

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:

\*\*\*\*\* 2021 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 2021, 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 14	9 19	Dec 21	16 43	Dec 29	20 30	Jan 06	2 39
Jan 12	22 03	Jan 20	14 04	Jan 28	12 19	Feb 04	10 39
Feb 11	12 08	Feb 19	11 49	Feb 27	1 20	Mar 05	18 32
Mar 13	3 24	Mar 21	7 42	Mar 28	11 50	Apr 04	3 04
Apr 11	19 33	Apr 20	0 00	Apr 26	20 33	May 03	12 52
May 11	12 02	May 19	12 13	May 26	4 15	Jun 02	0 26
Jun 10	3 54	Jun 17	20 55	Jun 24	11 40	Jul 01	14 13
Jul 09	18 18	Jul 17	3 12	Jul 23	19 37	Jul 31	6 18
Aug 08	6 51	Aug 15	8 21	Aug 22	5 02	Aug 30	0 15
Sep 06	17 52	Sep 13	13 41	Sep 20	16 55	Sep 28	18 58
Oct 06	4 06	Oct 12	20 28	Oct 20	7 58	Oct 28	13 07
Nov 04	14 15	Nov 11	5 48	Nov 19	2 00	Nov 27	5 30
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

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.

\*\*\*\*\* 2021 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
Fri Jan 01/Sat Jan 02	6 23	17 30	18 56	6 03 7 29	1 18 12 27	20 03	.....	89	9 37.4 18 50	11.1
Sat Jan 02/Sun Jan 03	6 27	17 31	18 57	6 03 7 30	1 23 12 31	21 08	.....	81	10 31.2 14 33	11.1
Sun Jan 03/Mon Jan 04	6 31	17 32	18 58	6 04 7 30	1 27 12 35	22 14	.....	72	11 23.2 9 28	11.1
Mon Jan 04/Tue Jan 05	6 35	17 32	18 58	6 04 7 30	1 32 12 40	23 19	.....	62	12 14.2 3 52	11.1
Tue Jan 05/Wed Jan 06	6 39	17 33	18 59	6 04 7 30	1 37 12 44	0 25	.....	50	13 04.9 - 1 59	11.1
Wed Jan 06/Thu Jan 07	6 43	17 34	19 00	6 04 7 30	1 42 12 48	1 32	.....	39	13 56.3 - 7 48	11.1
Thu Jan 07/Fri Jan 08	6 47	17 35	19 01	6 04 7 30	1 46 12 52	2 41	.....	28	14 49.5 -13 15	11.1
Fri Jan 08/Sat Jan 09	6 50	17 36	19 01	6 04 7 30	1 51 12 56	3 51	.....	19	15 45.1 -18 01	11.0
Sat Jan 09/Sun Jan 10	6 54	17 37	19 02	6 04 7 30	1 56 13 00	5 02	.....	11	16 43.5 -21 45	11.0
Sun Jan 10/Mon Jan 11	6 58	17 38	19 03	6 04 7 29	2 00 13 04	6 10	.....	5	17 44.2 -24 10	11.0
Mon Jan 11/Tue Jan 12	7 02	17 38	19 04	6 04 7 29	2 05 13 07	7 13	16 13	1	18 46.0 -25 02	11.0
Tue Jan 12/Wed Jan 13	7 06	17 39	19 05	6 04 7 29	2 10 13 11	8 08	17 15	0	19 46.8 -24 20	11.0
Wed Jan 13/Thu Jan 14	7 10	17 40	19 05	6 04 7 29	2 15 13 15	.....	18 20	1	20 45.3 -22 13	11.0
Thu Jan 14/Fri Jan 15	7 14	17 41	19 06	6 04 7 29	2 19 13 19	.....	19 25	5	21 40.2 -18 56	11.0
Fri Jan 15/Sat Jan 16	7 18	17 42	19 07	6 04 7 28	2 24 13 23	.....	20 29	11	22 31.5 -14 49	10.9
Sat Jan 16/Sun Jan 17	7 22	17 43	19 08	6 04 7 28	2 29 13 27	.....	21 30	18	23 19.5 -10 09	10.9
Sun Jan 17/Mon Jan 18	7 26	17 44	19 09	6 03 7 28	2 34 13 30	.....	22 28	26	0 05.1 - 5 11	10.9
Mon Jan 18/Tue Jan 19	7 30	17 45	19 10	6 03 7 27	2 39 13 34	.....	23 25	34	0 49.1 - 0 07	10.9
Tue Jan 19/Wed Jan 20	7 34	17 46	19 10	6 03 7 27	2 43 13 38	.....	0 21	44	1 32.5 4 53	10.9
Wed Jan 20/Thu Jan 21	7 38	17 47	19 11	6 02 7 27	2 48 13 41	.....	1 16	53	2 16.4 9 40	10.9
Thu Jan 21/Fri Jan 22	7 42	17 48	19 12	6 02 7 26	2 53 13 45	.....	2 12	63	3 01.5 14 06	10.8
Fri Jan 22/Sat Jan 23	7 46	17 49	19 13	6 02 7 26	2 58 13 48	.....	3 10	71	3 48.7 18 01	10.8
Sat Jan 23/Sun Jan 24	7 50	17 50	19 14	6 01 7 25	3 03 13 52	.....	4 08	80	4 38.5 21 13	10.8
Sun Jan 24/Mon Jan 25	7 54	17 51	19 15	6 01 7 25	3 07 13 56	.....	5 06	87	5 31.3 23 29	10.8
Mon Jan 25/Tue Jan 26	7 58	17 52	19 16	6 01 7 24	3 12 13 59	.....	6 02	93	6 26.7 24 37	10.8
Tue Jan 26/Wed Jan 27	8 01	17 53	19 16	6 00 7 23	3 17 14 03	15 47	6 55	97	7 24.0 24 27	10.7
Wed Jan 27/Thu Jan 28	8 05	17 54	19 17	6 00 7 23	3 22 14 06	16 46	7 42	100	8 21.8 22 53	10.7
Thu Jan 28/Fri Jan 29	8 09	17 55	19 18	5 59 7 22	3 27 14 09	17 50	.....	100	9 19.1 19 57	10.7
Fri Jan 29/Sat Jan 30	8 13	17 56	19 19	5 59 7 21	3 32 14 13	18 57	.....	97	10 14.8 15 51	10.7
Sat Jan 30/Sun Jan 31	8 17	17 57	19 20	5 58 7 21	3 36 14 16	20 04	.....	92	11 08.7 10 48	10.6
Sun Jan 31/Mon Feb 01	8 21	17 58	19 21	5 57 7 20	3 41 14 20	21 11	.....	85	12 01.2 5 08	10.6

