

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 OU Norman *****

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 0.0 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 OU Norman

Times and dates are given in local time, zone = 6 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 14	10 19	Dec 21	17 43	Dec 29	21 30	Jan 06	3 39
Jan 12	23 03	Jan 20	15 04	Jan 28	13 19	Feb 04	11 39
Feb 11	13 08	Feb 19	12 49	Feb 27	2 20	Mar 05	19 32
Mar 13	4 24	Mar 21	9 42	Mar 28	13 50	Apr 04	5 04
Apr 11	21 33	Apr 20	2 00	Apr 26	22 33	May 03	14 52
May 11	14 02	May 19	14 13	May 26	6 15	Jun 02	2 26
Jun 10	5 54	Jun 17	22 55	Jun 24	13 40	Jul 01	16 13
Jul 09	20 18	Jul 17	5 12	Jul 23	21 37	Jul 31	8 18
Aug 08	8 51	Aug 15	10 21	Aug 22	7 02	Aug 30	2 15
Sep 06	19 52	Sep 13	15 41	Sep 20	18 55	Sep 28	20 58
Oct 06	6 06	Oct 12	22 28	Oct 20	9 58	Oct 28	15 07
Nov 04	16 15	Nov 11	6 48	Nov 19	3 00	Nov 27	6 30
Dec 04	1 45	Dec 10	19 38	Dec 18	22 38	Dec 26	20 26
Jan 02	12 36	Jan 09	12 13	Jan 17	17 51	Jan 25	7 43

Calendar for OU Norman, west longitude (h.m.s) = 6 29 47, latitude (d.m) = 35 12.2
 Rise/set times in Central time (6 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.

***** 2021 JANUARY *****

Date (eve/morn)	LMST midn	----- Sun: -----				LST twilight:		----- Moon: -----				Twi-Twi	
		set	twi.end	twi.beg	rise	eve	morn	rise	set	%illum	RA	Dec	hours
Fri Jan 01/Sat Jan 02	6 19	17 29	19 00	6 08	7 39	1 17	12 28	20 07	.....	89	9 35.2	18 59	11.1
Sat Jan 02/Sun Jan 03	6 23	17 30	19 00	6 08	7 39	1 22	12 32	21 13	.....	82	10 29.0	14 44	11.1
Sun Jan 03/Mon Jan 04	6 27	17 30	19 01	6 08	7 39	1 27	12 36	22 19	.....	72	11 21.1	9 41	11.1
Mon Jan 04/Tue Jan 05	6 30	17 31	19 02	6 09	7 39	1 31	12 40	23 24	.....	62	12 12.1	4 06	11.1
Tue Jan 05/Wed Jan 06	6 34	17 32	19 02	6 09	7 39	1 36	12 44	0 31	.....	51	13 02.7	- 1 45	11.1
Wed Jan 06/Thu Jan 07	6 38	17 33	19 03	6 09	7 39	1 41	12 48	1 38	.....	40	13 54.1	- 7 34	11.1
Thu Jan 07/Fri Jan 08	6 42	17 34	19 04	6 09	7 39	1 45	12 52	2 47	.....	29	14 47.2	-13 02	11.1
Fri Jan 08/Sat Jan 09	6 46	17 35	19 05	6 09	7 39	1 50	12 56	3 57	.....	19	15 42.7	-17 51	11.1
Sat Jan 09/Sun Jan 10	6 50	17 36	19 06	6 09	7 39	1 55	13 00	5 08	.....	11	16 41.0	-21 38	11.1
Sun Jan 10/Mon Jan 11	6 54	17 37	19 06	6 09	7 39	2 00	13 04	6 17	.....	5	17 41.6	-24 06	11.0
Mon Jan 11/Tue Jan 12	6 58	17 37	19 07	6 09	7 38	2 04	13 08	7 20	16 09	1	18 43.3	-25 02	11.0
Tue Jan 12/Wed Jan 13	7 02	17 38	19 08	6 09	7 38	2 09	13 12	8 15	17 11	0	19 44.3	-24 24	11.0
Wed Jan 13/Thu Jan 14	7 06	17 39	19 09	6 09	7 38	2 14	13 16	.....	18 16	1	20 42.8	-22 20	11.0
Thu Jan 14/Fri Jan 15	7 10	17 40	19 10	6 08	7 38	2 19	13 19	.....	19 22	5	21 38.0	-19 06	11.0
Fri Jan 15/Sat Jan 16	7 14	17 41	19 11	6 08	7 37	2 24	13 23	.....	20 26	10	22 29.4	-15 01	11.0
Sat Jan 16/Sun Jan 17	7 18	17 42	19 11	6 08	7 37	2 28	13 27	.....	21 28	17	23 17.5	-10 22	10.9
Sun Jan 17/Mon Jan 18	7 22	17 43	19 12	6 08	7 37	2 33	13 31	.....	22 26	25	0 03.2	- 5 24	10.9
Mon Jan 18/Tue Jan 19	7 26	17 44	19 13	6 08	7 36	2 38	13 34	.....	23 23	34	0 47.3	- 0 20	10.9
Tue Jan 19/Wed Jan 20	7 30	17 45	19 14	6 07	7 36	2 43	13 38	.....	0 19	43	1 30.7	4 40	10.9
Wed Jan 20/Thu Jan 21	7 34	17 46	19 15	6 07	7 35	2 48	13 42	.....	1 15	53	2 14.6	9 29	10.9
Thu Jan 21/Fri Jan 22	7 37	17 47	19 16	6 07	7 35	2 52	13 45	.....	2 11	62	2 59.6	13 56	10.9
Fri Jan 22/Sat Jan 23	7 41	17 48	19 17	6 06	7 34	2 57	13 49	.....	3 09	71	3 46.7	17 52	10.8
Sat Jan 23/Sun Jan 24	7 45	17 49	19 17	6 06	7 34	3 02	13 52	.....	4 07	79	4 36.4	21 06	10.8
Sun Jan 24/Mon Jan 25	7 49	17 50	19 18	6 06	7 33	3 07	13 56	.....	5 05	87	5 29.1	23 25	10.8
Mon Jan 25/Tue Jan 26	7 53	17 51	19 19	6 05	7 33	3 12	13 59	.....	6 01	93	6 24.4	24 36	10.8
Tue Jan 26/Wed Jan 27	7 57	17 52	19 20	6 05	7 32	3 17	14 03	15 51	6 54	97	7 21.6	24 29	10.7
Wed Jan 27/Thu Jan 28	8 01	17 53	19 21	6 04	7 32	3 21	14 06	16 51	7 42	100	8 19.5	22 58	10.7
Thu Jan 28/Fri Jan 29	8 05	17 54	19 22	6 04	7 31	3 26	14 10	17 55	.....	100	9 16.8	20 06	10.7
Fri Jan 29/Sat Jan 30	8 09	17 55	19 23	6 03	7 30	3 31	14 13	19 01	.....	97	10 12.5	16 02	10.7
Sat Jan 30/Sun Jan 31	8 13	17 56	19 24	6 02	7 29	3 36	14 16	20 09	.....	92	11 06.5	11 01	10.6
Sun Jan 31/Mon Feb 01	8 17	17 58	19 25	6 02	7 29	3 41	14 20	21 16	.....	85	11 59.0	5 22	10.6

