°51'52"               | 7 <sup>h</sup> 14'  | 25°18'             | 25°22'              | 21°20'             | 6°43'              | 26°16'              | 0°49'              | 26°36'              | 6°20'              | 4°24'              | 5°39'              | 26°42'              | 23°33'              | S 29 |
| M30  | 0 35 8   | 6 <sup>h</sup> 51'00"  | 19°Y 6'             | 25 <sup>h</sup> 4' | 26 <sup>h</sup> 36' | 22 <sup>h</sup> 1' | 6 <sup>h</sup> 56' | 26 <sup>h</sup> 11' | 0 <sup>h</sup> 49' | 26 <sup>h</sup> 38' | 6 <sup>h</sup> 19' | 4 <sup>h</sup> 21' | 5 <sup>h</sup> 36' | 26 <sup>h</sup> 49' | 23 <sup>h</sup> 33' | M30  |

| Day  | ☉    | ☾     |      | ♀     |      | ♀    |      | ♂    |      | ♂    |      | ♂    |      | ♂     |      | ♂    |      | ♂    |       | ♂     |       | ♂    |       | ♂    |     | ♂    |     |
|------|------|-------|------|-------|------|------|------|------|------|------|------|------|------|-------|------|------|------|------|-------|-------|-------|------|-------|------|-----|------|-----|
|      | decl | decl  | lat  | decl  | lat  | decl | lat  | decl | lat  | decl | lat  | decl | lat  | decl  | lat  | decl | lat  | decl | lat   | decl  | lat   | decl | lat   | decl | lat | decl | lat |
| S 1  | 8n25 | 3s24  | 3s 5 | 1s24  | 0s48 | 4n55 | 1n20 | 0s35 | 0n35 | 0n45 | 1n 8 | 2s58 | 2s33 | 23n42 | 0n12 | 2n58 | 1n19 | 1s39 | 16s18 | 13n27 | 13n56 | 8n 4 | 14s 5 | 7n22 |     |      |     |
| M 2  | 8 3  | 2n10  | 2 10 | 2 5   | 0 57 | 4 25 | 1 19 | 0 51 | 0 34 | 0 40 | 1 8  | 3 0  | 2 33 | 23 42 | 0 12 | 2 57 | 1 19 | 1 40 | 16 19 | 13 25 | 13 55 | 8 7  | 14 6  | 7 21 |     |      |     |
| T 3  | 7 41 | 7 38  | 1 10 | 2 45  | 1 5  | 3 55 | 1 18 | 1 7  | 0 34 | 0 35 | 1 8  | 3 2  | 2 33 | 23 42 | 0 12 | 2 56 | 1 19 | 1 40 | 16 19 | 13 24 | 13 53 | 8 10 | 14 7  | 7 21 |     |      |     |
| W 4  | 7 18 | 12 48 | 0 8  | 3 24  | 1 13 | 3 24 | 1 17 | 1 23 | 0 33 | 0 30 | 1 8  | 3 4  | 2 33 | 23 42 | 0 12 | 2 56 | 1 19 | 1 41 | 16 19 | 13 24 | 13 52 | 8 13 | 14 7  | 7 21 |     |      |     |
| T 5  | 6 56 | 17 32 | 0n56 | 4 3   | 1 22 | 2 54 | 1 16 | 1 39 | 0 33 | 0 25 | 1 8  | 3 6  | 2 33 | 23 42 | 0 12 | 2 55 | 1 19 | 1 41 | 16 19 | 13 24 | 13 51 | 8 17 | 14 8  | 7 20 |     |      |     |
| F 6  | 6 34 | 21 37 | 1 57 | 4 41  | 1 30 | 2 23 | 1 14 | 1 55 | 0 32 | 0 20 | 1 8  | 3 8  | 2 33 | 23 42 | 0 12 | 2 54 | 1 19 | 1 42 | 16 20 | 13 24 | 13 50 | 8 20 | 14 9  | 7 20 |     |      |     |
| S 7  | 6 11 | 24 51 | 2 54 | 5 18  | 1 39 | 1 52 | 1 13 | 2 11 | 0 31 | 0 15 | 1 8  | 3 9  | 2 33 | 23 42 | 0 12 | 2 53 | 1 19 | 1 42 | 16 20 | 13 24 | 13 49 | 8 23 | 14 10 | 7 19 |     |      |     |
| S 8  | 5 49 | 27 0  | 3 45 | 5 55  | 1 47 | 1 22 | 1 12 | 2 27 | 0 31 | 0 9  | 1 8  | 3 11 | 2 34 | 23 42 | 0 12 | 2 52 | 1 19 | 1 42 | 16 20 | 13 24 | 13 48 | 8 26 | 14 10 | 7 19 |     |      |     |
| M 9  | 5 26 | 27 50 | 4 26 | 6 31  | 1 55 | 0 51 | 1 11 | 2 43 | 0 30 | 0 4  | 1 8  | 3 13 | 2 34 | 23 42 | 0 12 | 2 51 | 1 19 | 1 43 | 16 20 | 13 24 | 13 47 | 8 30 | 14 11 | 7 18 |     |      |     |
| T 10 | 5 3  | 27 9  | 4 54 | 7 6   | 2 3  | 0 20 | 1 9  | 3 0  | 0 30 | 0s 1 | 1 7  | 3 15 | 2 34 | 23 42 | 0 12 | 2 50 | 1 19 | 1 43 | 16 21 | 13 23 | 13 46 | 8 33 | 14 12 | 7 18 |     |      |     |
| W11  | 4 40 | 24 54 | 5 8  | 7 39  | 2 11 | 0s11 | 1 8  | 3 16 | 0 29 | 0 6  | 1 7  | 3 17 | 2 34 | 23 42 | 0 12 | 2 49 | 1 19 | 1 44 | 16 21 | 13 21 | 13 45 | 8 36 | 14 12 | 7 17 |     |      |     |
| T 12 | 4 17 | 21 6  | 5 4  | 8 12  | 2 19 | 0 42 | 1 6  | 3 32 | 0 29 | 0 11 | 1 7  | 3 19 | 2 34 | 23 42 | 0 12 | 2 49 | 1 19 | 1 44 | 16 21 | 13 18 | 13 44 | 8 39 | 14 13 | 7 17 |     |      |     |
