

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 Kitt Peak \*\*\*\*\*

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.

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 Kitt Peak

Times and dates are given in local time, zone = 7 hr West.  
They are generally better than +/- 2 minutes.

The end of the previous year and the beginning of the next  
are included for continuity.

NEW	1ST	FULL	LAST
Dec 25 22 16	Jan 02 21 47	Jan 10 12 23	Jan 17 6 01
Jan 24 14 44	Feb 01 18 43	Feb 09 0 35	Feb 15 15 19
Feb 23 8 34	Mar 02 12 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 6 48
Nov 14 22 09	Nov 21 21 46	Nov 30 2 32	Dec 07 17 38
Dec 14 9 19	Dec 21 16 43	Dec 29 20 30	Jan 06 2 39

Calendar for Kitt Peak, west longitude (h.m.s) = 7 26 28, latitude (d.m) = 31 57.2  
 Rise/set times in Mountain time ( 7 hr W), for 500 m above surroundings, in standard time all year.  
 Moon info is for local midnight, even if moon is down. Program: John Thorstensen, Dartmouth College.

\*\*\*\*\* 2020 JANUARY \*\*\*\*\*

Date (eve/morn)	LMST midn	----- set	Sun: ----- twi.end twi.beg	rise	LST twilight: eve morn	----- rise	Moon: ----- set %illum	RA	Dec	Twi-Twi hours
Wed Jan 01/Thu Jan 02	6 19	17 37	19 00	6 00 7 23	1 19 12 20	.....	23 47	41	0 10.7 - 4 42	11.0
Thu Jan 02/Fri Jan 03	6 23	17 38	19 01	6 00 7 24	1 23 12 24	.....	0 40	50	0 54.3 - 0 03	11.0
Fri Jan 03/Sat Jan 04	6 27	17 38	19 02	6 01 7 24	1 28 12 29	.....	1 34	60	1 38.4 4 38	11.0
Sat Jan 04/Sun Jan 05	6 31	17 39	19 02	6 01 7 24	1 32 12 33	.....	2 29	69	2 23.9 9 13	11.0
Sun Jan 05/Mon Jan 06	6 35	17 40	19 03	6 01 7 24	1 37 12 37	.....	3 26	78	3 11.6 13 32	11.0
Mon Jan 06/Tue Jan 07	6 39	17 41	19 04	6 01 7 24	1 42 12 41	.....	4 25	86	4 02.5 17 21	11.0
Tue Jan 07/Wed Jan 08	6 43	17 41	19 04	6 01 7 24	1 46 12 45	.....	5 26	92	4 57.0 20 24	10.9
Wed Jan 08/Thu Jan 09	6 47	17 42	19 05	6 01 7 24	1 51 12 49	.....	6 28	97	5 55.0 22 24	10.9
Thu Jan 09/Fri Jan 10	6 51	17 43	19 06	6 01 7 24	1 56 12 53	.....	7 28	100	6 55.9 23 04	10.9
Fri Jan 10/Sat Jan 11	6 55	17 44	19 07	6 01 7 24	2 00 12 57	.....	.....	100	7 58.1 22 15	10.9
Sat Jan 11/Sun Jan 12	6 59	17 45	19 07	6 01 7 24	2 05 13 01	.....	.....	97	8 59.8 19 55	10.9
Sun Jan 12/Mon Jan 13	7 02	17 46	19 08	6 01 7 24	2 10 13 05	.....	.....	91	9 59.8 16 16	10.9
Mon Jan 13/Tue Jan 14	7 06	17 47	19 09	6 01 7 24	2 15 13 09	.....	.....	84	10 57.2 11 36	10.9
Tue Jan 14/Wed Jan 15	7 10	17 47	19 10	6 01 7 24	2 19 13 13	.....	.....	74	11 52.1 6 17	10.9
Wed Jan 15/Thu Jan 16	7 14	17 48	19 10	6 01 7 23	2 24 13 17	.....	.....	63	12 45.2 0 41	10.8
Thu Jan 16/Fri Jan 17	7 18	17 49	19 11	6 01 7 23	2 29 13 20	.....	.....	52	13 37.4 - 4 52	10.8
Fri Jan 17/Sat Jan 18	7 22	17 50	19 12	6 01 7 23	2 33 13 24	.....	.....	41	14 29.4 -10 05	10.8
Sat Jan 18/Sun Jan 19	7 26	17 51	19 13	6 01 7 23	2 38 13 28	.....	.....	30	15 22.0 -14 42	10.8
Sun Jan 19/Mon Jan 20	7 30	17 52	19 14	6 01 7 22	2 43 13 32	.....	.....	21	16 15.7 -18 30	10.8
Mon Jan 20/Tue Jan 21	7 34	17 53	19 14	6 01 7 22	2 48 13 36	.....	.....	13	17 10.5 -21 18	10.8
Tue Jan 21/Wed Jan 22	7 38	17 54	19 15	6 00 7 22	2 52 13 39	.....	.....	7	18 06.1 -22 56	10.8
Wed Jan 22/Thu Jan 23	7 42	17 55	19 16	6 00 7 21	2 57 13 43	.....	.....	3	19 01.6 -23 21	10.7
Thu Jan 23/Fri Jan 24	7 46	17 56	19 17	6 00 7 21	3 02 13 47	.....	.....	0	19 56.1 -22 35	10.7
Fri Jan 24/Sat Jan 25	7 50	17 56	19 18	5 59 7 20	3 07 13 50	.....	.....	0	20 48.7 -20 44	10.7
Sat Jan 25/Sun Jan 26	7 54	17 57	19 18	5 59 7 20	3 11 13 54	.....	.....	2	21 38.9 -17 58	10.7
Sun Jan 26/Mon Jan 27	7 58	17 58	19 19	5 59 7 19	3 16 13 57	.....	.....	5	22 26.8 -14 28	10.7
Mon Jan 27/Tue Jan 28	8 02	17 59	19 20	5 58 7 19	3 21 14 01	.....	.....	10	23 12.6 -10 27	10.6
Tue Jan 28/Wed Jan 29	8 06	18 00	19 21	5 58 7 18	3 26 14 04	.....	.....	17	23 56.8 - 6 04	10.6
Wed Jan 29/Thu Jan 30	8 10	18 01	19 22	5 57 7 18	3 30 14 08	.....	.....	24	0 40.1 - 1 30	10.6
Thu Jan 30/Fri Jan 31	8 13	18 02	19 22	5 57 7 17	3 35 14 11	.....	.....	33	1 23.4 3 09	10.6
Fri Jan 31/Sat Feb 01	8 17	18 03	19 23	5 56 7 17	3 40 14 15	.....	.....	42	2 07.5 7 42	10.6