***** 2021 FEBRUARY *****

Date (eve/morn)	LMST midn	----- Sun: -----				LST twilight:		----- Moon: -----				Twi-Twi	
		set	twi.end	twi.beg	rise	eve	morn	rise	set	%illum	RA	Dec	hours
Mon Feb 01/Tue Feb 02	8 21	17 59	19 25	6 01	7 28	3 46	14 23	22 23	.....	76	12 50.7	- 0 35	10.6
Tue Feb 02/Wed Feb 03	8 25	18 00	19 26	6 01	7 27	3 50	14 26	23 31	.....	66	13 42.4	- 6 30	10.6
Wed Feb 03/Thu Feb 04	8 29	18 01	19 27	6 00	7 26	3 55	14 30	0 39	.....	55	14 35.1	-12 06	10.5
Thu Feb 04/Fri Feb 05	8 33	18 02	19 28	5 59	7 25	4 00	14 33	1 48	.....	43	15 29.6	-17 02	10.5
Fri Feb 05/Sat Feb 06	8 37	18 03	19 29	5 58	7 24	4 05	14 36	2 57	.....	32	16 26.3	-21 00	10.5
Sat Feb 06/Sun Feb 07	8 41	18 04	19 30	5 58	7 24	4 10	14 39	4 05	.....	23	17 25.1	-23 45	10.5
Sun Feb 07/Mon Feb 08	8 45	18 05	19 31	5 57	7 23	4 15	14 42	5 08	.....	14	18 25.2	-25 03	10.4
Mon Feb 08/Tue Feb 09	8 48	18 06	19 32	5 56	7 22	4 19	14 45	6 05	.....	7	19 25.2	-24 52	10.4
Tue Feb 09/Wed Feb 10	8 52	18 07	19 33	5 55	7 21	4 24	14 48	6 54	16 00	3	20 23.6	-23 14	10.4
Wed Feb 10/Thu Feb 11	8 56	18 08	19 33	5 54	7 20	4 29	14 52	7 36	17 05	1	21 19.2	-20 21	10.3
Thu Feb 11/Fri Feb 12	9 00	18 09	19 34	5 53	7 19	4 34	14 55	.....	18 09	0	22 11.5	-16 31	10.3
Fri Feb 12/Sat Feb 13	9 04	18 10	19 35	5 52	7 18	4 39	14 58	.....	19 12	2	23 00.6	-12 00	10.3
Sat Feb 13/Sun Feb 14	9 08	18 11	19 36	5 51	7 17	4 43	15 01	.....	20 13	6	23 47.1	- 7 05	10.3
Sun Feb 14/Mon Feb 15	9 12	18 12	19 37	5 50	7 16	4 48	15 04	.....	21 11	12	0 31.8	- 1 59	10.2
Mon Feb 15/Tue Feb 16	9 16	18 13	19 38	5 49	7 15	4 53	15 06	.....	22 08	19	1 15.6	3 07	10.2
Tue Feb 16/Wed Feb 17	9 20	18 14	19 39	5 48	7 13	4 58	15 09	.....	23 04	26	1 59.2	8 02	10.2
Wed Feb 17/Thu Feb 18	9 24	18 15	19 40	5 47	7 12	5 03	15 12	.....	0 00	35	2 43.6	12 37	10.1
Thu Feb 18/Fri Feb 19	9 28	18 15	19 40	5 46	7 11	5 08	15 15	.....	0 57	44	3 29.6	16 43	10.1
Fri Feb 19/Sat Feb 20	9 32	18 16	19 41	5 45	7 10	5 12	15 18	.....	1 55	54	4 17.8	20 10	10.1
Sat Feb 20/Sun Feb 21	9 36	18 17	19 42	5 44	7 09	5 17	15 21	.....	2 52	63	5 08.6	22 48	10.0
Sun Feb 21/Mon Feb 22	9 40	18 18	19 43	5 43	7 08	5 22	15 24	.....	3 49	72	6 02.1	24 23	10.0
Mon Feb 22/Tue Feb 23	9 44	18 19	19 44	5 42	7 06	5 27	15 26	.....	4 43	81	6 58.0	24 46	10.0
Tue Feb 23/Wed Feb 24	9 48	18 20	19 45	5 41	7 05	5 32	15 29	.....	5 33	88	7 55.2	23 48	9.9
Wed Feb 24/Thu Feb 25	9 52	18 21	19 46	5 40	7 04	5 36	15 32	.....	6 17	94	8 52.8	21 26	9.9
Thu Feb 25/Fri Feb 26	9 55	18 22	19 46	5 38	7 03	5 41	15 35	16 42	6 58	98	9 49.7	17 45	9.9
Fri Feb 26/Sat Feb 27	9 59	18 23	19 47	5 37	7 01	5 46	15 38	17 51	7 34	100	10 45.4	12 56	9.8
Sat Feb 27/Sun Feb 28	10 03	18 24	19 48	5 36	7 00	5 51	15 40	19 00	.....	99	11 39.8	7 17	9.8
Sun Feb 28/Mon Mar 01	10 07	18 25	19 49	5 35	6 59	5 56	15 43	20 09	.....	95	12 33.3	1 09	9.8

Calendar for OU Norman, west longitude (h.m.s) = 6 29 47, latitude (d.m) = 35 12.2
 Rise/set times in Central time (6 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.

***** 2021 MARCH *****

Date (eve/morn)	LMST midn	----- Sun: -----				LST twilight:		----- Moon: -----				Twilight	
		set	twi.end	twi.beg	rise	eve	morn	rise	set	%illum	RA	Dec	hours
Mon Mar 01/Tue Mar 02	10 11	18 26	19 50	5 33	6 58	6 00	15 46	21 19	.....	88	13 26.7	- 5 04	9.7
Tue Mar 02/Wed Mar 03	10 15	18 27	19 51	5 32	6 56	6 05	15 48	22 29	.....	80	14 20.7	-11 01	9.7
Wed Mar 03/Thu Mar 04	10 19	18 27	19 52	5 31	6 55	6 10	15 51	23 39	.....	69	15 16.2	-16 18	9.7
Thu Mar 04/Fri Mar 05	10 23	18 28	19 53	5 30	6 54	6 15	15 53	0 50	.....	58	16 13.5	-20 36	9.6
Fri Mar 05/Sat Mar 06	10 27	18 29	19 53	5 28	6 52	6 20	15 56	1 58	.....	47	17 12.5	-23 38	9.6
Sat Mar 06/Sun Mar 07	10 31	18 30	19 54	5 27	6 51	6 25	15 59	3 03	.....	36	18 12.4	-25 14	9.5
Sun Mar 07/Mon Mar 08	10 35	18 31	19 55	5 25	6 50	6 29	16 01	4 01	.....	26	19 12.1	-25 20	9.5
Mon Mar 08/Tue Mar 09	10 39	18 32	19 56	5 24	6 48	6 34	16 04	4 51	.....	18	20 10.1	-24 00	9.5
Tue Mar 09/Wed Mar 10	10 43	18 33	19 57	5 23	6 47	6 39	16 06	5 34	.....	10	21 05.4	-21 24	9.4
Wed Mar 10/Thu Mar 11	10 47	18 33	19 58	5 21	6 46	6 44	16 09	6 11	.....	5	21 57.7	-17 48	9.4
Thu Mar 11/Fri Mar 12	10 51	18 34	19 59	5 20	6 44	6 49	16 11	6 43	17 01	2	22 46.9	-13 27	9.4
Fri Mar 12/Sat Mar 13	10 55	18 35	20 00	5 18	6 43	6 53	16 14	7 11	18 01	0	23 33.5	- 8 38	9.3
Sat Mar 13/Sun Mar 14*	10 59	18 36	20 00	6 17	7 41	6 58	16 16	.....	19 00	1	0 18.4	- 3 32	9.3
Sun Mar 14/Mon Mar 15	10 02	19 37	21 01	6 16	7 40	7 03	16 19	.....	20 58	3	0 59.7	1 23	9.2
Mon Mar 15/Tue Mar 16	10 06	19 38	21 02	6 14	7 39	7 08	16 21	.....	21 54	7	1 43.3	6 26	9.2
Tue Mar 16/Wed Mar 17	10 10	19 38	21 03	6 13	7 37	7 13	16 24	.....	22 51	13	2 27.3	11 11	9.2
Wed Mar 17/Thu Mar 18	10 14	19 39	21 04	6 11	7 36	7 18	16 26	.....	23 47	19	3 12.6	15 30	9.1
Thu Mar 18/Fri Mar 19	10 18	19 40	21 05	6 10	7 34	7 23	16 29	.....	0 45	27	3 59.7	19 12	9.1
Fri Mar 19/Sat Mar 20	10 22	19 41	21 06	6 08	7 33	7 27	16 31	.....	1 42	36	4 49.0	22 08	9.0
Sat Mar 20/Sun Mar 21	10 26	19 42	21 07	6 07	7 32	7 32	16 34	.....	2 38	45	5 40.8	24 07	9.0
Sun Mar 21/Mon Mar 22	10 30	19 43	21 08	6 05	7 30	7 37	16 36	.....	3 33	55	6 34.8	24 59	9.0
Mon Mar 22/Tue Mar 23	10 34	19 43	21 09	6 04	7 29	7 42	16 39	.....	4 23	65	7 30.4	24 35	8.9
Tue Mar 23/Wed Mar 24	10 38	19 44	21 09	6 02	7 27	7 47	16 41	.....	5 09	75	8 26.8	22 50	8.9
Wed Mar 24/Thu Mar 25	10 42	19 45	21 10	6 01	7 26	7 52	16 43	.....	5 51	83	9 23.1	19 45	8.8
Thu Mar 25/Fri Mar 26	10 46	19 46	21 11	5 59	7 24	7 57	16 46	.....	6 28	91	10 18.8	15 25	8.8
Fri Mar 26/Sat Mar 27	10 50	19 47	21 12	5 58	7 23	8 01	16 48	17 37	7 03	96	11 13.6	10 05	8.8
Sat Mar 27/Sun Mar 28	10 54	19 47	21 13	5 56	7 22	8 06	16 51	18 47	.....	99	12 08.0	4 00	8.7
Sun Mar 28/Mon Mar 29	10 58	19 48	21 14	5 54	7 20	8 11	16 53	19 58	.....	100	13 02.4	- 2 25	8.7
Mon Mar 29/Tue Mar 30	11 01	19 49	21 15	5 53	7 19	8 16	16 55	21 10	.....	97	13 57.6	- 8 46	8.6
Tue Mar 30/Wed Mar 31	11 05	19 50	21 16	5 51	7 17	8 21	16 58	22 23	.....	91	14 54.4	-14 37	8.6
Wed Mar 31/Thu Apr 01	11 09	19 51	21 17	5 50	7 16	8 26	17 00	23 36	.....	83	15 53.2	-19 31	8.5

