

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:

\*\*\*\*\* 2016 Night-time Astronomical Calendar for Okie-Tex \*\*\*\*\*

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 2016, at Okie-Tex

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 11	4 30	Dec 18	9 15	Dec 25	5 12	Jan 01	23 32
Jan 09	19 31	Jan 16	17 27	Jan 23	19 46	Jan 31	21 29
Feb 08	8 40	Feb 15	1 48	Feb 22	12 21	Mar 01	17 13
Mar 08	19 56	Mar 15	12 04	Mar 23	7 02	Mar 31	10 19
Apr 07	6 25	Apr 13	23 01	Apr 22	0 25	Apr 29	22 30
May 06	14 31	May 13	12 03	May 21	16 17	May 29	7 14
Jun 04	22 02	Jun 12	3 11	Jun 20	6 05	Jun 27	13 21
Jul 04	6 03	Jul 11	19 53	Jul 19	18 00	Jul 26	18 03
Aug 02	15 47	Aug 10	13 22	Aug 18	4 30	Aug 24	22 44
Sep 01	4 05	Sep 09	6 51	Sep 16	14 08	Sep 23	4 59
Sep 30	19 13	Oct 08	23 35	Oct 15	23 25	Oct 22	14 16
Oct 30	12 40	Nov 07	13 53	Nov 14	7 54	Nov 21	2 35
Nov 29	6 20	Dec 07	3 04	Dec 13	18 07	Dec 20	19 57
Dec 29	0 54	Jan 05	13 48	Jan 12	5 35	Jan 19	16 14

Calendar for Okie-Tex, west longitude (h.m.s) = 6 51 48, latitude (d.m) = 36 53.9  
 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.

\*\*\*\*\* 2016 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	
Fri Jan 01/Sat Jan 02	5 53	17 46	19 19	6 32	8 05	1 11	12 27	1 03	.....	49	12 47.3	- 3 44	11.2
Sat Jan 02/Sun Jan 03	5 57	17 47	19 19	6 32	8 05	1 16	12 31	1 58	.....	40	13 32.4	- 7 18	11.2
Sun Jan 03/Mon Jan 04	6 01	17 47	19 20	6 33	8 05	1 21	12 35	2 52	.....	31	14 18.4	-10 36	11.2
Mon Jan 04/Tue Jan 05	6 05	17 48	19 21	6 33	8 05	1 25	12 39	3 48	.....	22	15 05.8	-13 32	11.2
Tue Jan 05/Wed Jan 06	6 09	17 49	19 22	6 33	8 05	1 30	12 43	4 43	.....	15	15 55.0	-15 56	11.2
Wed Jan 06/Thu Jan 07	6 13	17 50	19 22	6 33	8 05	1 35	12 47	5 39	.....	9	16 46.3	-17 40	11.2
Thu Jan 07/Fri Jan 08	6 17	17 51	19 23	6 33	8 05	1 40	12 51	6 34	16 08	4	17 39.6	-18 36	11.2
Fri Jan 08/Sat Jan 09	6 21	17 52	19 24	6 33	8 05	1 44	12 55	7 27	17 00	1	18 34.4	-18 36	11.2
Sat Jan 09/Sun Jan 10	6 25	17 53	19 25	6 33	8 05	1 49	12 59	8 17	17 57	0	19 30.2	-17 35	11.1
Sun Jan 10/Mon Jan 11	6 29	17 54	19 26	6 33	8 05	1 54	13 03	.....	18 58	2	20 26.3	-15 36	11.1
Mon Jan 11/Tue Jan 12	6 33	17 55	19 26	6 33	8 05	1 59	13 07	.....	20 03	6	21 21.9	-12 42	11.1
Tue Jan 12/Wed Jan 13	6 37	17 56	19 27	6 33	8 05	2 03	13 11	.....	21 08	12	22 16.9	- 9 05	11.1
Wed Jan 13/Thu Jan 14	6 41	17 57	19 28	6 33	8 04	2 08	13 15	.....	22 15	20	23 11.1	- 4 56	11.1
Thu Jan 14/Fri Jan 15	6 45	17 58	19 29	6 33	8 04	2 13	13 18	.....	23 21	30	0 05.0	- 0 32	11.1
Fri Jan 15/Sat Jan 16	6 49	17 59	19 30	6 32	8 04	2 18	13 22	.....	0 27	41	0 58.9	3 54	11.0
Sat Jan 16/Sun Jan 17	6 53	18 00	19 31	6 32	8 03	2 23	13 26	.....	1 33	52	1 53.3	8 06	11.0
Sun Jan 17/Mon Jan 18	6 57	18 01	19 32	6 32	8 03	2 28	13 30	.....	2 39	64	2 48.8	11 49	11.0
Mon Jan 18/Tue Jan 19	7 01	18 02	19 33	6 32	8 03	2 32	13 33	.....	3 43	74	3 45.4	14 48	11.0
Tue Jan 19/Wed Jan 20	7 04	18 03	19 33	6 31	8 02	2 37	13 37	.....	4 45	83	4 42.9	16 54	11.0
Wed Jan 20/Thu Jan 21	7 08	18 04	19 34	6 31	8 02	2 42	13 41	.....	5 43	91	5 41.0	17 57	10.9
Thu Jan 21/Fri Jan 22	7 12	18 05	19 35	6 31	8 01	2 47	13 44	16 13	6 37	96	6 38.7	17 54	10.9
Fri Jan 22/Sat Jan 23	7 16	18 06	19 36	6 30	8 01	2 52	13 48	17 10	7 25	99	7 35.2	16 50	10.9
Sat Jan 23/Sun Jan 24	7 20	18 07	19 37	6 30	8 00	2 57	13 51	18 08	8 09	100	8 29.7	14 50	10.9
Sun Jan 24/Mon Jan 25	7 24	18 08	19 38	6 30	7 59	3 02	13 55	19 07	.....	98	9 22.0	12 06	10.9
Mon Jan 25/Tue Jan 26	7 28	18 09	19 39	6 29	7 59	3 06	13 58	20 05	.....	95	10 12.0	8 51	10.8
Tue Jan 26/Wed Jan 27	7 32	18 10	19 40	6 29	7 58	3 11	14 02	21 02	.....	90	11 00.1	5 15	10.8
Wed Jan 27/Thu Jan 28	7 36	18 11	19 41	6 28	7 57	3 16	14 05	21 58	.....	83	11 46.6	- 1 30	10.8
Thu Jan 28/Fri Jan 29	7 40	18 12	19 42	6 27	7 57	3 21	14 08	22 53	.....	75	12 32.2	- 2 16	10.8
Fri Jan 29/Sat Jan 30	7 44	18 13	19 43	6 27	7 56	3 26	14 12	23 47	.....	67	13 17.5	- 5 55	10.7
Sat Jan 30/Sun Jan 31	7 48	18 14	19 44	6 26	7 55	3 31	14 15	0 41	.....	58	14 03.2	- 9 20	10.7
Sun Jan 31/Mon Feb 01	7 52	18 16	19 45	6 26	7 54	3 36	14 18	1 36	.....	48	14 49.8	-12 24	10.7

