

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 VATT *****

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 VATT

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 VATT, west longitude (h.m.s) = 7 19 34, latitude (d.m) = 32 42.1
 Rise/set times in Mountain time (7 hr W), uncorrected for elevation, 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	----- Sun: -----			LST twilight:		----- Moon: -----				Twi-Twi hours		
		set	twi.end	twi.beg	rise	eve	morn	rise	set	%illum	RA	Dec	
Wed Jan 01/Thu Jan 02	6 26	17 24	18 52	5 54	7 22	1 17	12 21	.....	23 36	41	0 10.8	- 4 42	11.0
Thu Jan 02/Fri Jan 03	6 30	17 25	18 53	5 54	7 22	1 22	12 25	.....	0 29	50	0 54.3	- 0 04	11.0
Fri Jan 03/Sat Jan 04	6 34	17 26	18 54	5 55	7 22	1 27	12 30	.....	1 23	60	1 38.4	4 37	11.0
Sat Jan 04/Sun Jan 05	6 38	17 27	18 54	5 55	7 22	1 31	12 34	.....	2 19	69	2 23.8	9 12	11.0
Sun Jan 05/Mon Jan 06	6 42	17 27	18 55	5 55	7 23	1 36	12 38	.....	3 16	78	3 11.6	13 31	11.0
Mon Jan 06/Tue Jan 07	6 46	17 28	18 56	5 55	7 23	1 41	12 42	.....	4 16	86	4 02.4	17 20	11.0
Tue Jan 07/Wed Jan 08	6 50	17 29	18 57	5 55	7 23	1 45	12 46	.....	5 17	92	4 56.9	20 23	11.0
Wed Jan 08/Thu Jan 09	6 54	17 30	18 57	5 55	7 23	1 50	12 50	15 44	6 19	97	5 54.9	22 23	11.0
Thu Jan 09/Fri Jan 10	6 58	17 31	18 58	5 55	7 23	1 55	12 54	16 38	7 18	100	6 55.8	23 04	11.0
Fri Jan 10/Sat Jan 11	7 01	17 32	18 59	5 55	7 23	1 59	12 58	17 39	8 14	100	7 57.9	22 14	10.9
Sat Jan 11/Sun Jan 12	7 05	17 32	19 00	5 56	7 22	2 04	13 02	18 45	.....	97	8 59.7	19 54	10.9
Sun Jan 12/Mon Jan 13	7 09	17 33	19 00	5 55	7 22	2 09	13 06	19 53	.....	91	9 59.7	16 15	10.9
Mon Jan 13/Tue Jan 14	7 13	17 34	19 01	5 55	7 22	2 14	13 10	21 02	.....	84	10 57.1	11 35	10.9
Tue Jan 14/Wed Jan 15	7 17	17 35	19 02	5 55	7 22	2 18	13 14	22 10	.....	74	11 52.1	6 17	10.9
Wed Jan 15/Thu Jan 16	7 21	17 36	19 03	5 55	7 22	2 23	13 17	23 16	.....	63	12 45.2	0 41	10.9
Thu Jan 16/Fri Jan 17	7 25	17 37	19 03	5 55	7 22	2 28	13 21	0 22	.....	52	13 37.3	- 4 52	10.9
Fri Jan 17/Sat Jan 18	7 29	17 38	19 04	5 55	7 21	2 33	13 25	1 26	.....	41	14 29.4	-10 06	10.8
Sat Jan 18/Sun Jan 19	7 33	17 39	19 05	5 55	7 21	2 37	13 29	2 31	.....	30	15 22.0	-14 43	10.8
Sun Jan 19/Mon Jan 20	7 37	17 40	19 06	5 55	7 21	2 42	13 33	3 35	.....	21	16 15.7	-18 31	10.8
Mon Jan 20/Tue Jan 21	7 41	17 41	19 07	5 54	7 20	2 47	13 36	4 37	.....	13	17 10.6	-21 19	10.8
Tue Jan 21/Wed Jan 22	7 45	17 42	19 07	5 54	7 20	2 52	13 40	5 36	.....	7	18 06.2	-22 57	10.8
Wed Jan 22/Thu Jan 23	7 49	17 43	19 08	5 54	7 20	2 56	13 44	6 30	15 50	3	19 01.7	-23 22	10.8
Thu Jan 23/Fri Jan 24	7 53	17 43	19 09	5 54	7 19	3 01	13 47	7 19	16 45	0	19 56.2	-22 36	10.7
Fri Jan 24/Sat Jan 25	7 57	17 44	19 10	5 53	7 19	3 06	13 51	8 02	17 42	0	20 48.8	-20 44	10.7
Sat Jan 25/Sun Jan 26	8 01	17 45	19 11	5 53	7 18	3 11	13 55	.....	18 40	2	21 39.0	-17 58	10.7
Sun Jan 26/Mon Jan 27	8 05	17 46	19 12	5 53	7 18	3 15	13 58	.....	19 37	5	22 26.9	-14 29	10.7
Mon Jan 27/Tue Jan 28	8 09	17 47	19 12	5 52	7 17	3 20	14 02	.....	20 32	10	23 12.7	-10 27	10.7
Tue Jan 28/Wed Jan 29	8 12	17 48	19 13	5 52	7 16	3 25	14 05	.....	21 27	17	23 56.9	- 6 05	10.6
Wed Jan 29/Thu Jan 30	8 16	17 49	19 14	5 51	7 16	3 30	14 09	.....	22 20	24	0 40.2	- 1 30	10.6
Thu Jan 30/Fri Jan 31	8 20	17 50	19 15	5 51	7 15	3 34	14 12	.....	23 13	33	1 23.5	3 08	10.6
Fri Jan 31/Sat Feb 01	8 24	17 51	19 16	5 50	7 15	3 39	14 15	.....	0 07	42	2 07.6	7 41	10.6

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

Date (eve/morn)	LMST midn	----- Sun: -----			LST twilight:		----- Moon: -----				Twi-Twi hours		
		set	twi.end	twi.beg	rise	eve	morn	rise	set	%illum	RA	Dec	
Sat Feb 01/Sun Feb 02	8 28	17 52	19 16	5 50	7 14	3 44	14 19	.....	1 03	51	2 53.3	12 01	10.6
Sun Feb 02/Mon Feb 03	8 32	17 53	19 17	5 49	7 13	3 49	14 22	.....	2 00	61	3 41.7	15 57	10.5
Mon Feb 03/Tue Feb 04	8 36	17 54	19 18	5 48	7 12	3 53	14 26	.....	3 00	71	4 33.3	19 16	10.5
Tue Feb 04/Wed Feb 05	8 40	17 55	19 19	5 48	7 12	3 58	14 29	.....	4 00	80	5 28.6	21 41	10.5
Wed Feb 05/Thu Feb 06	8 44	17 56	19 20	5 47	7 11	4 03	14 32	.....	5 00	88	6 27.4	22 57	10.5
Thu Feb 06/Fri Feb 07	8 48	17 57	19 20	5 46	7 10	4 08	14 35	.....	5 58	94	7 28.9	22 48	10.4
Fri Feb 07/Sat Feb 08	8 52	17 58	19 21	5 46	7 09	4 12	14 39	16 22	6 51	98	8 31.4	21 07	10.4
Sat Feb 08/Sun Feb 09	8 56	17 59	19 22	5 45	7 08	4 17	14 42	17 31	7 39	100	9 33.5	17 56	10.4
Sun Feb 09/Mon Feb 10	9 00	17 59	19 23	5 44	7 08	4 22	14 45	18 42	.....	98	10 33.7	13 29	10.4
Mon Feb 10/Tue Feb 11	9 04	18 00	19 24	5 44	7 07	4 27	14 48	19 53	.....	94	11 31.7	8 10	10.3
