

***** 2006 Night-time Astronomical Calendar for Mississauga *****

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. DAYLIGHT SAVINGS time is used from the first Sunday in April to last in October; this is the present(1986+) convention in the U.S.A.

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 hemishpheres. 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
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[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 2006, at Mississauga

Times and dates are given in local time, zone = 5 hr West.
 They are generally better than +/- 2 minutes.
 Daylight savings time used.

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

NEW		1ST		FULL		LAST	
Dec 01	10 00	Dec 08	4 37	Dec 15	11 16	Dec 23	14 38
Dec 30	22 12	Jan 06	13 57	Jan 14	4 48	Jan 22	10 15
Jan 29	9 16	Feb 05	1 30	Feb 12	23 45	Feb 21	2 18
Feb 27	19 33	Mar 06	15 17	Mar 14	18 36	Mar 22	14 11
Mar 29	5 18	Apr 05	8 02	Apr 13	12 42	Apr 20	23 29
Apr 27	15 46	May 05	1 14	May 13	2 54	May 20	5 21
May 27	1 28	Jun 03	19 07	Jun 11	14 05	Jun 18	10 10
Jun 25	12 07	Jul 03	12 37	Jul 10	23 04	Jul 17	15 15
Jul 25	0 32	Aug 02	4 46	Aug 09	6 56	Aug 15	21 53
Aug 23	15 11	Aug 31	18 57	Sep 07	14 44	Sep 14	7 18
Sep 22	7 46	Sep 30	7 05	Oct 06	23 14	Oct 13	20 27
Oct 22	1 15	Oct 29	16 26	Nov 05	7 59	Nov 12	12 47
Nov 20	17 18	Nov 28	1 30	Dec 04	19 25	Dec 12	9 33
Dec 20	9 01	Dec 27	9 49	Jan 03	8 58	Jan 11	7 46

Calendar for Mississauga, west longitude (h.m.s) = 5 18 39, latitude (d.m) = 43 35.2
 Note that each line lists events of one night, spanning two calendar dates. Rise/set times are given
 in Eastern time (5 hr W), for 173 m above surroundings, DAYLIGHT time used, * shows night clocks are reset.
 Moon coords. and illum. are for local midnight, even if moon is down. Program: John Thorstensen, Dartmouth College.

***** 2006 JANUARY *****

Date (eve/morn) (2006 at start)	JDmid (-2450000)	LMSTmidn	----- Sun: -----				LST twilight:		----- Moon: -----				
			set	twi.end	twi.beg	rise	eve	morn	rise	set	%illum	RA	Dec
Sun Jan 01/Mon Jan 02	3737.7	6 28 09	16 55	18 36	6 09	7 49	1 04	12 38	.....	18 43	6	20 54.6	-22 08
Mon Jan 02/Tue Jan 03	3738.7	6 32 05	16 56	18 37	6 09	7 49	1 08	12 42	.....	20 07	13	21 52.6	-16 52
Tue Jan 03/Wed Jan 04	3739.7	6 36 02	16 57	18 38	6 09	7 49	1 13	12 46	.....	21 28	22	22 46.8	-10 41
Wed Jan 04/Thu Jan 05	3740.7	6 39 59	16 58	18 39	6 09	7 49	1 18	12 50	.....	22 46	32	23 38.1	- 4 04
Thu Jan 05/Fri Jan 06	3741.7	6 43 55	16 59	18 40	6 09	7 49	1 23	12 54	.....	0 01	43	0 27.7	2 37
Fri Jan 06/Sat Jan 07	3742.7	6 47 52	17 00	18 40	6 09	7 49	1 27	12 58	.....	1 15	54	1 16.9	9 03
Sat Jan 07/Sun Jan 08	3743.7	6 51 48	17 01	18 41	6 09	7 49	1 32	13 02	.....	2 28	65	2 06.8	14 57
Sun Jan 08/Mon Jan 09	3744.7	6 55 45	17 02	18 42	6 09	7 49	1 37	13 05	.....	3 41	74	2 58.5	20 01
Mon Jan 09/Tue Jan 10	3745.7	6 59 41	17 03	18 43	6 09	7 48	1 42	13 09	.....	4 53	83	3 52.3	24 02
Tue Jan 10/Wed Jan 11	3746.7	7 03 38	17 04	18 44	6 08	7 48	1 47	13 13	.....	6 01	90	4 48.2	26 04
Wed Jan 11/Thu Jan 12	3747.7	7 07 34	17 06	18 45	6 08	7 48	1 52	13 17	.....	7 00	95	5 45.2	28 04
Thu Jan 12/Fri Jan 13	3748.7	7 11 31	17 07	18 46	6 08	7 47	1 57	13 20	.....	7 50	98	6 42.1	27 51
Fri Jan 13/Sat Jan 14	3749.7	7 15 28	17 08	18 47	6 08	7 47	2 02	13 24	16 06	8 30	100	7 37.3	26 13
Sat Jan 14/Sun Jan 15	3750.7	7 19 24	17 09	18 48	6 07	7 46	2 07	13 28	17 11	.....	99	8 29.8	23 21
Sun Jan 15/Mon Jan 16	3751.7	7 23 21	17 10	18 49	6 07	7 46	2 12	13 31	18 17	.....	97	9 19.1	19 28
Mon Jan 16/Tue Jan 17	3752.7	7 27 17	17 12	18 50	6 07	7 45	2 17	13 35	19 22	.....	93	10 05.5	14 49
Tue Jan 17/Wed Jan 18	3753.7	7 31 14	17 13	18 51	6 06	7 45	2 22	13 38	20 26	.....	87	10 49.6	9 38
Wed Jan 18/Thu Jan 19	3754.7	7 35 10	17 14	18 52	6 06	7 44	2 27	13 42	21 28	.....	80	11 34.2	4 07
Thu Jan 19/Fri Jan 20	3755.7	7 39 07	17 15	18 53	6 05	7 43	2 32	13 45	22 31	.....	72	12 12.1	- 1 34
Fri Jan 20/Sat Jan 21	3756.7	7 43 03	17 17	18 55	6 05	7 43	2 37	13 49	23 33	.....	63	12 56.8	- 7 15
Sat Jan 21/Sun Jan 22	3757.7	7 47 00	17 18	18 56	6 04	7 42	2 42	13 52	0 38	.....	53	13 41.0	-12 46
Sun Jan 22/Mon Jan 23	3758.7	7 50 57	17 19	18 57	6 04	7 41	2 47	13 56	1 47	.....	44	14 28.1	-17 55
Mon Jan 23/Tue Jan 24	3759.7	7 54 53	17 20	18 58	6 03	7 40	2 52	13 59	2 58	.....	34	15 19.1	-22 27
Tue Jan 24/Wed Jan 25	3760.7	7 58 50	17 22	18 59	6 02	7 39	2 57	14 02	4 12	.....	24	16 14.8	-26 00
Wed Jan 25/Thu Jan 26	3761.7	8 02 46	17 23	19 00	6 02	7 39	3 02	14 05	5 24	.....	15	17 15.2	-28 13
Thu Jan 26/Fri Jan 27	3762.7	8 06 43	17 24	19 01	6 01	7 38	3 07	14 09	6 29	.....	8	18 19.2	-28 44
Fri Jan 27/Sat Jan 28	3763.7	8 10 39	17 26	19 02	6 00	7 37	3 12	14 12	7 22	.....	3	19 24.5	-27 20
Sat Jan 28/Sun Jan 29	3764.7	8 14 36	17 27	19 04	5 59	7 36	3 17	14 15	8 04	16 11	0	20 28.4	-24 02
Sun Jan 29/Mon Jan 30	3765.7	8 18 32	17 28	19 05	5 59	7 35	3 23	14 18	.....	17 36	1	21 29.2	-19 08
Mon Jan 30/Tue Jan 31	3766.7	8 22 29	17 30	19 06	5 58	7 34	3 28	14 21	.....	19 02	4	22 26.3	-13 03
Tue Jan 31/Wed Feb 01	3767.7	8 26 26	17 31	19 07	5 57	7 33	3 33	14 24	.....	20 24	10	23 20.2	- 6 18

