

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:

***** 2022 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 2022, 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 04	0 45	Dec 10	18 38	Dec 18	21 38	Dec 26	19 26
Jan 02	11 36	Jan 09	11 13	Jan 17	16 51	Jan 25	6 43
Jan 31	22 49	Feb 08	6 52	Feb 16	10 00	Feb 23	15 35
Mar 02	10 38	Mar 10	3 46	Mar 18	0 21	Mar 24	22 39
Mar 31	23 28	Apr 08	23 48	Apr 16	11 58	Apr 23	4 58
Apr 30	13 31	May 08	17 22	May 15	21 16	May 22	11 45
May 30	4 32	Jun 07	7 49	Jun 14	4 53	Jun 20	20 12
Jun 28	19 53	Jul 06	19 15	Jul 13	11 38	Jul 20	7 19
Jul 28	10 55	Aug 05	4 08	Aug 11	18 36	Aug 18	21 37
Aug 27	1 17	Sep 03	11 09	Sep 10	2 59	Sep 17	14 52
Sep 25	14 54	Oct 02	17 15	Oct 09	13 55	Oct 17	10 16
Oct 25	3 48	Oct 31	23 39	Nov 08	4 03	Nov 16	6 29
Nov 23	15 57	Nov 30	7 39	Dec 07	21 10	Dec 16	1 59
Dec 23	3 18	Dec 29	18 23	Jan 06	16 10	Jan 14	19 13

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.

***** 2022 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
Sat Jan 01/Sun Jan 02	6 28	17 25	18 53	5 54 7 22	1 20 12 23	7 29	16 20	0	18 22.5 -26 20	11.0
Sun Jan 02/Mon Jan 03	6 32	17 26	18 53	5 55 7 22	1 24 12 27	.....	17 26	1	19 28.9 -25 55	11.0
Mon Jan 03/Tue Jan 04	6 36	17 26	18 54	5 55 7 22	1 29 12 32	.....	18 38	3	20 33.0 -23 41	11.0
Tue Jan 04/Wed Jan 05	6 40	17 27	18 55	5 55 7 22	1 34 12 36	.....	19 50	9	21 32.9 -19 59	11.0
Wed Jan 05/Thu Jan 06	6 44	17 28	18 55	5 55 7 23	1 38 12 40	.....	20 59	16	22 28.2 -15 14	11.0
Thu Jan 06/Fri Jan 07	6 48	17 29	18 56	5 55 7 23	1 43 12 44	.....	22 05	25	23 19.2 - 9 53	11.0
Fri Jan 07/Sat Jan 08	6 52	17 30	18 57	5 55 7 23	1 48 12 48	.....	23 06	35	0 07.1 - 4 14	11.0
Sat Jan 08/Sun Jan 09	6 56	17 30	18 58	5 55 7 23	1 52 12 52	.....	0 05	45	0 52.9 1 24	11.0
Sun Jan 09/Mon Jan 10	7 00	17 31	18 58	5 55 7 23	1 57 12 56	.....	1 02	54	1 37.8 6 51	11.0
Mon Jan 10/Tue Jan 11	7 04	17 32	18 59	5 55 7 22	2 02 13 00	.....	1 59	64	2 22.8 11 57	10.9
Tue Jan 11/Wed Jan 12	7 07	17 33	19 00	5 55 7 22	2 07 13 04	.....	2 55	73	3 08.9 16 30	10.9
Wed Jan 12/Thu Jan 13	7 11	17 34	19 01	5 55 7 22	2 11 13 08	.....	3 52	81	3 56.7 20 23	10.9
Thu Jan 13/Fri Jan 14	7 15	17 35	19 01	5 55 7 22	2 16 13 12	.....	4 49	88	4 46.6 23 24	10.9
Fri Jan 14/Sat Jan 15	7 19	17 36	19 02	5 55 7 22	2 21 13 16	.....	5 44	93	5 38.5 25 23	10.9
Sat Jan 15/Sun Jan 16	7 23	17 37	19 03	5 55 7 22	2 25 13 19	15 39	6 37	97	6 32.0 26 11	10.9
Sun Jan 16/Mon Jan 17	7 27	17 37	19 04	5 55 7 21	2 30 13 23	16 31	7 25	99	7 26.2 25 44	10.9
Mon Jan 17/Tue Jan 18	7 31	17 38	19 05	5 55 7 21	2 35 13 27	17 26	8 08	100	8 20.0 24 01	10.8
Tue Jan 18/Wed Jan 19	7 35	17 39	19 05	5 55 7 21	2 40 13 31	18 25	.....	98	9 12.5 21 08	10.8
Wed Jan 19/Thu Jan 20	7 39	17 40	19 06	5 55 7 20	2 44 13 35	19 25	.....	95	10 03.3 17 12	10.8
Thu Jan 20/Fri Jan 21	7 43	17 41	19 07	5 54 7 20	2 49 13 38	20 25	.....	89	10 52.4 12 27	10.8
Fri Jan 21/Sat Jan 22	7 47	17 42	19 08	5 54 7 20	2 54 13 42	21 25	.....	82	11 40.2 7 05	10.8
Sat Jan 22/Sun Jan 23	7 51	17 43	19 09	5 54 7 19	2 59 13 46	22 26	.....	73	12 27.6 1 20	10.8
Sun Jan 23/Mon Jan 24	7 55	17 44	19 10	5 53 7 19	3 03 13 49	23 27	.....	63	13 15.4 - 4 35	10.7
Mon Jan 24/Tue Jan 25	7 59	17 45	19 10	5 53 7 18	3 08 13 53	0 31	.....	52	14 04.9 -10 23	10.7
Tue Jan 25/Wed Jan 26	8 03	17 46	19 11	5 53 7 18	3 13 13 56	1 37	.....	41	14 57.2 -15 48	10.7
Wed Jan 26/Thu Jan 27	8 07	17 47	19 12	5 52 7 17	3 18 14 00	2 46	.....	30	15 53.0 -20 29	10.7
Thu Jan 27/Fri Jan 28	8 11	17 48	19 13	5 52 7 17	3 23 14 03	3 57	.....	20	16 52.9 -24 03	10.7
Fri Jan 28/Sat Jan 29	8 14	17 49	19 14	5 51 7 16	3 27 14 07	5 07	.....	12	17 56.3 -26 06	10.6
Sat Jan 29/Sun Jan 30	8 18	17 50	19 14	5 51 7 16	3 32 14 10	6 12	.....	5	19 01.4 -26 24	10.6
Sun Jan 30/Mon Jan 31	8 22	17 51	19 15	5 50 7 15	3 37 14 14	7 08	16 11	1	20 05.9 -24 52	10.6
Mon Jan 31/Tue Feb 01	8 26	17 52	19 16	5 50 7 14	3 42 14 17	7 56	17 23	0	21 07.5 -21 43	10.6

