

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:

***** 2014 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 -1.4 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 2014, 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 02 17 22	Dec 09 8 13	Dec 17 2 29	Dec 25 6 50
Jan 01 4 15	Jan 07 20 40	Jan 15 21 54	Jan 23 22 21
Jan 30 14 41	Feb 06 12 23	Feb 14 16 55	Feb 22 10 17
Mar 01 1 03	Mar 08 6 27	Mar 16 10 11	Mar 23 18 48
Mar 30 11 48	Apr 07 1 32	Apr 15 0 45	Apr 22 0 53
Apr 28 23 18	May 06 20 17	May 14 12 19	May 21 6 01
May 28 11 43	Jun 05 13 41	Jun 12 21 14	Jun 19 11 40
Jun 27 1 11	Jul 05 5 01	Jul 12 4 27	Jul 18 19 10
Jul 26 15 43	Aug 03 17 51	Aug 10 11 11	Aug 17 5 27
Aug 25 7 13	Sep 02 4 12	Sep 08 18 39	Sep 15 19 06
Sep 23 23 14	Oct 01 12 33	Oct 08 3 51	Oct 15 12 13
Oct 23 14 56	Oct 30 19 49	Nov 06 15 23	Nov 14 8 18
Nov 22 5 32	Nov 29 3 07	Dec 06 5 27	Dec 14 5 54
Dec 21 18 36	Dec 28 11 33	Jan 04 21 54	Jan 13 2 49

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.

***** 2014 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 28	17 25	18 53	5 54	7 22	1 20	12 23	8 12	18 09	1	19 37.2	-16 48	11.0
Thu Jan 02/Fri Jan 03	6 32	17 25	18 53	5 55	7 22	1 24	12 27	.....	19 19	5	20 37.9	-13 33	11.0
Fri Jan 03/Sat Jan 04	6 36	17 26	18 54	5 55	7 22	1 29	12 31	.....	20 29	11	21 35.9	-9 29	11.0
Sat Jan 04/Sun Jan 05	6 40	17 27	18 55	5 55	7 23	1 33	12 36	.....	21 36	20	22 31.4	-4 58	11.0
Sun Jan 05/Mon Jan 06	6 44	17 28	18 55	5 55	7 23	1 38	12 40	.....	22 41	30	23 24.6	-0 19	11.0
Mon Jan 06/Tue Jan 07	6 48	17 29	18 56	5 55	7 23	1 43	12 44	.....	23 43	40	0 16.3	4 13	11.0
Tue Jan 07/Wed Jan 08	6 51	17 29	18 57	5 55	7 23	1 47	12 48	.....	0 43	51	1 07.1	8 24	11.0
Wed Jan 08/Thu Jan 09	6 55	17 30	18 58	5 55	7 23	1 52	12 52	.....	1 41	61	1 57.6	12 04	11.0
Thu Jan 09/Fri Jan 10	6 59	17 31	18 58	5 55	7 23	1 57	12 56	.....	2 38	71	2 48.2	15 05	11.0
Fri Jan 10/Sat Jan 11	7 03	17 32	18 59	5 56	7 23	2 02	13 00	.....	3 33	79	3 39.2	17 20	10.9
Sat Jan 11/Sun Jan 12	7 07	17 33	19 00	5 56	7 22	2 06	13 04	.....	4 25	86	4 30.5	18 45	10.9
Sun Jan 12/Mon Jan 13	7 11	17 34	19 01	5 55	7 22	2 11	13 08	.....	5 14	92	5 21.8	19 16	10.9
Mon Jan 13/Tue Jan 14	7 15	17 35	19 01	5 55	7 22	2 16	13 12	15 51	6 01	97	6 12.9	18 53	10.9
Tue Jan 14/Wed Jan 15	7 19	17 36	19 02	5 55	7 22	2 20	13 15	16 42	6 43	99	7 03.3	17 39	10.9
Wed Jan 15/Thu Jan 16	7 23	17 36	19 03	5 55	7 22	2 25	13 19	17 34	7 23	100	7 52.7	15 38	10.9
Thu Jan 16/Fri Jan 17	7 27	17 37	19 04	5 55	7 21	2 30	13 23	18 27	7 59	99	8 41.0	12 55	10.9
Fri Jan 17/Sat Jan 18	7 31	17 38	19 05	5 55	7 21	2 35	13 27	19 20	.....	96	9 28.2	9 40	10.8
Sat Jan 18/Sun Jan 19	7 35	17 39	19 05	5 55	7 21	2 39	13 31	20 14	.....	91	10 14.7	5 59	10.8
Sun Jan 19/Mon Jan 20	7 39	17 40	19 06	5 55	7 21	2 44	13 34	21 07	.....	85	11 00.9	2 02	10.8
Mon Jan 20/Tue Jan 21	7 43	17 41	19 07	5 54	7 20	2 49	13 38	22 02	.....	77	11 47.3	-2 03	10.8
Tue Jan 21/Wed Jan 22	7 47	17 42	19 08	5 54	7 20	2 54	13 42	22 57	.....	69	12 34.6	-6 06	10.8
Wed Jan 22/Thu Jan 23	7 51	17 43	19 09	5 54	7 19	2 58	13 45	23 55	.....	59	13 23.5	-9 59	10.8
Thu Jan 23/Fri Jan 24	7 55	17 44	19 09	5 53	7 19	3 03	13 49	0 54	.....	48	14 14.6	-13 30	10.7
Fri Jan 24/Sat Jan 25	7 58	17 45	19 10	5 53	7 18	3 08	13 53	1 55	.....	38	15 08.6	-16 26	10.7
Sat Jan 25/Sun Jan 26	8 02	17 46	19 11	5 53	7 18	3 13	13 56	2 57	.....	28	16 05.6	-18 33	10.7
Sun Jan 26/Mon Jan 27	8 06	17 47	19 12	5 52	7 17	3 17	14 00	3 59	.....	18	17 05.3	-19 36	10.7
Mon Jan 27/Tue Jan 28	8 10	17 48	19 13	5 52	7 17	3 22	14 03	4 59	.....	10	18 06.9	-19 25	10.7
Tue Jan 28/Wed Jan 29	8 14	17 49	19 14	5 51	7 16	3 27	14 07	5 55	.....	4	19 09.2	-17 56	10.6
Wed Jan 29/Thu Jan 30	8 18	17 50	19 14	5 51	7 16	3 32	14 10	6 46	16 52	1	20 10.8	-15 14	10.6
Thu Jan 30/Fri Jan 31	8 22	17 51	19 15	5 50	7 15	3 37	14 14	7 33	18 03	0	21 10.7	-11 31	10.6
Fri Jan 31/Sat Feb 01	8 26	17 52	19 16	5 50	7 14	3 41	14 17	.....	19 13	3	22 08.4	-7 08	10.6

