

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:

***** 2022 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 hemispheres. 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 2022, 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 04	0 45	Dec 10	18 38	Dec 18	21 38	Dec 26	19 26
Jan 02	11 36	Jan 09	11 13	Jan 17	16 51	Jan 25	6 43
Jan 31	22 49	Feb 08	6 52	Feb 16	10 00	Feb 23	15 35
Mar 02	10 38	Mar 10	3 46	Mar 18	0 21	Mar 24	22 39
Mar 31	23 28	Apr 08	23 48	Apr 16	11 58	Apr 23	4 58
Apr 30	13 31	May 08	17 22	May 15	21 16	May 22	11 45
May 30	4 32	Jun 07	7 49	Jun 14	4 53	Jun 20	20 12
Jun 28	19 53	Jul 06	19 15	Jul 13	11 38	Jul 20	7 19
Jul 28	10 55	Aug 05	4 08	Aug 11	18 36	Aug 18	21 37
Aug 27	1 17	Sep 03	11 09	Sep 10	2 59	Sep 17	14 52
Sep 25	14 54	Oct 02	17 15	Oct 09	13 55	Oct 17	10 16
Oct 25	3 48	Oct 31	23 39	Nov 08	4 03	Nov 16	6 29
Nov 23	15 57	Nov 30	7 39	Dec 07	21 10	Dec 16	1 59
Dec 23	3 18	Dec 29	18 23	Jan 06	16 10	Jan 14	19 13

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.

***** 2022 JANUARY *****

Date (eve/morn)	LMST midn	----- set	Sun: ----- twi.end twi.beg	rise	LST twilight: eve morn	----- rise	Moon: ----- set %illum	RA	Dec	Twi-Twi hours
Sat Jan 01/Sun Jan 02	6 22	17 30	18 56	6 03 7 29	1 17 12 26	7 38	16 25	0	18 22.4 -26 22	11.1
Sun Jan 02/Mon Jan 03	6 26	17 31	18 57	6 03 7 29	1 22 12 30	.....	17 31	1	19 28.9 -25 57	11.1
Mon Jan 03/Tue Jan 04	6 30	17 31	18 57	6 04 7 30	1 26 12 34	.....	18 42	3	20 33.0 -23 43	11.1
Tue Jan 04/Wed Jan 05	6 34	17 32	18 58	6 04 7 30	1 31 12 39	.....	19 55	9	21 32.9 -20 01	11.1
Wed Jan 05/Thu Jan 06	6 38	17 33	18 59	6 04 7 30	1 36 12 43	.....	21 06	16	22 28.2 -15 16	11.1
Thu Jan 06/Fri Jan 07	6 42	17 34	19 00	6 04 7 30	1 40 12 47	.....	22 13	25	23 19.3 - 9 55	11.1
Fri Jan 07/Sat Jan 08	6 46	17 35	19 00	6 04 7 30	1 45 12 51	.....	23 15	35	0 07.2 - 4 16	11.1
Sat Jan 08/Sun Jan 09	6 50	17 36	19 01	6 04 7 30	1 50 12 55	.....	0 15	45	0 53.0 1 23	11.1
Sun Jan 09/Mon Jan 10	6 53	17 36	19 02	6 04 7 30	1 55 12 59	.....	1 14	54	1 37.9 6 50	11.0
Mon Jan 10/Tue Jan 11	6 57	17 37	19 03	6 04 7 29	1 59 13 03	.....	2 12	64	2 22.9 11 55	11.0
Tue Jan 11/Wed Jan 12	7 01	17 38	19 04	6 04 7 29	2 04 13 06	.....	3 10	73	3 09.0 16 29	11.0
Wed Jan 12/Thu Jan 13	7 05	17 39	19 04	6 04 7 29	2 09 13 10	.....	4 08	81	3 56.8 20 21	11.0
Thu Jan 13/Fri Jan 14	7 09	17 40	19 05	6 04 7 29	2 14 13 14	.....	5 05	88	4 46.7 23 22	11.0
Fri Jan 14/Sat Jan 15	7 13	17 41	19 06	6 04 7 29	2 18 13 18	.....	6 01	93	5 38.6 25 21	11.0
Sat Jan 15/Sun Jan 16	7 17	17 42	19 07	6 04 7 28	2 23 13 22	.....	6 54	97	6 32.1 26 09	10.9
Sun Jan 16/Mon Jan 17	7 21	17 43	19 08	6 04 7 28	2 28 13 26	16 26	7 42	99	7 26.3 25 42	10.9
Mon Jan 17/Tue Jan 18	7 25	17 44	19 08	6 03 7 28	2 33 13 29	17 23	.....	100	8 20.1 23 59	10.9
Tue Jan 18/Wed Jan 19	7 29	17 45	19 09	6 03 7 27	2 37 13 33	18 22	.....	98	9 12.6 21 05	10.9
Wed Jan 19/Thu Jan 20	7 33	17 46	19 10	6 03 7 27	2 42 13 37	19 23	.....	95	10 03.3 17 10	10.9
Thu Jan 20/Fri Jan 21	7 37	17 47	19 11	6 03 7 27	2 47 13 40	20 25	.....	89	10 52.4 12 25	10.9
Fri Jan 21/Sat Jan 22	7 41	17 48	19 12	6 02 7 26	2 52 13 44	21 26	.....	82	11 40.2 7 03	10.8
Sat Jan 22/Sun Jan 23	7 45	17 49	19 13	6 02 7 26	2 57 13 48	22 28	.....	73	12 27.5 1 18	10.8
Sun Jan 23/Mon Jan 24	7 49	17 50	19 14	6 02 7 25	3 02 13 51	23 31	.....	63	13 15.4 - 4 36	10.8
Mon Jan 24/Tue Jan 25	7 53	17 51	19 14	6 01 7 25	3 06 13 55	0 35	.....	52	14 04.8 -10 25	10.8
Tue Jan 25/Wed Jan 26	7 57	17 52	19 15	6 01 7 24	3 11 13 58	1 43	.....	41	14 57.1 -15 50	10.8
Wed Jan 26/Thu Jan 27	8 00	17 53	19 16	6 00 7 24	3 16 14 02	2 53	.....	30	15 52.9 -20 30	10.7
Thu Jan 27/Fri Jan 28	8 04	17 54	19 17	6 00 7 23	3 21 14 05	4 05	.....	20	16 52.8 -24 04	10.7
Fri Jan 28/Sat Jan 29	8 08	17 55	19 18	5 59 7 22	3 26 14 09	5 16	.....	12	17 56.2 -26 08	10.7
Sat Jan 29/Sun Jan 30	8 12	17 56	19 19	5 59 7 22	3 30 14 12	6 20	.....	5	19 01.3 -26 26	10.7
Sun Jan 30/Mon Jan 31	8 16	17 57	19 20	5 58 7 21	3 35 14 15	7 16	16 16	1	20 05.8 -24 54	10.6
Mon Jan 31/Tue Feb 01	8 20	17 58	19 21	5 58 7 20	3 40 14 19	8 03	17 28	0	21 07.4 -21 45	10.6

