

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:

***** 2014 Night-time Astronomical Calendar for Cape Cod Schmidt Observatory *****

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. DAYLIGHT SAVINGS time is used using conventions for the USA; for 2007+, 2nd Sunday in March to first Sunday in November.

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 -0.6 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 2014, at Cape Cod Schmidt Observatory

Times and dates are given in local time, zone = 5 hr West.
 They are generally better than +/- 2 minutes.
 Daylight savings time used.

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

NEW		1ST		FULL		LAST	
Dec 02	19 22	Dec 09	10 13	Dec 17	4 29	Dec 25	8 50
Jan 01	6 15	Jan 07	22 40	Jan 15	23 54	Jan 24	0 21
Jan 30	16 41	Feb 06	14 23	Feb 14	18 55	Feb 22	12 17
Mar 01	3 03	Mar 08	8 27	Mar 16	13 11	Mar 23	21 48
Mar 30	14 48	Apr 07	4 32	Apr 15	3 45	Apr 22	3 53
Apr 29	2 18	May 06	23 17	May 14	15 19	May 21	9 01
May 28	14 43	Jun 05	16 41	Jun 13	0 14	Jun 19	14 40
Jun 27	4 11	Jul 05	8 01	Jul 12	7 27	Jul 18	22 10
Jul 26	18 43	Aug 03	20 51	Aug 10	14 11	Aug 17	8 27
Aug 25	10 13	Sep 02	7 12	Sep 08	21 39	Sep 15	22 06
Sep 24	2 14	Oct 01	15 33	Oct 08	6 51	Oct 15	15 13
Oct 23	17 56	Oct 30	22 49	Nov 06	17 23	Nov 14	10 18
Nov 22	7 32	Nov 29	5 07	Dec 06	7 27	Dec 14	7 54
Dec 21	20 36	Dec 28	13 33	Jan 04	23 54	Jan 13	4 49

Calendar for Cape Cod Schmidt Observatory, west longitude (h.m.s) = 4 40 47, latitude (d.m) = 41 40.7
 Rise/set times in Eastern time (5 hr W), uncorrected for elevation, DAYLIGHT time used, * shows clock reset.
 Moon info is for local midnight, even if moon is down. Program: John Thorstensen, Dartmouth College.

***** 2014 JANUARY *****

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 Jan 01/Thu Jan 02	7 06	16 21	18 01	5 28	7 08	1 06	12 35	7 45	17 03	1	19 32.7	-17 10	11.4
Thu Jan 02/Fri Jan 03	7 10	16 22	18 02	5 28	7 08	1 11	12 39	8 29	18 17	5	20 33.6	-13 59	11.4
Fri Jan 03/Sat Jan 04	7 14	16 23	18 03	5 28	7 08	1 16	12 43	.....	19 31	11	21 31.8	-9 58	11.4
Sat Jan 04/Sun Jan 05	7 18	16 24	18 04	5 28	7 08	1 21	12 47	.....	20 44	19	22 27.4	-5 29	11.4
Sun Jan 05/Mon Jan 06	7 22	16 25	18 04	5 28	7 08	1 25	12 51	.....	21 54	29	23 20.8	-0 49	11.4
Mon Jan 06/Tue Jan 07	7 26	16 26	18 05	5 28	7 08	1 30	12 55	.....	23 02	39	0 12.5	3 43	11.4
Tue Jan 07/Wed Jan 08	7 30	16 27	18 06	5 28	7 08	1 35	12 59	.....	0 07	50	1 03.2	7 56	11.4
Wed Jan 08/Thu Jan 09	7 34	16 28	18 07	5 28	7 07	1 40	13 03	.....	1 09	60	1 53.6	11 38	11.4
Thu Jan 09/Fri Jan 10	7 38	16 29	18 08	5 28	7 07	1 45	13 07	.....	2 10	70	2 44.1	14 42	11.3
Fri Jan 10/Sat Jan 11	7 42	16 30	18 09	5 28	7 07	1 50	13 11	.....	3 08	78	3 34.9	17 01	11.3
Sat Jan 11/Sun Jan 12	7 46	16 31	18 10	5 28	7 07	1 55	13 14	.....	4 02	86	4 26.1	18 30	11.3
Sun Jan 12/Mon Jan 13	7 50	16 32	18 11	5 28	7 06	1 59	13 18	.....	4 52	92	5 17.3	19 06	11.3
Mon Jan 13/Tue Jan 14	7 54	16 33	18 12	5 27	7 06	2 04	13 22	.....	5 38	96	6 08.3	18 48	11.3
Tue Jan 14/Wed Jan 15	7 58	16 34	18 13	5 27	7 05	2 09	13 26	15 37	6 19	99	6 58.7	17 39	11.2
Wed Jan 15/Thu Jan 16	8 01	16 35	18 14	5 27	7 05	2 14	13 29	16 31	6 56	100	7 48.1	15 41	11.2
Thu Jan 16/Fri Jan 17	8 05	16 37	18 15	5 27	7 04	2 19	13 33	17 27	7 29	99	8 36.4	13 03	11.2
Fri Jan 17/Sat Jan 18	8 09	16 38	18 16	5 26	7 04	2 24	13 36	18 24	8 00	96	9 23.7	9 50	11.2
Sat Jan 18/Sun Jan 19	8 13	16 39	18 17	5 26	7 03	2 29	13 40	19 21	8 29	92	10 10.3	6 12	11.2
Sun Jan 19/Mon Jan 20	8 17	16 40	18 18	5 25	7 03	2 34	13 43	20 19	.....	86	10 56.4	2 16	11.1
Mon Jan 20/Tue Jan 21	8 21	16 41	18 19	5 25	7 02	2 39	13 47	21 18	.....	78	11 42.8	-1 49	11.1
Tue Jan 21/Wed Jan 22	8 25	16 43	18 20	5 24	7 01	2 44	13 50	22 18	.....	69	12 30.0	-5 54	11.1
Wed Jan 22/Thu Jan 23	8 29	16 44	18 21	5 24	7 01	2 49	13 54	23 19	.....	60	13 18.8	-9 49	11.1
Thu Jan 23/Fri Jan 24	8 33	16 45	18 22	5 23	7 00	2 54	13 57	0 22	.....	49	14 09.9	-13 22	11.0
Fri Jan 24/Sat Jan 25	8 37	16 46	18 23	5 23	6 59	2 59	14 01	1 27	.....	39	15 03.7	-16 22	11.0
Sat Jan 25/Sun Jan 26	8 41	16 48	18 24	5 22	6 58	3 04	14 04	2 32	.....	28	16 00.6	-18 34	11.0
Sun Jan 26/Mon Jan 27	8 45	16 49	18 25	5 21	6 58	3 09	14 07	3 35	.....	19	17 00.3	-19 44	10.9
Mon Jan 27/Tue Jan 28	8 49	16 50	18 26	5 21	6 57	3 14	14 10	4 35	.....	11	18 01.9	-19 39	10.9
Tue Jan 28/Wed Jan 29	8 53	16 51	18 27	5 20	6 56	3 19	14 14	5 29	.....	4	19 04.4	-18 16	10.9
Wed Jan 29/Thu Jan 30	8 57	16 53	18 28	5 19	6 55	3 24	14 17	6 18	15 48	1	20 06.2	-15 39	10.8
Thu Jan 30/Fri Jan 31	9 01	16 54	18 29	5 18	6 54	3 29	14 20	7 00	17 02	0	21 06.3	-12 00	10.8
Fri Jan 31/Sat Feb 01	9 05	16 55	18 31	5 18	6 53	3 34	14 23	7 38	18 17	3	22 04.3	-7 39	10.8