***** 2014 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 30	17 52	19 17	5 49	7 14	3 46	14 20	.....	20 21	8	23 04.0	-2 26	10.5
Sun Feb 02/Mon Feb 03	8 34	17 53	19 18	5 49	7 13	3 51	14 24	.....	21 26	15	23 57.9	2 17	10.5
Mon Feb 03/Tue Feb 04	8 38	17 54	19 18	5 48	7 12	3 56	14 27	.....	22 30	24	0 50.5	6 43	10.5
Tue Feb 04/Wed Feb 05	8 42	17 55	19 19	5 48	7 11	4 00	14 30	.....	23 31	34	1 42.3	10 39	10.5
Wed Feb 05/Thu Feb 06	8 46	17 56	19 20	5 47	7 11	4 05	14 34	.....	0 30	44	2 33.8	13 56	10.4
Thu Feb 06/Fri Feb 07	8 50	17 57	19 21	5 46	7 10	4 10	14 37	.....	1 26	54	3 25.2	16 27	10.4
Fri Feb 07/Sat Feb 08	8 54	17 58	19 22	5 45	7 09	4 15	14 40	.....	2 20	64	4 16.5	18 08	10.4
Sat Feb 08/Sun Feb 09	8 58	17 59	19 22	5 45	7 08	4 19	14 43	.....	3 11	73	5 07.7	18 56	10.4
Sun Feb 09/Mon Feb 10	9 02	18 00	19 23	5 44	7 07	4 24	14 46	.....	3 58	81	5 58.6	18 50	10.3
Mon Feb 10/Tue Feb 11	9 06	18 01	19 24	5 43	7 06	4 29	14 50	.....	4 42	88	6 48.9	17 53	10.3
Tue Feb 11/Wed Feb 12	9 09	18 02	19 25	5 42	7 05	4 34	14 53	.....	5 22	93	7 38.5	16 08	10.3
Wed Feb 12/Thu Feb 13	9 13	18 03	19 26	5 42	7 04	4 38	14 56	16 22	6 00	97	8 27.1	13 40	10.3
Thu Feb 13/Fri Feb 14	9 17	18 03	19 26	5 41	7 04	4 43	14 59	17 15	6 35	99	9 14.8	10 35	10.2
Fri Feb 14/Sat Feb 15	9 21	18 04	19 27	5 40	7 03	4 48	15 02	18 09	7 09	100	10 01.9	7 02	10.2
Sat Feb 15/Sun Feb 16	9 25	18 05	19 28	5 39	7 02	4 52	15 05	19 03	7 41	98	10 48.6	3 09	10.2
Sun Feb 16/Mon Feb 17	9 29	18 06	19 29	5 38	7 01	4 57	15 08	19 57	.....	95	11 35.4	-0 55	10.2
Mon Feb 17/Tue Feb 18	9 33	18 07	19 30	5 37	7 00	5 02	15 11	20 53	.....	90	12 22.9	-5 00	10.1
Tue Feb 18/Wed Feb 19	9 37	18 08	19 30	5 36	6 58	5 07	15 14	21 49	.....	83	13 11.5	-8 56	10.1
Wed Feb 19/Thu Feb 20	9 41	18 09	19 31	5 35	6 57	5 11	15 17	22 47	.....	74	14 01.9	-12 32	10.1
Thu Feb 20/Fri Feb 21	9 45	18 10	19 32	5 34	6 56	5 16	15 20	23 46	.....	64	14 54.5	-15 35	10.0
Fri Feb 21/Sat Feb 22	9 49	18 10	19 33	5 33	6 55	5 21	15 23	0 46	.....	54	15 49.5	-17 53	10.0
Sat Feb 22/Sun Feb 23	9 53	18 11	19 33	5 32	6 54	5 26	15 26	1 46	.....	43	16 46.8	-19 15	10.0
Sun Feb 23/Mon Feb 24	9 57	18 12	19 34	5 31	6 53	5 30	15 29	2 45	.....	32	17 45.9	-19 31	9.9
Mon Feb 24/Tue Feb 25	10 01	18 13	19 35	5 30	6 52	5 35	15 32	3 40	.....	22	18 46.1	-18 34	9.9
Tue Feb 25/Wed Feb 26	10 05	18 14	19 36	5 29	6 51	5 40	15 34	4 32	.....	13	19 46.3	-16 26	9.9
Wed Feb 26/Thu Feb 27	10 09	18 15	19 37	5 28	6 50	5 44	15 37	5 21	.....	6	20 45.6	-13 14	9.9
Thu Feb 27/Fri Feb 28	10 13	18 15	19 37	5 27	6 48	5 49	15 40	6 05	16 47	2	21 43.6	-9 13	9.8
Fri Feb 28/Sat Mar 01	10 16	18 16	19 38	5 25	6 47	5 54	15 43	6 47	17 56	0	22 40.0	-4 41	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.

***** 2014 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	
Sat Mar 01/Sun Mar 02	10 20	18 17	19 39	5 24	6 46	5 58	15 46	7 27	19 03	1	23 35.1	0 03	9.8
Sun Mar 02/Mon Mar 03	10 24	18 18	19 40	5 23	6 45	6 03	15 48	.....	20 09	5	0 29.1	4 40	9.7
Mon Mar 03/Tue Mar 04	10 28	18 19	19 40	5 22	6 44	6 08	15 51	.....	21 13	11	1 22.3	8 52	9.7
Tue Mar 04/Wed Mar 05	10 32	18 19	19 41	5 21	6 42	6 13	15 54	.....	22 15	19	2 15.1	12 29	9.7
Wed Mar 05/Thu Mar 06	10 36	18 20	19 42	5 20	6 41	6 17	15 57	.....	23 14	27	3 07.7	15 20	9.6
Thu Mar 06/Fri Mar 07	10 40	18 21	19 43	5 18	6 40	6 22	15 59	.....	0 11	37	3 59.9	17 20	9.6
Fri Mar 07/Sat Mar 08	10 44	18 22	19 43	5 17	6 39	6 27	16 02	.....	1 03	47	4 51.8	18 26	9.6
Sat Mar 08/Sun Mar 09	10 48	18 22	19 44	5 16	6 37	6 31	16 05	.....	1 53	56	5 43.0	18 38	9.5
Sun Mar 09/Mon Mar 10	10 52	18 23	19 45	5 14	6 36	6 36	16 07	.....	2 38	66	6 33.5	17 58	9.5
Mon Mar 10/Tue Mar 11	10 56	18 24	19 46	5 13	6 35	6 41	16 10	.....	3 20	74	7 23.1	16 29	9.5
Tue Mar 11/Wed Mar 12	11 00	18 25	19 46	5 12	6 34	6 46	16 13	.....	3 58	82	8 11.8	14 16	9.4
Wed Mar 12/Thu Mar 13	11 04	18 25	19 47	5 11	6 32	6 50	16 15	.....	4 34	89	8 59.6	11 25	9.4
Thu Mar 13/Fri Mar 14	11 08	18 26	19 48	5 09	6 31	6 55	16 18	.....	5 09	94	9 46.9	8 02	9.4
Fri Mar 14/Sat Mar 15	11 12	18 27	19 49	5 08	6 30	7 00	16 20	16 56	5 42	98	10 33.9	4 16	9.3
Sat Mar 15/Sun Mar 16	11 16	18 28	19 50	5 07	6 28	7 04	16 23	17 50	6 15	100	11 21.2	0 14	9.3
Sun Mar 16/Mon Mar 17	11 20	18 28	19 50	5 05	6 27	7 09	16 26	18 46	6 49	100	12 09.1	- 3 53	9.2
Mon Mar 17/Tue Mar 18	11 23	18 29	19 51	5 04	6 26	7 14	16 28	19 43	7 25	97	12 58.2	- 7 55	9.2
Tue Mar 18/Wed Mar 19	11 27	18 30	19 52	5 02	6 25	7 19	16 31	20 41	.....	93	13 49.0	-11 39	9.2
Wed Mar 19/Thu Mar 20	11 31	18 30	19 53	5 01	6 23	7 23	16 33	21 40	.....	87	14 41.7	-14 53	9.1
Thu Mar 20/Fri Mar 21	11 35	18 31	19 54	5 00	6 22	7 28	16 36	22 40	.....	78	15 36.5	-17 23	9.1
Fri Mar 21/Sat Mar 22	11 39	18 32	19 54	4 58	6 21	7 33	16 38	23 40	.....	69	16 33.3	-18 59	9.1
Sat Mar 22/Sun Mar 23	11 43	18 33	19 55	4 57	6 19	7 38	16 41	0 38	.....	58	17 31.5	-19 30	9.0
Sun Mar 23/Mon Mar 24	11 47	18 33	19 56	4 56	6 18	7 42	16 43	1 33	.....	47	18 30.4	-18 53	9.0
Mon Mar 24/Tue Mar 25	11 51	18 34	19 57	4 54	6 17	7 47	16 46	2 25	.....	36	19 29.1	-17 08	9.0
Tue Mar 25/Wed Mar 26	11 55	18 35	19 58	4 53	6 15	7 52	16 49	3 13	.....	25	20 27.1	-14 21	8.9
Wed Mar 26/Thu Mar 27	11 59	18 35	19 58	4 51	6 14	7 57	16 51	3 57	.....	16	21 23.8	-10 42	8.9
Thu Mar 27/Fri Mar 28	12 03	18 36	19 59	4 50	6 13	8 01	16 54	4 39	.....	8	22 19.4	- 6 28	8.8
Fri Mar 28/Sat Mar 29	12 07	18 37	20 00	4 48	6 11	8 06	16 56	5 19	.....	3	23 13.8	- 1 54	8.8
Sat Mar 29/Sun Mar 30	12 11	18 38	20 01	4 47	6 10	8 11	16 59	5 59	17 48	0	0 07.6	2 42	8.8
Sun Mar 30/Mon Mar 31	12 15	18 38	20 02	4 46	6 09	8 16	17 01	6 39	18 53	0	1 01.0	7 04	8.7
Mon Mar 31/Tue Apr 01	12 19	18 39	20 03	4 44	6 08	8 21	17 04	.....	19 56	3	1 54.2	10 56	8.7