\*\*\*\*\* 2020 FEBRUARY \*\*\*\*\*

Date (eve/morn)	LMST midn	----- set	Sun: ----- twi.end twi.beg	rise	LST twilight: eve morn	----- rise	Moon: ----- set %illum	RA	Dec	Twi-Twi hours
Sat Feb 01/Sun Feb 02	8 21	18 04	19 24	5 56 7 16	3 44 14 18	.....	1 13	51	2 53.3 12 02	10.5
Sun Feb 02/Mon Feb 03	8 25	18 05	19 25	5 55 7 15	3 49 14 22	.....	2 10	61	3 41.7 15 58	10.5
Mon Feb 03/Tue Feb 04	8 29	18 06	19 25	5 55 7 15	3 54 14 25	.....	3 09	71	4 33.3 19 17	10.5
Tue Feb 04/Wed Feb 05	8 33	18 06	19 26	5 54 7 14	3 59 14 28	.....	4 09	80	5 28.6 21 42	10.5
Wed Feb 05/Thu Feb 06	8 37	18 07	19 27	5 54 7 13	4 03 14 32	.....	5 10	88	6 27.5 22 58	10.4
Thu Feb 06/Fri Feb 07	8 41	18 08	19 28	5 53 7 12	4 08 14 35	.....	6 07	94	7 29.0 22 49	10.4
Fri Feb 07/Sat Feb 08	8 45	18 09	19 29	5 52 7 12	4 13 14 38	.....	7 00	98	8 31.5 21 07	10.4
Sat Feb 08/Sun Feb 09	8 49	18 10	19 29	5 52 7 11	4 18 14 41	.....	7 49	100	9 33.6 17 56	10.4
Sun Feb 09/Mon Feb 10	8 53	18 11	19 30	5 51 7 10	4 22 14 45	.....	.....	98	10 33.8 13 30	10.3
Mon Feb 10/Tue Feb 11	8 57	18 12	19 31	5 50 7 09	4 27 14 48	.....	.....	94	11 31.8 8 10	10.3
Tue Feb 11/Wed Feb 12	9 01	18 13	19 32	5 49 7 08	4 32 14 51	.....	.....	87	12 27.7 2 22	10.3
Wed Feb 12/Thu Feb 13	9 05	18 14	19 32	5 49 7 07	4 36 14 54	.....	.....	78	13 22.1 - 3 28	10.3
Thu Feb 13/Fri Feb 14	9 09	18 14	19 33	5 48 7 06	4 41 14 57	.....	.....	67	14 15.9 - 9 00	10.2
Fri Feb 14/Sat Feb 15	9 13	18 15	19 34	5 47 7 05	4 46 15 00	.....	.....	56	15 09.7 -13 55	10.2
Sat Feb 15/Sun Feb 16	9 17	18 16	19 35	5 46 7 05	4 51 15 03	.....	.....	45	16 04.0 -17 59	10.2
Sun Feb 16/Mon Feb 17	9 20	18 17	19 36	5 45 7 04	4 55 15 07	.....	.....	35	16 59.0 -21 01	10.2
Mon Feb 17/Tue Feb 18	9 24	18 18	19 36	5 44 7 03	5 00 15 10	.....	.....	25	17 54.4 -22 52	10.1
Tue Feb 18/Wed Feb 19	9 28	18 19	19 37	5 43 7 02	5 05 15 13	.....	.....	17	18 49.6 -23 31	10.1
Wed Feb 19/Thu Feb 20	9 32	18 19	19 38	5 42 7 01	5 09 15 16	.....	.....	10	19 43.7 -22 59	10.1
Thu Feb 20/Fri Feb 21	9 36	18 20	19 39	5 41 7 00	5 14 15 19	.....	.....	5	20 36.2 -21 22	10.0
Fri Feb 21/Sat Feb 22	9 40	18 21	19 39	5 40 6 58	5 19 15 22	.....	.....	2	21 26.6 -18 48	10.0
Sat Feb 22/Sun Feb 23	9 44	18 22	19 40	5 39 6 57	5 23 15 24	.....	.....	0	22 14.6 -15 28	10.0
Sun Feb 23/Mon Feb 24	9 48	18 23	19 41	5 38 6 56	5 28 15 27	.....	.....	1	23 00.6 -11 33	10.0
Mon Feb 24/Tue Feb 25	9 52	18 23	19 41	5 37 6 55	5 33 15 30	.....	.....	3	23 45.0 - 7 14	9.9
Tue Feb 25/Wed Feb 26	9 56	18 24	19 42	5 36 6 54	5 37 15 33	.....	.....	6	0 28.3 - 2 41	9.9
Wed Feb 26/Thu Feb 27	10 00	18 25	19 43	5 35 6 53	5 42 15 36	.....	.....	11	1 11.3 1 57	9.9
Thu Feb 27/Fri Feb 28	10 04	18 26	19 44	5 34 6 52	5 47 15 39	.....	.....	18	1 54.7 6 32	9.8
Fri Feb 28/Sat Feb 29	10 08	18 27	19 44	5 33 6 51	5 52 15 42	.....	.....	26	2 39.2 10 54	9.8
Sat Feb 29/Sun Mar 01	10 12	18 27	19 45	5 32 6 50	5 56 15 45	.....	.....	34	3 25.8 14 54	9.8

Calendar for Kitt Peak, west longitude (h.m.s) = 7 26 28, latitude (d.m) = 31 57.2  
 Rise/set times in Mountain time ( 7 hr W), for 500 m above surroundings, in standard time all year.  
 Moon info is for local midnight, even if moon is down. Program: John Thorstensen, Dartmouth College.

\*\*\*\*\* 2020 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	
Sun Mar 01/Mon Mar 02	10 16	18 28	19 46	5 31	6 48	6 01	15 47	.....	0 57	44	4 14.9	18 21	9.7
Mon Mar 02/Tue Mar 03	10 20	18 29	19 47	5 30	6 47	6 06	15 50	.....	1 55	54	5 07.3	21 02	9.7
Tue Mar 03/Wed Mar 04	10 24	18 30	19 47	5 28	6 46	6 10	15 53	.....	2 54	64	6 03.0	22 43	9.7
Wed Mar 04/Thu Mar 05	10 27	18 30	19 48	5 27	6 45	6 15	15 56	.....	3 51	74	7 01.6	23 08	9.7
Thu Mar 05/Fri Mar 06	10 31	18 31	19 49	5 26	6 44	6 20	15 58	.....	4 46	83	8 02.2	22 08	9.6
Fri Mar 06/Sat Mar 07	10 35	18 32	19 50	5 25	6 42	6 24	16 01	.....	5 35	91	9 03.6	19 38	9.6
Sat Mar 07/Sun Mar 08	10 39	18 33	19 50	5 24	6 41	6 29	16 04	.....	6 21	97	10 04.5	15 44	9.6
Sun Mar 08/Mon Mar 09	10 43	18 33	19 51	5 22	6 40	6 34	16 07	17 31	7 02	100	11 04.0	10 41	9.5
Mon Mar 09/Tue Mar 10	10 47	18 34	19 52	5 21	6 39	6 38	16 09	18 43	.....	99	12 01.9	4 52	9.5
Tue Mar 10/Wed Mar 11	10 51	18 35	19 53	5 20	6 37	6 43	16 12	19 54	.....	96	12 58.7	- 1 15	9.5
Wed Mar 11/Thu Mar 12	10 55	18 36	19 53	5 19	6 36	6 48	16 15	21 03	.....	90	13 54.8	- 7 14	9.4
Thu Mar 12/Fri Mar 13	10 59	18 36	19 54	5 17	6 35	6 52	16 17	22 12	.....	81	14 50.9	-12 40	9.4
Fri Mar 13/Sat Mar 14	11 03	18 37	19 55	5 16	6 34	6 57	16 20	23 19	.....	72	15 47.4	-17 14	9.4
Sat Mar 14/Sun Mar 15	11 07	18 38	19 56	5 15	6 32	7 02	16 22	0 25	.....	61	16 44.2	-20 41	9.3
Sun Mar 15/Mon Mar 16	11 11	18 38	19 56	5 13	6 31	7 06	16 25	1 27	.....	50	17 41.2	-22 54	9.3
Mon Mar 16/Tue Mar 17	11 15	18 39	19 57	5 12	6 30	7 11	16 28	2 24	.....	40	18 37.6	-23 50	9.2
Tue Mar 17/Wed Mar 18	11 19	18 40	19 58	5 11	6 29	7 16	16 30	3 16	.....	30	19 32.6	-23 31	9.2
Wed Mar 18/Thu Mar 19	11 23	18 40	19 59	5 09	6 27	7 21	16 33	4 02	.....	22	20 25.7	-22 04	9.2
Thu Mar 19/Fri Mar 20	11 27	18 41	19 59	5 08	6 26	7 25	16 35	4 43	.....	14	21 16.3	-19 39	9.1
Fri Mar 20/Sat Mar 21	11 31	18 42	20 00	5 07	6 25	7 30	16 38	5 19	.....	9	22 04.6	-16 26	9.1
Sat Mar 21/Sun Mar 22	11 35	18 43	20 01	5 05	6 24	7 35	16 41	5 51	.....	4	22 50.7	-12 37	9.1
Sun Mar 22/Mon Mar 23	11 38	18 43	20 02	5 04	6 22	7 39	16 43	6 21	17 25	1	23 35.1	- 8 21	9.0
Mon Mar 23/Tue Mar 24	11 42	18 44	20 02	5 03	6 21	7 44	16 46	6 50	18 19	0	0 18.4	- 3 48	9.0
Tue Mar 24/Wed Mar 25	11 46	18 45	20 03	5 01	6 20	7 49	16 48	.....	19 12	1	1 01.3	0 51	9.0
Wed Mar 25/Thu Mar 26	11 50	18 45	20 04	5 00	6 18	7 54	16 51	.....	20 05	3	1 44.4	5 30	8.9
Thu Mar 26/Fri Mar 27	11 54	18 46	20 05	4 58	6 17	7 58	16 53	.....	20 59	7	2 28.4	9 57	8.9
Fri Mar 27/Sat Mar 28	11 58	18 47	20 06	4 57	6 16	8 03	16 56	.....	21 54	13	3 14.0	14 04	8.9
Sat Mar 28/Sun Mar 29	12 02	18 47	20 06	4 56	6 15	8 08	16 58	.....	22 51	20	4 01.9	17 39	8.8
Sun Mar 29/Mon Mar 30	12 06	18 48	20 07	4 54	6 13	8 13	17 01	.....	23 48	28	4 52.4	20 31	8.8
Mon Mar 30/Tue Mar 31	12 10	18 49	20 08	4 53	6 12	8 17	17 04	.....	0 45	38	5 45.8	22 28	8.7
Tue Mar 31/Wed Apr 01	12 14	18 49	20 09	4 51	6 11	8 22	17 06	.....	1 42	48	6 41.7	23 17	8.7