***** 2022 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
Tue Feb 01/Wed Feb 02	8 30	17 52	19 17	5 49 7 14	3 46 14 21	.....	18 35	2	22 05.0 -17 17	10.5
Wed Feb 02/Thu Feb 03	8 34	17 53	19 18	5 49 7 13	3 51 14 24	.....	19 44	6	22 58.5 -12 02	10.5
Thu Feb 03/Fri Feb 04	8 38	17 54	19 18	5 48 7 12	3 56 14 27	.....	20 49	11	23 48.4 - 6 19	10.5
Fri Feb 04/Sat Feb 05	8 42	17 55	19 19	5 47 7 11	4 01 14 31	.....	21 51	19	0 35.8 - 0 30	10.5
Sat Feb 05/Sun Feb 06	8 46	17 56	19 20	5 47 7 11	4 05 14 34	.....	22 50	28	1 21.8 5 10	10.4
Sun Feb 06/Mon Feb 07	8 50	17 57	19 21	5 46 7 10	4 10 14 37	.....	23 48	37	2 07.4 10 29	10.4
Mon Feb 07/Tue Feb 08	8 54	17 58	19 22	5 45 7 09	4 15 14 40	.....	0 46	47	2 53.6 15 17	10.4
Tue Feb 08/Wed Feb 09	8 58	17 59	19 22	5 45 7 08	4 20 14 43	.....	1 43	56	3 41.0 19 24	10.4
Wed Feb 09/Thu Feb 10	9 02	18 00	19 23	5 44 7 07	4 24 14 47	.....	2 41	65	4 30.2 22 41	10.3
Thu Feb 10/Fri Feb 11	9 06	18 01	19 24	5 43 7 06	4 29 14 50	.....	3 37	74	5 21.4 24 59	10.3
Fri Feb 11/Sat Feb 12	9 10	18 02	19 25	5 42 7 05	4 34 14 53	.....	4 30	82	6 14.3 26 09	10.3
Sat Feb 12/Sun Feb 13	9 14	18 03	19 26	5 41 7 04	4 39 14 56	.....	5 20	89	7 08.3 26 04	10.3
Sun Feb 13/Mon Feb 14	9 18	18 03	19 26	5 41 7 03	4 43 14 59	.....	6 05	94	8 02.3 24 43	10.2
Mon Feb 14/Tue Feb 15	9 22	18 04	19 27	5 40 7 02	4 48 15 02	16 15	6 46	98	8 55.6 22 08	10.2
Tue Feb 15/Wed Feb 16	9 25	18 05	19 28	5 39 7 01	4 53 15 05	17 16	7 22	100	9 47.4 18 25	10.2
Wed Feb 16/Thu Feb 17	9 29	18 06	19 29	5 38 7 00	4 57 15 08	18 17	7 54	99	10 37.7 13 46	10.2
Thu Feb 17/Fri Feb 18	9 33	18 07	19 30	5 37 6 59	5 02 15 11	19 18	.....	97	11 26.7 8 24	10.1
Fri Feb 18/Sat Feb 19	9 37	18 08	19 30	5 36 6 58	5 07 15 14	20 19	.....	92	12 15.0 2 34	10.1
Sat Feb 19/Sun Feb 20	9 41	18 09	19 31	5 35 6 57	5 12 15 17	21 21	.....	86	13 03.4 - 3 27	10.1
Sun Feb 20/Mon Feb 21	9 45	18 10	19 32	5 34 6 56	5 16 15 20	22 24	.....	77	13 52.9 - 9 24	10.0
Mon Feb 21/Tue Feb 22	9 49	18 10	19 33	5 33 6 55	5 21 15 23	23 30	.....	67	14 44.6 -14 58	10.0
Tue Feb 22/Wed Feb 23	9 53	18 11	19 33	5 32 6 54	5 26 15 26	0 37	.....	57	15 39.2 -19 50	10.0
Wed Feb 23/Thu Feb 24	9 57	18 12	19 34	5 31 6 53	5 31 15 29	1 46	.....	45	16 37.3 -23 38	9.9
Thu Feb 24/Fri Feb 25	10 01	18 13	19 35	5 30 6 52	5 35 15 32	2 55	.....	34	17 38.5 -26 02	9.9
Fri Feb 25/Sat Feb 26	10 05	18 14	19 36	5 29 6 51	5 40 15 35	4 00	.....	24	18 41.7 -26 48	9.9
Sat Feb 26/Sun Feb 27	10 09	18 15	19 37	5 28 6 50	5 45 15 37	4 57	.....	15	19 44.8 -25 49	9.9
Sun Feb 27/Mon Feb 28	10 13	18 15	19 37	5 27 6 48	5 49 15 40	5 47	.....	8	20 46.0 -23 12	9.8
Mon Feb 28/Tue Mar 01	10 17	18 16	19 38	5 25 6 47	5 54 15 43	6 29	.....	3	21 43.9 -19 12	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.

***** 2022 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	
Tue Mar 01/Wed Mar 02	10 21	18 17	19 39	5 24	6 46	5 59	15 46	7 05	17 23	0	22 38.1	-14 13	9.8
Wed Mar 02/Thu Mar 03	10 25	18 18	19 40	5 23	6 45	6 03	15 49	7 37	18 29	1	23 29.0	- 8 37	9.7
Thu Mar 03/Fri Mar 04	10 29	18 19	19 40	5 22	6 44	6 08	15 51	.....	19 33	3	0 17.4	- 2 45	9.7
Fri Mar 04/Sat Mar 05	10 32	18 19	19 41	5 21	6 42	6 13	15 54	.....	20 34	7	1 04.2	3 06	9.7
Sat Mar 05/Sun Mar 06	10 36	18 20	19 42	5 19	6 41	6 18	15 57	.....	21 34	13	1 50.4	8 41	9.6
Sun Mar 06/Mon Mar 07	10 40	18 21	19 43	5 18	6 40	6 22	15 59	.....	22 33	21	2 36.8	13 46	9.6
Mon Mar 07/Tue Mar 08	10 44	18 22	19 43	5 17	6 39	6 27	16 02	.....	23 32	29	3 24.2	18 12	9.6
Tue Mar 08/Wed Mar 09	10 48	18 22	19 44	5 16	6 37	6 32	16 05	.....	0 30	38	4 13.0	21 49	9.5
Wed Mar 09/Thu Mar 10	10 52	18 23	19 45	5 14	6 36	6 36	16 07	.....	1 27	48	5 03.6	24 28	9.5
Thu Mar 10/Fri Mar 11	10 56	18 24	19 46	5 13	6 35	6 41	16 10	.....	2 22	57	5 55.8	26 01	9.5
Fri Mar 11/Sat Mar 12	11 00	18 25	19 47	5 12	6 34	6 46	16 13	.....	3 13	67	6 49.2	26 21	9.4
Sat Mar 12/Sun Mar 13	11 04	18 25	19 47	5 10	6 32	6 51	16 15	.....	4 00	75	7 42.8	25 25	9.4
Sun Mar 13/Mon Mar 14	11 08	18 26	19 48	5 09	6 31	6 55	16 18	.....	4 42	83	8 36.0	23 15	9.4
Mon Mar 14/Tue Mar 15	11 12	18 27	19 49	5 08	6 30	7 00	16 21	.....	5 19	90	9 28.2	19 54	9.3
Tue Mar 15/Wed Mar 16	11 16	18 28	19 50	5 06	6 28	7 05	16 23	.....	5 53	95	10 19.1	15 30	9.3
Wed Mar 16/Thu Mar 17	11 20	18 28	19 50	5 05	6 27	7 10	16 26	.....	6 24	99	11 08.9	10 16	9.2
Thu Mar 17/Fri Mar 18	11 24	18 29	19 51	5 04	6 26	7 14	16 28	.....	6 54	100	11 58.1	4 26	9.2
Fri Mar 18/Sat Mar 19	11 28	18 30	19 52	5 02	6 24	7 19	16 31	.....	7 24	99	12 47.4	- 1 46	9.2
Sat Mar 19/Sun Mar 20	11 32	18 31	19 53	5 01	6 23	7 24	16 33	.....	20 14	95	13 37.8	- 7 59	9.1
Sun Mar 20/Mon Mar 21	11 36	18 31	19 54	5 00	6 22	7 28	16 36	.....	21 21	89	14 30.1	-13 53	9.1
Mon Mar 21/Tue Mar 22	11 40	18 32	19 54	4 58	6 21	7 33	16 39	.....	22 29	81	15 25.2	-19 06	9.1
Tue Mar 22/Wed Mar 23	11 43	18 33	19 55	4 57	6 19	7 38	16 41	.....	23 39	71	16 23.6	-23 16	9.0
Wed Mar 23/Thu Mar 24	11 47	18 33	19 56	4 55	6 18	7 43	16 44	.....	0 48	60	17 24.8	-26 02	9.0
Thu Mar 24/Fri Mar 25	11 51	18 34	19 57	4 54	6 17	7 47	16 46	.....	1 54	49	18 27.7	-27 10	9.0
Fri Mar 25/Sat Mar 26	11 55	18 35	19 58	4 53	6 15	7 52	16 49	.....	2 53	37	19 30.5	-26 33	8.9
Sat Mar 26/Sun Mar 27	11 59	18 36	19 58	4 51	6 14	7 57	16 51	.....	3 44	27	20 31.3	-24 19	8.9
Sun Mar 27/Mon Mar 28	12 03	18 36	19 59	4 50	6 13	8 02	16 54	.....	4 27	18	21 28.8	-20 41	8.8
Mon Mar 28/Tue Mar 29	12 07	18 37	20 00	4 48	6 11	8 07	16 56	.....	5 04	10	22 22.8	-16 01	8.8
Tue Mar 29/Wed Mar 30	12 11	18 38	20 01	4 47	6 10	8 11	16 59	.....	5 36	5	23 13.5	-10 37	8.8
Wed Mar 30/Thu Mar 31	12 15	18 38	20 02	4 45	6 09	8 16	17 01	.....	6 06	1	0 01.8	- 4 51	8.7
Thu Mar 31/Fri Apr 01	12 19	18 39	20 03	4 44	6 07	8 21	17 04	.....	6 34	0	0 48.5	1 01	8.7