***** 2014 FEBRUARY *****

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 Feb 01/Sun Feb 02	9 08	16 56	18 32	5 17	6 52	3 39	14 26	8 14	19 31	8	23 00.1	-2 57	10.8
Sun Feb 02/Mon Feb 03	9 12	16 58	18 33	5 16	6 51	3 44	14 29	.....	20 42	15	23 54.1	1 46	10.7
Mon Feb 03/Tue Feb 04	9 16	16 59	18 34	5 15	6 50	3 49	14 32	.....	21 51	23	0 46.7	6 14	10.7
Tue Feb 04/Wed Feb 05	9 20	17 00	18 35	5 14	6 49	3 54	14 35	.....	22 57	33	1 38.5	10 13	10.6
Wed Feb 05/Thu Feb 06	9 24	17 01	18 36	5 13	6 47	3 59	14 38	.....	24 00	43	2 29.9	13 33	10.6
Thu Feb 06/Fri Feb 07	9 28	17 03	18 37	5 12	6 46	4 05	14 41	.....	1 00	53	3 21.2	16 08	10.6
Fri Feb 07/Sat Feb 08	9 32	17 04	18 38	5 11	6 45	4 10	14 44	.....	1 56	63	4 12.5	17 52	10.5
Sat Feb 08/Sun Feb 09	9 36	17 05	18 40	5 10	6 44	4 15	14 47	.....	2 48	72	5 03.6	18 44	10.5
Sun Feb 09/Mon Feb 10	9 40	17 07	18 41	5 09	6 43	4 20	14 50	.....	3 35	80	5 54.4	18 43	10.5
Mon Feb 10/Tue Feb 11	9 44	17 08	18 42	5 08	6 41	4 25	14 53	.....	4 18	87	6 44.6	17 51	10.4
Tue Feb 11/Wed Feb 12	9 48	17 09	18 43	5 07	6 40	4 30	14 55	.....	4 56	93	7 34.1	16 09	10.4
Wed Feb 12/Thu Feb 13	9 52	17 10	18 44	5 05	6 39	4 35	14 58	.....	5 31	97	8 22.7	13 45	10.4
Thu Feb 13/Fri Feb 14	9 56	17 12	18 45	5 04	6 38	4 40	15 01	16 17	6 03	99	9 10.4	10 44	10.3
Fri Feb 14/Sat Feb 15	10 00	17 13	18 46	5 03	6 36	4 45	15 04	17 15	6 33	100	9 57.4	7 13	10.3
Sat Feb 15/Sun Feb 16	10 04	17 14	18 47	5 02	6 35	4 50	15 06	18 13	7 02	98	10 44.1	3 22	10.2
Sun Feb 16/Mon Feb 17	10 08	17 15	18 49	5 01	6 33	4 55	15 09	19 12	7 30	95	11 30.9	-0 41	10.2
Mon Feb 17/Tue Feb 18	10 12	17 17	18 50	4 59	6 32	5 00	15 12	20 11	8 00	90	12 18.3	-4 47	10.2
Tue Feb 18/Wed Feb 19	10 15	17 18	18 51	4 58	6 31	5 06	15 14	21 12	.....	83	13 06.8	-8 44	10.1
Wed Feb 19/Thu Feb 20	10 19	17 19	18 52	4 57	6 29	5 11	15 17	22 14	.....	75	13 57.1	-12 22	10.1
Thu Feb 20/Fri Feb 21	10 23	17 20	18 53	4 55	6 28	5 16	15 19	23 17	.....	65	14 49.5	-15 29	10.0
Fri Feb 21/Sat Feb 22	10 27	17 22	18 54	4 54	6 26	5 21	15 22	0 20	.....	55	15 44.4	-17 53	10.0
Sat Feb 22/Sun Feb 23	10 31	17 23	18 55	4 52	6 25	5 26	15 24	1 22	.....	44	16 41.6	-19 21	9.9
Sun Feb 23/Mon Feb 24	10 35	17 24	18 57	4 51	6 23	5 31	15 27	2 21	.....	33	17 40.8	-19 42	9.9
Mon Feb 24/Tue Feb 25	10 39	17 25	18 58	4 49	6 22	5 36	15 29	3 16	.....	23	18 41.1	-18 52	9.9
Tue Feb 25/Wed Feb 26	10 43	17 26	18 59	4 48	6 20	5 41	15 32	4 05	.....	14	19 41.5	-16 49	9.8
Wed Feb 26/Thu Feb 27	10 47	17 28	19 00	4 47	6 19	5 46	15 34	4 50	.....	7	20 41.1	-13 42	9.8
Thu Feb 27/Fri Feb 28	10 51	17 29	19 01	4 45	6 17	5 51	15 37	5 30	.....	2	21 39.3	-9 43	9.7
Fri Feb 28/Sat Mar 01	10 55	17 30	19 02	4 43	6 16	5 56	15 39	6 07	17 03	0	22 35.9	-5 12	9.7

Calendar for Cape Cod Schmidt Observatory, west longitude (h.m.s) = 4 40 47, latitude (d.m) = 41 40.7
 Rise/set times in Eastern time (5 hr W), uncorrected for elevation, DAYLIGHT time used, * shows clock reset.
 Moon info is for local midnight, even if moon is down. Program: John Thorstensen, Dartmouth College.

***** 2014 MARCH *****

Date (eve/morn)	LMST midn	----- Sun: -----				LST twilight:		----- Moon: -----				RA	Dec	Twi-Twi hours
		set	twi.end	twi.beg	rise	eve	morn	rise	set	%illum				
Sat Mar 01/Sun Mar 02	10 59	17 31	19 04	4 42	6 14	6 02	15 42	6 42	18 16	1	23	31.1	- 0 28	9.6
Sun Mar 02/Mon Mar 03	11 03	17 32	19 05	4 40	6 12	6 07	15 44	7 17	19 27	5	0	25.2	4 10	9.6
Mon Mar 03/Tue Mar 04	11 07	17 34	19 06	4 39	6 11	6 12	15 46	.....	20 36	10	1	18.5	8 25	9.5
Tue Mar 04/Wed Mar 05	11 11	17 35	19 07	4 37	6 09	6 17	15 49	.....	21 43	18	2	11.4	12 05	9.5
Wed Mar 05/Thu Mar 06	11 15	17 36	19 08	4 35	6 08	6 22	15 51	.....	22 46	27	3	03.9	15 00	9.5
Thu Mar 06/Fri Mar 07	11 19	17 37	19 09	4 34	6 06	6 27	15 53	.....	23 45	36	3	56.1	17 04	9.4
Fri Mar 07/Sat Mar 08	11 23	17 38	19 11	4 32	6 04	6 32	15 55	.....	0 40	46	4	47.9	18 14	9.4
Sat Mar 08/Sun Mar 09*	11 26	17 39	19 12	5 30	7 03	6 37	15 58	.....	1 30	56	5	39.1	18 30	9.3
Sun Mar 09/Mon Mar 10	10 30	18 41	20 13	5 29	7 01	6 43	16 00	.....	3 14	65	6	27.7	17 59	9.3
Mon Mar 10/Tue Mar 11	10 34	18 42	20 14	5 27	6 59	6 48	16 02	.....	3 54	73	7	17.4	16 36	9.2
Tue Mar 11/Wed Mar 12	10 38	18 43	20 15	5 25	6 58	6 53	16 04	.....	4 31	81	8	06.2	14 28	9.2
Wed Mar 12/Thu Mar 13	10 42	18 44	20 17	5 24	6 56	6 58	16 07	.....	5 04	88	8	54.1	11 41	9.1
Thu Mar 13/Fri Mar 14	10 46	18 45	20 18	5 22	6 54	7 03	16 09	.....	5 34	94	9	41.4	8 22	9.1
Fri Mar 14/Sat Mar 15	10 50	18 46	20 19	5 20	6 53	7 08	16 11	17 04	6 04	98	10	28.4	4 38	9.0
Sat Mar 15/Sun Mar 16	10 54	18 47	20 20	5 18	6 51	7 13	16 13	18 03	6 33	100	11	15.5	0 38	9.0
Sun Mar 16/Mon Mar 17	10 58	18 48	20 21	5 17	6 49	7 19	16 15	19 03	7 03	100	12	03.2	- 3 29	8.9
Mon Mar 17/Tue Mar 18	11 02	18 50	20 23	5 15	6 48	7 24	16 17	20 04	.....	98	12	52.1	- 7 32	8.9
Tue Mar 18/Wed Mar 19	11 06	18 51	20 24	5 13	6 46	7 29	16 19	21 07	.....	94	13	42.5	-11 18	8.8
Wed Mar 19/Thu Mar 20	11 10	18 52	20 25	5 11	6 44	7 34	16 22	22 10	.....	87	14	34.9	-14 36	8.8
Thu Mar 20/Fri Mar 21	11 14	18 53	20 26	5 09	6 43	7 39	16 24	23 13	.....	80	15	29.4	-17 12	8.7
Fri Mar 21/Sat Mar 22	11 18	18 54	20 28	5 07	6 41	7 45	16 26	0 15	.....	70	16	25.8	-18 55	8.7
Sat Mar 22/Sun Mar 23	11 21	18 55	20 29	5 06	6 39	7 50	16 28	1 14	.....	60	17	23.8	-19 35	8.6
Sun Mar 23/Mon Mar 24	11 25	18 56	20 30	5 04	6 37	7 55	16 30	2 09	.....	48	18	22.6	-19 08	8.6
Mon Mar 24/Tue Mar 25	11 29	18 57	20 31	5 02	6 36	8 00	16 32	2 59	.....	37	19	21.3	-17 31	8.5
Tue Mar 25/Wed Mar 26	11 33	18 58	20 33	5 00	6 34	8 05	16 34	3 44	.....	26	20	19.4	-14 52	8.5
Wed Mar 26/Thu Mar 27	11 37	19 00	20 34	4 58	6 32	8 11	16 36	4 24	.....	17	21	16.4	-11 20	8.4
Thu Mar 27/Fri Mar 28	11 41	19 01	20 35	4 56	6 31	8 16	16 38	5 02	.....	9	22	12.1	- 7 09	8.3
Fri Mar 28/Sat Mar 29	11 45	19 02	20 37	4 54	6 29	8 21	16 40	5 37	16 53	4	23	06.7	- 2 36	8.3
Sat Mar 29/Sun Mar 30	11 49	19 03	20 38	4 52	6 27	8 26	16 42	6 12	18 04	1	0	00.6	2 01	8.2
Sun Mar 30/Mon Mar 31	11 53	19 04	20 39	4 50	6 26	8 32	16 44	6 47	19 14	0	0	54.1	6 26	8.2
Mon Mar 31/Tue Apr 01	11 57	19 05	20 41	4 48	6 24	8 37	16 46	.....	20 22	2	1	47.5	10 23	8.1

