

NOVA

NEWSLETTER OF THE VANCOUVER CENTRE RASC
VOLUME 2026 ISSUE 4 JULY/AUGUST 2026



Canada Day, July 1, 2026

by Suzanna Nagy

The annual Canada Day celebration in Maple Ridge has become a tradition for your RASC Vancouver Centre.

Unfortunately, the weather did not cooperate this year and was cloudy for the entire day. It has been a long time since we have experienced a clouded-out Canada Day. The solar scopes were

always a big hit with the attending public but this year we couldn't set them up. Instead, we shifted to offering a children's craft making paper sundials along with our usual engagement with the public and answering their questions about as-

tronomy.

A thank you to our volunteers: Norry, Suzanna, Marla, Leigh, and Carl.

Photos courtesy of Carl Bandura. ✨



JULY 9

SFU

Mrishabh Srivastava, an MSc student from UBC, on the search for gravitational lenses with the Euclid Space Telescope. Room AQ3149.

SFU

NO MEETING IN AUGUST

SEPTEMBER 10

SFU

Our own Rob Lyons will be doing a presentation on astrophotography. Watch Meetup for details.

SFU

2nd Annual RASC Vancouver Nahatlatch Valley Star Party September 5-12, 2026

The RASC Vancouver Centre is hosting its **second annual large-scale, multi-day, dark-sky star party** at the Washtock Family Campground near Boston Bar, BC.

This event is for astrophotographers and visual observers with their own equipment to enjoy a Bortle 3 dark sky environment and add to their observing list and/or astrophotography album.

If you are a manual observer or astrophotographer, we hope to see you at this event. There is a fee to attend, and registration is required as space within the campground is limited.

Bookings for 1-4 nights are \$22 per adult per night, and for 5-8 nights the fee is reduced to \$20 per adult per night. Kids stay free.

For more details and to register, see our website:
<https://rasc-vancouver.com/nahatlatch-valley-star-party-2026/>

Image Credit: Harvey Dueck, from the 2025 Star Party.

President's Message

Greetings to our astronomy-minded friends! Since the last President's Message, we hosted Astronomy Day in conjunction with SFU Science Rendezvous. We had many members volunteering to introduce our society to hundreds of interested public visitors.

The Earth/Moon Oreo cookie station was so popular I had run to the store for more of that twisty cookie goodness.

On July 1, we participated in Maple Ridge's Canada Day celebration, which was mostly clouded out. This event has had changes to lo-

cation and now starts later in the day which has impacted its shine for solar viewing outreach. Does your community have a Canada Day celebration with a spot screaming for solar scopes and RASC-Vancouver volunteers? Let us know as we

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by Nolan Smith

About RASC

The RASC Vancouver Centre meets at 7:30 PM on the second Thursday of every month at SFU's Burnaby campus (see map on page 4). Guests are always welcome. In addition, the Centre has an observing site where star parties are regularly scheduled.

Membership is currently \$114.00 per year (\$71.10 for persons under 21 years of age; family memberships also available) and can be obtained online, at a meeting, or by writing

to the Treasurer at the address below. Annual membership includes the invaluable Observer's Handbook, six issues of the RASC Journal, and, of course, access to all of the club events and projects.

For more information regarding the Centre and its activities, please contact our P.R. Director.

NOVA, the newsletter of the Vancouver Centre, RASC, is published on odd-numbered months. Opinions expressed herein are not nec-

essarily those of the Vancouver Centre.

Material on any aspect of astronomy should be e-mailed to the editor or mailed to the address below.

Remember, you are always welcome to attend meetings of Council, held on the first Thursday of every month at 7:30pm via Zoom. Please contact a council member if you would like to attend a council meeting.

2026 Vancouver Centre Officers

President	Nolan Smith president@rasc-vancouver.com
Vice-President	Kyle Dally vp@rasc-vancouver.com
Secretary	Marla Daskis secretary@rasc-vancouver.com
Treasurer	Phil Lobo treasurer@rasc-vancouver.com
National Rep.	Kai Hui national@rasc-vancouver.com
Librarian	William Fearon library@rasc-vancouver.com
Public Relations	Andrew Ferreira publicrelations@rasc-vancouver.com

LPA	Leigh Cummings lpa@rasc-vancouver.com
Dir. of Telescopes	Rick Schneider telescopes@rasc-vancouver.com
Observing	Vacant observing@rasc-vancouver.com
Membership	Marla Daskis membership@rasc-vancouver.com
Events Coordinators	Suzanna Nagy, Norry Dogan events@rasc-vancouver.com
Education	Vacant education@rasc-vancouver.com
VRO	Alan Jones observatory@rasc-vancouver.com

Merchandise	Kyle Dally merchandise@rasc-vancouver.com
Webmaster	Martin Curic webmaster@rasc-vancouver.com
NOVA Editor	Gordon Farrell novaeditor@rasc-vancouver.com
Speakers	Andrew Ferreira speakers@rasc-vancouver.com
Imaging	Rick Schneider, Marla Daskis, Alan Jones imaging@rasc-vancouver.com
Past President	Robert Conrad
At Large	Michael Levy, Rob Lyons, Tyler Palmer

Library

The centre has a large library of books, magazines and old NOVAs for your enjoyment. Please take advantage of this club service and visit often to check out the new purchases. Suggestions for future library acquisitions are appreciated.

