

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

by Chris Vaughan

NEWS

Space Exploration – Public and Private

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

July 19 – Launch of Atlas 5 from Cape Canaveral, payload is MUOS 2 US Navy com sat

July 20 – Proton rocket from Baikonur Cosmodrome, Kazakhstan, payload ASTRA 2E comsat

July 25 – Ariane 5 rocket from Kourou, French Guiana, payload Alphasat XL and INSAT 3D comsats

July 27 – Launch of Soyuz Progress 52P from Baikonur Cosmodrome, Kazakhstan, carry supplies, hardware, fuel and water to the International Space Station.

This Month in History (a sampling)

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

July 4, 1054 – Chinese astronomers record the supernova that has become Messier 1, The Crab Nebula

July 4, 1997 – Pathfinder lands on Mars

July 6, 1687 – Newton publishes his Principia (Three laws of motion)

July 7, 1959 – Something crashed in Roswell, New Mexico

July 11-24, 1969 – NASA's Apollo 11 mission

July 16-22, 1994 – Hubble images Comet Shoemaker-Levy 9 impacts with Jupiter

July 20, 1976 – Viking I lands on Mars

July 28, 1851 – First Daguerreotype of the eclipsed Sun reveals the Corona

July, 1610/1612/1616 – Galileo observes Saturn and rings, writing "the star of Saturn is not a single star, but is a composite of three, which almost touch each other, never change or move relative to each other, and are arranged in a row along the zodiac, the middle one being three times larger than the two lateral ones, and they are situated in this form **o O o**"

Star Parties

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

"RASC Dark Skies Observing", Long Sault, ON – windows open July 8 and 29

“RASC City Skies Observing”, Long Sault, ON – window opens July 15

“Stargazing Manitoulin”, Gordon’s Park Dark Sky Preserve, Manitoulin Island – July 5-8
(www.gordonspark.com)

“9th Annual International Video Star Party”, Foymount, ON – July 4-6 (www.aoag.ca, Rock Mallin)

“Gateway to the Universe”, Marten River Prov Park, ON – July 4-7 (www.gateway-to-the-universe.org)

“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)

OBSERVING

Sun/Sunrise/Sunset

July 1st sunrise at 5:46 am, July 31st sunrise at 6:11 am

July 1st sunset at 8:59 pm, July 31st sunset at 8:37 pm (yay!)

July 5 at 2:47:41 pm EDT - Aphelion

Moon

July 8 at 3:14 am EDT – New Moon

July 15 at 11:18 pm EDT – 1st Quarter Moon (sets at 12:20 am)

July 22 at 2:16 pm EDT – Full Moon

July 29 at 1:43 pm EDT – 3rd Quarter Moon (rises at 11:55 pm)

On July 15, the 1st Quarter Moon will be situated only 1.6 degrees west of Spica! (A lunar occultation of Spica will be visible from Central Pacific down to NW South America.)

On July 16, the 1st Quarter Moon sits about 4 degrees below Saturn.

Planets

July 30 – Mercury’s Greatest Western Elongation (morning viewing), visible last week of July showing a lovely crescent.

Venus never climbs very high during this summer/autumn elongation. It sets at 10:37 pm on July 1 (90% illum) and 10:09 pm on July 31 (83% illum). The 3 day old Moon sits only 8 degrees from Venus on July 10. On July 21 and 22, Venus passes approx 1 degree above Regulus. On July 3, Venus traverses the Beehive in Cancer (likely unobservable).

Mars, in Gemini, becomes visible in mornings – an hour before sunrise on July 1 to two hours before on July 31. On July 16/17, Mars passes about 30 arc minutes from Messier 35. (Will need a clear eastern horizon from 4 am)

Jupiter joins Mars in Gemini low in the pre-dawn sky by month's end. Beautiful close conjunction with Jupiter on July 22 (also +/- one day).

Saturn, in Virgo, is well placed for viewing until late July. Sets at 2:11 am on July 1 and at 12:14 am on July 31. The moons form a nice alignment across the rings about 11 pm on July 5!

Uranus, in Pisces, observable between approx. midnight and pre-dawn, rises at 1:11 am on July 1 and at 11:13 pm on July 31. It is stationary on July 18.

Neptune, in Aquarius, rises at 11:50 pm on July 1 and at 9:51 pm on July 31, making it a good late-night target.

Pluto, above Sagittarius' teapot, resides in a very star-filled part of the sky, but is present all night long in July as it reaches opposition on July 1.