***** 2014 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	
Tue Apr 01/Wed Apr 02	12 23	18 40	20 03	4 43	6 06	8 25	17 06	.....	20 58	7	2 47.5	14 06	8.7
Wed Apr 02/Thu Apr 03	12 27	18 40	20 04	4 41	6 05	8 30	17 09	.....	21 57	14	3 40.6	16 27	8.6
Thu Apr 03/Fri Apr 04	12 31	18 41	20 05	4 40	6 04	8 35	17 11	.....	22 52	21	4 33.3	17 54	8.6
Fri Apr 04/Sat Apr 05	12 34	18 42	20 06	4 38	6 02	8 40	17 13	.....	23 44	30	5 25.4	18 25	8.5
Sat Apr 05/Sun Apr 06	12 38	18 43	20 07	4 37	6 01	8 45	17 16	.....	0 32	39	6 16.6	18 02	8.5
Sun Apr 06/Mon Apr 07	12 42	18 43	20 08	4 35	6 00	8 49	17 18	.....	1 15	49	7 06.6	16 50	8.5
Mon Apr 07/Tue Apr 08	12 46	18 44	20 09	4 34	5 59	8 54	17 21	.....	1 55	58	7 55.4	14 52	8.4
Tue Apr 08/Wed Apr 09	12 50	18 45	20 10	4 32	5 57	8 59	17 23	.....	2 32	67	8 43.2	12 15	8.4
Wed Apr 09/Thu Apr 10	12 54	18 45	20 10	4 31	5 56	9 04	17 26	.....	3 07	76	9 30.3	9 04	8.3
Thu Apr 10/Fri Apr 11	12 58	18 46	20 11	4 30	5 55	9 09	17 28	.....	3 41	84	10 17.1	5 27	8.3
Fri Apr 11/Sat Apr 12	13 02	18 47	20 12	4 28	5 54	9 14	17 31	.....	4 14	90	11 04.1	1 32	8.3
Sat Apr 12/Sun Apr 13	13 06	18 48	20 13	4 27	5 52	9 19	17 33	.....	4 48	96	11 51.9	- 2 35	8.2
Sun Apr 13/Mon Apr 14	13 10	18 48	20 14	4 25	5 51	9 23	17 36	17 33	5 23	99	12 41.0	- 6 41	8.2
Mon Apr 14/Tue Apr 15	13 14	18 49	20 15	4 24	5 50	9 28	17 38	18 31	6 01	100	13 32.0	-10 35	8.1
Tue Apr 15/Wed Apr 16	13 18	18 50	20 16	4 22	5 49	9 33	17 41	19 31	6 42	99	14 25.2	-14 03	8.1
Wed Apr 16/Thu Apr 17	13 22	18 50	20 17	4 21	5 48	9 38	17 44	20 32	.....	95	15 20.7	-16 51	8.1
Thu Apr 17/Fri Apr 18	13 26	18 51	20 18	4 20	5 46	9 43	17 46	21 33	.....	89	16 18.3	-18 45	8.0
Fri Apr 18/Sat Apr 19	13 30	18 52	20 19	4 18	5 45	9 48	17 49	22 33	.....	82	17 17.4	-19 34	8.0
Sat Apr 19/Sun Apr 20	13 34	18 53	20 20	4 17	5 44	9 53	17 51	23 30	.....	72	18 17.0	-19 12	7.9
Sun Apr 20/Mon Apr 21	13 38	18 53	20 21	4 15	5 43	9 58	17 54	0 22	.....	61	19 16.1	-17 41	7.9
Mon Apr 21/Tue Apr 22	13 41	18 54	20 22	4 14	5 42	10 03	17 56	1 11	.....	50	20 14.0	-15 08	7.9
Tue Apr 22/Wed Apr 23	13 45	18 55	20 23	4 13	5 41	10 08	17 59	1 55	.....	38	21 10.2	-11 44	7.8
Wed Apr 23/Thu Apr 24	13 49	18 55	20 24	4 11	5 40	10 13	18 01	2 37	.....	28	22 04.9	- 7 42	7.8
Thu Apr 24/Fri Apr 25	13 53	18 56	20 25	4 10	5 39	10 18	18 04	3 16	.....	18	22 58.4	- 3 18	7.8
Fri Apr 25/Sat Apr 26	13 57	18 57	20 26	4 09	5 38	10 22	18 07	3 54	.....	10	23 51.1	1 12	7.7
Sat Apr 26/Sun Apr 27	14 01	18 58	20 27	4 07	5 37	10 27	18 09	4 33	.....	5	0 43.4	5 34	7.7
Sun Apr 27/Mon Apr 28	14 05	18 58	20 28	4 06	5 35	10 32	18 12	5 13	17 40	1	1 35.9	9 33	7.6
Mon Apr 28/Tue Apr 29	14 09	18 59	20 29	4 05	5 34	10 37	18 14	5 55	18 42	0	2 28.6	12 58	7.6
Tue Apr 29/Wed Apr 30	14 13	19 00	20 30	4 03	5 33	10 42	18 17	6 39	19 42	1	3 21.6	15 37	7.6
Wed Apr 30/Thu May 01	14 17	19 01	20 31	4 02	5 32	10 47	18 20	.....	20 40	4	4 14.6	17 23	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.