\*\*\*\*\* 2021 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
Mon Feb 01/Tue Feb 02	8 25	17 59	19 22	5 57 7 19	3 46 14 23	22 18	.....	76	12 52.8 - 0 49	10.6
Tue Feb 02/Wed Feb 03	8 29	18 00	19 23	5 56 7 18	3 51 14 26	23 25	.....	65	13 44.5 - 6 45	10.6
Wed Feb 03/Thu Feb 04	8 33	18 01	19 23	5 55 7 18	3 56 14 29	0 33	.....	54	14 37.3 -12 19	10.5
Thu Feb 04/Fri Feb 05	8 37	18 02	19 24	5 55 7 17	4 00 14 33	1 42	.....	43	15 31.9 -17 13	10.5
Fri Feb 05/Sat Feb 06	8 41	18 03	19 25	5 54 7 16	4 05 14 36	2 50	.....	32	16 28.7 -21 08	10.5
Sat Feb 06/Sun Feb 07	8 45	18 04	19 26	5 53 7 15	4 10 14 39	3 58	.....	22	17 27.7 -23 50	10.5
Sun Feb 07/Mon Feb 08	8 49	18 05	19 27	5 52 7 14	4 15 14 42	5 01	.....	14	18 27.8 -25 04	10.4
Mon Feb 08/Tue Feb 09	8 53	18 06	19 28	5 52 7 13	4 20 14 45	5 58	.....	7	19 27.8 -24 49	10.4
Tue Feb 09/Wed Feb 10	8 57	18 07	19 29	5 51 7 12	4 25 14 48	6 47	16 04	3	20 26.0 -23 08	10.4
Wed Feb 10/Thu Feb 11	9 01	18 08	19 30	5 50 7 11	4 29 14 51	7 28	17 08	0	21 21.5 -20 12	10.3
Thu Feb 11/Fri Feb 12	9 05	18 09	19 30	5 49 7 10	4 34 14 54	.....	18 13	0	22 13.6 -16 20	10.3
Fri Feb 12/Sat Feb 13	9 08	18 10	19 31	5 48 7 09	4 39 14 58	.....	19 15	2	23 02.6 -11 48	10.3
Sat Feb 13/Sun Feb 14	9 12	18 11	19 32	5 47 7 08	4 44 15 01	.....	20 15	6	23 49.1 - 6 52	10.3
Sun Feb 14/Mon Feb 15	9 16	18 12	19 33	5 46 7 07	4 49 15 04	.....	21 13	12	0 33.7 - 1 45	10.2
Mon Feb 15/Tue Feb 16	9 20	18 13	19 34	5 45 7 06	4 53 15 06	.....	22 09	19	1 17.4 3 20	10.2
Tue Feb 16/Wed Feb 17	9 24	18 14	19 35	5 44 7 05	4 58 15 09	.....	23 05	27	2 01.1 8 14	10.2
Wed Feb 17/Thu Feb 18	9 28	18 15	19 36	5 43 7 04	5 03 15 12	.....	0 01	35	2 45.5 12 48	10.1
Thu Feb 18/Fri Feb 19	9 32	18 16	19 36	5 42 7 03	5 08 15 15	.....	0 58	45	3 31.5 16 52	10.1
Fri Feb 19/Sat Feb 20	9 36	18 16	19 37	5 41 7 02	5 13 15 18	.....	1 56	54	4 19.8 20 18	10.1
Sat Feb 20/Sun Feb 21	9 40	18 17	19 38	5 40 7 01	5 17 15 21	.....	2 53	64	5 10.7 22 53	10.0
Sun Feb 21/Mon Feb 22	9 44	18 18	19 39	5 39 6 59	5 22 15 24	.....	3 50	73	6 04.4 24 26	10.0
Mon Feb 22/Tue Feb 23	9 48	18 19	19 40	5 38 6 58	5 27 15 27	.....	4 44	81	7 00.3 24 46	10.0
Tue Feb 23/Wed Feb 24	9 52	18 20	19 41	5 37 6 57	5 32 15 29	.....	5 33	89	7 57.6 23 44	9.9
Wed Feb 24/Thu Feb 25	9 56	18 21	19 41	5 36 6 56	5 37 15 32	.....	6 18	95	8 55.1 21 19	9.9
Thu Feb 25/Fri Feb 26	10 00	18 22	19 42	5 34 6 55	5 41 15 35	16 38	6 58	98	9 52.0 17 34	9.9
Fri Feb 26/Sat Feb 27	10 04	18 23	19 43	5 33 6 53	5 46 15 38	17 46	7 34	100	10 47.6 12 43	9.8
Sat Feb 27/Sun Feb 28	10 08	18 24	19 44	5 32 6 52	5 51 15 40	18 55	.....	99	11 42.0 7 03	9.8
Sun Feb 28/Mon Mar 01	10 12	18 25	19 45	5 31 6 51	5 56 15 43	20 04	.....	94	12 35.5 0 54	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.

\*\*\*\*\* 2021 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	
Mon Mar 01/Tue Mar 02	10 15	18 25	19 46	5 29	6 50	6 01	15 46	21 14	.....	88	13 28.9	- 5 19	9.7
Tue Mar 02/Wed Mar 03	10 19	18 26	19 47	5 28	6 48	6 05	15 49	22 23	.....	79	14 23.0	-11 15	9.7
Wed Mar 03/Thu Mar 04	10 23	18 27	19 47	5 27	6 47	6 10	15 51	23 33	.....	69	15 18.6	-16 30	9.7
Thu Mar 04/Fri Mar 05	10 27	18 28	19 48	5 26	6 46	6 15	15 54	0 43	.....	58	16 15.9	-20 45	9.6
Fri Mar 05/Sat Mar 06	10 31	18 29	19 49	5 24	6 44	6 20	15 56	1 52	.....	47	17 15.0	-23 44	9.6
Sat Mar 06/Sun Mar 07	10 35	18 30	19 50	5 23	6 43	6 25	15 59	2 56	.....	36	18 15.0	-25 16	9.5
Sun Mar 07/Mon Mar 08	10 39	18 31	19 51	5 22	6 42	6 29	16 02	3 53	.....	26	19 14.6	-25 18	9.5
Mon Mar 08/Tue Mar 09	10 43	18 31	19 52	5 20	6 40	6 34	16 04	4 44	.....	17	20 12.5	-23 54	9.5
Tue Mar 09/Wed Mar 10	10 47	18 32	19 53	5 19	6 39	6 39	16 07	5 27	.....	10	21 07.7	-21 16	9.4
Wed Mar 10/Thu Mar 11	10 51	18 33	19 53	5 18	6 38	6 44	16 09	6 04	.....	5	21 59.8	-17 38	9.4
Thu Mar 11/Fri Mar 12	10 55	18 34	19 54	5 16	6 36	6 49	16 12	6 36	17 03	2	22 48.9	-13 15	9.4
Fri Mar 12/Sat Mar 13	10 59	18 35	19 55	5 15	6 35	6 53	16 14	7 05	18 04	0	23 35.5	- 8 25	9.3
Sat Mar 13/Sun Mar 14	11 03	18 36	19 56	5 13	6 34	6 58	16 17	.....	19 02	1	0 20.3	- 3 19	9.3
Sun Mar 14/Mon Mar 15	11 07	18 36	19 57	5 12	6 32	7 03	16 19	.....	19 59	3	1 04.0	1 49	9.3
Mon Mar 15/Tue Mar 16	11 11	18 37	19 58	5 10	6 31	7 08	16 22	.....	20 56	7	1 47.5	6 49	9.2
Tue Mar 16/Wed Mar 17	11 15	18 38	19 59	5 09	6 30	7 13	16 24	.....	21 52	13	2 31.5	11 32	9.2
Wed Mar 17/Thu Mar 18	11 19	18 39	19 59	5 08	6 28	7 17	16 27	.....	22 49	20	3 16.8	15 47	9.1
Thu Mar 18/Fri Mar 19	11 23	18 40	20 00	5 06	6 27	7 22	16 29	.....	23 46	28	4 03.9	19 25	9.1
Fri Mar 19/Sat Mar 20	11 26	18 40	20 01	5 05	6 25	7 27	16 32	.....	0 43	37	4 53.2	22 16	9.1
Sat Mar 20/Sun Mar 21	11 30	18 41	20 02	5 03	6 24	7 32	16 34	.....	1 39	46	5 45.0	24 10	9.0
Sun Mar 21/Mon Mar 22	11 34	18 42	20 03	5 02	6 23	7 37	16 37	.....	2 33	56	6 38.9	24 55	9.0
Mon Mar 22/Tue Mar 23	11 38	18 43	20 04	5 00	6 21	7 42	16 39	.....	3 24	66	7 34.5	24 25	8.9
Tue Mar 23/Wed Mar 24	11 42	18 44	20 05	4 59	6 20	7 46	16 42	.....	4 10	75	8 30.7	22 35	8.9
Wed Mar 24/Thu Mar 25	11 46	18 44	20 06	4 57	6 18	7 51	16 44	.....	4 51	84	9 26.9	19 24	8.9
Thu Mar 25/Fri Mar 26	11 50	18 45	20 07	4 56	6 17	7 56	16 47	.....	5 28	91	10 22.4	15 00	8.8
Fri Mar 26/Sat Mar 27	11 54	18 46	20 08	4 54	6 16	8 01	16 49	.....	6 03	97	11 17.2	9 36	8.8
Sat Mar 27/Sun Mar 28	11 58	18 47	20 08	4 53	6 14	8 06	16 51	17 42	6 36	100	12 11.6	3 29	8.7
Sun Mar 28/Mon Mar 29	12 02	18 48	20 09	4 51	6 13	8 11	16 54	18 53	7 09	99	13 06.1	- 2 57	8.7
Mon Mar 29/Tue Mar 30	12 06	18 48	20 10	4 49	6 11	8 16	16 56	20 04	.....	96	14 01.5	- 9 18	8.7
Tue Mar 30/Wed Mar 31	12 10	18 49	20 11	4 48	6 10	8 20	16 59	21 17	.....	91	14 58.6	-15 06	8.6
Wed Mar 31/Thu Apr 01	12 14	18 50	20 12	4 46	6 09	8 25	17 01	22 30	.....	82	15 57.7	-19 57	8.6