***** 2021 APRIL *****

Date (eve/morn)	LMST midn	----- Sun: -----				LST twilight:		----- Moon: -----				Twilight	
		set	twi.end	twi.beg	rise	eve	morn	rise	set	%illum	RA	Dec	hours
Thu Apr 01/Fri Apr 02	11 13	19 52	21 18	5 48	7 15	8 31	17 02	0 48	.....	73	16 53.7	-23 09	8.5
Fri Apr 02/Sat Apr 03	11 17	19 52	21 19	5 47	7 13	8 36	17 05	1 57	.....	63	17 55.3	-25 15	8.5
Sat Apr 03/Sun Apr 04	11 21	19 53	21 20	5 45	7 12	8 41	17 07	2 58	.....	52	18 56.4	-25 46	8.4
Sun Apr 04/Mon Apr 05	11 25	19 54	21 21	5 43	7 11	8 46	17 10	3 51	.....	41	19 55.5	-24 46	8.4
Mon Apr 05/Tue Apr 06	11 29	19 55	21 22	5 42	7 09	8 51	17 12	4 36	.....	31	20 51.7	-22 26	8.3
Tue Apr 06/Wed Apr 07	11 33	19 56	21 23	5 40	7 08	8 56	17 14	5 14	.....	22	21 44.4	-19 03	8.3
Wed Apr 07/Thu Apr 08	11 37	19 56	21 24	5 39	7 06	9 01	17 17	5 46	.....	14	22 33.9	-14 53	8.2
Thu Apr 08/Fri Apr 09	11 41	19 57	21 25	5 37	7 05	9 06	17 19	6 15	.....	8	23 20.6	-10 11	8.2
Fri Apr 09/Sat Apr 10	11 45	19 58	21 26	5 36	7 04	9 11	17 21	6 42	17 53	4	0 05.3	- 5 10	8.2
Sat Apr 10/Sun Apr 11	11 49	19 59	21 27	5 34	7 02	9 16	17 24	.....	18 50	1	0 48.8	- 0 01	8.1
Sun Apr 11/Mon Apr 12	11 53	20 00	21 28	5 32	7 01	9 21	17 26	.....	19 47	0	1 32.0	5 04	8.1
Mon Apr 12/Tue Apr 13	11 57	20 00	21 29	5 31	7 00	9 26	17 29	.....	20 43	1	2 15.6	9 55	8.0
Tue Apr 13/Wed Apr 14	12 01	20 01	21 30	5 29	6 58	9 31	17 31	.....	21 40	4	3 00.2	14 23	8.0
Wed Apr 14/Thu Apr 15	12 05	20 02	21 31	5 28	6 57	9 36	17 33	.....	22 37	8	3 46.5	18 18	7.9
Thu Apr 15/Fri Apr 16	12 08	20 03	21 32	5 26	6 56	9 41	17 36	.....	23 34	14	4 34.9	21 28	7.9
Fri Apr 16/Sat Apr 17	12 12	20 04	21 34	5 25	6 55	9 46	17 38	.....	0 31	21	5 25.4	23 44	7.9
Sat Apr 17/Sun Apr 18	12 16	20 04	21 35	5 23	6 53	9 51	17 40	.....	1 26	29	6 17.9	24 56	7.8
Sun Apr 18/Mon Apr 19	12 20	20 05	21 36	5 22	6 52	9 56	17 43	.....	2 17	39	7 11.9	24 57	7.8
Mon Apr 19/Tue Apr 20	12 24	20 06	21 37	5 20	6 51	10 01	17 45	.....	3 04	49	8 06.7	23 41	7.7
Tue Apr 20/Wed Apr 21	12 28	20 07	21 38	5 19	6 50	10 06	17 48	.....	3 46	59	9 01.4	21 09	7.7
Wed Apr 21/Thu Apr 22	12 32	20 08	21 39	5 17	6 48	10 11	17 50	.....	4 24	69	9 55.7	17 24	7.6
Thu Apr 22/Fri Apr 23	12 36	20 09	21 40	5 16	6 47	10 16	17 53	.....	4 58	79	10 49.3	12 33	7.6
Fri Apr 23/Sat Apr 24	12 40	20 09	21 41	5 14	6 46	10 21	17 55	.....	5 31	88	11 42.7	6 51	7.5
Sat Apr 24/Sun Apr 25	12 44	20 10	21 42	5 13	6 45	10 26	17 57	17 32	6 03	94	12 36.3	0 33	7.5
Sun Apr 25/Mon Apr 26	12 48	20 11	21 44	5 11	6 44	10 31	18 00	18 43	6 36	99	13 31.1	- 5 57	7.5
Mon Apr 26/Tue Apr 27	12 52	20 12	21 45	5 10	6 43	10 36	18 02	19 57	.....	100	14 27.8	-12 14	7.4
Tue Apr 27/Wed Apr 28	12 56	20 13	21 46	5 08	6 42	10 41	18 05	21 12	.....	98	15 27.3	-17 48	7.4
Wed Apr 28/Thu Apr 29	13 00	20 13	21 47	5 07	6 40	10 46	18 07	22 28	.....	93	16 29.4	-22 11	7.3
Thu Apr 29/Fri Apr 30	13 04	20 14	21 48	5 05	6 39	10 52	18 10	23 41	.....	86	17 33.3	-25 01	7.3
Fri Apr 30/Sat May 01	13 08	20 15	21 49	5 04	6 38	10 57	18 12	0 48	.....	77	18 37.4	-26 07	7.2

Calendar for OU Norman, west longitude (h.m.s) = 6 29 47, latitude (d.m) = 35 12.2
 Rise/set times in Central time (6 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.

