

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 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 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 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 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 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.

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

Date (eve/morn)		LMST	----- Sun: -----				LST twilight:		----- Moon: -----				Twi-Twi	
		midn	set	twi.end	twi.beg	rise	eve	morn	rise	set	%illum	RA	Dec	hours
Fri Jan 01/Sat Jan 02		6 14	17 32	19 03	6 13	7 44	1 17	12 28	20 11	.....	89	9 35.2	18 58	11.2
Sat Jan 02/Sun Jan 03		6 18	17 33	19 04	6 13	7 44	1 21	12 33	21 16	.....	82	10 29.0	14 44	11.2
Sun Jan 03/Mon Jan 04		6 22	17 33	19 04	6 13	7 45	1 26	12 37	22 22	.....	72	11 21.1	9 41	11.1
Mon Jan 04/Tue Jan 05		6 26	17 34	19 05	6 14	7 45	1 31	12 41	23 29	.....	62	12 12.1	4 05	11.1
Tue Jan 05/Wed Jan 06		6 30	17 35	19 06	6 14	7 45	1 35	12 45	0 35	.....	51	13 02.7	- 1 45	11.1
Wed Jan 06/Thu Jan 07		6 34	17 36	19 07	6 14	7 45	1 40	12 49	1 43	.....	40	13 54.1	- 7 34	11.1
Thu Jan 07/Fri Jan 08		6 38	17 37	19 08	6 14	7 45	1 45	12 53	2 52	.....	29	14 47.1	-13 03	11.1
Fri Jan 08/Sat Jan 09		6 42	17 38	19 08	6 14	7 44	1 49	12 57	4 03	.....	19	15 42.6	-17 51	11.1
Sat Jan 09/Sun Jan 10		6 46	17 39	19 09	6 14	7 44	1 54	13 01	5 14	.....	11	16 40.9	-21 38	11.1
Sun Jan 10/Mon Jan 11		6 50	17 39	19 10	6 14	7 44	1 59	13 05	6 23	.....	5	17 41.6	-24 06	11.1
Mon Jan 11/Tue Jan 12		6 54	17 40	19 11	6 14	7 44	2 04	13 09	7 26	16 12	1	18 43.3	-25 03	11.0
Tue Jan 12/Wed Jan 13		6 58	17 41	19 12	6 14	7 44	2 09	13 12	8 21	17 13	0	19 44.2	-24 25	11.0
Wed Jan 13/Thu Jan 14		7 02	17 42	19 12	6 14	7 44	2 13	13 16	.....	18 19	1	20 42.8	-22 21	11.0
Thu Jan 14/Fri Jan 15		7 06	17 43	19 13	6 13	7 43	2 18	13 20	.....	19 25	5	21 37.9	-19 07	11.0
Fri Jan 15/Sat Jan 16		7 10	17 44	19 14	6 13	7 43	2 23	13 24	.....	20 30	10	22 29.4	-15 01	11.0
Sat Jan 16/Sun Jan 17		7 13	17 45	19 15	6 13	7 43	2 28	13 28	.....	21 31	17	23 17.5	-10 22	11.0
Sun Jan 17/Mon Jan 18		7 17	17 46	19 16	6 13	7 42	2 33	13 31	.....	22 31	25	0 03.2	- 5 25	10.9
Mon Jan 18/Tue Jan 19		7 21	17 47	19 17	6 13	7 42	2 37	13 35	.....	23 28	34	0 47.3	- 0 20	10.9
Tue Jan 19/Wed Jan 20		7 25	17 48	19 18	6 12	7 41	2 42	13 39	.....	0 24	43	1 30.8	4 40	10.9
Wed Jan 20/Thu Jan 21		7 29	17 49	19 19	6 12	7 41	2 47	13 42	.....	1 20	53	2 14.6	9 28	10.9
Thu Jan 21/Fri Jan 22		7 33	17 50	19 19	6 12	7 40	2 52	13 46	.....	2 17	62	2 59.6	13 55	10.9
Fri Jan 22/Sat Jan 23		7 37	17 51	19 20	6 11	7 40	2 57	13 49	.....	3 14	71	3 46.7	17 51	10.8
Sat Jan 23/Sun Jan 24		7 41	17 52	19 21	6 11	7 39	3 02	13 53	.....	4 13	79	4 36.5	21 05	10.8
Sun Jan 24/Mon Jan 25		7 45	17 53	19 22	6 10	7 39	3 06	13 56	.....	5 11	87	5 29.2	23 24	10.8
Mon Jan 25/Tue Jan 26		7 49	17 55	19 23	6 10	7 38	3 11	14 00	.....	6 07	93	6 24.5	24 35	10.8
Tue Jan 26/Wed Jan 27		7 53	17 56	19 24	6 09	7 38	3 16	14 03	15 54	7 00	97	7 21.7	24 28	10.8
Wed Jan 27/Thu Jan 28		7 57	17 57	19 25	6 09	7 37	3 21	14 07	16 53	7 48	100	8 19.5	22 57	10.7
Thu Jan 28/Fri Jan 29		8 01	17 58	19 26	6 08	7 36	3 26	14 10	17 58	.....	100	9 16.8	20 05	10.7
Fri Jan 29/Sat Jan 30		8 05	17 59	19 27	6 08	7 35	3 31	14 13	19 05	.....	97	10 12.6	16 01	10.7
Sat Jan 30/Sun Jan 31		8 09	18 00	19 28	6 07	7 35	3 35	14 17	20 13	.....	92	11 06.6	11 00	10.7
Sun Jan 31/Mon Feb 01		8 13	18 01	19 28	6 07	7 34	3 40	14 20	21 20	.....	85	11 59.0	5 22	10.6

