

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:

***** 2020 Night-time Astronomical Calendar for CA iTel *****

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 2020, at CA iTel

Times and dates are given in local time, zone = 8 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 25	21 16	Jan 02	20 47	Jan 10	11 23	Jan 17	5 01
Jan 24	13 44	Feb 01	17 43	Feb 08	23 35	Feb 15	14 19
Feb 23	7 34	Mar 02	11 59	Mar 09	10 49	Mar 16	2 36
Mar 24	2 30	Apr 01	3 22	Apr 07	19 36	Apr 14	15 57
Apr 22	19 27	Apr 30	13 39	May 07	3 46	May 14	7 03
May 22	10 40	May 29	20 30	Jun 05	12 13	Jun 12	23 25
Jun 20	23 42	Jun 28	1 17	Jul 04	21 45	Jul 12	16 31
Jul 20	10 34	Jul 27	5 34	Aug 03	9 00	Aug 11	9 48
Aug 18	19 42	Aug 25	10 59	Sep 01	22 23	Sep 10	2 28
Sep 17	4 01	Sep 23	18 57	Oct 01	14 07	Oct 09	17 41
Oct 16	12 32	Oct 23	6 24	Oct 31	7 51	Nov 08	5 48
Nov 14	21 09	Nov 21	20 46	Nov 30	1 32	Dec 07	16 38
Dec 14	8 19	Dec 21	15 43	Dec 29	19 30	Jan 06	1 39

Calendar for CA iTel, west longitude (h.m.s) = 7 57 36, latitude (d.m) = 37 04.2
 Rise/set times in Pacific time (8 hr W), for 1405 m above surroundings, DAYLIGHT time used, * shows clock reset.
 Moon info is for local midnight, even if moon is down. Program: John Thorstensen, Dartmouth College.

***** 2020 JANUARY *****

Date (eve/morn)	LMST midn	----- Sun: -----				LST twilight:		----- Moon: -----				Twi-Twi	
		set	twi.end	twi.beg	rise	eve	morn	rise	set	%illum	RA	Dec	hours
Wed Jan 01/Thu Jan 02	6 48	16 58	18 24	5 38	7 04	1 11	12 27	.....	23 19	41	0 12.8	- 4 34	11.2
Thu Jan 02/Fri Jan 03	6 52	16 59	18 25	5 38	7 05	1 16	12 31	.....	0 15	51	0 56.3	0 04	11.2
Fri Jan 03/Sat Jan 04	6 56	17 00	18 26	5 39	7 05	1 21	12 36	.....	1 12	60	1 40.3	4 45	11.2
Sat Jan 04/Sun Jan 05	7 00	17 00	18 26	5 39	7 05	1 26	12 40	.....	2 09	69	2 25.8	9 19	11.2
Sun Jan 05/Mon Jan 06	7 04	17 01	18 27	5 39	7 05	1 30	12 44	.....	3 09	78	3 13.6	13 37	11.2
Mon Jan 06/Tue Jan 07	7 08	17 02	18 28	5 39	7 05	1 35	12 48	.....	4 11	86	4 04.5	17 24	11.2
Tue Jan 07/Wed Jan 08	7 12	17 03	18 29	5 39	7 05	1 40	12 52	.....	5 15	92	4 59.0	20 25	11.2
Wed Jan 08/Thu Jan 09	7 16	17 04	18 30	5 39	7 05	1 44	12 56	.....	6 18	97	5 57.1	22 22	11.2
Thu Jan 09/Fri Jan 10	7 20	17 05	18 30	5 39	7 05	1 49	13 00	15 58	7 17	100	6 58.0	22 59	11.1
Fri Jan 10/Sat Jan 11	7 24	17 06	18 31	5 39	7 04	1 54	13 04	16 59	8 12	100	8 00.2	22 06	11.1
Sat Jan 11/Sun Jan 12	7 28	17 07	18 32	5 39	7 04	1 59	13 07	18 07	.....	97	9 01.9	19 43	11.1
Sun Jan 12/Mon Jan 13	7 32	17 08	18 33	5 39	7 04	2 04	13 11	19 18	.....	91	10 01.7	16 01	11.1
Mon Jan 13/Tue Jan 14	7 35	17 09	18 34	5 39	7 04	2 08	13 15	20 29	.....	83	10 59.1	11 20	11.1
Tue Jan 14/Wed Jan 15	7 39	17 10	18 35	5 39	7 03	2 13	13 19	21 40	.....	74	11 54.0	6 00	11.1
Wed Jan 15/Thu Jan 16	7 43	17 11	18 36	5 38	7 03	2 18	13 23	22 49	.....	63	12 47.1	0 23	11.0
Thu Jan 16/Fri Jan 17	7 47	17 12	18 36	5 38	7 03	2 23	13 26	23 57	.....	52	13 39.3	- 5 10	11.0
Fri Jan 17/Sat Jan 18	7 51	17 13	18 37	5 38	7 02	2 28	13 30	1 05	.....	40	14 31.4	-10 22	11.0
Sat Jan 18/Sun Jan 19	7 55	17 14	18 38	5 38	7 02	2 33	13 34	2 11	.....	30	15 24.2	-14 59	11.0
Sun Jan 19/Mon Jan 20	7 59	17 15	18 39	5 37	7 02	2 37	13 37	3 17	.....	20	16 18.0	-18 45	11.0
Mon Jan 20/Tue Jan 21	8 03	17 16	18 40	5 37	7 01	2 42	13 41	4 21	.....	13	17 13.0	-21 29	10.9
Tue Jan 21/Wed Jan 22	8 07	17 17	18 41	5 37	7 01	2 47	13 45	5 20	.....	7	18 08.7	-23 04	10.9
Wed Jan 22/Thu Jan 23	8 11	17 18	18 42	5 36	7 00	2 52	13 48	6 15	.....	2	19 04.3	-23 26	10.9
Thu Jan 23/Fri Jan 24	8 15	17 19	18 43	5 36	7 00	2 57	13 52	7 03	16 20	0	19 58.7	-22 36	10.9
Fri Jan 24/Sat Jan 25	8 19	17 20	18 44	5 35	6 59	3 02	13 55	7 45	17 18	0	20 51.2	-20 42	10.9
Sat Jan 25/Sun Jan 26	8 23	17 21	18 45	5 35	6 58	3 07	13 59	.....	18 17	2	21 41.4	-17 53	10.8
Sun Jan 26/Mon Jan 27	8 27	17 22	18 46	5 34	6 58	3 11	14 02	.....	19 15	6	22 29.2	-14 22	10.8
Mon Jan 27/Tue Jan 28	8 31	17 23	18 47	5 34	6 57	3 16	14 05	.....	20 13	11	23 14.8	-10 20	10.8
Tue Jan 28/Wed Jan 29	8 35	17 24	18 48	5 33	6 56	3 21	14 09	.....	21 09	17	23 59.0	- 5 57	10.8
Wed Jan 29/Thu Jan 30	8 39	17 25	18 48	5 33	6 56	3 26	14 12	.....	22 05	25	0 42.3	- 1 22	10.7
Thu Jan 30/Fri Jan 31	8 42	17 26	18 49	5 32	6 55	3 31	14 15	.....	23 01	33	1 25.5	3 16	10.7
Fri Jan 31/Sat Feb 01	8 46	17 28	18 50	5 31	6 54	3 36	14 19	.....	23 57	42	2 09.6	7 49	10.7

