

I slightly modified Thorstensen's code to print out the time between evening twilight and morning twilight. For Okie-Tex site (site code = o) near Kenton OK I used same time zone as for Oklahoma City.

W. Romanishin- August 2013 - email: wromanishin at ou.edu - Here is stuff from John T. intro:

***** 2024 Night-time Astronomical Calendar for DCT *****

By John Thorstensen, Dartmouth College

This calendar is designed to provide information useful for the planning of nighttime observations. The format should minimize confusion; each line gives the phenomena for a single (local!) night, and each line is labeled with both evening and morning (local) day and date. Note that all times given are LOCAL CIVIL (zone) times.

The rise/set times printed are the times at which the center of the object is 50 arcminutes below the geometrical horizon. At the given twilight, the center of the sun is 0.0 degrees below the geometrical horizon.

The moon positions (and rise/set times) are generated by an implementation of the Low-Precision formulae in the Astronomical Almanac. The Almanac states that the error seldom exceeds 0.3 degrees. Topocentric corrections are included. Comparisons with tables for Kitt Peak in the NOAO Newsletter indicate that the rise-set times are good to +- 2 min or so. The moon's RA, Dec, and illuminated fraction are given for local midnight, regardless of whether the moon is actually up at that time. Note that the moonrise and moonset times are not printed if they occur near mid-day.

The LST at evening and morning twilight are tabulated. This gives an accurate idea of the range of RA's accessible during the night.

The JD is given (severely rounded off) for local midnight. Again, this avoids any ambiguity.

Some credits: The sidereal time and Julian date routines were originally coded in PL/I by Steve Maker of Dartmouth College. The algorithms originated in the old American Ephemeris. The routine to convert JD back to calendar date is adapted from Numerical Recipes in C, by Press et al.

CAUTIONS: I believe that the program which generates these tables is reasonably accurate. However, it has not been exhaustively tested, so you should be sure to run 'sanity checks' on the results. Also, in view of the approximations used, the results should not be used when high precision is needed. Extension to dates far from the present (1990) should be done with great caution. The code has not been tested for the eastern or southern hemishpheres. Rise/set times are slightly inaccurate and rather confusing at circumpolar latitudes, where the concept of a 'night' is blurry.

The daylight savings time conventions (if used) are quite specific (to U. S., post-1986) and subject to change. I know that the code has many infelicities; if you should find actual errors, please notify
John.Thorstensen@dartmouth.edu

[This output comes from a (hopefully) portable, completely self-contained program in the c language. It is available from the author and may be used freely for scientific or educational purposes. If you use it for profit, please contact the author to arrange a (modest!) fee. Source code is copyright John Thorstensen, 1990.]

MOON PHASES FOR 2024, at DCT

Times and dates are given in local time, zone = 7 hr West.
They are generally better than +/- 2 minutes.

The end of the previous year and the beginning of the next
are included for continuity.

| NEW | | 1ST | | FULL | | LAST | |
|--------|-------|--------|-------|--------|-------|--------|-------|
| Dec 12 | 16 32 | Dec 19 | 11 40 | Dec 26 | 17 34 | Jan 03 | 20 33 |
| Jan 11 | 4 58 | Jan 17 | 20 54 | Jan 25 | 10 55 | Feb 02 | 16 20 |
| Feb 09 | 16 01 | Feb 16 | 8 02 | Feb 24 | 5 31 | Mar 03 | 8 25 |
| Mar 10 | 2 03 | Mar 16 | 21 12 | Mar 25 | 0 02 | Apr 01 | 20 16 |
| Apr 08 | 11 23 | Apr 15 | 12 14 | Apr 23 | 16 51 | May 01 | 4 28 |
| May 07 | 20 24 | May 15 | 4 50 | May 23 | 6 56 | May 30 | 10 14 |
| Jun 06 | 5 40 | Jun 13 | 22 20 | Jun 21 | 18 11 | Jun 28 | 14 55 |
| Jul 05 | 15 59 | Jul 13 | 15 50 | Jul 21 | 3 20 | Jul 27 | 19 54 |
| Aug 04 | 4 14 | Aug 12 | 8 20 | Aug 19 | 11 29 | Aug 26 | 2 29 |
| Sep 02 | 18 57 | Sep 10 | 23 07 | Sep 17 | 19 37 | Sep 24 | 11 53 |
| Oct 02 | 11 51 | Oct 10 | 11 56 | Oct 17 | 4 28 | Oct 24 | 1 05 |
| Nov 01 | 5 48 | Nov 08 | 22 57 | Nov 15 | 14 30 | Nov 22 | 18 30 |
| Nov 30 | 23 22 | Dec 08 | 8 28 | Dec 15 | 2 03 | Dec 22 | 15 20 |
| Dec 30 | 15 28 | Jan 06 | 16 58 | Jan 13 | 15 28 | Jan 21 | 13 32 |

Calendar for DCT, west longitude (h.m.s) = 7 25 41, latitude (d.m) = 34 44.7
 Rise/set times in Mountain time (7 hr W), for 500 m above surroundings, in standard time all year.
 Moon info is for local midnight, even if moon is down. Program: John Thorstensen, Dartmouth College.

***** 2024 JANUARY *****

| Date (eve/morn) | | | LMST | ----- Sun: ----- | | | | LST twilight: | | ----- Moon: ----- | | | | Twi-Twi | |
|-----------------|------------|--------|------|------------------|---------|---------|------|---------------|-------|-------------------|-------|--------|---------|---------|-------|
| | | | midn | set | twi.end | twi.beg | rise | eve | morn | rise | set | %illum | RA | Dec | hours |
| Mon | Jan 01/Tue | Jan 02 | 6 20 | 17 29 | 18 56 | 6 03 | 7 29 | 1 15 | 12 24 | 22 50 | ..... | 66 | 11 34.8 | 5 16 | 11.1 |
| Tue | Jan 02/Wed | Jan 03 | 6 24 | 17 30 | 18 56 | 6 03 | 7 29 | 1 19 | 12 28 | 23 46 | ..... | 57 | 12 16.7 | - 0 19 | 11.1 |
| Wed | Jan 03/Thu | Jan 04 | 6 28 | 17 31 | 18 57 | 6 04 | 7 30 | 1 24 | 12 32 | 0 42 | ..... | 48 | 12 59.0 | - 5 56 | 11.1 |
| Thu | Jan 04/Fri | Jan 05 | 6 32 | 17 32 | 18 58 | 6 04 | 7 30 | 1 29 | 12 37 | 1 40 | ..... | 38 | 13 42.8 | -11 25 | 11.1 |
| Fri | Jan 05/Sat | Jan 06 | 6 36 | 17 33 | 18 58 | 6 04 | 7 30 | 1 33 | 12 41 | 2 40 | ..... | 29 | 14 29.1 | -16 35 | 11.1 |
| Sat | Jan 06/Sun | Jan 07 | 6 40 | 17 33 | 18 59 | 6 04 | 7 30 | 1 38 | 12 45 | 3 45 | ..... | 20 | 15 19.2 | -21 12 | 11.1 |
| Sun | Jan 07/Mon | Jan 08 | 6 44 | 17 34 | 19 00 | 6 04 | 7 30 | 1 43 | 12 49 | 4 52 | ..... | 13 | 16 13.6 | -24 55 | 11.1 |
| Mon | Jan 08/Tue | Jan 09 | 6 48 | 17 35 | 19 01 | 6 04 | 7 30 | 1 48 | 12 53 | 6 00 | ..... | 6 | 17 12.6 | -27 24 | 11.1 |
| Tue | Jan 09/Wed | Jan 10 | 6 52 | 17 36 | 19 02 | 6 04 | 7 30 | 1 52 | 12 57 | 7 05 | 15 39 | 2 | 18 15.2 | -28 17 | 11.0 |
| Wed | Jan 10/Thu | Jan 11 | 6 55 | 17 37 | 19 02 | 6 04 | 7 30 | 1 57 | 13 01 | 8 02 | 16 44 | 0 | 19 19.3 | -27 20 | 11.0 |
| Thu | Jan 11/Fri | Jan 12 | 6 59 | 17 38 | 19 03 | 6 04 | 7 29 | 2 02 | 13 05 | ..... | 17 56 | 1 | 20 22.5 | -24 33 | 11.0 |
| Fri | Jan 12/Sat | Jan 13 | 7 03 | 17 39 | 19 04 | 6 04 | 7 29 | 2 06 | 13 08 | ..... | 19 12 | 5 | 21 22.8 | -20 10 | 11.0 |
| Sat | Jan 13/Sun | Jan 14 | 7 07 | 17 40 | 19 05 | 6 04 | 7 29 | 2 11 | 13 12 | ..... | 20 27 | 11 | 22 19.6 | -14 34 | 11.0 |
| Sun | Jan 14/Mon | Jan 15 | 7 11 | 17 41 | 19 06 | 6 04 | 7 29 | 2 16 | 13 16 | ..... | 21 39 | 19 | 23 13.0 | - 8 12 | 11.0 |
| Mon | Jan 15/Tue | Jan 16 | 7 15 | 17 41 | 19 06 | 6 04 | 7 29 | 2 21 | 13 20 | ..... | 22 49 | 29 | 0 04.2 | - 1 29 | 11.0 |
| Tue | Jan 16/Wed | Jan 17 | 7 19 | 17 42 | 19 07 | 6 04 | 7 28 | 2 26 | 13 24 | ..... | 23 57 | 39 | 0 54.3 | 5 12 | 10.9 |
| Wed | Jan 17/Thu | Jan 18 | 7 23 | 17 43 | 19 08 | 6 03 | 7 28 | 2 30 | 13 28 | ..... | 1 04 | 51 | 1 44.5 | 11 30 | 10.9 |
| Thu | Jan 18/Fri | Jan 19 | 7 27 | 17 44 | 19 09 | 6 03 | 7 28 | 2 35 | 13 31 | ..... | 2 12 | 62 | 2 36.0 | 17 09 | 10.9 |
| Fri | Jan 19/Sat | Jan 20 | 7 31 | 17 45 | 19 10 | 6 03 | 7 27 | 2 40 | 13 35 | ..... | 3 19 | 72 | 3 29.5 | 21 52 | 10.9 |
| Sat | Jan 20/Sun | Jan 21 | 7 35 | 17 46 | 19 11 | 6 03 | 7 27 | 2 45 | 13 39 | ..... | 4 25 | 81 | 4 25.2 | 25 23 | 10.9 |
| Sun | Jan 21/Mon | Jan 22 | 7 39 | 17 47 | 19 11 | 6 02 | 7 26 | 2 50 | 13 42 | ..... | 5 28 | 88 | 5 22.6 | 27 29 | 10.8 |
| Mon | Jan 22/Tue | Jan 23 | 7 43 | 17 48 | 19 12 | 6 02 | 7 26 | 2 54 | 13 46 | ..... | 6 24 | 94 | 6 20.6 | 28 04 | 10.8 |
| Tue | Jan 23/Wed | Jan 24 | 7 47 | 17 49 | 19 13 | 6 02 | 7 25 | 2 59 | 13 49 | 15 44 | 7 12 | 98 | 7 17.6 | 27 09 | 10.8 |
| Wed | Jan 24/Thu | Jan 25 | 7 51 | 17 50 | 19 14 | 6 01 | 7 25 | 3 04 | 13 53 | 16 44 | 7 53 | 100 | 8 12.3 | 24 52 | 10.8 |
| Thu | Jan 25/Fri | Jan 26 | 7 55 | 17 51 | 19 15 | 6 01 | 7 24 | 3 09 | 13 57 | 17 46 | ..... | 100 | 9 03.8 | 21 25 | 10.8 |
| Fri | Jan 26/Sat | Jan 27 | 7 59 | 17 52 | 19 16 | 6 00 | 7 24 | 3 14 | 14 00 | 18 46 | ..... | 98 | 9 52.1 | 17 06 | 10.7 |
| Sat | Jan 27/Sun | Jan 28 | 8 03 | 17 53 | 19 17 | 6 00 | 7 23 | 3 18 | 14 03 | 19 45 | ..... | 94 | 10 37.6 | 12 08 | 10.7 |
| Sun | Jan 28/Mon | Jan 29 | 8 06 | 17 54 | 19 18 | 5 59 | 7 23 | 3 23 | 14 07 | 20 42 | ..... | 89 | 11 21.0 | 6 46 | 10.7 |
| Mon | Jan 29/Tue | Jan 30 | 8 10 | 17 55 | 19 18 | 5 59 | 7 22 | 3 28 | 14 10 | 21 37 | ..... | 82 | 12 03.2 | 1 11 | 10.7 |
| Tue | Jan 30/Wed | Jan 31 | 8 14 | 17 56 | 19 19 | 5 58 | 7 21 | 3 33 | 14 14 | 22 33 | ..... | 74 | 12 45.2 | - 4 28 | 10.7 |
| Wed | Jan 31/Thu | Feb 01 | 8 18 | 17 57 | 19 20 | 5 58 | 7 21 | 3 38 | 14 17 | 23 29 | ..... | 65 | 13 28.0 | - 9 59 | 10.6 |