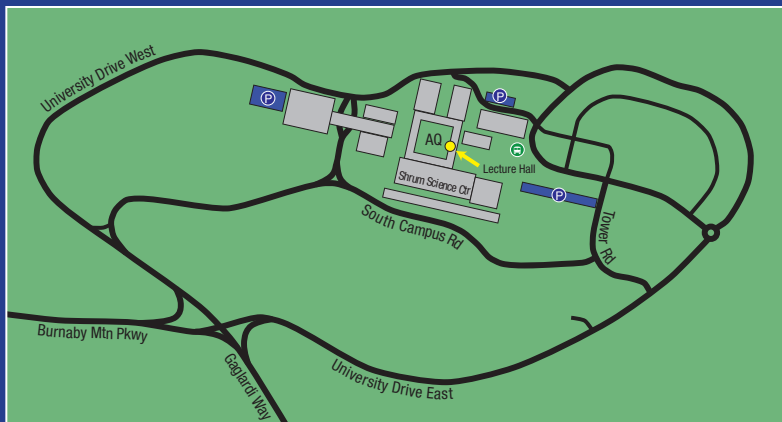
On the Internet

rasc-vancouver.com
astronomy.meetup.com/131/
www.facebook.com/RASC.Van
www.instagram.com/rascvancouver/
@rascvancouver.bsky.social

Mailing Address

RASC Vancouver Centre
PO Box 89608
9000 University High Street
Burnaby, B.C.
V5A 4Y0

Map to Meeting Site



Our July meeting is in room AQ 3149 of the Academic Quadrangle, along the east concourse across from the cafeteria, as indicated by the arrow on the map.

Pay parking is available at several locations located around campus (indicated as "P" on the map).

Citizen Science at the VRO

by Rick Schneider, Alan Jones, and Marla Daskis

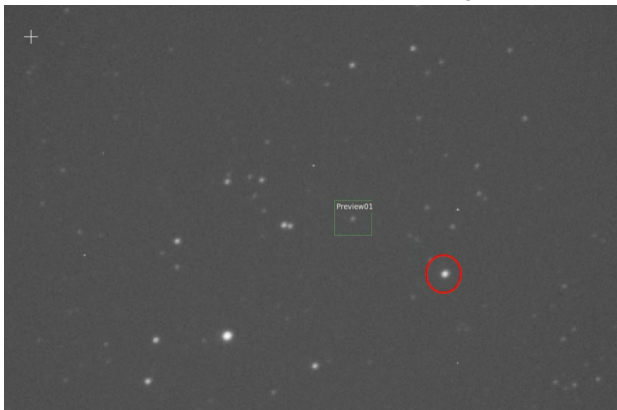
Recently, Dr Joanna Woo of SFU's Physics department shared an opportunity with us to use the VRO for some scientific research, and we were happy to give it a try!

Ben Proudfoot from the Florida Space Institute reached out to Dr. Woo to capture images of the dwarf planet candidate Varda occulting a faint star. Occultations like these, when an object (such as a planet or asteroid) passes in front of a star, allow scientists to measure the size and shape of the object. In this case, it would have allowed Dr. Proudfoot and his team to confirm their hypothesis that Varda has a bulge in its shape.

The occultation was only going to be visible over the northern US and Canada, and SFU's Trotter Observatory was of sufficient

size and in the right location to observe it. Dr Woo knew the VRO telescope is also of sufficient size and shared the information to capture the event.

There were several challenges



involved with attempting to capture the occultation, and we only had a couple of hours on the day of the event to work through them.

The first was ensuring that our clocks were synchronized to a standard time server, so that the

timestamps on our pictures could be synchronized with all other data being gathered. This was accomplished easily by forcing a time synchronization in Windows, and by taking a test picture we confirmed the timestamp in the picture headers was visible.

The next was ensuring our pictures would be well-focused. The target star was very faint (only 16.73 magnitude) and right next to a brighter 13.7 magnitude star. As we needed to prep before it became dark, we changed our autofocus routine and changed our binning to 4x4, and picked a very bright star to run the process against. This ran the autofocus routine more efficiently and more quickly in the brighter sky.