***** 2020 FEBRUARY *****

Date (eve/morn)	LMST midn	----- Sun: -----				LST twilight:		----- Moon: -----				Twi-Twi	
		set	twi.end	twi.beg	rise	eve	morn	rise	set	%illum	RA	Dec	hours
Sat Feb 01/Sun Feb 02	8 50	17 29	18 51	5 31	6 53	3 41	14 22	.....	0 55	52	2 55.4	12 07	10.7
Sun Feb 02/Mon Feb 03	8 54	17 30	18 52	5 30	6 52	3 46	14 25	.....	1 55	62	3 43.8	16 02	10.6
Mon Feb 03/Tue Feb 04	8 58	17 31	18 53	5 29	6 52	3 51	14 28	.....	2 56	71	4 35.5	19 18	10.6
Tue Feb 04/Wed Feb 05	9 02	17 32	18 54	5 29	6 51	3 55	14 32	.....	3 59	80	5 30.9	21 41	10.6
Wed Feb 05/Thu Feb 06	9 06	17 33	18 55	5 28	6 50	4 00	14 35	.....	4 59	88	6 29.8	22 53	10.5
Thu Feb 06/Fri Feb 07	9 10	17 34	18 56	5 27	6 49	4 05	14 38	.....	5 56	95	7 31.2	22 40	10.5
Fri Feb 07/Sat Feb 08	9 14	17 35	18 57	5 26	6 48	4 10	14 41	.....	6 48	99	8 33.7	20 56	10.5
Sat Feb 08/Sun Feb 09	9 18	17 36	18 58	5 25	6 47	4 15	14 44	16 54	7 33	100	9 35.7	17 42	10.5
Sun Feb 09/Mon Feb 10	9 22	17 37	18 59	5 24	6 46	4 20	14 47	18 08	.....	98	10 35.8	13 13	10.4
Mon Feb 10/Tue Feb 11	9 26	17 38	19 00	5 23	6 45	4 25	14 50	19 22	.....	94	11 33.7	7 52	10.4
Tue Feb 11/Wed Feb 12	9 30	17 39	19 01	5 22	6 44	4 30	14 53	20 35	.....	86	12 29.5	2 03	10.4
Wed Feb 12/Thu Feb 13	9 34	17 40	19 02	5 21	6 43	4 35	14 56	21 46	.....	77	13 24.0	- 3 47	10.3
Thu Feb 13/Fri Feb 14	9 38	17 41	19 03	5 20	6 42	4 40	14 59	22 55	.....	67	14 17.8	- 9 19	10.3
Fri Feb 14/Sat Feb 15	9 42	17 42	19 04	5 19	6 40	4 44	15 02	0 04	.....	56	15 11.7	-14 12	10.3
Sat Feb 15/Sun Feb 16	9 46	17 43	19 05	5 18	6 39	4 49	15 05	1 10	.....	45	16 06.2	-18 14	10.2
Sun Feb 16/Mon Feb 17	9 49	17 45	19 06	5 17	6 38	4 54	15 08	2 15	.....	34	17 01.3	-21 13	10.2
Mon Feb 17/Tue Feb 18	9 53	17 46	19 06	5 16	6 37	4 59	15 11	3 15	.....	25	17 56.8	-23 02	10.2
Tue Feb 18/Wed Feb 19	9 57	17 47	19 07	5 15	6 36	5 04	15 13	4 11	.....	17	18 52.0	-23 38	10.1
Wed Feb 19/Thu Feb 20	10 01	17 48	19 08	5 14	6 35	5 09	15 16	5 00	.....	10	19 46.2	-23 02	10.1
Thu Feb 20/Fri Feb 21	10 05	17 49	19 09	5 13	6 33	5 14	15 19	5 43	.....	5	20 38.7	-21 22	10.1
Fri Feb 21/Sat Feb 22	10 09	17 50	19 10	5 12	6 32	5 19	15 22	6 21	.....	2	21 29.0	-18 45	10.0
Sat Feb 22/Sun Feb 23	10 13	17 51	19 11	5 10	6 31	5 24	15 24	6 54	17 07	0	22 17.0	-15 23	10.0
Sun Feb 23/Mon Feb 24	10 17	17 52	19 12	5 09	6 30	5 28	15 27	7 23	18 05	1	23 02.9	-11 27	10.0
Mon Feb 24/Tue Feb 25	10 21	17 53	19 13	5 08	6 28	5 33	15 30	.....	19 02	3	23 47.2	- 7 07	9.9
Tue Feb 25/Wed Feb 26	10 25	17 54	19 14	5 07	6 27	5 38	15 33	.....	19 58	6	0 30.5	- 2 33	9.9
Wed Feb 26/Thu Feb 27	10 29	17 55	19 15	5 05	6 26	5 43	15 35	.....	20 53	12	1 13.5	2 05	9.8
Thu Feb 27/Fri Feb 28	10 33	17 56	19 16	5 04	6 24	5 48	15 38	.....	21 49	18	1 56.9	6 39	9.8
Fri Feb 28/Sat Feb 29	10 37	17 57	19 17	5 03	6 23	5 53	15 40	.....	22 46	26	2 41.5	11 00	9.8
Sat Feb 29/Sun Mar 01	10 41	17 58	19 18	5 01	6 22	5 58	15 43	23 44	35	3 28.0	14 58	9.7

Calendar for CA iTel, west longitude (h.m.s) = 7 57 36, latitude (d.m) = 37 04.2
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***** 2020 MARCH *****

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
Sun Mar 01/Mon Mar 02	10 45	17 58	19 19	5 00	6 20	6 03	15 46	.....	0 44	44	4 17.3	18 23	9.7
Mon Mar 02/Tue Mar 03	10 49	17 59	19 20	4 59	6 19	6 08	15 48	.....	1 44	54	5 09.7	21 02	9.7
Tue Mar 03/Wed Mar 04	10 53	18 00	19 21	4 57	6 17	6 12	15 51	.....	2 44	65	6 05.4	22 39	9.6
Wed Mar 04/Thu Mar 05	10 57	18 01	19 22	4 56	6 16	6 17	15 53	.....	3 41	75	7 04.0	23 01	9.6
Thu Mar 05/Fri Mar 06	11 00	18 02	19 23	4 55	6 15	6 22	15 56	.....	4 34	84	8 04.6	21 57	9.5
Fri Mar 06/Sat Mar 07	11 04	18 03	19 24	4 53	6 13	6 27	15 58	.....	5 22	91	9 05.9	19 24	9.5
Sat Mar 07/Sun Mar 08*	11 08	18 04	19 24	5 52	7 12	6 32	16 01	.....	7 04	97	10 06.6	15 27	9.5
Sun Mar 08/Mon Mar 09	10 12	19 05	20 25	5 50	7 10	6 37	16 03	17 54	.....	100	11 04.4	10 36	9.4
Mon Mar 09/Tue Mar 10	10 16	19 06	20 26	5 49	7 09	6 42	16 06	19 09	.....	99	12 02.3	4 47	9.4
Tue Mar 10/Wed Mar 11	10 20	19 07	20 27	5 47	7 07	6 47	16 08	20 23	.....	96	12 59.0	- 1 19	9.3
Wed Mar 11/Thu Mar 12	10 24	19 08	20 28	5 46	7 06	6 52	16 11	21 37	.....	90	13 55.0	- 7 17	9.3
Thu Mar 12/Fri Mar 13	10 28	19 09	20 29	5 44	7 05	6 57	16 13	22 48	.....	81	14 51.0	-12 43	9.2
Fri Mar 13/Sat Mar 14	10 32	19 10	20 30	5 43	7 03	7 02	16 15	23 59	.....	72	15 47.3	-17 16	9.2
Sat Mar 14/Sun Mar 15	10 36	19 11	20 31	5 41	7 02	7 06	16 18	1 06	.....	61	16 44.1	-20 43	9.2
Sun Mar 15/Mon Mar 16	10 40	19 12	20 32	5 40	7 00	7 11	16 20	2 10	.....	50	17 40.9	-22 56	9.1
Mon Mar 16/Tue Mar 17	10 44	19 12	20 33	5 38	6 59	7 16	16 23	3 08	.....	40	18 37.2	-23 52	9.1
Tue Mar 17/Wed Mar 18	10 48	19 13	20 34	5 36	6 57	7 21	16 25	3 59	.....	31	19 32.2	-23 33	9.0
Wed Mar 18/Thu Mar 19	10 52	19 14	20 35	5 35	6 56	7 26	16 27	4 44	.....	22	20 25.2	-22 07	9.0
Thu Mar 19/Fri Mar 20	10 55	19 15	20 36	5 33	6 54	7 31	16 30	5 23	.....	15	21 15.9	-19 42	9.0
Fri Mar 20/Sat Mar 21	10 59	19 16	20 37	5 32	6 53	7 36	16 32	5 56	.....	9	22 04.1	-16 30	8.9
Sat Mar 21/Sun Mar 22	11 03	19 17	20 38	5 30	6 51	7 41	16 34	6 26	16 59	4	22 50.3	-12 41	8.9
Sun Mar 22/Mon Mar 23	11 07	19 18	20 39	5 28	6 50	7 46	16 37	6 54	17 55	1	23 34.7	- 8 25	8.8
Mon Mar 23/Tue Mar 24	11 11	19 19	20 40	5 27	6 48	7 51	16 39	.....	18 52	0	0 18.1	- 3 53	8.8
Tue Mar 24/Wed Mar 25	11 15	19 20	20 41	5 25	6 47	7 56	16 41	.....	19 47	1	1 01.0	0 48	8.7
Wed Mar 25/Thu Mar 26	11 19	19 21	20 42	5 24	6 45	8 01	16 44	.....	20 43	3	1 44.1	5 26	8.7
Thu Mar 26/Fri Mar 27	11 23	19 21	20 43	5 22	6 44	8 06	16 46	.....	21 40	7	2 28.2	9 54	8.6
Fri Mar 27/Sat Mar 28	11 27	19 22	20 44	5 20	6 42	8 11	16 48	.....	22 38	13	3 13.9	14 01	8.6
Sat Mar 28/Sun Mar 29	11 31	19 23	20 45	5 19	6 41	8 16	16 51	.....	23 37	20	4 01.9	17 37	8.6
Sun Mar 29/Mon Mar 30	11 35	19 24	20 46	5 17	6 39	8 21	16 53	.....	0 36	28	4 52.5	20 30	8.5
Mon Mar 30/Tue Mar 31	11 39	19 25	20 48	5 15	6 38	8 26	16 55	.....	1 35	38	5 45.9	22 27	8.5
Tue Mar 31/Wed Apr 01	11 43	19 26	20 49	5 14	6 36	8 31	16 57	.....	2 32	48	6 42.0	23 15	8.4