***** 2022 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	
Fri Apr 01/Sat Apr 02	12 23	18 40	20 03	4 43	6 06	8 26	17 06	7 02	19 20	1	1 34.5	6 44	8.7
Sat Apr 02/Sun Apr 03	12 27	18 40	20 04	4 41	6 05	8 30	17 09	.....	20 19	4	2 20.7	12 03	8.6
Sun Apr 03/Mon Apr 04	12 31	18 41	20 05	4 40	6 04	8 35	17 11	.....	21 19	9	3 07.8	16 47	8.6
Mon Apr 04/Tue Apr 05	12 35	18 42	20 06	4 38	6 02	8 40	17 14	.....	22 18	15	3 56.3	20 44	8.5
Tue Apr 05/Wed Apr 06	12 39	18 43	20 07	4 37	6 01	8 45	17 16	.....	23 16	23	4 46.5	23 44	8.5
Wed Apr 06/Thu Apr 07	12 43	18 43	20 08	4 35	6 00	8 50	17 19	.....	0 12	31	5 38.1	25 40	8.5
Thu Apr 07/Fri Apr 08	12 47	18 44	20 09	4 34	5 59	8 55	17 21	.....	1 05	40	6 30.8	26 25	8.4
Fri Apr 08/Sat Apr 09	12 50	18 45	20 10	4 32	5 57	8 59	17 24	.....	1 54	49	7 23.9	25 56	8.4
Sat Apr 09/Sun Apr 10	12 54	18 45	20 11	4 31	5 56	9 04	17 26	.....	2 37	59	8 16.6	24 13	8.3
Sun Apr 10/Mon Apr 11	12 58	18 46	20 11	4 30	5 55	9 09	17 29	.....	3 16	69	9 08.3	21 19	8.3
Mon Apr 11/Tue Apr 12	13 02	18 47	20 12	4 28	5 54	9 14	17 31	.....	3 51	77	9 58.9	17 21	8.3
Tue Apr 12/Wed Apr 13	13 06	18 48	20 13	4 27	5 52	9 19	17 34	.....	4 23	86	10 48.5	12 27	8.2
Wed Apr 13/Thu Apr 14	13 10	18 48	20 14	4 25	5 51	9 24	17 36	.....	4 53	92	11 37.5	6 49	8.2
Thu Apr 14/Fri Apr 15	13 14	18 49	20 15	4 24	5 50	9 29	17 39	.....	5 22	97	12 26.8	0 40	8.1
Fri Apr 15/Sat Apr 16	13 18	18 50	20 16	4 22	5 49	9 34	17 41	.....	5 53	100	13 17.2	- 5 42	8.1
Sat Apr 16/Sun Apr 17	13 22	18 50	20 17	4 21	5 48	9 38	17 44	.....	6 26	100	14 09.8	-11 57	8.1
Sun Apr 17/Mon Apr 18	13 26	18 51	20 18	4 20	5 46	9 43	17 46	.....	20 13	97	15 05.5	-17 40	8.0
Mon Apr 18/Tue Apr 19	13 30	18 52	20 19	4 18	5 45	9 48	17 49	.....	21 25	91	16 04.8	-22 24	8.0
Tue Apr 19/Wed Apr 20	13 34	18 53	20 20	4 17	5 44	9 53	17 51	.....	22 37	83	17 07.3	-25 45	7.9
Wed Apr 20/Thu Apr 21	13 38	18 53	20 21	4 15	5 43	9 58	17 54	.....	23 47	74	18 11.9	-27 22	7.9
Thu Apr 21/Fri Apr 22	13 42	18 54	20 22	4 14	5 42	10 03	17 56	.....	0 49	63	19 16.5	-27 10	7.9
Fri Apr 22/Sat Apr 23	13 46	18 55	20 23	4 13	5 41	10 08	17 59	.....	1 43	52	20 18.7	-25 14	7.8
Sat Apr 23/Sun Apr 24	13 50	18 55	20 24	4 11	5 40	10 13	18 02	.....	2 28	41	21 17.2	-21 51	7.8
Sun Apr 24/Mon Apr 25	13 54	18 56	20 25	4 10	5 39	10 18	18 04	.....	3 06	30	22 11.7	-17 22	7.8
Mon Apr 25/Tue Apr 26	13 58	18 57	20 26	4 09	5 37	10 23	18 07	.....	3 39	21	23 02.5	-12 09	7.7
Tue Apr 26/Wed Apr 27	14 01	18 58	20 27	4 07	5 36	10 28	18 09	.....	4 08	13	23 50.4	- 6 30	7.7
Wed Apr 27/Thu Apr 28	14 05	18 58	20 28	4 06	5 35	10 33	18 12	.....	4 36	7	0 36.6	- 0 42	7.6
Thu Apr 28/Fri Apr 29	14 09	18 59	20 29	4 05	5 34	10 38	18 15	.....	5 04	3	1 22.0	5 01	7.6
Fri Apr 29/Sat Apr 30	14 13	19 00	20 30	4 03	5 33	10 43	18 17	.....	5 32	0	2 07.5	10 26	7.6
Sat Apr 30/Sun May 01	14 17	19 01	20 31	4 02	5 32	10 48	18 20	.....	6 03	0	2 53.9	15 20	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.