***** 2014 MAY *****

Date (eve/morn)	LMST midn	----- Sun: -----				LST twilight:		----- Moon: -----				Twi-Twi hours	
		set	twi.end	twi.beg	rise	eve	morn	rise	set	%illum	RA	Dec	
Thu May 01/Fri May 02	14 21	19 01	20 32	4 01	5 32	10 52	18 22	.....	21 34	9	5 07.2	18 15	7.5
Fri May 02/Sat May 03	14 25	19 02	20 33	4 00	5 31	10 57	18 25	.....	22 24	16	5 59.1	18 10	7.4
Sat May 03/Sun May 04	14 29	19 03	20 34	3 58	5 30	11 02	18 28	.....	23 10	24	6 49.7	17 14	7.4
Sun May 04/Mon May 05	14 33	19 03	20 35	3 57	5 29	11 07	18 31	.....	23 51	32	7 39.0	15 31	7.4
Mon May 05/Tue May 06	14 37	19 04	20 36	3 56	5 28	11 12	18 33	.....	0 30	42	8 27.0	13 08	7.3
Tue May 06/Wed May 07	14 41	19 05	20 37	3 55	5 27	11 17	18 36	.....	1 05	51	9 13.9	10 10	7.3
Wed May 07/Thu May 08	14 45	19 06	20 38	3 54	5 26	11 22	18 39	.....	1 39	60	10 00.2	6 44	7.3
Thu May 08/Fri May 09	14 49	19 06	20 39	3 53	5 25	11 27	18 42	.....	2 12	70	10 46.5	2 57	7.2
Fri May 09/Sat May 10	14 52	19 07	20 40	3 51	5 25	11 32	18 44	.....	2 45	78	11 33.3	- 1 03	7.2
Sat May 10/Sun May 11	14 56	19 08	20 41	3 50	5 24	11 37	18 47	.....	3 19	86	12 21.4	- 5 09	7.2
Sun May 11/Mon May 12	15 00	19 09	20 42	3 49	5 23	11 42	18 50	.....	3 56	93	13 11.4	- 9 09	7.1
Mon May 12/Tue May 13	15 04	19 09	20 43	3 48	5 22	11 47	18 53	.....	4 36	97	14 04.0	-12 51	7.1
Tue May 13/Wed May 14	15 08	19 10	20 44	3 47	5 21	11 52	18 56	18 18	5 20	100	14 59.4	-16 00	7.0
Wed May 14/Thu May 15	15 12	19 11	20 45	3 46	5 21	11 57	18 59	19 21	6 10	100	15 57.5	-18 19	7.0
Thu May 15/Fri May 16	15 16	19 11	20 46	3 45	5 20	12 02	19 02	20 23	.....	97	16 57.8	-19 33	7.0
Fri May 16/Sat May 17	15 20	19 12	20 47	3 44	5 19	12 07	19 05	21 22	.....	92	17 59.2	-19 35	6.9
Sat May 17/Sun May 18	15 24	19 13	20 48	3 43	5 19	12 12	19 08	22 18	.....	84	19 00.4	-18 22	6.9
Sun May 18/Mon May 19	15 28	19 14	20 49	3 42	5 18	12 17	19 11	23 09	.....	74	20 00.2	-16 01	6.9
Mon May 19/Tue May 20	15 32	19 14	20 50	3 41	5 18	12 22	19 14	23 55	.....	64	20 57.9	-12 44	6.9
Tue May 20/Wed May 21	15 36	19 15	20 51	3 41	5 17	12 27	19 17	0 37	.....	52	21 53.4	- 8 47	6.8
Wed May 21/Thu May 22	15 40	19 16	20 52	3 40	5 17	12 32	19 20	1 17	.....	41	22 47.1	- 4 26	6.8
Thu May 22/Fri May 23	15 44	19 16	20 53	3 39	5 16	12 37	19 23	1 55	.....	30	23 39.4	0 03	6.8
Fri May 23/Sat May 24	15 48	19 17	20 54	3 38	5 16	12 41	19 26	2 33	.....	21	0 31.0	4 25	6.7
Sat May 24/Sun May 25	15 52	19 18	20 55	3 37	5 15	12 46	19 30	3 11	.....	13	1 22.4	8 28	6.7
Sun May 25/Mon May 26	15 56	19 18	20 56	3 37	5 15	12 51	19 33	3 51	.....	7	2 14.1	12 00	6.7
Mon May 26/Tue May 27	15 59	19 19	20 57	3 36	5 14	12 56	19 36	4 33	17 31	2	3 06.3	14 52	6.7
Tue May 27/Wed May 28	16 03	19 20	20 58	3 35	5 14	13 01	19 39	5 19	18 29	0	3 58.7	16 55	6.6
Wed May 28/Thu May 29	16 07	19 20	20 59	3 35	5 14	13 06	19 43	6 06	19 24	0	4 51.1	18 04	6.6
Thu May 29/Fri May 30	16 11	19 21	21 00	3 34	5 13	13 10	19 46	.....	20 16	2	5 43.1	18 18	6.6
Fri May 30/Sat May 31	16 15	19 21	21 01	3 34	5 13	13 15	19 50	.....	21 04	6	6 34.1	17 39	6.6
Sat May 31/Sun Jun 01	16 19	19 22	21 01	3 33	5 13	13 20	19 53	.....	21 48	12	7 23.8	16 11	6.5

***** 2014 JUNE *****

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 Jun 01/Mon Jun 02	16 23	19 23	21 02	3 33	5 12	13 25	19 56	.....	22 27	18	8 12.2	14 01	6.5
Mon Jun 02/Tue Jun 03	16 27	19 23	21 03	3 32	5 12	13 29	20 00	.....	23 04	26	8 59.2	11 15	6.5
Tue Jun 03/Wed Jun 04	16 31	19 24	21 04	3 32	5 12	13 34	20 03	.....	23 38	35	9 45.2	7 59	6.5
Wed Jun 04/Thu Jun 05	16 35	19 24	21 04	3 32	5 12	13 39	20 07	.....	0 11	44	10 30.8	4 22	6.5
Thu Jun 05/Fri Jun 06	16 39	19 25	21 05	3 31	5 12	13 44	20 11	.....	0 44	54	11 16.5	0 30	6.4
Fri Jun 06/Sat Jun 07	16 43	19 25	21 06	3 31	5 11	13 48	20 14	.....	1 17	63	12 03.1	- 3 30	6.4
Sat Jun 07/Sun Jun 08	16 47	19 26	21 06	3 31	5 11	13 53	20 18	.....	1 51	73	12 51.2	- 7 30	6.4
Sun Jun 08/Mon Jun 09	16 51	19 26	21 07	3 30	5 11	13 57	20 22	.....	2 29	82	13 41.8	-11 19	6.4
Mon Jun 09/Tue Jun 10	16 55	19 27	21 08	3 30	5 11	14 02	20 25	.....	3 11	89	14 35.3	-14 43	6.4
Tue Jun 10/Wed Jun 11	16 59	19 27	21 08	3 30	5 11	14 06	20 29	.....	3 57	95	15 32.1	-17 27	6.4
Wed Jun 11/Thu Jun 12	17 03	19 27	21 09	3 30	5 11	14 11	20 33	18 05	4 50	99	16 32.1	-19 14	6.4
Thu Jun 12/Fri Jun 13	17 06	19 28	21 09	3 30	5 11	14 15	20 37	19 08	5 50	100	17 34.3	-19 49	6.3
Fri Jun 13/Sat Jun 14	17 10	19 28	21 10	3 30	5 11	14 20	20 41	20 07	.....	98	18 37.5	-19 06	6.3
Sat Jun 14/Sun Jun 15	17 14	19 29	21 10	3 30	5 11	14 24	20 45	21 02	.....	93	19 40.0	-17 07	6.3
Sun Jun 15/Mon Jun 16	17 18	19 29	21 11	3 30	5 11	14 28	20 49	21 51	.....	86	20 40.6	-14 01	6.3
Mon Jun 16/Tue Jun 17	17 22	19 29	21 11	3 30	5 12	14 33	20 53	22 37	.....	77	21 38.7	-10 07	6.3
Tue Jun 17/Wed Jun 18	17 26	19 30	21 11	3 30	5 12	14 37	20 57	23 18	.....	66	22 34.4	- 5 44	6.3
Wed Jun 18/Thu Jun 19	17 30	19 30	21 12	3 30	5 12	14 41	21 01	23 57	.....	55	23 28.1	- 1 10	6.3
Thu Jun 19/Fri Jun 20	17 34	19 30	21 12	3 30	5 12	14 46	21 05	0 35	.....	44	0 20.4	3 19	6.3
Fri Jun 20/Sat Jun 21	17 38	19 30	21 12	3 30	5 12	14 50	21 09	1 13	.....	33	1 11.9	7 29	6.3
Sat Jun 21/Sun Jun 22	17 42	19 31	21 12	3 31	5 12	14 54	21 13	1 52	.....	24	2 03.3	11 09	6.3
Sun Jun 22/Mon Jun 23	17 46	19 31	21 13	3 31	5 13	14 58	21 17	2 32	.....	15	2 54.8	14 10	6.3
Mon Jun 23/Tue Jun 24	17 50	19 31	21 13	3 31	5 13	15 02	21 22	3 16	.....	9	3 46.5	16 25	6.3
Tue Jun 24/Wed Jun 25	17 54	19 31	21 13	3 32	5 13	15 06	21 26	4 02	.....	4	4 38.4	17 49	6.3
Wed Jun 25/Thu Jun 26	17 58	19 31	21 13	3 32	5 14	15 10	21 30	4 51	18 11	1	5 30.0	18 20	6.3
Thu Jun 26/Fri Jun 27	18 02	19 31	21 13	3 32	5 14	15 14	21 35	5 42	19 00	0	6 20.9	17 57	6.3
Fri Jun 27/Sat Jun 28	18 06	19 31	21 13	3 33	5 14	15 18	21 39	.....	19 45	1	7 10.8	16 44	6.3
Sat Jun 28/Sun Jun 29	18 10	19 31	21 13	3 33	5 15	15 22	21 43	.....	20 26	4	7 59.4	14 47	6.3
Sun Jun 29/Mon Jun 30	18 14	19 31	21 13	3 34	5 15	15 26	21 48	.....	21 04	8	8 46.7	12 12	6.3
Mon Jun 30/Tue Jul 01	18 17	19 31	21 13	3 34	5 15	15 30	21 52	.....	21 39	14	9 32.8	9 07	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.

