

Nova Notes

The Newsletter of the Halifax Centre of the Royal Astronomical Society of Canada

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FEATURING:

2024 QILAK AWARD
GOES TO....BY JUDY
BLACK 5

REGISTER NOW FOR
NOVA EAST 6

CELEBRATING
INTERNATIONAL
ASTRONOMY DAY AT
HALIFAX DISCOVERY
CENTRE 7

GIANT SUNSPOT AR3664
CAUSES AURORA 8

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PLUS ALL YOUR FAVOURITE
REGULAR FEATURES!

MAY / JUNE 2024

VOL 55 NO 3



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Cover Photos:

Main Photo:

Aurora over Shubenacadie, NS
Taken with DSLR with a
Tamron SP AF 20-40mm f/2.7-3.5
Aspherical lens. Mildly processed
in Adobe Lightroom
.by **Michael Gatto**

Thumbnails (-r):

St. Croix Observatory
drawing by
Mary Lou Whitehorne

Note: All photos and original works in this edition are the copyrighted property of the photographers, writers and artists. Permission to use any of their photos for other purposes must be obtained from the photographer.

From the Editor

Every year here in New Jersey, the World Series of Birding competition is basically a 24-hour bird-a-thon hosted by New Jersey Audubon. It seeks to raise funds for conservation causes across the Garden State. This year, the competition was May 11. My husband Rob has been participating for decades, and this year was no different. So, as he was going to bed early, the night of May 10, I was watching the aurora forecast quite closely. Unfortunately, I watched the cloud forecast even closer.

Rob woke up and was getting ready to leave to meet his Monmouth County Parks System team at 2 a.m. when I was still frantically running around trying to find a break in the clouds. Unable to sleep at this point, I continued to doom scroll my social media feeds as friends from across Canada and New England posted photo after photo. Next came the photo from a friend in Mississippi!! What?!? Back to the weather apps I went.

By 4 a.m. the skies cleared as if by some miracle and a friend in Cape May, NJ (two hours south of me), who was in the middle of a marsh listening for rails, posted that the aurora was still going strong! I deliriously wandered into my backyard and I could see what looked almost like a line of haze, almost like seeing the Milky Way except this was no Milky Way! I held up my iPhone, set it to a 10-second exposure. I could not believe my human eyes! There it was! I snapped photo after photo of the dancing magenta and purple pillars that extended beyond our condo's tree line.

The moral of the story is that sometimes those old clichés really are true... one should "never say never."

It will certainly be interesting to see what the rest of Solar Cycle 25 has to offer. I have a feeling there may be a few more sleepless nights to come for us all courtesy of the Sun.



Northern Lights as seen from my backyard in Central New Jersey the morning of May 11 (4:36 AM EDT.) No filters, no edits - straight out of the iPhone 13, 10-second exposure by Lisa Ann Fanning

With continued gratitude,


Lisa

Upcoming Meeting Dates

- September 7, 2024 - BBQ in lieu of meeting
- October 5, 2024 – Luigi Gallo (JAXA's XRISM satellite)
- November 2, 2024 Charles Ennis (World Asterism Project)
- December 2 (Members Meeting + AGM)

We are now hosting hybrid live/Zoom Members' Meetings. Halifax Centre meetings are usually held on the first Saturday of the month, except for July and August.

Come join us in-person in Room AT101 at Saint Mary's University or by pre-registering for the meeting on Zoom.

For information about the meeting and how to register for the Zoom session, please visit <https://halifax.rasc.ca/index.php/activities/rasc-events>

For past meeting replays, visit our YouTube Channel <https://www.youtube.com/c/raschalifax>

St. Croix Observatory

Part of your membership in the Halifax RASC includes access to our observatory, located in the community of St. Croix, NS. The site has expanded over the last few years and includes a roll-off roof observatory with electrical outlets, a warm-room, and toilet facilities. We welcome you to bring your own equipment or to use the Centre's 400-mm Dobsonian telescope, 100-mm binoculars, and the recently acquired SCT and gear for astro-imaging.

Enjoy dark pristine skies far away from city lights and the company of like-minded observers searching out those faint "fuzzies" in the night. Most clear Moon-free nights, you will find our keen observers out there! Announcements of members visiting SCO are made on the Centre's Discussion List. If you are not a key holder and would like to become one or need more information, please contact the SCO Manager, John Liddard, at scomanager@halifax.rasc.ca.

SCO is Open!

Go to our website (<https://halifax.rasc.ca>) for the latest SCO usage guidelines and conditions.



St. Croix Observatory
drawing by Mary Lou Whitehorne

NOTE: As of Fall 2023, the building has lights again!
(Thanks to Tony McGrath and Peter Hurley, the lights have been connected to 110v AC power.)

Halifax RASC Board of Directors, 2024

Elected	
President	Tony McGrath
Vice-President	Judy Black
Secretary	Peter Hurley
Treasurer	Gregg Dill
Director	Matthew Dyer
Director	David Hoskin
Director	John Nangreaves
Director	Dave Robertson
Appointed	
Honorary President	Mary Lou Whitehorne
Auditor	TBD
Communications Committee, Chair	Judy Black
Dark-Sky Preserve Committee, Co-Chair	Peter Hurley
Dark-Sky Preserve Committee, Co-Chair	Tony Schellinck
Education & Public Outreach (EPO) Chair	David Hoskin
Governance Committee, Chair	Judy Black
Librarian	Jerry Black
National Council Representative	Judy Black
Nominating Committee, Chair	Peter Hurley
Nova Notes, Editor	Lisa Ann Fanning
Nova Notes, Copy Editor	John McPhee
Observing / EPO Chair	David Hoskin
St. Croix Observatory, Manager	John Liddard
Webmaster	Jerry Black

SAVE THE DATES FOR 2024!