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

Date (eve/morn)		LMST	----- Sun: -----				LST twilight:		----- Moon: -----				Twi-Twi	
		midn	set	twi.end	twi.beg	rise	eve	morn	rise	set	%illum	RA	Dec	hours
Mon Feb 01/Tue Feb 02		8 17	18 02	19 29	6 06	7 33	3 45	14 23	22 28	.....	76	12 50.7	- 0 35	10.6
Tue Feb 02/Wed Feb 03		8 20	18 03	19 30	6 05	7 32	3 50	14 27	23 35	.....	66	13 42.4	- 6 31	10.6
Wed Feb 03/Thu Feb 04		8 24	18 04	19 31	6 04	7 31	3 55	14 30	0 44	.....	55	14 35.0	-12 06	10.6
Thu Feb 04/Fri Feb 05		8 28	18 05	19 32	6 04	7 31	4 00	14 33	1 53	.....	43	15 29.5	-17 02	10.5
Fri Feb 05/Sat Feb 06		8 32	18 06	19 33	6 03	7 30	4 05	14 36	3 03	.....	32	16 26.2	-21 00	10.5
Sat Feb 06/Sun Feb 07		8 36	18 07	19 34	6 02	7 29	4 09	14 39	4 11	.....	23	17 25.1	-23 45	10.5
Sun Feb 07/Mon Feb 08		8 40	18 08	19 35	6 01	7 28	4 14	14 43	5 15	.....	14	18 25.2	-25 04	10.4
Mon Feb 08/Tue Feb 09		8 44	18 09	19 36	6 00	7 27	4 19	14 46	6 11	.....	7	19 25.2	-24 52	10.4
Tue Feb 09/Wed Feb 10		8 48	18 10	19 37	6 00	7 26	4 24	14 49	7 00	16 02	3	20 23.5	-23 14	10.4
Wed Feb 10/Thu Feb 11		8 52	18 11	19 37	5 59	7 25	4 29	14 52	7 41	17 08	1	21 19.1	-20 22	10.4
Thu Feb 11/Fri Feb 12		8 56	18 12	19 38	5 58	7 24	4 34	14 55	.....	18 13	0	22 11.4	-16 32	10.3
Fri Feb 12/Sat Feb 13		9 00	18 13	19 39	5 57	7 23	4 38	14 58	.....	19 16	2	23 00.6	-12 01	10.3
Sat Feb 13/Sun Feb 14		9 04	18 14	19 40	5 56	7 22	4 43	15 01	.....	20 17	6	23 47.1	- 7 05	10.3
Sun Feb 14/Mon Feb 15		9 08	18 15	19 41	5 55	7 21	4 48	15 04	.....	21 15	12	0 31.8	- 1 59	10.2
Mon Feb 15/Tue Feb 16		9 12	18 16	19 42	5 54	7 20	4 53	15 07	.....	22 13	19	1 15.6	3 06	10.2
Tue Feb 16/Wed Feb 17		9 16	18 17	19 43	5 53	7 18	4 58	15 09	.....	23 09	26	1 59.2	8 01	10.2
Wed Feb 17/Thu Feb 18		9 20	18 18	19 44	5 52	7 17	5 03	15 12	.....	0 06	35	2 43.7	12 36	10.1
Thu Feb 18/Fri Feb 19		9 24	18 19	19 45	5 51	7 16	5 08	15 15	.....	1 03	44	3 29.6	16 43	10.1
Fri Feb 19/Sat Feb 20		9 28	18 20	19 46	5 50	7 15	5 12	15 18	.....	2 00	54	4 17.8	20 10	10.1
Sat Feb 20/Sun Feb 21		9 31	18 21	19 46	5 48	7 14	5 17	15 21	.....	2 58	63	5 08.6	22 47	10.0
Sun Feb 21/Mon Feb 22		9 35	18 22	19 47	5 47	7 12	5 22	15 24	.....	3 55	72	6 02.2	24 23	10.0
Mon Feb 22/Tue Feb 23		9 39	18 23	19 48	5 46	7 11	5 27	15 26	.....	4 49	81	6 58.0	24 46	10.0
Tue Feb 23/Wed Feb 24		9 43	18 24	19 49	5 45	7 10	5 32	15 29	.....	5 39	88	7 55.3	23 48	9.9
Wed Feb 24/Thu Feb 25		9 47	18 25	19 50	5 44	7 09	5 37	15 32	.....	6 23	94	8 52.9	21 26	9.9
Thu Feb 25/Fri Feb 26		9 51	18 26	19 51	5 43	7 07	5 41	15 35	16 45	7 03	98	9 49.8	17 44	9.9
Fri Feb 26/Sat Feb 27		9 55	18 27	19 52	5 41	7 06	5 46	15 37	17 54	7 39	100	10 45.4	12 55	9.8
Sat Feb 27/Sun Feb 28		9 59	18 28	19 53	5 40	7 05	5 51	15 40	19 04	.....	99	11 39.8	7 16	9.8
Sun Feb 28/Mon Mar 01		10 03	18 29	19 54	5 39	7 04	5 56	15 43	20 14	.....	95	12 33.3	1 09	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.

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

Date (eve/morn)	LMST midn	----- Sun: -----				LST twilight:		----- Moon: -----				Twi-Twi hours	
		set	twi.end	twi.beg	rise	eve	morn	rise	set	%illum	RA	Dec	
Mon Mar 01/Tue Mar 02	10 07	18 30	19 54	5 38	7 02	6 01	15 45	21 24	.....	88	13 26.7	- 5 05	9.7
Tue Mar 02/Wed Mar 03	10 11	18 30	19 55	5 36	7 01	6 06	15 48	22 34	.....	80	14 20.7	-11 01	9.7
Wed Mar 03/Thu Mar 04	10 15	18 31	19 56	5 35	7 00	6 10	15 51	23 45	.....	69	15 16.2	-16 18	9.6
Thu Mar 04/Fri Mar 05	10 19	18 32	19 57	5 34	6 58	6 15	15 53	0 56	.....	58	16 13.5	-20 36	9.6
Fri Mar 05/Sat Mar 06	10 23	18 33	19 58	5 32	6 57	6 20	15 56	2 05	.....	47	17 12.4	-23 38	9.6
Sat Mar 06/Sun Mar 07	10 27	18 34	19 59	5 31	6 56	6 25	15 58	3 09	.....	36	18 12.4	-25 14	9.5
Sun Mar 07/Mon Mar 08	10 31	18 35	20 00	5 29	6 54	6 30	16 01	4 07	.....	26	19 12.0	-25 20	9.5
Mon Mar 08/Tue Mar 09	10 35	18 36	20 01	5 28	6 53	6 35	16 03	4 57	.....	18	20 10.0	-24 00	9.5
Tue Mar 09/Wed Mar 10	10 38	18 37	20 02	5 27	6 51	6 39	16 06	5 40	.....	10	21 05.4	-21 25	9.4
Wed Mar 10/Thu Mar 11	10 42	18 38	20 02	5 25	6 50	6 44	16 09	6 16	.....	5	21 57.6	-17 49	9.4
Thu Mar 11/Fri Mar 12	10 46	18 38	20 03	5 24	6 49	6 49	16 11	6 48	17 04	2	22 46.8	-13 28	9.3
Fri Mar 12/Sat Mar 13	10 50	18 39	20 04	5 22	6 47	6 54	16 14	7 16	18 05	0	23 33.5	- 8 38	9.3
Sat Mar 13/Sun Mar 14*	10 54	18 40	20 05	6 21	7 46	6 59	16 16	.....	19 04	1	0 18.3	- 3 33	9.3
Sun Mar 14/Mon Mar 15	9 58	19 41	21 06	6 19	7 44	7 04	16 18	.....	21 02	3	0 59.7	1 23	9.2
Mon Mar 15/Tue Mar 16	10 02	19 42	21 07	6 18	7 43	7 09	16 21	.....	21 59	7	1 43.3	6 25	9.2
Tue Mar 16/Wed Mar 17	10 06	19 43	21 08	6 16	7 42	7 13	16 23	.....	22 56	13	2 27.3	11 11	9.1
Wed Mar 17/Thu Mar 18	10 10	19 44	21 09	6 15	7 40	7 18	16 26	.....	23 53	19	3 12.6	15 30	9.1
Thu Mar 18/Fri Mar 19	10 14	19 44	21 10	6 13	7 39	7 23	16 28	.....	0 50	27	3 59.7	19 12	9.1
Fri Mar 19/Sat Mar 20	10 18	19 45	21 11	6 12	7 37	7 28	16 31	.....	1 48	36	4 49.1	22 08	9.0
Sat Mar 20/Sun Mar 21	10 22	19 46	21 12	6 10	7 36	7 33	16 33	.....	2 45	45	5 40.8	24 07	9.0
Sun Mar 21/Mon Mar 22	10 26	19 47	21 13	6 09	7 34	7 38	16 35	.....	3 39	55	6 34.8	24 59	8.9
Mon Mar 22/Tue Mar 23	10 30	19 48	21 14	6 07	7 33	7 43	16 38	.....	4 29	65	7 30.4	24 34	8.9
Tue Mar 23/Wed Mar 24	10 34	19 49	21 15	6 06	7 31	7 48	16 40	.....	5 15	75	8 26.8	22 49	8.9
Wed Mar 24/Thu Mar 25	10 37	19 49	21 15	6 04	7 30	7 53	16 43	.....	5 56	84	9 23.1	19 44	8.8
Thu Mar 25/Fri Mar 26	10 41	19 50	21 16	6 03	7 29	7 57	16 45	.....	6 33	91	10 18.8	15 25	8.8
Fri Mar 26/Sat Mar 27	10 45	19 51	21 17	6 01	7 27	8 02	16 47	.....	7 07	96	11 13.7	10 04	8.7
Sat Mar 27/Sun Mar 28	10 49	19 52	21 18	5 59	7 26	8 07	16 50	.....	18 51	99	12 08.0	4 00	8.7
Sun Mar 28/Mon Mar 29	10 53	19 53	21 19	5 58	7 24	8 12	16 52	.....	20 02	100	13 02.4	- 2 26	8.6
Mon Mar 29/Tue Mar 30	10 57	19 54	21 20	5 56	7 23	8 17	16 54	.....	21 15	97	13 57.6	- 8 47	8.6
Tue Mar 30/Wed Mar 31	11 01	19 54	21 21	5 55	7 21	8 22	16 57	.....	22 28	91	14 54.4	-14 37	8.6
Wed Mar 31/Thu Apr 01	11 05	19 55	21 22	5 53	7 20	8 27	16 59	.....	23 42	83	15 53.2	-19 32	8.5