***** 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	13 12	20 16	21 51	5 03 6 37	11 02 18 15	1 46	.....	67	19 39.7 -25 31	7.2
Sun May 02/Mon May 03	13 16	20 17	21 52	5 01 6 36	11 07 18 18	2 35	.....	56	20 38.5 -23 27	7.2
Mon May 03/Tue May 04	13 19	20 18	21 53	5 00 6 35	11 12 18 20	3 16	.....	46	21 33.3 -20 12	7.1
Tue May 04/Wed May 05	13 23	20 18	21 54	4 59 6 34	11 17 18 23	3 50	.....	35	22 24.1 -16 07	7.1
Wed May 05/Thu May 06	13 27	20 19	21 55	4 57 6 33	11 22 18 25	4 20	.....	26	23 11.5 -11 27	7.0
Thu May 06/Fri May 07	13 31	20 20	21 56	4 56 6 32	11 27 18 28	4 47	.....	18	23 56.4 - 6 28	7.0
Fri May 07/Sat May 08	13 35	20 21	21 58	4 55 6 31	11 32 18 31	5 12	.....	11	0 39.9 - 1 20	7.0
Sat May 08/Sun May 09	13 39	20 22	21 59	4 53 6 30	11 38 18 33	5 37	17 41	6	1 22.7 3 46	6.9
Sun May 09/Mon May 10	13 43	20 22	22 00	4 52 6 30	11 43 18 36	6 03	18 37	2	2 05.8 8 42	6.9
Mon May 10/Tue May 11	13 47	20 23	22 01	4 51 6 29	11 48 18 39	6 31	19 34	0	2 49.9 13 16	6.8
Tue May 11/Wed May 12	13 51	20 24	22 02	4 50 6 28	11 53 18 42	.....	20 31	0	3 35.6 17 20	6.8
Wed May 12/Thu May 13	13 55	20 25	22 03	4 49 6 27	11 58 18 44	.....	21 28	2	4 23.2 20 42	6.8
Thu May 13/Fri May 14	13 59	20 26	22 05	4 47 6 26	12 03 18 47	.....	22 25	5	5 13.1 23 13	6.7
Fri May 14/Sat May 15	14 03	20 26	22 06	4 46 6 26	12 08 18 50	.....	23 21	10	6 04.9 24 42	6.7
Sat May 15/Sun May 16	14 07	20 27	22 07	4 45 6 25	12 13 18 53	.....	0 13	16	6 58.0 25 02	6.6
Sun May 16/Mon May 17	14 11	20 28	22 08	4 44 6 24	12 18 18 56	.....	1 01	24	7 51.8 24 08	6.6
Mon May 17/Tue May 18	14 15	20 29	22 09	4 43 6 23	12 23 18 58	.....	1 44	33	8 45.4 22 00	6.6
Tue May 18/Wed May 19	14 19	20 30	22 10	4 42 6 23	12 29 19 01	.....	2 22	43	9 38.3 18 42	6.5
Wed May 19/Thu May 20	14 23	20 30	22 11	4 41 6 22	12 34 19 04	.....	2 57	54	10 30.4 14 20	6.5
Thu May 20/Fri May 21	14 26	20 31	22 12	4 40 6 21	12 39 19 07	.....	3 29	65	11 21.9 9 06	6.5
Fri May 21/Sat May 22	14 30	20 32	22 13	4 39 6 21	12 44 19 10	.....	4 00	75	12 13.5 3 11	6.4
Sat May 22/Sun May 23	14 34	20 33	22 15	4 38 6 20	12 49 19 13	.....	4 31	85	13 06.0 - 3 07	6.4
Sun May 23/Mon May 24	14 38	20 33	22 16	4 37 6 20	12 54 19 16	17 30	5 04	92	14 00.6 - 9 27	6.4
Mon May 24/Tue May 25	14 42	20 34	22 17	4 37 6 19	12 59 19 20	18 43	5 41	98	14 58.2 -15 24	6.3
Tue May 25/Wed May 26	14 46	20 35	22 18	4 36 6 19	13 04 19 23	19 59	6 25	100	15 59.4 -20 27	6.3
Wed May 26/Thu May 27	14 50	20 35	22 19	4 35 6 18	13 09 19 26	21 15	.....	99	17 03.7 -24 08	6.3
Thu May 27/Fri May 28	14 54	20 36	22 20	4 34 6 18	13 14 19 29	22 28	.....	95	18 09.9 -26 05	6.2
Fri May 28/Sat May 29	14 58	20 37	22 21	4 34 6 17	13 18 19 32	23 33	.....	89	19 15.6 -26 11	6.2
Sat May 29/Sun May 30	15 02	20 37	22 22	4 33 6 17	13 23 19 36	0 28	.....	81	20 18.3 -24 34	6.2
Sun May 30/Mon May 31	15 06	20 38	22 23	4 32 6 17	13 28 19 39	1 13	.....	71	21 16.6 -21 34	6.2
Mon May 31/Tue Jun 01	15 10	20 39	22 23	4 32 6 16	13 33 19 42	1 51	.....	61	22 10.3 -17 33	6.1

***** 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	15 14	20 39	22 24	4 31 6 16	13 38 19 46	2 22	.....	51	22 59.8 -12 53	6.1
Wed Jun 02/Thu Jun 03	15 18	20 40	22 25	4 31 6 16	13 43 19 49	2 51	.....	41	23 46.1 - 7 52	6.1
Thu Jun 03/Fri Jun 04	15 22	20 40	22 26	4 30 6 16	13 47 19 52	3 17	.....	31	0 30.3 - 2 41	6.1
Fri Jun 04/Sat Jun 05	15 26	20 41	22 27	4 30 6 15	13 52 19 56	3 42	.....	23	1 13.4 2 29	6.0
Sat Jun 05/Sun Jun 06	15 30	20 42	22 28	4 29 6 15	13 57 20 00	4 07	.....	15	1 56.4 7 28	6.0
Sun Jun 06/Mon Jun 07	15 34	20 42	22 28	4 29 6 15	14 02 20 03	4 35	.....	9	2 40.1 12 08	6.0
Mon Jun 07/Tue Jun 08	15 37	20 43	22 29	4 29 6 15	14 06 20 07	5 05	18 24	5	3 25.2 16 20	6.0
Tue Jun 08/Wed Jun 09	15 41	20 43	22 30	4 28 6 15	14 11 20 10	5 38	19 22	1	4 12.3 19 53	6.0
Wed Jun 09/Thu Jun 10	15 45	20 44	22 30	4 28 6 15	14 15 20 14	6 17	20 19	0	5 01.7 22 36	6.0
Thu Jun 10/Fri Jun 11	15 49	20 44	22 31	4 28 6 15	14 20 20 18	.....	21 16	0	5 53.1 24 20	5.9
Fri Jun 11/Sat Jun 12	15 53	20 44	22 32	4 28 6 15	14 25 20 22	.....	22 10	3	6 46.0 24 56	5.9
Sat Jun 12/Sun Jun 13	15 57	20 45	22 32	4 28 6 15	14 29 20 25	.....	23 00	7	7 39.7 24 19	5.9
Sun Jun 13/Mon Jun 14	16 01	20 45	22 33	4 27 6 15	14 33 20 29	.....	23 44	13	8 33.1 22 28	5.9
Mon Jun 14/Tue Jun 15	16 05	20 46	22 33	4 27 6 15	14 38 20 33	.....	0 23	20	9 25.6 19 28	5.9
Tue Jun 15/Wed Jun 16	16 09	20 46	22 34	4 27 6 15	14 42 20 37	.....	0 58	29	10 16.9 15 26	5.9
Wed Jun 16/Thu Jun 17	16 13	20 46	22 34	4 27 6 15	14 47 20 41	.....	1 30	39	11 07.2 10 32	5.9
Thu Jun 17/Fri Jun 18	16 17	20 47	22 34	4 28 6 15	14 51 20 45	.....	2 00	50	11 57.0 4 59	5.9
Fri Jun 18/Sat Jun 19	16 21	20 47	22 35	4 28 6 15	14 55 20 49	.....	2 30	61	12 47.3 - 1 01	5.9
Sat Jun 19/Sun Jun 20	16 25	20 47	22 35	4 28 6 16	14 59 20 53	.....	3 01	72	13 39.1 - 7 09	5.9
Sun Jun 20/Mon Jun 21	16 29	20 47	22 35	4 28 6 16	15 04 20 57	.....	3 35	82	14 33.5 -13 07	5.9
Mon Jun 21/Tue Jun 22	16 33	20 48	22 35	4 28 6 16	15 08 21 02	17 34	4 14	90	15 31.5 -18 28	5.9
Tue Jun 22/Wed Jun 23	16 37	20 48	22 35	4 29 6 16	15 12 21 06	18 48	5 00	96	16 33.5 -22 45	5.9
Wed Jun 23/Thu Jun 24	16 41	20 48	22 36	4 29 6 17	15 16 21 10	20 03	5 55	100	17 38.8 -25 31	5.9
Thu Jun 24/Fri Jun 25	16 44	20 48	22 36	4 29 6 17	15 20 21 14	21 12	.....	100	18 45.6 -26 28	5.9
Fri Jun 25/Sat Jun 26	16 48	20 48	22 36	4 30 6 17	15 24 21 19	22 13	.....	97	19 51.1 -25 34	5.9
Sat Jun 26/Sun Jun 27	16 52	20 48	22 36	4 30 6 18	15 28 21 23	23 04	.....	92	20 53.1 -23 01	5.9
Sun Jun 27/Mon Jun 28	16 56	20 48	22 36	4 31 6 18	15 32 21 28	23 46	.....	84	21 50.4 -19 14	5.9
Mon Jun 28/Tue Jun 29	17 00	20 48	22 36	4 31 6 18	15 36 21 32	0 21	.....	76	22 43.1 -14 37	5.9
Tue Jun 29/Wed Jun 30	17 04	20 48	22 35	4 32 6 19	15 39 21 37	0 52	.....	66	23 31.8 - 9 31	5.9
Wed Jun 30/Thu Jul 01	17 08	20 48	22 35	4 32 6 19	15 43 21 41	1 19	.....	56	0 17.7 - 4 14	6.0

Calendar for OU Norman, west longitude (h.m.s) = 6 29 47, latitude (d.m) = 35 12.2
 Rise/set times in Central time (6 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.

