

SWISS EPHEMERIS for the year 659

JANUARY 659 C.E.JC

00:00 UT

| Day  | Sid.t   | ☉        | ☽      | ♀      | ♁      | ♂      | ♃      | ♅     | ♁      | ♄      | ♁      | ♁      | ♁      | ♁      | ♁     |
|------|---------|----------|--------|--------|--------|--------|--------|-------|--------|--------|--------|--------|--------|--------|-------|
| T 1  | 6 51 4  | 13°35'10 | 10°12  | 21°58  | 3°43   | 29°41  | 18°52  | 3°13  | 10°21  | 26°52  | 25°R 1 | 19°R51 | 21°L30 | 27°B30 | 5°R34 |
| W 2  | 6 55 1  | 14°36'14 | 24° 3  | 23°42  | 4°58   | 0°H26  | 19° 2  | 3°17  | 10°24  | 26°54  | 25°B 0 | 19°D50 | 21°27  | 27°37  | 5°M32 |
| T 3  | 6 58 58 | 15°37'16 | 7°H27  | 25°26  | 6°13   | 1°12   | 19°12  | 3°21  | 10°27  | 26°55  | 24°59  | 19°L51 | 21°24  | 27°44  | 5°31  |
| F 4  | 7 2 54  | 16°38'18 | 20°26  | 27°10  | 7°29   | 1°57   | 19°22  | 3°24  | 10°31  | 26°57  | 24°59  | 19°53  | 21°20  | 27°50  | 5°29  |
| S 5  | 7 6 51  | 17°39'18 | 3°Y 2  | 28°54  | 8°44   | 2°43   | 19°32  | 3°28  | 10°34  | 26°58  | 24°58  | 19°55  | 21°17  | 27°57  | 5°27  |
| S 6  | 7 10 47 | 18°40'16 | 15°20  | 0°H38  | 9°59   | 3°28   | 19°42  | 3°31  | 10°37  | 27° 0  | 24°57  | 19°R55 | 21°14  | 28° 4  | 5°25  |
| M 7  | 7 14 44 | 19°41'14 | 27°24  | 2°21   | 11°14  | 4°14   | 19°53  | 3°34  | 10°40  | 27° 2  | 24°57  | 19°55  | 21°11  | 28°11  | 5°22  |
| T 8  | 7 18 40 | 20°42'10 | 9°B20  | 4° 3   | 12°30  | 4°59   | 20° 3  | 3°38  | 10°44  | 27° 3  | 24°56  | 19°54  | 21° 8  | 28°17  | 5°20  |
| W 9  | 7 22 37 | 21°43'04 | 21°12  | 5°44   | 13°45  | 5°44   | 20°14  | 3°41  | 10°47  | 27° 5  | 24°56  | 19°51  | 21° 5  | 28°24  | 5°18  |
| T 10 | 7 26 33 | 22°43'58 | 3°II 4 | 7°24   | 15° 0  | 6°30   | 20°25  | 3°44  | 10°50  | 27° 6  | 24°55  | 19°47  | 21° 1  | 28°31  | 5°15  |
| F 11 | 7 30 30 | 23°44'50 | 15° 0  | 9° 2   | 16°15  | 7°15   | 20°36  | 3°47  | 10°54  | 27° 8  | 24°54  | 19°42  | 20°58  | 28°37  | 5°13  |
| S 12 | 7 34 27 | 24°45'40 | 27° 2  | 10°38  | 17°31  | 8° 0   | 20°47  | 3°50  | 10°57  | 27° 9  | 24°54  | 19°37  | 20°55  | 28°44  | 5°10  |
| S 13 | 7 38 23 | 25°46'30 | 9°B14  | 12°11  | 18°46  | 8°45   | 20°58  | 3°52  | 11° 0  | 27°10  | 24°53  | 19°33  | 20°52  | 28°51  | 5° 7  |
| M 14 | 7 42 20 | 26°47'18 | 21°36  | 13°41  | 20° 1  | 9°31   | 21° 9  | 3°55  | 11° 4  | 27°12  | 24°53  | 19°30  | 20°49  | 28°58  | 5° 5  |
| T 15 | 7 46 16 | 27°48'04 | 4°L 9  | 15° 8  | 21°16  | 10°16  | 21°20  | 3°58  | 11° 7  | 27°13  | 24°53  | 19°28  | 20°45  | 29° 4  | 5° 2  |
| W 16 | 7 50 13 | 28°48'49 | 16°54  | 16°29  | 22°31  | 11° 1  | 21°31  | 4° 0  | 11°11  | 27°14  | 24°52  | 19°D27 | 20°42  | 29°11  | 4°59  |
| T 17 | 7 54 9  | 29°49'33 | 29°52  | 17°46  | 23°47  | 11°46  | 21°43  | 4° 2  | 11°14  | 27°16  | 24°52  | 19°28  | 20°39  | 29°18  | 4°56  |
| F 18 | 7 58 6  | 0°H50'16 | 13°M 2 | 18°57  | 25° 2  | 12°31  | 21°54  | 4° 5  | 11°17  | 27°17  | 24°51  | 19°29  | 20°36  | 29°25  | 4°53  |
| S 19 | 8 2 2   | 1°50'57  | 26°25  | 20° 1  | 26°17  | 13°16  | 22° 6  | 4° 7  | 11°21  | 27°18  | 24°51  | 19°30  | 20°33  | 29°31  | 4°49  |
| S 20 | 8 5 59  | 2°51'37  | 10°L 1 | 20°58  | 27°32  | 14° 1  | 22°18  | 4° 9  | 11°24  | 27°19  | 24°51  | 19°31  | 20°30  | 29°38  | 4°46  |
| M 21 | 8 9 56  | 3°52'16  | 23°51  | 21°47  | 28°47  | 14°46  | 22°30  | 4°11  | 11°28  | 27°21  | 24°50  | 19°32  | 20°26  | 29°45  | 4°43  |
| T 22 | 8 13 52 | 4°52'53  | 7°M53  | 22°27  | 0°H 2  | 15°31  | 22°41  | 4°13  | 11°31  | 27°22  | 24°50  | 19°R32 | 20°23  | 29°51  | 4°39  |
| W 23 | 8 17 49 | 5°53'30  | 22° 6  | 22°58  | 1°17   | 16°15  | 22°53  | 4°15  | 11°35  | 27°23  | 24°50  | 19°32  | 20°20  | 29°58  | 4°36  |
| T 24 | 8 21 45 | 6°54'05  | 6°H29  | 23°20  | 2°32   | 17° 0  | 23° 6  | 4°16  | 11°38  | 27°24  | 24°49  | 19°31  | 20°17  | 0°II 5 | 4°32  |
| F 25 | 8 25 42 | 7°54'39  | 20°57  | 23°31  | 3°47   | 17°45  | 23°18  | 4°18  | 11°42  | 27°25  | 24°49  | 19°29  | 20°14  | 0°12   | 4°29  |
| S 26 | 8 29 38 | 8°55'12  | 5°B27  | 23°R31 | 5° 3   | 18°30  | 23°30  | 4°19  | 11°45  | 27°26  | 24°49  | 19°28  | 20°11  | 0°18   | 4°25  |
| S 27 | 8 33 35 | 9°55'43  | 19°52  | 23°22  | 6°18   | 19°15  | 23°42  | 4°21  | 11°48  | 27°27  | 24°49  | 19°27  | 20° 7  | 0°25   | 4°21  |
| M 28 | 8 37 31 | 10°56'13 | 4°H 7  | 23° 2  | 7°33   | 19°59  | 23°55  | 4°22  | 11°52  | 27°28  | 24°49  | 19°26  | 20° 4  | 0°32   | 4°18  |
| T 29 | 8 41 28 | 11°56'41 | 18° 7  | 22°33  | 8°48   | 20°44  | 24° 7  | 4°23  | 11°55  | 27°29  | 24°48  | 19°D26 | 20° 1  | 0°38   | 4°14  |
| W 30 | 8 45 25 | 12°57'07 | 1°H49  | 21°55  | 10° 3  | 21°28  | 24°20  | 4°24  | 11°59  | 27°30  | 24°48  | 19°26  | 19°58  | 0°45   | 4°10  |
| T 31 | 8 49 21 | 13°57'31 | 15°H10 | 21°H 9 | 11°H18 | 22°H13 | 24°H32 | 4°M25 | 12°H 2 | 27°M31 | 24°B48 | 19°L26 | 19°L55 | 0°II52 | 4°M 6 |

Delta T = 01h09m29s

Julian Calendar 1 Jan. 659 == Greg. Calendar 4 Jan. 659

FEBRUARY 659 C.E.JC

00:00 UT

| Day  | Sid.t    | ☉        | ☽       | ♀      | ♁      | ♂      | ♃      | ♅     | ♁      | ♄      | ♁      | ♁      | ♁      | ♁      | ♁     |
|------|----------|----------|---------|--------|--------|--------|--------|-------|--------|--------|--------|--------|--------|--------|-------|
| F 1  | 8 53 18  | 14°57'53 | 28°H 9  | 20°R16 | 12°H33 | 22°H58 | 24°H45 | 4°M26 | 12°H 6 | 27°M31 | 24°R48 | 19°L27 | 19°L51 | 0°II59 | 4°R 2 |
| S 2  | 8 57 14  | 15°58'14 | 10°Y49  | 19°H18 | 13°48  | 23°42  | 24°58  | 4°27  | 12° 9  | 27°32  | 24°B48 | 19°27  | 19°48  | 1° 5   | 3°M58 |
| S 3  | 9 1 11   | 16°58'32 | 23°11   | 18°17  | 15° 3  | 24°26  | 25°11  | 4°28  | 12°13  | 27°33  | 24°48  | 19°28  | 19°45  | 1°12   | 3°54  |
| M 4  | 9 5 7    | 17°58'48 | 5°B19   | 17°13  | 16°18  | 25°11  | 25°24  | 4°28  | 12°16  | 27°34  | 24°48  | 19°28  | 19°42  | 1°19   | 3°49  |
| T 5  | 9 9 4    | 18°59'02 | 17°17   | 16° 9  | 17°33  | 25°55  | 25°37  | 4°29  | 12°20  | 27°34  | 24°D48 | 19°28  | 19°39  | 1°26   | 3°45  |
| W 6  | 9 13 0   | 19°59'15 | 29°10   | 15° 5  | 18°48  | 26°40  | 25°50  | 4°29  | 12°23  | 27°35  | 24°48  | 19°28  | 19°36  | 1°32   | 3°41  |
| T 7  | 9 16 57  | 20°59'25 | 11°II 3 | 14° 5  | 20° 2  | 27°24  | 26° 3  | 4°29  | 12°27  | 27°36  | 24°48  | 19°28  | 19°32  | 1°39   | 3°37  |
| F 8  | 9 20 54  | 21°59'33 | 23° 0   | 13° 7  | 21°17  | 28° 8  | 26°16  | 4°29  | 12°30  | 27°36  | 24°48  | 19°28  | 19°29  | 1°46   | 3°33  |
| S 9  | 9 24 50  | 22°59'38 | 5°B 5   | 12°15  | 22°32  | 28°52  | 26°29  | 4°R29 | 12°33  | 27°37  | 24°48  | 19°29  | 19°26  | 1°52   | 3°28  |
| S 10 | 9 28 47  | 23°59'42 | 17°22   | 11°27  | 23°47  | 29°36  | 26°42  | 4°29  | 12°37  | 27°37  | 24°48  | 19°29  | 19°23  | 1°59   | 3°24  |
| M 11 | 9 32 43  | 24°59'43 | 29°53   | 10°46  | 25° 2  | 0°Y20  | 26°56  | 4°29  | 12°40  | 27°38  | 24°48  | 19°29  | 19°20  | 2° 6   | 3°20  |
| T 12 | 9 36 40  | 25°59'43 | 12°L41  | 10°11  | 26°17  | 1° 4   | 27° 9  | 4°29  | 12°44  | 27°38  | 24°48  | 19°30  | 19°17  | 2°13   | 3°15  |
| W 13 | 9 40 36  | 26°59'40 | 25°46   | 9°43   | 27°32  | 1°48   | 27°22  | 4°29  | 12°47  | 27°39  | 24°49  | 19°R30 | 19°13  | 2°19   | 3°11  |
| T 14 | 9 44 33  | 27°59'36 | 9°M 8   | 9°22   | 28°46  | 2°32   | 27°36  | 4°28  | 12°50  | 27°39  | 24°49  | 19°29  | 19°10  | 2°26   | 3° 6  |
| F 15 | 9 48 29  | 28°59'29 | 22°45   | 9° 7   | 0°H 1  | 3°16   | 27°49  | 4°28  | 12°54  | 27°40  | 24°49  | 19°28  | 19° 7  | 2°33   | 3° 2  |
| S 16 | 9 52 26  | 29°59'20 | 6°L35   | 8°59   | 1°16   | 4° 0   | 28° 3  | 4°27  | 12°57  | 27°40  | 24°49  | 19°27  | 19° 4  | 2°39   | 2°57  |
| S 17 | 9 56 23  | 0°H59'10 | 20°35   | 8°D57  | 2°31   | 4°44   | 28°17  | 4°26  | 13° 0  | 27°40  | 24°50  | 19°26  | 19° 1  | 2°46   | 2°53  |
| M 18 | 10 0 19  | 1°58'58  | 4°M42   | 9° 2   | 3°45   | 5°28   | 28°30  | 4°25  | 13° 4  | 27°40  | 24°50  | 19°24  | 18°57  | 2°53   | 2°49  |
| T 19 | 10 4 16  | 2°58'44  | 18°53   | 9°12   | 5° 0   | 6°11   | 28°44  | 4°25  | 13° 7  | 27°41  | 24°50  | 19°23  | 18°54  | 3° 0   | 2°44  |
| W 20 | 10 8 12  | 3°58'29  | 3°H 6   | 9°28   | 6°15   | 6°55   | 28°58  | 4°24  | 13°10  | 27°41  | 24°50  | 19°D23 | 18°51  | 3° 6   | 2°40  |
| T 21 | 10 12 9  | 4°58'12  | 17°17   | 9°49   | 7°30   | 7°39   | 29°12  | 4°22  | 13°14  | 27°41  | 24°51  | 19°23  | 18°48  | 3°13   | 2°35  |
| F 22 | 10 16 5  | 5°57'53  | 1°B26   | 10°15  | 8°44   | 8°22   | 29°25  | 4°21  | 13°17  | 27°41  | 24°51  | 19°24  | 18°45  | 3°20   | 2°31  |
| S 23 | 10 20 2  | 6°57'32  | 15°29   | 10°46  | 9°59   | 9° 6   | 29°39  | 4°20  | 13°20  | 27°41  | 24°52  | 19°26  | 18°42  | 3°26   | 2°26  |
| S 24 | 10 23 58 | 7°57'09  | 29°25   | 11°21  | 11°14  | 9°49   | 29°53  | 4°18  | 13°23  | 27°41  | 24°52  | 19°27  | 18°38  | 3°33   | 2°22  |
| M 25 | 10 27 55 | 8°56'45  | 13°H11  | 12° 0  | 12°28  | 10°33  | 0°Y 7  | 4°17  | 13°27  | 27°R41 | 24°52  | 19°R28 | 18°35  | 3°40   | 2°17  |
| T 26 | 10 31 52 | 9°56'18  | 26°46   | 12°43  | 13°43  | 11°16  | 0°21   | 4°15  | 13°30  | 27°41  | 24°53  | 19°28  | 18°32  | 3°47   | 2°13  |
| W 27 | 10 35 48 | 10°55'50 | 10°H 7  | 13°29  | 14°57  | 12° 0  | 0°35   | 4°14  | 13°33  | 27°41  | 24°53  | 19°26  | 18°29  | 3°53   | 2° 9  |
| T 28 | 10 39 45 | 11°55'19 | 23°H14  | 14°H20 | 16°H12 | 12°Y43 | 0°Y49  | 4°M12 | 13°H36 | 27°M41 | 24°B54 | 19°L24 | 18°L26 | 4°II 0 | 2°M 4 |