***** 2014 APRIL *****

Date (eve/morn)	LMST midn	----- Sun: -----				LST twilight:		----- Moon: -----				RA	Dec	Twi-Twi hours
		set	twi.end	twi.beg	rise	eve	morn	rise	set	%illum				
Tue Apr 01/Wed Apr 02	12 01	19 06	20 42	4 46	6 22	8 42	16 48	.....	21 27	7	2	40.8	13 40	8.1
Wed Apr 02/Thu Apr 03	12 05	19 07	20 43	4 44	6 20	8 48	16 50	.....	22 30	13	3	34.0	16 08	8.0
Thu Apr 03/Fri Apr 04	12 09	19 08	20 45	4 43	6 19	8 53	16 52	.....	23 28	20	4	26.9	17 41	8.0
Fri Apr 04/Sat Apr 05	12 13	19 09	20 46	4 41	6 17	8 58	16 54	.....	0 21	29	5	19.2	18 19	7.9
Sat Apr 05/Sun Apr 06	12 17	19 11	20 47	4 39	6 15	9 04	16 56	.....	1 08	38	6	10.6	18 03	7.9
Sun Apr 06/Mon Apr 07	12 21	19 12	20 49	4 37	6 14	9 09	16 58	.....	1 51	48	7	00.8	16 56	7.8
Mon Apr 07/Tue Apr 08	12 25	19 13	20 50	4 35	6 12	9 14	17 00	.....	2 28	57	7	49.8	15 03	7.7
Tue Apr 08/Wed Apr 09	12 29	19 14	20 52	4 33	6 11	9 20	17 02	.....	3 03	66	8	37.7	12 30	7.7
Wed Apr 09/Thu Apr 10	12 32	19 15	20 53	4 31	6 09	9 25	17 04	.....	3 34	75	9	24.9	9 23	7.6
Thu Apr 10/Fri Apr 11	12 36	19 16	20 55	4 29	6 07	9 30	17 06	.....	4 04	83	10	11.7	5 49	7.6
Fri Apr 11/Sat Apr 12	12 40	19 17	20 56	4 27	6 06	9 36	17 08	.....	4 33	90	10	58.6	1 55	7.5
Sat Apr 12/Sun Apr 13	12 44	19 18	20 57	4 25	6 04	9 41	17 10	.....	5 03	95	11	46.2	- 2 10	7.5
Sun Apr 13/Mon Apr 14	12 48	19 19	20 59	4 23	6 02	9 47	17 12	17 52	5 34	99	12	35.1	- 6 17	7.4
Mon Apr 14/Tue Apr 15	12 52	19 20	21 00	4 21	6 01	9 52	17 14	18 55	6 07	100	13	25.7	-10 13	7.3
Tue Apr 15/Wed Apr 16	12 56	19 21	21 02	4 19	5 59	9 57	17 16	19 59	6 44	99	14	18.5	-13 44	7.3
Wed Apr 16/Thu Apr 17	13 00	19 23	21 03	4 17	5 58	10 03	17 18	21 04	.....	96	15	13.7	-16 38	7.2
Thu Apr 17/Fri Apr 18	13 04	19 24	21 05	4 15	5 56	10 08	17 20	22 08	.....	90	16	11.0	-18 38	7.2
Fri Apr 18/Sat Apr 19	13 08	19 25	21 06	4 13	5 55	10 14	17 22	23 09	.....	83	17	09.8	-19 36	7.1
Sat Apr 19/Sun Apr 20	13 12	19 26	21 08	4 11	5 53	10 19	17 24	0 06	.....	73	18	09.3	-19 24	7.1
Sun Apr 20/Mon Apr 21	13 16	19 27	21 09	4 09	5 52	10 25	17 26	0 57	.....	63	19	08.4	-18 02	7.0
Mon Apr 21/Tue Apr 22	13 20	19 28	21 11	4 07	5 50	10 30	17 28	1 43	.....	51	20	06.4	-15 37	6.9
Tue Apr 22/Wed Apr 23	13 24	19 29	21 13	4 05	5 49	10 36	17 30	2 24	.....	40	21	02.8	-12 18	6.9
Wed Apr 23/Thu Apr 24	13 28	19 30	21 14	4 03	5 47	10 41	17 32	3 01	.....	29	21	57.7	- 8 21	6.8
Thu Apr 24/Fri Apr 25	13 32	19 31	21 16	4 01	5 46	10 47	17 34	3 36	.....	19	22	51.3	- 3 59	6.8
Fri Apr 25/Sat Apr 26	13 36	19 32	21 17	4 00	5 44	10 52	17 36	4 09	.....	11	23	44.1	0 31	6.7
Sat Apr 26/Sun Apr 27	13 39	19 33	21 19	3 58	5 43	10 58	17 38	4 43	.....	5	0	36.5	4 55	6.6
Sun Apr 27/Mon Apr 28	13 43	19 35	21 20	3 56	5 42	11 03	17 40	5 19	18 04	1	1	29.0	8 59	6.6
Mon Apr 28/Tue Apr 29	13 47	19 36	21 22	3 54	5 40	11 09	17 42	5 56	19 10	0	2	21.7	12 29	6.5
Tue Apr 29/Wed Apr 30	13 51	19 37	21 24	3 52	5 39	11 15	17 44	.....	20 14	1	3	14.8	15 14	6.5
Wed Apr 30/Thu May 01	13 55	19 38	21 25	3 50	5 38	11 20	17 46	.....	21 14	4	4	07.9	17 08	6.4

Calendar for Cape Cod Schmidt Observatory, west longitude (h.m.s) = 4 40 47, latitude (d.m) = 41 40.7
 Rise/set times in Eastern time (5 hr W), uncorrected for elevation, DAYLIGHT time used, * shows clock reset.
 Moon info is for local midnight, even if moon is down. Program: John Thorstensen, Dartmouth College.