\*\*\*\*\* 2016 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	
Mon Feb 01/Tue Feb 02	7 56	18 17	19 46	6 25	7 54	3 41	14 22	2 30	.....	39	15 37.9	-14 59	10.7
Tue Feb 02/Wed Feb 03	8 00	18 18	19 46	6 24	7 53	3 45	14 25	3 25	.....	30	16 27.8	-16 59	10.6
Wed Feb 03/Thu Feb 04	8 04	18 19	19 47	6 23	7 52	3 50	14 28	4 20	.....	21	17 19.8	-18 14	10.6
Thu Feb 04/Fri Feb 05	8 08	18 20	19 48	6 23	7 51	3 55	14 31	5 14	.....	13	18 13.6	-18 38	10.6
Fri Feb 05/Sat Feb 06	8 11	18 21	19 49	6 22	7 50	4 00	14 34	6 05	.....	7	19 09.0	-18 03	10.5
Sat Feb 06/Sun Feb 07	8 15	18 22	19 50	6 21	7 49	4 05	14 38	6 54	16 41	3	20 05.3	-16 28	10.5
Sun Feb 07/Mon Feb 08	8 19	18 23	19 51	6 20	7 48	4 10	14 41	7 39	17 44	0	21 01.9	-13 54	10.5
Mon Feb 08/Tue Feb 09	8 23	18 24	19 52	6 19	7 47	4 15	14 44	.....	18 51	1	21 58.3	-10 30	10.5
Tue Feb 09/Wed Feb 10	8 27	18 25	19 53	6 19	7 46	4 20	14 47	.....	19 59	3	22 54.2	- 6 26	10.4
Wed Feb 10/Thu Feb 11	8 31	18 26	19 54	6 18	7 45	4 25	14 50	.....	21 08	9	23 49.7	- 2 00	10.4
Thu Feb 11/Fri Feb 12	8 35	18 27	19 55	6 17	7 44	4 29	14 53	.....	22 17	17	0 44.9	2 32	10.4
Fri Feb 12/Sat Feb 13	8 39	18 28	19 56	6 16	7 43	4 34	14 56	.....	23 24	26	1 40.2	6 53	10.3
Sat Feb 13/Sun Feb 14	8 43	18 30	19 57	6 15	7 42	4 39	14 59	.....	0 31	37	2 35.9	10 46	10.3
Sun Feb 14/Mon Feb 15	8 47	18 31	19 58	6 14	7 41	4 44	15 02	.....	1 36	48	3 32.2	13 57	10.3
Mon Feb 15/Tue Feb 16	8 51	18 32	19 59	6 13	7 40	4 49	15 05	.....	2 39	60	4 29.0	16 16	10.2
Tue Feb 16/Wed Feb 17	8 55	18 33	20 00	6 12	7 38	4 54	15 07	.....	3 38	70	5 26.0	17 35	10.2
Wed Feb 17/Thu Feb 18	8 59	18 34	20 01	6 10	7 37	4 59	15 10	.....	4 32	80	6 22.7	17 52	10.2
Thu Feb 18/Fri Feb 19	9 03	18 35	20 02	6 09	7 36	5 04	15 13	.....	5 21	87	7 18.4	17 07	10.1
Fri Feb 19/Sat Feb 20	9 07	18 36	20 03	6 08	7 35	5 09	15 16	.....	6 06	94	8 12.5	15 27	10.1
Sat Feb 20/Sun Feb 21	9 11	18 37	20 03	6 07	7 34	5 13	15 19	16 57	6 45	98	9 04.8	13 00	10.1
Sun Feb 21/Mon Feb 22	9 15	18 38	20 04	6 06	7 32	5 18	15 21	17 55	7 22	100	9 55.1	9 58	10.0
Mon Feb 22/Tue Feb 23	9 18	18 39	20 05	6 05	7 31	5 23	15 24	18 52	7 55	100	10 43.7	6 30	10.0
Tue Feb 23/Wed Feb 24	9 22	18 40	20 06	6 04	7 30	5 28	15 27	19 48	.....	98	11 30.9	2 47	10.0
Wed Feb 24/Thu Feb 25	9 26	18 41	20 07	6 02	7 29	5 33	15 30	20 43	.....	94	12 17.0	- 1 00	9.9
Thu Feb 25/Fri Feb 26	9 30	18 42	20 08	6 01	7 27	5 38	15 32	21 38	.....	89	13 02.8	- 4 43	9.9
Fri Feb 26/Sat Feb 27	9 34	18 43	20 09	6 00	7 26	5 43	15 35	22 32	.....	82	13 48.5	- 8 13	9.8
Sat Feb 27/Sun Feb 28	9 38	18 44	20 10	5 58	7 25	5 48	15 38	23 26	.....	74	14 34.9	-11 25	9.8
Sun Feb 28/Mon Feb 29	9 42	18 45	20 11	5 57	7 23	5 52	15 40	0 20	.....	66	15 22.3	-14 10	9.8
Mon Feb 29/Tue Mar 01	9 46	18 46	20 12	5 56	7 22	5 57	15 43	1 14	.....	56	16 11.1	-16 21	9.7

Calendar for Okie-Tex, west longitude (h.m.s) = 6 51 48, latitude (d.m) = 36 53.9  
 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.

\*\*\*\*\* 2016 MARCH \*\*\*\*\*

Date (eve/morn)	LMST midn	----- Sun: -----			LST twilight:		----- Moon: -----				Twi-Twi hours		
		set	twi.end	twi.beg	rise	eve	morn	rise	set	%illum	RA	Dec	
Tue Mar 01/Wed Mar 02	9 50	18 47	20 13	5 54	7 21	6 02	15 46	2 08	.....	47	17 01.6	-17 51	9.7
Wed Mar 02/Thu Mar 03	9 54	18 48	20 14	5 53	7 19	6 07	15 48	3 01	.....	37	17 53.8	-18 34	9.7
Thu Mar 03/Fri Mar 04	9 58	18 49	20 15	5 52	7 18	6 12	15 51	3 52	.....	27	18 47.5	-18 23	9.6
Fri Mar 04/Sat Mar 05	10 02	18 50	20 16	5 50	7 16	6 17	15 53	4 41	.....	18	19 42.6	-17 14	9.6
Sat Mar 05/Sun Mar 06	10 06	18 50	20 17	5 49	7 15	6 22	15 56	5 28	.....	11	20 38.4	-15 07	9.5
Sun Mar 06/Mon Mar 07	10 10	18 51	20 18	5 48	7 14	6 27	15 58	6 12	16 28	5	21 34.7	-12 05	9.5
Mon Mar 07/Tue Mar 08	10 14	18 52	20 18	5 46	7 12	6 32	16 01	6 54	17 36	1	22 31.2	- 8 16	9.5
Tue Mar 08/Wed Mar 09	10 18	18 53	20 19	5 45	7 11	6 36	16 03	7 34	18 45	0	23 27.7	- 3 54	9.4
Wed Mar 09/Thu Mar 10	10 22	18 54	20 20	5 43	7 09	6 41	16 06	.....	19 56	2	0 24.2	0 43	9.4
Thu Mar 10/Fri Mar 11	10 26	18 55	20 21	5 42	7 08	6 46	16 08	.....	21 07	7	1 21.1	5 16	9.3
Fri Mar 11/Sat Mar 12	10 29	18 56	20 22	5 40	7 06	6 51	16 11	.....	22 17	14	2 18.3	9 27	9.3
Sat Mar 12/Sun Mar 13*	10 33	18 57	20 23	6 39	8 05	6 56	16 13	.....	23 25	23	3 16.0	12 58	9.3
Sun Mar 13/Mon Mar 14	9 37	19 58	21 24	6 37	8 03	7 01	16 15	.....	1 31	33	4 11.6	15 33	9.2
Mon Mar 14/Tue Mar 15	9 41	19 59	21 25	6 36	8 02	7 06	16 18	.....	2 32	44	5 09.6	17 13	9.2
Tue Mar 15/Wed Mar 16	9 45	20 00	21 26	6 34	8 00	7 11	16 20	.....	3 28	55	6 06.9	17 48	9.1
Wed Mar 16/Thu Mar 17	9 49	20 01	21 27	6 33	7 59	7 16	16 23	.....	4 19	65	7 02.9	17 21	9.1
Thu Mar 17/Fri Mar 18	9 53	20 01	21 28	6 31	7 58	7 21	16 25	.....	5 05	75	7 57.2	15 57	9.0
Fri Mar 18/Sat Mar 19	9 57	20 02	21 29	6 29	7 56	7 26	16 27	.....	5 46	83	8 49.5	13 44	9.0
Sat Mar 19/Sun Mar 20	10 01	20 03	21 30	6 28	7 55	7 31	16 30	16 49	6 23	90	9 39.8	10 54	9.0
Sun Mar 20/Mon Mar 21	10 05	20 04	21 31	6 26	7 53	7 35	16 32	17 45	6 57	95	10 28.4	7 35	8.9
Mon Mar 21/Tue Mar 22	10 09	20 05	21 32	6 25	7 52	7 40	16 34	18 41	.....	99	11 15.5	3 58	8.9
Tue Mar 22/Wed Mar 23	10 13	20 06	21 33	6 23	7 50	7 45	16 37	19 36	.....	100	12 01.8	0 13	8.8
Wed Mar 23/Thu Mar 24	10 17	20 07	21 34	6 21	7 49	7 50	16 39	20 31	.....	99	12 47.6	- 3 32	8.8
Thu Mar 24/Fri Mar 25	10 21	20 08	21 35	6 20	7 47	7 55	16 41	21 25	.....	97	13 33.4	- 7 09	8.7
Fri Mar 25/Sat Mar 26	10 24	20 09	21 36	6 18	7 46	8 00	16 44	22 19	.....	93	14 19.6	-10 28	8.7
Sat Mar 26/Sun Mar 27	10 28	20 09	21 37	6 17	7 44	8 05	16 46	23 13	.....	88	15 06.7	-13 23	8.7
Sun Mar 27/Mon Mar 28	10 32	20 10	21 38	6 15	7 43	8 10	16 48	0 07	.....	81	15 55.0	-15 46	8.6
Mon Mar 28/Tue Mar 29	10 36	20 11	21 39	6 13	7 41	8 15	16 51	1 01	.....	73	16 44.5	-17 30	8.6
Tue Mar 29/Wed Mar 30	10 40	20 12	21 40	6 12	7 40	8 20	16 53	1 53	.....	64	17 35.4	-18 29	8.5
Wed Mar 30/Thu Mar 31	10 44	20 13	21 41	6 10	7 38	8 25	16 55	2 44	.....	54	18 27.6	-18 38	8.5
Thu Mar 31/Fri Apr 01	10 48	20 14	21 42	6 08	7 37	8 30	16 58	3 32	.....	44	19 20.8	-17 53	8.4