The actual transit lasted only a

couple of minutes, which was our next challenge: how to take usable pictures fast enough? When an astrophotography camera takes a picture, there is some “dead time” while it downloads the image, and with our colour camera, extra time to process the debayering. By turning off the debayering, we were able to reduce this dead time to about 2 seconds.

Dr. Proudfoot provided specific coordinates for the star being occulted, but when we entered this into our software, we found it was low on the horizon to the south, which meant it was difficult to resolve the stars due to the time of year, atmosphere, and light pollution. As the capture window drew near, we determined that a 12-second exposure would let us resolve enough stars to confirm the planetarium software view of the area of interest, and capture enough pictures fast enough to catch the actual transit. The dual compromises of 4x4 binning and

12-second exposures would likely minimize the scientific value of our observations, except to verify that an occultation took place.

With these limitations in mind, we proceeded. We slewed the scope to the desired coordinates, centred the target star precisely using plate solving in NINA, and proceeded to take 84 images starting at 22:48 and ending at 23:10.

We brought 15 images (from 22:57 to 23:02) into PixInsight, debayered them, and extracted the luminance channels.

Now, we had to determine the change in brightness of our target across the 15 images. Even though we cannot separate our target from the star beside it, the brightness of the combined image that we see is the sum of the two stars, and the brighter star of the pair that comprises the “star” in our images does not change in brightness. So a change in brightness across images reflects a change in brightness of

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By the Numbers

The Target: The 16.73 magnitude star Gaia DR3 4178905532937521280, with right ascension 17 58 53.1721 and declination -01 30 39.004 was being transited by the dwarf planet candidate Varda at approximately 23:59 on June 16, 2026. It is only ~11 arcseconds away from a much brighter 13.7 magnitude star. 174567 Varda is a Trans-Neptunian Object with a diameter estimated about 740-780km, 6.8bn km from Earth.

Theoretical vs Actual Resolution of the VRO: While our setup has a theoretical resolution of 0.27 arcsec/pixel, under the Bortle 4 skies and poor seeing conditions we have near the city, our practical resolution becomes around 2.5 to 3.5 arcsec/pixel (according to Claude Al). Combine this with our 4x4 binning, and we end up with an image resolution of from 10 to 14 arcsec per image pixel, meaning we cannot separate the bright star from our target star.

Because of the short notice, we did not have time to figure out how to set up a region of interest in the camera, which would have allowed us to only use a small portion of the sensor to image the star. This would have allowed us to bin at 1x1, and theoretically resolve the two stars into separate objects.

Membership has its Privileges!

Are you tired of looking at the same objects again and again (planets, moon, etc.)? Is your telescope collecting dust because it's hard to locate deep sky objects? Would you like to bring your observing to a stellar level? Our observing director leads the Vancouver RASC observing group and invites you to join by sending an email at observing@rasc-vancouver.com. Some of the benefits of belonging to this group include:

- Hands on training on how to operate the SFU Trottier observatory
- Weekly observing sessions at the ob-

servatory or at dark sky locations

- One-one-one coaching on how to locate thousands of objects in the night sky
- Attend small interactive seminars on a range of topics including failsafe star-hopping, charting challenging objects and understanding the motions of the cosmos
- Learn to make your telescope dance by locating objects such as asteroids, nova, and supernovae
- Spectroscopy and imaging training from Howard Trottier and an opportunity to collaborate on observatory

research projects

- Updates on observable sky events happening during the week like asteroid/comet/deep sky conjunctions
- Access to observing guides and lists that Robert Conrad created that took hundreds of hours to create and will help with planning observing sessions
- Knowledge and expertise from other observing group members
- Learn how to quickly and efficiently find and star-hop to deep sky objects using a range of binoculars and telescopes

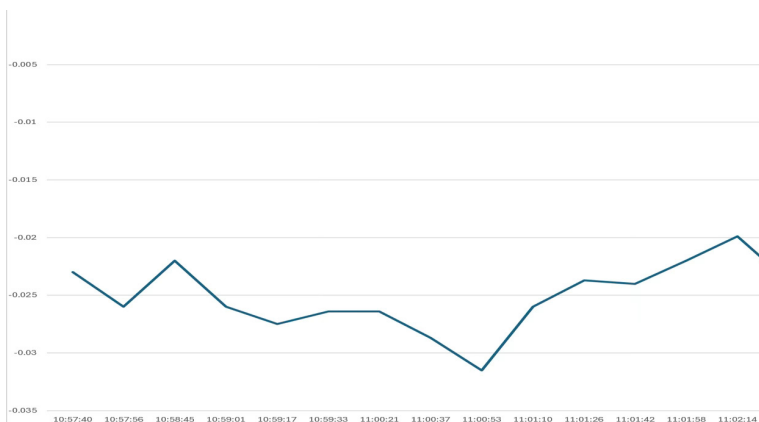
Upcoming Events

September

5-12 – Nahatlatch Valley Star Party

December

10 – AGM



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our target.

