

SWISS EPHEMERIS for the year 1682  
heliocentric

JANUARY 1682 GC

00:00 UT

| Day  | Sid.t   | Terra                 | ☾                  | ♃                  | ♄                  | ♅                  | ♆                  | ♁                 | ♂                  | ♆                  | ♁                  | ♁                  |
|------|---------|-----------------------|--------------------|--------------------|--------------------|--------------------|--------------------|-------------------|--------------------|--------------------|--------------------|--------------------|
| T 1  | 6 43 53 | 11 <sup>☾</sup> 5'27  | 11 <sup>☾</sup> 14 | 10 <sup>♁</sup> 22 | 6 <sup>♁</sup> 32  | 25 <sup>♁</sup> 38 | 14 <sup>☾</sup> 54 | 2 <sup>♁</sup> 22 | 22 <sup>♁</sup> 57 | 24 <sup>♁</sup> 47 | 14 <sup>☾</sup> 54 | 23 <sup>♁</sup> 48 |
| F 2  | 6 47 50 | 12° 6'37              | 12°15              | 14°45              | 8° 8               | 26°16              | 14°59              | 2°24              | 22°58              | 24°47              | 14°54              | 23°48              |
| S 3  | 6 51 46 | 13° 7'47              | 13°16              | 19° 0              | 9°44               | 26°54              | 15° 4              | 2°26              | 22°59              | 24°47              | 14°55              | 23°49              |
| S 4  | 6 55 43 | 14° 8'58              | 14°16              | 23° 7              | 11°20              | 27°32              | 15° 9              | 2°29              | 22°59              | 24°48              | 14°55              | 23°50              |
| M 5  | 6 59 39 | 15°10'08              | 15°16              | 27° 7              | 12°56              | 28°10              | 15°14              | 2°31              | 23° 0              | 24°48              | 14°55              | 23°50              |
| T 6  | 7 3 36  | 16°11'18              | 16°16              | 1 <sup>♁</sup> 0   | 14°31              | 28°48              | 15°19              | 2°33              | 23° 1              | 24°48              | 14°55              | 23°51              |
| W 7  | 7 7 32  | 17°12'28              | 17°16              | 4°46               | 16° 7              | 29°27              | 15°24              | 2°35              | 23° 1              | 24°49              | 14°55              | 23°52              |
| T 8  | 7 11 29 | 18°13'38              | 18°15              | 8°25               | 17°43              | 0 <sup>♁</sup> 5   | 15°29              | 2°37              | 23° 2              | 24°49              | 14°56              | 23°52              |
| F 9  | 7 15 26 | 19°14'48              | 19°15              | 11°59              | 19°19              | 0°43               | 15°34              | 2°40              | 23° 3              | 24°49              | 14°56              | 23°53              |
| S 10 | 7 19 22 | 20°15'57              | 20°14              | 15°28              | 20°55              | 1°21               | 15°39              | 2°42              | 23° 3              | 24°50              | 14°56              | 23°54              |
| S 11 | 7 23 19 | 21°17'05              | 21°13              | 18°52              | 22°30              | 1°59               | 15°44              | 2°44              | 23° 4              | 24°50              | 14°56              | 23°54              |
| M12  | 7 27 15 | 22°18'13              | 22°13              | 22°11              | 24° 6              | 2°37               | 15°49              | 2°46              | 23° 5              | 24°50              | 14°56              | 23°55              |
| T 13 | 7 31 12 | 23°19'20              | 23°13              | 25°26              | 25°42              | 3°15               | 15°53              | 2°49              | 23° 5              | 24°51              | 14°57              | 23°56              |
| W14  | 7 35 8  | 24°20'26              | 24°13              | 28°36              | 27°17              | 3°53               | 15°58              | 2°51              | 23° 6              | 24°51              | 14°57              | 23°56              |
| T 15 | 7 39 5  | 25°21'32              | 25°13              | 1 <sup>♁</sup> .44 | 28°53              | 4°31               | 16° 3              | 2°53              | 23° 7              | 24°52              | 14°57              | 23°57              |
| F 16 | 7 43 1  | 26°22'36              | 26°14              | 4°48               | 0 <sup>♁</sup> 28  | 5° 9               | 16° 8              | 2°55              | 23° 7              | 24°52              | 14°57              | 23°58              |
| S 17 | 7 46 58 | 27°23'40              | 27°15              | 7°49               | 2° 4               | 5°47               | 16°13              | 2°57              | 23° 8              | 24°52              | 14°57              | 23°58              |
| S 18 | 7 50 54 | 28°24'42              | 28°16              | 10°47              | 3°39               | 6°25               | 16°18              | 3° 0              | 23° 9              | 24°53              | 14°58              | 23°59              |
| M19  | 7 54 51 | 29°25'43              | 29°18              | 13°43              | 5°14               | 7° 3               | 16°23              | 3° 2              | 23° 9              | 24°53              | 14°58              | 24° 0              |
| T 20 | 7 58 48 | 0 <sup>♁</sup> 26'44  | 0 <sup>♁</sup> 20  | 16°37              | 6°50               | 7°41               | 16°28              | 3° 4              | 23°10              | 24°53              | 14°58              | 24° 0              |
| W21  | 8 2 44  | 1°27'43               | 1°23               | 19°29              | 8°25               | 8°19               | 16°33              | 3° 6              | 23°11              | 24°54              | 14°58              | 24° 1              |
| T 22 | 8 6 41  | 2°28'41               | 2°26               | 22°19              | 10° 0              | 8°57               | 16°38              | 3° 8              | 23°11              | 24°54              | 14°58              | 24° 2              |
| F 23 | 8 10 37 | 3°29'39               | 3°29               | 25° 7              | 11°36              | 9°35               | 16°43              | 3°11              | 23°12              | 24°54              | 14°59              | 24° 2              |
| S 24 | 8 14 34 | 4°30'35               | 4°32               | 27°55              | 13°11              | 10°13              | 16°48              | 3°13              | 23°13              | 24°55              | 14°59              | 24° 3              |
| S 25 | 8 18 30 | 5°31'30               | 5°34               | 0 <sup>♁</sup> 41  | 14°46              | 10°51              | 16°53              | 3°15              | 23°13              | 24°55              | 14°59              | 24° 3              |
| M26  | 8 22 27 | 6°32'24               | 6°37               | 3°27               | 16°21              | 11°29              | 16°58              | 3°17              | 23°14              | 24°56              | 14°59              | 24° 4              |
| T 27 | 8 26 24 | 7°33'17               | 7°40               | 6°12               | 17°56              | 12° 7              | 17° 3              | 3°19              | 23°14              | 24°56              | 14°59              | 24° 5              |
| W28  | 8 30 20 | 8°34'10               | 8°42               | 8°57               | 19°31              | 12°45              | 17° 8              | 3°22              | 23°15              | 24°56              | 15° 0              | 24° 5              |
| T 29 | 8 34 17 | 9°35'01               | 9°44               | 11°42              | 21° 6              | 13°23              | 17°13              | 3°24              | 23°16              | 24°57              | 15° 0              | 24° 6              |
| F 30 | 8 38 13 | 10°35'52              | 10°45              | 14°26              | 22°41              | 14° 1              | 17°17              | 3°26              | 23°16              | 24°57              | 15° 0              | 24° 7              |
| S 31 | 8 42 10 | 11 <sup>♁</sup> 36'42 | 11 <sup>♁</sup> 46 | 17 <sup>♁</sup> 11 | 24 <sup>♁</sup> 16 | 14 <sup>♁</sup> 39 | 17 <sup>☾</sup> 22 | 3 <sup>♁</sup> 28 | 23 <sup>♁</sup> 17 | 24 <sup>♁</sup> 57 | 15 <sup>☾</sup> 0  | 24 <sup>♁</sup> 7  |