***** 2014 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	
Tue Jul 01/Wed Jul 02	18 21	19 31	21 12	3 35	5 16	15 33	21 57	.....	22 12	21	10 18.0	5 39	6.4
Wed Jul 02/Thu Jul 03	18 25	19 31	21 12	3 35	5 16	15 37	22 01	.....	22 45	29	11 03.0	1 54	6.4
Thu Jul 03/Fri Jul 04	18 29	19 31	21 12	3 36	5 17	15 41	22 06	.....	23 17	38	11 48.4	- 1 59	6.4
Fri Jul 04/Sat Jul 05	18 33	19 31	21 12	3 37	5 17	15 45	22 10	.....	23 50	47	12 34.8	- 5 54	6.4
Sat Jul 05/Sun Jul 06	18 37	19 31	21 11	3 37	5 18	15 48	22 15	.....	0 25	58	13 23.0	- 9 42	6.4
Sun Jul 06/Mon Jul 07	18 41	19 31	21 11	3 38	5 18	15 52	22 20	.....	1 04	68	14 13.8	-13 13	6.4
Mon Jul 07/Tue Jul 08	18 45	19 31	21 11	3 39	5 19	15 55	22 24	.....	1 47	77	15 07.7	-16 12	6.5
Tue Jul 08/Wed Jul 09	18 49	19 30	21 10	3 39	5 19	15 59	22 29	.....	2 36	86	16 05.1	-18 25	6.5
Wed Jul 09/Thu Jul 10	18 53	19 30	21 10	3 40	5 20	16 02	22 34	.....	3 31	93	17 05.7	-19 37	6.5
Thu Jul 10/Fri Jul 11	18 57	19 30	21 09	3 41	5 20	16 06	22 38	17 49	4 33	98	18 08.6	-19 34	6.5
Fri Jul 11/Sat Jul 12	19 01	19 30	21 09	3 42	5 21	16 09	22 43	18 47	5 39	100	19 12.4	-18 11	6.5
Sat Jul 12/Sun Jul 13	19 05	19 29	21 08	3 42	5 21	16 13	22 48	19 41	.....	99	20 15.4	-15 31	6.6
Sun Jul 13/Mon Jul 14	19 09	19 29	21 08	3 43	5 22	16 16	22 53	20 29	.....	95	21 16.6	-11 51	6.6
Mon Jul 14/Tue Jul 15	19 13	19 29	21 07	3 44	5 23	16 19	22 57	21 14	.....	88	22 15.4	- 7 29	6.6
Tue Jul 15/Wed Jul 16	19 17	19 28	21 06	3 45	5 23	16 23	23 02	21 56	.....	79	23 11.8	- 2 47	6.6
Wed Jul 16/Thu Jul 17	19 21	19 28	21 06	3 46	5 24	16 26	23 07	22 35	.....	69	0 06.4	1 53	6.7
Thu Jul 17/Fri Jul 18	19 24	19 27	21 05	3 47	5 24	16 29	23 12	23 14	.....	58	0 59.6	6 17	6.7
Fri Jul 18/Sat Jul 19	19 28	19 27	21 04	3 48	5 25	16 32	23 17	23 53	.....	47	1 52.0	10 10	6.7
Sat Jul 19/Sun Jul 20	19 32	19 26	21 04	3 49	5 26	16 35	23 22	0 33	.....	37	2 44.0	13 25	6.7
Sun Jul 20/Mon Jul 21	19 36	19 26	21 03	3 49	5 26	16 39	23 26	1 16	.....	27	3 35.9	15 52	6.8
Mon Jul 21/Tue Jul 22	19 40	19 25	21 02	3 50	5 27	16 42	23 31	2 01	.....	19	4 27.7	17 29	6.8
Tue Jul 22/Wed Jul 23	19 44	19 25	21 01	3 51	5 28	16 45	23 36	2 48	.....	12	5 19.1	18 13	6.8
Wed Jul 23/Thu Jul 24	19 48	19 24	21 00	3 52	5 28	16 48	23 41	3 38	.....	6	6 09.9	18 04	6.9
Thu Jul 24/Fri Jul 25	19 52	19 24	20 59	3 53	5 29	16 51	23 46	4 29	17 43	3	6 59.8	17 06	6.9
Fri Jul 25/Sat Jul 26	19 56	19 23	20 58	3 54	5 30	16 54	23 51	5 22	18 25	1	7 48.5	15 21	6.9
Sat Jul 26/Sun Jul 27	20 00	19 22	20 57	3 55	5 30	16 57	23 56	6 14	19 04	0	8 36.0	12 58	7.0
Sun Jul 27/Mon Jul 28	20 04	19 22	20 56	3 56	5 31	17 00	0 01	.....	19 41	2	9 22.2	10 02	7.0
Mon Jul 28/Tue Jul 29	20 08	19 21	20 55	3 57	5 32	17 03	0 06	.....	20 15	5	10 07.6	6 42	7.0
Tue Jul 29/Wed Jul 30	20 12	19 20	20 54	3 58	5 32	17 06	0 11	.....	20 47	10	10 52.5	3 04	7.1
Wed Jul 30/Thu Jul 31	20 16	19 19	20 53	3 59	5 33	17 08	0 15	.....	21 19	16	11 37.3	- 0 45	7.1
Thu Jul 31/Fri Aug 01	20 20	19 19	20 52	4 00	5 34	17 11	0 20	.....	21 52	24	12 22.7	- 4 35	7.1