Dark-Sky Weekend
August 2-4, 2024

New Moon August 4, 2024

**Nova East Star Party -
Blomidon Edition**
August 9-11, 2024



A Message from the President

Hello Halifax RASCals

As we transition into the summer months, I hope this message finds you well and enjoying the longer days and warmer weather.

Summer brings with it many opportunities for outdoor activities, vacations, and spending time with family and friends. However, it also results in a slowdown of some of our centre's activities, with no members meeting in July or August.

Of course summer is the time for our annual star party, Nova East, which will be held August 9-11. As you may be aware, the normal home of Nova East, Smiley's Provincial Park, was severely damaged during last summer's flash flooding.

As a result we have moved Nova East for this year to Blomidon Provincial Park. The NE website is up, and in the process of being updated. It should be populated with full details of the program and registration information in the near future.

Over the summer we will continue with informal observing nights for those interested. I encourage everyone interested in observing to keep an eye on the discussion list, as SCO key holders always post their plans for observing runs and encourage those interested to attend.

We hope to also offer some lunar observing opportunities within HRM. This is very much a work in progress; but we have identified several sites (they're listed in the 2024 plan) that provide quick access. We hope to run a couple of sessions over the summer.

If any member is keen to take the lead on such a session, please let me know at the email address below. Again keep your eye on the discussion list, as any sessions shall be advertised there.

September will see the resumption of our monthly members meetings as well as monthly SCO Observing nights. Fall shall also be the time when we once again take up activities associated with the 2024 plan. Every member should have received a copy of the plan, and I encourage all hands to review the document and give some thought to how you might like to participate. Please reach out to me with any comments, questions or suggestions.

Have a wonderful summer, and I look forward to seeing you at our next gathering!

Best Regards

Tony McGrath

Email the Centre Executive:
president@halifax.rasc.ca

Nova Notes: The Newsletter of the Halifax Centre of the RASC **PO Box 31011, Halifax, Nova Scotia B3K 5T9**

Nova Notes is published five times a year, in February, April, June/July, September/October and December.

The opinions expressed herein are not necessarily those of the Halifax Centre.

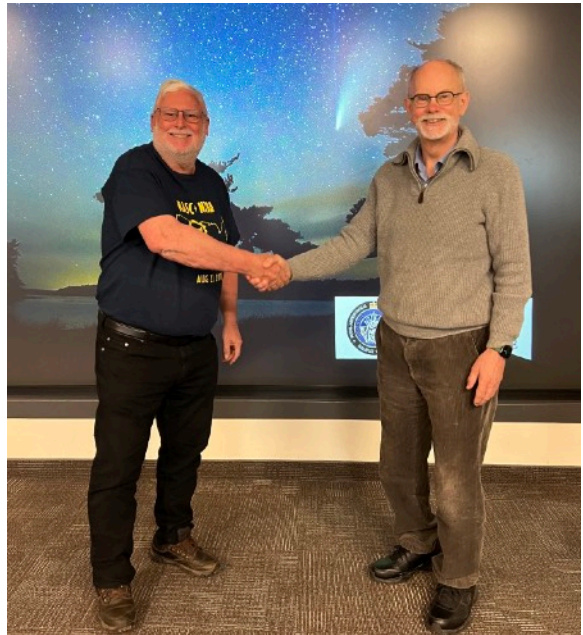
Articles on any aspect of astronomy and related activities will be considered for publication.

2024 Qilak Award goes to....

By Judy Black

First of all, what is the Qilak Award? Established in 2011, it recognizes individual Canadian residents or teams of residents who have made an outstanding contribution in Canada either to the public understanding and appreciation of astronomy or to informal astronomy education, and to promote such activities among the members of the sponsoring organizations. The 2024 winner was formally announced at the RASC General Assembly, and the winner was congratulated at our May 11 members' meeting.

And the winner of the 2024 Qilak Award is Tony Schellinck! Volunteer and observer extraordinaire. Tony is the second of our Centre to be presented this award; the other was Paul Heath in 2017. It should also be noted that two of the 13 Qilak recipients are from Halifax Centre. Dave Chapman, champion of the nomination, and members of the RASC Halifax Centre Board of Directors forwarded the nomination, which according to the Awards Chair, was the longest nomination ever received – and no wonder given the depth and breadth of his involvement.



Tony Schellinck's education and outreach work is utterly unique and unlike anything else done in Canada. It is remarkably creative, delivered with energy, passion, and humour. Its variety, depth, breadth, scope, and success are astonishing. It meets peoples' interest and curiosity "where they live." Tony engages peoples' hearts and minds at their level, and enables people to engage with the universe immediately, joyously, and personally. Tony brings the universe to people at ground level—his audiences are expertly and efficiently guided to a key understanding, that the stars, as Helen Sawyer Hogg always said, really do belong to everyone!

Tony has created several innovative activities for astronomy outreach. These were outlined in his article RASC Outreach: Endless Opportunities for Creative Engagement with Novice Observers, published in JRASC February 2018 (pages 18–21). These include the Binocular Table and Ace Amateur Astronomer (used at Nova East, the Dark-Sky Weekend (DSW) at Kejimikujik National Park, and other outreach events), Telescope Plaza, flat-screen planetarium, and his 2015 Star Trek play (presented at Hal-Con in Halifax, Caper-Con in Sydney and Central Library in Halifax). He also produced 7 instructional videos on observing and telescopes on our RASC YouTube site (<https://www.youtube.com/c/RASCHalifax>).

In recent years, he has been involved with the Seniors College Association of Nova Scotia (SCANS) where he has taught many how to observe the night skies with binoculars and how the telescope changed who we are and what we know.

(continued on next page)

Tony was part of the RASC Halifax Centre team that negotiated the first Partnering Agreement for a Dark-Sky Preserve (DSP) between Parks Canada and a RASC Centre and presented dark-sky issues at a Kejimikujik Management Plan Meeting (2019). In recent years, Tony actively assisted in organizing the DSW. Currently, he is Co-Chair of the RASC Halifax Centre DSP Committee and the principal contact with Kejimikujik.