Delta T = 01h09m28s

Julian Calendar

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SWISS EPHEMERIS for the year 659

MARCH 659 C.E.JC

00:00 UT

| Day  | Sid.t    | ☉        | ☽     | ♀     | ♂     | ♂     | ♂    | ♂     | ♂     | ♂      | ♂     | ♂      | ♂     | ♂     | ♂     | ♂ |
|------|----------|----------|-------|-------|-------|-------|------|-------|-------|--------|-------|--------|-------|-------|-------|---|
| F 1  | 10 43 41 | 12♌54'46 | 6♍ 4  | 15♎13 | 17♏26 | 13♐26 | 1♑ 3 | 4°R10 | 13♋39 | 27°R41 | 24♌54 | 19°R21 | 18♍22 | 4♎ 7  | 2°R 0 |   |
| S 2  | 10 47 38 | 13°54'11 | 18°39 | 16° 9 | 18°41 | 14°10 | 1°17 | 4♎ 8  | 13°42 | 27♎41  | 24°55 | 19♏17  | 18°19 | 4♐ 14 | 1♑55  |   |
| S 3  | 10 51 34 | 14°53'34 | 1♌ 0  | 17° 8 | 19°56 | 14°53 | 1°32 | 4° 6  | 13°46 | 27°41  | 24°55 | 19°13  | 18°16 | 4°20  | 1°51  |   |
| M 4  | 10 55 31 | 15°52'54 | 13° 8 | 18°10 | 21°10 | 15°36 | 1°46 | 4° 4  | 13°49 | 27°41  | 24°56 | 19° 9  | 18°13 | 4°27  | 1°47  |   |
| T 5  | 10 59 27 | 16°52'13 | 25° 7 | 19°14 | 22°25 | 16°19 | 2° 0 | 4° 1  | 13°52 | 27°40  | 24°57 | 19° 6  | 18°10 | 4°34  | 1°43  |   |
| W 6  | 11 3 24  | 17°51'28 | 7♐ 0  | 20°21 | 23°39 | 17° 2 | 2°14 | 3°59  | 13°55 | 27°40  | 24°57 | 19° 4  | 18° 7 | 4°40  | 1°38  |   |
| T 7  | 11 7 20  | 18°50'42 | 18°52 | 21°30 | 24°53 | 17°45 | 2°28 | 3°57  | 13°58 | 27°40  | 24°58 | 19°D 3 | 18° 3 | 4°47  | 1°34  |   |
| F 8  | 11 11 17 | 19°49'53 | 0♑48  | 22°41 | 26° 8 | 18°28 | 2°43 | 3°54  | 14° 1 | 27°39  | 24°58 | 19° 4  | 18° 0 | 4°54  | 1°30  |   |
| S 9  | 11 15 14 | 20°49'02 | 12°53 | 23°55 | 27°22 | 19°11 | 2°57 | 3°51  | 14° 4 | 27°39  | 24°59 | 19° 5  | 17°57 | 5° 1  | 1°26  |   |
| S 10 | 11 19 10 | 21°48'08 | 25°11 | 25°10 | 28°37 | 19°54 | 3°11 | 3°49  | 14° 7 | 27°39  | 25° 0 | 19° 7  | 17°54 | 5° 7  | 1°22  |   |
| M11  | 11 23 7  | 22°47'12 | 7♎47  | 26°27 | 29°51 | 20°37 | 3°26 | 3°46  | 14° 9 | 27°38  | 25° 1 | 19° 8  | 17°51 | 5°14  | 1°18  |   |
| T 12 | 11 27 3  | 23°46'14 | 20°43 | 27°47 | 1♑ 5  | 21°19 | 3°40 | 3°43  | 14°12 | 27°38  | 25° 1 | 19°R 9 | 17°48 | 5°21  | 1°14  |   |
| W13  | 11 31 0  | 24°45'13 | 4♎ 2  | 29° 8 | 2°19  | 22° 2 | 3°54 | 3°40  | 14°15 | 27°37  | 25° 2 | 19° 8  | 17°44 | 5°27  | 1°10  |   |
| T 14 | 11 34 56 | 25°44'10 | 17°44 | 0♌31  | 3°34  | 22°45 | 4° 9 | 3°37  | 14°18 | 27°37  | 25° 3 | 19° 5  | 17°41 | 5°34  | 1° 6  |   |
| F 15 | 11 38 53 | 26°43'05 | 1♌46  | 1°56  | 4°48  | 23°27 | 4°23 | 3°34  | 14°21 | 27°36  | 25° 4 | 19° 1  | 17°38 | 5°41  | 1° 3  |   |
| S 16 | 11 42 49 | 27°41'58 | 16° 4 | 3°22  | 6° 2  | 24°10 | 4°37 | 3°31  | 14°23 | 27°36  | 25° 4 | 18°55  | 17°35 | 5°48  | 0°59  |   |
| S 17 | 11 46 46 | 28°40'49 | 0♎33  | 4°50  | 7°16  | 24°53 | 4°52 | 3°28  | 14°26 | 27°35  | 25° 5 | 18°49  | 17°32 | 5°54  | 0°55  |   |
| M18  | 11 50 43 | 29°39'39 | 15° 7 | 6°20  | 8°31  | 25°35 | 5° 6 | 3°25  | 14°29 | 27°34  | 25° 6 | 18°43  | 17°28 | 6° 1  | 0°51  |   |
| T 19 | 11 54 39 | 0♍38'26  | 29°39 | 7°51  | 9°45  | 26°18 | 5°20 | 3°21  | 14°32 | 27°34  | 25° 7 | 18°38  | 17°25 | 6° 8  | 0°48  |   |
| W20  | 11 58 36 | 1°37'12  | 14♌ 3 | 9°24  | 10°59 | 27° 0 | 5°35 | 3°18  | 14°34 | 27°33  | 25° 8 | 18°35  | 17°22 | 6°14  | 0°44  |   |
| T 21 | 12 2 32  | 2°35'56  | 28°17 | 10°59 | 12°13 | 27°42 | 5°49 | 3°14  | 14°37 | 27°32  | 25° 9 | 18°D34 | 17°19 | 6°21  | 0°41  |   |
| F 22 | 12 6 29  | 3°34'38  | 12♌18 | 12°35 | 13°27 | 28°25 | 6° 4 | 3°11  | 14°39 | 27°32  | 25°10 | 18°34  | 17°16 | 6°28  | 0°38  |   |
| S 23 | 12 10 25 | 4°33'18  | 26° 6 | 14°13 | 14°41 | 29° 7 | 6°18 | 3° 7  | 14°42 | 27°31  | 25°11 | 18°35  | 17°13 | 6°35  | 0°34  |   |
| S 24 | 12 14 22 | 5°31'57  | 9♎40  | 15°53 | 15°55 | 29°49 | 6°32 | 3° 4  | 14°44 | 27°30  | 25°11 | 18°36  | 17° 9 | 6°41  | 0°31  |   |
| M25  | 12 18 18 | 6°30'34  | 23° 2 | 17°34 | 17° 9 | 0♌31  | 6°47 | 3° 0  | 14°47 | 27°29  | 25°12 | 18°R37 | 17° 6 | 6°48  | 0°28  |   |
| T 26 | 12 22 15 | 7°29'09  | 6♌12  | 19°17 | 18°23 | 1°13  | 7° 1 | 2°56  | 14°49 | 27°28  | 25°13 | 18°35  | 17° 3 | 6°55  | 0°25  |   |
| W27  | 12 26 12 | 8°27'42  | 19°10 | 21° 1 | 19°37 | 1°56  | 7°16 | 2°52  | 14°52 | 27°27  | 25°14 | 18°31  | 17° 0 | 7° 1  | 0°22  |   |
| T 28 | 12 30 8  | 9°26'14  | 1♑57  | 22°47 | 20°51 | 2°38  | 7°30 | 2°48  | 14°54 | 27°26  | 25°15 | 18°25  | 16°57 | 7° 8  | 0°19  |   |
| F 29 | 12 34 5  | 10°24'43 | 14°33 | 24°34 | 22° 5 | 3°20  | 7°45 | 2°44  | 14°56 | 27°25  | 25°16 | 18°17  | 16°53 | 7°15  | 0°16  |   |
| S 30 | 12 38 1  | 11°23'11 | 26°57 | 26°24 | 23°19 | 4° 2  | 7°59 | 2°40  | 14°59 | 27°24  | 25°17 | 18° 7  | 16°50 | 7°22  | 0°14  |   |
| S 31 | 12 41 58 | 12♑21'36 | 9♌10  | 28♌15 | 24♑33 | 4♌44  | 8♑13 | 2♎36  | 15♎ 1 | 27♎23  | 25♌18 | 17♍57  | 16♎47 | 7♐28  | 0♑11  |   |