\*\*\*\*\* 2020 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	
Wed Apr 01/Thu Apr 02	12 18	18 50	20 10	4 50	6 09	8 27	17 09	.....	2 36	59	7 39.7	22 48	8.7
Thu Apr 02/Fri Apr 03	12 22	18 51	20 10	4 48	6 08	8 32	17 11	.....	3 25	69	8 38.6	20 55	8.6
Fri Apr 03/Sat Apr 04	12 26	18 51	20 11	4 47	6 07	8 36	17 14	.....	4 11	79	9 37.7	17 39	8.6
Sat Apr 04/Sun Apr 05	12 30	18 52	20 12	4 46	6 06	8 41	17 16	.....	4 53	88	10 36.1	13 09	8.6
Sun Apr 05/Mon Apr 06	12 34	18 53	20 13	4 44	6 04	8 46	17 19	.....	5 33	95	11 33.7	7 41	8.5
Mon Apr 06/Tue Apr 07	12 38	18 53	20 14	4 43	6 03	8 51	17 21	17 27	6 10	99	12 30.6	1 37	8.5
Tue Apr 07/Wed Apr 08	12 42	18 54	20 15	4 41	6 02	8 56	17 24	18 38	6 48	100	13 27.5	- 4 37	8.4
Wed Apr 08/Thu Apr 09	12 45	18 55	20 16	4 40	6 01	9 00	17 26	19 48	.....	98	14 24.8	-10 33	8.4
Thu Apr 09/Fri Apr 10	12 49	18 55	20 16	4 39	6 00	9 05	17 29	20 59	.....	93	15 22.9	-15 45	8.4
Fri Apr 10/Sat Apr 11	12 53	18 56	20 17	4 37	5 58	9 10	17 31	22 08	.....	85	16 21.9	-19 53	8.3
Sat Apr 11/Sun Apr 12	12 57	18 57	20 18	4 36	5 57	9 15	17 34	23 14	.....	76	17 21.4	-22 42	8.3
Sun Apr 12/Mon Apr 13	13 01	18 58	20 19	4 34	5 56	9 20	17 36	0 16	.....	66	18 20.4	-24 06	8.3
Mon Apr 13/Tue Apr 14	13 05	18 58	20 20	4 33	5 55	9 25	17 39	1 12	.....	56	19 17.8	-24 08	8.2
Tue Apr 14/Wed Apr 15	13 09	18 59	20 21	4 32	5 54	9 29	17 42	2 01	.....	46	20 12.9	-22 55	8.2
Wed Apr 15/Thu Apr 16	13 13	19 00	20 22	4 30	5 52	9 34	17 44	2 44	.....	36	21 05.0	-20 39	8.1
Thu Apr 16/Fri Apr 17	13 17	19 00	20 23	4 29	5 51	9 39	17 47	3 21	.....	27	21 54.3	-17 33	8.1
Fri Apr 17/Sat Apr 18	13 21	19 01	20 24	4 27	5 50	9 44	17 49	3 54	.....	19	22 41.0	-13 48	8.1
Sat Apr 18/Sun Apr 19	13 25	19 02	20 25	4 26	5 49	9 49	17 52	4 25	.....	13	23 25.7	- 9 34	8.0
Sun Apr 19/Mon Apr 20	13 29	19 02	20 25	4 25	5 48	9 54	17 54	4 53	.....	7	0 09.1	- 5 03	8.0
Mon Apr 20/Tue Apr 21	13 33	19 03	20 26	4 23	5 47	9 59	17 57	5 21	.....	3	0 51.9	- 0 21	7.9
Tue Apr 21/Wed Apr 22	13 37	19 04	20 27	4 22	5 46	10 04	18 00	5 50	18 00	1	1 34.8	4 21	7.9
Wed Apr 22/Thu Apr 23	13 41	19 05	20 28	4 21	5 45	10 08	18 02	6 19	18 54	0	2 18.6	8 55	7.9
Thu Apr 23/Fri Apr 24	13 45	19 05	20 29	4 19	5 44	10 13	18 05	.....	19 49	1	3 03.9	13 10	7.8
Fri Apr 24/Sat Apr 25	13 49	19 06	20 30	4 18	5 42	10 18	18 07	.....	20 46	4	3 51.3	16 56	7.8
Sat Apr 25/Sun Apr 26	13 53	19 07	20 31	4 17	5 41	10 23	18 10	.....	21 43	9	4 41.1	20 00	7.8
Sun Apr 26/Mon Apr 27	13 56	19 07	20 32	4 16	5 40	10 28	18 13	.....	22 41	16	5 33.5	22 11	7.7
Mon Apr 27/Tue Apr 28	14 00	19 08	20 33	4 14	5 39	10 33	18 15	.....	23 37	24	6 28.1	23 17	7.7
Tue Apr 28/Wed Apr 29	14 04	19 09	20 34	4 13	5 38	10 38	18 18	.....	0 31	33	7 24.5	23 09	7.6
Wed Apr 29/Thu Apr 30	14 08	19 10	20 35	4 12	5 37	10 43	18 21	.....	1 21	43	8 21.6	21 42	7.6
Thu Apr 30/Fri May 01	14 12	19 10	20 36	4 11	5 36	10 48	18 23	.....	2 07	54	9 18.7	18 56	7.6

Calendar for Kitt Peak, west longitude (h.m.s) = 7 26 28, latitude (d.m) = 31 57.2  
 Rise/set times in Mountain time ( 7 hr W), for 500 m above surroundings, in standard time all year.  
 Moon info is for local midnight, even if moon is down. Program: John Thorstensen, Dartmouth College.