\*\*\*\*\* 2016 APRIL \*\*\*\*\*

Date (eve/morn)	LMST midn	----- Sun: -----			LST twilight:		----- Moon: -----				Twi-Twi hours		
		set	twi.end	twi.beg	rise	eve	morn	rise	set	%illum	RA	Dec	
Fri Apr 01/Sat Apr 02	10 52	20 15	21 43	6 07	7 35	8 35	17 00	4 18	.....	33	20 14.9	-16 12	8.4
Sat Apr 02/Sun Apr 03	10 56	20 16	21 45	6 05	7 34	8 40	17 02	5 02	.....	24	21 09.5	-13 37	8.3
Sun Apr 03/Mon Apr 04	11 00	20 16	21 46	6 03	7 32	8 45	17 04	5 44	.....	15	22 04.6	-10 13	8.3
Mon Apr 04/Tue Apr 05	11 04	20 17	21 47	6 02	7 31	8 50	17 07	6 24	17 20	8	23 00.1	- 6 09	8.3
Tue Apr 05/Wed Apr 06	11 08	20 18	21 48	6 00	7 30	8 55	17 09	7 05	18 30	3	23 56.3	- 1 38	8.2
Wed Apr 06/Thu Apr 07	11 12	20 19	21 49	5 58	7 28	9 00	17 11	.....	19 41	0	0 53.3	3 02	8.2
Thu Apr 07/Fri Apr 08	11 16	20 20	21 50	5 57	7 27	9 05	17 13	.....	20 53	1	1 51.3	7 31	8.1
Fri Apr 08/Sat Apr 09	11 20	20 21	21 51	5 55	7 25	9 10	17 16	.....	22 04	4	2 50.3	11 29	8.1
Sat Apr 09/Sun Apr 10	11 24	20 22	21 52	5 53	7 24	9 16	17 18	.....	23 14	11	3 50.0	14 38	8.0
Sun Apr 10/Mon Apr 11	11 28	20 23	21 53	5 52	7 22	9 21	17 20	.....	0 20	19	4 49.9	16 44	8.0
Mon Apr 11/Tue Apr 12	11 32	20 23	21 55	5 50	7 21	9 26	17 23	.....	1 21	29	5 49.2	17 42	7.9
Tue Apr 12/Wed Apr 13	11 35	20 24	21 56	5 48	7 20	9 31	17 25	.....	2 15	39	6 46.9	17 33	7.9
Wed Apr 13/Thu Apr 14	11 39	20 25	21 57	5 47	7 18	9 36	17 27	.....	3 03	50	7 42.6	16 23	7.8
Thu Apr 14/Fri Apr 15	11 43	20 26	21 58	5 45	7 17	9 41	17 29	.....	3 46	60	8 35.8	14 22	7.8
Fri Apr 15/Sat Apr 16	11 47	20 27	21 59	5 43	7 16	9 46	17 32	.....	4 24	70	9 26.7	11 40	7.7
Sat Apr 16/Sun Apr 17	11 51	20 28	22 00	5 42	7 14	9 51	17 34	.....	4 59	79	10 15.6	8 28	7.7
Sun Apr 17/Mon Apr 18	11 55	20 29	22 02	5 40	7 13	9 56	17 36	.....	5 31	86	11 02.9	4 55	7.6
Mon Apr 18/Tue Apr 19	11 59	20 30	22 03	5 39	7 12	10 02	17 39	17 31	6 02	92	11 49.0	1 11	7.6
Tue Apr 19/Wed Apr 20	12 03	20 31	22 04	5 37	7 10	10 07	17 41	18 26	6 33	96	12 34.7	- 2 36	7.6
Wed Apr 20/Thu Apr 21	12 07	20 31	22 05	5 35	7 09	10 12	17 43	19 20	.....	99	13 20.5	- 6 16	7.5
Thu Apr 21/Fri Apr 22	12 11	20 32	22 06	5 34	7 08	10 17	17 46	20 14	.....	100	14 06.7	- 9 43	7.5
Fri Apr 22/Sat Apr 23	12 15	20 33	22 08	5 32	7 07	10 22	17 48	21 08	.....	99	14 53.8	-12 48	7.4
Sat Apr 23/Sun Apr 24	12 19	20 34	22 09	5 31	7 05	10 27	17 50	22 03	.....	96	15 42.1	-15 23	7.4
Sun Apr 24/Mon Apr 25	12 23	20 35	22 10	5 29	7 04	10 33	17 53	22 56	.....	92	16 31.6	-17 20	7.3
Mon Apr 25/Tue Apr 26	12 27	20 36	22 11	5 27	7 03	10 38	17 55	23 49	.....	85	17 22.4	-18 33	7.3
Tue Apr 26/Wed Apr 27	12 31	20 37	22 13	5 26	7 02	10 43	17 57	0 40	.....	78	18 14.2	-18 56	7.2
Wed Apr 27/Thu Apr 28	12 35	20 38	22 14	5 24	7 00	10 48	18 00	1 29	.....	69	19 06.7	-18 26	7.2
Thu Apr 28/Fri Apr 29	12 39	20 39	22 15	5 23	6 59	10 53	18 02	2 15	.....	59	19 59.8	-17 02	7.1
Fri Apr 29/Sat Apr 30	12 42	20 39	22 16	5 21	6 58	10 59	18 05	2 58	.....	49	20 53.1	-14 45	7.1
Sat Apr 30/Sun May 01	12 46	20 40	22 18	5 20	6 57	11 04	18 07	3 39	.....	38	21 46.5	-11 40	7.0