***** 2022 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
Sun May 01/Mon May 02	14 21	19 01	20 32	4 01	5 31	10 53	18 23	6 37	20 07	2	3 41.8	19 32	7.5
Mon May 02/Tue May 03	14 25	19 02	20 33	4 00	5 31	10 58	18 25	.....	21 06	5	4 31.3	22 51	7.4
Tue May 03/Wed May 04	14 29	19 03	20 34	3 58	5 30	11 03	18 28	.....	22 03	10	5 22.4	25 08	7.4
Wed May 04/Thu May 05	14 33	19 04	20 35	3 57	5 29	11 08	18 31	.....	22 58	17	6 14.7	26 15	7.4
Thu May 05/Fri May 06	14 37	19 04	20 36	3 56	5 28	11 13	18 33	.....	23 48	25	7 07.3	26 10	7.3
Fri May 06/Sat May 07	14 41	19 05	20 37	3 55	5 27	11 18	18 36	.....	0 33	33	7 59.6	24 51	7.3
Sat May 07/Sun May 08	14 45	19 06	20 38	3 54	5 26	11 22	18 39	.....	1 13	42	8 50.8	22 22	7.3
Sun May 08/Mon May 09	14 49	19 06	20 39	3 52	5 25	11 27	18 42	.....	1 49	52	9 40.7	18 50	7.2
Mon May 09/Tue May 10	14 53	19 07	20 40	3 51	5 24	11 32	18 45	.....	2 21	62	10 29.3	14 22	7.2
Tue May 10/Wed May 11	14 57	19 08	20 41	3 50	5 24	11 37	18 48	.....	2 51	72	11 17.3	9 07	7.1
Wed May 11/Thu May 12	15 01	19 09	20 42	3 49	5 23	11 42	18 50	.....	3 20	81	12 05.3	3 16	7.1
Thu May 12/Fri May 13	15 05	19 09	20 43	3 48	5 22	11 47	18 53	.....	3 49	89	12 54.4	- 2 58	7.1
Fri May 13/Sat May 14	15 08	19 10	20 44	3 47	5 21	11 52	18 56	.....	4 21	95	13 45.6	- 9 18	7.0
Sat May 14/Sun May 15	15 12	19 11	20 45	3 46	5 21	11 57	18 59	17 50	4 56	99	14 40.1	-15 22	7.0
Sun May 15/Mon May 16	15 16	19 12	20 46	3 45	5 20	12 02	19 02	19 02	5 37	100	15 38.8	-20 42	7.0
Mon May 16/Tue May 17	15 20	19 12	20 48	3 44	5 19	12 07	19 05	20 17	6 27	98	16 41.9	-24 47	6.9
Tue May 17/Wed May 18	15 24	19 13	20 49	3 43	5 19	12 12	19 08	21 30	.....	93	17 48.3	-27 11	6.9
Wed May 18/Thu May 19	15 28	19 14	20 50	3 42	5 18	12 17	19 11	22 38	.....	86	18 55.7	-27 38	6.9
Thu May 19/Fri May 20	15 32	19 14	20 50	3 41	5 18	12 22	19 14	23 37	.....	77	20 01.3	-26 09	6.8
Fri May 20/Sat May 21	15 36	19 15	20 51	3 41	5 17	12 27	19 17	0 27	.....	66	21 02.9	-23 01	6.8
Sat May 21/Sun May 22	15 40	19 16	20 52	3 40	5 17	12 32	19 20	1 07	.....	55	21 59.7	-18 39	6.8
Sun May 22/Mon May 23	15 44	19 16	20 53	3 39	5 16	12 37	19 24	1 42	.....	44	22 52.0	-13 29	6.8
Mon May 23/Tue May 24	15 48	19 17	20 54	3 38	5 16	12 42	19 27	2 12	.....	33	23 40.8	- 7 51	6.7
Tue May 24/Wed May 25	15 52	19 18	20 55	3 37	5 15	12 47	19 30	2 40	.....	24	0 27.2	- 2 04	6.7
Wed May 25/Thu May 26	15 56	19 18	20 56	3 37	5 15	12 51	19 33	3 08	.....	16	1 12.4	3 40	6.7
Thu May 26/Fri May 27	16 00	19 19	20 57	3 36	5 14	12 56	19 36	3 35	.....	9	1 57.4	9 07	6.6
Fri May 27/Sat May 28	16 04	19 20	20 58	3 35	5 14	13 01	19 40	4 05	.....	4	2 43.0	14 07	6.6
Sat May 28/Sun May 29	16 08	19 20	20 59	3 35	5 14	13 06	19 43	4 37	17 59	1	3 30.1	18 28	6.6
Sun May 29/Mon May 30	16 12	19 21	21 00	3 34	5 13	13 11	19 46	5 14	18 58	0	4 18.9	21 59	6.6
Mon May 30/Tue May 31	16 15	19 21	21 01	3 34	5 13	13 16	19 50	5 55	19 56	1	5 09.4	24 32	6.6
Tue May 31/Wed Jun 01	16 19	19 22	21 01	3 33	5 13	13 20	19 53	.....	20 51	3	6 01.2	25 57	6.5

***** 2022 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
Wed Jun 01/Thu Jun 02	16 23	19 23	21 02	3 33	5 12	13 25	19 57	.....	21 43	7	6 53.6	26 10	6.5
Thu Jun 02/Fri Jun 03	16 27	19 23	21 03	3 32	5 12	13 30	20 00	.....	22 30	12	7 45.6	25 10	6.5
Fri Jun 03/Sat Jun 04	16 31	19 24	21 04	3 32	5 12	13 34	20 04	.....	23 12	19	8 36.6	23 01	6.5
Sat Jun 04/Sun Jun 05	16 35	19 24	21 04	3 32	5 12	13 39	20 07	.....	23 48	27	9 26.1	19 49	6.5
Sun Jun 05/Mon Jun 06	16 39	19 25	21 05	3 31	5 12	13 44	20 11	.....	0 21	36	10 14.0	15 42	6.4
Mon Jun 06/Tue Jun 07	16 43	19 25	21 06	3 31	5 11	13 48	20 15	.....	0 51	46	11 00.9	10 50	6.4
Tue Jun 07/Wed Jun 08	16 47	19 26	21 06	3 31	5 11	13 53	20 18	.....	1 19	56	11 47.3	5 20	6.4
Wed Jun 08/Thu Jun 09	16 51	19 26	21 07	3 30	5 11	13 58	20 22	.....	1 48	67	12 34.3	- 0 35	6.4
Thu Jun 09/Fri Jun 10	16 55	19 27	21 08	3 30	5 11	14 02	20 26	.....	2 17	77	13 23.0	- 6 44	6.4
Fri Jun 10/Sat Jun 11	16 59	19 27	21 08	3 30	5 11	14 07	20 29	.....	2 50	86	14 14.8	-12 49	6.4
Sat Jun 11/Sun Jun 12	17 03	19 28	21 09	3 30	5 11	14 11	20 33	.....	3 27	93	15 10.7	-18 27	6.4
Sun Jun 12/Mon Jun 13	17 07	19 28	21 09	3 30	5 11	14 16	20 37	17 50	4 12	98	16 11.6	-23 10	6.3
Mon Jun 13/Tue Jun 14	17 11	19 28	21 10	3 30	5 11	14 20	20 41	19 05	5 06	100	17 17.3	-26 25	6.3
Tue Jun 14/Wed Jun 15	17 15	19 29	21 10	3 30	5 11	14 24	20 45	20 17	6 10	99	18 26.1	-27 46	6.3
Wed Jun 15/Thu Jun 16	17 19	19 29	21 11	3 30	5 11	14 29	20 49	21 23	.....	95	19 35.0	-27 02	6.3
Thu Jun 16/Fri Jun 17	17 23	19 29	21 11	3 30	5 12	14 33	20 53	22 18	.....	88	20 40.7	-24 23	6.3
Fri Jun 17/Sat Jun 18	17 26	19 30	21 11	3 30	5 12	14 37	20 57	23 04	.....	79	21 41.5	-20 13	6.3
Sat Jun 18/Sun Jun 19	17 30	19 30	21 12	3 30	5 12	14 42	21 01	23 42	.....	69	22 37.2	-15 04	6.3
Sun Jun 19/Mon Jun 20	17 34	19 30	21 12	3 30	5 12	14 46	21 05	0 15	.....	59	23 28.4	- 9 20	6.3
Mon Jun 20/Tue Jun 21	17 38	19 30	21 12	3 30	5 12	14 50	21 09	0 44	.....	48	0 16.4	- 3 25	6.3
Tue Jun 21/Wed Jun 22	17 42	19 31	21 12	3 31	5 12	14 54	21 13	1 11	.....	38	1 02.4	2 26	6.3
Wed Jun 22/Thu Jun 23	17 46	19 31	21 13	3 31	5 13	14 58	21 18	1 39	.....	28	1 47.7	8 00	6.3
Thu Jun 23/Fri Jun 24	17 50	19 31	21 13	3 31	5 13	15 02	21 22	2 08	.....	20	2 33.3	13 06	6.3
Fri Jun 24/Sat Jun 25	17 54	19 31	21 13	3 32	5 13	15 06	21 26	2 39	.....	13	3 19.9	17 35	6.3
Sat Jun 25/Sun Jun 26	17 58	19 31	21 13	3 32	5 14	15 10	21 31	3 14	.....	7	4 08.2	21 16	6.3
Sun Jun 26/Mon Jun 27	18 02	19 31	21 13	3 32	5 14	15 14	21 35	3 53	17 50	3	4 58.1	24 01	6.3
Mon Jun 27/Tue Jun 28	18 06	19 31	21 13	3 33	5 14	15 18	21 39	4 38	18 46	1	5 49.5	25 40	6.3
Tue Jun 28/Wed Jun 29	18 10	19 31	21 13	3 33	5 15	15 22	21 44	5 28	19 39	0	6 41.7	26 08	6.3
Wed Jun 29/Thu Jun 30	18 14	19 31	21 13	3 34	5 15	15 26	21 48	6 22	20 28	1	7 33.8	25 23	6.3
Thu Jun 30/Fri Jul 01	18 18	19 31	21 13	3 34	5 15	15 30	21 53	.....	21 11	4	8 24.9	23 28	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.