From the Chair of the RASC Education and Public Outreach (EPO) Committee, Lauri Roche: “Tony has worked on one of our main projects, the RASC Novice Observing Program. He has been a great supporter of using naked eye and binoculars for observing and we support and promote his Ace Amateur Astronomer program. He has helped unwaveringly when we needed something edited or reviewed, works quietly but efficiently, and gets things done. I hope he stays with us as we need his calm demeanour and thoughtfulness on our committee.”

Not mentioned above is his willingness to mentor those new to the hobby. I was one of those souls in 2013 and his enthusiasm and love of the night sky had me hooked on looking up. He continues to this day to surprise me with another ‘oh, wow’ moment, and I’m sure there are many more who have come to love astronomy because of his love of sharing the stars. In closing, here are Tony’s own words from the JRASC article:

People have a real hunger to learn about what is in the sky and to have the experience of finding deep-sky objects themselves. I have the ability to help them fulfill this need. Outreach provides me with satisfaction, learning, challenges, opportunities for fulfillment, and a way to give back to the communities in which I live.

Congratulations, Tony, from all of us in the RASC Halifax Centre!

Register Now!



Stars & Birds
Nova East 2024

Nova East Star Party

August 9-11, 2024

Blomidon Provincial Park
Kings County, NS

Atlantic Canada's Longest-Running Star Party

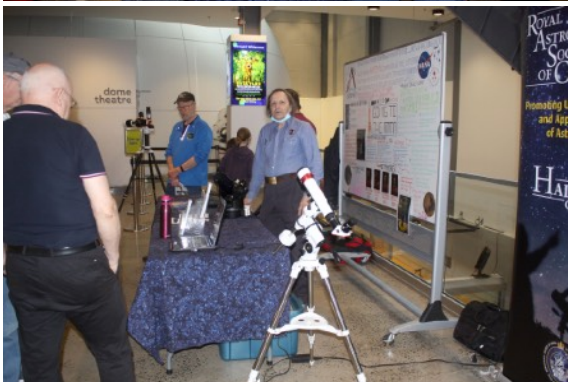
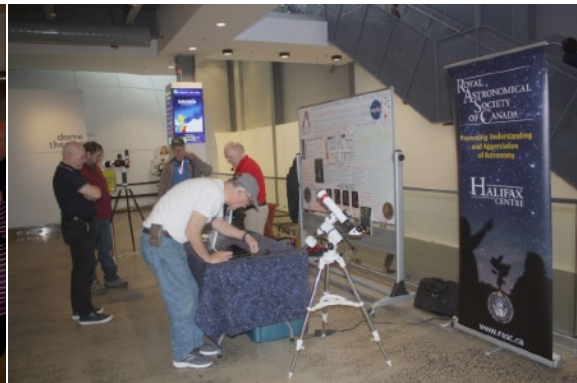
See <https://novaeast.rasc.ca/> for more information and updates.

Celebrating International Astronomy Day

Sharing a passion at Halifax Discovery Centre

Text by David Hoskin, Photos courtesy of Michael Boschat and David Hoskin

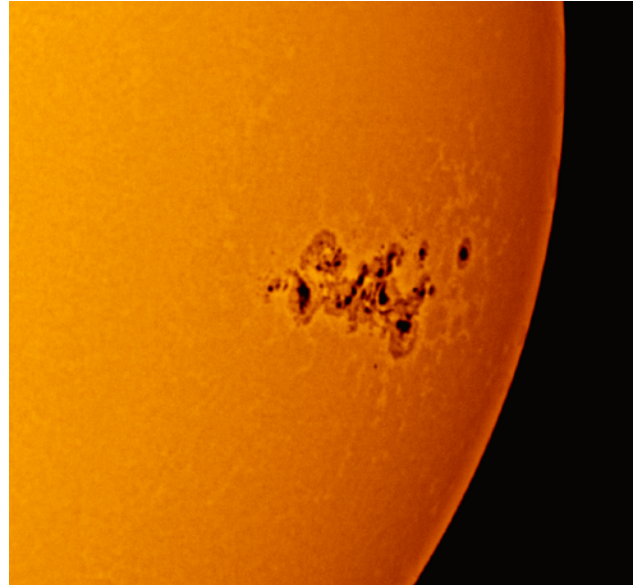
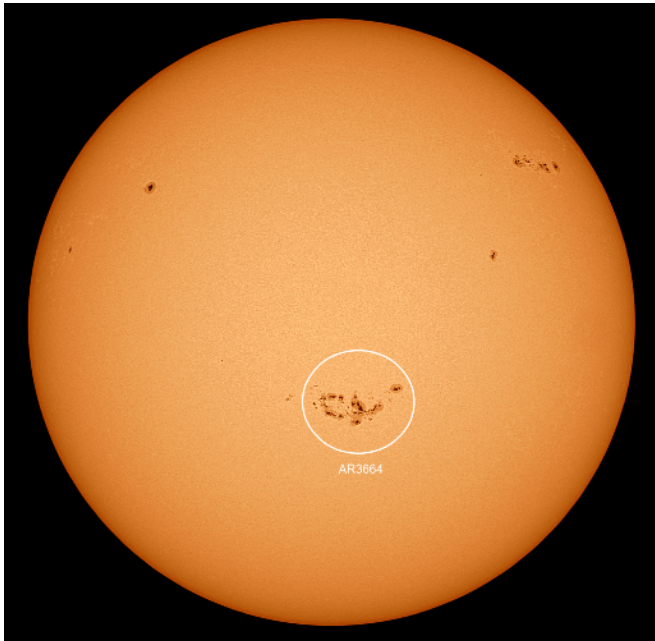
On May 18, 2024, in recognition of International Astronomy Day, the Halifax Discovery Centre hosted an astronomy display manned by RASC Halifax Centre members (left to right: Peter Hurlley, Matt Dyer, Gerry Brosky, David Hoskin, Wayne Harasimovitch, Michael Boschat). A constant stream of visitors (about 200, mostly in family groups) had astronomy-related questions answered, handled meteorites and tektites, and received star finders and lunar maps.