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

Date (eve/morn)	LMST midn	----- Sun: -----				LST twilight:		----- Moon: -----				Twi-Twi hours	
		set	twi.end	twi.beg	rise	eve	morn	rise	set	%illum	RA	Dec	
Thu Apr 01/Fri Apr 02	11 09	19 56	21 23	5 51	7 19	8 32	17 01	0 54	.....	73	16 53.7	-23 09	8.5
Fri Apr 02/Sat Apr 03	11 13	19 57	21 24	5 50	7 17	8 37	17 04	2 03	.....	63	17 55.2	-25 15	8.4
Sat Apr 03/Sun Apr 04	11 17	19 58	21 25	5 48	7 16	8 42	17 06	3 04	.....	52	18 56.3	-25 46	8.4
Sun Apr 04/Mon Apr 05	11 21	19 59	21 26	5 47	7 14	8 47	17 08	3 57	.....	41	19 55.5	-24 46	8.3
Mon Apr 05/Tue Apr 06	11 25	19 59	21 27	5 45	7 13	8 52	17 11	4 42	.....	31	20 51.7	-22 26	8.3
Tue Apr 06/Wed Apr 07	11 29	20 00	21 28	5 43	7 12	8 57	17 13	5 19	.....	22	21 44.4	-19 04	8.2
Wed Apr 07/Thu Apr 08	11 33	20 01	21 30	5 42	7 10	9 02	17 15	5 51	.....	14	22 33.8	-14 54	8.2
Thu Apr 08/Fri Apr 09	11 37	20 02	21 31	5 40	7 09	9 07	17 18	6 20	16 58	8	23 20.5	-10 11	8.2
Fri Apr 09/Sat Apr 10	11 41	20 03	21 32	5 39	7 08	9 12	17 20	6 46	17 57	4	0 05.2	- 5 10	8.1
Sat Apr 10/Sun Apr 11	11 44	20 04	21 33	5 37	7 06	9 17	17 22	.....	18 55	1	0 48.8	- 0 02	8.1
Sun Apr 11/Mon Apr 12	11 48	20 04	21 34	5 35	7 05	9 22	17 25	.....	19 51	0	1 32.0	5 04	8.0
Mon Apr 12/Tue Apr 13	11 52	20 05	21 35	5 34	7 03	9 27	17 27	.....	20 48	1	2 15.5	9 55	8.0
Tue Apr 13/Wed Apr 14	11 56	20 06	21 36	5 32	7 02	9 32	17 30	.....	21 45	4	3 00.2	14 23	7.9
Wed Apr 14/Thu Apr 15	12 00	20 07	21 37	5 31	7 01	9 37	17 32	.....	22 43	8	3 46.5	18 18	7.9
Thu Apr 15/Fri Apr 16	12 04	20 08	21 38	5 29	7 00	9 42	17 34	.....	23 40	14	4 34.9	21 28	7.8
Fri Apr 16/Sat Apr 17	12 08	20 09	21 39	5 28	6 58	9 47	17 37	.....	0 37	21	5 25.4	23 44	7.8
Sat Apr 17/Sun Apr 18	12 12	20 09	21 40	5 26	6 57	9 52	17 39	.....	1 32	29	6 18.0	24 56	7.8
Sun Apr 18/Mon Apr 19	12 16	20 10	21 42	5 24	6 56	9 57	17 41	.....	2 23	39	7 12.0	24 57	7.7
Mon Apr 19/Tue Apr 20	12 20	20 11	21 43	5 23	6 54	10 02	17 44	.....	3 10	49	8 06.7	23 41	7.7
Tue Apr 20/Wed Apr 21	12 24	20 12	21 44	5 21	6 53	10 07	17 46	.....	3 52	59	9 01.5	21 09	7.6
Wed Apr 21/Thu Apr 22	12 28	20 13	21 45	5 20	6 52	10 12	17 49	.....	4 29	69	9 55.7	17 23	7.6
Thu Apr 22/Fri Apr 23	12 32	20 14	21 46	5 18	6 51	10 18	17 51	.....	5 03	79	10 49.4	12 33	7.5
Fri Apr 23/Sat Apr 24	12 36	20 14	21 47	5 17	6 50	10 23	17 53	.....	5 35	88	11 42.7	6 50	7.5
Sat Apr 24/Sun Apr 25	12 40	20 15	21 48	5 15	6 48	10 28	17 56	.....	6 07	94	12 36.3	0 33	7.4
Sun Apr 25/Mon Apr 26	12 44	20 16	21 50	5 14	6 47	10 33	17 58	.....	6 40	99	13 31.1	- 5 58	7.4
Mon Apr 26/Tue Apr 27	12 48	20 17	21 51	5 12	6 46	10 38	18 01	.....	20 02	100	14 27.9	-12 14	7.4
Tue Apr 27/Wed Apr 28	12 52	20 18	21 52	5 11	6 45	10 43	18 03	.....	21 17	98	15 27.3	-17 48	7.3
Wed Apr 28/Thu Apr 29	12 55	20 19	21 53	5 09	6 44	10 48	18 06	.....	22 34	93	16 29.4	-22 11	7.3
Thu Apr 29/Fri Apr 30	12 59	20 20	21 54	5 08	6 43	10 53	18 08	.....	23 47	86	17 33.3	-25 01	7.2
Fri Apr 30/Sat May 01	13 03	20 20	21 56	5 06	6 42	10 59	18 11	.....	0 54	77	18 37.4	-26 07	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.

