

RASC Toronto Centre - The Sky This Month – August, 2013

by Chris Vaughan

NEWS

Space Exploration – Public and Private

Ref. <http://www.spaceflightnow.com/tracking/index.html>

August 3 – Launch of Japanese H-2B from Tanegashima Space Center, unmanned ISS re-supply

August 6 – Launch of GSLV rocket from Satish Dhawan Space Center, India, payload GSAT 14 comsat

August 7-8 – Launch of Delta 4 rocket from Cape Canaveral Air Force Station, Florida, payload WGS 6 comsat

August 22 – Launch of Kosmotras Dnepr rocket from Dombarovsky, Russia, payload Korean KOMPSAT 5 Earth observation satellite.

August 22 – Launch of Japan's Epsilon rocket from Uchinoura Space Center, Japan, payload, SPRINT-A satellite with a small space telescope to observe Mercury, Venus, Mars and Jupiter.

August 24 – Launch of Ariane 5 rocket from Kourou, French Guiana, payload, Eutelsat 25B & GSAT 7 comsats.

August 28 – Launch of Delta 4-Heavy rocket from Vandenberg Air Force Base, California, payload, NROL-65 US National Reconnaissance comsats.

This Month in History (a sampling)

Ref. <http://astroplanet.org/next.php>

August 1, 1785 – Caroline Herschel becomes the first woman to discover comets, including Comet 35P/Herschel-Rigollet

August 2, 1880 – Greenwich Mean Time (GMT) is officially adopted by Parliament in the UK

August 3, 1596 – David Fabricius discovered variability of Mira, the first star to be identified as a variable star

August 11 & 17, 1877 – Asaph Hall discovers Phobos and Deimos (aka Gods of Fear and Dread, respectively)

August 11, 3114 BCE – Beginning of Creation according to the Maya civilization

August 13, 1642 – Christiaan Huygens discovered the Martian south polar cap

August 15, 1977 – WOW! signal is detected by the SETI program using The Big Ear radio telescope. The 72 second long signal is never duplicated

August 23, 1966 – Earth is photographed for the first time from lunar orbit by Lunar Orbiter 1

August 24, 2006 – International Astronomical Union demotes the planet Pluto to a dwarf planet or "trans-Neptunian object".

August 29, 1541 – Nicolaus Copernicus's book "De revolutionibus orbium coelestium" ("On the Revolutions of the Celestial Spheres") goes to the printer

Star Parties

Ref: <http://ontariostargazing.ca/astronomy-star-parties-events-ontario/>

"RASC Dark Skies Observing", Long Sault, ON – window opens September 2

"RASC City Skies Observing", Bayview Village Park, Toronto – window opens August 12

"Starfest", Mount Forest, ON – Aug 8-12 (www.nyaa.ca/starfest.htm)

"Manitoulin Star Party", Gordon's Park Dark Sky Preserve, Manitoulin Island – Aug 9-12 (www.gordonspark.com)

"L & A Perseid Meteor Watch", Lennox & Addington County Dark Sky Area – Aug 12 (www.darkskyviewing.com)

"Perseids Meteor Star Party", Gordon's Park Dark Sky Preserve, Manitoulin Island – Aug 12-14 (www.gordonspark.com)

"New Eyes Old Skies Dark Skies Observing", Tottenham/Ronan Aerodrome, ON – window opens August 26

"Charleston Lake Astronomy Night", Charleston Lake Provincial Park (near Brockville), ON – Aug 31 (Tel: 613-659-2065)

"The 16th Annual Algonquin Adventure Star Party", Mew Lake Campground (in Algonquin Provincial Park), ON – Sep 5-8 (E-mail: bobandlil14@gmail.com)

OBSERVING

Sun/Sunrise/Sunset

August 1st sunrise at 6:12 am, August 31st sunrise at 6:46 am

August 1st sunset at 8:36 pm, August 31st sunset at 7:51 pm (yay!)