\*\*\*\*\* 2021 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	
Thu Apr 01/Fri Apr 02	12 18	18 51	20 13	4 45	6 07	8 30	17 03	23 42	.....	73	16 58.7	-23 28	8.5
Fri Apr 02/Sat Apr 03	12 22	18 51	20 14	4 43	6 06	8 35	17 06	0 49	.....	62	18 00.5	-25 27	8.5
Sat Apr 03/Sun Apr 04	12 26	18 52	20 15	4 42	6 05	8 40	17 08	1 50	.....	51	19 01.7	-25 49	8.4
Sun Apr 04/Mon Apr 05	12 30	18 53	20 16	4 40	6 03	8 45	17 11	2 43	.....	40	20 00.9	-24 41	8.4
Mon Apr 05/Tue Apr 06	12 33	18 54	20 17	4 39	6 02	8 50	17 13	3 28	.....	30	20 56.9	-22 14	8.4
Tue Apr 06/Wed Apr 07	12 37	18 55	20 18	4 37	6 00	8 55	17 15	4 06	.....	21	21 49.4	-18 46	8.3
Wed Apr 07/Thu Apr 08	12 41	18 55	20 19	4 36	5 59	9 00	17 18	4 39	.....	14	22 38.7	-14 32	8.3
Thu Apr 08/Fri Apr 09	12 45	18 56	20 20	4 34	5 58	9 05	17 20	5 08	.....	8	23 25.2	- 9 46	8.2
Fri Apr 09/Sat Apr 10	12 49	18 57	20 21	4 32	5 56	9 10	17 22	5 35	.....	3	0 09.8	- 4 44	8.2
Sat Apr 10/Sun Apr 11	12 53	18 58	20 22	4 31	5 55	9 15	17 25	6 01	17 52	1	0 53.2	0 25	8.1
Sun Apr 11/Mon Apr 12	12 57	18 59	20 23	4 29	5 54	9 20	17 27	6 27	18 48	0	1 36.4	5 29	8.1
Mon Apr 12/Tue Apr 13	13 01	18 59	20 24	4 28	5 53	9 25	17 30	6 54	19 44	1	2 20.0	10 18	8.1
Tue Apr 13/Wed Apr 14	13 05	19 00	20 25	4 26	5 51	9 30	17 32	.....	20 41	4	3 04.7	14 43	8.0
Wed Apr 14/Thu Apr 15	13 09	19 01	20 26	4 25	5 50	9 35	17 34	.....	21 38	9	3 51.0	18 33	8.0
Thu Apr 15/Fri Apr 16	13 13	19 02	20 27	4 23	5 49	9 40	17 37	.....	22 35	15	4 39.4	21 38	7.9
Fri Apr 16/Sat Apr 17	13 17	19 03	20 28	4 22	5 47	9 45	17 39	.....	23 32	22	5 30.0	23 48	7.9
Sat Apr 17/Sun Apr 18	13 21	19 03	20 29	4 20	5 46	9 50	17 42	.....	0 27	30	6 22.5	24 54	7.8
Sun Apr 18/Mon Apr 19	13 25	19 04	20 30	4 19	5 45	9 55	17 44	.....	1 18	39	7 16.4	24 48	7.8
Mon Apr 19/Tue Apr 20	13 29	19 05	20 32	4 17	5 44	10 00	17 47	.....	2 04	49	8 10.9	23 27	7.8
Tue Apr 20/Wed Apr 21	13 33	19 06	20 33	4 16	5 43	10 05	17 49	.....	2 46	60	9 05.5	20 49	7.7
Wed Apr 21/Thu Apr 22	13 37	19 07	20 34	4 14	5 41	10 10	17 52	.....	3 24	70	9 59.5	16 59	7.7
Thu Apr 22/Fri Apr 23	13 41	19 07	20 35	4 13	5 40	10 15	17 54	.....	3 58	80	10 53.0	12 05	7.6
Fri Apr 23/Sat Apr 24	13 44	19 08	20 36	4 11	5 39	10 20	17 56	.....	4 31	88	11 46.2	6 20	7.6
Sat Apr 24/Sun Apr 25	13 48	19 09	20 37	4 10	5 38	10 25	17 59	.....	5 03	95	12 39.9	0 01	7.5
Sun Apr 25/Mon Apr 26	13 52	19 10	20 38	4 08	5 37	10 30	18 01	17 38	5 37	99	13 34.8	- 6 29	7.5
Mon Apr 26/Tue Apr 27	13 56	19 11	20 39	4 07	5 36	10 35	18 04	18 51	6 13	100	14 31.8	-12 45	7.5
Tue Apr 27/Wed Apr 28	14 00	19 12	20 40	4 06	5 34	10 40	18 06	20 06	.....	98	15 31.5	-18 15	7.4
Wed Apr 28/Thu Apr 29	14 04	19 12	20 42	4 04	5 33	10 45	18 09	21 21	.....	93	16 33.9	-22 33	7.4
Thu Apr 29/Fri Apr 30	14 08	19 13	20 43	4 03	5 32	10 50	18 12	22 34	.....	85	17 38.2	-25 15	7.3
Fri Apr 30/Sat May 01	14 12	19 14	20 44	4 01	5 31	10 55	18 14	23 41	.....	76	18 42.5	-26 13	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.