The challenge here is twofold:

1. The seeing varies from image to image.
2. The sky was getting darker with each image.

Our approach was:

1. In each image, record the HSV value of our target (in the green box in the image on page 4) and the HSV value of a brighter nearby star (circled in red in the same image). The HSV value essentially records the maximum brightness of the point being measured. The logic here is that the brightness of our target and the brighter star would be impacted equally by the seeing conditions and the darkening sky.
2. Take the delta between the two values—assuming the brighter star’s magnitude is constant, any

change in the delta between images implies a change in brightness of our target.

3. Graph the deltas for the 15 images in the order that they were taken. The result is the graph shown above.

While our process provided at best only a very rough indication, the graph clearly shows a decline in brightness (y axis) over the time period of the occultation (x axis). So, we decided to call the effort a success and submitted our data to Dr. Proudfoot who was happy to assess it for us.

The good news is that he was able to see a drop in flux at the predicted time of the event. However, our signal to noise ratio was low, and there were drops of nearly the same size at other points in the data, so he had to label our results as “inconclusive”. He said many other datasets he analyzed showed the same thing, so it wasn’t that we

had a specific issue.

He said that this was a very dim target star and for brighter star occultations our configuration would be able to produce solid data. His team is actively looking for more opportunities, and he will get in touch when he has an occultation we can help with.

The key takeaway from this experience is that the VRO can be used for scientific contributions, and that we will look for opportunities to do so in the future! ★

Glossary Terms

Debayering is the digital process of converting incomplete colour samples from a One-Shot Color (OSC) camera’s sensor into a full-colour image. It uses algorithms to interpolate surrounding pixels, filling in the missing colour channels (Red, Green, Blue) for every single pixel.

Binning is the process of combining adjacent pixels on a camera sensor to act as one larger “super-pixel.” While this reduces the overall image resolution, it significantly improves the image’s signal-to-noise ratio (SNR), making it much easier to pull faint objects, such as distant nebulae and galaxies, out of the background noise.

HSV stands for Hue, Saturation and Value, a colour model that’s used in astrophotography to separate colour characteristics (chrominance) from brightness (luminance).

Imaging Group News

by Marla Daskis

Meetings and Presentations

The May meeting was online instead of at the VRO due to uncooperative weather.

The WhatsApp group continues to be very active, with members supporting each other answering questions and comparing notes.

Trottier Observatory Sessions

We've been using NINA more consistently for Trottier sessions and are finding it works well, though some issues exist with autofocus.

We have had only two imaging sessions (NGC 6820) and a couple of training sessions on the telescope as well. As always, if you are interested in learning how to use the Trottier scope, please contact the Imaging Group email and we will follow up with more information. Having a reliable group able to attend Tuesday evening sessions ensures our opportunities to access this world-class telescope continue.

Vancouver RASC Observatory News

Work continues at the VRO. New dome motors have been installed, and the dome is now shining clean. In the office space, a new cable management track was installed and the computer relocated to the pier room (to reduce the cable run from the telescope to the computer).

We've got NINA configured now to manage the dome, and this, coupled with the excellent performance of the solar panels and batteries, has enabled us to extend imaging sessions considerably.

Ten nights of data for NGC 6820 and two nights of NGC 7822 were captured and transferred to the Google Drive, and as detailed elsewhere in this NOVA, we had a great opportunity to capture the dwarf planet Varda's transit of a star. We've also done some work on standardizing folder names for the drive—next step is to confirm we have all the calibration files for the exist-

Imaging Group Meetings:

- 3rd Thursday of every month
- Quarterly In-Person at SFU
- Contact Imaging@rasc-vancouver.com to be added to email list for invites.

Benefits:

- Like-minded people to share with
- Range of skills from beginner to expert
- Active WhatsApp group chat
- Access to world-class imaging equipment
- Member viewing at VRO

Please note: You must be a RASC Vancouver member to join the imaging group.

ing subs.

We are also working on an exciting new project to bring a visual-only telescope observatory on site. As plans firm up, we will be sharing more information.

Thanks go to Tyler, Bart, Rick, Alan and Marla for the past couple of months. ★

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are considering options for next year.

SFU Starry Nights started with a bang in January but since then we have only met three times. Be ready to go when we finally get to return!

