



# Astrodienst Ephemeris Tables for the year 1620

tropical geocentric zodiac

contains Sun, Moon, Mercury, Venus, Mars, Jupiter, Saturn, Uranus, Neptune, Pluto, True Node, Moon's Node, Lilith, Chiron

Programming  
Dieter Koch and Alois Treindl  
based on Swiss Ephemeris  
Code D5EPH

## ASTRODIENST EPHEMERIS for the year 1620

geocentric

JANUARY 1620 GC

00:00 UT

| Day  | Sid.t   | ☉        | ☽        | ♀        | ♂        | ♂        | ♂        | ♂        | ♂        | ♂        | ♂        | ♂       | ♂       | ♂        | ♂        | Day  |
|------|---------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|---------|---------|----------|----------|------|
| W 1  | 6 40 2  | 10°37'46 | 28°11'09 | 20°33'38 | 15°33'38 | 15°33'38 | 6°15'15  | 17°20'20 | 26°46'46 | 11°45'45 | 10°37'37 | 4°35'57 | 4°34'40 | 11°13'13 | 28°33'33 | W 1  |
| T 2  | 6 43 59 | 11° 8'57 | 10°11'09 | 22°32'32 | 16°54'54 | 16°33'33 | 6°21'21  | 17°11'11 | 26°43'43 | 11°45'45 | 10°37'37 | 4°58'58 | 4°37'37 | 11°19'19 | 28° 6' 6 | T 2  |
| F 3  | 6 47 55 | 12°10'08 | 21°58'58 | 24°10'10 | 18° 9' 9 | 17°20'20 | 6°28'28  | 17°11'11 | 26°41'41 | 11°45'45 | 10°36'36 | 4°58'58 | 4°34'34 | 11°26'26 | 28° 9' 9 | F 3  |
| S 4  | 6 51 52 | 13°11'19 | 3°34'46  | 25°48'48 | 19°25'25 | 18° 8' 8 | 6°34'34  | 17° 7' 7 | 26°38'38 | 11°46'46 | 10°36'36 | 4°R59   | 4°30'30 | 11°33'33 | 28°13'13 | S 4  |
| S 5  | 6 55 48 | 14°12'30 | 15°33'33 | 27°26'26 | 20°40'40 | 18°55'55 | 6°41'41  | 17° 3' 3 | 26°36'36 | 11°46'46 | 10°35'35 | 4°58'58 | 4°27'27 | 11°39'39 | 28°16'16 | S 5  |
| M 6  | 6 59 45 | 15°13'40 | 27°21'21 | 29° 3' 3 | 21°56'56 | 19°42'42 | 6°48'48  | 16°59'59 | 26°33'33 | 11°46'46 | 10°35'35 | 4°58'58 | 4°24'24 | 11°46'46 | 28°19'19 | M 6  |
| T 7  | 7 3 42  | 16°14'50 | 9°33'33  | 0°33'39  | 23°11'11 | 20°29'29 | 6°55'55  | 16°55'55 | 26°31'31 | 11°47'47 | 10°34'34 | 4°56'56 | 4°21'21 | 11°53'53 | 28°22'22 | T 7  |
| W 8  | 7 7 38  | 17°16'00 | 21°10'10 | 2°15'15  | 24°26'26 | 21°16'16 | 7° 3' 3  | 16°51'51 | 26°28'28 | 11°47'47 | 10°34'34 | 4°55'55 | 4°18'18 | 11°59'59 | 28°25'25 | W 8  |
| T 9  | 7 11 35 | 18°17'09 | 3°14'14  | 3°50'50  | 25°42'42 | 22° 3' 3 | 7°10'10  | 16°47'47 | 26°26'26 | 11°47'47 | 10°34'34 | 4°53'53 | 4°14'14 | 12° 6' 6 | 28°29'29 | T 9  |
| F 10 | 7 15 31 | 19°18'17 | 15°30'30 | 5°23'23  | 26°57'57 | 22°50'50 | 7°18'18  | 16°43'43 | 26°23'23 | 11°47'47 | 10°33'33 | 4°50'50 | 4°11'11 | 12°12'12 | 28°32'32 | F 10 |
| S 11 | 7 19 28 | 20°19'24 | 27°59'59 | 6°54'54  | 28°13'13 | 23°37'37 | 7°25'25  | 16°40'40 | 26°20'20 | 11°47'47 | 10°33'33 | 4°49'49 | 4° 8' 8 | 12°19'19 | 28°35'35 | S 11 |
| S 12 | 7 23 24 | 21°20'31 | 10°14'44 | 8°23'23  | 29°28'28 | 24°25'25 | 7°33'33  | 16°36'36 | 26°18'18 | 11°47'47 | 10°33'33 | 4°48'48 | 4° 5' 5 | 12°26'26 | 28°39'39 | S 12 |
| M 13 | 7 27 21 | 22°21'37 | 23°50'50 | 9°50'50  | 0°43'43  | 25°12'12 | 7°41'41  | 16°33'33 | 26°15'15 | 11°R47   | 10°33'33 | 4°D47   | 4° 2' 2 | 12°32'32 | 28°42'42 | M 13 |
| T 14 | 7 31 17 | 23°22'42 | 7°19'19  | 11°13'13 | 1°59'59  | 25°59'59 | 7°50'50  | 16°29'29 | 26°13'13 | 11°47'47 | 10°32'32 | 4°48'48 | 3°59'59 | 12°39'39 | 28°46'46 | T 14 |
| W 15 | 7 35 14 | 24°23'46 | 21°12'12 | 12°33'33 | 3°14'14  | 26°46'46 | 7°58'58  | 16°26'26 | 26°10'10 | 11°47'47 | 10°32'32 | 4°49'49 | 3°55'55 | 12°46'46 | 28°49'49 | W 15 |
| T 16 | 7 39 11 | 25°24'50 | 5°11'30  | 13°48'48 | 4°29'29  | 27°33'33 | 8° 7' 7  | 16°22'22 | 26° 7' 7 | 11°47'47 | 10°32'32 | 4°50'50 | 3°52'52 | 12°52'52 | 28°53'53 | T 16 |
| F 17 | 7 43 7  | 26°25'52 | 20°11'11 | 14°58'58 | 5°45'45  | 28°20'20 | 8°15'15  | 16°19'19 | 26° 5' 5 | 11°47'47 | 10°32'32 | 4°52'52 | 3°49'49 | 12°59'59 | 28°56'56 | F 17 |
| S 18 | 7 47 4  | 27°26'53 | 5°11'11  | 16° 2' 2 | 7° 0' 0  | 29° 7' 7 | 8°24'24  | 16°16'16 | 26° 2' 2 | 11°47'47 | 10°32'32 | 4°R52   | 3°46'46 | 13° 6' 6 | 29° 0' 0 | S 18 |
| S 19 | 7 51 0  | 28°27'54 | 20°22'22 | 17° 0' 0 | 8°15'15  | 29°54'54 | 8°33'33  | 16°13'13 | 25°59'59 | 11°47'47 | 10°31'31 | 4°51'51 | 3°43'43 | 13°12'12 | 29° 4' 4 | S 19 |
| M 20 | 7 54 57 | 29°28'54 | 5°13'44  | 17°50'50 | 9°30'30  | 0°41'41  | 8°42'42  | 16°10'10 | 25°57'57 | 11°46'46 | 10°31'31 | 4°50'50 | 3°40'40 | 13°19'19 | 29° 7' 7 | M 20 |
| T 21 | 7 58 53 | 0°29'52  | 20°39'39 | 18°31'31 | 10°46'46 | 1°28'28  | 8°51'51  | 16° 7' 7 | 25°54'54 | 11°46'46 | 10°31'31 | 4°46'46 | 3°36'36 | 13°26'26 | 29°11'11 | T 21 |
| W 22 | 8 2 50  | 1°30'50  | 5°11'26  | 19° 4' 4 | 12° 1' 1 | 2°15'15  | 9° 1' 1  | 16° 5' 5 | 25°52'52 | 11°46'46 | 10°31'31 | 4°43'43 | 3°33'33 | 13°32'32 | 29°15'15 | W 22 |
| T 23 | 8 6 46  | 2°31'48  | 19°49'49 | 19°26'26 | 13°16'16 | 3° 2' 2  | 9°10'10  | 16° 2' 2 | 25°49'49 | 11°46'46 | 10°31'31 | 4°39'39 | 3°30'30 | 13°39'39 | 29°18'18 | T 23 |
| F 24 | 8 10 43 | 3°32'44  | 3°44'44  | 19°38'38 | 14°31'31 | 3°49'49  | 9°20'20  | 15°59'59 | 25°46'46 | 11°45'45 | 10°31'31 | 4°35'35 | 3°27'27 | 13°46'46 | 29°22'22 | F 24 |
| S 25 | 8 14 40 | 4°33'40  | 17°11'11 | 19°R39   | 15°46'46 | 4°36'36  | 9°29'29  | 15°57'57 | 25°44'44 | 11°45'45 | 10°D31   | 4°32'32 | 3°24'24 | 13°52'52 | 29°26'26 | S 25 |
| S 26 | 8 18 36 | 5°34'35  | 0°11'10  | 19°29'29 | 17° 2' 2 | 5°23'23  | 9°39'39  | 15°55'55 | 25°41'41 | 11°44'44 | 10°31'31 | 4°D31   | 3°20'20 | 13°59'59 | 29°30'30 | S 26 |
| M 27 | 8 22 33 | 6°35'29  | 12°45'45 | 19° 7' 7 | 18°17'17 | 6°10'10  | 9°49'49  | 15°52'52 | 25°39'39 | 11°44'44 | 10°31'31 | 4°31'31 | 3°17'17 | 14° 5' 5 | 29°33'33 | M 27 |
| T 28 | 8 26 29 | 7°36'23  | 25° 1' 1 | 18°35'35 | 19°32'32 | 6°56'56  | 9°59'59  | 15°50'50 | 25°36'36 | 11°44'44 | 10°31'31 | 4°32'32 | 3°14'14 | 14°12'12 | 29°37'37 | T 28 |
| W 29 | 8 30 26 | 8°37'16  | 7°11'11  | 17°52'52 | 20°47'47 | 7°43'43  | 10° 9' 9 | 15°48'48 | 25°34'34 | 11°43'43 | 10°31'31 | 4°34'34 | 3°11'11 | 14°19'19 | 29°41'41 | W 29 |
| T 30 | 8 34 22 | 9°38'08  | 18°55'55 | 17° 0' 0 | 22° 2' 2 | 8°30'30  | 10°20'20 | 15°46'46 | 25°31'31 | 11°42'42 | 10°31'31 | 4°36'36 | 3° 8' 8 | 14°25'25 | 29°45'45 | T 30 |
| F 31 | 8 38 19 | 10°38'59 | 0°34'42  | 16°33'33 | 23°33'33 | 9°11'11  | 10°17'17 | 15°45'45 | 25°29'29 | 11°42'42 | 10°32'32 | 4°R37   | 3° 5' 5 | 14°32'32 | 29°49'49 | F 31 |

Delta T = 66.55 sec

Greg. Calendar

FEBRUARY 1620 GC

00:00 UT

| Day  | Sid.t    | ☉        | ☽        | ♀          | ♂        | ♂        | ♂        | ♂        | ♂        | ♂        | ♂        | ♂       | ♂       | ♂        | ♂        | Day  |
|------|----------|----------|----------|------------|----------|----------|----------|----------|----------|----------|----------|---------|---------|----------|----------|------|
| S 1  | 8 42 15  | 11°39'48 | 12°32'28 | 14°R56     | 24°33'32 | 10°11'4  | 10°14'41 | 15°R43   | 25°R26   | 11°R41   | 10°32'32 | 4°R36   | 3°31'31 | 14°33'33 | 29°35'35 | S 1  |
| S 2  | 8 46 12  | 12°40'37 | 24°16'16 | 13°33'33   | 25°47'47 | 10°51'51 | 10°51'51 | 15°11'41 | 25°24'24 | 11°41'41 | 10°32'32 | 4°34'34 | 2°58'58 | 14°45'45 | 29°57'57 | S 2  |
| M 3  | 8 50 9   | 13°41'25 | 6°33'33  | 9 12°35'35 | 27° 3' 3 | 11°37'37 | 11° 2' 2 | 15°40'40 | 25°21'21 | 11°40'40 | 10°32'32 | 4°30'30 | 2°55'55 | 14°52'52 | 0°11'11  | M 3  |
| T 4  | 8 54 5   | 14°42'11 | 18° 8' 8 | 11°23'23   | 28°18'18 | 12°24'24 | 11°13'13 | 15°38'38 | 25°19'19 | 11°39'39 | 10°32'32 | 4°24'24 | 2°52'52 | 14°59'59 | 0° 4' 4  | T 4  |
| W 5  | 8 58 2   | 15°42'56 | 0°11'17  | 10°13'13   | 29°33'33 | 13°11'11 | 11°24'24 | 15°37'37 | 25°16'16 | 11°39'39 | 10°33'33 | 4°17'17 | 2°49'49 | 15° 5' 5 | 0° 8' 8  | W 5  |
| T 6  | 9 1 58   | 16°43'39 | 12°34'34 | 9° 7' 7    | 0°48'48  | 13°57'57 | 11°35'35 | 15°36'36 | 25°14'14 | 11°38'38 | 10°33'33 | 4° 9' 9 | 2°46'46 | 15°12'12 | 0°12'12  | T 6  |
| F 7  | 9 5 55   | 17°44'21 | 25° 2' 2 | 8° 6' 6    | 2° 3' 3  | 14°44'44 | 11°46'46 | 15°35'35 | 25°12'12 | 11°37'37 | 10°33'33 | 4° 1' 1 | 2°42'42 | 15°19'19 | 0°16'16  | F 7  |
| S 8  | 9 9 51   | 18°45'02 | 7°14'43  | 7°10'10    | 3°18'18  | 15°31'31 | 11°58'58 | 15°34'34 | 25° 9' 9 | 11°36'36 | 10°33'33 | 3°53'53 | 2°39'39 | 15°25'25 | 0°20'20  | S 8  |
| S 9  | 9 13 48  | 19°45'40 | 20°36'36 | 6°22'22    | 4°33'33  | 16°17'17 | 12° 9' 9 | 15°33'33 | 25° 7' 7 | 11°35'35 | 10°34'34 | 3°48'48 | 2°36'36 | 15°32'32 | 0°24'24  | S 9  |
| M10  | 9 17 44  | 20°46'17 | 3°43'43  | 5°41'41    | 5°47'47  | 17° 4' 4 | 12°20'20 | 15°32'32 | 25° 5' 5 | 11°34'34 | 10°34'34 | 3°44'44 | 2°33'33 | 15°39'39 | 0°28'28  | M10  |
| T 11 | 9 21 41  | 21°46'53 | 17° 8' 8 | 5° 7' 7    | 7° 2' 2  | 17°50'50 | 12°32'32 | 15°32'32 | 25° 2' 2 | 11°34'34 | 10°34'34 | 3°D42   | 2°30'30 | 15°45'45 | 0°32'32  | T 11 |
| W12  | 9 25 38  | 22°47'26 | 0°11'50  | 4°42'42    | 8°17'17  | 18°37'37 | 12°44'44 | 15°31'31 | 25° 0' 0 | 11°33'33 | 10°35'35 | 3°43'43 | 2°26'26 | 15°52'52 | 0°36'36  | W12  |
| T 13 | 9 29 34  | 23°47'58 | 14°52'52 | 4°24'24    | 9°32'32  | 19°23'23 | 12°55'55 | 15°31'31 | 24°58'58 | 11°32'32 | 10°35'35 | 3°44'44 | 2°23'23 | 15°58'58 | 0°40'40  | T 13 |
| F 14 | 9 33 31  | 24°48'28 | 29°13'13 | 4°14'14    | 10°47'47 | 20°10'10 | 13° 7' 7 | 15°31'31 | 24°56'56 | 11°31'31 | 10°36'36 | 3°R44   | 2°20'20 | 16° 5' 5 | 0°44'44  | F 14 |
| S 15 | 9 37 27  | 25°48'56 | 13°51'51 | 4°D11      | 12° 2' 2 | 20°56'56 | 13°19'19 | 15°31'31 | 24°54'54 | 11°30'30 | 10°36'36 | 3°44'44 | 2°17'17 | 16°12'12 | 0°48'48  | S 15 |
| S 16 | 9 41 24  | 26°49'22 | 28°42'42 | 4°15'15    | 13°16'16 | 21°42'42 | 13°31'31 | 15°D31   | 24°51'51 | 11°29'29 | 10°37'37 | 3°42'42 | 2°14'14 | 16°18'18 | 0°52'52  | S 16 |
| M17  | 9 45 20  | 27°49'46 | 13°13'39 | 4°25'25    | 14°31'31 | 22°29'29 | 13°43'43 | 15°31'31 | 24°49'49 | 11°28'28 | 10°37'37 | 3°37'37 | 2°11'11 | 16°25'25 | 0°56'56  | M17  |
| T 18 | 9 49 17  | 28°50'09 | 28°34'34 | 4°41'41    | 15°46'46 | 23°15'15 | 13°55'55 | 15°31'31 | 24°47'47 | 11°26'26 | 10°38'38 | 3°30'30 | 2° 7' 7 | 16°32'32 | 1° 1' 1  | T 18 |
| W19  | 9 53 13  | 29°50'30 | 13°11'19 | 5° 3' 3    | 17° 1' 1 | 24° 1' 1 | 14° 8' 8 | 15°31'31 | 24°45'45 | 11°25'25 | 10°38'38 | 3°21'21 | 2° 4' 4 | 16°38'38 | 1° 5' 5  | W19  |
| T 20 | 9 57 10  | 0°11'49  | 27°44'44 | 5°31'31    | 18°15'15 | 24°48'48 | 14°20'20 | 15°32'32 | 24°43'43 | 11°24'24 | 10°39'39 | 3°11'11 | 2° 1' 1 | 16°45'45 | 1° 9' 9  | T 20 |
| F 21 | 10 1 7   | 1°51'06  | 11°45'45 | 6° 3' 3    | 19°30'30 | 25°34'34 | 14°32'32 | 15°32'32 | 24°41'41 | 11°23'23 | 10°39'39 | 3° 2' 2 | 1°58'58 | 16°52'52 | 1°13'13  | F 21 |
| S 22 | 10 5 3   | 2°51'23  | 25°18'18 | 6°40'40    | 20°44'44 | 26°20'20 | 14°45'45 | 15°33'33 | 24°39'39 | 11°22'22 | 10°40'40 | 2°55'55 | 1°55'55 | 16°58'58 | 1°17'17  | S 22 |
| S 23 | 10 9 0   | 3°51'37  | 8°11'24  | 7°21'21    | 21°59'59 | 27° 6' 6 | 14°57'57 | 15°34'34 | 24°38'38 | 11°21'21 | 10°40'40 | 2°49'49 | 1°52'52 | 17° 5' 5 | 1°21'21  | S 23 |
| M24  | 10 12 56 | 4°51'50  | 21° 4' 4 | 8° 5' 5    | 23°13'13 | 27°52'52 | 15°10'10 | 15°35'35 | 24°36'36 | 11°19'19 | 10°41'41 | 2°46'46 | 1°48'48 | 17°12'12 | 1°25'25  | M24  |
| T 25 | 10 16 53 | 5°52'02  | 3°11'23  | 8°54'54    | 24°28'28 | 28°38'38 | 15°23'23 | 15°36'36 | 24°34'34 | 11°18'18 | 10°42'42 | 2°D45   | 1°45'45 | 17°18'18 | 1°29'29  | T 25 |
| W26  | 10 20 49 | 6°52'12  | 15°26'26 | 9°46'46    | 25°42'42 | 29°24'24 | 15°36'36 | 15°37'37 | 24°32'32 | 11°17'17 | 10°42'42 | 2°45'45 | 1°42'42 | 17°25'25 | 1°33'33  | W26  |
| T 27 | 10 24 46 | 7°52'20  | 27°18'18 | 10°41'41   | 26°57'57 | 0°10'10  | 15°48'48 | 15°38'38 | 24°31'31 | 11°16'16 | 10°43'43 | 2°R46   | 1°39'39 | 17°32'32 | 1°37'37  | T 27 |
| F 28 | 10 28 42 | 8°52'27  | 9°8'5    | 11°39'39   | 28°11'11 | 0°56'56  | 16° 1' 1 | 15°39'39 | 24°29'29 | 11°14'14 | 10°44'44 | 2°46'46 | 1°36'36 | 17°38'38 | 1°41'41  | F 28 |
| S 29 | 10 32 39 | 9°52'33  | 20°35'1  | 12°33'33   | 29°11'11 | 1°42'42  | 16°14'14 | 15°11'41 | 24°27'27 | 11°13'13 | 10°45'45 | 2°34'34 | 1°32'32 | 17°34'34 | 1°45'45  | S 29 |