***** 2014 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	
Fri Aug 01/Sat Aug 02	20 24	19 18	20 51	4 01	5 34	17 14	0 25	.....	22 26	32	13 09.3	- 8 20	7.2
Sat Aug 02/Sun Aug 03	20 28	19 17	20 50	4 02	5 35	17 17	0 30	.....	23 02	42	13 57.9	-11 50	7.2
Sun Aug 03/Mon Aug 04	20 32	19 16	20 49	4 03	5 36	17 20	0 35	.....	23 42	52	14 49.0	-14 55	7.2
Mon Aug 04/Tue Aug 05	20 35	19 15	20 48	4 04	5 36	17 22	0 40	.....	0 26	63	15 43.1	-17 23	7.3
Tue Aug 05/Wed Aug 06	20 39	19 14	20 46	4 05	5 37	17 25	0 45	.....	1 17	73	16 40.4	-18 59	7.3
Wed Aug 06/Thu Aug 07	20 43	19 13	20 45	4 06	5 38	17 28	0 50	.....	2 14	83	17 40.6	-19 31	7.3
Thu Aug 07/Fri Aug 08	20 47	19 12	20 44	4 07	5 38	17 31	0 55	.....	3 17	91	18 42.7	-18 49	7.4
Fri Aug 08/Sat Aug 09	20 51	19 11	20 43	4 08	5 39	17 33	1 00	17 25	4 24	96	19 45.6	-16 49	7.4
Sat Aug 09/Sun Aug 10	20 55	19 11	20 41	4 09	5 40	17 36	1 05	18 16	5 34	100	20 48.0	-13 38	7.5
Sun Aug 10/Mon Aug 11	20 59	19 10	20 40	4 10	5 40	17 39	1 10	19 04	6 44	99	21 48.9	- 9 33	7.5
Mon Aug 11/Tue Aug 12	21 03	19 09	20 39	4 11	5 41	17 41	1 15	19 48	.....	96	22 48.0	- 4 53	7.5
Tue Aug 12/Wed Aug 13	21 07	19 08	20 37	4 12	5 42	17 44	1 20	20 30	.....	90	23 45.3	- 0 03	7.6
Wed Aug 13/Thu Aug 14	21 11	19 06	20 36	4 13	5 42	17 47	1 24	21 10	.....	82	0 41.1	4 38	7.6
Thu Aug 14/Fri Aug 15	21 15	19 05	20 35	4 14	5 43	17 49	1 29	21 51	.....	73	1 35.7	8 51	7.6
Fri Aug 15/Sat Aug 16	21 19	19 04	20 33	4 15	5 44	17 52	1 34	22 32	.....	62	2 29.6	12 24	7.7
Sat Aug 16/Sun Aug 17	21 23	19 03	20 32	4 16	5 45	17 54	1 39	23 15	.....	52	3 22.9	15 09	7.7
Sun Aug 17/Mon Aug 18	21 27	19 02	20 31	4 17	5 45	17 57	1 44	23 59	.....	42	4 15.6	17 02	7.8
Mon Aug 18/Tue Aug 19	21 31	19 01	20 29	4 18	5 46	17 59	1 49	0 46	.....	32	5 07.7	18 00	7.8
Tue Aug 19/Wed Aug 20	21 35	19 00	20 28	4 18	5 47	18 02	1 54	1 35	.....	23	5 58.9	18 05	7.8
Wed Aug 20/Thu Aug 21	21 39	18 59	20 27	4 19	5 47	18 04	1 59	2 26	.....	16	6 49.1	17 19	7.9
Thu Aug 21/Fri Aug 22	21 42	18 58	20 25	4 20	5 48	18 07	2 03	3 18	.....	9	7 38.0	15 47	7.9
Fri Aug 22/Sat Aug 23	21 46	18 56	20 24	4 21	5 48	18 10	2 08	4 10	17 05	5	8 25.7	13 34	8.0
Sat Aug 23/Sun Aug 24	21 50	18 55	20 22	4 22	5 49	18 12	2 13	5 03	17 42	2	9 12.3	10 48	8.0
Sun Aug 24/Mon Aug 25	21 54	18 54	20 21	4 23	5 50	18 15	2 18	5 55	18 16	0	9 57.9	7 34	8.0
Mon Aug 25/Tue Aug 26	21 58	18 53	20 19	4 24	5 50	18 17	2 23	6 48	18 50	1	10 42.9	4 02	8.1
Tue Aug 26/Wed Aug 27	22 02	18 52	20 18	4 25	5 51	18 20	2 28	.....	19 22	3	11 27.8	0 17	8.1
Wed Aug 27/Thu Aug 28	22 06	18 50	20 16	4 26	5 52	18 22	2 33	.....	19 55	6	12 13.0	- 3 31	8.2
Thu Aug 28/Fri Aug 29	22 10	18 49	20 15	4 27	5 52	18 24	2 37	.....	20 28	12	12 59.1	- 7 15	8.2
Fri Aug 29/Sat Aug 30	22 14	18 48	20 14	4 27	5 53	18 27	2 42	.....	21 03	19	13 46.6	-10 46	8.2
Sat Aug 30/Sun Aug 31	22 18	18 47	20 12	4 28	5 54	18 29	2 47	.....	21 41	27	14 36.0	-13 53	8.3
Sun Aug 31/Mon Sep 01	22 22	18 45	20 11	4 29	5 54	18 32	2 52	.....	22 23	37	15 27.9	-16 27	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.

***** 2014 SEPTEMBER *****

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 Sep 01/Tue Sep 02	22 26	18 44	20 09	4 30	5 55	18 34	2 57	.....	23 10	47	16 22.4	-18 16	8.3
Tue Sep 02/Wed Sep 03	22 30	18 43	20 08	4 31	5 56	18 37	3 01	.....	0 02	58	17 19.4	-19 09	8.4
Wed Sep 03/Thu Sep 04	22 34	18 42	20 06	4 32	5 56	18 39	3 06	.....	1 00	69	18 18.5	-18 57	8.4
Thu Sep 04/Fri Sep 05	22 38	18 40	20 05	4 32	5 57	18 42	3 11	.....	2 04	79	19 18.9	-17 33	8.5
Fri Sep 05/Sat Sep 06	22 42	18 39	20 03	4 33	5 58	18 44	3 16	.....	3 10	88	20 19.8	-15 00	8.5
Sat Sep 06/Sun Sep 07	22 46	18 38	20 02	4 34	5 58	18 47	3 20	16 51	4 19	95	21 20.3	-11 24	8.5
Sun Sep 07/Mon Sep 08	22 50	18 36	20 00	4 35	5 59	18 49	3 25	17 37	5 28	99	22 19.9	- 7 03	8.6
Mon Sep 08/Tue Sep 09	22 53	18 35	19 59	4 36	5 59	18 52	3 30	18 20	6 37	100	23 18.4	- 2 16	8.6
Tue Sep 09/Wed Sep 10	22 57	18 34	19 57	4 36	6 00	18 54	3 35	19 02	.....	98	0 15.9	2 33	8.7
Wed Sep 10/Thu Sep 11	23 01	18 32	19 56	4 37	6 01	18 56	3 39	19 44	.....	93	1 12.6	7 05	8.7
Thu Sep 11/Fri Sep 12	23 05	18 31	19 54	4 38	6 01	18 59	3 44	20 26	.....	86	2 08.6	11 02	8.7
Fri Sep 12/Sat Sep 13	23 09	18 30	19 53	4 39	6 02	19 01	3 49	21 09	.....	77	3 04.0	14 12	8.8
Sat Sep 13/Sun Sep 14	23 13	18 28	19 51	4 40	6 03	19 04	3 53	21 54	.....	67	3 58.7	16 27	8.8
Sun Sep 14/Mon Sep 15	23 17	18 27	19 50	4 40	6 03	19 06	3 58	22 41	.....	57	4 52.5	17 44	8.8
Mon Sep 15/Tue Sep 16	23 21	18 26	19 48	4 41	6 04	19 09	4 03	23 30	.....	47	5 45.1	18 05	8.9
Tue Sep 16/Wed Sep 17	23 25	18 24	19 47	4 42	6 05	19 11	4 08	0 21	.....	38	6 36.3	17 32	8.9
Wed Sep 17/Thu Sep 18	23 29	18 23	19 45	4 43	6 05	19 14	4 12	1 13	.....	29	7 26.0	16 12	9.0
Thu Sep 18/Fri Sep 19	23 33	18 22	19 44	4 43	6 06	19 16	4 17	2 05	.....	21	8 14.3	14 09	9.0
Fri Sep 19/Sat Sep 20	23 37	18 20	19 43	4 44	6 06	19 19	4 22	2 57	.....	14	9 01.2	11 32	9.0
Sat Sep 20/Sun Sep 21	23 41	18 19	19 41	4 45	6 07	19 21	4 26	3 50	.....	8	9 47.1	8 25	9.1
Sun Sep 21/Mon Sep 22	23 45	18 17	19 40	4 45	6 08	19 24	4 31	4 43	16 51	4	10 32.4	4 58	9.1
Mon Sep 22/Tue Sep 23	23 49	18 16	19 38	4 46	6 08	19 26	4 36	5 36	17 24	1	11 17.5	1 16	9.1
Tue Sep 23/Wed Sep 24	23 53	18 15	19 37	4 47	6 09	19 29	4 40	6 30	17 57	0	12 02.9	- 2 32	9.2
Wed Sep 24/Thu Sep 25	23 57	18 13	19 35	4 48	6 10	19 31	4 45	7 25	18 30	1	12 49.0	- 6 17	9.2
Thu Sep 25/Fri Sep 26	0 00	18 12	19 34	4 48	6 10	19 34	4 50	.....	19 05	4	13 36.5	- 9 51	9.2
Fri Sep 26/Sat Sep 27	0 04	18 11	19 33	4 49	6 11	19 36	4 54	.....	19 42	9	14 25.6	-13 04	9.3
Sat Sep 27/Sun Sep 28	0 08	18 09	19 31	4 50	6 12	19 39	4 59	.....	20 23	15	15 16.7	-15 44	9.3
Sun Sep 28/Mon Sep 29	0 12	18 08	19 30	4 50	6 12	19 41	5 04	.....	21 08	23	16 09.9	-17 42	9.3
Mon Sep 29/Tue Sep 30	0 16	18 07	19 28	4 51	6 13	19 44	5 08	.....	21 58	33	17 05.2	-18 48	9.4
Tue Sep 30/Wed Oct 01	0 20	18 05	19 27	4 52	6 14	19 47	5 13	.....	22 53	43	18 02.1	-18 53	9.4