Delta T = 12.64 sec. Greg. Calendar

FEBRUARY 1682 GC

00:00 UT

| Day  | Sid.t    | Terra                 | ☾                  | ♃                  | ♄                  | ♅                  | ♆                  | ♁                 | ♂                  | ♆                  | ♁                 | ♁                  |
|------|----------|-----------------------|--------------------|--------------------|--------------------|--------------------|--------------------|-------------------|--------------------|--------------------|-------------------|--------------------|
| S 1  | 8 46 6   | 12 <sup>♁</sup> 37'31 | 12 <sup>♁</sup> 46 | 19 <sup>♁</sup> 57 | 25 <sup>♁</sup> 51 | 15 <sup>♁</sup> 17 | 17 <sup>☾</sup> 27 | 3 <sup>♁</sup> 31 | 23 <sup>♁</sup> 18 | 24 <sup>♁</sup> 58 | 15 <sup>☾</sup> 0 | 24 <sup>♁</sup> 8  |
| M 2  | 8 50 3   | 13°38'19              | 13°47              | 22°43              | 27°26              | 15°55              | 17°32              | 3°33              | 23°18              | 24°58              | 15° 1             | 24° 9              |
| T 3  | 8 53 59  | 14°39'06              | 14°46              | 25°30              | 29° 1              | 16°32              | 17°37              | 3°35              | 23°19              | 24°58              | 15° 1             | 24° 9              |
| W 4  | 8 57 56  | 15°39'52              | 15°46              | 28°18              | 0 <sup>♁</sup> 36  | 17°10              | 17°42              | 3°37              | 23°20              | 24°59              | 15° 1             | 24°10              |
| T 5  | 9 1 53   | 16°40'37              | 16°45              | 1 <sup>♁</sup> 7   | 2°11               | 17°48              | 17°47              | 3°39              | 23°20              | 24°59              | 15° 1             | 24°11              |
| F 6  | 9 5 49   | 17°41'21              | 17°44              | 3°58               | 3°46               | 18°26              | 17°52              | 3°42              | 23°21              | 25° 0              | 15° 1             | 24°11              |
| S 7  | 9 9 46   | 18°42'03              | 18°43              | 6°50               | 5°21               | 19° 4              | 17°57              | 3°44              | 23°22              | 25° 0              | 15° 2             | 24°12              |
| S 8  | 9 13 42  | 19°42'44              | 19°42              | 9°45               | 6°56               | 19°41              | 18° 2              | 3°46              | 23°22              | 25° 0              | 15° 2             | 24°13              |
| M 9  | 9 17 39  | 20°43'23              | 20°41              | 12°42              | 8°31               | 20°19              | 18° 7              | 3°48              | 23°23              | 25° 1              | 15° 2             | 24°13              |
| T 10 | 9 21 35  | 21°44'01              | 21°40              | 15°41              | 10° 6              | 20°57              | 18°12              | 3°50              | 23°24              | 25° 1              | 15° 2             | 24°14              |
| W11  | 9 25 32  | 22°44'37              | 22°39              | 18°43              | 11°41              | 21°34              | 18°17              | 3°53              | 23°24              | 25° 1              | 15° 3             | 24°15              |
| T 12 | 9 29 28  | 23°45'11              | 23°38              | 21°47              | 13°15              | 22°12              | 18°22              | 3°55              | 23°25              | 25° 2              | 15° 3             | 24°15              |
| F 13 | 9 33 25  | 24°45'44              | 24°38              | 24°55              | 14°50              | 22°49              | 18°27              | 3°57              | 23°26              | 25° 2              | 15° 3             | 24°16              |
| S 14 | 9 37 21  | 25°46'15              | 25°38              | 28° 7              | 16°25              | 23°27              | 18°31              | 3°59              | 23°26              | 25° 2              | 15° 3             | 24°17              |
| S 15 | 9 41 18  | 26°46'44              | 26°38              | 1 <sup>♁</sup> 22  | 18° 0              | 24° 5              | 18°36              | 4° 1              | 23°27              | 25° 3              | 15° 3             | 24°17              |
| M16  | 9 45 15  | 27°47'11              | 27°39              | 4°42               | 19°35              | 24°42              | 18°41              | 4° 4              | 23°28              | 25° 3              | 15° 4             | 24°18              |
| T 17 | 9 49 11  | 28°47'36              | 28°40              | 8° 6               | 21°10              | 25°20              | 18°46              | 4° 6              | 23°28              | 25° 4              | 15° 4             | 24°19              |
| W18  | 9 53 8   | 29°48'00              | 29°41              | 11°34              | 22°44              | 25°57              | 18°51              | 4° 8              | 23°29              | 25° 4              | 15° 4             | 24°19              |
| T 19 | 9 57 4   | 0 <sup>♁</sup> 48'21  | 0 <sup>♁</sup> 43  | 15° 8              | 24°19              | 26°34              | 18°56              | 4°10              | 23°30              | 25° 4              | 15° 4             | 24°20              |
| F 20 | 10 1 1   | 1°48'40               | 1°45               | 18°47              | 25°54              | 27°12              | 19° 1              | 4°12              | 23°30              | 25° 5              | 15° 4             | 24°21              |
| S 21 | 10 4 57  | 2°48'58               | 2°47               | 22°32              | 27°29              | 27°49              | 19° 6              | 4°15              | 23°31              | 25° 5              | 15° 5             | 24°21              |
| S 22 | 10 8 54  | 3°49'13               | 3°49               | 26°23              | 29° 4              | 28°26              | 19°11              | 4°17              | 23°32              | 25° 5              | 15° 5             | 24°22              |
| M23  | 10 12 50 | 4°49'27               | 4°51               | 0 <sup>♁</sup> 21  | 0 <sup>♁</sup> 38  | 29° 4              | 19°16              | 4°19              | 23°32              | 25° 6              | 15° 5             | 24°23              |
| T 24 | 10 16 47 | 5°49'39               | 5°54               | 4°26               | 2°13               | 29°41              | 19°21              | 4°21              | 23°33              | 25° 6              | 15° 5             | 24°23              |
| W25  | 10 20 44 | 6°49'50               | 6°55               | 8°38               | 3°48               | 0 <sup>♁</sup> 18  | 19°26              | 4°23              | 23°34              | 25° 6              | 15° 5             | 24°24              |
| T 26 | 10 24 40 | 7°49'59               | 7°57               | 12°57              | 5°23               | 0°55               | 19°31              | 4°26              | 23°34              | 25° 7              | 15° 6             | 24°24              |
| F 27 | 10 28 37 | 8°50'06               | 8°58               | 17°25              | 6°58               | 1°32               | 19°35              | 4°28              | 23°35              | 25° 7              | 15° 6             | 24°25              |
| S 28 | 10 32 33 | 9 <sup>♁</sup> 50'11  | 9 <sup>♁</sup> 59  | 22 <sup>♁</sup> 1  | 8 <sup>♁</sup> 33  | 2 <sup>♁</sup> 10  | 19 <sup>☾</sup> 40 | 4 <sup>♁</sup> 30 | 23 <sup>♁</sup> 36 | 25 <sup>♁</sup> 7  | 15 <sup>☾</sup> 6 | 24 <sup>♁</sup> 26 |

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SWISS EPHEMERIS for the year 1682  
heliocentric

MARCH 1682 GC

00:00 UT

| Day  | Sid.t    | Terra                 | ☾                  | ♃                  | ♄                  | ♅                  | ♆                  | ♁                 | ♂                  | ♆                  | ♁                  | ♂                  |
|------|----------|-----------------------|--------------------|--------------------|--------------------|--------------------|--------------------|-------------------|--------------------|--------------------|--------------------|--------------------|
| S 1  | 10 36 30 | 10 <sup>m</sup> 50'16 | 10 <sup>m</sup> 59 | 26 <sup>h</sup> 45 | 10 <sup>h</sup> 8  | 2 <sup>h</sup> 47  | 19 <sup>h</sup> 45 | 4 <sup>h</sup> 32 | 23 <sup>h</sup> 36 | 25 <sup>h</sup> 8  | 15 <sup>h</sup> 6  | 24 <sup>h</sup> 26 |
| M 2  | 10 40 26 | 11°50'18              | 11°59              | 1 <sup>h</sup> 39  | 11°42              | 3°24               | 19°50              | 4°35              | 23°37              | 25° 8              | 15° 6              | 24°27              |
| T 3  | 10 44 23 | 12°50'19              | 12°59              | 6°41               | 13°17              | 4° 1               | 19°55              | 4°37              | 23°37              | 25° 9              | 15° 7              | 24°28              |
| W 4  | 10 48 19 | 13°50'18              | 13°58              | 11°53              | 14°52              | 4°38               | 20° 0              | 4°39              | 23°38              | 25° 9              | 15° 7              | 24°28              |
| T 5  | 10 52 16 | 14°50'16              | 14°57              | 17°13              | 16°27              | 5°15               | 20° 5              | 4°41              | 23°39              | 25° 9              | 15° 7              | 24°29              |
| F 6  | 10 56 13 | 15°50'11              | 15°56              | 22°43              | 18° 2              | 5°51               | 20°10              | 4°43              | 23°39              | 25°10              | 15° 7              | 24°30              |
| S 7  | 11 0 9   | 16°50'05              | 16°54              | 28°21              | 19°37              | 6°28               | 20°15              | 4°46              | 23°40              | 25°10              | 15° 7              | 24°30              |
| S 8  | 11 4 6   | 17°49'57              | 17°52              | 4 <sup>h</sup> 8   | 21°12              | 7° 5               | 20°20              | 4°48              | 23°41              | 25°10              | 15° 8              | 24°31              |
| M 9  | 11 8 2   | 18°49'48              | 18°51              | 10° 2              | 22°47              | 7°42               | 20°25              | 4°50              | 23°41              | 25°11              | 15° 8              | 24°32              |
| T 10 | 11 11 59 | 19°49'36              | 19°48              | 16° 4              | 24°22              | 8°19               | 20°30              | 4°52              | 23°42              | 25°11              | 15° 8              | 24°32              |
| W 11 | 11 15 55 | 20°49'22              | 20°46              | 22°11              | 25°57              | 8°55               | 20°34              | 4°54              | 23°43              | 25°11              | 15° 8              | 24°33              |
| T 12 | 11 19 52 | 21°49'06              | 21°45              | 28°23              | 27°32              | 9°32               | 20°39              | 4°57              | 23°43              | 25°12              | 15° 8              | 24°34              |
| F 13 | 11 23 48 | 22°48'48              | 22°43              | 4 <sup>h</sup> 40  | 29° 7              | 10° 8              | 20°44              | 4°59              | 23°44              | 25°12              | 15° 9              | 24°34              |
| S 14 | 11 27 45 | 23°48'27              | 23°41              | 10°58              | 0 <sup>h</sup> 42  | 10°45              | 20°49              | 5° 1              | 23°45              | 25°13              | 15° 9              | 24°35              |
| S 15 | 11 31 41 | 24°48'05              | 24°40              | 17°17              | 2°17               | 11°21              | 20°54              | 5° 3              | 23°45              | 25°13              | 15° 9              | 24°36              |
| M 16 | 11 35 38 | 25°47'40              | 25°39              | 23°35              | 3°52               | 11°58              | 20°59              | 5° 5              | 23°46              | 25°13              | 15° 9              | 24°36              |
| T 17 | 11 39 35 | 26°47'13              | 26°39              | 29°52              | 5°27               | 12°34              | 21° 4              | 5° 8              | 23°47              | 25°14              | 15° 9              | 24°37              |
| W 18 | 11 43 31 | 27°46'44              | 27°39              | 6 <sup>h</sup> 5   | 7° 3               | 13°11              | 21° 9              | 5°10              | 23°47              | 25°14              | 15°10              | 24°38              |
| T 19 | 11 47 28 | 28°46'12              | 28°39              | 12°12              | 8°38               | 13°47              | 21°14              | 5°12              | 23°48              | 25°14              | 15°10              | 24°38              |
| F 20 | 11 51 24 | 29°45'37              | 29°40              | 18°14              | 10°13              | 14°23              | 21°19              | 5°14              | 23°49              | 25°15              | 15°10              | 24°39              |
| S 21 | 11 55 21 | 0 <sup>h</sup> 45'01  | 0 <sup>h</sup> 40  | 24° 8              | 11°48              | 14°59              | 21°23              | 5°16              | 23°49              | 25°15              | 15°10              | 24°40              |
| S 22 | 11 59 17 | 1°44'22               | 1°42               | 29°54              | 13°23              | 15°36              | 21°28              | 5°19              | 23°50              | 25°15              | 15°10              | 24°40              |
| M 23 | 12 3 14  | 2°43'41               | 2°43               | 5 <sup>h</sup> 32  | 14°59              | 16°12              | 21°33              | 5°21              | 23°51              | 25°16              | 15°11              | 24°41              |
| T 24 | 12 7 10  | 3°42'58               | 3°44               | 11° 0              | 16°34              | 16°48              | 21°38              | 5°23              | 23°51              | 25°16              | 15°11              | 24°42              |
| W 25 | 12 11 7  | 4°42'13               | 4°45               | 16°19              | 18° 9              | 17°24              | 21°43              | 5°25              | 23°52              | 25°17              | 15°11              | 24°42              |
| T 26 | 12 15 4  | 5°41'26               | 5°46               | 21°28              | 19°44              | 18° 0              | 21°48              | 5°27              | 23°53              | 25°17              | 15°11              | 24°43              |
| F 27 | 12 19 0  | 6°40'37               | 6°47               | 26°28              | 21°20              | 18°36              | 21°53              | 5°30              | 23°53              | 25°17              | 15°11              | 24°44              |
| S 28 | 12 22 57 | 7°39'46               | 7°47               | 1 <sup>h</sup> 18  | 22°55              | 19°12              | 21°58              | 5°32              | 23°54              | 25°18              | 15°12              | 24°44              |
| S 29 | 12 26 53 | 8°38'54               | 8°47               | 5°59               | 24°30              | 19°47              | 22° 3              | 5°34              | 23°55              | 25°18              | 15°12              | 24°45              |
| M 30 | 12 30 50 | 9°37'59               | 9°47               | 10°30              | 26° 6              | 20°23              | 22° 8              | 5°36              | 23°55              | 25°18              | 15°12              | 24°46              |
| T 31 | 12 34 46 | 10 <sup>h</sup> 37'03 | 10 <sup>h</sup> 46 | 14 <sup>h</sup> 53 | 27 <sup>h</sup> 41 | 20 <sup>h</sup> 59 | 22 <sup>h</sup> 12 | 5 <sup>h</sup> 38 | 23 <sup>h</sup> 56 | 25 <sup>h</sup> 19 | 15 <sup>h</sup> 12 | 24 <sup>h</sup> 46 |