ASTRODIENST EPHEMERIS for the year 1620  
geocentric

MARCH 1620 GC

00:00 UT

| Day  | Sid.t    | ☉                     | ☽                  | ♀                  | ♂                  | ♂                  | ♂                  | ♂                  | ♂                   | ♂                   | ♂                  | ♂                  | ♂                  | ♂                  | ♂                 | Day  |
|------|----------|-----------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|---------------------|---------------------|--------------------|--------------------|--------------------|--------------------|-------------------|------|
| S 1  | 10 36 36 | 10 <sup>h</sup> 52'36 | 2 <sup>h</sup> 42  | 13 <sup>h</sup> 43 | 0 <sup>h</sup> 40  | 2 <sup>h</sup> 28  | 16 <sup>h</sup> 27 | 15 <sup>h</sup> 42 | 24 <sup>h</sup> R26 | 11 <sup>h</sup> R12 | 10 <sup>h</sup> 45 | 2 <sup>h</sup> R40 | 1 <sup>h</sup> 29  | 17 <sup>h</sup> 52 | 1 <sup>h</sup> 49 | S 1  |
| M 2  | 10 40 32 | 11 <sup>h</sup> 52'38 | 14 <sup>h</sup> 41 | 14 <sup>h</sup> 48 | 1 <sup>h</sup> 54  | 3 <sup>h</sup> 14  | 16 <sup>h</sup> 40 | 15 <sup>h</sup> 44 | 24 <sup>h</sup> 24  | 11 <sup>h</sup> 10  | 10 <sup>h</sup> 46 | 2 <sup>h</sup> 33  | 1 <sup>h</sup> 26  | 17 <sup>h</sup> 58 | 1 <sup>h</sup> 53 | M 2  |
| T 3  | 10 44 29 | 12 <sup>h</sup> 52'38 | 26 <sup>h</sup> 50 | 15 <sup>h</sup> 56 | 3 <sup>h</sup> 9   | 3 <sup>h</sup> 59  | 16 <sup>h</sup> 54 | 15 <sup>h</sup> 46 | 24 <sup>h</sup> 23  | 11 <sup>h</sup> 9   | 10 <sup>h</sup> 47 | 2 <sup>h</sup> 23  | 1 <sup>h</sup> 23  | 18 <sup>h</sup> 5  | 1 <sup>h</sup> 57 | T 3  |
| W 4  | 10 48 25 | 13 <sup>h</sup> 52'36 | 9 <sup>h</sup> 12  | 17 <sup>h</sup> 6  | 4 <sup>h</sup> 23  | 4 <sup>h</sup> 45  | 17 <sup>h</sup> 7  | 15 <sup>h</sup> 47 | 24 <sup>h</sup> 21  | 11 <sup>h</sup> 7   | 10 <sup>h</sup> 48 | 2 <sup>h</sup> 12  | 1 <sup>h</sup> 20  | 18 <sup>h</sup> 11 | 2 <sup>h</sup> 1  | W 4  |
| T 5  | 10 52 22 | 14 <sup>h</sup> 52'32 | 21 <sup>h</sup> 46 | 18 <sup>h</sup> 18 | 5 <sup>h</sup> 37  | 5 <sup>h</sup> 31  | 17 <sup>h</sup> 20 | 15 <sup>h</sup> 49 | 24 <sup>h</sup> 20  | 11 <sup>h</sup> 6   | 10 <sup>h</sup> 48 | 1 <sup>h</sup> 59  | 1 <sup>h</sup> 17  | 18 <sup>h</sup> 18 | 2 <sup>h</sup> 5  | T 5  |
| F 6  | 10 56 18 | 15 <sup>h</sup> 52'27 | 4 <sup>h</sup> 33  | 19 <sup>h</sup> 32 | 6 <sup>h</sup> 51  | 6 <sup>h</sup> 17  | 17 <sup>h</sup> 33 | 15 <sup>h</sup> 52 | 24 <sup>h</sup> 18  | 11 <sup>h</sup> 5   | 10 <sup>h</sup> 49 | 1 <sup>h</sup> 46  | 1 <sup>h</sup> 13  | 18 <sup>h</sup> 25 | 2 <sup>h</sup> 9  | F 6  |
| S 7  | 11 0 15  | 16 <sup>h</sup> 52'19 | 17 <sup>h</sup> 33 | 20 <sup>h</sup> 47 | 8 <sup>h</sup> 6   | 7 <sup>h</sup> 2   | 17 <sup>h</sup> 47 | 15 <sup>h</sup> 54 | 24 <sup>h</sup> 17  | 11 <sup>h</sup> 3   | 10 <sup>h</sup> 50 | 1 <sup>h</sup> 34  | 1 <sup>h</sup> 10  | 18 <sup>h</sup> 31 | 2 <sup>h</sup> 13 | S 7  |
| S 8  | 11 4 11  | 17 <sup>h</sup> 52'09 | 0 <sup>h</sup> 43  | 22 <sup>h</sup> 5  | 9 <sup>h</sup> 20  | 7 <sup>h</sup> 48  | 18 <sup>h</sup> 0  | 15 <sup>h</sup> 56 | 24 <sup>h</sup> 16  | 11 <sup>h</sup> 2   | 10 <sup>h</sup> 51 | 1 <sup>h</sup> 24  | 1 <sup>h</sup> 7   | 18 <sup>h</sup> 38 | 2 <sup>h</sup> 17 | S 8  |
| M 9  | 11 8 8   | 18 <sup>h</sup> 51'57 | 14 <sup>h</sup> 5  | 23 <sup>h</sup> 24 | 10 <sup>h</sup> 34 | 8 <sup>h</sup> 33  | 18 <sup>h</sup> 14 | 15 <sup>h</sup> 58 | 24 <sup>h</sup> 15  | 11 <sup>h</sup> 0   | 10 <sup>h</sup> 52 | 1 <sup>h</sup> 17  | 1 <sup>h</sup> 4   | 18 <sup>h</sup> 45 | 2 <sup>h</sup> 21 | M 9  |
| T 10 | 11 12 4  | 19 <sup>h</sup> 51'42 | 27 <sup>h</sup> 38 | 24 <sup>h</sup> 45 | 11 <sup>h</sup> 48 | 9 <sup>h</sup> 19  | 18 <sup>h</sup> 27 | 16 <sup>h</sup> 1  | 24 <sup>h</sup> 14  | 10 <sup>h</sup> 59  | 10 <sup>h</sup> 53 | 1 <sup>h</sup> 13  | 1 <sup>h</sup> 1   | 18 <sup>h</sup> 51 | 2 <sup>h</sup> 25 | T 10 |
| W 11 | 11 16 1  | 20 <sup>h</sup> 51'26 | 11 <sup>h</sup> 22 | 26 <sup>h</sup> 7  | 13 <sup>h</sup> 2  | 10 <sup>h</sup> 4  | 18 <sup>h</sup> 41 | 16 <sup>h</sup> 4  | 24 <sup>h</sup> 12  | 10 <sup>h</sup> 57  | 10 <sup>h</sup> 54 | 1 <sup>h</sup> 12  | 0 <sup>h</sup> 57  | 18 <sup>h</sup> 58 | 2 <sup>h</sup> 28 | W 11 |
| T 12 | 11 19 58 | 21 <sup>h</sup> 51'07 | 25 <sup>h</sup> 17 | 27 <sup>h</sup> 31 | 14 <sup>h</sup> 16 | 10 <sup>h</sup> 50 | 18 <sup>h</sup> 54 | 16 <sup>h</sup> 6  | 24 <sup>h</sup> 11  | 10 <sup>h</sup> 56  | 10 <sup>h</sup> 55 | 1 <sup>h</sup> 12  | 0 <sup>h</sup> 54  | 19 <sup>h</sup> 5  | 2 <sup>h</sup> 32 | T 12 |
| F 13 | 11 23 54 | 22 <sup>h</sup> 50'46 | 9 <sup>h</sup> 24  | 28 <sup>h</sup> 56 | 15 <sup>h</sup> 30 | 11 <sup>h</sup> 35 | 19 <sup>h</sup> 8  | 16 <sup>h</sup> 9  | 24 <sup>h</sup> 10  | 10 <sup>h</sup> 54  | 10 <sup>h</sup> 56 | 1 <sup>h</sup> 11  | 0 <sup>h</sup> 51  | 19 <sup>h</sup> 11 | 2 <sup>h</sup> 36 | F 13 |
| S 14 | 11 27 51 | 23 <sup>h</sup> 50'23 | 23 <sup>h</sup> 42 | 0 <sup>h</sup> 43  | 16 <sup>h</sup> 44 | 12 <sup>h</sup> 20 | 19 <sup>h</sup> 22 | 16 <sup>h</sup> 12 | 24 <sup>h</sup> 9   | 10 <sup>h</sup> 52  | 10 <sup>h</sup> 57 | 1 <sup>h</sup> 10  | 0 <sup>h</sup> 48  | 19 <sup>h</sup> 18 | 2 <sup>h</sup> 40 | S 14 |
| S 15 | 11 31 47 | 24 <sup>h</sup> 49'57 | 8 <sup>h</sup> 9   | 1 <sup>h</sup> 51  | 17 <sup>h</sup> 58 | 13 <sup>h</sup> 5  | 19 <sup>h</sup> 36 | 16 <sup>h</sup> 15 | 24 <sup>h</sup> 8   | 10 <sup>h</sup> 51  | 10 <sup>h</sup> 58 | 1 <sup>h</sup> 6   | 0 <sup>h</sup> 45  | 19 <sup>h</sup> 25 | 2 <sup>h</sup> 44 | S 15 |
| M 16 | 11 35 44 | 25 <sup>h</sup> 49'29 | 22 <sup>h</sup> 41 | 3 <sup>h</sup> 21  | 19 <sup>h</sup> 11 | 13 <sup>h</sup> 51 | 19 <sup>h</sup> 49 | 16 <sup>h</sup> 18 | 24 <sup>h</sup> 8   | 10 <sup>h</sup> 49  | 10 <sup>h</sup> 58 | 1 <sup>h</sup> 0   | 0 <sup>h</sup> 42  | 19 <sup>h</sup> 31 | 2 <sup>h</sup> 48 | M 16 |
| T 17 | 11 39 40 | 26 <sup>h</sup> 48'58 | 7 <sup>h</sup> 12  | 4 <sup>h</sup> 52  | 20 <sup>h</sup> 25 | 14 <sup>h</sup> 36 | 20 <sup>h</sup> 3  | 16 <sup>h</sup> 22 | 24 <sup>h</sup> 7   | 10 <sup>h</sup> 48  | 11 <sup>h</sup> 0  | 0 <sup>h</sup> 51  | 0 <sup>h</sup> 38  | 19 <sup>h</sup> 38 | 2 <sup>h</sup> 51 | T 17 |
| W 18 | 11 43 37 | 27 <sup>h</sup> 48'26 | 21 <sup>h</sup> 37 | 6 <sup>h</sup> 25  | 21 <sup>h</sup> 39 | 15 <sup>h</sup> 21 | 20 <sup>h</sup> 17 | 16 <sup>h</sup> 25 | 24 <sup>h</sup> 6   | 10 <sup>h</sup> 46  | 11 <sup>h</sup> 1  | 0 <sup>h</sup> 39  | 0 <sup>h</sup> 35  | 19 <sup>h</sup> 45 | 2 <sup>h</sup> 55 | W 18 |
| T 19 | 11 47 33 | 28 <sup>h</sup> 47'51 | 5 <sup>h</sup> 48  | 7 <sup>h</sup> 58  | 22 <sup>h</sup> 53 | 16 <sup>h</sup> 6  | 20 <sup>h</sup> 31 | 16 <sup>h</sup> 28 | 24 <sup>h</sup> 5   | 10 <sup>h</sup> 45  | 11 <sup>h</sup> 2  | 0 <sup>h</sup> 27  | 0 <sup>h</sup> 32  | 19 <sup>h</sup> 51 | 2 <sup>h</sup> 59 | T 19 |
| F 20 | 11 51 30 | 29 <sup>h</sup> 47'15 | 19 <sup>h</sup> 40 | 9 <sup>h</sup> 33  | 24 <sup>h</sup> 6  | 16 <sup>h</sup> 51 | 20 <sup>h</sup> 45 | 16 <sup>h</sup> 32 | 24 <sup>h</sup> 5   | 10 <sup>h</sup> 43  | 11 <sup>h</sup> 3  | 0 <sup>h</sup> 15  | 0 <sup>h</sup> 29  | 19 <sup>h</sup> 58 | 3 <sup>h</sup> 3  | F 20 |
| S 21 | 11 55 27 | 0 <sup>h</sup> 46'36  | 3 <sup>h</sup> 9   | 11 <sup>h</sup> 10 | 25 <sup>h</sup> 20 | 17 <sup>h</sup> 36 | 20 <sup>h</sup> 59 | 16 <sup>h</sup> 35 | 24 <sup>h</sup> 4   | 10 <sup>h</sup> 41  | 11 <sup>h</sup> 4  | 0 <sup>h</sup> 5   | 0 <sup>h</sup> 26  | 20 <sup>h</sup> 5  | 3 <sup>h</sup> 6  | S 21 |
| S 22 | 11 59 23 | 1 <sup>h</sup> 45'56  | 16 <sup>h</sup> 14 | 12 <sup>h</sup> 48 | 26 <sup>h</sup> 33 | 18 <sup>h</sup> 21 | 21 <sup>h</sup> 13 | 16 <sup>h</sup> 39 | 24 <sup>h</sup> 4   | 10 <sup>h</sup> 40  | 11 <sup>h</sup> 5  | 29 <sup>h</sup> 57 | 0 <sup>h</sup> 23  | 20 <sup>h</sup> 11 | 3 <sup>h</sup> 10 | S 22 |
| M 23 | 12 3 20  | 2 <sup>h</sup> 45'13  | 28 <sup>h</sup> 56 | 14 <sup>h</sup> 27 | 27 <sup>h</sup> 47 | 19 <sup>h</sup> 6  | 21 <sup>h</sup> 27 | 16 <sup>h</sup> 43 | 24 <sup>h</sup> 3   | 10 <sup>h</sup> 38  | 11 <sup>h</sup> 6  | 29 <sup>h</sup> 51 | 0 <sup>h</sup> 19  | 20 <sup>h</sup> 18 | 3 <sup>h</sup> 14 | M 23 |
| T 24 | 12 7 16  | 3 <sup>h</sup> 44'29  | 11 <sup>h</sup> 17 | 16 <sup>h</sup> 8  | 29 <sup>h</sup> 0  | 19 <sup>h</sup> 51 | 21 <sup>h</sup> 41 | 16 <sup>h</sup> 47 | 24 <sup>h</sup> 3   | 10 <sup>h</sup> 36  | 11 <sup>h</sup> 7  | 29 <sup>h</sup> 49 | 0 <sup>h</sup> 16  | 20 <sup>h</sup> 25 | 3 <sup>h</sup> 17 | T 24 |
| W 25 | 12 11 13 | 4 <sup>h</sup> 43'43  | 23 <sup>h</sup> 22 | 17 <sup>h</sup> 50 | 0 <sup>h</sup> 14  | 20 <sup>h</sup> 35 | 21 <sup>h</sup> 55 | 16 <sup>h</sup> 51 | 24 <sup>h</sup> 2   | 10 <sup>h</sup> 35  | 11 <sup>h</sup> 8  | 29 <sup>h</sup> 48 | 0 <sup>h</sup> 13  | 20 <sup>h</sup> 31 | 3 <sup>h</sup> 21 | W 25 |
| T 26 | 12 15 9  | 5 <sup>h</sup> 42'56  | 5 <sup>h</sup> 16  | 19 <sup>h</sup> 33 | 1 <sup>h</sup> 27  | 21 <sup>h</sup> 20 | 22 <sup>h</sup> 9  | 16 <sup>h</sup> 55 | 24 <sup>h</sup> 2   | 10 <sup>h</sup> 33  | 11 <sup>h</sup> 9  | 29 <sup>h</sup> 48 | 0 <sup>h</sup> 10  | 20 <sup>h</sup> 38 | 3 <sup>h</sup> 24 | T 26 |
| F 27 | 12 19 6  | 6 <sup>h</sup> 42'06  | 17 <sup>h</sup> 5  | 21 <sup>h</sup> 18 | 2 <sup>h</sup> 40  | 22 <sup>h</sup> 5  | 22 <sup>h</sup> 23 | 16 <sup>h</sup> 59 | 24 <sup>h</sup> 2   | 10 <sup>h</sup> 31  | 11 <sup>h</sup> 10 | 29 <sup>h</sup> 47 | 0 <sup>h</sup> 7   | 20 <sup>h</sup> 44 | 3 <sup>h</sup> 28 | F 27 |
| S 28 | 12 23 2  | 7 <sup>h</sup> 41'15  | 28 <sup>h</sup> 54 | 23 <sup>h</sup> 4  | 3 <sup>h</sup> 54  | 22 <sup>h</sup> 49 | 22 <sup>h</sup> 37 | 17 <sup>h</sup> 3  | 24 <sup>h</sup> 1   | 10 <sup>h</sup> 30  | 11 <sup>h</sup> 11 | 29 <sup>h</sup> 46 | 0 <sup>h</sup> 3   | 20 <sup>h</sup> 51 | 3 <sup>h</sup> 31 | S 28 |
| S 29 | 12 26 59 | 8 <sup>h</sup> 40'22  | 10 <sup>h</sup> 48 | 24 <sup>h</sup> 52 | 5 <sup>h</sup> 7   | 23 <sup>h</sup> 34 | 22 <sup>h</sup> 52 | 17 <sup>h</sup> 8  | 24 <sup>h</sup> 1   | 10 <sup>h</sup> 28  | 11 <sup>h</sup> 13 | 29 <sup>h</sup> 42 | 0 <sup>h</sup> 0   | 20 <sup>h</sup> 58 | 3 <sup>h</sup> 35 | S 29 |
| M 30 | 12 30 56 | 9 <sup>h</sup> 39'27  | 22 <sup>h</sup> 51 | 26 <sup>h</sup> 41 | 6 <sup>h</sup> 20  | 24 <sup>h</sup> 19 | 23 <sup>h</sup> 6  | 17 <sup>h</sup> 12 | 24 <sup>h</sup> 1   | 10 <sup>h</sup> 27  | 11 <sup>h</sup> 14 | 29 <sup>h</sup> 36 | 29 <sup>h</sup> 57 | 21 <sup>h</sup> 4  | 3 <sup>h</sup> 38 | M 30 |
| T 31 | 12 34 52 | 10 <sup>h</sup> 38'30 | 5 <sup>h</sup> 8   | 28 <sup>h</sup> 31 | 7 <sup>h</sup> 33  | 25 <sup>h</sup> 3  | 23 <sup>h</sup> 20 | 17 <sup>h</sup> 17 | 24 <sup>h</sup> 1   | 10 <sup>h</sup> 25  | 11 <sup>h</sup> 15 | 29 <sup>h</sup> 36 | 29 <sup>h</sup> 54 | 21 <sup>h</sup> 11 | 3 <sup>h</sup> 42 | T 31 |