***** 2022 FEBRUARY *****

Date (eve/morn)	LMST midn	----- set	Sun: ----- twi.end twi.beg	rise	LST twilight: eve morn	----- rise	Moon: ----- set %illum	RA	Dec	Twi-Twi hours
Tue Feb 01/Wed Feb 02	8 24	17 59	19 21	5 57 7 19	3 45 14 22	.....	18 41	2	22 05.0 -17 19	10.6
Wed Feb 02/Thu Feb 03	8 28	18 00	19 22	5 56 7 19	3 50 14 25	.....	19 51	6	22 58.4 -12 04	10.6
Thu Feb 03/Fri Feb 04	8 32	18 01	19 23	5 56 7 18	3 54 14 29	.....	20 57	11	23 48.4 - 6 21	10.5
Fri Feb 04/Sat Feb 05	8 36	18 02	19 24	5 55 7 17	3 59 14 32	.....	22 01	19	0 35.8 - 0 32	10.5
Sat Feb 05/Sun Feb 06	8 40	18 03	19 25	5 54 7 16	4 04 14 35	.....	23 01	28	1 21.9 5 08	10.5
Sun Feb 06/Mon Feb 07	8 44	18 04	19 26	5 53 7 15	4 09 14 38	.....	0 01	37	2 07.5 10 28	10.5
Mon Feb 07/Tue Feb 08	8 48	18 05	19 27	5 53 7 14	4 14 14 41	.....	1 00	47	2 53.7 15 16	10.4
Tue Feb 08/Wed Feb 09	8 52	18 06	19 28	5 52 7 13	4 19 14 44	.....	1 58	56	3 41.1 19 23	10.4
Wed Feb 09/Thu Feb 10	8 56	18 07	19 28	5 51 7 13	4 23 14 48	.....	2 57	65	4 30.3 22 40	10.4
Thu Feb 10/Fri Feb 11	9 00	18 08	19 29	5 50 7 12	4 28 14 51	.....	3 53	74	5 21.5 24 58	10.3
Fri Feb 11/Sat Feb 12	9 04	18 09	19 30	5 49 7 11	4 33 14 54	.....	4 47	82	6 14.4 26 07	10.3
Sat Feb 12/Sun Feb 13	9 08	18 10	19 31	5 48 7 10	4 38 14 57	.....	5 37	89	7 08.4 26 03	10.3
Sun Feb 13/Mon Feb 14	9 11	18 11	19 32	5 47 7 09	4 43 15 00	.....	6 21	94	8 02.4 24 41	10.3
Mon Feb 14/Tue Feb 15	9 15	18 12	19 33	5 46 7 08	4 47 15 03	16 12	7 01	98	8 55.7 22 06	10.2
Tue Feb 15/Wed Feb 16	9 19	18 12	19 34	5 45 7 06	4 52 15 06	17 14	7 35	100	9 47.5 18 23	10.2
Wed Feb 16/Thu Feb 17	9 23	18 13	19 34	5 44 7 05	4 57 15 09	18 16	.....	99	10 37.8 13 44	10.2
Thu Feb 17/Fri Feb 18	9 27	18 14	19 35	5 43 7 04	5 02 15 12	19 19	.....	97	11 26.7 8 22	10.1
Fri Feb 18/Sat Feb 19	9 31	18 15	19 36	5 42 7 03	5 07 15 15	20 21	.....	92	12 15.0 2 33	10.1
Sat Feb 19/Sun Feb 20	9 35	18 16	19 37	5 41 7 02	5 11 15 17	21 24	.....	86	13 03.4 - 3 29	10.1
Sun Feb 20/Mon Feb 21	9 39	18 17	19 38	5 40 7 01	5 16 15 20	22 29	.....	77	13 52.9 - 9 26	10.0
Mon Feb 21/Tue Feb 22	9 43	18 18	19 39	5 39 7 00	5 21 15 23	23 35	.....	67	14 44.5 -15 00	10.0
Tue Feb 22/Wed Feb 23	9 47	18 19	19 40	5 38 6 59	5 26 15 26	0 44	.....	57	15 39.1 -19 51	10.0
Wed Feb 23/Thu Feb 24	9 51	18 20	19 40	5 37 6 57	5 31 15 29	1 54	.....	45	16 37.2 -23 39	9.9
Thu Feb 24/Fri Feb 25	9 55	18 21	19 41	5 36 6 56	5 35 15 32	3 03	.....	34	17 38.4 -26 03	9.9
Fri Feb 25/Sat Feb 26	9 59	18 22	19 42	5 35 6 55	5 40 15 34	4 08	.....	24	18 41.5 -26 49	9.9
Sat Feb 26/Sun Feb 27	10 03	18 23	19 43	5 33 6 54	5 45 15 37	5 06	.....	15	19 44.7 -25 50	9.8
Sun Feb 27/Mon Feb 28	10 07	18 23	19 44	5 32 6 52	5 50 15 40	5 54	.....	8	20 45.9 -23 13	9.8
Mon Feb 28/Tue Mar 01	10 11	18 24	19 45	5 31 6 51	5 55 15 42	6 35	16 19	3	21 43.8 -19 14	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.

***** 2022 MARCH *****

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 Mar 01/Wed Mar 02	10 15	18 25	19 46	5 30	6 50	5 59	15 45	7 10	17 29	0	22 38.1	-14 15	9.7
Wed Mar 02/Thu Mar 03	10 18	18 26	19 46	5 28	6 49	6 04	15 48	7 41	18 37	1	23 29.0	- 8 39	9.7
Thu Mar 03/Fri Mar 04	10 22	18 27	19 47	5 27	6 47	6 09	15 51	.....	19 42	3	0 17.4	- 2 46	9.7
Fri Mar 04/Sat Mar 05	10 26	18 28	19 48	5 26	6 46	6 14	15 53	.....	20 45	7	1 04.2	3 05	9.6
Sat Mar 05/Sun Mar 06	10 30	18 29	19 49	5 25	6 45	6 19	15 56	.....	21 46	13	1 50.4	8 39	9.6
Sun Mar 06/Mon Mar 07	10 34	18 30	19 50	5 23	6 43	6 23	15 58	.....	22 46	21	2 36.8	13 45	9.6
Mon Mar 07/Tue Mar 08	10 38	18 30	19 51	5 22	6 42	6 28	16 01	.....	23 46	29	3 24.2	18 11	9.5
Tue Mar 08/Wed Mar 09	10 42	18 31	19 51	5 21	6 41	6 33	16 04	.....	0 46	38	4 13.1	21 48	9.5
Wed Mar 09/Thu Mar 10	10 46	18 32	19 52	5 19	6 39	6 38	16 06	.....	1 44	48	5 03.7	24 27	9.4
Thu Mar 10/Fri Mar 11	10 50	18 33	19 53	5 18	6 38	6 43	16 09	.....	2 39	57	5 55.9	25 59	9.4
Fri Mar 11/Sat Mar 12	10 54	18 34	19 54	5 16	6 37	6 47	16 11	.....	3 30	67	6 49.3	26 19	9.4
Sat Mar 12/Sun Mar 13	10 58	18 35	19 55	5 15	6 35	6 52	16 14	.....	4 17	75	7 42.9	25 24	9.3
Sun Mar 13/Mon Mar 14	11 02	18 35	19 56	5 14	6 34	6 57	16 16	.....	4 58	83	8 36.2	23 13	9.3
Mon Mar 14/Tue Mar 15	11 06	18 36	19 57	5 12	6 33	7 02	16 19	.....	5 34	90	9 28.3	19 52	9.3
Tue Mar 15/Wed Mar 16	11 10	18 37	19 58	5 11	6 31	7 07	16 21	.....	6 06	95	10 19.2	15 29	9.2
Wed Mar 16/Thu Mar 17	11 14	18 38	19 58	5 09	6 30	7 11	16 24	17 05	6 36	99	11 09.0	10 14	9.2
Thu Mar 17/Fri Mar 18	11 18	18 39	19 59	5 08	6 28	7 16	16 26	18 09	7 05	100	11 58.2	4 24	9.1
Fri Mar 18/Sat Mar 19	11 22	18 39	20 00	5 06	6 27	7 21	16 29	19 13	.....	99	12 47.5	- 1 47	9.1
Sat Mar 19/Sun Mar 20	11 26	18 40	20 01	5 05	6 26	7 26	16 31	20 18	.....	95	13 37.8	- 8 00	9.1
Sun Mar 20/Mon Mar 21	11 29	18 41	20 02	5 03	6 24	7 31	16 34	21 26	.....	89	14 30.1	-13 54	9.0
Mon Mar 21/Tue Mar 22	11 33	18 42	20 03	5 02	6 23	7 36	16 36	22 36	.....	81	15 25.2	-19 07	9.0
Tue Mar 22/Wed Mar 23	11 37	18 43	20 04	5 00	6 22	7 40	16 39	23 46	.....	71	16 23.5	-23 17	8.9
Wed Mar 23/Thu Mar 24	11 41	18 43	20 05	4 59	6 20	7 45	16 41	0 57	.....	60	17 24.7	-26 03	8.9
Thu Mar 24/Fri Mar 25	11 45	18 44	20 06	4 57	6 19	7 50	16 44	2 03	.....	49	18 27.6	-27 11	8.9
Fri Mar 25/Sat Mar 26	11 49	18 45	20 06	4 56	6 17	7 55	16 46	3 01	.....	37	19 30.4	-26 35	8.8
Sat Mar 26/Sun Mar 27	11 53	18 46	20 07	4 54	6 16	8 00	16 48	3 51	.....	27	20 31.1	-24 20	8.8
Sun Mar 27/Mon Mar 28	11 57	18 47	20 08	4 53	6 15	8 05	16 51	4 34	.....	18	21 28.7	-20 43	8.7
Mon Mar 28/Tue Mar 29	12 01	18 47	20 09	4 51	6 13	8 10	16 53	5 09	.....	10	22 22.7	-16 02	8.7
Tue Mar 29/Wed Mar 30	12 05	18 48	20 10	4 50	6 12	8 14	16 56	5 41	.....	5	23 13.4	-10 39	8.7
Wed Mar 30/Thu Mar 31	12 09	18 49	20 11	4 48	6 10	8 19	16 58	6 09	17 27	1	0 01.7	- 4 52	8.6
Thu Mar 31/Fri Apr 01	12 13	18 50	20 12	4 47	6 09	8 24	17 00	6 36	18 30	0	0 48.4	1 00	8.6

