

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 Cheddar Ranch *****

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 -1.6 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 Cheddar Ranch

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

Calendar for Cheddar Ranch, west longitude (h.m.s) = 6 34 04, latitude (d.m) = 35 46.0
 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.

***** 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	6 13	17 31	19 03	6 13	7 44	1 15	12 27	8 31	18 16	1	19 34.5	-16 58	11.2
Thu Jan 02/Fri Jan 03	6 17	17 32	19 04	6 13	7 44	1 20	12 31	.....	19 27	5	20 35.3	-13 45	11.2
Fri Jan 03/Sat Jan 04	6 21	17 33	19 04	6 13	7 45	1 24	12 35	.....	20 38	11	21 33.5	-9 43	11.2
Sat Jan 04/Sun Jan 05	6 25	17 34	19 05	6 14	7 45	1 29	12 40	.....	21 47	19	22 29.1	-5 13	11.1
Sun Jan 05/Mon Jan 06	6 29	17 35	19 06	6 14	7 45	1 34	12 44	.....	22 53	29	23 22.5	-0 33	11.1
Mon Jan 06/Tue Jan 07	6 33	17 36	19 07	6 14	7 45	1 39	12 48	.....	23 57	40	0 14.2	3 59	11.1
Tue Jan 07/Wed Jan 08	6 37	17 36	19 07	6 14	7 45	1 43	12 52	.....	0 59	50	1 05.1	8 12	11.1
Wed Jan 08/Thu Jan 09	6 41	17 37	19 08	6 14	7 44	1 48	12 56	.....	1 58	61	1 55.6	11 53	11.1
Thu Jan 09/Fri Jan 10	6 45	17 38	19 09	6 14	7 44	1 53	13 00	.....	2 56	70	2 46.3	14 56	11.1
Fri Jan 10/Sat Jan 11	6 49	17 39	19 10	6 14	7 44	1 58	13 03	.....	3 52	79	3 37.3	17 13	11.1
Sat Jan 11/Sun Jan 12	6 53	17 40	19 11	6 14	7 44	2 02	13 07	.....	4 45	86	4 28.6	18 40	11.1
Sun Jan 12/Mon Jan 13	6 57	17 41	19 11	6 14	7 44	2 07	13 11	.....	5 34	92	5 19.9	19 13	11.0
Mon Jan 13/Tue Jan 14	7 00	17 42	19 12	6 14	7 44	2 12	13 15	15 57	6 20	96	6 11.0	18 53	11.0
Tue Jan 14/Wed Jan 15	7 04	17 43	19 13	6 13	7 43	2 17	13 19	16 48	7 02	99	7 01.4	17 40	11.0
Wed Jan 15/Thu Jan 16	7 08	17 44	19 14	6 13	7 43	2 21	13 23	17 41	7 41	100	7 50.9	15 41	11.0
Thu Jan 16/Fri Jan 17	7 12	17 45	19 15	6 13	7 43	2 26	13 26	18 35	8 16	99	8 39.1	13 00	11.0
Fri Jan 17/Sat Jan 18	7 16	17 46	19 16	6 13	7 42	2 31	13 30	19 29	.....	96	9 26.4	9 46	11.0
Sat Jan 18/Sun Jan 19	7 20	17 47	19 17	6 13	7 42	2 36	13 34	20 24	.....	91	10 12.9	6 06	10.9
Sun Jan 19/Mon Jan 20	7 24	17 48	19 17	6 12	7 42	2 41	13 37	21 19	.....	85	10 59.0	2 10	10.9
Mon Jan 20/Tue Jan 21	7 28	17 49	19 18	6 12	7 41	2 46	13 41	22 15	.....	78	11 45.3	-1 55	10.9
Tue Jan 21/Wed Jan 22	7 32	17 50	19 19	6 12	7 41	2 50	13 45	23 12	.....	69	12 32.5	-5 58	10.9
Wed Jan 22/Thu Jan 23	7 36	17 51	19 20	6 11	7 40	2 55	13 48	0 10	.....	59	13 21.3	-9 52	10.9
Thu Jan 23/Fri Jan 24	7 40	17 52	19 21	6 11	7 40	3 00	13 52	1 11	.....	49	14 12.3	-13 24	10.8
Fri Jan 24/Sat Jan 25	7 44	17 53	19 22	6 11	7 39	3 05	13 55	2 13	.....	38	15 06.1	-16 21	10.8
Sat Jan 25/Sun Jan 26	7 48	17 54	19 23	6 10	7 38	3 10	13 59	3 16	.....	28	16 02.9	-18 30	10.8
Sun Jan 26/Mon Jan 27	7 52	17 55	19 24	6 10	7 38	3 15	14 02	4 18	.....	18	17 02.5	-19 37	10.8
Mon Jan 27/Tue Jan 28	7 56	17 56	19 25	6 09	7 37	3 19	14 06	5 18	.....	10	18 04.1	-19 30	10.7
Tue Jan 28/Wed Jan 29	8 00	17 57	19 25	6 09	7 36	3 24	14 09	6 14	15 49	4	19 06.3	-18 04	10.7
Wed Jan 29/Thu Jan 30	8 04	17 58	19 26	6 08	7 36	3 29	14 12	7 04	16 59	1	20 08.0	-15 25	10.7
Thu Jan 30/Fri Jan 31	8 07	17 59	19 27	6 07	7 35	3 34	14 16	7 49	18 11	0	21 08.0	-11 45	10.7
Fri Jan 31/Sat Feb 01	8 11	18 00	19 28	6 07	7 34	3 39	14 19	.....	19 22	3	22 05.9	-7 23	10.6