Giant Sunspot AR3664 Causes Aurora

Photos By David Hoskin

David Hoskin provided some great looks at sunspot, AR3664, which was around 15 times as wide as Earth when it fired off a series of coronal mass ejections. This event led to the Northern Lights being seen across Canada and all 50 U.S. states and even beyond.



David Hoskin writes “The whole disk white light image (above, left) (false color added using Photoshop) was captured on May 7, one day before AR3664 unleashed the series of CMEs that gave us the May 10 aurora. At this time AR3664 was Earth-directed and nearing the size of the Carrington Event sunspot.

The close-up image (above, right) was captured on May 11 as AR3664, still huge and very active, was nearing the SW limb of the Sun.”

Below, one of David’s photos from the spectacular aurora of May 10, 2024.



Aurora Display over Shubenacadie

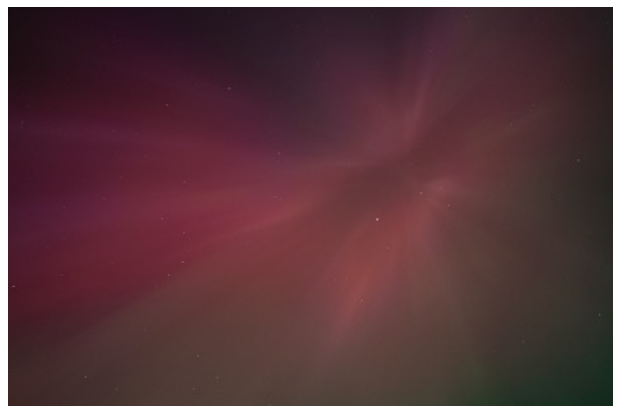
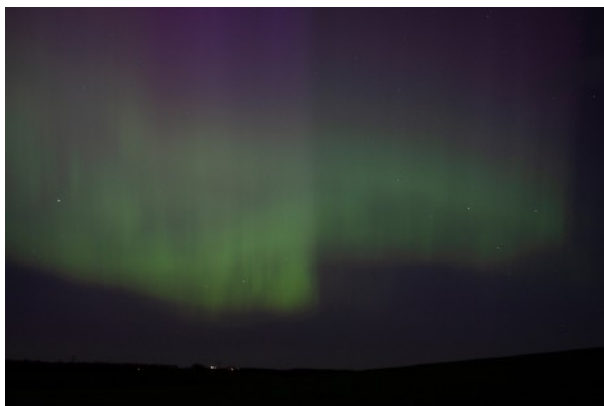
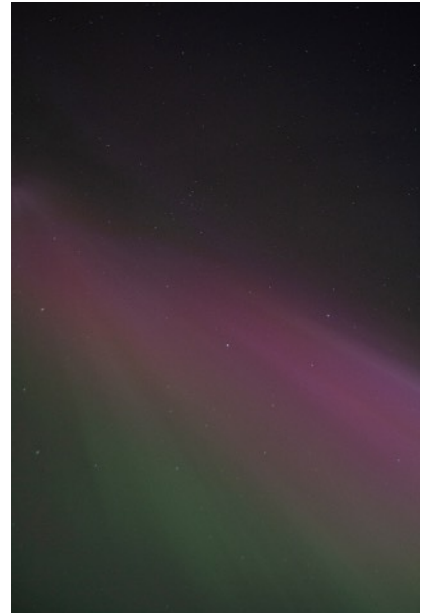
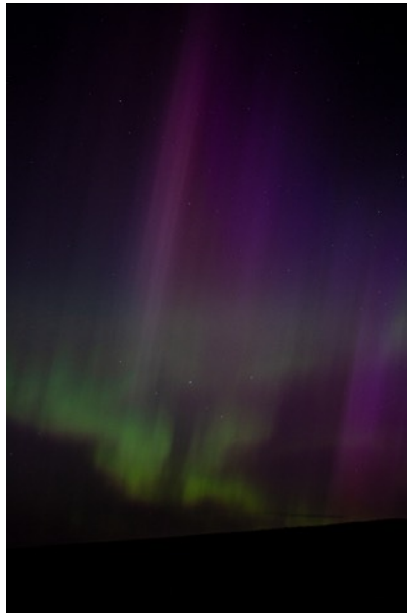
Story and photos by Michael Gatto

Here's my contribution to the great Aurora photo-dump :) I feel like between this display, all the sunspots lately and of course the eclipse, the Sun is really just showing off.

I ended up driving out to Shubenacadie from Cole Harbour to find some clear dark skies. I stopped on a rural road in a farmer's field and was taking pictures from around 10:30 pm until about 12:45 am. Clouds had mostly moved in by then but it was still going strong.

It was pretty amazing, having the Moon setting complete with Earthshine was a bonus! At times it was just activity in every direction, with structures sometimes spanning the whole sky horizon to horizon.

During one really intense peak, colours (greens and dim reds) were easily visible to the unaided eye. These few selects were off my DSLR shot with a Tamron SP AF 20-40mm f/2.7-3.5 aspherical lens. These were mildly processed in Adobe Lightroom but I tried to keep them natural. Unforgettable!



Moonscapes: Mare Imbrium

By David Hoskin

Mare Imbrium (Sea of Rains or Sea of Showers – the circled area in the below image of a waxing gibbous Moon) is a vast lava plain that is about 1,145 kilometres across, making it the largest of the impact-associated lunar maria. Mare Imbrium, and its associated craters, mountains and wrinkle ridges, are best observed on days 9 and 10 of the lunar cycle. Mare Imbrium and its features can also be observed on days 22 and 23 of the lunar cycle, if one doesn't mind early morning observing.