***** 2021 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	
Thu Jul 01/Fri Jul 02		17 12	20 48	22 35	4 33	6 20	15 47	21 46	1 45	.....	46	1 01.8	1 04	6.0
Fri Jul 02/Sat Jul 03		17 16	20 48	22 35	4 33	6 20	15 51	21 50	2 10	.....	37	1 45.2	6 11	6.0
Sat Jul 03/Sun Jul 04		17 20	20 48	22 34	4 34	6 21	15 54	21 55	2 37	.....	28	2 29.0	10 58	6.0
Sun Jul 04/Mon Jul 05		17 24	20 48	22 34	4 35	6 21	15 58	22 00	3 06	.....	20	3 13.9	15 19	6.0
Mon Jul 05/Tue Jul 06		17 28	20 48	22 34	4 36	6 22	16 01	22 04	3 38	.....	13	4 00.5	19 02	6.0
Tue Jul 06/Wed Jul 07		17 32	20 48	22 33	4 36	6 22	16 05	22 09	4 16	18 12	7	4 49.4	21 58	6.1
Wed Jul 07/Thu Jul 08		17 36	20 47	22 33	4 37	6 23	16 08	22 14	4 59	19 09	3	5 40.4	23 56	6.1
Thu Jul 08/Fri Jul 09		17 40	20 47	22 32	4 38	6 23	16 12	22 18	5 48	20 04	1	6 33.2	24 49	6.1
Fri Jul 09/Sat Jul 10		17 44	20 47	22 32	4 39	6 24	16 15	22 23	.....	20 56	0	7 27.0	24 28	6.1
Sat Jul 10/Sun Jul 11		17 48	20 46	22 31	4 40	6 24	16 18	22 28	.....	21 43	1	8 20.9	22 52	6.1
Sun Jul 11/Mon Jul 12		17 51	20 46	22 31	4 41	6 25	16 22	22 33	.....	22 24	5	9 13.8	20 05	6.2
Mon Jul 12/Tue Jul 13		17 55	20 46	22 30	4 41	6 26	16 25	22 38	.....	23 00	10	10 05.5	16 15	6.2
Tue Jul 13/Wed Jul 14		17 59	20 45	22 29	4 42	6 26	16 28	22 43	.....	23 33	17	10 55.8	11 32	6.2
Wed Jul 14/Thu Jul 15		18 03	20 45	22 28	4 43	6 27	16 32	22 47	.....	0 03	26	11 45.1	6 09	6.2
Thu Jul 15/Fri Jul 16		18 07	20 44	22 28	4 44	6 28	16 35	22 52	.....	0 33	36	12 34.3	0 21	6.3
Fri Jul 16/Sat Jul 17		18 11	20 44	22 27	4 45	6 28	16 38	22 57	.....	1 02	47	13 24.2	- 5 37	6.3
Sat Jul 17/Sun Jul 18		18 15	20 43	22 26	4 46	6 29	16 41	23 02	.....	1 34	59	14 16.1	-11 29	6.3
Sun Jul 18/Mon Jul 19		18 19	20 43	22 25	4 47	6 30	16 44	23 07	.....	2 10	70	15 11.0	-16 53	6.4
Mon Jul 19/Tue Jul 20		18 23	20 42	22 24	4 48	6 30	16 47	23 12	.....	2 51	80	16 09.6	-21 25	6.4
Tue Jul 20/Wed Jul 21		18 27	20 42	22 23	4 49	6 31	16 50	23 17	17 42	3 40	89	17 12.0	-24 42	6.4
Wed Jul 21/Thu Jul 22		18 31	20 41	22 22	4 50	6 32	16 53	23 22	18 52	4 38	95	18 17.0	-26 22	6.5
Thu Jul 22/Fri Jul 23		18 35	20 40	22 21	4 51	6 32	16 56	23 27	19 56	5 43	99	19 22.6	-26 13	6.5
Fri Jul 23/Sat Jul 24		18 39	20 40	22 20	4 52	6 33	16 59	23 32	20 52	.....	100	20 26.3	-24 19	6.5
Sat Jul 24/Sun Jul 25		18 43	20 39	22 19	4 54	6 34	17 02	23 37	21 38	.....	98	21 26.2	-20 58	6.6
Sun Jul 25/Mon Jul 26		18 47	20 38	22 18	4 55	6 35	17 05	23 42	22 17	.....	94	22 21.7	-16 33	6.6
Mon Jul 26/Tue Jul 27		18 51	20 38	22 17	4 56	6 35	17 08	23 47	22 50	.....	88	23 13.0	-11 28	6.6
Tue Jul 27/Wed Jul 28		18 55	20 37	22 16	4 57	6 36	17 10	23 52	23 19	.....	80	0 01.0	- 6 03	6.7
Wed Jul 28/Thu Jul 29		18 59	20 36	22 15	4 58	6 37	17 13	23 57	23 46	.....	72	0 46.8	- 0 35	6.7
Thu Jul 29/Fri Jul 30		19 02	20 35	22 14	4 59	6 38	17 16	0 02	0 12	.....	62	1 31.3	4 43	6.8
Fri Jul 30/Sat Jul 31		19 06	20 34	22 13	5 00	6 38	17 19	0 07	0 38	.....	53	2 15.6	9 43	6.8
Sat Jul 31/Sun Aug 01		19 10	20 34	22 11	5 01	6 39	17 21	0 12	1 06	.....	43	3 00.6	14 15	6.8