***** 2006 FEBRUARY *****

Date (eve/morn) (2006 at start)	JDmid (-2450000)	LMSTmidn	----- Sun: -----				LST twilight:		----- Moon: -----				
			set	twi.end	twi.beg	rise	eve	morn	rise	set	%illum	RA	Dec
Wed Feb 01/Thu Feb 02	3768.7	8 30 22	17 32	19 08	5 56	7 31	3 38	14 27	.....	21 43	18	0 11.8	0 40
Thu Feb 02/Fri Feb 03	3769.7	8 34 19	17 34	19 09	5 55	7 30	3 43	14 30	.....	23 00	27	1 02.4	7 25
Fri Feb 03/Sat Feb 04	3770.7	8 38 15	17 35	19 11	5 54	7 29	3 48	14 33	.....	0 16	38	1 53.2	13 38
Sat Feb 04/Sun Feb 05	3771.7	8 42 12	17 36	19 12	5 53	7 28	3 53	14 36	.....	1 32	49	2 45.1	19 01
Sun Feb 05/Mon Feb 06	3772.7	8 46 08	17 38	19 13	5 52	7 27	3 58	14 39	.....	2 45	59	3 38.7	23 19
Mon Feb 06/Tue Feb 07	3773.7	8 50 05	17 39	19 14	5 51	7 26	4 04	14 42	.....	3 54	69	4 34.1	26 21
Tue Feb 07/Wed Feb 08	3774.7	8 54 01	17 41	19 15	5 50	7 24	4 09	14 45	.....	4 56	78	5 30.6	27 58
Wed Feb 08/Thu Feb 09	3775.7	8 57 58	17 42	19 17	5 49	7 23	4 14	14 47	.....	5 49	86	6 27.1	28 06
Thu Feb 09/Fri Feb 10	3776.7	9 01 55	17 43	19 18	5 47	7 22	4 19	14 50	.....	6 31	92	7 22.3	26 49
Fri Feb 10/Sat Feb 11	3777.7	9 05 51	17 45	19 19	5 46	7 20	4 24	14 53	.....	7 04	96	8 15.1	24 14
Sat Feb 11/Sun Feb 12	3778.7	9 09 48	17 46	19 20	5 45	7 19	4 29	14 56	16 07	7 31	99	9 05.1	20 36
Sun Feb 12/Mon Feb 13	3779.7	9 13 44	17 47	19 22	5 44	7 18	4 34	14 58	17 13	7 52	100	9 52.2	16 06
Mon Feb 13/Tue Feb 14	3780.7	9 17 41	17 49	19 23	5 42	7 16	4 40	15 01	18 17	8 11	99	10 36.8	11 01
Tue Feb 14/Wed Feb 15	3781.7	9 21 37	17 50	19 24	5 41	7 15	4 45	15 04	19 20	.....	96	11 19.9	5 31
Wed Feb 15/Thu Feb 16	3782.7	9 25 34	17 51	19 25	5 40	7 13	4 50	15 06	20 22	.....	92	12 02.1	- 0 12
Thu Feb 16/Fri Feb 17	3783.7	9 29 30	17 53	19 26	5 38	7 12	4 55	15 09	21 25	.....	86	12 44.4	- 5 56
Fri Feb 17/Sat Feb 18	3784.7	9 33 27	17 54	19 28	5 37	7 10	5 00	15 11	22 28	.....	79	13 28.0	-11 31
Sat Feb 18/Sun Feb 19	3785.7	9 37 24	17 55	19 29	5 36	7 09	5 06	15 14	23 34	.....	70	14 13.7	-16 46
Sun Feb 19/Mon Feb 20	3786.7	9 41 20	17 57	19 30	5 34	7 07	5 11	15 16	0 43	.....	60	15 02.7	-21 26
Mon Feb 20/Tue Feb 21	3787.7	9 45 17	17 58	19 31	5 33	7 06	5 16	15 19	1 55	.....	50	15 55.7	-25 15
Tue Feb 21/Wed Feb 22	3788.7	9 49 13	17 59	19 33	5 31	7 04	5 21	15 21	3 06	.....	40	16 53.1	-27 54
Wed Feb 22/Thu Feb 23	3789.7	9 53 10	18 01	19 34	5 30	7 03	5 26	15 24	4 12	.....	30	17 54.2	-29 02
Thu Feb 23/Fri Feb 24	3790.7	9 57 06	18 02	19 35	5 28	7 01	5 31	15 26	5 09	.....	20	18 57.5	-28 23
Fri Feb 24/Sat Feb 25	3791.7	10 01 03	18 03	19 36	5 27	6 59	5 37	15 29	5 55	.....	12	20 00.9	-25 54
Sat Feb 25/Sun Feb 26	3792.7	10 04 59	18 05	19 38	5 25	6 58	5 42	15 31	6 31	.....	5	21 02.4	-21 40
Sun Feb 26/Mon Feb 27	3793.7	10 08 56	18 06	19 39	5 23	6 56	5 47	15 33	7 00	16 26	1	22 01.0	-16 02
Mon Feb 27/Tue Feb 28	3794.7	10 12 53	18 07	19 40	5 22	6 55	5 52	15 36	7 24	17 51	0	22 56.6	- 9 26
Tue Feb 28/Wed Mar 01	3795.7	10 16 49	18 08	19 41	5 20	6 53	5 57	15 38	7 46	19 14	2	23 50.0	- 2 21

Calendar for Mississauga, west longitude (h.m.s) = 5 18 39, latitude (d.m) = 43 35.2
 Note that each line lists events of one night, spanning two calendar dates. Rise/set times are given
 in Eastern time (5 hr W), for 173 m above surroundings, DAYLIGHT time used, * shows night clocks are reset.
 Moon coords. and illum. are for local midnight, even if moon is down. Program: John Thorstensen, Dartmouth College.

***** 2006 MARCH *****

Date (eve/morn) (2006 at start)	JDmid (-2450000)	LMSTmidn	Sun: -----				LST twilight:		Moon: -----				
			set	twi.end	twi.beg	rise	eve	morn	rise	set	%illum	RA	Dec
Wed Mar 01/Thu Mar 02	3796.7	10 20 46	18 10	19 43	5 19	6 51	6 03	15 40	.....	20 35	7	0 42.2	4 45
Thu Mar 02/Fri Mar 03	3797.7	10 24 42	18 11	19 44	5 17	6 50	6 08	15 42	.....	21 54	14	1 34.3	11 26
Fri Mar 03/Sat Mar 04	3798.7	10 28 39	18 12	19 45	5 15	6 48	6 13	15 45	.....	23 13	23	2 27.4	17 20
Sat Mar 04/Sun Mar 05	3799.7	10 32 35	18 14	19 46	5 13	6 46	6 18	15 47	.....	0 30	32	3 21.9	22 09
Sun Mar 05/Mon Mar 06	3800.7	10 36 32	18 15	19 48	5 12	6 44	6 24	15 49	.....	1 44	43	4 18.0	25 40
Mon Mar 06/Tue Mar 07	3801.7	10 40 28	18 16	19 49	5 10	6 43	6 29	15 51	.....	2 50	53	5 15.1	27 42
Tue Mar 07/Wed Mar 08	3802.7	10 44 25	18 17	19 50	5 08	6 41	6 34	15 53	.....	3 46	63	6 12.2	28 13
Wed Mar 08/Thu Mar 09	3803.7	10 48 22	18 19	19 52	5 06	6 39	6 39	15 56	.....	4 32	72	7 07.8	27 17
Thu Mar 09/Fri Mar 10	3804.7	10 52 18	18 20	19 53	5 05	6 37	6 44	15 58	.....	5 07	81	8 01.2	25 01
Fri Mar 10/Sat Mar 11	3805.7	10 56 15	18 21	19 54	5 03	6 36	6 50	16 00	.....	5 35	88	8 51.6	21 38
Sat Mar 11/Sun Mar 12	3806.7	11 00 11	18 22	19 55	5 01	6 34	6 55	16 02	.....	5 58	93	9 39.2	17 21
Sun Mar 12/Mon Mar 13	3807.7	11 04 08	18 24	19 57	4 59	6 32	7 00	16 04	.....	6 18	97	10 24.3	12 23
Mon Mar 13/Tue Mar 14	3808.7	11 08 04	18 25	19 58	4 57	6 30	7 05	16 06	17 12	6 35	99	11 07.7	6 57
Tue Mar 14/Wed Mar 15	3809.7	11 12 01	18 26	19 59	4 55	6 29	7 11	16 08	18 14	6 51	100	11 50.2	1 15
Wed Mar 15/Thu Mar 16	3810.7	11 15 57	18 27	20 01	4 53	6 27	7 16	16 10	19 17	7 08	99	12 32.7	- 4 34
Thu Mar 16/Fri Mar 17	3811.7	11 19 54	18 28	20 02	4 52	6 25	7 21	16 12	20 20	7 26	95	13 16.2	-10 16
Fri Mar 17/Sat Mar 18	3812.7	11 23 51	18 30	20 03	4 50	6 23	7 27	16 14	21 26	.....	90	14 01.6	-15 41
Sat Mar 18/Sun Mar 19	3813.7	11 27 47	18 31	20 05	4 48	6 21	7 32	16 16	22 34	.....	84	14 49.8	-20 32
Sun Mar 19/Mon Mar 20	3814.7	11 31 44	18 32	20 06	4 46	6 20	7 37	16 18	23 44	.....	75	15 41.5	-24 36
Mon Mar 20/Tue Mar 21	3815.7	11 35 40	18 33	20 07	4 44	6 18	7 43	16 20	0 54	.....	66	16 37.2	-27 33
Tue Mar 21/Wed Mar 22	3816.7	11 39 37	18 34	20 09	4 42	6 16	7 48	16 22	2 01	.....	56	17 36.3	-29 05
Wed Mar 22/Thu Mar 23	3817.7	11 43 33	18 36	20 10	4 40	6 14	7 53	16 24	3 00	.....	45	18 37.6	-29 00
Thu Mar 23/Fri Mar 24	3818.7	11 47 30	18 37	20 12	4 38	6 12	7 59	16 26	3 48	.....	34	19 39.4	-27 10
Fri Mar 24/Sat Mar 25	3819.7	11 51 26	18 38	20 13	4 36	6 11	8 04	16 28	4 27	.....	24	20 39.8	-23 38
Sat Mar 25/Sun Mar 26	3820.7	11 55 23	18 39	20 14	4 34	6 09	8 09	16 30	4 58	.....	15	21 37.8	-18 38
Sun Mar 26/Mon Mar 27	3821.7	11 59 20	18 40	20 16	4 32	6 07	8 15	16 32	5 23	.....	7	22 33.3	-12 31
Mon Mar 27/Tue Mar 28	3822.7	12 03 16	18 42	20 17	4 30	6 05	8 20	16 34	5 46	.....	2	23 26.8	- 5 40
Tue Mar 28/Wed Mar 29	3823.7	12 07 13	18 43	20 19	4 28	6 03	8 25	16 36	6 08	18 03	0	0 19.2	1 28
Wed Mar 29/Thu Mar 30	3824.7	12 11 09	18 44	20 20	4 26	6 02	8 31	16 38	6 30	19 24	1	1 11.6	8 27
Thu Mar 30/Fri Mar 31	3825.7	12 15 06	18 45	20 22	4 24	6 00	8 36	16 39	6 55	20 44	4	2 05.1	14 50
Fri Mar 31/Sat Apr 01	3826.7	12 19 02	18 46	20 23	4 22	5 58	8 42	16 41	.....	22 05	10	3 00.3	20 16