Calendar for Okie-Tex, west longitude (h.m.s) = 6 51 48, latitude (d.m) = 36 53.9  
 Rise/set times in Central time ( 6 hr W), uncorrected for elevation, DAYLIGHT time used, \* shows clock reset.  
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\*\*\*\*\* 2016 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	
Sun May 01/Mon May 02	12 50	20 41	22 19	5 18	6 56	11 09	18 10	4 18	.....	28	22 40.2	- 7 55	7.0
Mon May 02/Tue May 03	12 54	20 42	22 20	5 17	6 55	11 14	18 12	4 57	.....	18	23 34.5	- 3 38	6.9
Tue May 03/Wed May 04	12 58	20 43	22 21	5 15	6 54	11 19	18 14	5 36	.....	10	0 29.7	0 56	6.9
Wed May 04/Thu May 05	13 02	20 44	22 23	5 14	6 53	11 25	18 17	6 17	18 26	4	1 26.3	5 30	6.9
Thu May 05/Fri May 06	13 06	20 45	22 24	5 13	6 52	11 30	18 20	.....	19 38	1	2 24.4	9 44	6.8
Fri May 06/Sat May 07	13 10	20 46	22 25	5 11	6 51	11 35	18 22	.....	20 49	0	3 24.1	13 20	6.8
Sat May 07/Sun May 08	13 14	20 46	22 26	5 10	6 50	11 40	18 25	.....	21 59	3	4 24.8	15 58	6.7
Sun May 08/Mon May 09	13 18	20 47	22 28	5 08	6 49	11 45	18 27	.....	23 04	8	5 25.7	17 28	6.7
Mon May 09/Tue May 10	13 22	20 48	22 29	5 07	6 48	11 51	18 30	.....	0 04	16	6 25.7	17 47	6.6
Tue May 10/Wed May 11	13 26	20 49	22 30	5 06	6 47	11 56	18 32	.....	0 57	24	7 23.7	16 58	6.6
Wed May 11/Thu May 12	13 30	20 50	22 32	5 04	6 46	12 01	18 35	.....	1 43	34	8 19.1	15 11	6.5
Thu May 12/Fri May 13	13 34	20 51	22 33	5 03	6 45	12 06	18 38	.....	2 24	44	9 11.7	12 38	6.5
Fri May 13/Sat May 14	13 38	20 52	22 34	5 02	6 44	12 12	18 40	.....	3 01	55	10 01.7	9 31	6.5
Sat May 14/Sun May 15	13 42	20 52	22 35	5 01	6 44	12 17	18 43	.....	3 34	64	10 49.7	6 01	6.4
Sun May 15/Mon May 16	13 46	20 53	22 37	4 59	6 43	12 22	18 46	.....	4 05	73	11 36.2	2 17	6.4
Mon May 16/Tue May 17	13 50	20 54	22 38	4 58	6 42	12 27	18 49	.....	4 36	81	12 21.9	- 1 31	6.3
Tue May 17/Wed May 18	13 53	20 55	22 39	4 57	6 41	12 32	18 51	.....	5 07	88	13 07.4	- 5 16	6.3
Wed May 18/Thu May 19	13 57	20 56	22 40	4 56	6 41	12 37	18 54	18 08	5 38	94	13 53.4	- 8 49	6.3
Thu May 19/Fri May 20	14 01	20 57	22 41	4 55	6 40	12 43	18 57	19 03	6 12	97	14 40.3	-12 04	6.2
Fri May 20/Sat May 21	14 05	20 57	22 43	4 54	6 39	12 48	19 00	19 57	.....	100	15 28.5	-14 52	6.2
Sat May 21/Sun May 22	14 09	20 58	22 44	4 53	6 39	12 53	19 03	20 52	.....	100	16 18.1	-17 03	6.2
Sun May 22/Mon May 23	14 13	20 59	22 45	4 52	6 38	12 58	19 06	21 45	.....	98	17 09.2	-18 31	6.1
Mon May 23/Tue May 24	14 17	21 00	22 46	4 51	6 37	13 03	19 09	22 38	.....	94	18 01.4	-19 10	6.1
Tue May 24/Wed May 25	14 21	21 00	22 47	4 50	6 37	13 08	19 12	23 27	.....	89	18 54.3	-18 55	6.0
Wed May 25/Thu May 26	14 25	21 01	22 48	4 49	6 36	13 13	19 15	0 14	.....	82	19 47.6	-17 44	6.0
Thu May 26/Fri May 27	14 29	21 02	22 49	4 48	6 36	13 18	19 18	0 58	.....	73	20 40.8	-15 41	6.0
Fri May 27/Sat May 28	14 33	21 03	22 50	4 48	6 35	13 23	19 21	1 39	.....	64	21 33.7	-12 49	6.0
Sat May 28/Sun May 29	14 37	21 03	22 52	4 47	6 35	13 28	19 24	2 18	.....	53	22 26.3	- 9 17	5.9
Sun May 29/Mon May 30	14 41	21 04	22 53	4 46	6 35	13 33	19 28	2 55	.....	42	23 19.1	- 5 13	5.9
Mon May 30/Tue May 31	14 45	21 05	22 54	4 45	6 34	13 38	19 31	3 33	.....	31	0 12.3	- 0 49	5.9
Tue May 31/Wed Jun 01	14 49	21 05	22 55	4 45	6 34	13 43	19 34	4 11	.....	21	1 06.6	3 41	5.8

\*\*\*\*\* 2016 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	
Wed Jun 01/Thu Jun 02	14 53	21 06	22 55	4 44	6 34	13 48	19 37	4 52	.....	12	2 02.5	8 00	5.8
Thu Jun 02/Fri Jun 03	14 57	21 07	22 56	4 43	6 33	13 53	19 41	5 36	18 26	6	3 00.2	11 51	5.8
Fri Jun 03/Sat Jun 04	15 00	21 07	22 57	4 43	6 33	13 58	19 44	6 25	19 36	2	3 59.6	14 55	5.8
Sat Jun 04/Sun Jun 05	15 04	21 08	22 58	4 42	6 33	14 02	19 48	.....	20 44	0	5 00.3	16 57	5.7
Sun Jun 05/Mon Jun 06	15 08	21 08	22 59	4 42	6 33	14 07	19 51	.....	21 47	2	6 01.0	17 49	5.7
Mon Jun 06/Tue Jun 07	15 12	21 09	23 00	4 42	6 32	14 12	19 55	.....	22 45	6	7 00.7	17 29	5.7
Tue Jun 07/Wed Jun 08	15 16	21 09	23 01	4 41	6 32	14 17	19 58	.....	23 36	12	7 58.2	16 04	5.7
Wed Jun 08/Thu Jun 09	15 20	21 10	23 01	4 41	6 32	14 21	20 02	.....	0 20	20	8 53.0	13 46	5.7
Thu Jun 09/Fri Jun 10	15 24	21 11	23 02	4 41	6 32	14 26	20 05	.....	0 59	29	9 45.0	10 47	5.6
Fri Jun 10/Sat Jun 11	15 28	21 11	23 03	4 40	6 32	14 30	20 09	.....	1 35	39	10 34.4	7 21	5.6
Sat Jun 11/Sun Jun 12	15 32	21 11	23 03	4 40	6 32	14 35	20 13	.....	2 07	48	11 21.8	3 38	5.6
Sun Jun 12/Mon Jun 13	15 36	21 12	23 04	4 40	6 32	14 40	20 17	.....	2 38	58	12 08.0	- 0 12	5.6
Mon Jun 13/Tue Jun 14	15 40	21 12	23 04	4 40	6 32	14 44	20 21	.....	3 09	67	12 53.6	- 4 00	5.6
Tue Jun 14/Wed Jun 15	15 44	21 13	23 05	4 40	6 32	14 48	20 24	.....	3 40	76	13 39.3	- 7 39	5.6
Wed Jun 15/Thu Jun 16	15 48	21 13	23 05	4 40	6 32	14 53	20 28	.....	4 13	84	14 25.7	-11 03	5.6
Thu Jun 16/Fri Jun 17	15 52	21 13	23 06	4 40	6 32	14 57	20 32	17 50	4 48	90	15 13.4	-14 02	5.6
Fri Jun 17/Sat Jun 18	15 56	21 14	23 06	4 40	6 32	15 02	20 36	18 45	5 26	95	16 02.7	-16 29	5.6
Sat Jun 18/Sun Jun 19	16 00	21 14	23 06	4 40	6 33	15 06	20 40	19 39	6 09	98	16 53.6	-18 15	5.6
Sun Jun 19/Mon Jun 20	16 04	21 14	23 07	4 40	6 33	15 10	20 45	20 32	.....	100	17 46.2	-19 12	5.6
Mon Jun 20/Tue Jun 21	16 08	21 14	23 07	4 40	6 33	15 14	20 49	21 24	.....	99	18 39.8	-19 15	5.6
Tue Jun 21/Wed Jun 22	16 11	21 15	23 07	4 41	6 33	15 18	20 53	22 13	.....	97	19 34.0	-18 21	5.6
Wed Jun 22/Thu Jun 23	16 15	21 15	23 07	4 41	6 33	15 22	20 57	22 58	.....	92	20 28.2	-16 31	5.6
Thu Jun 23/Fri Jun 24	16 19	21 15	23 07	4 41	6 34	15 26	21 02	23 40	.....	85	21 22.0	-13 49	5.6
Fri Jun 24/Sat Jun 25	16 23	21 15	23 07	4 42	6 34	15 30	21 06	0 20	.....	77	22 15.1	-10 25	5.6
Sat Jun 25/Sun Jun 26	16 27	21 15	23 07	4 42	6 34	15 34	21 10	0 57	.....	67	23 07.7	- 6 27	5.6
Sun Jun 26/Mon Jun 27	16 31	21 15	23 07	4 43	6 35	15 38	21 15	1 34	.....	56	0 00.3	- 2 09	5.6
Mon Jun 27/Tue Jun 28	16 35	21 15	23 07	4 43	6 35	15 42	21 19	2 11	.....	45	0 53.3	2 16	5.6
Tue Jun 28/Wed Jun 29	16 39	21 15	23 07	4 44	6 36	15 46	21 24	2 49	.....	33	1 47.3	6 35	5.6
Wed Jun 29/Thu Jun 30	16 43	21 15	23 07	4 44	6 36	15 50	21 28	3 31	.....	23	2 42.7	10 31	5.6
Thu Jun 30/Fri Jul 01	16 47	21 15	23 07	4 45	6 36	15 53	21 33	4 16	.....	14	3 40.0	13 49	5.6

Calendar for Okie-Tex, west longitude (h.m.s) = 6 51 48, latitude (d.m) = 36 53.9  
 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.