***** 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	8 15	18 02	19 29	6 06	7 33	3 44	14 22	.....	20 32	8	23 01.7	-2 40	10.6
Sun Feb 02/Mon Feb 03	8 19	18 03	19 30	6 05	7 33	3 49	14 26	.....	21 40	15	23 55.6	2 03	10.6
Mon Feb 03/Tue Feb 04	8 23	18 04	19 31	6 05	7 32	3 53	14 29	.....	22 45	24	0 48.3	6 30	10.6
Tue Feb 04/Wed Feb 05	8 27	18 05	19 32	6 04	7 31	3 58	14 32	.....	23 47	33	1 40.2	10 28	10.5
Wed Feb 05/Thu Feb 06	8 31	18 06	19 33	6 03	7 30	4 03	14 35	.....	0 47	44	2 31.7	13 47	10.5
Thu Feb 06/Fri Feb 07	8 35	18 07	19 34	6 02	7 29	4 08	14 38	.....	1 45	54	3 23.2	16 20	10.5
Fri Feb 07/Sat Feb 08	8 39	18 08	19 34	6 02	7 28	4 13	14 42	.....	2 39	63	4 14.6	18 03	10.5
Sat Feb 08/Sun Feb 09	8 43	18 09	19 35	6 01	7 27	4 18	14 45	.....	3 30	72	5 05.8	18 53	10.4
Sun Feb 09/Mon Feb 10	8 47	18 10	19 36	6 00	7 26	4 22	14 48	.....	4 17	81	5 56.8	18 49	10.4
Mon Feb 10/Tue Feb 11	8 51	18 11	19 37	5 59	7 25	4 27	14 51	.....	5 01	87	6 47.1	17 54	10.4
Tue Feb 11/Wed Feb 12	8 55	18 12	19 38	5 58	7 24	4 32	14 54	.....	5 41	93	7 36.6	16 11	10.3
Wed Feb 12/Thu Feb 13	8 59	18 13	19 39	5 57	7 23	4 37	14 57	16 29	6 17	97	8 25.3	13 44	10.3
Thu Feb 13/Fri Feb 14	9 03	18 14	19 40	5 56	7 22	4 42	15 00	17 24	6 52	99	9 13.0	10 41	10.3
Fri Feb 14/Sat Feb 15	9 07	18 15	19 41	5 55	7 21	4 47	15 03	18 19	7 24	100	10 00.1	7 09	10.2
Sat Feb 15/Sun Feb 16	9 11	18 16	19 42	5 54	7 20	4 52	15 06	19 14	7 56	98	10 46.8	3 16	10.2
Sun Feb 16/Mon Feb 17	9 14	18 17	19 43	5 53	7 19	4 56	15 09	20 10	.....	95	11 33.6	-0 47	10.2
Mon Feb 17/Tue Feb 18	9 18	18 18	19 43	5 52	7 18	5 01	15 12	21 07	.....	90	12 20.9	-4 52	10.1
Tue Feb 18/Wed Feb 19	9 22	18 19	19 44	5 51	7 16	5 06	15 14	22 04	.....	83	13 09.5	-8 48	10.1
Wed Feb 19/Thu Feb 20	9 26	18 20	19 45	5 50	7 15	5 11	15 17	23 04	.....	74	13 59.8	-12 25	10.1
Thu Feb 20/Fri Feb 21	9 30	18 21	19 46	5 49	7 14	5 16	15 20	0 04	.....	65	14 52.2	-15 30	10.0
Fri Feb 21/Sat Feb 22	9 34	18 22	19 47	5 48	7 13	5 21	15 23	1 05	.....	54	15 47.0	-17 50	10.0
Sat Feb 22/Sun Feb 23	9 38	18 23	19 48	5 47	7 12	5 25	15 26	2 05	.....	43	16 44.2	-19 15	10.0
Sun Feb 23/Mon Feb 24	9 42	18 24	19 49	5 45	7 10	5 30	15 28	3 04	.....	33	17 43.2	-19 33	9.9
Mon Feb 24/Tue Feb 25	9 46	18 25	19 50	5 44	7 09	5 35	15 31	3 59	.....	22	18 43.3	-18 40	9.9
Tue Feb 25/Wed Feb 26	9 50	18 26	19 51	5 43	7 08	5 40	15 34	4 51	.....	13	19 43.5	-16 35	9.9
Wed Feb 26/Thu Feb 27	9 54	18 26	19 51	5 42	7 07	5 45	15 37	5 38	.....	6	20 42.9	-13 26	9.8
Thu Feb 27/Fri Feb 28	9 58	18 27	19 52	5 40	7 05	5 50	15 39	6 21	16 56	2	21 41.0	-9 27	9.8
Fri Feb 28/Sat Mar 01	10 02	18 28	19 53	5 39	7 04	5 54	15 42	7 01	18 06	0	22 37.5	-4 55	9.8

Calendar for Cheddar Ranch, west longitude (h.m.s) = 6 34 04, latitude (d.m) = 35 46.0
 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.

***** 2014 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
Sat Mar 01/Sun Mar 02	10 06	18 29	19 54	5 38	7 03	5 59	15 45	7 40	19 16	1	23 32.7	- 0 11	9.7
Sun Mar 02/Mon Mar 03	10 10	18 30	19 55	5 37	7 01	6 04	15 47	.....	20 23	5	0 26.7	4 26	9.7
Mon Mar 03/Tue Mar 04	10 14	18 31	19 56	5 35	7 00	6 09	15 50	.....	21 29	11	1 20.0	8 41	9.7
Tue Mar 04/Wed Mar 05	10 18	18 32	19 57	5 34	6 59	6 14	15 52	.....	22 32	18	2 12.9	12 19	9.6
Wed Mar 05/Thu Mar 06	10 22	18 33	19 58	5 33	6 57	6 19	15 55	.....	23 32	27	3 05.5	15 12	9.6
Thu Mar 06/Fri Mar 07	10 25	18 34	19 59	5 31	6 56	6 23	15 58	.....	0 30	37	3 57.8	17 15	9.5
Fri Mar 07/Sat Mar 08	10 29	18 35	20 00	5 30	6 55	6 28	16 00	.....	1 23	46	4 49.7	18 23	9.5
Sat Mar 08/Sun Mar 09*	10 33	18 36	20 00	6 28	7 53	6 33	16 03	.....	3 12	56	5 41.1	18 37	9.5
Sun Mar 09/Mon Mar 10	9 37	19 36	21 01	6 27	7 52	6 38	16 05	.....	3 57	65	6 30.0	18 04	9.4
Mon Mar 10/Tue Mar 11	9 41	19 37	21 02	6 26	7 50	6 43	16 08	.....	4 38	74	7 19.8	16 38	9.4
Tue Mar 11/Wed Mar 12	9 45	19 38	21 03	6 24	7 49	6 48	16 10	.....	5 16	82	8 08.6	14 28	9.4
Wed Mar 12/Thu Mar 13	9 49	19 39	21 04	6 23	7 48	6 53	16 13	.....	5 51	89	8 56.6	11 39	9.3
Thu Mar 13/Fri Mar 14	9 53	19 40	21 05	6 21	7 46	6 57	16 15	17 11	6 25	94	9 44.0	8 18	9.3
Fri Mar 14/Sat Mar 15	9 57	19 41	21 06	6 20	7 45	7 02	16 18	18 06	6 57	98	10 31.0	4 33	9.2
Sat Mar 15/Sun Mar 16	10 01	19 42	21 07	6 18	7 43	7 07	16 20	19 03	7 29	100	11 18.2	0 32	9.2
Sun Mar 16/Mon Mar 17	10 05	19 42	21 08	6 17	7 42	7 12	16 23	20 00	.....	100	12 06.0	- 3 35	9.2
Mon Mar 17/Tue Mar 18	10 09	19 43	21 09	6 15	7 41	7 17	16 25	20 58	.....	98	12 54.9	- 7 37	9.1
Tue Mar 18/Wed Mar 19	10 13	19 44	21 10	6 14	7 39	7 22	16 27	21 57	.....	93	13 45.3	-11 22	9.1
Wed Mar 19/Thu Mar 20	10 17	19 45	21 10	6 12	7 38	7 27	16 30	22 58	.....	87	14 37.7	-14 37	9.0
Thu Mar 20/Fri Mar 21	10 20	19 46	21 11	6 11	7 36	7 31	16 32	23 59	.....	79	15 32.2	-17 11	9.0
Fri Mar 21/Sat Mar 22	10 24	19 47	21 12	6 09	7 35	7 36	16 35	0 59	.....	70	16 28.5	-18 51	8.9
Sat Mar 22/Sun Mar 23	10 28	19 48	21 13	6 08	7 33	7 41	16 37	1 57	.....	59	17 26.4	-19 28	8.9
Sun Mar 23/Mon Mar 24	10 32	19 48	21 14	6 06	7 32	7 46	16 39	2 53	.....	48	18 25.0	-18 57	8.9
Mon Mar 24/Tue Mar 25	10 36	19 49	21 15	6 05	7 30	7 51	16 42	3 44	.....	37	19 23.6	-17 18	8.8
Tue Mar 25/Wed Mar 26	10 40	19 50	21 16	6 03	7 29	7 56	16 44	4 30	.....	26	20 21.4	-14 37	8.8
Wed Mar 26/Thu Mar 27	10 44	19 51	21 17	6 01	7 28	8 01	16 47	5 14	.....	17	21 18.2	-11 03	8.7
Thu Mar 27/Fri Mar 28	10 48	19 52	21 18	6 00	7 26	8 06	16 49	5 54	16 46	9	22 13.7	- 6 52	8.7
Fri Mar 28/Sat Mar 29	10 52	19 53	21 19	5 58	7 25	8 11	16 51	6 33	17 54	3	23 08.3	- 2 20	8.7
Sat Mar 29/Sun Mar 30	10 56	19 53	21 20	5 57	7 23	8 16	16 54	7 11	19 01	1	0 02.1	2 17	8.6
Sun Mar 30/Mon Mar 31	11 00	19 54	21 21	5 55	7 22	8 21	16 56	.....	20 08	0	0 55.6	6 41	8.6
Mon Mar 31/Tue Apr 01	11 04	19 55	21 22	5 54	7 20	8 25	16 58	.....	21 12	2	1 49.0	10 37	8.5