Delta T = 12.63 sec. Greg. Calendar

APRIL 1682 GC

00:00 UT

| Day  | Sid.t    | Terra                 | ☾                  | ♃                  | ♄                  | ♅                  | ♆                  | ♁                 | ♂                  | ♆                  | ♁                  | ♂                  |
|------|----------|-----------------------|--------------------|--------------------|--------------------|--------------------|--------------------|-------------------|--------------------|--------------------|--------------------|--------------------|
| W 1  | 12 38 43 | 11 <sup>h</sup> 36'05 | 11 <sup>h</sup> 45 | 19 <sup>h</sup> 18 | 29 <sup>h</sup> 17 | 21 <sup>h</sup> 35 | 22 <sup>h</sup> 17 | 5 <sup>h</sup> 41 | 23 <sup>h</sup> 57 | 25 <sup>h</sup> 19 | 15 <sup>h</sup> 13 | 24 <sup>h</sup> 47 |
| T 2  | 12 42 39 | 12°35'06              | 12°44              | 23°15              | 0 <sup>h</sup> 57  | 22°10              | 22°22              | 5°43              | 23°57              | 25°19              | 15°13              | 24°47              |
| F 3  | 12 46 36 | 13°34'04              | 13°42              | 27°14              | 2°28               | 22°46              | 22°27              | 5°45              | 23°58              | 25°20              | 15°13              | 24°48              |
| S 4  | 12 50 33 | 14°33'01              | 14°40              | 1 <sup>h</sup> 7   | 4° 3               | 23°21              | 22°32              | 5°47              | 23°59              | 25°20              | 15°13              | 24°49              |
| S 5  | 12 54 29 | 15°31'56              | 15°37              | 4°52               | 5°39               | 23°57              | 22°37              | 5°49              | 23°59              | 25°20              | 15°13              | 24°49              |
| M 6  | 12 58 26 | 16°30'48              | 16°34              | 8°32               | 7°14               | 24°32              | 22°42              | 5°52              | 24° 0              | 25°21              | 15°14              | 24°50              |
| T 7  | 13 2 22  | 17°29'39              | 17°31              | 12° 6              | 8°50               | 25° 8              | 22°47              | 5°54              | 24° 0              | 25°21              | 15°14              | 24°51              |
| W 8  | 13 6 19  | 18°28'28              | 18°28              | 15°34              | 10°26              | 25°43              | 22°52              | 5°56              | 24° 1              | 25°22              | 15°14              | 24°51              |
| T 9  | 13 10 15 | 19°27'15              | 19°25              | 18°58              | 12° 1              | 26°18              | 22°57              | 5°58              | 24° 2              | 25°22              | 15°14              | 24°52              |
| F 10 | 13 14 12 | 20°26'01              | 20°22              | 22°17              | 13°37              | 26°53              | 23° 1              | 6° 0              | 24° 2              | 25°22              | 15°14              | 24°53              |
| S 11 | 13 18 8  | 21°24'43              | 21°19              | 25°32              | 15°13              | 27°29              | 23° 6              | 6° 3              | 24° 3              | 25°23              | 15°15              | 24°53              |
| S 12 | 13 22 5  | 22°23'24              | 22°17              | 28°42              | 16°48              | 28° 4              | 23°11              | 6° 5              | 24° 4              | 25°23              | 15°15              | 24°54              |
| M 13 | 13 26 2  | 23°22'03              | 23°14              | 1 <sup>h</sup> 50  | 18°24              | 28°39              | 23°16              | 6° 7              | 24° 4              | 25°23              | 15°15              | 24°55              |
| T 14 | 13 29 58 | 24°20'40              | 24°12              | 4°53               | 20° 0              | 29°14              | 23°21              | 6° 9              | 24° 5              | 25°24              | 15°15              | 24°55              |
| W 15 | 13 33 55 | 25°19'14              | 25°11              | 7°54               | 21°36              | 29°49              | 23°26              | 6°11              | 24° 6              | 25°24              | 15°15              | 24°56              |
| T 16 | 13 37 51 | 26°17'46              | 26°10              | 10°53              | 23°11              | 0 <sup>h</sup> 23  | 23°31              | 6°14              | 24° 6              | 25°24              | 15°16              | 24°57              |
| F 17 | 13 41 48 | 27°16'15              | 27° 9              | 13°48              | 24°47              | 0°58               | 23°36              | 6°16              | 24° 7              | 25°25              | 15°16              | 24°57              |
| S 18 | 13 45 44 | 28°14'43              | 28° 8              | 16°42              | 26°23              | 1°33               | 23°41              | 6°18              | 24° 8              | 25°25              | 15°16              | 24°58              |
| S 19 | 13 49 41 | 29°13'08              | 29° 8              | 19°34              | 27°59              | 2° 8               | 23°45              | 6°20              | 24° 8              | 25°26              | 15°16              | 24°59              |
| M 20 | 13 53 37 | 0 <sup>h</sup> 11'31  | 0 <sup>h</sup> 8   | 22°24              | 29°35              | 2°42               | 23°50              | 6°22              | 24° 9              | 25°26              | 15°16              | 24°59              |
| T 21 | 13 57 34 | 1° 9'52               | 1° 8               | 25°13              | 1 <sup>h</sup> 11  | 3°17               | 23°55              | 6°25              | 24°10              | 25°26              | 15°17              | 25° 0              |
| W 22 | 14 1 30  | 2° 8'12               | 2° 8               | 28° 0              | 2°47               | 3°52               | 24° 0              | 6°27              | 24°10              | 25°27              | 15°17              | 25° 1              |
| T 23 | 14 5 27  | 3° 6'29               | 3° 9               | 0 <sup>h</sup> 47  | 4°23               | 4°26               | 24° 5              | 6°29              | 24°11              | 25°27              | 15°17              | 25° 1              |
| F 24 | 14 9 24  | 4° 4'45               | 4° 9               | 3°32               | 5°59               | 5° 1               | 24°10              | 6°31              | 24°12              | 25°27              | 15°17              | 25° 2              |
| S 25 | 14 13 20 | 5° 2'59               | 5° 8               | 6°17               | 7°35               | 5°35               | 24°15              | 6°33              | 24°12              | 25°28              | 15°17              | 25° 3              |
| S 26 | 14 17 17 | 6° 1'12               | 6° 8               | 9° 2               | 9°11               | 6° 9               | 24°20              | 6°36              | 24°13              | 25°28              | 15°18              | 25° 3              |
| M 27 | 14 21 13 | 6°59'23               | 7° 7               | 11°47              | 10°47              | 6°43               | 24°24              | 6°38              | 24°14              | 25°28              | 15°18              | 25° 4              |
| T 28 | 14 25 10 | 7°57'33               | 8° 6               | 14°32              | 12°23              | 7°18               | 24°29              | 6°40              | 24°14              | 25°29              | 15°18              | 25° 5              |
| W 29 | 14 29 6  | 8°55'41               | 9° 5               | 17°16              | 14° 0              | 7°52               | 24°34              | 6°42              | 24°15              | 25°29              | 15°18              | 25° 5              |
| T 30 | 14 33 3  | 9 <sup>h</sup> 53'47  | 10 <sup>h</sup> 3  | 20 <sup>h</sup> 2  | 15 <sup>h</sup> 36 | 8 <sup>h</sup> 26  | 24 <sup>h</sup> 39 | 6 <sup>h</sup> 44 | 24 <sup>h</sup> 16 | 25 <sup>h</sup> 30 | 15 <sup>h</sup> 18 | 25 <sup>h</sup> 6  |

Delta T = 12.63 sec. Greg. Calendar created from Swiss Ephemeris, Copyright Astrodiens AG [13.11.2015]