***** 2022 APRIL *****

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	
Fri Apr 01/Sat Apr 02	12 17	18 51	20 13	4 45	6 08	8 29	17 03	7 03	19 31	1	1 34.4	6 42	8.5
Sat Apr 02/Sun Apr 03	12 21	18 51	20 14	4 44	6 06	8 34	17 05	.....	20 32	4	2 20.6	12 02	8.5
Sun Apr 03/Mon Apr 04	12 25	18 52	20 15	4 42	6 05	8 39	17 08	.....	21 33	9	3 07.8	16 46	8.5
Mon Apr 04/Tue Apr 05	12 29	18 53	20 16	4 41	6 04	8 44	17 10	.....	22 33	15	3 56.3	20 43	8.4
Tue Apr 05/Wed Apr 06	12 33	18 54	20 17	4 39	6 02	8 49	17 12	.....	23 33	23	4 46.5	23 44	8.4
Wed Apr 06/Thu Apr 07	12 36	18 54	20 18	4 37	6 01	8 54	17 15	.....	0 30	31	5 38.2	25 40	8.3
Thu Apr 07/Fri Apr 08	12 40	18 55	20 19	4 36	5 59	8 59	17 17	.....	1 23	40	6 30.9	26 24	8.3
Fri Apr 08/Sat Apr 09	12 44	18 56	20 20	4 34	5 58	9 04	17 20	.....	2 11	49	7 24.0	25 55	8.2
Sat Apr 09/Sun Apr 10	12 48	18 57	20 21	4 33	5 57	9 09	17 22	.....	2 54	59	8 16.7	24 12	8.2
Sun Apr 10/Mon Apr 11	12 52	18 58	20 22	4 31	5 55	9 13	17 24	.....	3 31	69	9 08.5	21 18	8.2
Mon Apr 11/Tue Apr 12	12 56	18 58	20 23	4 30	5 54	9 18	17 27	.....	4 05	77	9 59.0	17 19	8.1
Tue Apr 12/Wed Apr 13	13 00	18 59	20 24	4 28	5 53	9 23	17 29	.....	4 35	86	10 48.6	12 25	8.1
Wed Apr 13/Thu Apr 14	13 04	19 00	20 25	4 27	5 52	9 28	17 31	.....	5 04	92	11 37.6	6 47	8.0
Thu Apr 14/Fri Apr 15	13 08	19 01	20 26	4 25	5 50	9 33	17 34	.....	5 32	97	12 26.9	0 39	8.0
Fri Apr 15/Sat Apr 16	13 12	19 02	20 27	4 24	5 49	9 38	17 36	18 01	6 01	100	13 17.3	- 5 43	7.9
Sat Apr 16/Sun Apr 17	13 16	19 02	20 28	4 22	5 48	9 43	17 39	19 09	6 33	100	14 09.9	-11 58	7.9
Sun Apr 17/Mon Apr 18	13 20	19 03	20 29	4 21	5 46	9 48	17 41	20 19	.....	97	15 05.6	-17 41	7.9
Mon Apr 18/Tue Apr 19	13 24	19 04	20 30	4 19	5 45	9 53	17 44	21 32	.....	91	16 04.8	-22 25	7.8
Tue Apr 19/Wed Apr 20	13 28	19 05	20 31	4 18	5 44	9 58	17 46	22 46	.....	83	17 07.3	-25 45	7.8
Wed Apr 20/Thu Apr 21	13 32	19 06	20 32	4 16	5 43	10 03	17 48	23 55	.....	74	18 11.9	-27 23	7.7
Thu Apr 21/Fri Apr 22	13 36	19 06	20 33	4 15	5 42	10 08	17 51	0 58	.....	63	19 16.4	-27 11	7.7
Fri Apr 22/Sat Apr 23	13 40	19 07	20 35	4 13	5 40	10 14	17 53	1 51	.....	52	20 18.6	-25 15	7.6
Sat Apr 23/Sun Apr 24	13 43	19 08	20 36	4 12	5 39	10 19	17 56	2 35	.....	41	21 17.1	-21 53	7.6
Sun Apr 24/Mon Apr 25	13 47	19 09	20 37	4 10	5 38	10 24	17 58	3 12	.....	30	22 11.6	-17 24	7.6
Mon Apr 25/Tue Apr 26	13 51	19 10	20 38	4 09	5 37	10 29	18 01	3 44	.....	21	23 02.3	-12 11	7.5
Tue Apr 26/Wed Apr 27	13 55	19 11	20 39	4 07	5 36	10 34	18 03	4 12	.....	13	23 50.3	- 6 32	7.5
Wed Apr 27/Thu Apr 28	13 59	19 11	20 40	4 06	5 35	10 39	18 06	4 39	.....	7	0 36.5	- 0 43	7.4
Thu Apr 28/Fri Apr 29	14 03	19 12	20 41	4 05	5 34	10 44	18 08	5 05	17 21	3	1 21.9	5 00	7.4
Fri Apr 29/Sat Apr 30	14 07	19 13	20 42	4 03	5 33	10 49	18 11	5 32	18 21	0	2 07.5	10 25	7.3
Sat Apr 30/Sun May 01	14 11	19 14	20 44	4 02	5 31	10 54	18 14	6 02	19 21	0	2 53.9	15 19	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.