***** 2020 APRIL *****

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
Wed Apr 01/Thu Apr 02	11 47	19 27	20 50	5 12	6 35	8 36	17 00	.....	3 25	59	7 40.0	22 46	8.4
Thu Apr 02/Fri Apr 03	11 51	19 28	20 51	5 10	6 33	8 41	17 02	.....	4 13	69	8 39.1	20 52	8.3
Fri Apr 03/Sat Apr 04	11 55	19 29	20 52	5 09	6 32	8 46	17 04	.....	4 56	79	9 38.2	17 36	8.3
Sat Apr 04/Sun Apr 05	11 59	19 29	20 53	5 07	6 30	8 51	17 06	.....	5 35	88	10 36.6	13 05	8.2
Sun Apr 05/Mon Apr 06	12 03	19 30	20 54	5 05	6 29	8 56	17 09	.....	6 11	95	11 34.2	7 36	8.2
Mon Apr 06/Tue Apr 07	12 06	19 31	20 55	5 04	6 28	9 01	17 11	17 55	6 45	99	12 31.1	1 32	8.1
Tue Apr 07/Wed Apr 08	12 10	19 32	20 56	5 02	6 26	9 06	17 13	19 09	.....	100	13 27.9	- 4 41	8.1
Wed Apr 08/Thu Apr 09	12 14	19 33	20 57	5 00	6 25	9 11	17 16	20 23	.....	98	14 25.1	-10 36	8.0
Thu Apr 09/Fri Apr 10	12 18	19 34	20 59	4 59	6 23	9 16	17 18	21 37	.....	93	15 23.1	-15 47	8.0
Fri Apr 10/Sat Apr 11	12 22	19 35	21 00	4 57	6 22	9 21	17 20	22 49	.....	85	16 22.0	-19 54	8.0
Sat Apr 11/Sun Apr 12	12 26	19 36	21 01	4 55	6 20	9 27	17 22	23 57	.....	76	17 21.3	-22 43	7.9
Sun Apr 12/Mon Apr 13	12 30	19 37	21 02	4 54	6 19	9 32	17 25	1 00	.....	66	18 20.2	-24 07	7.9
Mon Apr 13/Tue Apr 14	12 34	19 37	21 03	4 52	6 18	9 37	17 27	1 55	.....	56	19 17.5	-24 09	7.8
Tue Apr 14/Wed Apr 15	12 38	19 38	21 04	4 50	6 16	9 42	17 29	2 43	.....	46	20 12.5	-22 57	7.8
Wed Apr 15/Thu Apr 16	12 42	19 39	21 06	4 49	6 15	9 47	17 31	3 24	.....	36	21 04.6	-20 42	7.7
Thu Apr 16/Fri Apr 17	12 46	19 40	21 07	4 47	6 14	9 52	17 34	3 59	.....	27	21 53.9	-17 36	7.7
Fri Apr 17/Sat Apr 18	12 50	19 41	21 08	4 45	6 12	9 57	17 36	4 30	.....	20	22 40.6	-13 51	7.6
Sat Apr 18/Sun Apr 19	12 54	19 42	21 09	4 44	6 11	10 02	17 38	4 58	.....	13	23 25.3	- 9 38	7.6
Sun Apr 19/Mon Apr 20	12 58	19 43	21 10	4 42	6 10	10 08	17 41	5 24	.....	7	0 08.7	- 5 07	7.5
Mon Apr 20/Tue Apr 21	13 02	19 44	21 12	4 41	6 08	10 13	17 43	5 50	17 42	3	0 51.5	- 0 25	7.5
Tue Apr 21/Wed Apr 22	13 06	19 45	21 13	4 39	6 07	10 18	17 45	6 15	18 38	1	1 34.5	4 17	7.4
Wed Apr 22/Thu Apr 23	13 10	19 46	21 14	4 37	6 06	10 23	17 48	.....	19 34	0	2 18.3	8 51	7.4
Thu Apr 23/Fri Apr 24	13 13	19 47	21 15	4 36	6 04	10 28	17 50	.....	20 32	1	3 03.6	13 07	7.3
Fri Apr 24/Sat Apr 25	13 17	19 47	21 17	4 34	6 03	10 33	17 52	.....	21 31	4	3 51.0	16 53	7.3
Sat Apr 25/Sun Apr 26	13 21	19 48	21 18	4 33	6 02	10 39	17 55	.....	22 31	9	4 40.9	19 59	7.2
Sun Apr 26/Mon Apr 27	13 25	19 49	21 19	4 31	6 01	10 44	17 57	.....	23 30	15	5 33.4	22 10	7.2
Mon Apr 27/Tue Apr 28	13 29	19 50	21 20	4 29	6 00	10 49	17 59	.....	0 28	24	6 28.2	23 16	7.2
Tue Apr 28/Wed Apr 29	13 33	19 51	21 22	4 28	5 58	10 54	18 02	.....	1 21	33	7 24.7	23 08	7.1
Wed Apr 29/Thu Apr 30	13 37	19 52	21 23	4 26	5 57	11 00	18 04	.....	2 10	43	8 21.9	21 40	7.1
Thu Apr 30/Fri May 01	13 41	19 53	21 24	4 25	5 56	11 05	18 07	2 53	54	9 19.0	18 54	7.0