Tue Feb 11/Wed Feb 12	9 08	18 01	19 24	5 43	7 06	4 31	14 51	21 03	.....	87	12 27.6	2 22	10.3
Wed Feb 12/Thu Feb 13	9 12	18 02	19 25	5 42	7 05	4 36	14 54	22 11	.....	78	13 22.1	- 3 29	10.3
Thu Feb 13/Fri Feb 14	9 16	18 03	19 26	5 41	7 04	4 41	14 58	23 18	.....	67	14 15.8	- 9 01	10.3
Fri Feb 14/Sat Feb 15	9 19	18 04	19 27	5 40	7 03	4 46	15 01	0 24	.....	56	15 09.7	-13 56	10.2
Sat Feb 15/Sun Feb 16	9 23	18 05	19 28	5 39	7 02	4 50	15 04	1 29	.....	45	16 04.0	-18 00	10.2
Sun Feb 16/Mon Feb 17	9 27	18 06	19 28	5 38	7 01	4 55	15 07	2 31	.....	35	16 59.0	-21 02	10.2
Mon Feb 17/Tue Feb 18	9 31	18 07	19 29	5 37	7 00	5 00	15 10	3 31	.....	25	17 54.4	-22 53	10.1
Tue Feb 18/Wed Feb 19	9 35	18 07	19 30	5 37	6 59	5 04	15 13	4 26	.....	17	18 49.6	-23 32	10.1
Wed Feb 19/Thu Feb 20	9 39	18 08	19 31	5 36	6 58	5 09	15 16	5 16	.....	10	19 43.8	-23 00	10.1
Thu Feb 20/Fri Feb 21	9 43	18 09	19 32	5 35	6 57	5 14	15 19	6 01	.....	5	20 36.3	-21 23	10.1
Fri Feb 21/Sat Feb 22	9 47	18 10	19 32	5 34	6 56	5 19	15 22	6 40	16 32	2	21 26.6	-18 48	10.0
Sat Feb 22/Sun Feb 23	9 51	18 11	19 33	5 33	6 55	5 23	15 24	7 14	17 29	0	22 14.7	-15 28	10.0
Sun Feb 23/Mon Feb 24	9 55	18 12	19 34	5 31	6 54	5 28	15 27	7 46	18 25	1	23 00.7	-11 34	10.0
Mon Feb 24/Tue Feb 25	9 59	18 12	19 35	5 30	6 52	5 33	15 30	.....	19 19	3	23 45.1	- 7 15	9.9
Tue Feb 25/Wed Feb 26	10 03	18 13	19 35	5 29	6 51	5 38	15 33	.....	20 13	6	0 28.4	- 2 42	9.9
Wed Feb 26/Thu Feb 27	10 07	18 14	19 36	5 28	6 50	5 42	15 36	.....	21 07	11	1 11.4	1 57	9.9
Thu Feb 27/Fri Feb 28	10 11	18 15	19 37	5 27	6 49	5 47	15 39	.....	22 00	18	1 54.8	6 31	9.8
Fri Feb 28/Sat Feb 29	10 15	18 16	19 38	5 26	6 48	5 52	15 42	.....	22 55	26	2 39.3	10 53	9.8
Sat Feb 29/Sun Mar 01	10 19	18 17	19 38	5 25	6 47	5 56	15 44	.....	23 50	34	3 25.8	14 53	9.8

Calendar for VATT, west longitude (h.m.s) = 7 19 34, latitude (d.m) = 32 42.1
 Rise/set times in Mountain time (7 hr W), uncorrected for elevation, 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	
		set	twi.end	twi.beg	rise	eve	morn	rise	set	%illum	RA	Dec	hours
Sun Mar 01/Mon Mar 02	10 23	18 17	19 39	5 24	6 45	6 01	15 47	.....	0 48	44	4 15.0	18 20	9.7
Mon Mar 02/Tue Mar 03	10 27	18 18	19 40	5 22	6 44	6 06	15 50	.....	1 46	54	5 07.3	21 01	9.7
Tue Mar 03/Wed Mar 04	10 30	18 19	19 41	5 21	6 43	6 10	15 53	.....	2 45	64	6 02.9	22 42	9.7
Wed Mar 04/Thu Mar 05	10 34	18 20	19 42	5 20	6 42	6 15	15 55	.....	3 42	74	7 01.5	23 07	9.6
Thu Mar 05/Fri Mar 06	10 38	18 20	19 42	5 19	6 41	6 20	15 58	.....	4 36	83	8 02.2	22 07	9.6
Fri Mar 06/Sat Mar 07	10 42	18 21	19 43	5 18	6 39	6 25	16 01	.....	5 26	91	9 03.5	19 37	9.6
Sat Mar 07/Sun Mar 08	10 46	18 22	19 44	5 16	6 38	6 29	16 03	.....	6 11	97	10 04.4	15 43	9.5
Sun Mar 08/Mon Mar 09	10 50	18 23	19 45	5 15	6 37	6 34	16 06	17 27	6 53	100	11 03.9	10 40	9.5
Mon Mar 09/Tue Mar 10	10 54	18 24	19 45	5 14	6 35	6 39	16 09	18 39	7 31	99	12 01.8	4 52	9.5
Tue Mar 10/Wed Mar 11	10 58	18 24	19 46	5 12	6 34	6 43	16 11	19 50	.....	96	12 58.6	- 1 16	9.4
Wed Mar 11/Thu Mar 12	11 02	18 25	19 47	5 11	6 33	6 48	16 14	21 00	.....	90	13 54.7	- 7 14	9.4
Thu Mar 12/Fri Mar 13	11 06	18 26	19 48	5 10	6 32	6 53	16 17	22 09	.....	81	14 50.9	-12 41	9.4
Fri Mar 13/Sat Mar 14	11 10	18 27	19 48	5 09	6 30	6 58	16 19	23 17	.....	72	15 47.3	-17 15	9.3
Sat Mar 14/Sun Mar 15	11 14	18 27	19 49	5 07	6 29	7 02	16 22	0 23	.....	61	16 44.2	-20 42	9.3
Sun Mar 15/Mon Mar 16	11 18	18 28	19 50	5 06	6 28	7 07	16 24	1 26	.....	50	17 41.2	-22 55	9.3
Mon Mar 16/Tue Mar 17	11 22	18 29	19 51	5 04	6 26	7 12	16 27	2 23	.....	40	18 37.6	-23 51	9.2
Tue Mar 17/Wed Mar 18	11 26	18 29	19 52	5 03	6 25	7 17	16 30	3 15	.....	30	19 32.7	-23 32	9.2
Wed Mar 18/Thu Mar 19	11 30	18 30	19 52	5 02	6 24	7 21	16 32	4 01	.....	22	20 25.7	-22 05	9.2
Thu Mar 19/Fri Mar 20	11 34	18 31	19 53	5 00	6 23	7 26	16 35	4 41	.....	14	21 16.4	-19 40	9.1
Fri Mar 20/Sat Mar 21	11 37	18 32	19 54	4 59	6 21	7 31	16 37	5 17	.....	9	22 04.7	-16 27	9.1
Sat Mar 21/Sun Mar 22	11 41	18 32	19 55	4 58	6 20	7 35	16 40	5 49	.....	4	22 50.8	-12 37	9.0
Sun Mar 22/Mon Mar 23	11 45	18 33	19 56	4 56	6 19	7 40	16 42	6 18	17 14	1	23 35.2	- 8 22	9.0
Mon Mar 23/Tue Mar 24	11 49	18 34	19 56	4 55	6 17	7 45	16 45	6 46	18 08	0	0 18.5	- 3 49	9.0
Tue Mar 24/Wed Mar 25	11 53	18 34	19 57	4 53	6 16	7 50	16 47	7 14	19 01	1	1 01.4	0 51	8.9
Wed Mar 25/Thu Mar 26	11 57	18 35	19 58	4 52	6 15	7 55	16 50	.....	19 55	3	1 44.5	5 29	8.9
Thu Mar 26/Fri Mar 27	12 01	18 36	19 59	4 50	6 13	7 59	16 52	.....	20 49	7	2 28.5	9 56	8.9