\*\*\*\*\* 2016 JULY \*\*\*\*\*

Date (eve/morn)	LMST midn	----- Sun: -----			LST twilight:		----- Moon: -----				Twi-Twi hours		
		set	twi.end	twi.beg	rise	eve	morn	rise	set	%illum	RA	Dec	
Fri Jul 01/Sat Jul 02	16 51	21 15	23 06	4 46	6 37	15 57	21 37	5 06	18 25	7	4 38.7	16 14	5.7
Sat Jul 02/Sun Jul 03	16 55	21 15	23 06	4 46	6 37	16 01	21 42	6 01	19 30	2	5 38.4	17 34	5.7
Sun Jul 03/Mon Jul 04	16 59	21 15	23 06	4 47	6 38	16 04	21 47	.....	20 30	0	6 37.9	17 44	5.7
Mon Jul 04/Tue Jul 05	17 03	21 15	23 05	4 48	6 38	16 08	21 51	.....	21 24	1	7 36.2	16 47	5.7
Tue Jul 05/Wed Jul 06	17 07	21 14	23 05	4 49	6 39	16 11	21 56	.....	22 12	4	8 32.3	14 50	5.7
Wed Jul 06/Thu Jul 07	17 11	21 14	23 04	4 49	6 40	16 15	22 01	.....	22 55	9	9 25.9	12 06	5.8
Thu Jul 07/Fri Jul 08	17 15	21 14	23 04	4 50	6 40	16 18	22 06	.....	23 32	16	10 16.8	8 47	5.8
Fri Jul 08/Sat Jul 09	17 18	21 14	23 03	4 51	6 41	16 21	22 10	.....	0 07	24	11 05.5	5 08	5.8
Sat Jul 09/Sun Jul 10	17 22	21 13	23 03	4 52	6 41	16 25	22 15	.....	0 39	32	11 52.5	1 18	5.8
Sun Jul 10/Mon Jul 11	17 26	21 13	23 02	4 53	6 42	16 28	22 20	.....	1 10	42	12 38.5	- 2 33	5.9
Mon Jul 11/Tue Jul 12	17 30	21 13	23 01	4 54	6 43	16 31	22 25	.....	1 41	51	13 24.1	- 6 17	5.9
Tue Jul 12/Wed Jul 13	17 34	21 12	23 00	4 55	6 43	16 35	22 30	.....	2 13	61	14 10.1	- 9 46	5.9
Wed Jul 13/Thu Jul 14	17 38	21 12	23 00	4 56	6 44	16 38	22 35	.....	2 47	70	14 57.1	-12 55	5.9
Thu Jul 14/Fri Jul 15	17 42	21 11	22 59	4 57	6 45	16 41	22 40	.....	3 24	78	15 45.5	-15 35	6.0
Fri Jul 15/Sat Jul 16	17 46	21 11	22 58	4 58	6 45	16 44	22 45	.....	4 04	86	16 35.7	-17 38	6.0
Sat Jul 16/Sun Jul 17	17 50	21 10	22 57	4 59	6 46	16 47	22 50	18 24	4 50	92	17 27.8	-18 55	6.0
Sun Jul 17/Mon Jul 18	17 54	21 10	22 56	5 00	6 47	16 50	22 55	19 16	5 40	97	18 21.4	-19 21	6.1
Mon Jul 18/Tue Jul 19	17 58	21 09	22 55	5 01	6 48	16 53	23 00	20 07	.....	99	19 16.2	-18 48	6.1
Tue Jul 19/Wed Jul 20	18 02	21 08	22 54	5 02	6 48	16 56	23 05	20 54	.....	100	20 11.5	-17 17	6.1
Wed Jul 20/Thu Jul 21	18 06	21 08	22 53	5 04	6 49	16 59	23 10	21 39	.....	98	21 06.6	-14 49	6.2
Thu Jul 21/Fri Jul 22	18 10	21 07	22 52	5 05	6 50	17 02	23 15	22 20	.....	94	22 01.3	-11 33	6.2
Fri Jul 22/Sat Jul 23	18 14	21 06	22 51	5 06	6 51	17 05	23 20	22 59	.....	88	22 55.3	- 7 39	6.2
Sat Jul 23/Sun Jul 24	18 18	21 06	22 50	5 07	6 51	17 07	23 26	23 36	.....	79	23 48.7	- 3 21	6.3
Sun Jul 24/Mon Jul 25	18 22	21 05	22 49	5 08	6 52	17 10	23 31	0 13	.....	69	0 42.1	1 07	6.3
Mon Jul 25/Tue Jul 26	18 25	21 04	22 48	5 09	6 53	17 13	23 36	0 51	.....	58	1 35.9	5 29	6.4
Tue Jul 26/Wed Jul 27	18 29	21 03	22 46	5 11	6 54	17 16	23 41	1 31	.....	47	2 30.5	9 30	6.4
Wed Jul 27/Thu Jul 28	18 33	21 02	22 45	5 12	6 54	17 18	23 46	2 13	.....	35	3 26.4	12 56	6.4
Thu Jul 28/Fri Jul 29	18 37	21 02	22 44	5 13	6 55	17 21	23 51	3 00	.....	25	4 23.4	15 33	6.5
Fri Jul 29/Sat Jul 30	18 41	21 01	22 43	5 14	6 56	17 24	23 56	3 52	.....	16	5 21.4	17 11	6.5
Sat Jul 30/Sun Jul 31	18 45	21 00	22 41	5 15	6 57	17 26	0 02	4 48	18 18	9	6 19.7	17 44	6.6
Sun Jul 31/Mon Aug 01	18 49	20 59	22 40	5 17	6 58	17 29	0 07	5 47	19 14	3	7 17.3	17 11	6.6