\*\*\*\*\* 2021 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
Sat May 01/Sun May 02	14 16	19 15	20 45	4 00 5 30	11 00 18 17	0 39	.....	66	19 44.8 -25 30	7.3
Sun May 02/Mon May 03	14 20	19 16	20 46	3 59 5 29	11 05 18 19	1 27	.....	55	20 43.5 -23 18	7.2
Mon May 03/Tue May 04	14 24	19 16	20 47	3 57 5 28	11 11 18 22	2 08	.....	45	21 38.1 -19 57	7.2
Tue May 04/Wed May 05	14 28	19 17	20 48	3 56 5 27	11 16 18 25	2 42	.....	35	22 28.7 -15 47	7.1
Wed May 05/Thu May 06	14 32	19 18	20 49	3 55 5 26	11 21 18 27	3 12	.....	25	23 16.0 -11 04	7.1
Thu May 06/Fri May 07	14 36	19 19	20 51	3 53 5 25	11 26 18 30	3 40	.....	17	0 00.8 - 6 03	7.0
Fri May 07/Sat May 08	14 40	19 20	20 52	3 52 5 24	11 31 18 33	4 05	.....	11	0 44.2 - 0 54	7.0
Sat May 08/Sun May 09	14 44	19 20	20 53	3 51 5 23	11 36 18 35	4 31	.....	6	1 27.1 4 12	7.0
Sun May 09/Mon May 10	14 48	19 21	20 54	3 50 5 23	11 41 18 38	4 57	17 38	2	2 10.3 9 06	6.9
Mon May 10/Tue May 11	14 51	19 22	20 55	3 49 5 22	11 46 18 41	5 25	18 35	0	2 54.4 13 38	6.9
Tue May 11/Wed May 12	14 55	19 23	20 56	3 47 5 21	11 51 18 43	5 57	19 32	0	3 40.2 17 38	6.9
Wed May 12/Thu May 13	14 59	19 24	20 57	3 46 5 20	11 56 18 46	.....	20 29	2	4 28.1 20 55	6.8
Thu May 13/Fri May 14	15 03	19 24	20 59	3 45 5 19	12 01 18 49	.....	21 26	5	5 18.0 23 20	6.8
Fri May 14/Sat May 15	15 07	19 25	21 00	3 44 5 19	12 07 18 52	.....	22 22	10	6 09.8 24 42	6.7
Sat May 15/Sun May 16	15 11	19 26	21 01	3 43 5 18	12 12 18 55	.....	23 14	17	7 02.9 24 55	6.7
Sun May 16/Mon May 17	15 15	19 27	21 02	3 42 5 17	12 17 18 58	.....	0 02	25	7 56.5 23 55	6.7
Mon May 17/Tue May 18	15 19	19 28	21 03	3 41 5 16	12 22 19 01	.....	0 44	34	8 49.9 21 41	6.6
Tue May 18/Wed May 19	15 23	19 28	21 04	3 40 5 16	12 27 19 04	.....	1 23	44	9 42.5 18 18	6.6
Wed May 19/Thu May 20	15 27	19 29	21 05	3 39 5 15	12 32 19 06	.....	1 57	55	10 34.3 13 53	6.6
Thu May 20/Fri May 21	15 31	19 30	21 06	3 38 5 15	12 37 19 09	.....	2 29	66	11 25.6 8 36	6.5
Fri May 21/Sat May 22	15 35	19 31	21 07	3 37 5 14	12 42 19 13	.....	3 00	76	12 17.1 2 40	6.5
Sat May 22/Sun May 23	15 39	19 31	21 08	3 36 5 13	12 47 19 16	.....	3 32	85	13 09.6 - 3 38	6.5
Sun May 23/Mon May 24	15 43	19 32	21 09	3 35 5 13	12 52 19 19	.....	4 06	93	14 04.4 - 9 57	6.4
Mon May 24/Tue May 25	15 47	19 33	21 11	3 35 5 12	12 57 19 22	17 38	4 44	98	15 02.2 -15 51	6.4
Tue May 25/Wed May 26	15 51	19 33	21 12	3 34 5 12	13 02 19 25	18 53	5 27	100	16 03.6 -20 50	6.4
Wed May 26/Thu May 27	15 55	19 34	21 13	3 33 5 11	13 07 19 28	20 09	6 19	99	17 08.3 -24 24	6.3
Thu May 27/Fri May 28	15 58	19 35	21 13	3 32 5 11	13 12 19 31	21 21	.....	95	18 14.7 -26 13	6.3
Fri May 28/Sat May 29	16 02	19 35	21 14	3 32 5 11	13 16 19 35	22 25	.....	88	19 20.4 -26 11	6.3
Sat May 29/Sun May 30	16 06	19 36	21 15	3 31 5 10	13 21 19 38	23 20	.....	80	20 23.0 -24 26	6.3
Sun May 30/Mon May 31	16 10	19 37	21 16	3 30 5 10	13 26 19 41	0 06	.....	70	21 21.2 -21 20	6.2
Mon May 31/Tue Jun 01	16 14	19 37	21 17	3 30 5 10	13 31 19 45	0 43	.....	60	22 14.7 -17 14	6.2

\*\*\*\*\* 2021 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
Tue Jun 01/Wed Jun 02	16 18	19 38	21 18	3 29 5 09	13 36 19 48	1 15	.....	50	23 04.1 -12 31	6.2
Wed Jun 02/Thu Jun 03	16 22	19 39	21 19	3 29 5 09	13 41 19 51	1 44	.....	40	23 50.3 - 7 27	6.2
Thu Jun 03/Fri Jun 04	16 26	19 39	21 20	3 28 5 09	13 45 19 55	2 10	.....	30	0 34.5 - 2 15	6.1
Fri Jun 04/Sat Jun 05	16 30	19 40	21 20	3 28 5 09	13 50 19 58	2 35	.....	22	1 17.6 2 55	6.1
Sat Jun 05/Sun Jun 06	16 34	19 40	21 21	3 27 5 08	13 55 20 02	3 01	.....	15	2 00.7 7 54	6.1
Sun Jun 06/Mon Jun 07	16 38	19 41	21 22	3 27 5 08	13 59 20 06	3 29	.....	9	2 44.5 12 32	6.1
Mon Jun 07/Tue Jun 08	16 42	19 41	21 23	3 27 5 08	14 04 20 09	3 59	.....	4	3 29.9 16 40	6.1
Tue Jun 08/Wed Jun 09	16 46	19 42	21 23	3 27 5 08	14 09 20 13	4 33	18 23	1	4 17.2 20 08	6.1
Wed Jun 09/Thu Jun 10	16 50	19 42	21 24	3 26 5 08	14 13 20 17	5 12	19 21	0	5 06.8 22 46	6.0
Thu Jun 10/Fri Jun 11	16 54	19 43	21 25	3 26 5 08	14 18 20 20	5 57	20 17	1	5 58.3 24 24	6.0
Fri Jun 11/Sat Jun 12	16 58	19 43	21 25	3 26 5 08	14 22 20 24	.....	21 11	3	6 51.2 24 53	6.0
Sat Jun 12/Sun Jun 13	17 02	19 44	21 26	3 26 5 08	14 27 20 28	.....	22 00	7	7 44.7 24 09	6.0
Sun Jun 13/Mon Jun 14	17 06	19 44	21 26	3 26 5 08	14 31 20 32	.....	22 44	13	8 37.9 22 12	6.0
Mon Jun 14/Tue Jun 15	17 09	19 44	21 27	3 26 5 08	14 36 20 36	.....	23 24	21	9 30.2 19 06	6.0
Tue Jun 15/Wed Jun 16	17 13	19 45	21 27	3 26 5 08	14 40 20 40	.....	23 59	30	10 21.2 15 00	6.0
Wed Jun 16/Thu Jun 17	17 17	19 45	21 27	3 26 5 08	14 44 20 44	.....	0 31	40	11 11.2 10 04	6.0
Thu Jun 17/Fri Jun 18	17 21	19 45	21 28	3 26 5 08	14 49 20 48	.....	1 01	51	12 00.9 4 29	6.0
Fri Jun 18/Sat Jun 19	17 25	19 46	21 28	3 26 5 08	14 53 20 52	.....	1 31	62	12 51.1 - 1 30	6.0
Sat Jun 19/Sun Jun 20	17 29	19 46	21 28	3 26 5 09	14 57 20 56	.....	2 02	73	13 42.8 - 7 38	6.0
Sun Jun 20/Mon Jun 21	17 33	19 46	21 29	3 26 5 09	15 01 21 00	.....	2 37	83	14 37.4 -13 33	6.0
Mon Jun 21/Tue Jun 22	17 37	19 46	21 29	3 27 5 09	15 05 21 04	.....	3 16	91	15 35.6 -18 50	6.0
Tue Jun 22/Wed Jun 23	17 41	19 46	21 29	3 27 5 09	15 10 21 09	17 42	4 03	97	16 37.8 -23 01	6.0
Wed Jun 23/Thu Jun 24	17 45	19 47	21 29	3 27 5 10	15 14 21 13	18 56	4 58	100	17 43.4 -25 40	6.0
Thu Jun 24/Fri Jun 25	17 49	19 47	21 29	3 28 5 10	15 18 21 17	20 05	6 01	100	18 50.2 -26 30	6.0
Fri Jun 25/Sat Jun 26	17 53	19 47	21 29	3 28 5 10	15 22 21 21	21 06	.....	97	19 55.6 -25 28	6.0
Sat Jun 26/Sun Jun 27	17 57	19 47	21 29	3 28 5 11	15 26 21 26	21 57	.....	91	20 57.5 -22 49	6.0
Sun Jun 27/Mon Jun 28	18 01	19 47	21 29	3 29 5 11	15 29 21 30	22 39	.....	84	21 54.6 -18 57	6.0
Mon Jun 28/Tue Jun 29	18 05	19 47	21 29	3 29 5 11	15 33 21 35	23 14	.....	75	22 47.1 -14 15	6.0
Tue Jun 29/Wed Jun 30	18 09	19 47	21 29	3 30 5 12	15 37 21 39	23 45	.....	65	23 35.7 - 9 07	6.0
Wed Jun 30/Thu Jul 01	18 13	19 47	21 29	3 31 5 12	15 41 21 44	0 12	.....	55	0 21.6 - 3 47	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.