\*\*\*\*\* 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	14 16	19 11	20 37	4 09	5 36	10 53	18 26	.....	2 49	65	10 15.1	14 58	7.5
Sat May 02/Sun May 03	14 20	19 12	20 38	4 08	5 35	10 58	18 29	.....	3 27	76	11 10.8	9 59	7.5
Sun May 03/Mon May 04	14 24	19 12	20 39	4 07	5 34	11 03	18 32	.....	4 04	85	12 05.9	4 16	7.5
Mon May 04/Tue May 05	14 28	19 13	20 40	4 06	5 33	11 08	18 34	.....	4 41	93	13 01.2	- 1 50	7.4
Tue May 05/Wed May 06	14 32	19 14	20 41	4 05	5 32	11 13	18 37	17 23	5 18	98	13 57.3	- 7 56	7.4
Wed May 06/Thu May 07	14 36	19 15	20 42	4 04	5 31	11 17	18 40	18 34	5 59	100	14 54.8	-13 35	7.4
Thu May 07/Fri May 08	14 40	19 15	20 43	4 02	5 30	11 22	18 43	19 44	.....	99	15 54.1	-18 22	7.3
Fri May 08/Sat May 09	14 44	19 16	20 44	4 01	5 30	11 27	18 46	20 54	.....	95	16 54.8	-21 55	7.3
Sat May 09/Sun May 10	14 48	19 17	20 45	4 00	5 29	11 32	18 49	22 00	.....	89	17 56.0	-24 01	7.3
Sun May 10/Mon May 11	14 52	19 17	20 46	3 59	5 28	11 37	18 52	23 01	.....	81	18 56.3	-24 38	7.2
Mon May 11/Tue May 12	14 56	19 18	20 47	3 58	5 27	11 42	18 54	23 54	.....	72	19 54.4	-23 49	7.2
Tue May 12/Wed May 13	15 00	19 19	20 48	3 57	5 27	11 47	18 57	0 41	.....	62	20 49.3	-21 49	7.2
Wed May 13/Thu May 14	15 03	19 20	20 49	3 56	5 26	11 52	19 00	1 21	.....	52	21 40.8	-18 51	7.1
Thu May 14/Fri May 15	15 07	19 20	20 50	3 55	5 25	11 57	19 03	1 56	.....	43	22 29.0	-15 11	7.1
Fri May 15/Sat May 16	15 11	19 21	20 51	3 54	5 25	12 02	19 06	2 27	.....	33	23 14.7	-10 59	7.1
Sat May 16/Sun May 17	15 15	19 22	20 52	3 53	5 24	12 07	19 09	2 57	.....	25	23 58.7	- 6 28	7.0
Sun May 17/Mon May 18	15 19	19 22	20 53	3 53	5 23	12 12	19 12	3 25	.....	17	0 41.6	- 1 46	7.0
Mon May 18/Tue May 19	15 23	19 23	20 54	3 52	5 23	12 17	19 15	3 52	.....	11	1 24.5	3 00	7.0
Tue May 19/Wed May 20	15 27	19 24	20 55	3 51	5 22	12 22	19 19	4 21	.....	6	2 08.0	7 39	6.9
Wed May 20/Thu May 21	15 31	19 24	20 56	3 50	5 22	12 26	19 22	4 52	17 43	2	2 53.0	12 02	6.9
Thu May 21/Fri May 22	15 35	19 25	20 57	3 49	5 21	12 31	19 25	5 27	18 39	0	3 40.0	15 59	6.9
Fri May 22/Sat May 23	15 39	19 26	20 58	3 48	5 21	12 36	19 28	6 06	19 37	0	4 29.5	19 18	6.8
Sat May 23/Sun May 24	15 43	19 26	20 59	3 48	5 20	12 41	19 31	.....	20 35	2	5 21.7	21 44	6.8
Sun May 24/Mon May 25	15 47	19 27	21 00	3 47	5 20	12 46	19 35	.....	21 33	6	6 16.2	23 08	6.8
Mon May 25/Tue May 26	15 51	19 28	21 00	3 46	5 19	12 51	19 38	.....	22 29	12	7 12.3	23 17	6.8
Tue May 26/Wed May 27	15 55	19 28	21 01	3 46	5 19	12 56	19 41	.....	23 20	20	8 09.1	22 09	6.7
Wed May 27/Thu May 28	15 59	19 29	21 02	3 45	5 19	13 00	19 44	.....	0 07	29	9 05.6	19 42	6.7
Thu May 28/Fri May 29	16 03	19 29	21 03	3 45	5 18	13 05	19 48	.....	0 49	40	10 01.0	16 06	6.7
Fri May 29/Sat May 30	16 07	19 30	21 04	3 44	5 18	13 10	19 51	.....	1 27	51	10 55.2	11 30	6.7
Sat May 30/Sun May 31	16 11	19 31	21 05	3 44	5 18	13 15	19 55	.....	2 03	63	11 48.6	6 08	6.6
Sun May 31/Mon Jun 01	16 14	19 31	21 05	3 43	5 17	13 19	19 58	.....	2 38	74	12 41.7	0 19	6.6

\*\*\*\*\* 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	16 18	19 32	21 06	3 43	5 17	13 24	20 02	.....	3 14	83	13 35.4	- 5 38	6.6
Tue Jun 02/Wed Jun 03	16 22	19 32	21 07	3 42	5 17	13 29	20 05	.....	3 51	91	14 30.5	-11 23	6.6
Wed Jun 03/Thu Jun 04	16 26	19 33	21 08	3 42	5 17	13 33	20 09	.....	4 32	97	15 27.8	-16 30	6.6
Thu Jun 04/Fri Jun 05	16 30	19 33	21 08	3 42	5 17	13 38	20 12	18 31	5 18	100	16 27.3	-20 37	6.6
Fri Jun 05/Sat Jun 06	16 34	19 34	21 09	3 41	5 16	13 43	20 16	19 39	6 09	100	17 28.6	-23 26	6.5
Sat Jun 06/Sun Jun 07	16 38	19 34	21 10	3 41	5 16	13 47	20 20	20 44	.....	97	18 30.2	-24 44	6.5
Sun Jun 07/Mon Jun 08	16 42	19 35	21 10	3 41	5 16	13 52	20 23	21 42	.....	92	19 30.6	-24 31	6.5
Mon Jun 08/Tue Jun 09	16 46	19 35	21 11	3 41	5 16	13 56	20 27	22 33	.....	85	20 28.4	-22 56	6.5
Tue Jun 09/Wed Jun 10	16 50	19 36	21 11	3 40	5 16	14 01	20 31	23 17	.....	77	21 22.6	-20 14	6.5
Wed Jun 10/Thu Jun 11	16 54	19 36	21 12	3 40	5 16	14 05	20 35	23 55	.....	68	22 13.2	-16 42	6.5
Thu Jun 11/Fri Jun 12	16 58	19 37	21 13	3 40	5 16	14 10	20 39	0 28	.....	59	23 00.7	-12 34	6.5
Fri Jun 12/Sat Jun 13	17 02	19 37	21 13	3 40	5 16	14 14	20 42	0 58	.....	49	23 45.8	- 8 03	6.5
Sat Jun 13/Sun Jun 14	17 06	19 37	21 13	3 40	5 16	14 19	20 46	1 27	.....	40	0 29.3	- 3 19	6.4
Sun Jun 14/Mon Jun 15	17 10	19 38	21 14	3 40	5 16	14 23	20 50	1 54	.....	31	1 12.4	1 28	6.4
Mon Jun 15/Tue Jun 16	17 14	19 38	21 14	3 40	5 16	14 27	20 54	2 23	.....	23	1 55.7	6 12	6.4
Tue Jun 16/Wed Jun 17	17 18	19 38	21 15	3 40	5 17	14 32	20 58	2 53	.....	15	2 40.2	10 42	6.4
Wed Jun 17/Thu Jun 18	17 21	19 39	21 15	3 40	5 17	14 36	21 02	3 26	.....	9	3 26.6	14 49	6.4
Thu Jun 18/Fri Jun 19	17 25	19 39	21 15	3 41	5 17	14 40	21 07	4 03	.....	4	4 15.6	18 21	6.4
Fri Jun 19/Sat Jun 20	17 29	19 39	21 16	3 41	5 17	14 44	21 11	4 45	18 26	1	5 07.4	21 05	6.4
Sat Jun 20/Sun Jun 21	17 33	19 39	21 16	3 41	5 17	14 49	21 15	5 34	19 25	0	6 01.9	22 48	6.4
Sun Jun 21/Mon Jun 22	17 37	19 40	21 16	3 41	5 18	14 53	21 19	6 29	20 22	1	6 58.4	23 18	6.4
Mon Jun 22/Tue Jun 23	17 41	19 40	21 16	3 41	5 18	14 57	21 23	.....	21 16	4	7 55.8	22 28	6.4
Tue Jun 23/Wed Jun 24	17 45	19 40	21 16	3 42	5 18	15 01	21 28	.....	22 05	10	8 53.0	20 19	6.4
Wed Jun 24/Thu Jun 25	17 49	19 40	21 16	3 42	5 18	15 05	21 32	.....	22 49	18	9 49.0	16 56	6.4
Thu Jun 25/Fri Jun 26	17 53	19 40	21 16	3 43	5 19	15 09	21 36	.....	23 29	27	10 43.3	12 32	6.4
Fri Jun 26/Sat Jun 27	17 57	19 40	21 16	3 43	5 19	15 13	21 40	.....	0 05	38	11 36.2	7 24	6.4
Sat Jun 27/Sun Jun 28	18 01	19 40	21 16	3 43	5 19	15 17	21 45	.....	0 40	49	12 28.3	1 46	6.5
Sun Jun 28/Mon Jun 29	18 05	19 40	21 16	3 44	5 20	15 21	21 49	.....	1 14	60	13 20.3	- 4 02	6.5
Mon Jun 29/Tue Jun 30	18 09	19 40	21 16	3 44	5 20	15 25	21 54	.....	1 50	71	14 13.3	- 9 42	6.5
Tue Jun 30/Wed Jul 01	18 13	19 40	21 16	3 45	5 21	15 28	21 58	.....	2 28	81	15 08.1	-14 54	6.5

Calendar for Kitt Peak, west longitude (h.m.s) = 7 26 28, latitude (d.m) = 31 57.2  
 Rise/set times in Mountain time ( 7 hr W), for 500 m above surroundings, in standard time all year.  
 Moon info is for local midnight, even if moon is down. Program: John Thorstensen, Dartmouth College.