***** 2021 MAY *****

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
Sat May 01/Sun May 02	13 07	20 21	21 57	5 05	6 41	11 04	18 13	1 52	.....	67	19 39.6	-25 31	7.1
Sun May 02/Mon May 03	13 11	20 22	21 58	5 04	6 39	11 09	18 16	2 41	.....	56	20 38.5	-23 27	7.1
Mon May 03/Tue May 04	13 15	20 23	21 59	5 02	6 38	11 14	18 18	3 21	.....	46	21 33.2	-20 13	7.1
Tue May 04/Wed May 05	13 19	20 24	22 00	5 01	6 37	11 19	18 21	3 55	.....	35	22 24.0	-16 07	7.0
Wed May 05/Thu May 06	13 23	20 25	22 02	4 59	6 36	11 24	18 23	4 25	.....	26	23 11.4	-11 28	7.0
Thu May 06/Fri May 07	13 27	20 25	22 03	4 58	6 35	11 29	18 26	4 51	.....	18	23 56.4	- 6 28	6.9
Fri May 07/Sat May 08	13 31	20 26	22 04	4 57	6 35	11 35	18 29	5 16	.....	11	0 39.8	- 1 20	6.9
Sat May 08/Sun May 09	13 35	20 27	22 05	4 56	6 34	11 40	18 31	5 41	17 46	6	1 22.7	3 46	6.8
Sun May 09/Mon May 10	13 39	20 28	22 06	4 54	6 33	11 45	18 34	6 07	18 42	2	2 05.8	8 41	6.8
Mon May 10/Tue May 11	13 43	20 29	22 08	4 53	6 32	11 50	18 37	.....	19 39	0	2 49.8	13 16	6.8
Tue May 11/Wed May 12	13 47	20 30	22 09	4 52	6 31	11 55	18 39	.....	20 36	0	3 35.5	17 20	6.7
Wed May 12/Thu May 13	13 51	20 30	22 10	4 51	6 30	12 00	18 42	.....	21 34	2	4 23.2	20 42	6.7
Thu May 13/Fri May 14	13 55	20 31	22 11	4 49	6 29	12 05	18 45	.....	22 32	5	5 13.1	23 13	6.6
Fri May 14/Sat May 15	13 59	20 32	22 12	4 48	6 29	12 11	18 48	.....	23 27	10	6 04.9	24 42	6.6
Sat May 15/Sun May 16	14 02	20 33	22 14	4 47	6 28	12 16	18 50	.....	0 20	16	6 58.1	25 02	6.6
Sun May 16/Mon May 17	14 06	20 34	22 15	4 46	6 27	12 21	18 53	.....	1 07	24	7 51.9	24 08	6.5
Mon May 17/Tue May 18	14 10	20 34	22 16	4 45	6 26	12 26	18 56	.....	1 50	33	8 45.5	22 00	6.5
Tue May 18/Wed May 19	14 14	20 35	22 17	4 44	6 26	12 31	18 59	.....	2 28	43	9 38.4	18 41	6.4
Wed May 19/Thu May 20	14 18	20 36	22 18	4 43	6 25	12 36	19 02	.....	3 02	54	10 30.5	14 20	6.4
Thu May 20/Fri May 21	14 22	20 37	22 19	4 42	6 24	12 41	19 05	.....	3 34	65	11 21.9	9 05	6.4
Fri May 21/Sat May 22	14 26	20 37	22 20	4 41	6 24	12 46	19 08	.....	4 04	75	12 13.5	3 11	6.3
Sat May 22/Sun May 23	14 30	20 38	22 21	4 40	6 23	12 51	19 11	.....	4 35	85	13 06.1	- 3 07	6.3
Sun May 23/Mon May 24	14 34	20 39	22 23	4 39	6 23	12 56	19 14	17 35	5 08	92	14 00.7	- 9 28	6.3
Mon May 24/Tue May 25	14 38	20 40	22 24	4 38	6 22	13 01	19 17	18 49	5 45	98	14 58.3	-15 24	6.2
Tue May 25/Wed May 26	14 42	20 40	22 25	4 37	6 22	13 06	19 20	20 05	6 28	100	15 59.4	-20 27	6.2
Wed May 26/Thu May 27	14 46	20 41	22 26	4 37	6 21	13 11	19 23	21 21	.....	99	17 03.8	-24 08	6.2
Thu May 27/Fri May 28	14 50	20 42	22 27	4 36	6 21	13 16	19 26	22 34	.....	95	18 10.0	-26 05	6.2
Fri May 28/Sat May 29	14 54	20 42	22 28	4 35	6 20	13 21	19 30	23 39	.....	89	19 15.6	-26 11	6.1
Sat May 29/Sun May 30	14 58	20 43	22 29	4 34	6 20	13 26	19 33	0 34	.....	81	20 18.3	-24 34	6.1
Sun May 30/Mon May 31	15 02	20 44	22 30	4 34	6 20	13 31	19 36	1 19	.....	71	21 16.6	-21 34	6.1
Mon May 31/Tue Jun 01	15 06	20 44	22 31	4 33	6 19	13 36	19 39	1 56	.....	61	22 10.3	-17 33	6.0

***** 2021 JUNE *****

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
Tue Jun 01/Wed Jun 02	15 10	20 45	22 31	4 32	6 19	13 41	19 43	2 28	.....	51	22 59.8	-12 54	6.0
Wed Jun 02/Thu Jun 03	15 13	20 46	22 32	4 32	6 19	13 46	19 46	2 55	.....	41	23 46.1	- 7 52	6.0
Thu Jun 03/Fri Jun 04	15 17	20 46	22 33	4 31	6 18	13 50	19 50	3 21	.....	31	0 30.3	- 2 41	6.0
Fri Jun 04/Sat Jun 05	15 21	20 47	22 34	4 31	6 18	13 55	19 53	3 46	.....	23	1 13.3	2 28	5.9
Sat Jun 05/Sun Jun 06	15 25	20 47	22 35	4 31	6 18	14 00	19 57	4 11	.....	15	1 56.3	7 28	5.9
Sun Jun 06/Mon Jun 07	15 29	20 48	22 36	4 30	6 18	14 05	20 00	4 38	17 33	9	2 40.0	12 08	5.9
Mon Jun 07/Tue Jun 08	15 33	20 48	22 36	4 30	6 18	14 09	20 04	5 08	18 30	5	3 25.2	16 19	5.9
Tue Jun 08/Wed Jun 09	15 37	20 49	22 37	4 30	6 18	14 14	20 07	5 41	19 28	1	4 12.3	19 52	5.9
Wed Jun 09/Thu Jun 10	15 41	20 49	22 38	4 29	6 18	14 19	20 11	6 20	20 26	0	5 01.6	22 36	5.9
Thu Jun 10/Fri Jun 11	15 45	20 50	22 38	4 29	6 17	14 23	20 15	.....	21 22	0	5 53.1	24 20	5.8
Fri Jun 11/Sat Jun 12	15 49	20 50	22 39	4 29	6 17	14 28	20 19	.....	22 16	3	6 46.0	24 56	5.8
Sat Jun 12/Sun Jun 13	15 53	20 51	22 39	4 29	6 17	14 32	20 22	.....	23 06	7	7 39.7	24 19	5.8
Sun Jun 13/Mon Jun 14	15 57	20 51	22 40	4 29	6 17	14 37	20 26	.....	23 50	13	8 33.1	22 28	5.8
Mon Jun 14/Tue Jun 15	16 01	20 52	22 40	4 29	6 18	14 41	20 30	.....	0 29	20	9 25.6	19 28	5.8
Tue Jun 15/Wed Jun 16	16 05	20 52	22 41	4 29	6 18	14 45	20 34	.....	1 04	29	10 16.9	15 26	5.8
Wed Jun 16/Thu Jun 17	16 09	20 52	22 41	4 29	6 18	14 50	20 38	.....	1 35	39	11 07.2	10 32	5.8
Thu Jun 17/Fri Jun 18	16 13	20 53	22 42	4 29	6 18	14 54	20 42	.....	2 05	50	11 57.1	4 58	5.8
Fri Jun 18/Sat Jun 19	16 17	20 53	22 42	4 29	6 18	14 58	20 46	.....	2 34	61	12 47.3	- 1 01	5.8
Sat Jun 19/Sun Jun 20	16 20	20 53	22 42	4 29	6 18	15 03	20 50	.....	3 05	72	13 39.1	- 7 10	5.8
Sun Jun 20/Mon Jun 21	16 24	20 53	22 43	4 29	6 18	15 07	20 54	.....	3 39	82	14 33.5	-13 07	5.8
Mon Jun 21/Tue Jun 22	16 28	20 54	22 43	4 29	6 19	15 11	20 59	17 39	4 17	90	15 31.6	-18 28	5.8
Tue Jun 22/Wed Jun 23	16 32	20 54	22 43	4 30	6 19	15 15	21 03	18 54	5 03	96	16 33.6	-22 45	5.8
Wed Jun 23/Thu Jun 24	16 36	20 54	22 43	4 30	6 19	15 19	21 07	20 09	5 57	100	17 38.9	-25 31	5.8
Thu Jun 24/Fri Jun 25	16 40	20 54	22 43	4 30	6 20	15 23	21 11	21 18	.....	100	18 45.6	-26 28	5.8
Fri Jun 25/Sat Jun 26	16 44	20 54	22 43	4 31	6 20	15 27	21 16	22 19	.....	97	19 51.1	-25 34	5.8
Sat Jun 26/Sun Jun 27	16 48	20 54	22 43	4 31	6 20	15 31	21 20	23 10	.....	92	20 53.1	-23 02	5.8
Sun Jun 27/Mon Jun 28	16 52	20 54	22 43	4 32	6 21	15 35	21 25	23 52	.....	84	21 50.4	-19 15	5.8
Mon Jun 28/Tue Jun 29	16 56	20 54	22 43	4 32	6 21	15 39	21 29	0 27	.....	76	22 43.0	-14 38	5.8
Tue Jun 29/Wed Jun 30	17 00	20 54	22 43	4 33	6 21	15 42	21 34	0 57	.....	66	23 31.8	- 9 32	5.8
Wed Jun 30/Thu Jul 01	17 04	20 54	22 43	4 33	6 22	15 46	21 38	1 24	.....	56	0 17.6	- 4 14	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.