***** 2022 MAY *****

Date (eve/morn)	LMST midn	----- set	Sun: ----- twi.end twi.beg	rise	LST twilight: eve morn	----- rise	Moon: ----- set %illum	RA	Dec	Twi-Twi hours
Sun May 01/Mon May 02	14 15	19 15	20 45	4 00 5 30	10 59 18 16	6 34	20 22	2	3 41.7 19 31	7.3
Mon May 02/Tue May 03	14 19	19 15	20 46	3 59 5 29	11 04 18 19	.....	21 22	5	4 31.3 22 51	7.2
Tue May 03/Wed May 04	14 23	19 16	20 47	3 58 5 28	11 09 18 21	.....	22 20	10	5 22.4 25 07	7.2
Wed May 04/Thu May 05	14 27	19 17	20 48	3 56 5 27	11 14 18 24	.....	23 15	17	6 14.7 26 15	7.1
Thu May 05/Fri May 06	14 31	19 18	20 49	3 55 5 26	11 20 18 27	.....	0 05	25	7 07.4 26 09	7.1
Fri May 06/Sat May 07	14 35	19 19	20 50	3 54 5 26	11 25 18 29	.....	0 50	33	7 59.6 24 50	7.1
Sat May 07/Sun May 08	14 39	19 19	20 52	3 53 5 25	11 30 18 32	.....	1 29	42	8 50.9 22 21	7.0
Sun May 08/Mon May 09	14 43	19 20	20 53	3 51 5 24	11 35 18 35	.....	2 03	52	9 40.8 18 49	7.0
Mon May 09/Tue May 10	14 47	19 21	20 54	3 50 5 23	11 40 18 37	.....	2 34	62	10 29.5 14 20	6.9
Tue May 10/Wed May 11	14 51	19 22	20 55	3 49 5 22	11 45 18 40	.....	3 03	72	11 17.4 9 05	6.9
Wed May 11/Thu May 12	14 54	19 23	20 56	3 48 5 21	11 50 18 43	.....	3 30	81	12 05.4 3 14	6.9
Thu May 12/Fri May 13	14 58	19 23	20 57	3 47 5 20	11 55 18 46	.....	3 59	89	12 54.5 - 3 00	6.8
Fri May 13/Sat May 14	15 02	19 24	20 58	3 45 5 20	12 00 18 48	.....	4 29	95	13 45.7 - 9 20	6.8
Sat May 14/Sun May 15	15 06	19 25	20 59	3 44 5 19	12 05 18 51	17 56	5 03	99	14 40.2 -15 24	6.7
Sun May 15/Mon May 16	15 10	19 26	21 01	3 43 5 18	12 10 18 54	19 09	5 43	100	15 38.9 -20 43	6.7
Mon May 16/Tue May 17	15 14	19 27	21 02	3 42 5 17	12 15 18 57	20 25	.....	98	16 42.0 -24 48	6.7
Tue May 17/Wed May 18	15 18	19 27	21 03	3 41 5 17	12 20 19 00	21 39	.....	93	17 48.3 -27 12	6.6
Wed May 18/Thu May 19	15 22	19 28	21 04	3 40 5 16	12 25 19 03	22 47	.....	86	18 55.7 -27 39	6.6
Thu May 19/Fri May 20	15 26	19 29	21 05	3 39 5 15	12 31 19 06	23 46	.....	77	20 01.2 -26 10	6.6
Fri May 20/Sat May 21	15 30	19 30	21 06	3 38 5 15	12 36 19 09	0 34	.....	66	21 02.8 -23 02	6.5
Sat May 21/Sun May 22	15 34	19 30	21 07	3 37 5 14	12 41 19 12	1 14	.....	55	21 59.6 -18 41	6.5
Sun May 22/Mon May 23	15 38	19 31	21 08	3 36 5 14	12 46 19 15	1 47	.....	44	22 51.9 -13 30	6.5
Mon May 23/Tue May 24	15 42	19 32	21 09	3 36 5 13	12 51 19 18	2 16	.....	34	23 40.7 - 7 53	6.4
Tue May 24/Wed May 25	15 46	19 33	21 10	3 35 5 12	12 56 19 21	2 43	.....	24	0 27.1 - 2 05	6.4
Wed May 25/Thu May 26	15 50	19 33	21 11	3 34 5 12	13 00 19 24	3 09	.....	16	1 12.3 3 38	6.4
Thu May 26/Fri May 27	15 54	19 34	21 12	3 33 5 12	13 05 19 27	3 36	.....	9	1 57.3 9 05	6.3
Fri May 27/Sat May 28	15 58	19 35	21 13	3 32 5 11	13 10 19 31	4 04	.....	4	2 42.9 14 05	6.3
Sat May 28/Sun May 29	16 01	19 35	21 14	3 32 5 11	13 15 19 34	4 35	18 13	1	3 30.0 18 26	6.3
Sun May 29/Mon May 30	16 05	19 36	21 15	3 31 5 10	13 20 19 37	5 10	19 13	0	4 18.8 21 58	6.3
Mon May 30/Tue May 31	16 09	19 37	21 16	3 30 5 10	13 25 19 40	5 51	20 12	1	5 09.3 24 31	6.2
Tue May 31/Wed Jun 01	16 13	19 37	21 17	3 30 5 10	13 30 19 44	.....	21 08	3	6 01.1 25 56	6.2

***** 2022 JUNE *****

Date (eve/morn)	LMST midn	----- set	Sun: ----- twi.end twi.beg	rise	LST twilight: eve morn	----- rise	Moon: ----- set %illum	RA	Dec	Twi-Twi hours
Wed Jun 01/Thu Jun 02	16 17	19 38	21 18	3 29 5 09	13 35 19 47	.....	22 00	7	6 53.6 26 09	6.2
Thu Jun 02/Fri Jun 03	16 21	19 38	21 19	3 29 5 09	13 39 19 51	.....	22 47	12	7 45.6 25 09	6.2
Fri Jun 03/Sat Jun 04	16 25	19 39	21 19	3 28 5 09	13 44 19 54	.....	23 28	19	8 36.6 23 00	6.1
Sat Jun 04/Sun Jun 05	16 29	19 40	21 20	3 28 5 09	13 49 19 58	.....	0 03	27	9 26.1 19 48	6.1
Sun Jun 05/Mon Jun 06	16 33	19 40	21 21	3 28 5 08	13 54 20 01	.....	0 35	36	10 14.1 15 41	6.1
Mon Jun 06/Tue Jun 07	16 37	19 41	21 22	3 27 5 08	13 58 20 05	.....	1 03	46	11 00.9 10 48	6.1
Tue Jun 07/Wed Jun 08	16 41	19 41	21 22	3 27 5 08	14 03 20 08	.....	1 30	57	11 47.4 5 19	6.1
Wed Jun 08/Thu Jun 09	16 45	19 42	21 23	3 27 5 08	14 08 20 12	.....	1 57	67	12 34.4 - 0 37	6.1
Thu Jun 09/Fri Jun 10	16 49	19 42	21 24	3 26 5 08	14 12 20 16	.....	2 25	77	13 23.2 - 6 46	6.0
Fri Jun 10/Sat Jun 11	16 53	19 43	21 24	3 26 5 08	14 17 20 19	.....	2 57	86	14 14.9 -12 51	6.0
Sat Jun 11/Sun Jun 12	16 57	19 43	21 25	3 26 5 08	14 21 20 23	.....	3 33	93	15 10.8 -18 29	6.0
Sun Jun 12/Mon Jun 13	17 01	19 44	21 26	3 26 5 08	14 26 20 27	17 57	4 17	98	16 11.7 -23 11	6.0
Mon Jun 13/Tue Jun 14	17 05	19 44	21 26	3 26 5 08	14 30 20 31	19 13	5 10	100	17 17.4 -26 26	6.0
Tue Jun 14/Wed Jun 15	17 09	19 44	21 26	3 26 5 08	14 35 20 35	20 26	6 14	99	18 26.2 -27 47	6.0
Wed Jun 15/Thu Jun 16	17 12	19 45	21 27	3 26 5 08	14 39 20 39	21 31	.....	95	19 35.0 -27 03	6.0
Thu Jun 16/Fri Jun 17	17 16	19 45	21 27	3 26 5 08	14 43 20 43	22 26	.....	88	20 40.7 -24 24	6.0
Fri Jun 17/Sat Jun 18	17 20	19 45	21 28	3 26 5 08	14 48 20 47	23 11	.....	79	21 41.5 -20 14	6.0
Sat Jun 18/Sun Jun 19	17 24	19 46	21 28	3 26 5 08	14 52 20 51	23 48	.....	69	22 37.1 -15 05	6.0
Sun Jun 19/Mon Jun 20	17 28	19 46	21 28	3 26 5 09	14 56 20 55	0 19	.....	59	23 28.3 - 9 22	6.0
Mon Jun 20/Tue Jun 21	17 32	19 46	21 29	3 26 5 09	15 00 20 59	0 47	.....	48	0 16.3 - 3 27	6.0
Tue Jun 21/Wed Jun 22	17 36	19 46	21 29	3 27 5 09	15 04 21 03	1 13	.....	38	1 02.3 2 24	6.0
Wed Jun 22/Thu Jun 23	17 40	19 46	21 29	3 27 5 09	15 09 21 08	1 40	.....	28	1 47.6 7 58	6.0
Thu Jun 23/Fri Jun 24	17 44	19 47	21 29	3 27 5 10	15 13 21 12	2 07	.....	20	2 33.2 13 05	6.0
Fri Jun 24/Sat Jun 25	17 48	19 47	21 29	3 28 5 10	15 17 21 16	2 37	.....	13	3 19.8 17 34	6.0
Sat Jun 25/Sun Jun 26	17 52	19 47	21 29	3 28 5 10	15 21 21 20	3 11	.....	7	4 08.0 21 15	6.0
Sun Jun 26/Mon Jun 27	17 56	19 47	21 29	3 28 5 11	15 25 21 25	3 49	18 06	3	4 58.0 23 59	6.0
Mon Jun 27/Tue Jun 28	18 00	19 47	21 29	3 29 5 11	15 28 21 29	4 34	19 03	1	5 49.4 25 39	6.0
Tue Jun 28/Wed Jun 29	18 04	19 47	21 29	3 29 5 11	15 32 21 34	5 24	19 56	0	6 41.7 26 07	6.0
Wed Jun 29/Thu Jun 30	18 08	19 47	21 29	3 30 5 12	15 36 21 38	6 18	20 45	1	7 33.8 25 22	6.0
Thu Jun 30/Fri Jul 01	18 12	19 47	21 29	3 30 5 12	15 40 21 43	.....	21 27	4	8 24.9 23 27	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.