***** 2006 APRIL *****

Date (eve/morn) (2006 at start)	JDmid (-2450000)	LMSTmidn	Sun: -----				LST twilight:		Moon: -----				
			set	twi.end	twi.beg	rise	eve	morn	rise	set	%illum	RA	Dec
Sat Apr 01/Sun Apr 02*	3827.7	12 22 59	18 48	20 25	5 20	6 56	8 47	16 43	.....	23 23	18	3 57.3	24 24
Sun Apr 02/Mon Apr 03	3828.7	11 26 46	19 49	21 26	5 17	6 55	8 52	16 45	.....	1 35	26	4 52.9	27 02
Mon Apr 03/Tue Apr 04	3829.7	11 30 42	19 50	21 28	5 15	6 53	8 58	16 47	.....	2 38	36	5 51.5	28 10
Tue Apr 04/Wed Apr 05	3830.7	11 34 39	19 51	21 29	5 13	6 51	9 03	16 49	.....	3 28	46	6 48.8	27 43
Wed Apr 05/Thu Apr 06	3831.7	11 38 35	19 52	21 31	5 11	6 49	9 09	16 51	.....	4 08	56	7 43.7	25 51
Thu Apr 06/Fri Apr 07	3832.7	11 42 32	19 54	21 32	5 09	6 47	9 14	16 52	.....	4 39	66	8 35.4	22 47
Fri Apr 07/Sat Apr 08	3833.7	11 46 28	19 55	21 34	5 07	6 46	9 20	16 54	.....	5 03	74	9 23.9	18 46
Sat Apr 08/Sun Apr 09	3834.7	11 50 25	19 56	21 35	5 05	6 44	9 25	16 56	.....	5 24	82	10 09.7	14 01
Sun Apr 09/Mon Apr 10	3835.7	11 54 21	19 57	21 37	5 03	6 42	9 31	16 58	.....	5 42	89	10 53.6	8 43
Mon Apr 10/Tue Apr 11	3836.7	11 58 18	19 58	21 38	5 01	6 41	9 36	17 00	.....	5 58	94	11 36.3	3 04
Tue Apr 11/Wed Apr 12	3837.7	12 02 15	20 00	21 40	4 59	6 39	9 42	17 02	18 08	6 15	98	12 18.8	- 2 44
Wed Apr 12/Thu Apr 13	3838.7	12 06 11	20 01	21 42	4 56	6 37	9 47	17 03	19 11	6 32	100	13 02.2	- 8 32
Thu Apr 13/Fri Apr 14	3839.7	12 10 08	20 02	21 43	4 54	6 35	9 53	17 05	20 16	.....	100	13 47.3	-14 07
Fri Apr 14/Sat Apr 15	3840.7	12 14 04	20 03	21 45	4 52	6 34	9 59	17 07	21 24	.....	98	14 35.1	-19 13
Sat Apr 15/Sun Apr 16	3841.7	12 18 01	20 04	21 46	4 50	6 32	10 04	17 09	22 34	.....	94	15 26.4	-23 35
Sun Apr 16/Mon Apr 17	3842.7	12 21 57	20 06	21 48	4 48	6 30	10 10	17 11	23 45	.....	88	16 21.4	-26 53
Mon Apr 17/Tue Apr 18	3843.7	12 25 54	20 07	21 50	4 46	6 29	10 15	17 13	0 54	.....	80	17 19.8	-28 50
Tue Apr 18/Wed Apr 19	3844.7	12 29 50	20 08	21 51	4 44	6 27	10 21	17 14	1 55	.....	71	18 20.4	-29 13
Wed Apr 19/Thu Apr 20	3845.7	12 33 47	20 09	21 53	4 42	6 26	10 27	17 16	2 46	.....	60	19 21.4	-27 53
Thu Apr 20/Fri Apr 21	3846.7	12 37 44	20 10	21 55	4 39	6 24	10 32	17 18	3 26	.....	49	20 21.0	-24 55
Fri Apr 21/Sat Apr 22	3847.7	12 41 40	20 12	21 57	4 37	6 22	10 38	17 20	3 58	.....	38	21 18.3	-20 30
Sat Apr 22/Sun Apr 23	3848.7	12 45 37	20 13	21 58	4 35	6 21	10 44	17 22	4 25	.....	27	22 12.8	-14 55
Sun Apr 23/Mon Apr 24	3849.7	12 49 33	20 14	22 00	4 33	6 19	10 49	17 23	4 48	.....	18	23 05.3	- 8 31
Mon Apr 24/Tue Apr 25	3850.7	12 53 30	20 15	22 02	4 31	6 18	10 55	17 25	5 09	.....	10	23 56.6	- 1 40
Tue Apr 25/Wed Apr 26	3851.7	12 57 26	20 16	22 04	4 29	6 16	11 01	17 27	5 31	17 56	4	0 47.8	5 16
Wed Apr 26/Thu Apr 27	3852.7	13 01 23	20 17	22 05	4 27	6 15	11 06	17 29	5 54	19 15	1	1 40.1	11 53
Thu Apr 27/Fri Apr 28	3853.7	13 05 19	20 19	22 07	4 25	6 13	11 12	17 31	6 21	20 36	0	2 34.3	17 46
Fri Apr 28/Sat Apr 29	3854.7	13 09 16	20 20	22 09	4 23	6 12	11 18	17 33	.....	21 56	2	3 30.9	22 33
Sat Apr 29/Sun Apr 30	3855.7	13 13 13	20 21	22 11	4 21	6 10	11 24	17 35	.....	23 13	7	4 29.6	25 55
Sun Apr 30/Mon May 01	3856.7	13 17 09	20 22	22 12	4 19	6 09	11 29	17 37	.....	0 22	13	5 29.2	27 40

Calendar for Mississauga, west longitude (h.m.s) = 5 18 39, latitude (d.m) = 43 35.2
 Note that each line lists events of one night, spanning two calendar dates. Rise/set times are given
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***** 2006 MAY *****