***** 2022 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	
Fri Jul 01/Sat Jul 02		18 22	19 31	21 12	3 35	5 16	15 34	21 57	.....	21 49	9	9 14.5	20 30	6.4
Sat Jul 02/Sun Jul 03		18 26	19 31	21 12	3 35	5 16	15 37	22 02	.....	22 23	15	10 02.3	16 37	6.4
Sun Jul 03/Mon Jul 04		18 30	19 31	21 12	3 36	5 17	15 41	22 06	.....	22 53	23	10 48.6	11 58	6.4
Mon Jul 04/Tue Jul 05		18 33	19 31	21 12	3 37	5 17	15 45	22 11	.....	23 21	31	11 34.1	6 44	6.4
Tue Jul 05/Wed Jul 06		18 37	19 31	21 11	3 37	5 18	15 48	22 15	.....	23 49	41	12 19.5	1 05	6.4
Wed Jul 06/Thu Jul 07		18 41	19 31	21 11	3 38	5 18	15 52	22 20	.....	0 17	52	13 06.0	- 4 49	6.4
Thu Jul 07/Fri Jul 08		18 45	19 31	21 11	3 39	5 19	15 56	22 25	.....	0 46	62	13 54.8	-10 44	6.5
Fri Jul 08/Sat Jul 09		18 49	19 30	21 10	3 39	5 19	15 59	22 29	.....	1 20	73	14 47.1	-16 23	6.5
Sat Jul 09/Sun Jul 10		18 53	19 30	21 10	3 40	5 20	16 03	22 34	.....	2 00	83	15 44.0	-21 22	6.5
Sun Jul 10/Mon Jul 11		18 57	19 30	21 09	3 41	5 20	16 06	22 39	.....	2 48	91	16 46.3	-25 12	6.5
Mon Jul 11/Tue Jul 12		19 01	19 30	21 09	3 42	5 21	16 09	22 43	17 52	3 47	96	17 53.2	-27 25	6.5
Tue Jul 12/Wed Jul 13		19 05	19 29	21 08	3 43	5 21	16 13	22 48	19 01	4 55	99	19 02.5	-27 38	6.6
Wed Jul 13/Thu Jul 14		19 09	19 29	21 08	3 43	5 22	16 16	22 53	20 02	6 09	99	20 10.8	-25 47	6.6
Thu Jul 14/Fri Jul 15		19 13	19 29	21 07	3 44	5 23	16 20	22 58	20 54	.....	96	21 15.5	-22 07	6.6
Fri Jul 15/Sat Jul 16		19 17	19 28	21 06	3 45	5 23	16 23	23 03	21 37	.....	90	22 15.1	-17 07	6.6
Sat Jul 16/Sun Jul 17		19 21	19 28	21 06	3 46	5 24	16 26	23 07	22 12	.....	82	23 09.8	-11 20	6.7
Sun Jul 17/Mon Jul 18		19 25	19 27	21 05	3 47	5 24	16 29	23 12	22 44	.....	73	0 00.6	- 5 13	6.7
Mon Jul 18/Tue Jul 19		19 29	19 27	21 04	3 48	5 25	16 32	23 17	23 13	.....	63	0 48.7	0 54	6.7
Tue Jul 19/Wed Jul 20		19 33	19 26	21 04	3 49	5 26	16 36	23 22	23 41	.....	53	1 35.4	6 44	6.8
Wed Jul 20/Thu Jul 21		19 37	19 26	21 03	3 50	5 26	16 39	23 27	0 10	.....	43	2 21.8	12 04	6.8
Thu Jul 21/Fri Jul 22		19 41	19 25	21 02	3 50	5 27	16 42	23 32	0 40	.....	33	3 08.8	16 46	6.8
Fri Jul 22/Sat Jul 23		19 44	19 25	21 01	3 51	5 28	16 45	23 36	1 14	.....	24	3 57.0	20 40	6.8
Sat Jul 23/Sun Jul 24		19 48	19 24	21 00	3 52	5 28	16 48	23 41	1 52	.....	17	4 46.8	23 37	6.9
Sun Jul 24/Mon Jul 25		19 52	19 24	20 59	3 53	5 29	16 51	23 46	2 35	.....	10	5 38.0	25 30	6.9
Mon Jul 25/Tue Jul 26		19 56	19 23	20 58	3 54	5 30	16 54	23 51	3 24	17 35	5	6 30.2	26 11	6.9
Tue Jul 26/Wed Jul 27		20 00	19 22	20 57	3 55	5 30	16 57	23 56	4 17	18 25	2	7 22.4	25 40	7.0
Wed Jul 27/Thu Jul 28		20 04	19 21	20 56	3 56	5 31	17 00	0 01	5 13	19 10	0	8 13.9	23 58	7.0
Thu Jul 28/Fri Jul 29		20 08	19 21	20 55	3 57	5 32	17 03	0 06	6 12	19 50	0	9 03.9	21 11	7.0
Fri Jul 29/Sat Jul 30		20 12	19 20	20 54	3 58	5 32	17 06	0 11	.....	20 25	2	9 52.1	17 26	7.1
Sat Jul 30/Sun Jul 31		20 16	19 19	20 53	3 59	5 33	17 09	0 16	.....	20 56	6	10 38.6	12 55	7.1
Sun Jul 31/Mon Aug 01		20 20	19 18	20 52	4 00	5 34	17 11	0 21	.....	21 25	12	11 24.0	7 47	7.1

***** 2022 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	
Mon Aug 01/Tue Aug 02		20 24	19 18	20 51	4 01	5 34	17 14	0 26	.....	21 52	19	12 08.9	2 15	7.2
Tue Aug 02/Wed Aug 03		20 28	19 17	20 50	4 02	5 35	17 17	0 31	.....	22 19	27	12 54.2	- 3 32	7.2
Wed Aug 03/Thu Aug 04		20 32	19 16	20 49	4 03	5 36	17 20	0 36	.....	22 48	37	13 41.1	- 9 20	7.2
Thu Aug 04/Fri Aug 05		20 36	19 15	20 47	4 04	5 36	17 23	0 40	.....	23 19	48	14 30.7	-14 54	7.3
Fri Aug 05/Sat Aug 06		20 40	19 14	20 46	4 05	5 37	17 25	0 45	.....	23 55	59	15 24.2	-19 56	7.3
Sat Aug 06/Sun Aug 07		20 44	19 13	20 45	4 06	5 38	17 28	0 50	.....	0 38	70	16 22.4	-24 03	7.4
Sun Aug 07/Mon Aug 08		20 48	19 12	20 44	4 07	5 38	17 31	0 55	.....	1 30	80	17 25.4	-26 49	7.4
Mon Aug 08/Tue Aug 09		20 51	19 11	20 43	4 08	5 39	17 33	1 00	.....	2 32	88	18 32.1	-27 50	7.4
Tue Aug 09/Wed Aug 10		20 55	19 10	20 41	4 09	5 40	17 36	1 05	17 45	3 42	95	19 39.8	-26 51	7.5
Wed Aug 10/Thu Aug 11		20 59	19 09	20 40	4 10	5 41	17 39	1 10	18 40	4 57	99	20 45.7	-23 56	7.5
Thu Aug 11/Fri Aug 12		21 03	19 08	20 39	4 11	5 41	17 41	1 15	19 27	6 11	100	21 47.9	-19 26	7.5
Fri Aug 12/Sat Aug 13		21 07	19 07	20 37	4 12	5 42	17 44	1 20	20 06	.....	98	22 45.5	-13 49	7.6
Sat Aug 13/Sun Aug 14		21 11	19 06	20 36	4 13	5 43	17 47	1 25	20 40	.....	93	23 39.0	- 7 36	7.6
Sun Aug 14/Mon Aug 15		21 15	19 05	20 35	4 14	5 43	17 49	1 30	21 11	.....	86	0 29.5	- 1 14	7.7
Mon Aug 15/Tue Aug 16		21 19	19 04	20 33	4 15	5 44	17 52	1 35	21 40	.....	78	1 18.2	4 57	7.7
Tue Aug 16/Wed Aug 17		21 23	19 03	20 32	4 16	5 45	17 54	1 39	22 09	.....	68	2 06.0	10 41	7.7
Wed Aug 17/Thu Aug 18		21 27	19 02	20 31	4 17	5 45	17 57	1 44	22 40	.....	58	2 54.1	15 45	7.8
Thu Aug 18/Fri Aug 19		21 31	19 01	20 29	4 18	5 46	18 00	1 49	23 13	.....	48	3 43.0	19 59	7.8
Fri Aug 19/Sat Aug 20		21 35	19 00	20 28	4 19	5 47	18 02	1 54	23 50	.....	39	4 33.2	23 15	7.8
Sat Aug 20/Sun Aug 21		21 39	18 59	20 26	4 19	5 47	18 05	1 59	0 31	.....	30	5 24.7	25 25	7.9
Sun Aug 21/Mon Aug 22		21 43	18 58	20 25	4 20	5 48	18 07	2 04	1 18	.....	22	6 17.1	26 23	7.9
Mon Aug 22/Tue Aug 23		21 47	18 56	20 24	4 21	5 49	18 10	2 09	2 10	.....	14	7 09.6	26 08	8.0
Tue Aug 23/Wed Aug 24		21 51	18 55	20 22	4 22	5 49	18 12	2 14	3 06	17 08	9	8 01.5	24 40	8.0
Wed Aug 24/Thu Aug 25		21 55	18 54	20 21	4 23	5 50	18 15	2 18	4 04	17 49	4	8 52.1	22 05	8.0
Thu Aug 25/Fri Aug 26		21 58	18 53	20 19	4 24	5 51	18 17	2 23	5 03	18 26	1	9 40.9	18 29	8.1
Fri Aug 26/Sat Aug 27		22 02	18 52	20 18	4 25	5 51	18 20	2 28	6 02	18 58	0	10 28.1	14 03	8.1
Sat Aug 27/Sun Aug 28		22 06	18 50	20 16	4 26	5 52	18 22	2 33	7 01	19 28	1	11 14.0	8 58	8.2
Sun Aug 28/Mon Aug 29		22 10	18 49	20 15	4 27	5 52	18 25	2 38	.....	19 55	4	11 59.1	3 26	8.2
Mon Aug 29/Tue Aug 30		22 14	18 48	20 13	4 27	5 53	18 27	2 42	.....	20 23	9	12 44.4	- 2 22	8.2
Tue Aug 30/Wed Aug 31		22 18	18 47	20 12	4 28	5 54	18 30	2 47	.....	20 51	15	13 30.8	- 8 11	8.3
Wed Aug 31/Thu Sep 01		22 22	18 45	20 11	4 29	5 54	18 32	2 52	.....	21 21	24	14 19.2	-13 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.