***** 2014 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
Tue Apr 01/Wed Apr 02	11 08	19 56	21 23	5 52	7 19	8 30	17 01	.....	22 15	7	2 42.4	13 53	8.5
Wed Apr 02/Thu Apr 03	11 12	19 57	21 24	5 50	7 18	8 35	17 03	.....	23 15	13	3 35.7	16 19	8.4
Thu Apr 03/Fri Apr 04	11 16	19 58	21 25	5 49	7 16	8 40	17 05	.....	0 11	21	4 28.7	17 51	8.4
Fri Apr 04/Sat Apr 05	11 20	19 58	21 26	5 47	7 15	8 45	17 08	.....	1 04	29	5 21.1	18 27	8.4
Sat Apr 05/Sun Apr 06	11 24	19 59	21 27	5 46	7 13	8 50	17 10	.....	1 51	39	6 12.5	18 08	8.3
Sun Apr 06/Mon Apr 07	11 28	20 00	21 28	5 44	7 12	8 55	17 12	.....	2 34	48	7 02.8	16 59	8.3
Mon Apr 07/Tue Apr 08	11 31	20 01	21 29	5 42	7 11	9 00	17 15	.....	3 14	58	7 51.9	15 04	8.2
Tue Apr 08/Wed Apr 09	11 35	20 02	21 30	5 41	7 09	9 05	17 17	.....	3 50	67	8 40.0	12 29	8.2
Wed Apr 09/Thu Apr 10	11 39	20 02	21 31	5 39	7 08	9 10	17 19	.....	4 24	76	9 27.2	9 20	8.1
Thu Apr 10/Fri Apr 11	11 43	20 03	21 32	5 38	7 07	9 15	17 22	.....	4 56	83	10 14.1	5 44	8.1
Fri Apr 11/Sat Apr 12	11 47	20 04	21 33	5 36	7 05	9 20	17 24	.....	5 28	90	11 01.2	1 49	8.0
Sat Apr 12/Sun Apr 13	11 51	20 05	21 35	5 34	7 04	9 25	17 26	17 49	6 00	95	11 48.9	- 2 16	8.0
Sun Apr 13/Mon Apr 14	11 55	20 06	21 36	5 33	7 03	9 30	17 29	18 47	6 34	99	12 37.9	- 6 23	8.0
Mon Apr 14/Tue Apr 15	11 59	20 07	21 37	5 31	7 01	9 35	17 31	19 47	.....	100	13 28.6	-10 18	7.9
Tue Apr 15/Wed Apr 16	12 03	20 07	21 38	5 30	7 00	9 40	17 33	20 48	.....	99	14 21.6	-13 48	7.9
Wed Apr 16/Thu Apr 17	12 07	20 08	21 39	5 28	6 59	9 46	17 36	21 50	.....	96	15 16.8	-16 38	7.8
Thu Apr 17/Fri Apr 18	12 11	20 09	21 40	5 26	6 57	9 51	17 38	22 52	.....	90	16 14.1	-18 36	7.8
Fri Apr 18/Sat Apr 19	12 15	20 10	21 41	5 25	6 56	9 56	17 41	23 52	.....	82	17 12.8	-19 30	7.7
Sat Apr 19/Sun Apr 20	12 19	20 11	21 42	5 23	6 55	10 01	17 43	0 49	.....	73	18 12.1	-19 14	7.7
Sun Apr 20/Mon Apr 21	12 23	20 12	21 43	5 22	6 54	10 06	17 45	1 41	.....	62	19 11.0	-17 49	7.6
Mon Apr 21/Tue Apr 22	12 27	20 13	21 45	5 20	6 52	10 11	17 48	2 29	.....	51	20 08.8	-15 22	7.6
Tue Apr 22/Wed Apr 23	12 31	20 13	21 46	5 19	6 51	10 16	17 50	3 12	.....	40	21 05.0	-12 02	7.5
Wed Apr 23/Thu Apr 24	12 35	20 14	21 47	5 17	6 50	10 21	17 53	3 52	.....	29	21 59.6	- 8 04	7.5
Thu Apr 24/Fri Apr 25	12 38	20 15	21 48	5 16	6 49	10 26	17 55	4 30	.....	19	22 53.1	- 3 43	7.5
Fri Apr 25/Sat Apr 26	12 42	20 16	21 49	5 14	6 48	10 31	17 57	5 07	.....	11	23 45.7	0 47	7.4
Sat Apr 26/Sun Apr 27	12 46	20 17	21 50	5 13	6 46	10 36	18 00	5 44	17 52	5	0 38.0	5 10	7.4
Sun Apr 27/Mon Apr 28	12 50	20 18	21 52	5 11	6 45	10 42	18 02	6 23	18 56	1	1 30.4	9 13	7.3
Mon Apr 28/Tue Apr 29	12 54	20 18	21 53	5 10	6 44	10 47	18 05	.....	19 59	0	2 23.2	12 41	7.3
Tue Apr 29/Wed Apr 30	12 58	20 19	21 54	5 08	6 43	10 52	18 07	.....	21 00	1	3 16.3	15 25	7.2
Wed Apr 30/Thu May 01	13 02	20 20	21 55	5 07	6 42	10 57	18 10	.....	21 58	4	4 09.4	17 17	7.2

Calendar for Cheddar Ranch, west longitude (h.m.s) = 6 34 04, latitude (d.m) = 35 46.0
 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.

***** 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 06	20 21	21 56	5 05	6 41	11 02	18 12	.....	22 53	9	5 02.3	18 14	7.2
Fri May 02/Sat May 03	13 10	20 22	21 58	5 04	6 40	11 07	18 15	.....	23 43	15	5 54.4	18 15	7.1
Sat May 03/Sun May 04	13 14	20 23	21 59	5 03	6 39	11 12	18 17	.....	0 29	23	6 45.4	17 23	7.1
Sun May 04/Mon May 05	13 18	20 23	22 00	5 01	6 38	11 18	18 20	.....	1 10	32	7 35.0	15 43	7.0
Mon May 05/Tue May 06	13 22	20 24	22 01	5 00	6 37	11 23	18 23	.....	1 47	41	8 23.2	13 22	7.0
Tue May 06/Wed May 07	13 26	20 25	22 02	4 59	6 36	11 28	18 25	.....	2 22	50	9 10.4	10 26	6.9
Wed May 07/Thu May 08	13 30	20 26	22 04	4 57	6 35	11 33	18 28	.....	2 55	60	9 56.9	7 01	6.9
Thu May 08/Fri May 09	13 34	20 27	22 05	4 56	6 34	11 38	18 30	.....	3 27	69	10 43.3	3 15	6.9
Fri May 09/Sat May 10	13 38	20 28	22 06	4 55	6 33	11 43	18 33	.....	3 58	78	11 30.2	- 0 46	6.8
Sat May 10/Sun May 11	13 42	20 28	22 07	4 53	6 32	11 48	18 36	.....	4 31	86	12 18.3	- 4 52	6.8
Sun May 11/Mon May 12	13 46	20 29	22 08	4 52	6 31	11 54	18 38	17 32	5 06	92	13 08.2	- 8 53	6.7
Mon May 12/Tue May 13	13 49	20 30	22 10	4 51	6 30	11 59	18 41	18 33	5 45	97	14 00.6	-12 36	6.7
Tue May 13/Wed May 14	13 53	20 31	22 11	4 50	6 30	12 04	18 44	19 36	6 28	100	14 55.7	-15 47	6.6
Wed May 14/Thu May 15	13 57	20 32	22 12	4 49	6 29	12 09	18 47	20 39	.....	100	15 53.6	-18 10	6.6
Thu May 15/Fri May 16	14 01	20 33	22 13	4 47	6 28	12 14	18 49	21 42	.....	97	16 53.6	-19 29	6.6
Fri May 16/Sat May 17	14 05	20 33	22 14	4 46	6 27	12 19	18 52	22 42	.....	92	17 54.8	-19 36	6.5
Sat May 17/Sun May 18	14 09	20 34	22 15	4 45	6 27	12 24	18 55	23 37	.....	85	18 55.8	-18 29	6.5
Sun May 18/Mon May 19	14 13	20 35	22 17	4 44	6 26	12 29	18 58	0 27	.....	75	19 55.4	-16 13	6.5
Mon May 19/Tue May 20	14 17	20 36	22 18	4 43	6 25	12 35	19 01	1 12	.....	65	20 53.0	-13 01	6.4
Tue May 20/Wed May 21	14 21	20 36	22 19	4 42	6 25	12 40	19 04	1 53	.....	53	21 48.5	- 9 08	6.4
Wed May 21/Thu May 22	14 25	20 37	22 20	4 41	6 24	12 45	19 07	2 31	.....	42	22 42.1	- 4 50	6.4
Thu May 22/Fri May 23	14 29	20 38	22 21	4 40	6 23	12 50	19 10	3 08	.....	31	23 34.3	- 0 22	6.3
Fri May 23/Sat May 24	14 33	20 39	22 22	4 39	6 23	12 55	19 13	3 44	.....	22	0 25.9	4 01	6.3
Sat May 24/Sun May 25	14 37	20 39	22 23	4 38	6 22	13 00	19 16	4 21	.....	13	1 17.2	8 06	6.3
Sun May 25/Mon May 26	14 41	20 40	22 24	4 38	6 22	13 05	19 19	5 00	17 48	7	2 08.8	11 41	6.2
Mon May 26/Tue May 27	14 45	20 41	22 25	4 37	6 21	13 10	19 22	5 41	18 49	3	3 00.9	14 37	6.2
Tue May 27/Wed May 28	14 49	20 42	22 26	4 36	6 21	13 15	19 25	6 26	19 48	0	3 53.3	16 45	6.2
Wed May 28/Thu May 29	14 53	20 42	22 27	4 35	6 20	13 20	19 29	.....	20 44	0	4 45.8	18 00	6.1
Thu May 29/Fri May 30	14 56	20 43	22 28	4 35	6 20	13 25	19 32	.....	21 36	2	5 37.9	18 19	6.1
Fri May 30/Sat May 31	15 00	20 44	22 29	4 34	6 20	13 30	19 35	.....	22 23	6	6 29.2	17 45	6.1
Sat May 31/Sun Jun 01	15 04	20 44	22 30	4 33	6 19	13 34	19 38	.....	23 07	11	7 19.2	16 22	6.0