Moon - Phases

August 6 at 4:51 pm EDT – New Moon

August 14 at 5:56 am EDT – 1st Quarter Moon (sets around midnight)

August 20 at 8:45 pm EDT – Full Moon

August 28 at 4:35 am EDT – 3rd Quarter Moon (rises around midnight)

Moon - Conjunctions

On the early morning of August 1, the Moon will be situated only 3 degrees west of (above) Aldebaran!

On the early morning of August 3, the Old Moon sits about 6 degrees southwest (to the upper right) of Jupiter.

On the early morning of August 4, the Old Moon sits about 6 degrees south (to the lower right) of Mars.

On the early morning of August 5, the Old Moon sits about 5 degrees south (to the lower right) of Mercury.

On the evening of August 9, the New Moon sits about 5.5 degrees south (to the lower left) of Venus.

On the evening of August 11, the waxing crescent Moon sits about 5 degrees west (to the lower right) of Spica.

On the evening of August 12, the 1st Quarter Moon sits about 5 degrees southwest of (below) Saturn.

On the evening of August 13, the 1st Quarter Moon sits about 1 degree south (to the lower left) of double star Zubenelgenubi (alpha Libra).

On August 31, the Old Moon sits about 6 degrees southwest (to the right) of Jupiter.

Moon - Orbit

Apogee on August 3rd at 4:53 am EDT

Perigee on August 18th at 9:26 pm EDT

Apogee on August 30th at 7:46 pm EDT

Planets and Dwarf Planets

July 30th – Mercury's reached Greatest Western Elongation, nicely visible for morning viewing during the first week of August, showing a lovely crescent, then rapidly descends towards the Sun. Superior conjunction on August 24th.

Venus never climbs very high during this summer/autumn elongation. It sets at 10:07 pm on August 1 (83% illum) in Leo and 9:19 pm on August 31 (74% illum) in Virgo.

Mars is visible in early mornings – about 2 hours before sunrise on August 1 and three hours before on August 31. On Sept 8th and 9th, Mars will traverse the Beehive (M44)!

Jupiter rises at 3:33 am on August 1st and at 2:02 am on August 31st. All month in Gemini, it climbs away from Mars in the pre-dawn sky. Beautiful lunar conjunctions on August 3rd and 31st.

Saturn, in Virgo, becomes limited to early evening viewing. Sets at 12:10 am on August 1 and at 10:16 pm on August 31. The moons all cluster on the East side on August 23rd!

Uranus, in Pisces, best observable in the middle of the night, rises at 11:06 pm on August 1 and at 9:07 pm on August 31.

Neptune, in Aquarius, rises at 9:39 pm on August 1 and at 7:40 pm on August 31. It reaches opposition on August 27, making it a good late evening target.

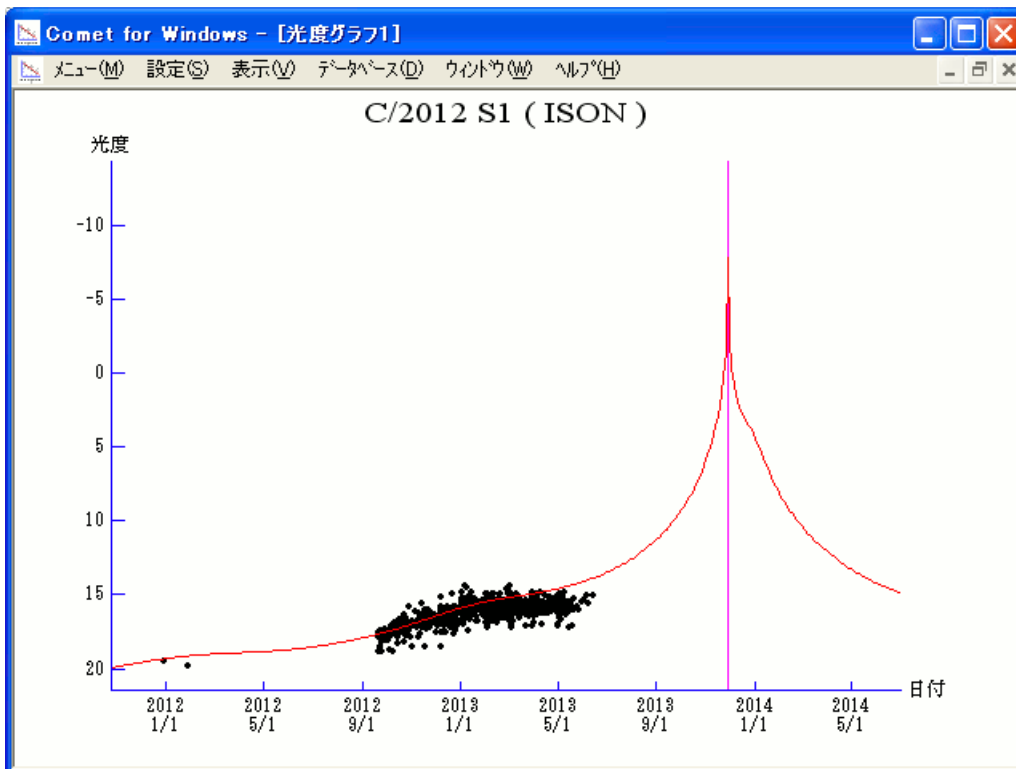
Pluto, above Sagittarius' teapot about 2 degrees SE of M25 all month, resides in a very star-filled part of the sky, and is well positioned for evening viewing.