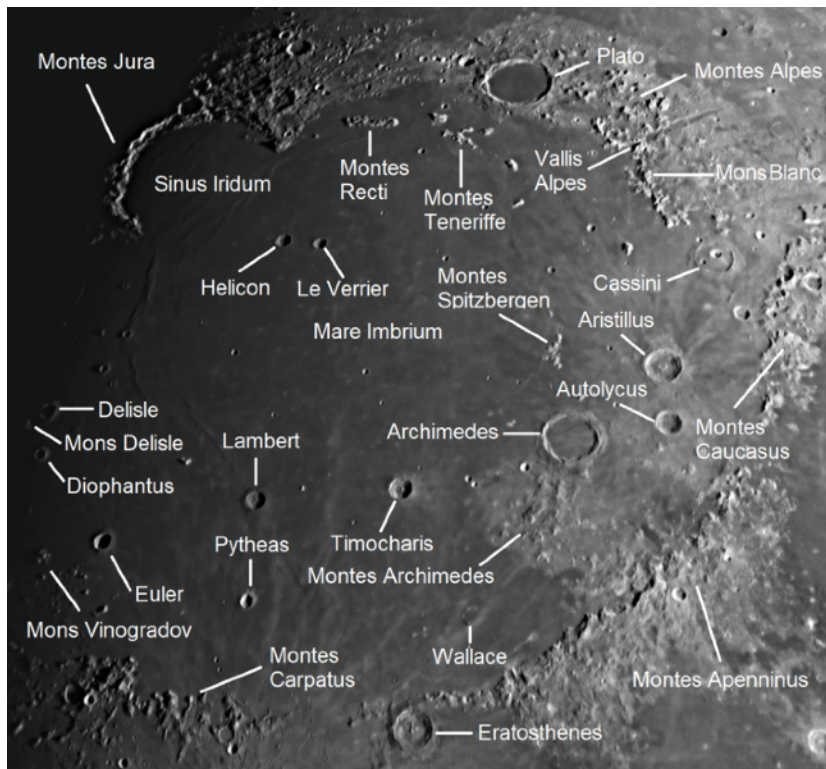


About 3.9 billion years ago, a protoplanet from the asteroid belt collided with the Moon and created the Imbrium Basin, which was later flooded with basaltic lava to an estimated depth of 5 kilometres. Ejecta from the violent impact of the protoplanet was spread as much as 800 kilometres from the Imbrium Basin. The centre of Mare Imbrium is the site of the Moon's largest mass concentration (mascon), which was identified by a series of Lunar Orbiter spacecraft. A mascon is a concentration of dense material beneath the lunar surface that causes a local increase in gravitational pull.

Rugged mountain ranges that were thrust up by the protoplanet's impact mark the shores of Mare Imbrium. To the northeast are the magnificent Montes Alpes, which are cleaved by the rift valley Vallis Alpes. Good seeing with a large aperture telescope will reveal the rille that runs down the middle of the valley floor. To the south of Vallis Alpes, Mons Blanc towers 3,600 metres above the mare. Montes Caucasus and Montes Apenninus mark the eastern border and southeastern border, respectively, of Mare Imbrium. The highest mountain peak on the Moon, Mons Huygens at 5,500 metres, is located near the eastern end of the Montes Apenninus. The Montes Carpatus extend along the southern border of the mare. Mons Vinogradov and Mons Delisle are located to the western edge of Mare Imbrium near the boundary with Oceanus Procellarum.

The Montes Jura, which surround Sinus Iridum (Bay of Rainbows), mark the northwest border of Mare Imbrium. These impressive mountains are all that remains of the wall of an ancient impact crater that later became Sinus Iridum when it was filled by the basaltic lava of Mare Imbrium. Sunrise on the towering peaks of Montes Jura is a spectacular sight, creating a clair-obscur effect known as the "Jewelled Handle". Several less extensive mountain ranges (Montes Recti, Montes Teneriffe, and Montes Spitzbergen) emerge from the mare to tower above the lava plain, indicating the location of the largely buried inner ring of the Imbrium Basin.

Mare Imbrium also contains striking wrinkle ridges formed by cooling of the basaltic lava that filled the Imbrium Basin. These wrinkle ridges become visible when shadows are cast by sunlight coming from the side of the mare. One of the best examples of these is Dorsum Zirkel, which extends southward from Promontorium Heraclides in a gentle that ends to the west of Lambert crater.



Mare Imbrium is pockmarked with craters, both large and small. The largest of these, at 83 kilometres wide, is lava-flooded Archimedes crater. The dark circular floor and associated craterlets of Archimedes resemble that of 101 kilometres-wide Plato crater located about 500 kilometres to the north. To the east, the smaller craters Aristillus and Autolycus (55 kilometres across and 39 kilometres across, respectively) guard the pass between Montes Caucasus and Montes Apenninus that leads to Mare Serenitatis. Both craters are surrounded by prominent rays formed by impact ejecta; however, in contrast to the relatively flat but uneven floor of Autolycus, Aristillus sports a central group of mountains that rise to a height of 900 metres. Cassini crater (57 kilometres wide), located to the north of Aristillus, is notable for its low, broad walls and floor that is marred by two smaller sharp-rimmed craters. Although relatively small at 26 kilometres across, Wallace crater is of interest because it is a ghost crater, having been largely buried by Mare Imbrium lava flows that left only portions of its sharp rim protruding above the mare's plain. Located near the western end of Montes Apenninus lies the impressive 39 kilometres-wide and 3.6 kilometres-deep impact crater Eratosthenes, with its well-defined interior terracing and prominent central mountains. In contrast, the smaller impact craters Helicon (25 kilometres-wide) and Le Verrier (20 kilometres-wide), which are located southeast of Sinus Iridum, are sharp-rimmed and bowl-shaped with relatively flat floors.