Delta T = 66.40 sec

Greg. Calendar

APRIL 1620 GC

00:00 UT

| Day  | Sid.t    | ☉        | ☽       | ♀      | ♀        | ♂        | ♂      | ♂        | ♂       | ♂      | ♂      | ♂      | ♂      | ♂       | ♂     | Day  |
|------|----------|----------|---------|--------|----------|----------|--------|----------|---------|--------|--------|--------|--------|---------|-------|------|
| W 1  | 12 38 49 | 11°37'32 | 17°41'  | 0°23'  | 8°46'    | 25°47'   | 23°34' | 17°11'21 | 24°D 1  | 10°R23 | 11°16' | 29°R15 | 29°51' | 21°18'  | 3°45' | W 1  |
| T 2  | 12 42 45 | 12°36'31 | 0°31'   | 2°16'  | 10° 0'   | 26°32'   | 23°49' | 17°26'   | 24°1    | 10°22  | 11°17' | 29°3   | 29°48' | 21°24'  | 3°48' | T 2  |
| F 3  | 12 46 42 | 13°35'28 | 13°37'  | 4°11'  | 11°13'   | 27°16'   | 24° 3' | 17°31'   | 24° 1   | 10°20  | 11°19' | 28°50' | 29°44' | 21°31'  | 3°52' | F 3  |
| S 4  | 12 50 38 | 14°34'24 | 26°59'  | 6° 7'  | 12°25'   | 28° 1'   | 24°17' | 17°36'   | 24° 1   | 10°18  | 11°20' | 28°38' | 29°41' | 21°38'  | 3°55' | S 4  |
| S 5  | 12 54 35 | 15°33'17 | 10°34'  | 8° 5'  | 13°38'   | 28°45'   | 24°32' | 17°41'   | 24° 1   | 10°17  | 11°21' | 28°29' | 29°38' | 21°44'  | 3°58' | S 5  |
| M 6  | 12 58 31 | 16°32'08 | 24°19'  | 10° 4' | 14°51'   | 29°29'   | 24°46' | 17°46'   | 24° 2   | 10°15  | 11°22' | 28°22' | 29°35' | 21°51'  | 4° 2' | M 6  |
| T 7  | 13 2 28  | 17°30'57 | 8°11'2  | 12° 5' | 16° 4'   | 0°13'    | 25° 0' | 17°51'   | 24° 2   | 10°13  | 11°24' | 28°18' | 29°32' | 21°58'  | 4° 5' | T 7  |
| W 8  | 13 6 25  | 18°29'44 | 22°10'  | 14° 6' | 17°17'   | 0°57'    | 25°15' | 17°56'   | 24° 2   | 10°12  | 11°25' | 28°D17 | 29°28' | 22° 4'  | 4° 8' | W 8  |
| T 9  | 13 10 21 | 19°28'29 | 6°13'   | 16° 9' | 18°30'   | 1°41'    | 25°29' | 18° 1'   | 24° 3   | 10°10  | 11°26' | 28°17' | 29°25' | 22°11'  | 4°11' | T 9  |
| F 10 | 13 14 18 | 20°27'11 | 20°18'  | 18°13' | 19°42'   | 2°25'    | 25°43' | 18° 6'   | 24° 3   | 10° 8  | 11°27' | 28°R17 | 29°22' | 22°18'  | 4°14' | F 10 |
| S 11 | 13 18 14 | 21°25'51 | 4°27'   | 20°19' | 20°55'   | 3° 9'    | 25°58' | 18°12'   | 24° 4   | 10° 7  | 11°29' | 28°16' | 29°19' | 22°24'  | 4°17' | S 11 |
| S 12 | 13 22 11 | 22°24'29 | 18°36'  | 22°25' | 22° 7'   | 3°53'    | 26°12' | 18°17'   | 24° 4   | 10° 5  | 11°30' | 28°14' | 29°16' | 22°31'  | 4°20' | S 12 |
| M 13 | 13 26 7  | 23°23'04 | 2°14'45 | 24°31' | 23°20'   | 4°37'    | 26°26' | 18°23'   | 24° 5   | 10° 4  | 11°31' | 28° 9' | 29°13' | 22°38'  | 4°23' | M 13 |
| T 14 | 13 30 4  | 24°21'37 | 16°49'  | 26°39' | 24°32'   | 5°21'    | 26°41' | 18°29'   | 24° 6   | 10° 2  | 11°33' | 28° 1' | 29° 9' | 22°44'  | 4°26' | T 14 |
| W 15 | 13 34 0  | 25°20'09 | 0°47'   | 28°46' | 25°44'   | 6° 5'    | 26°55' | 18°34'   | 24° 6   | 10° 0  | 11°34' | 27°52' | 29° 6' | 22°51'  | 4°29' | W 15 |
| T 16 | 13 37 57 | 26°18'38 | 14°33'  | 0°54'  | 26°57'   | 6°48'    | 27°10' | 18°40'   | 24° 7   | 9°59   | 11°35' | 27°42' | 29° 3' | 22°58'  | 4°32' | T 16 |
| F 17 | 13 41 54 | 27°17'05 | 28° 4'  | 3° 2'  | 28° 9'   | 7°32'    | 27°24' | 18°46'   | 24° 8   | 9°57   | 11°36' | 27°32' | 29° 0' | 23° 4'  | 4°35' | F 17 |
| S 18 | 13 45 50 | 28°15'30 | 11°18'  | 5° 9'  | 29°21'   | 8°15'    | 27°38' | 18°52'   | 24° 9   | 9°56   | 11°38' | 27°23' | 28°57' | 23°11'  | 4°37' | S 18 |
| S 19 | 13 49 47 | 29°13'53 | 24°12'  | 7°16'  | 0°11'33  | 8°59'    | 27°53' | 18°58'   | 24°10   | 9°54   | 11°39' | 27°16' | 28°54' | 23°18'  | 4°40' | S 19 |
| M 20 | 13 53 43 | 0°12'15  | 6°48'   | 9°21'  | 1°45'    | 9°42'    | 28° 7' | 19° 4'   | 24°11   | 9°53   | 11°40' | 27°12' | 28°50' | 23°24'  | 4°43' | M 20 |
| T 21 | 13 57 40 | 1°10'35  | 19° 7'  | 11°25' | 2°57'    | 10°26'   | 28°21' | 19°10'   | 24°12   | 9°51   | 11°42' | 27°10' | 28°47' | 23°31'  | 4°45' | T 21 |
| W 22 | 14 1 36  | 2° 8'54  | 1°11'   | 13°27' | 4° 9'    | 11° 9'   | 28°36' | 19°16'   | 24°13   | 9°50   | 11°43' | 27°D 9 | 28°44' | 23°38'  | 4°48' | W 22 |
| T 23 | 14 5 33  | 3° 7'11  | 13° 6'  | 15°28' | 5°21'    | 11°53'   | 28°50' | 19°22'   | 24°14   | 9°48   | 11°44' | 27°10' | 28°41' | 23°44'  | 4°50' | T 23 |
| F 24 | 14 9 29  | 4° 5'26  | 24°56'  | 17°26' | 6°33'    | 12°36'   | 29° 5' | 19°28'   | 24°15   | 9°47   | 11°46' | 27°11' | 28°38' | 23°51'  | 4°53' | F 24 |
| S 25 | 14 13 26 | 5° 3'40  | 6°44'   | 19°22' | 7°44'    | 13°19'   | 29°19' | 19°35'   | 24°17   | 9°45   | 11°47' | 27°R12 | 28°34' | 23°58'  | 4°55' | S 25 |
| S 26 | 14 17 23 | 6° 1'52  | 18°41'  | 21°14' | 8°56'    | 14° 2'   | 29°33' | 19°41'   | 24°18   | 9°44   | 11°49' | 27°11' | 28°31' | 24° 4'  | 4°58' | S 26 |
| M 27 | 14 21 19 | 7° 0'03  | 0°47'   | 23° 4' | 10° 8'   | 14°45'   | 29°48' | 19°47'   | 24°19   | 9°42   | 11°50' | 27° 8' | 28°28' | 24°11'  | 5° 0' | M 27 |
| T 28 | 14 25 16 | 7°58'12  | 13° 8'  | 24°51' | 11°19'   | 15°29'   | 0°8 2  | 19°54'   | 24°21   | 9°41   | 11°51' | 27° 3' | 28°25' | 24°17'  | 5° 2' | T 28 |
| W 29 | 14 29 12 | 8°56'20  | 25°47'  | 26°34' | 12°31'   | 16°12'   | 0°16 2 | 20° 0'   | 24°22   | 9°40   | 11°53' | 26°56' | 28°22' | 24°24'  | 5° 5' | W 29 |
| T 30 | 14 33 9  | 9°54'26  | 8°47'   | 28°14' | 13°11'42 | 16°18'55 | 0°8'30 | 20°11 7  | 24°22'4 | 9°43'8 | 11°54' | 26°49' | 28°19' | 24°23'1 | 5° 7' | T 30 |