***** 2021 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	
Sun Aug 01/Mon Aug 02		19 14	20 33	22 10	5 02	6 40	17 24	0 18	1 37	.....	34	3 47.0	18 11	6.9
Mon Aug 02/Tue Aug 03		19 18	20 32	22 09	5 04	6 41	17 27	0 23	2 12	.....	26	4 35.3	21 21	6.9
Tue Aug 03/Wed Aug 04		19 22	20 31	22 07	5 05	6 41	17 29	0 28	2 53	.....	18	5 25.8	23 35	7.0
Wed Aug 04/Thu Aug 05		19 26	20 30	22 06	5 06	6 42	17 32	0 33	3 40	17 56	11	6 18.2	24 45	7.0
Thu Aug 05/Fri Aug 06		19 30	20 29	22 05	5 07	6 43	17 35	0 38	4 34	18 49	6	7 12.0	24 43	7.0
Fri Aug 06/Sat Aug 07		19 34	20 28	22 03	5 08	6 44	17 37	0 43	5 33	19 38	2	8 06.2	23 26	7.1
Sat Aug 07/Sun Aug 08		19 38	20 27	22 02	5 09	6 44	17 40	0 48	6 35	20 22	0	8 59.9	20 54	7.1
Sun Aug 08/Mon Aug 09		19 42	20 26	22 01	5 10	6 45	17 42	0 53	.....	21 00	1	9 52.4	17 15	7.2
Mon Aug 09/Tue Aug 10		19 46	20 25	21 59	5 11	6 46	17 45	0 58	.....	21 34	3	10 43.5	12 38	7.2
Tue Aug 10/Wed Aug 11		19 50	20 24	21 58	5 12	6 47	17 47	1 03	.....	22 06	8	11 33.5	7 19	7.2
Wed Aug 11/Thu Aug 12		19 54	20 23	21 56	5 14	6 47	17 50	1 08	.....	22 36	15	12 22.9	1 32	7.3
Thu Aug 12/Fri Aug 13		19 58	20 21	21 55	5 15	6 48	17 52	1 13	.....	23 05	23	13 12.6	- 4 27	7.3
Fri Aug 13/Sat Aug 14		20 02	20 20	21 54	5 16	6 49	17 55	1 18	.....	23 36	33	14 03.5	-10 20	7.4
Sat Aug 14/Sun Aug 15		20 06	20 19	21 52	5 17	6 50	17 57	1 23	.....	0 10	45	14 56.8	-15 47	7.4
Sun Aug 15/Mon Aug 16		20 09	20 18	21 51	5 18	6 51	18 00	1 28	.....	0 48	56	15 53.1	-20 28	7.5
Mon Aug 16/Tue Aug 17		20 13	20 17	21 49	5 19	6 51	18 02	1 33	.....	1 34	67	16 52.9	-24 01	7.5
Tue Aug 17/Wed Aug 18		20 17	20 16	21 48	5 20	6 52	18 05	1 38	.....	2 27	78	17 55.4	-26 07	7.5
Wed Aug 18/Thu Aug 19		20 21	20 14	21 46	5 21	6 53	18 07	1 43	17 44	3 28	86	18 59.3	-26 32	7.6
Thu Aug 19/Fri Aug 20		20 25	20 13	21 45	5 22	6 54	18 09	1 48	18 42	4 34	93	20 02.4	-25 15	7.6
Fri Aug 20/Sat Aug 21		20 29	20 12	21 43	5 23	6 54	18 12	1 53	19 31	5 43	98	21 02.9	-22 25	7.7
Sat Aug 21/Sun Aug 22		20 33	20 11	21 41	5 24	6 55	18 14	1 58	20 12	6 51	100	21 59.7	-18 21	7.7
Sun Aug 22/Mon Aug 23		20 37	20 09	21 40	5 25	6 56	18 17	2 03	20 47	.....	99	22 52.6	-13 27	7.8
Mon Aug 23/Tue Aug 24		20 41	20 08	21 38	5 26	6 57	18 19	2 08	21 17	.....	96	23 42.2	- 8 02	7.8
Tue Aug 24/Wed Aug 25		20 45	20 07	21 37	5 27	6 57	18 21	2 13	21 45	.....	92	0 29.3	- 2 27	7.8
Wed Aug 25/Thu Aug 26		20 49	20 06	21 35	5 28	6 58	18 24	2 18	22 12	.....	85	1 14.9	3 04	7.9
Thu Aug 26/Fri Aug 27		20 53	20 04	21 34	5 29	6 59	18 26	2 23	22 38	.....	77	1 59.9	8 18	7.9
Fri Aug 27/Sat Aug 28		20 57	20 03	21 32	5 30	7 00	18 28	2 28	23 05	.....	69	2 45.3	13 06	8.0
Sat Aug 28/Sun Aug 29		21 01	20 02	21 30	5 31	7 00	18 31	2 33	23 35	.....	60	3 31.7	17 18	8.0
Sun Aug 29/Mon Aug 30		21 05	20 00	21 29	5 32	7 01	18 33	2 38	0 09	.....	50	4 19.7	20 44	8.1
Mon Aug 30/Tue Aug 31		21 09	19 59	21 27	5 33	7 02	18 35	2 43	0 47	.....	41	5 09.7	23 17	8.1
Tue Aug 31/Wed Sep 01		21 13	19 57	21 26	5 34	7 03	18 38	2 48	1 31	.....	32	6 01.5	24 47	8.1

Calendar for OU Norman, west longitude (h.m.s) = 6 29 47, latitude (d.m) = 35 12.2
 Rise/set times in Central time (6 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.

***** 2021 SEPTEMBER *****

Date (eve/morn)	LMST midn	----- Sun: -----				LST twilight:		----- Moon: -----				Twilight	
		set	twi.end	twi.beg	rise	eve	morn	rise	set	%illum	RA	Dec	hours
Wed Sep 01/Thu Sep 02	21 17	19 56	21 24	5 35	7 03	18 40	2 53	2 22	.....	23	6 54.8	25 07	8.2
Thu Sep 02/Fri Sep 03	21 20	19 55	21 22	5 36	7 04	18 42	2 58	3 19	17 31	15	7 48.8	24 11	8.2
Fri Sep 03/Sat Sep 04	21 24	19 53	21 21	5 37	7 05	18 45	3 02	4 20	18 16	9	8 42.7	22 01	8.3
Sat Sep 04/Sun Sep 05	21 28	19 52	21 19	5 38	7 05	18 47	3 07	5 25	18 57	4	9 35.8	18 38	8.3
Sun Sep 05/Mon Sep 06	21 32	19 51	21 18	5 39	7 06	18 49	3 12	6 31	19 33	1	10 27.7	14 14	8.4
Mon Sep 06/Tue Sep 07	21 36	19 49	21 16	5 40	7 07	18 52	3 17	.....	20 06	0	11 18.6	8 59	8.4
Tue Sep 07/Wed Sep 08	21 40	19 48	21 14	5 41	7 08	18 54	3 22	.....	20 36	2	12 08.8	3 10	8.4
Wed Sep 08/Thu Sep 09	21 44	19 46	21 13	5 42	7 08	18 56	3 27	.....	21 06	6	12 59.2	- 2 57	8.5
Thu Sep 09/Fri Sep 10	21 48	19 45	21 11	5 43	7 09	18 59	3 32	.....	21 37	12	13 50.6	- 9 00	8.5
Fri Sep 10/Sat Sep 11	21 52	19 43	21 10	5 44	7 10	19 01	3 37	.....	22 10	21	14 43.8	-14 41	8.6
Sat Sep 11/Sun Sep 12	21 56	19 42	21 08	5 45	7 11	19 03	3 41	.....	22 48	31	15 39.7	-19 37	8.6
Sun Sep 12/Mon Sep 13	22 00	19 41	21 06	5 45	7 11	19 06	3 46	.....	23 31	42	16 38.5	-23 27	8.6
Mon Sep 13/Tue Sep 14	22 04	19 39	21 05	5 46	7 12	19 08	3 51	.....	0 21	53	17 39.8	-25 53	8.7
Tue Sep 14/Wed Sep 15	22 08	19 38	21 03	5 47	7 13	19 11	3 56	.....	1 19	65	18 42.4	-26 42	8.7
Wed Sep 15/Thu Sep 16	22 12	19 36	21 02	5 48	7 14	19 13	4 01	.....	2 23	75	19 44.5	-25 52	8.8
Thu Sep 16/Fri Sep 17	22 16	19 35	21 00	5 49	7 14	19 15	4 05	17 28	3 30	84	20 44.5	-23 28	8.8
Fri Sep 17/Sat Sep 18	22 20	19 33	20 59	5 50	7 15	19 18	4 10	18 10	4 37	91	21 41.2	-19 48	8.9
Sat Sep 18/Sun Sep 19	22 24	19 32	20 57	5 51	7 16	19 20	4 15	18 46	5 43	96	22 34.4	-15 10	8.9
Sun Sep 19/Mon Sep 20	22 27	19 30	20 55	5 51	7 17	19 22	4 20	19 17	6 46	99	23 24.4	- 9 54	8.9
Mon Sep 20/Tue Sep 21	22 31	19 29	20 54	5 52	7 17	19 25	4 25	19 46	.....	100	0 12.0	- 4 20	9.0
Tue Sep 21/Wed Sep 22	22 35	19 27	20 52	5 53	7 18	19 27	4 29	20 12	.....	98	0 58.1	1 18	9.0
Wed Sep 22/Thu Sep 23	22 39	19 26	20 51	5 54	7 19	19 30	4 34	20 38	.....	95	1 43.5	6 44	9.1
Thu Sep 23/Fri Sep 24	22 43	19 25	20 49	5 55	7 20	19 32	4 39	21 05	.....	90	2 29.1	11 47	9.1
Fri Sep 24/Sat Sep 25	22 47	19 23	20 48	5 56	7 20	19 34	4 44	21 34	.....	83	3 15.6	16 17	9.1
Sat Sep 25/Sun Sep 26	22 51	19 22	20 46	5 56	7 21	19 37	4 49	22 06	.....	75	4 03.5	20 03	9.2
Sun Sep 26/Mon Sep 27	22 55	19 20	20 45	5 57	7 22	19 39	4 53	22 42	.....	67	4 53.2	22 56	9.2
Mon Sep 27/Tue Sep 28	22 59	19 19	20 43	5 58	7 23	19 42	4 58	23 24	.....	58	5 44.5	24 47	9.2
Tue Sep 28/Wed Sep 29	23 03	19 17	20 42	5 59	7 23	19 44	5 03	0 11	.....	48	6 37.2	25 30	9.3
Wed Sep 29/Thu Sep 30	23 07	19 16	20 40	6 00	7 24	19 47	5 08	1 05	.....	39	7 30.7	24 59	9.3
Thu Sep 30/Fri Oct 01	23 11	19 15	20 39	6 01	7 25	19 49	5 12	2 04	.....	29	8 24.2	23 14	9.4