Date (eve/morn) (2006 at start)	JDmid (-2450000)	LMSTmidn	Sun: -----				LST twilight:		Moon: -----				
			set	twi.end	twi.beg	rise	eve	morn	rise	set	%illum	RA	Dec
Mon May 01/Tue May 02	3857.7	13 21 06	20 23	22 14	4 17	6 07	11 35	17 38	.....	1 19	21	6 28.1	27 47
Tue May 02/Wed May 03	3858.7	13 25 02	20 25	22 16	4 15	6 06	11 41	17 40	.....	2 04	30	7 24.8	26 23
Wed May 03/Thu May 04	3859.7	13 28 59	20 26	22 18	4 13	6 05	11 47	17 42	.....	2 39	39	8 18.2	23 40
Thu May 04/Fri May 05	3860.7	13 32 55	20 27	22 20	4 11	6 03	11 52	17 44	.....	3 06	49	9 08.1	19 55
Fri May 05/Sat May 06	3861.7	13 36 52	20 28	22 22	4 09	6 02	11 58	17 46	.....	3 28	59	9 54.8	15 23
Sat May 06/Sun May 07	3862.7	13 40 48	20 29	22 23	4 07	6 01	12 04	17 48	.....	3 47	68	10 39.1	10 15
Sun May 07/Mon May 08	3863.7	13 44 45	20 30	22 25	4 05	5 59	12 10	17 50	.....	4 04	76	11 21.9	4 44
Mon May 08/Tue May 09	3864.7	13 48 42	20 32	22 27	4 03	5 58	12 16	17 52	.....	4 20	84	12 04.3	- 1 01
Tue May 09/Wed May 10	3865.7	13 52 38	20 33	22 29	4 01	5 57	12 21	17 54	.....	4 37	91	12 47.3	- 6 49
Wed May 10/Thu May 11	3866.7	13 56 35	20 34	22 31	3 59	5 56	12 27	17 56	18 04	4 56	95	13 32.0	-12 29
Thu May 11/Fri May 12	3867.7	14 00 31	20 35	22 33	3 57	5 55	12 33	17 58	19 11	5 18	99	14 19.3	-17 47
Fri May 12/Sat May 13	3868.7	14 04 28	20 36	22 34	3 55	5 53	12 39	18 00	20 21	5 45	100	15 10.2	-22 27
Sat May 13/Sun May 14	3869.7	14 08 24	20 37	22 36	3 53	5 52	12 44	18 02	21 33	6 20	99	16 05.2	-26 08
Sun May 14/Mon May 15	3870.7	14 12 21	20 38	22 38	3 51	5 51	12 50	18 04	22 44	.....	96	17 03.9	-28 31
Mon May 15/Tue May 16	3871.7	14 16 17	20 39	22 40	3 50	5 50	12 56	18 07	23 48	.....	90	18 05.3	-29 18
Tue May 16/Wed May 17	3872.7	14 20 14	20 40	22 42	3 48	5 49	13 02	18 09	0 43	.....	83	19 07.3	-28 21
Wed May 17/Thu May 18	3873.7	14 24 11	20 42	22 44	3 46	5 48	13 08	18 11	1 27	.....	74	20 07.9	-25 42
Thu May 18/Fri May 19	3874.7	14 28 07	20 43	22 45	3 44	5 47	13 13	18 13	2 01	.....	63	21 05.7	-21 34
Fri May 19/Sat May 20	3875.7	14 32 04	20 44	22 47	3 43	5 46	13 19	18 15	2 29	.....	52	22 00.4	-16 16
Sat May 20/Sun May 21	3876.7	14 36 00	20 45	22 49	3 41	5 45	13 25	18 18	2 52	.....	41	22 52.4	-10 09
Sun May 21/Mon May 22	3877.7	14 39 57	20 46	22 51	3 39	5 44	13 31	18 20	3 13	.....	30	23 42.7	- 3 32
Mon May 22/Tue May 23	3878.7	14 43 53	20 47	22 53	3 38	5 44	13 36	18 22	3 34	.....	20	0 32.6	3 13
Tue May 23/Wed May 24	3879.7	14 47 50	20 48	22 54	3 36	5 43	13 42	18 25	3 56	.....	12	1 23.1	9 45
Wed May 24/Thu May 25	3880.7	14 51 46	20 49	22 56	3 35	5 42	13 48	18 27	4 20	18 13	5	2 15.5	15 45
Thu May 25/Fri May 26	3881.7	14 55 43	20 50	22 58	3 33	5 41	13 53	18 30	4 50	19 32	2	3 10.3	20 50
Fri May 26/Sat May 27	3882.7	14 59 40	20 51	22 59	3 32	5 41	13 59	18 32	5 28	20 50	0	4 07.7	24 40
Sat May 27/Sun May 28	3883.7	15 03 36	20 52	23 01	3 30	5 40	14 04	18 35	6 15	22 02	1	5 06.9	26 59
Sun May 28/Mon May 29	3884.7	15 07 33	20 52	23 03	3 29	5 39	14 10	18 37	.....	23 06	4	6 06.4	27 41
Mon May 29/Tue May 30	3885.7	15 11 29	20 53	23 04	3 28	5 39	14 15	18 40	.....	23 56	10	7 04.3	26 46
Tue May 30/Wed May 31	3886.7	15 15 26	20 54	23 06	3 27	5 38	14 21	18 43	.....	0 36	16	7 59.3	24 28
Wed May 31/Thu Jun 01	3887.7	15 19 22	20 55	23 07	3 25	5 38	14 26	18 45	.....	1 06	24	8 50.8	21 01

***** 2006 JUNE *****

Date (eve/morn) (2006 at start)	JDmid (-2450000)	LMSTmidn	Sun: -----				LST twilight:		Moon: -----				
			set	twi.end	twi.beg	rise	eve	morn	rise	set	%illum	RA	Dec
Thu Jun 01/Fri Jun 02	3888.7	15 23 19	20 56	23 09	3 24	5 37	14 32	18 48	.....	1 30	33	9 38.7	16 41
Fri Jun 02/Sat Jun 03	3889.7	15 27 15	20 57	23 10	3 23	5 37	14 37	18 51	.....	1 50	42	10 23.8	11 44
Sat Jun 03/Sun Jun 04	3890.7	15 31 12	20 57	23 11	3 22	5 36	14 42	18 54	.....	2 08	52	11 06.9	6 21
Sun Jun 04/Mon Jun 05	3891.7	15 35 09	20 58	23 13	3 21	5 36	14 48	18 57	.....	2 25	61	11 49.1	0 43
Mon Jun 05/Tue Jun 06	3892.7	15 39 05	20 59	23 14	3 20	5 35	14 53	19 00	.....	2 41	70	12 31.4	- 5 01
Tue Jun 06/Wed Jun 07	3893.7	15 43 02	21 00	23 15	3 19	5 35	14 58	19 03	.....	2 59	79	13 15.1	-10 41
Wed Jun 07/Thu Jun 08	3894.7	15 46 58	21 00	23 16	3 19	5 35	15 03	19 06	.....	3 20	86	14 01.2	-16 06
Thu Jun 08/Fri Jun 09	3895.7	15 50 55	21 01	23 18	3 18	5 35	15 08	19 09	18 04	3 45	92	14 50.8	-21 00
Fri Jun 09/Sat Jun 10	3896.7	15 54 51	21 01	23 19	3 17	5 34	15 13	19 13	19 15	4 17	97	15 44.6	-25 04
Sat Jun 10/Sun Jun 11	3897.7	15 58 48	21 02	23 20	3 17	5 34	15 18	19 16	20 28	4 59	99	16 43.0	-27 57
Sun Jun 11/Mon Jun 12	3898.7	16 02 44	21 03	23 21	3 16	5 34	15 23	19 19	21 36	5 53	99	17 44.9	-29 16
Mon Jun 12/Tue Jun 13	3899.7	16 06 41	21 03	23 21	3 16	5 34	15 28	19 23	22 36	.....	97	18 48.5	-28 49
Tue Jun 13/Wed Jun 14	3900.7	16 10 38	21 04	23 22	3 15	5 34	15 33	19 27	23 25	.....	92	19 51.3	-26 33
Wed Jun 14/Thu Jun 15	3901.7	16 14 34	21 04	23 23	3 15	5 34	15 37	19 30	0 02	.....	85	20 51.3	-22 39
Thu Jun 15/Fri Jun 16	3902.7	16 18 31	21 05	23 24	3 15	5 34	15 42	19 34	0 32	.....	76	21 47.8	-17 29
Fri Jun 16/Sat Jun 17	3903.7	16 22 27	21 05	23 24	3 15	5 34	15 46	19 38	0 57	.....	66	22 41.0	-11 25
Sat Jun 17/Sun Jun 18	3904.7	16 26 24	21 05	23 25	3 15	5 34	15 51	19 42	1 18	.....	55	23 31.8	- 4 51
Sun Jun 18/Mon Jun 19	3905.7	16 30 20	21 06	23 25	3 15	5 34	15 55	19 46	1 39	.....	43	0 21.4	1 51
Mon Jun 19/Tue Jun 20	3906.7	16 34 17	21 06	23 25	3 15	5 34	16 00	19 50	2 00	.....	32	1 11.1	8 23
Tue Jun 20/Wed Jun 21	3907.7	16 38 13	21 06	23 26	3 15	5 35	16 04	19 54	2 23	.....	22	2 02.1	14 24
Wed Jun 21/Thu Jun 22	3908.7	16 42 10	21 06	23 26	3 15	5 35	16 08	19 58	2 50	.....	14	2 55.2	19 36
Thu Jun 22/Fri Jun 23	3909.7	16 46 07	21 07	23 26	3 15	5 35	16 12	20 02	3 24	18 33	7	3 50.8	23 42
Fri Jun 23/Sat Jun 24	3910.7	16 50 03	21 07	23 26	3 16	5 35	16 16	20 06	4 07	19 47	3	4 48.6	26 23
Sat Jun 24/Sun Jun 25	3911.7	16 54 00	21 07	23 26	3 16	5 36	16 20	20 11	4 59	20 53	0	5 47.4	27 32
Sun Jun 25/Mon Jun 26	3912.7	16 57 56	21 07	23 26	3 17	5 36	16 24	20 15	6 01	21 48	0	6 45.5	27 05
Mon Jun 26/Tue Jun 27	3913.7	17 01 53	21 07	23 26	3 17	5 36	16 28	20 20	.....	22 32	2	7 41.4	25 10
Tue Jun 27/Wed Jun 28	3914.7	17 05 49	21 07	23 26	3 18	5 37	16 31	20 25	.....	23 06	6	8 33.9	22 02
Wed Jun 28/Thu Jun 29	3915.7	17 09 46	21 07	23 25	3 19	5 37	16 35	20 29	.....	23 32	12	9 22.9	17 56
Thu Jun 29/Fri Jun 30	3916.7	17 13 42	21 07	23 25	3 20	5 38	16 38	20 34	.....	23 54	19	10 08.8	13 09
Fri Jun 30/Sat Jul 01	3917.7	17 17 39	21 07	23 24	3 21	5 38	16 42	20 39	.....	0 12	27	10 52.3	7 53

Calendar for Mississauga, west longitude (h.m.s) = 5 18 39, latitude (d.m) = 43 35.2
 Note that each line lists events of one night, spanning two calendar dates. Rise/set times are given
 in Eastern time (5 hr W), for 173 m above surroundings, DAYLIGHT time used, * shows night clocks are reset.
 Moon coords. and illum. are for local midnight, even if moon is down. Program: John Thorstensen, Dartmouth College.