Mare Imbrium, which forms the left eye of the famous "Man in the Moon" lunar feature, is obvious to the unaided eye when the Moon is full or in its waxing gibbous phase. Binoculars or a small telescope will reveal many of the mare's most impressive features, all of which are wonderful subjects for astrophotography or sketching.

Sources

Inspect Impressive Mare Imbrium by Steve Kelly, Astronomy Now

A Guide to the Moon's Mare Imbrium and Sinus Iridum by Sir Patrick Moore, BBC Sky at Night Magazine

Mare Imbrium - Wikipedia, en.wikipedia.org

Moon Observer's Guide by Peter Grego, Firefly Books Limited

Members' Universe

James Edgar Captures Aurora Over Saskatchewan

James Edgar, FRASC took some nice aurora photos from his location about 1.6 km north of Melville, Saskatchewan.



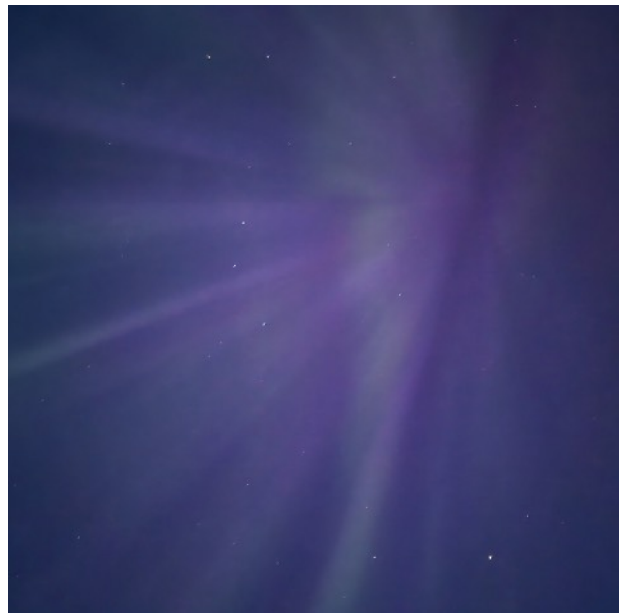
These two were taken looking east with his Canon 70D using a Canon 8-15 Fisheye lens at 9 mm, f/5, ISO 1600, for 9 sec. Processed in Adobe Lightroom.



These two were taken with my Samsung Galaxy S22 Ultra at 6 mm, f/1.8, ISO 2000 for 0.5 sec. Looking north:

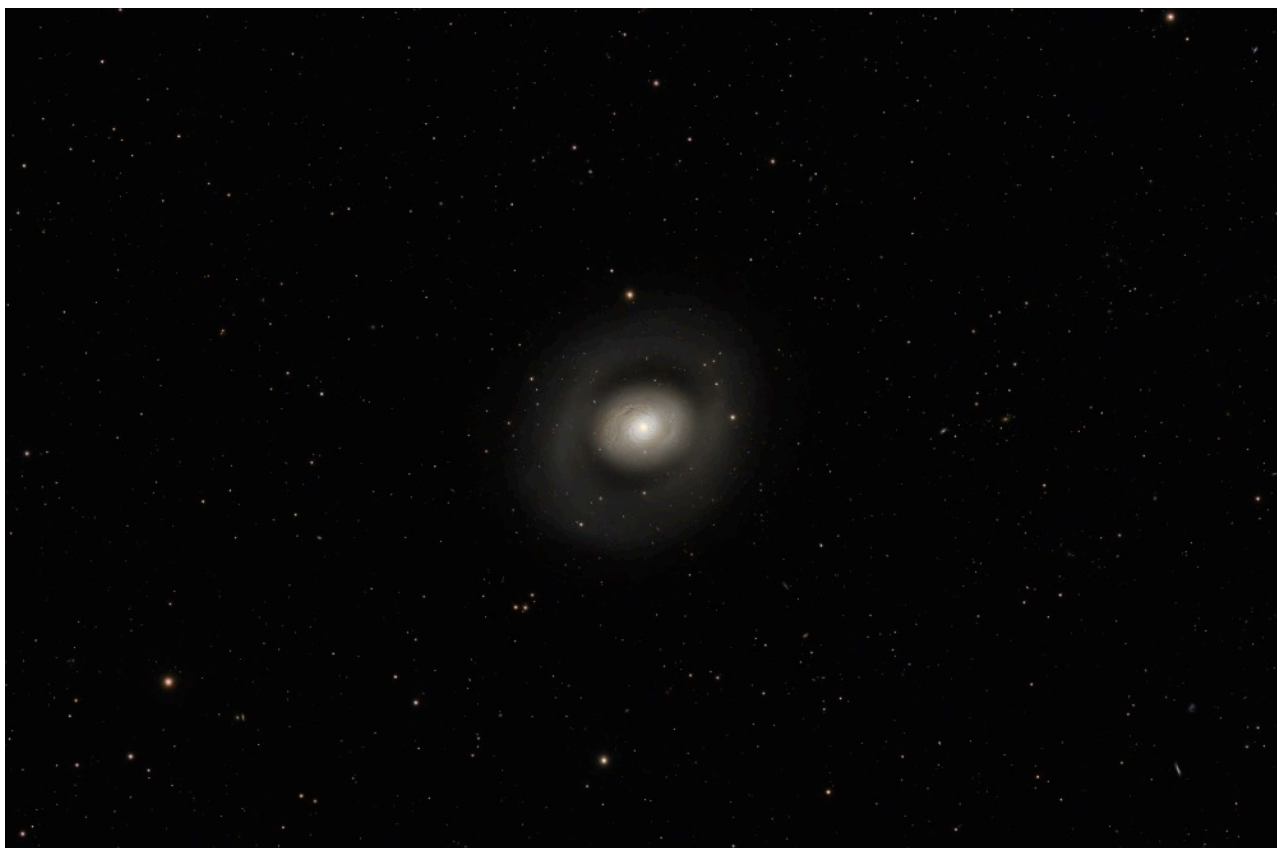


Looking straight up:



Members' Universe

Blair MacDonald's M94



Blair MacDonald recently captured M95

He shares “M94 is a spiral galaxy in Canes Venatici. I had planned to get about 4 hours on this one, with the last hour with the Moon low in the sky, but the imaging gremlins conspired to limit my exposure to about half of that. It still amazes me what modern CMOS cameras and processing techniques can pull out of far too short an exposure.”