## ASTRODIENST EPHEMERIS for the year 1620

geocentric

MAY 1620 GC

00:00 UT

| Day  | Sid.t    | ☉                     | ☽                   | ♀                   | ♂                   | ♂                  | ♂                 | ♂                   | ♂                  | ♂                  | ♂                  | ♂                  | ♂                  | ♂                  | ♂                 | Day  |
|------|----------|-----------------------|---------------------|---------------------|---------------------|--------------------|-------------------|---------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|-------------------|------|
| F 1  | 14 37 5  | 10 <sup>8</sup> 52'31 | 22 <sup>Y</sup> 7   | 29 <sup>8</sup> 51  | 14 <sup>II</sup> 53 | 17 <sup>8</sup> 38 | 0 <sup>8</sup> 45 | 20 <sup>II</sup> 14 | 24 <sup>2</sup> 25 | 9 <sup>R</sup> 37  | 11 <sup>8</sup> 55 | 26 <sup>R</sup> 41 | 28 <sup>7</sup> 15 | 24 <sup>3</sup> 37 | 5 <sup>H</sup> 9  | F 1  |
| S 2  | 14 41 2  | 11°50'34              | 5 <sup>8</sup> 48   | 1 <sup>II</sup> 24  | 16° 5               | 18°20              | 0°59              | 20°20               | 24°27              | 9 <sup>II</sup> 35 | 11°57              | 26 <sup>7</sup> 34 | 28°12              | 24°44              | 5°11              | S 2  |
| S 3  | 14 44 58 | 12°48'35              | 19°45               | 2°52                | 17°16               | 19° 3              | 1°13              | 20°27               | 24°28              | 9°34               | 11°58              | 26°28              | 28° 9              | 24°51              | 5°13              | S 3  |
| M 4  | 14 48 55 | 13°46'36              | 3 <sup>II</sup> 55  | 4°18                | 18°27               | 19°46              | 1°27              | 20°34               | 24°30              | 9°33               | 11°59              | 26°24              | 28° 6              | 24°57              | 5°15              | M 4  |
| T 5  | 14 52 51 | 14°44'34              | 18°14               | 5°39                | 19°38               | 20°29              | 1°42              | 20°41               | 24°32              | 9°32               | 12° 1              | 26°22              | 28° 3              | 25° 4              | 5°17              | T 5  |
| W 6  | 14 56 48 | 15°42'31              | 2 <sup>2</sup> 36   | 6°56                | 20°49               | 21°12              | 1°56              | 20°48               | 24°34              | 9°30               | 12° 2              | 26°D22             | 28° 0              | 25°11              | 5°19              | W 6  |
| T 7  | 15 0 45  | 16°40'26              | 16°57               | 8° 9                | 22° 0               | 21°54              | 2°10              | 20°55               | 24°35              | 9°29               | 12° 3              | 26°23              | 27°56              | 25°17              | 5°21              | T 7  |
| F 8  | 15 4 41  | 17°38'19              | 1 <sup>II</sup> 15  | 9°18                | 23°11               | 22°37              | 2°24              | 21° 2               | 24°37              | 9°28               | 12° 5              | 26°24              | 27°53              | 25°24              | 5°23              | F 8  |
| S 9  | 15 8 38  | 18°36'10              | 15°26               | 10°23               | 24°21               | 23°19              | 2°38              | 21° 9               | 24°39              | 9°27               | 12° 6              | 26°R25             | 27°50              | 25°31              | 5°24              | S 9  |
| S 10 | 15 12 34 | 19°33'59              | 29°30               | 11°24               | 25°32               | 24° 2              | 2°52              | 21°16               | 24°41              | 9°25               | 12° 8              | 26°25              | 27°47              | 25°37              | 5°26              | S 10 |
| M 11 | 15 16 31 | 20°31'47              | 13 <sup>II</sup> 24 | 12°20               | 26°43               | 24°44              | 3° 6              | 21°23               | 24°43              | 9°24               | 12° 9              | 26°23              | 27°44              | 25°44              | 5°28              | M 11 |
| T 12 | 15 20 27 | 21°29'33              | 27° 9               | 13°12               | 27°53               | 25°27              | 3°20              | 21°30               | 24°45              | 9°23               | 12°10              | 26°19              | 27°40              | 25°51              | 5°29              | T 12 |
| W 13 | 15 24 24 | 22°27'17              | 10 <sup>II</sup> 41 | 14° 0               | 29° 4               | 26° 9              | 3°34              | 21°37               | 24°47              | 9°22               | 12°12              | 26°15              | 27°37              | 25°57              | 5°31              | W 13 |
| T 14 | 15 28 20 | 23°25'00              | 24° 2               | 14°43               | 0 <sup>2</sup> 14   | 26°51              | 3°48              | 21°44               | 24°50              | 9°21               | 12°13              | 26° 9              | 27°34              | 26° 4              | 5°32              | T 14 |
| F 15 | 15 32 17 | 24°22'41              | 7 <sup>II</sup> 8   | 15°22               | 1°24                | 27°33              | 4° 2              | 21°51               | 24°52              | 9°20               | 12°14              | 26° 4              | 27°31              | 26°11              | 5°34              | F 15 |
| S 16 | 15 36 14 | 25°20'21              | 20° 0               | 15°56               | 2°34                | 28°16              | 4°16              | 21°59               | 24°54              | 9°19               | 12°16              | 26° 0              | 27°28              | 26°17              | 5°35              | S 16 |
| S 17 | 15 40 10 | 26°17'59              | 2 <sup>7</sup> 38   | 16°25               | 3°44                | 28°58              | 4°30              | 22° 6               | 24°56              | 9°18               | 12°17              | 25°56              | 27°25              | 26°24              | 5°37              | S 17 |
| M 18 | 15 44 7  | 27°15'36              | 15° 1               | 16°50               | 4°54                | 29°40              | 4°43              | 22°13               | 24°59              | 9°17               | 12°18              | 25°55              | 27°21              | 26°31              | 5°38              | M 18 |
| T 19 | 15 48 3  | 28°13'13              | 27°12               | 17° 9               | 6° 4                | 0 <sup>II</sup> 22 | 4°57              | 22°21               | 25° 1              | 9°16               | 12°20              | 25°D54             | 27°18              | 26°37              | 5°39              | T 19 |
| W 20 | 15 52 0  | 29°10'48              | 9 <sup>3</sup> 13   | 17°25               | 7°14                | 1° 4               | 5°11              | 22°28               | 25° 3              | 9°15               | 12°21              | 25°55              | 27°15              | 26°44              | 5°40              | W 20 |
| T 21 | 15 55 56 | 0 <sup>II</sup> 8'22  | 21° 6               | 17°35               | 8°23                | 1°46               | 5°25              | 22°36               | 25° 6              | 9°14               | 12°22              | 25°56              | 27°12              | 26°51              | 5°41              | T 21 |
| F 22 | 15 59 53 | 1° 5'55               | 2 <sup>II</sup> 56  | 17°41               | 9°33                | 2°28               | 5°38              | 22°43               | 25° 8              | 9°13               | 12°23              | 25°58              | 27° 9              | 26°57              | 5°42              | F 22 |
| S 23 | 16 3 50  | 2° 3'27               | 14°46               | 17°R42              | 10°42               | 3°10               | 5°52              | 22°51               | 25°11              | 9°12               | 12°25              | 25°59              | 27° 6              | 27° 4              | 5°43              | S 23 |
| S 24 | 16 7 46  | 3° 0'58               | 26°42               | 17°38               | 11°51               | 3°51               | 6° 5              | 22°58               | 25°13              | 9°11               | 12°26              | 26° 0              | 27° 2              | 27°11              | 5°44              | S 24 |
| M 25 | 16 11 43 | 3°58'28               | 8 <sup>II</sup> 47  | 17°30               | 13° 1               | 4°33               | 6°19              | 23° 6               | 25°16              | 9°11               | 12°27              | 26°R 0             | 26°59              | 27°17              | 5°45              | M 25 |
| T 26 | 16 15 39 | 4°55'58               | 21° 8               | 17°18               | 14°10               | 5°15               | 6°32              | 23°13               | 25°18              | 9°10               | 12°29              | 26° 0              | 26°56              | 27°24              | 5°46              | T 26 |
| W 27 | 16 19 36 | 5°53'26               | 3 <sup>Y</sup> 47   | 17° 2               | 15°19               | 5°57               | 6°46              | 23°21               | 25°21              | 9° 9               | 12°30              | 25°58              | 26°53              | 27°31              | 5°47              | W 27 |
| T 28 | 16 23 32 | 6°50'54               | 16°49               | 16°42               | 16°28               | 6°38               | 6°59              | 23°28               | 25°24              | 9° 8               | 12°31              | 25°55              | 26°50              | 27°37              | 5°47              | T 28 |
| F 29 | 16 27 29 | 7°48'22               | 0 <sup>8</sup> 15   | 16°19               | 17°36               | 7°20               | 7°12              | 23°36               | 25°27              | 9° 8               | 12°32              | 25°53              | 26°46              | 27°44              | 5°48              | F 29 |
| S 30 | 16 31 25 | 8°45'48               | 14° 5               | 15°53               | 18°45               | 8° 1               | 7°26              | 23°44               | 25°29              | 9° 7               | 12°34              | 25°51              | 26°43              | 27°51              | 5°49              | S 30 |
| S 31 | 16 35 22 | 9 <sup>II</sup> 43'14 | 28 <sup>8</sup> 17  | 15 <sup>II</sup> 24 | 19 <sup>2</sup> 54  | 8 <sup>II</sup> 43 | 7 <sup>8</sup> 39 | 23 <sup>II</sup> 51 | 25 <sup>2</sup> 32 | 9 <sup>II</sup> 6  | 12 <sup>8</sup> 35 | 25 <sup>7</sup> 49 | 26 <sup>7</sup> 40 | 27 <sup>3</sup> 57 | 5 <sup>H</sup> 49 | S 31 |

Delta T = 66.25 sec

Greg. Calendar

JUNE 1620 GC

00:00 UT

| Day  | Sid.t    | ☉                      | ☽                   | ♀                   | ♂                   | ♂                  | ♂                  | ♂                   | ♂                  | ♂                 | ♂                  | ♂                  | ♂                  | ♂                  | ♂                 | Day  |
|------|----------|------------------------|---------------------|---------------------|---------------------|--------------------|--------------------|---------------------|--------------------|-------------------|--------------------|--------------------|--------------------|--------------------|-------------------|------|
| M 1  | 16 39 19 | 10 <sup>II</sup> 40'39 | 12 <sup>II</sup> 46 | 14°R54              | 21 <sup>2</sup> 2   | 9 <sup>II</sup> 24 | 7 <sup>8</sup> 52  | 23 <sup>II</sup> 59 | 25 <sup>2</sup> 35 | 9°R 6             | 12 <sup>8</sup> 36 | 25°R48             | 26 <sup>7</sup> 37 | 28 <sup>3</sup> 4  | 5 <sup>H</sup> 50 | M 1  |
| T 2  | 16 43 15 | 11°38'03               | 27°28               | 14 <sup>II</sup> 21 | 22°10               | 10° 6              | 8° 5               | 24° 7               | 25°38              | 9° 5              | 12°37              | 25°D47             | 26°34              | 28°11              | 5°50              | T 2  |
| W 3  | 16 47 12 | 12°35'27               | 12 <sup>2</sup> 16  | 13°48               | 23°19               | 10°47              | 8°18               | 24°15               | 25°41              | 9° 5              | 12°39              | 25 <sup>7</sup> 48 | 26°31              | 28°17              | 5°50              | W 3  |
| T 4  | 16 51 8  | 13°32'49               | 27° 1               | 13°15               | 24°27               | 11°28              | 8°31               | 24°22               | 25°44              | 9° 4              | 12°40              | 25°49              | 26°27              | 28°24              | 5°51              | T 4  |
| F 5  | 16 55 5  | 14°30'10               | 11 <sup>II</sup> 39 | 12°41               | 25°35               | 12°10              | 8°44               | 24°30               | 25°47              | 9° 4              | 12°41              | 25°50              | 26°24              | 28°31              | 5°51              | F 5  |
| S 6  | 16 59 1  | 15°27'30               | 26° 3               | 12° 9               | 26°42               | 12°51              | 8°57               | 24°38               | 25°50              | 9° 3              | 12°42              | 25°50              | 26°21              | 28°37              | 5°51              | S 6  |
| S 7  | 17 2 58  | 16°24'49               | 10 <sup>II</sup> 12 | 11°37               | 27°50               | 13°32              | 9°10               | 24°46               | 25°53              | 9° 3              | 12°43              | 25°R51             | 26°18              | 28°44              | 5°51              | S 7  |
| M 8  | 17 6 54  | 17°22'08               | 24° 4               | 11° 8               | 28°58               | 14°13              | 9°23               | 24°53               | 25°56              | 9° 2              | 12°44              | 25°51              | 26°15              | 28°51              | 5°R51             | M 8  |
| T 9  | 17 10 51 | 18°19'25               | 7 <sup>II</sup> 37  | 10°40               | 0 <sup>II</sup> 5   | 14°54              | 9°35               | 25° 1               | 25°59              | 9° 2              | 12°46              | 25°50              | 26°12              | 28°57              | 5°51              | T 9  |
| W 10 | 17 14 48 | 19°16'41               | 20°54               | 10°16               | 1°12                | 15°35              | 9°48               | 25° 9               | 26° 2              | 9° 2              | 12°47              | 25°50              | 26° 8              | 29° 4              | 5°51              | W 10 |
| T 11 | 17 18 44 | 20°13'56               | 3 <sup>II</sup> 54  | 9°55                | 2°19                | 16°16              | 10° 0              | 25°17               | 26° 5              | 9° 1              | 12°48              | 25°49              | 26° 5              | 29°11              | 5°51              | T 11 |
| F 12 | 17 22 41 | 21°11'11               | 16°39               | 9°37                | 3°26                | 16°57              | 10°13              | 25°25               | 26° 8              | 9° 1              | 12°49              | 25°48              | 26° 2              | 29°17              | 5°51              | F 12 |
| S 13 | 17 26 37 | 22° 8'25               | 29°11               | 9°23                | 4°33                | 17°38              | 10°25              | 25°33               | 26°11              | 9° 1              | 12°50              | 25°48              | 25°59              | 29°24              | 5°51              | S 13 |
| S 14 | 17 30 34 | 23° 5'39               | 11 <sup>7</sup> 31  | 9°13                | 5°39                | 18°19              | 10°38              | 25°40               | 26°14              | 9° 1              | 12°51              | 25°48              | 25°56              | 29°31              | 5°50              | S 14 |
| M 15 | 17 34 30 | 24° 2'52               | 23°41               | 9° 8                | 6°46                | 19° 0              | 10°50              | 25°48               | 26°18              | 9° 1              | 12°52              | 25°D48             | 25°52              | 29°37              | 5°50              | M 15 |
| T 16 | 17 38 27 | 25° 0'05               | 5 <sup>3</sup> 42   | 9°D 7               | 7°52                | 19°40              | 11° 2              | 25°56               | 26°21              | 9° 0              | 12°53              | 25°48              | 25°49              | 29°44              | 5°49              | T 16 |
| W 17 | 17 42 23 | 25°57'17               | 17°37               | 9°11                | 8°58                | 20°21              | 11°14              | 26° 4               | 26°24              | 9° 0              | 12°54              | 25°R48             | 25°46              | 29°51              | 5°49              | W 17 |
| T 18 | 17 46 20 | 26°54'29               | 29°28               | 9°19                | 10° 4               | 21° 2              | 11°26              | 26°12               | 26°28              | 9° 0              | 12°55              | 25°48              | 25°43              | 29°57              | 5°49              | T 18 |
| F 19 | 17 50 17 | 27°51'41               | 11 <sup>II</sup> 17 | 9°33                | 11°10               | 21°42              | 11°38              | 26°20               | 26°31              | 9° 0              | 12°56              | 25°47              | 25°40              | 0 <sup>II</sup> 4  | 5°48              | F 19 |
| S 20 | 17 54 13 | 28°48'53               | 23° 8               | 9°51                | 12°15               | 22°23              | 11°50              | 26°27               | 26°34              | 9°D 0             | 12°57              | 25°47              | 25°37              | 0°11               | 5°47              | S 20 |
| S 21 | 17 58 10 | 29°46'04               | 5 <sup>H</sup> 4    | 10°13               | 13°21               | 23° 3              | 12° 2              | 26°35               | 26°38              | 9° 0              | 12°58              | 25°47              | 25°33              | 0°17               | 5°47              | S 21 |
| M 22 | 18 2 6   | 0 <sup>2</sup> 43'16   | 17°10               | 10°41               | 14°26               | 23°44              | 12°14              | 26°43               | 26°41              | 9° 0              | 12°59              | 25°46              | 25°30              | 0°24               | 5°46              | M 22 |
| T 23 | 18 6 3   | 1°40'27                | 29°29               | 11°13               | 15°31               | 24°24              | 12°25              | 26°51               | 26°44              | 9° 0              | 13° 0              | 25°D46             | 25°27              | 0°31               | 5°45              | T 23 |
| W 24 | 18 9 59  | 2°37'39                | 12 <sup>Y</sup> 5   | 11°50               | 16°35               | 25° 5              | 12°37              | 26°59               | 26°48              | 9° 0              | 13° 1              | 25°46              | 25°24              | 0°37               | 5°44              | W 24 |
| T 25 | 18 13 56 | 3°34'51                | 25° 3               | 12°31               | 17°40               | 25°45              | 12°48              | 27° 7               | 26°51              | 9° 1              | 13° 2              | 25°47              | 25°21              | 0°44               | 5°43              | T 25 |
| F 26 | 18 17 52 | 4°32'03                | 8 <sup>8</sup> 26   | 13°17               | 18°44               | 26°26              | 13° 0              | 27°14               | 26°55              | 9° 1              | 13° 3              | 25°47              | 25°18              | 0°51               | 5°42              | F 26 |
| S 27 | 18 21 49 | 5°29'15                | 22°15               | 14° 8               | 19°48               | 27° 6              | 13°11              | 27°22               | 26°58              | 9° 1              | 13° 4              | 25°48              | 25°14              | 0°57               | 5°41              | S 27 |
| S 28 | 18 25 46 | 6°26'28                | 6 <sup>II</sup> 29  | 15° 3               | 20°52               | 27°46              | 13°22              | 27°30               | 27° 2              | 9° 1              | 13° 5              | 25°49              | 25°11              | 1° 4               | 5°40              | S 28 |
| M 29 | 18 29 42 | 7°23'41                | 21° 7               | 16° 2               | 21°56               | 28°26              | 13°33              | 27°38               | 27° 5              | 9° 2              | 13° 6              | 25°R49             | 25° 8              | 1°11               | 5°39              | M 29 |
| T 30 | 18 33 39 | 8 <sup>2</sup> 20'53   | 6 <sup>2</sup> 2    | 17 <sup>II</sup> 6  | 22 <sup>II</sup> 59 | 29 <sup>II</sup> 7 | 13 <sup>8</sup> 44 | 27 <sup>II</sup> 46 | 27 <sup>2</sup> 9  | 9 <sup>II</sup> 2 | 13 <sup>8</sup> 7  | 25 <sup>7</sup> 49 | 25 <sup>7</sup> 5  | 1 <sup>II</sup> 17 | 5 <sup>H</sup> 38 | T 30 |