***** 2006 JULY *****

Date (eve/morn) (2006 at start)		JDmid (-2450000)	LMSTmidn	Sun: -----				LST twilight:		Moon: -----				
				set	twi.end	twi.beg	rise	eve	morn	rise	set	%illum	RA	Dec
Sat Jul 01/Sun Jul 02	3918.7	17 21 36	21 06	23 24	3 22	5 39	16 45	20 44	.....	0 29	35	11 34.4	2 21
Sun Jul 02/Mon Jul 03	3919.7	17 25 32	21 06	23 23	3 23	5 39	16 49	20 49	.....	0 45	45	12 16.2	- 3 19
Mon Jul 03/Tue Jul 04	3920.7	17 29 29	21 06	23 23	3 24	5 40	16 52	20 54	.....	1 03	54	12 58.7	- 8 57
Tue Jul 04/Wed Jul 05	3921.7	17 33 25	21 06	23 22	3 25	5 41	16 55	20 59	.....	1 22	64	13 43.2	-14 23
Wed Jul 05/Thu Jul 06	3922.7	17 37 22	21 05	23 21	3 26	5 41	16 58	21 04	.....	1 44	73	14 30.7	-19 24
Thu Jul 06/Fri Jul 07	3923.7	17 41 18	21 05	23 20	3 27	5 42	17 01	21 09	.....	2 13	82	15 22.3	-23 46
Fri Jul 07/Sat Jul 08	3924.7	17 45 15	21 05	23 19	3 28	5 43	17 04	21 14	18 07	2 49	89	16 18.6	-27 06	
Sat Jul 08/Sun Jul 09	3925.7	17 49 11	21 04	23 18	3 30	5 43	17 07	21 19	19 18	3 38	95	17 19.3	-29 03	
Sun Jul 09/Mon Jul 10	3926.7	17 53 08	21 04	23 17	3 31	5 44	17 10	21 25	20 23	4 41	99	18 23.2	-29 16	
Mon Jul 10/Tue Jul 11	3927.7	17 57 05	21 03	23 16	3 32	5 45	17 13	21 30	21 17	5 55	100	19 27.7	-27 37	
Tue Jul 11/Wed Jul 12	3928.7	18 01 01	21 03	23 15	3 34	5 46	17 16	21 36	21 59	.....	98	20 30.5	-24 08
Wed Jul 12/Thu Jul 13	3929.7	18 04 58	21 02	23 14	3 35	5 47	17 18	21 41	22 33	.....	94	21 29.9	-19 09
Thu Jul 13/Fri Jul 14	3930.7	18 08 54	21 02	23 12	3 37	5 48	17 21	21 46	23 00	.....	87	22 25.8	-13 05
Fri Jul 14/Sat Jul 15	3931.7	18 12 51	21 01	23 11	3 38	5 48	17 24	21 52	23 23	.....	78	23 18.6	- 6 24
Sat Jul 15/Sun Jul 16	3932.7	18 16 47	21 00	23 10	3 40	5 49	17 26	21 57	23 44	.....	68	0 09.6	0 29
Sun Jul 16/Mon Jul 17	3933.7	18 20 44	21 00	23 08	3 42	5 50	17 29	22 03	0 05	.....	57	1 00.0	7 11
Mon Jul 17/Tue Jul 18	3934.7	18 24 40	20 59	23 07	3 43	5 51	17 31	22 09	0 27	.....	46	1 51.0	13 23
Tue Jul 18/Wed Jul 19	3935.7	18 28 37	20 58	23 05	3 45	5 52	17 34	22 14	0 53	.....	35	2 43.6	18 07
Wed Jul 19/Thu Jul 20	3936.7	18 32 34	20 57	23 04	3 47	5 53	17 36	22 20	1 24	.....	25	3 38.3	23 44
Thu Jul 20/Fri Jul 21	3937.7	18 36 30	20 57	23 02	3 48	5 54	17 38	22 25	2 03	17 37	16	4 35.0	26 02	
Fri Jul 21/Sat Jul 22	3938.7	18 40 27	20 56	23 00	3 50	5 55	17 41	22 31	2 52	18 44	9	5 32.9	27 29	
Sat Jul 22/Sun Jul 23	3939.7	18 44 23	20 55	22 59	3 52	5 56	17 43	22 37	3 50	19 43	4	6 30.6	27 23	
Sun Jul 23/Mon Jul 24	3940.7	18 48 20	20 54	22 57	3 54	5 57	17 45	22 42	4 55	20 29	1	7 26.4	25 50	
Mon Jul 24/Tue Jul 25	3941.7	18 52 16	20 53	22 55	3 55	5 58	17 47	22 48	6 03	21 06	0	8 19.4	22 59	
Tue Jul 25/Wed Jul 26	3942.7	18 56 13	20 52	22 54	3 57	5 59	17 50	22 54	.....	21 35	1	9 09.0	19 07
Wed Jul 26/Thu Jul 27	3943.7	19 00 09	20 51	22 52	3 59	6 00	17 52	23 00	.....	21 58	4	9 55.5	14 29
Thu Jul 27/Fri Jul 28	3944.7	19 04 06	20 50	22 50	4 01	6 01	17 54	23 05	.....	22 17	8	10 39.5	9 20
Fri Jul 28/Sat Jul 29	3945.7	19 08 03	20 49	22 48	4 02	6 02	17 56	23 11	.....	22 34	14	11 21.7	3 52
Sat Jul 29/Sun Jul 30	3946.7	19 11 59	20 48	22 46	4 04	6 03	17 58	23 17	.....	22 50	21	12 03.1	- 1 45
Sun Jul 30/Mon Jul 31	3947.7	19 15 56	20 46	22 45	4 06	6 04	18 00	23 23	.....	23 07	29	12 44.8	- 7 21
Mon Jul 31/Tue Aug 01	3948.7	19 19 52	20 45	22 43	4 08	6 05	18 02	23 28	.....	23 25	38	13 27.8	-12 47