***** 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	15 08	20 45	22 31	4 33	6 19	13 39	19 42	.....	23 46	18	8 07.9	14 14	6.0
Mon Jun 02/Tue Jun 03	15 12	20 45	22 32	4 32	6 19	13 44	19 45	.....	0 21	25	8 55.2	11 30	6.0
Tue Jun 03/Wed Jun 04	15 16	20 46	22 33	4 32	6 18	13 49	19 48	.....	0 55	34	9 41.5	8 16	6.0
Wed Jun 04/Thu Jun 05	15 20	20 47	22 34	4 31	6 18	13 54	19 52	.....	1 26	43	10 27.2	4 40	6.0
Thu Jun 05/Fri Jun 06	15 24	20 47	22 35	4 31	6 18	13 58	19 55	.....	1 58	53	11 13.1	0 48	5.9
Fri Jun 06/Sat Jun 07	15 28	20 48	22 35	4 30	6 18	14 03	19 59	.....	2 29	63	11 59.7	- 3 13	5.9
Sat Jun 07/Sun Jun 08	15 32	20 48	22 36	4 30	6 18	14 08	20 03	.....	3 02	72	12 47.9	- 7 14	5.9
Sun Jun 08/Mon Jun 09	15 36	20 49	22 37	4 30	6 18	14 12	20 06	.....	3 39	81	13 38.3	-11 04	5.9
Mon Jun 09/Tue Jun 10	15 40	20 49	22 37	4 29	6 18	14 17	20 10	.....	4 19	89	14 31.7	-14 31	5.9
Tue Jun 10/Wed Jun 11	15 44	20 50	22 38	4 29	6 17	14 22	20 14	18 21	5 05	95	15 28.4	-17 18	5.8
Wed Jun 11/Thu Jun 12	15 48	20 50	22 39	4 29	6 17	14 26	20 17	19 24	5 57	99	16 28.1	-19 09	5.8
Thu Jun 12/Fri Jun 13	15 52	20 51	22 39	4 29	6 17	14 31	20 21	20 27	.....	100	17 30.2	-19 50	5.8
Fri Jun 13/Sat Jun 14	15 56	20 51	22 40	4 29	6 17	14 35	20 25	21 26	.....	98	18 33.2	-19 12	5.8
Sat Jun 14/Sun Jun 15	16 00	20 51	22 40	4 29	6 17	14 40	20 29	22 20	.....	94	19 35.5	-17 18	5.8
Sun Jun 15/Mon Jun 16	16 03	20 52	22 41	4 29	6 18	14 44	20 33	23 09	.....	87	20 36.1	-14 17	5.8
Mon Jun 16/Tue Jun 17	16 07	20 52	22 41	4 29	6 18	14 48	20 37	23 53	.....	78	21 34.2	-10 27	5.8
Tue Jun 17/Wed Jun 18	16 11	20 52	22 42	4 29	6 18	14 53	20 41	0 33	.....	67	22 29.8	- 6 07	5.8
Wed Jun 18/Thu Jun 19	16 15	20 53	22 42	4 29	6 18	14 57	20 45	1 10	.....	56	23 23.4	- 1 35	5.8
Thu Jun 19/Fri Jun 20	16 19	20 53	22 42	4 29	6 18	15 01	20 49	1 47	.....	45	0 15.6	2 54	5.8
Fri Jun 20/Sat Jun 21	16 23	20 53	22 42	4 29	6 18	15 05	20 53	2 23	.....	34	1 07.0	7 05	5.8
Sat Jun 21/Sun Jun 22	16 27	20 53	22 43	4 29	6 19	15 10	20 57	3 01	.....	25	1 58.2	10 48	5.8
Sun Jun 22/Mon Jun 23	16 31	20 54	22 43	4 30	6 19	15 14	21 02	3 41	.....	16	2 49.6	13 53	5.8
Mon Jun 23/Tue Jun 24	16 35	20 54	22 43	4 30	6 19	15 18	21 06	4 23	17 41	10	3 41.2	16 13	5.8
Tue Jun 24/Wed Jun 25	16 39	20 54	22 43	4 30	6 19	15 22	21 10	5 09	18 37	5	4 33.0	17 42	5.8
Wed Jun 25/Thu Jun 26	16 43	20 54	22 43	4 31	6 20	15 26	21 14	5 57	19 30	1	5 24.7	18 17	5.8
Thu Jun 26/Fri Jun 27	16 47	20 54	22 43	4 31	6 20	15 30	21 19	.....	20 19	0	6 15.8	18 00	5.8
Fri Jun 27/Sat Jun 28	16 51	20 54	22 43	4 32	6 20	15 34	21 23	.....	21 04	1	7 05.8	16 52	5.8
Sat Jun 28/Sun Jun 29	16 55	20 54	22 43	4 32	6 21	15 37	21 28	.....	21 45	3	7 54.7	14 58	5.8
Sun Jun 29/Mon Jun 30	16 59	20 54	22 43	4 33	6 21	15 41	21 32	.....	22 22	7	8 42.2	12 26	5.8
Mon Jun 30/Tue Jul 01	17 03	20 54	22 43	4 33	6 22	15 45	21 37	.....	22 56	13	9 28.5	9 23	5.8

Calendar for Cheddar Ranch, west longitude (h.m.s) = 6 34 04, latitude (d.m) = 35 46.0
 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.