Halfway into the year, I have achieved a new level

of appreciation on the number of hours put in by all our volunteers. Thanks to all those contributing to Events, Speakers, Observatory, and Imaging which stand out as the functions that require a lot of time. Even with the huge contributions from the council, there is still so much

more we would like to do. Have passion and time to contribute? Reach out to anyone on council. Have a topic, speaker, or other idea for our 2nd Thursday of the month meetings? Please let us know! Andrew is working on a schedule for the coming months and input is always welcome. ★

Supporting Youth Science in BC and Yukon: Martha Ellen Pearse Awards

by Marla Daskis

Every year, the RASC Vancouver Centre is proud to support the Science Fair Foundation of BC by funding the Martha Ellen Pearse Awards, where one recipient from each area in BC and Yukon Territory is awarded a \$50 cash prize for the best astronomy or physics project that demonstrates creativity,

innovation and contributes to a greater public understanding of science. Students in all grades are eligible. Martha Ellen Pearse was a RASC Vancouver Centre member who provided a legacy estate donation in 2008, and we have been funding youth science in her name since then.

2026 marked the return of the Okanagan Shuswap Regional Science fair, bringing the total number of regional fairs to thirteen. Over 1400 participants from grades 2 to 12 attended across all the fairs, an increase of over 100 participants from 2025.

The winners for 2026 are:

Region	Awardee	Grade	Project Title
Okanagan Shuswap	Joseph Hawkins	6	JRH Jagged Ridge Hunter
Northern BC	William Day	7	Voltage Rising
East Kootenay	Elliot Etue	7	Snow Stop
Fraser Valley	Mirajita Singh	7	Breakwater Structures
Cariboo Mainline	Liam MacDonald & Calvin Scott	7	Sweet Spot
South Fraser	Gurnoor Singh	9	GLOW (Generating Light Out of Waste)
Yukon-Stikine	Everett Kostelnik	6	Celestial Navigation
Vancouver Island	Jared Qin	10	Discovering Hidden Galaxy Mergers: Finding Real Mergers Missed by Current Detection Methods
Northern Vancouver Island	Fife Krkosek	7	Sustainable AI
West Kootenay Regional Science Fair	Theo Hayes	3	Electrical Exploration - Watt! Watt!
Pacific Northwest	Eve Hoffman & Lola Pyper	3	What Recipe Makes the Biggest Bubble?
Greater Vancouver	Kyle Tsui & Heyi Li	N/A	Analyzing the Effectiveness of Muon Tomography as a Non-Invasive Assessment of Seawall Degradation

It's great to see the scope of the projects and we're happy to be supporting the next generation of scientists beginning

their journeys!

Two pictures of some of this year's winners are on the facing page: Theo Hayes of the West