Delta T = 66.17 sec

Greg. Calendar

ASTRODIENST EPHEMERIS for the year 1620  
geocentric

JULY 1620 GC

00:00 UT

| Day  | Sid.t    | ☉                      | ☽                   | ♀                   | ♂                   | ♂                   | ♂                   | ♂                   | ♂                   | ♂                  | ♂                   | ♂                    | ♂                   | ♂                  | ♂                   | Day  |
|------|----------|------------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|--------------------|---------------------|----------------------|---------------------|--------------------|---------------------|------|
| W 1  | 18 37 35 | 9 <sup>55</sup> 18'06  | 21 <sup>55</sup> 7  | 18 <sup>11</sup> 14 | 24 <sup>10</sup> 2  | 29 <sup>11</sup> 47 | 13 <sup>18</sup> 55 | 27 <sup>11</sup> 53 | 27 <sup>11</sup> 53 | 9 <sup>11</sup> 2  | 13 <sup>18</sup> 7  | 25 <sup>10</sup> R48 | 25 <sup>10</sup> 2  | 1 <sup>11</sup> 24 | 5 <sup>10</sup> R37 | W 1  |
| T 2  | 18 41 32 | 10 <sup>15</sup> 19    | 6 <sup>10</sup> 13  | 19 <sup>26</sup> 5  | 25 <sup>10</sup> 5  | 0 <sup>11</sup> 27  | 14 <sup>10</sup> 6  | 28 <sup>10</sup> 1  | 27 <sup>10</sup> 16 | 9 <sup>10</sup> 3  | 13 <sup>10</sup> 8  | 25 <sup>10</sup> 47  | 24 <sup>10</sup> 58 | 1 <sup>10</sup> 31 | 5 <sup>10</sup> R35 | T 2  |
| F 3  | 18 45 28 | 11 <sup>12</sup> 32    | 21 <sup>10</sup> 12 | 20 <sup>42</sup> 2  | 26 <sup>10</sup> 7  | 1 <sup>10</sup> 7   | 14 <sup>10</sup> 17 | 28 <sup>10</sup> 9  | 27 <sup>10</sup> 19 | 9 <sup>10</sup> 3  | 13 <sup>10</sup> 9  | 25 <sup>10</sup> 45  | 24 <sup>10</sup> 55 | 1 <sup>10</sup> 37 | 5 <sup>10</sup> R34 | F 3  |
| S 4  | 18 49 25 | 12 <sup>10</sup> 9'45  | 5 <sup>10</sup> 54  | 22 <sup>10</sup> 2  | 27 <sup>10</sup> 10 | 1 <sup>10</sup> 47  | 14 <sup>10</sup> 28 | 28 <sup>10</sup> 16 | 27 <sup>10</sup> 23 | 9 <sup>10</sup> 3  | 13 <sup>10</sup> 10 | 25 <sup>10</sup> 43  | 24 <sup>10</sup> 52 | 1 <sup>10</sup> 44 | 5 <sup>10</sup> R33 | S 4  |
| S 5  | 18 53 21 | 13 <sup>10</sup> 6'58  | 20 <sup>15</sup> 23 | 23 <sup>10</sup> 27 | 28 <sup>10</sup> 12 | 2 <sup>10</sup> 27  | 14 <sup>10</sup> 38 | 28 <sup>10</sup> 24 | 27 <sup>10</sup> 27 | 9 <sup>10</sup> 4  | 13 <sup>10</sup> 11 | 25 <sup>10</sup> 42  | 24 <sup>10</sup> 49 | 1 <sup>10</sup> 51 | 5 <sup>10</sup> R31 | S 5  |
| M 6  | 18 57 18 | 14 <sup>10</sup> 4'10  | 4 <sup>10</sup> 12  | 24 <sup>10</sup> 55 | 29 <sup>10</sup> 14 | 3 <sup>10</sup> 7   | 14 <sup>10</sup> 48 | 28 <sup>10</sup> 32 | 27 <sup>10</sup> 30 | 9 <sup>10</sup> 4  | 13 <sup>10</sup> 11 | 25 <sup>10</sup> 41  | 24 <sup>10</sup> 46 | 1 <sup>10</sup> 57 | 5 <sup>10</sup> R30 | M 6  |
| T 7  | 19 1 15  | 15 <sup>10</sup> 1'23  | 17 <sup>10</sup> 45 | 26 <sup>10</sup> 27 | 0 <sup>10</sup> 15  | 3 <sup>10</sup> 47  | 14 <sup>10</sup> 59 | 28 <sup>10</sup> 39 | 27 <sup>10</sup> 34 | 9 <sup>10</sup> 5  | 13 <sup>10</sup> 12 | 25 <sup>10</sup> D41 | 24 <sup>10</sup> 43 | 2 <sup>10</sup> 4  | 5 <sup>10</sup> R28 | T 7  |
| W 8  | 19 5 11  | 15 <sup>10</sup> 58'35 | 0 <sup>10</sup> 54  | 28 <sup>10</sup> 4  | 1 <sup>10</sup> 16  | 4 <sup>10</sup> 27  | 15 <sup>10</sup> 9  | 28 <sup>10</sup> 47 | 27 <sup>10</sup> 37 | 9 <sup>10</sup> 6  | 13 <sup>10</sup> 13 | 25 <sup>10</sup> 41  | 24 <sup>10</sup> 39 | 2 <sup>10</sup> 11 | 5 <sup>10</sup> R27 | W 8  |
| T 9  | 19 9 8   | 16 <sup>10</sup> 55'48 | 13 <sup>10</sup> 43 | 29 <sup>10</sup> 43 | 2 <sup>10</sup> 17  | 5 <sup>10</sup> 6   | 15 <sup>10</sup> 19 | 28 <sup>10</sup> 55 | 27 <sup>10</sup> 41 | 9 <sup>10</sup> 6  | 13 <sup>10</sup> 14 | 25 <sup>10</sup> 42  | 24 <sup>10</sup> 36 | 2 <sup>10</sup> 18 | 5 <sup>10</sup> R25 | T 9  |
| F 10 | 19 13 4  | 17 <sup>10</sup> 53'00 | 26 <sup>10</sup> 14 | 1 <sup>10</sup> 26  | 3 <sup>10</sup> 18  | 5 <sup>10</sup> 46  | 15 <sup>10</sup> 29 | 29 <sup>10</sup> 2  | 27 <sup>10</sup> 45 | 9 <sup>10</sup> 7  | 13 <sup>10</sup> 14 | 25 <sup>10</sup> 44  | 24 <sup>10</sup> 33 | 2 <sup>10</sup> 24 | 5 <sup>10</sup> R23 | F 10 |
| S 11 | 19 17 1  | 18 <sup>10</sup> 50'13 | 8 <sup>10</sup> 32  | 3 <sup>10</sup> 13  | 4 <sup>10</sup> 18  | 6 <sup>10</sup> 26  | 15 <sup>10</sup> 39 | 29 <sup>10</sup> 10 | 27 <sup>10</sup> 48 | 9 <sup>10</sup> 7  | 13 <sup>10</sup> 15 | 25 <sup>10</sup> 45  | 24 <sup>10</sup> 30 | 2 <sup>10</sup> 31 | 5 <sup>10</sup> R21 | S 11 |
| S 12 | 19 20 57 | 19 <sup>10</sup> 47'27 | 20 <sup>10</sup> 38 | 5 <sup>10</sup> 3   | 5 <sup>10</sup> 18  | 7 <sup>10</sup> 6   | 15 <sup>10</sup> 49 | 29 <sup>10</sup> 17 | 27 <sup>10</sup> 52 | 9 <sup>10</sup> 8  | 13 <sup>10</sup> 16 | 25 <sup>10</sup> R46 | 24 <sup>10</sup> 27 | 2 <sup>10</sup> 38 | 5 <sup>10</sup> R20 | S 12 |
| M 13 | 19 24 54 | 20 <sup>10</sup> 44'40 | 2 <sup>10</sup> 37  | 6 <sup>10</sup> 56  | 6 <sup>10</sup> 17  | 7 <sup>10</sup> 45  | 15 <sup>10</sup> 58 | 29 <sup>10</sup> 25 | 27 <sup>10</sup> 56 | 9 <sup>10</sup> 9  | 13 <sup>10</sup> 16 | 25 <sup>10</sup> 46  | 24 <sup>10</sup> 24 | 2 <sup>10</sup> 44 | 5 <sup>10</sup> R18 | M 13 |
| T 14 | 19 28 51 | 21 <sup>10</sup> 41'54 | 14 <sup>10</sup> 31 | 8 <sup>10</sup> 51  | 7 <sup>10</sup> 16  | 8 <sup>10</sup> 25  | 16 <sup>10</sup> 8  | 29 <sup>10</sup> 32 | 27 <sup>10</sup> 59 | 9 <sup>10</sup> 10 | 13 <sup>10</sup> 17 | 25 <sup>10</sup> 45  | 24 <sup>10</sup> 20 | 2 <sup>10</sup> 51 | 5 <sup>10</sup> R16 | T 14 |
| W 15 | 19 32 47 | 22 <sup>10</sup> 39'09 | 26 <sup>10</sup> 21 | 10 <sup>10</sup> 49 | 8 <sup>10</sup> 15  | 9 <sup>10</sup> 4   | 16 <sup>10</sup> 17 | 29 <sup>10</sup> 40 | 28 <sup>10</sup> 3  | 9 <sup>10</sup> 10 | 13 <sup>10</sup> 17 | 25 <sup>10</sup> 42  | 24 <sup>10</sup> 17 | 2 <sup>10</sup> 58 | 5 <sup>10</sup> R14 | W 15 |
| T 16 | 19 36 44 | 23 <sup>10</sup> 36'23 | 8 <sup>10</sup> 11  | 12 <sup>10</sup> 49 | 9 <sup>10</sup> 13  | 9 <sup>10</sup> 44  | 16 <sup>10</sup> 27 | 29 <sup>10</sup> 47 | 28 <sup>10</sup> 7  | 9 <sup>10</sup> 11 | 13 <sup>10</sup> 18 | 25 <sup>10</sup> 38  | 24 <sup>10</sup> 14 | 3 <sup>10</sup> 4  | 5 <sup>10</sup> R12 | T 16 |
| F 17 | 19 40 40 | 24 <sup>10</sup> 33'39 | 20 <sup>10</sup> 2  | 14 <sup>10</sup> 51 | 10 <sup>10</sup> 11 | 10 <sup>10</sup> 23 | 16 <sup>10</sup> 36 | 29 <sup>10</sup> 55 | 28 <sup>10</sup> 10 | 9 <sup>10</sup> 12 | 13 <sup>10</sup> 19 | 25 <sup>10</sup> 34  | 24 <sup>10</sup> 11 | 3 <sup>10</sup> 11 | 5 <sup>10</sup> R10 | F 17 |
| S 18 | 19 44 37 | 25 <sup>10</sup> 30'55 | 1 <sup>10</sup> 56  | 16 <sup>10</sup> 55 | 11 <sup>10</sup> 8  | 11 <sup>10</sup> 3  | 16 <sup>10</sup> 45 | 0 <sup>10</sup> 2   | 28 <sup>10</sup> 14 | 9 <sup>10</sup> 13 | 13 <sup>10</sup> 19 | 25 <sup>10</sup> 29  | 24 <sup>10</sup> 8  | 3 <sup>10</sup> 18 | 5 <sup>10</sup> R8  | S 18 |
| S 19 | 19 48 33 | 26 <sup>10</sup> 28'12 | 13 <sup>10</sup> 55 | 19 <sup>10</sup> 0  | 12 <sup>10</sup> 5  | 11 <sup>10</sup> 42 | 16 <sup>10</sup> 54 | 0 <sup>10</sup> 9   | 28 <sup>10</sup> 18 | 9 <sup>10</sup> 14 | 13 <sup>10</sup> 20 | 25 <sup>10</sup> 24  | 24 <sup>10</sup> 4  | 3 <sup>10</sup> 24 | 5 <sup>10</sup> R6  | S 19 |
| M 20 | 19 52 30 | 27 <sup>10</sup> 25'30 | 26 <sup>10</sup> 3  | 21 <sup>10</sup> 5  | 13 <sup>10</sup> 2  | 12 <sup>10</sup> 22 | 17 <sup>10</sup> 3  | 0 <sup>10</sup> 17  | 28 <sup>10</sup> 21 | 9 <sup>10</sup> 15 | 13 <sup>10</sup> 20 | 25 <sup>10</sup> 19  | 24 <sup>10</sup> 1  | 3 <sup>10</sup> 31 | 5 <sup>10</sup> R5  | M 20 |
| T 21 | 19 56 26 | 28 <sup>10</sup> 22'49 | 8 <sup>10</sup> 23  | 23 <sup>10</sup> 12 | 13 <sup>10</sup> 58 | 13 <sup>10</sup> 1  | 17 <sup>10</sup> 11 | 0 <sup>10</sup> 24  | 28 <sup>10</sup> 25 | 9 <sup>10</sup> 16 | 13 <sup>10</sup> 21 | 25 <sup>10</sup> 16  | 23 <sup>10</sup> 58 | 3 <sup>10</sup> 38 | 5 <sup>10</sup> R2  | T 21 |
| W 22 | 20 0 23  | 29 <sup>10</sup> 20'08 | 20 <sup>10</sup> 58 | 25 <sup>10</sup> 18 | 14 <sup>10</sup> 54 | 13 <sup>10</sup> 41 | 17 <sup>10</sup> 20 | 0 <sup>10</sup> 31  | 28 <sup>10</sup> 29 | 9 <sup>10</sup> 17 | 13 <sup>10</sup> 21 | 25 <sup>10</sup> 15  | 23 <sup>10</sup> 55 | 3 <sup>10</sup> 44 | 4 <sup>10</sup> 59  | W 22 |
| T 23 | 20 4 19  | 0 <sup>10</sup> 17'29  | 3 <sup>10</sup> 52  | 27 <sup>10</sup> 25 | 15 <sup>10</sup> 49 | 14 <sup>10</sup> 20 | 17 <sup>10</sup> 28 | 0 <sup>10</sup> 38  | 28 <sup>10</sup> 32 | 9 <sup>10</sup> 18 | 13 <sup>10</sup> 21 | 25 <sup>10</sup> D14 | 23 <sup>10</sup> 52 | 3 <sup>10</sup> 51 | 4 <sup>10</sup> 57  | T 23 |
| F 24 | 20 8 16  | 1 <sup>10</sup> 14'51  | 17 <sup>10</sup> 7  | 29 <sup>10</sup> 31 | 16 <sup>10</sup> 44 | 14 <sup>10</sup> 59 | 17 <sup>10</sup> 36 | 0 <sup>10</sup> 45  | 28 <sup>10</sup> 36 | 9 <sup>10</sup> 19 | 13 <sup>10</sup> 22 | 25 <sup>10</sup> 15  | 23 <sup>10</sup> 49 | 3 <sup>10</sup> 58 | 4 <sup>10</sup> 55  | F 24 |
| S 25 | 20 12 13 | 2 <sup>10</sup> 12'14  | 0 <sup>10</sup> 48  | 1 <sup>10</sup> 37  | 17 <sup>10</sup> 38 | 15 <sup>10</sup> 38 | 17 <sup>10</sup> 45 | 0 <sup>10</sup> 53  | 28 <sup>10</sup> 40 | 9 <sup>10</sup> 20 | 13 <sup>10</sup> 22 | 25 <sup>10</sup> 17  | 23 <sup>10</sup> 45 | 4 <sup>10</sup> 4  | 4 <sup>10</sup> 53  | S 25 |
| S 26 | 20 16 9  | 3 <sup>10</sup> 9'38   | 14 <sup>10</sup> 55 | 3 <sup>10</sup> 42  | 18 <sup>10</sup> 31 | 16 <sup>10</sup> 18 | 17 <sup>10</sup> 53 | 1 <sup>10</sup> 0   | 28 <sup>10</sup> 44 | 9 <sup>10</sup> 21 | 13 <sup>10</sup> 23 | 25 <sup>10</sup> 18  | 23 <sup>10</sup> 42 | 4 <sup>10</sup> 11 | 4 <sup>10</sup> 50  | S 26 |
| M 27 | 20 20 6  | 4 <sup>10</sup> 7'04   | 29 <sup>10</sup> 27 | 5 <sup>10</sup> 47  | 19 <sup>10</sup> 24 | 16 <sup>10</sup> 57 | 18 <sup>10</sup> 1  | 1 <sup>10</sup> 7   | 28 <sup>10</sup> 47 | 9 <sup>10</sup> 22 | 13 <sup>10</sup> 23 | 25 <sup>10</sup> R18 | 23 <sup>10</sup> 39 | 4 <sup>10</sup> 18 | 4 <sup>10</sup> 48  | M 27 |
| T 28 | 20 24 2  | 5 <sup>10</sup> 4'30   | 14 <sup>10</sup> 22 | 7 <sup>10</sup> 50  | 20 <sup>10</sup> 17 | 17 <sup>10</sup> 36 | 18 <sup>10</sup> 8  | 1 <sup>10</sup> 14  | 28 <sup>10</sup> 51 | 9 <sup>10</sup> 23 | 13 <sup>10</sup> 23 | 25 <sup>10</sup> 17  | 23 <sup>10</sup> 36 | 4 <sup>10</sup> 24 | 4 <sup>10</sup> 45  | T 28 |
| W 29 | 20 27 59 | 6 <sup>10</sup> 1'58   | 29 <sup>10</sup> 31 | 9 <sup>10</sup> 52  | 21 <sup>10</sup> 9  | 18 <sup>10</sup> 15 | 18 <sup>10</sup> 16 | 1 <sup>10</sup> 21  | 28 <sup>10</sup> 55 | 9 <sup>10</sup> 25 | 13 <sup>10</sup> 24 | 25 <sup>10</sup> 14  | 23 <sup>10</sup> 33 | 4 <sup>10</sup> 31 | 4 <sup>10</sup> 43  | W 29 |
| T 30 | 20 31 55 | 6 <sup>10</sup> 59'26  | 14 <sup>10</sup> 46 | 11 <sup>10</sup> 53 | 22 <sup>10</sup> 0  | 18 <sup>10</sup> 54 | 18 <sup>10</sup> 23 | 1 <sup>10</sup> 27  | 28 <sup>10</sup> 58 | 9 <sup>10</sup> 26 | 13 <sup>10</sup> 24 | 25 <sup>10</sup> 9   | 23 <sup>10</sup> 30 | 4 <sup>10</sup> 38 | 4 <sup>10</sup> 40  | T 30 |
| F 31 | 20 35 52 | 7 <sup>10</sup> 56'56  | 29 <sup>10</sup> 57 | 13 <sup>10</sup> 52 | 22 <sup>10</sup> 51 | 19 <sup>10</sup> 33 | 18 <sup>10</sup> 31 | 1 <sup>10</sup> 34  | 29 <sup>10</sup> 2  | 9 <sup>10</sup> 27 | 13 <sup>10</sup> 24 | 25 <sup>10</sup> 3   | 23 <sup>10</sup> 26 | 4 <sup>10</sup> 44 | 4 <sup>10</sup> 38  | F 31 |