***** 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	17 07	20 54	22 42	4 34	6 22	15 49	21 41	.....	23 28	20	10 14.0	5 56	5.9
Wed Jul 02/Thu Jul 03	17 11	20 54	22 42	4 35	6 23	15 52	21 46	.....	23 59	28	10 59.2	2 11	5.9
Thu Jul 03/Fri Jul 04	17 14	20 54	22 42	4 35	6 23	15 56	21 50	.....	0 30	37	11 44.6	- 1 43	5.9
Fri Jul 04/Sat Jul 05	17 18	20 54	22 41	4 36	6 24	16 00	21 55	.....	1 02	47	12 31.1	- 5 39	5.9
Sat Jul 05/Sun Jul 06	17 22	20 54	22 41	4 37	6 24	16 03	22 00	.....	1 36	57	13 19.3	- 9 29	5.9
Sun Jul 06/Mon Jul 07	17 26	20 53	22 41	4 37	6 25	16 07	22 04	.....	2 13	67	14 10.1	-13 01	5.9
Mon Jul 07/Tue Jul 08	17 30	20 53	22 40	4 38	6 25	16 10	22 09	.....	2 55	77	15 03.9	-16 04	6.0
Tue Jul 08/Wed Jul 09	17 34	20 53	22 40	4 39	6 26	16 14	22 14	.....	3 42	85	16 01.2	-18 21	6.0
Wed Jul 09/Thu Jul 10	17 38	20 53	22 39	4 40	6 26	16 17	22 19	.....	4 37	93	17 01.7	-19 37	6.0
Thu Jul 10/Fri Jul 11	17 42	20 52	22 38	4 41	6 27	16 20	22 24	.....	5 39	98	18 04.5	-19 40	6.0
Fri Jul 11/Sat Jul 12	17 46	20 52	22 38	4 42	6 28	16 24	22 28	.....	20 06	100	19 08.2	-18 22	6.1
Sat Jul 12/Sun Jul 13	17 50	20 52	22 37	4 43	6 28	16 27	22 33	.....	20 59	99	20 11.2	-15 48	6.1
Sun Jul 13/Mon Jul 14	17 54	20 51	22 36	4 44	6 29	16 30	22 38	.....	21 46	95	21 12.4	-12 11	6.1
Mon Jul 14/Tue Jul 15	17 58	20 51	22 36	4 45	6 30	16 33	22 43	.....	22 30	89	22 11.1	- 7 52	6.1
Tue Jul 15/Wed Jul 16	18 02	20 50	22 35	4 46	6 30	16 37	22 48	.....	23 10	80	23 07.5	- 3 13	6.2
Wed Jul 16/Thu Jul 17	18 06	20 50	22 34	4 47	6 31	16 40	22 53	.....	23 48	70	0 02.0	1 27	6.2
Thu Jul 17/Fri Jul 18	18 10	20 49	22 33	4 48	6 32	16 43	22 58	.....	0 25	59	0 55.0	5 52	6.2
Fri Jul 18/Sat Jul 19	18 14	20 49	22 32	4 49	6 32	16 46	23 03	.....	1 03	48	1 47.3	9 47	6.3
Sat Jul 19/Sun Jul 20	18 18	20 48	22 31	4 50	6 33	16 49	23 08	.....	1 42	38	2 39.1	13 05	6.3
Sun Jul 20/Mon Jul 21	18 21	20 48	22 31	4 51	6 34	16 52	23 13	.....	2 23	28	3 30.9	15 37	6.3
Mon Jul 21/Tue Jul 22	18 25	20 47	22 30	4 52	6 34	16 55	23 18	.....	3 08	20	4 22.5	17 18	6.4
Tue Jul 22/Wed Jul 23	18 29	20 46	22 29	4 53	6 35	16 58	23 23	.....	3 55	13	5 13.9	18 07	6.4
Wed Jul 23/Thu Jul 24	18 33	20 46	22 28	4 54	6 36	17 01	23 28	.....	4 44	7	6 04.7	18 04	6.4
Thu Jul 24/Fri Jul 25	18 37	20 45	22 26	4 55	6 37	17 03	23 33	.....	5 36	19	6 54.6	17 10	6.5
Fri Jul 25/Sat Jul 26	18 41	20 44	22 25	4 56	6 37	17 06	23 38	.....	6 29	19	7 43.5	15 30	6.5
Sat Jul 26/Sun Jul 27	18 45	20 43	22 24	4 57	6 38	17 09	23 43	.....	20 22	0	8 31.1	13 10	6.6
Sun Jul 27/Mon Jul 28	18 49	20 43	22 23	4 58	6 39	17 12	23 48	.....	20 58	2	9 17.6	10 17	6.6
Mon Jul 28/Tue Jul 29	18 53	20 42	22 22	5 00	6 40	17 15	23 53	.....	21 31	5	10 03.2	6 58	6.6
Tue Jul 29/Wed Jul 30	18 57	20 41	22 21	5 01	6 40	17 17	23 58	.....	22 02	9	10 48.2	3 20	6.7
Wed Jul 30/Thu Jul 31	19 01	20 40	22 19	5 02	6 41	17 20	0 04	.....	22 33	15	11 33.1	- 0 28	6.7
Thu Jul 31/Fri Aug 01	19 05	20 39	22 18	5 03	6 42	17 23	0 09	.....	23 04	23	12 18.6	- 4 19	6.7

***** 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	19 09	20 38	22 17	5 04	6 43	17 25	0 14	.....	23 37	32	13 05.3	- 8 06	6.8
Sat Aug 02/Sun Aug 03	19 13	20 37	22 16	5 05	6 44	17 28	0 19	.....	0 11	41	13 53.9	-11 39	6.8
Sun Aug 03/Mon Aug 04	19 17	20 36	22 14	5 06	6 44	17 31	0 24	.....	0 50	51	14 44.9	-14 47	6.9
Mon Aug 04/Tue Aug 05	19 21	20 36	22 13	5 08	6 45	17 33	0 29	.....	1 34	62	15 39.0	-17 19	6.9
Tue Aug 05/Wed Aug 06	19 25	20 35	22 12	5 09	6 46	17 36	0 34	.....	2 23	72	16 36.3	-19 00	7.0
Wed Aug 06/Thu Aug 07	19 29	20 33	22 10	5 10	6 47	17 38	0 39	.....	3 20	82	17 36.5	-19 37	7.0
Thu Aug 07/Fri Aug 08	19 32	20 32	22 09	5 11	6 47	17 41	0 44	.....	4 23	90	18 38.6	-18 59	7.0
Fri Aug 08/Sat Aug 09	19 36	20 31	22 07	5 12	6 48	17 44	0 49	.....	5 31	96	19 41.6	-17 04	7.1
Sat Aug 09/Sun Aug 10	19 40	20 30	22 06	5 13	6 49	17 46	0 55	.....	19 34	99	20 44.0	-13 58	7.1
Sun Aug 10/Mon Aug 11	19 44	20 29	22 05	5 14	6 50	17 49	1 00	.....	20 20	100	21 44.9	- 9 56	7.2
Mon Aug 11/Tue Aug 12	19 48	20 28	22 03	5 16	6 51	17 51	1 05	.....	21 03	97	22 44.0	- 5 19	7.2
Tue Aug 12/Wed Aug 13	19 52	20 27	22 02	5 17	6 51	17 53	1 10	.....	21 43	91	23 41.2	- 0 29	7.3
Wed Aug 13/Thu Aug 14	19 56	20 26	22 00	5 18	6 52	17 56	1 15	.....	22 22	83	0 36.9	4 11	7.3
Thu Aug 14/Fri Aug 15	20 00	20 25	21 59	5 19	6 53	17 58	1 20	.....	23 01	74	1 31.4	8 26	7.3
Fri Aug 15/Sat Aug 16	20 04	20 24	21 57	5 20	6 54	18 01	1 25	.....	23 41	63	2 25.1	12 02	7.4
Sat Aug 16/Sun Aug 17	20 08	20 22	21 56	5 21	6 54	18 03	1 30	.....	0 23	53	3 18.2	14 51	7.4
Sun Aug 17/Mon Aug 18	20 12	20 21	21 54	5 22	6 55	18 06	1 35	.....	1 06	42	4 10.8	16 49	7.5
Mon Aug 18/Tue Aug 19	20 16	20 20	21 53	5 23	6 56	18 08	1 40	.....	1 53	33	5 02.7	17 52	7.5
Tue Aug 19/Wed Aug 20	20 20	20 19	21 51	5 24	6 57	18 10	1 45	.....	2 42	24	5 53.9	18 02	7.6
Wed Aug 20/Thu Aug 21	20 24	20 17	21 49	5 26	6 58	18 13	1 50	.....	3 33	16	6 44.0	17 21	7.6
Thu Aug 21/Fri Aug 22	20 28	20 16	21 48	5 27	6 58	18 15	1 55	.....	4 25	10	7 33.0	15 53	7.6
Fri Aug 22/Sat Aug 23	20 32	20 15	21 46	5 28	6 59	18 17	2 00	.....	5 18	5	8 20.8	13 44	7.7
Sat Aug 23/Sun Aug 24	20 36	20 14	21 45	5 29	7 00	18 20	2 05	.....	6 12	2	9 07.4	11 01	7.7
Sun Aug 24/Mon Aug 25	20 39	20 12	21 43	5 30	7 01	18 22	2 10	.....	19 33	0	9 53.2	7 49	7.8
Mon Aug 25/Tue Aug 26	20 43	20 11	21 41	5 31	7 01	18 24	2 15	.....	20 05	0	10 38.3	4 18	7.8
Tue Aug 26/Wed Aug 27	20 47	20 10	21 40	5 32	7 02	18 27	2 20	.....	20 36	2	11 23.2	0 34	7.9
Wed Aug 27/Thu Aug 28	20 51	20 08	21 38	5 33	7 03	18 29	2 25	.....	21 07	6	12 08.5	- 3 15	7.9
Thu Aug 28/Fri Aug 29	20 55	20 07	21 37	5 34	7 04	18 31	2 30	.....	21 40	11	12 54.6	- 7 01	8.0
Fri Aug 29/Sat Aug 30	20 59	20 05	21 35	5 35	7 05	18 34	2 35	.....	22 13	18	13 42.2	-10 34	8.0
Sat Aug 30/Sun Aug 31	21 03	20 04	21 33	5 36	7 05	18 36	2 40	.....	22 50	27	14 31.6	-13 45	8.0
Sun Aug 31/Mon Sep 01	21 07	20 03	21 32	5 37	7 06	18 38	2 45	.....	23 31	36	15 23.5	-16 23	8.1