***** 2014 MAY *****

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 May 01/Fri May 02	13 59	19 39	21 27	3 48	5 36	11 26	17 48	.....	22 10	9	5 00.7	18 07	6.4
Fri May 02/Sat May 03	14 03	19 40	21 29	3 46	5 35	11 31	17 50	.....	23 00	15	5 52.8	18 09	6.3
Sat May 03/Sun May 04	14 07	19 41	21 30	3 45	5 34	11 37	17 52	.....	23 46	23	6 43.7	17 19	6.2
Sun May 04/Mon May 05	14 11	19 42	21 32	3 43	5 32	11 42	17 54	.....	0 26	31	7 33.2	15 41	6.2
Mon May 05/Tue May 06	14 15	19 43	21 33	3 41	5 31	11 48	17 57	.....	1 01	40	8 21.4	13 22	6.1
Tue May 06/Wed May 07	14 19	19 44	21 35	3 39	5 30	11 54	17 59	.....	1 34	50	9 08.5	10 27	6.1
Wed May 07/Thu May 08	14 23	19 45	21 37	3 37	5 29	11 59	18 01	.....	2 04	59	9 54.9	7 04	6.0
Thu May 08/Fri May 09	14 27	19 46	21 38	3 36	5 28	12 05	18 03	.....	2 33	69	10 41.1	3 20	6.0
Fri May 09/Sat May 10	14 31	19 47	21 40	3 34	5 27	12 10	18 05	.....	3 02	77	11 27.9	- 0 40	5.9
Sat May 10/Sun May 11	14 35	19 49	21 42	3 32	5 25	12 16	18 08	.....	3 32	85	12 15.8	- 4 45	5.8
Sun May 11/Mon May 12	14 39	19 50	21 43	3 31	5 24	12 22	18 10	.....	4 04	92	13 05.5	- 8 47	5.8
Mon May 12/Tue May 13	14 43	19 51	21 45	3 29	5 23	12 27	18 12	17 43	4 39	97	13 57.6	-12 31	5.7
Tue May 13/Wed May 14	14 47	19 52	21 47	3 27	5 22	12 33	18 14	18 48	5 19	100	14 52.6	-15 44	5.7
Wed May 14/Thu May 15	14 50	19 53	21 48	3 26	5 21	12 38	18 17	19 54	6 06	100	15 50.3	-18 09	5.6
Thu May 15/Fri May 16	14 54	19 54	21 50	3 24	5 20	12 44	18 19	20 58	.....	97	16 50.3	-19 33	5.6
Fri May 16/Sat May 17	14 58	19 55	21 51	3 23	5 19	12 49	18 21	21 58	.....	92	17 51.5	-19 44	5.5
Sat May 17/Sun May 18	15 02	19 56	21 53	3 21	5 18	12 55	18 24	22 53	.....	85	18 52.7	-18 40	5.5
Sun May 18/Mon May 19	15 06	19 57	21 55	3 20	5 18	13 00	18 26	23 42	.....	76	19 52.5	-16 27	5.4
Mon May 19/Tue May 20	15 10	19 58	21 56	3 18	5 17	13 06	18 29	0 25	.....	65	20 50.4	-13 17	5.4
Tue May 20/Wed May 21	15 14	19 59	21 58	3 17	5 16	13 12	18 31	1 03	.....	54	21 46.2	- 9 24	5.3
Wed May 21/Thu May 22	15 18	19 59	21 59	3 15	5 15	13 17	18 34	1 38	.....	43	22 40.0	- 5 06	5.3
Thu May 22/Fri May 23	15 22	20 00	22 01	3 14	5 14	13 22	18 36	2 12	.....	32	23 32.4	- 0 38	5.2
Fri May 23/Sat May 24	15 26	20 01	22 02	3 13	5 14	13 28	18 39	2 45	.....	22	0 24.1	3 46	5.2
Sat May 24/Sun May 25	15 30	20 02	22 04	3 11	5 13	13 33	18 42	3 19	.....	14	1 15.6	7 52	5.1
Sun May 25/Mon May 26	15 34	20 03	22 05	3 10	5 12	13 39	18 44	3 54	.....	7	2 07.3	11 30	5.1
Mon May 26/Tue May 27	15 38	20 04	22 07	3 09	5 12	13 44	18 47	4 33	18 02	3	2 59.4	14 27	5.0
Tue May 27/Wed May 28	15 42	20 05	22 08	3 08	5 11	13 50	18 50	5 15	19 03	1	3 51.8	16 37	5.0
Wed May 28/Thu May 29	15 46	20 06	22 10	3 06	5 10	13 55	18 53	6 02	20 00	0	4 44.4	17 53	4.9
Thu May 29/Fri May 30	15 50	20 07	22 11	3 05	5 10	14 00	18 55	.....	20 53	2	5 36.5	18 15	4.9
Fri May 30/Sat May 31	15 54	20 07	22 12	3 04	5 09	14 05	18 58	.....	21 40	6	6 27.8	17 42	4.9
Sat May 31/Sun Jun 01	15 57	20 08	22 14	3 03	5 09	14 11	19 01	.....	22 23	11	7 17.8	16 20	4.8

***** 2014 JUNE *****

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 Jun 01/Mon Jun 02	16 01	20 09	22 15	3 02	5 08	14 16	19 04	.....	23 00	17	8 06.3	14 14	4.8
Mon Jun 02/Tue Jun 03	16 05	20 10	22 16	3 02	5 08	14 21	19 07	.....	23 34	25	8 53.6	11 32	4.8
Tue Jun 03/Wed Jun 04	16 09	20 10	22 17	3 01	5 08	14 26	19 10	.....	0 05	34	9 39.8	8 19	4.7
Wed Jun 04/Thu Jun 05	16 13	20 11	22 18	3 00	5 07	14 31	19 14	.....	0 34	43	10 25.4	4 44	4.7
Thu Jun 05/Fri Jun 06	16 17	20 12	22 19	2 59	5 07	14 36	19 17	.....	1 03	53	11 11.1	0 53	4.7
Fri Jun 06/Sat Jun 07	16 21	20 12	22 21	2 58	5 07	14 41	19 20	.....	1 31	62	11 57.6	- 3 07	4.6
Sat Jun 07/Sun Jun 08	16 25	20 13	22 22	2 58	5 06	14 46	19 23	.....	2 02	72	12 45.5	- 7 08	4.6
Sun Jun 08/Mon Jun 09	16 29	20 14	22 22	2 57	5 06	14 51	19 27	.....	2 35	81	13 35.8	-10 58	4.6
Mon Jun 09/Tue Jun 10	16 33	20 14	22 23	2 57	5 06	14 56	19 30	.....	3 12	88	14 28.9	-14 25	4.6
Tue Jun 10/Wed Jun 11	16 37	20 15	22 24	2 56	5 06	15 01	19 34	17 34	3 55	95	15 25.2	-17 15	4.5
Wed Jun 11/Thu Jun 12	16 41	20 15	22 25	2 56	5 06	15 06	19 37	18 40	4 45	99	16 24.8	-19 09	4.5
Thu Jun 12/Fri Jun 13	16 45	20 16	22 26	2 56	5 06	15 10	19 41	19 43	5 43	100	17 26.7	-19 54	4.5
Fri Jun 13/Sat Jun 14	16 49	20 16	22 27	2 55	5 06	15 15	19 45	20 43	.....	98	18 29.7	-19 21	4.5
Sat Jun 14/Sun Jun 15	16 53	20 17	22 27	2 55	5 06	15 20	19 48	21 36	.....	94	19 32.2	-17 31	4.5
Sun Jun 15/Mon Jun 16	16 57	20 17	22 28	2 55	5 06	15 24	19 52	22 22	.....	87	20 33.0	-14 33	4.5
Mon Jun 16/Tue Jun 17	17 01	20 17	22 28	2 55	5 06	15 29	19 56	23 04	.....	78	21 31.4	-10 44	4.4
Tue Jun 17/Wed Jun 18	17 04	20 18	22 29	2 55	5 06	15 33	20 00	23 41	.....	68	22 27.3	- 6 24	4.4
Wed Jun 18/Thu Jun 19	17 08	20 18	22 29	2 55	5 06	15 37	20 04	0 15	.....	57	23 21.1	- 1 51	4.4
Thu Jun 19/Fri Jun 20	17 12	20 18	22 29	2 55	5 06	15 42	20 08	0 48	.....	45	0 13.5	2 39	4.4
Fri Jun 20/Sat Jun 21	17 16	20 19	22 30	2 55	5 06	15 46	20 12	1 22	.....	35	1 05.1	6 52	4.4
Sat Jun 21/Sun Jun 22	17 20	20 19	22 30	2 56	5 07	15 50	20 16	1 56	.....	25	1 56.4	10 37	4.4
Sun Jun 22/Mon Jun 23	17 24	20 19	22 30	2 56	5 07	15 54	20 21	2 33	.....	17	2 47.9	13 44	4.4
Mon Jun 23/Tue Jun 24	17 28	20 19	22 30	2 56	5 07	15 58	20 25	3 14	.....	10	3 39.6	16 05	4.4
Tue Jun 24/Wed Jun 25	17 32	20 19	22 30	2 57	5 08	16 02	20 29	3 58	17 53	5	4 31.5	17 36	4.4
Wed Jun 25/Thu Jun 26	17 36	20 19	22 30	2 57	5 08	16 06	20 34	4 46	18 47	2	5 23.2	18 14	4.4
Thu Jun 26/Fri Jun 27	17 40	20 19	22 30	2 58	5 08	16 10	20 38	5 37	19 36	0	6 14.4	17 58	4.5
Fri Jun 27/Sat Jun 28	17 44	20 19	22 30	2 58	5 09	16 14	20 43	.....	20 21	1	7 04.5	16 51	4.5
Sat Jun 28/Sun Jun 29	17 48	20 19	22 30	2 59	5 09	16 17	20 47	.....	21 00	3	7 53.4	14 59	4.5
Sun Jun 29/Mon Jun 30	17 52	20 19	22 29	3 00	5 10	16 21	20 52	.....	21 35	7	8 40.9	12 28	4.5
Mon Jun 30/Tue Jul 01	17 56	20 19	22 29	3 00	5 10	16 24	20 57	.....	22 07	13	9 27.2	9 26	4.5

Calendar for Cape Cod Schmidt Observatory, west longitude (h.m.s) = 4 40 47, latitude (d.m) = 41 40.7
 Rise/set times in Eastern time (5 hr W), uncorrected for elevation, DAYLIGHT time used, * shows clock reset.
 Moon info is for local midnight, even if moon is down. Program: John Thorstensen, Dartmouth College.