| F 13 | 3 54 | 15 58 | 4 41 | 8 44  | 2 27 | 1 13 | 1 5  | 3 48 | 0 28 | 0 16 | 1 7  | 3 21 | 2 34 | 23 42 | 0 12 | 2 48 | 1 19 | 1 45 | 16 21 | 13 16 | 13 43 | 8 43 | 14 14 | 7 16 |     |      |     |
| S 14 | 3 31 | 9 47  | 3 59 | 9 15  | 2 35 | 1 44 | 1 3  | 4 4  | 0 27 | 0 21 | 1 7  | 3 23 | 2 34 | 23 42 | 0 12 | 2 47 | 1 19 | 1 45 | 16 22 | 13 14 | 13 42 | 8 46 | 14 14 | 7 16 |     |      |     |
| S 15 | 3 8  | 2 58  | 3 0  | 9 44  | 2 42 | 2 15 | 1 1  | 4 20 | 0 27 | 0 26 | 1 7  | 3 25 | 2 34 | 23 42 | 0 12 | 2 46 | 1 19 | 1 45 | 16 22 | 13 12 | 13 41 | 8 49 | 14 15 | 7 16 |     |      |     |
| M16  | 2 45 | 4s 4  | 1 48 | 10 12 | 2 49 | 2 46 | 0 59 | 4 36 | 0 26 | 0 32 | 1 7  | 3 27 | 2 34 | 23 42 | 0 12 | 2 45 | 1 19 | 1 46 | 16 22 | 13 11 | 13 40 | 8 52 | 14 16 | 7 15 |     |      |     |
| T 17 | 2 21 | 10 51 | 0 29 | 10 39 | 2 56 | 3 17 | 0 58 | 4 52 | 0 26 | 0 37 | 1 7  | 3 28 | 2 34 | 23 42 | 0 12 | 2 44 | 1 19 | 1 46 | 16 22 | 13 10 | 13 39 | 8 56 | 14 16 | 7 15 |     |      |     |
| W18  | 1 58 | 16 57 | 0s51 | 11 4  | 3 2  | 3 48 | 0 56 | 5 8  | 0 25 | 0 42 | 1 7  | 3 30 | 2 34 | 23 42 | 0 12 | 2 43 | 1 19 | 1 47 | 16 22 | 13 10 | 13 38 | 8 59 | 14 17 | 7 14 |     |      |     |
| T 19 | 1 35 | 21 57 | 2 6  | 11 27 | 3 9  | 4 19 | 0 54 | 5 24 | 0 24 | 0 47 | 1 7  | 3 32 | 2 34 | 23 42 | 0 12 | 2 42 | 1 19 | 1 47 | 16 23 | 13 11 | 13 37 | 9 2  | 14 18 | 7 14 |     |      |     |
| F 20 | 1 11 | 25 33 | 3 12 | 11 48 | 3 14 | 4 49 | 0 52 | 5 40 | 0 24 | 0 52 | 1 7  | 3 34 | 2 34 | 23 42 | 0 13 | 2 42 | 1 19 | 1 48 | 16 23 | 13 11 | 13 36 | 9 5  | 14 18 | 7 13 |     |      |     |
| S 21 | 0 48 | 27 32 | 4 5  | 12 8  | 3 20 | 5 20 | 0 50 | 5 56 | 0 23 | 0 57 | 1 7  | 3 36 | 2 34 | 23 42 | 0 13 | 2 41 | 1 19 | 1 48 | 16 23 | 13 11 | 13 35 | 9 8  | 14 19 | 7 13 |     |      |     |
| S 22 | 0 24 | 27 49 | 4 43 | 12 25 | 3 24 | 5 50 | 0 48 | 6 12 | 0 23 | 1 2  | 1 7  | 3 38 | 2 34 | 23 42 | 0 13 | 2 40 | 1 19 | 1 49 | 16 23 | 13 11 | 13 34 | 9 12 | 14 20 | 7 12 |     |      |     |
| M23  | 0 1  | 26 31 | 5 5  | 12 40 | 3 29 | 6 21 | 0 46 | 6 28 | 0 22 | 1 8  | 1 7  | 3 40 | 2 34 | 23 42 | 0 13 | 2 39 | 1 19 | 1 49 | 16 23 | 13 10 | 13 33 | 9 15 | 14 20 | 7 12 |     |      |     |
| T 24 | 0s23 | 23 51 | 5 12 | 12 53 | 3 32 | 6 51 | 0 44 | 6 44 | 0 22 | 1 13 | 1 7  | 3 42 | 2 34 | 23 42 | 0 13 | 2 38 | 1 19 | 1 49 | 16 24 | 13 9  | 13 31 | 9 18 | 14 21 | 7 11 |     |      |     |
| W25  | 0 46 | 20 5  | 5 3  | 13 3  | 3 35 | 7 21 | 0 42 | 7 0  | 0 21 | 1 18 | 1 7  | 3 44 | 2 35 | 23 42 | 0 13 | 2 37 | 1 19 | 1 50 | 16 24 | 13 8  | 13 30 | 9 21 | 14 21 | 7 11 |     |      |     |
| T 26 | 1 10 | 15 30 | 4 40 | 13 9  | 3 36 | 7 51 | 0 39 | 7 16 | 0 20 | 1 23 | 1 7  | 3 45 | 2 35 | 23 42 | 0 13 | 2 36 | 1 19 | 1 50 | 16 24 | 13 6  | 13 29 | 9 25 | 14 22 | 7 10 |     |      |     |
| F 27 | 1 33 | 10 22 | 4 4  | 13 13 | 3 37 | 8 21 | 0 37 | 7 32 | 0 20 | 1 28 | 1 7  | 3 47 | 2 35 | 23 42 | 0 13 | 2 35 | 1 19 | 1 51 | 16 24 | 13 4  | 13 28 | 9 28 | 14 22 | 7 9  |     |      |     |
| S 28 | 1 57 | 4 54  | 3 18 | 13 13 | 3 37 | 8 50 | 0 35 | 7 47 | 0 19 | 1 33 | 1 7  | 3 49 | 2 34 | 23 42 | 0 13 | 2 34 | 1 19 | 1 51 | 16 24 | 13 2  | 13 27 | 9 31 | 14 23 | 7 9  |     |      |     |
| S 29 | 2 20 | 0n41  | 2 23 | 13 9  | 3 36 | 9 20 | 0 32 | 8 3  | 0 19 | 1 39 | 1 7  | 3 51 | 2 34 | 23 42 | 0 13 | 2 34 | 1 19 | 1 52 | 16 24 | 13 1  | 13 26 | 9 34 | 14 24 | 7 8  |     |      |     |
| M30  | 2s44 | 6n13  | 1s23 | 13s 1 | 3s33 | 9s49 | 0n30 | 8s19 | 0n18 | 1s44 | 1n 7 | 3s53 | 2s34 | 23n42 | 0n13 | 2n33 | 1n19 | 1s52 | 16s25 | 13n 0 | 13n25 | 9n37 | 14s24 | 7n 8 |     |      |     |