***** 2021 JULY *****

Date (eve/morn)		LMST	----- Sun: -----				LST twilight:		----- Moon: -----				Twi-Twi	
		midn	set	twi.end	twi.beg	rise	eve	morn	rise	set	%illum	RA	Dec	hours
Thu Jul 01/Fri Jul 02		17 08	20 54	22 42	4 34	6 22	15 50	21 43	1 49	.....	46	1 01.7	1 03	5.9
Fri Jul 02/Sat Jul 03		17 12	20 54	22 42	4 35	6 23	15 54	21 47	2 14	.....	37	1 45.2	6 10	5.9
Sat Jul 03/Sun Jul 04		17 16	20 54	22 42	4 35	6 23	15 57	21 52	2 41	.....	28	2 28.9	10 58	5.9
Sun Jul 04/Mon Jul 05		17 20	20 54	22 41	4 36	6 24	16 01	21 57	3 09	.....	20	3 13.8	15 18	5.9
Mon Jul 05/Tue Jul 06		17 24	20 54	22 41	4 37	6 24	16 04	22 01	3 41	.....	13	4 00.5	19 01	5.9
Tue Jul 06/Wed Jul 07		17 27	20 53	22 40	4 38	6 25	16 08	22 06	4 18	18 18	7	4 49.3	21 57	6.0
Wed Jul 07/Thu Jul 08		17 31	20 53	22 40	4 39	6 25	16 11	22 11	5 01	19 15	3	5 40.3	23 56	6.0
Thu Jul 08/Fri Jul 09		17 35	20 53	22 39	4 39	6 26	16 15	22 15	5 51	20 11	1	6 33.2	24 48	6.0
Fri Jul 09/Sat Jul 10		17 39	20 53	22 39	4 40	6 27	16 18	22 20	.....	21 02	0	7 27.0	24 28	6.0
Sat Jul 10/Sun Jul 11		17 43	20 52	22 38	4 41	6 27	16 21	22 25	.....	21 49	1	8 20.8	22 52	6.0
Sun Jul 11/Mon Jul 12		17 47	20 52	22 38	4 42	6 28	16 25	22 30	.....	22 30	5	9 13.8	20 05	6.1
Mon Jul 12/Tue Jul 13		17 51	20 51	22 37	4 43	6 28	16 28	22 35	.....	23 06	10	10 05.5	16 15	6.1
Tue Jul 13/Wed Jul 14		17 55	20 51	22 36	4 44	6 29	16 31	22 40	.....	23 38	17	10 55.8	11 32	6.1
Wed Jul 14/Thu Jul 15		17 59	20 51	22 36	4 45	6 30	16 34	22 45	.....	0 08	26	11 45.1	6 09	6.2
Thu Jul 15/Fri Jul 16		18 03	20 50	22 35	4 46	6 30	16 37	22 50	.....	0 37	36	12 34.3	0 21	6.2
Fri Jul 16/Sat Jul 17		18 07	20 50	22 34	4 47	6 31	16 41	22 55	.....	1 06	47	13 24.3	- 5 38	6.2
Sat Jul 17/Sun Jul 18		18 11	20 49	22 33	4 48	6 32	16 44	23 00	.....	1 38	59	14 16.2	-11 29	6.2
Sun Jul 18/Mon Jul 19		18 15	20 49	22 32	4 49	6 33	16 47	23 05	.....	2 13	70	15 11.1	-16 53	6.3
Mon Jul 19/Tue Jul 20		18 19	20 48	22 31	4 50	6 33	16 50	23 10	.....	2 54	80	16 09.7	-21 26	6.3
Tue Jul 20/Wed Jul 21		18 23	20 47	22 30	4 51	6 34	16 53	23 15	17 48	3 43	89	17 12.1	-24 42	6.3
Wed Jul 21/Thu Jul 22		18 27	20 47	22 29	4 52	6 35	16 56	23 20	18 58	4 41	95	18 17.1	-26 22	6.4
Thu Jul 22/Fri Jul 23		18 31	20 46	22 28	4 53	6 35	16 59	23 25	20 03	5 46	99	19 22.7	-26 13	6.4
Fri Jul 23/Sat Jul 24		18 35	20 45	22 27	4 54	6 36	17 01	23 30	20 58	.....	100	20 26.4	-24 19	6.5
Sat Jul 24/Sun Jul 25		18 38	20 45	22 26	4 55	6 37	17 04	23 35	21 44	.....	98	21 26.3	-20 58	6.5
Sun Jul 25/Mon Jul 26		18 42	20 44	22 25	4 57	6 38	17 07	23 40	22 22	.....	94	22 21.7	-16 33	6.5
Mon Jul 26/Tue Jul 27		18 46	20 43	22 24	4 58	6 38	17 10	23 45	22 55	.....	88	23 13.0	-11 28	6.6
Tue Jul 27/Wed Jul 28		18 50	20 42	22 23	4 59	6 39	17 13	23 50	23 24	.....	80	0 01.0	- 6 03	6.6
Wed Jul 28/Thu Jul 29		18 54	20 42	22 22	5 00	6 40	17 15	23 55	23 50	.....	72	0 46.7	- 0 36	6.6
Thu Jul 29/Fri Jul 30		18 58	20 41	22 20	5 01	6 41	17 18	0 00	0 16	.....	62	1 31.2	4 43	6.7
Fri Jul 30/Sat Jul 31		19 02	20 40	22 19	5 02	6 41	17 21	0 05	0 42	.....	53	2 15.5	9 43	6.7
Sat Jul 31/Sun Aug 01		19 06	20 39	22 18	5 03	6 42	17 24	0 10	1 10	.....	43	3 00.5	14 15	6.8