***** 2022 JULY *****

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	
Fri Jul 01/Sat Jul 02		18 16	19 47	21 29	3 31	5 13	15 44	21 47	.....	22 04	9	9 14.5	20 29	6.0
Sat Jul 02/Sun Jul 03		18 19	19 47	21 28	3 32	5 13	15 47	21 52	.....	22 37	15	10 02.3	16 36	6.1
Sun Jul 03/Mon Jul 04		18 23	19 47	21 28	3 32	5 14	15 51	21 56	.....	23 06	23	10 48.7	11 57	6.1
Mon Jul 04/Tue Jul 05		18 27	19 47	21 28	3 33	5 14	15 55	22 01	.....	23 33	31	11 34.2	6 43	6.1
Tue Jul 05/Wed Jul 06		18 31	19 46	21 27	3 34	5 15	15 58	22 06	.....	23 59	41	12 19.6	1 03	6.1
Wed Jul 06/Thu Jul 07		18 35	19 46	21 27	3 34	5 15	16 02	22 10	.....	0 25	52	13 06.1	- 4 51	6.1
Thu Jul 07/Fri Jul 08		18 39	19 46	21 27	3 35	5 16	16 05	22 15	.....	0 54	62	13 54.9	-10 46	6.1
Fri Jul 08/Sat Jul 09		18 43	19 46	21 26	3 36	5 16	16 09	22 20	.....	1 27	73	14 47.2	-16 25	6.2
Sat Jul 09/Sun Jul 10		18 47	19 45	21 26	3 37	5 17	16 12	22 24	.....	2 06	83	15 44.2	-21 23	6.2
Sun Jul 10/Mon Jul 11		18 51	19 45	21 25	3 38	5 17	16 16	22 29	.....	2 53	91	16 46.5	-25 14	6.2
Mon Jul 11/Tue Jul 12		18 55	19 45	21 24	3 38	5 18	16 19	22 34	18 00	3 51	96	17 53.3	-27 27	6.2
Tue Jul 12/Wed Jul 13		18 59	19 44	21 24	3 39	5 19	16 22	22 39	19 10	4 59	99	19 02.6	-27 39	6.3
Wed Jul 13/Thu Jul 14		19 03	19 44	21 23	3 40	5 19	16 25	22 44	20 11	6 13	99	20 10.9	-25 48	6.3
Thu Jul 14/Fri Jul 15		19 07	19 44	21 22	3 41	5 20	16 29	22 49	21 01	.....	96	21 15.5	-22 08	6.3
Fri Jul 15/Sat Jul 16		19 11	19 43	21 22	3 42	5 21	16 32	22 53	21 43	.....	90	22 15.1	-17 08	6.3
Sat Jul 16/Sun Jul 17		19 15	19 43	21 21	3 43	5 21	16 35	22 58	22 17	.....	82	23 09.8	-11 21	6.4
Sun Jul 17/Mon Jul 18		19 19	19 42	21 20	3 44	5 22	16 38	23 03	22 48	.....	73	0 00.5	- 5 14	6.4
Mon Jul 18/Tue Jul 19		19 23	19 42	21 19	3 45	5 23	16 41	23 08	23 15	.....	63	0 48.6	0 52	6.4
Tue Jul 19/Wed Jul 20		19 26	19 41	21 18	3 46	5 23	16 44	23 13	23 42	.....	53	1 35.3	6 42	6.5
Wed Jul 20/Thu Jul 21		19 30	19 41	21 17	3 47	5 24	16 47	23 18	0 10	.....	43	2 21.7	12 03	6.5
Thu Jul 21/Fri Jul 22		19 34	19 40	21 17	3 48	5 25	16 50	23 23	0 39	.....	33	3 08.7	16 45	6.5
Fri Jul 22/Sat Jul 23		19 38	19 39	21 16	3 49	5 25	16 53	23 28	1 11	.....	24	3 56.9	20 39	6.6
Sat Jul 23/Sun Jul 24		19 42	19 39	21 15	3 50	5 26	16 56	23 33	1 48	.....	17	4 46.7	23 36	6.6
Sun Jul 24/Mon Jul 25		19 46	19 38	21 14	3 51	5 27	16 59	23 38	2 31	.....	10	5 37.9	25 28	6.6
Mon Jul 25/Tue Jul 26		19 50	19 37	21 12	3 52	5 28	17 02	23 43	3 19	17 52	5	6 30.1	26 10	6.7
Tue Jul 26/Wed Jul 27		19 54	19 37	21 11	3 53	5 28	17 05	23 48	4 13	18 42	2	7 22.3	25 39	6.7
Wed Jul 27/Thu Jul 28		19 58	19 36	21 10	3 54	5 29	17 08	23 53	5 10	19 27	0	8 13.8	23 57	6.7
Thu Jul 28/Fri Jul 29		20 02	19 35	21 09	3 56	5 30	17 11	23 58	6 09	20 05	0	9 03.8	21 10	6.8
Fri Jul 29/Sat Jul 30		20 06	19 34	21 08	3 57	5 30	17 13	0 03	.....	20 39	2	9 52.0	17 25	6.8
Sat Jul 30/Sun Jul 31		20 10	19 33	21 07	3 58	5 31	17 16	0 08	.....	21 09	6	10 38.6	12 53	6.8
Sun Jul 31/Mon Aug 01		20 14	19 32	21 06	3 59	5 32	17 19	0 13	.....	21 36	12	11 24.0	7 46	6.9