Object M94 RA 12:50:53 Dec +41:07:14
Date. 27 April, 2024
Exposure. 130 minutes (13 X 10 minutes)
Conditions Bortle 4 skies
Gain. 100
Camera. Zwo ASI2600MC-Pro
Optics. Prime focus of a SkyWatcher Esprit 120 f/7 APO refractor
 with a focal length of 840 mm
Filter. None
Location. St. Croix Observatory (SCO), St. Croix, Nova Scotia
Processing. This image was captured using Sequence Generator Pro.
 Processed in PixInsight using Noise & Blur Exterminator, GHS stretch and Starnet++.

For more of Blair's amazing work, visit <https://www.nightanddayastrophotography.com>

Members' Universe: David Hoskin's Universe



Omicron Cygni, a pretty optical triple star in the constellation Cygnus imaged by **David Hoskin** on June 8, 2024

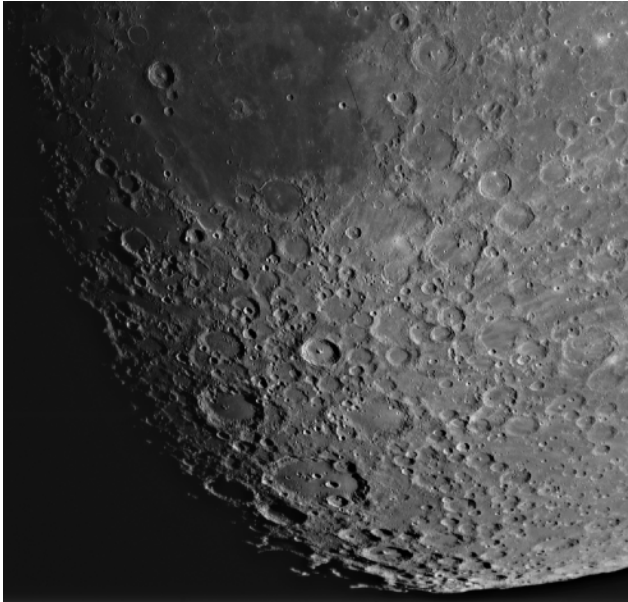


NGC6939 (Ghost Bush Cluster) is an old open star cluster that is about 4000 light years from Earth. It is located in the constellation Cepheus near the spiral galaxy NGC 6946. Image by **David Hoskin**



Arcturus and Napoleon's Hat asterism, captured on May 13, 2024 with the Dwarf 2 smart telescope by David Hoskin

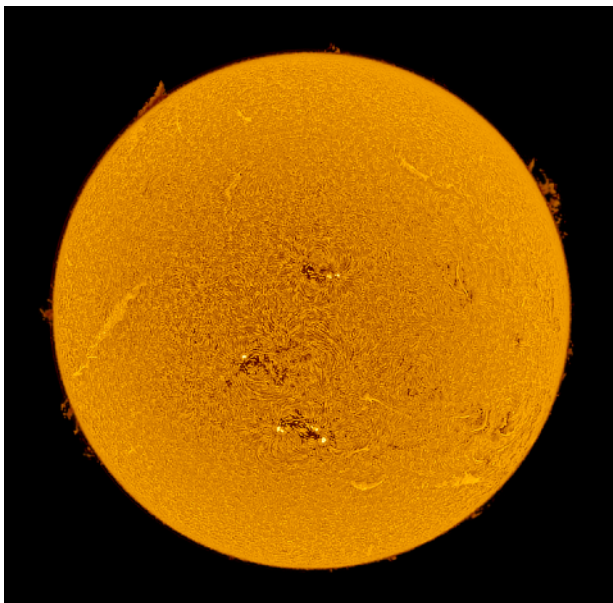
Members' Universe: David Hoskin's Universe



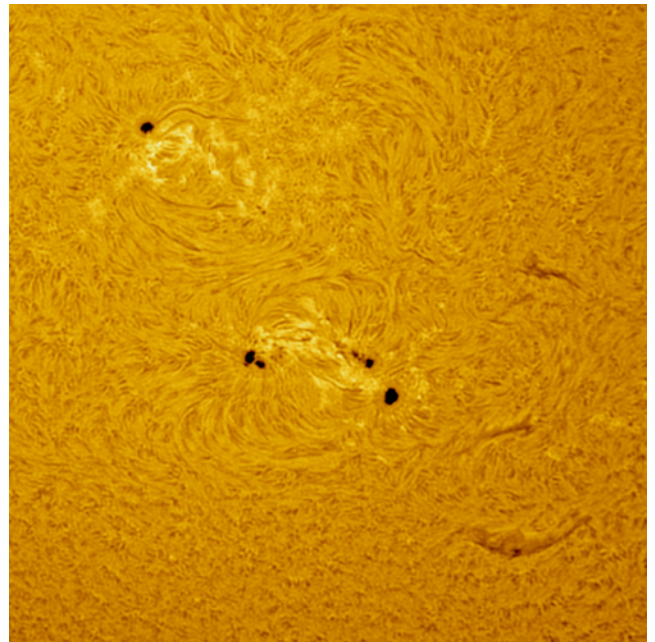
Mare Nubium and southern lunar highlands imaged by David Hoskin



Daytime Moon imaged by **David Hoskin** on June 13, 2024



Sun H-alpha imaged by **David Hoskin** on June 17, 2024



AR3713 and AR3712 H-alpha imaged by **David Hoskin** on June 17, 2024

PUZZLE CORNER

Acronym Soup: Your summer challenge!