Calendar for CA iTel, west longitude (h.m.s) = 7 57 36, latitude (d.m) = 37 04.2
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***** 2020 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
Fri May 01/Sat May 02	13 45	19 54	21 25	4 23	5 55	11 10	18 09	.....	3 32	65	10 15.5	14 55	7.0
Sat May 02/Sun May 03	13 49	19 55	21 27	4 22	5 54	11 15	18 12	.....	4 07	76	11 11.2	9 55	6.9
Sun May 03/Mon May 04	13 53	19 56	21 28	4 20	5 53	11 20	18 14	.....	4 41	86	12 06.4	4 12	6.9
Mon May 04/Tue May 05	13 57	19 57	21 29	4 19	5 52	11 26	18 17	.....	5 14	93	13 01.7	- 1 55	6.8
Tue May 05/Wed May 06	14 01	19 57	21 31	4 18	5 51	11 31	18 19	17 56	5 48	98	13 57.7	- 8 00	6.8
Wed May 06/Thu May 07	14 05	19 58	21 32	4 16	5 50	11 36	18 22	19 10	6 25	100	14 55.2	-13 38	6.7
Thu May 07/Fri May 08	14 09	19 59	21 33	4 15	5 49	11 41	18 24	20 24	.....	99	15 54.5	-18 24	6.7
Fri May 08/Sat May 09	14 13	20 00	21 34	4 13	5 48	11 47	18 27	21 36	.....	95	16 55.1	-21 57	6.6
Sat May 09/Sun May 10	14 17	20 01	21 36	4 12	5 47	11 52	18 29	22 43	.....	89	17 56.2	-24 03	6.6
Sun May 10/Mon May 11	14 21	20 02	21 37	4 11	5 46	11 57	18 32	23 45	.....	81	18 56.4	-24 39	6.6
Mon May 11/Tue May 12	14 24	20 03	21 38	4 09	5 45	12 02	18 35	0 37	.....	72	19 54.3	-23 50	6.5
Tue May 12/Wed May 13	14 28	20 04	21 39	4 08	5 44	12 07	18 37	1 22	.....	62	20 49.1	-21 51	6.5
Wed May 13/Thu May 14	14 32	20 04	21 41	4 07	5 43	12 13	18 40	2 00	.....	52	21 40.5	-18 53	6.4
Thu May 14/Fri May 15	14 36	20 05	21 42	4 06	5 42	12 18	18 43	2 33	.....	43	22 28.7	-15 13	6.4
Fri May 15/Sat May 16	14 40	20 06	21 43	4 04	5 41	12 23	18 45	3 02	.....	34	23 14.4	-11 03	6.4
Sat May 16/Sun May 17	14 44	20 07	21 44	4 03	5 41	12 28	18 48	3 28	.....	25	23 58.3	- 6 32	6.3
Sun May 17/Mon May 18	14 48	20 08	21 46	4 02	5 40	12 33	18 51	3 54	.....	17	0 41.2	- 1 49	6.3
Mon May 18/Tue May 19	14 52	20 09	21 47	4 01	5 39	12 39	18 54	4 19	.....	11	1 24.0	2 56	6.2
Tue May 19/Wed May 20	14 56	20 10	21 48	4 00	5 38	12 44	18 57	4 45	.....	6	2 07.6	7 35	6.2
Wed May 20/Thu May 21	15 00	20 10	21 49	3 59	5 38	12 49	18 59	5 14	18 24	2	2 52.5	11 59	6.2
Thu May 21/Fri May 22	15 04	20 11	21 51	3 58	5 37	12 54	19 02	5 46	19 23	0	3 39.6	15 56	6.1
Fri May 22/Sat May 23	15 08	20 12	21 52	3 57	5 37	12 59	19 05	6 22	20 24	0	4 29.1	19 15	6.1
Sat May 23/Sun May 24	15 12	20 13	21 53	3 56	5 36	13 04	19 08	.....	21 24	2	5 21.4	21 43	6.0
Sun May 24/Mon May 25	15 16	20 14	21 54	3 55	5 35	13 09	19 11	.....	22 23	6	6 16.0	23 06	6.0
Mon May 25/Tue May 26	15 20	20 14	21 55	3 54	5 35	13 14	19 14	.....	23 19	12	7 12.2	23 16	6.0
Tue May 26/Wed May 27	15 24	20 15	21 56	3 53	5 34	13 19	19 17	.....	0 09	20	8 09.1	22 07	5.9
Wed May 27/Thu May 28	15 28	20 16	21 57	3 52	5 34	13 24	19 21	.....	0 54	29	9 05.7	19 41	5.9
Thu May 28/Fri May 29	15 31	20 17	21 58	3 52	5 33	13 29	19 24	.....	1 33	40	10 01.2	16 03	5.9
Fri May 29/Sat May 30	15 35	20 17	21 59	3 51	5 33	13 34	19 27	.....	2 08	51	10 55.5	11 26	5.9
Sat May 30/Sun May 31	15 39	20 18	22 00	3 50	5 33	13 39	19 30	.....	2 41	63	11 48.9	6 04	5.8
Sun May 31/Mon Jun 01	15 43	20 19	22 01	3 49	5 32	13 44	19 33	.....	3 13	74	12 42.1	0 15	5.8

***** 2020 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
Mon Jun 01/Tue Jun 02	15 47	20 19	22 02	3 49	5 32	13 49	19 37	.....	3 45	83	13 35.8	- 5 43	5.8
Tue Jun 02/Wed Jun 03	15 51	20 20	22 03	3 48	5 32	13 54	19 40	.....	4 20	91	14 31.0	-11 27	5.7
Wed Jun 03/Thu Jun 04	15 55	20 21	22 04	3 48	5 31	13 59	19 43	18 00	4 58	97	15 28.3	-16 34	5.7
Thu Jun 04/Fri Jun 05	15 59	20 21	22 05	3 47	5 31	14 04	19 47	19 12	5 41	100	16 27.8	-20 40	5.7
Fri Jun 05/Sat Jun 06	16 03	20 22	22 06	3 47	5 31	14 09	19 50	20 22	.....	100	17 29.0	-23 28	5.7
Sat Jun 06/Sun Jun 07	16 07	20 22	22 07	3 46	5 31	14 13	19 54	21 28	.....	97	18 30.5	-24 45	5.7
Sun Jun 07/Mon Jun 08	16 11	20 23	22 07	3 46	5 31	14 18	19 57	22 26	.....	92	19 30.8	-24 32	5.6
Mon Jun 08/Tue Jun 09	16 15	20 23	22 08	3 46	5 30	14 23	20 01	23 15	.....	85	20 28.4	-22 57	5.6
Tue Jun 09/Wed Jun 10	16 19	20 24	22 09	3 45	5 30	14 27	20 05	23 57	.....	77	21 22.5	-20 16	5.6
Wed Jun 10/Thu Jun 11	16 23	20 24	22 09	3 45	5 30	14 32	20 08	0 33	.....	68	22 13.1	-16 44	5.6
Thu Jun 11/Fri Jun 12	16 27	20 25	22 10	3 45	5 30	14 36	20 12	1 04	.....	59	23 00.5	-12 36	5.6
Fri Jun 12/Sat Jun 13	16 31	20 25	22 11	3 45	5 30	14 41	20 16	1 31	.....	49	23 45.5	- 8 06	5.6
Sat Jun 13/Sun Jun 14	16 35	20 26	22 11	3 45	5 30	14 45	20 20	1 57	.....	40	0 29.0	- 3 23	5.6
Sun Jun 14/Mon Jun 15	16 39	20 26	22 12	3 45	5 30	14 50	20 24	2 22	.....	31	1 12.0	1 24	5.5
Mon Jun 15/Tue Jun 16	16 42	20 26	22 12	3 45	5 30	14 54	20 28	2 48	.....	23	1 55.3	6 07	5.5
Tue Jun 16/Wed Jun 17	16 46	20 27	22 13	3 45	5 30	14 59	20 32	3 15	.....	15	2 39.7	10 37	5.5
Wed Jun 17/Thu Jun 18	16 50	20 27	22 13	3 45	5 31	15 03	20 36	3 45	.....	9	3 26.2	14 45	5.5
Thu Jun 18/Fri Jun 19	16 54	20 27	22 13	3 45	5 31	15 07	20 40	4 20	18 13	4	4 15.1	18 17	5.5
Fri Jun 19/Sat Jun 20	16 58	20 28	22 13	3 45	5 31	15 11	20 44	5 01	19 14	1	5 06.9	21 02	5.5
Sat Jun 20/Sun Jun 21	17 02	20 28	22 14	3 45	5 31	15 16	20 48	5 49	20 15	0	6 01.5	22 46	5.5
Sun Jun 21/Mon Jun 22	17 06	20 28	22 14	3 46	5 31	15 20	20 52	.....	21 12	1	6 58.1	23 16	5.5
Mon Jun 22/Tue Jun 23	17 10	20 28	22 14	3 46	5 32	15 24	20 57	.....	22 06	4	7 55.6	22 27	5.5
Tue Jun 23/Wed Jun 24	17 14	20 28	22 14	3 46	5 32	15 28	21 01	.....	22 53	10	8 52.9	20 17	5.5
Wed Jun 24/Thu Jun 25	17 18	20 28	22 14	3 47	5 32	15 32	21 05	.....	23 34	18	9 48.9	16 54	5.5
Thu Jun 25/Fri Jun 26	17 22	20 28	22 14	3 47	5 33	15 36	21 10	.....	0 11	27	10 43.4	12 30	5.5
Fri Jun 26/Sat Jun 27	17 26	20 29	22 14	3 48	5 33	15 40	21 14	.....	0 44	38	11 36.4	7 20	5.6
Sat Jun 27/Sun Jun 28	17 30	20 29	22 14	3 48	5 33	15 43	21 18	.....	1 16	49	12 28.6	1 42	5.6
Sun Jun 28/Mon Jun 29	17 34	20 29	22 14	3 49	5 34	15 47	21 23	.....	1 47	61	13 20.7	- 4 07	5.6
Mon Jun 29/Tue Jun 30	17 38	20 28	22 14	3 49	5 34	15 51	21 27	.....	2 19	72	14 13.8	- 9 47	5.6
Tue Jun 30/Wed Jul 01	17 42	20 28	22 13	3 50	5 35	15 55	21 32	.....	2 55	81	15 08.6	-14 59	5.6

Calendar for CA iTel, west longitude (h.m.s) = 7 57 36, latitude (d.m) = 37 04.2
 Rise/set times in Pacific time (8 hr W), for 1405 m above surroundings, DAYLIGHT time used, * shows clock reset.
 Moon info is for local midnight, even if moon is down. Program: John Thorstensen, Dartmouth College.