***** 2014 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	
Tue Jul 01/Wed Jul 02	18 00	20 19	22 29	3 01	5 11	16 28	21 01	.....	22 37	20	10 12.6	6 00	4.5
Wed Jul 02/Thu Jul 03	18 04	20 19	22 28	3 02	5 11	16 31	21 06	.....	23 05	28	10 57.6	2 16	4.6
Thu Jul 03/Fri Jul 04	18 08	20 19	22 27	3 03	5 12	16 35	21 11	.....	23 34	37	11 43.0	- 1 37	4.6
Fri Jul 04/Sat Jul 05	18 12	20 18	22 27	3 04	5 12	16 38	21 16	.....	0 02	46	12 29.3	- 5 33	4.6
Sat Jul 05/Sun Jul 06	18 15	20 18	22 26	3 05	5 13	16 41	21 21	.....	0 33	56	13 17.3	- 9 22	4.6
Sun Jul 06/Mon Jul 07	18 19	20 18	22 25	3 06	5 14	16 45	21 26	.....	1 07	66	14 07.7	-12 55	4.7
Mon Jul 07/Tue Jul 08	18 23	20 18	22 25	3 07	5 14	16 48	21 31	.....	1 46	76	15 01.3	-15 59	4.7
Tue Jul 08/Wed Jul 09	18 27	20 17	22 24	3 08	5 15	16 51	21 36	.....	2 32	85	15 58.3	-18 18	4.7
Wed Jul 09/Thu Jul 10	18 31	20 17	22 23	3 09	5 16	16 54	21 41	.....	3 25	92	16 58.5	-19 38	4.8
Thu Jul 10/Fri Jul 11	18 35	20 16	22 22	3 11	5 16	16 57	21 46	18 25	4 26	97	18 01.1	-19 44	4.8
Fri Jul 11/Sat Jul 12	18 39	20 16	22 21	3 12	5 17	17 00	21 52	19 22	5 34	100	19 04.7	-18 31	4.8
Sat Jul 12/Sun Jul 13	18 43	20 15	22 20	3 13	5 18	17 03	21 57	20 13	.....	99	20 07.8	-16 01	4.9
Sun Jul 13/Mon Jul 14	18 47	20 15	22 19	3 14	5 19	17 06	22 02	20 58	.....	95	21 09.1	-12 27	4.9
Mon Jul 14/Tue Jul 15	18 51	20 14	22 18	3 16	5 19	17 09	22 07	21 39	.....	89	22 08.1	- 8 09	5.0
Tue Jul 15/Wed Jul 16	18 55	20 14	22 17	3 17	5 20	17 11	22 13	22 16	.....	81	23 04.7	- 3 30	5.0
Wed Jul 16/Thu Jul 17	18 59	20 13	22 16	3 19	5 21	17 14	22 18	22 50	.....	70	23 59.4	1 11	5.1
Thu Jul 17/Fri Jul 18	19 03	20 12	22 14	3 20	5 22	17 17	22 23	23 24	.....	60	0 52.6	5 38	5.1
Fri Jul 18/Sat Jul 19	19 07	20 12	22 13	3 21	5 23	17 19	22 29	23 59	.....	49	1 45.1	9 36	5.1
Sat Jul 19/Sun Jul 20	19 11	20 11	22 12	3 23	5 24	17 22	22 34	0 36	.....	38	2 37.1	12 55	5.2
Sun Jul 20/Mon Jul 21	19 15	20 10	22 10	3 24	5 25	17 25	22 40	1 15	.....	29	3 29.0	15 30	5.2
Mon Jul 21/Tue Jul 22	19 19	20 09	22 09	3 26	5 26	17 27	22 45	1 57	.....	20	4 20.7	17 14	5.3
Tue Jul 22/Wed Jul 23	19 22	20 08	22 07	3 27	5 26	17 30	22 50	2 43	.....	13	5 12.2	18 05	5.3
Wed Jul 23/Thu Jul 24	19 26	20 08	22 06	3 29	5 27	17 32	22 56	3 33	17 34	7	6 03.2	18 03	5.4
Thu Jul 24/Fri Jul 25	19 30	20 07	22 05	3 30	5 28	17 35	23 01	4 25	18 19	3	6 53.2	17 10	5.4
Fri Jul 25/Sat Jul 26	19 34	20 06	22 03	3 32	5 29	17 37	23 07	5 20	19 00	1	7 42.2	15 32	5.5
Sat Jul 26/Sun Jul 27	19 38	20 05	22 01	3 34	5 30	17 39	23 12	6 16	19 37	0	8 29.9	13 13	5.5
Sun Jul 27/Mon Jul 28	19 42	20 04	22 00	3 35	5 31	17 42	23 18	.....	20 10	2	9 16.4	10 20	5.6
Mon Jul 28/Tue Jul 29	19 46	20 03	21 58	3 37	5 32	17 44	23 23	.....	20 41	5	10 01.9	7 02	5.6
Tue Jul 29/Wed Jul 30	19 50	20 02	21 57	3 38	5 33	17 46	23 29	.....	21 09	9	10 46.9	3 25	5.7
Wed Jul 30/Thu Jul 31	19 54	20 01	21 55	3 40	5 34	17 49	23 35	.....	21 38	15	11 31.8	- 0 22	5.7
Thu Jul 31/Fri Aug 01	19 58	20 00	21 53	3 41	5 35	17 51	23 40	.....	22 06	23	12 17.1	- 4 14	5.8