Delta T = 01h09m27s Julian Calendar 1 March 659 == Greg. Calendar 4 March 659

APRIL 659 C.E.JC

00:00 UT

| Day  | Sid.t    | ☉        | ☽     | ♀     | ♂     | ♂     | ♂     | ♂     | ♂     | ♂      | ♂     | ♂      | ♂     | ♂     | ♂      | ♂ |
|------|----------|----------|-------|-------|-------|-------|-------|-------|-------|--------|-------|--------|-------|-------|--------|---|
| M 1  | 12 45 54 | 13♑20'00 | 21♌14 | 0♑ 7  | 25♑47 | 5♌25  | 8♑28  | 2°R32 | 15♎ 3 | 27°R22 | 25♌20 | 17°R47 | 16♍44 | 7♐35  | 0°R 8  |   |
| T 2  | 12 49 51 | 14°18'21 | 3♐11  | 2° 1  | 27° 1 | 6° 7  | 8°42  | 2♎28  | 15° 5 | 27♎21  | 25°21 | 17♏39  | 16°41 | 7°42  | 0♑ 6   |   |
| W 3  | 12 53 47 | 15°16'41 | 15° 3 | 3°57  | 28°15 | 6°49  | 8°56  | 2°24  | 15° 7 | 27°20  | 25°22 | 17°32  | 16°38 | 7°48  | 0° 3   |   |
| T 4  | 12 57 44 | 16°14'58 | 26°53 | 5°55  | 29°29 | 7°31  | 9°11  | 2°20  | 15° 9 | 27°19  | 25°23 | 17°28  | 16°34 | 7°55  | 0° 1   |   |
| F 5  | 13 1 40  | 17°13'14 | 8♌47  | 7°54  | 0♌43  | 8°12  | 9°25  | 2°16  | 15°11 | 27°18  | 25°24 | 17°26  | 16°31 | 8° 2  | 29♎59  |   |
| S 6  | 13 5 37  | 18°11'27 | 20°50 | 9°54  | 1°56  | 8°54  | 9°39  | 2°11  | 15°13 | 27°17  | 25°25 | 17°D25 | 16°28 | 8° 9  | 29°57  |   |
| S 7  | 13 9 34  | 19° 9'38 | 3♎ 6  | 11°56 | 3°10  | 9°36  | 9°54  | 2° 7  | 15°15 | 27°16  | 25°26 | 17°26  | 16°25 | 8°15  | 29°55  |   |
| M 8  | 13 13 30 | 20° 7'47 | 15°40 | 14° 0 | 4°24  | 10°17 | 10° 8 | 2° 3  | 15°17 | 27°15  | 25°27 | 17°R27 | 16°22 | 8°22  | 29°53  |   |
| T 9  | 13 17 27 | 21° 5'54 | 28°37 | 16° 5 | 5°37  | 10°59 | 10°22 | 1°58  | 15°19 | 27°13  | 25°28 | 17°26  | 16°19 | 8°29  | 29°51  |   |
| W10  | 13 21 23 | 22° 3'59 | 12♐ 1 | 18°11 | 6°51  | 11°40 | 10°37 | 1°54  | 15°21 | 27°12  | 25°30 | 17°24  | 16°15 | 8°35  | 29°49  |   |
| T 11 | 13 25 20 | 23° 2'02 | 25°52 | 20°19 | 8° 5  | 12°22 | 10°51 | 1°50  | 15°23 | 27°11  | 25°31 | 17°19  | 16°12 | 8°42  | 29°48  |   |
| F 12 | 13 29 16 | 24° 0'03 | 10♌10 | 22°27 | 9°18  | 13° 3 | 11° 5 | 1°45  | 15°25 | 27°10  | 25°32 | 17°12  | 16° 9 | 8°49  | 29°46  |   |
| S 13 | 13 33 13 | 24°58'02 | 24°49 | 24°36 | 10°32 | 13°44 | 11°19 | 1°41  | 15°26 | 27° 8  | 25°33 | 17° 2  | 16° 6 | 8°56  | 29°44  |   |
| S 14 | 13 37 9  | 25°56'00 | 9♎43  | 26°46 | 11°46 | 14°26 | 11°33 | 1°36  | 15°28 | 27° 7  | 25°34 | 16°52  | 16° 3 | 9° 2  | 29°43  |   |
| M15  | 13 41 6  | 26°53'56 | 24°42 | 28°56 | 12°59 | 15° 7 | 11°47 | 1°32  | 15°30 | 27° 6  | 25°36 | 16°43  | 15°59 | 9° 9  | 29°42  |   |
| T 16 | 13 45 3  | 27°51'51 | 9♌38  | 1♌ 6  | 14°13 | 15°48 | 12° 2 | 1°27  | 15°31 | 27° 4  | 25°37 | 16°34  | 15°56 | 9°16  | 29°41  |   |
| W17  | 13 48 59 | 28°49'44 | 24°21 | 3°16  | 15°26 | 16°29 | 12°16 | 1°23  | 15°33 | 27° 3  | 25°38 | 16°28  | 15°53 | 9°22  | 29°40  |   |
| T 18 | 13 52 56 | 29°47'37 | 8♌47  | 5°26  | 16°40 | 17°11 | 12°30 | 1°18  | 15°34 | 27° 2  | 25°39 | 16°24  | 15°50 | 9°29  | 29°39  |   |
| F 19 | 13 56 52 | 0♌45'27  | 22°53 | 7°35  | 17°53 | 17°52 | 12°44 | 1°14  | 15°36 | 27° 0  | 25°41 | 16°23  | 15°47 | 9°36  | 29°38  |   |
| S 20 | 14 0 49  | 1°43'17  | 6♎38  | 9°43  | 19° 6 | 18°33 | 12°58 | 1°10  | 15°37 | 26°59  | 25°42 | 16°D23 | 15°44 | 9°43  | 29°37  |   |
| S 21 | 14 4 45  | 2°41'05  | 20° 3 | 11°49 | 20°20 | 19°14 | 13°12 | 1° 5  | 15°38 | 26°57  | 25°43 | 16°R23 | 15°40 | 9°49  | 29°36  |   |
| M22  | 14 8 42  | 3°38'52  | 3♌10  | 13°55 | 21°33 | 19°55 | 13°26 | 1° 1  | 15°40 | 26°56  | 25°45 | 16°22  | 15°37 | 9°56  | 29°36  |   |
| T 23 | 14 12 38 | 4°36'38  | 16° 3 | 15°58 | 22°47 | 20°36 | 13°40 | 0°56  | 15°41 | 26°54  | 25°46 | 16°19  | 15°34 | 10° 3 | 29°35  |   |
| W24  | 14 16 35 | 5°34'23  | 28°43 | 17°59 | 24° 0 | 21°17 | 13°53 | 0°52  | 15°42 | 26°53  | 25°47 | 16°13  | 15°31 | 10° 9 | 29°35  |   |
| T 25 | 14 20 32 | 6°32'06  | 11♑13 | 19°58 | 25°13 | 21°58 | 14° 7 | 0°47  | 15°43 | 26°51  | 25°48 | 16° 4  | 15°28 | 10°16 | 29°35  |   |
| F 26 | 14 24 28 | 7°29'48  | 23°33 | 21°55 | 26°27 | 22°38 | 14°21 | 0°43  | 15°44 | 26°50  | 25°50 | 15°53  | 15°25 | 10°23 | 29°34  |   |
| S 27 | 14 28 25 | 8°27'29  | 5♌44  | 23°49 | 27°40 | 23°19 | 14°35 | 0°38  | 15°46 | 26°48  | 25°51 | 15°40  | 15°21 | 10°29 | 29°D34 |   |
| S 28 | 14 32 21 | 9°25'08  | 17°49 | 25°40 | 28°53 | 24° 0 | 14°49 | 0°34  | 15°47 | 26°47  | 25°52 | 15°26  | 15°18 | 10°36 | 29°34  |   |
| M29  | 14 36 18 | 10°22'46 | 29°46 | 27°29 | 0♐ 6  | 24°41 | 15° 2 | 0°29  | 15°48 | 26°45  | 25°54 | 15°13  | 15°15 | 10°43 | 29°35  |   |
| T 30 | 14 40 14 | 11♌20'23 | 11♐39 | 29♌15 | 1♐20  | 25♌21 | 15♑16 | 0♎25  | 15♎48 | 26♎44  | 25♌55 | 15♍ 1  | 15♎12 | 10♐50 | 29♌35  |   |

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SWISS EPHEMERIS for the year 659

MAY 659 C.E.JC

00:00 UT

| Day  | Sid.t    | ☉        | ☽     | ♀      | ♁     | ♂     | ♃      | ♅     | ♁      | ♁      | ♁     | ♁      | ♁     | ♁     | ♁     |
|------|----------|----------|-------|--------|-------|-------|--------|-------|--------|--------|-------|--------|-------|-------|-------|
| W 1  | 14 44 11 | 12♈17'58 | 23♐29 | 0♐58   | 2♐33  | 26♈ 2 | 15♈29  | 0°R21 | 15♈49  | 26°R42 | 25♈56 | 14°R51 | 15♈ 9 | 10♐56 | 29♈35 |
| T 2  | 14 48 7  | 13°15'32 | 5♈19  | 2°37   | 3°46  | 26°43 | 15°43  | 0♐16  | 15°50  | 26♐41  | 25°58 | 14♈44  | 15° 5 | 11° 3 | 29°36 |
| F 3  | 14 52 4  | 14°13'05 | 17°12 | 4°14   | 4°59  | 27°23 | 15°56  | 0°12  | 15°51  | 26°39  | 25°59 | 14°40  | 15° 2 | 11°10 | 29°36 |
| S 4  | 14 56 1  | 15°10'36 | 29°13 | 5°48   | 6°12  | 28° 4 | 16°10  | 0° 8  | 15°52  | 26°38  | 26° 1 | 14°38  | 14°59 | 11°16 | 29°37 |
| S 5  | 14 59 57 | 16° 8'06 | 11♏27 | 7°18   | 7°25  | 28°44 | 16°23  | 0° 4  | 15°52  | 26°36  | 26° 2 | 14°38  | 14°56 | 11°23 | 29°38 |
| M 6  | 15 3 54  | 17° 5'34 | 23°58 | 8°46   | 8°38  | 29°25 | 16°37  | 29♏59 | 15°53  | 26°34  | 26° 3 | 14°38  | 14°53 | 11°30 | 29°39 |
| T 7  | 15 7 50  | 18° 3'01 | 6♐52  | 10°10  | 9°51  | 0♐ 5  | 16°50  | 29°55 | 15°54  | 26°33  | 26° 5 | 14°37  | 14°50 | 11°37 | 29°40 |
| W 8  | 15 11 47 | 19° 0'27 | 20°13 | 11°31  | 11° 4 | 0°45  | 17° 3  | 29°51 | 15°54  | 26°31  | 26° 6 | 14°34  | 14°46 | 11°43 | 29°41 |
| T 9  | 15 15 43 | 19°57'51 | 4♏ 4  | 12°48  | 12°17 | 1°26  | 17°16  | 29°47 | 15°55  | 26°30  | 26° 7 | 14°29  | 14°43 | 11°50 | 29°42 |
| F 10 | 15 19 40 | 20°55'14 | 18°24 | 14° 2  | 13°30 | 2° 6  | 17°30  | 29°43 | 15°55  | 26°28  | 26° 9 | 14°22  | 14°40 | 11°57 | 29°43 |
| S 11 | 15 23 36 | 21°52'36 | 3♐10  | 15°13  | 14°43 | 2°46  | 17°43  | 29°39 | 15°56  | 26°26  | 26°10 | 14°12  | 14°37 | 12° 3 | 29°45 |
| S 12 | 15 27 33 | 22°49'56 | 18°15 | 16°21  | 15°56 | 3°26  | 17°56  | 29°35 | 15°56  | 26°25  | 26°11 | 14° 2  | 14°34 | 12°10 | 29°46 |
| M13  | 15 31 30 | 23°47'16 | 3♁30  | 17°25  | 17° 9 | 4° 7  | 18° 9  | 29°31 | 15°56  | 26°23  | 26°13 | 13°51  | 14°30 | 12°17 | 29°48 |
| T 14 | 15 35 26 | 24°44'36 | 18°44 | 18°25  | 18°22 | 4°47  | 18°22  | 29°27 | 15°56  | 26°22  | 26°14 | 13°42  | 14°27 | 12°24 | 29°49 |
| W15  | 15 39 23 | 25°41'54 | 3♂45  | 19°22  | 19°34 | 5°27  | 18°34  | 29°24 | 15°57  | 26°20  | 26°16 | 13°35  | 14°24 | 12°30 | 29°51 |
| T 16 | 15 43 19 | 26°39'12 | 18°26 | 20°15  | 20°47 | 6° 7  | 18°47  | 29°20 | 15°57  | 26°18  | 26°17 | 13°31  | 14°21 | 12°37 | 29°53 |
| F 17 | 15 47 16 | 27°36'29 | 2♏44  | 21° 4  | 22° 0 | 6°47  | 19° 0  | 29°16 | 15°57  | 26°17  | 26°18 | 13°29  | 14°18 | 12°44 | 29°55 |
| S 18 | 15 51 12 | 28°33'46 | 16°35 | 21°49  | 23°13 | 7°27  | 19°13  | 29°13 | 15°57  | 26°15  | 26°20 | 13°D29 | 14°15 | 12°50 | 29°57 |
| S 19 | 15 55 9  | 29°31'02 | 0♁ 1  | 22°30  | 24°25 | 8° 7  | 19°25  | 29° 9 | 15°R57 | 26°13  | 26°21 | 13°R29 | 14°11 | 12°57 | 0♐ 0  |
| M20  | 15 59 5  | 0♐28'18  | 13° 5 | 23° 8  | 25°38 | 8°47  | 19°38  | 29° 6 | 15°57  | 26°12  | 26°23 | 13°29  | 14° 8 | 13° 4 | 0° 2  |
| T 21 | 16 3 2   | 1°25'33  | 25°50 | 23°41  | 26°50 | 9°27  | 19°50  | 29° 2 | 15°57  | 26°10  | 26°24 | 13°26  | 14° 5 | 13°10 | 0° 4  |
| W22  | 16 6 59  | 2°22'48  | 8♈20  | 24°10  | 28° 3 | 10° 7 | 20° 3  | 28°59 | 15°57  | 26° 9  | 26°25 | 13°22  | 14° 2 | 13°17 | 0° 7  |
| T 23 | 16 10 55 | 3°20'03  | 20°38 | 24°34  | 29°16 | 10°47 | 20°15  | 28°55 | 15°57  | 26° 7  | 26°27 | 13°14  | 13°59 | 13°24 | 0° 9  |
| F 24 | 16 14 52 | 4°17'17  | 2♁47  | 24°54  | 0♁28  | 11°26 | 20°27  | 28°52 | 15°56  | 26° 5  | 26°28 | 13° 4  | 13°56 | 13°31 | 0°12  |
| S 25 | 16 18 48 | 5°14'31  | 14°48 | 25°10  | 1°41  | 12° 6 | 20°39  | 28°49 | 15°56  | 26° 4  | 26°29 | 12°53  | 13°52 | 13°37 | 0°15  |
| S 26 | 16 22 45 | 6°11'45  | 26°45 | 25°21  | 2°53  | 12°46 | 20°51  | 28°46 | 15°56  | 26° 2  | 26°31 | 12°40  | 13°49 | 13°44 | 0°18  |
| M27  | 16 26 41 | 7° 8'58  | 8♐38  | 25°27  | 4° 6  | 13°26 | 21° 3  | 28°43 | 15°55  | 26° 1  | 26°32 | 12°29  | 13°46 | 13°51 | 0°21  |
| T 28 | 16 30 38 | 8° 6'10  | 20°28 | 25°R29 | 5°18  | 14° 5 | 21°15  | 28°40 | 15°55  | 25°59  | 26°34 | 12°18  | 13°43 | 13°57 | 0°24  |
| W29  | 16 34 34 | 9° 3'23  | 2♁18  | 25°26  | 6°30  | 14°45 | 21°27  | 28°37 | 15°55  | 25°58  | 26°35 | 12° 9  | 13°40 | 14° 4 | 0°27  |
| T 30 | 16 38 31 | 10° 0'34 | 14°10 | 25°19  | 7°43  | 15°25 | 21°39  | 28°34 | 15°54  | 25°56  | 26°36 | 12° 3  | 13°36 | 14°11 | 0°30  |
| F 31 | 16 42 28 | 10♐57'46 | 26♁ 6 | 25♐ 8  | 8♁55  | 16♐ 4 | 21°V51 | 28♁31 | 15°53  | 25♐54  | 26♁38 | 12♁ 0  | 13♁33 | 14♐18 | 0♐34  |