\*\*\*\*\* 2020 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
Wed Jul 01/Thu Jul 02	18 17	19 40	21 16	3 45	5 21	15 32	22 03	.....	3 11	89	16 05.2	-19 17	6.5		
Thu Jul 02/Fri Jul 03	18 21	19 40	21 16	3 46	5 21	15 36	22 07	.....	3 58	95	17 04.5	-22 33	6.5		
Fri Jul 03/Sat Jul 04	18 25	19 40	21 15	3 47	5 22	15 40	22 12	18 27	4 52	99	18 05.2	-24 26	6.5		
Sat Jul 04/Sun Jul 05	18 28	19 40	21 15	3 47	5 22	15 43	22 16	19 28	5 49	100	19 06.0	-24 50	6.5		
Sun Jul 05/Mon Jul 06	18 32	19 40	21 15	3 48	5 23	15 47	22 21	20 22	.....	98	20 05.2	-23 47	6.5		
Mon Jul 06/Tue Jul 07	18 36	19 40	21 15	3 49	5 23	15 50	22 26	21 10	.....	95	21 01.4	-21 28	6.6		
Tue Jul 07/Wed Jul 08	18 40	19 39	21 14	3 49	5 24	15 54	22 30	21 50	.....	89	21 54.2	-18 10	6.6		
Wed Jul 08/Thu Jul 09	18 44	19 39	21 14	3 50	5 24	15 58	22 35	22 26	.....	82	22 43.7	-14 09	6.6		
Thu Jul 09/Fri Jul 10	18 48	19 39	21 13	3 51	5 25	16 01	22 40	22 58	.....	74	23 30.3	- 9 40	6.6		
Fri Jul 10/Sat Jul 11	18 52	19 39	21 13	3 51	5 26	16 05	22 44	23 27	.....	65	0 14.9	- 4 55	6.6		
Sat Jul 11/Sun Jul 12	18 56	19 38	21 12	3 52	5 26	16 08	22 49	23 55	.....	56	0 58.4	- 0 05	6.7		
Sun Jul 12/Mon Jul 13	19 00	19 38	21 12	3 53	5 27	16 11	22 54	0 23	.....	47	1 41.8	4 43	6.7		
Mon Jul 13/Tue Jul 14	19 04	19 38	21 11	3 54	5 27	16 15	22 58	0 52	.....	37	2 25.8	9 18	6.7		
Tue Jul 14/Wed Jul 15	19 08	19 37	21 11	3 55	5 28	16 18	23 03	1 23	.....	28	3 11.5	13 33	6.7		
Wed Jul 15/Thu Jul 16	19 12	19 37	21 10	3 55	5 28	16 21	23 08	1 58	.....	20	3 59.5	17 17	6.8		
Thu Jul 16/Fri Jul 17	19 16	19 37	21 09	3 56	5 29	16 25	23 13	2 38	.....	13	4 50.3	20 18	6.8		
Fri Jul 17/Sat Jul 18	19 20	19 36	21 09	3 57	5 30	16 28	23 18	3 25	.....	7	5 44.1	22 22	6.8		
Sat Jul 18/Sun Jul 19	19 24	19 36	21 08	3 58	5 30	16 31	23 22	4 18	18 10	2	6 40.4	23 16	6.8		
Sun Jul 19/Mon Jul 20	19 28	19 35	21 07	3 59	5 31	16 34	23 27	5 18	19 07	0	7 38.3	22 50	6.9		
Mon Jul 20/Tue Jul 21	19 32	19 35	21 06	4 00	5 31	16 37	23 32	6 22	19 59	0	8 36.6	21 01	6.9		
Tue Jul 21/Wed Jul 22	19 36	19 34	21 05	4 01	5 32	16 40	23 37	.....	20 46	3	9 34.0	17 54	6.9		
Wed Jul 22/Thu Jul 23	19 39	19 33	21 05	4 02	5 33	16 44	23 42	.....	21 28	8	10 29.7	13 40	7.0		
Thu Jul 23/Fri Jul 24	19 43	19 33	21 04	4 03	5 33	16 47	23 47	.....	22 06	16	11 23.7	8 35	7.0		
Fri Jul 24/Sat Jul 25	19 47	19 32	21 03	4 03	5 34	16 50	23 51	.....	22 42	25	12 16.4	2 59	7.0		
Sat Jul 25/Sun Jul 26	19 51	19 32	21 02	4 04	5 35	16 53	23 56	.....	23 16	35	13 08.4	- 2 48	7.0		
Sun Jul 26/Mon Jul 27	19 55	19 31	21 01	4 05	5 35	16 56	0 01	.....	23 51	47	14 00.7	- 8 29	7.1		
Mon Jul 27/Tue Jul 28	19 59	19 30	21 00	4 06	5 36	16 59	0 06	.....	0 28	58	14 54.2	-13 44	7.1		
Tue Jul 28/Wed Jul 29	20 03	19 29	20 59	4 07	5 37	17 02	0 11	.....	1 08	69	15 49.4	-18 15	7.1		
Wed Jul 29/Thu Jul 30	20 07	19 29	20 58	4 08	5 37	17 04	0 16	.....	1 53	79	16 46.7	-21 46	7.2		
Thu Jul 30/Fri Jul 31	20 11	19 28	20 57	4 09	5 38	17 07	0 21	.....	2 43	87	17 45.7	-24 01	7.2		
Fri Jul 31/Sat Aug 01	20 15	19 27	20 56	4 10	5 39	17 10	0 26	.....	3 39	94	18 45.4	-24 52	7.2		