Delta T = 66.09 sec

Greg. Calendar

AUGUST 1620 GC

00:00 UT

| Day  | Sid.t    | ☉        | ☽     | ♀     | ♂     | ♂     | ♂     | ♂    | ♂     | ♂     | ♂      | ♂      | ♂     | ♂    | ♂     | Day  |
|------|----------|----------|-------|-------|-------|-------|-------|------|-------|-------|--------|--------|-------|------|-------|------|
| S 1  | 20 39 49 | 8♌54'26  | 14♍53 | 15♌51 | 23♍41 | 20♌12 | 18♌38 | 1♌41 | 29♌6  | 9♌28  | 13♌24  | 24°R56 | 23♌23 | 4♌51 | 4°R35 | S 1  |
| S 2  | 20 43 45 | 9♍51'57  | 29°26 | 17°47 | 24°30 | 20°51 | 18°45 | 1°48 | 29°9  | 9°30  | 13°25  | 24°50  | 23°20 | 4°58 | 4°R33 | S 2  |
| M 3  | 20 47 42 | 10°49'29 | 13♌33 | 19°43 | 25°18 | 21°30 | 18°52 | 1°55 | 29°13 | 9°31  | 13°25  | 24°46  | 23°17 | 5°4  | 4°30  | M 3  |
| T 4  | 20 51 38 | 11°47'02 | 27°11 | 21°36 | 26°6  | 22°9  | 18°58 | 2°1  | 29°16 | 9°32  | 13°25  | 24°43  | 23°14 | 5°11 | 4°28  | T 4  |
| W 5  | 20 55 35 | 12°44'35 | 10♌21 | 23°29 | 26°53 | 22°48 | 19°5  | 2°8  | 29°20 | 9°34  | 13°25  | 24°D42 | 23°10 | 5°18 | 4°25  | W 5  |
| T 6  | 20 59 31 | 13°42'10 | 23°7  | 25°19 | 27°39 | 23°26 | 19°11 | 2°15 | 29°24 | 9°35  | 13°25  | 24°42  | 23°7  | 5°24 | 4°22  | T 6  |
| F 7  | 21 3 28  | 14°39'46 | 5♌32  | 27°9  | 28°24 | 24°5  | 19°17 | 2°21 | 29°27 | 9°36  | 13°26  | 24°43  | 23°4  | 5°31 | 4°19  | F 7  |
| S 8  | 21 7 24  | 15°37'22 | 17°42 | 28°56 | 29°9  | 24°44 | 19°23 | 2°27 | 29°31 | 9°38  | 13°26  | 24°44  | 23°1  | 5°38 | 4°17  | S 8  |
| S 9  | 21 11 21 | 16°35'00 | 29°42 | 0♍43  | 29°52 | 25°23 | 19°29 | 2°34 | 29°34 | 9°39  | 13°26  | 24°R44 | 22°58 | 5°45 | 4°14  | S 9  |
| M10  | 21 15 18 | 17°32'38 | 11♌34 | 2°27  | 0♌35  | 26°1  | 19°35 | 2°40 | 29°38 | 9°41  | 13°26  | 24°43  | 22°55 | 5°51 | 4°11  | M10  |
| T 11 | 21 19 14 | 18°30'18 | 23°23 | 4°11  | 1°16  | 26°40 | 19°41 | 2°47 | 29°42 | 9°42  | 13°26  | 24°39  | 22°51 | 5°58 | 4°8   | T 11 |
| W12  | 21 23 11 | 19°27'59 | 5♌13  | 5°53  | 1°57  | 27°19 | 19°46 | 2°53 | 29°45 | 9°44  | 13°26  | 24°33  | 22°48 | 6°5  | 4°6   | W12  |
| T 13 | 21 27 7  | 20°25'41 | 17°4  | 7°33  | 2°36  | 27°57 | 19°51 | 2°59 | 29°49 | 9°46  | 13°R26 | 24°25  | 22°45 | 6°11 | 4°3   | T 13 |
| F 14 | 21 31 4  | 21°23'25 | 28°59 | 9°12  | 3°15  | 28°36 | 19°56 | 3°5  | 29°52 | 9°47  | 13°26  | 24°15  | 22°42 | 6°18 | 4°0   | F 14 |
| S 15 | 21 35 0  | 22°21'09 | 11♌0  | 10°50 | 3°52  | 29°14 | 20°1  | 3°11 | 29°56 | 9°49  | 13°26  | 24°4   | 22°39 | 6°25 | 3°57  | S 15 |
| S 16 | 21 38 57 | 23°18'56 | 23°8  | 12°26 | 4°28  | 29°53 | 20°6  | 3°17 | 29°59 | 9°50  | 13°26  | 23°53  | 22°35 | 6°31 | 3°54  | S 16 |
| M17  | 21 42 53 | 24°16'44 | 5♍24  | 14°1  | 5°2   | 0♌31  | 20°11 | 3°23 | 0♌3   | 9°52  | 13°26  | 23°43  | 22°32 | 6°38 | 3°51  | M17  |
| T 18 | 21 46 50 | 25°14'33 | 17°50 | 15°34 | 5°36  | 1°10  | 20°15 | 3°29 | 0°6   | 9°54  | 13°26  | 23°36  | 22°29 | 6°45 | 3°48  | T 18 |
| W19  | 21 50 46 | 26°12'25 | 0♌29  | 17°6  | 6°8   | 1°48  | 20°19 | 3°35 | 0°9   | 9°56  | 13°26  | 23°30  | 22°26 | 6°51 | 3°45  | W19  |
| T 20 | 21 54 43 | 27°10'18 | 13°23 | 18°37 | 6°39  | 2°26  | 20°23 | 3°40 | 0°13  | 9°57  | 13°25  | 23°27  | 22°23 | 6°58 | 3°43  | T 20 |
| F 21 | 21 58 40 | 28°8'13  | 26°35 | 20°6  | 7°8   | 3°5   | 20°27 | 3°46 | 0°16  | 9°59  | 13°25  | 23°D27 | 22°20 | 7°5  | 3°40  | F 21 |
| S 22 | 22 2 36  | 29°6'10  | 10♌7  | 21°34 | 7°36  | 3°43  | 20°31 | 3°52 | 0°20  | 10°1  | 13°25  | 23°27  | 22°16 | 7°11 | 3°37  | S 22 |
| S 23 | 22 6 33  | 0♍40'9   | 24°3  | 23°0  | 8°2   | 4°21  | 20°34 | 3°57 | 0°23  | 10°3  | 13°25  | 23°R27 | 22°13 | 7°18 | 3°34  | S 23 |
| M24  | 22 10 29 | 1°2'10   | 8♌22  | 24°25 | 8°27  | 5°0   | 20°37 | 4°3  | 0°26  | 10°4  | 13°25  | 23°26  | 22°10 | 7°25 | 3°31  | M24  |
| T 25 | 22 14 26 | 2°0'12   | 23°3  | 25°49 | 8°49  | 5°38  | 20°40 | 4°8  | 0°29  | 10°6  | 13°24  | 23°23  | 22°7  | 7°31 | 3°28  | T 25 |
| W26  | 22 18 22 | 2°58'17  | 8♌1   | 27°11 | 9°11  | 6°16  | 20°43 | 4°13 | 0°33  | 10°8  | 13°24  | 23°18  | 22°4  | 7°38 | 3°25  | W26  |
| T 27 | 22 22 19 | 3°56'23  | 23°9  | 28°31 | 9°30  | 6°54  | 20°46 | 4°19 | 0°36  | 10°10 | 13°24  | 23°10  | 22°1  | 7°45 | 3°22  | T 27 |
| F 28 | 22 26 15 | 4°54'31  | 8♍17  | 29°50 | 9°48  | 7°32  | 20°49 | 4°24 | 0°39  | 10°12 | 13°24  | 23°0   | 21°57 | 7°52 | 3°19  | F 28 |
| S 29 | 22 30 12 | 5°52'41  | 23°15 | 1♌7   | 10°3  | 8°10  | 20°51 | 4°29 | 0°42  | 10°14 | 13°23  | 22°50  | 21°54 | 7°58 | 3°16  | S 29 |
| S 30 | 22 34 9  | 6°50'52  | 7♌54  | 2°23  | 10°17 | 8°49  | 20°53 | 4°34 | 0°46  | 10°16 | 13°23  | 22°40  | 21°51 | 8°5  | 3°13  | S 30 |
| M31  | 22 38 5  | 7♍49'05  | 22♌6  | 3♌37  | 10♌29 | 9♌27  | 20♌55 | 4♌39 | 0♌49  | 10♌18 | 13♌23  | 22♌31  | 21♌48 | 8♌12 | 3♌10  | M31  |