Ceres and **Vesta** are near superior conjunction, **Juno** is observable north of Capricornus.

Comet C/2012 S1 (ISON) Update

Ref. <http://www.aerith.net/comet/catalog/2012S1/2012S1.html>

On August 7th, it sits about midway between Pollux and The Beehive, rises at 4:40 am. By August 31st, rises at 3:46 am and sits one degree north of Gamma Cancri (Asellus Borealis) (Sunrise at 6:42am).



Meteor Shower(s)

Perseids - Active period July 17 – Aug 24, peaking before dawn on August 12th. Moon only ~25% illuminated, setting around 11 pm on Aug 11th. Radiant point is between Camelopardalis and Perseus in the NE sky – and

nearly overhead by dawn (RA 3h 04m, Dec. +58°). Source of material was comet 109P/Swift-Tuttle (130 year period). Usually 60-80 per hour at the peak, many of a fireball nature.

Asteroids

Ref. <http://neo.jpl.nasa.gov/ca/>

Juno at opposition on August 3rd at 9 pm EDT

Iris at opposition on August 16th at 9 pm EDT

Aug 05 - Asteroid (2013 LF7) (diam. 100m - 230m) within 10.6 Lunar distances

Aug 09 - Asteroid 277475 (2005 WK4) (diam. 260m - 580m) within 7 8.1 Lunar distances

Aug 23 - Asteroid 1999 CF9 (diam. 1100 m) within 24.7 Lunar distances

Aug 31 - Asteroid 2002 JR9 (diam. 1400 m) within 63.5 Lunar distances

Aug 28 - Asteroid (2007 CN26) (diam. 170m - 380m) within 11.9 Lunar distances

Satellites

ISS passes continue until August 26th. Some higher/brighter ones include:

| | | | | | | | | | | |
|--------|------|----------|-----|-----|----------|-----|-----|----------|-----|-----|
| 07 Aug | -2.7 | 21:49:58 | 10° | WSW | 21:53:17 | 61° | NNW | 21:56:38 | 10° | NE |
| 08 Aug | -3.3 | 21:01:20 | 10° | SW | 21:04:41 | 84° | SSE | 21:08:03 | 10° | ENE |
| 16 Aug | -2.3 | 22:37:24 | 10° | NW | 22:40:26 | 43° | NNE | 22:40:26 | 43° | NNE |
| 18 Aug | -2.5 | 22:36:37 | 10° | WNW | 22:39:15 | 52° | WNW | 22:39:15 | 52° | WNW |
| 19 Aug | -3.0 | 21:47:54 | 10° | NW | 21:51:14 | 60° | NNE | 21:52:15 | 38° | E |
| 20 Aug | -2.4 | 20:59:12 | 10° | NW | 21:02:24 | 41° | NNE | 21:05:18 | 12° | E |
| 21 Aug | -3.0 | 21:47:07 | 10° | WNW | 21:50:25 | 56° | SW | 21:51:15 | 41° | SSE |
| 22 Aug | -3.3 | 20:58:19 | 10° | WNW | 21:01:40 | 87° | NNE | 21:04:22 | 15° | ESE |

Iridium Flares most frequent evening passes occur between 9 and 11 pm.