***** 2022 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	
Thu Sep 01/Fri Sep 02	22 26	18 44	20 09	4 30	5 55	18 34	2 57	.....	21 55	33	15 10.9	-18 55	8.3	
Fri Sep 02/Sat Sep 03	22 30	18 43	20 08	4 31	5 56	18 37	3 02	.....	22 34	44	16 06.5	-23 11	8.4	
Sat Sep 03/Sun Sep 04	22 34	18 41	20 06	4 32	5 56	18 39	3 06	.....	23 22	55	17 06.4	-26 16	8.4	
Sun Sep 04/Mon Sep 05	22 38	18 40	20 05	4 32	5 57	18 42	3 11	.....	0 18	67	18 09.8	-27 46	8.5	
Mon Sep 05/Tue Sep 06	22 42	18 39	20 03	4 33	5 58	18 44	3 16	.....	1 24	77	19 15.1	-27 28	8.5	
Tue Sep 06/Wed Sep 07	22 46	18 38	20 02	4 34	5 58	18 47	3 21	.....	2 35	86	20 19.8	-25 17	8.5	
Wed Sep 07/Thu Sep 08	22 50	18 36	20 00	4 35	5 59	18 49	3 25	.....	17 18	3 48	93	21 21.9	-21 26	8.6
Thu Sep 08/Fri Sep 09	22 54	18 35	19 59	4 36	6 00	18 52	3 30	.....	18 00	4 59	98	22 20.4	-16 16	8.6
Fri Sep 09/Sat Sep 10	22 58	18 34	19 57	4 36	6 00	18 54	3 35	.....	18 36	6 08	100	23 15.2	-10 15	8.7
Sat Sep 10/Sun Sep 11	23 02	18 32	19 56	4 37	6 01	18 57	3 40	.....	19 08	.....	99	0 07.1	-3 49	8.7
Sun Sep 11/Mon Sep 12	23 06	18 31	19 54	4 38	6 01	18 59	3 44	.....	19 37	.....	95	0 57.1	2 38	8.7
Mon Sep 12/Tue Sep 13	23 09	18 30	19 53	4 39	6 02	19 02	3 49	.....	20 07	.....	90	1 46.2	8 44	8.8
Tue Sep 13/Wed Sep 14	23 13	18 28	19 51	4 40	6 03	19 04	3 54	.....	20 37	.....	82	2 35.3	14 15	8.8
Wed Sep 14/Thu Sep 15	23 17	18 27	19 50	4 40	6 03	19 06	3 58	.....	21 09	.....	74	3 25.1	18 57	8.8
Thu Sep 15/Fri Sep 16	23 21	18 25	19 48	4 41	6 04	19 09	4 03	.....	21 45	.....	65	4 16.1	22 39	8.9
Fri Sep 16/Sat Sep 17	23 25	18 24	19 47	4 42	6 05	19 11	4 08	.....	22 26	.....	55	5 08.3	25 13	8.9
Sat Sep 17/Sun Sep 18	23 29	18 23	19 45	4 43	6 05	19 14	4 13	.....	23 11	.....	46	6 01.2	26 35	9.0
Sun Sep 18/Mon Sep 19	23 33	18 21	19 44	4 43	6 06	19 16	4 17	.....	0 01	.....	36	6 54.3	26 41	9.0
Mon Sep 19/Tue Sep 20	23 37	18 20	19 42	4 44	6 07	19 19	4 22	.....	0 56	.....	28	7 46.8	25 32	9.0
Tue Sep 20/Wed Sep 21	23 41	18 19	19 41	4 45	6 07	19 21	4 27	.....	1 53	.....	20	8 37.9	23 13	9.1
Wed Sep 21/Thu Sep 22	23 45	18 17	19 40	4 46	6 08	19 24	4 31	.....	2 52	.....	13	9 27.4	19 52	9.1
Thu Sep 22/Fri Sep 23	23 49	18 16	19 38	4 46	6 08	19 26	4 36	.....	3 51	16 59	7	10 15.1	15 36	9.1
Fri Sep 23/Sat Sep 24	23 53	18 15	19 37	4 47	6 09	19 29	4 41	.....	4 51	17 29	3	11 01.5	10 36	9.2
Sat Sep 24/Sun Sep 25	23 57	18 13	19 35	4 48	6 10	19 31	4 45	.....	5 50	17 57	0	11 47.2	5 05	9.2
Sun Sep 25/Mon Sep 26	0 01	18 12	19 34	4 48	6 10	19 34	4 50	.....	6 50	18 25	0	12 32.9	-0 47	9.2
Mon Sep 26/Tue Sep 27	0 05	18 11	19 33	4 49	6 11	19 36	4 55	.....	18 53	2	13 19.4	-6 44	9.3	
Tue Sep 27/Wed Sep 28	0 09	18 09	19 31	4 50	6 12	19 39	4 59	.....	19 23	6	14 07.9	-12 31	9.3	
Wed Sep 28/Thu Sep 29	0 13	18 08	19 30	4 51	6 12	19 42	5 04	.....	19 56	12	14 59.2	-17 51	9.3	
Thu Sep 29/Fri Sep 30	0 16	18 07	19 28	4 51	6 13	19 44	5 08	.....	20 34	21	15 54.1	-22 22	9.4	
Fri Sep 30/Sat Oct 01	0 20	18 05	19 27	4 52	6 14	19 47	5 13	.....	21 19	30	16 52.8	-25 44	9.4	