Kootenays (top) and Joseph Hawkins from Okanagan Shuswap (bottom). ✨



Monthly Dark Hours for Vancouver

by Robert Conrad

Date - July 2026 (UT -8)	Sunset	Twilight ends	Twilight begins	Sunrise	Moonrise	Moonset	Hrs Dark	Moon %	Prime time
Wednesday, July 1, 2026	9:21 PM	12:00 AM	12:00 AM	5:12 AM	10:52 PM	7:41 AM	0:00:00	98.2	None
Thursday, July 2, 2026	9:21 PM	12:00 AM	12:00 AM	5:13 AM	11:11 PM	8:54 AM	0:00:00	94.6	None
Friday, July 3, 2026	9:21 PM	12:00 AM	12:00 AM	5:13 AM	11:28 PM	10:06 AM	0:00:00	89.2	None
Saturday, July 4, 2026	9:20 PM	12:00 AM	12:00 AM	5:14 AM	11:42 PM	11:19 AM	0:00:00	82.1	None
Sunday, July 5, 2026	9:20 PM	1:05 AM	1:30 AM	5:15 AM	11:56 PM	11:19 AM	0:00:00	73.5	None
Monday, July 6, 2026	9:19 PM	12:56 AM	1:39 AM	5:16 AM	12:10 AM	12:33 PM	0:00:00	63.5	None
Tuesday, July 7, 2026	9:19 PM	12:50 AM	1:46 AM	5:17 AM	12:26 AM	1:49 PM	0:00:00	52.7	None
Wednesday, July 8, 2026	9:18 PM	12:44 AM	1:51 AM	5:18 AM	12:46 AM	3:10 PM	0:02:00	41.3	12:44 AM - 12:46 AM
Thursday, July 9, 2026	9:18 PM	12:40 AM	1:56 AM	5:18 AM	1:13 AM	4:35 PM	0:33:00	30.1	12:40 AM - 1:13 AM
Friday, July 10, 2026	9:17 PM	12:35 AM	2:01 AM	5:19 AM	1:50 AM	6:02 PM	1:15:00	19.6	12:35 AM - 1:50 AM
Saturday, July 11, 2026	9:16 PM	12:31 AM	2:06 AM	5:20 AM	2:44 AM	7:23 PM	1:35:00	10.7	12:31 AM - 2:06 AM
Sunday, July 12, 2026	9:15 PM	12:27 AM	2:10 AM	5:21 AM	3:56 AM	8:30 PM	1:43:00	4.2	12:27 AM - 2:10 AM
Monday, July 13, 2026	9:15 PM	12:23 AM	2:14 AM	5:22 AM	5:22 AM	9:20 PM	1:51:00	0.6	12:23 AM - 2:14 AM
Tuesday, July 14, 2026	9:14 PM	12:19 AM	2:18 AM	5:24 AM	6:52 AM	9:54 PM	1:59:00	0.4	12:19 AM - 2:18 AM
Wednesday, July 15, 2026	9:13 PM	12:16 AM	2:22 AM	5:25 AM	8:19 AM	10:19 PM	2:06:00	3.3	12:16 AM - 2:22 AM
Thursday, July 16, 2026	9:12 PM	12:12 AM	2:26 AM	5:26 AM	9:42 AM	10:39 PM	2:14:00	8.9	12:12 AM - 2:26 AM
Friday, July 17, 2026	9:11 PM	12:08 AM	2:29 AM	5:27 AM	11:00 AM	10:54 PM	2:21:00	16.7	12:08 AM - 2:29 AM
Saturday, July 18, 2026	9:10 PM	12:05 AM	2:33 AM	5:28 AM	11:00 AM	11:09 PM	2:28:00	25.9	12:05 AM - 2:33 AM
Sunday, July 19, 2026	9:09 PM	12:02 AM	2:37 AM	5:29 AM	12:15 PM	11:23 PM	2:35:00	35.9	12:02 AM - 2:37 AM
Monday, July 20, 2026	9:08 PM	11:58 PM	2:40 AM	5:30 AM	1:28 PM	11:38 PM	2:42:00	46.2	11:58 PM - 2:40 AM
Tuesday, July 21, 2026	9:07 PM	11:55 PM	2:43 AM	5:32 AM	2:41 PM	11:56 PM	2:57:00	56.4	11:56 PM - 2:43 AM
Wednesday, July 22, 2026	9:06 PM	11:52 PM	2:47 AM	5:33 AM	3:53 PM	12:18 AM	2:29:00	66.1	12:18 AM - 2:47 AM
Thursday, July 23, 2026	9:04 PM	11:48 PM	2:50 AM	5:34 AM	5:03 PM	12:46 AM	2:04:00	75.1	12:46 AM - 2:50 AM
Friday, July 24, 2026	9:03 PM	11:45 PM	2:53 AM	5:35 AM	6:08 PM	1:23 AM	1:30:00	83.0	1:23 AM - 2:53 AM
Saturday, July 25, 2026	9:02 PM	11:42 PM	2:57 AM	5:37 AM	7:06 PM	2:12 AM	0:45:00	89.7	2:12 AM - 2:57 AM
Sunday, July 26, 2026	9:01 PM	11:39 PM	3:00 AM	5:38 AM	7:53 PM	3:11 AM	0:00:00	94.9	None
Monday, July 27, 2026	8:59 PM	11:36 PM	3:03 AM	5:39 AM	8:29 PM	4:18 AM	0:00:00	94.9	None
Tuesday, July 28, 2026	8:58 PM	11:32 PM	3:06 AM	5:41 AM	8:56 PM	5:30 AM	0:00:00	98.3	None
Wednesday, July 29, 2026	8:56 PM	11:29 PM	3:09 AM	5:42 AM	9:18 PM	6:43 AM	0:00:00	99.9	None
Thursday, July 30, 2026	8:55 PM	11:26 PM	3:12 AM	5:43 AM	9:35 PM	7:56 AM	0:00:00	99.4	None
Friday, July 31, 2026	8:54 PM	11:23 PM	3:15 AM	5:45 AM	9:50 PM	9:09 AM	0:00:00	96.9	None