***** 2024 FEBRUARY *****

| Date (eve/morn) | | | LMST | ----- Sun: ----- | | | | LST twilight: | | ----- Moon: ----- | | | | Twi-Twi | |
|-----------------|------------|--------|-------|------------------|---------|---------|------|---------------|-------|-------------------|-------|--------|---------|---------|-------|
| | | | midn | set | twi.end | twi.beg | rise | eve | morn | rise | set | %illum | RA | Dec | hours |
| Thu | Feb 01/Fri | Feb 02 | 8 22 | 17 58 | 19 21 | 5 57 | 7 20 | 3 43 | 14 20 | 0 27 | ..... | 56 | 14 12.9 | -15 13 | 10.6 |
| Fri | Feb 02/Sat | Feb 03 | 8 26 | 17 59 | 19 22 | 5 57 | 7 19 | 3 47 | 14 24 | 1 29 | ..... | 46 | 15 00.7 | -19 58 | 10.6 |
| Sat | Feb 03/Sun | Feb 04 | 8 30 | 18 00 | 19 23 | 5 56 | 7 18 | 3 52 | 14 27 | 2 33 | ..... | 36 | 15 52.5 | -23 57 | 10.6 |
| Sun | Feb 04/Mon | Feb 05 | 8 34 | 18 01 | 19 24 | 5 55 | 7 17 | 3 57 | 14 30 | 3 39 | ..... | 26 | 16 48.7 | -26 52 | 10.5 |
| Mon | Feb 05/Tue | Feb 06 | 8 38 | 18 02 | 19 25 | 5 54 | 7 17 | 4 02 | 14 33 | 4 44 | ..... | 18 | 17 49.0 | -28 22 | 10.5 |
| Tue | Feb 06/Wed | Feb 07 | 8 42 | 18 03 | 19 25 | 5 54 | 7 16 | 4 07 | 14 37 | 5 45 | ..... | 10 | 18 52.0 | -28 09 | 10.5 |
| Wed | Feb 07/Thu | Feb 08 | 8 46 | 18 04 | 19 26 | 5 53 | 7 15 | 4 11 | 14 40 | 6 38 | ..... | 4 | 19 55.6 | -26 06 | 10.4 |
| Thu | Feb 08/Fri | Feb 09 | 8 50 | 18 05 | 19 27 | 5 52 | 7 14 | 4 16 | 14 43 | 7 23 | 16 43 | 1 | 20 57.6 | -22 17 | 10.4 |
| Fri | Feb 09/Sat | Feb 10 | 8 54 | 18 06 | 19 28 | 5 51 | 7 13 | 4 21 | 14 46 | 8 01 | 18 00 | 0 | 21 56.7 | -16 59 | 10.4 |
| Sat | Feb 10/Sun | Feb 11 | 8 58 | 18 07 | 19 29 | 5 51 | 7 12 | 4 26 | 14 49 | ..... | 19 16 | 3 | 22 52.7 | -10 40 | 10.4 |
| Sun | Feb 11/Mon | Feb 12 | 9 02 | 18 08 | 19 30 | 5 50 | 7 11 | 4 31 | 14 52 | ..... | 20 30 | 8 | 23 46.1 | - 3 48 | 10.3 |
| Mon | Feb 12/Tue | Feb 13 | 9 06 | 18 09 | 19 31 | 5 49 | 7 10 | 4 35 | 14 55 | ..... | 21 42 | 15 | 0 37.9 | 3 11 | 10.3 |
| Tue | Feb 13/Wed | Feb 14 | 9 10 | 18 10 | 19 31 | 5 48 | 7 09 | 4 40 | 14 58 | ..... | 22 52 | 24 | 1 29.5 | 9 51 | 10.3 |
| Wed | Feb 14/Thu | Feb 15 | 9 13 | 18 11 | 19 32 | 5 47 | 7 08 | 4 45 | 15 01 | ..... | 0 02 | 35 | 2 21.8 | 15 52 | 10.2 |
| Thu | Feb 15/Fri | Feb 16 | 9 17 | 18 12 | 19 33 | 5 46 | 7 07 | 4 50 | 15 04 | ..... | 1 11 | 46 | 3 15.5 | 20 56 | 10.2 |
| Fri | Feb 16/Sat | Feb 17 | 9 21 | 18 13 | 19 34 | 5 45 | 7 06 | 4 55 | 15 07 | ..... | 2 19 | 56 | 4 11.1 | 24 46 | 10.2 |
| Sat | Feb 17/Sun | Feb 18 | 9 25 | 18 14 | 19 35 | 5 44 | 7 05 | 4 59 | 15 10 | ..... | 3 23 | 67 | 5 08.2 | 27 13 | 10.2 |
| Sun | Feb 18/Mon | Feb 19 | 9 29 | 18 15 | 19 36 | 5 43 | 7 04 | 5 04 | 15 13 | ..... | 4 21 | 76 | 6 05.8 | 28 09 | 10.1 |
| Mon | Feb 19/Tue | Feb 20 | 9 33 | 18 16 | 19 37 | 5 42 | 7 03 | 5 09 | 15 16 | ..... | 5 11 | 84 | 7 02.7 | 27 35 | 10.1 |
| Tue | Feb 20/Wed | Feb 21 | 9 37 | 18 17 | 19 37 | 5 41 | 7 01 | 5 14 | 15 19 | ..... | 5 53 | 90 | 7 57.4 | 25 37 | 10.1 |
| Wed | Feb 21/Thu | Feb 22 | 9 41 | 18 18 | 19 38 | 5 40 | 7 00 | 5 19 | 15 22 | ..... | 6 29 | 95 | 8 49.4 | 22 28 | 10.0 |
| Thu | Feb 22/Fri | Feb 23 | 9 45 | 18 19 | 19 39 | 5 39 | 6 59 | 5 23 | 15 25 | 16 38 | 6 59 | 99 | 9 38.2 | 18 21 | 10.0 |
| Fri | Feb 23/Sat | Feb 24 | 9 49 | 18 19 | 19 40 | 5 38 | 6 58 | 5 28 | 15 27 | 17 37 | 7 25 | 100 | 10 24.2 | 13 31 | 10.0 |
| Sat | Feb 24/Sun | Feb 25 | 9 53 | 18 20 | 19 41 | 5 36 | 6 57 | 5 33 | 15 30 | 18 35 | ..... | 99 | 11 08.1 | 8 11 | 9.9 |
| Sun | Feb 25/Mon | Feb 26 | 9 57 | 18 21 | 19 42 | 5 35 | 6 56 | 5 38 | 15 33 | 19 31 | ..... | 97 | 11 50.7 | 2 35 | 9.9 |
| Mon | Feb 26/Tue | Feb 27 | 10 01 | 18 22 | 19 43 | 5 34 | 6 54 | 5 43 | 15 36 | 20 26 | ..... | 93 | 12 32.8 | - 3 07 | 9.9 |
| Tue | Feb 27/Wed | Feb 28 | 10 05 | 18 23 | 19 43 | 5 33 | 6 53 | 5 47 | 15 38 | 21 22 | ..... | 87 | 13 15.5 | - 8 44 | 9.8 |
| Wed | Feb 28/Thu | Feb 29 | 10 09 | 18 24 | 19 44 | 5 32 | 6 52 | 5 52 | 15 41 | 22 19 | ..... | 80 | 13 59.6 | -14 05 | 9.8 |
| Thu | Feb 29/Fri | Mar 01 | 10 13 | 18 25 | 19 45 | 5 30 | 6 51 | 5 57 | 15 44 | 23 19 | ..... | 72 | 14 46.2 | -18 59 | 9.8 |

Calendar for DCT, west longitude (h.m.s) = 7 25 41, latitude (d.m) = 34 44.7
 Rise/set times in Mountain time (7 hr W), for 500 m above surroundings, in standard time all year.
 Moon info is for local midnight, even if moon is down. Program: John Thorstensen, Dartmouth College.

***** 2024 MARCH *****

| Date (eve/morn) | LMST midn | ----- Sun: ----- | | | | LST twilight: | | ----- Moon: ----- | | | | Twilight | |
|-----------------------|--------------|------------------|---------|---------|------|---------------|-------|-------------------|-------|--------|---------|----------|-------|
| | | set | twi.end | twi.beg | rise | eve | morn | rise | set | %illum | RA | Dec | hours |
| Fri Mar 01/Sat Mar 02 | 10 17 | 18 26 | 19 46 | 5 29 | 6 49 | 6 02 | 15 47 | 0 21 | ..... | 63 | 15 36.1 | -23 10 | 9.7 |
| Sat Mar 02/Sun Mar 03 | 10 21 | 18 27 | 19 47 | 5 28 | 6 48 | 6 07 | 15 49 | 1 25 | ..... | 53 | 16 29.9 | -26 23 | 9.7 |
| Sun Mar 03/Mon Mar 04 | 10 24 | 18 27 | 19 48 | 5 27 | 6 47 | 6 11 | 15 52 | 2 29 | ..... | 43 | 17 27.6 | -28 20 | 9.6 |
| Mon Mar 04/Tue Mar 05 | 10 28 | 18 28 | 19 49 | 5 25 | 6 45 | 6 16 | 15 55 | 3 30 | ..... | 32 | 18 28.2 | -28 45 | 9.6 |
| Tue Mar 05/Wed Mar 06 | 10 32 | 18 29 | 19 49 | 5 24 | 6 44 | 6 21 | 15 57 | 4 25 | ..... | 22 | 19 30.2 | -27 25 | 9.6 |
| Wed Mar 06/Thu Mar 07 | 10 36 | 18 30 | 19 50 | 5 23 | 6 43 | 6 26 | 16 00 | 5 12 | ..... | 14 | 20 31.7 | -24 20 | 9.5 |
| Thu Mar 07/Fri Mar 08 | 10 40 | 18 31 | 19 51 | 5 21 | 6 41 | 6 31 | 16 02 | 5 53 | ..... | 7 | 21 31.2 | -19 41 | 9.5 |
| Fri Mar 08/Sat Mar 09 | 10 44 | 18 32 | 19 52 | 5 20 | 6 40 | 6 35 | 16 05 | 6 28 | 16 47 | 2 | 22 28.1 | -13 45 | 9.5 |
| Sat Mar 09/Sun Mar 10 | 10 48 | 18 32 | 19 53 | 5 19 | 6 39 | 6 40 | 16 08 | 7 00 | 18 02 | 0 | 23 22.8 | - 7 00 | 9.4 |
| Sun Mar 10/Mon Mar 11 | 10 52 | 18 33 | 19 54 | 5 17 | 6 37 | 6 45 | 16 10 | 7 30 | 19 16 | 1 | 0 16.0 | 0 08 | 9.4 |
| Mon Mar 11/Tue Mar 12 | 10 56 | 18 34 | 19 54 | 5 16 | 6 36 | 6 50 | 16 13 | ..... | 20 29 | 5 | 1 08.7 | 7 11 | 9.4 |
| Tue Mar 12/Wed Mar 13 | 11 00 | 18 35 | 19 55 | 5 14 | 6 35 | 6 55 | 16 15 | ..... | 21 42 | 12 | 2 02.2 | 13 42 | 9.3 |
| Wed Mar 13/Thu Mar 14 | 11 04 | 18 36 | 19 56 | 5 13 | 6 33 | 6 59 | 16 18 | ..... | 22 54 | 20 | 2 57.0 | 19 19 | 9.3 |
| Thu Mar 14/Fri Mar 15 | 11 08 | 18 37 | 19 57 | 5 11 | 6 32 | 7 04 | 16 20 | ..... | 0 06 | 30 | 3 53.5 | 23 43 | 9.2 |
| Fri Mar 15/Sat Mar 16 | 11 12 | 18 37 | 19 58 | 5 10 | 6 31 | 7 09 | 16 23 | ..... | 1 13 | 40 | 4 51.6 | 26 40 | 9.2 |
| Sat Mar 16/Sun Mar 17 | 11 16 | 18 38 | 19 59 | 5 09 | 6 29 | 7 14 | 16 25 | ..... | 2 15 | 51 | 5 50.1 | 28 03 | 9.2 |
| Sun Mar 17/Mon Mar 18 | 11 20 | 18 39 | 20 00 | 5 07 | 6 28 | 7 19 | 16 28 | ..... | 3 09 | 61 | 6 47.7 | 27 52 | 9.1 |
| Mon Mar 18/Tue Mar 19 | 11 24 | 18 40 | 20 01 | 5 06 | 6 26 | 7 24 | 16 30 | ..... | 3 54 | 70 | 7 43.2 | 26 14 | 9.1 |
| Tue Mar 19/Wed Mar 20 | 11 28 | 18 41 | 20 01 | 5 04 | 6 25 | 7 28 | 16 33 | ..... | 4 31 | 79 | 8 35.7 | 23 22 | 9.0 |
| Wed Mar 20/Thu Mar 21 | 11 31 | 18 41 | 20 02 | 5 03 | 6 24 | 7 33 | 16 35 | ..... | 5 02 | 86 | 9 25.0 | 19 29 | 9.0 |
| Thu Mar 21/Fri Mar 22 | 11 35 | 18 42 | 20 03 | 5 01 | 6 22 | 7 38 | 16 37 | ..... | 5 30 | 92 | 10 11.5 | 14 49 | 9.0 |
| Fri Mar 22/Sat Mar 23 | 11 39 | 18 43 | 20 04 | 5 00 | 6 21 | 7 43 | 16 40 | ..... | 5 54 | 96 | 10 55.7 | 9 37 | 8.9 |
| Sat Mar 23/Sun Mar 24 | 11 43 | 18 44 | 20 05 | 4 58 | 6 19 | 7 48 | 16 42 | 17 25 | 6 17 | 99 | 11 38.5 | 4 03 | 8.9 |
| Sun Mar 24/Mon Mar 25 | 11 47 | 18 45 | 20 06 | 4 57 | 6 18 | 7 53 | 16 45 | 18 20 | 6 39 | 100 | 12 20.8 | - 1 41 | 8.8 |
| Mon Mar 25/Tue Mar 26 | 11 51 | 18 45 | 20 07 | 4 55 | 6 17 | 7 57 | 16 47 | 19 16 | 7 02 | 99 | 13 03.4 | - 7 24 | 8.8 |
| Tue Mar 26/Wed Mar 27 | 11 55 | 18 46 | 20 08 | 4 54 | 6 15 | 8 02 | 16 50 | 20 13 | ..... | 96 | 13 47.4 | -12 54 | 8.8 |
| Wed Mar 27/Thu Mar 28 | 11 59 | 18 47 | 20 09 | 4 52 | 6 14 | 8 07 | 16 52 | 21 12 | ..... | 92 | 14 33.6 | -18 00 | 8.7 |
| Thu Mar 28/Fri Mar 29 | 12 03 | 18 48 | 20 10 | 4 51 | 6 12 | 8 12 | 16 54 | 22 14 | ..... | 85 | 15 22.8 | -22 25 | 8.7 |
| Fri Mar 29/Sat Mar 30 | 12 07 | 18 49 | 20 11 | 4 49 | 6 11 | 8 17 | 16 57 | 23 17 | ..... | 77 | 16 15.6 | -25 55 | 8.6 |
| Sat Mar 30/Sun Mar 31 | 12 11 | 18 49 | 20 12 | 4 48 | 6 10 | 8 22 | 16 59 | 0 20 | ..... | 68 | 17 11.8 | -28 13 | 8.6 |
| Sun Mar 31/Mon Apr 01 | 12 15 | 18 50 | 20 13 | 4 46 | 6 08 | 8 27 | 17 02 | 1 21 | ..... | 58 | 18 10.9 | -29 03 | 8.6 |