***** 2022 AUGUST *****

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	
Mon Aug 01/Tue Aug 02		20 18	19 32	21 04	4 00	5 33	17 22	0 18	.....	22 02	19	12 08.9	2 13	6.9
Tue Aug 02/Wed Aug 03		20 22	19 31	21 03	4 01	5 33	17 24	0 23	.....	22 28	27	12 54.3	- 3 34	7.0
Wed Aug 03/Thu Aug 04		20 26	19 30	21 02	4 02	5 34	17 27	0 28	.....	22 56	37	13 41.1	- 9 21	7.0
Thu Aug 04/Fri Aug 05		20 30	19 29	21 01	4 03	5 35	17 30	0 33	.....	23 26	48	14 30.8	-14 56	7.0
Fri Aug 05/Sat Aug 06		20 34	19 28	20 59	4 04	5 36	17 32	0 38	.....	0 01	59	15 24.3	-19 58	7.1
Sat Aug 06/Sun Aug 07		20 37	19 27	20 58	4 05	5 37	17 35	0 43	.....	0 43	70	16 22.5	-24 05	7.1
Sun Aug 07/Mon Aug 08		20 41	19 26	20 57	4 06	5 37	17 38	0 48	.....	1 34	80	17 25.6	-26 51	7.2
Mon Aug 08/Tue Aug 09		20 45	19 25	20 55	4 07	5 38	17 40	0 54	.....	2 36	88	18 32.2	-27 51	7.2
Tue Aug 09/Wed Aug 10		20 49	19 24	20 54	4 09	5 39	17 43	0 59	17 53	3 47	95	19 39.9	-26 52	7.2
Wed Aug 10/Thu Aug 11		20 53	19 23	20 53	4 10	5 40	17 45	1 04	18 48	5 02	99	20 45.9	-23 58	7.3
Thu Aug 11/Fri Aug 12		20 57	19 22	20 51	4 11	5 40	17 48	1 09	19 34	6 17	100	21 47.9	-19 27	7.3
Fri Aug 12/Sat Aug 13		21 01	19 21	20 50	4 12	5 41	17 50	1 14	20 12	.....	98	22 45.5	-13 50	7.4
Sat Aug 13/Sun Aug 14		21 05	19 19	20 48	4 13	5 42	17 53	1 19	20 45	.....	93	23 39.1	- 7 38	7.4
Sun Aug 14/Mon Aug 15		21 09	19 18	20 47	4 14	5 43	17 55	1 24	21 14	.....	86	0 29.5	- 1 15	7.5
Mon Aug 15/Tue Aug 16		21 13	19 17	20 45	4 15	5 43	17 58	1 29	21 42	.....	78	1 18.1	4 55	7.5
Tue Aug 16/Wed Aug 17		21 17	19 16	20 44	4 16	5 44	18 00	1 34	22 10	.....	68	2 06.0	10 39	7.5
Wed Aug 17/Thu Aug 18		21 21	19 15	20 42	4 17	5 45	18 03	1 39	22 39	.....	58	2 54.0	15 43	7.6
Thu Aug 18/Fri Aug 19		21 25	19 14	20 41	4 18	5 46	18 05	1 44	23 10	.....	48	3 42.9	19 57	7.6
Fri Aug 19/Sat Aug 20		21 29	19 12	20 39	4 19	5 46	18 08	1 49	23 46	.....	39	4 33.1	23 13	7.7
Sat Aug 20/Sun Aug 21		21 33	19 11	20 38	4 20	5 47	18 10	1 54	0 27	.....	30	5 24.6	25 23	7.7
Sun Aug 21/Mon Aug 22		21 37	19 10	20 36	4 21	5 48	18 13	1 59	1 14	.....	22	6 17.0	26 22	7.7
Mon Aug 22/Tue Aug 23		21 41	19 09	20 35	4 22	5 49	18 15	2 03	2 06	.....	14	7 09.5	26 07	7.8
Tue Aug 23/Wed Aug 24		21 44	19 07	20 33	4 23	5 49	18 17	2 08	3 02	17 25	9	8 01.4	24 39	7.8
Wed Aug 24/Thu Aug 25		21 48	19 06	20 32	4 24	5 50	18 20	2 13	4 01	18 05	4	8 52.0	22 04	7.9
Thu Aug 25/Fri Aug 26		21 52	19 05	20 30	4 25	5 51	18 22	2 18	5 01	18 40	1	9 40.8	18 28	7.9
Fri Aug 26/Sat Aug 27		21 56	19 03	20 29	4 26	5 52	18 24	2 23	6 01	19 12	0	10 28.0	14 02	8.0
Sat Aug 27/Sun Aug 28		22 00	19 02	20 27	4 27	5 52	18 27	2 28	.....	19 40	1	11 13.9	8 57	8.0
Sun Aug 28/Mon Aug 29		22 04	19 01	20 26	4 28	5 53	18 29	2 33	.....	20 06	4	11 59.1	3 24	8.0
Mon Aug 29/Tue Aug 30		22 08	19 00	20 24	4 29	5 54	18 32	2 38	.....	20 32	9	12 44.4	- 2 23	8.1
Tue Aug 30/Wed Aug 31		22 12	18 58	20 22	4 30	5 54	18 34	2 43	.....	20 59	15	13 30.8	- 8 13	8.1
Wed Aug 31/Thu Sep 01		22 16	18 57	20 21	4 31	5 55	18 36	2 48	.....	21 28	24	14 19.3	-13 50	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.

***** 2022 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		
Thu Sep 01/Fri Sep 02	22 20	18 55	20 19	4 32	5 56	18 39	2 53	.....	22 01	33	15 10.9	-18 57	8.2
Fri Sep 02/Sat Sep 03	22 24	18 54	20 18	4 33	5 57	18 41	2 58	.....	22 39	44	16 06.6	-23 14	8.3
Sat Sep 03/Sun Sep 04	22 28	18 53	20 16	4 34	5 57	18 43	3 02	.....	23 26	55	17 06.5	-26 18	8.3
Sun Sep 04/Mon Sep 05	22 32	18 51	20 15	4 35	5 58	18 46	3 07	.....	0 22	67	18 09.9	-27 48	8.3
Mon Sep 05/Tue Sep 06	22 36	18 50	20 13	4 36	5 59	18 48	3 12	.....	1 28	77	19 15.2	-27 29	8.4
Tue Sep 06/Wed Sep 07	22 40	18 49	20 11	4 37	6 00	18 50	3 17	.....	2 39	86	20 19.9	-25 19	8.4
Wed Sep 07/Thu Sep 08	22 44	18 47	20 10	4 37	6 00	18 53	3 22	17 26	3 53	93	21 22.0	-21 27	8.5
Thu Sep 08/Fri Sep 09	22 48	18 46	20 08	4 38	6 01	18 55	3 27	18 06	5 06	98	22 20.5	-16 17	8.5
Fri Sep 09/Sat Sep 10	22 52	18 44	20 07	4 39	6 02	18 58	3 32	18 41	6 17	100	23 15.3	-10 16	8.5
Sat Sep 10/Sun Sep 11	22 55	18 43	20 05	4 40	6 02	19 00	3 36	.....	19 11	99	0 07.2	- 3 50	8.6
Sun Sep 11/Mon Sep 12	22 59	18 41	20 04	4 41	6 03	19 02	3 41	.....	19 40	95	0 57.1	2 36	8.6
Mon Sep 12/Tue Sep 13	23 03	18 40	20 02	4 42	6 04	19 05	3 46	.....	20 08	90	1 46.2	8 42	8.7
Tue Sep 13/Wed Sep 14	23 07	18 39	20 00	4 43	6 05	19 07	3 51	.....	20 37	82	2 35.3	14 13	8.7
Wed Sep 14/Thu Sep 15	23 11	18 37	19 59	4 44	6 05	19 09	3 56	.....	21 08	74	3 25.1	18 54	8.7
Thu Sep 15/Fri Sep 16	23 15	18 36	19 57	4 44	6 06	19 12	4 00	.....	21 42	65	4 16.1	22 37	8.8
Fri Sep 16/Sat Sep 17	23 19	18 34	19 56	4 45	6 07	19 14	4 05	.....	22 22	55	5 08.2	25 11	8.8
Sat Sep 17/Sun Sep 18	23 23	18 33	19 54	4 46	6 07	19 17	4 10	.....	23 06	46	6 01.1	26 33	8.9
Sun Sep 18/Mon Sep 19	23 27	18 31	19 53	4 47	6 08	19 19	4 15	.....	23 57	36	6 54.2	26 39	8.9
Mon Sep 19/Tue Sep 20	23 31	18 30	19 51	4 48	6 09	19 21	4 19	.....	0 52	28	7 46.7	25 31	8.9
Tue Sep 20/Wed Sep 21	23 35	18 29	19 50	4 49	6 10	19 24	4 24	.....	1 50	20	8 37.8	23 12	9.0
Wed Sep 21/Thu Sep 22	23 39	18 27	19 48	4 49	6 10	19 26	4 29	.....	2 50	13	9 27.2	19 50	9.0
Thu Sep 22/Fri Sep 23	23 43	18 26	19 46	4 50	6 11	19 29	4 34	.....	3 50	7	10 15.0	15 34	9.1
Fri Sep 23/Sat Sep 24	23 47	18 24	19 45	4 51	6 12	19 31	4 39	.....	4 51	3	11 01.4	10 35	9.1
Sat Sep 24/Sun Sep 25	23 51	18 23	19 43	4 52	6 13	19 33	4 43	.....	5 52	0	11 47.1	5 03	9.1
Sun Sep 25/Mon Sep 26	23 55	18 21	19 42	4 53	6 13	19 36	4 48	.....	6 54	18 35	0 12 32.8	- 0 48	9.2
Mon Sep 26/Tue Sep 27	23 59	18 20	19 40	4 53	6 14	19 38	4 53	.....	19 02	2	13 19.4	- 6 46	9.2
Tue Sep 27/Wed Sep 28	0 02	18 19	19 39	4 54	6 15	19 41	4 58	.....	19 30	6	14 07.9	-12 33	9.3
Wed Sep 28/Thu Sep 29	0 06	18 17	19 38	4 55	6 15	19 43	5 02	.....	20 02	12	14 59.2	-17 53	9.3
Thu Sep 29/Fri Sep 30	0 10	18 16	19 36	4 56	6 16	19 46	5 07	.....	20 39	21	15 54.1	-22 24	9.3
Fri Sep 30/Sat Oct 01	0 14	18 14	19 35	4 57	6 17	19 48	5 12	.....	21 23	30	16 52.8	-25 46	9.4