VancouverTotal33:09:00

Date - August 2026 (UT -8)	Sunset	Twilight ends	Twilight begins	Sunrise	Moonrise	Moonset	Hrs Dark	Moon %	Prime time
Saturday, August 1, 2026	8:52 PM	11:20 PM	3:18 AM	5:46 AM	10:04 PM	10:23 AM	0:00:00	92.2	None
Sunday, August 2, 2026	8:50 PM	11:17 PM	3:21 AM	5:47 AM	10:17 PM	11:38 AM	0:00:00	85.6	None
Monday, August 3, 2026	8:49 PM	11:14 PM	3:24 AM	5:49 AM	10:33 PM	12:56 PM	0:00:00	77.2	None
Tuesday, August 4, 2026	8:47 PM	11:11 PM	3:27 AM	5:50 AM	10:51 PM	12:57 PM	0:00:00	67.2	None
Wednesday, August 5, 2026	8:46 PM	11:08 PM	3:29 AM	5:52 AM	11:14 PM	2:19 PM	0:06:00	56.2	11:08 PM - 11:14 PM
Thursday, August 6, 2026	8:44 PM	11:05 PM	3:32 AM	5:53 AM	11:45 PM	3:43 PM	0:40:00	44.5	11:05 PM - 11:45 PM
Friday, August 7, 2026	8:42 PM	11:02 PM	3:35 AM	5:54 AM	12:31 AM	5:04 PM	1:29:00	32.8	11:02 PM - 12:31 AM
Saturday, August 8, 2026	8:41 PM	10:59 PM	3:37 AM	5:56 AM	1:33 AM	6:15 PM	2:34:00	21.9	10:59 PM - 1:33 AM
Sunday, August 9, 2026	8:39 PM	10:56 PM	3:40 AM	5:57 AM	2:52 AM	7:11 PM	3:56:00	12.5	10:56 PM - 2:52 AM
Monday, August 10, 2026	8:37 PM	10:53 PM	3:43 AM	5:59 AM	4:19 AM	7:51 PM	4:50:00	5.5	10:53 PM - 3:43 AM
Tuesday, August 11, 2026	8:36 PM	10:50 PM	3:45 AM	6:00 AM	5:48 AM	8:20 PM	4:55:00	1.2	10:50 PM - 3:45 AM
Wednesday, August 12, 2026	8:34 PM	10:47 PM	3:48 AM	6:02 AM	7:13 AM	8:41 PM	5:01:00	0.0	10:47 PM - 3:48 AM
Thursday, August 13, 2026	8:32 PM	10:44 PM	3:51 AM	6:03 AM	8:35 AM	8:58 PM	5:07:00	1.8	10:44 PM - 3:51 AM
Friday, August 14, 2026	8:30 PM	10:42 PM	3:53 AM	6:04 AM	9:53 AM	9:13 PM	5:11:00	6.2	10:42 PM - 3:53 AM
Saturday, August 15, 2026	8:28 PM	10:39 PM	3:56 AM	6:06 AM	11:08 AM	9:28 PM	5:17:00	12.7	10:39 PM - 3:56 AM
Sunday, August 16, 2026	8:27 PM	10:36 PM	3:58 AM	6:07 AM	11:08 AM	9:43 PM	5:22:00	20.8	10:36 PM - 3:58 AM
Monday, August 17, 2026	8:25 PM	10:33 PM	4:00 AM	6:09 AM	12:23 PM	10:00 PM	5:27:00	30.0	10:33 PM - 4:00 AM
Tuesday, August 18, 2026	8:23 PM	10:30 PM	4:03 AM	6:10 AM	1:37 PM	10:20 PM	5:33:00	39.8	10:30 PM - 4:03 AM
Wednesday, August 19, 2026	8:21 PM	10:27 PM	4:05 AM	6:12 AM	2:49 PM	10:46 PM	5:19:00	49.8	10:46 PM - 4:05 AM
Thursday, August 20, 2026	8:19 PM	10:24 PM	4:08 AM	6:13 AM	3:57 PM	11:20 PM	4:48:00	59.6	11:20 PM - 4:08 AM
Friday, August 21, 2026	8:17 PM	10:22 PM	4:10 AM	6:15 AM	4:58 PM	12:04 AM	4:06:00	69.0	12:04 AM - 4:10 AM
Saturday, August 22, 2026	8:15 PM	10:19 PM	4:12 AM	6:16 AM	5:49 PM	12:59 AM	3:13:00	77.7	12:59 AM - 4:12 AM
Sunday, August 23, 2026	8:13 PM	10:16 PM	4:14 AM	6:17 AM	6:29 PM	2:04 AM	2:10:00	85.3	2:04 AM - 4:14 AM
Monday, August 24, 2026	8:11 PM	10:13 PM	4:17 AM	6:19 AM	6:59 PM	3:15 AM	1:02:00	91.6	3:15 AM - 4:17 AM
Tuesday, August 25, 2026	8:09 PM	10:10 PM	4:19 AM	6:20 AM	7:23 PM	4:28 AM	0:00:00	96.4	None
Wednesday, August 26, 2026	8:07 PM	10:08 PM	4:21 AM	6:22 AM	7:42 PM	5:42 AM	0:00:00	96.4	None
Thursday, August 27, 2026	8:05 PM	10:05 PM	4:23 AM	6:23 AM	7:57 PM	6:56 AM	0:00:00	99.2	None
Friday, August 28, 2026	8:03 PM	10:02 PM	4:25 AM	6:25 AM	8:12 PM	8:11 AM	0:00:00	100.0	None
Saturday, August 29, 2026	8:01 PM	9:59 PM	4:28 AM	6:26 AM	8:25 PM	9:27 AM	0:00:00	98.4	None
Sunday, August 30, 2026	7:59 PM	9:57 PM	4:30 AM	6:28 AM	8:40 PM	10:45 AM	0:00:00	94.6	None
Monday, August 31, 2026	7:57 PM	9:54 PM	4:32 AM	6:29 AM	8:57 PM	10:46 AM	0:00:00	88.4	None