ASTRODIENST EPHEMERIS for the year 1620  
geocentric

SEPTEMBER 1620 GC

00:00 UT

| Day  | Sid.t    | ☉        | ☾     | ♂      | ♀      | ♂     | ♂      | ♂    | ♂    | ♂     | ♂      | ♂      | ♂     | ♂     | ♂     | Day  |
|------|----------|----------|-------|--------|--------|-------|--------|------|------|-------|--------|--------|-------|-------|-------|------|
| T 1  | 22 42 2  | 8♏47'19  | 5♏50  | 4♏49   | 10♏38  | 10♏5  | 20♏57  | 4♏44 | 0♏52 | 10♏20 | 13°R22 | 22°R25 | 21♏45 | 8♏18  | 3°R 7 | T 1  |
| W 2  | 22 45 58 | 9°45'35  | 19° 4 | 5°59   | 10°46  | 10°42 | 20°58  | 4°48 | 0°55 | 10°22 | 13♏22  | 22♏21  | 21°41 | 8°25  | 3♏4   | W 2  |
| T 3  | 22 49 55 | 10°43'52 | 1♏52  | 7° 7   | 10°51  | 11°20 | 21° 0  | 4°53 | 0°58 | 10°24 | 13°21  | 22°20  | 21°38 | 8°32  | 3° 1  | T 3  |
| F 4  | 22 53 51 | 11°42'12 | 14°18 | 8°14   | 10°54  | 11°58 | 21° 1  | 4°58 | 1° 1 | 10°26 | 13°21  | 22°D20 | 21°35 | 8°38  | 2°59  | F 4  |
| S 5  | 22 57 48 | 12°40'32 | 26°27 | 9°17   | 10°R55 | 12°36 | 21° 2  | 5° 2 | 1° 4 | 10°28 | 13°20  | 22°R20 | 21°32 | 8°45  | 2°56  | S 5  |
| S 6  | 23 1 44  | 13°38'54 | 8♏24  | 10°19  | 10°53  | 13°14 | 21° 3  | 5° 7 | 1° 7 | 10°30 | 13°20  | 22°19  | 21°29 | 8°52  | 2°53  | S 6  |
| M 7  | 23 5 41  | 14°37'18 | 20°15 | 11°18  | 10°49  | 13°52 | 21° 3  | 5°11 | 1°10 | 10°32 | 13°19  | 22°16  | 21°26 | 8°58  | 2°50  | M 7  |
| T 8  | 23 9 38  | 15°35'44 | 2♏3   | 12°15  | 10°43  | 14°30 | 21° 3  | 5°15 | 1°13 | 10°34 | 13°19  | 22°11  | 21°22 | 9° 5  | 2°47  | T 8  |
| W 9  | 23 13 34 | 16°34'11 | 13°54 | 13° 8  | 10°34  | 15° 7 | 21°R 4 | 5°19 | 1°16 | 10°36 | 13°18  | 22° 3  | 21°19 | 9°12  | 2°44  | W 9  |
| T 10 | 23 17 31 | 17°32'40 | 25°49 | 13°59  | 10°23  | 15°45 | 21° 4  | 5°23 | 1°18 | 10°38 | 13°18  | 21°52  | 21°16 | 9°18  | 2°41  | T 10 |
| F 11 | 23 21 27 | 18°31'10 | 7♏52  | 14°46  | 10° 9  | 16°23 | 21° 3  | 5°27 | 1°21 | 10°40 | 13°17  | 21°39  | 21°13 | 9°25  | 2°39  | F 11 |
| S 12 | 23 25 24 | 19°29'43 | 20° 3 | 15°30  | 9°53   | 17° 0 | 21° 3  | 5°31 | 1°24 | 10°42 | 13°17  | 21°25  | 21°10 | 9°32  | 2°36  | S 12 |
| S 13 | 23 29 20 | 20°28'17 | 2♏23  | 16°10  | 9°35   | 17°38 | 21° 2  | 5°35 | 1°27 | 10°44 | 13°16  | 21°11  | 21° 7 | 9°39  | 2°33  | S 13 |
| M14  | 23 33 17 | 21°26'54 | 14°53 | 16°46  | 9°14   | 18°16 | 21° 1  | 5°39 | 1°29 | 10°46 | 13°15  | 20°59  | 21° 3 | 9°45  | 2°30  | M14  |
| T 15 | 23 37 13 | 22°25'32 | 27°34 | 17°17  | 8°52   | 18°53 | 21° 0  | 5°42 | 1°32 | 10°48 | 13°15  | 20°49  | 21° 0 | 9°52  | 2°28  | T 15 |
| W16  | 23 41 10 | 23°24'13 | 10♏25 | 17°44  | 8°27   | 19°31 | 20°59  | 5°46 | 1°35 | 10°51 | 13°14  | 20°41  | 20°57 | 9°59  | 2°25  | W16  |
| T 17 | 23 45 7  | 24°22'56 | 23°28 | 18° 5  | 8° 0   | 20° 8 | 20°58  | 5°49 | 1°37 | 10°53 | 13°13  | 20°37  | 20°54 | 10° 5 | 2°22  | T 17 |
| F 18 | 23 49 3  | 25°21'41 | 6♏44  | 18°22  | 7°31   | 20°46 | 20°56  | 5°53 | 1°40 | 10°55 | 13°13  | 20°35  | 20°51 | 10°12 | 2°20  | F 18 |
| S 19 | 23 53 0  | 26°20'29 | 20°16 | 18°32  | 7° 1   | 21°23 | 20°54  | 5°56 | 1°42 | 10°57 | 13°12  | 20°35  | 20°47 | 10°19 | 2°17  | S 19 |
| S 20 | 23 56 56 | 27°19'19 | 4♏4   | 18°R36 | 6°29   | 22° 0 | 20°52  | 5°59 | 1°45 | 10°59 | 13°11  | 20°35  | 20°44 | 10°25 | 2°14  | S 20 |
| M21  | 0 0 53   | 28°18'11 | 18°11 | 18°33  | 5°56   | 22°38 | 20°50  | 6° 2 | 1°47 | 11° 1 | 13°11  | 20°34  | 20°41 | 10°32 | 2°12  | M21  |
| T 22 | 0 4 49   | 29°17'06 | 2♏34  | 18°23  | 5°21   | 23°15 | 20°48  | 6° 5 | 1°49 | 11° 4 | 13°10  | 20°31  | 20°38 | 10°39 | 2° 9  | T 22 |
| W23  | 0 8 46   | 0♏16'02  | 17°13 | 18° 6  | 4°46   | 23°53 | 20°45  | 6° 8 | 1°52 | 11° 6 | 13° 9  | 20°25  | 20°35 | 10°45 | 2° 7  | W23  |
| T 24 | 0 12 42  | 1°15'01  | 2♏0   | 17°41  | 4°10   | 24°30 | 20°42  | 6°11 | 1°54 | 11° 8 | 13° 8  | 20°16  | 20°32 | 10°52 | 2° 4  | T 24 |
| F 25 | 0 16 39  | 2°14'02  | 16°50 | 17° 9  | 3°34   | 25° 7 | 20°39  | 6°13 | 1°56 | 11°10 | 13° 8  | 20° 6  | 20°28 | 10°59 | 2° 2  | F 25 |
| S 26 | 0 20 36  | 3°13'06  | 1♏34  | 16°29  | 2°57   | 25°44 | 20°36  | 6°16 | 1°59 | 11°12 | 13° 7  | 19°55  | 20°25 | 11° 5 | 1°59  | S 26 |
| S 27 | 0 24 32  | 4°12'11  | 16° 3 | 15°42  | 2°20   | 26°21 | 20°32  | 6°18 | 2° 1 | 11°15 | 13° 6  | 19°44  | 20°22 | 11°12 | 1°57  | S 27 |
| M28  | 0 28 29  | 5°11'18  | 0♏11  | 14°48  | 1°44   | 26°59 | 20°29  | 6°21 | 2° 3 | 11°17 | 13° 5  | 19°34  | 20°19 | 11°19 | 1°55  | M28  |
| T 29 | 0 32 25  | 6°10'28  | 13°54 | 13°48  | 1° 7   | 27°36 | 20°25  | 6°23 | 2° 5 | 11°19 | 13° 4  | 19°27  | 20°16 | 11°26 | 1°52  | T 29 |
| W30  | 0 36 22  | 7♏9'39   | 27♏10 | 12♏43  | 0♏32   | 28♏13 | 20♏21  | 6♏25 | 2♏7  | 11♏21 | 13♏3   | 19♏23  | 20♏12 | 11♏32 | 1♏50  | W30  |

Delta T = 65.94 sec

Greg. Calendar

OCTOBER 1620 GC

00:00 UT

| Day  | Sid.t   | ☉        | ☾     | ♂      | ♀      | ♂     | ♂      | ♂     | ♂    | ♂     | ♂      | ♂      | ♂     | ♂     | ♂     | Day  |
|------|---------|----------|-------|--------|--------|-------|--------|-------|------|-------|--------|--------|-------|-------|-------|------|
| T 1  | 0 40 18 | 8♏8'52   | 10♏0  | 11°R35 | 29°R58 | 28♏50 | 20°R17 | 6♏27  | 2♏9  | 11♏24 | 13°R 2 | 19°R21 | 20♏9  | 11♏39 | 1°R48 | T 1  |
| F 2  | 0 44 15 | 9° 8'07  | 22°29 | 10♏24  | 29♏24  | 29°27 | 20♏13  | 6°29  | 2°11 | 11°26 | 13♏2   | 19°D20 | 20° 6 | 11°46 | 1♏46  | F 2  |
| S 3  | 0 48 11 | 10° 7'24 | 4♏39  | 9°14   | 28°52  | 0♏4   | 20° 8  | 6°31  | 2°13 | 11°28 | 13° 1  | 19°R21 | 20° 3 | 11°52 | 1°44  | S 3  |
| S 4  | 0 52 8  | 11° 6'42 | 16°38 | 8° 5   | 28°22  | 0°41  | 20° 3  | 6°32  | 2°15 | 11°30 | 13° 0  | 19♏21  | 20° 0 | 11°59 | 1°42  | S 4  |
| M 5  | 0 56 4  | 12° 6'03 | 28°29 | 7° 0   | 27°53  | 1°18  | 19°58  | 6°34  | 2°16 | 11°33 | 12°59  | 19°19  | 19°57 | 12° 6 | 1°40  | M 5  |
| T 6  | 1 0 1   | 13° 5'25 | 10♏19 | 6° 0   | 27°26  | 1°55  | 19°53  | 6°36  | 2°18 | 11°35 | 12°58  | 19°16  | 19°53 | 12°12 | 1°38  | T 6  |
| W 7  | 1 3 58  | 14° 4'49 | 22°12 | 5° 8   | 27° 2  | 2°31  | 19°48  | 6°37  | 2°20 | 11°37 | 12°57  | 19° 9  | 19°50 | 12°19 | 1°36  | W 7  |
| T 8  | 1 7 54  | 15° 4'14 | 4♏12  | 4°25   | 26°39  | 3° 8  | 19°43  | 6°38  | 2°22 | 11°39 | 12°56  | 19° 1  | 19°47 | 12°26 | 1°34  | T 8  |
| F 9  | 1 11 51 | 16° 3'42 | 16°22 | 3°52   | 26°18  | 3°45  | 19°37  | 6°39  | 2°23 | 11°42 | 12°55  | 18°51  | 19°44 | 12°32 | 1°32  | F 9  |
| S 10 | 1 15 47 | 17° 3'11 | 28°43 | 3°29   | 26° 0  | 4°22  | 19°32  | 6°40  | 2°25 | 11°44 | 12°54  | 18°39  | 19°41 | 12°39 | 1°30  | S 10 |
| S 11 | 1 19 44 | 18° 2'43 | 11♏18 | 3°17   | 25°44  | 4°59  | 19°26  | 6°41  | 2°26 | 11°46 | 12°53  | 18°28  | 19°38 | 12°46 | 1°28  | S 11 |
| M12  | 1 23 40 | 19° 2'16 | 24° 5 | 3°D17  | 25°31  | 5°35  | 19°20  | 6°42  | 2°28 | 11°48 | 12°52  | 18°17  | 19°34 | 12°53 | 1°27  | M12  |
| T 13 | 1 27 37 | 20° 1'52 | 7♏6   | 3°27   | 25°20  | 6°12  | 19°14  | 6°43  | 2°29 | 11°50 | 12°51  | 18° 9  | 19°31 | 12°59 | 1°25  | T 13 |
| W14  | 1 31 33 | 21° 1'30 | 20°17 | 3°48   | 25°11  | 6°48  | 19° 7  | 6°43  | 2°31 | 11°53 | 12°50  | 18° 3  | 19°28 | 13° 6 | 1°23  | W14  |
| T 15 | 1 35 30 | 22° 1'10 | 3♏40  | 4°19   | 25° 5  | 7°25  | 19° 1  | 6°44  | 2°32 | 11°55 | 12°49  | 18° 0  | 19°25 | 13°13 | 1°22  | T 15 |
| F 16 | 1 39 27 | 23° 0'52 | 17°13 | 4°59   | 25° 2  | 8° 2  | 18°54  | 6°44  | 2°33 | 11°57 | 12°48  | 17°D59 | 19°22 | 13°19 | 1°20  | F 16 |
| S 17 | 1 43 23 | 24° 0'36 | 0♏56  | 5°47   | 25°D 1 | 8°38  | 18°48  | 6°44  | 2°34 | 11°59 | 12°47  | 18° 0  | 19°18 | 13°26 | 1°19  | S 17 |
| S 18 | 1 47 20 | 25° 0'23 | 14°48 | 6°43   | 25° 2  | 9°14  | 18°41  | 6°45  | 2°35 | 12° 1 | 12°46  | 18° 0  | 19°15 | 13°33 | 1°17  | S 18 |
| M19  | 1 51 16 | 26° 0'12 | 28°50 | 7°46   | 25° 6  | 9°51  | 18°34  | 6°R45 | 2°37 | 12° 4 | 12°45  | 18°R 1 | 19°12 | 13°39 | 1°16  | M19  |
| T 20 | 1 55 13 | 27° 0'03 | 13♏2  | 8°54   | 25°12  | 10°27 | 18°27  | 6°45  | 2°38 | 12° 6 | 12°44  | 18° 0  | 19° 9 | 13°46 | 1°15  | T 20 |
| W21  | 1 59 9  | 27°59'57 | 27°20 | 10° 8  | 25°20  | 11° 4 | 18°20  | 6°44  | 2°39 | 12° 8 | 12°42  | 17°56  | 19° 6 | 13°53 | 1°13  | W21  |
| T 22 | 2 3 6   | 28°59'52 | 11♏43 | 11°26  | 25°31  | 11°40 | 18°12  | 6°44  | 2°40 | 12°10 | 12°41  | 17°51  | 19° 3 | 14° 0 | 1°12  | T 22 |
| F 23 | 2 7 2   | 29°59'50 | 26° 6 | 12°48  | 25°43  | 12°16 | 18° 5  | 6°44  | 2°40 | 12°12 | 12°40  | 17°44  | 18°59 | 14° 6 | 1°11  | F 23 |
| S 24 | 2 10 59 | 0♏59'50  | 10♏24 | 14°13  | 25°58  | 12°52 | 17°58  | 6°43  | 2°41 | 12°14 | 12°39  | 17°36  | 18°56 | 14°13 | 1°10  | S 24 |
| S 25 | 2 14 56 | 1°59'52  | 24°30 | 15°41  | 26°15  | 13°29 | 17°50  | 6°42  | 2°42 | 12°17 | 12°38  | 17°28  | 18°53 | 14°20 | 1° 9  | S 25 |
| M26  | 2 18 52 | 2°59'56  | 8♏21  | 17°11  | 26°34  | 14° 5 | 17°42  | 6°42  | 2°43 | 12°19 | 12°37  | 17°22  | 18°50 | 14°26 | 1° 8  | M26  |
| T 27 | 2 22 49 | 4° 0'02  | 21°52 | 18°42  | 26°55  | 14°41 | 17°35  | 6°41  | 2°43 | 12°21 | 12°36  | 17°17  | 18°47 | 14°33 | 1° 7  | T 27 |
| W28  | 2 26 45 | 5° 0'10  | 5♏1   | 20°15  | 27°18  | 15°17 | 17°27  | 6°40  | 2°44 | 12°23 | 12°35  | 17°14  | 18°44 | 14°40 | 1° 6  | W28  |
| T 29 | 2 30 42 | 6° 0'19  | 17°49 | 21°50  | 27°42  | 15°53 | 17°19  | 6°39  | 2°45 | 12°25 | 12°34  | 17°D14 | 18°40 | 14°46 | 1° 5  | T 29 |
| F 30 | 2 34 38 | 7° 0'30  | 0♏17  | 23°25  | 28° 8  | 16°29 | 17°11  | 6°37  | 2°45 | 12°27 | 12°33  | 17°14  | 18°37 | 14°53 | 1° 5  | F 30 |
| S 31 | 2 38 35 | 8♏0'43   | 12♏29 | 25♏1   | 28♏36  | 17♏5  | 17♏3   | 6♏36  | 2♏46 | 12♏29 | 12♏31  | 17♏16  | 18♏34 | 15♏0  | 1♏4   | S 31 |