Fri Mar 27/Sat Mar 28	12 05	18 37	20 00	4 49	6 12	8 04	16 55	.....	21 45	13	3 14.1	14 03	8.8
Sat Mar 28/Sun Mar 29	12 09	18 37	20 00	4 48	6 11	8 09	16 57	.....	22 41	20	4 02.0	17 38	8.8
Sun Mar 29/Mon Mar 30	12 13	18 38	20 01	4 46	6 09	8 14	17 00	.....	23 39	28	4 52.5	20 30	8.7
Mon Mar 30/Tue Mar 31	12 17	18 39	20 02	4 45	6 08	8 18	17 02	.....	0 36	38	5 45.8	22 27	8.7
Tue Mar 31/Wed Apr 01	12 21	18 39	20 03	4 43	6 07	8 23	17 05	.....	1 33	48	6 41.7	23 16	8.7

***** 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	12 25	18 40	20 04	4 42	6 06	8 28	17 07	.....	2 26	59	7 39.6	22 47	8.6
Thu Apr 02/Fri Apr 03	12 29	18 41	20 05	4 40	6 04	8 33	17 10	.....	3 16	69	8 38.6	20 54	8.6
Fri Apr 03/Sat Apr 04	12 33	18 42	20 06	4 39	6 03	8 38	17 12	.....	4 02	79	9 37.6	17 38	8.6
Sat Apr 04/Sun Apr 05	12 37	18 42	20 06	4 37	6 02	8 42	17 15	.....	4 43	88	10 36.0	13 08	8.5
Sun Apr 05/Mon Apr 06	12 41	18 43	20 07	4 36	6 00	8 47	17 17	.....	5 22	95	11 33.6	7 40	8.5
Mon Apr 06/Tue Apr 07	12 45	18 44	20 08	4 35	5 59	8 52	17 20	17 23	6 00	99	12 30.5	1 36	8.4
Tue Apr 07/Wed Apr 08	12 48	18 44	20 09	4 33	5 58	8 57	17 22	18 34	6 37	100	13 27.4	- 4 37	8.4
Wed Apr 08/Thu Apr 09	12 52	18 45	20 10	4 32	5 57	9 02	17 25	19 45	.....	98	14 24.7	-10 33	8.4
Thu Apr 09/Fri Apr 10	12 56	18 46	20 11	4 30	5 55	9 07	17 27	20 56	.....	93	15 22.8	-15 46	8.3
Fri Apr 10/Sat Apr 11	13 00	18 46	20 12	4 29	5 54	9 12	17 30	22 06	.....	85	16 21.8	-19 54	8.3
Sat Apr 11/Sun Apr 12	13 04	18 47	20 13	4 27	5 53	9 16	17 32	23 13	.....	76	17 21.3	-22 43	8.2
Sun Apr 12/Mon Apr 13	13 08	18 48	20 14	4 26	5 52	9 21	17 35	0 15	.....	66	18 20.3	-24 07	8.2
Mon Apr 13/Tue Apr 14	13 12	18 49	20 15	4 25	5 51	9 26	17 37	1 11	.....	56	19 17.8	-24 09	8.2
Tue Apr 14/Wed Apr 15	13 16	18 49	20 16	4 23	5 49	9 31	17 40	2 00	.....	46	20 12.9	-22 56	8.1
Wed Apr 15/Thu Apr 16	13 20	18 50	20 17	4 22	5 48	9 36	17 42	2 42	.....	36	21 05.1	-20 40	8.1
Thu Apr 16/Fri Apr 17	13 24	18 51	20 18	4 20	5 47	9 41	17 45	3 19	.....	27	21 54.3	-17 34	8.0
Fri Apr 17/Sat Apr 18	13 28	18 51	20 18	4 19	5 46	9 46	17 47	3 52	.....	19	22 41.1	-13 49	8.0
Sat Apr 18/Sun Apr 19	13 32	18 52	20 19	4 17	5 45	9 51	17 50	4 22	.....	13	23 25.8	- 9 35	8.0
Sun Apr 19/Mon Apr 20	13 36	18 53	20 20	4 16	5 44	9 56	17 53	4 50	.....	7	0 09.2	- 5 03	7.9
Mon Apr 20/Tue Apr 21	13 40	18 54	20 21	4 15	5 42	10 00	17 55	5 18	.....	3	0 52.0	- 0 22	7.9
Tue Apr 21/Wed Apr 22	13 44	18 54	20 22	4 13	5 41	10 05	17 58	5 46	17 50	1	1 34.9	4 20	7.8
Wed Apr 22/Thu Apr 23	13 48	18 55	20 23	4 12	5 40	10 10	18 00	6 15	18 44	0	2 18.7	8 54	7.8
Thu Apr 23/Fri Apr 24	13 52	18 56	20 24	4 11	5 39	10 15	18 03	6 47	19 40	1	3 04.0	13 09	7.8
Fri Apr 24/Sat Apr 25	13 55	18 57	20 25	4 09	5 38	10 20	18 05	.....	20 36	4	3 51.3	16 55	7.7
Sat Apr 25/Sun Apr 26	13 59	18 57	20 26	4 08	5 37	10 25	18 08	.....	21 34	9	4 41.2	19 59	7.7
Sun Apr 26/Mon Apr 27	14 03	18 58	20 27	4 07	5 36	10 30	18 11	.....	22 32	16	5 33.5	22 10	7.7
Mon Apr 27/Tue Apr 28	14 07	18 59	20 28	4 05	5 35	10 35	18 13	.....	23 28	24	6 28.2	23 16	7.6
Tue Apr 28/Wed Apr 29	14 11	18 59	20 29	4 04	5 34	10 40	18 16	.....	0 22	33	7 24.5	23 08	7.6
Wed Apr 29/Thu Apr 30	14 15	19 00	20 30	4 03	5 33	10 45	18 19	.....	1 12	43	8 21.7	21 41	7.5
Thu Apr 30/Fri May 01	14 19	19 01	20 31	4 01	5 32	10 50	18 21	.....	1 58	54	9 18.7	18 55	7.5

Calendar for VATT, west longitude (h.m.s) = 7 19 34, latitude (d.m) = 32 42.1
 Rise/set times in Mountain time (7 hr W), uncorrected for elevation, 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 23	19 02	20 33	4 00	5 31	10 55	18 24	.....	2 39	65	10 15.1	14 57	7.5
Sat May 02/Sun May 03	14 27	19 02	20 34	3 59	5 30	11 00	18 27	.....	3 18	76	11 10.7	9 58	7.4
Sun May 03/Mon May 04	14 31	19 03	20 35	3 58	5 29	11 05	18 29	.....	3 54	85	12 05.8	4 15	7.4
Mon May 04/Tue May 05	14 35	19 04	20 36	3 57	5 28	11 10	18 32	.....	4 30	93	13 01.1	- 1 51	7.3
Tue May 05/Wed May 06	14 39	19 05	20 37	3 55	5 27	11 15	18 35	17 20	5 07	98	13 57.2	- 7 57	7.3
Wed May 06/Thu May 07	14 43	19 05	20 38	3 54	5 27	11 20	18 38	18 31	5 47	100	14 54.7	-13 35	7.3
Thu May 07/Fri May 08	14 47	19 06	20 39	3 53	5 26	11 25	18 40	19 42	6 30	99	15 54.0	-18 22	7.2
Fri May 08/Sat May 09	14 51	19 07	20 40	3 52	5 25	11 30	18 43	20 52	.....	95	16 54.7	-21 56	7.2
Sat May 09/Sun May 10	14 55	19 08	20 41	3 51	5 24	11 35	18 46	21 59	.....	89	17 55.9	-24 02	7.2
Sun May 10/Mon May 11	14 59	19 08	20 42	3 50	5 23	11 40	18 49	23 00	.....	81	18 56.3	-24 39	7.1
Mon May 11/Tue May 12	15 02	19 09	20 43	3 49	5 23	11 45	18 52	23 53	.....	72	19 54.4	-23 50	7.1