\*\*\*\*\* 2020 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
Sat Aug 01/Sun Aug 02	20 19	19 26	20 55	4 11	5 39	17 13	0 31	18 14	4 37	98	19 44.3	-24 17	7.3		
Sun Aug 02/Mon Aug 03	20 23	19 26	20 54	4 12	5 40	17 16	0 36	19 03	5 38	100	20 41.1	-22 24	7.3		
Mon Aug 03/Tue Aug 04	20 27	19 25	20 52	4 13	5 41	17 19	0 40	19 46	6 38	99	21 35.0	-19 24	7.3		
Tue Aug 04/Wed Aug 05	20 31	19 24	20 51	4 14	5 41	17 22	0 45	20 24	.....	97	22 25.8	-15 35	7.4		
Wed Aug 05/Thu Aug 06	20 35	19 23	20 50	4 15	5 42	17 24	0 50	20 57	.....	93	23 13.7	-11 11	7.4		
Thu Aug 06/Fri Aug 07	20 39	19 22	20 49	4 16	5 43	17 27	0 55	21 27	.....	87	23 59.4	- 6 27	7.4		
Fri Aug 07/Sat Aug 08	20 43	19 21	20 48	4 17	5 43	17 30	1 00	21 56	.....	80	0 43.6	- 1 33	7.5		
Sat Aug 08/Sun Aug 09	20 46	19 20	20 47	4 18	5 44	17 32	1 05	22 23	.....	72	1 27.2	3 19	7.5		
Sun Aug 09/Mon Aug 10	20 50	19 19	20 45	4 19	5 45	17 35	1 10	22 52	.....	63	2 11.0	8 01	7.6		
Mon Aug 10/Tue Aug 11	20 54	19 18	20 44	4 20	5 45	17 38	1 15	23 22	.....	53	2 56.0	12 24	7.6		
Tue Aug 11/Wed Aug 12	20 58	19 17	20 43	4 20	5 46	17 41	1 20	23 55	.....	44	3 42.9	16 18	7.6		
Wed Aug 12/Thu Aug 13	21 02	19 16	20 42	4 21	5 47	17 43	1 24	0 32	.....	34	4 32.4	19 33	7.7		
Thu Aug 13/Fri Aug 14	21 06	19 15	20 40	4 22	5 47	17 46	1 29	1 15	.....	25	5 24.7	21 56	7.7		
Fri Aug 14/Sat Aug 15	21 10	19 14	20 39	4 23	5 48	17 48	1 34	2 04	.....	17	6 19.9	23 15	7.7		
Sat Aug 15/Sun Aug 16	21 14	19 13	20 38	4 24	5 49	17 51	1 39	3 01	.....	10	7 17.2	23 17	7.8		
Sun Aug 16/Mon Aug 17	21 18	19 12	20 36	4 25	5 49	17 54	1 44	4 04	17 47	4	8 15.6	21 55	7.8		
Mon Aug 17/Tue Aug 18	21 22	19 11	20 35	4 26	5 50	17 56	1 49	5 11	18 37	1	9 13.9	19 11	7.9		
Tue Aug 18/Wed Aug 19	21 26	19 10	20 34	4 27	5 51	17 59	1 54	6 19	19 22	0	10 11.1	15 13	7.9		
Wed Aug 19/Thu Aug 20	21 30	19 09	20 32	4 28	5 51	18 01	1 58	.....	20 02	2	11 06.7	10 14	7.9		
Thu Aug 20/Fri Aug 21	21 34	19 08	20 31	4 29	5 52	18 04	2 03	.....	20 40	7	12 00.9	4 37	8.0		
Fri Aug 21/Sat Aug 22	21 38	19 06	20 29	4 30	5 53	18 07	2 08	.....	21 16	14	12 54.2	- 1 19	8.0		
Sat Aug 22/Sun Aug 23	21 42	19 05	20 28	4 30	5 53	18 09	2 13	.....	21 51	23	13 47.4	- 7 11	8.0		
Sun Aug 23/Mon Aug 24	21 46	19 04	20 27	4 31	5 54	18 12	2 18	.....	22 28	33	14 41.2	-12 39	8.1		
Mon Aug 24/Tue Aug 25	21 50	19 03	20 25	4 32	5 54	18 14	2 22	.....	23 08	44	15 36.3	-17 24	8.1		
Tue Aug 25/Wed Aug 26	21 54	19 02	20 24	4 33	5 55	18 17	2 27	.....	23 51	55	16 32.9	-21 08	8.2		
Wed Aug 26/Thu Aug 27	21 57	19 01	20 22	4 34	5 56	18 19	2 32	.....	0 40	66	17 31.0	-23 40	8.2		
Thu Aug 27/Fri Aug 28	22 01	18 59	20 21	4 35	5 56	18 22	2 37	.....	1 33	76	18 29.7	-24 50	8.2		
Fri Aug 28/Sat Aug 29	22 05	18 58	20 20	4 35	5 57	18 24	2 42	.....	2 30	84	19 27.9	-24 36	8.3		
Sat Aug 29/Sun Aug 30	22 09	18 57	20 18	4 36	5 58	18 27	2 46	.....	3 29	91	20 24.4	-23 03	8.3		
Sun Aug 30/Mon Aug 31	22 13	18 56	20 17	4 37	5 58	18 29	2 51	17 44	4 28	96	21 18.4	-20 23	8.3		
Mon Aug 31/Tue Sep 01	22 17	18 54	20 15	4 38	5 59	18 32	2 56	18 23	5 27	99	22 09.6	-16 47	8.4		

Calendar for Kitt Peak, west longitude (h.m.s) = 7 26 28, latitude (d.m) = 31 57.2  
 Rise/set times in Mountain time ( 7 hr W), for 500 m above surroundings, in standard time all year.  
 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	22 21	18 53	20 14	4 39	5 59	18 34	3 01	18 57	6 24	100	22 58.1	-12 32	8.4
Wed Sep 02/Thu Sep 03	22 25	18 52	20 12	4 40	6 00	18 37	3 05	19 28	.....	99	23 44.3	- 7 50	8.5
Thu Sep 03/Fri Sep 04	22 29	18 51	20 11	4 40	6 01	18 39	3 10	19 57	.....	96	0 29.0	- 2 55	8.5
Fri Sep 04/Sat Sep 05	22 33	18 49	20 09	4 41	6 01	18 42	3 15	20 25	.....	91	1 12.9	2 02	8.5
Sat Sep 05/Sun Sep 06	22 37	18 48	20 08	4 42	6 02	18 44	3 20	20 53	.....	85	1 56.7	6 51	8.6
Sun Sep 06/Mon Sep 07	22 41	18 47	20 07	4 43	6 03	18 47	3 24	21 22	.....	78	2 41.4	11 23	8.6
Mon Sep 07/Tue Sep 08	22 45	18 45	20 05	4 43	6 03	18 49	3 29	21 53	.....	69	3 27.6	15 28	8.6
Tue Sep 08/Wed Sep 09	22 49	18 44	20 04	4 44	6 04	18 52	3 34	22 28	.....	60	4 15.9	18 56	8.7
Wed Sep 09/Thu Sep 10	22 53	18 43	20 02	4 45	6 04	18 54	3 38	23 07	.....	50	5 06.7	21 36	8.7
Thu Sep 10/Fri Sep 11	22 57	18 41	20 01	4 46	6 05	18 57	3 43	23 53	.....	40	6 00.2	23 16	8.7
Fri Sep 11/Sat Sep 12	23 01	18 40	19 59	4 46	6 06	18 59	3 48	0 45	.....	31	6 56.0	23 45	8.8
Sat Sep 12/Sun Sep 13	23 04	18 39	19 58	4 47	6 06	19 02	3 52	1 44	.....	21	7 53.3	22 54	8.8
Sun Sep 13/Mon Sep 14	23 08	18 38	19 56	4 48	6 07	19 04	3 57	2 49	.....	13	8 51.1	20 41	8.9
Mon Sep 14/Tue Sep 15	23 12	18 36	19 55	4 49	6 07	19 07	4 02	3 56	17 12	7	9 48.5	17 08	8.9
Tue Sep 15/Wed Sep 16	23 16	18 35	19 54	4 49	6 08	19 09	4 06	5 06	17 54	2	10 44.8	12 28	8.9
Wed Sep 16/Thu Sep 17	23 20	18 34	19 52	4 50	6 09	19 12	4 11	6 16	18 33	0	11 40.1	6 56	9.0
Thu Sep 17/Fri Sep 18	23 24	18 32	19 51	4 51	6 09	19 14	4 16	.....	19 10	1	12 34.6	0 54	9.0
Fri Sep 18/Sat Sep 19	23 28	18 31	19 49	4 51	6 10	19 17	4 20	.....	19 47	5	13 29.0	- 5 14	9.0
Sat Sep 19/Sun Sep 20	23 32	18 30	19 48	4 52	6 10	19 19	4 25	.....	20 24	12	14 24.0	-11 04	9.1
Sun Sep 20/Mon Sep 21	23 36	18 28	19 46	4 53	6 11	19 22	4 30	.....	21 04	20	15 20.1	-16 13	9.1
Mon Sep 21/Tue Sep 22	23 40	18 27	19 45	4 54	6 12	19 24	4 34	.....	21 47	30	16 17.6	-20 22	9.1
Tue Sep 22/Wed Sep 23	23 44	18 26	19 44	4 54	6 12	19 27	4 39	.....	22 35	41	17 16.3	-23 16	9.2
Wed Sep 23/Thu Sep 24	23 48	18 24	19 42	4 55	6 13	19 29	4 44	.....	23 28	52	18 15.5	-24 47	9.2
Thu Sep 24/Fri Sep 25	23 52	18 23	19 41	4 56	6 14	19 32	4 48	.....	0 24	62	19 13.9	-24 52	9.2
Fri Sep 25/Sat Sep 26	23 56	18 22	19 40	4 56	6 14	19 35	4 53	.....	1 23	72	20 10.6	-23 37	9.3
Sat Sep 26/Sun Sep 27	24 00	18 20	19 38	4 57	6 15	19 37	4 57	.....	2 22	81	21 04.7	-21 11	9.3
Sun Sep 27/Mon Sep 28	0 04	18 19	19 37	4 58	6 15	19 40	5 02	.....	3 21	88	21 56.0	-17 49	9.3
Mon Sep 28/Tue Sep 29	0 08	18 18	19 35	4 58	6 16	19 42	5 07	16 59	4 18	93	22 44.5	-13 43	9.4
Tue Sep 29/Wed Sep 30	0 11	18 16	19 34	4 59	6 17	19 45	5 11	17 30	5 13	97	23 30.9	- 9 07	9.4
Wed Sep 30/Thu Oct 01	0 15	18 15	19 33	5 00	6 17	19 48	5 16	17 59	6 07	99	0 15.6	- 4 14	9.4