***** 2020 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	
Wed Jul 01/Thu Jul 02		17 46	20 28	22 13	3 50	5 35	15 58	21 37	.....	3 35	90	16 05.7	-19 22	5.6
Thu Jul 02/Fri Jul 03		17 49	20 28	22 13	3 51	5 36	16 02	21 41	18 04	4 20	95	17 05.0	-22 36	5.6
Fri Jul 03/Sat Jul 04		17 53	20 28	22 12	3 52	5 36	16 06	21 46	19 11	5 13	99	18 05.7	-24 29	5.7
Sat Jul 04/Sun Jul 05		17 57	20 28	22 12	3 53	5 37	16 09	21 51	20 12	6 10	100	19 06.4	-24 52	5.7
Sun Jul 05/Mon Jul 06		18 01	20 28	22 12	3 54	5 37	16 13	21 55	21 05	.....	98	20 05.5	-23 48	5.7
Mon Jul 06/Tue Jul 07		18 05	20 27	22 11	3 54	5 38	16 16	22 00	21 51	.....	95	21 01.7	-21 30	5.7
Tue Jul 07/Wed Jul 08		18 09	20 27	22 10	3 55	5 39	16 19	22 05	22 30	.....	89	21 54.4	-18 12	5.7
Wed Jul 08/Thu Jul 09		18 13	20 27	22 10	3 56	5 39	16 23	22 10	23 03	.....	82	22 43.7	-14 11	5.8
Thu Jul 09/Fri Jul 10		18 17	20 26	22 09	3 57	5 40	16 26	22 15	23 32	.....	74	23 30.2	- 9 43	5.8
Fri Jul 10/Sat Jul 11		18 21	20 26	22 09	3 58	5 41	16 29	22 20	23 59	.....	65	0 14.8	- 4 58	5.8
Sat Jul 11/Sun Jul 12		18 25	20 26	22 08	3 59	5 41	16 33	22 25	0 24	.....	56	0 58.2	- 0 09	5.9
Sun Jul 12/Mon Jul 13		18 29	20 25	22 07	4 00	5 42	16 36	22 30	0 49	.....	47	1 41.5	4 38	5.9
Mon Jul 13/Tue Jul 14		18 33	20 25	22 06	4 01	5 43	16 39	22 34	1 16	.....	37	2 25.5	9 14	5.9
Tue Jul 14/Wed Jul 15		18 37	20 24	22 05	4 02	5 43	16 42	22 39	1 44	.....	28	3 11.1	13 29	5.9
Wed Jul 15/Thu Jul 16		18 41	20 24	22 05	4 03	5 44	16 45	22 44	2 17	.....	20	3 59.0	17 13	6.0
Thu Jul 16/Fri Jul 17		18 45	20 23	22 04	4 04	5 45	16 48	22 49	2 55	.....	13	4 49.8	20 14	6.0
Fri Jul 17/Sat Jul 18		18 49	20 23	22 03	4 05	5 45	16 51	22 55	3 40	18 01	7	5 43.6	22 18	6.0
Sat Jul 18/Sun Jul 19		18 53	20 22	22 02	4 06	5 46	16 54	23 00	4 32	19 01	2	6 39.9	23 13	6.1
Sun Jul 19/Mon Jul 20		18 56	20 21	22 01	4 07	5 47	16 57	23 05	5 33	19 57	0	7 37.9	22 48	6.1
Mon Jul 20/Tue Jul 21		19 00	20 21	22 00	4 09	5 48	17 00	23 10	.....	20 47	0	8 36.2	20 59	6.1
Tue Jul 21/Wed Jul 22		19 04	20 20	21 59	4 10	5 48	17 03	23 15	.....	21 32	3	9 33.7	17 51	6.2
Wed Jul 22/Thu Jul 23		19 08	20 19	21 58	4 11	5 49	17 06	23 20	.....	22 11	8	10 29.5	13 37	6.2
Thu Jul 23/Fri Jul 24		19 12	20 19	21 56	4 12	5 50	17 08	23 25	.....	22 46	16	11 23.7	8 32	6.3
Fri Jul 24/Sat Jul 25		19 16	20 18	21 55	4 13	5 51	17 11	23 30	.....	23 18	25	12 16.4	2 56	6.3
Sat Jul 25/Sun Jul 26		19 20	20 17	21 54	4 15	5 52	17 14	23 35	.....	23 50	36	13 08.5	- 2 53	6.3
Sun Jul 26/Mon Jul 27		19 24	20 16	21 53	4 16	5 52	17 17	23 41	.....	0 22	47	14 01.0	- 8 34	6.4
Mon Jul 27/Tue Jul 28		19 28	20 15	21 52	4 17	5 53	17 19	23 46	.....	0 56	58	14 54.5	-13 50	6.4
Tue Jul 28/Wed Jul 29		19 32	20 14	21 50	4 18	5 54	17 22	23 51	.....	1 33	69	15 49.8	-18 21	6.5
Wed Jul 29/Thu Jul 30		19 36	20 13	21 49	4 19	5 55	17 25	23 56	.....	2 16	79	16 47.2	-21 51	6.5
Thu Jul 30/Fri Jul 31		19 40	20 13	21 48	4 21	5 56	17 27	0 01	.....	3 05	87	17 46.2	-24 05	6.5
Fri Jul 31/Sat Aug 01		19 44	20 12	21 46	4 22	5 57	17 30	0 06	18 02	3 59	94	18 45.9	-24 55	6.6