Tue May 12/Wed May 13	15 06	19 10	20 44	3 48	5 22	11 50	18 55	0 39	.....	62	20 49.3	-21 50	7.1
Wed May 13/Thu May 14	15 10	19 10	20 45	3 47	5 21	11 55	18 58	1 19	.....	52	21 40.8	-18 52	7.0
Thu May 14/Fri May 15	15 14	19 11	20 46	3 46	5 20	12 00	19 01	1 54	.....	43	22 29.0	-15 12	7.0
Fri May 15/Sat May 16	15 18	19 12	20 47	3 45	5 20	12 05	19 04	2 25	.....	33	23 14.8	-11 00	7.0
Sat May 16/Sun May 17	15 22	19 13	20 48	3 44	5 19	12 10	19 07	2 53	.....	25	23 58.7	- 6 29	6.9
Sun May 17/Mon May 18	15 26	19 13	20 49	3 43	5 19	12 15	19 10	3 21	.....	17	0 41.7	- 1 46	6.9
Mon May 18/Tue May 19	15 30	19 14	20 50	3 42	5 18	12 20	19 13	3 49	.....	11	1 24.5	2 59	6.9
Tue May 19/Wed May 20	15 34	19 15	20 51	3 41	5 17	12 24	19 16	4 17	.....	6	2 08.1	7 38	6.8
Wed May 20/Thu May 21	15 38	19 15	20 52	3 40	5 17	12 29	19 19	4 48	17 33	2	2 53.1	12 02	6.8
Thu May 21/Fri May 22	15 42	19 16	20 53	3 39	5 16	12 34	19 22	5 22	18 29	0	3 40.1	15 59	6.8
Fri May 22/Sat May 23	15 46	19 17	20 54	3 39	5 16	12 39	19 25	6 01	19 27	0	4 29.6	19 17	6.7
Sat May 23/Sun May 24	15 50	19 17	20 55	3 38	5 15	12 44	19 28	.....	20 26	2	5 21.8	21 44	6.7
Sun May 24/Mon May 25	15 54	19 18	20 56	3 37	5 15	12 49	19 31	.....	21 24	6	6 16.3	23 07	6.7
Mon May 25/Tue May 26	15 58	19 19	20 57	3 36	5 14	12 54	19 35	.....	22 19	12	7 12.4	23 16	6.7
Tue May 26/Wed May 27	16 02	19 19	20 58	3 36	5 14	12 59	19 38	.....	23 11	20	8 09.2	22 08	6.6
Wed May 27/Thu May 28	16 06	19 20	20 58	3 35	5 14	13 04	19 41	.....	23 57	29	9 05.6	19 41	6.6
Thu May 28/Fri May 29	16 10	19 21	20 59	3 35	5 13	13 08	19 45	.....	0 39	40	10 01.0	16 05	6.6
Fri May 29/Sat May 30	16 13	19 21	21 00	3 34	5 13	13 13	19 48	.....	1 18	51	10 55.2	11 29	6.6
Sat May 30/Sun May 31	16 17	19 22	21 01	3 33	5 13	13 18	19 51	.....	1 53	63	11 48.5	6 07	6.5
Sun May 31/Mon Jun 01	16 21	19 22	21 02	3 33	5 12	13 23	19 55	.....	2 28	74	12 41.6	0 18	6.5

***** 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 25	19 23	21 03	3 33	5 12	13 27	19 58	.....	3 03	83	13 35.3	- 5 39	6.5
Tue Jun 02/Wed Jun 03	16 29	19 23	21 03	3 32	5 12	13 32	20 02	.....	3 40	91	14 30.4	-11 23	6.5
Wed Jun 03/Thu Jun 04	16 33	19 24	21 04	3 32	5 12	13 37	20 05	.....	4 20	97	15 27.7	-16 30	6.5
Thu Jun 04/Fri Jun 05	16 37	19 24	21 05	3 31	5 12	13 41	20 09	18 29	5 06	100	16 27.2	-20 38	6.4
Fri Jun 05/Sat Jun 06	16 41	19 25	21 05	3 31	5 12	13 46	20 13	19 38	5 56	100	17 28.5	-23 26	6.4
Sat Jun 06/Sun Jun 07	16 45	19 25	21 06	3 31	5 11	13 51	20 16	20 43	.....	97	18 30.1	-24 44	6.4
Sun Jun 07/Mon Jun 08	16 49	19 26	21 07	3 30	5 11	13 55	20 20	21 41	.....	92	19 30.5	-24 32	6.4
Mon Jun 08/Tue Jun 09	16 53	19 26	21 07	3 30	5 11	14 00	20 24	22 32	.....	85	20 28.3	-22 57	6.4
Tue Jun 09/Wed Jun 10	16 57	19 27	21 08	3 30	5 11	14 04	20 27	23 15	.....	77	21 22.5	-20 15	6.4
Wed Jun 10/Thu Jun 11	17 01	19 27	21 09	3 30	5 11	14 09	20 31	23 52	.....	68	22 13.2	-16 43	6.4
Thu Jun 11/Fri Jun 12	17 05	19 28	21 09	3 30	5 11	14 13	20 35	0 25	.....	59	23 00.7	-12 34	6.3
Fri Jun 12/Sat Jun 13	17 09	19 28	21 10	3 30	5 11	14 18	20 39	0 55	.....	49	23 45.8	- 8 03	6.3
Sat Jun 13/Sun Jun 14	17 13	19 28	21 10	3 30	5 11	14 22	20 43	1 23	.....	40	0 29.4	- 3 20	6.3
Sun Jun 14/Mon Jun 15	17 17	19 29	21 10	3 30	5 11	14 27	20 47	1 51	.....	31	1 12.4	1 28	6.3
Mon Jun 15/Tue Jun 16	17 20	19 29	21 11	3 30	5 11	14 31	20 51	2 19	.....	23	1 55.7	6 11	6.3
Tue Jun 16/Wed Jun 17	17 24	19 29	21 11	3 30	5 12	14 35	20 55	2 48	.....	15	2 40.2	10 41	6.3
Wed Jun 17/Thu Jun 18	17 28	19 30	21 12	3 30	5 12	14 39	20 59	3 21	.....	9	3 26.7	14 48	6.3
Thu Jun 18/Fri Jun 19	17 32	19 30	21 12	3 30	5 12	14 44	21 03	3 58	.....	4	4 15.7	18 21	6.3
Fri Jun 19/Sat Jun 20	17 36	19 30	21 12	3 30	5 12	14 48	21 07	4 40	18 16	1	5 07.5	21 05	6.3
Sat Jun 20/Sun Jun 21	17 40	19 31	21 12	3 31	5 12	14 52	21 11	5 29	19 15	0	6 02.0	22 48	6.3
Sun Jun 21/Mon Jun 22	17 44	19 31	21 13	3 31	5 13	14 56	21 16	6 24	20 13	1	6 58.5	23 17	6.3
Mon Jun 22/Tue Jun 23	17 48	19 31	21 13	3 31	5 13	15 00	21 20	.....	21 07	4	7 55.9	22 27	6.3
Tue Jun 23/Wed Jun 24	17 52	19 31	21 13	3 31	5 13	15 04	21 24	.....	21 56	10	8 53.1	20 18	6.3
Wed Jun 24/Thu Jun 25	17 56	19 31	21 13	3 32	5 13	15 08	21 28	.....	22 40	18	9 49.0	16 55	6.3
Thu Jun 25/Fri Jun 26	18 00	19 31	21 13	3 32	5 14	15 12	21 33	.....	23 19	27	10 43.4	12 32	6.3
Fri Jun 26/Sat Jun 27	18 04	19 31	21 13	3 33	5 14	15 16	21 37	.....	23 55	38	11 36.3	7 23	6.3
Sat Jun 27/Sun Jun 28	18 08	19 31	21 13	3 33	5 14	15 20	21 41	.....	0 30	49	12 28.3	1 45	6.3
Sun Jun 28/Mon Jun 29	18 12	19 31	21 13	3 33	5 15	15 24	21 46	.....	1 04	60	13 20.3	- 4 03	6.3