Local occurrences info at www.heavens-above.com, phone/tablet apps, Chris Vaughan's Skylights (email, www.astrogeoguy.tumblr.com, www.theDDO.ca),

Occultations/Eclipses

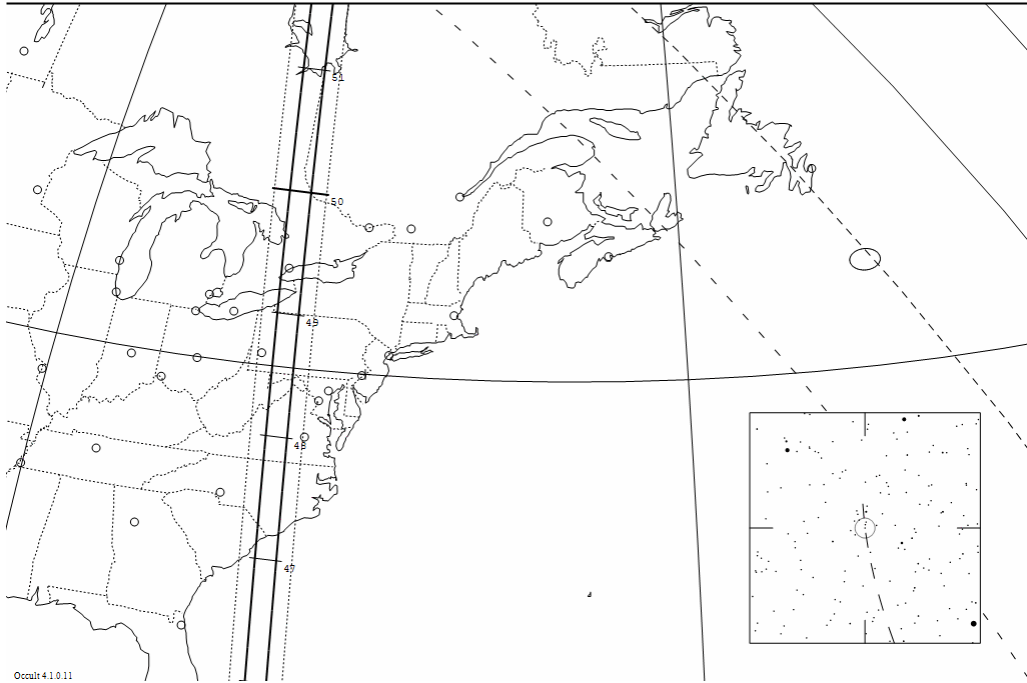
Ref: <http://www.asteroidoccultation.com/> (additional links on the following URLs open track maps)

01 Aug 2013 at 07:45 UT – asteroid 78 (568) Cheruskia (mag 14.1) occults star TYC 1732-01826-1 (mag 11.7) - visible in GTA/Hamilton - drops 2.5mags for 10.5secs, alt. 79°

http://www.asteroidoccultation.com/2013_08/0801_568_30006.htm

568 Cheruskia occults TYC 1732-01826-1 on 2013 Aug 1 from 7h 33m to 7h 59m UT

| | | |
|-------------------------------|---------------------------|---------------------|
| Star: | Max Duration = 10.8 secs | Asteroid: |
| Mv = 11.7 Mp = 12.8 Mr = 11.3 | Mag Drop = 2.5 (2.5r) | Mag = 14.1 |
| RA = 0 15 2491 (J2000) | Sun : Dist = 118 deg | Dia = 83km 0.056" |
| Dec = 25 58 30.289 | Moon: Dist = 61 deg | Parallax = 4.214" |
| [of Date: 0 2 35 28 3 5] | illum = 26 % | Hourly dRA = 0.176s |
| Prediction of 2013 Jun 12.0 | E 0.040"x 0.028" in RA 85 | dDec = 15.17" |