***** 2024 APRIL *****

| Date (eve/morn) | LMST midn | ----- Sun: ----- | | | | LST twilight: | | ----- Moon: ----- | | | | Twilight | |
|-----------------------|--------------|------------------|---------|---------|------|---------------|-------|-------------------|-------|--------|---------|----------|-------|
| | | set | twi.end | twi.beg | rise | eve | morn | rise | set | %illum | RA | Dec | hours |
| Mon Apr 01/Tue Apr 02 | 12 19 | 18 51 | 20 13 | 4 44 | 6 07 | 8 32 | 17 04 | 2 16 | ..... | 48 | 19 11.3 | -28 15 | 8.5 |
| Tue Apr 02/Wed Apr 03 | 12 23 | 18 52 | 20 14 | 4 43 | 6 06 | 8 37 | 17 06 | 3 05 | ..... | 37 | 20 11.4 | -25 47 | 8.5 |
| Wed Apr 03/Thu Apr 04 | 12 27 | 18 52 | 20 15 | 4 41 | 6 04 | 8 41 | 17 09 | 3 47 | ..... | 26 | 21 09.9 | -21 46 | 8.4 |
| Thu Apr 04/Fri Apr 05 | 12 31 | 18 53 | 20 16 | 4 40 | 6 03 | 8 46 | 17 11 | 4 23 | ..... | 17 | 22 06.2 | -16 26 | 8.4 |
| Fri Apr 05/Sat Apr 06 | 12 35 | 18 54 | 20 17 | 4 38 | 6 01 | 8 51 | 17 14 | 4 55 | ..... | 9 | 23 00.3 | -10 06 | 8.3 |
| Sat Apr 06/Sun Apr 07 | 12 39 | 18 55 | 20 18 | 4 37 | 6 00 | 8 56 | 17 16 | 5 25 | ..... | 3 | 23 53.2 | - 3 10 | 8.3 |
| Sun Apr 07/Mon Apr 08 | 12 42 | 18 56 | 20 19 | 4 35 | 5 59 | 9 01 | 17 18 | 5 55 | 18 01 | 0 | 0 45.7 | 3 57 | 8.3 |
| Mon Apr 08/Tue Apr 09 | 12 46 | 18 56 | 20 20 | 4 34 | 5 57 | 9 06 | 17 21 | 6 27 | 19 15 | 0 | 1 39.0 | 10 47 | 8.2 |
| Tue Apr 09/Wed Apr 10 | 12 50 | 18 57 | 20 21 | 4 32 | 5 56 | 9 11 | 17 23 | ..... | 20 29 | 3 | 2 33.9 | 16 56 | 8.2 |
| Wed Apr 10/Thu Apr 11 | 12 54 | 18 58 | 20 22 | 4 31 | 5 55 | 9 16 | 17 26 | ..... | 21 43 | 9 | 3 30.9 | 21 59 | 8.1 |
| Thu Apr 11/Fri Apr 12 | 12 58 | 18 59 | 20 23 | 4 29 | 5 53 | 9 21 | 17 28 | ..... | 22 55 | 16 | 4 29.9 | 25 36 | 8.1 |
| Fri Apr 12/Sat Apr 13 | 13 02 | 19 00 | 20 24 | 4 27 | 5 52 | 9 26 | 17 30 | ..... | 0 02 | 25 | 5 29.9 | 27 36 | 8.1 |
| Sat Apr 13/Sun Apr 14 | 13 06 | 19 00 | 20 25 | 4 26 | 5 51 | 9 31 | 17 33 | ..... | 1 01 | 34 | 6 29.2 | 27 56 | 8.0 |
| Sun Apr 14/Mon Apr 15 | 13 10 | 19 01 | 20 27 | 4 24 | 5 50 | 9 36 | 17 35 | ..... | 1 50 | 44 | 7 26.4 | 26 43 | 8.0 |
| Mon Apr 15/Tue Apr 16 | 13 14 | 19 02 | 20 28 | 4 23 | 5 48 | 9 41 | 17 38 | ..... | 2 31 | 54 | 8 20.4 | 24 10 | 7.9 |
| Tue Apr 16/Wed Apr 17 | 13 18 | 19 03 | 20 29 | 4 21 | 5 47 | 9 46 | 17 40 | ..... | 3 05 | 64 | 9 10.8 | 20 33 | 7.9 |
| Wed Apr 17/Thu Apr 18 | 13 22 | 19 04 | 20 30 | 4 20 | 5 46 | 9 51 | 17 42 | ..... | 3 33 | 73 | 9 58.0 | 16 06 | 7.8 |
| Thu Apr 18/Fri Apr 19 | 13 26 | 19 04 | 20 31 | 4 18 | 5 45 | 9 56 | 17 45 | ..... | 3 58 | 81 | 10 42.7 | 11 02 | 7.8 |
| Fri Apr 19/Sat Apr 20 | 13 30 | 19 05 | 20 32 | 4 17 | 5 43 | 10 01 | 17 47 | ..... | 4 21 | 88 | 11 25.7 | 5 34 | 7.7 |
| Sat Apr 20/Sun Apr 21 | 13 34 | 19 06 | 20 33 | 4 15 | 5 42 | 10 06 | 17 50 | ..... | 4 44 | 93 | 12 07.9 | - 0 07 | 7.7 |
| Sun Apr 21/Mon Apr 22 | 13 38 | 19 07 | 20 34 | 4 14 | 5 41 | 10 11 | 17 52 | ..... | 5 07 | 97 | 12 50.4 | - 5 52 | 7.7 |
| Mon Apr 22/Tue Apr 23 | 13 42 | 19 08 | 20 35 | 4 12 | 5 40 | 10 16 | 17 55 | 18 06 | 5 31 | 100 | 13 34.2 | -11 29 | 7.6 |
| Tue Apr 23/Wed Apr 24 | 13 46 | 19 08 | 20 36 | 4 11 | 5 39 | 10 21 | 17 57 | 19 05 | 5 58 | 100 | 14 20.2 | -16 46 | 7.6 |
| Wed Apr 24/Thu Apr 25 | 13 49 | 19 09 | 20 37 | 4 09 | 5 38 | 10 26 | 18 00 | 20 06 | 6 30 | 98 | 15 09.1 | -21 27 | 7.5 |
| Thu Apr 25/Fri Apr 26 | 13 53 | 19 10 | 20 38 | 4 08 | 5 36 | 10 31 | 18 02 | 21 09 | ..... | 94 | 16 01.6 | -25 16 | 7.5 |
| Fri Apr 26/Sat Apr 27 | 13 57 | 19 11 | 20 40 | 4 07 | 5 35 | 10 36 | 18 05 | 22 13 | ..... | 89 | 16 57.7 | -27 54 | 7.5 |
| Sat Apr 27/Sun Apr 28 | 14 01 | 19 12 | 20 41 | 4 05 | 5 34 | 10 41 | 18 07 | 23 15 | ..... | 81 | 17 56.6 | -29 07 | 7.4 |
| Sun Apr 28/Mon Apr 29 | 14 05 | 19 13 | 20 42 | 4 04 | 5 33 | 10 47 | 18 10 | 0 12 | ..... | 73 | 18 56.8 | -28 43 | 7.4 |
| Mon Apr 29/Tue Apr 30 | 14 09 | 19 13 | 20 43 | 4 02 | 5 32 | 10 52 | 18 12 | 1 02 | ..... | 62 | 19 56.6 | -26 40 | 7.3 |
| Tue Apr 30/Wed May 01 | 14 13 | 19 14 | 20 44 | 4 01 | 5 31 | 10 57 | 18 15 | 1 45 | ..... | 52 | 20 54.6 | -23 05 | 7.3 |

Calendar for DCT, west longitude (h.m.s) = 7 25 41, latitude (d.m) = 34 44.7
 Rise/set times in Mountain time (7 hr W), for 500 m above surroundings, in standard time all year.
 Moon info is for local midnight, even if moon is down. Program: John Thorstensen, Dartmouth College.