Delta T = 01h09m26s Julian Calendar 1 May 659 == Greg. Calendar 4 May 659

JUNE 659 C.E.JC

00:00 UT

| Day  | Sid.t    | ☉        | ☽     | ♀      | ♁     | ♂     | ♃      | ♅      | ♁      | ♁      | ♁     | ♁      | ♁     | ♁     | ♁    |
|------|----------|----------|-------|--------|-------|-------|--------|--------|--------|--------|-------|--------|-------|-------|------|
| S 1  | 16 46 24 | 11♐54'56 | 8♏ 9  | 24°R52 | 10♁ 7 | 16♐44 | 22°V 2 | 28°R29 | 15°R53 | 25°R53 | 26♁39 | 11♏58  | 13♏30 | 14♐24 | 0♐37 |
| S 2  | 16 50 21 | 12°52'07 | 20°24 | 24♐33  | 11°20 | 17°24 | 22°14  | 28♁26  | 15°52  | 25♐51  | 26°40 | 11°58  | 13°27 | 14°31 | 0°41 |
| M 3  | 16 54 17 | 13°49'16 | 2♐55  | 24° 9  | 12°32 | 18° 3 | 22°25  | 28°24  | 15°51  | 25°50  | 26°42 | 11°59  | 13°24 | 14°38 | 0°44 |
| T 4  | 16 58 14 | 14°46'25 | 15°47 | 23°43  | 13°44 | 18°43 | 22°37  | 28°21  | 15°51  | 25°48  | 26°43 | 12°R 0 | 13°21 | 14°44 | 0°48 |
| W 5  | 17 2 10  | 15°43'34 | 29° 3 | 23°13  | 14°56 | 19°22 | 22°48  | 28°19  | 15°50  | 25°47  | 26°44 | 11°59  | 13°17 | 14°51 | 0°52 |
| T 6  | 17 6 7   | 16°40'42 | 12♏47 | 22°41  | 16° 8 | 20° 1 | 22°59  | 28°17  | 15°49  | 25°45  | 26°46 | 11°56  | 13°14 | 14°58 | 0°56 |
| F 7  | 17 10 3  | 17°37'50 | 27° 0 | 22° 7  | 17°20 | 20°41 | 23°10  | 28°15  | 15°48  | 25°44  | 26°47 | 11°51  | 13°11 | 15° 4 | 1° 0 |
| S 8  | 17 14 0  | 18°34'57 | 11♐40 | 21°32  | 18°32 | 21°20 | 23°21  | 28°13  | 15°47  | 25°42  | 26°48 | 11°45  | 13° 8 | 15°11 | 1° 4 |
| S 9  | 17 17 57 | 19°32'05 | 26°41 | 20°56  | 19°44 | 21°59 | 23°32  | 28°11  | 15°46  | 25°41  | 26°50 | 11°37  | 13° 5 | 15°18 | 1° 8 |
| M10  | 17 21 53 | 20°29'12 | 11♁56 | 20°19  | 20°56 | 22°39 | 23°43  | 28° 9  | 15°45  | 25°39  | 26°51 | 11°30  | 13° 2 | 15°25 | 1°12 |
| T 11 | 17 25 50 | 21°26'19 | 27°13 | 19°43  | 22° 8 | 23°18 | 23°53  | 28° 7  | 15°44  | 25°38  | 26°52 | 11°23  | 12°58 | 15°31 | 1°17 |
| W12  | 17 29 46 | 22°23'27 | 12♁22 | 19° 8  | 23°20 | 23°57 | 24° 4  | 28° 5  | 15°43  | 25°37  | 26°53 | 11°18  | 12°55 | 15°38 | 1°21 |
| T 13 | 17 33 43 | 23°20'34 | 27°14 | 18°34  | 24°32 | 24°37 | 24°14  | 28° 4  | 15°42  | 25°35  | 26°55 | 11°16  | 12°52 | 15°45 | 1°25 |
| F 14 | 17 37 39 | 24°17'42 | 11♁41 | 18° 3  | 25°44 | 25°16 | 24°25  | 28° 2  | 15°41  | 25°34  | 26°56 | 11°D15 | 12°49 | 15°51 | 1°30 |
| S 15 | 17 41 36 | 25°14'50 | 25°42 | 17°35  | 26°55 | 25°55 | 24°35  | 28° 1  | 15°40  | 25°32  | 26°57 | 11°16  | 12°46 | 15°58 | 1°35 |
| S 16 | 17 45 32 | 26°11'58 | 9♁15  | 17° 9  | 28° 7 | 26°34 | 24°45  | 27°59  | 15°38  | 25°31  | 26°58 | 11°17  | 12°42 | 16° 5 | 1°39 |
| M17  | 17 49 29 | 27° 9'07 | 22°23 | 16°48  | 29°19 | 27°13 | 24°55  | 27°58  | 15°37  | 25°30  | 27° 0 | 11°R18 | 12°39 | 16°11 | 1°44 |
| T 18 | 17 53 26 | 28° 6'17 | 5♈ 9  | 16°31  | 0♏30  | 27°52 | 25° 5  | 27°57  | 15°36  | 25°28  | 27° 1 | 11°18  | 12°36 | 16°18 | 1°49 |
| W19  | 17 57 22 | 29° 3'27 | 17°37 | 16°18  | 1°42  | 28°31 | 25°15  | 27°56  | 15°34  | 25°27  | 27° 2 | 11°16  | 12°33 | 16°25 | 1°54 |
| T 20 | 18 1 19  | 0♁ 0'38  | 29°50 | 16°10  | 2°54  | 29°10 | 25°25  | 27°55  | 15°33  | 25°26  | 27° 3 | 11°12  | 12°30 | 16°32 | 1°59 |
| F 21 | 18 5 15  | 0°57'49  | 11♁53 | 16°D 7 | 4° 5  | 29°49 | 25°34  | 27°54  | 15°31  | 25°25  | 27° 4 | 11° 7  | 12°27 | 16°38 | 2° 4 |
| S 22 | 18 9 12  | 1°55'01  | 23°49 | 16° 9  | 5°17  | 0♁28  | 25°44  | 27°53  | 15°30  | 25°23  | 27° 6 | 11° 1  | 12°23 | 16°45 | 2° 9 |
| S 23 | 18 13 8  | 2°52'13  | 5♐41  | 16°17  | 6°28  | 1° 7  | 25°53  | 27°52  | 15°28  | 25°22  | 27° 7 | 10°54  | 12°20 | 16°52 | 2°15 |
| M24  | 18 17 5  | 3°49'26  | 17°31 | 16°30  | 7°39  | 1°46  | 26° 2  | 27°52  | 15°27  | 25°21  | 27° 8 | 10°47  | 12°17 | 16°58 | 2°20 |
| T 25 | 18 21 1  | 4°46'40  | 29°22 | 16°49  | 8°51  | 2°25  | 26°11  | 27°51  | 15°25  | 25°20  | 27° 9 | 10°41  | 12°14 | 17° 5 | 2°25 |
| W26  | 18 24 58 | 5°43'54  | 11♁16 | 17°13  | 10° 2 | 3° 4  | 26°20  | 27°51  | 15°24  | 25°19  | 27°10 | 10°36  | 12°11 | 17°12 | 2°31 |
| T 27 | 18 28 55 | 6°41'08  | 23°13 | 17°43  | 11°13 | 3°43  | 26°29  | 27°50  | 15°22  | 25°18  | 27°11 | 10°33  | 12° 8 | 17°18 | 2°37 |
| F 28 | 18 32 51 | 7°38'24  | 5♏17  | 18°18  | 12°24 | 4°22  | 26°38  | 27°50  | 15°20  | 25°17  | 27°12 | 10°D32 | 12° 4 | 17°25 | 2°42 |
| S 29 | 18 36 48 | 8°35'39  | 17°29 | 18°59  | 13°35 | 5° 1  | 26°47  | 27°50  | 15°18  | 25°15  | 27°14 | 10°32  | 12° 1 | 17°32 | 2°48 |
| S 30 | 18 40 44 | 9♁32'55  | 29♏53 | 19♐46  | 14♏46 | 5♁40  | 26°V55 | 27°D50 | 15°17  | 25♐14  | 27♁15 | 10♏33  | 11♏58 | 17♐39 | 2♐54 |

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SWISS EPHEMERIS for the year 659