***** 2006 AUGUST *****

Date (eve/morn) (2006 at start)		JDmid (-2450000)	LMSTmidn	Sun: -----				LST twilight:		Moon: -----				
				set	twi.end	twi.beg	rise	eve	morn	rise	set	%illum	RA	Dec
Tue Aug 01/Wed Aug 02	3949.7	19 23 49	20 44	22 41	4 10	6 06	18 04	23 34	.....	23 45	48	14 13.3	-17 53
Wed Aug 02/Thu Aug 03	3950.7	19 27 45	20 43	22 39	4 11	6 07	18 06	23 40	.....	0 10	58	15 02.2	-22 24
Thu Aug 03/Fri Aug 04	3951.7	19 31 42	20 41	22 37	4 13	6 08	18 08	23 46	.....	0 42	67	15 55.4	-26 04
Fri Aug 04/Sat Aug 05	3952.7	19 35 38	20 40	22 35	4 15	6 10	18 10	23 51	.....	1 25	77	16 53.3	-28 33
Sat Aug 05/Sun Aug 06	3953.7	19 39 35	20 39	22 33	4 17	6 11	18 12	23 57	18 05	2 20	85	17 55.1	-29 29	
Sun Aug 06/Mon Aug 07	3954.7	19 43 32	20 38	22 31	4 18	6 12	18 14	0 03	19 04	3 29	92	18 59.2	-28 37	
Mon Aug 07/Tue Aug 08	3955.7	19 47 28	20 36	22 29	4 20	6 13	18 16	0 08	19 52	4 48	97	20 03.1	-25 52	
Tue Aug 08/Wed Aug 09	3956.7	19 51 25	20 35	22 27	4 22	6 14	18 18	0 14	20 30	6 11	100	21 04.9	-21 23	
Wed Aug 09/Thu Aug 10	3957.7	19 55 21	20 33	22 25	4 24	6 15	18 20	0 20	21 00	.....	99	22 03.5	-15 32
Thu Aug 10/Fri Aug 11	3958.7	19 59 18	20 32	22 23	4 26	6 16	18 22	0 26	21 25	.....	96	22 59.0	- 8 48
Fri Aug 11/Sat Aug 12	3959.7	20 03 14	20 31	22 21	4 27	6 17	18 24	0 31	21 47	.....	89	23 52.4	- 1 39
Sat Aug 12/Sun Aug 13	3960.7	20 07 11	20 29	22 19	4 29	6 19	18 26	0 37	22 08	.....	81	0 44.7	5 26
Sun Aug 13/Mon Aug 14	3961.7	20 11 07	20 28	22 17	4 31	6 20	18 27	0 43	22 31	.....	71	1 37.1	12 02
Mon Aug 14/Tue Aug 15	3962.7	20 15 04	20 26	22 14	4 32	6 21	18 29	0 48	22 56	.....	60	2 30.7	17 49
Tue Aug 15/Wed Aug 16	3963.7	20 19 01	20 25	22 12	4 34	6 22	18 31	0 54	23 25	.....	49	3 25.9	22 28
Wed Aug 16/Thu Aug 17	3964.7	20 22 57	20 23	22 10	4 36	6 23	18 33	1 00	0 02	.....	38	4 22.9	25 45
Thu Aug 17/Fri Aug 18	3965.7	20 26 54	20 22	22 08	4 38	6 24	18 35	1 05	0 48	.....	28	5 20.8	27 31
Fri Aug 18/Sat Aug 19	3966.7	20 30 50	20 20	22 06	4 39	6 25	18 37	1 11	1 43	17 39	19	6 18.4	27 43	
Sat Aug 19/Sun Aug 20	3967.7	20 34 47	20 18	22 04	4 41	6 26	18 38	1 16	2 46	18 29	12	7 14.4	26 27	
Sun Aug 20/Mon Aug 21	3968.7	20 38 43	20 17	22 02	4 42	6 28	18 40	1 22	3 53	19 08	6	8 07.6	23 52	
Mon Aug 21/Tue Aug 22	3969.7	20 42 40	20 15	22 00	4 44	6 29	18 42	1 28	5 00	19 38	2	8 57.5	20 13	
Tue Aug 22/Wed Aug 23	3970.7	20 46 36	20 14	21 58	4 46	6 30	18 44	1 33	6 07	20 03	0	9 44.4	15 45	
Wed Aug 23/Thu Aug 24	3971.7	20 50 33	20 12	21 55	4 47	6 31	18 46	1 39	.....	20 23	0	10 28.6	10 43
Thu Aug 24/Fri Aug 25	3972.7	20 54 30	20 10	21 53	4 49	6 32	18 47	1 44	.....	20 40	2	11 10.9	5 18
Fri Aug 25/Sat Aug 26	3973.7	20 58 26	20 09	21 51	4 51	6 33	18 49	1 50	.....	20 57	5	11 52.3	- 0 17
Sat Aug 26/Sun Aug 27	3974.7	21 02 23	20 07	21 49	4 52	6 34	18 51	1 55	.....	21 13	10	12 33.6	- 5 54
Sun Aug 27/Mon Aug 28	3975.7	21 06 19	20 05	21 47	4 54	6 35	18 53	2 01	.....	21 30	16	13 15.8	-11 21
Mon Aug 28/Tue Aug 29	3976.7	21 10 16	20 03	21 45	4 55	6 37	18 55	2 06	.....	21 49	24	13 59.8	-16 30
Tue Aug 29/Wed Aug 30	3977.7	21 14 12	20 02	21 43	4 57	6 38	18 56	2 12	.....	22 12	32	14 46.7	-21 07
Wed Aug 30/Thu Aug 31	3978.7	21 18 09	20 00	21 40	4 58	6 39	18 58	2 17	.....	22 40	42	15 37.3	-25 00
Thu Aug 31/Fri Sep 01	3979.7	21 22 05	19 58	21 38	5 00	6 40	19 00	2 23	.....	23 17	52	16 32.0	-27 50

Calendar for Mississauga, west longitude (h.m.s) = 5 18 39, latitude (d.m) = 43 35.2
 Note that each line lists events of one night, spanning two calendar dates. Rise/set times are given
 in Eastern time (5 hr W), for 173 m above surroundings, DAYLIGHT time used, * shows night clocks are reset.
 Moon coords. and illum. are for local midnight, even if moon is down. Program: John Thorstensen, Dartmouth College.

***** 2006 SEPTEMBER *****

Date (eve/morn) (2006 at start)	JDmid (-2450000)	LMSTmidn	----- Sun: -----				LST twilight:		----- Moon: -----				
			set	twi.end	twi.beg	rise	eve	morn	rise	set	%illum	RA	Dec
Fri Sep 01/Sat Sep 02	3980.7	21 26 02	19 57	21 36	5 01	6 41	19 02	2 28	.....	0 05	62	17 30.6	-29 20
Sat Sep 02/Sun Sep 03	3981.7	21 29 59	19 55	21 34	5 03	6 42	19 04	2 34	.....	1 06	72	18 32.2	-29 12
Sun Sep 03/Mon Sep 04	3982.7	21 33 55	19 53	21 32	5 04	6 43	19 05	2 39	17 42	2 19	82	19 34.8	-27 17
Mon Sep 04/Tue Sep 05	3983.7	21 37 52	19 51	21 30	5 06	6 44	19 07	2 44	18 23	3 39	90	20 36.5	-23 36
Tue Sep 05/Wed Sep 06	3984.7	21 41 48	19 49	21 28	5 07	6 45	19 09	2 50	18 57	5 03	96	21 36.2	-18 21
Wed Sep 06/Thu Sep 07	3985.7	21 45 45	19 48	21 25	5 09	6 47	19 11	2 55	19 24	6 26	99	22 33.3	-11 55
Thu Sep 07/Fri Sep 08	3986.7	21 49 41	19 46	21 23	5 10	6 48	19 13	3 01	19 48	.....	100	23 28.4	- 4 45
Fri Sep 08/Sat Sep 09	3987.7	21 53 38	19 44	21 21	5 12	6 49	19 14	3 06	20 10	.....	97	0 22.5	2 39
Sat Sep 09/Sun Sep 10	3988.7	21 57 34	19 42	21 19	5 13	6 50	19 16	3 11	20 32	.....	91	1 16.6	9 45
Sun Sep 10/Mon Sep 11	3989.7	22 01 31	19 40	21 17	5 14	6 51	19 18	3 17	20 56	.....	83	2 11.8	16 07
Mon Sep 11/Tue Sep 12	3990.7	22 05 28	19 39	21 15	5 16	6 52	19 20	3 22	21 25	.....	74	3 08.7	21 22
Tue Sep 12/Wed Sep 13	3991.7	22 09 24	19 37	21 13	5 17	6 53	19 22	3 27	22 00	.....	63	4 07.2	25 12
Wed Sep 13/Thu Sep 14	3992.7	22 13 21	19 35	21 11	5 19	6 54	19 24	3 33	22 43	.....	53	5 06.5	27 25
Thu Sep 14/Fri Sep 15	3993.7	22 17 17	19 33	21 09	5 20	6 56	19 25	3 38	23 37	.....	42	6 05.5	28 00
Fri Sep 15/Sat Sep 16	3994.7	22 21 14	19 31	21 07	5 21	6 57	19 27	3 43	0 38	.....	32	7 02.5	27 01
Sat Sep 16/Sun Sep 17	3995.7	22 25 10	19 29	21 05	5 23	6 58	19 29	3 49	1 44	17 10	23	7 56.6	24 41
Sun Sep 17/Mon Sep 18	3996.7	22 29 07	19 28	21 03	5 24	6 59	19 31	3 54	2 52	17 43	16	8 47.2	21 14
Mon Sep 18/Tue Sep 19	3997.7	22 33 03	19 26	21 00	5 25	7 00	19 33	3 59	3 58	18 08	9	9 34.5	16 56
Tue Sep 19/Wed Sep 20	3998.7	22 37 00	19 24	20 58	5 27	7 01	19 35	4 04	5 03	18 29	5	10 19.0	12 01
Wed Sep 20/Thu Sep 21	3999.7	22 40 57	19 22	20 56	5 28	7 02	19 37	4 10	6 06	18 47	2	11 01.5	6 42
Thu Sep 21/Fri Sep 22	4000.7	22 44 53	19 20	20 54	5 29	7 03	19 39	4 15	7 08	19 04	0	11 42.9	1 08
Fri Sep 22/Sat Sep 23	4001.7	22 48 50	19 18	20 52	5 30	7 05	19 41	4 20	.....	19 20	0	12 24.1	- 4 29
Sat Sep 23/Sun Sep 24	4002.7	22 52 46	19 17	20 50	5 32	7 06	19 43	4 25	.....	19 37	3	13 05.9	- 9 59
Sun Sep 24/Mon Sep 25	4003.7	22 56 43	19 15	20 48	5 33	7 07	19 45	4 31	.....	19 55	6	13 49.3	-15 12
Mon Sep 25/Tue Sep 26	4004.7	23 00 39	19 13	20 47	5 34	7 08	19 47	4 36	.....	20 17	12	14 35.2	-19 57
Tue Sep 26/Wed Sep 27	4005.7	23 04 36	19 11	20 45	5 36	7 09	19 49	4 41	.....	20 43	19	15 24.2	-23 59
Wed Sep 27/Thu Sep 28	4006.7	23 08 32	19 09	20 43	5 37	7 10	19 51	4 46	.....	21 16	27	16 16.8	-27 03
Thu Sep 28/Fri Sep 29	4007.7	23 12 29	19 07	20 41	5 38	7 11	19 53	4 51	.....	21 58	36	17 12.9	-28 54
Fri Sep 29/Sat Sep 30	4008.7	23 16 26	19 06	20 39	5 39	7 13	19 55	4 57	.....	22 53	46	18 11.8	-29 17
Sat Sep 30/Sun Oct 01	4009.7	23 20 22	19 04	20 37	5 41	7 14	19 57	5 02	.....	23 59	57	19 12.0	-28 02