***** 2024 MAY *****

| Date (eve/morn) | | | LMST | ----- Sun: ----- | | | | LST twilight: | | ----- Moon: ----- | | | | Twi-Twi | |
|-----------------------|-------|-------------|-----------|------------------|---------|---------|------|---------------|--------|-------------------|-----|--------|----|---------|-------|
| | | | midn | set | twi.end | twi.beg | rise | eve | morn | rise | set | %illum | RA | Dec | hours |
| Wed May 01/Thu May 02 | 14 17 | 19 15 20 45 | 4 00 5 30 | 11 02 18 17 | 2 22 | ..... | 40 | 21 50.2 | -18 12 | 7.2 | | | | | |
| Thu May 02/Fri May 03 | 14 21 | 19 16 20 46 | 3 58 5 29 | 11 07 18 20 | 2 54 | ..... | 29 | 22 43.4 | -12 19 | 7.2 | | | | | |
| Fri May 03/Sat May 04 | 14 25 | 19 17 20 48 | 3 57 5 28 | 11 12 18 23 | 3 24 | ..... | 19 | 23 35.0 | - 5 44 | 7.2 | | | | | |
| Sat May 04/Sun May 05 | 14 29 | 19 17 20 49 | 3 56 5 27 | 11 17 18 25 | 3 53 | ..... | 11 | 0 26.2 | 1 09 | 7.1 | | | | | |
| Sun May 05/Mon May 06 | 14 33 | 19 18 20 50 | 3 54 5 26 | 11 22 18 28 | 4 23 | ..... | 5 | 1 17.9 | 8 00 | 7.1 | | | | | |
| Mon May 06/Tue May 07 | 14 37 | 19 19 20 51 | 3 53 5 25 | 11 27 18 31 | 4 55 | 18 03 | 1 | 2 11.4 | 14 22 | 7.0 | | | | | |
| Tue May 07/Wed May 08 | 14 41 | 19 20 20 52 | 3 52 5 24 | 11 32 18 33 | 5 32 | 19 17 | 0 | 3 07.3 | 19 52 | 7.0 | | | | | |
| Wed May 08/Thu May 09 | 14 45 | 19 21 20 53 | 3 51 5 23 | 11 37 18 36 | 6 16 | 20 31 | 2 | 4 05.9 | 24 06 | 7.0 | | | | | |
| Thu May 09/Fri May 10 | 14 49 | 19 21 20 54 | 3 49 5 22 | 11 42 18 39 | ..... | 21 42 | 6 | 5 06.2 | 26 47 | 6.9 | | | | | |
| Fri May 10/Sat May 11 | 14 53 | 19 22 20 56 | 3 48 5 22 | 11 48 18 41 | ..... | 22 46 | 12 | 6 06.9 | 27 45 | 6.9 | | | | | |
| Sat May 11/Sun May 12 | 14 56 | 19 23 20 57 | 3 47 5 21 | 11 53 18 44 | ..... | 23 41 | 20 | 7 06.0 | 27 04 | 6.8 | | | | | |
| Sun May 12/Mon May 13 | 15 00 | 19 24 20 58 | 3 46 5 20 | 11 58 18 47 | ..... | 0 26 | 29 | 8 02.0 | 24 56 | 6.8 | | | | | |
| Mon May 13/Tue May 14 | 15 04 | 19 25 20 59 | 3 45 5 19 | 12 03 18 50 | ..... | 1 03 | 38 | 8 54.3 | 21 35 | 6.8 | | | | | |
| Tue May 14/Wed May 15 | 15 08 | 19 25 21 00 | 3 44 5 18 | 12 08 18 53 | ..... | 1 34 | 48 | 9 42.8 | 17 21 | 6.7 | | | | | |
| Wed May 15/Thu May 16 | 15 12 | 19 26 21 01 | 3 43 5 18 | 12 13 18 56 | ..... | 2 01 | 57 | 10 28.3 | 12 28 | 6.7 | | | | | |
| Thu May 16/Fri May 17 | 15 16 | 19 27 21 02 | 3 42 5 17 | 12 18 18 58 | ..... | 2 25 | 66 | 11 11.7 | 7 07 | 6.7 | | | | | |
| Fri May 17/Sat May 18 | 15 20 | 19 28 21 03 | 3 41 5 16 | 12 23 19 01 | ..... | 2 47 | 75 | 11 53.9 | 1 31 | 6.6 | | | | | |
| Sat May 18/Sun May 19 | 15 24 | 19 28 21 04 | 3 40 5 16 | 12 28 19 04 | ..... | 3 10 | 83 | 12 36.1 | - 4 11 | 6.6 | | | | | |
| Sun May 19/Mon May 20 | 15 28 | 19 29 21 06 | 3 39 5 15 | 12 33 19 07 | ..... | 3 34 | 90 | 13 19.3 | - 9 51 | 6.6 | | | | | |
| Mon May 20/Tue May 21 | 15 32 | 19 30 21 07 | 3 38 5 14 | 12 38 19 10 | ..... | 4 00 | 95 | 14 04.6 | -15 15 | 6.5 | | | | | |
| Tue May 21/Wed May 22 | 15 36 | 19 31 21 08 | 3 37 5 14 | 12 43 19 13 | 17 56 | 4 30 | 98 | 14 52.9 | -20 10 | 6.5 | | | | | |
| Wed May 22/Thu May 23 | 15 40 | 19 31 21 09 | 3 36 5 13 | 12 48 19 16 | 18 59 | 5 06 | 100 | 15 44.9 | -24 18 | 6.5 | | | | | |
| Thu May 23/Fri May 24 | 15 44 | 19 32 21 10 | 3 35 5 13 | 12 53 19 20 | 20 04 | 5 50 | 99 | 16 40.8 | -27 21 | 6.4 | | | | | |
| Fri May 24/Sat May 25 | 15 48 | 19 33 21 11 | 3 34 5 12 | 12 58 19 23 | 21 07 | ..... | 96 | 17 40.2 | -28 59 | 6.4 | | | | | |
| Sat May 25/Sun May 26 | 15 52 | 19 34 21 12 | 3 34 5 12 | 13 03 19 26 | 22 07 | ..... | 91 | 18 41.3 | -28 59 | 6.4 | | | | | |
| Sun May 26/Mon May 27 | 15 56 | 19 34 21 13 | 3 33 5 11 | 13 08 19 29 | 23 00 | ..... | 84 | 19 42.4 | -27 18 | 6.3 | | | | | |
| Mon May 27/Tue May 28 | 16 00 | 19 35 21 14 | 3 32 5 11 | 13 13 19 32 | 23 45 | ..... | 76 | 20 41.4 | -24 01 | 6.3 | | | | | |
| Tue May 28/Wed May 29 | 16 04 | 19 36 21 15 | 3 31 5 10 | 13 18 19 36 | 0 23 | ..... | 65 | 21 37.6 | -19 23 | 6.3 | | | | | |
| Wed May 29/Thu May 30 | 16 07 | 19 36 21 16 | 3 31 5 10 | 13 23 19 39 | 0 56 | ..... | 54 | 22 31.0 | -13 44 | 6.3 | | | | | |
| Thu May 30/Fri May 31 | 16 11 | 19 37 21 17 | 3 30 5 10 | 13 27 19 42 | 1 26 | ..... | 43 | 23 22.1 | - 7 23 | 6.2 | | | | | |
| Fri May 31/Sat Jun 01 | 16 15 | 19 38 21 17 | 3 30 5 09 | 13 32 19 46 | 1 54 | ..... | 32 | 0 12.2 | - 0 42 | 6.2 | | | | | |

***** 2024 JUNE *****

| Date (eve/morn) | | | LMST | ----- Sun: ----- | | | | LST twilight: | | ----- Moon: ----- | | | | Twi-Twi | |
|-----------------------|-------|-------------|-----------|------------------|---------|---------|------|---------------|--------|-------------------|-----|--------|----|---------|-------|
| | | | midn | set | twi.end | twi.beg | rise | eve | morn | rise | set | %illum | RA | Dec | hours |
| Sat Jun 01/Sun Jun 02 | 16 19 | 19 38 21 18 | 3 29 5 09 | 13 37 19 49 | 2 22 | ..... | 22 | 1 02.5 | 6 00 | 6.2 | | | | | |
| Sun Jun 02/Mon Jun 03 | 16 23 | 19 39 21 19 | 3 29 5 09 | 13 42 19 52 | 2 53 | ..... | 13 | 1 54.0 | 12 23 | 6.2 | | | | | |
| Mon Jun 03/Tue Jun 04 | 16 27 | 19 39 21 20 | 3 28 5 09 | 13 47 19 56 | 3 27 | ..... | 6 | 2 47.9 | 18 03 | 6.1 | | | | | |
| Tue Jun 04/Wed Jun 05 | 16 31 | 19 40 21 21 | 3 28 5 09 | 13 51 19 59 | 4 07 | 18 09 | 2 | 3 44.7 | 22 39 | 6.1 | | | | | |
| Wed Jun 05/Thu Jun 06 | 16 35 | 19 40 21 21 | 3 27 5 08 | 13 56 20 03 | 4 54 | 19 21 | 0 | 4 43.9 | 25 50 | 6.1 | | | | | |
| Thu Jun 06/Fri Jun 07 | 16 39 | 19 41 21 22 | 3 27 5 08 | 14 01 20 07 | 5 49 | 20 29 | 1 | 5 44.5 | 27 24 | 6.1 | | | | | |
| Fri Jun 07/Sat Jun 08 | 16 43 | 19 41 21 23 | 3 27 5 08 | 14 05 20 10 | ..... | 21 28 | 4 | 6 44.5 | 27 17 | 6.1 | | | | | |
| Sat Jun 08/Sun Jun 09 | 16 47 | 19 42 21 23 | 3 26 5 08 | 14 10 20 14 | ..... | 22 18 | 9 | 7 42.1 | 25 36 | 6.0 | | | | | |
| Sun Jun 09/Mon Jun 10 | 16 51 | 19 42 21 24 | 3 26 5 08 | 14 15 20 18 | ..... | 22 59 | 15 | 8 36.1 | 22 37 | 6.0 | | | | | |
| Mon Jun 10/Tue Jun 11 | 16 55 | 19 43 21 25 | 3 26 5 08 | 14 19 20 21 | ..... | 23 33 | 23 | 9 26.2 | 18 37 | 6.0 | | | | | |
| Tue Jun 11/Wed Jun 12 | 16 59 | 19 43 21 25 | 3 26 5 08 | 14 24 20 25 | ..... | 0 02 | 32 | 10 12.9 | 13 53 | 6.0 | | | | | |
| Wed Jun 12/Thu Jun 13 | 17 03 | 19 44 21 26 | 3 26 5 08 | 14 28 20 29 | ..... | 0 27 | 41 | 10 57.0 | 8 40 | 6.0 | | | | | |
| Thu Jun 13/Fri Jun 14 | 17 07 | 19 44 21 26 | 3 26 5 08 | 14 32 20 33 | ..... | 0 50 | 50 | 11 39.4 | 3 09 | 6.0 | | | | | |
| Fri Jun 14/Sat Jun 15 | 17 11 | 19 44 21 27 | 3 26 5 08 | 14 37 20 37 | ..... | 1 12 | 60 | 12 21.2 | - 2 29 | 6.0 | | | | | |
| Sat Jun 15/Sun Jun 16 | 17 14 | 19 45 21 27 | 3 26 5 08 | 14 41 20 41 | ..... | 1 35 | 69 | 13 03.6 | - 8 07 | 6.0 | | | | | |
| Sun Jun 16/Mon Jun 17 | 17 18 | 19 45 21 28 | 3 26 5 08 | 14 46 20 45 | ..... | 2 00 | 77 | 13 47.7 | -13 34 | 6.0 | | | | | |
| Mon Jun 17/Tue Jun 18 | 17 22 | 19 45 21 28 | 3 26 5 08 | 14 50 20 49 | ..... | 2 29 | 85 | 14 34.6 | -18 37 | 6.0 | | | | | |
| Tue Jun 18/Wed Jun 19 | 17 26 | 19 46 21 28 | 3 26 5 09 | 14 54 20 53 | ..... | 3 02 | 91 | 15 25.2 | -23 02 | 6.0 | | | | | |
| Wed Jun 19/Thu Jun 20 | 17 30 | 19 46 21 28 | 3 26 5 09 | 14 58 20 57 | 17 49 | 3 43 | 96 | 16 20.0 | -26 29 | 6.0 | | | | | |
| Thu Jun 20/Fri Jun 21 | 17 34 | 19 46 21 29 | 3 26 5 09 | 15 02 21 01 | 18 54 | 4 33 | 99 | 17 19.0 | -28 38 | 6.0 | | | | | |
| Fri Jun 21/Sat Jun 22 | 17 38 | 19 46 21 29 | 3 27 5 09 | 15 07 21 05 | 19 57 | 5 31 | 100 | 18 20.8 | -29 11 | 6.0 | | | | | |
| Sat Jun 22/Sun Jun 23 | 17 42 | 19 47 21 29 | 3 27 5 09 | 15 11 21 10 | 20 53 | ..... | 98 | 19 23.5 | -27 58 | 6.0 | | | | | |
| Sun Jun 23/Mon Jun 24 | 17 46 | 19 47 21 29 | 3 27 5 10 | 15 15 21 14 | 21 42 | ..... | 93 | 20 24.8 | -25 01 | 6.0 | | | | | |
| Mon Jun 24/Tue Jun 25 | 17 50 | 19 47 21 29 | 3 28 5 10 | 15 19 21 18 | 22 23 | ..... | 87 | 21 23.2 | -20 35 | 6.0 | | | | | |
| Tue Jun 25/Wed Jun 26 | 17 54 | 19 47 21 29 | 3 28 5 10 | 15 23 21 23 | 22 58 | ..... | 78 | 22 18.2 | -15 01 | 6.0 | | | | | |
| Wed Jun 26/Thu Jun 27 | 17 58 | 19 47 21 29 | 3 29 5 11 | 15 27 21 27 | 23 29 | ..... | 68 | 23 10.5 | - 8 42 | 6.0 | | | | | |
| Thu Jun 27/Fri Jun 28 | 18 02 | 19 47 21 29 | 3 29 5 11 | 15 30 21 31 | 23 57 | ..... | 57 | 0 01.0 | - 2 01 | 6.0 | | | | | |
| Fri Jun 28/Sat Jun 29 | 18 06 | 19 47 21 29 | 3 30 5 12 | 15 34 21 36 | 0 25 | ..... | 45 | 0 50.9 | 4 42 | 6.0 | | | | | |
| Sat Jun 29/Sun Jun 30 | 18 10 | 19 47 21 29 | 3 30 5 12 | 15 38 21 40 | 0 54 | ..... | 34 | 1 41.6 | 11 05 | 6.0 | | | | | |
| Sun Jun 30/Mon Jul 01 | 18 14 | 19 47 21 29 | 3 31 5 12 | 15 42 21 45 | 1 26 | ..... | 24 | 2 34.0 | 16 51 | 6.0 | | | | | |