SWISS EPHEMERIS for the year 1682  
heliocentric

MAY 1682 GC

00:00 UT

| Day  | Sid.t    | Terra                 | ☾                 | ♃                  | ♄                  | ♅                  | ♆                  | ♁                 | ♂                  | ♆                  | ♁                  | ♂                  |
|------|----------|-----------------------|-------------------|--------------------|--------------------|--------------------|--------------------|-------------------|--------------------|--------------------|--------------------|--------------------|
| F 1  | 14 36 59 | 10 <sup>m</sup> 51'52 | 11 <sup>m</sup> 1 | 22 <sup>z</sup> 48 | 17 <sup>z</sup> 12 | 9 <sup>z</sup> 0   | 24 <sup>z</sup> 44 | 6 <sup>z</sup> 47 | 24 <sup>z</sup> 16 | 25 <sup>z</sup> 30 | 15 <sup>z</sup> 19 | 25 <sup>z</sup> 7  |
| S 2  | 14 40 56 | 11°49'56              | 11°58             | 25°35              | 18°48              | 9°34               | 24°49              | 6°49              | 24°17              | 25°30              | 15°19              | 25° 7              |
| S 3  | 14 44 53 | 12°47'58              | 12°55             | 28°23              | 20°25              | 10° 8              | 24°54              | 6°51              | 24°18              | 25°31              | 15°19              | 25° 8              |
| M 4  | 14 48 49 | 13°45'59              | 13°52             | 1 <sup>z</sup> 12  | 22° 1              | 10°42              | 24°59              | 6°53              | 24°18              | 25°31              | 15°19              | 25° 9              |
| T 5  | 14 52 46 | 14°43'59              | 14°48             | 4° 3               | 23°37              | 11°16              | 25° 3              | 6°55              | 24°19              | 25°31              | 15°19              | 25° 9              |
| W 6  | 14 56 42 | 15°41'57              | 15°45             | 6°56               | 25°14              | 11°49              | 25° 8              | 6°58              | 24°20              | 25°32              | 15°20              | 25°10              |
| T 7  | 15 0 39  | 16°39'53              | 16°41             | 9°50               | 26°50              | 12°23              | 25°13              | 7° 0              | 24°20              | 25°32              | 15°20              | 25°11              |
| F 8  | 15 4 35  | 17°37'49              | 17°37             | 12°47              | 28°27              | 12°57              | 25°18              | 7° 2              | 24°21              | 25°32              | 15°20              | 25°11              |
| S 9  | 15 8 32  | 18°35'42              | 18°33             | 15°46              | 0 <sup>II</sup> 3  | 13°30              | 25°23              | 7° 4              | 24°22              | 25°33              | 15°20              | 25°12              |
| S 10 | 15 12 28 | 19°33'34              | 19°29             | 18°48              | 1°40               | 14° 4              | 25°28              | 7° 6              | 24°22              | 25°33              | 15°20              | 25°13              |
| M 11 | 15 16 25 | 20°31'25              | 20°25             | 21°53              | 3°16               | 14°37              | 25°33              | 7° 9              | 24°23              | 25°33              | 15°21              | 25°13              |
| T 12 | 15 20 22 | 21°29'13              | 21°22             | 25° 1              | 4°53               | 15°11              | 25°38              | 7°11              | 24°24              | 25°34              | 15°21              | 25°14              |
| W 13 | 15 24 18 | 22°27'00              | 22°19             | 28°13              | 6°29               | 15°44              | 25°42              | 7°13              | 24°24              | 25°34              | 15°21              | 25°15              |
| T 14 | 15 28 15 | 23°24'46              | 23°16             | 1 <sup>z</sup> 28  | 8° 6               | 16°17              | 25°47              | 7°15              | 24°25              | 25°35              | 15°21              | 25°15              |
| F 15 | 15 32 11 | 24°22'29              | 24°14             | 4°48               | 9°43               | 16°51              | 25°52              | 7°17              | 24°25              | 25°35              | 15°21              | 25°16              |
| S 16 | 15 36 8  | 25°20'11              | 25°12             | 8°12               | 11°19              | 17°24              | 25°57              | 7°20              | 24°26              | 25°35              | 15°22              | 25°17              |
| S 17 | 15 40 4  | 26°17'51              | 26°11             | 11°41              | 12°56              | 17°57              | 26° 2              | 7°22              | 24°27              | 25°36              | 15°22              | 25°17              |
| M 18 | 15 44 1  | 27°15'30              | 27°10             | 15°15              | 14°33              | 18°30              | 26° 7              | 7°24              | 24°27              | 25°36              | 15°22              | 25°18              |
| T 19 | 15 47 57 | 28°13'07              | 28° 9             | 18°54              | 16°10              | 19° 3              | 26°12              | 7°26              | 24°28              | 25°36              | 15°22              | 25°18              |
| W 20 | 15 51 54 | 29°10'43              | 29° 8             | 22°39              | 17°47              | 19°36              | 26°17              | 7°28              | 24°29              | 25°37              | 15°23              | 25°19              |
| T 21 | 15 55 51 | 0 <sup>z</sup> 8'18   | 0 <sup>z</sup> 8  | 26°31              | 19°23              | 20° 9              | 26°21              | 7°31              | 24°29              | 25°37              | 15°23              | 25°20              |
| F 22 | 15 59 47 | 1° 5'51               | 1° 7              | 0 <sup>z</sup> 28  | 21° 0              | 20°42              | 26°26              | 7°33              | 24°30              | 25°37              | 15°23              | 25°20              |
| S 23 | 16 3 44  | 2° 3'23               | 2° 6              | 4°33               | 22°37              | 21°15              | 26°31              | 7°35              | 24°31              | 25°38              | 15°23              | 25°21              |
| S 24 | 16 7 40  | 3° 0'55               | 3° 5              | 8°45               | 24°14              | 21°47              | 26°36              | 7°37              | 24°31              | 25°38              | 15°23              | 25°22              |
| M 25 | 16 11 37 | 3°58'25               | 4° 4              | 13° 5              | 25°51              | 22°20              | 26°41              | 7°39              | 24°32              | 25°39              | 15°24              | 25°22              |
| T 26 | 16 15 33 | 4°55'54               | 5° 3              | 17°33              | 27°28              | 22°53              | 26°46              | 7°42              | 24°33              | 25°39              | 15°24              | 25°23              |
| W 27 | 16 19 30 | 5°53'23               | 6° 1              | 22° 9              | 29° 5              | 23°25              | 26°51              | 7°44              | 24°33              | 25°39              | 15°24              | 25°24              |
| T 28 | 16 23 26 | 6°50'50               | 7° 0              | 26°54              | 0 <sup>z</sup> 42  | 23°58              | 26°55              | 7°46              | 24°34              | 25°40              | 15°24              | 25°24              |
| F 29 | 16 27 23 | 7°48'17               | 7°57              | 1°48               | 2°19               | 24°30              | 27° 0              | 7°48              | 24°35              | 25°40              | 15°24              | 25°25              |
| S 30 | 16 31 20 | 8°45'44               | 8°55              | 6°51               | 3°56               | 25° 3              | 27° 5              | 7°50              | 24°35              | 25°40              | 15°25              | 25°26              |
| S 31 | 16 35 16 | 9 <sup>z</sup> 43'09  | 9 <sup>z</sup> 52 | 12°47              | 5 <sup>z</sup> 33  | 25 <sup>z</sup> 35 | 27 <sup>z</sup> 10 | 7 <sup>z</sup> 53 | 24 <sup>z</sup> 36 | 25 <sup>z</sup> 41 | 15 <sup>z</sup> 25 | 25 <sup>z</sup> 26 |

Delta T = 12.63 sec.

Greg. Calendar

JUNE 1682 GC

00:00 UT

| Day  | Sid.t    | Terra                 | ☾                  | ♃                  | ♄                  | ♅                  | ♆                  | ♁                 | ♂                  | ♆                  | ♁                  | ♂                  |
|------|----------|-----------------------|--------------------|--------------------|--------------------|--------------------|--------------------|-------------------|--------------------|--------------------|--------------------|--------------------|
| M 1  | 16 39 13 | 10 <sup>z</sup> 40'34 | 10 <sup>z</sup> 48 | 17 <sup>z</sup> 23 | 7 <sup>z</sup> 11  | 26 <sup>z</sup> 7  | 27 <sup>z</sup> 15 | 7 <sup>z</sup> 55 | 24 <sup>z</sup> 37 | 25 <sup>z</sup> 41 | 15 <sup>z</sup> 25 | 25 <sup>z</sup> 27 |
| T 2  | 16 43 9  | 11°37'58              | 11°45              | 22°53              | 8°48               | 26°39              | 27°20              | 7°57              | 24°37              | 25°41              | 15°25              | 25°28              |
| W 3  | 16 47 6  | 12°35'22              | 12°41              | 28°32              | 10°25              | 27°12              | 27°25              | 7°59              | 24°38              | 25°42              | 15°25              | 25°28              |
| T 4  | 16 51 2  | 13°32'45              | 13°36              | 4 <sup>z</sup> 19  | 12° 2              | 27°44              | 27°29              | 8° 1              | 24°39              | 25°42              | 15°26              | 25°29              |
| F 5  | 16 54 59 | 14°30'07              | 14°32              | 10°13              | 13°40              | 28°16              | 27°34              | 8° 4              | 24°39              | 25°43              | 15°26              | 25°30              |
| S 6  | 16 58 55 | 15°27'29              | 15°27              | 16°15              | 15°17              | 28°48              | 27°39              | 8° 6              | 24°40              | 25°43              | 15°26              | 25°30              |
| S 7  | 17 2 52  | 16°24'50              | 16°22              | 22°23              | 16°54              | 29°20              | 27°44              | 8° 8              | 24°41              | 25°43              | 15°26              | 25°31              |
| M 8  | 17 6 49  | 17°22'10              | 17°18              | 28°35              | 18°31              | 29°52              | 27°49              | 8°10              | 24°41              | 25°44              | 15°26              | 25°32              |
| T 9  | 17 10 45 | 18°19'29              | 18°14              | 4 <sup>II</sup> 51 | 20° 9              | 0 <sup>II</sup> 23 | 27°54              | 8°12              | 24°42              | 25°44              | 15°27              | 25°32              |
| W 10 | 17 14 42 | 19°16'48              | 19°10              | 11°10              | 21°46              | 0°55               | 27°59              | 8°15              | 24°43              | 25°44              | 15°27              | 25°33              |
| T 11 | 17 18 38 | 20°14'05              | 20° 6              | 17°29              | 23°24              | 1°27               | 28° 3              | 8°17              | 24°43              | 25°45              | 15°27              | 25°34              |
| F 12 | 17 22 35 | 21°11'22              | 21° 3              | 23°47              | 25° 1              | 1°59               | 28° 8              | 8°19              | 24°44              | 25°45              | 15°27              | 25°34              |
| S 13 | 17 26 31 | 22° 8'38              | 22° 0              | 0 <sup>z</sup> 3   | 26°38              | 2°30               | 28°13              | 8°21              | 24°45              | 25°45              | 15°27              | 25°35              |
| S 14 | 17 30 28 | 23° 5'52              | 22°58              | 6°16               | 28°16              | 3° 2               | 28°18              | 8°23              | 24°45              | 25°46              | 15°28              | 25°36              |
| M 15 | 17 34 24 | 24° 3'07              | 23°56              | 12°24              | 29°53              | 3°33               | 28°23              | 8°26              | 24°46              | 25°46              | 15°28              | 25°36              |
| T 16 | 17 38 21 | 25° 0'20              | 24°54              | 18°25              | 1 <sup>z</sup> 31  | 4° 5               | 28°28              | 8°28              | 24°47              | 25°47              | 15°28              | 25°37              |
| W 17 | 17 42 18 | 25°57'33              | 25°53              | 24°19              | 3° 8               | 4°36               | 28°33              | 8°30              | 24°47              | 25°47              | 15°28              | 25°38              |
| T 18 | 17 46 14 | 26°54'45              | 26°51              | 0 <sup>z</sup> 5   | 4°46               | 5° 8               | 28°37              | 8°32              | 24°48              | 25°47              | 15°28              | 25°38              |
| F 19 | 17 50 11 | 27°51'57              | 27°50              | 5°42               | 6°23               | 5°39               | 28°42              | 8°34              | 24°49              | 25°48              | 15°29              | 25°39              |
| S 20 | 17 54 7  | 28°49'09              | 28°49              | 11°10              | 8° 1               | 6°10               | 28°47              | 8°37              | 24°49              | 25°48              | 15°29              | 25°40              |
| S 21 | 17 58 4  | 29°46'20              | 29°48              | 16°29              | 9°38               | 6°41               | 28°52              | 8°39              | 24°50              | 25°48              | 15°29              | 25°40              |
| M 22 | 18 2 0   | 0 <sup>z</sup> 43'31  | 0 <sup>z</sup> 47  | 21°38              | 11°16              | 7°13               | 28°57              | 8°41              | 24°51              | 25°49              | 15°29              | 25°41              |
| T 23 | 18 5 57  | 1°40'42               | 1°46               | 26°37              | 12°53              | 7°44               | 29° 2              | 8°43              | 24°51              | 25°49              | 15°30              | 25°42              |
| W 24 | 18 9 54  | 2°37'53               | 2°44               | 1 <sup>z</sup> 27  | 14°31              | 8°15               | 29° 6              | 8°45              | 24°52              | 25°49              | 15°30              | 25°42              |
| T 25 | 18 13 50 | 3°35'04               | 3°43               | 6° 7               | 16° 9              | 8°46               | 29°11              | 8°48              | 24°52              | 25°50              | 15°30              | 25°43              |
| F 26 | 18 17 47 | 4°32'15               | 4°41               | 10°39              | 17°46              | 9°17               | 29°16              | 8°50              | 24°53              | 25°50              | 15°30              | 25°44              |
| S 27 | 18 21 43 | 5°29'26               | 5°38               | 15° 1              | 19°24              | 9°47               | 29°21              | 8°52              | 24°54              | 25°50              | 15°30              | 25°44              |
| S 28 | 18 25 40 | 6°26'37               | 6°36               | 19°16              | 21° 1              | 10°18              | 29°26              | 8°54              | 24°54              | 25°51              | 15°31              | 25°45              |
| M 29 | 18 29 36 | 7°23'49               | 7°32               | 23°23              | 22°39              | 10°49              | 29°31              | 8°56              | 24°55              | 25°51              | 15°31              | 25°46              |
| T 30 | 18 33 33 | 8 <sup>z</sup> 21'01  | 8 <sup>z</sup> 29  | 27 <sup>z</sup> 22 | 24 <sup>z</sup> 16 | 11 <sup>z</sup> 20 | 29 <sup>z</sup> 35 | 8 <sup>z</sup> 59 | 24 <sup>z</sup> 56 | 25 <sup>z</sup> 52 | 15 <sup>z</sup> 31 | 25 <sup>z</sup> 46 |

Delta T = 12.64 sec.