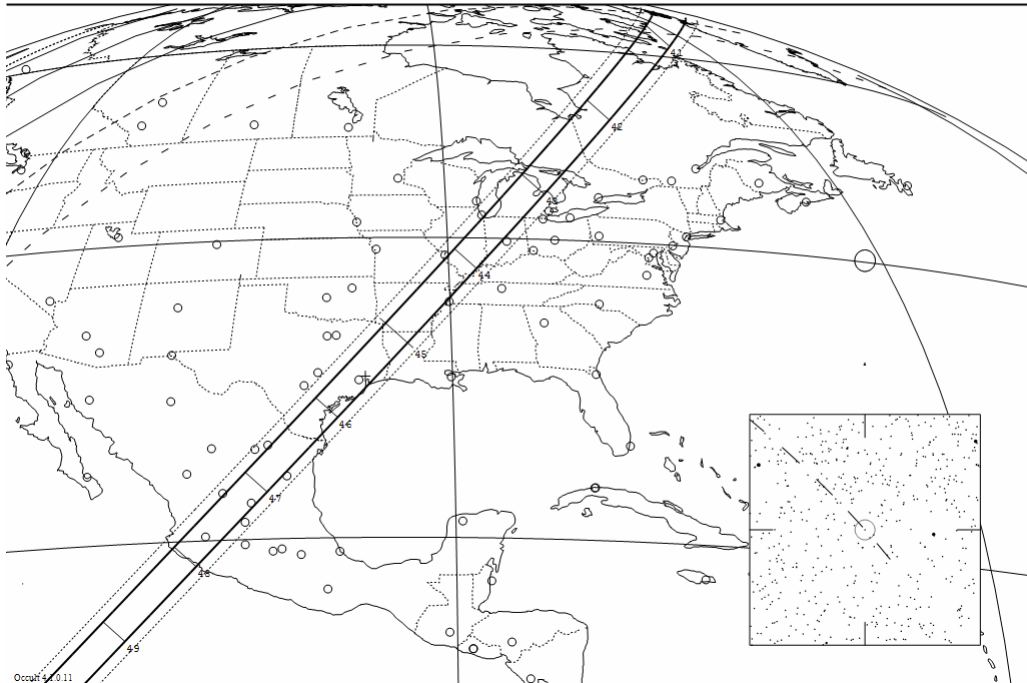


11 Aug 2013 at 03:50 UT - asteroid 98 (173) Ino (mag 11.7) occults star 2UCAC 27906819 (mag 11.8) - visible north of Lake Huron - drops 0.7mags for 17.4secs, alt. 61°

http://www.asteroidoccultation.com/2013_08/0811_173_30033.htm

173 Ino occults 2UCAC 27906819 on 2013 Aug 11 from 3h 40m to 4h 1m UT

| | | |
|--------------------------------|--------------------------|----------------------|
| Star: | Max Duration = 17.4 secs | Asteroid: |
| Mv = 11.8 | Mag Drop = 0.7 | Mag = 11.7 |
| RA = 18 58 48 8104 (J2000) | Sun : Dist = 144 deg | Dia = 141km 0.136" |
| Dec = -11 17 8.045 | Moon: Dist = 57 deg | Parallax = 8.375" |
| [of Date: 18 59 36, -11 16 47] | illum = 17 % | Hourly dRA = -1.265s |
| Prediction of 2013 Jul 4.0 | E 0.050"x 0.048" in RA 0 | dDec = -20.91" |