***** 2021 AUGUST *****

Date (eve/morn)		LMST	----- Sun: -----				LST twilight:		----- Moon: -----				Twi-Twi	
		midn	set	twi.end	twi.beg	rise	eve	morn	rise	set	%illum	RA	Dec	hours
Sun Aug 01/Mon Aug 02		19 10	20 38	22 17	5 04	6 43	17 26	0 15	1 40	.....	34	3 46.9	18 10	6.8
Mon Aug 02/Tue Aug 03		19 14	20 37	22 15	5 06	6 44	17 29	0 20	2 15	.....	26	4 35.3	21 20	6.8
Tue Aug 03/Wed Aug 04		19 18	20 36	22 14	5 07	6 45	17 32	0 26	2 56	.....	18	5 25.7	23 35	6.9
Wed Aug 04/Thu Aug 05		19 22	20 35	22 13	5 08	6 45	17 34	0 31	3 43	18 02	11	6 18.2	24 45	6.9
Thu Aug 05/Fri Aug 06		19 26	20 34	22 11	5 09	6 46	17 37	0 36	4 36	18 56	6	7 11.9	24 43	7.0
Fri Aug 06/Sat Aug 07		19 30	20 33	22 10	5 10	6 47	17 39	0 41	5 35	19 44	2	8 06.1	23 26	7.0
Sat Aug 07/Sun Aug 08		19 34	20 32	22 08	5 11	6 48	17 42	0 46	.....	20 27	0	8 59.8	20 54	7.0
Sun Aug 08/Mon Aug 09		19 38	20 31	22 07	5 13	6 48	17 44	0 51	.....	21 06	1	9 52.3	17 14	7.1
Mon Aug 09/Tue Aug 10		19 42	20 30	22 06	5 14	6 49	17 47	0 56	.....	21 40	3	10 43.5	12 38	7.1
Tue Aug 10/Wed Aug 11		19 45	20 29	22 04	5 15	6 50	17 49	1 01	.....	22 11	8	11 33.5	7 19	7.2
Wed Aug 11/Thu Aug 12		19 49	20 28	22 03	5 16	6 51	17 52	1 06	.....	22 40	15	12 22.9	1 31	7.2
Thu Aug 12/Fri Aug 13		19 53	20 27	22 01	5 17	6 52	17 54	1 11	.....	23 09	23	13 12.6	- 4 28	7.3
Fri Aug 13/Sat Aug 14		19 57	20 26	22 00	5 18	6 52	17 57	1 16	.....	23 40	33	14 03.6	-10 20	7.3
Sat Aug 14/Sun Aug 15		20 01	20 24	21 58	5 19	6 53	17 59	1 21	.....	0 13	45	14 56.8	-15 47	7.4
Sun Aug 15/Mon Aug 16		20 05	20 23	21 57	5 20	6 54	18 02	1 27	.....	0 51	56	15 53.2	-20 29	7.4
Mon Aug 16/Tue Aug 17		20 09	20 22	21 55	5 22	6 55	18 04	1 32	.....	1 36	67	16 52.9	-24 02	7.4
Tue Aug 17/Wed Aug 18		20 13	20 21	21 54	5 23	6 56	18 06	1 37	.....	2 29	78	17 55.5	-26 08	7.5
Wed Aug 18/Thu Aug 19		20 17	20 20	21 52	5 24	6 56	18 09	1 42	17 51	3 30	86	18 59.4	-26 33	7.5
Thu Aug 19/Fri Aug 20		20 21	20 18	21 50	5 25	6 57	18 11	1 47	18 48	4 37	93	20 02.5	-25 15	7.6
Fri Aug 20/Sat Aug 21		20 25	20 17	21 49	5 26	6 58	18 13	1 52	19 37	5 46	98	21 03.0	-22 25	7.6
Sat Aug 21/Sun Aug 22		20 29	20 16	21 47	5 27	6 59	18 16	1 57	20 18	.....	100	21 59.7	-18 22	7.7
Sun Aug 22/Mon Aug 23		20 33	20 14	21 46	5 28	6 59	18 18	2 02	20 52	.....	99	22 52.6	-13 27	7.7
Mon Aug 23/Tue Aug 24		20 37	20 13	21 44	5 29	7 00	18 21	2 07	21 22	.....	96	23 42.2	- 8 03	7.7
Tue Aug 24/Wed Aug 25		20 41	20 12	21 43	5 30	7 01	18 23	2 12	21 50	.....	92	0 29.3	- 2 28	7.8
Wed Aug 25/Thu Aug 26		20 45	20 10	21 41	5 31	7 02	18 25	2 17	22 16	.....	85	1 14.9	3 03	7.8
Thu Aug 26/Fri Aug 27		20 49	20 09	21 39	5 32	7 03	18 28	2 22	22 42	.....	77	1 59.9	8 18	7.9
Fri Aug 27/Sat Aug 28		20 53	20 08	21 38	5 33	7 03	18 30	2 27	23 09	.....	69	2 45.2	13 05	7.9
Sat Aug 28/Sun Aug 29		20 56	20 06	21 36	5 34	7 04	18 32	2 32	23 39	.....	60	3 31.6	17 17	8.0
Sun Aug 29/Mon Aug 30		21 00	20 05	21 34	5 35	7 05	18 34	2 37	0 12	.....	50	4 19.7	20 44	8.0
Mon Aug 30/Tue Aug 31		21 04	20 04	21 33	5 36	7 06	18 37	2 42	0 50	.....	41	5 09.6	23 16	8.1
Tue Aug 31/Wed Sep 01		21 08	20 02	21 31	5 37	7 06	18 39	2 47	1 34	.....	32	6 01.5	24 46	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.

***** 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 12	20 01	21 30	5 38	7 07	18 41	2 51	2 25	.....	23	6 54.7	25 06	8.1
Thu Sep 02/Fri Sep 03	21 16	19 59	21 28	5 39	7 08	18 44	2 56	3 22	17 37	15	7 48.8	24 11	8.2
Fri Sep 03/Sat Sep 04	21 20	19 58	21 26	5 40	7 09	18 46	3 01	4 23	18 22	9	8 42.6	22 00	8.2
Sat Sep 04/Sun Sep 05	21 24	19 57	21 25	5 41	7 09	18 48	3 06	5 28	19 02	4	9 35.7	18 38	8.3
Sun Sep 05/Mon Sep 06	21 28	19 55	21 23	5 42	7 10	18 51	3 11	6 34	19 38	1	10 27.7	14 13	8.3
Mon Sep 06/Tue Sep 07	21 32	19 54	21 21	5 43	7 11	18 53	3 16	.....	20 11	0	11 18.6	8 58	8.4
Tue Sep 07/Wed Sep 08	21 36	19 52	21 20	5 44	7 12	18 55	3 21	.....	20 41	2	12 08.8	3 09	8.4
Wed Sep 08/Thu Sep 09	21 40	19 51	21 18	5 45	7 12	18 58	3 26	.....	21 11	6	12 59.2	- 2 57	8.4
Thu Sep 09/Fri Sep 10	21 44	19 49	21 17	5 46	7 13	19 00	3 31	.....	21 41	12	13 50.5	- 9 01	8.5
Fri Sep 10/Sat Sep 11	21 48	19 48	21 15	5 47	7 14	19 02	3 36	.....	22 14	21	14 43.8	-14 42	8.5
Sat Sep 11/Sun Sep 12	21 52	19 47	21 13	5 48	7 15	19 04	3 40	.....	22 51	31	15 39.7	-19 38	8.6
Sun Sep 12/Mon Sep 13	21 56	19 45	21 12	5 49	7 15	19 07	3 45	.....	23 34	42	16 38.5	-23 28	8.6
Mon Sep 13/Tue Sep 14	22 00	19 44	21 10	5 50	7 16	19 09	3 50	.....	0 24	53	17 39.8	-25 54	8.7
Tue Sep 14/Wed Sep 15	22 03	19 42	21 08	5 51	7 17	19 11	3 55	.....	1 22	65	18 42.5	-26 43	8.7
Wed Sep 15/Thu Sep 16	22 07	19 41	21 07	5 51	7 18	19 14	4 00	16 43	2 26	75	19 44.6	-25 52	8.7
Thu Sep 16/Fri Sep 17	22 11	19 39	21 05	5 52	7 18	19 16	4 05	17 33	3 33	84	20 44.6	-23 29	8.8
Fri Sep 17/Sat Sep 18	22 15	19 38	21 04	5 53	7 19	19 18	4 10	18 16	4 41	91	21 41.2	-19 48	8.8
Sat Sep 18/Sun Sep 19	22 19	19 36	21 02	5 54	7 20	19 21	4 14	18 51	5 47	96	22 34.4	-15 10	8.9
Sun Sep 19/Mon Sep 20	22 23	19 35	21 00	5 55	7 21	19 23	4 19	19 22	6 50	99	23 24.4	- 9 55	8.9
Mon Sep 20/Tue Sep 21	22 27	19 33	20 59	5 56	7 22	19 25	4 24	19 50	.....	100	0 12.0	- 4 20	9.0
Tue Sep 21/Wed Sep 22	22 31	19 32	20 57	5 57	7 22	19 28	4 29	20 17	.....	98	0 58.1	1 17	9.0
Wed Sep 22/Thu Sep 23	22 35	19 30	20 56	5 58	7 23	19 30	4 34	20 42	.....	95	1 43.5	6 43	9.0
Thu Sep 23/Fri Sep 24	22 39	19 29	20 54	5 58	7 24	19 33	4 38	21 09	.....	90	2 29.1	11 47	9.1
Fri Sep 24/Sat Sep 25	22 43	19 27	20 53	5 59	7 25	19 35	4 43	21 37	.....	83	3 15.6	16 16	9.1
Sat Sep 25/Sun Sep 26	22 47	19 26	20 51	6 00	7 25	19 37	4 48	22 09	.....	75	4 03.5	20 02	9.2
Sun Sep 26/Mon Sep 27	22 51	19 24	20 50	6 01	7 26	19 40	4 53	22 45	.....	67	4 53.1	22 55	9.2
Mon Sep 27/Tue Sep 28	22 55	19 23	20 48	6 02	7 27	19 42	4 58	23 26	.....	58	5 44.5	24 47	9.2
Tue Sep 28/Wed Sep 29	22 59	19 22	20 47	6 03	7 28	19 45	5 02	0 14	.....	48	6 37.2	25 29	9.3
Wed Sep 29/Thu Sep 30	23 03	19 20	20 45	6 04	7 29	19 47	5 07	1 07	.....	39	7 30.6	24 59	9.3
Thu Sep 30/Fri Oct 01	23 07	19 19	20 44	6 04	7 29	19 50	5 12	2 06	.....	29	8 24.1	23 13	9.3