***** 2006 OCTOBER *****

Date (eve/morn) (2006 at start)	JDmid (-2450000)	LMSTmidn	----- Sun: -----				LST twilight:		----- Moon: -----				
			set	twi.end	twi.beg	rise	eve	morn	rise	set	%illum	RA	Dec
Sun Oct 01/Mon Oct 02	4010.7	23 24 19	19 02	20 35	5 42	7 15	19 59	5 07	.....	1 14	68	20 11.9	-25 07
Mon Oct 02/Tue Oct 03	4011.7	23 28 15	19 00	20 33	5 43	7 16	20 01	5 12	16 53	2 34	78	21 10.4	-20 38
Tue Oct 03/Wed Oct 04	4012.7	23 32 12	18 59	20 31	5 44	7 17	20 03	5 17	17 22	3 55	87	22 07.0	-14 50
Wed Oct 04/Thu Oct 05	4013.7	23 36 08	18 57	20 30	5 45	7 18	20 05	5 22	17 47	5 17	94	23 02.0	- 8 05
Thu Oct 05/Fri Oct 06	4014.7	23 40 05	18 55	20 28	5 47	7 20	20 07	5 28	18 10	6 38	99	23 56.1	- 0 47
Fri Oct 06/Sat Oct 07	4015.7	23 44 01	18 53	20 26	5 48	7 21	20 09	5 33	18 32	.....	100	0 50.5	6 34
Sat Oct 07/Sun Oct 08	4016.7	23 47 58	18 51	20 24	5 49	7 22	20 12	5 38	18 55	.....	98	1 46.3	13 28
Sun Oct 08/Mon Oct 09	4017.7	23 51 55	18 50	20 22	5 50	7 23	20 14	5 43	19 22	.....	94	2 44.1	19 25
Mon Oct 09/Tue Oct 10	4018.7	23 55 51	18 48	20 21	5 51	7 24	20 16	5 48	19 55	.....	87	3 44.2	24 00
Tue Oct 10/Wed Oct 11	4019.7	23 59 48	18 46	20 19	5 53	7 26	20 18	5 53	20 36	.....	78	4 45.7	26 56
Wed Oct 11/Thu Oct 12	4020.7	0 03 44	18 45	20 17	5 54	7 27	20 20	5 59	21 27	.....	68	5 47.1	28 05
Thu Oct 12/Fri Oct 13	4021.7	0 07 41	18 43	20 16	5 55	7 28	20 23	6 04	22 27	.....	58	6 46.7	27 32
Fri Oct 13/Sat Oct 14	4022.7	0 11 37	18 41	20 14	5 56	7 29	20 25	6 09	23 33	.....	48	7 42.9	25 30
Sat Oct 14/Sun Oct 15	4023.7	0 15 34	18 39	20 12	5 57	7 30	20 27	6 14	0 42	.....	38	8 35.2	22 16
Sun Oct 15/Mon Oct 16	4024.7	0 19 30	18 38	20 11	5 59	7 32	20 29	6 19	1 49	16 13	29	9 23.7	18 07
Mon Oct 16/Tue Oct 17	4025.7	0 23 27	18 36	20 09	6 00	7 33	20 32	6 24	2 54	16 35	21	10 08.9	13 19
Tue Oct 17/Wed Oct 18	4026.7	0 27 24	18 35	20 07	6 01	7 34	20 34	6 29	3 58	16 54	14	10 51.9	8 04
Wed Oct 18/Thu Oct 19	4027.7	0 31 20	18 33	20 06	6 02	7 35	20 37	6 34	5 00	17 11	8	11 33.4	2 34
Thu Oct 19/Fri Oct 20	4028.7	0 35 17	18 31	20 04	6 03	7 37	20 39	6 40	6 01	17 27	4	12 14.6	- 3 02
Fri Oct 20/Sat Oct 21	4029.7	0 39 13	18 30	20 03	6 04	7 38	20 41	6 45	7 04	17 44	1	12 56.3	- 8 34
Sat Oct 21/Sun Oct 22	4030.7	0 43 10	18 28	20 01	6 06	7 39	20 44	6 50	.....	18 02	0	13 39.4	-13 52
Sun Oct 22/Mon Oct 23	4031.7	0 47 06	18 27	20 00	6 07	7 40	20 46	6 55	.....	18 22	1	14 24.8	-18 44
Mon Oct 23/Tue Oct 24	4032.7	0 51 03	18 25	19 58	6 08	7 42	20 49	7 00	.....	18 47	4	15 13.2	-22 56
Tue Oct 24/Wed Oct 25	4033.7	0 54 59	18 24	19 57	6 09	7 43	20 51	7 05	.....	19 18	8	16 05.0	-26 14
Wed Oct 25/Thu Oct 26	4034.7	0 58 56	18 22	19 56	6 10	7 44	20 54	7 10	.....	19 57	14	17 00.0	-28 21
Thu Oct 26/Fri Oct 27	4035.7	1 02 53	18 21	19 54	6 11	7 45	20 56	7 15	.....	20 48	22	17 57.5	-29 04
Fri Oct 27/Sat Oct 28	4036.7	1 06 49	18 19	19 53	6 13	7 47	20 59	7 20	.....	21 49	31	18 56.2	-28 14
Sat Oct 28/Sun Oct 29*	4037.7	1 10 46	18 18	19 52	5 14	6 48	21 02	7 26	.....	23 00	41	19 54.6	-25 49
Sun Oct 29/Mon Oct 30	4038.7	2 14 52	17 16	18 50	5 15	6 49	21 04	7 31	.....	23 15	53	20 53.6	-21 41
Mon Oct 30/Tue Oct 31	4039.7	2 18 49	17 15	18 49	5 16	6 50	21 07	7 36	.....	0 33	64	21 48.4	-16 29
Tue Oct 31/Wed Nov 01	4040.7	2 22 45	17 13	18 48	5 17	6 52	21 10	7 41	.....	1 52	75	22 41.5	-10 18

Calendar for Mississauga, west longitude (h.m.s) = 5 18 39, latitude (d.m) = 43 35.2
 Note that each line lists events of one night, spanning two calendar dates. Rise/set times are given
 in Eastern time (5 hr W), for 173 m above surroundings, DAYLIGHT time used, * shows night clocks are reset.
 Moon coords. and illum. are for local midnight, even if moon is down. Program: John Thorstensen, Dartmouth College.