***** 2022 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	
Sat Oct 01/Sun Oct 02	0 24	18 04	19 26	4 53	6 14	19 49	5 18	.....	22 12	41	17 54.7	-27 35	9.4	
Sun Oct 02/Mon Oct 03	0 28	18 03	19 24	4 53	6 15	19 52	5 22	.....	23 14	52	18 58.2	-27 44	9.5	
Mon Oct 03/Tue Oct 04	0 32	18 01	19 23	4 54	6 16	19 55	5 27	.....	0 22	64	20 01.5	-26 04	9.5	
Tue Oct 04/Wed Oct 05	0 36	18 00	19 22	4 55	6 16	19 57	5 32	.....	1 32	74	21 02.4	-22 47	9.5	
Wed Oct 05/Thu Oct 06	0 40	17 59	19 20	4 55	6 17	20 00	5 36	.....	2 43	84	22 00.2	-18 07	9.6	
Thu Oct 06/Fri Oct 07	0 44	17 58	19 19	4 56	6 18	20 02	5 41	.....	16 34	3 51	91	22 54.6	-12 29	9.6
Fri Oct 07/Sat Oct 08	0 48	17 56	19 18	4 57	6 19	20 05	5 46	.....	17 06	4 57	97	23 46.3	-6 16	9.6
Sat Oct 08/Sun Oct 09	0 52	17 55	19 17	4 57	6 19	20 08	5 50	.....	17 36	6 01	99	0 36.3	0 10	9.7
Sun Oct 09/Mon Oct 10	0 56	17 54	19 15	4 58	6 20	20 11	5 55	.....	18 05	7 04	100	1 25.4	6 28	9.7
Mon Oct 10/Tue Oct 11	1 00	17 52	19 14	4 59	6 21	20 13	6 00	.....	18 34	.....	98	2 14.7	12 19	9.7
Tue Oct 11/Wed Oct 12	1 04	17 51	19 13	5 00	6 21	20 16	6 04	.....	19 06	.....	93	3 04.8	17 27	9.8
Wed Oct 12/Thu Oct 13	1 08	17 50	19 12	5 00	6 22	20 19	6 09	.....	19 40	.....	87	3 56.2	21 39	9.8
Thu Oct 13/Fri Oct 14	1 12	17 49	19 11	5 01	6 23	20 22	6 13	.....	20 19	.....	80	4 48.9	24 44	9.8
Fri Oct 14/Sat Oct 15	1 16	17 48	19 09	5 02	6 24	20 24	6 18	.....	21 03	.....	72	5 42.6	26 34	9.9
Sat Oct 15/Sun Oct 16	1 20	17 46	19 08	5 02	6 24	20 27	6 23	.....	21 52	.....	63	6 36.6	27 06	9.9
Sun Oct 16/Mon Oct 17	1 24	17 45	19 07	5 03	6 25	20 30	6 27	.....	22 45	.....	53	7 29.8	26 21	9.9
Mon Oct 17/Tue Oct 18	1 27	17 44	19 06	5 04	6 26	20 33	6 32	.....	23 41	.....	44	8 21.6	24 24	10.0
Tue Oct 18/Wed Oct 19	1 31	17 43	19 05	5 05	6 27	20 36	6 37	.....	0 39	.....	35	9 11.6	21 21	10.0
Wed Oct 19/Thu Oct 20	1 35	17 42	19 04	5 05	6 28	20 38	6 41	.....	1 38	.....	26	9 59.7	17 22	10.0
Thu Oct 20/Fri Oct 21	1 39	17 41	19 03	5 06	6 28	20 41	6 46	.....	2 37	.....	18	10 46.4	12 36	10.1
Fri Oct 21/Sat Oct 22	1 43	17 40	19 02	5 07	6 29	20 44	6 51	.....	3 36	.....	11	11 32.1	7 12	10.1
Sat Oct 22/Sun Oct 23	1 47	17 38	19 01	5 07	6 30	20 47	6 55	.....	4 36	16 25	5	12 17.8	1 24	10.1
Sun Oct 23/Mon Oct 24	1 51	17 37	19 00	5 08	6 31	20 50	7 00	.....	5 38	16 53	2	13 04.4	-4 38	10.1
Mon Oct 24/Tue Oct 25	1 55	17 36	18 59	5 09	6 31	20 53	7 05	.....	6 43	17 22	0	13 52.8	-10 37	10.2
Tue Oct 25/Wed Oct 26	1 59	17 35	18 58	5 10	6 32	20 56	7 09	.....	7 50	17 54	1	14 44.1	-16 14	10.2
Wed Oct 26/Thu Oct 27	2 03	17 34	18 57	5 10	6 33	20 59	7 14	.....	18 31	4	15 39.0	-21 09	10.2	
Thu Oct 27/Fri Oct 28	2 07	17 33	18 56	5 11	6 34	21 02	7 19	.....	19 14	10	16 37.9	-24 55	10.2	
Fri Oct 28/Sat Oct 29	2 11	17 32	18 55	5 12	6 35	21 05	7 23	.....	20 06	18	17 40.1	-27 13	10.3	
Sat Oct 29/Sun Oct 30	2 15	17 31	18 54	5 12	6 36	21 08	7 28	.....	21 06	27	18 44.0	-27 46	10.3	
Sun Oct 30/Mon Oct 31	2 19	17 30	18 54	5 13	6 36	21 11	7 33	.....	22 13	38	19 47.4	-26 31	10.3	
Mon Oct 31/Tue Nov 01	2 23	17 29	18 53	5 14	6 37	21 15	7 37	.....	23 23	49	20 48.4	-23 36	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.

***** 2022 NOVEMBER *****

Date (eve/morn)	LMST midn	----- Sun: -----				LST twilight:		----- Moon: -----				Twilight	
		set	twi.end	twi.beg	rise	eve	morn	rise	set	%illum	RA	Dec	hours
Tue Nov 01/Wed Nov 02	2 27	17 29	18 52	5 15	6 38	21 18	7 42	.....	0 33	61	21 45.8	-19 18	10.4
Wed Nov 02/Thu Nov 03	2 31	17 28	18 51	5 15	6 39	21 21	7 47	.....	1 41	71	22 39.7	-14 01	10.4
Thu Nov 03/Fri Nov 04	2 34	17 27	18 50	5 16	6 40	21 24	7 52	.....	2 46	81	23 30.7	- 8 04	10.4
Fri Nov 04/Sat Nov 05	2 38	17 26	18 50	5 17	6 41	21 27	7 56	.....	3 49	89	0 19.7	- 1 50	10.5
Sat Nov 05/Sun Nov 06	2 42	17 25	18 49	5 18	6 42	21 31	8 01	16 06	4 51	95	1 07.9	4 25	10.5
Sun Nov 06/Mon Nov 07	2 46	17 24	18 48	5 18	6 43	21 34	8 06	16 34	5 53	98	1 56.2	10 23	10.5
Mon Nov 07/Tue Nov 08	2 50	17 24	18 48	5 19	6 43	21 37	8 10	17 04	6 54	100	2 45.5	15 46	10.5
Tue Nov 08/Wed Nov 09	2 54	17 23	18 47	5 20	6 44	21 40	8 15	17 37	7 56	99	3 36.4	20 21	10.5
Wed Nov 09/Thu Nov 10	2 58	17 22	18 46	5 21	6 45	21 44	8 20	18 14	.....	97	4 29.0	23 54	10.6
Thu Nov 10/Fri Nov 11	3 02	17 21	18 46	5 21	6 46	21 47	8 24	18 56	.....	92	5 22.9	26 13	10.6
Fri Nov 11/Sat Nov 12	3 06	17 21	18 45	5 22	6 47	21 51	8 29	19 43	.....	86	6 17.5	27 14	10.6
Sat Nov 12/Sun Nov 13	3 10	17 20	18 45	5 23	6 48	21 54	8 34	20 35	.....	79	7 11.6	26 56	10.6
Sun Nov 13/Mon Nov 14	3 14	17 20	18 44	5 24	6 49	21 57	8 39	21 30	.....	70	8 04.4	25 21	10.7
Mon Nov 14/Tue Nov 15	3 18	17 19	18 44	5 25	6 50	22 01	8 43	22 27	.....	61	8 55.1	22 39	10.7
Tue Nov 15/Wed Nov 16	3 22	17 18	18 44	5 25	6 51	22 04	8 48	23 25	.....	52	9 43.6	18 59	10.7
Wed Nov 16/Thu Nov 17	3 26	17 18	18 43	5 26	6 52	22 08	8 53	0 23	.....	42	10 30.3	14 30	10.7
Thu Nov 17/Fri Nov 18	3 30	17 17	18 43	5 27	6 52	22 12	8 57	1 21	.....	33	11 15.7	9 22	10.7
Fri Nov 18/Sat Nov 19	3 34	17 17	18 42	5 28	6 53	22 15	9 02	2 20	.....	24	12 00.8	3 45	10.8
Sat Nov 19/Sun Nov 20	3 38	17 16	18 42	5 28	6 54	22 19	9 07	3 20	.....	16	12 46.5	- 2 10	10.8
Sun Nov 20/Mon Nov 21	3 42	17 16	18 42	5 29	6 55	22 22	9 12	4 23	.....	9	13 33.9	- 8 10	10.8
Mon Nov 21/Tue Nov 22	3 45	17 16	18 42	5 30	6 56	22 26	9 16	5 29	15 50	4	14 24.1	-14 00	10.8
Tue Nov 22/Wed Nov 23	3 49	17 15	18 41	5 31	6 57	22 30	9 21	6 39	16 24	1	15 18.2	-19 16	10.8
Wed Nov 23/Thu Nov 24	3 53	17 15	18 41	5 32	6 58	22 34	9 26	7 52	17 05	0	16 16.7	-23 35	10.8
Thu Nov 24/Fri Nov 25	3 57	17 15	18 41	5 32	6 59	22 37	9 30	.....	17 55	3	17 19.4	-26 29	10.9
Fri Nov 25/Sat Nov 26	4 01	17 14	18 41	5 33	7 00	22 41	9 35	.....	18 54	7	18 24.7	-27 38	10.9
Sat Nov 26/Sun Nov 27	4 05	17 14	18 41	5 34	7 00	22 45	9 40	.....	20 01	15	19 30.1	-26 52	10.9
Sun Nov 27/Mon Nov 28	4 09	17 14	18 41	5 35	7 01	22 49	9 45	.....	21 12	24	20 33.2	-24 18	10.9
Mon Nov 28/Tue Nov 29	4 13	17 14	18 40	5 35	7 02	22 53	9 49	.....	22 24	35	21 32.4	-20 15	10.9
Tue Nov 29/Wed Nov 30	4 17	17 14	18 40	5 36	7 03	22 57	9 54	.....	23 33	46	22 27.3	-15 08	10.9
Wed Nov 30/Thu Dec 01	4 21	17 13	18 40	5 37	7 04	23 00	9 59	.....	0 39	57	23 18.6	- 9 21	10.9