ASTRODIENST EPHEMERIS for the year 1613  
geocentric

OCTOBER 1613 GC

00:00 UT

| Day  | Sid.t   | ☉                     | ☽                   | ♀                   | ♂                  | ♂                   | ♂                   | ♂                   | ♂                  | ♂                   | ♂               | ♂                  | ♂               | ♂                | ♂                | Day  |
|------|---------|-----------------------|---------------------|---------------------|--------------------|---------------------|---------------------|---------------------|--------------------|---------------------|-----------------|--------------------|-----------------|------------------|------------------|------|
| T 1  | 0 39 5  | 7 <sup>50</sup> 11    | 0 <sup>8</sup> 54   | 24°R42              | 27 <sup>51</sup>   | 22 <sup>41</sup>    | 7 <sup>9</sup>      | 26°R 7              | 0 <sup>549</sup>   | 26 <sup>40</sup>    | 6°R18           | 4°D20              | 5 <sup>33</sup> | 26 <sup>55</sup> | 23°D33           | T 1  |
| W 2  | 0 43 1  | 8°49'24               | 12°40               | 24 <sup>12</sup>    | 29° 5              | 23°22               | 7°22                | 26 <sup>12</sup>    | 0°50               | 26°43               | 6 <sup>17</sup> | 4 <sup>21</sup>    | 5°30            | 27° 2            | 23 <sup>33</sup> | W 2  |
| T 3  | 0 46 58 | 9°48'40               | 24°29               | 23°34               | 0 <sup>19</sup>    | 24° 2               | 7°35                | 25°58               | 0°50               | 26°45               | 6°16            | 4°22               | 5°27            | 27° 9            | 23°33            | T 3  |
| F 4  | 0 50 54 | 10°47'57              | 6 <sup>12</sup> 23  | 22°48               | 1°34               | 24°43               | 7°48                | 25°53               | 0°50               | 26°47               | 6°15            | 4°23               | 5°24            | 27°15            | 23°33            | F 4  |
| S 5  | 0 54 51 | 11°47'17              | 18°27               | 21°55               | 2°48               | 25°24               | 8° 1                | 25°49               | 0°50               | 26°49               | 6°14            | 4°25               | 5°20            | 27°22            | 23°34            | S 5  |
| S 6  | 0 58 47 | 12°46'39              | 0 <sup>54</sup>     | 20°55               | 4° 2               | 26° 4               | 8°14                | 25°45               | 0°50               | 26°51               | 6°13            | 4°26               | 5°17            | 27°29            | 23°34            | S 6  |
| M 7  | 1 2 44  | 13°46'04              | 13°20               | 19°50               | 5°16               | 26°45               | 8°27                | 25°40               | 0°R50              | 26°54               | 6°12            | 4°R27              | 5°14            | 27°35            | 23°34            | M 7  |
| T 8  | 1 6 41  | 14°45'31              | 26°18               | 18°40               | 6°31               | 27°26               | 8°40                | 25°36               | 0°50               | 26°56               | 6°11            | 4°26               | 5°11            | 27°42            | 23°35            | T 8  |
| W 9  | 1 10 37 | 15°45'00              | 9 <sup>12</sup> 42  | 17°27               | 7°45               | 28° 7               | 8°53                | 25°32               | 0°50               | 26°58               | 6°10            | 4°25               | 5° 8            | 27°49            | 23°35            | W 9  |
| T 10 | 1 14 34 | 16°44'31              | 23°33               | 16°14               | 8°59               | 28°48               | 9° 6                | 25°27               | 0°50               | 27° 0               | 6° 9            | 4°23               | 5° 4            | 27°55            | 23°36            | T 10 |
| F 11 | 1 18 30 | 17°44'05              | 7 <sup>19</sup> 53  | 15° 3               | 10°13              | 29°29               | 9°19                | 25°23               | 0°50               | 27° 2               | 6° 8            | 4°21               | 5° 1            | 28° 2            | 23°37            | F 11 |
| S 12 | 1 22 27 | 18°43'41              | 22°36               | 13°55               | 11°28              | 0 <sup>10</sup> 10  | 9°32                | 25°19               | 0°49               | 27° 4               | 6° 7            | 4°19               | 4°58            | 28° 9            | 23°37            | S 12 |
| S 13 | 1 26 23 | 19°43'19              | 7 <sup>12</sup> 38  | 12°52               | 12°42              | 0°51                | 9°44                | 25°15               | 0°49               | 27° 6               | 6° 6            | 4°17               | 4°55            | 28°15            | 23°38            | S 13 |
| M14  | 1 30 20 | 20°42'59              | 22°49               | 11°57               | 13°56              | 1°33                | 9°57                | 25°11               | 0°49               | 27° 8               | 6° 5            | 4°16               | 4°52            | 28°22            | 23°39            | M14  |
| T 15 | 1 34 16 | 21°42'42              | 8 <sup>11</sup> 1   | 11°11               | 15°10              | 2°14                | 10°10               | 25° 7               | 0°48               | 27°11               | 6° 4            | 4°D16              | 4°49            | 28°28            | 23°40            | T 15 |
| W16  | 1 38 13 | 22°42'26              | 23° 3               | 10°35               | 16°25              | 2°55                | 10°23               | 25° 3               | 0°48               | 27°13               | 6° 2            | 4°17               | 4°45            | 28°35            | 23°41            | W16  |
| T 17 | 1 42 9  | 23°42'12              | 7 <sup>17</sup> 49  | 10°10               | 17°39              | 3°37                | 10°36               | 25° 0               | 0°47               | 27°15               | 6° 1            | 4°17               | 4°42            | 28°42            | 23°42            | T 17 |
| F 18 | 1 46 6  | 24°42'00              | 22°11               | 9°56                | 18°53              | 4°18                | 10°49               | 24°56               | 0°47               | 27°17               | 6° 0            | 4°18               | 4°39            | 28°48            | 23°44            | F 18 |
| S 19 | 1 50 3  | 25°41'50              | 6 <sup>13</sup> 9   | 9°D54               | 20° 7              | 4°59                | 11° 2               | 24°52               | 0°46               | 27°19               | 5°59            | 4°19               | 4°36            | 28°55            | 23°45            | S 19 |
| S 20 | 1 53 59 | 26°41'41              | 19°40               | 10° 2               | 21°22              | 5°41                | 11°15               | 24°48               | 0°46               | 27°21               | 5°58            | 4°19               | 4°33            | 29° 2            | 23°46            | S 20 |
| M21  | 1 57 56 | 27°41'34              | 2 <sup>22</sup> 47  | 10°22               | 22°36              | 6°22                | 11°27               | 24°45               | 0°45               | 27°23               | 5°57            | 4°R19              | 4°30            | 29° 8            | 23°48            | M21  |
| T 22 | 2 1 52  | 28°41'29              | 15°33               | 10°51               | 23°50              | 7° 4                | 11°40               | 24°41               | 0°44               | 27°25               | 5°56            | 4°19               | 4°26            | 29°15            | 23°49            | T 22 |
| W23  | 2 5 49  | 29°41'25              | 28° 1               | 11°29               | 25° 4              | 7°46                | 11°53               | 24°38               | 0°43               | 27°27               | 5°55            | 4°19               | 4°23            | 29°22            | 23°51            | W23  |
| T 24 | 2 9 45  | 0 <sup>11</sup> 41'23 | 10 <sup>16</sup> 18 | 12°16               | 26°18              | 8°27                | 12° 5               | 24°35               | 0°42               | 27°29               | 5°54            | 4°18               | 4°20            | 29°28            | 23°52            | T 24 |
| F 25 | 2 13 42 | 1°41'22               | 22°15               | 13°10               | 27°32              | 9° 9                | 12°18               | 24°31               | 0°41               | 27°31               | 5°52            | 4°18               | 4°17            | 29°35            | 23°54            | F 25 |
| S 26 | 2 17 38 | 2°41'24               | 4 <sup>17</sup> 13  | 14°11               | 28°47              | 9°51                | 12°31               | 24°28               | 0°40               | 27°32               | 5°51            | 4°17               | 4°14            | 29°42            | 23°56            | S 26 |
| S 27 | 2 21 35 | 3°41'27               | 16° 3               | 15°17               | 0 <sup>1</sup> 1   | 10°33               | 12°43               | 24°25               | 0°39               | 27°34               | 5°50            | 4°17               | 4°10            | 29°48            | 23°58            | S 27 |
| M28  | 2 25 32 | 4°41'32               | 27°51               | 16°29               | 1°15               | 11°15               | 12°56               | 24°22               | 0°38               | 27°36               | 5°49            | 4°17               | 4° 7            | 29°55            | 24° 0            | M28  |
| T 29 | 2 29 28 | 5°41'38               | 9 <sup>13</sup> 39  | 17°45               | 2°29               | 11°57               | 13° 8               | 24°19               | 0°37               | 27°38               | 5°48            | 4°17               | 4° 4            | 0 <sup>2</sup> 2 | 24° 2            | T 29 |
| W30  | 2 33 25 | 6°41'47               | 21°30               | 19° 4               | 3°43               | 12°39               | 13°21               | 24°16               | 0°36               | 27°40               | 5°47            | 4°17               | 4° 1            | 0° 8             | 24° 4            | W30  |
| T 31 | 2 37 21 | 7 <sup>11</sup> 41'58 | 3 <sup>12</sup> 24  | 20 <sup>12</sup> 27 | 4 <sup>15</sup> 57 | 13 <sup>11</sup> 21 | 13 <sup>12</sup> 33 | 24 <sup>14</sup> 14 | 0 <sup>13</sup> 35 | 27 <sup>14</sup> 42 | 5 <sup>46</sup> | 4 <sup>18</sup> 17 | 3 <sup>58</sup> | 0 <sup>15</sup>  | 24 <sup>6</sup>  | T 31 |