\*\*\*\*\* 2021 JULY \*\*\*\*\*

Date (eve/morn)			LMST midn	Sun: -----					LST twilight:		Moon: -----				Twi-Twi
			set	twi.end	twi.beg	rise	rise	morn	rise	set	%illum	RA	Dec	hours	
Thu Jul 01/Fri Jul 02	18 16	19 47	21 29	3 31	5 13	15 45	21 48	0 38	.....	46	1 05.7	1 31	6.0		
Fri Jul 02/Sat Jul 03	18 20	19 47	21 28	3 32	5 13	15 48	21 53	1 04	.....	36	1 49.3	6 37	6.1		
Sat Jul 03/Sun Jul 04	18 24	19 47	21 28	3 32	5 14	15 52	21 57	1 31	.....	27	2 33.2	11 24	6.1		
Sun Jul 04/Mon Jul 05	18 28	19 47	21 28	3 33	5 14	15 56	22 02	2 00	.....	19	3 18.4	15 41	6.1		
Mon Jul 05/Tue Jul 06	18 32	19 46	21 27	3 34	5 15	15 59	22 07	2 33	.....	12	4 05.3	19 20	6.1		
Tue Jul 06/Wed Jul 07	18 36	19 46	21 27	3 35	5 15	16 03	22 11	3 10	.....	7	4 54.4	22 12	6.1		
Wed Jul 07/Thu Jul 08	18 40	19 46	21 26	3 35	5 16	16 06	22 16	3 53	18 10	3	5 45.6	24 04	6.1		
Thu Jul 08/Fri Jul 09	18 44	19 46	21 26	3 36	5 16	16 10	22 21	4 43	19 05	1	6 38.6	24 49	6.2		
Fri Jul 09/Sat Jul 10	18 48	19 45	21 25	3 37	5 17	16 13	22 26	5 38	19 57	0	7 32.4	24 21	6.2		
Sat Jul 10/Sun Jul 11	18 52	19 45	21 25	3 38	5 18	16 16	22 30	.....	20 43	2	8 26.1	22 39	6.2		
Sun Jul 11/Mon Jul 12	18 56	19 45	21 24	3 39	5 18	16 20	22 35	.....	21 24	5	9 18.8	19 46	6.2		
Mon Jul 12/Tue Jul 13	19 00	19 44	21 24	3 40	5 19	16 23	22 40	.....	22 01	11	10 10.2	15 50	6.3		
Tue Jul 13/Wed Jul 14	19 04	19 44	21 23	3 40	5 19	16 26	22 45	.....	22 33	18	11 00.2	11 04	6.3		
Wed Jul 14/Thu Jul 15	19 08	19 44	21 22	3 41	5 20	16 29	22 50	.....	23 04	27	11 49.3	5 40	6.3		
Thu Jul 15/Fri Jul 16	19 12	19 43	21 21	3 42	5 21	16 33	22 55	.....	23 33	37	12 38.4	- 0 08	6.3		
Fri Jul 16/Sat Jul 17	19 16	19 43	21 21	3 43	5 21	16 36	23 00	.....	0 03	48	13 28.3	- 6 05	6.4		
Sat Jul 17/Sun Jul 18	19 20	19 42	21 20	3 44	5 22	16 39	23 04	.....	0 36	59	14 20.2	-11 54	6.4		
Sun Jul 18/Mon Jul 19	19 24	19 42	21 19	3 45	5 23	16 42	23 09	.....	1 12	70	15 15.2	-17 14	6.4		
Mon Jul 19/Tue Jul 20	19 27	19 41	21 18	3 46	5 23	16 45	23 14	.....	1 54	81	16 13.9	-21 41	6.5		
Tue Jul 20/Wed Jul 21	19 31	19 40	21 17	3 47	5 24	16 48	23 19	.....	2 44	89	17 16.4	-24 52	6.5		
Wed Jul 21/Thu Jul 22	19 35	19 40	21 16	3 48	5 25	16 51	23 24	17 45	3 42	95	18 21.5	-26 24	6.5		
Thu Jul 22/Fri Jul 23	19 39	19 39	21 15	3 49	5 26	16 54	23 29	18 49	4 48	99	19 27.0	-26 07	6.6		
Fri Jul 23/Sat Jul 24	19 43	19 38	21 14	3 50	5 26	16 57	23 34	19 44	5 57	100	20 30.5	-24 07	6.6		
Sat Jul 24/Sun Jul 25	19 47	19 38	21 13	3 51	5 27	17 00	23 39	20 31	.....	98	21 30.2	-20 40	6.6		
Sun Jul 25/Mon Jul 26	19 51	19 37	21 12	3 53	5 28	17 03	23 44	21 10	.....	94	22 25.5	-16 11	6.7		
Mon Jul 26/Tue Jul 27	19 55	19 36	21 11	3 54	5 28	17 06	23 49	21 43	.....	87	23 16.7	-11 03	6.7		
Tue Jul 27/Wed Jul 28	19 59	19 36	21 10	3 55	5 29	17 09	23 54	22 12	.....	80	0 04.6	- 5 37	6.7		
Wed Jul 28/Thu Jul 29	20 03	19 35	21 09	3 56	5 30	17 11	23 59	22 39	.....	71	0 50.4	- 0 08	6.8		
Thu Jul 29/Fri Jul 30	20 07	19 34	21 08	3 57	5 31	17 14	0 04	23 05	.....	62	1 35.0	5 11	6.8		
Fri Jul 30/Sat Jul 31	20 11	19 33	21 07	3 58	5 31	17 17	0 09	23 32	.....	52	2 19.5	10 10	6.9		
Sat Jul 31/Sun Aug 01	20 15	19 32	21 05	3 59	5 32	17 20	0 14	0 00	.....	43	3 04.7	14 40	6.9		