Mon Jun 29/Tue Jun 30	18 16	19 31	21 13	3 34	5 15	15 28	21 50	.....	1 39	71	14 13.3	- 9 42	6.4
Tue Jun 30/Wed Jul 01	18 20	19 31	21 13	3 35	5 16	15 32	21 55	.....	2 16	81	15 08.1	-14 54	6.4

Calendar for VATT, west longitude (h.m.s) = 7 19 34, latitude (d.m) = 32 42.1
 Rise/set times in Mountain time (7 hr W), uncorrected for elevation, 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 24	19 31	21 12	3 35	5 16	15 35	21 59	.....	2 58	89	16 05.1	-19 17	6.4	
Thu Jul 02/Fri Jul 03	18 28	19 31	21 12	3 36	5 17	15 39	22 04	.....	3 45	95	17 04.4	-22 33	6.4	
Fri Jul 03/Sat Jul 04	18 31	19 31	21 12	3 36	5 17	15 43	22 08	18 26	4 38	99	18 05.1	-24 26	6.4		
Sat Jul 04/Sun Jul 05	18 35	19 31	21 12	3 37	5 17	15 47	22 13	19 27	5 36	100	19 05.9	-24 50	6.4		
Sun Jul 05/Mon Jul 06	18 39	19 31	21 11	3 38	5 18	15 50	22 18	20 21	.....	98	20 05.1	-23 47	6.4	
Mon Jul 06/Tue Jul 07	18 43	19 31	21 11	3 38	5 18	15 54	22 22	21 08	.....	95	21 01.3	-21 29	6.5	
Tue Jul 07/Wed Jul 08	18 47	19 31	21 11	3 39	5 19	15 57	22 27	21 49	.....	89	21 54.2	-18 11	6.5	
Wed Jul 08/Thu Jul 09	18 51	19 30	21 10	3 40	5 20	16 01	22 32	22 24	.....	82	22 43.6	-14 10	6.5	
Thu Jul 09/Fri Jul 10	18 55	19 30	21 10	3 41	5 20	16 04	22 36	22 55	.....	74	23 30.2	- 9 40	6.5	
Fri Jul 10/Sat Jul 11	18 59	19 30	21 09	3 41	5 21	16 08	22 41	23 24	.....	65	0 14.9	- 4 56	6.5	
Sat Jul 11/Sun Jul 12	19 03	19 30	21 09	3 42	5 21	16 11	22 46	23 52	.....	56	0 58.4	- 0 05	6.6	
Sun Jul 12/Mon Jul 13	19 07	19 29	21 08	3 43	5 22	16 14	22 50	0 19	.....	47	1 41.8	4 42	6.6	
Mon Jul 13/Tue Jul 14	19 11	19 29	21 07	3 44	5 22	16 18	22 55	0 48	.....	37	2 25.8	9 18	6.6	
Tue Jul 14/Wed Jul 15	19 15	19 28	21 07	3 45	5 23	16 21	23 00	1 19	.....	28	3 11.5	13 33	6.6	
Wed Jul 15/Thu Jul 16	19 19	19 28	21 06	3 45	5 24	16 24	23 05	1 54	.....	20	3 59.5	17 17	6.7	
Thu Jul 16/Fri Jul 17	19 23	19 28	21 05	3 46	5 24	16 28	23 10	2 34	.....	13	4 50.4	20 18	6.7	
Fri Jul 17/Sat Jul 18	19 27	19 27	21 05	3 47	5 25	16 31	23 15	3 20	.....	7	5 44.2	22 22	6.7	
Sat Jul 18/Sun Jul 19	19 31	19 27	21 04	3 48	5 25	16 34	23 19	4 13	18 01	2	6 40.5	23 16	6.7		
Sun Jul 19/Mon Jul 20	19 35	19 26	21 03	3 49	5 26	16 37	23 24	5 12	18 58	0	7 38.4	22 50	6.8		
Mon Jul 20/Tue Jul 21	19 38	19 26	21 02	3 50	5 27	16 40	23 29	6 17	19 50	0	8 36.7	21 01	6.8		
Tue Jul 21/Wed Jul 22	19 42	19 25	21 01	3 51	5 27	16 43	23 34	.....	20 36	3	9 34.1	17 53	6.8	
Wed Jul 22/Thu Jul 23	19 46	19 24	21 01	3 52	5 28	16 46	23 39	.....	21 18	8	10 29.8	13 39	6.9	
Thu Jul 23/Fri Jul 24	19 50	19 24	21 00	3 53	5 29	16 49	23 44	.....	21 56	16	11 23.8	8 34	6.9	
Fri Jul 24/Sat Jul 25	19 54	19 23	20 59	3 54	5 29	16 52	23 49	.....	22 31	25	12 16.4	2 59	6.9	
Sat Jul 25/Sun Jul 26	19 58	19 23	20 58	3 55	5 30	16 55	23 54	.....	23 06	35	13 08.4	- 2 49	6.9	
Sun Jul 26/Mon Jul 27	20 02	19 22	20 57	3 56	5 31	16 58	23 58	.....	23 40	47	14 00.7	- 8 29	7.0	
Mon Jul 27/Tue Jul 28	20 06	19 21	20 56	3 57	5 31	17 01	0 03	.....	0 17	58	14 54.2	-13 44	7.0	
Tue Jul 28/Wed Jul 29	20 10	19 20	20 55	3 58	5 32	17 04	0 08	.....	0 56	69	15 49.4	-18 16	7.0	
Wed Jul 29/Thu Jul 30	20 14	19 20	20 54	3 59	5 33	17 07	0 13	.....	1 41	79	16 46.7	-21 46	7.1	
Thu Jul 30/Fri Jul 31	20 18	19 19	20 53	4 00	5 33	17 10	0 18	.....	2 30	87	17 45.7	-24 01	7.1	
Fri Jul 31/Sat Aug 01	20 22	19 18	20 51	4 01	5 34	17 13	0 23	.....	3 25	94	18 45.3	-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 26	19 17	20 50	4 02	5 35	17 16	0 28	18 12	4 24	98	19 44.2	-24 17	7.2		
Sun Aug 02/Mon Aug 03	20 30	19 16	20 49	4 03	5 35	17 18	0 33	19 02	5 25	100	20 41.0	-22 24	7.2		
Mon Aug 03/Tue Aug 04	20 34	19 16	20 48	4 04	5 36	17 21	0 38	19 44	6 25	99	21 34.9	-19 25	7.3		
Tue Aug 04/Wed Aug 05	20 38	19 15	20 47	4 05	5 37	17 24	0 43	20 21	.....	97	22 25.7	-15 36	7.3	
Wed Aug 05/Thu Aug 06	20 42	19 14	20 46	4 06	5 37	17 27	0 48	20 54	.....	93	23 13.6	-11 12	7.3	
Thu Aug 06/Fri Aug 07	20 45	19 13	20 44	4 07	5 38	17 29	0 53	21 24	.....	87	23 59.3	- 6 27	7.4	
Fri Aug 07/Sat Aug 08	20 49	19 12	20 43	4 08	5 39	17 32	0 58	21 52	.....	80	0 43.5	- 1 34	7.4	
Sat Aug 08/Sun Aug 09	20 53	19 11	20 42	4 08	5 39	17 35	1 03	22 20	.....	72	1 27.1	3 18	7.4	
Sun Aug 09/Mon Aug 10	20 57	19 10	20 41	4 09	5 40	17 37	1 07	22 48	.....	63	2 11.0	8 01	7.5	
Mon Aug 10/Tue Aug 11	21 01	19 09	20 39	4 10	5 41	17 40	1 12	23 17	.....	53	2 56.0	12 24	7.5	
Tue Aug 11/Wed Aug 12	21 05	19 08	20 38	4 11	5 42	17 43	1 17	23 50	.....	44	3 42.9	16 18	7.6	
Wed Aug 12/Thu Aug 13	21 09	19 07	20 37	4 12	5 42	17 45	1 22	0 27	.....	34	4 32.4	19 33	7.6	