Calendar for Cheddar Ranch, west longitude (h.m.s) = 6 34 04, latitude (d.m) = 35 46.0
 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.

***** 2014 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
Mon Sep 01/Tue Sep 02	21 11	20 01	21 30	5 38	7 07	18 41	2 50	.....	0 17	47	16 18.0	-18 16	8.1
Tue Sep 02/Wed Sep 03	21 15	20 00	21 28	5 39	7 08	18 43	2 55	.....	1 09	58	17 15.1	-19 14	8.2
Wed Sep 03/Thu Sep 04	21 19	19 59	21 27	5 40	7 08	18 45	3 00	.....	2 07	68	18 14.3	-19 07	8.2
Thu Sep 04/Fri Sep 05	21 23	19 57	21 25	5 41	7 09	18 48	3 05	.....	3 10	79	19 14.8	-17 48	8.3
Fri Sep 05/Sat Sep 06	21 27	19 56	21 24	5 42	7 10	18 50	3 10	17 21	4 18	88	20 15.8	-15 19	8.3
Sat Sep 06/Sun Sep 07	21 31	19 54	21 22	5 43	7 11	18 52	3 15	18 08	5 28	95	21 16.4	-11 47	8.3
Sun Sep 07/Mon Sep 08	21 35	19 53	21 20	5 44	7 11	18 55	3 19	18 53	6 39	99	22 16.1	- 7 29	8.4
Mon Sep 08/Tue Sep 09	21 39	19 51	21 19	5 45	7 12	18 57	3 24	19 34	.....	100	23 14.6	- 2 43	8.4
Tue Sep 09/Wed Sep 10	21 43	19 50	21 17	5 46	7 13	18 59	3 29	20 15	.....	98	0 12.0	2 07	8.5
Wed Sep 10/Thu Sep 11	21 47	19 48	21 15	5 47	7 14	19 01	3 34	20 55	.....	93	1 08.6	6 40	8.5
Thu Sep 11/Fri Sep 12	21 50	19 47	21 14	5 48	7 14	19 04	3 39	21 35	.....	86	2 04.5	10 39	8.6
Fri Sep 12/Sat Sep 13	21 54	19 46	21 12	5 48	7 15	19 06	3 44	22 17	.....	78	2 59.7	13 52	8.6
Sat Sep 13/Sun Sep 14	21 58	19 44	21 11	5 49	7 16	19 08	3 49	23 02	.....	68	3 54.3	16 11	8.6
Sun Sep 14/Mon Sep 15	22 02	19 43	21 09	5 50	7 17	19 11	3 54	23 48	.....	58	4 47.9	17 33	8.7
Mon Sep 15/Tue Sep 16	22 06	19 41	21 07	5 51	7 17	19 13	3 58	0 37	.....	48	5 40.4	17 59	8.7
Tue Sep 16/Wed Sep 17	22 10	19 40	21 06	5 52	7 18	19 15	4 03	1 28	.....	39	6 31.6	17 31	8.8
Wed Sep 17/Thu Sep 18	22 14	19 38	21 04	5 53	7 19	19 18	4 08	2 20	.....	29	7 21.3	16 15	8.8
Thu Sep 18/Fri Sep 19	22 18	19 37	21 02	5 54	7 20	19 20	4 13	3 13	.....	21	8 09.5	14 17	8.9
Fri Sep 19/Sat Sep 20	22 22	19 35	21 01	5 55	7 21	19 22	4 18	4 06	16 59	14	8 56.5	11 42	8.9
Sat Sep 20/Sun Sep 21	22 26	19 34	20 59	5 56	7 21	19 25	4 23	5 00	17 34	8	9 42.4	8 39	8.9
Sun Sep 21/Mon Sep 22	22 30	19 32	20 58	5 56	7 22	19 27	4 27	5 54	18 07	4	10 27.7	5 13	9.0
Mon Sep 22/Tue Sep 23	22 34	19 31	20 56	5 57	7 23	19 29	4 32	6 49	18 38	1	11 12.8	1 32	9.0
Tue Sep 23/Wed Sep 24	22 38	19 29	20 55	5 58	7 24	19 32	4 37	.....	19 10	0	11 58.2	- 2 15	9.1
Wed Sep 24/Thu Sep 25	22 42	19 28	20 53	5 59	7 24	19 34	4 42	.....	19 42	1	12 44.3	- 6 02	9.1
Thu Sep 25/Fri Sep 26	22 46	19 26	20 52	6 00	7 25	19 37	4 47	.....	20 15	4	13 31.7	- 9 38	9.1
Fri Sep 26/Sat Sep 27	22 50	19 25	20 50	6 01	7 26	19 39	4 51	.....	20 52	8	14 20.8	-12 54	9.2
Sat Sep 27/Sun Sep 28	22 54	19 23	20 48	6 02	7 27	19 41	4 56	.....	21 31	15	15 11.9	-15 38	9.2
Sun Sep 28/Mon Sep 29	22 57	19 22	20 47	6 02	7 27	19 44	5 01	.....	22 15	23	16 05.1	-17 41	9.3
Mon Sep 29/Tue Sep 30	23 01	19 21	20 45	6 03	7 28	19 46	5 06	.....	23 04	32	17 00.5	-18 52	9.3
Tue Sep 30/Wed Oct 01	23 05	19 19	20 44	6 04	7 29	19 49	5 10	.....	23 59	43	17 57.5	-19 02	9.3