\*\*\*\*\* 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	0 19	18 14	19 32	5 00	6 18	19 50	5 20	18 27	7 01	100	0 59.6	0 46	9.5
Fri Oct 02/Sat Oct 03	0 23	18 13	19 30	5 01	6 19	19 53	5 25	18 55	.....	98	1 43.5	5 43	9.5
Sat Oct 03/Sun Oct 04	0 27	18 11	19 29	5 02	6 19	19 55	5 30	19 23	.....	95	2 28.0	10 24	9.5
Sun Oct 04/Mon Oct 05	0 31	18 10	19 28	5 02	6 20	19 58	5 34	19 54	.....	90	3 13.8	14 41	9.6
Mon Oct 05/Tue Oct 06	0 35	18 09	19 26	5 03	6 21	20 01	5 39	20 27	.....	83	4 01.5	18 23	9.6
Tue Oct 06/Wed Oct 07	0 39	18 08	19 25	5 04	6 21	20 04	5 44	21 04	.....	75	4 51.5	21 19	9.6
Wed Oct 07/Thu Oct 08	0 43	18 06	19 24	5 04	6 22	20 06	5 48	21 47	.....	66	5 43.8	23 17	9.7
Thu Oct 08/Fri Oct 09	0 47	18 05	19 23	5 05	6 23	20 09	5 53	22 35	.....	57	6 38.2	24 09	9.7
Fri Oct 09/Sat Oct 10	0 51	18 04	19 22	5 06	6 23	20 12	5 57	23 30	.....	47	7 34.0	23 44	9.7
Sat Oct 10/Sun Oct 11	0 55	18 03	19 20	5 06	6 24	20 14	6 02	0 30	.....	36	8 30.5	22 01	9.8
Sun Oct 11/Mon Oct 12	0 59	18 01	19 19	5 07	6 25	20 17	6 07	1 35	.....	26	9 26.7	19 00	9.8
Mon Oct 12/Tue Oct 13	1 03	18 00	19 18	5 08	6 25	20 20	6 11	2 42	.....	17	10 22.3	14 48	9.8
Tue Oct 13/Wed Oct 14	1 07	17 59	19 17	5 08	6 26	20 23	6 16	3 51	16 26	9	11 17.1	9 37	9.9
Wed Oct 14/Thu Oct 15	1 11	17 58	19 16	5 09	6 27	20 26	6 20	5 01	17 03	4	12 11.5	3 44	9.9
Thu Oct 15/Fri Oct 16	1 15	17 57	19 15	5 10	6 28	20 28	6 25	6 11	17 39	1	13 05.9	- 2 29	9.9
Fri Oct 16/Sat Oct 17	1 19	17 56	19 14	5 10	6 28	20 31	6 30	7 22	18 16	0	14 01.2	- 8 38	9.9
Sat Oct 17/Sun Oct 18	1 22	17 55	19 12	5 11	6 29	20 34	6 34	.....	18 55	3	14 57.9	-14 16	10.0
Sun Oct 18/Mon Oct 19	1 26	17 53	19 11	5 12	6 30	20 37	6 39	.....	19 38	9	15 56.5	-19 01	10.0
Mon Oct 19/Tue Oct 20	1 30	17 52	19 10	5 12	6 31	20 40	6 44	.....	20 26	17	16 56.6	-22 31	10.0
Tue Oct 20/Wed Oct 21	1 34	17 51	19 09	5 13	6 31	20 43	6 48	.....	21 18	26	17 57.4	-24 34	10.1
Wed Oct 21/Thu Oct 22	1 38	17 50	19 08	5 14	6 32	20 46	6 53	.....	22 15	36	18 57.6	-25 05	10.1
Thu Oct 22/Fri Oct 23	1 42	17 49	19 07	5 14	6 33	20 49	6 57	.....	23 15	46	19 55.8	-24 09	10.1
Fri Oct 23/Sat Oct 24	1 46	17 48	19 06	5 15	6 34	20 52	7 02	.....	0 15	57	20 51.1	-21 59	10.1
Sat Oct 24/Sun Oct 25	1 50	17 47	19 06	5 16	6 34	20 55	7 07	.....	1 15	67	21 43.2	-18 48	10.2
Sun Oct 25/Mon Oct 26	1 54	17 46	19 05	5 17	6 35	20 58	7 11	.....	2 12	76	22 32.2	-14 52	10.2
Mon Oct 26/Tue Oct 27	1 58	17 45	19 04	5 17	6 36	21 01	7 16	.....	3 08	83	23 18.7	-10 22	10.2
Tue Oct 27/Wed Oct 28	2 02	17 44	19 03	5 18	6 37	21 04	7 21	.....	4 02	90	0 03.4	- 5 32	10.3
Wed Oct 28/Thu Oct 29	2 06	17 43	19 02	5 19	6 38	21 07	7 25	16 31	4 56	95	0 47.2	- 0 32	10.3
Thu Oct 29/Fri Oct 30	2 10	17 42	19 01	5 19	6 38	21 10	7 30	16 58	5 49	98	1 30.8	4 28	10.3
Fri Oct 30/Sat Oct 31	2 14	17 41	19 00	5 20	6 39	21 13	7 35	17 26	6 43	100	2 15.1	9 17	10.3
Sat Oct 31/Sun Nov 01	2 18	17 40	19 00	5 21	6 40	21 16	7 39	17 56	7 38	100	3 00.7	13 46	10.4