Delta T = 65.86 sec

Greg. Calendar

ASTRODIENST EPHEMERIS for the year 1620  
geocentric

NOVEMBER 1620 GC

00:00 UT

| Day  | Sid.t   | ☉         | ☽        | ♀      | ♂      | ♂      | ♂      | ♂      | ♂      | ♂      | ♂       | ♂       | ♂      | ♂      | ♂      | Day  |
|------|---------|-----------|----------|--------|--------|--------|--------|--------|--------|--------|---------|---------|--------|--------|--------|------|
| S 1  | 2 42 31 | 9♉ 0°57'  | 24♊ 30   | 26♋ 37 | 29♌ 6  | 17♍ 41 | 16♎ 55 | 6♏ R35 | 2♐ 46  | 12♑ 31 | 12♒ R30 | 17♓ 18  | 18♐ 31 | 15♑ 7  | 1♒ R 3 | S 1  |
| M 2  | 2 46 28 | 10° 1'13  | 6♋ 23    | 28° 14 | 29° 37 | 18° 17 | 16♊ 47 | 6♋ 33  | 2° 46  | 12° 33 | 12♊ 29  | 17° R18 | 18° 28 | 15° 13 | 1♋ 3   | M 2  |
| T 3  | 2 50 25 | 11° 1'30  | 18° 14   | 29° 51 | 0♌ 9   | 18° 52 | 16° 39 | 6° 32  | 2° 47  | 12° 35 | 12° 28  | 17° 18  | 18° 24 | 15° 20 | 1° 2   | T 3  |
| W 4  | 2 54 21 | 12° 1'49  | 0♈ 8     | 1♉ 28  | 0° 43  | 19° 28 | 16° 31 | 6° 30  | 2° 47  | 12° 37 | 12° 27  | 17° 16  | 18° 21 | 15° 27 | 1° 2   | W 4  |
| T 5  | 2 58 18 | 13° 2'09  | 12° 9    | 3° 5   | 1° 19  | 20° 4  | 16° 23 | 6° 28  | 2° 47  | 12° 39 | 12° 26  | 17° 13  | 18° 18 | 15° 33 | 1° 2   | T 5  |
| F 6  | 3 2 14  | 14° 2'30  | 24° 22   | 4° 42  | 1° 56  | 20° 40 | 16° 14 | 6° 26  | 2° 47  | 12° 41 | 12° 25  | 17° 8   | 18° 15 | 15° 40 | 1° 1   | F 6  |
| S 7  | 3 6 11  | 15° 2'53  | 6♏ 50    | 6° 19  | 2° 34  | 21° 15 | 16° 6  | 6° 24  | 2° 47  | 12° 43 | 12° 24  | 17° 3   | 18° 12 | 15° 47 | 1° 1   | S 7  |
| S 8  | 3 10 7  | 16° 3'18  | 19° 36   | 7° 56  | 3° 13  | 21° 51 | 15° 58 | 6° 22  | 2° R47 | 12° 45 | 12° 22  | 16° 58  | 18° 9  | 15° 53 | 1° 1   | S 8  |
| M 9  | 3 14 4  | 17° 3'44  | 2♊ 38    | 9° 33  | 3° 54  | 22° 26 | 15° 50 | 6° 19  | 2° 47  | 12° 47 | 12° 21  | 16° 52  | 18° 5  | 16° 0  | 1° 1   | M 9  |
| T 10 | 3 18 0  | 18° 4'12  | 15° 59   | 11° 9  | 4° 35  | 23° 2  | 15° 42 | 6° 17  | 2° 47  | 12° 49 | 12° 20  | 16° 49  | 18° 2  | 16° 7  | 1° 1   | T 10 |
| W 11 | 3 21 57 | 19° 4'41  | 29° 34   | 12° 46 | 5° 18  | 23° 37 | 15° 34 | 6° 15  | 2° 47  | 12° 51 | 12° 19  | 16° 46  | 17° 59 | 16° 14 | 1° D 1 | W 11 |
| T 12 | 3 25 54 | 20° 5'12  | 13♊ 24   | 14° 22 | 6° 2   | 24° 13 | 15° 25 | 6° 12  | 2° 47  | 12° 53 | 12° 18  | 16° D45 | 17° 56 | 16° 20 | 1° 1   | T 12 |
| F 13 | 3 29 50 | 21° 5'45  | 27° 23   | 15° 58 | 6° 47  | 24° 48 | 15° 17 | 6° 9   | 2° 46  | 12° 55 | 12° 17  | 16° 45  | 17° 53 | 16° 27 | 1° 1   | F 13 |
| S 14 | 3 33 47 | 22° 6'19  | 11♋ 29   | 17° 34 | 7° 33  | 25° 23 | 15° 9  | 6° 7   | 2° 46  | 12° 57 | 12° 16  | 16° 46  | 17° 49 | 16° 34 | 1° 1   | S 14 |
| S 15 | 3 37 43 | 23° 6'55  | 25° 39   | 19° 10 | 8° 20  | 25° 58 | 15° 1  | 6° 4   | 2° 46  | 12° 58 | 12° 15  | 16° 48  | 17° 46 | 16° 40 | 1° 1   | S 15 |
| M 16 | 3 41 40 | 24° 7'33  | 9♉ 51    | 20° 45 | 9° 8   | 26° 34 | 14° 53 | 6° 1   | 2° 45  | 13° 0  | 12° 14  | 16° 49  | 17° 43 | 16° 47 | 1° 1   | M 16 |
| T 17 | 3 45 36 | 25° 8'12  | 24° 3    | 22° 20 | 9° 57  | 27° 9  | 14° 45 | 5° 58  | 2° 45  | 13° 2  | 12° 12  | 16° R50 | 17° 40 | 16° 54 | 1° 2   | T 17 |
| W 18 | 3 49 33 | 26° 8'54  | 8♏ 11    | 23° 55 | 10° 47 | 27° 44 | 14° 38 | 5° 55  | 2° 44  | 13° 4  | 12° 11  | 16° 49  | 17° 37 | 17° 0  | 1° 2   | W 18 |
| T 19 | 3 53 29 | 27° 9'36  | 3° 14'26 | 22° 16 | 11° 37 | 28° 19 | 14° 30 | 5° 51  | 2° 44  | 13° 6  | 12° 10  | 16° 48  | 17° 34 | 17° 7  | 1° 3   | T 19 |
| F 20 | 3 57 26 | 28° 10'21 | 6♊ 13    | 27° 5  | 12° 28 | 28° 54 | 14° 22 | 5° 48  | 2° 43  | 13° 7  | 12° 9   | 16° 46  | 17° 30 | 17° 14 | 1° 3   | F 20 |
| S 21 | 4 1 23  | 29° 11'07 | 20° 2    | 28° 40 | 13° 21 | 29° 29 | 14° 14 | 5° 45  | 2° 42  | 13° 9  | 12° 8   | 16° 43  | 17° 27 | 17° 21 | 1° 4   | S 21 |
| S 22 | 4 5 19  | 0♈ 11'55  | 3♉ 39    | 0♈ 14  | 14° 13 | 0♉ 3   | 14° 7  | 5° 41  | 2° 42  | 13° 11 | 12° 7   | 16° 41  | 17° 24 | 17° 27 | 1° 4   | S 22 |
| M 23 | 4 9 16  | 1° 12'44  | 17° 4    | 1° 49  | 15° 7  | 0° 38  | 13° 59 | 5° 38  | 2° 41  | 13° 12 | 12° 6   | 16° 39  | 17° 21 | 17° 34 | 1° 5   | M 23 |
| T 24 | 4 13 12 | 2° 13'34  | 0♈ 13    | 3° 23  | 16° 1  | 1° 13  | 13° 52 | 5° 34  | 2° 40  | 13° 14 | 12° 5   | 16° 37  | 17° 18 | 17° 41 | 1° 6   | T 24 |
| W 25 | 4 17 9  | 3° 14'26  | 13° 7    | 4° 57  | 16° 56 | 1° 48  | 13° 45 | 5° 30  | 2° 39  | 13° 15 | 12° 4   | 16° D37 | 17° 15 | 17° 47 | 1° 7   | W 25 |
| T 26 | 4 21 5  | 4° 15'19  | 25° 45   | 6° 31  | 17° 51 | 2° 22  | 13° 37 | 5° 26  | 2° 38  | 13° 17 | 12° 3   | 16° 37  | 17° 11 | 17° 54 | 1° 8   | T 26 |
| F 27 | 4 25 2  | 5° 16'12  | 8♊ 8     | 8° 5   | 18° 47 | 2° 57  | 13° 30 | 5° 23  | 2° 37  | 13° 19 | 12° 2   | 16° 38  | 17° 8  | 18° 1  | 1° 8   | F 27 |
| S 28 | 4 28 58 | 6° 17'07  | 20° 18   | 9° 39  | 19° 44 | 3° 31  | 13° 23 | 5° 19  | 2° 36  | 13° 20 | 12° 1   | 16° 39  | 17° 5  | 18° 8  | 1° 10  | S 28 |
| S 29 | 4 32 55 | 7° 18'03  | 2♋ 18    | 11° 13 | 20° 41 | 4° 6   | 13° 16 | 5° 15  | 2° 35  | 13° 22 | 12° 0   | 16° 40  | 17° 2  | 18° 14 | 1° 11  | S 29 |
| M 30 | 4 36 52 | 8° 18'59  | 14♋ 11   | 12° 47 | 21° 39 | 4° 40  | 13° 10 | 5° 10  | 2° 34  | 13° 23 | 11° 59  | 16° 41  | 16° 59 | 18° 21 | 1° 12  | M 30 |

Delta T = 65.78 sec

Greg. Calendar

DECEMBER 1620 GC

00:00 UT

| Day  | Sid.t   | ☉         | ☽      | ♀      | ♂      | ♂      | ♂       | ♂      | ♂      | ♂      | ♂       | ♂       | ♂      | ♂      | ♂     | Day  |
|------|---------|-----------|--------|--------|--------|--------|---------|--------|--------|--------|---------|---------|--------|--------|-------|------|
| T 1  | 4 40 48 | 9♉ 19°56' | 26♋ 2  | 14♊ 21 | 22♋ 37 | 5♌ 14  | 13° R 3 | 5° R 6 | 2° R32 | 13♑ 25 | 11° R58 | 16♓ 41  | 16♐ 55 | 18♑ 28 | 1♋ 13 | T 1  |
| W 2  | 4 44 45 | 10° 20'54 | 7♋ 55  | 15° 56 | 23° 36 | 5° 48  | 12♊ 57  | 5° 2   | 2° 31  | 13° 26 | 11° 57  | 16° R41 | 16° 52 | 18° 34 | 1° 14 | W 2  |
| T 3  | 4 48 41 | 11° 21'53 | 17° 30 | 16° 55 | 24° 35 | 6° 22  | 12° 50  | 4° 58  | 2° 30  | 13° 27 | 11° 56  | 16° 41  | 16° 49 | 18° 41 | 1° 15 | T 3  |
| F 4  | 4 52 38 | 12° 22'52 | 2♏ 7   | 19° 4  | 25° 35 | 6° 56  | 12° 44  | 4° 53  | 2° 28  | 13° 29 | 11° 55  | 16° 41  | 16° 46 | 18° 48 | 1° 17 | F 4  |
| S 5  | 4 56 34 | 13° 23'52 | 14° 35 | 20° 38 | 26° 35 | 7° 30  | 12° 38  | 4° 49  | 2° 27  | 13° 30 | 11° 54  | 16° 41  | 16° 43 | 18° 54 | 1° 18 | S 5  |
| S 6  | 5 0 31  | 14° 24'52 | 27° 22 | 22° 12 | 27° 36 | 8° 4   | 12° 32  | 4° 45  | 2° 26  | 13° 31 | 11° 53  | 16° 40  | 16° 40 | 19° 1  | 1° 20 | S 6  |
| M 7  | 5 4 27  | 15° 25'53 | 10♊ 32 | 23° 46 | 28° 37 | 8° 38  | 12° 27  | 4° 40  | 2° 24  | 13° 33 | 11° 52  | 16° 40  | 16° 36 | 19° 8  | 1° 21 | M 7  |
| T 8  | 5 8 24  | 16° 26'55 | 24° 4  | 25° 20 | 29° 38 | 9° 12  | 12° 21  | 4° 35  | 2° 23  | 13° 34 | 11° 51  | 16° D40 | 16° 33 | 19° 15 | 1° 23 | T 8  |
| W 9  | 5 12 21 | 17° 27'57 | 7♊ 58  | 26° 55 | 0♉ 40  | 9° 45  | 12° 16  | 4° 31  | 2° 21  | 13° 35 | 11° 50  | 16° 40  | 16° 30 | 19° 21 | 1° 24 | W 9  |
| T 10 | 5 16 17 | 18° 29'00 | 22° 11 | 28° 29 | 1° 42  | 10° 19 | 12° 11  | 4° 26  | 2° 19  | 13° 36 | 11° 49  | 16° R40 | 16° 27 | 19° 28 | 1° 26 | T 10 |
| F 11 | 5 20 14 | 19° 30'04 | 6♋ 39  | 0♊ 3   | 2° 45  | 10° 53 | 12° 6   | 4° 22  | 2° 18  | 13° 37 | 11° 49  | 16° 40  | 16° 24 | 19° 35 | 1° 28 | F 11 |
| S 12 | 5 24 10 | 20° 31'09 | 21° 15 | 1° 38  | 3° 48  | 11° 26 | 12° 1   | 4° 17  | 2° 16  | 13° 39 | 11° 48  | 16° 40  | 16° 21 | 19° 41 | 1° 30 | S 12 |
| S 13 | 5 28 7  | 21° 32'14 | 5♉ 53  | 3° 12  | 4° 51  | 11° 59 | 11° 56  | 4° 12  | 2° 14  | 13° 40 | 11° 47  | 16° 39  | 16° 17 | 19° 48 | 1° 32 | S 13 |
| M 14 | 5 32 3  | 22° 33'20 | 20° 28 | 4° 46  | 5° 55  | 12° 33 | 11° 51  | 4° 7   | 2° 12  | 13° 41 | 11° 46  | 16° 39  | 16° 14 | 19° 55 | 1° 33 | M 14 |
| T 15 | 5 36 0  | 23° 34'26 | 4♏ 54  | 6° 20  | 6° 59  | 13° 6  | 11° 47  | 4° 2   | 2° 11  | 13° 42 | 11° 45  | 16° 38  | 16° 11 | 20° 2  | 1° 35 | T 15 |
| W 16 | 5 39 56 | 24° 35'34 | 19° 7  | 7° 54  | 8° 4   | 13° 39 | 11° 43  | 3° 58  | 2° 9   | 13° 43 | 11° 44  | 16° D38 | 16° 8  | 20° 8  | 1° 37 | W 16 |
| T 17 | 5 43 53 | 25° 36'42 | 3♊ 5   | 9° 27  | 9° 8   | 14° 12 | 11° 39  | 3° 53  | 2° 7   | 13° 44 | 11° 44  | 16° 38  | 16° 5  | 20° 15 | 1° 40 | T 17 |
| F 18 | 5 47 50 | 26° 37'51 | 16° 48 | 11° 0  | 10° 13 | 14° 45 | 11° 35  | 3° 48  | 2° 5   | 13° 45 | 11° 43  | 16° 38  | 16° 1  | 20° 22 | 1° 42 | F 18 |
| S 19 | 5 51 46 | 27° 39'00 | 0♉ 15  | 12° 33 | 11° 18 | 15° 18 | 11° 32  | 3° 43  | 2° 3   | 13° 46 | 11° 42  | 16° 39  | 15° 58 | 20° 28 | 1° 44 | S 19 |
| S 20 | 5 55 43 | 28° 40'10 | 13° 28 | 14° 5  | 12° 24 | 15° 50 | 11° 28  | 3° 38  | 2° 1   | 13° 47 | 11° 41  | 16° 40  | 15° 55 | 20° 35 | 1° 46 | S 20 |
| M 21 | 5 59 39 | 29° 41'21 | 26° 27 | 15° 37 | 13° 30 | 16° 23 | 11° 25  | 3° 33  | 1° 59  | 13° 47 | 11° 41  | 16° 41  | 15° 52 | 20° 42 | 1° 48 | M 21 |
| T 22 | 6 3 36  | 0♊ 42'32  | 9♊ 13  | 17° 7  | 14° 36 | 16° 56 | 11° 22  | 3° 28  | 1° 57  | 13° 48 | 11° 40  | 16° 42  | 15° 49 | 20° 49 | 1° 51 | T 22 |
| W 23 | 6 7 32  | 1° 43'44  | 21° 47 | 18° 36 | 15° 42 | 17° 28 | 11° 19  | 3° 23  | 1° 55  | 13° 49 | 11° 39  | 16° R42 | 15° 46 | 20° 55 | 1° 53 | W 23 |
| T 24 | 6 11 29 | 2° 44'56  | 4♊ 10  | 20° 4  | 16° 48 | 18° 0  | 11° 17  | 3° 18  | 1° 52  | 13° 50 | 11° 39  | 16° 41  | 15° 42 | 21° 2  | 1° 55 | T 24 |
| F 25 | 6 15 26 | 3° 46'07  | 16° 23 | 21° 30 | 17° 55 | 18° 33 | 11° 14  | 3° 13  | 1° 50  | 13° 51 | 11° 38  | 16° 40  | 15° 39 | 21° 9  | 1° 58 | F 25 |
| S 26 | 6 19 22 | 4° 47'19  | 28° 27 | 22° 54 | 19° 2  | 19° 5  | 11° 12  | 3° 8   | 1° 48  | 13° 51 | 11° 37  | 16° 37  | 15° 36 | 21° 15 | 2° 0  | S 26 |
| S 27 | 6 23 19 | 5° 48'31  | 10♋ 24 | 24° 15 | 20° 9  | 19° 37 | 11° 10  | 3° 3   | 1° 46  | 13° 52 | 11° 37  | 16° 34  | 15° 33 | 21° 22 | 2° 3  | S 27 |
| M 28 | 6 27 15 | 6° 49'43  | 22° 17 | 25° 34 | 21° 17 | 20° 9  | 11° 9   | 2° 58  | 1° 43  | 13° 52 | 11° 36  | 16° 30  | 15° 30 | 21° 29 | 2° 6  | M 28 |
| T 29 | 6 31 12 | 7° 50'54  | 4♈ 7   | 26° 49 | 22° 24 | 20° 40 | 11° 7   | 2° 53  | 1° 41  | 13° 53 | 11° 36  | 16° 27  | 15° 27 | 21° 35 | 2° 8  | T 29 |
| W 30 | 6 35 8  | 8° 52'05  | 15° 59 | 28° 0  | 23° 32 | 21° 12 | 11° 6   | 2° 48  | 1° 39  | 13° 54 | 11° 35  | 16° 24  | 15° 23 | 21° 42 | 2° 11 | W 30 |
| T 31 | 6 39 5  | 9♊ 53'16  | 27° 57 | 29° 3  | 24° 40 | 21° 44 | 11° 5   | 2° 44  | 1° 36  | 13° 54 | 11° 35  | 16° 23  | 15° 20 | 21° 49 | 2° 14 | T 31 |

Delta T = 65.71 sec

Greg. Calendar