\*\*\*\*\* 2016 AUGUST \*\*\*\*\*

Date (eve/morn)	LMST midn	----- Sun: -----			LST twilight:		----- Moon: -----				Twi-Twi hours		
		set	twi.end	twi.beg	rise	eve	morn	rise	set	%illum	RA	Dec	
Mon Aug 01/Tue Aug 02	18 53	20 58	22 39	5 18	6 59	17 31	0 12	.....	20 04	1	8 13.4	15 37	6.7
Tue Aug 02/Wed Aug 03	18 57	20 57	22 37	5 19	6 59	17 34	0 17	.....	20 49	0	9 07.4	13 11	6.7
Wed Aug 03/Thu Aug 04	19 01	20 56	22 36	5 20	7 00	17 37	0 22	.....	21 29	2	9 59.1	10 06	6.7
Thu Aug 04/Fri Aug 05	19 05	20 55	22 34	5 22	7 01	17 39	0 27	.....	22 05	6	10 48.7	6 34	6.8
Fri Aug 05/Sat Aug 06	19 09	20 54	22 33	5 23	7 02	17 42	0 32	.....	22 38	11	11 36.4	2 47	6.8
Sat Aug 06/Sun Aug 07	19 13	20 53	22 32	5 24	7 03	17 44	0 38	.....	23 10	18	12 22.9	- 1 04	6.9
Sun Aug 07/Mon Aug 08	19 17	20 52	22 30	5 25	7 03	17 47	0 43	.....	23 41	26	13 08.7	- 4 51	6.9
Mon Aug 08/Tue Aug 09	19 21	20 51	22 29	5 26	7 04	17 49	0 48	.....	0 13	35	13 54.5	- 8 26	7.0
Tue Aug 09/Wed Aug 10	19 25	20 50	22 27	5 28	7 05	17 51	0 53	.....	0 46	44	14 40.8	-11 42	7.0
Wed Aug 10/Thu Aug 11	19 29	20 48	22 26	5 29	7 06	17 54	0 58	.....	1 21	54	15 28.2	-14 32	7.1
Thu Aug 11/Fri Aug 12	19 33	20 47	22 24	5 30	7 07	17 56	1 03	.....	2 00	63	16 17.2	-16 48	7.1
Fri Aug 12/Sat Aug 13	19 36	20 46	22 22	5 31	7 08	17 59	1 09	.....	2 42	72	17 07.9	-18 24	7.1
Sat Aug 13/Sun Aug 14	19 40	20 45	22 21	5 32	7 08	18 01	1 14	.....	3 30	81	18 00.5	-19 11	7.2
Sun Aug 14/Mon Aug 15	19 44	20 44	22 19	5 34	7 09	18 03	1 19	17 57	4 23	88	18 54.6	-19 03	7.2
Mon Aug 15/Tue Aug 16	19 48	20 42	22 18	5 35	7 10	18 06	1 24	18 46	5 20	94	19 49.8	-17 56	7.3
Tue Aug 16/Wed Aug 17	19 52	20 41	22 16	5 36	7 11	18 08	1 29	19 32	6 21	98	20 45.7	-15 50	7.3
Wed Aug 17/Thu Aug 18	19 56	20 40	22 15	5 37	7 12	18 10	1 34	20 15	.....	100	21 41.6	-12 49	7.4
Thu Aug 18/Fri Aug 19	20 00	20 39	22 13	5 38	7 13	18 13	1 39	20 56	.....	99	22 37.2	- 9 03	7.4
Fri Aug 19/Sat Aug 20	20 04	20 37	22 11	5 39	7 13	18 15	1 44	21 35	.....	96	23 32.4	- 4 45	7.5
Sat Aug 20/Sun Aug 21	20 08	20 36	22 10	5 41	7 14	18 17	1 50	22 13	.....	90	0 27.5	- 0 12	7.5
Sun Aug 21/Mon Aug 22	20 12	20 35	22 08	5 42	7 15	18 20	1 55	22 52	.....	81	1 22.6	4 20	7.6
Mon Aug 22/Tue Aug 23	20 16	20 33	22 06	5 43	7 16	18 22	2 00	23 31	.....	71	2 18.2	8 33	7.6
Tue Aug 23/Wed Aug 24	20 20	20 32	22 05	5 44	7 17	18 24	2 05	0 13	.....	60	3 14.5	12 11	7.7
Wed Aug 24/Thu Aug 25	20 24	20 31	22 03	5 45	7 17	18 26	2 10	0 59	.....	49	4 11.5	15 01	7.7
Thu Aug 25/Fri Aug 26	20 28	20 29	22 01	5 46	7 18	18 29	2 15	1 48	.....	38	5 09.0	16 53	7.7
Fri Aug 26/Sat Aug 27	20 32	20 28	22 00	5 47	7 19	18 31	2 20	2 42	.....	27	6 06.5	17 41	7.8
Sat Aug 27/Sun Aug 28	20 36	20 26	21 58	5 48	7 20	18 33	2 25	3 39	17 08	18	7 03.3	17 24	7.8
Sun Aug 28/Mon Aug 29	20 40	20 25	21 56	5 49	7 21	18 36	2 30	4 38	17 59	11	7 58.8	16 07	7.9
Mon Aug 29/Tue Aug 30	20 43	20 24	21 55	5 51	7 22	18 38	2 35	5 38	18 45	5	8 52.4	13 58	7.9
Tue Aug 30/Wed Aug 31	20 47	20 22	21 53	5 52	7 22	18 40	2 40	6 38	19 26	1	9 44.0	11 07	8.0
Wed Aug 31/Thu Sep 01	20 51	20 21	21 51	5 53	7 23	18 42	2 45	.....	20 03	0	10 33.7	7 45	8.0

Calendar for Okie-Tex, west longitude (h.m.s) = 6 51 48, latitude (d.m) = 36 53.9  
 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.

\*\*\*\*\* 2016 SEPTEMBER \*\*\*\*\*

Date (eve/morn)	LMST midn	----- Sun: -----				LST twilight:		----- Moon: -----				Twi-Twi hours	
		set	twi.end	twi.beg	rise	eve	morn	rise	set	%illum	RA	Dec	
Thu Sep 01/Fri Sep 02	20 55	20 19	21 50	5 54	7 24	18 44	2 50	.....	20 37	1	11 21.6	4 04	8.1
Fri Sep 02/Sat Sep 03	20 59	20 18	21 48	5 55	7 25	18 47	2 55	.....	21 09	3	12 08.3	0 14	8.1
Sat Sep 03/Sun Sep 04	21 03	20 16	21 46	5 56	7 26	18 49	3 00	.....	21 41	8	12 54.2	- 3 34	8.2
Sun Sep 04/Mon Sep 05	21 07	20 15	21 44	5 57	7 26	18 51	3 05	.....	22 12	13	13 39.8	- 7 13	8.2
Mon Sep 05/Tue Sep 06	21 11	20 13	21 43	5 58	7 27	18 53	3 10	.....	22 45	20	14 25.7	-10 35	8.3
Tue Sep 06/Wed Sep 07	21 15	20 12	21 41	5 59	7 28	18 56	3 15	.....	23 19	28	15 12.4	-13 33	8.3
Wed Sep 07/Thu Sep 08	21 19	20 11	21 39	6 00	7 29	18 58	3 20	.....	23 56	37	16 00.2	-15 59	8.3
Thu Sep 08/Fri Sep 09	21 23	20 09	21 38	6 01	7 30	19 00	3 25	.....	0 36	47	16 49.5	-17 48	8.4
Fri Sep 09/Sat Sep 10	21 27	20 08	21 36	6 02	7 30	19 02	3 30	.....	1 21	56	17 40.4	-18 53	8.4
Sat Sep 10/Sun Sep 11	21 31	20 06	21 34	6 03	7 31	19 05	3 35	.....	2 10	66	18 32.9	-19 07	8.5
Sun Sep 11/Mon Sep 12	21 35	20 05	21 33	6 04	7 32	19 07	3 40	.....	3 05	75	19 26.7	-18 25	8.5
Mon Sep 12/Tue Sep 13	21 39	20 03	21 31	6 05	7 33	19 09	3 44	17 22	4 03	84	20 21.6	-16 46	8.6
Tue Sep 13/Wed Sep 14	21 43	20 01	21 29	6 06	7 34	19 11	3 49	18 07	5 06	91	21 17.2	-14 09	8.6
Wed Sep 14/Thu Sep 15	21 47	20 00	21 28	6 07	7 34	19 14	3 54	18 49	6 11	97	22 13.1	-10 41	8.7
Thu Sep 15/Fri Sep 16	21 51	19 58	21 26	6 08	7 35	19 16	3 59	19 29	.....	100	23 09.3	- 6 32	8.7
Fri Sep 16/Sat Sep 17	21 54	19 57	21 24	6 09	7 36	19 18	4 04	20 08	.....	100	0 05.7	- 1 56	8.7
Sat Sep 17/Sun Sep 18	21 58	19 55	21 23	6 10	7 37	19 21	4 09	20 47	.....	97	1 02.6	2 47	8.8
Sun Sep 18/Mon Sep 19	22 02	19 54	21 21	6 11	7 38	19 23	4 14	21 28	.....	91	2 00.0	7 18	8.8
Mon Sep 19/Tue Sep 20	22 06	19 52	21 19	6 11	7 38	19 25	4 19	22 10	.....	83	2 58.2	11 17	8.9
Tue Sep 20/Wed Sep 21	22 10	19 51	21 18	6 12	7 39	19 27	4 24	22 56	.....	74	3 56.9	14 28	8.9
Wed Sep 21/Thu Sep 22	22 14	19 49	21 16	6 13	7 40	19 30	4 28	23 45	.....	63	4 55.9	16 38	9.0
Thu Sep 22/Fri Sep 23	22 18	19 48	21 14	6 14	7 41	19 32	4 33	0 38	.....	52	5 54.4	17 41	9.0
Fri Sep 23/Sat Sep 24	22 22	19 46	21 13	6 15	7 42	19 34	4 38	1 34	.....	41	6 51.8	17 39	9.0
Sat Sep 24/Sun Sep 25	22 26	19 45	21 11	6 16	7 43	19 37	4 43	2 32	.....	30	7 47.5	16 34	9.1
Sun Sep 25/Mon Sep 26	22 30	19 43	21 10	6 17	7 43	19 39	4 48	3 31	16 44	21	8 41.1	14 36	9.1
Mon Sep 26/Tue Sep 27	22 34	19 42	21 08	6 18	7 44	19 41	4 53	4 30	17 26	13	9 32.5	11 55	9.2
Tue Sep 27/Wed Sep 28	22 38	19 40	21 06	6 19	7 45	19 44	4 58	5 29	18 03	7	10 21.9	8 41	9.2
Wed Sep 28/Thu Sep 29	22 42	19 39	21 05	6 20	7 46	19 46	5 02	6 26	18 38	3	11 09.6	5 06	9.2
Thu Sep 29/Fri Sep 30	22 46	19 37	21 03	6 20	7 47	19 49	5 07	7 23	19 10	1	11 56.0	1 20	9.3
Fri Sep 30/Sat Oct 01	22 50	19 36	21 02	6 21	7 48	19 51	5 12	.....	19 42	0	12 41.7	- 2 28	9.3