Calendar for DCT, west longitude (h.m.s) = 7 25 41, latitude (d.m) = 34 44.7
 Rise/set times in Mountain time (7 hr W), for 500 m above surroundings, in standard time all year.
 Moon info is for local midnight, even if moon is down. Program: John Thorstensen, Dartmouth College.

***** 2024 JULY *****

| Date (eve/morn) | | LMST | ----- Sun: ----- | | | | | LST twilight: | | ----- Moon: ----- | | | | | Twi-Twi |
|-----------------------|--|-------|------------------|---------|---------|------|-------|---------------|-------|-------------------|--------|---------|--------|-------|---------|
| | | midn | set | twi.end | twi.beg | rise | eve | morn | rise | set | %illum | RA | Dec | hours | |
| Mon Jul 01/Tue Jul 02 | | 18 18 | 19 47 | 21 28 | 3 31 | 5 13 | 15 46 | 21 49 | 2 03 | ..... | 15 | 3 29.0 | 21 38 | 6.0 | |
| Tue Jul 02/Wed Jul 03 | | 18 22 | 19 47 | 21 28 | 3 32 | 5 13 | 15 49 | 21 54 | 2 46 | ..... | 8 | 4 26.6 | 25 08 | 6.1 | |
| Wed Jul 03/Thu Jul 04 | | 18 25 | 19 47 | 21 28 | 3 33 | 5 14 | 15 53 | 21 59 | 3 38 | 18 15 | 3 | 5 25.9 | 27 07 | 6.1 | |
| Thu Jul 04/Fri Jul 05 | | 18 29 | 19 47 | 21 28 | 3 33 | 5 14 | 15 57 | 22 03 | 4 36 | 19 17 | 1 | 6 25.6 | 27 27 | 6.1 | |
| Fri Jul 05/Sat Jul 06 | | 18 33 | 19 46 | 21 27 | 3 34 | 5 15 | 16 00 | 22 08 | 5 39 | 20 10 | 0 | 7 23.6 | 26 13 | 6.1 | |
| Sat Jul 06/Sun Jul 07 | | 18 37 | 19 46 | 21 27 | 3 35 | 5 15 | 16 04 | 22 13 | ..... | 20 54 | 2 | 8 18.6 | 23 35 | 6.1 | |
| Sun Jul 07/Mon Jul 08 | | 18 41 | 19 46 | 21 26 | 3 36 | 5 16 | 16 07 | 22 17 | ..... | 21 31 | 6 | 9 10.0 | 19 51 | 6.2 | |
| Mon Jul 08/Tue Jul 09 | | 18 45 | 19 46 | 21 26 | 3 36 | 5 17 | 16 11 | 22 22 | ..... | 22 02 | 11 | 9 57.7 | 15 18 | 6.2 | |
| Tue Jul 09/Wed Jul 10 | | 18 49 | 19 45 | 21 25 | 3 37 | 5 17 | 16 14 | 22 27 | ..... | 22 28 | 18 | 10 42.5 | 10 11 | 6.2 | |
| Wed Jul 10/Thu Jul 11 | | 18 53 | 19 45 | 21 25 | 3 38 | 5 18 | 16 17 | 22 32 | ..... | 22 52 | 26 | 11 25.3 | 4 45 | 6.2 | |
| Thu Jul 11/Fri Jul 12 | | 18 57 | 19 45 | 21 24 | 3 39 | 5 18 | 16 21 | 22 37 | ..... | 23 14 | 34 | 12 07.0 | - 0 51 | 6.2 | |
| Fri Jul 12/Sat Jul 13 | | 19 01 | 19 44 | 21 23 | 3 40 | 5 19 | 16 24 | 22 41 | ..... | 23 37 | 43 | 12 48.7 | - 6 27 | 6.3 | |
| Sat Jul 13/Sun Jul 14 | | 19 05 | 19 44 | 21 23 | 3 41 | 5 20 | 16 27 | 22 46 | ..... | 0 01 | 53 | 13 31.6 | -11 54 | 6.3 | |
| Sun Jul 14/Mon Jul 15 | | 19 09 | 19 43 | 21 22 | 3 42 | 5 20 | 16 30 | 22 51 | ..... | 0 27 | 62 | 14 16.7 | -17 02 | 6.3 | |
| Mon Jul 15/Tue Jul 16 | | 19 13 | 19 43 | 21 21 | 3 43 | 5 21 | 16 34 | 22 56 | ..... | 0 58 | 72 | 15 05.1 | -21 37 | 6.4 | |
| Tue Jul 16/Wed Jul 17 | | 19 17 | 19 42 | 21 20 | 3 44 | 5 22 | 16 37 | 23 01 | ..... | 1 35 | 80 | 15 57.6 | -25 24 | 6.4 | |
| Wed Jul 17/Thu Jul 18 | | 19 21 | 19 42 | 21 20 | 3 45 | 5 22 | 16 40 | 23 06 | ..... | 2 20 | 88 | 16 54.6 | -28 03 | 6.4 | |
| Thu Jul 18/Fri Jul 19 | | 19 25 | 19 41 | 21 19 | 3 46 | 5 23 | 16 43 | 23 11 | 17 41 | 3 15 | 94 | 17 55.5 | -29 14 | 6.4 | |
| Fri Jul 19/Sat Jul 20 | | 19 29 | 19 41 | 21 18 | 3 47 | 5 24 | 16 46 | 23 16 | 18 41 | 4 20 | 98 | 18 58.6 | -28 40 | 6.5 | |
| Sat Jul 20/Sun Jul 21 | | 19 32 | 19 40 | 21 17 | 3 48 | 5 24 | 16 49 | 23 21 | 19 34 | 5 31 | 100 | 20 01.6 | -26 17 | 6.5 | |
| Sun Jul 21/Mon Jul 22 | | 19 36 | 19 40 | 21 16 | 3 49 | 5 25 | 16 52 | 23 26 | 20 19 | ..... | 99 | 21 02.5 | -22 12 | 6.5 | |
| Mon Jul 22/Tue Jul 23 | | 19 40 | 19 39 | 21 15 | 3 50 | 5 26 | 16 55 | 23 31 | 20 57 | ..... | 95 | 22 00.3 | -16 47 | 6.6 | |
| Tue Jul 23/Wed Jul 24 | | 19 44 | 19 38 | 21 14 | 3 51 | 5 26 | 16 58 | 23 36 | 21 30 | ..... | 89 | 22 55.0 | -10 25 | 6.6 | |
| Wed Jul 24/Thu Jul 25 | | 19 48 | 19 38 | 21 13 | 3 52 | 5 27 | 17 01 | 23 41 | 21 59 | ..... | 80 | 23 47.3 | - 3 34 | 6.6 | |
| Thu Jul 25/Fri Jul 26 | | 19 52 | 19 37 | 21 12 | 3 53 | 5 28 | 17 04 | 23 46 | 22 28 | ..... | 70 | 0 38.5 | 3 21 | 6.7 | |
| Fri Jul 26/Sat Jul 27 | | 19 56 | 19 36 | 21 11 | 3 54 | 5 29 | 17 07 | 23 51 | 22 57 | ..... | 59 | 1 29.8 | 9 59 | 6.7 | |
| Sat Jul 27/Sun Jul 28 | | 20 00 | 19 35 | 21 10 | 3 55 | 5 29 | 17 09 | 23 56 | 23 28 | ..... | 48 | 2 22.3 | 15 57 | 6.8 | |
| Sun Jul 28/Mon Jul 29 | | 20 04 | 19 35 | 21 09 | 3 56 | 5 30 | 17 12 | 0 01 | 0 03 | ..... | 36 | 3 16.8 | 20 57 | 6.8 | |
| Mon Jul 29/Tue Jul 30 | | 20 08 | 19 34 | 21 07 | 3 57 | 5 31 | 17 15 | 0 06 | 0 44 | ..... | 26 | 4 13.5 | 24 43 | 6.8 | |
| Tue Jul 30/Wed Jul 31 | | 20 12 | 19 33 | 21 06 | 3 58 | 5 32 | 17 18 | 0 11 | 1 32 | ..... | 17 | 5 12.0 | 27 00 | 6.9 | |
| Wed Jul 31/Thu Aug 01 | | 20 16 | 19 32 | 21 05 | 3 59 | 5 32 | 17 20 | 0 16 | 2 27 | ..... | 10 | 6 11.0 | 27 41 | 6.9 | |