***** 2014 OCTOBER *****

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 Oct 01/Thu Oct 02	0 24	18 04	19 26	4 53	6 14	19 49	5 17	.....	23 52	55	19 00.1	-17 53	9.4
Thu Oct 02/Fri Oct 03	0 28	18 03	19 24	4 53	6 15	19 52	5 22	.....	0 55	66	19 58.6	-15 47	9.5
Fri Oct 03/Sat Oct 04	0 32	18 01	19 23	4 54	6 16	19 54	5 27	.....	2 01	76	20 56.9	-12 41	9.5
Sat Oct 04/Sun Oct 05	0 36	18 00	19 22	4 55	6 16	19 57	5 31	.....	3 07	86	21 54.8	- 8 46	9.5
Sun Oct 05/Mon Oct 06	0 40	17 59	19 21	4 55	6 17	20 00	5 36	.....	4 15	93	22 52.1	- 4 17	9.6
Mon Oct 06/Tue Oct 07	0 44	17 58	19 19	4 56	6 18	20 02	5 41	16 52	5 22	98	23 49.1	0 28	9.6
Tue Oct 07/Wed Oct 08	0 48	17 56	19 18	4 57	6 19	20 05	5 45	17 34	6 29	100	0 46.0	5 08	9.6
Wed Oct 08/Thu Oct 09	0 52	17 55	19 17	4 57	6 19	20 08	5 50	18 16	7 35	99	1 42.8	9 24	9.7
Thu Oct 09/Fri Oct 10	0 56	17 54	19 16	4 58	6 20	20 10	5 55	18 59	.....	95	2 39.5	12 59	9.7
Fri Oct 10/Sat Oct 11	1 00	17 53	19 14	4 59	6 21	20 13	5 59	19 44	.....	90	3 36.0	15 41	9.7
Sat Oct 11/Sun Oct 12	1 04	17 51	19 13	5 00	6 21	20 16	6 04	20 32	.....	82	4 31.8	17 24	9.8
Sun Oct 12/Mon Oct 13	1 07	17 50	19 12	5 00	6 22	20 19	6 09	21 22	.....	73	5 26.5	18 07	9.8
Mon Oct 13/Tue Oct 14	1 11	17 49	19 11	5 01	6 23	20 21	6 13	22 13	.....	64	6 19.6	17 52	9.8
Tue Oct 14/Wed Oct 15	1 15	17 48	19 10	5 02	6 24	20 24	6 18	23 05	.....	54	7 10.8	16 45	9.9
Wed Oct 15/Thu Oct 16	1 19	17 46	19 08	5 02	6 24	20 27	6 22	23 57	.....	45	8 00.2	14 53	9.9
Thu Oct 16/Fri Oct 17	1 23	17 45	19 07	5 03	6 25	20 30	6 27	0 50	.....	35	8 48.0	12 24	9.9
Fri Oct 17/Sat Oct 18	1 27	17 44	19 06	5 04	6 26	20 33	6 32	1 43	.....	27	9 34.4	9 24	10.0
Sat Oct 18/Sun Oct 19	1 31	17 43	19 05	5 04	6 27	20 35	6 36	2 35	.....	19	10 19.9	6 02	10.0
Sun Oct 19/Mon Oct 20	1 35	17 42	19 04	5 05	6 27	20 38	6 41	3 29	.....	12	11 05.1	2 23	10.0
Mon Oct 20/Tue Oct 21	1 39	17 41	19 03	5 06	6 28	20 41	6 46	4 22	.....	6	11 50.5	- 1 24	10.0
Tue Oct 21/Wed Oct 22	1 43	17 40	19 02	5 07	6 29	20 44	6 50	5 17	16 30	3	12 36.7	- 5 12	10.1
Wed Oct 22/Thu Oct 23	1 47	17 39	19 01	5 07	6 30	20 47	6 55	6 14	17 04	0	13 24.2	- 8 52	10.1
Thu Oct 23/Fri Oct 24	1 51	17 37	19 00	5 08	6 31	20 50	7 00	7 11	17 41	0	14 13.4	-12 13	10.1
Fri Oct 24/Sat Oct 25	1 55	17 36	18 59	5 09	6 31	20 53	7 04	.....	18 22	2	15 04.7	-15 04	10.2
Sat Oct 25/Sun Oct 26	1 59	17 35	18 58	5 09	6 32	20 56	7 09	.....	19 06	6	15 58.0	-17 14	10.2
Sun Oct 26/Mon Oct 27	2 03	17 34	18 57	5 10	6 33	20 59	7 14	.....	19 55	12	16 53.2	-18 33	10.2
Mon Oct 27/Tue Oct 28	2 07	17 33	18 56	5 11	6 34	21 02	7 18	.....	20 49	20	17 49.8	-18 51	10.2
Tue Oct 28/Wed Oct 29	2 11	17 32	18 55	5 12	6 35	21 05	7 23	.....	21 46	29	18 47.1	-18 06	10.3
Wed Oct 29/Thu Oct 30	2 15	17 31	18 54	5 12	6 36	21 08	7 28	.....	22 48	40	19 44.4	-16 17	10.3
Thu Oct 30/Fri Oct 31	2 18	17 30	18 54	5 13	6 36	21 11	7 32	.....	23 51	51	20 41.3	-13 31	10.3
Fri Oct 31/Sat Nov 01	2 22	17 30	18 53	5 14	6 37	21 14	7 37	.....	0 55	63	21 37.4	- 9 56	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.