***** 2014 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
Wed Oct 01/Thu Oct 02	23 09	19 18	20 42	6 05	7 30	19 51	5 15	.....	0 59	54	18 55.7	-18 07	9.4
Thu Oct 02/Fri Oct 03	23 13	19 16	20 41	6 06	7 31	19 54	5 20	.....	2 02	65	19 54.4	-16 06	9.4
Fri Oct 03/Sat Oct 04	23 17	19 15	20 40	6 07	7 31	19 56	5 25	.....	3 09	76	20 52.9	-13 04	9.5
Sat Oct 04/Sun Oct 05	23 21	19 13	20 38	6 07	7 32	19 59	5 30	16 44	4 17	85	21 51.0	- 9 11	9.5
Sun Oct 05/Mon Oct 06	23 25	19 12	20 37	6 08	7 33	20 01	5 34	17 26	5 26	93	22 48.4	- 4 43	9.5
Mon Oct 06/Tue Oct 07	23 29	19 11	20 35	6 09	7 34	20 04	5 39	18 06	6 35	98	23 45.5	0 01	9.6
Tue Oct 07/Wed Oct 08	23 33	19 09	20 34	6 10	7 35	20 06	5 44	18 46	.....	100	0 42.3	4 42	9.6
Wed Oct 08/Thu Oct 09	23 37	19 08	20 33	6 11	7 36	20 09	5 49	19 26	.....	99	1 39.0	9 00	9.6
Thu Oct 09/Fri Oct 10	23 41	19 06	20 31	6 12	7 36	20 11	5 53	20 08	.....	96	2 35.6	12 38	9.7
Fri Oct 10/Sat Oct 11	23 45	19 05	20 30	6 12	7 37	20 14	5 58	20 52	.....	90	3 32.0	15 24	9.7
Sat Oct 11/Sun Oct 12	23 49	19 04	20 28	6 13	7 38	20 17	6 03	21 39	.....	83	4 27.6	17 11	9.7
Sun Oct 12/Mon Oct 13	23 53	19 02	20 27	6 14	7 39	20 19	6 08	22 28	.....	74	5 22.2	17 58	9.8
Mon Oct 13/Tue Oct 14	23 57	19 01	20 26	6 15	7 40	20 22	6 12	23 19	.....	65	6 15.2	17 48	9.8
Tue Oct 14/Wed Oct 15	0 01	19 00	20 25	6 16	7 41	20 25	6 17	0 12	.....	55	7 06.4	16 46	9.9
Wed Oct 15/Thu Oct 16	0 04	18 58	20 23	6 16	7 42	20 27	6 22	1 05	.....	45	7 55.8	14 58	9.9
Thu Oct 16/Fri Oct 17	0 08	18 57	20 22	6 17	7 42	20 30	6 27	1 59	.....	36	8 43.5	12 32	9.9
Fri Oct 17/Sat Oct 18	0 12	18 56	20 21	6 18	7 43	20 33	6 32	2 52	.....	27	9 29.8	9 36	10.0
Sat Oct 18/Sun Oct 19	0 16	18 55	20 20	6 19	7 44	20 35	6 36	3 46	16 07	19	10 15.3	6 16	10.0
Sun Oct 19/Mon Oct 20	0 20	18 53	20 18	6 20	7 45	20 38	6 41	4 41	16 39	13	11 00.5	2 39	10.0
Mon Oct 20/Tue Oct 21	0 24	18 52	20 17	6 21	7 46	20 41	6 46	5 36	17 10	7	11 45.8	- 1 07	10.1
Tue Oct 21/Wed Oct 22	0 28	18 51	20 16	6 21	7 47	20 44	6 51	6 32	17 42	3	12 31.8	- 4 56	10.1
Wed Oct 22/Thu Oct 23	0 32	18 50	20 15	6 22	7 48	20 46	6 55	7 29	18 15	1	13 19.2	- 8 37	10.1
Thu Oct 23/Fri Oct 24	0 36	18 48	20 14	6 23	7 49	20 49	7 00	.....	18 51	0	14 08.3	-12 01	10.2
Fri Oct 24/Sat Oct 25	0 40	18 47	20 13	6 24	7 50	20 52	7 05	.....	19 30	2	14 59.4	-14 56	10.2
Sat Oct 25/Sun Oct 26	0 44	18 46	20 12	6 25	7 51	20 55	7 10	.....	20 13	6	15 52.7	-17 11	10.2
Sun Oct 26/Mon Oct 27	0 48	18 45	20 11	6 26	7 52	20 58	7 15	.....	21 01	11	16 48.0	-18 35	10.2
Mon Oct 27/Tue Oct 28	0 52	18 44	20 10	6 26	7 52	21 01	7 19	.....	21 55	19	17 44.7	-18 59	10.3
Tue Oct 28/Wed Oct 29	0 56	18 43	20 09	6 27	7 53	21 04	7 24	.....	22 53	28	18 42.2	-18 19	10.3
Wed Oct 29/Thu Oct 30	1 00	18 42	20 08	6 28	7 54	21 07	7 29	.....	23 55	39	19 39.8	-16 36	10.3
Thu Oct 30/Fri Oct 31	1 04	18 41	20 07	6 29	7 55	21 10	7 34	.....	0 59	50	20 36.9	-13 53	10.4
Fri Oct 31/Sat Nov 01	1 08	18 40	20 06	6 30	7 56	21 13	7 38	.....	2 05	62	21 33.3	-10 20	10.4

Calendar for Cheddar Ranch, west longitude (h.m.s) = 6 34 04, latitude (d.m) = 35 46.0
 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.