***** 2024 AUGUST *****

| Date (eve/morn) | | LMST | ----- Sun: ----- | | | | | LST twilight: | | ----- Moon: ----- | | | | | Twi-Twi |
|-----------------------|--|-------|------------------|---------|---------|------|-------|---------------|-------|-------------------|--------|---------|--------|-------|---------|
| | | midn | set | twi.end | twi.beg | rise | eve | morn | rise | set | %illum | RA | Dec | hours | |
| Thu Aug 01/Fri Aug 02 | | 20 20 | 19 31 | 21 04 | 4 00 | 5 33 | 17 23 | 0 21 | 3 28 | 18 05 | 5 | 7 08.8 | 26 48 | 6.9 | |
| Fri Aug 02/Sat Aug 03 | | 20 24 | 19 30 | 21 03 | 4 02 | 5 34 | 17 26 | 0 26 | 4 32 | 18 51 | 1 | 8 04.1 | 24 29 | 7.0 | |
| Sat Aug 03/Sun Aug 04 | | 20 28 | 19 29 | 21 01 | 4 03 | 5 35 | 17 28 | 0 31 | 5 35 | 19 30 | 0 | 8 55.9 | 21 01 | 7.0 | |
| Sun Aug 04/Mon Aug 05 | | 20 32 | 19 28 | 21 00 | 4 04 | 5 35 | 17 31 | 0 36 | ..... | 20 02 | 1 | 9 44.3 | 16 39 | 7.1 | |
| Mon Aug 05/Tue Aug 06 | | 20 36 | 19 27 | 20 59 | 4 05 | 5 36 | 17 34 | 0 41 | ..... | 20 30 | 3 | 10 29.7 | 11 39 | 7.1 | |
| Tue Aug 06/Wed Aug 07 | | 20 39 | 19 26 | 20 57 | 4 06 | 5 37 | 17 36 | 0 46 | ..... | 20 54 | 7 | 11 12.8 | 6 17 | 7.1 | |
| Wed Aug 07/Thu Aug 08 | | 20 43 | 19 25 | 20 56 | 4 07 | 5 38 | 17 39 | 0 51 | ..... | 21 17 | 13 | 11 54.5 | 0 42 | 7.2 | |
| Thu Aug 08/Fri Aug 09 | | 20 47 | 19 24 | 20 55 | 4 08 | 5 38 | 17 42 | 0 56 | ..... | 21 40 | 20 | 12 35.9 | - 4 53 | 7.2 | |
| Fri Aug 09/Sat Aug 10 | | 20 51 | 19 23 | 20 53 | 4 09 | 5 39 | 17 44 | 1 01 | ..... | 22 03 | 28 | 13 17.8 | -10 21 | 7.3 | |
| Sat Aug 10/Sun Aug 11 | | 20 55 | 19 22 | 20 52 | 4 10 | 5 40 | 17 47 | 1 06 | ..... | 22 28 | 37 | 14 01.5 | -15 32 | 7.3 | |
| Sun Aug 11/Mon Aug 12 | | 20 59 | 19 21 | 20 50 | 4 11 | 5 41 | 17 49 | 1 11 | ..... | 22 56 | 46 | 14 47.8 | -20 14 | 7.3 | |
| Mon Aug 12/Tue Aug 13 | | 21 03 | 19 20 | 20 49 | 4 12 | 5 41 | 17 52 | 1 16 | ..... | 23 30 | 56 | 15 37.7 | -24 14 | 7.4 | |
| Tue Aug 13/Wed Aug 14 | | 21 07 | 19 19 | 20 48 | 4 13 | 5 42 | 17 54 | 1 21 | ..... | 0 10 | 66 | 16 31.7 | -27 16 | 7.4 | |
| Wed Aug 14/Thu Aug 15 | | 21 11 | 19 18 | 20 46 | 4 14 | 5 43 | 17 57 | 1 26 | ..... | 1 00 | 75 | 17 29.9 | -29 00 | 7.5 | |
| Thu Aug 15/Fri Aug 16 | | 21 15 | 19 17 | 20 45 | 4 16 | 5 44 | 17 59 | 1 31 | ..... | 1 59 | 84 | 18 31.2 | -29 09 | 7.5 | |
| Fri Aug 16/Sat Aug 17 | | 21 19 | 19 15 | 20 43 | 4 17 | 5 44 | 18 02 | 1 36 | 17 21 | 3 07 | 91 | 19 33.8 | -27 32 | 7.6 | |
| Sat Aug 17/Sun Aug 18 | | 21 23 | 19 14 | 20 42 | 4 18 | 5 45 | 18 04 | 1 41 | 18 10 | 4 20 | 97 | 20 35.8 | -24 08 | 7.6 | |
| Sun Aug 18/Mon Aug 19 | | 21 27 | 19 13 | 20 40 | 4 19 | 5 46 | 18 06 | 1 46 | 18 51 | 5 35 | 99 | 21 35.6 | -19 09 | 7.6 | |
| Mon Aug 19/Tue Aug 20 | | 21 31 | 19 12 | 20 39 | 4 20 | 5 47 | 18 09 | 1 51 | 19 27 | ..... | 100 | 22 32.6 | -12 57 | 7.7 | |
| Tue Aug 20/Wed Aug 21 | | 21 35 | 19 10 | 20 37 | 4 21 | 5 47 | 18 11 | 1 56 | 19 58 | ..... | 97 | 23 27.3 | - 6 00 | 7.7 | |
| Wed Aug 21/Thu Aug 22 | | 21 39 | 19 09 | 20 36 | 4 22 | 5 48 | 18 14 | 2 01 | 20 28 | ..... | 91 | 0 20.6 | 1 14 | 7.8 | |
| Thu Aug 22/Fri Aug 23 | | 21 43 | 19 08 | 20 34 | 4 23 | 5 49 | 18 16 | 2 06 | 20 57 | ..... | 82 | 1 13.7 | 8 16 | 7.8 | |
| Fri Aug 23/Sat Aug 24 | | 21 47 | 19 07 | 20 33 | 4 24 | 5 50 | 18 19 | 2 11 | 21 28 | ..... | 73 | 2 07.5 | 14 42 | 7.9 | |
| Sat Aug 24/Sun Aug 25 | | 21 50 | 19 05 | 20 31 | 4 25 | 5 50 | 18 21 | 2 16 | 22 03 | ..... | 62 | 3 03.0 | 20 08 | 7.9 | |
| Sun Aug 25/Mon Aug 26 | | 21 54 | 19 04 | 20 30 | 4 26 | 5 51 | 18 23 | 2 21 | 22 42 | ..... | 51 | 4 00.5 | 24 18 | 7.9 | |
| Mon Aug 26/Tue Aug 27 | | 21 58 | 19 03 | 20 28 | 4 27 | 5 52 | 18 26 | 2 26 | 23 28 | ..... | 40 | 4 59.4 | 26 56 | 8.0 | |
| Tue Aug 27/Wed Aug 28 | | 22 02 | 19 01 | 20 26 | 4 28 | 5 53 | 18 28 | 2 31 | 0 22 | ..... | 30 | 5 58.7 | 27 57 | 8.0 | |
| Wed Aug 28/Thu Aug 29 | | 22 06 | 19 00 | 20 25 | 4 29 | 5 53 | 18 30 | 2 36 | 1 21 | ..... | 21 | 6 56.8 | 27 21 | 8.1 | |
| Thu Aug 29/Fri Aug 30 | | 22 10 | 18 59 | 20 23 | 4 30 | 5 54 | 18 33 | 2 41 | 2 23 | ..... | 13 | 7 52.3 | 25 19 | 8.1 | |
| Fri Aug 30/Sat Aug 31 | | 22 14 | 18 57 | 20 22 | 4 31 | 5 55 | 18 35 | 2 45 | 3 26 | 17 31 | 7 | 8 44.5 | 22 05 | 8.1 | |
| Sat Aug 31/Sun Sep 01 | | 22 18 | 18 56 | 20 20 | 4 32 | 5 56 | 18 38 | 2 50 | 4 28 | 18 05 | 3 | 9 33.3 | 17 54 | 8.2 | |

Calendar for DCT, west longitude (h.m.s) = 7 25 41, latitude (d.m) = 34 44.7
 Rise/set times in Mountain time (7 hr W), for 500 m above surroundings, in standard time all year.
 Moon info is for local midnight, even if moon is down. Program: John Thorstensen, Dartmouth College.

***** 2024 SEPTEMBER *****

| Date (eve/morn) | LMST midn | ----- Sun: ----- | | | LST twilight: | | ----- Moon: ----- | | | | Twi-Twi hours | | |
|-----------------------|--------------|------------------|---------|---------|---------------|-------|-------------------|-------|-------|--------|------------------|--------|-----|
| | | set | twi.end | twi.beg | rise | eve | morn | rise | set | %illum | RA | Dec | |
| Sun Sep 01/Mon Sep 02 | 22 22 | 18 55 | 20 19 | 4 32 | 5 56 | 18 40 | 2 55 | 5 27 | 18 33 | 1 | 10 18.9 | 13 03 | 8.2 |
| Mon Sep 02/Tue Sep 03 | 22 26 | 18 53 | 20 17 | 4 33 | 5 57 | 18 42 | 3 00 | 6 25 | 18 58 | 0 | 11 02.3 | 7 45 | 8.3 |
| Tue Sep 03/Wed Sep 04 | 22 30 | 18 52 | 20 15 | 4 34 | 5 58 | 18 45 | 3 05 | ..... | 19 22 | 1 | 11 44.1 | 2 12 | 8.3 |
| Wed Sep 04/Thu Sep 05 | 22 34 | 18 51 | 20 14 | 4 35 | 5 58 | 18 47 | 3 10 | ..... | 19 44 | 4 | 12 25.3 | - 3 25 | 8.4 |
| Thu Sep 05/Fri Sep 06 | 22 38 | 18 49 | 20 12 | 4 36 | 5 59 | 18 49 | 3 15 | ..... | 20 06 | 9 | 13 06.8 | - 8 55 | 8.4 |
| Fri Sep 06/Sat Sep 07 | 22 42 | 18 48 | 20 11 | 4 37 | 6 00 | 18 52 | 3 20 | ..... | 20 30 | 15 | 13 49.5 | -14 10 | 8.4 |
| Sat Sep 07/Sun Sep 08 | 22 46 | 18 46 | 20 09 | 4 38 | 6 01 | 18 54 | 3 24 | ..... | 20 57 | 22 | 14 34.4 | -18 58 | 8.5 |
| Sun Sep 08/Mon Sep 09 | 22 50 | 18 45 | 20 07 | 4 39 | 6 01 | 18 56 | 3 29 | ..... | 21 28 | 31 | 15 22.3 | -23 07 | 8.5 |
| Mon Sep 09/Tue Sep 10 | 22 54 | 18 44 | 20 06 | 4 40 | 6 02 | 18 59 | 3 34 | ..... | 22 05 | 40 | 16 13.8 | -26 24 | 8.6 |
| Tue Sep 10/Wed Sep 11 | 22 57 | 18 42 | 20 04 | 4 41 | 6 03 | 19 01 | 3 39 | ..... | 22 50 | 50 | 17 09.0 | -28 32 | 8.6 |
| Wed Sep 11/Thu Sep 12 | 23 01 | 18 41 | 20 03 | 4 41 | 6 03 | 19 03 | 3 44 | ..... | 23 43 | 60 | 18 07.4 | -29 15 | 8.6 |
| Thu Sep 12/Fri Sep 13 | 23 05 | 18 39 | 20 01 | 4 42 | 6 04 | 19 06 | 3 48 | ..... | 0 46 | 70 | 19 07.8 | -28 22 | 8.7 |
| Fri Sep 13/Sat Sep 14 | 23 09 | 18 38 | 20 00 | 4 43 | 6 05 | 19 08 | 3 53 | ..... | 1 55 | 80 | 20 08.5 | -25 46 | 8.7 |
| Sat Sep 14/Sun Sep 15 | 23 13 | 18 36 | 19 58 | 4 44 | 6 06 | 19 11 | 3 58 | ..... | 3 08 | 88 | 21 08.1 | -21 31 | 8.8 |
| Sun Sep 15/Mon Sep 16 | 23 17 | 18 35 | 19 56 | 4 45 | 6 06 | 19 13 | 4 03 | 17 21 | 4 22 | 95 | 22 05.7 | -15 53 | 8.8 |
| Mon Sep 16/Tue Sep 17 | 23 21 | 18 34 | 19 55 | 4 46 | 6 07 | 19 15 | 4 08 | 17 54 | 5 36 | 99 | 23 01.5 | - 9 11 | 8.8 |
| Tue Sep 17/Wed Sep 18 | 23 25 | 18 32 | 19 53 | 4 47 | 6 08 | 19 18 | 4 12 | 18 25 | 6 49 | 100 | 23 56.1 | - 1 54 | 8.9 |
| Wed Sep 18/Thu Sep 19 | 23 29 | 18 31 | 19 52 | 4 47 | 6 09 | 19 20 | 4 17 | 18 55 | ..... | 98 | 0 50.5 | 5 29 | 8.9 |
| Thu Sep 19/Fri Sep 20 | 23 33 | 18 29 | 19 50 | 4 48 | 6 09 | 19 23 | 4 22 | 19 26 | ..... | 93 | 1 45.8 | 12 29 | 9.0 |
| Fri Sep 20/Sat Sep 21 | 23 37 | 18 28 | 19 49 | 4 49 | 6 10 | 19 25 | 4 27 | 20 00 | ..... | 85 | 2 42.8 | 18 35 | 9.0 |
| Sat Sep 21/Sun Sep 22 | 23 41 | 18 26 | 19 47 | 4 50 | 6 11 | 19 27 | 4 31 | 20 38 | ..... | 76 | 3 42.0 | 23 23 | 9.0 |
| Sun Sep 22/Mon Sep 23 | 23 45 | 18 25 | 19 46 | 4 51 | 6 11 | 19 30 | 4 36 | 21 23 | ..... | 65 | 4 42.7 | 26 36 | 9.1 |
| Mon Sep 23/Tue Sep 24 | 23 49 | 18 24 | 19 44 | 4 51 | 6 12 | 19 32 | 4 41 | 22 15 | ..... | 55 | 5 43.8 | 28 05 | 9.1 |
| Tue Sep 24/Wed Sep 25 | 23 53 | 18 22 | 19 43 | 4 52 | 6 13 | 19 35 | 4 46 | 23 14 | ..... | 44 | 6 43.6 | 27 52 | 9.2 |
| Wed Sep 25/Thu Sep 26 | 23 57 | 18 21 | 19 41 | 4 53 | 6 14 | 19 37 | 4 50 | 0 16 | ..... | 34 | 7 40.6 | 26 07 | 9.2 |
| Thu Sep 26/Fri Sep 27 | 0 01 | 18 19 | 19 40 | 4 54 | 6 14 | 19 40 | 4 55 | 1 19 | ..... | 25 | 8 33.8 | 23 05 | 9.2 |
| Fri Sep 27/Sat Sep 28 | 0 05 | 18 18 | 19 38 | 4 55 | 6 15 | 19 42 | 5 00 | 2 21 | ..... | 17 | 9 23.3 | 19 04 | 9.3 |
| Sat Sep 28/Sun Sep 29 | 0 08 | 18 16 | 19 37 | 4 55 | 6 16 | 19 45 | 5 05 | 3 21 | 16 37 | 10 | 10 09.4 | 14 20 | 9.3 |
| Sun Sep 29/Mon Sep 30 | 0 12 | 18 15 | 19 35 | 4 56 | 6 17 | 19 47 | 5 09 | 4 19 | 17 03 | 5 | 10 53.0 | 9 08 | 9.3 |
| Mon Sep 30/Tue Oct 01 | 0 16 | 18 14 | 19 34 | 4 57 | 6 17 | 19 50 | 5 14 | 5 15 | 17 27 | 2 | 11 34.9 | 3 38 | 9.4 |