\*\*\*\*\* 2016 OCTOBER \*\*\*\*\*

Date (eve/morn)	LMST midn	----- Sun: -----				LST twilight:		----- Moon: -----				Twi-Twi hours	
		set	twi.end	twi.beg	rise	eve	morn	rise	set	%illum	RA	Dec	
Sat Oct 01/Sun Oct 02	22 54	19 34	21 00	6 22	7 48	19 53	5 17	.....	20 13	1	13 27.1	- 6 10	9.4
Sun Oct 02/Mon Oct 03	22 58	19 33	20 59	6 23	7 49	19 56	5 22	.....	20 45	4	14 12.7	- 9 38	9.4
Mon Oct 03/Tue Oct 04	23 01	19 31	20 57	6 24	7 50	19 58	5 27	.....	21 18	9	14 58.9	-12 43	9.4
Tue Oct 04/Wed Oct 05	23 05	19 30	20 56	6 25	7 51	20 01	5 31	.....	21 54	15	15 46.1	-15 19	9.5
Wed Oct 05/Thu Oct 06	23 09	19 28	20 54	6 26	7 52	20 03	5 36	.....	22 33	22	16 34.4	-17 19	9.5
Thu Oct 06/Fri Oct 07	23 13	19 27	20 53	6 27	7 53	20 06	5 41	.....	23 15	31	17 23.9	-18 37	9.6
Fri Oct 07/Sat Oct 08	23 17	19 26	20 52	6 28	7 54	20 08	5 46	.....	0 02	40	18 14.8	-19 08	9.6
Sat Oct 08/Sun Oct 09	23 21	19 24	20 50	6 28	7 55	20 11	5 51	.....	0 53	50	19 06.8	-18 47	9.6
Sun Oct 09/Mon Oct 10	23 25	19 23	20 49	6 29	7 55	20 13	5 55	.....	1 48	60	19 59.8	-17 31	9.7
Mon Oct 10/Tue Oct 11	23 29	19 21	20 47	6 30	7 56	20 16	6 00	.....	2 47	70	20 53.5	-15 21	9.7
Tue Oct 11/Wed Oct 12	23 33	19 20	20 46	6 31	7 57	20 18	6 05	16 40	3 50	79	21 48.0	-12 18	9.8
Wed Oct 12/Thu Oct 13	23 37	19 18	20 45	6 32	7 58	20 21	6 10	17 21	4 56	88	22 43.0	- 8 29	9.8
Thu Oct 13/Fri Oct 14	23 41	19 17	20 43	6 33	7 59	20 24	6 15	18 00	6 04	94	23 38.9	- 4 04	9.8
Fri Oct 14/Sat Oct 15	23 45	19 16	20 42	6 34	8 00	20 26	6 20	18 39	7 13	98	0 35.8	0 41	9.9
Sat Oct 15/Sun Oct 16	23 49	19 14	20 41	6 34	8 01	20 29	6 24	19 19	.....	100	1 34.0	5 27	9.9
Sun Oct 16/Mon Oct 17	23 53	19 13	20 39	6 35	8 02	20 32	6 29	20 01	.....	98	2 33.6	9 52	9.9
Mon Oct 17/Tue Oct 18	23 57	19 12	20 38	6 36	8 03	20 34	6 34	20 46	.....	93	3 34.3	13 33	10.0
Tue Oct 18/Wed Oct 19	0 01	19 10	20 37	6 37	8 04	20 37	6 39	21 36	.....	86	4 35.8	16 14	10.0
Wed Oct 19/Thu Oct 20	0 05	19 09	20 36	6 38	8 05	20 40	6 44	22 29	.....	77	5 37.0	17 43	10.0
Thu Oct 20/Fri Oct 21	0 08	19 08	20 34	6 39	8 06	20 42	6 48	23 26	.....	67	6 36.9	18 00	10.1
Fri Oct 21/Sat Oct 22	0 12	19 07	20 33	6 40	8 06	20 45	6 53	0 25	.....	56	7 34.7	17 09	10.1
Sat Oct 22/Sun Oct 23	0 16	19 05	20 32	6 41	8 07	20 48	6 58	1 25	.....	45	8 29.9	15 20	10.1
Sun Oct 23/Mon Oct 24	0 20	19 04	20 31	6 41	8 08	20 51	7 03	2 25	.....	35	9 22.2	12 45	10.2
Mon Oct 24/Tue Oct 25	0 24	19 03	20 30	6 42	8 09	20 53	7 08	3 23	16 05	26	10 12.1	9 36	10.2
Tue Oct 25/Wed Oct 26	0 28	19 02	20 29	6 43	8 10	20 56	7 13	4 21	16 40	17	10 59.9	6 04	10.2
Wed Oct 26/Thu Oct 27	0 32	19 01	20 28	6 44	8 11	20 59	7 17	5 17	17 13	11	11 46.2	2 20	10.3
Thu Oct 27/Fri Oct 28	0 36	18 59	20 27	6 45	8 12	21 02	7 22	6 12	17 44	6	12 31.6	- 1 29	10.3
Fri Oct 28/Sat Oct 29	0 40	18 58	20 26	6 46	8 13	21 05	7 27	7 07	18 15	2	13 16.6	- 5 13	10.3
Sat Oct 29/Sun Oct 30	0 44	18 57	20 25	6 47	8 14	21 08	7 32	8 02	18 46	0	14 01.8	- 8 45	10.4
Sun Oct 30/Mon Oct 31	0 48	18 56	20 24	6 48	8 15	21 11	7 37	.....	19 19	0	14 47.6	-11 57	10.4
Mon Oct 31/Tue Nov 01	0 52	18 55	20 23	6 49	8 16	21 14	7 41	.....	19 54	2	15 34.3	-14 43	10.4

Calendar for Okie-Tex, west longitude (h.m.s) = 6 51 48, latitude (d.m) = 36 53.9  
 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.