Greg. Calendar

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SWISS EPHEMERIS for the year 1682  
heliocentric

JULY 1682 GC

00:00 UT

| Day  | Sid.t    | Terra    | ☾     | ♃     | ♄     | ♅     | ♆     | ♁     | ♂     | ♆     | ♁     | ♁     |
|------|----------|----------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| W 1  | 18 37 29 | 9°18'13  | 9°25  | 1°14  | 25°54 | 11°51 | 29°40 | 9°1   | 24°56 | 25°52 | 15°31 | 25°47 |
| T 2  | 18 41 26 | 10°15'25 | 10°21 | 5° 0  | 27°31 | 12°21 | 29°45 | 9° 3  | 24°57 | 25°52 | 15°31 | 25°48 |
| F 3  | 18 45 23 | 11°12'38 | 11°17 | 8°39  | 29° 9 | 12°52 | 29°50 | 9° 5  | 24°58 | 25°53 | 15°32 | 25°48 |
| S 4  | 18 49 19 | 12° 9'51 | 12°12 | 12°13 | 0°46  | 13°22 | 29°55 | 9° 7  | 24°58 | 25°53 | 15°32 | 25°49 |
| S 5  | 18 53 16 | 13° 7'05 | 13° 7 | 15°41 | 2°24  | 13°53 | 29°59 | 9° 9  | 24°59 | 25°53 | 15°32 | 25°50 |
| M 6  | 18 57 12 | 14° 4'18 | 14° 3 | 19° 4 | 4° 1  | 14°23 | 0°5   | 9°12  | 25° 0 | 25°54 | 15°32 | 25°50 |
| T 7  | 19 1 9   | 15° 1'32 | 14°58 | 22°23 | 5°39  | 14°54 | 0° 9  | 9°14  | 25° 0 | 25°54 | 15°32 | 25°51 |
| W 8  | 19 5 5   | 15°58'46 | 15°53 | 25°38 | 7°16  | 15°24 | 0°14  | 9°16  | 25° 1 | 25°54 | 15°33 | 25°52 |
| T 9  | 19 9 2   | 16°56'00 | 16°49 | 28°48 | 8°54  | 15°54 | 0°19  | 9°18  | 25° 2 | 25°55 | 15°33 | 25°52 |
| F 10 | 19 12 58 | 17°53'14 | 17°45 | 1°55  | 10°31 | 16°24 | 0°24  | 9°20  | 25° 2 | 25°55 | 15°33 | 25°53 |
| S 11 | 19 16 55 | 18°50'28 | 18°42 | 4°59  | 12° 9 | 16°55 | 0°29  | 9°23  | 25° 3 | 25°56 | 15°33 | 25°54 |
| S 12 | 19 20 52 | 19°47'42 | 19°39 | 8° 0  | 13°46 | 17°25 | 0°34  | 9°25  | 25° 4 | 25°56 | 15°33 | 25°54 |
| M13  | 19 24 48 | 20°44'56 | 20°37 | 10°58 | 15°23 | 17°55 | 0°38  | 9°27  | 25° 4 | 25°56 | 15°34 | 25°55 |
| T 14 | 19 28 45 | 21°42'10 | 21°34 | 13°54 | 17° 1 | 18°25 | 0°43  | 9°29  | 25° 5 | 25°57 | 15°34 | 25°56 |
| W15  | 19 32 41 | 22°39'25 | 22°32 | 16°48 | 18°38 | 18°55 | 0°48  | 9°31  | 25° 6 | 25°57 | 15°34 | 25°56 |
| T 16 | 19 36 38 | 23°36'40 | 23°31 | 19°39 | 20°15 | 19°25 | 0°53  | 9°34  | 25° 6 | 25°57 | 15°34 | 25°57 |
| F 17 | 19 40 34 | 24°33'55 | 24°30 | 22°29 | 21°53 | 19°55 | 0°58  | 9°36  | 25° 7 | 25°58 | 15°34 | 25°58 |
| S 18 | 19 44 31 | 25°31'11 | 25°28 | 25°18 | 23°30 | 20°25 | 1° 3  | 9°38  | 25° 8 | 25°58 | 15°35 | 25°58 |
| S 19 | 19 48 27 | 26°28'27 | 26°27 | 28° 5 | 25° 7 | 20°54 | 1° 7  | 9°40  | 25° 8 | 25°58 | 15°35 | 25°59 |
| M20  | 19 52 24 | 27°25'44 | 27°26 | 0°52  | 26°44 | 21°24 | 1°12  | 9°42  | 25° 9 | 25°59 | 15°35 | 26° 0 |
| T 21 | 19 56 21 | 28°23'02 | 28°25 | 3°38  | 28°21 | 21°54 | 1°17  | 9°45  | 25°10 | 25°59 | 15°35 | 26° 0 |
| W22  | 20 0 17  | 29°20'20 | 29°24 | 6°23  | 29°59 | 22°23 | 1°22  | 9°47  | 25°10 | 26° 0 | 15°35 | 26° 1 |
| T 23 | 20 4 14  | 0°17'39  | 0°22  | 9° 7  | 1°36  | 22°53 | 1°27  | 9°49  | 25°11 | 26° 0 | 15°36 | 26° 2 |
| F 24 | 20 8 10  | 1°15'00  | 1°22  | 11°52 | 3°13  | 23°23 | 1°31  | 9°51  | 25°12 | 26° 0 | 15°36 | 26° 2 |
| S 25 | 20 12 7  | 2°12'21  | 2°20  | 14°37 | 4°50  | 23°52 | 1°36  | 9°53  | 25°12 | 26° 1 | 15°36 | 26° 3 |
| S 26 | 20 16 3  | 3° 9'43  | 3°18  | 17°22 | 6°27  | 24°22 | 1°41  | 9°56  | 25°13 | 26° 1 | 15°36 | 26° 4 |
| M27  | 20 20 0  | 4° 7'06  | 4°16  | 20° 7 | 8° 4  | 24°51 | 1°46  | 9°58  | 25°14 | 26° 1 | 15°37 | 26° 4 |
| T 28 | 20 23 56 | 5° 4'30  | 5°13  | 22°53 | 9°40  | 25°21 | 1°51  | 10° 0 | 25°14 | 26° 2 | 15°37 | 26° 5 |
| W29  | 20 27 53 | 6° 1'56  | 6°10  | 25°40 | 11°17 | 25°50 | 1°56  | 10° 2 | 25°15 | 26° 2 | 15°37 | 26° 6 |
| T 30 | 20 31 50 | 6°59'23  | 7° 7  | 28°28 | 12°54 | 26°19 | 2° 0  | 10° 4 | 25°16 | 26° 2 | 15°37 | 26° 6 |
| F 31 | 20 35 46 | 7°56'51  | 8° 3  | 1°18  | 14°31 | 26°48 | 2° 5  | 10° 7 | 25°16 | 26° 3 | 15°37 | 26° 7 |