***** 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 10	19 17	20 42	6 05	7 30	19 52	5 17	3 09	16 58	21	9 17.0	20 16	9.4
Sat Oct 02/Sun Oct 03	23 14	19 16	20 41	6 06	7 31	19 54	5 21	4 15	17 35	13	10 08.9	16 12	9.4
Sun Oct 03/Mon Oct 04	23 18	19 14	20 39	6 07	7 32	19 57	5 26	5 21	18 08	7	10 59.9	11 12	9.5
Mon Oct 04/Tue Oct 05	23 22	19 13	20 38	6 08	7 33	19 59	5 31	6 29	18 39	2	11 50.5	5 30	9.5
Tue Oct 05/Wed Oct 06	23 26	19 12	20 36	6 09	7 33	20 02	5 36	7 38	19 09	0	12 41.2	- 0 40	9.5
Wed Oct 06/Thu Oct 07	23 30	19 10	20 35	6 09	7 34	20 05	5 41	.....	19 39	1	13 33.0	- 6 56	9.6
Thu Oct 07/Fri Oct 08	23 34	19 09	20 33	6 10	7 35	20 07	5 45	.....	20 12	4	14 26.7	-12 58	9.6
Fri Oct 08/Sat Oct 09	23 38	19 07	20 32	6 11	7 36	20 10	5 50	.....	20 48	10	15 23.1	-18 20	9.6
Sat Oct 09/Sun Oct 10	23 42	19 06	20 31	6 12	7 37	20 12	5 55	.....	21 30	18	16 22.4	-22 38	9.7
Sun Oct 10/Mon Oct 11	23 46	19 05	20 29	6 13	7 38	20 15	6 00	.....	22 19	28	17 24.3	-25 31	9.7
Mon Oct 11/Tue Oct 12	23 50	19 03	20 28	6 13	7 38	20 17	6 04	.....	23 15	39	18 27.4	-26 45	9.8
Tue Oct 12/Wed Oct 13	23 54	19 02	20 27	6 14	7 39	20 20	6 09	.....	0 18	50	19 29.9	-26 17	9.8
Wed Oct 13/Thu Oct 14	23 58	19 01	20 25	6 15	7 40	20 23	6 14	.....	1 25	61	20 30.2	-24 15	9.8
Thu Oct 14/Fri Oct 15	0 02	18 59	20 24	6 16	7 41	20 25	6 19	16 17	2 32	71	21 27.0	-20 53	9.9
Fri Oct 15/Sat Oct 16	0 06	18 58	20 23	6 17	7 42	20 28	6 23	16 54	3 38	81	22 20.1	-16 30	9.9
Sat Oct 16/Sun Oct 17	0 10	18 57	20 22	6 18	7 43	20 31	6 28	17 25	4 41	88	23 10.0	-11 27	9.9
Sun Oct 17/Mon Oct 18	0 14	18 55	20 20	6 18	7 44	20 33	6 33	17 53	5 42	94	23 57.4	- 5 59	10.0
Mon Oct 18/Tue Oct 19	0 18	18 54	20 19	6 19	7 44	20 36	6 38	18 20	6 41	98	0 43.3	- 0 23	10.0
Tue Oct 19/Wed Oct 20	0 21	18 53	20 18	6 20	7 45	20 39	6 43	18 45	7 40	100	1 28.5	5 09	10.0
Wed Oct 20/Thu Oct 21	0 25	18 52	20 17	6 21	7 46	20 42	6 47	19 11	.....	100	2 13.9	10 23	10.1
Thu Oct 21/Fri Oct 22	0 29	18 50	20 16	6 22	7 47	20 45	6 52	19 38	.....	98	3 00.2	15 08	10.1
Fri Oct 22/Sat Oct 23	0 33	18 49	20 15	6 23	7 48	20 47	6 57	20 08	.....	94	3 47.9	19 12	10.1
Sat Oct 23/Sun Oct 24	0 37	18 48	20 14	6 23	7 49	20 50	7 02	20 42	.....	88	4 37.3	22 25	10.2
Sun Oct 24/Mon Oct 25	0 41	18 47	20 13	6 24	7 50	20 53	7 06	21 21	.....	82	5 28.4	24 38	10.2
Mon Oct 25/Tue Oct 26	0 45	18 46	20 11	6 25	7 51	20 56	7 11	22 06	.....	74	6 20.8	25 43	10.2
Tue Oct 26/Wed Oct 27	0 49	18 45	20 10	6 26	7 52	20 59	7 16	22 57	.....	65	7 13.9	25 36	10.3
Wed Oct 27/Thu Oct 28	0 53	18 43	20 09	6 27	7 53	21 02	7 21	23 53	.....	55	8 06.9	24 16	10.3
Thu Oct 28/Fri Oct 29	0 57	18 42	20 08	6 28	7 54	21 05	7 26	0 53	.....	46	8 59.2	21 44	10.3
Fri Oct 29/Sat Oct 30	1 01	18 41	20 07	6 28	7 55	21 08	7 30	1 56	.....	36	9 50.5	18 06	10.3
Sat Oct 30/Sun Oct 31	1 05	18 40	20 07	6 29	7 56	21 11	7 35	3 01	16 05	26	10 40.8	13 30	10.4
Sun Oct 31/Mon Nov 01	1 09	18 39	20 06	6 30	7 57	21 14	7 40	4 07	16 36	17	11 30.5	8 07	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.