| Day  | ☉     | ☽        | ♀        | ♂        | ♂        | ♂        | ♂        | ♂        | ♂        | ♂        | ♂        | ♂        | ♂        | ♂        | ♂        | ♂        |
|------|-------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
|      | decl  | decl lat | decl lat | decl lat | decl lat | decl lat | decl lat | decl lat | decl lat | decl lat | decl lat | decl lat | decl lat | decl lat | decl lat | decl lat |
| T 1  | 3s 7  | 11n31    | 0s19     | 12s49    | 3s28     | 10s18    | 0n28     | 8s34     | 0n17     | 1s49     | 1n 7     | 3s55     | 2s34     | 23n42    | 0n13     | 2n32     |
| W 2  | 3 30  | 16 24    | 0n46     | 12 32    | 3 22     | 10 47    | 0 25     | 8 50     | 0 17     | 1 54     | 1 7      | 3 56     | 2 34     | 23 42    | 0 13     | 2 31     |
| T 3  | 3 54  | 20 41    | 1 49     | 12 11    | 3 15     | 11 15    | 0 23     | 9 6      | 0 16     | 1 59     | 1 7      | 3 58     | 2 34     | 23 42    | 0 13     | 2 30     |
| F 4  | 4 17  | 24 10    | 2 48     | 11 45    | 3 5      | 11 43    | 0 20     | 9 21     | 0 16     | 2 4      | 1 7      | 4 0      | 2 34     | 23 42    | 0 13     | 2 29     |
| S 5  | 4 40  | 26 38    | 3 40     | 11 15    | 2 54     | 12 11    | 0 18     | 9 37     | 0 15     | 2 9      | 1 7      | 4 2      | 2 34     | 23 42    | 0 13     | 2 28     |
| S 6  | 5 3   | 27 53    | 4 23     | 10 40    | 2 41     | 12 39    | 0 15     | 9 52     | 0 14     | 2 15     | 1 7      | 4 3      | 2 34     | 23 42    | 0 13     | 2 28     |
| M 7  | 5 27  | 27 43    | 4 55     | 10 1     | 2 26     | 13 7     | 0 13     | 10 7     | 0 14     | 2 20     | 1 7      | 4 5      | 2 34     | 23 42    | 0 13     | 2 27     |
| T 8  | 5 50  | 26 3     | 5 13     | 9 19     | 2 9      | 13 34    | 0 10     | 10 23    | 0 13     | 2 25     | 1 7      | 4 7      | 2 34     | 23 42    | 0 13     | 2 26     |
| W 9  | 6 13  | 22 55    | 5 15     | 8 34     | 1 51     | 14 0     | 0 7      | 10 38    | 0 13     | 2 30     | 1 7      | 4 8      | 2 34     | 23 42    | 0 13     | 2 25     |
| T 10 | 6 36  | 18 23    | 4 59     | 7 48     | 1 32     | 14 27    | 0 5      | 10 53    | 0 12     | 2 35     | 1 7      | 4 10     | 2 34     | 23 42    | 0 13     | 2 24     |
| F 11 | 6 58  | 12 43    | 4 24     | 7 2      | 1 11     | 14 53    | 0 2      | 11 8     | 0 12     | 2 40     | 1 7      | 4 11     | 2 34     | 23 42    | 0 13     | 2 23     |
| S 12 | 7 21  | 6 10     | 3 31     | 6 17     | 0 51     | 15 19    | 0s 0     | 11 23    | 0 11     | 2 45     | 1 7      | 4 13     | 2 34     | 23 42    | 0 13     | 2 23     |
| S 13 | 7 44  | 0s51     | 2 22     | 5 33     | 0 30     | 15 44    | 0 3      | 11 38    | 0 10     | 2 50     | 1 7      | 4 14     | 2 34     | 23 42    | 0 13     | 2 22     |
| M14  | 8 6   | 7 55     | 1 3      | 4 53     | 0 10     | 16 9     | 0 6      | 11 53    | 0 10     | 2 55     | 1 7      | 4 16     | 2 34     | 23 42    | 0 13     | 2 21     |
| T 15 | 8 29  | 14 32    | 0s21     | 4 17     | 0n10     | 16 34    | 0 9      | 12 8     | 0 9      | 3 0      | 1 7      | 4 17     | 2 34     | 23 42    | 0 13     | 2 20     |
| W16  | 8 51  | 20 14    | 1 42     | 3 46     | 0 28     | 16 58    | 0 11     | 12 23    | 0 9      | 3 5      | 1 7      | 4 19     | 2 33     | 23 43    | 0 13     | 2 19     |
| T 17 | 9 13  | 24 33    | 2 56     | 3 20     | 0 45     | 17 21    | 0 14     | 12 37    | 0 8      | 3 10     | 1 7      | 4 20     | 2 33     | 23 42    | 0 13     | 2 19     |
| F 18 | 9 35  | 27 11    | 3 56     | 3 1      | 1 1      | 17 45    | 0 17     | 12 52    | 0 7      | 3 15     | 1 7      | 4 22     | 2 33     | 23 42    | 0 13     | 2 18     |
| S 19 | 9 57  | 28 1     | 4 40     | 2 47     | 1 15     | 18 7     | 0 19     | 13 6     | 0 7      | 3 20     | 1 8      | 4 23     | 2 33     | 23 42    | 0 13     | 2 17     |
| S 20 | 10 19 | 27 7     | 5 7      | 2 39     | 1 27     | 18 30    | 0 22     | 13 21    | 0 6      | 3 25     | 1 8      | 4 24     | 2 33     | 23 42    | 0 13     | 2 16     |
| M21  | 10 41 | 24 43    | 5 18     | 2 37     | 1 38     | 18 52    | 0 25     | 13 35    | 0 6      | 3 30     | 1 8      | 4 26     | 2 33     | 23 43    | 0 13     | 2 15     |
| T 22 | 11 2  | 21 10    | 5 12     | 2 40     | 1 47     | 19 13    | 0 28     | 13 49    | 0 5      | 3 35     | 1 8      | 4 27     | 2 33     | 23 43    | 0 13     | 2 15     |
| W23  | 11 23 | 16 44    | 4 51     | 2 48     | 1 54     | 19 34    | 0 30     | 14 4     | 0 4      | 3 40     | 1 8      | 4 28     | 2 33     | 23 43    | 0 13     | 2 14     |
| T 24 | 11 44 | 11 42    | 4 17     | 3 1      | 2 0      | 19 54    | 0 33     | 14 18    | 0 4      | 3 45     | 1 8      | 4 29     | 2 32     | 23 43    | 0 13     | 2 13     |
| F 25 | 12 5  | 6 19     | 3 33     | 3 18     | 2 5      | 20 14    | 0 36     | 14 32    | 0 3      | 3 50     | 1 8      | 4 31     | 2 32     | 23 43    | 0 13     | 2 12     |
| S 26 | 12 26 | 0 46     | 2 40     | 3 38     | 2 8      | 20 33    | 0 38     | 14 46    | 0 3      | 3 55     | 1 8      | 4 32     | 2 32     | 23 43    | 0 13     | 2 12     |
| S 27 | 12 46 | 4n48     | 1 40     | 4 2      | 2 10     | 20 52    | 0 41     | 14 59    | 0 2      | 4 0      | 1 8      | 4 33     | 2 32     | 23 43    | 0 13     | 2 11     |
| M28  | 13 7  | 10 11    | 0 36     | 4 29     | 2 11     | 21 10    | 0 44     | 15 13    | 0 1      | 4 4      | 1 8      | 4 34     | 2 32     | 23 43    | 0 13     | 2 10     |
| T 29 | 13 27 | 15 13    | 0n30     | 4 58     | 2 11     | 21 28    | 0 46     | 15 27    | 0 1      | 4 9      | 1 8      | 4 35     | 2 32     | 23 43    | 0 13     | 2 10     |
| W30  | 13 47 | 19 41    | 1 34     | 5 29     | 2 10     | 21 45    | 0 49     | 15 40    | 0 0      | 4 14     | 1 8      | 4 36     | 2 32     | 23 43    | 0 13     | 2 9      |
| T 31 | 14s 7 | 23n25    | 2n35     | 6s 2     | 2n 8     | 22s 1    | 0s52     | 15s53    | 0s 0     | 4s19     | 1n 8     | 4s37     | 2s31     | 23n43    | 0n13     | 2n 8     |

Julian Day Number = 2310469.5, Delta T = 72.67 sec  
Ecliptic obliquity = 23°29'30", Nutation = - 0°00'11", out-of-bounds declination in red  
Ayanamsha: Fagan/Bradley = 19°20'58", Lahiri = 18°27'59"Greg. Calendar