Delta T = 12.65 sec. Greg. Calendar

AUGUST 1682 GC

00:00 UT

| Day  | Sid.t    | Terra    | ☾     | ♃     | ♄     | ♅     | ♆    | ♁     | ♂     | ♆     | ♁     | ♁     |
|------|----------|----------|-------|-------|-------|-------|------|-------|-------|-------|-------|-------|
| S 1  | 20 39 43 | 8°54'20  | 8°59  | 4° 9  | 16° 8 | 27°18 | 2°10 | 10° 9 | 25°17 | 26° 3 | 15°38 | 26° 8 |
| S 2  | 20 43 39 | 9°51'51  | 9°55  | 7° 1  | 17°44 | 27°47 | 2°15 | 10°11 | 25°18 | 26° 4 | 15°38 | 26° 8 |
| M 3  | 20 47 36 | 10°49'23 | 10°50 | 9°56  | 19°21 | 28°16 | 2°20 | 10°13 | 25°18 | 26° 4 | 15°38 | 26° 9 |
| T 4  | 20 51 32 | 11°46'56 | 11°46 | 12°53 | 20°57 | 28°45 | 2°25 | 10°15 | 25°19 | 26° 4 | 15°38 | 26°10 |
| W 5  | 20 55 29 | 12°44'30 | 12°41 | 15°52 | 22°34 | 29°14 | 2°29 | 10°17 | 25°20 | 26° 5 | 15°38 | 26°10 |
| T 6  | 20 59 25 | 13°42'05 | 13°37 | 18°54 | 24°10 | 29°43 | 2°34 | 10°20 | 25°20 | 26° 5 | 15°39 | 26°11 |
| F 7  | 21 3 22  | 14°39'40 | 14°33 | 21°59 | 25°47 | 0°12  | 2°39 | 10°22 | 25°21 | 26° 5 | 15°39 | 26°12 |
| S 8  | 21 7 19  | 15°37'17 | 15°30 | 25° 7 | 27°23 | 0°41  | 2°44 | 10°24 | 25°21 | 26° 6 | 15°39 | 26°12 |
| S 9  | 21 11 15 | 16°34'55 | 16°27 | 28°19 | 29° 0 | 1°10  | 2°49 | 10°26 | 25°22 | 26° 6 | 15°39 | 26°13 |
| M10  | 21 15 12 | 17°32'34 | 17°24 | 1°35  | 0°36  | 1°39  | 2°53 | 10°28 | 25°23 | 26° 6 | 15°39 | 26°14 |
| T 11 | 21 19 8  | 18°30'13 | 18°21 | 4°54  | 2°12  | 2° 8  | 2°58 | 10°31 | 25°23 | 26° 7 | 15°40 | 26°14 |
| W12  | 21 23 5  | 19°27'54 | 19°20 | 8°19  | 3°48  | 2°36  | 3° 3 | 10°33 | 25°24 | 26° 7 | 15°40 | 26°15 |
| T 13 | 21 27 1  | 20°25'36 | 20°18 | 11°48 | 5°25  | 3° 5  | 3° 8 | 10°35 | 25°25 | 26° 8 | 15°40 | 26°16 |
| F 14 | 21 30 58 | 21°23'19 | 21°17 | 15°22 | 7° 1  | 3°34  | 3°13 | 10°37 | 25°25 | 26° 8 | 15°40 | 26°16 |
| S 15 | 21 34 54 | 22°21'03 | 22°16 | 19° 1 | 8°37  | 4° 3  | 3°17 | 10°39 | 25°26 | 26° 8 | 15°40 | 26°17 |
| S 16 | 21 38 51 | 23°18'49 | 23°15 | 22°46 | 10°13 | 4°31  | 3°22 | 10°42 | 25°27 | 26° 9 | 15°41 | 26°18 |
| M17  | 21 42 48 | 24°16'36 | 24°14 | 26°38 | 11°49 | 5° 0  | 3°27 | 10°44 | 25°27 | 26° 9 | 15°41 | 26°18 |
| T 18 | 21 46 44 | 25°14'24 | 25°14 | 0°36  | 13°25 | 5°28  | 3°32 | 10°46 | 25°28 | 26° 9 | 15°41 | 26°19 |
| W19  | 21 50 41 | 26°12'13 | 26°13 | 4°41  | 15° 1 | 5°57  | 3°37 | 10°48 | 25°29 | 26°10 | 15°41 | 26°20 |
| T 20 | 21 54 37 | 27°10'04 | 27°13 | 8°54  | 16°37 | 6°25  | 3°42 | 10°50 | 25°29 | 26°10 | 15°41 | 26°20 |
| F 21 | 21 58 34 | 28° 7'57 | 28°12 | 13°14 | 18°12 | 6°54  | 3°46 | 10°52 | 25°30 | 26°10 | 15°42 | 26°21 |
| S 22 | 22 2 30  | 29° 5'51 | 29°12 | 17°42 | 19°48 | 7°22  | 3°51 | 10°55 | 25°31 | 26°11 | 15°42 | 26°22 |
| S 23 | 22 6 27  | 0°3'47   | 0°11  | 22°18 | 21°24 | 7°50  | 3°56 | 10°57 | 25°31 | 26°11 | 15°42 | 26°22 |
| M24  | 22 10 23 | 1° 1'45  | 1°10  | 27° 3 | 22°59 | 8°19  | 4° 1 | 10°59 | 25°32 | 26°11 | 15°42 | 26°23 |
| T 25 | 22 14 20 | 1°59'45  | 2° 8  | 1°57  | 24°35 | 8°47  | 4° 6 | 11° 1 | 25°33 | 26°12 | 15°42 | 26°24 |
| W26  | 22 18 16 | 2°57'46  | 3° 6  | 7° 0  | 26°11 | 9°15  | 4°10 | 11° 3 | 25°33 | 26°12 | 15°43 | 26°24 |
| T 27 | 22 22 13 | 3°55'50  | 4° 4  | 12°12 | 27°46 | 9°43  | 4°15 | 11° 6 | 25°34 | 26°13 | 15°43 | 26°25 |
| F 28 | 22 26 10 | 4°53'56  | 5° 2  | 17°34 | 29°22 | 10°12 | 4°20 | 11° 8 | 25°35 | 26°13 | 15°43 | 26°26 |
| S 29 | 22 30 6  | 5°52'03  | 5°59  | 23° 4 | 0°57  | 10°40 | 4°25 | 11°10 | 25°35 | 26°13 | 15°43 | 26°26 |
| S 30 | 22 34 3  | 6°50'13  | 6°55  | 28°43 | 2°33  | 11° 8 | 4°30 | 11°12 | 25°36 | 26°14 | 15°43 | 26°27 |
| M31  | 22 37 59 | 7°48'24  | 7°52  | 4°30  | 4° 8  | 11°36 | 4°34 | 11°14 | 25°37 | 26°14 | 15°44 | 26°28 |

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SWISS EPHEMERIS for the year 1682  
heliocentric

SEPTEMBER 1682 GC

00:00 UT

| Day  | Sid.t    | Terra    | ☾     | ♃      | ♄     | ♅     | ♆    | ♁     | ♂     | ♆     | ♁     | ♂     |
|------|----------|----------|-------|--------|-------|-------|------|-------|-------|-------|-------|-------|
| T 1  | 22 41 56 | 8°46'38  | 8°48  | 10°25  | 5°43  | 12°32 | 4°39 | 11°17 | 25°37 | 26°14 | 15°44 | 26°28 |
| W 2  | 22 45 52 | 9°44'53  | 9°44  | 16°27  | 7°19  | 12°32 | 4°44 | 11°19 | 25°38 | 26°15 | 15°44 | 26°29 |
| T 3  | 22 49 49 | 10°43'10 | 10°41 | 22°34  | 8°54  | 13° 0 | 4°49 | 11°21 | 25°39 | 26°15 | 15°44 | 26°30 |
| F 4  | 22 53 45 | 11°41'28 | 11°37 | 28°47  | 10°29 | 13°28 | 4°54 | 11°23 | 25°39 | 26°15 | 15°45 | 26°30 |
| S 5  | 22 57 42 | 12°39'48 | 12°34 | 5°II 3 | 12° 5 | 13°56 | 4°58 | 11°25 | 25°40 | 26°16 | 15°45 | 26°31 |
| S 6  | 23 1 39  | 13°38'10 | 13°31 | 11°21  | 13°40 | 14°24 | 5° 3 | 11°27 | 25°41 | 26°16 | 15°45 | 26°32 |
| M 7  | 23 5 35  | 14°36'34 | 14°28 | 17°41  | 15°15 | 14°52 | 5° 8 | 11°30 | 25°41 | 26°17 | 15°45 | 26°32 |
| T 8  | 23 9 32  | 15°34'59 | 15°26 | 23°59  | 16°50 | 15°19 | 5°13 | 11°32 | 25°42 | 26°17 | 15°45 | 26°33 |
| W 9  | 23 13 28 | 16°33'25 | 16°24 | 0°15   | 18°25 | 15°47 | 5°18 | 11°34 | 25°43 | 26°17 | 15°46 | 26°34 |
| T 10 | 23 17 25 | 17°31'54 | 17°23 | 6°28   | 20° 0 | 16°15 | 5°22 | 11°36 | 25°43 | 26°18 | 15°46 | 26°34 |
| F 11 | 23 21 21 | 18°30'23 | 18°22 | 12°35  | 21°35 | 16°43 | 5°27 | 11°38 | 25°44 | 26°18 | 15°46 | 26°35 |
| S 12 | 23 25 18 | 19°28'55 | 19°21 | 18°36  | 23°10 | 17°10 | 5°32 | 11°41 | 25°45 | 26°18 | 15°46 | 26°36 |
| S 13 | 23 29 14 | 20°27'28 | 20°21 | 24°30  | 24°45 | 17°38 | 5°37 | 11°43 | 25°45 | 26°19 | 15°46 | 26°36 |
| M14  | 23 33 11 | 21°26'03 | 21°21 | 0°16   | 26°20 | 18° 6 | 5°42 | 11°45 | 25°46 | 26°19 | 15°47 | 26°37 |
| T 15 | 23 37 8  | 22°24'40 | 22°21 | 5°53   | 27°55 | 18°33 | 5°46 | 11°47 | 25°47 | 26°19 | 15°47 | 26°38 |
| W16  | 23 41 4  | 23°23'19 | 23°22 | 11°21  | 29°30 | 19° 1 | 5°51 | 11°49 | 25°47 | 26°20 | 15°47 | 26°38 |
| T 17 | 23 45 1  | 24°21'59 | 24°22 | 16°39  | 1° 5  | 19°28 | 5°56 | 11°52 | 25°48 | 26°20 | 15°47 | 26°39 |
| F 18 | 23 48 57 | 25°20'42 | 25°23 | 21°47  | 2°40  | 19°56 | 6° 1 | 11°54 | 25°48 | 26°21 | 15°47 | 26°40 |
| S 19 | 23 52 54 | 26°19'26 | 26°23 | 26°46  | 4°15  | 20°23 | 6° 5 | 11°56 | 25°49 | 26°21 | 15°48 | 26°40 |
| S 20 | 23 56 50 | 27°18'13 | 27°23 | 1°36   | 5°50  | 20°51 | 6°10 | 11°58 | 25°50 | 26°21 | 15°48 | 26°41 |
| M21  | 0 0 47   | 28°17'02 | 28°24 | 6°16   | 7°25  | 21°18 | 6°15 | 12° 0 | 25°50 | 26°22 | 15°48 | 26°42 |
| T 22 | 0 4 43   | 29°15'53 | 29°23 | 10°47  | 9° 0  | 21°46 | 6°20 | 12° 2 | 25°51 | 26°22 | 15°48 | 26°42 |
| W23  | 0 8 40   | 0°14'46  | 0°12  | 15°10  | 10°35 | 22°13 | 6°25 | 12° 5 | 25°52 | 26°22 | 15°48 | 26°43 |
| T 24 | 0 12 36  | 1°13'42  | 1°22  | 19°24  | 12° 9 | 22°40 | 6°29 | 12° 7 | 25°52 | 26°23 | 15°49 | 26°44 |
| F 25 | 0 16 33  | 2°12'40  | 2°21  | 23°30  | 13°44 | 23° 8 | 6°34 | 12° 9 | 25°53 | 26°23 | 15°49 | 26°44 |
| S 26 | 0 20 30  | 3°11'41  | 3°20  | 27°29  | 15°19 | 23°35 | 6°39 | 12°11 | 25°54 | 26°23 | 15°49 | 26°45 |
| S 27 | 0 24 26  | 4°10'43  | 4°18  | 1°21   | 16°54 | 24° 2 | 6°44 | 12°13 | 25°54 | 26°24 | 15°49 | 26°46 |
| M28  | 0 28 23  | 5° 9'48  | 5°15  | 5° 7   | 18°29 | 24°29 | 6°49 | 12°16 | 25°55 | 26°24 | 15°49 | 26°46 |
| T 29 | 0 32 19  | 6° 8'56  | 6°13  | 8°46   | 20° 4 | 24°57 | 6°53 | 12°18 | 25°56 | 26°24 | 15°50 | 26°47 |
| W30  | 0 36 16  | 7° 8'05  | 7°10  | 12°19  | 21°38 | 25°24 | 6°58 | 12°20 | 25°56 | 26°25 | 15°50 | 26°48 |