Meteor Shower(s)

Delta Aquarids peak July 29/30 – Source material from comet 96P/Machholz, typically about 20/hr on the peak days, impeded by third quarter Moon, but may warrant watching in subsequent days as Moon wanes. Radiant point is very low in the south (best seen at lower latitudes).

Perseids peak in mid-August

Asteroids/Comets

Asteroid 2001 PJ9 (1,100 m) – 29.2 Lunar distances on July 17

Asteroid 2006 BL8 (48 m) – 9.3 Lunar distances on July 26

Asteroid 2003 DZ15 (153 m) – 7.6 Lunar distances on July 29

Satellites

ISS passes resume on July 16th – all are midnight to dawn. Some higher/brighter ones include:

| | | | | | | | | | | |
|--------|------|---------|-----|-----|---------|-----|-----|---------|-----|-----|
| 18-Jul | -2.4 | 5:00:17 | 12° | SSW | 5:03:11 | 41° | SE | 5:06:21 | 10° | ENE |
| 20-Jul | -3.2 | 4:58:43 | 14° | WSW | 5:01:32 | 77° | NNW | 5:04:53 | 10° | NE |
| 21-Jul | -3.2 | 4:11:25 | 40° | SSW | 4:12:24 | 64° | SE | 4:15:44 | 10° | ENE |

| | | | | | | | | | | |
|--------|------|---------|-----|----|---------|-----|-----|---------|-----|-----|
| 23-Jul | -2.8 | 4:09:28 | 32° | W | 4:10:45 | 54° | NNW | 4:14:03 | 10° | NE |
| 24-Jul | -2.9 | 3:22:01 | 63° | NE | 3:22:01 | 63° | NE | 3:24:53 | 10° | ENE |

Iridium Flares most frequent evening passes occur around 11:30 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)

07 Jul 2013 at 04:23 UT 13 (3868) Mendoza (mag 15.2) occults TYC 5694-02055-1 (mag 10.3) - visible across Labrador, northern Quebec, northern Ontario across L Superior, N USA - drops 4.9mags for 1.2s, alt 31°

http://www.asteroidoccultation.com/2013_07/0707_3868_31172.htm

12 Jul 2013 at 03:10 UT 77 (517) Edith (mag 15.2) occults 2UCAC 22940817 (mag 12.5) - visible across northern Ontario to Kingston, NE USA - drops 2.8mags for 12.8s, alt 20°

http://www.asteroidoccultation.com/2013_07/0712_517_33886.htm

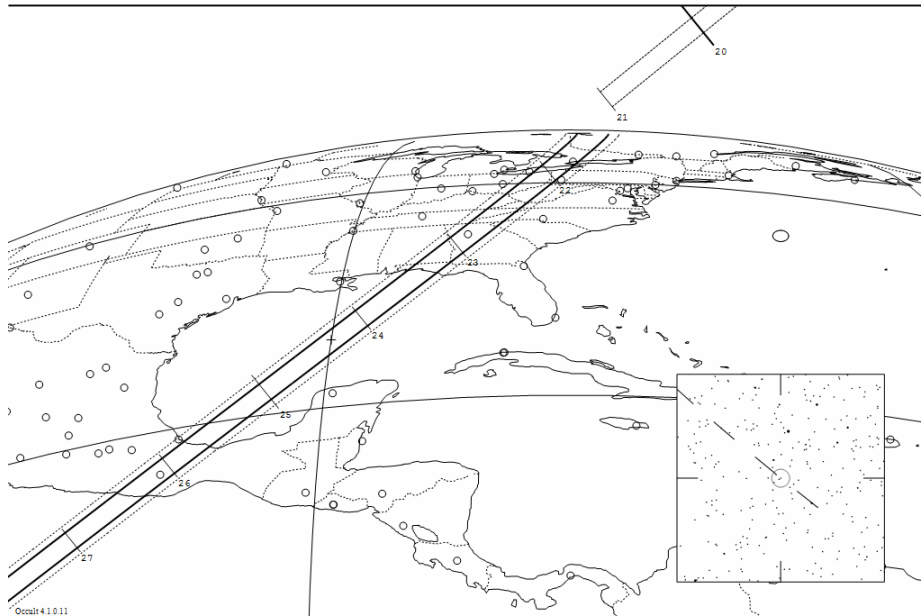
14 Jul 2013 at 05:29 UT 99 (455) Bruchsalia (mag 11.2) occults 2UCAC 16938720 (mag 12.4) - visible Georgian Bay/Hamilton, E USA, Mexico - drops 0.3mags for 9.7s, alt 39°