***** 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*	1 12	18 39	20 05	5 31	6 57	21 16	7 43	.....	2 11	73	22 29.0	- 6 11	10.4
Sun Nov 02/Mon Nov 03	2 16	17 38	19 04	5 31	6 58	21 19	7 48	.....	3 18	83	23 25.8	- 1 27	10.5
Mon Nov 03/Tue Nov 04	2 20	17 37	19 03	5 32	6 59	21 22	7 53	.....	4 24	91	0 20.9	3 09	10.5
Tue Nov 04/Wed Nov 05	2 24	17 36	19 02	5 33	7 00	21 25	7 58	16 19	5 31	96	1 16.4	7 32	10.5
Wed Nov 05/Thu Nov 06	2 27	17 35	19 02	5 34	7 01	21 28	8 02	16 59	6 36	99	2 12.4	11 25	10.5
Thu Nov 06/Fri Nov 07	2 31	17 34	19 01	5 35	7 02	21 31	8 07	17 42	7 40	100	3 08.9	14 34	10.6
Fri Nov 07/Sat Nov 08	2 35	17 33	19 00	5 36	7 03	21 35	8 12	18 28	.....	98	4 05.5	16 48	10.6
Sat Nov 08/Sun Nov 09	2 39	17 32	18 59	5 37	7 04	21 38	8 17	19 16	.....	93	5 01.6	18 00	10.6
Sun Nov 09/Mon Nov 10	2 43	17 31	18 59	5 37	7 05	21 41	8 22	20 07	.....	87	5 56.5	18 11	10.6
Mon Nov 10/Tue Nov 11	2 47	17 30	18 58	5 38	7 06	21 44	8 26	21 00	.....	80	6 49.7	17 25	10.7
Tue Nov 11/Wed Nov 12	2 51	17 30	18 57	5 39	7 07	21 48	8 31	21 54	.....	71	7 40.9	15 49	10.7
Wed Nov 12/Thu Nov 13	2 55	17 29	18 57	5 40	7 08	21 51	8 36	22 48	.....	62	8 30.1	13 31	10.7
Thu Nov 13/Fri Nov 14	2 59	17 28	18 56	5 41	7 09	21 54	8 41	23 42	.....	53	9 17.4	10 41	10.7
Fri Nov 14/Sat Nov 15	3 03	17 28	18 56	5 42	7 10	21 58	8 46	0 36	.....	43	10 03.5	7 25	10.8
Sat Nov 15/Sun Nov 16	3 07	17 27	18 55	5 43	7 11	22 01	8 50	1 30	.....	34	10 48.8	3 51	10.8
Sun Nov 16/Mon Nov 17	3 11	17 26	18 55	5 43	7 12	22 05	8 55	2 25	.....	26	11 33.9	0 05	10.8
Mon Nov 17/Tue Nov 18	3 15	17 26	18 54	5 44	7 13	22 08	9 00	3 20	.....	18	12 19.7	- 3 44	10.8
Tue Nov 18/Wed Nov 19	3 19	17 25	18 54	5 45	7 14	22 12	9 05	4 17	.....	11	13 06.6	- 7 29	10.9
Wed Nov 19/Thu Nov 20	3 23	17 25	18 53	5 46	7 15	22 15	9 10	5 15	15 48	6	13 55.3	-11 00	10.9
Thu Nov 20/Fri Nov 21	3 27	17 24	18 53	5 47	7 16	22 19	9 14	6 15	16 25	2	14 46.2	-14 06	10.9
Fri Nov 21/Sat Nov 22	3 31	17 24	18 53	5 48	7 17	22 22	9 19	7 16	17 07	0	15 39.5	-16 36	10.9
Sat Nov 22/Sun Nov 23	3 34	17 23	18 52	5 49	7 18	22 26	9 24	8 16	17 54	1	16 35.2	-18 16	10.9
Sun Nov 23/Mon Nov 24	3 38	17 23	18 52	5 49	7 19	22 30	9 29	.....	18 47	4	17 32.6	-18 56	11.0
Mon Nov 24/Tue Nov 25	3 42	17 22	18 52	5 50	7 20	22 33	9 34	.....	19 45	9	18 30.9	-18 31	11.0
Tue Nov 25/Wed Nov 26	3 46	17 22	18 52	5 51	7 21	22 37	9 38	.....	20 47	16	19 29.2	-16 59	11.0
Wed Nov 26/Thu Nov 27	3 50	17 22	18 52	5 52	7 22	22 41	9 43	.....	21 52	25	20 26.6	-14 27	11.0
Thu Nov 27/Fri Nov 28	3 54	17 21	18 51	5 53	7 23	22 45	9 48	.....	22 58	36	21 22.8	-11 04	11.0
Fri Nov 28/Sat Nov 29	3 58	17 21	18 51	5 54	7 24	22 49	9 53	.....	0 03	47	22 17.7	- 7 04	11.0
Sat Nov 29/Sun Nov 30	4 02	17 21	18 51	5 54	7 25	22 52	9 57	.....	1 09	59	23 11.7	- 2 42	11.1
Sun Nov 30/Mon Dec 01	4 06	17 21	18 51	5 55	7 26	22 56	10 02	.....	2 14	70	0 05.2	1 48	11.1

***** 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	4 10	17 21	18 51	5 56	7 27	23 00	10 07	.....	3 18	79	0 58.9	6 10	11.1
Tue Dec 02/Wed Dec 03	4 14	17 20	18 51	5 57	7 27	23 04	10 12	.....	4 22	88	1 53.0	10 09	11.1
Wed Dec 03/Thu Dec 04	4 18	17 20	18 51	5 57	7 28	23 08	10 16	15 37	5 25	94	2 47.9	13 32	11.1
Thu Dec 04/Fri Dec 05	4 22	17 20	18 51	5 58	7 29	23 12	10 21	16 20	6 26	98	3 43.5	16 07	11.1
Fri Dec 05/Sat Dec 06	4 26	17 20	18 51	5 59	7 30	23 16	10 26	17 06	7 24	100	4 39.4	17 45	11.1
Sat Dec 06/Sun Dec 07	4 30	17 20	18 51	6 00	7 31	23 20	10 30	17 56	8 17	99	5 34.8	18 22	11.1
Sun Dec 07/Mon Dec 08	4 34	17 20	18 51	6 00	7 32	23 24	10 35	18 48	.....	97	6 29.2	18 00	11.2
Mon Dec 08/Tue Dec 09	4 38	17 20	18 52	6 01	7 32	23 28	10 40	19 42	.....	92	7 21.9	16 43	11.2
Tue Dec 09/Wed Dec 10	4 42	17 20	18 52	6 02	7 33	23 32	10 44	20 37	.....	86	8 12.5	14 39	11.2
Wed Dec 10/Thu Dec 11	4 45	17 21	18 52	6 03	7 34	23 37	10 49	21 32	.....	78	9 01.2	11 58	11.2
Thu Dec 11/Fri Dec 12	4 49	17 21	18 52	6 03	7 35	23 41	10 54	22 26	.....	70	9 48.1	8 49	11.2
Fri Dec 12/Sat Dec 13	4 53	17 21	18 52	6 04	7 35	23 45	10 58	23 20	.....	61	10 33.9	5 19	11.2
Sat Dec 13/Sun Dec 14	4 57	17 21	18 53	6 04	7 36	23 49	11 03	0 13	.....	52	11 19.0	1 37	11.2
Sun Dec 14/Mon Dec 15	5 01	17 21	18 53	6 05	7 37	23 53	11 07	1 08	.....	42	12 04.1	- 2 11	11.2
Mon Dec 15/Tue Dec 16	5 05	17 22	18 53	6 06	7 37	23 58	11 12	2 03	.....	33	12 50.1	- 5 57	11.2
Tue Dec 16/Wed Dec 17	5 09	17 22	18 54	6 06	7 38	0 02	11 16	3 00	.....	24	13 37.6	- 9 34	11.2
Wed Dec 17/Thu Dec 18	5 13	17 22	18 54	6 07	7 39	0 06	11 21	3 59	.....	16	14 27.2	-12 51	11.2
Thu Dec 18/Fri Dec 19	5 17	17 23	18 55	6 07	7 39	0 11	11 25	4 59	.....	9	15 19.4	-15 38	11.2
Fri Dec 19/Sat Dec 20	5 21	17 23	18 55	6 08	7 40	0 15	11 30	6 00	15 44	4	16 14.3	-17 41	11.2
Sat Dec 20/Sun Dec 21	5 25	17 24	18 55	6 09	7 40	0 20	11 34	7 00	16 34	1	17 11.8	-18 48	11.2
Sun Dec 21/Mon Dec 22	5 29	17 24	18 56	6 09	7 41	0 24	11 39	7 57	17 30	0	18 10.9	-18 49	11.2
Mon Dec 22/Tue Dec 23	5 33	17 25	18 56	6 09	7 41	0 28	11 43	.....	18 32	2	19 10.8	-17 40	11.2
Tue Dec 23/Wed Dec 24	5 37	17 25	18 57	6 10	7 42	0 33	11 48	.....	19 38	6	20 10.1	-15 25	11.2
Wed Dec 24/Thu Dec 25	5 41	17 26	18 58	6 10	7 42	0 37	11 52	.....	20 46	13	21 08.2	-12 13	11.2
Thu Dec 25/Fri Dec 26	5 45	17 26	18 58	6 11	7 42	0 42	11 56	.....	21 54	22	22 04.7	- 8 17	11.2
Fri Dec 26/Sat Dec 27	5 49	17 27	18 59	6 11	7 43	0 46	12 01	.....	23 01	32	22 59.6	- 3 57	11.2
Sat Dec 27/Sun Dec 28	5 52	17 28	18 59	6 12	7 43	0 51	12 05	.....	0 07	43	23 53.3	0 34	11.2
Sun Dec 28/Mon Dec 29	5 56	17 28	19 00	6 12	7 43	0 56	12 09	.....	1 11	55	0 46.5	4 58	11.2
Mon Dec 29/Tue Dec 30	6 00	17 29	19 01	6 12	7 44	1 00	12 14	.....	2 15	65	1 39.7	9 01	11.2
Tue Dec 30/Wed Dec 31	6 04	17 30	19 01	6 12	7 44	1 05	12 18	.....	3 17	75	2 33.2	12 33	11.2
Wed Dec 31/Thu Jan 01	6 08	17 31	19 02	6 13	7 44	1 09	12 22	.....	4 17	84	3 27.3	15 20	11.2