Delta T = 12.66 sec. Greg. Calendar

OCTOBER 1682 GC

00:00 UT

| Day  | Sid.t   | Terra    | ☾     | ♃     | ♄     | ♅     | ♆    | ♁     | ♂     | ♆     | ♁     | ♂     |
|------|---------|----------|-------|-------|-------|-------|------|-------|-------|-------|-------|-------|
| T 1  | 0 40 12 | 8° 7'17  | 8° 7  | 15°47 | 23°13 | 25°51 | 7° 3 | 12°22 | 25°57 | 26°25 | 15°50 | 26°48 |
| F 2  | 0 44 9  | 9° 6'30  | 9° 5  | 19°11 | 24°48 | 26°18 | 7° 8 | 12°24 | 25°58 | 26°26 | 15°50 | 26°49 |
| S 3  | 0 48 5  | 10° 5'46 | 10° 2 | 22°29 | 26°23 | 26°45 | 7°12 | 12°26 | 25°58 | 26°26 | 15°50 | 26°50 |
| S 4  | 0 52 2  | 11° 5'04 | 11° 0 | 25°44 | 27°58 | 27°12 | 7°17 | 12°29 | 25°59 | 26°26 | 15°51 | 26°50 |
| M 5  | 0 55 59 | 12° 4'23 | 11°58 | 28°54 | 29°32 | 27°39 | 7°22 | 12°31 | 26° 0 | 26°27 | 15°51 | 26°51 |
| T 6  | 0 59 55 | 13° 3'45 | 12°56 | 2°11  | 1° 7  | 28° 7 | 7°27 | 12°33 | 26° 0 | 26°27 | 15°51 | 26°52 |
| W 7  | 1 3 52  | 14° 3'08 | 13°54 | 5° 5  | 2°42  | 28°34 | 7°32 | 12°35 | 26° 1 | 26°27 | 15°51 | 26°52 |
| T 8  | 1 7 48  | 15° 2'33 | 14°53 | 8° 6  | 4°17  | 29° 1 | 7°36 | 12°37 | 26° 2 | 26°28 | 15°51 | 26°53 |
| F 9  | 1 11 45 | 16° 1'59 | 15°53 | 11° 4 | 5°52  | 29°28 | 7°41 | 12°40 | 26° 2 | 26°28 | 15°52 | 26°54 |
| S 10 | 1 15 41 | 17° 1'28 | 16°53 | 14° 0 | 7°27  | 29°54 | 7°46 | 12°42 | 26° 3 | 26°28 | 15°52 | 26°54 |
| S 11 | 1 19 38 | 18° 0'58 | 17°53 | 16°53 | 9° 2  | 0°21  | 7°51 | 12°44 | 26° 4 | 26°29 | 15°52 | 26°55 |
| M12  | 1 23 34 | 19° 0'30 | 18°53 | 19°45 | 10°36 | 0°48  | 7°55 | 12°46 | 26° 4 | 26°29 | 15°52 | 26°56 |
| T 13 | 1 27 31 | 20° 0'04 | 19°54 | 22°35 | 12°11 | 1°15  | 8° 0 | 12°48 | 26° 5 | 26°30 | 15°53 | 26°56 |
| W14  | 1 31 28 | 20°59'40 | 20°55 | 25°23 | 13°46 | 1°42  | 8° 5 | 12°51 | 26° 6 | 26°30 | 15°53 | 26°57 |
| T 15 | 1 35 24 | 21°59'17 | 21°56 | 28°11 | 15°21 | 2° 9  | 8°10 | 12°53 | 26° 6 | 26°30 | 15°53 | 26°58 |
| F 16 | 1 39 21 | 22°58'57 | 22°58 | 0°57  | 16°56 | 2°36  | 8°15 | 12°55 | 26° 7 | 26°31 | 15°53 | 26°58 |
| S 17 | 1 43 17 | 23°58'38 | 23°59 | 3°43  | 18°31 | 3° 3  | 8°19 | 12°57 | 26° 8 | 26°31 | 15°53 | 26°59 |
| S 18 | 1 47 14 | 24°58'22 | 25° 1 | 6°28  | 20° 6 | 3°29  | 8°24 | 12°59 | 26° 8 | 26°31 | 15°54 | 27° 0 |
| M19  | 1 51 10 | 25°58'08 | 26° 2 | 9°13  | 21°41 | 3°56  | 8°29 | 13° 1 | 26° 9 | 26°32 | 15°54 | 27° 0 |
| T 20 | 1 55 7  | 26°57'55 | 27° 4 | 11°57 | 23°16 | 4°23  | 8°34 | 13° 4 | 26°10 | 26°32 | 15°54 | 27° 1 |
| W21  | 1 59 3  | 27°57'45 | 28° 5 | 14°42 | 24°51 | 4°50  | 8°38 | 13° 6 | 26°10 | 26°32 | 15°54 | 27° 2 |
| T 22 | 2 3 0   | 28°57'38 | 29° 6 | 17°27 | 26°26 | 5°16  | 8°43 | 13° 8 | 26°11 | 26°33 | 15°54 | 27° 2 |
| F 23 | 2 6 57  | 29°57'32 | 0° 6  | 20°12 | 28° 1 | 5°43  | 8°48 | 13°10 | 26°12 | 26°33 | 15°55 | 27° 3 |
| S 24 | 2 10 53 | 0°57'29  | 1° 6  | 22°59 | 29°36 | 6°10  | 8°53 | 13°12 | 26°12 | 26°33 | 15°55 | 27° 4 |
| S 25 | 2 14 50 | 1°57'28  | 2° 6  | 25°46 | 1°11  | 6°37  | 8°58 | 13°15 | 26°13 | 26°34 | 15°55 | 27° 4 |
| M26  | 2 18 46 | 2°57'29  | 3° 5  | 28°34 | 2°46  | 7° 3  | 9° 2 | 13°17 | 26°14 | 26°34 | 15°55 | 27° 5 |
| T 27 | 2 22 43 | 3°57'32  | 4° 4  | 1°23  | 4°21  | 7°30  | 9° 7 | 13°19 | 26°14 | 26°35 | 15°55 | 27° 6 |
| W28  | 2 26 39 | 4°57'37  | 5° 2  | 4°14  | 5°56  | 7°56  | 9°12 | 13°21 | 26°15 | 26°35 | 15°56 | 27° 6 |
| T 29 | 2 30 36 | 5°57'45  | 6° 1  | 7° 7  | 7°32  | 8°23  | 9°17 | 13°23 | 26°15 | 26°35 | 15°56 | 27° 7 |
| F 30 | 2 34 32 | 6°57'54  | 6°59  | 10° 2 | 9° 7  | 8°50  | 9°21 | 13°25 | 26°16 | 26°36 | 15°56 | 27° 8 |
| S 31 | 2 38 29 | 7°58'05  | 7°57  | 12°58 | 10°42 | 9°16  | 9°26 | 13°28 | 26°17 | 26°36 | 15°56 | 27° 8 |

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SWISS EPHEMERIS for the year 1682  
heliocentric

NOVEMBER 1682 GC

00:00 UT

| Day  | Sid.t   | Terra                  | ☾                    | ♃                     | ♄                  | ♅                 | ♆                 | ♁                  | ♂                  | ♆                  | ♁                  | ♁                 |
|------|---------|------------------------|----------------------|-----------------------|--------------------|-------------------|-------------------|--------------------|--------------------|--------------------|--------------------|-------------------|
| S 1  | 2 42 25 | 8 <sup>h</sup> 58'18   | 8 <sup>h</sup> 56    | 15 <sup>h</sup> 58'58 | 12 <sup>h</sup> 17 | 9 <sup>h</sup> 43 | 9 <sup>h</sup> 31 | 13 <sup>h</sup> 30 | 26 <sup>h</sup> 17 | 26 <sup>h</sup> 36 | 15 <sup>h</sup> 56 | 27 <sup>h</sup> 9 |
| M 2  | 2 46 22 | 9°58'33                | 9°54                 | 19° 0                 | 13°52              | 10° 9             | 9°36              | 13°32              | 26°18              | 26°37              | 15°57              | 27°10             |
| T 3  | 2 50 19 | 10°58'50               | 10°53                | 22° 5                 | 15°28              | 10°36             | 9°40              | 13°34              | 26°19              | 26°37              | 15°57              | 27°10             |
| W 4  | 2 54 15 | 11°59'08               | 11°52                | 25°13                 | 17° 3              | 11° 2             | 9°45              | 13°36              | 26°19              | 26°37              | 15°57              | 27°11             |
| T 5  | 2 58 12 | 12°59'27               | 12°51                | 28°25                 | 18°38              | 11°29             | 9°50              | 13°38              | 26°20              | 26°38              | 15°57              | 27°12             |
| F 6  | 3 2 8   | 13°59'48               | 13°51                | 1 <sup>h</sup> 41     | 20°13              | 11°55             | 9°55              | 13°41              | 26°21              | 26°38              | 15°57              | 27°12             |
| S 7  | 3 6 5   | 15° 0'11               | 14°51                | 5° 1                  | 21°49              | 12°22             | 10° 0             | 13°43              | 26°21              | 26°39              | 15°58              | 27°13             |
| S 8  | 3 10 1  | 16° 0'34               | 15°51                | 8°25                  | 23°24              | 12°48             | 10° 4             | 13°45              | 26°22              | 26°39              | 15°58              | 27°14             |
| M 9  | 3 13 58 | 17° 1'00               | 16°52                | 11°54                 | 25° 0              | 13°15             | 10° 9             | 13°47              | 26°23              | 26°39              | 15°58              | 27°14             |
| T 10 | 3 17 54 | 18° 1'26               | 17°53                | 15°28                 | 26°35              | 13°41             | 10°14             | 13°49              | 26°23              | 26°40              | 15°58              | 27°15             |
| W 11 | 3 21 51 | 19° 1'54               | 18°55                | 19° 8                 | 28°10              | 14° 8             | 10°19             | 13°52              | 26°24              | 26°40              | 15°58              | 27°16             |
| T 12 | 3 25 48 | 20° 2'23               | 19°57                | 22°54                 | 29°46              | 14°34             | 10°23             | 13°54              | 26°25              | 26°40              | 15°59              | 27°16             |
| F 13 | 3 29 44 | 21° 2'54               | 20°59                | 26°45                 | 1°17               | 15° 1             | 10°28             | 13°56              | 26°25              | 26°41              | 15°59              | 27°17             |
| S 14 | 3 33 41 | 22° 3'26               | 22° 1                | 0 <sup>h</sup> 44     | 2°57               | 15°27             | 10°33             | 13°58              | 26°26              | 26°41              | 15°59              | 27°18             |
| S 15 | 3 37 37 | 23° 4'00               | 23° 4                | 4°49                  | 4°32               | 15°53             | 10°38             | 14° 0              | 26°27              | 26°41              | 15°59              | 27°18             |
| M 16 | 3 41 34 | 24° 4'35               | 24° 6                | 9° 2                  | 6° 8               | 16°20             | 10°42             | 14° 2              | 26°27              | 26°42              | 15°59              | 27°19             |
| T 17 | 3 45 30 | 25° 5'11               | 25° 9                | 13°22                 | 7°43               | 16°46             | 10°47             | 14° 5              | 26°28              | 26°42              | 16° 0              | 27°20             |
| W 18 | 3 49 27 | 26° 5'50               | 26°11                | 17°50                 | 9°19               | 17°12             | 10°52             | 14° 7              | 26°29              | 26°43              | 16° 0              | 27°20             |
| T 19 | 3 53 23 | 27° 6'30               | 27°13                | 22°27                 | 10°55              | 17°39             | 10°57             | 14° 9              | 26°29              | 26°43              | 16° 0              | 27°21             |
| F 20 | 3 57 20 | 28° 7'11               | 28°15                | 27°12                 | 12°30              | 18° 5             | 11° 1             | 14°11              | 26°30              | 26°43              | 16° 0              | 27°22             |
| S 21 | 4 1 17  | 29° 7'54               | 29°16                | 2°17                  | 14° 6              | 18°31             | 11° 6             | 14°13              | 26°31              | 26°44              | 16° 1              | 27°22             |
| S 22 | 4 5 13  | 0 <sup>h</sup> II 8'39 | 0 <sup>h</sup> II 17 | 7°10                  | 15°42              | 18°58             | 11°11             | 14°16              | 26°31              | 26°44              | 16° 1              | 27°23             |
| M 23 | 4 9 10  | 1° 9'25                | 1°18                 | 12°22                 | 17°18              | 19°24             | 11°16             | 14°18              | 26°32              | 26°44              | 16° 1              | 27°24             |
| T 24 | 4 13 6  | 2°10'13                | 2°18                 | 17°44                 | 18°53              | 19°50             | 11°20             | 14°20              | 26°33              | 26°45              | 16° 1              | 27°25             |
| W 25 | 4 17 3  | 3°11'02                | 3°18                 | 23°14                 | 20°29              | 20°17             | 11°25             | 14°22              | 26°33              | 26°45              | 16° 1              | 27°25             |
| T 26 | 4 20 59 | 4°11'53                | 4°17                 | 28°53                 | 22° 5              | 20°43             | 11°30             | 14°24              | 26°34              | 26°45              | 16° 2              | 27°26             |
| F 27 | 4 24 56 | 5°12'45                | 5°17                 | 4 <sup>h</sup> 41     | 23°41              | 21° 9             | 11°35             | 14°26              | 26°35              | 26°46              | 16° 2              | 27°27             |
| S 28 | 4 28 52 | 6°13'39                | 6°16                 | 10°36                 | 25°17              | 21°36             | 11°39             | 14°29              | 26°35              | 26°46              | 16° 2              | 27°27             |
| S 29 | 4 32 49 | 7°14'33                | 7°15                 | 16°38                 | 26°52              | 22° 2             | 11°44             | 14°31              | 26°36              | 26°47              | 16° 2              | 27°28             |
| M 30 | 4 36 46 | 8°15'29                | 8°14                 | 22 <sup>h</sup> 46    | 28°17              | 22°28             | 11°49             | 14°33              | 26°37              | 26°47              | 16° 2              | 27°29             |