***** 2021 OCTOBER *****

Date (eve/morn)	LMST midn	----- Sun: -----				LST twilight:		----- Moon: -----				Twilight	
		set	twi.end	twi.beg	rise	eve	morn	rise	set	%illum	RA	Dec	hours
Fri Oct 01/Sat Oct 02	23 15	19 13	20 37	6 01	7 26	19 52	5 17	3 06	16 52	21	9 17.0	20 16	9.4
Sat Oct 02/Sun Oct 03	23 19	19 12	20 36	6 02	7 26	19 54	5 22	4 11	17 29	13	10 09.0	16 13	9.4
Sun Oct 03/Mon Oct 04	23 23	19 10	20 34	6 03	7 27	19 57	5 27	5 18	18 03	7	11 00.0	11 13	9.5
Mon Oct 04/Tue Oct 05	23 27	19 09	20 33	6 04	7 28	19 59	5 31	6 25	18 34	2	11 50.6	5 30	9.5
Tue Oct 05/Wed Oct 06	23 31	19 08	20 32	6 05	7 29	20 02	5 36	7 34	19 05	0	12 41.3	- 0 39	9.5
Wed Oct 06/Thu Oct 07	23 35	19 06	20 30	6 05	7 30	20 04	5 41	.....	19 35	1	13 33.1	- 6 56	9.6
Thu Oct 07/Fri Oct 08	23 38	19 05	20 29	6 06	7 30	20 07	5 46	.....	20 08	4	14 26.8	-12 57	9.6
Fri Oct 08/Sat Oct 09	23 42	19 03	20 28	6 07	7 31	20 09	5 50	.....	20 45	10	15 23.1	-18 19	9.7
Sat Oct 09/Sun Oct 10	23 46	19 02	20 26	6 08	7 32	20 12	5 55	.....	21 27	18	16 22.4	-22 37	9.7
Sun Oct 10/Mon Oct 11	23 50	19 01	20 25	6 09	7 33	20 15	6 00	.....	22 16	28	17 24.3	-25 30	9.7
Mon Oct 11/Tue Oct 12	23 54	18 59	20 24	6 09	7 34	20 17	6 05	.....	23 13	39	18 27.4	-26 44	9.8
Tue Oct 12/Wed Oct 13	23 58	18 58	20 22	6 10	7 34	20 20	6 09	.....	0 16	50	19 29.9	-26 16	9.8
Wed Oct 13/Thu Oct 14	0 02	18 57	20 21	6 11	7 35	20 23	6 14	.....	1 22	61	20 30.1	-24 14	9.8
Thu Oct 14/Fri Oct 15	0 06	18 55	20 20	6 12	7 36	20 25	6 19	16 11	2 29	71	21 26.9	-20 52	9.9
Fri Oct 15/Sat Oct 16	0 10	18 54	20 19	6 13	7 37	20 28	6 24	16 48	3 34	80	22 20.0	-16 30	9.9
Sat Oct 16/Sun Oct 17	0 14	18 53	20 17	6 13	7 38	20 31	6 28	17 20	4 37	88	23 10.0	-11 26	9.9
Sun Oct 17/Mon Oct 18	0 18	18 52	20 16	6 14	7 39	20 33	6 33	17 49	5 38	94	23 57.4	- 5 59	10.0
Mon Oct 18/Tue Oct 19	0 22	18 50	20 15	6 15	7 40	20 36	6 38	18 15	6 37	98	0 43.3	- 0 22	10.0
Tue Oct 19/Wed Oct 20	0 26	18 49	20 14	6 16	7 40	20 39	6 43	18 41	7 35	100	1 28.5	5 09	10.0
Wed Oct 20/Thu Oct 21	0 30	18 48	20 13	6 17	7 41	20 42	6 47	19 07	.....	100	2 13.9	10 24	10.1
Thu Oct 21/Fri Oct 22	0 34	18 47	20 12	6 17	7 42	20 45	6 52	19 35	.....	98	3 00.1	15 08	10.1
Fri Oct 22/Sat Oct 23	0 38	18 46	20 10	6 18	7 43	20 47	6 57	20 05	.....	94	3 47.8	19 13	10.1
Sat Oct 23/Sun Oct 24	0 42	18 44	20 09	6 19	7 44	20 50	7 02	20 40	.....	88	4 37.3	22 26	10.2
Sun Oct 24/Mon Oct 25	0 45	18 43	20 08	6 20	7 45	20 53	7 06	21 19	.....	82	5 28.4	24 39	10.2
Mon Oct 25/Tue Oct 26	0 49	18 42	20 07	6 21	7 46	20 56	7 11	22 04	.....	74	6 20.8	25 44	10.2
Tue Oct 26/Wed Oct 27	0 53	18 41	20 06	6 21	7 47	20 59	7 16	22 54	.....	65	7 13.9	25 37	10.3
Wed Oct 27/Thu Oct 28	0 57	18 40	20 05	6 22	7 48	21 02	7 21	23 50	.....	55	8 07.0	24 16	10.3
Thu Oct 28/Fri Oct 29	1 01	18 39	20 04	6 23	7 49	21 05	7 25	0 50	.....	46	8 59.3	21 44	10.3
Fri Oct 29/Sat Oct 30	1 05	18 38	20 03	6 24	7 50	21 08	7 30	1 53	.....	36	9 50.6	18 06	10.3
Sat Oct 30/Sun Oct 31	1 09	18 37	20 02	6 25	7 50	21 11	7 35	2 57	16 00	26	10 40.9	13 31	10.4
Sun Oct 31/Mon Nov 01	1 13	18 36	20 02	6 25	7 51	21 14	7 40	4 03	16 31	17	11 30.6	8 07	10.4

Calendar for OU Norman, west longitude (h.m.s) = 6 29 47, latitude (d.m) = 35 12.2
 Rise/set times in Central time (6 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.