***** 2014 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	
Fri Aug 01/Sat Aug 02	20 02	19 59	21 52	3 43	5 36	17 53	23 46	.....	22 36	31	13 03.6	- 8 00	5.9
Sat Aug 02/Sun Aug 03	20 06	19 57	21 50	3 45	5 37	17 55	23 51	.....	23 08	41	13 52.0	-11 33	5.9
Sun Aug 03/Mon Aug 04	20 10	19 56	21 48	3 46	5 38	17 57	23 57	.....	23 43	51	14 42.8	-14 42	6.0
Mon Aug 04/Tue Aug 05	20 14	19 55	21 46	3 48	5 39	18 00	0 02	.....	0 24	61	15 36.6	-17 15	6.0
Tue Aug 05/Wed Aug 06	20 18	19 54	21 44	3 49	5 40	18 02	0 08	.....	1 12	72	16 33.6	-18 58	6.1
Wed Aug 06/Thu Aug 07	20 22	19 53	21 43	3 51	5 41	18 04	0 13	.....	2 07	81	17 33.4	-19 38	6.1
Thu Aug 07/Fri Aug 08	20 26	19 51	21 41	3 53	5 42	18 06	0 19	.....	3 10	90	18 35.4	-19 04	6.2
Fri Aug 08/Sat Aug 09	20 30	19 50	21 39	3 54	5 43	18 08	0 24	17 59	4 20	96	19 38.2	-17 14	6.3
Sat Aug 09/Sun Aug 10	20 33	19 49	21 37	3 56	5 44	18 10	0 30	18 47	5 34	99	20 40.6	-14 12	6.3
Sun Aug 10/Mon Aug 11	20 37	19 47	21 35	3 57	5 45	18 12	0 35	19 31	.....	100	21 41.6	-10 12	6.4
Mon Aug 11/Tue Aug 12	20 41	19 46	21 33	3 59	5 46	18 14	0 41	20 10	.....	97	22 40.8	- 5 36	6.4
Tue Aug 12/Wed Aug 13	20 45	19 45	21 32	4 00	5 47	18 16	0 46	20 47	.....	91	23 38.2	- 0 46	6.5
Wed Aug 13/Thu Aug 14	20 49	19 43	21 30	4 02	5 48	18 18	0 52	21 23	.....	83	0 34.1	3 56	6.5
Thu Aug 14/Fri Aug 15	20 53	19 42	21 28	4 03	5 49	18 20	0 57	21 59	.....	74	1 28.7	8 13	6.6
Fri Aug 15/Sat Aug 16	20 57	19 41	21 26	4 05	5 50	18 22	1 03	22 36	.....	64	2 22.6	11 52	6.7
Sat Aug 16/Sun Aug 17	21 01	19 39	21 24	4 07	5 51	18 24	1 08	23 15	.....	53	3 15.9	14 44	6.7
Sun Aug 17/Mon Aug 18	21 05	19 38	21 22	4 08	5 52	18 26	1 14	23 57	.....	43	4 08.6	16 44	6.8
Mon Aug 18/Tue Aug 19	21 09	19 36	21 20	4 10	5 53	18 28	1 19	0 42	.....	33	5 00.8	17 49	6.8
Tue Aug 19/Wed Aug 20	21 13	19 35	21 18	4 11	5 54	18 30	1 25	1 30	.....	24	5 52.1	18 01	6.9
Wed Aug 20/Thu Aug 21	21 17	19 33	21 16	4 12	5 55	18 32	1 30	2 22	.....	17	6 42.4	17 22	6.9
Thu Aug 21/Fri Aug 22	21 21	19 32	21 14	4 14	5 56	18 34	1 35	3 15	.....	10	7 31.5	15 55	7.0
Fri Aug 22/Sat Aug 23	21 25	19 30	21 12	4 15	5 57	18 36	1 41	4 10	17 38	5	8 19.4	13 47	7.1
Sat Aug 23/Sun Aug 24	21 29	19 29	21 10	4 17	5 59	18 38	1 46	5 06	18 12	2	9 06.2	11 04	7.1
Sun Aug 24/Mon Aug 25	21 33	19 27	21 08	4 18	6 00	18 40	1 52	6 03	18 44	0	9 52.0	7 54	7.2
Mon Aug 25/Tue Aug 26	21 37	19 25	21 06	4 20	6 01	18 42	1 57	.....	19 13	0	10 37.1	4 23	7.2
Tue Aug 26/Wed Aug 27	21 40	19 24	21 04	4 21	6 02	18 44	2 02	.....	19 42	2	11 22.0	0 39	7.3
Wed Aug 27/Thu Aug 28	21 44	19 22	21 02	4 23	6 03	18 46	2 08	.....	20 10	6	12 07.3	- 3 10	7.3
Thu Aug 28/Fri Aug 29	21 48	19 21	21 00	4 24	6 04	18 48	2 13	.....	20 40	11	12 53.3	- 6 55	7.4
Fri Aug 29/Sat Aug 30	21 52	19 19	20 58	4 25	6 05	18 50	2 18	.....	21 11	18	13 40.7	-10 28	7.5
Sat Aug 30/Sun Aug 31	21 56	19 17	20 56	4 27	6 06	18 52	2 24	.....	21 45	26	14 30.0	-13 39	7.5
Sun Aug 31/Mon Sep 01	22 00	19 16	20 54	4 28	6 07	18 54	2 29	.....	22 23	36	15 21.6	-16 18	7.6

Calendar for Cape Cod Schmidt Observatory, west longitude (h.m.s) = 4 40 47, latitude (d.m) = 41 40.7
 Rise/set times in Eastern time (5 hr W), uncorrected for elevation, DAYLIGHT time used, * shows clock reset.
 Moon info is for local midnight, even if moon is down. Program: John Thorstensen, Dartmouth College.

***** 2014 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	
Mon Sep 01/Tue Sep 02	22 04	19 14	20 52	4 29	6 08	18 56	2 34	.....	23 07	46	16 15.8	-18 14	7.6
Tue Sep 02/Wed Sep 03	22 08	19 12	20 50	4 31	6 09	18 58	2 40	.....	23 57	57	17 12.6	-19 14	7.7
Wed Sep 03/Thu Sep 04	22 12	19 11	20 48	4 32	6 10	19 00	2 45	.....	0 54	68	18 11.5	-19 10	7.7
Thu Sep 04/Fri Sep 05	22 16	19 09	20 46	4 34	6 11	19 02	2 50	.....	1 59	78	19 11.8	-17 55	7.8
Fri Sep 05/Sat Sep 06	22 20	19 07	20 44	4 35	6 12	19 04	2 55	.....	3 08	87	20 12.7	-15 29	7.8
Sat Sep 06/Sun Sep 07	22 24	19 06	20 42	4 36	6 13	19 06	3 01	17 20	4 21	94	21 13.2	-12 01	7.9
Sun Sep 07/Mon Sep 08	22 28	19 04	20 40	4 37	6 14	19 08	3 06	18 02	5 36	99	22 12.8	- 7 45	8.0
Mon Sep 08/Tue Sep 09	22 32	19 02	20 38	4 39	6 15	19 09	3 11	18 40	6 50	100	23 11.4	- 3 00	8.0
Tue Sep 09/Wed Sep 10	22 36	19 01	20 36	4 40	6 16	19 11	3 16	19 17	.....	98	0 08.9	1 50	8.1
Wed Sep 10/Thu Sep 11	22 40	18 59	20 34	4 41	6 17	19 13	3 22	19 54	.....	94	1 05.6	6 25	8.1
Thu Sep 11/Fri Sep 12	22 44	18 57	20 32	4 43	6 18	19 15	3 27	20 31	.....	87	2 01.6	10 27	8.2
Fri Sep 12/Sat Sep 13	22 48	18 55	20 30	4 44	6 19	19 17	3 32	21 11	.....	78	2 56.9	13 43	8.2
Sat Sep 13/Sun Sep 14	22 51	18 54	20 28	4 45	6 20	19 19	3 37	21 53	.....	69	3 51.7	16 05	8.3
Sun Sep 14/Mon Sep 15	22 55	18 52	20 27	4 46	6 21	19 21	3 42	22 38	.....	59	4 45.5	17 30	8.3
Mon Sep 15/Tue Sep 16	22 59	18 50	20 25	4 47	6 22	19 23	3 48	23 26	.....	49	5 38.2	17 58	8.4
Tue Sep 16/Wed Sep 17	23 03	18 48	20 23	4 49	6 23	19 25	3 53	0 17	.....	39	6 29.6	17 32	8.4
Wed Sep 17/Thu Sep 18	23 07	18 47	20 21	4 50	6 24	19 27	3 58	1 10	.....	30	7 19.5	16 18	8.5
Thu Sep 18/Fri Sep 19	23 11	18 45	20 19	4 51	6 25	19 29	4 03	2 04	.....	22	8 07.9	14 20	8.5
Fri Sep 19/Sat Sep 20	23 15	18 43	20 17	4 52	6 26	19 31	4 08	3 00	.....	14	8 55.0	11 47	8.6
Sat Sep 20/Sun Sep 21	23 19	18 42	20 15	4 54	6 27	19 33	4 13	3 56	16 45	8	9 41.0	8 44	8.6
Sun Sep 21/Mon Sep 22	23 23	18 40	20 13	4 55	6 28	19 35	4 18	4 53	17 16	4	10 26.4	5 18	8.7
Mon Sep 22/Tue Sep 23	23 27	18 38	20 11	4 56	6 29	19 38	4 24	5 50	17 45	1	11 11.6	1 38	8.7
Tue Sep 23/Wed Sep 24	23 31	18 36	20 09	4 57	6 30	19 40	4 29	6 48	18 13	0	11 56.9	- 2 10	8.8
Wed Sep 24/Thu Sep 25	23 35	18 35	20 08	4 58	6 31	19 42	4 34	.....	18 43	1	12 43.0	- 5 57	8.8
Thu Sep 25/Fri Sep 26	23 39	18 33	20 06	4 59	6 32	19 44	4 39	.....	19 14	3	13 30.4	- 9 33	8.9
Fri Sep 26/Sat Sep 27	23 43	18 31	20 04	5 00	6 33	19 46	4 44	.....	19 47	8	14 19.3	-12 49	8.9
Sat Sep 27/Sun Sep 28	23 47	18 29	20 02	5 02	6 34	19 48	4 49	.....	20 24	14	15 10.3	-15 35	9.0
Sun Sep 28/Mon Sep 29	23 51	18 28	20 00	5 03	6 35	19 50	4 54	.....	21 06	22	16 03.3	-17 39	9.0
Mon Sep 29/Tue Sep 30	23 55	18 26	19 58	5 04	6 37	19 52	4 59	.....	21 53	32	16 58.5	-18 51	9.1
Tue Sep 30/Wed Oct 01	23 58	18 24	19 57	5 05	6 38	19 54	5 04	.....	22 47	42	17 55.3	-19 04	9.1