***** 2022 DECEMBER *****

Date (eve/morn)	LMST midn	----- Sun: -----				LST twilight:		----- Moon: -----				Twilight	
		set	twi.end	twi.beg	rise	eve	morn	rise	set	%illum	RA	Dec	hours
Thu Dec 01/Fri Dec 02	4 25	17 13	18 40	5 38	7 05	23 04	10 03	.....	1 42	67	0 07.4	- 3 14	11.0
Fri Dec 02/Sat Dec 03	4 29	17 13	18 40	5 38	7 06	23 08	10 08	.....	2 43	77	0 54.9	2 55	11.0
Sat Dec 03/Sun Dec 04	4 33	17 13	18 41	5 39	7 06	23 12	10 13	.....	3 44	85	1 42.1	8 51	11.0
Sun Dec 04/Mon Dec 05	4 37	17 13	18 41	5 40	7 07	23 16	10 17	.....	4 45	92	2 30.1	14 20	11.0
Mon Dec 05/Tue Dec 06	4 41	17 13	18 41	5 40	7 08	23 20	10 22	15 37	5 46	96	3 19.7	19 06	11.0
Tue Dec 06/Wed Dec 07	4 45	17 13	18 41	5 41	7 09	23 25	10 27	16 12	6 47	99	4 11.3	22 56	11.0
Wed Dec 07/Thu Dec 08	4 49	17 13	18 41	5 42	7 10	23 29	10 31	16 52	7 46	100	5 04.6	25 39	11.0
Thu Dec 08/Fri Dec 09	4 52	17 13	18 41	5 42	7 10	23 33	10 36	17 37	.....	99	5 59.2	27 06	11.0
Fri Dec 09/Sat Dec 10	4 56	17 14	18 41	5 43	7 11	23 37	10 40	18 27	.....	96	6 53.8	27 12	11.0
Sat Dec 10/Sun Dec 11	5 00	17 14	18 42	5 44	7 12	23 41	10 45	19 21	.....	91	7 47.4	26 00	11.0
Sun Dec 11/Mon Dec 12	5 04	17 14	18 42	5 44	7 12	23 45	10 50	20 18	.....	85	8 39.0	23 38	11.0
Mon Dec 12/Tue Dec 13	5 08	17 14	18 42	5 45	7 13	23 50	10 54	21 15	.....	77	9 28.3	20 14	11.0
Tue Dec 13/Wed Dec 14	5 12	17 15	18 43	5 46	7 14	23 54	10 59	22 13	.....	69	10 15.3	16 00	11.1
Wed Dec 14/Thu Dec 15	5 16	17 15	18 43	5 46	7 14	23 58	11 03	23 10	.....	60	11 00.6	11 06	11.1
Thu Dec 15/Fri Dec 16	5 20	17 15	18 43	5 47	7 15	0 02	11 08	0 06	.....	50	11 45.0	5 43	11.1
Fri Dec 16/Sat Dec 17	5 24	17 16	18 44	5 47	7 16	0 07	11 12	1 04	.....	40	12 29.4	0 00	11.1
Sat Dec 17/Sun Dec 18	5 28	17 16	18 44	5 48	7 16	0 11	11 17	2 04	.....	30	13 15.1	- 5 52	11.1
Sun Dec 18/Mon Dec 19	5 32	17 16	18 45	5 49	7 17	0 16	11 21	3 07	.....	21	14 03.1	-11 40	11.1
Mon Dec 19/Tue Dec 20	5 36	17 17	18 45	5 49	7 17	0 20	11 26	4 14	.....	13	14 54.8	-17 07	11.1
Tue Dec 20/Wed Dec 21	5 40	17 17	18 45	5 50	7 18	0 24	11 30	5 25	.....	6	15 51.0	-21 51	11.1
Wed Dec 21/Thu Dec 22	5 44	17 18	18 46	5 50	7 18	0 29	11 35	6 38	15 39	2	16 52.2	-25 23	11.1
Thu Dec 22/Fri Dec 23	5 48	17 18	18 46	5 51	7 19	0 33	11 39	7 50	16 34	0	17 57.5	-27 17	11.1
Fri Dec 23/Sat Dec 24	5 52	17 19	18 47	5 51	7 19	0 38	11 44	.....	17 39	1	19 04.7	-27 15	11.1
Sat Dec 24/Sun Dec 25	5 56	17 19	18 48	5 51	7 20	0 42	11 48	.....	18 51	5	20 10.7	-25 14	11.1
Sun Dec 25/Mon Dec 26	5 59	17 20	18 48	5 52	7 20	0 47	11 52	.....	20 06	12	21 13.1	-21 31	11.1
Mon Dec 26/Tue Dec 27	6 03	17 21	18 49	5 52	7 20	0 51	11 57	.....	21 20	20	22 11.1	-16 32	11.1
Tue Dec 27/Wed Dec 28	6 07	17 21	18 49	5 53	7 21	0 56	12 01	.....	22 29	30	23 04.6	-10 45	11.1
Wed Dec 28/Thu Dec 29	6 11	17 22	18 50	5 53	7 21	1 00	12 05	.....	23 35	41	23 54.9	- 4 35	11.1
Thu Dec 29/Fri Dec 30	6 15	17 22	18 50	5 53	7 21	1 05	12 10	.....	0 37	52	0 43.0	1 38	11.0
Fri Dec 30/Sat Dec 31	6 19	17 23	18 51	5 54	7 22	1 09	12 14	.....	1 38	62	1 30.2	7 38	11.0
Sat Dec 31/Sun Jan 01	6 23	17 24	18 52	5 54	7 22	1 14	12 18	.....	2 39	72	2 17.7	13 11	11.0