Thu Aug 13/Fri Aug 14	21 13	19 06	20 35	4 13	5 43	17 48	1 27	1 10	.....	25	5 24.8	21 56	7.6	
Fri Aug 14/Sat Aug 15	21 17	19 05	20 34	4 14	5 44	17 51	1 32	1 59	.....	17	6 19.9	23 15	7.7	
Sat Aug 15/Sun Aug 16	21 21	19 04	20 33	4 15	5 44	17 53	1 37	2 56	.....	10	7 17.3	23 16	7.7	
Sun Aug 16/Mon Aug 17	21 25	19 03	20 31	4 16	5 45	17 56	1 42	3 58	17 38	4	8 15.7	21 55	7.7		
Mon Aug 17/Tue Aug 18	21 29	19 02	20 30	4 17	5 46	17 58	1 47	5 06	18 28	1	9 14.0	19 11	7.8		
Tue Aug 18/Wed Aug 19	21 33	19 00	20 29	4 18	5 46	18 01	1 52	6 15	19 12	0	10 11.2	15 12	7.8		
Wed Aug 19/Thu Aug 20	21 37	18 59	20 27	4 19	5 47	18 03	1 56	.....	19 53	2	11 06.8	10 14	7.9	
Thu Aug 20/Fri Aug 21	21 41	18 58	20 26	4 20	5 48	18 06	2 01	.....	20 30	7	12 01.0	4 36	7.9	
Fri Aug 21/Sat Aug 22	21 45	18 57	20 24	4 21	5 48	18 08	2 06	.....	21 05	14	12 54.3	- 1 20	7.9	
Sat Aug 22/Sun Aug 23	21 49	18 56	20 23	4 22	5 49	18 11	2 11	.....	21 40	23	13 47.5	- 7 12	8.0	
Sun Aug 23/Mon Aug 24	21 53	18 55	20 21	4 23	5 50	18 13	2 16	.....	22 17	33	14 41.2	-12 39	8.0	
Mon Aug 24/Tue Aug 25	21 56	18 53	20 20	4 24	5 50	18 16	2 21	.....	22 56	44	15 36.3	-17 24	8.1	
Tue Aug 25/Wed Aug 26	22 00	18 52	20 19	4 24	5 51	18 18	2 26	.....	23 39	55	16 32.9	-21 08	8.1	
Wed Aug 26/Thu Aug 27	22 04	18 51	20 17	4 25	5 51	18 21	2 30	.....	0 27	66	17 31.0	-23 40	8.1	
Thu Aug 27/Fri Aug 28	22 08	18 50	20 16	4 26	5 52	18 23	2 35	.....	1 20	76	18 29.6	-24 50	8.2	
Fri Aug 28/Sat Aug 29	22 12	18 48	20 14	4 27	5 53	18 26	2 40	.....	2 16	84	19 27.8	-24 36	8.2	
Sat Aug 29/Sun Aug 30	22 16	18 47	20 13	4 28	5 53	18 28	2 45	16 58	3 16	91	20 24.3	-23 04	8.3		
Sun Aug 30/Mon Aug 31	22 20	18 46	20 11	4 29	5 54	18 31	2 50	17 42	4 16	96	21 18.3	-20 23	8.3		
Mon Aug 31/Tue Sep 01	22 24	18 45	20 10	4 30	5 55	18 33	2 54	18 21	5 15	99	22 09.5	-16 48	8.3		

Calendar for VATT, west longitude (h.m.s) = 7 19 34, latitude (d.m) = 32 42.1
 Rise/set times in Mountain time (7 hr W), uncorrected for elevation, 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 28	18 43	20 08	4 30	5 55	18 36	2 59	18 54	6 12	100	22 58.0	-12 32	8.4
Wed Sep 02/Thu Sep 03	22 32	18 42	20 07	4 31	5 56	18 38	3 04	19 25	.....	99	23 44.2	- 7 51	8.4
Thu Sep 03/Fri Sep 04	22 36	18 41	20 05	4 32	5 57	18 41	3 09	19 53	.....	96	0 28.9	- 2 56	8.4
Fri Sep 04/Sat Sep 05	22 40	18 40	20 04	4 33	5 57	18 43	3 13	20 21	.....	91	1 12.8	2 01	8.5
Sat Sep 05/Sun Sep 06	22 44	18 38	20 02	4 34	5 58	18 46	3 18	20 49	.....	85	1 56.7	6 51	8.5
Sun Sep 06/Mon Sep 07	22 48	18 37	20 01	4 34	5 59	18 48	3 23	21 17	.....	78	2 41.3	11 23	8.6
Mon Sep 07/Tue Sep 08	22 52	18 36	19 59	4 35	5 59	18 50	3 28	21 48	.....	69	3 27.5	15 28	8.6
Tue Sep 08/Wed Sep 09	22 56	18 34	19 58	4 36	6 00	18 53	3 32	22 23	.....	60	4 15.8	18 56	8.6
Wed Sep 09/Thu Sep 10	23 00	18 33	19 56	4 37	6 00	18 55	3 37	23 02	.....	50	5 06.7	21 36	8.7
Thu Sep 10/Fri Sep 11	23 03	18 32	19 55	4 38	6 01	18 58	3 42	23 48	.....	40	6 00.2	23 16	8.7
Fri Sep 11/Sat Sep 12	23 07	18 30	19 53	4 38	6 02	19 00	3 47	0 40	.....	31	6 56.0	23 45	8.7
Sat Sep 12/Sun Sep 13	23 11	18 29	19 52	4 39	6 02	19 03	3 51	1 39	.....	21	7 53.3	22 54	8.8
Sun Sep 13/Mon Sep 14	23 15	18 28	19 51	4 40	6 03	19 05	3 56	2 43	.....	13	8 51.2	20 40	8.8
Mon Sep 14/Tue Sep 15	23 19	18 26	19 49	4 41	6 04	19 08	4 01	3 52	17 03	7	9 48.6	17 08	8.9
Tue Sep 15/Wed Sep 16	23 23	18 25	19 48	4 41	6 04	19 10	4 05	5 02	17 45	2	10 44.9	12 27	8.9
Wed Sep 16/Thu Sep 17	23 27	18 23	19 46	4 42	6 05	19 13	4 10	6 12	18 23	0	11 40.2	6 55	8.9
Thu Sep 17/Fri Sep 18	23 31	18 22	19 45	4 43	6 06	19 15	4 15	.....	19 00	1	12 34.8	0 54	9.0
Fri Sep 18/Sat Sep 19	23 35	18 21	19 43	4 44	6 06	19 18	4 19	.....	19 36	5	13 29.1	- 5 14	9.0
Sat Sep 19/Sun Sep 20	23 39	18 19	19 42	4 44	6 07	19 20	4 24	.....	20 13	12	14 24.1	-11 04	9.0
Sun Sep 20/Mon Sep 21	23 43	18 18	19 40	4 45	6 07	19 23	4 29	.....	20 52	20	15 20.2	-16 13	9.1
Mon Sep 21/Tue Sep 22	23 47	18 17	19 39	4 46	6 08	19 25	4 33	.....	21 35	30	16 17.7	-20 22	9.1
Tue Sep 22/Wed Sep 23	23 51	18 15	19 37	4 47	6 09	19 28	4 38	.....	22 22	41	17 16.4	-23 16	9.2
Wed Sep 23/Thu Sep 24	23 55	18 14	19 36	4 47	6 09	19 30	4 43	.....	23 15	52	18 15.5	-24 47	9.2
Thu Sep 24/Fri Sep 25	23 59	18 13	19 35	4 48	6 10	19 33	4 47	.....	0 11	62	19 13.9	-24 52	9.2
Fri Sep 25/Sat Sep 26	0 03	18 11	19 33	4 49	6 11	19 35	4 52	.....	1 10	72	20 10.6	-23 37	9.3
Sat Sep 26/Sun Sep 27	0 07	18 10	19 32	4 49	6 11	19 38	4 57	.....	2 09	81	21 04.6	-21 11	9.3
Sun Sep 27/Mon Sep 28	0 11	18 09	19 30	4 50	6 12	19 40	5 01	.....	3 08	88	21 55.9	-17 49	9.3