***** 2014 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	
Wed Oct 01/Thu Oct 02	0 02	18 23	19 55	5 06	6 39	19 57	5 09	.....	23 47	53	18 53.3	-18 12	9.2
Thu Oct 02/Fri Oct 03	0 06	18 21	19 53	5 07	6 40	19 59	5 14	.....	0 52	65	19 51.7	-16 14	9.2
Fri Oct 03/Sat Oct 04	0 10	18 19	19 51	5 08	6 41	20 01	5 20	.....	2 01	75	20 50.1	-13 15	9.3
Sat Oct 04/Sun Oct 05	0 14	18 17	19 50	5 10	6 42	20 03	5 25	.....	3 13	85	21 48.0	- 9 25	9.3
Sun Oct 05/Mon Oct 06	0 18	18 16	19 48	5 11	6 43	20 05	5 30	16 33	4 25	92	22 45.4	- 4 59	9.4
Mon Oct 06/Tue Oct 07	0 22	18 14	19 46	5 12	6 44	20 08	5 35	17 10	5 37	98	23 42.4	- 0 16	9.4
Tue Oct 07/Wed Oct 08	0 26	18 12	19 45	5 13	6 45	20 10	5 40	17 47	6 49	100	0 39.2	4 26	9.5
Wed Oct 08/Thu Oct 09	0 30	18 11	19 43	5 14	6 46	20 12	5 45	18 24	.....	99	1 35.9	8 45	9.5
Thu Oct 09/Fri Oct 10	0 34	18 09	19 41	5 15	6 47	20 15	5 50	19 03	.....	96	2 32.5	12 26	9.6
Fri Oct 10/Sat Oct 11	0 38	18 08	19 40	5 16	6 48	20 17	5 55	19 44	.....	90	3 28.9	15 15	9.6
Sat Oct 11/Sun Oct 12	0 42	18 06	19 38	5 17	6 50	20 19	6 00	20 29	.....	83	4 24.8	17 06	9.7
Sun Oct 12/Mon Oct 13	0 46	18 04	19 36	5 18	6 51	20 22	6 05	21 17	.....	74	5 19.5	17 56	9.7
Mon Oct 13/Tue Oct 14	0 50	18 03	19 35	5 19	6 52	20 24	6 10	22 08	.....	65	6 12.7	17 48	9.7
Tue Oct 14/Wed Oct 15	0 54	18 01	19 33	5 20	6 53	20 26	6 15	23 01	.....	55	7 04.2	16 48	9.8
Wed Oct 15/Thu Oct 16	0 58	18 00	19 32	5 22	6 54	20 29	6 20	23 56	.....	46	7 53.8	15 02	9.8
Thu Oct 16/Fri Oct 17	1 02	17 58	19 30	5 23	6 55	20 31	6 25	0 51	.....	36	8 41.7	12 37	9.9
Fri Oct 17/Sat Oct 18	1 05	17 56	19 29	5 24	6 56	20 34	6 30	1 48	.....	28	9 28.2	9 41	9.9
Sat Oct 18/Sun Oct 19	1 09	17 55	19 27	5 25	6 57	20 36	6 35	2 44	.....	20	10 13.8	6 21	10.0
Sun Oct 19/Mon Oct 20	1 13	17 53	19 26	5 26	6 59	20 39	6 40	3 41	.....	13	10 59.1	2 44	10.0
Mon Oct 20/Tue Oct 21	1 17	17 52	19 25	5 27	7 00	20 41	6 45	4 39	16 15	7	11 44.4	- 1 02	10.0
Tue Oct 21/Wed Oct 22	1 21	17 50	19 23	5 28	7 01	20 44	6 50	5 38	16 44	3	12 30.5	- 4 51	10.1
Wed Oct 22/Thu Oct 23	1 25	17 49	19 22	5 29	7 02	20 46	6 55	6 38	17 14	1	13 17.9	- 8 33	10.1
Thu Oct 23/Fri Oct 24	1 29	17 48	19 20	5 30	7 03	20 49	7 00	7 39	17 47	0	14 06.9	-11 57	10.2
Fri Oct 24/Sat Oct 25	1 33	17 46	19 19	5 31	7 04	20 51	7 05	.....	18 23	2	14 58.0	-14 53	10.2
Sat Oct 25/Sun Oct 26	1 37	17 45	19 18	5 32	7 06	20 54	7 10	.....	19 04	5	15 51.2	-17 09	10.2
Sun Oct 26/Mon Oct 27	1 41	17 43	19 16	5 33	7 07	20 57	7 15	.....	19 51	11	16 46.3	-18 35	10.3
Mon Oct 27/Tue Oct 28	1 45	17 42	19 15	5 34	7 08	20 59	7 20	.....	20 43	19	17 42.8	-19 01	10.3
Tue Oct 28/Wed Oct 29	1 49	17 41	19 14	5 36	7 09	21 02	7 25	.....	21 41	28	18 40.2	-18 24	10.4
Wed Oct 29/Thu Oct 30	1 53	17 39	19 13	5 37	7 10	21 05	7 30	.....	22 44	39	19 37.7	-16 43	10.4
Thu Oct 30/Fri Oct 31	1 57	17 38	19 12	5 38	7 12	21 08	7 35	.....	23 51	50	20 34.6	-14 03	10.4
Fri Oct 31/Sat Nov 01	2 01	17 37	19 10	5 39	7 13	21 10	7 40	.....	0 59	61	21 30.8	-10 33	10.5

Calendar for Cape Cod Schmidt Observatory, west longitude (h.m.s) = 4 40 47, latitude (d.m) = 41 40.7
 Rise/set times in Eastern time (5 hr W), uncorrected for elevation, DAYLIGHT time used, * shows clock reset.
 Moon info is for local midnight, even if moon is down. Program: John Thorstensen, Dartmouth College.