JULY 659 C.E.JC

00:00 UT

| Day  | Sid.t    | ☉                     | ☽                   | ♀                   | ♂                   | ♂                   | ♂                   | ♂                   | ♂                   | ♂                   | ♂                   | ♂                   | ♂                   | ♂                   | ♂                  |
|------|----------|-----------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|--------------------|
| M 1  | 18 44 41 | 10 <sup>0</sup> 30'12 | 12 <sup>11</sup> 30 | 20 <sup>11</sup> 38 | 15 <sup>0</sup> 57  | 6 <sup>5</sup> 19   | 27 <sup>17</sup> 3  | 27 <sup>2</sup> 50  | 15 <sup>0</sup> R15 | 25 <sup>0</sup> R13 | 27 <sup>8</sup> 16  | 10 <sup>0</sup> 35  | 11 <sup>0</sup> 55  | 17 <sup>11</sup> 45 | 2 <sup>11</sup> 59 |
| T 2  | 18 48 37 | 11 <sup>0</sup> 27'29 | 25 <sup>0</sup> 25  | 21 <sup>0</sup> 35  | 17 <sup>0</sup> 8   | 6 <sup>5</sup> 7    | 27 <sup>12</sup> 12 | 27 <sup>0</sup> 50  | 15 <sup>0</sup> ≈13 | 25 <sup>0</sup> ≈12 | 27 <sup>0</sup> 17  | 10 <sup>0</sup> 36  | 11 <sup>0</sup> 52  | 17 <sup>0</sup> 52  | 3 <sup>0</sup> 5   |
| W 3  | 18 52 34 | 12 <sup>0</sup> 24'46 | 8 <sup>0</sup> 41   | 22 <sup>0</sup> 38  | 18 <sup>0</sup> 19  | 7 <sup>0</sup> 36   | 27 <sup>0</sup> 20  | 27 <sup>0</sup> 51  | 15 <sup>0</sup> 11  | 25 <sup>0</sup> 11  | 27 <sup>0</sup> 18  | 10 <sup>0</sup> R37 | 11 <sup>0</sup> 48  | 17 <sup>0</sup> 59  | 3 <sup>0</sup> 11  |
| T 4  | 18 56 30 | 13 <sup>0</sup> 22'04 | 22 <sup>0</sup> 20  | 23 <sup>0</sup> 45  | 19 <sup>0</sup> 30  | 8 <sup>0</sup> 15   | 27 <sup>0</sup> 28  | 27 <sup>0</sup> 51  | 15 <sup>0</sup> 9   | 25 <sup>0</sup> 10  | 27 <sup>0</sup> 19  | 10 <sup>0</sup> 37  | 11 <sup>0</sup> 45  | 18 <sup>0</sup> 5   | 3 <sup>0</sup> 17  |
| F 5  | 19 0 27  | 14 <sup>0</sup> 19'22 | 6 <sup>0</sup> ≈22  | 24 <sup>0</sup> 58  | 20 <sup>0</sup> 41  | 8 <sup>0</sup> 54   | 27 <sup>0</sup> 35  | 27 <sup>0</sup> 51  | 15 <sup>0</sup> 7   | 25 <sup>0</sup> 9   | 27 <sup>0</sup> 20  | 10 <sup>0</sup> 35  | 11 <sup>0</sup> 42  | 18 <sup>0</sup> 12  | 3 <sup>0</sup> 23  |
| S 6  | 19 4 24  | 15 <sup>0</sup> 16'41 | 20 <sup>0</sup> 48  | 26 <sup>0</sup> 16  | 21 <sup>0</sup> 52  | 9 <sup>0</sup> 32   | 27 <sup>0</sup> 43  | 27 <sup>0</sup> 52  | 15 <sup>0</sup> 5   | 25 <sup>0</sup> 9   | 27 <sup>0</sup> 21  | 10 <sup>0</sup> 33  | 11 <sup>0</sup> 39  | 18 <sup>0</sup> 19  | 3 <sup>0</sup> 30  |
| S 7  | 19 8 20  | 16 <sup>0</sup> 14'01 | 5 <sup>0</sup> ≈34  | 27 <sup>0</sup> 39  | 23 <sup>0</sup> 2   | 10 <sup>0</sup> 11  | 27 <sup>0</sup> 51  | 27 <sup>0</sup> 53  | 15 <sup>0</sup> 3   | 25 <sup>0</sup> 8   | 27 <sup>0</sup> 22  | 10 <sup>0</sup> 30  | 11 <sup>0</sup> 36  | 18 <sup>0</sup> 25  | 3 <sup>0</sup> 36  |
| M 8  | 19 12 17 | 17 <sup>0</sup> 11'21 | 20 <sup>0</sup> 33  | 29 <sup>0</sup> 6   | 24 <sup>0</sup> 13  | 10 <sup>0</sup> 50  | 27 <sup>0</sup> 58  | 27 <sup>0</sup> 53  | 15 <sup>0</sup> 1   | 25 <sup>0</sup> 7   | 27 <sup>0</sup> 23  | 10 <sup>0</sup> 27  | 11 <sup>0</sup> 33  | 18 <sup>0</sup> 32  | 3 <sup>0</sup> 42  |
| T 9  | 19 16 13 | 18 <sup>0</sup> 8'42  | 5 <sup>0</sup> ≈38  | 0 <sup>0</sup> ≈38  | 25 <sup>0</sup> 23  | 11 <sup>0</sup> 28  | 28 <sup>0</sup> 5   | 27 <sup>0</sup> 54  | 14 <sup>0</sup> 59  | 25 <sup>0</sup> 6   | 27 <sup>0</sup> 24  | 10 <sup>0</sup> 24  | 11 <sup>0</sup> 29  | 18 <sup>0</sup> 39  | 3 <sup>0</sup> 48  |
| W10  | 19 20 10 | 19 <sup>0</sup> 6'04  | 20 <sup>0</sup> 40  | 2 <sup>0</sup> 14   | 26 <sup>0</sup> 34  | 12 <sup>0</sup> 7   | 28 <sup>0</sup> 12  | 27 <sup>0</sup> 55  | 14 <sup>0</sup> 57  | 25 <sup>0</sup> 5   | 27 <sup>0</sup> 25  | 10 <sup>0</sup> 22  | 11 <sup>0</sup> 26  | 18 <sup>0</sup> 46  | 3 <sup>0</sup> 55  |
| T 11 | 19 24 6  | 20 <sup>0</sup> 3'27  | 5 <sup>0</sup> ≈30  | 3 <sup>0</sup> 54   | 27 <sup>0</sup> 44  | 12 <sup>0</sup> 45  | 28 <sup>0</sup> 19  | 27 <sup>0</sup> 56  | 14 <sup>0</sup> 55  | 25 <sup>0</sup> 4   | 27 <sup>0</sup> 26  | 10 <sup>0</sup> D21 | 11 <sup>0</sup> 23  | 18 <sup>0</sup> 52  | 4 <sup>0</sup> 1   |
| F 12 | 19 28 3  | 21 <sup>0</sup> 0'51  | 20 <sup>0</sup> 0   | 5 <sup>0</sup> 38   | 28 <sup>0</sup> 54  | 13 <sup>0</sup> 24  | 28 <sup>0</sup> 26  | 27 <sup>0</sup> 57  | 14 <sup>0</sup> 53  | 25 <sup>0</sup> 4   | 27 <sup>0</sup> 26  | 10 <sup>0</sup> 22  | 11 <sup>0</sup> 20  | 18 <sup>0</sup> 59  | 4 <sup>0</sup> 8   |
| S 13 | 19 31 59 | 21 <sup>0</sup> 58'16 | 4 <sup>0</sup> ≈6   | 7 <sup>0</sup> 25   | 0 <sup>0</sup> ≈5   | 14 <sup>0</sup> 3   | 28 <sup>0</sup> 32  | 27 <sup>0</sup> 59  | 14 <sup>0</sup> 51  | 25 <sup>0</sup> 3   | 27 <sup>0</sup> 27  | 10 <sup>0</sup> 22  | 11 <sup>0</sup> 17  | 19 <sup>0</sup> 6   | 4 <sup>0</sup> 14  |
| S 14 | 19 35 56 | 22 <sup>0</sup> 55'42 | 17 <sup>0</sup> 46  | 9 <sup>0</sup> 16   | 1 <sup>0</sup> 15   | 14 <sup>0</sup> 41  | 28 <sup>0</sup> 39  | 28 <sup>0</sup> 0   | 14 <sup>0</sup> 49  | 25 <sup>0</sup> 2   | 27 <sup>0</sup> 28  | 10 <sup>0</sup> 24  | 11 <sup>0</sup> 14  | 19 <sup>0</sup> 12  | 4 <sup>0</sup> 21  |
| M15  | 19 39 53 | 23 <sup>0</sup> 53'10 | 1 <sup>0</sup> ≈0   | 11 <sup>0</sup> 9   | 2 <sup>0</sup> 25   | 15 <sup>0</sup> 20  | 28 <sup>0</sup> 45  | 28 <sup>0</sup> 1   | 14 <sup>0</sup> 47  | 25 <sup>0</sup> 2   | 27 <sup>0</sup> 29  | 10 <sup>0</sup> 25  | 11 <sup>0</sup> 10  | 19 <sup>0</sup> 19  | 4 <sup>0</sup> 27  |
| T 16 | 19 43 49 | 24 <sup>0</sup> 50'39 | 13 <sup>0</sup> 50  | 13 <sup>0</sup> 5   | 3 <sup>0</sup> 35   | 15 <sup>0</sup> 58  | 28 <sup>0</sup> 51  | 28 <sup>0</sup> 3   | 14 <sup>0</sup> 44  | 25 <sup>0</sup> 1   | 27 <sup>0</sup> 30  | 10 <sup>0</sup> 26  | 11 <sup>0</sup> 7   | 19 <sup>0</sup> 26  | 4 <sup>0</sup> 34  |
| W17  | 19 47 46 | 25 <sup>0</sup> 48'10 | 26 <sup>0</sup> 20  | 15 <sup>0</sup> 3   | 4 <sup>0</sup> 45   | 16 <sup>0</sup> 37  | 28 <sup>0</sup> 57  | 28 <sup>0</sup> 4   | 14 <sup>0</sup> 42  | 25 <sup>0</sup> 0   | 27 <sup>0</sup> 31  | 10 <sup>0</sup> R26 | 11 <sup>0</sup> 4   | 19 <sup>0</sup> 32  | 4 <sup>0</sup> 41  |
| T 18 | 19 51 42 | 26 <sup>0</sup> 45'42 | 8 <sup>0</sup> ≈34  | 17 <sup>0</sup> 2   | 5 <sup>0</sup> 55   | 17 <sup>0</sup> 15  | 29 <sup>0</sup> 3   | 28 <sup>0</sup> 6   | 14 <sup>0</sup> 40  | 25 <sup>0</sup> 0   | 27 <sup>0</sup> 31  | 10 <sup>0</sup> 26  | 11 <sup>0</sup> 1   | 19 <sup>0</sup> 39  | 4 <sup>0</sup> 48  |
| F 19 | 19 55 39 | 27 <sup>0</sup> 43'15 | 20 <sup>0</sup> 36  | 19 <sup>0</sup> 3   | 7 <sup>0</sup> 5    | 17 <sup>0</sup> 53  | 29 <sup>0</sup> 9   | 28 <sup>0</sup> 8   | 14 <sup>0</sup> 38  | 24 <sup>0</sup> 59  | 27 <sup>0</sup> 32  | 10 <sup>0</sup> 25  | 10 <sup>0</sup> 58  | 19 <sup>0</sup> 46  | 4 <sup>0</sup> 55  |
| S 20 | 19 59 35 | 28 <sup>0</sup> 40'50 | 2 <sup>0</sup> ≈30  | 21 <sup>0</sup> 5   | 8 <sup>0</sup> 14   | 18 <sup>0</sup> 32  | 29 <sup>0</sup> 14  | 28 <sup>0</sup> 10  | 14 <sup>0</sup> 36  | 24 <sup>0</sup> 59  | 27 <sup>0</sup> 33  | 10 <sup>0</sup> 23  | 10 <sup>0</sup> 54  | 19 <sup>0</sup> 52  | 5 <sup>0</sup> 1   |
| S 21 | 20 3 32  | 29 <sup>0</sup> 38'26 | 14 <sup>0</sup> 20  | 23 <sup>0</sup> 7   | 9 <sup>0</sup> 24   | 19 <sup>0</sup> 10  | 29 <sup>0</sup> 20  | 28 <sup>0</sup> 12  | 14 <sup>0</sup> 33  | 24 <sup>0</sup> 58  | 27 <sup>0</sup> 34  | 10 <sup>0</sup> 22  | 10 <sup>0</sup> 51  | 19 <sup>0</sup> 59  | 5 <sup>0</sup> 8   |
| M22  | 20 7 28  | 0 <sup>0</sup> ≈36'04 | 26 <sup>0</sup> 11  | 25 <sup>0</sup> 10  | 10 <sup>0</sup> 34  | 19 <sup>0</sup> 49  | 29 <sup>0</sup> 25  | 28 <sup>0</sup> 14  | 14 <sup>0</sup> 31  | 24 <sup>0</sup> 58  | 27 <sup>0</sup> 34  | 10 <sup>0</sup> 20  | 10 <sup>0</sup> 48  | 20 <sup>0</sup> 6   | 5 <sup>0</sup> 15  |
| T 23 | 20 11 25 | 1 <sup>0</sup> 33'44  | 8 <sup>0</sup> ≈5   | 27 <sup>0</sup> 12  | 11 <sup>0</sup> 43  | 20 <sup>0</sup> 27  | 29 <sup>0</sup> 30  | 28 <sup>0</sup> 16  | 14 <sup>0</sup> 29  | 24 <sup>0</sup> 58  | 27 <sup>0</sup> 35  | 10 <sup>0</sup> 19  | 10 <sup>0</sup> 45  | 20 <sup>0</sup> 13  | 5 <sup>0</sup> 22  |
| W24  | 20 15 22 | 2 <sup>0</sup> 31'25  | 20 <sup>0</sup> 4   | 29 <sup>0</sup> 15  | 12 <sup>0</sup> 52  | 21 <sup>0</sup> 6   | 29 <sup>0</sup> 35  | 28 <sup>0</sup> 18  | 14 <sup>0</sup> 26  | 24 <sup>0</sup> 57  | 27 <sup>0</sup> 36  | 10 <sup>0</sup> 18  | 10 <sup>0</sup> 42  | 20 <sup>0</sup> 19  | 5 <sup>0</sup> 30  |
| T 25 | 20 19 18 | 3 <sup>0</sup> 29'07  | 2 <sup>0</sup> ≈11  | 1 <sup>0</sup> ≈17  | 14 <sup>0</sup> 2   | 21 <sup>0</sup> 44  | 29 <sup>0</sup> 39  | 28 <sup>0</sup> 21  | 14 <sup>0</sup> 24  | 24 <sup>0</sup> 57  | 27 <sup>0</sup> 37  | 10 <sup>0</sup> 18  | 10 <sup>0</sup> 39  | 20 <sup>0</sup> 26  | 5 <sup>0</sup> 37  |
| F 26 | 20 23 15 | 4 <sup>0</sup> 26'51  | 14 <sup>0</sup> 27  | 3 <sup>0</sup> 18   | 15 <sup>0</sup> 11  | 22 <sup>0</sup> 22  | 29 <sup>0</sup> 44  | 28 <sup>0</sup> 23  | 14 <sup>0</sup> 22  | 24 <sup>0</sup> 56  | 27 <sup>0</sup> 37  | 10 <sup>0</sup> D18 | 10 <sup>0</sup> 35  | 20 <sup>0</sup> 33  | 5 <sup>0</sup> 44  |
| S 27 | 20 27 11 | 5 <sup>0</sup> 24'36  | 26 <sup>0</sup> 55  | 5 <sup>0</sup> 19   | 16 <sup>0</sup> 20  | 23 <sup>0</sup> 1   | 29 <sup>0</sup> 48  | 28 <sup>0</sup> 26  | 14 <sup>0</sup> 19  | 24 <sup>0</sup> 56  | 27 <sup>0</sup> 38  | 10 <sup>0</sup> 18  | 10 <sup>0</sup> 32  | 20 <sup>0</sup> 39  | 5 <sup>0</sup> 51  |
| S 28 | 20 31 8  | 6 <sup>0</sup> 22'22  | 9 <sup>0</sup> ≈34  | 7 <sup>0</sup> 19   | 17 <sup>0</sup> 29  | 23 <sup>0</sup> 39  | 29 <sup>0</sup> 52  | 28 <sup>0</sup> 28  | 14 <sup>0</sup> 17  | 24 <sup>0</sup> 56  | 27 <sup>0</sup> 38  | 10 <sup>0</sup> 18  | 10 <sup>0</sup> 29  | 20 <sup>0</sup> 46  | 5 <sup>0</sup> 58  |
| M29  | 20 35 4  | 7 <sup>0</sup> 20'10  | 22 <sup>0</sup> 28  | 9 <sup>0</sup> 18   | 18 <sup>0</sup> 38  | 24 <sup>0</sup> 17  | 29 <sup>0</sup> 56  | 28 <sup>0</sup> 31  | 14 <sup>0</sup> 15  | 24 <sup>0</sup> 56  | 27 <sup>0</sup> 39  | 10 <sup>0</sup> 19  | 10 <sup>0</sup> 26  | 20 <sup>0</sup> 53  | 6 <sup>0</sup> 6   |
| T 30 | 20 39 1  | 8 <sup>0</sup> 17'59  | 5 <sup>0</sup> ≈35  | 11 <sup>0</sup> 15  | 19 <sup>0</sup> 47  | 24 <sup>0</sup> 55  | 0 <sup>0</sup> ≈0   | 28 <sup>0</sup> 34  | 14 <sup>0</sup> 12  | 24 <sup>0</sup> 55  | 27 <sup>0</sup> 40  | 10 <sup>0</sup> 19  | 10 <sup>0</sup> 23  | 20 <sup>0</sup> 59  | 6 <sup>0</sup> 13  |
| W31  | 20 42 57 | 9 <sup>0</sup> ≈15'49 | 18 <sup>0</sup> ≈59 | 13 <sup>0</sup> ≈12 | 20 <sup>0</sup> ≈56 | 25 <sup>0</sup> ≈34 | 0 <sup>0</sup> ≈3   | 28 <sup>0</sup> ≈37 | 14 <sup>0</sup> ≈10 | 24 <sup>0</sup> ≈55 | 27 <sup>0</sup> ≈40 | 10 <sup>0</sup> ≈19 | 10 <sup>0</sup> ≈20 | 21 <sup>0</sup> ≈6  | 6 <sup>0</sup> ≈20 |