\*\*\*\*\* 2021 AUGUST \*\*\*\*\*

Date (eve/morn)			LMST midn	Sun: -----					LST twilight:		Moon: -----				Twi-Twi
			set	twi.end	twi.beg	rise	rise	morn	rise	set	%illum	RA	Dec	hours	
Sun Aug 01/Mon Aug 02	20 19	19 31	21 04	4 00	5 33	17 22	0 19	0 31	.....	33	3 51.4	18 32	6.9		
Mon Aug 02/Tue Aug 03	20 23	19 30	21 03	4 01	5 34	17 25	0 25	1 07	.....	25	4 40.0	21 38	7.0		
Tue Aug 03/Wed Aug 04	20 27	19 30	21 02	4 02	5 34	17 28	0 30	1 48	.....	17	5 30.8	23 47	7.0		
Wed Aug 04/Thu Aug 05	20 31	19 29	21 00	4 03	5 35	17 30	0 35	2 35	.....	10	6 23.5	24 50	7.1		
Thu Aug 05/Fri Aug 06	20 34	19 28	20 59	4 04	5 36	17 33	0 40	3 29	17 50	5	7 17.4	24 41	7.1		
Fri Aug 06/Sat Aug 07	20 38	19 27	20 58	4 06	5 37	17 36	0 45	4 28	18 39	2	8 11.6	23 16	7.1		
Sat Aug 07/Sun Aug 08	20 42	19 26	20 56	4 07	5 37	17 38	0 50	5 31	19 22	0	9 05.2	20 37	7.2		
Sun Aug 08/Mon Aug 09	20 46	19 25	20 55	4 08	5 38	17 41	0 55	6 35	20 00	1	9 57.5	16 52	7.2		
Mon Aug 09/Tue Aug 10	20 50	19 24	20 54	4 09	5 39	17 43	1 00	.....	20 35	3	10 48.4	12 12	7.3		
Tue Aug 10/Wed Aug 11	20 54	19 22	20 52	4 10	5 40	17 46	1 05	.....	21 06	8	11 38.2	6 50	7.3		
Wed Aug 11/Thu Aug 12	20 58	19 21	20 51	4 11	5 40	17 48	1 10	.....	21 36	15	12 27.4	1 02	7.3		
Thu Aug 12/Fri Aug 13	21 02	19 20	20 49	4 12	5 41	17 51	1 15	.....	22 06	24	13 17.0	- 4 55	7.4		
Fri Aug 13/Sat Aug 14	21 06	19 19	20 48	4 13	5 42	17 53	1 20	.....	22 37	34	14 08.0	-10 45	7.4		
Sat Aug 14/Sun Aug 15	21 10	19 18	20 47	4 14	5 43	17 56	1 25	.....	23 12	45	15 01.3	-16 08	7.5		
Sun Aug 15/Mon Aug 16	21 14	19 17	20 45	4 15	5 44	17 58	1 30	.....	23 51	57	15 57.7	-20 44	7.5		
Mon Aug 16/Tue Aug 17	21 18	19 16	20 44	4 16	5 44	18 01	1 35	.....	0 37	68	16 57.4	-24 10	7.5		
Tue Aug 17/Wed Aug 18	21 22	19 14	20 42	4 17	5 45	18 03	1 40	.....	1 31	78	18 00.0	-26 09	7.6		
Wed Aug 18/Thu Aug 19	21 26	19 13	20 41	4 18	5 46	18 06	1 45	.....	2 32	87	19 03.7	-26 27	7.6		
Thu Aug 19/Fri Aug 20	21 30	19 12	20 39	4 19	5 47	18 08	1 50	17 34	3 39	94	20 06.6	-25 03	7.7		
Fri Aug 20/Sat Aug 21	21 34	19 11	20 38	4 20	5 47	18 11	1 55	18 23	4 47	98	21 06.8	-22 07	7.7		
Sat Aug 21/Sun Aug 22	21 38	19 10	20 36	4 21	5 48	18 13	2 00	19 05	5 54	100	22 03.3	-17 59	7.8		
Sun Aug 22/Mon Aug 23	21 42	19 08	20 35	4 22	5 49	18 15	2 05	19 40	.....	99	22 56.0	-13 01	7.8		
Mon Aug 23/Tue Aug 24	21 45	19 07	20 33	4 23	5 49	18 18	2 10	20 10	.....	96	23 45.5	- 7 35	7.8		
Tue Aug 24/Wed Aug 25	21 49	19 06	20 31	4 24	5 50	18 20	2 15	20 38	.....	91	0 32.5	- 1 59	7.9		
Wed Aug 25/Thu Aug 26	21 53	19 04	20 30	4 25	5 51	18 23	2 20	21 05	.....	85	1 18.2	3 32	7.9		
Thu Aug 26/Fri Aug 27	21 57	19 03	20 28	4 26	5 52	18 25	2 24	21 32	.....	77	2 03.4	8 45	8.0		
Fri Aug 27/Sat Aug 28	22 01	19 02	20 27	4 27	5 52	18 27	2 29	21 59	.....	68	2 48.9	13 32	8.0		
Sat Aug 28/Sun Aug 29	22 05	19 01	20 25	4 28	5 53	18 30	2 34	22 30	.....	59	3 35.6	17 41	8.1		
Sun Aug 29/Mon Aug 30	22 09	18 59	20 24	4 29	5 54	18 32	2 39	23 03	.....	50	4 24.0	21 04	8.1		
Mon Aug 30/Tue Aug 31	22 13	18 58	20 22	4 30	5 55	18 35	2 44	23 42	.....	40	5 14.3	23 32	8.1		
Tue Aug 31/Wed Sep 01	22 17	18 56	20 21	4 31	5 55	18 37	2 49	0 26	.....	31	6 06.5	24 56	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.

\*\*\*\*\* 2021 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	
Wed Sep 01/Thu Sep 02	22 21	18 55	20 19	4 32	5 56	18 39	2 54	1 17	.....	22	7 00.0	25 09	8.2
Thu Sep 02/Fri Sep 03	22 25	18 54	20 17	4 33	5 57	18 42	2 59	2 14	.....	15	7 54.1	24 06	8.3
Fri Sep 03/Sat Sep 04	22 29	18 52	20 16	4 34	5 58	18 44	3 04	3 16	17 17	8	8 48.1	21 48	8.3
Sat Sep 04/Sun Sep 05	22 33	18 51	20 14	4 35	5 58	18 46	3 08	4 20	17 57	4	9 41.1	18 19	8.3
Sun Sep 05/Mon Sep 06	22 37	18 50	20 13	4 36	5 59	18 49	3 13	5 26	18 33	1	10 32.9	13 49	8.4
Mon Sep 06/Tue Sep 07	22 41	18 48	20 11	4 37	6 00	18 51	3 18	6 32	19 06	0	11 23.6	8 31	8.4
Tue Sep 07/Wed Sep 08	22 45	18 47	20 09	4 38	6 00	18 53	3 23	.....	19 37	2	12 13.8	2 39	8.5
Wed Sep 08/Thu Sep 09	22 49	18 45	20 08	4 39	6 01	18 56	3 28	.....	20 07	6	13 04.1	- 3 26	8.5
Thu Sep 09/Fri Sep 10	22 52	18 44	20 06	4 39	6 02	18 58	3 33	.....	20 38	13	13 55.4	- 9 28	8.6
Fri Sep 10/Sat Sep 11	22 56	18 43	20 05	4 40	6 03	19 00	3 38	.....	21 12	22	14 48.7	-15 04	8.6
Sat Sep 11/Sun Sep 12	23 00	18 41	20 03	4 41	6 03	19 03	3 42	.....	21 50	32	15 44.6	-19 54	8.6
Sun Sep 12/Mon Sep 13	23 04	18 40	20 02	4 42	6 04	19 05	3 47	.....	22 34	43	16 43.4	-23 37	8.7
Mon Sep 13/Tue Sep 14	23 08	18 38	20 00	4 43	6 05	19 08	3 52	.....	23 25	54	17 44.7	-25 55	8.7
Tue Sep 14/Wed Sep 15	23 12	18 37	19 58	4 44	6 05	19 10	3 57	.....	0 23	65	18 47.1	-26 36	8.8
Wed Sep 15/Thu Sep 16	23 16	18 35	19 57	4 45	6 06	19 12	4 02	.....	1 27	76	19 48.9	-25 39	8.8
Thu Sep 16/Fri Sep 17	23 20	18 34	19 55	4 45	6 07	19 15	4 06	.....	2 34	84	20 48.5	-23 10	8.8
Fri Sep 17/Sat Sep 18	23 24	18 33	19 54	4 46	6 08	19 17	4 11	17 02	3 41	91	21 44.8	-19 25	8.9
Sat Sep 18/Sun Sep 19	23 28	18 31	19 52	4 47	6 08	19 19	4 16	17 39	4 46	96	22 37.7	-14 44	8.9
Sun Sep 19/Mon Sep 20	23 32	18 30	19 51	4 48	6 09	19 22	4 21	18 10	5 48	99	23 27.6	- 9 27	9.0
Mon Sep 20/Tue Sep 21	23 36	18 28	19 49	4 49	6 10	19 24	4 25	18 39	6 49	100	0 15.1	- 3 52	9.0
Tue Sep 21/Wed Sep 22	23 40	18 27	19 48	4 50	6 10	19 27	4 30	19 06	.....	98	1 01.1	1 46	9.0
Wed Sep 22/Thu Sep 23	23 44	18 25	19 46	4 50	6 11	19 29	4 35	19 32	.....	95	1 46.6	7 12	9.1
Thu Sep 23/Fri Sep 24	23 48	18 24	19 45	4 51	6 12	19 32	4 40	19 59	.....	89	2 32.4	12 14	9.1
Fri Sep 24/Sat Sep 25	23 52	18 23	19 43	4 52	6 13	19 34	4 44	20 28	.....	83	3 19.1	16 41	9.1
Sat Sep 25/Sun Sep 26	23 56	18 21	19 42	4 53	6 13	19 36	4 49	21 00	.....	75	4 07.3	20 24	9.2
Sun Sep 26/Mon Sep 27	23 59	18 20	19 40	4 54	6 14	19 39	4 54	21 37	.....	66	4 57.3	23 13	9.2
Mon Sep 27/Tue Sep 28	0 03	18 18	19 39	4 54	6 15	19 41	4 59	22 18	.....	57	5 48.9	24 59	9.3
Tue Sep 28/Wed Sep 29	0 07	18 17	19 37	4 55	6 16	19 44	5 03	23 06	.....	47	6 41.9	25 36	9.3
Wed Sep 29/Thu Sep 30	0 11	18 15	19 36	4 56	6 16	19 46	5 08	0 00	.....	38	7 35.6	24 58	9.3
Thu Sep 30/Fri Oct 01	0 15	18 14	19 34	4 57	6 17	19 49	5 13	0 59	.....	28	8 29.2	23 06	9.4

