

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 MAY \*\*\*\*\*

Date (eve/morn)	LMST midn	----- Sun: ----- set twi.end twi.beg rise	LST twilight: eve morn	----- Moon: ----- rise set %illum RA Dec	Twi-Twi hours
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	..... 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: ----- set twi.end twi.beg rise	LST twilight: eve morn	----- Moon: ----- rise set %illum RA Dec	Twi-Twi hours
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 NOVEMBER \*\*\*\*\*

Date (eve/morn)	LMST midn	----- Sun: -----	LST twilight: -----	----- Moon: -----	Twi-Twi
	set twi.end twi.beg rise	eve morn rise set %illum RA Dec	hours		
Sat 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
	set twi.end twi.beg rise	eve morn rise set %illum RA Dec	hours		
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