Delta T = 12.67 sec.

Greg. Calendar

DECEMBER 1682 GC

00:00 UT

| Day  | Sid.t   | Terra                   | ☾                    | ♃                     | ♄                    | ♅                    | ♆                  | ♁                  | ♂                  | ♆                  | ♁                 | ♁                  |
|------|---------|-------------------------|----------------------|-----------------------|----------------------|----------------------|--------------------|--------------------|--------------------|--------------------|-------------------|--------------------|
| T 1  | 4 40 42 | 9 <sup>h</sup> II 16'26 | 9 <sup>h</sup> II 13 | 28 <sup>h</sup> 59    | 0 <sup>h</sup> 8 4   | 22 <sup>h</sup> 54   | 11 <sup>h</sup> 54 | 14 <sup>h</sup> 35 | 26 <sup>h</sup> 37 | 26 <sup>h</sup> 47 | 16 <sup>h</sup> 3 | 27 <sup>h</sup> 29 |
| W 2  | 4 44 39 | 10°17'24                | 10°12                | 5 <sup>h</sup> II 15  | 1°40                 | 23°21                | 11°58              | 14°37              | 26°38              | 26°48              | 16° 3             | 27°30              |
| T 3  | 4 48 35 | 11°18'22                | 11°12                | 11°18'22              | 3°16                 | 23°47                | 12° 3              | 14°40              | 26°39              | 26°48              | 16° 3             | 27°31              |
| F 4  | 4 52 32 | 12°19'22                | 12°12                | 17°53                 | 4°52                 | 24°13                | 12° 8              | 14°42              | 26°39              | 26°48              | 16° 3             | 27°31              |
| S 5  | 4 56 28 | 13°20'21                | 13°12                | 24°11                 | 6°28                 | 24°39                | 12°13              | 14°44              | 26°40              | 26°49              | 16° 3             | 27°32              |
| S 6  | 5 0 25  | 14°21'22                | 14°12                | 0 <sup>h</sup> 527    | 8° 5                 | 25° 6                | 12°17              | 14°46              | 26°41              | 26°49              | 16° 4             | 27°33              |
| M 7  | 5 4 22  | 15°22'23                | 15°13                | 6°39                  | 9°41                 | 25°32                | 12°22              | 14°48              | 26°41              | 26°49              | 16° 4             | 27°33              |
| T 8  | 5 8 18  | 16°23'25                | 16°14                | 12°46                 | 11°17                | 25°58                | 12°27              | 14°50              | 26°42              | 26°50              | 16° 4             | 27°34              |
| W 9  | 5 12 15 | 17°24'27                | 17°16                | 18°47                 | 12°53                | 26°24                | 12°32              | 14°53              | 26°43              | 26°50              | 16° 4             | 27°35              |
| T 10 | 5 16 11 | 18°25'30                | 18°18                | 24°41                 | 14°29                | 26°50                | 12°36              | 14°55              | 26°43              | 26°51              | 16° 4             | 27°35              |
| F 11 | 5 20 8  | 19°26'33                | 19°20                | 0 <sup>h</sup> II 26  | 16° 5                | 27°17                | 12°41              | 14°57              | 26°44              | 26°51              | 16° 5             | 27°36              |
| S 12 | 5 24 4  | 20°27'36                | 20°23                | 6° 3                  | 17°42                | 27°43                | 12°46              | 14°59              | 26°45              | 26°51              | 16° 5             | 27°37              |
| S 13 | 5 28 1  | 21°28'40                | 21°25                | 11°31                 | 19°18                | 28° 9                | 12°51              | 15° 1              | 26°45              | 26°52              | 16° 5             | 27°37              |
| M 14 | 5 31 57 | 22°29'45                | 22°28                | 16°49                 | 20°54                | 28°35                | 12°55              | 15° 3              | 26°46              | 26°52              | 16° 5             | 27°38              |
| T 15 | 5 35 54 | 23°30'50                | 23°31                | 21°57                 | 22°31                | 29° 2                | 13° 0              | 15° 6              | 26°47              | 26°52              | 16° 5             | 27°39              |
| W 16 | 5 39 51 | 24°31'56                | 24°35                | 26°56                 | 24° 7                | 29°28                | 13° 5              | 15° 8              | 26°47              | 26°53              | 16° 6             | 27°39              |
| T 17 | 5 43 47 | 25°33'02                | 25°37                | 1 <sup>h</sup> II 45  | 25°43                | 29°54                | 13°10              | 15°10              | 26°48              | 26°53              | 16° 6             | 27°40              |
| F 18 | 5 47 44 | 26°34'09                | 26°40                | 6°25                  | 27°20                | 0 <sup>h</sup> II 20 | 13°14              | 15°12              | 26°48              | 26°53              | 16° 6             | 27°41              |
| S 19 | 5 51 40 | 27°35'16                | 27°43                | 10°55                 | 28°56                | 0°46                 | 13°19              | 15°14              | 26°49              | 26°54              | 16° 6             | 27°41              |
| S 20 | 5 55 37 | 28°36'24                | 28°45                | 15°18                 | 0 <sup>h</sup> II 33 | 1°13                 | 13°24              | 15°17              | 26°50              | 26°54              | 16° 7             | 27°42              |
| M 21 | 5 59 33 | 29°37'33                | 29°46                | 19°32                 | 2° 9                 | 1°39                 | 13°29              | 15°19              | 26°50              | 26°54              | 16° 7             | 27°43              |
| T 22 | 6 3 30  | 0 <sup>h</sup> II 38'42 | 0 <sup>h</sup> II 47 | 23°38                 | 3°46                 | 2° 5                 | 13°33              | 15°21              | 26°51              | 26°55              | 16° 7             | 27°43              |
| W 23 | 6 7 26  | 1°39'52                 | 1°48                 | 27°37                 | 5°22                 | 2°31                 | 13°38              | 15°23              | 26°52              | 26°55              | 16° 7             | 27°44              |
| T 24 | 6 11 23 | 2°41'03                 | 2°49                 | 1 <sup>h</sup> II 28  | 6°59                 | 2°58                 | 13°43              | 15°25              | 26°52              | 26°56              | 16° 7             | 27°45              |
| F 25 | 6 15 20 | 3°42'13                 | 3°49                 | 5°14                  | 8°36                 | 3°24                 | 13°48              | 15°27              | 26°53              | 26°56              | 16° 8             | 27°45              |
| S 26 | 6 19 16 | 4°43'25                 | 4°48                 | 8°53                  | 10°12                | 3°50                 | 13°52              | 15°30              | 26°54              | 26°56              | 16° 8             | 27°46              |
| S 27 | 6 23 13 | 5°44'36                 | 5°48                 | 12°26                 | 11°49                | 4°16                 | 13°57              | 15°32              | 26°54              | 26°57              | 16° 8             | 27°47              |
| M 28 | 6 27 9  | 6°45'48                 | 6°47                 | 15°54                 | 13°26                | 4°42                 | 14° 2              | 15°34              | 26°55              | 26°57              | 16° 8             | 27°47              |
| T 29 | 6 31 6  | 7°46'59                 | 7°47                 | 19°17                 | 15° 3                | 5° 9                 | 14° 6              | 15°36              | 26°56              | 26°57              | 16° 8             | 27°48              |
| W 30 | 6 35 2  | 8°48'11                 | 8°46                 | 22°36                 | 16°39                | 5°35                 | 14°11              | 15°38              | 26°56              | 26°58              | 16° 9             | 27°49              |
| T 31 | 6 38 59 | 9°49'23                 | 9°46                 | 25 <sup>h</sup> II 50 | 18°II 16             | 6 <sup>h</sup> II 1  | 14°II 16           | 15°II 40           | 26°57              | 26°58              | 16° 9             | 27°49              |

Delta T = 12.66 sec.

Greg. Calendar

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