\*\*\*\*\* 2021 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	
Fri Oct 01/Sat Oct 02	0 19	18 13	19 33	4 58	6 18	19 51	5 18	2 02	.....	20	9 22.1	20 01	9.4
Sat Oct 02/Sun Oct 03	0 23	18 11	19 31	4 58	6 19	19 54	5 22	3 07	16 29	12	10 14.1	15 51	9.4
Sun Oct 03/Mon Oct 04	0 27	18 10	19 30	4 59	6 19	19 56	5 27	4 13	17 03	6	11 05.1	10 47	9.5
Mon Oct 04/Tue Oct 05	0 31	18 09	19 29	5 00	6 20	19 59	5 32	5 20	17 34	2	11 55.7	5 00	9.5
Tue Oct 05/Wed Oct 06	0 35	18 07	19 27	5 01	6 21	20 02	5 37	6 28	18 05	0	12 46.4	- 1 10	9.6
Wed Oct 06/Thu Oct 07	0 39	18 06	19 26	5 01	6 22	20 04	5 41	.....	18 36	1	13 38.3	- 7 26	9.6
Thu Oct 07/Fri Oct 08	0 43	18 04	19 25	5 02	6 23	20 07	5 46	.....	19 10	5	14 32.1	-13 24	9.6
Fri Oct 08/Sat Oct 09	0 47	18 03	19 23	5 03	6 23	20 09	5 51	.....	19 47	11	15 28.6	-18 39	9.7
Sat Oct 09/Sun Oct 10	0 51	18 02	19 22	5 04	6 24	20 12	5 55	.....	20 30	19	16 27.9	-22 50	9.7
Sun Oct 10/Mon Oct 11	0 55	18 00	19 21	5 05	6 25	20 15	6 00	.....	21 20	29	17 29.7	-25 34	9.7
Mon Oct 11/Tue Oct 12	0 59	17 59	19 19	5 05	6 26	20 17	6 05	.....	22 17	40	18 32.6	-26 39	9.8
Tue Oct 12/Wed Oct 13	1 03	17 58	19 18	5 06	6 27	20 20	6 10	.....	23 20	51	19 34.7	-26 04	9.8
Wed Oct 13/Thu Oct 14	1 07	17 57	19 17	5 07	6 27	20 23	6 14	.....	0 26	62	20 34.5	-23 55	9.8
Thu Oct 14/Fri Oct 15	1 10	17 55	19 16	5 08	6 28	20 25	6 19	.....	1 32	72	21 30.8	-20 29	9.9
Fri Oct 15/Sat Oct 16	1 14	17 54	19 14	5 09	6 29	20 28	6 24	.....	2 37	81	22 23.6	-16 04	9.9
Sat Oct 16/Sun Oct 17	1 18	17 53	19 13	5 09	6 30	20 31	6 28	16 13	3 39	89	23 13.2	-10 58	9.9
Sun Oct 17/Mon Oct 18	1 22	17 52	19 12	5 10	6 31	20 33	6 33	16 42	4 40	94	0 00.4	- 5 30	10.0
Mon Oct 18/Tue Oct 19	1 26	17 50	19 11	5 11	6 32	20 36	6 38	17 08	5 38	98	0 46.2	0 06	10.0
Tue Oct 19/Wed Oct 20	1 30	17 49	19 10	5 12	6 32	20 39	6 43	17 34	6 37	100	1 31.4	5 37	10.0
Wed Oct 20/Thu Oct 21	1 34	17 48	19 09	5 12	6 33	20 42	6 47	18 01	7 35	100	2 16.9	10 50	10.1
Thu Oct 21/Fri Oct 22	1 38	17 47	19 07	5 13	6 34	20 45	6 52	18 29	.....	97	3 03.3	15 32	10.1
Fri Oct 22/Sat Oct 23	1 42	17 46	19 06	5 14	6 35	20 48	6 57	18 59	.....	93	3 51.2	19 34	10.1
Sat Oct 23/Sun Oct 24	1 46	17 44	19 05	5 15	6 36	20 50	7 02	19 34	.....	88	4 40.9	22 44	10.2
Sun Oct 24/Mon Oct 25	1 50	17 43	19 04	5 16	6 37	20 53	7 06	20 14	.....	81	5 32.3	24 52	10.2
Mon Oct 25/Tue Oct 26	1 54	17 42	19 03	5 16	6 38	20 56	7 11	20 59	.....	73	6 25.0	25 52	10.2
Tue Oct 26/Wed Oct 27	1 58	17 41	19 02	5 17	6 38	20 59	7 16	21 50	.....	64	7 18.4	25 39	10.2
Wed Oct 27/Thu Oct 28	2 02	17 40	19 01	5 18	6 39	21 02	7 21	22 46	.....	55	8 11.5	24 12	10.3
Thu Oct 28/Fri Oct 29	2 06	17 39	19 00	5 19	6 40	21 05	7 25	23 46	.....	45	9 04.0	21 33	10.3
Fri Oct 29/Sat Oct 30	2 10	17 38	18 59	5 20	6 41	21 08	7 30	0 48	.....	35	9 55.3	17 49	10.3
Sat Oct 30/Sun Oct 31	2 14	17 37	18 59	5 20	6 42	21 11	7 35	1 52	.....	25	10 45.7	13 08	10.4
Sun Oct 31/Mon Nov 01	2 17	17 36	18 58	5 21	6 43	21 14	7 40	2 58	.....	16	11 35.5	7 40	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.