ASTRODIENST EPHEMERIS for the year 1613  
geocentric

NOVEMBER 1613 GC

00:00 UT

| Day  | Sid.t   | ☉        | ☽     | ♀     | ♂     | ♂     | ♂     | ♂      | ♂     | ♂     | ♂     | ♂     | ♂    | ♂    | ♂     | Day  |
|------|---------|----------|-------|-------|-------|-------|-------|--------|-------|-------|-------|-------|------|------|-------|------|
| F 1  | 2 41 18 | 8♉42°10  | 15♊25 | 21♋53 | 6♌11  | 14♍3  | 13♎46 | 24°R11 | 0°R33 | 27♏44 | 5°R45 | 4°R16 | 3♐55 | 0♑21 | 24♒8  | F 1  |
| S 2  | 2 45 14 | 9°42'25  | 27°35 | 23°20 | 7°25  | 14°45 | 13°58 | 24°H 8 | 0°32  | 27°45 | 5°43  | 4°16  | 3°51 | 0°28 | 24°10 | S 2  |
| S 3  | 2 49 11 | 10°42'41 | 9♉57  | 24°49 | 8°39  | 15°27 | 14°10 | 24°6   | 0°31  | 27°47 | 5°42  | 4°15  | 3°48 | 0°35 | 24°12 | S 3  |
| M 4  | 2 53 7  | 11°43'00 | 22°35 | 26°20 | 9°53  | 16°10 | 14°23 | 24°4   | 0°29  | 27°49 | 5°41  | 4°14  | 3°45 | 0°41 | 24°15 | M 4  |
| T 5  | 2 57 4  | 12°43'20 | 5♊30  | 27°52 | 11°7  | 16°52 | 14°35 | 24°1   | 0°28  | 27°51 | 5°40  | 4°14  | 3°42 | 0°48 | 24°17 | T 5  |
| W 6  | 3 1 1   | 13°43'42 | 18°47 | 29°25 | 12°22 | 17°34 | 14°47 | 23°59  | 0°26  | 27°52 | 5°39  | 4°D14 | 3°39 | 0°55 | 24°20 | W 6  |
| T 7  | 3 4 57  | 14°44'07 | 2♏27  | 0♉59  | 13°36 | 18°17 | 14°59 | 23°57  | 0°25  | 27°54 | 5°38  | 4°14  | 3°36 | 1°1  | 24°22 | T 7  |
| F 8  | 3 8 54  | 15°44'33 | 16°31 | 2°33  | 14°50 | 18°59 | 15°11 | 23°55  | 0°23  | 27°56 | 5°37  | 4°15  | 3°32 | 1°8  | 24°25 | F 8  |
| S 9  | 3 12 50 | 16°45'01 | 0♉59  | 4°8   | 16°4  | 19°42 | 15°23 | 23°53  | 0°22  | 27°57 | 5°36  | 4°16  | 3°29 | 1°15 | 24°28 | S 9  |
| S 10 | 3 16 47 | 17°45'31 | 15°47 | 5°43  | 17°18 | 20°25 | 15°35 | 23°51  | 0°20  | 27°59 | 5°35  | 4°17  | 3°26 | 1°21 | 24°30 | S 10 |
| M 11 | 3 20 43 | 18°46'03 | 0♉50  | 7°18  | 18°31 | 21°7  | 15°47 | 23°49  | 0°18  | 28°0  | 5°33  | 4°R18 | 3°23 | 1°28 | 24°33 | M 11 |
| T 12 | 3 24 40 | 19°46'36 | 16°0  | 8°54  | 19°45 | 21°50 | 15°59 | 23°48  | 0°17  | 28°2  | 5°32  | 4°17  | 3°20 | 1°35 | 24°36 | T 12 |
| W 13 | 3 28 36 | 20°47'12 | 1♊7   | 10°29 | 20°59 | 22°33 | 16°11 | 23°46  | 0°15  | 28°3  | 5°31  | 4°16  | 3°16 | 1°41 | 24°39 | W 13 |
| T 14 | 3 32 33 | 21°47'48 | 16°1  | 12°5  | 22°13 | 23°16 | 16°23 | 23°45  | 0°13  | 28°5  | 5°30  | 4°14  | 3°13 | 1°48 | 24°42 | T 14 |
| F 15 | 3 36 30 | 22°48'26 | 0♑36  | 13°40 | 23°27 | 23°58 | 16°35 | 23°44  | 0°11  | 28°6  | 5°29  | 4°12  | 3°10 | 1°54 | 24°45 | F 15 |
| S 16 | 3 40 26 | 23°49'06 | 14°46 | 15°16 | 24°41 | 24°41 | 16°46 | 23°42  | 0°9   | 28°8  | 5°28  | 4°9   | 3°7  | 2°1  | 24°48 | S 16 |
| S 17 | 3 44 23 | 24°49'46 | 28°28 | 16°51 | 25°55 | 25°24 | 16°58 | 23°41  | 0°7   | 28°9  | 5°27  | 4°7   | 3°4  | 2°8  | 24°51 | S 17 |
| M 18 | 3 48 19 | 25°50'28 | 11♋42 | 18°27 | 27°9  | 26°7  | 17°9  | 23°40  | 0°5   | 28°11 | 5°26  | 4°5   | 3°1  | 2°14 | 24°55 | M 18 |
| T 19 | 3 52 16 | 26°51'10 | 24°31 | 20°2  | 28°23 | 26°50 | 17°21 | 23°40  | 0°3   | 28°12 | 5°25  | 4°D 4 | 2°57 | 2°21 | 24°58 | T 19 |
| W 20 | 3 56 12 | 27°51'54 | 6♌58  | 21°37 | 29°37 | 27°33 | 17°32 | 23°39  | 0°1   | 28°13 | 5°24  | 4°5   | 2°54 | 2°28 | 25°1  | W 20 |
| T 21 | 4 0 9   | 28°52'39 | 19°8  | 23°12 | 0♑50  | 28°17 | 17°43 | 23°38  | 29♊59 | 28°15 | 5°23  | 4°6   | 2°51 | 2°34 | 25°5  | T 21 |
| F 22 | 4 4 6   | 29°53'25 | 1♑6   | 24°47 | 2°4   | 29°0  | 17°55 | 23°38  | 29°57 | 28°16 | 5°22  | 4°8   | 2°48 | 2°41 | 25°8  | F 22 |
| S 23 | 4 8 2   | 0♑54'11  | 12°57 | 26°21 | 3°18  | 29°43 | 18°6  | 23°37  | 29°55 | 28°17 | 5°21  | 4°9   | 2°45 | 2°48 | 25°12 | S 23 |
| S 24 | 4 11 59 | 1°54'59  | 24°44 | 27°56 | 4°32  | 0♑26  | 18°17 | 23°37  | 29°53 | 28°18 | 5°20  | 4°11  | 2°42 | 2°54 | 25°15 | S 24 |
| M 25 | 4 15 55 | 2°55'48  | 6♑31  | 29°30 | 5°45  | 1°10  | 18°28 | 23°36  | 29°50 | 28°20 | 5°19  | 4°R11 | 2°38 | 3°1  | 25°19 | M 25 |
| T 26 | 4 19 52 | 3°56'38  | 18°22 | 1♊5   | 6°59  | 1°53  | 18°39 | 23°36  | 29°48 | 28°21 | 5°18  | 4°10  | 2°35 | 3°8  | 25°23 | T 26 |
| W 27 | 4 23 48 | 4°57'29  | 0♊18  | 2°39  | 8°13  | 2°37  | 18°50 | 23°D36 | 29°46 | 28°22 | 5°17  | 4°7   | 2°32 | 3°14 | 25°26 | W 27 |
| T 28 | 4 27 45 | 5°58'22  | 12°23 | 4°13  | 9°26  | 3°20  | 19°0  | 23°36  | 29°44 | 28°23 | 5°16  | 4°3   | 2°29 | 3°21 | 25°30 | T 28 |
| F 29 | 4 31 41 | 6°59'15  | 24°37 | 5°48  | 10°40 | 4°4   | 19°11 | 23°37  | 29°41 | 28°24 | 5°15  | 3°58  | 2°26 | 3°28 | 25°34 | F 29 |
| S 30 | 4 35 38 | 8♊0'10   | 7♉1   | 7♊22  | 11♋53 | 4♌47  | 19♎22 | 23°H37 | 29♊39 | 28°25 | 5°14  | 3°52  | 2°22 | 3°34 | 25°38 | S 30 |