Delta T = 01h09m24s

Julian Calendar 1 July 659 == Greg. Calendar 4 July 659

AUGUST 659 C.E.JC

00:00 UT

| Day  | Sid.t    | ☉                      | ☽                   | ♀                  | ♂                  | ♂                   | ♂                 | ♂                   | ♂                   | ♂                    | ♂                   | ♂                   | ♂                   | ♂                   | ♂                  |
|------|----------|------------------------|---------------------|--------------------|--------------------|---------------------|-------------------|---------------------|---------------------|----------------------|---------------------|---------------------|---------------------|---------------------|--------------------|
| T 1  | 20 46 54 | 10 <sup>0</sup> ≈13'40 | 2 <sup>0</sup> ≈39  | 15 <sup>0</sup> ≈7 | 22 <sup>0</sup> ≈5 | 26 <sup>0</sup> ≈12 | 0 <sup>0</sup> ≈7 | 28 <sup>0</sup> ≈40 | 14 <sup>0</sup> ≈R7 | 24 <sup>0</sup> ≈R55 | 27 <sup>0</sup> ≈41 | 10 <sup>0</sup> ≈19 | 10 <sup>0</sup> ≈16 | 21 <sup>0</sup> ≈13 | 6 <sup>0</sup> ≈28 |
| F 2  | 20 50 51 | 11 <sup>0</sup> 11'33  | 16 <sup>0</sup> 36  | 17 <sup>0</sup> 1  | 23 <sup>0</sup> 13 | 26 <sup>0</sup> 50  | 0 <sup>0</sup> 10 | 28 <sup>0</sup> 43  | 14 <sup>0</sup> ≈5  | 24 <sup>0</sup> ≈55  | 27 <sup>0</sup> 41  | 10 <sup>0</sup> 19  | 10 <sup>0</sup> 13  | 21 <sup>0</sup> 19  | 6 <sup>0</sup> 35  |
| S 3  | 20 54 47 | 12 <sup>0</sup> 9'27   | 0 <sup>0</sup> ≈49  | 18 <sup>0</sup> 54 | 24 <sup>0</sup> 22 | 27 <sup>0</sup> 28  | 0 <sup>0</sup> 13 | 28 <sup>0</sup> 46  | 14 <sup>0</sup> 3   | 24 <sup>0</sup> 55   | 27 <sup>0</sup> 42  | 10 <sup>0</sup> 19  | 10 <sup>0</sup> 10  | 21 <sup>0</sup> 26  | 6 <sup>0</sup> 42  |
| S 4  | 20 58 44 | 13 <sup>0</sup> 7'23   | 15 <sup>0</sup> 15  | 20 <sup>0</sup> 45 | 25 <sup>0</sup> 30 | 28 <sup>0</sup> 7   | 0 <sup>0</sup> 16 | 28 <sup>0</sup> 49  | 14 <sup>0</sup> 0   | 24 <sup>0</sup> 55   | 27 <sup>0</sup> 42  | 10 <sup>0</sup> 19  | 10 <sup>0</sup> 7   | 21 <sup>0</sup> 33  | 6 <sup>0</sup> 50  |
| M 5  | 21 2 40  | 14 <sup>0</sup> 5'20   | 29 <sup>0</sup> 52  | 22 <sup>0</sup> 35 | 26 <sup>0</sup> 38 | 28 <sup>0</sup> 45  | 0 <sup>0</sup> 18 | 28 <sup>0</sup> 52  | 13 <sup>0</sup> 58  | 24 <sup>0</sup> D55  | 27 <sup>0</sup> 43  | 10 <sup>0</sup> 20  | 10 <sup>0</sup> 4   | 21 <sup>0</sup> 40  | 6 <sup>0</sup> 58  |
| T 6  | 21 6 37  | 15 <sup>0</sup> 3'18   | 14 <sup>0</sup> ≈34 | 24 <sup>0</sup> 24 | 27 <sup>0</sup> 46 | 29 <sup>0</sup> 23  | 0 <sup>0</sup> 21 | 28 <sup>0</sup> 56  | 13 <sup>0</sup> 55  | 24 <sup>0</sup> 55   | 27 <sup>0</sup> 43  | 10 <sup>0</sup> 20  | 10 <sup>0</sup> 0   | 21 <sup>0</sup> 46  | 7 <sup>0</sup> 5   |
| W 7  | 21 10 33 | 16 <sup>0</sup> 1'18   | 29 <sup>0</sup> 14  | 26 <sup>0</sup> 12 | 28 <sup>0</sup> 54 | 0 <sup>0</sup> ≈1   | 0 <sup>0</sup> 23 | 28 <sup>0</sup> 59  | 13 <sup>0</sup> 53  | 24 <sup>0</sup> 55   | 27 <sup>0</sup> 44  | 10 <sup>0</sup> 20  | 9 <sup>0</sup> 57   | 21 <sup>0</sup> 53  | 7 <sup>0</sup> 13  |
| T 8  | 21 14 30 | 16 <sup>0</sup> 59'19  | 13 <sup>0</sup> ≈48 | 27 <sup>0</sup> 58 | 0 <sup>0</sup> ≈2  | 0 <sup>0</sup> 39   | 0 <sup>0</sup> 25 | 29 <sup>0</sup> 3   | 13 <sup>0</sup> 51  | 24 <sup>0</sup> 55   | 27 <sup>0</sup> 44  | 10 <sup>0</sup> R21 | 9 <sup>0</sup> 54   | 22 <sup>0</sup> 0   | 7 <sup>0</sup> 20  |
| F 9  | 21 18 26 | 17 <sup>0</sup> 57'22  | 28 <sup>0</sup> 8   | 29 <sup>0</sup> 43 | 1 <sup>0</sup> 10  | 1 <sup>0</sup> 17   | 0 <sup>0</sup> 27 | 29 <sup>0</sup> 7   | 13 <sup>0</sup> 48  | 24 <sup>0</sup> 55   | 27 <sup>0</sup> 44  | 10 <sup>0</sup> 20  | 9 <sup>0</sup> 51   | 22 <sup>0</sup> 6   | 7 <sup>0</sup> 28  |
| S 10 | 21 22 23 | 18 <sup>0</sup> 55'27  | 12 <sup>0</sup> ≈9  | 1 <sup>0</sup> ≈27 | 2 <sup>0</sup> 18  | 1 <sup>0</sup> 55   | 0 <sup>0</sup> 28 | 29 <sup>0</sup> 10  | 13 <sup>0</sup> 46  | 24 <sup>0</sup> 55   | 27 <sup>0</sup> 45  | 10 <sup>0</sup> 20  | 9 <sup>0</sup> 48   | 22 <sup>0</sup> 13  | 7 <sup>0</sup> 36  |
| S 11 | 21 26 20 | 19 <sup>0</sup> 53'34  | 25 <sup>0</sup> 48  | 3 <sup>0</sup> 9   | 3 <sup>0</sup> 25  | 2 <sup>0</sup> 34   | 0 <sup>0</sup> 30 | 29 <sup>0</sup> 14  | 13 <sup>0</sup> 43  | 24 <sup>0</sup> 56   | 27 <sup>0</sup> 45  | 10 <sup>0</sup> 19  | 9 <sup>0</sup> 45   | 22 <sup>0</sup> 20  | 7 <sup>0</sup> 43  |
| M12  | 21 30 16 | 20 <sup>0</sup> 51'42  | 9 <sup>0</sup> ≈5   | 4 <sup>0</sup> 51  | 4 <sup>0</sup> 32  | 3 <sup>0</sup> 12   | 0 <sup>0</sup> 31 | 29 <sup>0</sup> 18  | 13 <sup>0</sup> 41  | 24 <sup>0</sup> 56   | 27 <sup>0</sup> 45  | 10 <sup>0</sup> 17  | 9 <sup>0</sup> 41   | 22 <sup>0</sup> 26  | 7 <sup>0</sup> 51  |
| T 13 | 21 34 13 | 21 <sup>0</sup> 49'53  | 21 <sup>0</sup> 58  | 6 <sup>0</sup> 31  | 5 <sup>0</sup> 40  | 3 <sup>0</sup> 50   | 0 <sup>0</sup> 32 | 29 <sup>0</sup> 22  | 13 <sup>0</sup> 39  | 24 <sup>0</sup> 56   | 27 <sup>0</sup> 46  | 10 <sup>0</sup> 16  | 9 <sup>0</sup> 38   | 22 <sup>0</sup> 33  | 7 <sup>0</sup> 59  |
| W14  | 21 38 9  | 22 <sup>0</sup> 48'05  | 4 <sup>0</sup> ≈31  | 8 <sup>0</sup> 10  | 6 <sup>0</sup> 47  | 4 <sup>0</sup> 28   | 0 <sup>0</sup> 33 | 29 <sup>0</sup> 26  | 13 <sup>0</sup> 36  | 24 <sup>0</sup> 56   | 27 <sup>0</sup> 46  | 10 <sup>0</sup> 15  | 9 <sup>0</sup> 35   | 22 <sup>0</sup> 40  | 8 <sup>0</sup> 6   |
| T 15 | 21 42 6  | 23 <sup>0</sup> 46'20  | 16 <sup>0</sup> 47  | 9 <sup>0</sup> 47  | 7 <sup>0</sup> 54  | 5 <sup>0</sup> 6    | 0 <sup>0</sup> 34 | 29 <sup>0</sup> 30  | 13 <sup>0</sup> 34  | 24 <sup>0</sup> 57   | 27 <sup>0</sup> 46  | 10 <sup>0</sup> 14  | 9 <sup>0</sup> 32   | 22 <sup>0</sup> 46  | 8 <sup>0</sup> 14  |
| F 16 | 21 46 2  | 24 <sup>0</sup> 44'37  | 28 <sup>0</sup> 50  | 11 <sup>0</sup> 24 | 9 <sup>0</sup> 1   | 5 <sup>0</sup> 44   | 0 <sup>0</sup> 34 | 29 <sup>0</sup> 34  | 13 <sup>0</sup> 32  | 24 <sup>0</sup> 57   | 27 <sup>0</sup> 46  | 10 <sup>0</sup> D14 | 9 <sup>0</sup> 29   | 22 <sup>0</sup> 53  | 8 <sup>0</sup> 22  |
| S 17 | 21 49    |                        |                     |                    |                    |                     |                   |                     |                     |                      |                     |                     |                     |                     |                    |

SWISS EPHEMERIS for the year 659

SEPTEMBER 659 C.E.JC

00:00 UT

| Day  | Sid.t    | ☉        | ☽     | ♀     | ♁     | ♂     | ♃      | ♅    | ♁      | ♁     | ♁      | ♁     | ♁    | ♁       | ♁     | ♁ |
|------|----------|----------|-------|-------|-------|-------|--------|------|--------|-------|--------|-------|------|---------|-------|---|
| S 1  | 22 49 7  | 10♏21'45 | 25♏47 | 4♏30  | 26♏27 | 15♏51 | 0°R14  | 0♏51 | 12°R56 | 25♏7  | 27°R47 | 10♏0  | 8♏38 | 24♏40   | 10♏29 |   |
| M 2  | 22 53 4  | 11°20'35 | 10♏2  | 5°46  | 27°31 | 16°29 | 0♏11   | 0°56 | 12°54  | 25°8  | 27♏47  | 10°2  | 8°35 | 24°47   | 10°37 |   |
| T 3  | 22 57 0  | 12°19'27 | 24°18 | 7°0   | 28°34 | 17°7  | 0°8    | 1°2  | 12°52  | 25°9  | 27°47  | 10°3  | 8°31 | 24°53   | 10°45 |   |
| W 4  | 23 0 57  | 13°18'21 | 8♏31  | 8°13  | 29°38 | 17°45 | 0°5    | 1°7  | 12°50  | 25°10 | 27°46  | 10°R4 | 8°28 | 25°0    | 10°53 |   |
| T 5  | 23 4 53  | 14°17'17 | 22°39 | 9°24  | 0♏41  | 18°22 | 0°1    | 1°13 | 12°48  | 25°11 | 27°46  | 10°3  | 8°25 | 25°7    | 11°1  |   |
| F 6  | 23 8 50  | 15°16'14 | 6♏37  | 10°33 | 1°43  | 19°0  | 29°Y58 | 1°18 | 12°47  | 25°12 | 27°46  | 10°1  | 8°22 | 25°13   | 11°9  |   |
| S 7  | 23 12 47 | 16°15'14 | 20°23 | 11°40 | 2°46  | 19°38 | 29°54  | 1°24 | 12°45  | 25°13 | 27°46  | 9°57  | 8°19 | 25°20   | 11°17 |   |
| S 8  | 23 16 43 | 17°14'15 | 3°Y51 | 12°45 | 3°48  | 20°16 | 29°50  | 1°29 | 12°43  | 25°14 | 27°46  | 9°51  | 8°16 | 25°27   | 11°25 |   |
| M 9  | 23 20 40 | 18°13'19 | 17°2  | 13°48 | 4°50  | 20°54 | 29°45  | 1°35 | 12°41  | 25°15 | 27°45  | 9°45  | 8°12 | 25°34   | 11°32 |   |
| T 10 | 23 24 36 | 19°12'25 | 29°53 | 14°48 | 5°51  | 21°31 | 29°41  | 1°41 | 12°39  | 25°16 | 27°45  | 9°38  | 8°9  | 25°40   | 11°40 |   |
| W11  | 23 28 33 | 20°11'33 | 12♏25 | 15°46 | 6°52  | 22°9  | 29°36  | 1°47 | 12°37  | 25°18 | 27°45  | 9°32  | 8°6  | 25°47   | 11°48 |   |
| T 12 | 23 32 29 | 21°10'44 | 24°41 | 16°41 | 7°53  | 22°47 | 29°32  | 1°53 | 12°36  | 25°19 | 27°44  | 9°27  | 8°3  | 25°54   | 11°56 |   |
| F 13 | 23 36 26 | 22°9'57  | 6♏44  | 17°33 | 8°54  | 23°25 | 29°27  | 1°59 | 12°34  | 25°20 | 27°44  | 9°24  | 8°0  | 26°0    | 12°4  |   |
| S 14 | 23 40 22 | 23°9'13  | 18°39 | 18°22 | 9°54  | 24°2  | 29°22  | 2°5  | 12°32  | 25°21 | 27°43  | 9°D22 | 7°57 | 26°7    | 12°12 |   |
| S 15 | 23 44 19 | 24°8'30  | 0♏29  | 19°6  | 10°54 | 24°40 | 29°16  | 2°11 | 12°31  | 25°23 | 27°43  | 9°22  | 7°53 | 26°14   | 12°20 |   |
| M16  | 23 48 15 | 25°7'51  | 12°20 | 19°47 | 11°54 | 25°18 | 29°11  | 2°17 | 12°29  | 25°24 | 27°43  | 9°23  | 7°50 | 26°20   | 12°28 |   |
| T 17 | 23 52 12 | 26°7'13  | 24°18 | 20°23 | 12°53 | 25°56 | 29°5   | 2°23 | 12°28  | 25°25 | 27°42  | 9°25  | 7°47 | 26°27   | 12°36 |   |
| W18  | 23 56 9  | 27°6'38  | 6♏27  | 20°55 | 13°52 | 26°33 | 28°59  | 2°29 | 12°26  | 25°27 | 27°42  | 9°R26 | 7°44 | 26°34   | 12°44 |   |
| T 19 | 0 0 5    | 28°6'05  | 18°51 | 21°21 | 14°50 | 27°11 | 28°54  | 2°35 | 12°25  | 25°28 | 27°41  | 9°25  | 7°41 | 26°40   | 12°52 |   |
| F 20 | 0 4 2    | 29°5'35  | 1♏34  | 21°42 | 15°48 | 27°49 | 28°47  | 2°42 | 12°23  | 25°29 | 27°41  | 9°23  | 7°37 | 26°47   | 12°59 |   |
| S 21 | 0 7 58   | 0♏5'07   | 14°37 | 21°56 | 16°46 | 28°26 | 28°41  | 2°48 | 12°22  | 25°31 | 27°40  | 9°18  | 7°34 | 26°54   | 13°7  |   |
| S 22 | 0 11 55  | 1°4'40   | 28°1  | 22°4  | 17°43 | 29°4  | 28°35  | 2°54 | 12°21  | 25°32 | 27°40  | 9°11  | 7°31 | 27°0    | 13°15 |   |
| M23  | 0 15 51  | 2°4'16   | 11♏43 | 22°R4 | 18°39 | 29°42 | 28°28  | 3°1  | 12°19  | 25°34 | 27°39  | 9°3   | 7°28 | 27°7    | 13°23 |   |
| T 24 | 0 19 48  | 3°3'54   | 25°41 | 21°57 | 19°35 | 0♏19  | 28°22  | 3°7  | 12°18  | 25°35 | 27°38  | 8°54  | 7°25 | 27°14   | 13°30 |   |
| W25  | 0 23 44  | 4°3'34   | 9♏50  | 21°41 | 20°31 | 0°57  | 28°15  | 3°14 | 12°17  | 25°37 | 27°38  | 8°45  | 7°22 | 27°20   | 13°38 |   |
| T 26 | 0 27 41  | 5°3'16   | 24°5  | 21°17 | 21°26 | 1°35  | 28°8   | 3°20 | 12°16  | 25°38 | 27°37  | 8°37  | 7°18 | 27°27   | 13°46 |   |
| F 27 | 0 31 38  | 6°3'00   | 8♏22  | 20°44 | 22°21 | 2°12  | 28°1   | 3°27 | 12°14  | 25°40 | 27°37  | 8°32  | 7°15 | 27°34   | 13°54 |   |
| S 28 | 0 35 34  | 7°2'46   | 22°36 | 20°2  | 23°15 | 2°50  | 27°54  | 3°33 | 12°13  | 25°42 | 27°36  | 8°29  | 7°12 | 27°40   | 14°1  |   |
| S 29 | 0 39 31  | 8°2'33   | 6♏46  | 19°12 | 24°8  | 3°27  | 27°47  | 3°40 | 12°12  | 25°43 | 27°35  | 8°D28 | 7°9  | 27°47   | 14°9  |   |
| M30  | 0 43 27  | 9♏2'22   | 20♏50 | 18♏14 | 25♏1  | 4♏5   | 27°Y39 | 3♏46 | 12°11  | 25°45 | 27♏35  | 8°D28 | 7°D6 | 27°II54 | 14°16 |   |