***** 2020 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	
Sat Aug 01/Sun Aug 02		19 48	20 11	21 45	4 23	5 57	17 32	0 12	18 57	4 59	98	19 44.8	-24 20	6.6
Sun Aug 02/Mon Aug 03		19 52	20 10	21 44	4 24	5 58	17 35	0 17	19 45	6 01	100	20 41.5	-22 26	6.7
Mon Aug 03/Tue Aug 04		19 56	20 09	21 42	4 26	5 59	17 37	0 22	20 26	.....	99	21 35.4	-19 27	6.7
Tue Aug 04/Wed Aug 05		20 00	20 08	21 41	4 27	6 00	17 40	0 27	21 01	.....	97	22 26.1	-15 37	6.8
Wed Aug 05/Thu Aug 06		20 04	20 06	21 39	4 28	6 01	17 42	0 32	21 32	.....	93	23 13.9	-11 14	6.8
Thu Aug 06/Fri Aug 07		20 07	20 05	21 38	4 29	6 02	17 45	0 37	22 00	.....	87	23 59.4	- 6 30	6.9
Fri Aug 07/Sat Aug 08		20 11	20 04	21 36	4 30	6 03	17 47	0 43	22 25	.....	80	0 43.6	- 1 37	6.9
Sat Aug 08/Sun Aug 09		20 15	20 03	21 35	4 32	6 03	17 50	0 48	22 51	.....	72	1 27.1	3 15	6.9
Sun Aug 09/Mon Aug 10		20 19	20 02	21 33	4 33	6 04	17 52	0 53	23 16	.....	63	2 10.9	7 56	7.0
Mon Aug 10/Tue Aug 11		20 23	20 01	21 32	4 34	6 05	17 55	0 58	23 44	.....	53	2 55.8	12 19	7.0
Tue Aug 11/Wed Aug 12		20 27	20 00	21 30	4 35	6 06	17 57	1 03	0 14	.....	44	3 42.6	16 13	7.1
Wed Aug 12/Thu Aug 13		20 31	19 58	21 29	4 37	6 07	17 59	1 08	0 49	.....	34	4 32.0	19 28	7.1
Thu Aug 13/Fri Aug 14		20 35	19 57	21 27	4 38	6 08	18 02	1 14	1 30	.....	25	5 24.3	21 51	7.2
Fri Aug 14/Sat Aug 15		20 39	19 56	21 26	4 39	6 09	18 04	1 19	2 19	.....	17	6 19.4	23 10	7.2
Sat Aug 15/Sun Aug 16		20 43	19 55	21 24	4 40	6 09	18 06	1 24	3 15	17 44	10	7 16.7	23 13	7.3
Sun Aug 16/Mon Aug 17		20 47	19 53	21 22	4 41	6 10	18 09	1 29	4 19	18 37	4	8 15.1	21 52	7.3
Mon Aug 17/Tue Aug 18		20 51	19 52	21 21	4 42	6 11	18 11	1 34	5 29	19 24	1	9 13.4	19 08	7.4
Tue Aug 18/Wed Aug 19		20 55	19 51	21 19	4 44	6 12	18 13	1 39	.....	20 06	0	10 10.7	15 10	7.4
Wed Aug 19/Thu Aug 20		20 59	19 50	21 17	4 45	6 13	18 16	1 44	.....	20 44	2	11 06.4	10 11	7.5
Thu Aug 20/Fri Aug 21		21 03	19 48	21 16	4 46	6 14	18 18	1 49	.....	21 18	7	12 00.7	4 33	7.5
Fri Aug 21/Sat Aug 22		21 07	19 47	21 14	4 47	6 14	18 20	1 54	.....	21 50	14	12 54.1	- 1 24	7.5
Sat Aug 22/Sun Aug 23		21 11	19 46	21 13	4 48	6 15	18 23	2 00	.....	22 22	23	13 47.4	- 7 17	7.6
Sun Aug 23/Mon Aug 24		21 14	19 44	21 11	4 49	6 16	18 25	2 05	.....	22 56	33	14 41.3	-12 45	7.6
Mon Aug 24/Tue Aug 25		21 18	19 43	21 09	4 51	6 17	18 27	2 10	.....	23 33	44	15 36.5	-17 30	7.7
Tue Aug 25/Wed Aug 26		21 22	19 41	21 07	4 52	6 18	18 29	2 15	.....	0 14	56	16 33.2	-21 14	7.7
Wed Aug 26/Thu Aug 27		21 26	19 40	21 06	4 53	6 19	18 32	2 20	.....	1 01	66	17 31.4	-23 45	7.8
Thu Aug 27/Fri Aug 28		21 30	19 39	21 04	4 54	6 19	18 34	2 25	.....	1 53	76	18 30.2	-24 55	7.8
Fri Aug 28/Sat Aug 29		21 34	19 37	21 02	4 55	6 20	18 36	2 30	.....	2 51	84	19 28.4	-24 40	7.9
Sat Aug 29/Sun Aug 30		21 38	19 36	21 01	4 56	6 21	18 38	2 35	17 42	3 51	91	20 24.9	-23 07	7.9
Sun Aug 30/Mon Aug 31		21 42	19 34	20 59	4 57	6 22	18 41	2 40	18 25	4 53	96	21 18.9	-20 26	8.0
Mon Aug 31/Tue Sep 01		21 46	19 33	20 57	4 58	6 23	18 43	2 45	19 01	5 54	99	22 10.0	-16 50	8.0

Calendar for CA iTel, west longitude (h.m.s) = 7 57 36, latitude (d.m) = 37 04.2
 Rise/set times in Pacific time (8 hr W), for 1405 m above surroundings, DAYLIGHT time used, * shows clock reset.
 Moon info is for local midnight, even if moon is down. Program: John Thorstensen, Dartmouth College.

***** 2020 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
Tue Sep 01/Wed Sep 02	21 50	19 31	20 56	4 59	6 24	18 45	2 50	19 33	6 53	100	22 58.4	-12 35	8.1
Wed Sep 02/Thu Sep 03	21 54	19 30	20 54	5 00	6 24	18 47	2 55	20 01	.....	99	23 44.6	- 7 54	8.1
Thu Sep 03/Fri Sep 04	21 58	19 28	20 52	5 01	6 25	18 50	3 00	20 28	.....	96	0 29.2	- 2 59	8.2
Fri Sep 04/Sat Sep 05	22 02	19 27	20 50	5 02	6 26	18 52	3 05	20 53	.....	91	1 13.0	1 57	8.2
Sat Sep 05/Sun Sep 06	22 06	19 25	20 49	5 03	6 27	18 54	3 10	21 18	.....	85	1 56.8	6 46	8.2
Sun Sep 06/Mon Sep 07	22 10	19 24	20 47	5 04	6 28	18 56	3 15	21 44	.....	78	2 41.4	11 18	8.3
Mon Sep 07/Tue Sep 08	22 14	19 22	20 45	5 05	6 28	18 58	3 20	22 13	.....	69	3 27.5	15 23	8.3
Tue Sep 08/Wed Sep 09	22 18	19 21	20 44	5 06	6 29	19 01	3 25	22 46	.....	60	4 15.7	18 50	8.4
Wed Sep 09/Thu Sep 10	22 22	19 19	20 42	5 07	6 30	19 03	3 30	23 23	.....	50	5 06.5	21 30	8.4
Thu Sep 10/Fri Sep 11	22 25	19 18	20 40	5 08	6 31	19 05	3 35	0 07	.....	40	5 59.9	23 10	8.5
Fri Sep 11/Sat Sep 12	22 29	19 16	20 39	5 09	6 32	19 07	3 40	0 59	.....	31	6 55.6	23 39	8.5
Sat Sep 12/Sun Sep 13	22 33	19 15	20 37	5 10	6 33	19 10	3 45	1 59	.....	21	7 52.8	22 49	8.6
Sun Sep 13/Mon Sep 14	22 37	19 13	20 35	5 11	6 33	19 12	3 50	3 05	17 14	13	8 50.6	20 36	8.6
Mon Sep 14/Tue Sep 15	22 41	19 12	20 34	5 12	6 34	19 14	3 54	4 16	17 58	7	9 48.0	17 04	8.6
Tue Sep 15/Wed Sep 16	22 45	19 10	20 32	5 13	6 35	19 16	3 59	5 29	18 37	2	10 44.4	12 24	8.7
Wed Sep 16/Thu Sep 17	22 49	19 09	20 30	5 14	6 36	19 19	4 04	6 43	19 13	0	11 39.7	6 52	8.7
Thu Sep 17/Fri Sep 18	22 53	19 07	20 29	5 15	6 37	19 21	4 09	.....	19 46	1	12 34.3	0 50	8.8
Fri Sep 18/Sat Sep 19	22 57	19 06	20 27	5 16	6 37	19 23	4 14	.....	20 19	5	13 28.8	- 5 19	8.8
Sat Sep 19/Sun Sep 20	23 01	19 04	20 25	5 17	6 38	19 26	4 19	.....	20 54	11	14 23.8	-11 09	8.9
Sun Sep 20/Mon Sep 21	23 05	19 03	20 24	5 18	6 39	19 28	4 24	.....	21 30	20	15 20.1	-16 19	8.9
Mon Sep 21/Tue Sep 22	23 09	19 01	20 22	5 19	6 40	19 30	4 29	.....	22 11	30	16 17.7	-20 29	8.9
Tue Sep 22/Wed Sep 23	23 13	19 00	20 20	5 20	6 41	19 32	4 33	.....	22 57	41	17 16.5	-23 23	9.0
Wed Sep 23/Thu Sep 24	23 17	18 58	20 19	5 21	6 42	19 35	4 38	.....	23 48	52	18 15.8	-24 53	9.0
Thu Sep 24/Fri Sep 25	23 21	18 56	20 17	5 22	6 42	19 37	4 43	.....	0 45	62	19 14.3	-24 58	9.1
Fri Sep 25/Sat Sep 26	23 25	18 55	20 16	5 23	6 43	19 39	4 48	.....	1 45	72	20 11.0	-23 42	9.1
Sat Sep 26/Sun Sep 27	23 29	18 53	20 14	5 24	6 44	19 42	4 53	.....	2 46	81	21 05.2	-21 16	9.2
Sun Sep 27/Mon Sep 28	23 32	18 52	20 12	5 24	6 45	19 44	4 58	17 03	3 46	88	21 56.4	-17 53	9.2
Mon Sep 28/Tue Sep 29	23 36	18 50	20 11	5 25	6 46	19 47	5 03	17 36	4 46	93	22 45.0	-13 47	9.2
Tue Sep 29/Wed Sep 30	23 40	18 49	20 09	5 26	6 47	19 49	5 07	18 05	5 44	97	23 31.3	- 9 11	9.3
Wed Sep 30/Thu Oct 01	23 44	18 47	20 08	5 27	6 47	19 51	5 12	18 31	6 41	99	0 16.0	- 4 17	9.3