Mon Sep 28/Tue Sep 29	0 14	18 07	19 29	4 51	6 13	19 43	5 06	16 57	4 06	93	22 44.4	-13 44	9.4
Tue Sep 29/Wed Sep 30	0 18	18 06	19 28	4 52	6 13	19 45	5 11	17 28	5 02	97	23 30.8	- 9 08	9.4
Wed Sep 30/Thu Oct 01	0 22	18 05	19 26	4 52	6 14	19 48	5 15	17 56	5 56	99	0 15.5	- 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 26	18 03	19 25	4 53	6 15	19 51	5 20	18 24	6 50	100	0 59.5	0 46	9.5
Fri Oct 02/Sat Oct 03	0 30	18 02	19 24	4 54	6 15	19 53	5 25	18 51	.....	98	1 43.4	5 42	9.5
Sat Oct 03/Sun Oct 04	0 34	18 01	19 22	4 54	6 16	19 56	5 29	19 19	.....	95	2 27.9	10 24	9.5
Sun Oct 04/Mon Oct 05	0 38	17 59	19 21	4 55	6 17	19 58	5 34	19 49	.....	90	3 13.7	14 41	9.6
Mon Oct 05/Tue Oct 06	0 42	17 58	19 20	4 56	6 18	20 01	5 39	20 22	.....	83	4 01.4	18 23	9.6
Tue Oct 06/Wed Oct 07	0 46	17 57	19 19	4 56	6 18	20 04	5 43	20 59	.....	75	4 51.4	21 19	9.6
Wed Oct 07/Thu Oct 08	0 50	17 56	19 17	4 57	6 19	20 06	5 48	21 41	.....	66	5 43.7	23 17	9.7
Thu Oct 08/Fri Oct 09	0 54	17 54	19 16	4 58	6 20	20 09	5 53	22 30	.....	57	6 38.1	24 09	9.7
Fri Oct 09/Sat Oct 10	0 58	17 53	19 15	4 59	6 20	20 12	5 57	23 25	.....	47	7 34.0	23 45	9.7
Sat Oct 10/Sun Oct 11	1 02	17 52	19 14	4 59	6 21	20 15	6 02	0 25	.....	36	8 30.5	22 01	9.8
Sun Oct 11/Mon Oct 12	1 06	17 51	19 12	5 00	6 22	20 17	6 06	1 30	.....	26	9 26.8	19 00	9.8
Mon Oct 12/Tue Oct 13	1 10	17 49	19 11	5 01	6 23	20 20	6 11	2 37	.....	17	10 22.4	14 47	9.8
Tue Oct 13/Wed Oct 14	1 14	17 48	19 10	5 01	6 23	20 23	6 16	3 47	16 16	9	11 17.2	9 36	9.9
Wed Oct 14/Thu Oct 15	1 18	17 47	19 09	5 02	6 24	20 26	6 20	4 57	16 53	4	12 11.5	3 43	9.9
Thu Oct 15/Fri Oct 16	1 21	17 46	19 08	5 03	6 25	20 28	6 25	6 08	17 29	1	13 06.0	- 2 30	9.9
Fri Oct 16/Sat Oct 17	1 25	17 45	19 07	5 03	6 26	20 31	6 30	7 20	18 05	0	14 01.3	- 8 38	9.9
Sat Oct 17/Sun Oct 18	1 29	17 43	19 06	5 04	6 26	20 34	6 34	.....	18 44	3	14 58.0	-14 17	10.0
Sun Oct 18/Mon Oct 19	1 33	17 42	19 04	5 05	6 27	20 37	6 39	.....	19 26	9	15 56.6	-19 01	10.0
Mon Oct 19/Tue Oct 20	1 37	17 41	19 03	5 06	6 28	20 40	6 44	.....	20 13	17	16 56.7	-22 31	10.0
Tue Oct 20/Wed Oct 21	1 41	17 40	19 02	5 06	6 29	20 43	6 48	.....	21 05	26	17 57.5	-24 34	10.1
Wed Oct 21/Thu Oct 22	1 45	17 39	19 01	5 07	6 29	20 46	6 53	.....	22 02	36	18 57.6	-25 05	10.1
Thu Oct 22/Fri Oct 23	1 49	17 38	19 00	5 08	6 30	20 49	6 58	.....	23 02	46	19 55.8	-24 09	10.1
Fri Oct 23/Sat Oct 24	1 53	17 37	18 59	5 08	6 31	20 52	7 02	.....	0 02	57	20 51.1	-21 59	10.2
Sat Oct 24/Sun Oct 25	1 57	17 36	18 58	5 09	6 32	20 55	7 07	.....	1 02	67	21 43.1	-18 49	10.2
Sun Oct 25/Mon Oct 26	2 01	17 35	18 57	5 10	6 33	20 58	7 12	.....	2 00	76	22 32.1	-14 52	10.2
Mon Oct 26/Tue Oct 27	2 05	17 34	18 57	5 11	6 34	21 01	7 16	.....	2 57	83	23 18.6	-10 23	10.2
Tue Oct 27/Wed Oct 28	2 09	17 33	18 56	5 11	6 34	21 04	7 21	16 00	3 51	90	0 03.3	- 5 33	10.3
Wed Oct 28/Thu Oct 29	2 13	17 32	18 55	5 12	6 35	21 07	7 26	16 28	4 45	95	0 47.1	- 0 33	10.3
Thu Oct 29/Fri Oct 30	2 17	17 31	18 54	5 13	6 36	21 10	7 30	16 55	5 39	98	1 30.7	4 27	10.3
Fri Oct 30/Sat Oct 31	2 21	17 30	18 53	5 14	6 37	21 13	7 35	17 22	6 34	100	2 15.0	9 17	10.3
Sat Oct 31/Sun Nov 01	2 25	17 29	18 52	5 14	6 38	21 16	7 40	17 51	7 29	100	3 00.6	13 45	10.4

Calendar for VATT, west longitude (h.m.s) = 7 19 34, latitude (d.m) = 32 42.1
 Rise/set times in Mountain time (7 hr W), uncorrected for elevation, 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 29	17 28	18 52	5 15	6 39	21 19	7 44	18 23	.....	97	3 48.0	17 42	10.4
Mon Nov 02/Tue Nov 03	2 32	17 27	18 51	5 16	6 39	21 22	7 49	18 59	.....	94	4 37.7	20 55	10.4
Tue Nov 03/Wed Nov 04	2 36	17 26	18 50	5 17	6 40	21 26	7 54	19 39	.....	88	5 29.7	23 12	10.4
Wed Nov 04/Thu Nov 05	2 40	17 26	18 49	5 17	6 41	21 29	7 58	20 25	.....	81	6 23.6	24 23	10.5
Thu Nov 05/Fri Nov 06	2 44	17 25	18 49	5 18	6 42	21 32	8 03	21 17	.....	72	7 18.9	24 20	10.5
Fri Nov 06/Sat Nov 07	2 48	17 24	18 48	5 19	6 43	21 35	8 08	22 15	.....	63	8 14.5	23 00	10.5
Sat Nov 07/Sun Nov 08	2 52	17 23	18 47	5 20	6 44	21 39	8 13	23 16	.....	52	9 09.8	20 25	10.5
Sun Nov 08/Mon Nov 09	2 56	17 23	18 47	5 20	6 45	21 42	8 17	0 20	.....	41	10 04.2	16 39	10.6
Mon Nov 09/Tue Nov 10	3 00	17 22	18 46	5 21	6 46	21 45	8 22	1 26	.....	31	10 57.6	11 54	10.6
Tue Nov 10/Wed Nov 11	3 04	17 21	18 46	5 22	6 47	21 49	8 27	2 34	.....	21	11 50.4	6 23	10.6
Wed Nov 11/Thu Nov 12	3 08	17 20	18 45	5 23	6 47	21 52	8 31	3 42	.....	12	12 43.3	0 22	10.6
Thu Nov 12/Fri Nov 13	3 12	17 20	18 45	5 23	6 48	21 56	8 36	4 52	15 58	5	13 37.2	- 5 47	10.6
Fri Nov 13/Sat Nov 14	3 16	17 19	18 44	5 24	6 49	21 59	8 41	6 04	16 34	1	14 32.7	-11 43	10.7