***** 2022 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		
Sat Oct 01/Sun Oct 02	0 18	18 13	19 33	4 57	6 18	19 51	5 16	.....	22 16	41	17 54.7	-27 38	9.4
Sun Oct 02/Mon Oct 03	0 22	18 12	19 32	4 58	6 18	19 53	5 21	.....	23 18	52	18 58.4	-27 46	9.4
Mon Oct 03/Tue Oct 04	0 26	18 10	19 30	4 59	6 19	19 56	5 26	.....	0 26	64	20 01.6	-26 06	9.5
Tue Oct 04/Wed Oct 05	0 30	18 09	19 29	5 00	6 20	19 58	5 31	.....	1 38	74	21 02.6	-22 48	9.5
Wed Oct 05/Thu Oct 06	0 34	18 07	19 28	5 01	6 21	20 01	5 35	.....	2 49	84	22 00.3	-18 09	9.5
Thu Oct 06/Fri Oct 07	0 38	18 06	19 26	5 01	6 22	20 03	5 40	16 39	3 59	91	22 54.7	-12 31	9.6
Fri Oct 07/Sat Oct 08	0 42	18 05	19 25	5 02	6 22	20 06	5 45	17 10	5 06	97	23 46.5	- 6 18	9.6
Sat Oct 08/Sun Oct 09	0 46	18 03	19 24	5 03	6 23	20 09	5 50	17 39	6 11	99	0 36.4	0 08	9.7
Sun Oct 09/Mon Oct 10	0 50	18 02	19 22	5 04	6 24	20 11	5 54	18 06	7 16	100	1 25.5	6 26	9.7
Mon Oct 10/Tue Oct 11	0 54	18 01	19 21	5 04	6 25	20 14	5 59	.....	18 35	98	2 14.7	12 17	9.7
Tue Oct 11/Wed Oct 12	0 58	17 59	19 20	5 05	6 26	20 17	6 04	.....	19 05	93	3 04.8	17 25	9.8
Wed Oct 12/Thu Oct 13	1 02	17 58	19 18	5 06	6 26	20 19	6 08	.....	19 38	87	3 56.2	21 37	9.8
Thu Oct 13/Fri Oct 14	1 06	17 57	19 17	5 07	6 27	20 22	6 13	.....	20 15	80	4 48.9	24 42	9.8
Fri Oct 14/Sat Oct 15	1 10	17 56	19 16	5 08	6 28	20 25	6 18	.....	20 58	72	5 42.6	26 32	9.9
Sat Oct 15/Sun Oct 16	1 13	17 54	19 15	5 08	6 29	20 27	6 23	.....	21 47	63	6 36.5	27 04	9.9
Sun Oct 16/Mon Oct 17	1 17	17 53	19 13	5 09	6 30	20 30	6 27	.....	22 40	53	7 29.7	26 19	9.9
Mon Oct 17/Tue Oct 18	1 21	17 52	19 12	5 10	6 30	20 33	6 32	.....	23 37	44	8 21.5	24 22	10.0
Tue Oct 18/Wed Oct 19	1 25	17 51	19 11	5 11	6 31	20 36	6 37	.....	0 36	35	9 11.5	21 19	10.0
Wed Oct 19/Thu Oct 20	1 29	17 49	19 10	5 11	6 32	20 38	6 42	.....	1 36	26	9 59.6	17 20	10.0
Thu Oct 20/Fri Oct 21	1 33	17 48	19 09	5 12	6 33	20 41	6 46	.....	2 37	18	10 46.3	12 34	10.1
Fri Oct 21/Sat Oct 22	1 37	17 47	19 08	5 13	6 34	20 44	6 51	.....	3 37	11	11 32.0	7 11	10.1
Sat Oct 22/Sun Oct 23	1 41	17 46	19 07	5 14	6 35	20 47	6 56	.....	4 39	5	12 17.7	1 22	10.1
Sun Oct 23/Mon Oct 24	1 45	17 45	19 06	5 15	6 36	20 50	7 00	.....	5 42	2	13 04.3	- 4 40	10.2
Mon Oct 24/Tue Oct 25	1 49	17 44	19 05	5 15	6 36	20 53	7 05	.....	6 48	0	13 52.7	-10 39	10.2
Tue Oct 25/Wed Oct 26	1 53	17 42	19 04	5 16	6 37	20 56	7 10	.....	7 57	1	14 44.0	-16 16	10.2
Wed Oct 26/Thu Oct 27	1 57	17 41	19 03	5 17	6 38	20 59	7 15	.....	18 37	4	15 39.0	-21 11	10.2
Thu Oct 27/Fri Oct 28	2 01	17 40	19 02	5 18	6 39	21 01	7 19	.....	19 19	10	16 37.9	-24 58	10.3
Fri Oct 28/Sat Oct 29	2 05	17 39	19 01	5 19	6 40	21 04	7 24	.....	20 10	18	17 40.1	-27 15	10.3
Sat Oct 29/Sun Oct 30	2 09	17 38	19 00	5 19	6 41	21 07	7 29	.....	21 10	27	18 44.0	-27 48	10.3
Sun Oct 30/Mon Oct 31	2 13	17 37	18 59	5 20	6 42	21 11	7 34	.....	22 18	38	19 47.4	-26 33	10.4
Mon Oct 31/Tue Nov 01	2 17	17 36	18 58	5 21	6 43	21 14	7 38	.....	23 28	49	20 48.5	-23 38	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.