VancouverTotal76:06:00

August 12, 2026 Solar Eclipse

Total Solar Eclipse of 2026 Aug 12

Geocentric Conjunction = 17:03:39.9 UT J.D. = 2461265.210878

Greatest Eclipse = 17:45:43.7 UT J.D. = 2461265.240089

Eclipse Magnitude = 1.0386 Gamma = 0.8976

Saros Series = 126 Member = 48 of 72

Sun at Greatest Eclipse
(Geocentric Coordinates)

R.A. = 09h29m47.2s

Dec. = +14°48'04.7"

S.D. = 00°15'47.0"

H.P. = 00°00'08.7"

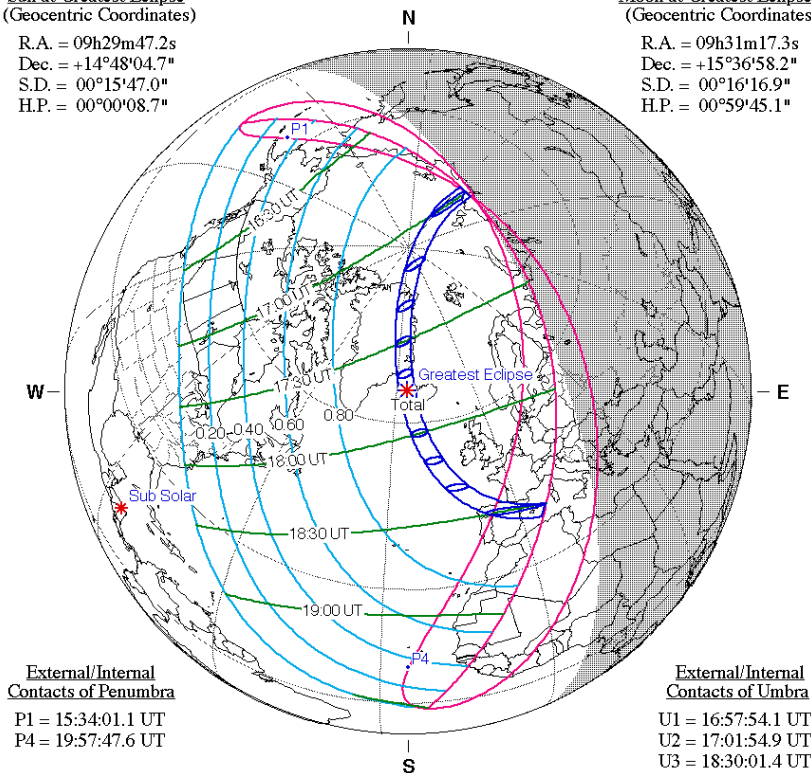
Moon at Greatest Eclipse
(Geocentric Coordinates)

R.A. = 09h31m17.3s

Dec. = +15°36'58.2"

S.D. = 00°16'16.9"

H.P. = 00°59'45.1"



External/Internal
Contacts of Penumbra

P1 = 15:34:01.1 UT

P4 = 19:57:47.6 UT

External/Internal
Contacts of Umbra

U1 = 16:57:54.1 UT

U2 = 17:01:54.9 UT

U3 = 18:30:01.4 UT

U4 = 18:33:57.4 UT

Local Circumstances at Greatest Eclipse

Lat. = 65°13.0'N

Sun Alt. = 25.8°

Long. = 025°13.6'W

Sun Azm. = 248.3°

Path Width = 293.8 km

Duration = 02m18.3s

Ephemeris & Constants

Eph. = Newcomb/JLE

ΔT = 83.8 s

k1 = 0.2724880

k2 = 0.2722810

Δb = 0.0" Δl = 0.0"

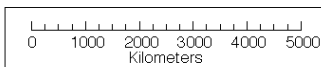
Geocentric Libration
(Optical + Physical)

l = 4.08°

b = -1.12°

c = 16.98°

Brown Lun. No. = 1282



F. Espenak, NASA's GSFC - Fri, Jul 2,

sunearth.gsfc.nasa.gov/eclipse/eclipse.html

NGC 6820

by Rick Schneider

This is maybe the first decent image from the fully robotic VRO. It is a detail of the heart of NGC 6820, an emission nebula surrounding and illuminated by the open cluster NGC 6823. It turned out pretty well in spite of numerous challenges:

- 25 hours of data was collected, but only 15 hours were processed to make the image (seeing was often interrupted by high cloud, so a lot of data was discarded).
- The calibration flats we had were very poor, so it was processed without calibration flats.
- We had a tracking issue, so stars were slightly elongated.

Data was taken by Alan, Marla and myself.