| Day  | ☉     | ☾     |      | ♀     |      | ♀     |      | ♂     |      | ♂    |      | ♂    |      | ♂     |      | ♂    |      | ♂    |       | ♂     |       | ♂     |       | ♂    |     | ♂    |     |
|------|-------|-------|------|-------|------|-------|------|-------|------|------|------|------|------|-------|------|------|------|------|-------|-------|-------|-------|-------|------|-----|------|-----|
|      | decl  | decl  | lat  | decl  | lat  | decl  | lat  | decl  | lat  | decl | lat  | decl | lat  | decl  | lat  | decl | lat  | decl | lat   | decl  | lat   | decl  | lat   | decl | lat | decl | lat |
| F 1  | 14s26 | 26n10 | 3n29 | 6s36  | 2n 5 | 22s17 | 0s54 | 16s 6 | 0s 1 | 4s24 | 1n 8 | 4s38 | 2s31 | 23n43 | 0n13 | 2n 8 | 1n20 | 2s 5 | 16s26 | 12n58 | 12n51 | 11n19 | 14s35 | 6n51 |     |      |     |
| S 2  | 14 45 | 27 43 | 4 15 | 7 12  | 2 2  | 22 32 | 0 57 | 16 20 | 0 2  | 4 28 | 1 8  | 4 39 | 2 31 | 23 43 | 0 13 | 2 7  | 1 20 | 2 5  | 16 26 | 12 58 | 12 50 | 11 23 | 14 35 | 6 51 |     |      |     |
| S 3  | 15 4  | 27 56 | 4 50 | 7 48  | 1 58 | 22 46 | 0 59 | 16 33 | 0 2  | 4 33 | 1 8  | 4 39 | 2 31 | 23 43 | 0 13 | 2 6  | 1 20 | 2 5  | 16 26 | 12 58 | 12 49 | 11 26 | 14 35 | 6 50 |     |      |     |
| M 4  | 15 23 | 26 42 | 5 11 | 8 25  | 1 54 | 23 0  | 1 2  | 16 45 | 0 3  | 4 38 | 1 8  | 4 40 | 2 31 | 23 43 | 0 13 | 2 6  | 1 20 | 2 5  | 16 26 | 12 58 | 12 48 | 11 29 | 14 35 | 6 50 |     |      |     |
| T 5  | 15 41 | 24 4  | 5 17 | 9 2   | 1 49 | 23 13 | 1 4  | 16 58 | 0 4  | 4 42 | 1 9  | 4 41 | 2 31 | 23 43 | 0 13 | 2 5  | 1 20 | 2 6  | 16 26 | 12 57 | 12 47 | 11 32 | 14 35 | 6 49 |     |      |     |
| W 6  | 16 0  | 20 5  | 5 7  | 9 40  | 1 44 | 23 26 | 1 7  | 17 11 | 0 4  | 4 47 | 1 9  | 4 42 | 2 30 | 23 43 | 0 13 | 2 4  | 1 20 | 2 6  | 16 26 | 12 57 | 12 46 | 11 35 | 14 35 | 6 49 |     |      |     |
| T 7  | 16 18 | 14 59 | 4 40 | 10 18 | 1 39 | 23 38 | 1 9  | 17 23 | 0 5  | 4 52 | 1 9  | 4 42 | 2 30 | 23 43 | 0 13 | 2 4  | 1 20 | 2 6  | 16 26 | 12 58 | 12 44 | 11 38 | 14 35 | 6 49 |     |      |     |
| F 8  | 16 35 | 8 56  | 3 55 | 10 56 | 1 33 | 23 49 | 1 12 | 17 35 | 0 5  | 4 56 | 1 9  | 4 43 | 2 30 | 23 43 | 0 13 | 2 3  | 1 20 | 2 7  | 16 26 | 12 58 | 12 43 | 11 41 | 14 35 | 6 48 |     |      |     |
| S 9  | 16 53 | 2 17  | 2 54 | 11 33 | 1 27 | 23 59 | 1 14 | 17 48 | 0 6  | 5 1  | 1 9  | 4 43 | 2 30 | 23 43 | 0 14 | 2 2  | 1 20 | 2 7  | 16 26 | 12 58 | 12 42 | 11 45 | 14 35 | 6 48 |     |      |     |
| S 10 | 17 10 | 4s40  | 1 41 | 12 11 | 1 21 | 24 9  | 1 16 | 18 0  | 0 7  | 5 5  | 1 9  | 4 44 | 2 30 | 23 43 | 0 14 | 2 2  | 1 20 | 2 7  | 16 26 | 12 59 | 12 41 | 11 48 | 14 35 | 6 47 |     |      |     |
| M11  | 17 27 | 11 29 | 0 19 | 12 48 | 1 15 | 24 18 | 1 19 | 18 12 | 0 7  | 5 10 | 1 9  | 4 45 | 2 29 | 23 43 | 0 14 | 2 1  | 1 20 | 2 7  | 16 26 | 12 59 | 12 40 | 11 51 | 14 35 | 6 47 |     |      |     |
| T 12 | 17 43 | 17 41 | 1s 4 | 13 25 | 1 8  | 24 26 | 1 21 | 18 23 | 0 8  | 5 14 | 1 9  | 4 45 | 2 29 | 23 43 | 0 14 | 2 1  | 1 20 | 2 8  | 16 26 | 12 59 | 12 39 | 11 54 | 14 35 | 6 46 |     |      |     |
| W13  | 17 59 | 22 46 | 2 23 | 14 1  | 1 2  | 24 34 | 1 23 | 18 35 | 0 8  | 5 19 | 1 9  | 4 45 | 2 29 | 23 43 | 0 14 | 2 0  | 1 20 | 2 8  | 16 26 | 12 58 | 12 38 | 11 57 | 14 35 | 6 46 |     |      |     |
| T 14 | 18 15 | 26 15 | 3 31 | 14 37 | 0 55 | 24 41 | 1 25 | 18 46 | 0 9  | 5 23 | 1 9  | 4 46 | 2 29 | 23 43 | 0 14 | 2 0  | 1 20 | 2 8  | 16 25 | 12 58 | 12 37 | 12 0  | 14 35 | 6 45 |     |      |     |
| F 15 | 18 31 | 27 53 | 4 23 | 15 13 | 0 48 | 24 47 | 1 27 | 18 58 | 0 10 | 5 28 | 1 9  | 4 46 | 2 29 | 23 43 | 0 14 | 1 59 | 1 20 | 2 8  | 16 25 | 12 57 | 12 36 | 12 3  | 14 35 | 6 45 |     |      |     |
| S 16 | 18 46 | 27 36 | 4 58 | 15 47 | 0 42 | 24 52 | 1 29 | 19 9  | 0 10 | 5 32 | 1 10 | 4 46 | 2 28 | 23 43 | 0 14 | 1 58 | 1 20 | 2 9  | 16 25 | 12 56 | 12 35 | 12 7  | 14 35 | 6 44 |     |      |     |
| S 17 | 19 1  | 25 38 | 5 14 | 16 21 | 0 35 | 24 57 | 1 31 | 19 20 | 0 11 | 5 36 | 1 10 | 4 47 | 2 28 | 23 43 | 0 14 | 1 58 | 1 20 | 2 9  | 16 25 | 12 55 | 12 34 | 12 10 | 14 34 | 6 44 |     |      |     |
| M18  | 19 16 | 22 19 | 5 13 | 16 55 | 0 28 | 25 1  | 1 33 | 19 31 | 0 11 | 5 41 | 1 10 | 4 47 | 2 28 | 23 43 | 0 14 | 1 57 | 1 20 | 2 9  | 16 25 | 12 54 | 12 33 | 12 13 | 14 34 | 6 44 |     |      |     |
| T 19 | 19 30 | 18 1  | 4 56 | 17 27 | 0 21 | 25 4  | 1 35 | 19 41 | 0 12 | 5 45 | 1 10 | 4 47 | 2 28 | 23 43 | 0 14 | 1 57 | 1 21 | 2 9  | 16 25 | 12 54 | 12 31 | 12 16 | 14 34 | 6 43 |     |      |     |
| W20  | 19 44 | 13 4  | 4 25 | 17 59 | 0 14 | 25 6  | 1 37 | 19 52 | 0 13 | 5 49 | 1 10 | 4 47 | 2 27 | 23 43 | 0 14 | 1 56 | 1 21 | 2 9  | 16 25 | 12 54 | 12 30 | 12 19 | 14 34 | 6 43 |     |      |     |
| T 21 | 19 57 | 7 44  | 3 43 | 18 30 | 0 7  | 25 8  | 1 39 | 20 2  | 0 13 | 5 53 | 1 10 | 4 47 | 2 27 | 23 43 | 0 14 | 1 56 | 1 21 | 2 9  | 16 24 | 12 55 | 12 29 | 12 22 | 14 34 | 6 42 |     |      |     |
| F 22 | 20 10 | 2 12  | 2 52 | 19 0  | 0 0  | 25 9  | 1 40 | 20 12 | 0 14 | 5 58 | 1 10 | 4 47 | 2 27 | 23 43 | 0 14 | 1 55 | 1 21 | 2 10 | 16 24 | 12 55 | 12 28 | 12 25 | 14 34 | 6 42 |     |      |     |
| S 23 | 20 23 | 3n22  | 1 54 | 19 29 | 0s 6 | 25 9  | 1 42 | 20 22 | 0 14 | 6 2  | 1 10 | 4 47 | 2 27 | 23 43 | 0 14 | 1 55 | 1 21 | 2 10 | 16 24 | 12 56 | 12 27 | 12 28 | 14 33 | 6 42 |     |      |     |
| S 24 | 20 35 | 8 48  | 0 52 | 19 57 | 0 13 | 25 8  | 1 44 | 20 32 | 0 15 | 6 6  | 1 10 | 4 47 | 2 27 | 23 43 | 0 14 | 1 55 | 1 21 | 2 10 | 16 24 | 12 56 | 12 26 | 12 31 | 14 33 | 6 41 |     |      |     |
| M25  | 20 47 | 13 55 | 0n13 | 20 25 | 0 20 | 25 7  | 1 45 | 20 42 | 0 16 | 6 10 | 1 11 | 4 47 | 2 26 | 23 43 | 0 14 | 1 54 | 1 21 | 2 10 | 16 24 | 12 57 | 12 25 | 12 35 | 14 33 | 6 41 |     |      |     |
| T 26 | 20 59 | 18 34 | 1 17 | 20 51 | 0 26 | 25 5  | 1 47 | 20 51 | 0 16 | 6 14 | 1 11 | 4 47 | 2 26 | 23 43 | 0 14 | 1 54 | 1 21 | 2 10 | 16 24 | 12 56 | 12 24 | 12 38 | 14 33 | 6 40 |     |      |     |
| W27  | 21 10 | 22 31 | 2 18 | 21 16 | 0 33 | 25 2  | 1 48 | 21 0  | 0 17 | 6 18 | 1 11 | 4 47 | 2 26 | 23 43 | 0 14 | 1 53 | 1 21 | 2 10 | 16 23 | 12 55 | 12 23 | 12 41 | 14 32 | 6 40 |     |      |     |
| T 28 | 21 21 | 25 32 | 3 14 | 21 40 | 0 39 | 24 58 | 1 49 | 21 9  | 0 17 | 6 22 | 1 11 | 4 46 | 2 26 | 23 43 | 0 14 | 1 53 | 1 21 | 2 10 | 16 23 | 12 54 | 12 22 | 12 44 | 14 32 | 6 40 |     |      |     |
| F 29 | 21 31 | 27 24 | 4 1  | 22 4  | 0 45 | 24 54 | 1 51 | 21 18 | 0 18 | 6 26 | 1 11 | 4 46 | 2 26 | 23 43 | 0 14 | 1 52 | 1 21 | 2 11 | 16 23 | 12 52 | 12 21 | 12 47 | 14 32 | 6 39 |     |      |     |
| S 30 | 21s41 | 27n56 | 4n38 | 22s26 | 0s51 | 24s49 | 1s52 | 21s27 | 0s19 | 6s30 | 1n11 | 4s46 | 2s25 | 23n43 | 0n14 | 1n52 | 1n21 | 2s11 | 16s23 | 12n50 | 12n19 | 12n50 | 14s31 | 6n39 |     |      |     |