http://www.asteroidoccultation.com/2013_07/0714_455_29941.htm

```

455 Bruchsalia occults 2UCAC 16938720 on 2013 Jul 14 from 5h 21m to 5h 37m UT
Star:                               Max Duration = 9.7 secs
Mv = 12.4                             Mag Drop = 0.31
RA = 19 38 55.0913 (J2000)           Sun: Dist = 147 deg
Dec = -35 0 1.173                    Moon: Dist = 110 deg
[of Date: 19 39 51, -34 57 55]        illum = 30 %
Eclipsion of 2013 Jun 13.0           E 0.044" ± 0.031" in RA 91
Asteroioid:                           Mag = 11.2
Dist = 54km                            Para = 8.053"
Hourly dRA = -2.473s                    dDec = -2.65"

```

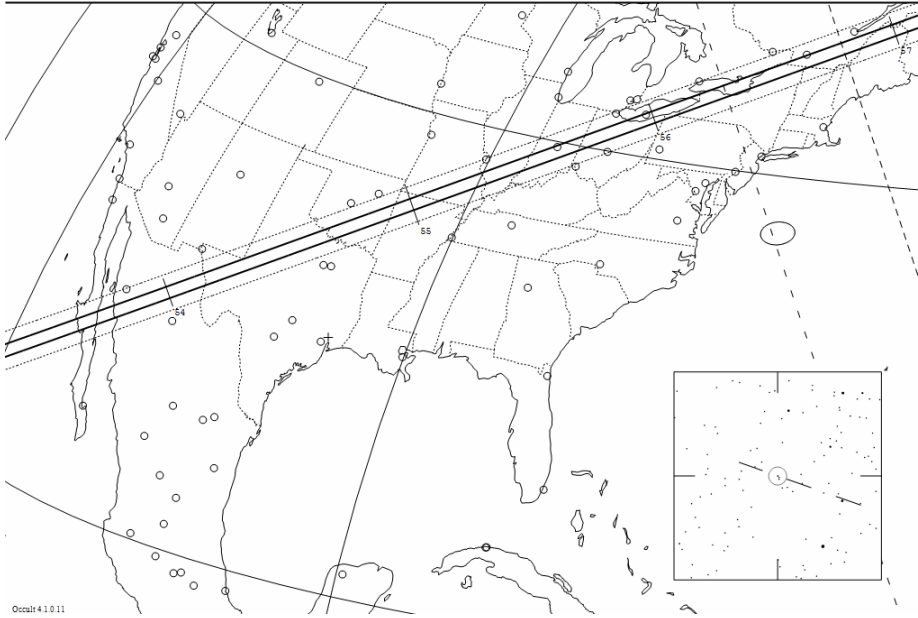


29 July at 08:57 UT - (1074) Beljawska (mag 15.3) occults HIP 10921 (mag 9.1) – visible **Southern ON**, USA, Mexico - drops 6.2mags, for 2.8s, alt of 52°

http://www.asteroidoccultation.com/2013_07/0729_1074_31224.htm

1074 Beljawskya occults HIP 10921 on 2013 Jul 29 from 8h 53m to 9h 2m UT

| | | |
|-----------------------------|---------------------------|---------------------|
| Star: | Max Duration = 2.8 secs | Asteroid: |
| Mv = 9.1 Mp = 9.9 Mr = 8.7 | Mag Drop = 6.2 (6.2r) | Mag = 15.3 |
| RA = 2 20 33.5602 (J2000) | Sun: Dist = 89 deg | Dis = 32km, 0.028" |
| Dec = 13 40 11.909 | Moon: Dist = 5 deg | Parallax = 3.45" |
| LOF Date: 2 22 25, 13 43 54 | : Alt = 54 ° | Hourly dRA = 2.391s |
| Prediction of 2013 Jun 12.0 | E 0.041"x 0.027" in RA 84 | dDec = 12.23" |



Constellations on the Meridian (Annually in July)

Scorpius and Sagittarius, Ophiuchus, Serpens, and Scutum, Aquila, Sagitta and Vulpecula, Cygnus, Lyra, and Hercules

Star party Skylights (Annually in July)

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

Milky Way (eye)

Coathangar (eye / binoculars)

Summer Globbs – 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) (telescope)

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

Hit Singles - Antares (Sco), Vega (Lyr), Arcturus (Boo) (eye / binoculars / telescope)

Come out to CAO and DDO!