***** 2020 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
Thu Oct 01/Fri Oct 02	23 48	18 46	20 06	5 28	6 48	19 54	5 17	18 56	.....	100	0 59.9	0 42	9.4
Fri Oct 02/Sat Oct 03	23 52	18 44	20 05	5 29	6 49	19 56	5 22	19 21	.....	98	1 43.8	5 38	9.4
Sat Oct 03/Sun Oct 04	23 56	18 43	20 03	5 30	6 50	19 59	5 27	19 47	.....	95	2 28.2	10 19	9.4
Sun Oct 04/Mon Oct 05	0 00	18 42	20 02	5 31	6 51	20 01	5 32	20 14	.....	90	3 14.0	14 36	9.5
Mon Oct 05/Tue Oct 06	0 04	18 40	20 00	5 32	6 52	20 04	5 36	20 45	.....	83	4 01.6	18 17	9.5
Tue Oct 06/Wed Oct 07	0 08	18 39	19 59	5 32	6 53	20 06	5 41	21 20	.....	75	4 51.5	21 13	9.6
Wed Oct 07/Thu Oct 08	0 12	18 37	19 57	5 33	6 54	20 09	5 46	22 01	.....	66	5 43.7	23 11	9.6
Thu Oct 08/Fri Oct 09	0 16	18 36	19 56	5 34	6 54	20 11	5 51	22 49	.....	57	6 38.0	24 02	9.6
Fri Oct 09/Sat Oct 10	0 20	18 34	19 54	5 35	6 55	20 14	5 56	23 44	.....	47	7 33.7	23 39	9.7
Sat Oct 10/Sun Oct 11	0 24	18 33	19 53	5 36	6 56	20 16	6 01	0 46	.....	36	8 30.1	21 56	9.7
Sun Oct 11/Mon Oct 12	0 28	18 32	19 52	5 37	6 57	20 19	6 05	1 53	.....	26	9 26.3	18 55	9.8
Mon Oct 12/Tue Oct 13	0 32	18 30	19 50	5 38	6 58	20 21	6 10	3 03	16 31	17	10 21.8	14 43	9.8
Tue Oct 13/Wed Oct 14	0 36	18 29	19 49	5 39	6 59	20 24	6 15	4 16	17 07	9	11 16.6	9 32	9.8
Wed Oct 14/Thu Oct 15	0 39	18 27	19 48	5 39	7 00	20 26	6 20	5 29	17 41	4	12 11.0	3 40	9.9
Thu Oct 15/Fri Oct 16	0 43	18 26	19 46	5 40	7 01	20 29	6 25	6 43	18 14	1	13 05.4	- 2 34	9.9
Fri Oct 16/Sat Oct 17	0 47	18 25	19 45	5 41	7 02	20 32	6 29	.....	18 47	0	14 00.8	- 8 43	9.9
Sat Oct 17/Sun Oct 18	0 51	18 23	19 44	5 42	7 03	20 34	6 34	.....	19 23	3	14 57.6	-14 22	10.0
Sun Oct 18/Mon Oct 19	0 55	18 22	19 43	5 43	7 04	20 37	6 39	.....	20 03	9	15 56.3	-19 07	10.0
Mon Oct 19/Tue Oct 20	0 59	18 21	19 41	5 44	7 04	20 40	6 44	.....	20 48	17	16 56.5	-22 38	10.0
Tue Oct 20/Wed Oct 21	1 03	18 20	19 40	5 45	7 05	20 43	6 49	.....	21 39	26	17 57.4	-24 40	10.1
Wed Oct 21/Thu Oct 22	1 07	18 18	19 39	5 46	7 06	20 45	6 54	.....	22 36	36	18 57.7	-25 11	10.1
Thu Oct 22/Fri Oct 23	1 11	18 17	19 38	5 46	7 07	20 48	6 58	.....	23 36	46	19 56.1	-24 16	10.1
Fri Oct 23/Sat Oct 24	1 15	18 16	19 37	5 47	7 08	20 51	7 03	.....	0 38	57	20 51.4	-22 05	10.2
Sat Oct 24/Sun Oct 25	1 19	18 15	19 35	5 48	7 09	20 54	7 08	.....	1 40	67	21 43.6	-18 54	10.2
Sun Oct 25/Mon Oct 26	1 23	18 13	19 34	5 49	7 10	20 57	7 13	.....	2 40	76	22 32.6	-14 56	10.2
Mon Oct 26/Tue Oct 27	1 27	18 12	19 33	5 50	7 11	20 59	7 18	16 09	3 38	83	23 19.1	-10 26	10.3
Tue Oct 27/Wed Oct 28	1 31	18 11	19 32	5 51	7 12	21 02	7 23	16 36	4 35	90	0 03.9	- 5 36	10.3
Wed Oct 28/Thu Oct 29	1 35	18 10	19 31	5 52	7 13	21 05	7 27	17 01	5 32	95	0 47.6	- 0 36	10.3
Thu Oct 29/Fri Oct 30	1 39	18 09	19 30	5 53	7 14	21 08	7 32	17 26	6 28	98	1 31.3	4 24	10.4
Fri Oct 30/Sat Oct 31	1 43	18 08	19 29	5 54	7 15	21 11	7 37	17 51	7 25	100	2 15.5	9 13	10.4
Sat Oct 31/Sun Nov 01*	1 47	18 07	19 28	4 54	6 16	21 14	7 42	18 17	.....	99	3 01.0	13 41	10.4

Calendar for CA iTel, west longitude (h.m.s) = 7 57 36, latitude (d.m) = 37 04.2
 Rise/set times in Pacific time (8 hr W), for 1405 m above surroundings, DAYLIGHT time used, * shows clock reset.
 Moon info is for local midnight, even if moon is down. Program: John Thorstensen, Dartmouth College.