ASTRODIENST EPHEMERIS for the year 1613  
geocentric

DECEMBER 1613 GC

00:00 UT

| Day  | Sid.t   | ☉        | ☽     | ♂     | ♀     | ♂     | ♂     | ♂     | ♂     | ♂      | ♂     | ♂     | ♂    | ♂    | ♂     | Day  |
|------|---------|----------|-------|-------|-------|-------|-------|-------|-------|--------|-------|-------|------|------|-------|------|
| S 1  | 4 39 35 | 9♂ 1'05  | 19♂37 | 8♂56  | 13♂ 7 | 5♂31  | 19♂32 | 23♂37 | 29♂37 | 28♂26  | 5♂R13 | 3♂R45 | 2♂19 | 3♂41 | 25♂42 | S 1  |
| M 2  | 4 43 31 | 10° 2'02 | 2♂25  | 10°30 | 14°20 | 6°15  | 19°43 | 23°38 | 29♂34 | 28°27  | 5♂12  | 3♂40  | 2°16 | 3°47 | 25°45 | M 2  |
| T 3  | 4 47 28 | 11° 3'00 | 15°27 | 12° 5 | 15°34 | 6°59  | 19°53 | 23°38 | 29°32 | 28°28  | 5°11  | 3°35  | 2°13 | 3°54 | 25°49 | T 3  |
| W 4  | 4 51 24 | 12° 3'59 | 28°45 | 13°39 | 16°47 | 7°42  | 20° 3 | 23°39 | 29°30 | 28°29  | 5°10  | 3°33  | 2°10 | 4° 1 | 25°54 | W 4  |
| T 5  | 4 55 21 | 13° 5'00 | 12♂18 | 15°13 | 18° 1 | 8°26  | 20°13 | 23°40 | 29°27 | 28°30  | 5°10  | 3°D32 | 2° 7 | 4° 7 | 25°58 | T 5  |
| F 6  | 4 59 17 | 14° 6'01 | 26°10 | 16°48 | 19°14 | 9°10  | 20°24 | 23°41 | 29°25 | 28°31  | 5° 9  | 3°32  | 2° 3 | 4°14 | 26° 2 | F 6  |
| S 7  | 5 3 14  | 15° 7'03 | 10♂19 | 18°22 | 20°27 | 9°54  | 20°34 | 23°42 | 29°22 | 28°32  | 5° 8  | 3°34  | 2° 0 | 4°21 | 26° 6 | S 7  |
| S 8  | 5 7 10  | 16° 8'07 | 24°45 | 19°57 | 21°41 | 10°38 | 20°43 | 23°43 | 29°20 | 28°32  | 5° 7  | 3°35  | 1°57 | 4°27 | 26°10 | S 8  |
| M 9  | 5 11 7  | 17° 9'12 | 9♂26  | 21°32 | 22°54 | 11°22 | 20°53 | 23°45 | 29°17 | 28°33  | 5° 6  | 3°R35 | 1°54 | 4°34 | 26°14 | M 9  |
| T 10 | 5 15 4  | 18°10'17 | 24°16 | 23° 6 | 24° 7 | 12° 6 | 21° 3 | 23°46 | 29°15 | 28°34  | 5° 5  | 3°33  | 1°51 | 4°41 | 26°19 | T 10 |
| W11  | 5 19 0  | 19°11'24 | 9♂ 9  | 24°41 | 25°20 | 12°51 | 21°12 | 23°47 | 29°12 | 28°35  | 5° 5  | 3°29  | 1°48 | 4°47 | 26°23 | W11  |
| T 12 | 5 22 57 | 20°12'31 | 23°56 | 26°16 | 26°34 | 13°35 | 21°22 | 23°49 | 29°10 | 28°35  | 5° 4  | 3°23  | 1°44 | 4°54 | 26°27 | T 12 |
| F 13 | 5 26 53 | 21°13'39 | 8♂29  | 27°52 | 27°47 | 14°19 | 21°31 | 23°51 | 29° 7 | 28°36  | 5° 3  | 3°15  | 1°41 | 5° 1 | 26°32 | F 13 |
| S 14 | 5 30 50 | 22°14'47 | 22°42 | 29°27 | 29° 0 | 15° 3 | 21°40 | 23°53 | 29° 5 | 28°36  | 5° 2  | 3° 7  | 1°38 | 5° 7 | 26°36 | S 14 |
| S 15 | 5 34 46 | 23°15'56 | 6♂29  | 1♂ 2  | 0♂13  | 15°48 | 21°50 | 23°54 | 29° 2 | 28°37  | 5° 2  | 2°59  | 1°35 | 5°14 | 26°41 | S 15 |
| M16  | 5 38 43 | 24°17'05 | 19°49 | 2°38  | 1°26  | 16°32 | 21°59 | 23°57 | 28°59 | 28°38  | 5° 1  | 2°52  | 1°32 | 5°21 | 26°45 | M16  |
| T 17 | 5 42 39 | 25°18'14 | 2♂44  | 4°14  | 2°39  | 17°17 | 22° 7 | 23°59 | 28°57 | 28°38  | 5° 0  | 2°47  | 1°28 | 5°27 | 26°50 | T 17 |
| W18  | 5 46 36 | 26°19'23 | 15°15 | 5°50  | 3°51  | 18° 1 | 22°16 | 24° 1 | 28°54 | 28°38  | 5° 0  | 2°44  | 1°25 | 5°34 | 26°54 | W18  |
| T 19 | 5 50 33 | 27°20'32 | 27°27 | 7°25  | 5° 4  | 18°46 | 22°25 | 24° 3 | 28°52 | 28°39  | 4°59  | 2°D44 | 1°22 | 5°40 | 26°59 | T 19 |
| F 20 | 5 54 29 | 28°21'41 | 9♂25  | 9° 1  | 6°17  | 19°30 | 22°33 | 24° 6 | 28°49 | 28°39  | 4°58  | 2°44  | 1°19 | 5°47 | 27° 3 | F 20 |
| S 21 | 5 58 26 | 29°22'50 | 21°14 | 10°37 | 7°30  | 20°15 | 22°42 | 24° 8 | 28°46 | 28°40  | 4°58  | 2°45  | 1°16 | 5°54 | 27° 8 | S 21 |
| S 22 | 6 2 22  | 0♂23'59  | 3♂ 1  | 12°13 | 8°42  | 20°59 | 22°50 | 24°11 | 28°44 | 28°40  | 4°57  | 2°R46 | 1°13 | 6° 0 | 27°13 | S 22 |
| M23  | 6 6 19  | 1°25'09  | 14°49 | 13°49 | 9°55  | 21°44 | 22°58 | 24°14 | 28°41 | 28°40  | 4°57  | 2°45  | 1° 9 | 6° 7 | 27°17 | M23  |
| T 24 | 6 10 15 | 2°26'18  | 26°44 | 15°24 | 11° 7 | 22°29 | 23° 6 | 24°16 | 28°39 | 28°40  | 4°56  | 2°42  | 1° 6 | 6°14 | 27°22 | T 24 |
| W25  | 6 14 12 | 3°27'27  | 8♂48  | 16°59 | 12°20 | 23°14 | 23°14 | 24°19 | 28°36 | 28°41  | 4°56  | 2°36  | 1° 3 | 6°20 | 27°27 | W25  |
| T 26 | 6 18 8  | 4°28'37  | 21° 4 | 18°34 | 13°32 | 23°59 | 23°22 | 24°22 | 28°34 | 28°41  | 4°55  | 2°28  | 1° 0 | 6°27 | 27°32 | T 26 |
| F 27 | 6 22 5  | 5°29'46  | 3♂34  | 20° 9 | 14°44 | 24°43 | 23°30 | 24°26 | 28°31 | 28°41  | 4°55  | 2°17  | 0°57 | 6°34 | 27°36 | F 27 |
| S 28 | 6 26 2  | 6°30'56  | 16°17 | 21°42 | 15°57 | 25°28 | 23°37 | 24°29 | 28°28 | 28°41  | 4°54  | 2° 5  | 0°54 | 6°40 | 27°41 | S 28 |
| S 29 | 6 29 58 | 7°32'05  | 29°14 | 23°15 | 17° 9 | 26°13 | 23°45 | 24°32 | 28°26 | 28°41  | 4°54  | 1°53  | 0°50 | 6°47 | 27°46 | S 29 |
| M30  | 6 33 55 | 8°33'15  | 12♂23 | 24°46 | 18°21 | 26°58 | 23°52 | 24°36 | 28°23 | 28°41  | 4°53  | 1°42  | 0°47 | 6°54 | 27°51 | M30  |
| T 31 | 6 37 51 | 9♂34'24  | 25♂43 | 26♂17 | 19♂33 | 27♂43 | 23♂59 | 24♂39 | 28♂21 | 28°R41 | 4♂53  | 1♂33  | 0♂44 | 7♂ 0 | 27♂56 | T 31 |