\*\*\*\*\* 2021 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	
Mon Nov 01/Tue Nov 02	2 21	17 35	18 57	5 22	6 44	21 17	7 44	4 05	16 02	9	12 25.5	1 39	10.4
Tue Nov 02/Wed Nov 03	2 25	17 34	18 56	5 23	6 45	21 21	7 49	5 14	16 32	4	13 16.7	- 4 39	10.4
Wed Nov 03/Thu Nov 04	2 29	17 33	18 55	5 24	6 46	21 24	7 54	6 26	17 04	1	14 09.9	-10 52	10.5
Thu Nov 04/Fri Nov 05	2 33	17 32	18 54	5 24	6 47	21 27	7 59	7 40	17 40	0	15 06.2	-16 35	10.5
Fri Nov 05/Sat Nov 06	2 37	17 31	18 54	5 25	6 48	21 30	8 03	.....	18 20	3	16 05.9	-21 22	10.5
Sat Nov 06/Sun Nov 07	2 41	17 31	18 53	5 26	6 49	21 33	8 08	.....	19 09	8	17 08.7	-24 46	10.6
Sun Nov 07/Mon Nov 08	2 45	17 30	18 52	5 27	6 50	21 36	8 13	.....	20 05	16	18 13.3	-26 28	10.6
Mon Nov 08/Tue Nov 09	2 49	17 29	18 52	5 28	6 51	21 40	8 18	.....	21 08	25	19 17.6	-26 22	10.6
Tue Nov 09/Wed Nov 10	2 53	17 28	18 51	5 29	6 51	21 43	8 22	.....	22 16	36	20 19.4	-24 35	10.6
Wed Nov 10/Thu Nov 11	2 57	17 27	18 50	5 29	6 52	21 46	8 27	.....	23 24	47	21 17.3	-21 24	10.7
Thu Nov 11/Fri Nov 12	3 01	17 27	18 50	5 30	6 53	21 50	8 32	.....	0 30	57	22 11.1	-17 10	10.7
Fri Nov 12/Sat Nov 13	3 05	17 26	18 49	5 31	6 54	21 53	8 37	.....	1 33	68	23 01.1	-12 14	10.7
Sat Nov 13/Sun Nov 14	3 09	17 25	18 49	5 32	6 55	21 57	8 42	.....	2 34	77	23 48.4	- 6 52	10.7
Sun Nov 14/Mon Nov 15	3 13	17 25	18 48	5 33	6 56	22 00	8 46	.....	3 32	85	0 33.9	- 1 19	10.7
Mon Nov 15/Tue Nov 16	3 17	17 24	18 48	5 34	6 57	22 03	8 51	.....	4 30	91	1 18.5	4 11	10.8
Tue Nov 16/Wed Nov 17	3 21	17 24	18 47	5 34	6 58	22 07	8 56	16 04	5 27	96	2 03.4	9 28	10.8
Wed Nov 17/Thu Nov 18	3 25	17 23	18 47	5 35	6 59	22 10	9 01	16 31	6 25	99	2 49.1	14 20	10.8
Thu Nov 18/Fri Nov 19	3 28	17 22	18 46	5 36	7 00	22 14	9 05	17 01	7 23	100	3 36.5	18 35	10.8
Fri Nov 19/Sat Nov 20	3 32	17 22	18 46	5 37	7 01	22 18	9 10	17 34	.....	99	4 25.7	22 02	10.8
Sat Nov 20/Sun Nov 21	3 36	17 22	18 46	5 38	7 02	22 21	9 15	18 11	.....	97	5 16.9	24 31	10.9
Sun Nov 21/Mon Nov 22	3 40	17 21	18 45	5 39	7 03	22 25	9 20	18 55	.....	92	6 09.6	25 53	10.9
Mon Nov 22/Tue Nov 23	3 44	17 21	18 45	5 39	7 04	22 28	9 24	19 44	.....	87	7 03.0	26 01	10.9
Tue Nov 23/Wed Nov 24	3 48	17 20	18 45	5 40	7 05	22 32	9 29	20 38	.....	79	7 56.3	24 56	10.9
Wed Nov 24/Thu Nov 25	3 52	17 20	18 45	5 41	7 06	22 36	9 34	21 35	.....	71	8 48.6	22 39	10.9
Thu Nov 25/Fri Nov 26	3 56	17 20	18 44	5 42	7 07	22 40	9 39	22 36	.....	62	9 39.5	19 16	11.0
Fri Nov 26/Sat Nov 27	4 00	17 19	18 44	5 43	7 08	22 43	9 43	23 38	.....	52	10 29.2	14 58	11.0
Sat Nov 27/Sun Nov 28	4 04	17 19	18 44	5 43	7 08	22 47	9 48	0 40	.....	41	11 17.8	9 52	11.0
Sun Nov 28/Mon Nov 29	4 08	17 19	18 44	5 44	7 09	22 51	9 53	1 44	.....	31	12 06.3	4 11	11.0
Mon Nov 29/Tue Nov 30	4 12	17 19	18 44	5 45	7 10	22 55	9 58	2 50	.....	21	12 55.6	- 1 53	11.0
Tue Nov 30/Wed Dec 01	4 16	17 19	18 44	5 46	7 11	22 59	10 02	3 59	.....	13	13 46.7	- 8 04	11.0

\*\*\*\*\* 2021 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	
Wed Dec 01/Thu Dec 02	4 20	17 18	18 44	5 46	7 12	23 03	10 07	5 11	.....	6	14 40.8	-13 59	11.0
Thu Dec 02/Fri Dec 03	4 24	17 18	18 44	5 47	7 13	23 07	10 12	6 26	16 09	2	15 38.8	-19 14	11.1
Fri Dec 03/Sat Dec 04	4 28	17 18	18 44	5 48	7 14	23 11	10 16	7 43	16 53	0	16 40.9	-23 21	11.1
Sat Dec 04/Sun Dec 05	4 32	17 18	18 44	5 49	7 15	23 15	10 21	.....	17 46	1	17 46.2	-25 51	11.1
Sun Dec 05/Mon Dec 06	4 35	17 18	18 44	5 49	7 15	23 19	10 26	.....	18 48	6	18 52.6	-26 30	11.1
Mon Dec 06/Tue Dec 07	4 39	17 18	18 44	5 50	7 16	23 23	10 31	.....	19 57	12	19 57.5	-25 18	11.1
Tue Dec 07/Wed Dec 08	4 43	17 18	18 44	5 51	7 17	23 27	10 35	.....	21 08	21	20 58.7	-22 28	11.1
Wed Dec 08/Thu Dec 09	4 47	17 19	18 45	5 52	7 18	23 31	10 40	.....	22 18	31	21 55.2	-18 25	11.1
Thu Dec 09/Fri Dec 10	4 51	17 19	18 45	5 52	7 18	23 35	10 44	.....	23 24	41	22 47.4	-13 33	11.1
Fri Dec 10/Sat Dec 11	4 55	17 19	18 45	5 53	7 19	23 39	10 49	.....	0 26	52	23 35.9	- 8 12	11.1
Sat Dec 11/Sun Dec 12	4 59	17 19	18 45	5 54	7 20	23 44	10 54	.....	1 26	62	0 22.0	- 2 40	11.1
Sun Dec 12/Mon Dec 13	5 03	17 19	18 46	5 54	7 21	23 48	10 58	.....	2 24	71	1 06.7	2 52	11.1
Mon Dec 13/Tue Dec 14	5 07	17 20	18 46	5 55	7 21	23 52	11 03	.....	3 21	80	1 51.1	8 11	11.1
Tue Dec 14/Wed Dec 15	5 11	17 20	18 46	5 55	7 22	23 56	11 07	.....	4 19	87	2 36.3	13 08	11.2
Wed Dec 15/Thu Dec 16	5 15	17 20	18 47	5 56	7 23	0 01	11 12	.....	5 17	93	3 22.8	17 33	11.2
Thu Dec 16/Fri Dec 17	5 19	17 21	18 47	5 57	7 23	0 05	11 16	15 35	6 15	97	4 11.3	21 13	11.2
Fri Dec 17/Sat Dec 18	5 23	17 21	18 47	5 57	7 24	0 09	11 21	16 11	7 12	99	5 02.0	23 59	11.2
Sat Dec 18/Sun Dec 19	5 27	17 21	18 48	5 58	7 24	0 14	11 25	16 52	8 07	100	5 54.5	25 40	11.2
Sun Dec 19/Mon Dec 20	5 31	17 22	18 48	5 58	7 25	0 18	11 30	17 39	.....	99	6 48.2	26 09	11.2
Mon Dec 20/Tue Dec 21	5 35	17 22	18 49	5 59	7 25	0 23	11 34	18 32	.....	96	7 42.0	25 22	11.2
Tue Dec 21/Wed Dec 22	5 39	17 23	18 49	5 59	7 26	0 27	11 39	19 29	.....	91	8 34.9	23 22	11.2
Wed Dec 22/Thu Dec 23	5 42	17 23	18 50	6 00	7 26	0 31	11 43	20 29	.....	85	9 26.4	20 15	11.2
Thu Dec 23/Fri Dec 24	5 46	17 24	18 50	6 00	7 27	0 36	11 48	21 30	.....	77	10 16.1	16 11	11.2
Fri Dec 24/Sat Dec 25	5 50	17 24	18 51	6 01	7 27	0 40	11 52	22 31	.....	68	11 04.4	11 20	11.2
Sat Dec 25/Sun Dec 26	5 54	17 25	18 51	6 01	7 28	0 45	11 56	23 32	.....	58	11 51.9	5 53	11.2
Sun Dec 26/Mon Dec 27	5 58	17 26	18 52	6 01	7 28	0 49	12 01	0 35	.....	47	12 39.5	0 04	11.2
Mon Dec 27/Tue Dec 28	6 02	17 26	18 53	6 02	7 28	0 54	12 05	1 40	.....	36	13 28.3	- 5 55	11.2
Tue Dec 28/Wed Dec 29	6 06	17 27	18 53	6 02	7 28	0 59	12 09	2 47	.....	26	14 19.5	-11 46	11.1
Wed Dec 29/Thu Dec 30	6 10	17 28	18 54	6 02	7 29	1 03	12 14	3 59	.....	17	15 14.2	-17 10	11.1
Thu Dec 30/Fri Dec 31	6 14	17 28	18 55	6 03	7 29	1 08	12 18	5 13	.....	9	16 13.2	-21 42	11.1
Fri Dec 31/Sat Jan 01	6 18	17 29	18 55	6 03	7 29	1 12	12 22	6 28	.....	3	17 16.4	-24 54	11.1