***** 2014 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	
Sat Nov 01/Sun Nov 02	2 26	17 29	18 52	5 15	6 38	21 17	7 42	.....	2 00	73	22 32.8	- 5 45	10.4
Sun Nov 02/Mon Nov 03	2 30	17 28	18 51	5 15	6 39	21 21	7 47	.....	3 05	83	23 27.9	- 1 13	10.4
Mon Nov 03/Tue Nov 04	2 34	17 27	18 50	5 16	6 40	21 24	7 51	.....	4 11	91	0 23.0	3 23	10.4
Tue Nov 04/Wed Nov 05	2 38	17 26	18 50	5 17	6 41	21 27	7 56	16 08	5 15	96	1 18.4	7 45	10.5
Wed Nov 05/Thu Nov 06	2 42	17 25	18 49	5 18	6 42	21 30	8 01	16 50	6 19	99	2 14.5	11 37	10.5
Thu Nov 06/Fri Nov 07	2 46	17 24	18 48	5 18	6 43	21 34	8 05	17 34	7 22	100	3 11.0	14 44	10.5
Fri Nov 07/Sat Nov 08	2 50	17 24	18 48	5 19	6 43	21 37	8 10	18 20	.....	98	4 07.7	16 55	10.5
Sat Nov 08/Sun Nov 09	2 54	17 23	18 47	5 20	6 44	21 40	8 15	19 10	.....	93	5 03.8	18 05	10.5
Sun Nov 09/Mon Nov 10	2 58	17 22	18 47	5 21	6 45	21 44	8 19	20 01	.....	87	5 58.7	18 13	10.6
Mon Nov 10/Tue Nov 11	3 02	17 21	18 46	5 21	6 46	21 47	8 24	20 54	.....	80	6 51.9	17 25	10.6
Tue Nov 11/Wed Nov 12	3 06	17 21	18 45	5 22	6 47	21 50	8 29	21 47	.....	71	7 43.0	15 47	10.6
Wed Nov 12/Thu Nov 13	3 10	17 20	18 45	5 23	6 48	21 54	8 34	22 40	.....	62	8 32.2	13 28	10.6
Thu Nov 13/Fri Nov 14	3 14	17 20	18 44	5 24	6 49	21 57	8 38	23 33	.....	52	9 19.5	10 36	10.7
Fri Nov 14/Sat Nov 15	3 18	17 19	18 44	5 25	6 50	22 01	8 43	0 26	.....	43	10 05.5	7 19	10.7
Sat Nov 15/Sun Nov 16	3 22	17 18	18 44	5 25	6 51	22 04	8 48	1 19	.....	34	10 50.8	3 44	10.7
Sun Nov 16/Mon Nov 17	3 25	17 18	18 43	5 26	6 51	22 08	8 52	2 12	.....	25	11 36.0	- 0 02	10.7
Mon Nov 17/Tue Nov 18	3 29	17 17	18 43	5 27	6 52	22 11	8 57	3 06	.....	17	12 21.8	- 3 51	10.7
Tue Nov 18/Wed Nov 19	3 33	17 17	18 42	5 28	6 53	22 15	9 02	4 02	.....	11	13 08.8	- 7 35	10.8
Wed Nov 19/Thu Nov 20	3 37	17 16	18 42	5 28	6 54	22 19	9 07	4 59	.....	5	13 57.6	-11 06	10.8
Thu Nov 20/Fri Nov 21	3 41	17 16	18 42	5 29	6 55	22 22	9 11	5 58	16 16	2	14 48.6	-14 11	10.8
Fri Nov 21/Sat Nov 22	3 45	17 16	18 42	5 30	6 56	22 26	9 16	6 58	17 00	0	15 42.0	-16 38	10.8
Sat Nov 22/Sun Nov 23	3 49	17 15	18 41	5 31	6 57	22 30	9 21	7 57	17 48	1	16 37.7	-18 15	10.8
Sun Nov 23/Mon Nov 24	3 53	17 15	18 41	5 31	6 58	22 33	9 25	.....	18 41	4	17 35.1	-18 53	10.8
Mon Nov 24/Tue Nov 25	3 57	17 15	18 41	5 32	6 59	22 37	9 30	.....	19 39	9	18 33.4	-18 25	10.9
Tue Nov 25/Wed Nov 26	4 01	17 14	18 41	5 33	7 00	22 41	9 35	.....	20 40	17	19 31.6	-16 50	10.9
Wed Nov 26/Thu Nov 27	4 05	17 14	18 41	5 34	7 00	22 45	9 40	.....	21 44	26	20 29.0	-14 16	10.9
Thu Nov 27/Fri Nov 28	4 09	17 14	18 41	5 35	7 01	22 49	9 44	.....	22 49	36	21 25.0	-10 52	10.9
Fri Nov 28/Sat Nov 29	4 13	17 14	18 40	5 35	7 02	22 52	9 49	.....	23 53	48	22 19.9	- 6 51	10.9
Sat Nov 29/Sun Nov 30	4 17	17 14	18 40	5 36	7 03	22 56	9 54	.....	0 57	59	23 13.8	- 2 28	10.9
Sun Nov 30/Mon Dec 01	4 21	17 13	18 40	5 37	7 04	23 00	9 58	.....	2 00	70	0 07.3	2 01	10.9

***** 2014 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	
Mon Dec 01/Tue Dec 02	4 25	17 13	18 40	5 37	7 05	23 04	10 03	.....	3 03	80	1 00.9	6 23	11.0
Tue Dec 02/Wed Dec 03	4 29	17 13	18 40	5 38	7 06	23 08	10 08	.....	4 06	88	1 55.0	10 21	11.0
Wed Dec 03/Thu Dec 04	4 33	17 13	18 41	5 39	7 06	23 12	10 12	.....	5 08	94	2 50.0	13 42	11.0
Thu Dec 04/Fri Dec 05	4 36	17 13	18 41	5 40	7 07	23 16	10 17	16 12	6 08	98	3 45.6	16 15	11.0
Fri Dec 05/Sat Dec 06	4 40	17 13	18 41	5 40	7 08	23 20	10 22	16 59	7 05	100	4 41.5	17 51	11.0
Sat Dec 06/Sun Dec 07	4 44	17 13	18 41	5 41	7 09	23 24	10 26	17 49	7 58	99	5 37.0	18 25	11.0
Sun Dec 07/Mon Dec 08	4 48	17 13	18 41	5 42	7 09	23 28	10 31	18 42	.....	96	6 31.3	18 01	11.0
Mon Dec 08/Tue Dec 09	4 52	17 14	18 41	5 42	7 10	23 33	10 36	19 35	.....	92	7 23.9	16 41	11.0
Tue Dec 09/Wed Dec 10	4 56	17 14	18 41	5 43	7 11	23 37	10 40	20 29	.....	86	8 14.6	14 36	11.0
Wed Dec 10/Thu Dec 11	5 00	17 14	18 42	5 44	7 12	23 41	10 45	21 23	.....	78	9 03.2	11 54	11.0
Thu Dec 11/Fri Dec 12	5 04	17 14	18 42	5 44	7 12	23 45	10 49	22 16	.....	70	9 50.1	8 43	11.0
Fri Dec 12/Sat Dec 13	5 08	17 14	18 42	5 45	7 13	23 49	10 54	23 09	.....	61	10 35.8	5 13	11.0
Sat Dec 13/Sun Dec 14	5 12	17 15	18 43	5 46	7 14	23 54	10 59	0 01	.....	52	11 21.0	1 30	11.1
Sun Dec 14/Mon Dec 15	5 16	17 15	18 43	5 46	7 14	23 58	11 03	0 54	.....	42	12 06.2	- 2 18	11.1
Mon Dec 15/Tue Dec 16	5 20	17 15	18 43	5 47	7 15	0 02	11 08	1 48	.....	33	12 52.2	- 6 04	11.1
Tue Dec 16/Wed Dec 17	5 24	17 16	18 44	5 47	7 16	0 07	11 12	2 44	.....	24	13 39.8	- 9 40	11.1
Wed Dec 17/Thu Dec 18	5 28	17 16	18 44	5 48	7 16	0 11	11 17	3 42	.....	16	14 29.5	-12 57	11.1
Thu Dec 18/Fri Dec 19	5 32	17 16	18 45	5 49	7 17	0 15	11 21	4 41	.....	9	15 21.8	-15 41	11.1
Fri Dec 19/Sat Dec 20	5 36	17 17	18 45	5 49	7 17	0 20	11 26	5 41	15 36	4	16 16.9	-17 42	11.1
Sat Dec 20/Sun Dec 21	5 40	17 17	18 45	5 50	7 18	0 24	11 30	6 41	16 27	1	17 14.4	-18 46	11.1
Sun Dec 21/Mon Dec 22	5 43	17 18	18 46	5 50	7 18	0 29	11 35	7 38	17 24	0	18 13.6	-18 44	11.1
Mon Dec 22/Tue Dec 23	5 47	17 18	18 46	5 51	7 19	0 33	11 39	.....	18 26	2	19 13.4	-17 33	11.1
Tue Dec 23/Wed Dec 24	5 51	17 19	18 47	5 51	7 19	0 37	11 43	.....	19 31	7	20 12.7	-15 15	11.1
Wed Dec 24/Thu Dec 25	5 55	17 19	18 47	5 51	7 20	0 42	11 48	.....	20 38	14	21 10.6	-12 00	11.1
Thu Dec 25/Fri Dec 26	5 59	17 20	18 48	5 52	7 20	0 46	11 52	.....	21 44	22	22 07.0	- 8 04	11.1
Fri Dec 26/Sat Dec 27	6 03	17 20	18 49	5 52	7 20	0 51	11 56	.....	22 50	33	23 01.8	- 3 43	11.1
Sat Dec 27/Sun Dec 28	6 07	17 21	18 49	5 53	7 21	0 56	12 01	.....	23 54	44	23 55.5	0 47	11.1
Sun Dec 28/Mon Dec 29	6 11	17 22	18 50	5 53	7 21	1 00	12 05	.....	0 57	55	0 48.6	5 11	11.1
Mon Dec 29/Tue Dec 30	6 15	17 22	18 50	5 53	7 21	1 05	12 09	.....	1 59	66	1 41.7	9 13	11.0
Tue Dec 30/Wed Dec 31	6 19	17 23	18 51	5 54	7 22	1 09	12 14	.....	3 00	76	2 35.2	12 43	11.0
Wed Dec 31/Thu Jan 01	6 23	17 24	18 52	5 54	7 22	1 14	12 18	.....	3 59	84	3 29.3	15 28	11.0