Sat Nov 14/Sun Nov 15	3 20	17 19	18 44	5 25	6 50	22 03	8 46	7 18	17 14	0	15 30.6	-16 58	10.7
Sun Nov 15/Mon Nov 16	3 24	17 18	18 43	5 26	6 51	22 06	8 50	.....	17 59	2	16 30.9	-21 08	10.7
Mon Nov 16/Tue Nov 17	3 28	17 18	18 43	5 26	6 52	22 10	8 55	.....	18 49	6	17 32.9	-23 54	10.7
Tue Nov 17/Wed Nov 18	3 32	17 17	18 43	5 27	6 53	22 13	9 00	.....	19 46	13	18 35.1	-25 04	10.7
Wed Nov 18/Thu Nov 19	3 36	17 17	18 42	5 28	6 54	22 17	9 04	.....	20 47	21	19 35.9	-24 39	10.8
Thu Nov 19/Fri Nov 20	3 39	17 16	18 42	5 29	6 55	22 21	9 09	.....	21 50	30	20 33.7	-22 51	10.8
Fri Nov 20/Sat Nov 21	3 43	17 16	18 42	5 30	6 56	22 24	9 14	.....	22 52	40	21 27.8	-19 54	10.8
Sat Nov 21/Sun Nov 22	3 47	17 15	18 41	5 30	6 56	22 28	9 19	.....	23 52	50	22 18.3	-16 06	10.8
Sun Nov 22/Mon Nov 23	3 51	17 15	18 41	5 31	6 57	22 32	9 23	.....	0 50	60	23 05.7	-11 42	10.8
Mon Nov 23/Tue Nov 24	3 55	17 15	18 41	5 32	6 58	22 35	9 28	.....	1 45	69	23 50.9	- 6 56	10.8
Tue Nov 24/Wed Nov 25	3 59	17 14	18 41	5 33	6 59	22 39	9 33	.....	2 39	78	0 34.6	- 1 58	10.9
Wed Nov 25/Thu Nov 26	4 03	17 14	18 41	5 33	7 00	22 43	9 37	.....	3 33	85	1 18.0	3 03	10.9
Thu Nov 26/Fri Nov 27	4 07	17 14	18 41	5 34	7 01	22 47	9 42	.....	4 27	91	2 01.8	7 57	10.9
Fri Nov 27/Sat Nov 28	4 11	17 14	18 40	5 35	7 02	22 51	9 47	15 54	5 22	96	2 46.8	12 34	10.9
Sat Nov 28/Sun Nov 29	4 15	17 14	18 40	5 36	7 03	22 54	9 52	16 24	6 19	99	3 33.8	16 44	10.9
Sun Nov 29/Mon Nov 30	4 19	17 13	18 40	5 36	7 03	22 58	9 56	16 59	7 16	100	4 23.2	20 13	10.9
Mon Nov 30/Tue Dec 01	4 23	17 13	18 40	5 37	7 04	23 02	10 01	17 38	8 13	99	5 15.1	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 27	17 13	18 40	5 38	7 05	23 06	10 06	18 23	.....	96	6 09.3	24 21	11.0
Wed Dec 02/Thu Dec 03	4 31	17 13	18 40	5 39	7 06	23 10	10 10	19 13	.....	92	7 05.0	24 39	11.0
Thu Dec 03/Fri Dec 04	4 35	17 13	18 41	5 39	7 07	23 14	10 15	20 09	.....	85	8 01.0	23 39	11.0
Fri Dec 04/Sat Dec 05	4 39	17 13	18 41	5 40	7 08	23 18	10 20	21 09	.....	77	8 56.5	21 21	11.0
Sat Dec 05/Sun Dec 06	4 43	17 13	18 41	5 41	7 08	23 22	10 24	22 12	.....	68	9 50.8	17 54	11.0
Sun Dec 06/Mon Dec 07	4 46	17 13	18 41	5 41	7 09	23 27	10 29	23 16	.....	57	10 43.5	13 28	11.0
Mon Dec 07/Tue Dec 08	4 50	17 13	18 41	5 42	7 10	23 31	10 33	0 20	.....	46	11 35.2	8 15	11.0
Tue Dec 08/Wed Dec 09	4 54	17 14	18 41	5 43	7 11	23 35	10 38	1 26	.....	35	12 26.4	2 32	11.0
Wed Dec 09/Thu Dec 10	4 58	17 14	18 42	5 43	7 11	23 39	10 43	2 32	.....	25	13 18.0	- 3 27	11.0
Thu Dec 10/Fri Dec 11	5 02	17 14	18 42	5 44	7 12	23 43	10 47	3 41	.....	15	14 11.1	- 9 20	11.0
Fri Dec 11/Sat Dec 12	5 06	17 14	18 42	5 45	7 13	23 47	10 52	4 51	.....	8	15 06.6	-14 47	11.0
Sat Dec 12/Sun Dec 13	5 10	17 14	18 42	5 45	7 13	23 52	10 56	6 04	15 46	3	16 04.8	-19 24	11.0
Sun Dec 13/Mon Dec 14	5 14	17 15	18 43	5 46	7 14	23 56	11 01	7 15	16 33	0	17 05.8	-22 47	11.1
Mon Dec 14/Tue Dec 15	5 18	17 15	18 43	5 47	7 15	0 00	11 06	8 22	17 27	1	18 08.3	-24 41	11.1
Tue Dec 15/Wed Dec 16	5 22	17 15	18 43	5 47	7 15	0 05	11 10	.....	18 27	3	19 10.6	-24 57	11.1
Wed Dec 16/Thu Dec 17	5 26	17 16	18 44	5 48	7 16	0 09	11 15	.....	19 30	9	20 10.9	-23 40	11.1
Thu Dec 17/Fri Dec 18	5 30	17 16	18 44	5 48	7 17	0 13	11 19	.....	20 35	16	21 07.7	-21 04	11.1
Fri Dec 18/Sat Dec 19	5 34	17 17	18 45	5 49	7 17	0 18	11 24	.....	21 38	24	22 00.7	-17 29	11.1
Sat Dec 19/Sun Dec 20	5 38	17 17	18 45	5 49	7 18	0 22	11 28	.....	22 38	33	22 50.0	-13 11	11.1
Sun Dec 20/Mon Dec 21	5 42	17 17	18 46	5 50	7 18	0 27	11 33	.....	23 36	43	23 36.3	- 8 28	11.1
Mon Dec 21/Tue Dec 22	5 46	17 18	18 46	5 50	7 19	0 31	11 37	.....	0 31	52	0 20.7	- 3 30	11.1
Tue Dec 22/Wed Dec 23	5 50	17 18	18 47	5 51	7 19	0 35	11 41	.....	1 25	62	1 04.2	1 31	11.1
Wed Dec 23/Thu Dec 24	5 54	17 19	18 47	5 51	7 19	0 40	11 46	.....	2 19	71	1 47.6	6 28	11.1
Thu Dec 24/Fri Dec 25	5 57	17 20	18 48	5 52	7 20	0 44	11 50	.....	3 14	79	2 31.9	11 10	11.1
Fri Dec 25/Sat Dec 26	6 01	17 20	18 48	5 52	7 20	0 49	11 54	.....	4 10	86	3 18.0	15 29	11.1
Sat Dec 26/Sun Dec 27	6 05	17 21	18 49	5 52	7 21	0 53	11 59	.....	5 06	92	4 06.5	19 12	11.1
Sun Dec 27/Mon Dec 28	6 09	17 21	18 50	5 53	7 21	0 58	12 03	15 35	6 04	97	4 57.8	22 08	11.1
Mon Dec 28/Tue Dec 29	6 13	17 22	18 50	5 53	7 21	1 03	12 07	16 18	7 01	99	5 51.8	24 03	11.1
Tue Dec 29/Wed Dec 30	6 17	17 23	18 51	5 54	7 21	1 07	12 12	17 07	7 56	100	6 47.9	24 44	11.0
Wed Dec 30/Thu Dec 31	6 21	17 23	18 51	5 54	7 22	1 12	12 16	18 02	.....	99	7 45.0	24 06	11.0
Thu Dec 31/Fri Jan 01	6 25	17 24	18 52	5 54	7 22	1 16	12 20	19 02	.....	95	8 41.9	22 06	11.0