***** 2014 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	
Sat Nov 01/Sun Nov 02*	2 05	17 35	19 09	4 40	6 14	21 13	7 45	.....	1 09	72	22 26.4	- 6 25	10.5
Sun Nov 02/Mon Nov 03	3 09	16 34	18 08	4 41	6 15	21 16	7 50	.....	2 19	82	23 23.2	- 1 43	10.5
Mon Nov 03/Tue Nov 04	3 13	16 33	18 07	4 42	6 16	21 19	7 55	.....	3 29	90	0 18.2	2 52	10.6
Tue Nov 04/Wed Nov 05	3 17	16 32	18 06	4 43	6 18	21 22	8 00	.....	4 38	96	1 13.5	7 16	10.6
Wed Nov 05/Thu Nov 06	3 21	16 31	18 05	4 44	6 19	21 25	8 05	.....	5 47	99	2 09.3	11 11	10.6
Thu Nov 06/Fri Nov 07	3 25	16 29	18 04	4 45	6 20	21 28	8 10	.....	6 53	100	3 05.8	14 22	10.7
Fri Nov 07/Sat Nov 08	3 28	16 28	18 03	4 46	6 21	21 31	8 15	.....	7 55	98	4 02.3	16 38	10.7
Sat Nov 08/Sun Nov 09	3 32	16 27	18 02	4 47	6 23	21 34	8 20	.....	.....	94	4 58.5	17 54	10.7
Sun Nov 09/Mon Nov 10	3 36	16 26	18 01	4 48	6 24	21 37	8 25	.....	.....	88	5 53.5	18 08	10.8
Mon Nov 10/Tue Nov 11	3 40	16 25	18 01	4 49	6 25	21 40	8 30	.....	.....	80	6 46.9	17 25	10.8
Tue Nov 11/Wed Nov 12	3 44	16 24	18 00	4 50	6 26	21 43	8 35	.....	.....	72	7 38.3	15 51	10.8
Wed Nov 12/Thu Nov 13	3 48	16 23	17 59	4 51	6 27	21 46	8 40	.....	.....	63	8 27.7	13 35	10.9
Thu Nov 13/Fri Nov 14	3 52	16 22	17 58	4 53	6 29	21 49	8 45	.....	.....	53	9 15.2	10 46	10.9
Fri Nov 14/Sat Nov 15	3 56	16 21	17 57	4 54	6 30	21 53	8 50	.....	.....	44	10 01.5	7 30	10.9
Sat Nov 15/Sun Nov 16	4 00	16 20	17 57	4 55	6 31	21 56	8 55	.....	.....	35	10 46.9	3 56	11.0
Sun Nov 16/Mon Nov 17	4 04	16 20	17 56	4 56	6 32	21 59	9 00	.....	.....	26	11 32.2	0 11	11.0
Mon Nov 17/Tue Nov 18	4 08	16 19	17 55	4 57	6 34	22 02	9 05	.....	.....	18	12 18.0	- 3 39	11.0
Tue Nov 18/Wed Nov 19	4 12	16 18	17 55	4 58	6 35	22 06	9 10	.....	.....	11	13 04.9	- 7 25	11.0
Wed Nov 19/Thu Nov 20	4 16	16 17	17 54	4 59	6 36	22 09	9 15	.....	.....	6	13 53.7	-10 57	11.1
Thu Nov 20/Fri Nov 21	4 20	16 17	17 54	5 00	6 37	22 12	9 20	.....	.....	2	14 44.6	-14 05	11.1
Fri Nov 21/Sat Nov 22	4 24	16 16	17 53	5 01	6 38	22 16	9 25	.....	.....	0	15 37.9	-16 36	11.1
Sat Nov 22/Sun Nov 23	4 28	16 15	17 53	5 02	6 39	22 19	9 30	.....	.....	1	16 33.6	-18 18	11.1
Sun Nov 23/Mon Nov 24	4 32	16 15	17 52	5 03	6 41	22 23	9 35	.....	.....	4	17 31.0	-19 00	11.2
Mon Nov 24/Tue Nov 25	4 35	16 14	17 52	5 04	6 42	22 26	9 40	.....	.....	9	18 29.2	-18 37	11.2
Tue Nov 25/Wed Nov 26	4 39	16 14	17 52	5 05	6 43	22 30	9 45	.....	.....	16	19 27.4	-17 07	11.2
Wed Nov 26/Thu Nov 27	4 43	16 13	17 51	5 06	6 44	22 34	9 50	.....	.....	25	20 24.8	-14 37	11.2
Thu Nov 27/Fri Nov 28	4 47	16 13	17 51	5 07	6 45	22 37	9 55	.....	.....	36	21 20.9	-11 16	11.3
Fri Nov 28/Sat Nov 29	4 51	16 12	17 51	5 07	6 46	22 41	10 00	.....	.....	47	22 15.8	- 7 18	11.3
Sat Nov 29/Sun Nov 30	4 55	16 12	17 51	5 08	6 47	22 45	10 04	.....	.....	58	23 09.6	- 2 57	11.3
Sun Nov 30/Mon Dec 01	4 59	16 12	17 50	5 09	6 48	22 48	10 09	.....	.....	69	0 03.0	1 32	11.3

***** 2014 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	
Mon Dec 01/Tue Dec 02	5 03	16 11	17 50	5 10	6 49	22 52	10 14	.....	2 25	79	0 56.4	5 53	11.3
Tue Dec 02/Wed Dec 03	5 07	16 11	17 50	5 11	6 50	22 56	10 19	.....	3 32	87	1 50.4	9 54	11.4
Wed Dec 03/Thu Dec 04	5 11	16 11	17 50	5 12	6 51	23 00	10 24	.....	4 38	94	2 45.1	13 18	11.4
Thu Dec 04/Fri Dec 05	5 15	16 11	17 50	5 13	6 52	23 04	10 29	.....	5 41	98	3 40.5	15 55	11.4
Fri Dec 05/Sat Dec 06	5 19	16 10	17 50	5 14	6 53	23 08	10 33	.....	6 40	100	4 36.3	17 36	11.4
Sat Dec 06/Sun Dec 07	5 23	16 10	17 50	5 14	6 54	23 12	10 38	.....	7 34	99	5 31.8	18 17	11.4
Sun Dec 07/Mon Dec 08	5 27	16 10	17 50	5 15	6 55	23 16	10 43	.....	8 22	97	6 26.2	17 57	11.4
Mon Dec 08/Tue Dec 09	5 31	16 10	17 50	5 16	6 56	23 20	10 48	.....	.....	92	7 19.0	16 43	11.4
Tue Dec 09/Wed Dec 10	5 35	16 10	17 50	5 17	6 57	23 24	10 52	.....	.....	86	8 09.8	14 42	11.4
Wed Dec 10/Thu Dec 11	5 39	16 10	17 50	5 18	6 58	23 28	10 57	.....	.....	79	8 58.6	12 02	11.5
Thu Dec 11/Fri Dec 12	5 42	16 10	17 50	5 18	6 58	23 32	11 02	.....	.....	71	9 45.7	8 54	11.5
Fri Dec 12/Sat Dec 13	5 46	16 11	17 51	5 19	6 59	23 36	11 06	.....	.....	62	10 31.6	5 25	11.5
Sat Dec 13/Sun Dec 14	5 50	16 11	17 51	5 20	7 00	23 40	11 11	.....	.....	52	11 16.8	1 42	11.5
Sun Dec 14/Mon Dec 15	5 54	16 11	17 51	5 20	7 01	23 45	11 16	.....	.....	43	12 02.1	- 2 06	11.5
Mon Dec 15/Tue Dec 16	5 58	16 11	17 52	5 21	7 01	23 49	11 20	.....	.....	34	12 48.2	- 5 53	11.5
Tue Dec 16/Wed Dec 17	6 02	16 11	17 52	5 22	7 02	23 53	11 25	.....	.....	25	13 35.7	- 9 31	11.5
Wed Dec 17/Thu Dec 18	6 06	16 12	17 52	5 22	7 03	23 57	11 29	.....	.....	17	14 25.3	-12 50	11.5
Thu Dec 18/Fri Dec 19	6 10	16 12	17 53	5 23	7 03	0 02	11 34	.....	.....	10	15 17.6	-15 38	11.5
Fri Dec 19/Sat Dec 20	6 14	16 13	17 53	5 23	7 04	0 06	11 38	.....	.....	4	16 12.5	-17 43	11.5
Sat Dec 20/Sun Dec 21	6 18	16 13	17 53	5 24	7 04	0 10	11 43	.....	.....	1	17 10.0	-18 52	11.5
Sun Dec 21/Mon Dec 22	6 22	16 13	17 54	5 24	7 05	0 15	11 47	.....	.....	0	18 09.2	-18 56	11.5
Mon Dec 22/Tue Dec 23	6 26	16 14	17 54	5 25	7 05	0 19	11 52	.....	.....	2	19 09.1	-17 49	11.5
Tue Dec 23/Wed Dec 24	6 30	16 15	17 55	5 25	7 06	0 24	11 56	.....	.....	6	20 08.4	-15 36	11.5
Wed Dec 24/Thu Dec 25	6 34	16 15	17 56	5 26	7 06	0 28	12 00	.....	.....	13	21 06.5	-12 25	11.5
Thu Dec 25/Fri Dec 26	6 38	16 16	17 56	5 26	7 07	0 33	12 05	.....	.....	22	22 03.0	- 8 32	11.5
Fri Dec 26/Sat Dec 27	6 42	16 16	17 57	5 26	7 07	0 37	12 09	.....	.....	32	22 57.8	- 4 12	11.5
Sat Dec 27/Sun Dec 28	6 46	16 17	17 57	5 27	7 07	0 42	12 13	.....	.....	43	23 51.5	0 18	11.5
Sun Dec 28/Mon Dec 29	6 50	16 18	17 58	5 27	7 07	0 47	12 18	.....	.....	54	0 44.5	4 41	11.5
Mon Dec 29/Tue Dec 30	6 53	16 19	17 59	5 27	7 08	0 51	12 22	.....	.....	65	1 37.5	8 45	11.5
Tue Dec 30/Wed Dec 31	6 57	16 19	17 59	5 28	7 08	0 56	12 26	.....	.....	75	2 30.8	12 18	11.5
Wed Dec 31/Thu Jan 01	7 01	16 20	18 00	5 28	7 08	1 01	12 30	.....	.....	84	3 24.7	15 07	11.5