| Day  | ☉     | ☽        | ♂        | ♀        | ♂        | ♂        | ♂        | ♂        | ♂        | ♂        | ♂        | ♂        | ♂        | ♂        | ♂        | ♂        |
|------|-------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
|      | decl  | decl lat | decl lat | decl lat | decl lat | decl lat | decl lat | decl lat | decl lat | decl lat | decl lat | decl lat | decl lat | decl lat | decl lat | decl lat |
| S 1  | 21s51 | 27n 2    | 5n 2     | 22s47    | 0s57     | 24s43    | 1s53     | 21s35    | 0s19     | 6s34     | 1n11     | 4s45     | 2s25     | 23n43    | 0n14     | 1n52     |
| M 2  | 22 0  | 24 42    | 5 11     | 23 7     | 1 3      | 24 36    | 1 54     | 21 43    | 0 20     | 6 37     | 1 12     | 4 45     | 2 25     | 23 43    | 0 14     | 1 51     |
| T 3  | 22 9  | 21 5     | 5 4      | 23 25    | 1 9      | 24 29    | 1 55     | 21 51    | 0 20     | 6 41     | 1 12     | 4 45     | 2 25     | 23 43    | 0 14     | 1 51     |
| W 4  | 22 17 | 16 20    | 4 42     | 23 43    | 1 14     | 24 21    | 1 56     | 21 59    | 0 21     | 6 45     | 1 12     | 4 44     | 2 24     | 23 43    | 0 14     | 1 51     |
| T 5  | 22 25 | 10 42    | 4 3      | 23 59    | 1 20     | 24 12    | 1 57     | 22 7     | 0 22     | 6 49     | 1 12     | 4 43     | 2 24     | 23 43    | 0 14     | 1 51     |
| F 6  | 22 33 | 4 25     | 3 9      | 24 14    | 1 25     | 24 3     | 1 57     | 22 14    | 0 22     | 6 52     | 1 12     | 4 43     | 2 24     | 23 43    | 0 14     | 1 50     |
| S 7  | 22 40 | 2s13     | 2 3      | 24 28    | 1 30     | 23 52    | 1 58     | 22 22    | 0 23     | 6 56     | 1 12     | 4 42     | 2 24     | 23 43    | 0 14     | 1 50     |
| S 8  | 22 46 | 8 52     | 0 48     | 24 41    | 1 34     | 23 41    | 1 58     | 22 29    | 0 23     | 6 59     | 1 12     | 4 42     | 2 23     | 23 43    | 0 14     | 1 50     |
| M 9  | 22 52 | 15 10    | 0s32     | 24 52    | 1 39     | 23 30    | 1 59     | 22 35    | 0 24     | 7 3      | 1 13     | 4 41     | 2 23     | 23 43    | 0 14     | 1 49     |
| T 10 | 22 58 | 20 39    | 1 50     | 25 2     | 1 43     | 23 18    | 1 59     | 22 42    | 0 25     | 7 6      | 1 13     | 4 40     | 2 23     | 23 43    | 0 14     | 1 49     |
| W11  | 23 3  | 24 50    | 3 0      | 25 10    | 1 47     | 23 5     | 2 0      | 22 48    | 0 25     | 7 10     | 1 13     | 4 39     | 2 23     | 23 43    | 0 14     | 1 49     |
| T 12 | 23 8  | 27 19    | 3 58     | 25 17    | 1 51     | 22 51    | 2 0      | 22 54    | 0 26     | 7 13     | 1 13     | 4 38     | 2 23     | 23 43    | 0 14     | 1 49     |
| F 13 | 23 12 | 27 52    | 4 39     | 25 23    | 1 55     | 22 37    | 2 0      | 23 0     | 0 26     | 7 17     | 1 13     | 4 38     | 2 22     | 23 43    | 0 14     | 1 48     |
| S 14 | 23 16 | 26 33    | 5 2      | 25 27    | 1 58     | 22 22    | 2 0      | 23 6     | 0 27     | 7 20     | 1 13     | 4 37     | 2 22     | 23 43    | 0 14     | 1 48     |
| S 15 | 23 19 | 23 38    | 5 7      | 25 30    | 2 1      | 22 6     | 2 0      | 23 11    | 0 28     | 7 23     | 1 14     | 4 36     | 2 22     | 23 43    | 0 14     | 1 48     |
| M16  | 23 22 | 19 33    | 4 54     | 25 31    | 2 3      | 21 50    | 2 0      | 23 17    | 0 28     | 7 26     | 1 14     | 4 35     | 2 22     | 23 43    | 0 14     | 1 48     |
| T 17 | 23 24 | 14 40    | 4 27     | 25 31    | 2 5      | 21 33    | 2 0      | 23 22    | 0 29     | 7 30     | 1 14     | 4 34     | 2 21     | 23 43    | 0 14     | 1 48     |
| W18  | 23 26 | 9 19     | 3 47     | 25 29    | 2 7      | 21 16    | 1 59     | 23 26    | 0 29     | 7 33     | 1 14     | 4 33     | 2 21     | 23 43    | 0 14     | 1 48     |
| T 19 | 23 28 | 3 45     | 2 58     | 25 26    | 2 9      | 20 58    | 1 59     | 23 31    | 0 30     | 7 36     | 1 14     | 4 31     | 2 21     | 23 43    | 0 14     | 1 48     |
| F 20 | 23 29 | 1n52     | 2 2      | 25 21    | 2 10     | 20 39    | 1 58     | 23 35    | 0 31     | 7 39     | 1 14     | 4 30     | 2 21     | 23 43    | 0 14     | 1 47     |
| S 21 | 23 29 | 7 21     | 1 2      | 25 14    | 2 11     | 20 20    | 1 58     | 23 39    | 0 31     | 7 42     | 1 15     | 4 29     | 2 21     | 23 43    | 0 14     | 1 47     |
| S 22 | 23 29 | 12 34    | 0n 1     | 25 6     | 2 11     | 20 0     | 1 57     | 23 43    | 0 32     | 7 45     | 1 15     | 4 28     | 2 20     | 23 43    | 0 14     | 1 47     |
| M23  | 23 29 | 17 20    | 1 4      | 24 56    | 2 11     | 19 40    | 1 56     | 23 46    | 0 32     | 7 47     | 1 15     | 4 26     | 2 20     | 23 43    | 0 14     | 1 47     |
| T 24 | 23 28 | 21 29    | 2 5      | 24 45    | 2 10     | 19 19    | 1 55     | 23 50    | 0 33     | 7 50     | 1 15     | 4 25     | 2 20     | 23 43    | 0 14     | 1 47     |
| W25  | 23 27 | 24 47    | 3 0      | 24 32    | 2 9      | 18 58    | 1 54     | 23 53    | 0 33     | 7 53     | 1 15     | 4 24     | 2 20     | 23 43    | 0 14     | 1 47     |
| T 26 | 23 25 | 26 59    | 3 48     | 24 18    | 2 7      | 18 36    | 1 53     | 23 55    | 0 34     | 7 56     | 1 16     | 4 22     | 2 19     | 23 43    | 0 14     | 1 47     |
| F 27 | 23 23 | 27 52    | 4 26     | 24 2     | 2 4      | 18 14    | 1 52     | 23 58    | 0 35     | 7 58     | 1 16     | 4 21     | 2 19     | 23 43    | 0 14     | 1 47     |
| S 28 | 23 20 | 27 19    | 4 51     | 23 44    | 2 1      | 17 51    | 1 51     | 24 0     | 0 35     | 8 1      | 1 16     | 4 19     | 2 19     | 23 43    | 0 14     | 1 47     |
| S 29 | 23 17 | 25 17    | 5 2      | 23 25    | 1 58     | 17 28    | 1 49     | 24 2     | 0 36     | 8 3      | 1 16     | 4 18     | 2 19     | 23 43    | 0 14     | 1 47     |
| M30  | 23 13 | 21 52    | 4 57     | 23 5     | 1 53     | 17 4     | 1 48     | 24 4     | 0 36     | 8 6      | 1 16     | 4 16     | 2 19     | 23 43    | 0 14     | 1 47     |
| T 31 | 23s 9 | 17n18    | 4n36     | 22s43    | 1s48     | 16s40    | 1s46     | 24s 5    | 0s37     | 8s 8     | 1n16     | 4s15     | 2s18     | 23n43    | 0n14     | 1n47     |

Julian Day Number = 2310530.5, Delta T = 72.49 sec  
Ecliptic obliquity = 23°29'29", Nutation = - 0°00'10", out-of-bounds declination in red  
Ayanamsha: Fagan/Bradley = 19°21'07", Lahiri = 18°28'07"Greg. Calendar