***** 2006 NOVEMBER *****

Date (eve/morn) (2006 at start)	JDmid (-2450000)	LMSTmidn	----- Sun: -----				LST twilight:		----- Moon: -----				
			set	twi.end	twi.beg	rise	eve	morn	rise	set	%illum	RA	Dec
Wed Nov 01/Thu Nov 02	4041.7	2 26 42	17 12	18 47	5 18	6 53	21 12	7 46	.....	3 10	84	23 33.9	- 3 27
Thu Nov 02/Fri Nov 03	4042.7	2 30 38	17 11	18 45	5 19	6 54	21 15	7 51	.....	4 30	92	0 26.6	3 42
Fri Nov 03/Sat Nov 04	4043.7	2 34 35	17 10	18 44	5 21	6 56	21 18	7 56	15 54	5 51	97	1 20.8	10 43
Sat Nov 04/Sun Nov 05	4044.7	2 38 31	17 08	18 43	5 22	6 57	21 21	8 01	16 19	7 15	100	2 17.6	17 05
Sun Nov 05/Mon Nov 06	4045.7	2 42 28	17 07	18 42	5 23	6 58	21 24	8 06	16 49	.....	99	3 17.4	22 21
Mon Nov 06/Tue Nov 07	4046.7	2 46 24	17 06	18 41	5 24	7 00	21 27	8 11	17 26	.....	96	4 19.9	26 03
Tue Nov 07/Wed Nov 08	4047.7	2 50 21	17 05	18 40	5 25	7 01	21 30	8 16	18 14	.....	90	5 23.6	27 56
Wed Nov 08/Thu Nov 09	4048.7	2 54 18	17 03	18 39	5 26	7 02	21 32	8 22	19 11	.....	83	6 26.2	27 58
Thu Nov 09/Fri Nov 10	4049.7	2 58 14	17 02	18 38	5 27	7 03	21 35	8 27	20 17	.....	74	7 25.7	26 19
Fri Nov 10/Sat Nov 11	4050.7	3 02 11	17 01	18 37	5 29	7 05	21 38	8 32	21 27	.....	64	8 20.9	23 18
Sat Nov 11/Sun Nov 12	4051.7	3 06 07	17 00	18 36	5 30	7 06	21 41	8 37	22 36	.....	54	9 11.6	19 16
Sun Nov 12/Mon Nov 13	4052.7	3 10 04	16 59	18 35	5 31	7 07	21 45	8 42	23 43	.....	45	9 58.5	14 31
Mon Nov 13/Tue Nov 14	4053.7	3 14 00	16 58	18 35	5 32	7 09	21 48	8 47	0 47	.....	35	10 42.4	9 18
Tue Nov 14/Wed Nov 15	4054.7	3 17 57	16 57	18 34	5 33	7 10	21 51	8 52	1 50	.....	27	11 24.5	3 49
Wed Nov 15/Thu Nov 16	4055.7	3 21 53	16 56	18 33	5 34	7 11	21 54	8 57	2 52	.....	19	12 05.9	- 1 46
Thu Nov 16/Fri Nov 17	4056.7	3 25 50	16 55	18 32	5 35	7 12	21 57	9 02	3 54	.....	12	12 47.5	- 7 19
Fri Nov 17/Sat Nov 18	4057.7	3 29 47	16 54	18 32	5 36	7 14	22 00	9 07	4 58	.....	7	13 30.4	-12 40
Sat Nov 18/Sun Nov 19	4058.7	3 33 43	16 53	18 31	5 37	7 15	22 04	9 12	6 04	15 27	3	14 15.5	-17 38
Sun Nov 19/Mon Nov 20	4059.7	3 37 40	16 53	18 30	5 38	7 16	22 07	9 17	7 12	15 50	1	15 03.6	-21 58
Mon Nov 20/Tue Nov 21	4060.7	3 41 36	16 52	18 30	5 40	7 18	22 10	9 22	8 20	16 19	0	15 55.2	-25 27
Tue Nov 21/Wed Nov 22	4061.7	3 45 33	16 51	18 29	5 41	7 19	22 14	9 27	.....	16 56	2	16 50.1	-27 46
Wed Nov 22/Thu Nov 23	4062.7	3 49 29	16 50	18 29	5 42	7 20	22 17	9 32	.....	17 44	5	17 47.6	-28 43
Thu Nov 23/Fri Nov 24	4063.7	3 53 26	16 50	18 28	5 43	7 21	22 21	9 37	.....	18 43	11	18 46.2	-28 07
Fri Nov 24/Sat Nov 25	4064.7	3 57 22	16 49	18 28	5 44	7 22	22 24	9 42	.....	19 52	18	19 44.4	-25 58
Sat Nov 25/Sun Nov 26	4065.7	4 01 19	16 49	18 27	5 45	7 24	22 28	9 47	.....	21 06	27	20 40.7	-22 22
Sun Nov 26/Mon Nov 27	4066.7	4 05 16	16 48	18 27	5 46	7 25	22 31	9 52	.....	22 22	38	21 34.8	-17 32
Mon Nov 27/Tue Nov 28	4067.7	4 09 12	16 48	18 27	5 47	7 26	22 35	9 57	.....	23 38	49	22 26.8	-11 44
Tue Nov 28/Wed Nov 29	4068.7	4 13 09	16 47	18 26	5 48	7 27	22 38	10 02	.....	0 54	60	23 17.4	- 5 17
Wed Nov 29/Thu Nov 30	4069.7	4 17 05	16 47	18 26	5 49	7 28	22 42	10 07	.....	2 10	71	0 07.9	1 31
Thu Nov 30/Fri Dec 01	4070.7	4 21 02	16 46	18 26	5 50	7 29	22 46	10 12	.....	3 27	81	0 59.5	8 20

***** 2006 DECEMBER *****

Date (eve/morn) (2006 at start)	JDmid (-2450000)	LMSTmidn	----- Sun: -----				LST twilight:		----- Moon: -----				
			set	twi.end	twi.beg	rise	eve	morn	rise	set	%illum	RA	Dec
Fri Dec 01/Sat Dec 02	4071.7	4 24 58	16 46	18 26	5 51	7 30	22 50	10 16	.....	4 47	89	1 53.4	14 45
Sat Dec 02/Sun Dec 03	4072.7	4 28 55	16 46	18 25	5 51	7 31	22 53	10 21	.....	6 09	95	2 50.6	20 20
Sun Dec 03/Mon Dec 04	4073.7	4 32 51	16 45	18 25	5 52	7 32	22 57	10 26	15 18	7 29	99	3 51.2	24 39
Mon Dec 04/Tue Dec 05	4074.7	4 36 48	16 45	18 25	5 53	7 33	23 01	10 31	16 00	8 43	100	4 54.5	27 19
Tue Dec 05/Wed Dec 06	4075.7	4 40 45	16 45	18 25	5 54	7 34	23 05	10 36	16 54	.....	98	5 58.4	28 07
Wed Dec 06/Thu Dec 07	4076.7	4 44 41	16 45	18 25	5 55	7 35	23 09	10 41	17 57	.....	94	7 00.5	27 06
Thu Dec 07/Fri Dec 08	4077.7	4 48 38	16 45	18 25	5 56	7 36	23 13	10 45	19 07	.....	88	7 58.8	24 31
Fri Dec 08/Sat Dec 09	4078.7	4 52 34	16 45	18 25	5 57	7 37	23 17	10 50	20 18	.....	80	8 52.6	20 44
Sat Dec 09/Sun Dec 10	4079.7	4 56 31	16 45	18 25	5 57	7 38	23 21	10 55	21 28	.....	72	9 41.8	16 06
Sun Dec 10/Mon Dec 11	4080.7	5 00 27	16 45	18 25	5 58	7 39	23 25	11 00	22 34	.....	62	10 27.6	10 55
Mon Dec 11/Tue Dec 12	4081.7	5 04 24	16 45	18 26	5 59	7 40	23 29	11 04	23 38	.....	53	11 10.8	5 25
Tue Dec 12/Wed Dec 13	4082.7	5 08 20	16 45	18 26	6 00	7 41	23 33	11 09	0 40	.....	44	11 52.6	- 0 11
Wed Dec 13/Thu Dec 14	4083.7	5 12 17	16 45	18 26	6 00	7 41	23 37	11 14	1 41	.....	34	12 34.2	- 5 46
Thu Dec 14/Fri Dec 15	4084.7	5 16 14	16 45	18 26	6 01	7 42	23 42	11 18	2 44	.....	26	13 16.7	-11 10
Fri Dec 15/Sat Dec 16	4085.7	5 20 10	16 45	18 26	6 02	7 43	23 46	11 23	3 49	.....	18	14 01.0	-16 14
Sat Dec 16/Sun Dec 17	4086.7	5 24 07	16 46	18 27	6 02	7 44	23 50	11 27	4 56	.....	11	14 48.2	-20 46
Sun Dec 17/Mon Dec 18	4087.7	5 28 03	16 46	18 27	6 03	7 44	23 54	11 32	6 05	.....	6	15 39.0	-24 30
Mon Dec 18/Tue Dec 19	4088.7	5 32 00	16 46	18 28	6 04	7 45	23 59	11 37	7 13	.....	2	16 33.4	-27 11
Tue Dec 19/Wed Dec 20	4089.7	5 35 56	16 47	18 28	6 04	7 45	0 03	11 41	8 16	15 37	0	17 31.0	-28 31
Wed Dec 20/Thu Dec 21	4090.7	5 39 53	16 47	18 28	6 05	7 46	0 07	11 46	.....	16 33	1	18 30.4	-28 18
Thu Dec 21/Fri Dec 22	4091.7	5 43 49	16 48	18 29	6 05	7 46	0 12	11 50	.....	17 40	3	19 29.8	-26 27
Fri Dec 22/Sat Dec 23	4092.7	5 47 46	16 48	18 29	6 06	7 47	0 16	11 54	.....	18 54	8	20 27.5	-23 06
Sat Dec 23/Sun Dec 24	4093.7	5 51 43	16 49	18 30	6 06	7 47	0 21	11 59	.....	20 12	15	21 22.6	-18 26
Sun Dec 24/Mon Dec 25	4094.7	5 55 39	16 49	18 31	6 06	7 48	0 25	12 03	.....	21 29	23	22 15.2	-12 47
Mon Dec 25/Tue Dec 26	4095.7	5 59 36	16 50	18 31	6 07	7 48	0 30	12 07	.....	22 44	34	23 05.8	- 6 28
Tue Dec 26/Wed Dec 27	4096.7	6 03 32	16 51	18 32	6 07	7 48	0 34	12 12	.....	24 00	45	23 55.5	0 11
Wed Dec 27/Thu Dec 28	4097.7	6 07 29	16 51	18 32	6 08	7 49	0 39	12 16	.....	1 15	56	0 45.5	6 51
Thu Dec 28/Fri Dec 29	4098.7	6 11 25	16 52	18 33	6 08	7 49	0 44	12 20	.....	2 32	67	1 37.2	13 11
Fri Dec 29/Sat Dec 30	4099.7	6 15 22	16 53	18 34	6 08	7 49	0 48	12 24	.....	3 51	77	2 31.5	18 51
Sat Dec 30/Sun Dec 31	4100.7	6 19 18	16 54	18 35	6 08	7 49	0 53	12 29	.....	5 09	86	3 29.2	23 27
Sun Dec 31/Mon Jan 01	4101.7	6 23 15	16 54	18 35	6 08	7 49	0 58	12 33	.....	6 24	93	4 30.1	26 36