***** 2021 NOVEMBER *****

Date (eve/morn)	LMST midn	----- Sun: -----				LST twilight:		----- Moon: -----				Twilight	
		set	twi.end	twi.beg	rise	eve	morn	rise	set	%illum	RA	Dec	hours
Mon Nov 01/Tue Nov 02	1 17	18 35	20 01	6 26	7 52	21 17	7 44	5 10	17 01	10	12 20.5	2 09	10.4
Tue Nov 02/Wed Nov 03	1 21	18 34	20 00	6 27	7 53	21 20	7 49	6 19	17 31	4	13 11.5	- 4 07	10.5
Wed Nov 03/Thu Nov 04	1 25	18 33	19 59	6 28	7 54	21 23	7 54	7 31	18 03	1	14 04.5	-10 22	10.5
Thu Nov 04/Fri Nov 05	1 29	18 32	19 58	6 29	7 55	21 26	7 59	.....	18 38	0	15 00.4	-16 10	10.5
Fri Nov 05/Sat Nov 06	1 33	18 31	19 57	6 30	7 56	21 30	8 04	.....	19 18	2	15 59.9	-21 04	10.5
Sat Nov 06/Sun Nov 07*	1 37	18 30	19 57	5 30	6 57	21 33	8 08	.....	20 05	8	17 02.7	-24 37	10.6
Sun Nov 07/Mon Nov 08	2 41	17 29	18 56	5 31	6 58	21 36	8 13	.....	20 01	16	18 10.6	-26 27	10.6
Mon Nov 08/Tue Nov 09	2 45	17 29	18 55	5 32	6 59	21 39	8 18	.....	21 04	25	19 14.9	-26 25	10.6
Tue Nov 09/Wed Nov 10	2 49	17 28	18 55	5 33	7 00	21 43	8 23	.....	22 12	35	20 16.9	-24 42	10.6
Wed Nov 10/Thu Nov 11	2 53	17 27	18 54	5 34	7 01	21 46	8 27	.....	23 20	46	21 15.0	-21 34	10.7
Thu Nov 11/Fri Nov 12	2 57	17 26	18 53	5 35	7 02	21 49	8 32	.....	0 27	57	22 08.9	-17 22	10.7
Fri Nov 12/Sat Nov 13	3 01	17 26	18 53	5 36	7 03	21 53	8 37	.....	1 31	67	22 59.2	-12 27	10.7
Sat Nov 13/Sun Nov 14	3 04	17 25	18 52	5 36	7 04	21 56	8 42	.....	2 31	76	23 46.5	- 7 06	10.7
Sun Nov 14/Mon Nov 15	3 08	17 24	18 52	5 37	7 05	21 59	8 47	.....	3 30	84	0 32.0	- 1 34	10.8
Mon Nov 15/Tue Nov 16	3 12	17 24	18 51	5 38	7 06	22 03	8 51	15 45	4 28	91	1 16.7	3 57	10.8
Tue Nov 16/Wed Nov 17	3 16	17 23	18 51	5 39	7 07	22 06	8 56	16 11	5 26	96	2 01.5	9 15	10.8
Wed Nov 17/Thu Nov 18	3 20	17 22	18 50	5 40	7 08	22 10	9 01	16 37	6 24	99	2 47.3	14 08	10.8
Thu Nov 18/Fri Nov 19	3 24	17 22	18 50	5 41	7 09	22 13	9 06	17 07	7 22	100	3 34.5	18 25	10.8
Fri Nov 19/Sat Nov 20	3 28	17 21	18 50	5 41	7 10	22 17	9 10	17 39	8 20	99	4 23.7	21 54	10.9
Sat Nov 20/Sun Nov 21	3 32	17 21	18 49	5 42	7 11	22 21	9 15	18 17	.....	97	5 14.8	24 26	10.9
Sun Nov 21/Mon Nov 22	3 36	17 20	18 49	5 43	7 12	22 24	9 20	19 00	.....	93	6 07.4	25 50	10.9
Mon Nov 22/Tue Nov 23	3 40	17 20	18 49	5 44	7 13	22 28	9 25	19 48	.....	87	7 00.8	26 02	10.9
Tue Nov 23/Wed Nov 24	3 44	17 20	18 48	5 45	7 14	22 31	9 30	20 42	.....	80	7 54.1	24 59	10.9
Wed Nov 24/Thu Nov 25	3 48	17 19	18 48	5 46	7 15	22 35	9 34	21 40	.....	71	8 46.4	22 45	11.0
Thu Nov 25/Fri Nov 26	3 52	17 19	18 48	5 46	7 16	22 39	9 39	22 40	.....	62	9 37.4	19 25	11.0
Fri Nov 26/Sat Nov 27	3 56	17 19	18 48	5 47	7 17	22 43	9 44	23 42	.....	52	10 27.1	15 09	11.0
Sat Nov 27/Sun Nov 28	4 00	17 18	18 48	5 48	7 17	22 47	9 49	0 45	.....	42	11 15.8	10 05	11.0
Sun Nov 28/Mon Nov 29	4 04	17 18	18 48	5 49	7 18	22 50	9 53	1 49	.....	31	12 04.3	4 25	11.0
Mon Nov 29/Tue Nov 30	4 08	17 18	18 48	5 50	7 19	22 54	9 58	2 55	.....	22	12 53.5	- 1 38	11.0
Tue Nov 30/Wed Dec 01	4 12	17 18	18 47	5 50	7 20	22 58	10 03	4 04	.....	13	13 44.5	- 7 49	11.0

***** 2021 DECEMBER *****

Date (eve/morn)	LMST midn	----- Sun: -----				LST twilight:		----- Moon: -----				Twilight	
		set	twi.end	twi.beg	rise	eve	morn	rise	set	%illum	RA	Dec	hours
Wed Dec 01/Thu Dec 02	4 15	17 18	18 47	5 51	7 21	23 02	10 08	5 17	15 30	6	14 38.4	-13 45	11.1
Thu Dec 02/Fri Dec 03	4 19	17 17	18 47	5 52	7 22	23 06	10 12	6 33	16 07	2	15 36.2	-19 03	11.1
Fri Dec 03/Sat Dec 04	4 23	17 17	18 47	5 53	7 23	23 10	10 17	7 50	16 50	0	16 38.2	-23 13	11.1
Sat Dec 04/Sun Dec 05	4 27	17 17	18 48	5 53	7 24	23 14	10 22	.....	17 42	1	17 43.4	-25 48	11.1
Sun Dec 05/Mon Dec 06	4 31	17 17	18 48	5 54	7 24	23 18	10 26	.....	18 44	5	18 49.8	-26 32	11.1
Mon Dec 06/Tue Dec 07	4 35	17 17	18 48	5 55	7 25	23 22	10 31	.....	19 53	12	19 54.8	-25 23	11.1
Tue Dec 07/Wed Dec 08	4 39	17 17	18 48	5 56	7 26	23 26	10 36	.....	21 04	21	20 56.2	-22 37	11.1
Wed Dec 08/Thu Dec 09	4 43	17 18	18 48	5 56	7 27	23 30	10 40	.....	22 14	30	21 53.0	-18 37	11.1
Thu Dec 09/Fri Dec 10	4 47	17 18	18 48	5 57	7 28	23 34	10 45	.....	23 21	41	22 45.3	-13 46	11.1
Fri Dec 10/Sat Dec 11	4 51	17 18	18 48	5 58	7 28	23 39	10 50	.....	0 24	51	23 34.0	- 8 27	11.2
Sat Dec 11/Sun Dec 12	4 55	17 18	18 49	5 58	7 29	23 43	10 54	.....	1 24	61	0 20.1	- 2 54	11.2
Sun Dec 12/Mon Dec 13	4 59	17 18	18 49	5 59	7 30	23 47	10 59	.....	2 23	71	1 04.9	2 38	11.2
Mon Dec 13/Tue Dec 14	5 03	17 18	18 49	6 00	7 30	23 51	11 03	.....	3 20	79	1 49.3	7 58	11.2
Tue Dec 14/Wed Dec 15	5 07	17 19	18 50	6 00	7 31	23 56	11 08	.....	4 18	86	2 34.4	12 56	11.2
Wed Dec 15/Thu Dec 16	5 11	17 19	18 50	6 01	7 32	24 00	11 12	.....	5 15	92	3 20.9	17 22	11.2
Thu Dec 16/Fri Dec 17	5 15	17 19	18 50	6 01	7 32	0 04	11 17	15 41	6 14	97	4 09.3	21 05	11.2
Fri Dec 17/Sat Dec 18	5 19	17 20	18 51	6 02	7 33	0 08	11 21	16 16	7 11	99	4 59.9	23 53	11.2
Sat Dec 18/Sun Dec 19	5 22	17 20	18 51	6 02	7 34	0 13	11 26	16 57	8 06	100	5 52.4	25 37	11.2
Sun Dec 19/Mon Dec 20	5 26	17 21	18 52	6 03	7 34	0 17	11 30	17 44	.....	99	6 46.0	26 09	11.2
Mon Dec 20/Tue Dec 21	5 30	17 21	18 52	6 04	7 35	0 22	11 35	18 37	.....	96	7 39.8	25 25	11.2
Tue Dec 21/Wed Dec 22	5 34	17 22	18 53	6 04	7 35	0 26	11 39	19 34	.....	91	8 32.8	23 28	11.2
Wed Dec 22/Thu Dec 23	5 38	17 22	18 53	6 04	7 36	0 31	11 44	20 34	.....	85	9 24.3	20 23	11.2
Thu Dec 23/Fri Dec 24	5 42	17 23	18 54	6 05	7 36	0 35	11 48	21 34	.....	77	10 14.0	16 21	11.2
Fri Dec 24/Sat Dec 25	5 46	17 23	18 54	6 05	7 36	0 40	11 52	22 36	.....	68	11 02.4	11 32	11.2
Sat Dec 25/Sun Dec 26	5 50	17 24	18 55	6 06	7 37	0 44	11 57	23 37	.....	58	11 49.9	6 07	11.2
Sun Dec 26/Mon Dec 27	5 54	17 24	18 55	6 06	7 37	0 49	12 01	0 40	.....	48	12 37.4	0 19	11.2
Mon Dec 27/Tue Dec 28	5 58	17 25	18 56	6 07	7 37	0 53	12 05	1 45	.....	37	13 26.2	- 5 40	11.2
Tue Dec 28/Wed Dec 29	6 02	17 26	18 57	6 07	7 38	0 58	12 10	2 53	.....	26	14 17.3	-11 32	11.2
Wed Dec 29/Thu Dec 30	6 06	17 26	18 57	6 07	7 38	1 02	12 14	4 05	.....	17	15 11.8	-16 58	11.2
Thu Dec 30/Fri Dec 31	6 10	17 27	18 58	6 07	7 38	1 07	12 18	5 20	.....	9	16 10.6	-21 32	11.2
Fri Dec 31/Sat Jan 01	6 14	17 28	18 59	6 08	7 38	1 12	12 22	6 35	.....	3	17 13.6	-24 48	11.2