***** 2024 OCTOBER *****

| Date (eve/morn) | LMST midn | ----- Sun: ----- | | | LST twilight: | | ----- Moon: ----- | | | | Twi-Twi hours | | |
|-----------------------|--------------|------------------|---------|---------|---------------|-------|-------------------|-------|-------|--------|------------------|--------|------|
| | | set | twi.end | twi.beg | rise | eve | morn | rise | set | %illum | RA | Dec | |
| Tue Oct 01/Wed Oct 02 | 0 20 | 18 12 | 19 32 | 4 58 | 6 18 | 19 52 | 5 19 | 6 10 | 17 49 | 0 | 12 16.1 | - 1 58 | 9.4 |
| Wed Oct 02/Thu Oct 03 | 0 24 | 18 11 | 19 31 | 4 59 | 6 19 | 19 55 | 5 24 | 7 06 | 18 11 | 0 | 12 57.4 | - 7 31 | 9.5 |
| Thu Oct 03/Fri Oct 04 | 0 28 | 18 10 | 19 30 | 4 59 | 6 20 | 19 57 | 5 28 | ..... | 18 35 | 2 | 13 39.7 | -12 50 | 9.5 |
| Fri Oct 04/Sat Oct 05 | 0 32 | 18 08 | 19 28 | 5 00 | 6 20 | 20 00 | 5 33 | ..... | 19 01 | 5 | 14 23.9 | -17 45 | 9.5 |
| Sat Oct 05/Sun Oct 06 | 0 36 | 18 07 | 19 27 | 5 01 | 6 21 | 20 02 | 5 38 | ..... | 19 30 | 11 | 15 10.8 | -22 03 | 9.6 |
| Sun Oct 06/Mon Oct 07 | 0 40 | 18 05 | 19 26 | 5 02 | 6 22 | 20 05 | 5 43 | ..... | 20 04 | 17 | 16 00.8 | -25 32 | 9.6 |
| Mon Oct 07/Tue Oct 08 | 0 44 | 18 04 | 19 24 | 5 02 | 6 23 | 20 07 | 5 47 | ..... | 20 46 | 25 | 16 54.1 | -27 56 | 9.6 |
| Tue Oct 08/Wed Oct 09 | 0 48 | 18 03 | 19 23 | 5 03 | 6 24 | 20 10 | 5 52 | ..... | 21 35 | 34 | 17 50.3 | -29 02 | 9.7 |
| Wed Oct 09/Thu Oct 10 | 0 52 | 18 01 | 19 22 | 5 04 | 6 24 | 20 13 | 5 57 | ..... | 22 33 | 44 | 18 48.3 | -28 39 | 9.7 |
| Thu Oct 10/Fri Oct 11 | 0 56 | 18 00 | 19 20 | 5 05 | 6 25 | 20 15 | 6 01 | ..... | 23 37 | 55 | 19 46.9 | -26 42 | 9.7 |
| Fri Oct 11/Sat Oct 12 | 1 00 | 17 59 | 19 19 | 5 06 | 6 26 | 20 18 | 6 06 | ..... | 0 46 | 65 | 20 44.7 | -23 11 | 9.8 |
| Sat Oct 12/Sun Oct 13 | 1 04 | 17 57 | 19 18 | 5 06 | 6 27 | 20 21 | 6 11 | ..... | 1 58 | 76 | 21 40.9 | -18 16 | 9.8 |
| Sun Oct 13/Mon Oct 14 | 1 08 | 17 56 | 19 16 | 5 07 | 6 28 | 20 23 | 6 16 | ..... | 3 10 | 85 | 22 35.7 | -12 11 | 9.8 |
| Mon Oct 14/Tue Oct 15 | 1 12 | 17 55 | 19 15 | 5 08 | 6 28 | 20 26 | 6 20 | 16 20 | 4 22 | 93 | 23 29.5 | - 5 17 | 9.9 |
| Tue Oct 15/Wed Oct 16 | 1 15 | 17 54 | 19 14 | 5 09 | 6 29 | 20 29 | 6 25 | 16 50 | 5 35 | 98 | 0 23.4 | 2 03 | 9.9 |
| Wed Oct 16/Thu Oct 17 | 1 19 | 17 52 | 19 13 | 5 10 | 6 30 | 20 31 | 6 30 | 17 20 | 6 49 | 100 | 1 18.4 | 9 20 | 9.9 |
| Thu Oct 17/Fri Oct 18 | 1 23 | 17 51 | 19 12 | 5 10 | 6 31 | 20 34 | 6 35 | 17 53 | ..... | 99 | 2 15.6 | 16 01 | 10.0 |
| Fri Oct 18/Sat Oct 19 | 1 27 | 17 50 | 19 11 | 5 11 | 6 32 | 20 37 | 6 39 | 18 30 | ..... | 95 | 3 15.5 | 21 36 | 10.0 |
| Sat Oct 19/Sun Oct 20 | 1 31 | 17 49 | 19 09 | 5 12 | 6 33 | 20 40 | 6 44 | 19 13 | ..... | 88 | 4 18.0 | 25 39 | 10.0 |
| Sun Oct 20/Mon Oct 21 | 1 35 | 17 48 | 19 08 | 5 13 | 6 33 | 20 43 | 6 49 | 20 04 | ..... | 80 | 5 21.7 | 27 53 | 10.1 |
| Mon Oct 21/Tue Oct 22 | 1 39 | 17 46 | 19 07 | 5 13 | 6 34 | 20 46 | 6 53 | 21 02 | ..... | 70 | 6 24.5 | 28 15 | 10.1 |
| Tue Oct 22/Wed Oct 23 | 1 43 | 17 45 | 19 06 | 5 14 | 6 35 | 20 48 | 6 58 | 22 05 | ..... | 60 | 7 24.4 | 26 53 | 10.1 |
| Wed Oct 23/Thu Oct 24 | 1 47 | 17 44 | 19 05 | 5 15 | 6 36 | 20 51 | 7 03 | 23 10 | ..... | 50 | 8 20.2 | 24 06 | 10.2 |
| Thu Oct 24/Fri Oct 25 | 1 51 | 17 43 | 19 04 | 5 16 | 6 37 | 20 54 | 7 08 | 0 13 | ..... | 40 | 9 11.5 | 20 15 | 10.2 |
| Fri Oct 25/Sat Oct 26 | 1 55 | 17 42 | 19 03 | 5 17 | 6 38 | 20 57 | 7 12 | 1 14 | ..... | 30 | 9 58.9 | 15 37 | 10.2 |
| Sat Oct 26/Sun Oct 27 | 1 59 | 17 41 | 19 02 | 5 17 | 6 39 | 21 00 | 7 17 | 2 13 | ..... | 22 | 10 43.2 | 10 29 | 10.3 |
| Sun Oct 27/Mon Oct 28 | 2 03 | 17 40 | 19 01 | 5 18 | 6 40 | 21 03 | 7 22 | 3 09 | ..... | 15 | 11 25.5 | 5 02 | 10.3 |
| Mon Oct 28/Tue Oct 29 | 2 07 | 17 39 | 19 00 | 5 19 | 6 41 | 21 06 | 7 27 | 4 05 | ..... | 9 | 12 06.8 | - 0 33 | 10.3 |
| Tue Oct 29/Wed Oct 30 | 2 11 | 17 38 | 18 59 | 5 20 | 6 41 | 21 09 | 7 31 | 5 00 | 16 16 | 4 | 12 48.0 | - 6 07 | 10.3 |
| Wed Oct 30/Thu Oct 31 | 2 15 | 17 37 | 18 58 | 5 21 | 6 42 | 21 12 | 7 36 | 5 57 | 16 39 | 1 | 13 30.1 | -11 30 | 10.4 |
| Thu Oct 31/Fri Nov 01 | 2 19 | 17 36 | 18 57 | 5 21 | 6 43 | 21 15 | 7 41 | 6 55 | 17 05 | 0 | 14 14.0 | -16 31 | 10.4 |

Calendar for DCT, west longitude (h.m.s) = 7 25 41, latitude (d.m) = 34 44.7

Rise/set times in Mountain time (7 hr W), for 500 m above surroundings, in standard time all year.

Moon info is for local midnight, even if moon is down. Program: John Thorstensen, Dartmouth College.