***** 2022 NOVEMBER *****

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 Nov 01/Wed Nov 02	2 20	17 35	18 57	5 22	6 44	21 17	7 43	.....	0 39	61	21 45.9	-19 20	10.4
Wed Nov 02/Thu Nov 03	2 24	17 34	18 56	5 23	6 45	21 20	7 48	.....	1 48	71	22 39.9	-14 03	10.4
Thu Nov 03/Fri Nov 04	2 28	17 33	18 55	5 23	6 46	21 23	7 53	.....	2 54	81	23 30.8	- 8 06	10.5
Fri Nov 04/Sat Nov 05	2 32	17 33	18 55	5 24	6 47	21 26	7 57	.....	3 59	89	0 19.9	- 1 51	10.5
Sat Nov 05/Sun Nov 06	2 36	17 32	18 54	5 25	6 47	21 29	8 02	16 08	5 02	95	1 08.0	4 23	10.5
Sun Nov 06/Mon Nov 07	2 40	17 31	18 53	5 26	6 48	21 32	8 07	16 35	6 05	98	1 56.3	10 21	10.5
Mon Nov 07/Tue Nov 08	2 44	17 30	18 52	5 27	6 49	21 36	8 12	17 04	7 09	100	2 45.6	15 44	10.6
Tue Nov 08/Wed Nov 09	2 48	17 29	18 52	5 28	6 50	21 39	8 17	17 35	.....	99	3 36.5	20 19	10.6
Wed Nov 09/Thu Nov 10	2 52	17 28	18 51	5 28	6 51	21 42	8 21	18 11	.....	97	4 29.0	23 52	10.6
Thu Nov 10/Fri Nov 11	2 56	17 28	18 50	5 29	6 52	21 46	8 26	18 52	.....	92	5 23.0	26 11	10.6
Fri Nov 11/Sat Nov 12	3 00	17 27	18 50	5 30	6 53	21 49	8 31	19 38	.....	86	6 17.5	27 12	10.7
Sat Nov 12/Sun Nov 13	3 04	17 26	18 49	5 31	6 54	21 52	8 36	20 30	.....	79	7 11.6	26 53	10.7
Sun Nov 13/Mon Nov 14	3 08	17 26	18 49	5 32	6 55	21 56	8 40	21 26	.....	70	8 04.3	25 19	10.7
Mon Nov 14/Tue Nov 15	3 12	17 25	18 48	5 33	6 56	21 59	8 45	22 24	.....	61	8 55.0	22 37	10.7
Tue Nov 15/Wed Nov 16	3 16	17 24	18 48	5 33	6 57	22 03	8 50	23 23	.....	52	9 43.5	18 57	10.8
Wed Nov 16/Thu Nov 17	3 20	17 24	18 47	5 34	6 58	22 06	8 55	0 22	.....	42	10 30.2	14 28	10.8
Thu Nov 17/Fri Nov 18	3 24	17 23	18 47	5 35	6 59	22 10	8 59	1 22	.....	33	11 15.6	9 20	10.8
Fri Nov 18/Sat Nov 19	3 27	17 23	18 46	5 36	7 00	22 13	9 04	2 22	.....	24	12 00.7	3 44	10.8
Sat Nov 19/Sun Nov 20	3 31	17 22	18 46	5 37	7 01	22 17	9 09	3 23	.....	16	12 46.4	- 2 12	10.8
Sun Nov 20/Mon Nov 21	3 35	17 22	18 46	5 37	7 02	22 20	9 14	4 27	.....	9	13 33.7	- 8 12	10.9
Mon Nov 21/Tue Nov 22	3 39	17 21	18 45	5 38	7 03	22 24	9 19	5 35	15 57	4	14 24.0	-14 02	10.9
Tue Nov 22/Wed Nov 23	3 43	17 21	18 45	5 39	7 04	22 28	9 23	6 46	16 31	1	15 18.1	-19 18	10.9
Wed Nov 23/Thu Nov 24	3 47	17 20	18 45	5 40	7 05	22 31	9 28	8 00	17 11	0	16 16.6	-23 37	10.9
Thu Nov 24/Fri Nov 25	3 51	17 20	18 45	5 41	7 06	22 35	9 33	.....	17 59	3	17 19.3	-26 32	10.9
Fri Nov 25/Sat Nov 26	3 55	17 20	18 44	5 42	7 06	22 39	9 38	.....	18 58	7	18 24.7	-27 40	11.0
Sat Nov 26/Sun Nov 27	3 59	17 19	18 44	5 42	7 07	22 42	9 42	.....	20 05	15	19 30.1	-26 54	11.0
Sun Nov 27/Mon Nov 28	4 03	17 19	18 44	5 43	7 08	22 46	9 47	.....	21 17	24	20 33.2	-24 20	11.0
Mon Nov 28/Tue Nov 29	4 07	17 19	18 44	5 44	7 09	22 50	9 52	.....	22 30	35	21 32.4	-20 17	11.0
Tue Nov 29/Wed Nov 30	4 11	17 19	18 44	5 45	7 10	22 54	9 57	.....	23 40	46	22 27.4	-15 10	11.0
Wed Nov 30/Thu Dec 01	4 15	17 19	18 44	5 45	7 11	22 58	10 01	.....	0 47	57	23 18.7	- 9 23	11.0

***** 2022 DECEMBER *****

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	
Thu Dec 01/Fri Dec 02	4 19	17 18	18 44	5 46	7 12	23 02	10 06	.....	1 52	67	0 07.5	- 3 16	11.0
Fri Dec 02/Sat Dec 03	4 23	17 18	18 44	5 47	7 13	23 06	10 11	.....	2 54	77	0 55.0	2 54	11.1
Sat Dec 03/Sun Dec 04	4 27	17 18	18 44	5 48	7 13	23 10	10 15	.....	3 56	85	1 42.2	8 50	11.1
Sun Dec 04/Mon Dec 05	4 31	17 18	18 44	5 49	7 14	23 14	10 20	.....	4 59	92	2 30.3	14 18	11.1
Mon Dec 05/Tue Dec 06	4 35	17 18	18 44	5 49	7 15	23 18	10 25	15 36	6 01	96	3 19.9	19 04	11.1
Tue Dec 06/Wed Dec 07	4 38	17 18	18 44	5 50	7 16	23 22	10 29	16 09	7 03	99	4 11.4	22 55	11.1
Wed Dec 07/Thu Dec 08	4 42	17 18	18 44	5 51	7 17	23 26	10 34	16 48	8 03	100	5 04.7	25 37	11.1
Thu Dec 08/Fri Dec 09	4 46	17 19	18 45	5 51	7 18	23 30	10 39	17 32	.....	99	5 59.2	27 04	11.1
Fri Dec 09/Sat Dec 10	4 50	17 19	18 45	5 52	7 18	23 34	10 43	18 22	.....	96	6 53.9	27 10	11.1
Sat Dec 10/Sun Dec 11	4 54	17 19	18 45	5 53	7 19	23 38	10 48	19 17	.....	91	7 47.4	25 58	11.1
Sun Dec 11/Mon Dec 12	4 58	17 19	18 45	5 53	7 20	23 43	10 53	20 14	.....	85	8 39.0	23 35	11.1
Mon Dec 12/Tue Dec 13	5 02	17 19	18 46	5 54	7 20	23 47	10 57	21 13	.....	77	9 28.2	20 12	11.1
Tue Dec 13/Wed Dec 14	5 06	17 19	18 46	5 55	7 21	23 51	11 02	22 11	.....	69	10 15.2	15 58	11.1
Wed Dec 14/Thu Dec 15	5 10	17 20	18 46	5 55	7 22	23 55	11 06	23 10	.....	60	11 00.5	11 04	11.2
Thu Dec 15/Fri Dec 16	5 14	17 20	18 47	5 56	7 22	24 00	11 11	0 08	.....	50	11 44.9	5 41	11.2
Fri Dec 16/Sat Dec 17	5 18	17 20	18 47	5 57	7 23	0 04	11 15	1 07	.....	40	12 29.3	- 0 01	11.2
Sat Dec 17/Sun Dec 18	5 22	17 21	18 47	5 57	7 24	0 08	11 20	2 08	.....	30	13 15.0	- 5 54	11.2
Sun Dec 18/Mon Dec 19	5 26	17 21	18 48	5 58	7 24	0 13	11 24	3 12	.....	21	14 03.0	-11 42	11.2
Mon Dec 19/Tue Dec 20	5 30	17 22	18 48	5 58	7 25	0 17	11 29	4 20	.....	13	14 54.6	-17 09	11.2
Tue Dec 20/Wed Dec 21	5 34	17 22	18 49	5 59	7 25	0 21	11 33	5 33	.....	6	15 50.9	-21 52	11.2
Wed Dec 21/Thu Dec 22	5 38	17 23	18 49	5 59	7 26	0 26	11 38	6 47	15 44	2	16 52.1	-25 25	11.2
Thu Dec 22/Fri Dec 23	5 42	17 23	18 50	6 00	7 26	0 30	11 42	7 59	16 38	0	17 57.4	-27 19	11.2
Fri Dec 23/Sat Dec 24	5 45	17 24	18 50	6 00	7 27	0 35	11 47	.....	17 43	1	19 04.6	-27 17	11.2
Sat Dec 24/Sun Dec 25	5 49	17 24	18 51	6 01	7 27	0 39	11 51	.....	18 56	5	20 10.6	-25 17	11.2
Sun Dec 25/Mon Dec 26	5 53	17 25	18 51	6 01	7 27	0 44	11 55	.....	20 11	12	21 13.1	-21 34	11.2
Mon Dec 26/Tue Dec 27	5 57	17 25	18 52	6 01	7 28	0 48	12 00	.....	21 26	20	22 11.1	-16 34	11.2
Tue Dec 27/Wed Dec 28	6 01	17 26	18 52	6 02	7 28	0 53	12 04	.....	22 37	30	23 04.7	-10 47	11.2
Wed Dec 28/Thu Dec 29	6 05	17 27	18 53	6 02	7 28	0 57	12 08	.....	23 44	41	23 54.9	- 4 37	11.1
Thu Dec 29/Fri Dec 30	6 09	17 27	18 54	6 02	7 29	1 02	12 12	.....	0 48	52	0 43.0	1 37	11.1
Fri Dec 30/Sat Dec 31	6 13	17 28	18 54	6 03	7 29	1 07	12 17	.....	1 50	62	1 30.3	7 37	11.1
Sat Dec 31/Sun Jan 01	6 17	17 29	18 55	6 03	7 29	1 11	12 21	.....	2 52	72	2 17.8	13 10	11.1