Delta T = 01h09m22s Julian Calendar 1 Sept. 659 == Greg. Calendar 4 Sept. 659

OCTOBER 659 C.E.JC

00:00 UT

| Day  | Sid.t   | ☉        | ☽      | ♀     | ♁     | ♂     | ♃      | ♅    | ♁      | ♁     | ♁      | ♁     | ♁     | ♁     | ♁     | ♁  |
|------|---------|----------|--------|-------|-------|-------|--------|------|--------|-------|--------|-------|-------|-------|-------|----|
| T 1  | 0 47 24 | 10♏2'13  | 4♏46   | 17°R9 | 25♏53 | 4♏42  | 27°R32 | 3♏53 | 12°R10 | 25♏47 | 27°R34 | 8°R29 | 7♏2   | 28♏0  | 14°17 | 24 |
| W 2  | 0 51 20 | 11°2'05  | 18°36  | 15♏58 | 26°45 | 5°20  | 27°Y25 | 4°0  | 12°10  | 25°48 | 27♏33  | 8°D29 | 6°59  | 28°7  | 14°31 |    |
| T 3  | 0 55 17 | 12°1'59  | 2♏17   | 14°44 | 27°36 | 5°58  | 27°17  | 4°7  | 12°9   | 25°50 | 27°32  | 8°26  | 6°56  | 28°14 | 14°39 |    |
| F 4  | 0 59 13 | 13°1'55  | 15°49  | 13°27 | 28°26 | 6°35  | 27°9   | 4°13 | 12°8   | 25°52 | 27°32  | 8°21  | 6°53  | 28°20 | 14°46 |    |
| S 5  | 1 3 10  | 14°1'53  | 29°11  | 12°11 | 29°15 | 7°13  | 27°2   | 4°20 | 12°7   | 25°54 | 27°31  | 8°13  | 6°50  | 28°27 | 14°54 |    |
| S 6  | 1 7 7   | 15°1'52  | 12°Y21 | 10°58 | 0♏4   | 7°50  | 26°54  | 4°27 | 12°6   | 25°56 | 27°30  | 8°3   | 6°47  | 28°34 | 15°1  |    |
| M 7  | 1 11 3  | 16°1'54  | 25°17  | 9°50  | 0°51  | 8°28  | 26°46  | 4°34 | 12°6   | 25°57 | 27°29  | 7°51  | 6°43  | 28°40 | 15°8  |    |
| T 8  | 1 15 0  | 17°1'57  | 7♏58   | 8°48  | 1°38  | 9°5   | 26°38  | 4°41 | 12°5   | 25°59 | 27°28  | 7°39  | 6°40  | 28°47 | 15°16 |    |
| W 9  | 1 18 56 | 18°2'03  | 20°24  | 7°56  | 2°24  | 9°43  | 26°30  | 4°47 | 12°5   | 26°1  | 27°27  | 7°27  | 6°37  | 28°54 | 15°23 |    |
| T 10 | 1 22 53 | 19°2'11  | 2♏37   | 7°14  | 3°9   | 10°20 | 26°22  | 4°54 | 12°4   | 26°3  | 27°27  | 7°16  | 6°34  | 29°0  | 15°30 |    |
| F 11 | 1 26 49 | 20°2'20  | 14°38  | 6°43  | 3°53  | 10°57 | 26°14  | 5°1  | 12°4   | 26°5  | 27°26  | 7°8   | 6°31  | 29°7  | 15°37 |    |
| S 12 | 1 30 46 | 21°2'32  | 26°30  | 6°24  | 4°37  | 11°35 | 26°6   | 5°8  | 12°3   | 26°7  | 27°25  | 7°3   | 6°28  | 29°14 | 15°45 |    |
| S 13 | 1 34 42 | 22°2'46  | 8♏19   | 6°D16 | 5°19  | 12°12 | 25°58  | 5°15 | 12°3   | 26°9  | 27°24  | 7°0   | 6°24  | 29°21 | 15°52 |    |
| M14  | 1 38 39 | 23°3'02  | 20°9   | 6°20  | 6°0   | 12°50 | 25°49  | 5°22 | 12°2   | 26°11 | 27°23  | 7°D0  | 6°21  | 29°27 | 15°59 |    |
| T 15 | 1 42 36 | 24°3'21  | 2♏4    | 6°34  | 6°40  | 13°27 | 25°41  | 5°29 | 12°2   | 26°13 | 27°22  | 7°R0  | 6°18  | 29°34 | 16°6  |    |
| W16  | 1 46 32 | 25°3'41  | 14°12  | 6°59  | 7°18  | 14°5  | 25°33  | 5°36 | 12°2   | 26°15 | 27°21  | 7°0   | 6°15  | 29°41 | 16°13 |    |
| T 17 | 1 50 29 | 26°4'03  | 26°37  | 7°33  | 7°56  | 14°42 | 25°25  | 5°43 | 12°2   | 26°17 | 27°20  | 6°58  | 6°12  | 29°47 | 16°20 |    |
| F 18 | 1 54 25 | 27°4'27  | 9♏24   | 8°15  | 8°32  | 15°19 | 25°17  | 5°50 | 12°2   | 26°19 | 27°19  | 6°54  | 6°8   | 29°54 | 16°26 |    |
| S 19 | 1 58 22 | 28°4'53  | 22°36  | 9°5   | 9°7   | 15°57 | 25°9   | 5°57 | 12°2   | 26°21 | 27°18  | 6°48  | 6°5   | 0♏1   | 16°33 |    |
| S 20 | 2 2 18  | 29°5'21  | 6♏13   | 10°1  | 9°41  | 16°34 | 25°0   | 6°4  | 12°D2  | 26°23 | 27°17  | 6°39  | 6°2   | 0°7   | 16°40 |    |
| M21  | 2 6 15  | 0♏5'51   | 20°16  | 11°3  | 10°13 | 17°11 | 24°52  | 6°11 | 12°2   | 26°25 | 27°16  | 6°28  | 5°59  | 0°14  | 16°47 |    |
| T 22 | 2 10 11 | 1°6'22   | 4♏38   | 12°10 | 10°44 | 17°49 | 24°44  | 6°18 | 12°2   | 26°27 | 27°15  | 6°15  | 5°56  | 0°21  | 16°53 |    |
| W23  | 2 14 8  | 2°6'55   | 19°15  | 13°22 | 11°13 | 18°26 | 24°36  | 6°25 | 12°2   | 26°29 | 27°14  | 6°3   | 5°53  | 0°27  | 17°0  |    |
| T 24 | 2 18 4  | 3°7'30   | 3♏58   | 14°37 | 11°41 | 19°3  | 24°28  | 6°33 | 12°2   | 26°31 | 27°13  | 5°53  | 5°49  | 0°34  | 17°6  |    |
| F 25 | 2 22 1  | 4°8'06   | 18°40  | 15°55 | 12°7  | 19°41 | 24°20  | 6°40 | 12°2   | 26°33 | 27°12  | 5°45  | 5°46  | 0°41  | 17°13 |    |
| S 26 | 2 25 58 | 5°8'44   | 3♏13   | 17°16 | 12°31 | 20°18 | 24°12  | 6°47 | 12°3   | 26°35 | 27°11  | 5°40  | 5°43  | 0°47  | 17°19 |    |
| S 27 | 2 29 54 | 6°9'23   | 17°34  | 18°40 | 12°53 | 20°55 | 24°4   | 6°54 | 12°3   | 26°37 | 27°10  | 5°37  | 5°40  | 0°54  | 17°26 |    |
| M28  | 2 33 51 | 7°10'03  | 18°40  | 20°5  | 13°14 | 21°32 | 23°57  | 7°1  | 12°3   | 26°40 | 27°9   | 5°37  | 5°37  | 1°1   | 17°32 |    |
| T 29 | 2 37 47 | 8°10'44  | 15°30  | 21°32 | 13°32 | 22°10 | 23°49  | 7°8  | 12°4   | 26°42 | 27°8   | 5°37  | 5°33  | 1°7   | 17°38 |    |
| W30  | 2 41 44 | 9°11'26  | 29°6   | 23°0  | 13°49 | 22°47 | 23°41  | 7°15 | 12°4   | 26°44 | 27°7   | 5°36  | 5°30  | 1°14  | 17°44 |    |
| T 31 | 2 45 40 | 10♏12'09 | 12♏29  | 24♏29 | 14♏4  | 23°17 | 23°Y34 | 7♏22 | 12°5   | 26°46 | 27♏6   | 5°D33 | 5°D27 | 1°21  | 17°50 |    |

Delta T = 01h09m22s Julian Calendar created from Swiss Ephemeris, Copyright Astrodienst AG [10.1.2003]