***** 2024 NOVEMBER *****

| Date (eve/morn) | LMST midn | Sun: ----- | | | | LST twilight: | | Moon: ----- | | | | Twi-Twi | |
|-----------------------|-----------|------------|---------|---------|------|---------------|-------|-------------|-------|--------|---------|---------|-------|
| | | set | twi.end | twi.beg | rise | eve | morn | rise | set | %illum | RA | Dec | hours |
| Fri Nov 01/Sat Nov 02 | 2 23 | 17 35 | 18 57 | 5 22 | 6 44 | 21 18 | 7 46 | 7 55 | 17 33 | 1 | 15 00.4 | -20 58 | 10.4 |
| Sat Nov 02/Sun Nov 03 | 2 26 | 17 34 | 18 56 | 5 23 | 6 45 | 21 21 | 7 50 | ..... | 18 06 | 3 | 15 49.8 | -24 39 | 10.5 |
| Sun Nov 03/Mon Nov 04 | 2 30 | 17 33 | 18 55 | 5 24 | 6 46 | 21 25 | 7 55 | ..... | 18 45 | 7 | 16 42.4 | -27 17 | 10.5 |
| Mon Nov 04/Tue Nov 05 | 2 34 | 17 32 | 18 54 | 5 25 | 6 47 | 21 28 | 8 00 | ..... | 19 32 | 13 | 17 37.8 | -28 40 | 10.5 |
| Tue Nov 05/Wed Nov 06 | 2 38 | 17 31 | 18 53 | 5 26 | 6 48 | 21 31 | 8 05 | ..... | 20 27 | 20 | 18 34.8 | -28 37 | 10.5 |
| Wed Nov 06/Thu Nov 07 | 2 42 | 17 30 | 18 53 | 5 26 | 6 49 | 21 34 | 8 09 | ..... | 21 29 | 29 | 19 32.1 | -27 03 | 10.6 |
| Thu Nov 07/Fri Nov 08 | 2 46 | 17 30 | 18 52 | 5 27 | 6 50 | 21 37 | 8 14 | ..... | 22 35 | 39 | 20 28.4 | -24 02 | 10.6 |
| Fri Nov 08/Sat Nov 09 | 2 50 | 17 29 | 18 51 | 5 28 | 6 51 | 21 41 | 8 19 | ..... | 23 43 | 50 | 21 23.2 | -19 40 | 10.6 |
| Sat Nov 09/Sun Nov 10 | 2 54 | 17 28 | 18 51 | 5 29 | 6 52 | 21 44 | 8 24 | ..... | 0 52 | 61 | 22 16.2 | -14 10 | 10.6 |
| Sun Nov 10/Mon Nov 11 | 2 58 | 17 27 | 18 50 | 5 30 | 6 53 | 21 47 | 8 29 | ..... | 2 01 | 72 | 23 08.0 | - 7 49 | 10.7 |
| Mon Nov 11/Tue Nov 12 | 3 02 | 17 27 | 18 50 | 5 30 | 6 54 | 21 51 | 8 33 | ..... | 3 11 | 82 | 23 59.7 | - 0 54 | 10.7 |
| Tue Nov 12/Wed Nov 13 | 3 06 | 17 26 | 18 49 | 5 31 | 6 55 | 21 54 | 8 38 | ..... | 4 22 | 90 | 0 52.4 | 6 13 | 10.7 |
| Wed Nov 13/Thu Nov 14 | 3 10 | 17 25 | 18 48 | 5 32 | 6 56 | 21 57 | 8 43 | 15 47 | 5 36 | 96 | 1 47.4 | 13 04 | 10.7 |
| Thu Nov 14/Fri Nov 15 | 3 14 | 17 25 | 18 48 | 5 33 | 6 57 | 22 01 | 8 48 | 16 21 | 6 53 | 99 | 2 45.7 | 19 10 | 10.7 |
| Fri Nov 15/Sat Nov 16 | 3 18 | 17 24 | 18 48 | 5 34 | 6 57 | 22 04 | 8 52 | 17 01 | 8 10 | 100 | 3 47.5 | 24 01 | 10.8 |
| Sat Nov 16/Sun Nov 17 | 3 22 | 17 23 | 18 47 | 5 35 | 6 58 | 22 08 | 8 57 | 17 49 | ..... | 97 | 4 52.1 | 27 08 | 10.8 |
| Sun Nov 17/Mon Nov 18 | 3 26 | 17 23 | 18 47 | 5 35 | 6 59 | 22 11 | 9 02 | 18 45 | ..... | 92 | 5 57.4 | 28 20 | 10.8 |
| Mon Nov 18/Tue Nov 19 | 3 30 | 17 22 | 18 46 | 5 36 | 7 00 | 22 15 | 9 07 | 19 48 | ..... | 85 | 7 00.8 | 27 36 | 10.8 |
| Tue Nov 19/Wed Nov 20 | 3 33 | 17 22 | 18 46 | 5 37 | 7 01 | 22 19 | 9 11 | 20 54 | ..... | 76 | 8 00.2 | 25 14 | 10.9 |
| Wed Nov 20/Thu Nov 21 | 3 37 | 17 21 | 18 46 | 5 38 | 7 02 | 22 22 | 9 16 | 22 00 | ..... | 67 | 8 54.8 | 21 35 | 10.9 |
| Thu Nov 21/Fri Nov 22 | 3 41 | 17 21 | 18 45 | 5 39 | 7 03 | 22 26 | 9 21 | 23 04 | ..... | 57 | 9 44.6 | 17 03 | 10.9 |
| Fri Nov 22/Sat Nov 23 | 3 45 | 17 21 | 18 45 | 5 40 | 7 04 | 22 29 | 9 26 | 0 04 | ..... | 47 | 10 30.7 | 11 57 | 10.9 |
| Sat Nov 23/Sun Nov 24 | 3 49 | 17 20 | 18 45 | 5 40 | 7 05 | 22 33 | 9 31 | 1 01 | ..... | 38 | 11 14.0 | 6 30 | 10.9 |
| Sun Nov 24/Mon Nov 25 | 3 53 | 17 20 | 18 45 | 5 41 | 7 06 | 22 37 | 9 35 | 1 57 | ..... | 29 | 11 55.8 | 0 55 | 10.9 |
| Mon Nov 25/Tue Nov 26 | 3 57 | 17 20 | 18 44 | 5 42 | 7 07 | 22 41 | 9 40 | 2 53 | ..... | 21 | 12 37.1 | - 4 41 | 11.0 |
| Tue Nov 26/Wed Nov 27 | 4 01 | 17 19 | 18 44 | 5 43 | 7 08 | 22 44 | 9 45 | 3 49 | ..... | 14 | 13 19.0 | -10 06 | 11.0 |
| Wed Nov 27/Thu Nov 28 | 4 05 | 17 19 | 18 44 | 5 44 | 7 09 | 22 48 | 9 49 | 4 46 | ..... | 8 | 14 02.5 | -15 13 | 11.0 |
| Thu Nov 28/Fri Nov 29 | 4 09 | 17 19 | 18 44 | 5 44 | 7 10 | 22 52 | 9 54 | 5 46 | ..... | 4 | 14 48.4 | -19 49 | 11.0 |
| Fri Nov 29/Sat Nov 30 | 4 13 | 17 19 | 18 44 | 5 45 | 7 10 | 22 56 | 9 59 | 6 48 | 16 06 | 1 | 15 37.4 | -23 42 | 11.0 |
| Sat Nov 30/Sun Dec 01 | 4 17 | 17 19 | 18 44 | 5 46 | 7 11 | 23 00 | 10 04 | 7 50 | 16 43 | 0 | 16 29.7 | -26 36 | 11.0 |

***** 2024 DECEMBER *****

| Date (eve/morn) | LMST midn | Sun: ----- | | | | LST twilight: | | Moon: ----- | | | | Twi-Twi | |
|-----------------------|-----------|------------|---------|---------|------|---------------|-------|-------------|-------|--------|---------|---------|-------|
| | | set | twi.end | twi.beg | rise | eve | morn | rise | set | %illum | RA | Dec | hours |
| Sun Dec 01/Mon Dec 02 | 4 21 | 17 18 | 18 44 | 5 47 | 7 12 | 23 04 | 10 08 | ..... | 17 29 | 1 | 17 25.0 | -28 16 | 11.0 |
| Mon Dec 02/Tue Dec 03 | 4 25 | 17 18 | 18 44 | 5 47 | 7 13 | 23 08 | 10 13 | ..... | 18 22 | 4 | 18 22.2 | -28 30 | 11.1 |
| Tue Dec 03/Wed Dec 04 | 4 29 | 17 18 | 18 44 | 5 48 | 7 14 | 23 12 | 10 18 | ..... | 19 22 | 9 | 19 19.8 | -27 14 | 11.1 |
| Wed Dec 04/Thu Dec 05 | 4 33 | 17 18 | 18 44 | 5 49 | 7 15 | 23 16 | 10 22 | ..... | 20 28 | 16 | 20 16.3 | -24 30 | 11.1 |
| Thu Dec 05/Fri Dec 06 | 4 37 | 17 18 | 18 44 | 5 50 | 7 16 | 23 20 | 10 27 | ..... | 21 36 | 25 | 21 10.8 | -20 25 | 11.1 |
| Fri Dec 06/Sat Dec 07 | 4 40 | 17 18 | 18 44 | 5 50 | 7 16 | 23 24 | 10 32 | ..... | 22 43 | 34 | 22 03.1 | -15 16 | 11.1 |
| Sat Dec 07/Sun Dec 08 | 4 44 | 17 18 | 18 44 | 5 51 | 7 17 | 23 28 | 10 36 | ..... | 23 51 | 45 | 22 53.8 | - 9 16 | 11.1 |
| Sun Dec 08/Mon Dec 09 | 4 48 | 17 19 | 18 45 | 5 52 | 7 18 | 23 32 | 10 41 | ..... | 0 58 | 56 | 23 43.6 | - 2 43 | 11.1 |
| Mon Dec 09/Tue Dec 10 | 4 52 | 17 19 | 18 45 | 5 52 | 7 19 | 23 36 | 10 46 | ..... | 2 06 | 68 | 0 33.9 | 4 05 | 11.1 |
| Tue Dec 10/Wed Dec 11 | 4 56 | 17 19 | 18 45 | 5 53 | 7 19 | 23 41 | 10 50 | ..... | 3 16 | 78 | 1 25.9 | 10 46 | 11.1 |
| Wed Dec 11/Thu Dec 12 | 5 00 | 17 19 | 18 45 | 5 54 | 7 20 | 23 45 | 10 55 | ..... | 4 29 | 87 | 2 20.8 | 16 58 | 11.1 |
| Thu Dec 12/Fri Dec 13 | 5 04 | 17 19 | 18 46 | 5 54 | 7 21 | 23 49 | 11 00 | ..... | 5 44 | 94 | 3 19.6 | 22 12 | 11.1 |
| Fri Dec 13/Sat Dec 14 | 5 08 | 17 20 | 18 46 | 5 55 | 7 21 | 23 53 | 11 04 | 15 35 | 6 58 | 98 | 4 22.1 | 26 01 | 11.2 |
| Sat Dec 14/Sun Dec 15 | 5 12 | 17 20 | 18 46 | 5 56 | 7 22 | 23 58 | 11 09 | 16 27 | 8 07 | 100 | 5 27.1 | 28 02 | 11.2 |
| Sun Dec 15/Mon Dec 16 | 5 16 | 17 20 | 18 47 | 5 56 | 7 23 | 0 02 | 11 13 | 17 27 | ..... | 99 | 6 32.1 | 28 07 | 11.2 |
| Mon Dec 16/Tue Dec 17 | 5 20 | 17 21 | 18 47 | 5 57 | 7 23 | 0 06 | 11 18 | 18 33 | ..... | 95 | 7 34.5 | 26 22 | 11.2 |
| Tue Dec 17/Wed Dec 18 | 5 24 | 17 21 | 18 47 | 5 57 | 7 24 | 0 11 | 11 22 | 19 41 | ..... | 89 | 8 32.4 | 23 06 | 11.2 |
| Wed Dec 18/Thu Dec 19 | 5 28 | 17 21 | 18 48 | 5 58 | 7 24 | 0 15 | 11 27 | 20 48 | ..... | 82 | 9 25.5 | 18 44 | 11.2 |
| Thu Dec 19/Fri Dec 20 | 5 32 | 17 22 | 18 48 | 5 58 | 7 25 | 0 19 | 11 31 | 21 51 | ..... | 74 | 10 14.0 | 13 40 | 11.2 |
| Fri Dec 20/Sat Dec 21 | 5 36 | 17 22 | 18 49 | 5 59 | 7 25 | 0 24 | 11 36 | 22 50 | ..... | 65 | 10 59.2 | 8 11 | 11.2 |
| Sat Dec 21/Sun Dec 22 | 5 40 | 17 23 | 18 49 | 5 59 | 7 26 | 0 28 | 11 40 | 23 47 | ..... | 55 | 11 42.1 | 2 31 | 11.2 |
| Sun Dec 22/Mon Dec 23 | 5 44 | 17 23 | 18 50 | 6 00 | 7 26 | 0 33 | 11 44 | 0 43 | ..... | 46 | 12 23.9 | - 3 08 | 11.2 |
| Mon Dec 23/Tue Dec 24 | 5 48 | 17 24 | 18 50 | 6 00 | 7 27 | 0 37 | 11 49 | 1 39 | ..... | 37 | 13 05.8 | - 8 39 | 11.2 |
| Tue Dec 24/Wed Dec 25 | 5 51 | 17 24 | 18 51 | 6 01 | 7 27 | 0 42 | 11 53 | 2 36 | ..... | 28 | 13 48.9 | -13 52 | 11.2 |
| Wed Dec 25/Thu Dec 26 | 5 55 | 17 25 | 18 52 | 6 01 | 7 28 | 0 46 | 11 58 | 3 34 | ..... | 20 | 14 34.0 | -18 37 | 11.2 |
| Thu Dec 26/Fri Dec 27 | 5 59 | 17 26 | 18 52 | 6 02 | 7 28 | 0 51 | 12 02 | 4 35 | ..... | 13 | 15 22.1 | -22 42 | 11.2 |
| Fri Dec 27/Sat Dec 28 | 6 03 | 17 26 | 18 53 | 6 02 | 7 28 | 0 55 | 12 06 | 5 37 | ..... | 7 | 16 13.7 | -25 53 | 11.2 |
| Sat Dec 28/Sun Dec 29 | 6 07 | 17 27 | 18 53 | 6 02 | 7 29 | 1 00 | 12 10 | 6 39 | ..... | 3 | 17 08.6 | -27 54 | 11.1 |
| Sun Dec 29/Mon Dec 30 | 6 11 | 17 28 | 18 54 | 6 03 | 7 29 | 1 04 | 12 15 | 7 36 | 16 12 | 1 | 18 05.9 | -28 32 | 11.1 |
| Mon Dec 30/Tue Dec 31 | 6 15 | 17 28 | 18 55 | 6 03 | 7 29 | 1 09 | 12 19 | 8 28 | 17 12 | 0 | 19 04.3 | -27 37 | 11.1 |
| Tue Dec 31/Wed Jan 01 | 6 19 | 17 29 | 18 55 | 6 03 | 7 29 | 1 14 | 12 23 | ..... | 18 17 | 2 | 20 02.1 | -25 09 | 11.1 |