***** 2020 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	
Sun Nov 01/Mon Nov 02	2 51	17 06	18 27	4 55	6 17	21 17	7 47	17 47	.....	97	3 49.7	17 47	10.5
Mon Nov 02/Tue Nov 03	2 55	17 05	18 26	4 56	6 18	21 20	7 52	18 20	.....	93	4 39.5	20 58	10.5
Tue Nov 03/Wed Nov 04	2 59	17 04	18 26	4 57	6 19	21 23	7 56	18 59	.....	88	5 31.5	23 13	10.5
Wed Nov 04/Thu Nov 05	3 02	17 03	18 25	4 58	6 20	21 26	8 01	19 44	.....	80	6 25.6	24 22	10.6
Thu Nov 05/Fri Nov 06	3 06	17 02	18 24	4 59	6 21	21 29	8 06	20 36	.....	72	7 20.9	24 16	10.6
Fri Nov 06/Sat Nov 07	3 10	17 01	18 23	5 00	6 22	21 33	8 11	21 35	.....	62	8 16.6	22 54	10.6
Sat Nov 07/Sun Nov 08	3 14	17 00	18 22	5 01	6 23	21 36	8 16	22 38	.....	52	9 11.9	20 15	10.6
Sun Nov 08/Mon Nov 09	3 18	16 59	18 22	5 02	6 24	21 39	8 21	23 45	.....	41	10 06.3	16 27	10.7
Mon Nov 09/Tue Nov 10	3 22	16 58	18 21	5 03	6 25	21 42	8 26	0 54	.....	30	10 59.8	11 39	10.7
Tue Nov 10/Wed Nov 11	3 26	16 57	18 20	5 03	6 26	21 45	8 30	2 04	.....	20	11 52.7	6 05	10.7
Wed Nov 11/Thu Nov 12	3 30	16 57	18 20	5 04	6 27	21 49	8 35	3 16	.....	12	12 45.7	0 03	10.7
Thu Nov 12/Fri Nov 13	3 34	16 56	18 19	5 05	6 28	21 52	8 40	4 29	.....	5	13 39.6	- 6 07	10.8
Fri Nov 13/Sat Nov 14	3 38	16 55	18 18	5 06	6 29	21 55	8 45	5 44	16 15	1	14 35.4	-12 01	10.8
Sat Nov 14/Sun Nov 15	3 42	16 54	18 18	5 07	6 30	21 59	8 50	7 00	16 52	0	15 33.4	-17 14	10.8
Sun Nov 15/Mon Nov 16	3 46	16 54	18 17	5 08	6 31	22 02	8 55	8 15	17 35	2	16 33.9	-21 21	10.8
Mon Nov 16/Tue Nov 17	3 50	16 53	18 17	5 09	6 33	22 06	8 59	.....	18 24	6	17 35.9	-24 02	10.9
Tue Nov 17/Wed Nov 18	3 54	16 53	18 16	5 10	6 34	22 09	9 04	.....	19 20	13	18 38.1	-25 07	10.9
Wed Nov 18/Thu Nov 19	3 58	16 52	18 16	5 11	6 35	22 13	9 09	.....	20 21	21	19 38.7	-24 39	10.9
Thu Nov 19/Fri Nov 20	4 02	16 51	18 15	5 11	6 36	22 16	9 14	.....	21 25	31	20 36.3	-22 46	10.9
Fri Nov 20/Sat Nov 21	4 06	16 51	18 15	5 12	6 37	22 20	9 19	.....	22 29	41	21 30.2	-19 47	11.0
Sat Nov 21/Sun Nov 22	4 09	16 50	18 15	5 13	6 38	22 23	9 24	.....	23 31	51	22 20.5	-15 58	11.0
Sun Nov 22/Mon Nov 23	4 13	16 50	18 14	5 14	6 39	22 27	9 28	.....	0 30	60	23 07.7	-11 33	11.0
Mon Nov 23/Tue Nov 24	4 17	16 50	18 14	5 15	6 40	22 31	9 33	.....	1 28	70	23 52.7	- 6 47	11.0
Tue Nov 24/Wed Nov 25	4 21	16 49	18 14	5 16	6 41	22 34	9 38	.....	2 25	78	0 36.4	- 1 48	11.0
Wed Nov 25/Thu Nov 26	4 25	16 49	18 14	5 17	6 42	22 38	9 43	.....	3 21	85	1 19.7	3 12	11.1
Thu Nov 26/Fri Nov 27	4 29	16 49	18 13	5 17	6 42	22 42	9 48	.....	4 18	91	2 03.5	8 05	11.1
Fri Nov 27/Sat Nov 28	4 33	16 48	18 13	5 18	6 43	22 45	9 52	.....	5 15	96	2 48.5	12 41	11.1
Sat Nov 28/Sun Nov 29	4 37	16 48	18 13	5 19	6 44	22 49	9 57	15 49	6 14	99	3 35.6	16 49	11.1
Sun Nov 29/Mon Nov 30	4 41	16 48	18 13	5 20	6 45	22 53	10 02	16 21	7 13	100	4 25.0	20 16	11.1
Mon Nov 30/Tue Dec 01	4 45	16 48	18 13	5 21	6 46	22 57	10 07	16 58	8 12	99	5 17.0	22 51	11.1

***** 2020 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	
Tue Dec 01/Wed Dec 02	4 49	16 47	18 13	5 22	6 47	23 01	10 11	17 42	.....	96	6 11.2	24 20	11.1
Wed Dec 02/Thu Dec 03	4 53	16 47	18 13	5 22	6 48	23 05	10 16	18 32	.....	92	7 06.9	24 35	11.2
Thu Dec 03/Fri Dec 04	4 57	16 47	18 13	5 23	6 49	23 09	10 21	19 29	.....	85	8 03.0	23 32	11.2
Fri Dec 04/Sat Dec 05	5 01	16 47	18 13	5 24	6 50	23 13	10 26	20 30	.....	77	8 58.5	21 12	11.2
Sat Dec 05/Sun Dec 06	5 05	16 47	18 13	5 25	6 51	23 17	10 30	21 35	.....	67	9 52.7	17 42	11.2
Sun Dec 06/Mon Dec 07	5 09	16 47	18 13	5 25	6 51	23 21	10 35	22 42	.....	57	10 45.5	13 13	11.2
Mon Dec 07/Tue Dec 08	5 13	16 47	18 13	5 26	6 52	23 25	10 40	23 49	.....	46	11 37.2	7 59	11.2
Tue Dec 08/Wed Dec 09	5 17	16 47	18 13	5 27	6 53	23 29	10 44	0 58	.....	35	12 28.5	2 13	11.2
Wed Dec 09/Thu Dec 10	5 20	16 47	18 14	5 28	6 54	23 33	10 49	2 07	.....	24	13 20.2	- 3 46	11.2
Thu Dec 10/Fri Dec 11	5 24	16 48	18 14	5 28	6 55	23 37	10 54	3 19	.....	15	14 13.5	- 9 39	11.2
Fri Dec 11/Sat Dec 12	5 28	16 48	18 14	5 29	6 55	23 41	10 58	4 32	.....	8	15 09.1	-15 04	11.2
Sat Dec 12/Sun Dec 13	5 32	16 48	18 14	5 30	6 56	23 46	11 03	5 47	.....	2	16 07.6	-19 38	11.3
Sun Dec 13/Mon Dec 14	5 36	16 48	18 15	5 30	6 57	23 50	11 07	7 00	16 08	0	17 08.7	-22 58	11.3
Mon Dec 14/Tue Dec 15	5 40	16 48	18 15	5 31	6 57	23 54	11 12	8 07	17 01	1	18 11.3	-24 47	11.3
Tue Dec 15/Wed Dec 16	5 44	16 49	18 15	5 31	6 58	23 58	11 16	.....	18 00	4	19 13.6	-24 59	11.3
Wed Dec 16/Thu Dec 17	5 48	16 49	18 16	5 32	6 59	0 03	11 21	.....	19 05	9	20 13.7	-23 38	11.3
Thu Dec 17/Fri Dec 18	5 52	16 50	18 16	5 33	6 59	0 07	11 26	.....	20 11	16	21 10.4	-20 59	11.3
Fri Dec 18/Sat Dec 19	5 56	16 50	18 16	5 33	7 00	0 11	11 30	.....	21 16	24	22 03.1	-17 21	11.3
Sat Dec 19/Sun Dec 20	6 00	16 50	18 17	5 34	7 00	0 16	11 35	.....	22 18	33	22 52.2	-13 03	11.3
Sun Dec 20/Mon Dec 21	6 04	16 51	18 17	5 34	7 01	0 20	11 39	.....	23 18	43	23 38.4	- 8 18	11.3
Mon Dec 21/Tue Dec 22	6 08	16 51	18 18	5 35	7 01	0 25	11 43	.....	0 16	53	0 22.7	- 3 21	11.3
Tue Dec 22/Wed Dec 23	6 12	16 52	18 18	5 35	7 02	0 29	11 48	.....	1 12	62	1 06.0	1 40	11.3
Wed Dec 23/Thu Dec 24	6 16	16 52	18 19	5 36	7 02	0 34	11 52	.....	2 09	71	1 49.4	6 36	11.3
Thu Dec 24/Fri Dec 25	6 20	16 53	18 20	5 36	7 03	0 38	11 57	.....	3 06	79	2 33.8	11 17	11.3
Fri Dec 25/Sat Dec 26	6 24	16 54	18 20	5 36	7 03	0 43	12 01	.....	4 04	86	3 19.9	15 34	11.3
Sat Dec 26/Sun Dec 27	6 27	16 54	18 21	5 37	7 03	0 47	12 05	.....	5 03	92	4 08.4	19 16	11.3
Sun Dec 27/Mon Dec 28	6 31	16 55	18 21	5 37	7 03	0 52	12 09	.....	6 03	97	4 59.8	22 09	11.3
Mon Dec 28/Tue Dec 29	6 35	16 56	18 22	5 37	7 04	0 56	12 14	15 37	7 01	99	5 53.8	24 01	11.3
Tue Dec 29/Wed Dec 30	6 39	16 56	18 23	5 38	7 04	1 01	12 18	16 26	7 56	100	6 49.9	24 40	11.2
Wed Dec 30/Thu Dec 31	6 43	16 57	18 23	5 38	7 04	1 06	12 22	17 21	.....	98	7 47.0	23 59	11.2
Thu Dec 31/Fri Jan 01	6 47	16 58	18 24	5 38	7 04	1 10	12 26	18 23	.....	95	8 43.8	21 56	11.2