Calendar for Kitt Peak, west longitude (h.m.s) = 7 26 28, latitude (d.m) = 31 57.2  
 Rise/set times in Mountain time ( 7 hr W), for 500 m above surroundings, in standard time all year.  
 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 22	17 40	18 59	5 22	6 41	21 20	7 44	18 28	.....	97	3 48.1	17 43	10.4
Mon Nov 02/Tue Nov 03	2 26	17 39	18 58	5 22	6 42	21 23	7 49	19 04	.....	93	4 37.8	20 55	10.4
Tue Nov 03/Wed Nov 04	2 29	17 38	18 57	5 23	6 43	21 26	7 53	19 44	.....	88	5 29.8	23 12	10.4
Wed Nov 04/Thu Nov 05	2 33	17 37	18 57	5 24	6 43	21 29	7 58	20 31	.....	81	6 23.7	24 23	10.4
Thu Nov 05/Fri Nov 06	2 37	17 36	18 56	5 24	6 44	21 33	8 03	21 23	.....	72	7 19.0	24 20	10.5
Fri Nov 06/Sat Nov 07	2 41	17 36	18 55	5 25	6 45	21 36	8 07	22 20	.....	63	8 14.6	23 00	10.5
Sat Nov 07/Sun Nov 08	2 45	17 35	18 55	5 26	6 46	21 39	8 12	23 21	.....	52	9 09.8	20 25	10.5
Sun Nov 08/Mon Nov 09	2 49	17 34	18 54	5 27	6 47	21 43	8 17	0 25	.....	41	10 04.2	16 40	10.5
Mon Nov 09/Tue Nov 10	2 53	17 34	18 54	5 27	6 48	21 46	8 21	1 31	.....	31	10 57.6	11 55	10.6
Tue Nov 10/Wed Nov 11	2 57	17 33	18 53	5 28	6 49	21 49	8 26	2 38	.....	21	11 50.4	6 24	10.6
Wed Nov 11/Thu Nov 12	3 01	17 32	18 53	5 29	6 49	21 53	8 31	3 46	.....	12	12 43.3	0 23	10.6
Thu Nov 12/Fri Nov 13	3 05	17 32	18 52	5 30	6 50	21 56	8 36	4 55	16 08	5	13 37.1	- 5 47	10.6
Fri Nov 13/Sat Nov 14	3 09	17 31	18 52	5 30	6 51	22 00	8 40	6 07	16 46	1	14 32.6	-11 42	10.6
Sat Nov 14/Sun Nov 15	3 13	17 31	18 51	5 31	6 52	22 03	8 45	7 20	17 26	0	15 30.5	-16 57	10.7
Sun Nov 15/Mon Nov 16	3 17	17 30	18 51	5 32	6 53	22 07	8 50	.....	18 11	2	16 30.8	-21 08	10.7
Mon Nov 16/Tue Nov 17	3 21	17 30	18 51	5 33	6 54	22 10	8 54	.....	19 03	6	17 32.8	-23 53	10.7
Tue Nov 17/Wed Nov 18	3 25	17 29	18 50	5 33	6 55	22 14	8 59	.....	19 59	13	18 35.0	-25 04	10.7
Wed Nov 18/Thu Nov 19	3 29	17 29	18 50	5 34	6 56	22 18	9 04	.....	21 01	21	19 35.8	-24 39	10.7
Thu Nov 19/Fri Nov 20	3 33	17 28	18 50	5 35	6 56	22 21	9 08	.....	22 03	30	20 33.6	-22 50	10.8
Fri Nov 20/Sat Nov 21	3 37	17 28	18 49	5 36	6 57	22 25	9 13	.....	23 05	40	21 27.8	-19 54	10.8
Sat Nov 21/Sun Nov 22	3 40	17 28	18 49	5 36	6 58	22 29	9 18	.....	0 04	50	22 18.3	-16 06	10.8
Sun Nov 22/Mon Nov 23	3 44	17 27	18 49	5 37	6 59	22 32	9 22	.....	1 01	60	23 05.7	-11 42	10.8
Mon Nov 23/Tue Nov 24	3 48	17 27	18 49	5 38	7 00	22 36	9 27	.....	1 56	69	23 50.9	- 6 56	10.8
Tue Nov 24/Wed Nov 25	3 52	17 27	18 49	5 39	7 01	22 40	9 32	.....	2 50	78	0 34.7	- 1 57	10.8
Wed Nov 25/Thu Nov 26	3 56	17 26	18 48	5 39	7 02	22 44	9 37	.....	3 44	85	1 18.0	3 04	10.8
Thu Nov 26/Fri Nov 27	4 00	17 26	18 48	5 40	7 02	22 48	9 41	.....	4 37	91	2 01.9	7 58	10.9
Fri Nov 27/Sat Nov 28	4 04	17 26	18 48	5 41	7 03	22 52	9 46	15 58	5 32	96	2 46.9	12 35	10.9
Sat Nov 28/Sun Nov 29	4 08	17 26	18 48	5 42	7 04	22 55	9 51	16 29	6 28	99	3 33.9	16 44	10.9
Sun Nov 29/Mon Nov 30	4 12	17 26	18 48	5 42	7 05	22 59	9 55	17 04	7 25	100	4 23.3	20 14	10.9
Mon Nov 30/Tue Dec 01	4 16	17 26	18 48	5 43	7 06	23 03	10 00	17 43	.....	99	5 15.2	22 50	10.9

\*\*\*\*\* 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 20	17 26	18 48	5 44	7 07	23 07	10 05	18 28	.....	96	6 09.4	24 22	10.9
Wed Dec 02/Thu Dec 03	4 24	17 26	18 48	5 45	7 07	23 11	10 09	19 18	.....	92	7 05.1	24 39	10.9
Thu Dec 03/Fri Dec 04	4 28	17 26	18 48	5 45	7 08	23 15	10 14	20 14	.....	85	8 01.1	23 39	10.9
Fri Dec 04/Sat Dec 05	4 32	17 26	18 49	5 46	7 09	23 19	10 19	21 14	.....	77	8 56.6	21 22	11.0
Sat Dec 05/Sun Dec 06	4 36	17 26	18 49	5 47	7 10	23 23	10 23	22 17	.....	68	9 50.8	17 54	11.0
Sun Dec 06/Mon Dec 07	4 40	17 26	18 49	5 47	7 10	23 28	10 28	23 20	.....	57	10 43.6	13 28	11.0
Mon Dec 07/Tue Dec 08	4 44	17 26	18 49	5 48	7 11	23 32	10 32	0 25	.....	46	11 35.2	8 16	11.0
Tue Dec 08/Wed Dec 09	4 47	17 26	18 49	5 49	7 12	23 36	10 37	1 29	.....	35	12 26.4	2 32	11.0
Wed Dec 09/Thu Dec 10	4 51	17 26	18 49	5 49	7 13	23 40	10 42	2 35	.....	25	13 18.0	- 3 26	11.0
Thu Dec 10/Fri Dec 11	4 55	17 26	18 50	5 50	7 13	23 44	10 46	3 43	.....	15	14 11.1	- 9 19	11.0
Fri Dec 11/Sat Dec 12	4 59	17 27	18 50	5 51	7 14	23 49	10 51	4 54	.....	8	15 06.5	-14 46	11.0
Sat Dec 12/Sun Dec 13	5 03	17 27	18 50	5 51	7 15	23 53	10 55	6 05	15 59	3	16 04.7	-19 23	11.0
Sun Dec 13/Mon Dec 14	5 07	17 27	18 51	5 52	7 15	23 57	11 00	7 16	16 46	0	17 05.7	-22 47	11.0
Mon Dec 14/Tue Dec 15	5 11	17 28	18 51	5 52	7 16	0 01	11 05	8 23	17 40	1	18 08.2	-24 40	11.0
Tue Dec 15/Wed Dec 16	5 15	17 28	18 51	5 53	7 17	0 06	11 09	.....	18 40	3	19 10.5	-24 56	11.0
Wed Dec 16/Thu Dec 17	5 19	17 28	18 52	5 54	7 17	0 10	11 14	.....	19 44	9	20 10.8	-23 39	11.0
Thu Dec 17/Fri Dec 18	5 23	17 29	18 52	5 54	7 18	0 14	11 18	.....	20 48	16	21 07.7	-21 04	11.0
Fri Dec 18/Sat Dec 19	5 27	17 29	18 53	5 55	7 18	0 19	11 23	.....	21 50	24	22 00.6	-17 29	11.0
Sat Dec 19/Sun Dec 20	5 31	17 30	18 53	5 55	7 19	0 23	11 27	.....	22 50	33	22 49.9	-13 11	11.0
Sun Dec 20/Mon Dec 21	5 35	17 30	18 54	5 56	7 19	0 28	11 31	.....	23 47	43	23 36.3	- 8 27	11.0
Mon Dec 21/Tue Dec 22	5 39	17 31	18 54	5 56	7 20	0 32	11 36	.....	0 42	52	0 20.7	- 3 30	11.0
Tue Dec 22/Wed Dec 23	5 43	17 31	18 55	5 57	7 20	0 37	11 40	.....	1 36	62	1 04.2	1 32	11.0
Wed Dec 23/Thu Dec 24	5 47	17 32	18 55	5 57	7 21	0 41	11 45	.....	2 29	71	1 47.6	6 28	11.0
Thu Dec 24/Fri Dec 25	5 51	17 32	18 56	5 58	7 21	0 45	11 49	.....	3 24	79	2 32.0	11 11	11.0
Fri Dec 25/Sat Dec 26	5 55	17 33	18 56	5 58	7 22	0 50	11 53	.....	4 19	86	3 18.1	15 29	11.0
Sat Dec 26/Sun Dec 27	5 58	17 33	18 57	5 58	7 22	0 55	11 58	.....	5 16	92	4 06.6	19 13	11.0
Sun Dec 27/Mon Dec 28	6 02	17 34	18 58	5 59	7 22	0 59	12 02	15 40	6 13	97	4 57.9	22 09	11.0
Mon Dec 28/Tue Dec 29	6 06	17 35	18 58	5 59	7 23	1 04	12 06	16 23	7 10	99	5 51.9	24 03	11.0
Tue Dec 29/Wed Dec 30	6 10	17 35	18 59	5 59	7 23	1 08	12 11	17 12	8 05	100	6 48.0	24 45	11.0
Wed Dec 30/Thu Dec 31	6 14	17 36	18 59	6 00	7 23	1 13	12 15	18 07	.....	98	7 45.1	24 06	11.0
Thu Dec 31/Fri Jan 01	6 18	17 37	19 00	6 00	7 23	1 17	12 19	19 07	.....	95	8 42.0	22 07	11.0