\*\*\*\*\* 2016 NOVEMBER \*\*\*\*\*

Date (eve/morn)	LMST midn	----- Sun: -----				LST twilight:		----- Moon: -----				Twi-Twi hours	
		set	twi.end	twi.beg	rise	eve	morn	rise	set	%illum	RA		Dec
Tue Nov 01/Wed Nov 02	0 56	18 54	20 22	6 49	8 17	21 17	7 46	.....	20 31	5	16 22.1	-16 54	10.5
Wed Nov 02/Thu Nov 03	1 00	18 53	20 21	6 50	8 18	21 20	7 51	.....	21 12	10	17 11.1	-18 24	10.5
Thu Nov 03/Fri Nov 04	1 04	18 52	20 20	6 51	8 19	21 23	7 56	.....	21 57	17	18 01.1	-19 08	10.5
Fri Nov 04/Sat Nov 05	1 08	18 51	20 19	6 52	8 20	21 26	8 01	.....	22 46	24	18 52.0	-19 03	10.5
Sat Nov 05/Sun Nov 06*	1 12	18 50	20 18	5 53	7 21	21 29	8 06	.....	23 39	33	19 43.5	-18 06	10.6
Sun Nov 06/Mon Nov 07	2 16	17 49	19 18	5 54	7 22	21 32	8 10	.....	23 35	43	20 37.5	-16 07	10.6
Mon Nov 07/Tue Nov 08	2 20	17 48	19 17	5 55	7 24	21 36	8 15	.....	0 34	54	21 29.7	-13 26	10.6
Tue Nov 08/Wed Nov 09	2 24	17 47	19 16	5 56	7 25	21 39	8 20	.....	1 37	64	22 22.4	-9 59	10.7
Wed Nov 09/Thu Nov 10	2 28	17 46	19 15	5 57	7 26	21 42	8 25	.....	2 41	74	23 15.9	-5 54	10.7
Thu Nov 10/Fri Nov 11	2 31	17 46	19 15	5 57	7 27	21 45	8 30	.....	3 48	84	0 10.6	-1 22	10.7
Fri Nov 11/Sat Nov 12	2 35	17 45	19 14	5 58	7 28	21 49	8 35	16 09	4 58	92	1 07.0	3 23	10.7
Sat Nov 12/Sun Nov 13	2 39	17 44	19 13	5 59	7 29	21 52	8 40	16 50	6 09	97	2 05.5	8 02	10.8
Sun Nov 13/Mon Nov 14	2 43	17 43	19 13	6 00	7 30	21 55	8 44	17 33	7 21	100	3 06.2	12 11	10.8
Mon Nov 14/Tue Nov 15	2 47	17 43	19 12	6 01	7 31	21 59	8 49	18 21	.....	99	4 08.8	15 28	10.8
Tue Nov 15/Wed Nov 16	2 51	17 42	19 12	6 02	7 32	22 02	8 54	19 13	.....	95	5 12.4	17 35	10.8
Wed Nov 16/Thu Nov 17	2 55	17 41	19 11	6 03	7 33	22 06	8 59	20 11	.....	89	6 15.7	18 24	10.9
Thu Nov 17/Fri Nov 18	2 59	17 41	19 11	6 04	7 34	22 09	9 04	21 11	.....	81	7 17.1	17 54	10.9
Fri Nov 18/Sat Nov 19	3 03	17 40	19 10	6 05	7 35	22 12	9 08	22 13	.....	71	8 15.7	16 18	10.9
Sat Nov 19/Sun Nov 20	3 07	17 39	19 10	6 05	7 36	22 16	9 13	23 15	.....	61	9 10.8	13 47	10.9
Sun Nov 20/Mon Nov 21	3 11	17 39	19 09	6 06	7 37	22 20	9 18	0 16	.....	50	10 02.7	10 39	10.9
Mon Nov 21/Tue Nov 22	3 15	17 38	19 09	6 07	7 38	22 23	9 23	1 14	.....	40	10 51.9	7 05	11.0
Tue Nov 22/Wed Nov 23	3 19	17 38	19 09	6 08	7 39	22 27	9 28	2 11	.....	31	11 38.9	3 18	11.0
Wed Nov 23/Thu Nov 24	3 23	17 38	19 09	6 09	7 40	22 30	9 33	3 07	.....	22	12 24.6	-0 33	11.0
Thu Nov 24/Fri Nov 25	3 27	17 37	19 08	6 10	7 41	22 34	9 37	4 02	.....	15	13 09.6	-4 21	11.0
Fri Nov 25/Sat Nov 26	3 31	17 37	19 08	6 11	7 42	22 38	9 42	4 57	15 49	9	13 54.5	-7 57	11.0
Sat Nov 26/Sun Nov 27	3 35	17 36	19 08	6 11	7 43	22 42	9 47	5 51	16 21	5	14 40.0	-11 16	11.1
Sun Nov 27/Mon Nov 28	3 38	17 36	19 08	6 12	7 44	22 45	9 52	6 45	16 55	2	15 26.3	-14 08	11.1
Mon Nov 28/Tue Nov 29	3 42	17 36	19 08	6 13	7 45	22 49	9 57	7 39	17 31	0	16 13.9	-16 28	11.1
Tue Nov 29/Wed Nov 30	3 46	17 36	19 07	6 14	7 46	22 53	10 01	8 31	18 11	1	17 02.6	-18 09	11.1
Wed Nov 30/Thu Dec 01	3 50	17 35	19 07	6 15	7 47	22 57	10 06	.....	18 55	3	17 52.4	-19 04	11.1

\*\*\*\*\* 2016 DECEMBER \*\*\*\*\*

Date (eve/morn)	LMST midn	----- Sun: -----				LST twilight:		----- Moon: -----				Twi-Twi hours	
		set	twi.end	twi.beg	rise	eve	morn	rise	set	%illum	RA		Dec
Thu Dec 01/Fri Dec 02	3 54	17 35	19 07	6 15	7 48	23 01	10 11	.....	19 42	7	18 43.0	-19 10	11.1
Fri Dec 02/Sat Dec 03	3 58	17 35	19 07	6 16	7 48	23 05	10 16	.....	20 34	12	19 34.0	-18 25	11.2
Sat Dec 03/Sun Dec 04	4 02	17 35	19 07	6 17	7 49	23 09	10 20	.....	21 29	19	20 25.2	-16 48	11.2
Sun Dec 04/Mon Dec 05	4 06	17 35	19 07	6 18	7 50	23 13	10 25	.....	22 26	28	21 16.4	-14 23	11.2
Mon Dec 05/Tue Dec 06	4 10	17 35	19 07	6 19	7 51	23 17	10 30	.....	23 26	37	22 07.5	-11 13	11.2
Tue Dec 06/Wed Dec 07	4 14	17 35	19 08	6 19	7 52	23 21	10 34	.....	0 28	48	22 58.9	-7 27	11.2
Wed Dec 07/Thu Dec 08	4 18	17 35	19 08	6 20	7 53	23 25	10 39	.....	1 31	59	23 51.0	-3 11	11.2
Thu Dec 08/Fri Dec 09	4 22	17 35	19 08	6 21	7 54	23 29	10 44	.....	2 37	70	0 44.3	1 21	11.2
Fri Dec 09/Sat Dec 10	4 26	17 35	19 08	6 22	7 54	23 33	10 48	.....	3 45	80	1 39.6	5 57	11.2
Sat Dec 10/Sun Dec 11	4 30	17 35	19 08	6 22	7 55	23 37	10 53	15 23	4 55	88	2 37.3	10 17	11.2
Sun Dec 11/Mon Dec 12	4 34	17 36	19 08	6 23	7 56	23 41	10 58	16 06	6 06	95	3 37.8	14 01	11.2
Mon Dec 12/Tue Dec 13	4 38	17 36	19 09	6 24	7 57	23 46	11 02	16 55	7 15	99	4 40.6	16 47	11.2
Tue Dec 13/Wed Dec 14	4 42	17 36	19 09	6 24	7 57	23 50	11 07	17 50	8 21	100	5 44.7	18 20	11.3
Wed Dec 14/Thu Dec 15	4 46	17 36	19 09	6 25	7 58	23 54	11 11	18 50	.....	97	6 48.6	18 31	11.3
Thu Dec 15/Fri Dec 16	4 49	17 37	19 10	6 25	7 59	23 58	11 16	19 53	.....	93	7 50.5	17 23	11.3
Fri Dec 16/Sat Dec 17	4 53	17 37	19 10	6 26	7 59	0 03	11 20	20 58	.....	85	8 49.3	15 11	11.3
Sat Dec 17/Sun Dec 18	4 57	17 37	19 10	6 27	8 00	0 07	11 25	22 01	.....	77	9 44.6	12 09	11.3
Sun Dec 18/Mon Dec 19	5 01	17 38	19 11	6 27	8 00	0 11	11 29	23 03	.....	67	10 36.5	8 36	11.3
Mon Dec 19/Tue Dec 20	5 05	17 38	19 11	6 28	8 01	0 16	11 34	0 02	.....	57	11 25.6	4 45	11.3
Tue Dec 20/Wed Dec 21	5 09	17 39	19 12	6 28	8 01	0 20	11 38	0 59	.....	48	12 12.6	0 48	11.3
Wed Dec 21/Thu Dec 22	5 13	17 39	19 12	6 29	8 02	0 25	11 43	1 55	.....	38	12 58.4	-3 06	11.3
Thu Dec 22/Fri Dec 23	5 17	17 40	19 13	6 29	8 02	0 29	11 47	2 50	.....	29	13 43.6	-6 50	11.3
Fri Dec 23/Sat Dec 24	5 21	17 40	19 13	6 30	8 03	0 34	11 52	3 44	.....	21	14 29.0	-10 16	11.3
Sat Dec 24/Sun Dec 25	5 25	17 41	19 14	6 30	8 03	0 38	11 56	4 39	.....	14	15 15.1	-13 18	11.3
Sun Dec 25/Mon Dec 26	5 29	17 41	19 15	6 30	8 03	0 43	12 00	5 33	15 31	8	16 02.2	-15 49	11.3
Mon Dec 26/Tue Dec 27	5 33	17 42	19 15	6 31	8 04	0 47	12 05	6 26	16 09	4	16 50.7	-17 43	11.3
Tue Dec 27/Wed Dec 28	5 37	17 43	19 16	6 31	8 04	0 52	12 09	7 18	16 52	1	17 40.4	-18 53	11.3
Wed Dec 28/Thu Dec 29	5 41	17 43	19 16	6 31	8 04	0 56	12 13	8 07	17 38	0	18 31.1	-19 14	11.2
Thu Dec 29/Fri Dec 30	5 45	17 44	19 17	6 32	8 05	1 01	12 17	.....	18 29	1	19 22.5	-18 43	11.2
Fri Dec 30/Sat Dec 31	5 49	17 45	19 18	6 32	8 05	1 06	12 22	.....	19 23	4	20 14.1	-17 20	11.2
Sat Dec 31/Sun Jan 01	5 53	17 46	19 18	6 32	8 05	1 10	12 26	.....	20 21	8	21 05.6	-15 06	11.2