***** 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 13	18 38	20 05	6 31	7 58	21 17	7 45	5 14	17 06	10	12 20.4	2 09	10.4
Tue Nov 02/Wed Nov 03	1 17	18 37	20 04	6 32	7 59	21 20	7 49	6 24	17 35	4	13 11.4	- 4 08	10.5
Wed Nov 03/Thu Nov 04	1 21	18 36	20 03	6 33	8 00	21 23	7 54	7 37	18 07	1	14 04.4	-10 22	10.5
Thu Nov 04/Fri Nov 05	1 25	18 35	20 02	6 33	8 00	21 26	7 59	.....	18 41	0	15 00.4	-16 10	10.5
Fri Nov 05/Sat Nov 06	1 28	18 34	20 01	6 34	8 01	21 29	8 04	.....	19 21	2	15 59.9	-21 04	10.5
Sat Nov 06/Sun Nov 07*	1 32	18 34	20 01	5 35	7 02	21 32	8 09	.....	20 08	8	17 02.7	-24 38	10.6
Sun Nov 07/Mon Nov 08	2 37	17 33	19 00	5 36	7 03	21 36	8 13	.....	20 04	16	18 10.6	-26 27	10.6
Mon Nov 08/Tue Nov 09	2 40	17 32	18 59	5 37	7 04	21 39	8 18	.....	21 07	25	19 14.9	-26 26	10.6
Tue Nov 09/Wed Nov 10	2 44	17 31	18 59	5 38	7 05	21 42	8 23	.....	22 15	35	20 16.9	-24 43	10.7
Wed Nov 10/Thu Nov 11	2 48	17 30	18 58	5 39	7 06	21 45	8 28	.....	23 23	46	21 15.0	-21 35	10.7
Thu Nov 11/Fri Nov 12	2 52	17 29	18 57	5 39	7 07	21 49	8 33	.....	0 30	57	22 09.0	-17 23	10.7
Fri Nov 12/Sat Nov 13	2 56	17 29	18 57	5 40	7 08	21 52	8 37	.....	1 34	67	22 59.2	-12 28	10.7
Sat Nov 13/Sun Nov 14	3 00	17 28	18 56	5 41	7 09	21 56	8 42	.....	2 36	76	23 46.6	- 7 07	10.8
Sun Nov 14/Mon Nov 15	3 04	17 27	18 56	5 42	7 10	21 59	8 47	.....	3 35	84	0 32.1	- 1 34	10.8
Mon Nov 15/Tue Nov 16	3 08	17 27	18 55	5 43	7 11	22 02	8 52	15 49	4 33	91	1 16.8	3 57	10.8
Tue Nov 16/Wed Nov 17	3 12	17 26	18 55	5 44	7 12	22 06	8 57	16 15	5 31	96	2 01.6	9 14	10.8
Wed Nov 17/Thu Nov 18	3 16	17 25	18 54	5 45	7 13	22 09	9 01	16 41	6 29	99	2 47.3	14 07	10.8
Thu Nov 18/Fri Nov 19	3 20	17 25	18 54	5 45	7 14	22 13	9 06	17 10	7 28	100	3 34.6	18 24	10.9
Fri Nov 19/Sat Nov 20	3 24	17 24	18 53	5 46	7 15	22 16	9 11	17 42	.....	99	4 23.7	21 54	10.9
Sat Nov 20/Sun Nov 21	3 28	17 24	18 53	5 47	7 16	22 20	9 16	18 20	.....	97	5 14.8	24 25	10.9
Sun Nov 21/Mon Nov 22	3 32	17 23	18 53	5 48	7 17	22 24	9 21	19 02	.....	93	6 07.4	25 49	10.9
Mon Nov 22/Tue Nov 23	3 36	17 23	18 52	5 49	7 18	22 27	9 25	19 51	.....	87	7 00.8	26 01	10.9
Tue Nov 23/Wed Nov 24	3 40	17 23	18 52	5 50	7 19	22 31	9 30	20 45	.....	80	7 54.1	24 58	11.0
Wed Nov 24/Thu Nov 25	3 44	17 22	18 52	5 50	7 20	22 35	9 35	21 43	.....	71	8 46.4	22 44	11.0
Thu Nov 25/Fri Nov 26	3 48	17 22	18 52	5 51	7 21	22 38	9 40	22 44	.....	62	9 37.4	19 25	11.0
Fri Nov 26/Sat Nov 27	3 51	17 22	18 51	5 52	7 22	22 42	9 45	23 46	.....	52	10 27.1	15 08	11.0
Sat Nov 27/Sun Nov 28	3 55	17 21	18 51	5 53	7 23	22 46	9 49	0 49	.....	42	11 15.7	10 05	11.0
Sun Nov 28/Mon Nov 29	3 59	17 21	18 51	5 54	7 24	22 50	9 54	1 53	.....	31	12 04.2	4 25	11.0
Mon Nov 29/Tue Nov 30	4 03	17 21	18 51	5 55	7 25	22 54	9 59	3 00	.....	22	12 53.4	- 1 39	11.1
Tue Nov 30/Wed Dec 01	4 07	17 21	18 51	5 55	7 26	22 57	10 04	4 09	.....	13	13 44.4	- 7 49	11.1

***** 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 11	17 20	18 51	5 56	7 27	23 01	10 08	5 22	15 34	6	14 38.4	-13 46	11.1
Thu Dec 02/Fri Dec 03	4 15	17 20	18 51	5 57	7 28	23 05	10 13	6 38	16 10	2	15 36.2	-19 03	11.1
Fri Dec 03/Sat Dec 04	4 19	17 20	18 51	5 58	7 29	23 09	10 18	7 56	16 53	0	16 38.1	-23 13	11.1
Sat Dec 04/Sun Dec 05	4 23	17 20	18 51	5 58	7 29	23 13	10 22	.....	17 45	1	17 43.3	-25 48	11.1
Sun Dec 05/Mon Dec 06	4 27	17 20	18 51	5 59	7 30	23 17	10 27	.....	18 47	5	18 49.7	-26 32	11.1
Mon Dec 06/Tue Dec 07	4 31	17 20	18 51	6 00	7 31	23 21	10 32	.....	19 55	12	19 54.8	-25 24	11.1
Tue Dec 07/Wed Dec 08	4 35	17 20	18 51	6 01	7 32	23 25	10 36	.....	21 07	21	20 56.2	-22 38	11.2
Wed Dec 08/Thu Dec 09	4 39	17 20	18 52	6 01	7 33	23 29	10 41	.....	22 17	30	21 53.0	-18 38	11.2
Thu Dec 09/Fri Dec 10	4 43	17 20	18 52	6 02	7 33	23 34	10 46	.....	23 25	41	22 45.3	-13 47	11.2
Fri Dec 10/Sat Dec 11	4 47	17 21	18 52	6 03	7 34	23 38	10 50	.....	0 28	51	23 34.0	- 8 27	11.2
Sat Dec 11/Sun Dec 12	4 51	17 21	18 52	6 03	7 35	23 42	10 55	.....	1 29	61	0 20.2	- 2 55	11.2
Sun Dec 12/Mon Dec 13	4 55	17 21	18 53	6 04	7 36	23 46	11 00	.....	2 27	71	1 04.9	2 37	11.2
Mon Dec 13/Tue Dec 14	4 58	17 21	18 53	6 05	7 36	23 50	11 04	.....	3 25	79	1 49.4	7 57	11.2
Tue Dec 14/Wed Dec 15	5 02	17 22	18 53	6 05	7 37	23 55	11 09	.....	4 23	86	2 34.5	12 56	11.2
Wed Dec 15/Thu Dec 16	5 06	17 22	18 54	6 06	7 38	23 59	11 13	.....	5 21	92	3 21.0	17 22	11.2
Thu Dec 16/Fri Dec 17	5 10	17 22	18 54	6 06	7 38	0 03	11 18	15 44	6 20	97	4 09.4	21 04	11.2
Fri Dec 17/Sat Dec 18	5 14	17 23	18 54	6 07	7 39	0 08	11 22	16 19	7 17	99	5 00.0	23 53	11.2
Sat Dec 18/Sun Dec 19	5 18	17 23	18 55	6 08	7 39	0 12	11 27	17 00	8 13	100	5 52.4	25 36	11.2
Sun Dec 19/Mon Dec 20	5 22	17 23	18 55	6 08	7 40	0 16	11 31	17 47	.....	99	6 46.0	26 08	11.2
Mon Dec 20/Tue Dec 21	5 26	17 24	18 56	6 09	7 40	0 21	11 36	18 40	.....	96	7 39.8	25 24	11.2
Tue Dec 21/Wed Dec 22	5 30	17 24	18 56	6 09	7 41	0 25	11 40	19 37	.....	91	8 32.8	23 27	11.2
Wed Dec 22/Thu Dec 23	5 34	17 25	18 57	6 10	7 41	0 30	11 45	20 37	.....	85	9 24.3	20 23	11.2
Thu Dec 23/Fri Dec 24	5 38	17 25	18 57	6 10	7 42	0 34	11 49	21 38	.....	77	10 14.0	16 20	11.2
Fri Dec 24/Sat Dec 25	5 42	17 26	18 58	6 10	7 42	0 39	11 53	22 39	.....	68	11 02.4	11 31	11.2
Sat Dec 25/Sun Dec 26	5 46	17 27	18 58	6 11	7 43	0 43	11 58	23 41	.....	58	11 49.8	6 07	11.2
Sun Dec 26/Mon Dec 27	5 50	17 27	18 59	6 11	7 43	0 48	12 02	0 45	.....	48	12 37.4	0 18	11.2
Mon Dec 27/Tue Dec 28	5 54	17 28	19 00	6 12	7 43	0 52	12 06	1 50	.....	37	13 26.1	- 5 40	11.2
Tue Dec 28/Wed Dec 29	5 58	17 29	19 00	6 12	7 43	0 57	12 11	2 58	.....	26	14 17.2	-11 33	11.2
Wed Dec 29/Thu Dec 30	6 02	17 29	19 01	6 12	7 44	1 02	12 15	4 11	.....	17	15 11.8	-16 58	11.2
Thu Dec 30/Fri Dec 31	6 05	17 30	19 01	6 13	7 44	1 06	12 19	5 26	.....	9	16 10.6	-21 33	11.2
Fri Dec 31/Sat Jan 01	6 09	17 31	19 02	6 13	7 44	1 11	12 23	6 41	15 27	3	17 13.6	-24 48	11.2