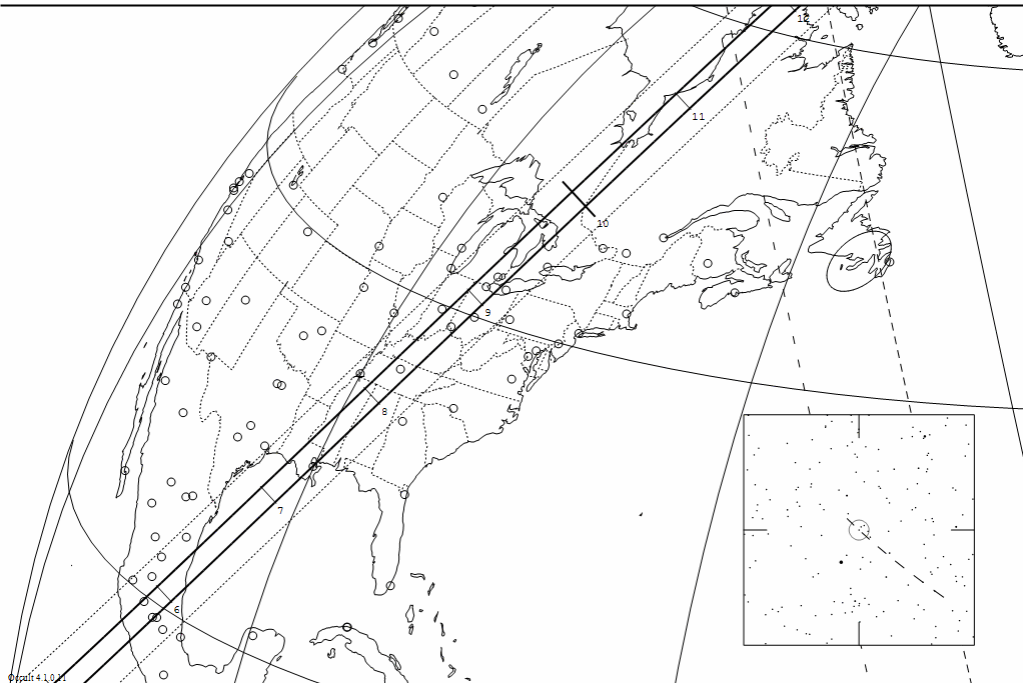


18 Aug 2013 at 08:09 UT - asteroid 55 (1208) Troilus (mag 16.6) occults star TYC 1239-00009-1 (mag 11.0) - visible from Georgian Bay south to Windsor - drops 5.6mags for 8.4secs, alt. 42°

http://www.asteroidoccultation.com/2013_08/0818_1208_30060.htm

1208 Troilus occults TYC 1239-00009-1 on 2013 Aug 18 from 8h 4m to 8h 15m UT

| | | |
|-------------------------------|-----------------------------|---------------------|
| Star: | Max Duration = 8.4 secs | Asteroid: |
| Mv = 11.0 Mp = 12.1 Mr = 10.4 | Mag Drop = 5.6 (5.7r) | Mag = 16.6 |
| RA = 3 41 57.882 (J2000) | Sun: Dist = 98 deg | Dia = 112km, 0.031" |
| Dec = 17 34 22.007 | Moon: Dist = 130 deg | Parallax = 1.754" |
| lof Data: 3 42 45 17 36 54 | illum = 89 % | Hourly dRA = 0.690" |
| Prediction of 2013 Jul 4.0 | E 0.059" W 0.055" in RA 223 | dDec = 9.13" |



Constellations on the Meridian (Annually in August)

Scorpio and Sagittarius, Ophiuchus, Serpens, and Scutum, Aquila, Sagitta and Vulpecula, Cygnus, Lyra, and Hercules (Late night: Capricornus, Microscopium, Delphinus)

Star party Skylights (Annually in August)

Summer Triangle (image from <http://www.astropixels.com/milkyway/MilkyWayMos12-03.html>) (eye)

Milky Way (eye)

Coathangar (eye / binoculars)

Summer Globes – M13, M92 (Her), M5 (Ser), M4 (Sco) etc. (telescope)

Summer Blobs – Lagoon, Trifid (Sag), Veil, N American, Crescent (Cyg), etc. (telescope)

Summer Knobs – Ring (Lyr), Dumbbell (Vul), Blinking Planetary (Cyg), Cat's Eye (Dra) (telescope)

Seeing Doubles – Albireo (Cyg), Eps (Lyr), Marfik (Her/Oph) (telescope)

Hit Singles - Antares (Sco), Vega (Lyr), Arcturus (Boo), Herschel's Garnet Star (Ceph) (eye, binoculars, telescope)

Come out to CAO and DDO!