SWISS EPHEMERIS for the year 659

NOVEMBER 659 C.E.JC

00:00 UT

| Day  | Sid.t   | ☉        | ☽     | ♀     | ♂      | ♂     | ♂      | ♂     | ♂     | ♂     | ♂      | ♂     | ♂    | ♂    | ♂     |
|------|---------|----------|-------|-------|--------|-------|--------|-------|-------|-------|--------|-------|------|------|-------|
| F 1  | 2 49 37 | 11♐12'54 | 25♊39 | 26♌0  | 14♌16  | 24♎1  | 23°R26 | 7♍29  | 12♋6  | 26♍48 | 27°R 5 | 5°R27 | 5♌24 | 1♉27 | 17♎56 |
| S 2  | 2 53 33 | 12°13'39 | 8♍38  | 27°31 | 14°26  | 24°38 | 23°P19 | 7°36  | 12°6  | 26°51 | 27♄3   | 5♌18  | 5°21 | 1°34 | 18°2  |
| S 3  | 2 57 30 | 13°14'26 | 21°27 | 29°2  | 14°34  | 25°15 | 23°12  | 7°43  | 12°7  | 26°53 | 27°2   | 5°6   | 5°18 | 1°41 | 18°8  |
| M 4  | 3 1 27  | 14°15'14 | 4♌4   | 0♍34  | 14°40  | 25°53 | 23°5   | 7°50  | 12°8  | 26°55 | 27°1   | 4°53  | 5°14 | 1°47 | 18°14 |
| T 5  | 3 5 23  | 15°16'04 | 16°30 | 2°6   | 14°43  | 26°30 | 22°58  | 7°57  | 12°8  | 26°57 | 27°0   | 4°39  | 5°11 | 1°54 | 18°20 |
| W 6  | 3 9 20  | 16°16'54 | 28°46 | 3°39  | 14°R44 | 27°7  | 22°51  | 8°5   | 12°9  | 26°59 | 26°59  | 4°25  | 5°8  | 2°1  | 18°25 |
| T 7  | 3 13 16 | 17°17'46 | 10♐51 | 5°12  | 14°43  | 27°44 | 22°44  | 8°12  | 12°10 | 27°2  | 26°58  | 4°13  | 5°5  | 2°7  | 18°31 |
| F 8  | 3 17 13 | 18°18'39 | 22°48 | 6°45  | 14°39  | 28°21 | 22°37  | 8°19  | 12°11 | 27°4  | 26°57  | 4°3   | 5°2  | 2°14 | 18°36 |
| S 9  | 3 21 9  | 19°19'34 | 4♉38  | 8°18  | 14°32  | 28°58 | 22°31  | 8°26  | 12°12 | 27°6  | 26°56  | 3°57  | 4°59 | 2°21 | 18°42 |
| S 10 | 3 25 6  | 20°20'29 | 16°25 | 9°52  | 14°23  | 29°35 | 22°24  | 8°33  | 12°13 | 27°8  | 26°54  | 3°53  | 4°55 | 2°27 | 18°47 |
| M11  | 3 29 2  | 21°21'27 | 28°13 | 11°25 | 14°12  | 0♌12  | 22°18  | 8°40  | 12°14 | 27°11 | 26°53  | 3°52  | 4°52 | 2°34 | 18°52 |
| T 12 | 3 32 59 | 22°22'25 | 10♎6  | 12°59 | 13°58  | 0°49  | 22°12  | 8°47  | 12°15 | 27°13 | 26°52  | 3°D52 | 4°49 | 2°41 | 18°58 |
| W13  | 3 36 56 | 23°23'25 | 22°11 | 14°32 | 13°42  | 1°26  | 22°6   | 8°54  | 12°17 | 27°15 | 26°51  | 3°R52 | 4°46 | 2°47 | 19°3  |
| T 14 | 3 40 52 | 24°24'25 | 4♎32  | 16°6  | 13°23  | 2°3   | 22°0   | 9°0   | 12°18 | 27°17 | 26°50  | 3°51  | 4°43 | 2°54 | 19°8  |
| F 15 | 3 44 49 | 25°25'27 | 17°16 | 17°40 | 13°2   | 2°40  | 21°55  | 9°7   | 12°19 | 27°20 | 26°49  | 3°49  | 4°39 | 3°1  | 19°13 |
| S 16 | 3 48 45 | 26°26'31 | 0♌25  | 19°13 | 12°39  | 3°17  | 21°49  | 9°14  | 12°21 | 27°22 | 26°47  | 3°45  | 4°36 | 3°7  | 19°18 |
| S 17 | 3 52 42 | 27°27'35 | 14°4  | 20°47 | 12°14  | 3°54  | 21°44  | 9°21  | 12°22 | 27°24 | 26°46  | 3°37  | 4°33 | 3°14 | 19°22 |
| M18  | 3 56 38 | 28°28'40 | 28°12 | 22°21 | 11°47  | 4°30  | 21°39  | 9°28  | 12°23 | 27°26 | 26°45  | 3°28  | 4°30 | 3°21 | 19°27 |
| T 19 | 4 0 35  | 29°29'47 | 12♍45 | 23°55 | 11°18  | 5°7   | 21°34  | 9°35  | 12°25 | 27°29 | 26°44  | 3°18  | 4°27 | 3°27 | 19°32 |
| W20  | 4 4 31  | 0♌30'54  | 27°39 | 25°28 | 10°47  | 5°44  | 21°29  | 9°42  | 12°27 | 27°31 | 26°43  | 3°7   | 4°24 | 3°34 | 19°36 |
| T 21 | 4 8 28  | 1°32'02  | 12♌44 | 27°2  | 10°15  | 6°21  | 21°25  | 9°48  | 12°28 | 27°33 | 26°42  | 2°58  | 4°20 | 3°41 | 19°41 |
| F 22 | 4 12 25 | 2°33'11  | 27°49 | 28°36 | 9°41   | 6°58  | 21°20  | 9°55  | 12°30 | 27°36 | 26°41  | 2°52  | 4°17 | 3°47 | 19°45 |
| S 23 | 4 16 21 | 3°34'21  | 12♄46 | 0♌11  | 9°7    | 7°34  | 21°16  | 10°2  | 12°31 | 27°38 | 26°39  | 2°47  | 4°14 | 3°54 | 19°49 |
| S 24 | 4 20 18 | 4°35'30  | 27°28 | 1°45  | 8°31   | 8°11  | 21°12  | 10°9  | 12°33 | 27°40 | 26°38  | 2°D46 | 4°11 | 4°1  | 19°53 |
| M25  | 4 24 14 | 5°36'40  | 11♋49 | 3°19  | 7°55   | 8°48  | 21°8   | 10°15 | 12°35 | 27°42 | 26°37  | 2°46  | 4°8  | 4°7  | 19°57 |
| T 26 | 4 28 11 | 6°37'51  | 25°47 | 4°54  | 7°19   | 9°24  | 21°4   | 10°22 | 12°37 | 27°45 | 26°36  | 2°47  | 4°5  | 4°14 | 20°1  |
| W27  | 4 32 7  | 7°39'01  | 9♌24  | 6°28  | 6°42   | 10°1  | 21°1   | 10°28 | 12°39 | 27°47 | 26°35  | 2°R47 | 4°1  | 4°21 | 20°5  |
| T 28 | 4 36 4  | 8°40'12  | 22°41 | 8°3   | 6°6    | 10°38 | 20°58  | 10°35 | 12°41 | 27°49 | 26°34  | 2°46  | 3°58 | 4°27 | 20°9  |
| F 29 | 4 40 0  | 9°41'22  | 5♍40  | 9°38  | 5°30   | 11°14 | 20°55  | 10°41 | 12°42 | 27°51 | 26°33  | 2°43  | 3°55 | 4°34 | 20°13 |
| S 30 | 4 43 57 | 10♌42'33 | 18♍24 | 11♌14 | 4♌55   | 11♌51 | 20°P52 | 10♍48 | 12♋44 | 27♍53 | 26♄31  | 2♌37  | 3♌52 | 4♉41 | 20♎16 |

Delta T = 01h09m21s Julian Calendar 1 Nov. 659 == Greg. Calendar 4 Nov. 659

DECEMBER 659 C.E.JC

00:00 UT

| Day  | Sid.t   | ☉        | ☽     | ♀     | ♂      | ♂     | ♂      | ♂     | ♂     | ♂     | ♂      | ♂     | ♂    | ♂    | ♂     |
|------|---------|----------|-------|-------|--------|-------|--------|-------|-------|-------|--------|-------|------|------|-------|
| S 1  | 4 47 54 | 11♌43'44 | 0♉56  | 12♌49 | 4°R20  | 12♌27 | 20°R49 | 10♍54 | 12♋47 | 27♍56 | 26°R30 | 2°R29 | 3♌49 | 4♉47 | 20♎20 |
| M 2  | 4 51 50 | 12°44'55 | 13°16 | 14°25 | 3♌47   | 13°4  | 20°P47 | 11°1  | 12°49 | 27°58 | 26♄29  | 2♌20  | 3°45 | 4°54 | 20°23 |
| T 3  | 4 55 47 | 13°46'06 | 25°28 | 16°1  | 3°15   | 13°40 | 20°44  | 11°7  | 12°51 | 28°0  | 26°28  | 2°10  | 3°42 | 5°1  | 20°26 |
| W 4  | 4 59 43 | 14°47'18 | 7♐31  | 17°37 | 2°45   | 14°17 | 20°42  | 11°13 | 12°53 | 28°2  | 26°27  | 2°1   | 3°39 | 5°7  | 20°29 |
| T 5  | 5 3 40  | 15°48'29 | 19°28 | 19°13 | 2°16   | 14°53 | 20°41  | 11°20 | 12°55 | 28°5  | 26°26  | 1°52  | 3°36 | 5°14 | 20°33 |
| F 6  | 5 7 36  | 16°49'41 | 1♉20  | 20°50 | 1°49   | 15°29 | 20°39  | 11°26 | 12°57 | 28°7  | 26°25  | 1°46  | 3°33 | 5°21 | 20°36 |
| S 7  | 5 11 33 | 17°50'53 | 13°8  | 22°27 | 1°24   | 16°6  | 20°37  | 11°32 | 13°0  | 28°9  | 26°24  | 1°42  | 3°30 | 5°27 | 20°38 |
| S 8  | 5 15 30 | 18°52'05 | 24°56 | 2°4   | 1°2    | 16°42 | 20°36  | 11°38 | 13°2  | 28°11 | 26°23  | 1°40  | 3°26 | 5°34 | 20°41 |
| M 9  | 5 19 26 | 19°53'18 | 6♎45  | 25°42 | 0°41   | 17°18 | 20°35  | 11°44 | 13°4  | 28°13 | 26°22  | 1°D40 | 3°23 | 5°41 | 20°44 |
| T 10 | 5 23 23 | 20°54'30 | 18°40 | 27°20 | 0°24   | 17°55 | 20°34  | 11°50 | 13°7  | 28°15 | 26°21  | 1°41  | 3°20 | 5°47 | 20°46 |
| W11  | 5 27 19 | 21°55'43 | 0♎44  | 28°58 | 0°8    | 18°31 | 20°34  | 11°56 | 13°9  | 28°17 | 26°20  | 1°42  | 3°17 | 5°54 | 20°49 |
| T 12 | 5 31 16 | 22°56'56 | 13°4  | 0♉36  | 29♍55  | 19°7  | 20°33  | 12°2  | 13°12 | 28°20 | 26°19  | 1°44  | 3°14 | 6°1  | 20°51 |
| F 13 | 5 35 12 | 23°58'09 | 25°42 | 2°15  | 29°45  | 19°43 | 20°D33 | 12°8  | 13°14 | 28°22 | 26°18  | 1°R44 | 3°11 | 6°7  | 20°53 |
| S 14 | 5 39 9  | 24°59'22 | 8♌45  | 3°53  | 29°37  | 20°19 | 20°33  | 12°14 | 13°17 | 28°24 | 26°17  | 1°43  | 3°7  | 6°14 | 20°56 |
| S 15 | 5 43 5  | 26°0'35  | 22°15 | 5°32  | 29°31  | 20°55 | 20°33  | 12°20 | 13°19 | 28°26 | 26°16  | 1°41  | 3°4  | 6°21 | 20°58 |
| M16  | 5 47 2  | 27°1'49  | 6♍14  | 7°11  | 29°28  | 21°31 | 20°34  | 12°26 | 13°22 | 28°28 | 26°15  | 1°37  | 3°1  | 6°27 | 20°59 |
| T 17 | 5 50 58 | 28°3'02  | 20°41 | 8°50  | 29°D28 | 22°7  | 20°35  | 12°31 | 13°24 | 28°30 | 26°14  | 1°32  | 2°58 | 6°34 | 21°1  |
| W18  | 5 54 55 | 29°4'15  | 5♌33  | 10°29 | 29°30  | 22°43 | 20°35  | 12°37 | 13°27 | 28°32 | 26°13  | 1°27  | 2°55 | 6°41 | 21°3  |
| T 19 | 5 58 52 | 0♉5'28   | 20°41 | 12°8  | 29°34  | 23°19 | 20°36  | 12°42 | 13°30 | 28°34 | 26°12  | 1°22  | 2°51 | 6°47 | 21°5  |
| F 20 | 6 2 48  | 1°6'41   | 5♄57  | 13°47 | 29°40  | 23°55 | 20°38  | 12°48 | 13°33 | 28°36 | 26°11  | 1°19  | 2°48 | 6°54 | 21°6  |
| S 21 | 6 6 45  | 2°7'54   | 21°10 | 15°25 | 29°49  | 24°31 | 20°39  | 12°53 | 13°35 | 28°38 | 26°10  | 1°17  | 2°45 | 7°1  | 21°7  |
| S 22 | 6 10 41 | 3°9'05   | 6♋10  | 17°3  | 0♌1    | 25°7  | 20°41  | 12°59 | 13°38 | 28°40 | 26°9   | 1°D17 | 2°42 | 7°7  | 21°9  |
| M23  | 6 14 38 | 4°10'16  | 20°50 | 18°40 | 0°14   | 25°43 | 20°43  | 13°4  | 13°41 | 28°42 | 26°8   | 1°17  | 2°39 | 7°14 | 21°10 |
| T 24 | 6 18 34 | 5°11'27  | 5♊5   | 20°16 | 0°29   | 26°18 | 20°45  | 13°9  | 13°44 | 28°44 | 26°7   | 1°19  | 2°36 | 7°21 | 21°11 |
| W25  | 6 22 31 | 6°12'36  | 18°53 | 21°51 | 0°47   | 26°54 | 20°47  | 13°15 | 13°47 | 28°46 | 26°6   | 1°20  | 2°32 | 7°27 | 21°12 |
| T 26 | 6 26 28 | 7°13'44  | 2♍16  | 23°24 | 1°6    | 27°30 | 20°50  | 13°20 | 13°50 | 28°47 | 26°6   | 1°R21 | 2°29 | 7°34 | 21°12 |
| F 27 | 6 30 24 | 8°14'52  | 15°16 | 24°55 | 1°28   | 28°5  | 20°52  | 13°25 | 13°53 | 28°49 | 26°5   | 1°21  | 2°26 | 7°40 | 21°13 |
| S 28 | 6 34 21 | 9°15'58  | 27°56 | 26°23 | 1°51   | 28°41 | 20°55  | 13°30 | 13°56 | 28°51 | 26°4   | 1°20  | 2°23 | 7°47 | 21°14 |
| S 29 | 6 38 17 | 10°17'03 | 10♉20 | 27°49 | 2°16   | 29°16 | 20°58  | 13°35 | 13°59 | 28°53 | 26°3   | 1°18  | 2°20 | 7°54 | 21°14 |
| M30  | 6 42 14 | 11°18'08 | 22°30 | 29°12 | 2°43   | 29°51 | 21°2   | 13°39 | 14°2  | 28°55 | 26°2   | 1°15  | 2°17 | 8°0  | 21°14 |
| T 31 | 6 46 10 | 12♄19'11 | 4♐31  | 0♌30  | 3♌11   | 0♍27  | 21°P5  | 13♍44 | 14♋5  | 28♍57 | 26♄2   | 1♌12  | 2♌13 | 8♉7  | 21♎15 |

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