By Judy Black

(See next 2 pages for clues to this challenging puzzle)

Astro Cross Words is a regular feature in *Nova Notes* since the Sept/Oct 2022 edition. The initial 5 were created by Laureen Burgoyne and Norman Scrimger, with subsequent puzzles developed by Judy Black to continue the challenge for our members. The Acronym Soup puzzle, as its name implies, contains acronyms for catalogues, people, publications, organizations, telescopes, vehicles, and so much more – some well-known, others perhaps a bit obscure. Answers will be in the September/October 2024 edition of *Nova Notes*. Have fun over the summer!

1		2			3				4			5		6			7		
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Across

1. (*telescope*) Space telescope that mapped the entire sky in infrared light, discovering brown dwarfs, galaxies, asteroids and comets. Later renamed NEOWISE.
3. (*organization/catalog*) Name of astrophysics research organization associated with Harvard University.
4. (*catalogue*) Catalog of clusters, nebulae, and galaxies created by John Herschel.
5. (*spacecraft*) NASA satellite conducting an all-sky survey mission to discover exoplanets; launched aboard a SpaceX Falcon 9 rocket.
7. (*organization*) A network of astronomers spread across the Earth who work to perform continuous observations of variable stars.
8. (*organization*) Premiere Canadian charitable astronomy organization of amateur and professional astronomers.
10. (*astrophysics terminology*) Term describing light at the red end of the spectrum than cannot be seen by humans.
11. (*observing program*) Collective term for scientific searches for intelligent life on other planets.
13. (*organization*) An optical and near-infrared Observatory in suburban Sydney, Australia.
14. (*organization*) Organization headquartered in Germany but has its telescopes and observatories in northern Chile.
16. (*organization*) Organization established to encourage and support the research activities of astronomers in the field of meteor astronomy.
19. (*astrophysics terminology*) A scatter plot of stars showing the relationship between the stars' temperatures to their luminosities.
21. (*organization*) Web-based virtual observatory in BC that houses some of the world's most important astronomical data collections, including the CFHT and the Gemini telescopes.
22. (*organization*) Organization for advancing and conducting astronomical work by both professional and amateur astronomers who share an interest in Solar System observations.
23. (*organization*) Organization dedicated to the exploration of radio astronomy at the amateur level.
24. (*instrumentation*) An instrument on the Mars Observer identifying elements and the location of water.
30. (*telescope*) International partnership created this array of 66 radio telescopes in Chile's Atacama Desert.
32. (*catalogue*) An on-line database of almost all astronomical publications.
33. (*person*) The person who leads a scientific project.
34. (*catalogue*) A catalog of galaxies in the Fornax Cluster.
35. (*observatory*) An observatory in Halifax with robotic telescope capabilities, similar to ARO.
36. (*spacecraft*) Spacecraft designed observe the present climate of Mars and to search for the existence of water.
37. (*astrophysics terminology*) Any perceived aerial phenomenon that cannot be immediately identified or explained.
38. (*telescope*) The world's largest optical/near-infrared telescope under construction in Chile by the European Southern Observatory (ESO) agency.
40. (*catalogue*) Catalogue containing true and probable planetary nebula.
42. (*telescope*) Four 8.2 meter telescopes in Chile that operate either independently as individual telescopes or together as an interferometer.
45. (*communications network*) A network of radio antennas used for communicating to spacecraft.
46. (*organization*) Largest solar terrestrial physics and atmospheric science Institute in Canada that works collaboratively with Canadians and several other countries.
48. (*organization*) The recognized authority for assigning designations and names to celestial bodies.
50. (*telescope*) The largest optical infrared space telescope in space.
52. (*celestial object*) Any object that orbits the Sun at a distance greater than that of Neptune.
54. Station serving space-based missions including SpaceX, United Launch Alliance, and NASA.
55. (*catalogue*) Catalogue that serves as a supplement to the NGC, and contains an additional 5,386 objects'
57. (*celestial object*) Structure resulting from the explosion of a star, consisting of ejected material and interstellar materials it sweeps up.
61. (*organization*) Japanese national air and space agency responsible for research, technology development and launch of satellites into orbit
62. A region of sky that appears devoid of extragalactic objects at optical wavelengths, covers roughly 20% of the sky, and is centred along the galactic equator.
64. (*astrophysics terminology*) The maximum number of meteors per hour that may be observed during a meteor shower.
65. (*data*) Each day a different image / phot of our universe is featured on this website provided by NASA and Michigan Technological University (MTU).
66. (*software*) Software commonly used for scientific astronomy images, a digital file format useful for storage, transmission and processing of data
67. (*astrophysics terminology*) A form of electromagnetic radiation with wavelength shorter than that of visible light, but longer than X-rays.
68. (*telescope*) A general name for a type of compact telescope that uses both lenses and mirrors.

Down

1. (celestial object) A type of hot, luminous star with strong stellar winds
2. (publication) A monthly American magazine covering all aspects of amateur astronomy; its main competitor is *Astronomy* (includes an ampersand)
3. (organization) The national centre for optical and infrared astronomy in South Africa, established in 1972.
4. (telescope) A space telescope designed for measuring the positions, distances and motions of stars with unprecedented precision.
5. (telescope) – Large telescope located 500 feet below the summit of Mauna Kea; name includes its diameter.
6. (celestial object) A powerful and luminous explosion of a star that occurs during the last evolutionary stages of a massive star or when a white dwarf is triggered into runaway nuclear fusion.
7. (telescope) Telescope in the Canary Islands named after the discoverer of the planet Uranus.
8. (organization) British charitable UK organization that studies astronomy, solar system science, geophysics and related sciences.
9. (organization) Canadian society of professional astronomers devoted to the promotion and advancement of knowledge of the universe through research and education.
11. (telescope) A space telescope built to study the Sun and has discovered over 4,000 comets.
12. (organization) Organization focusing on coordinating, analyzing, publishing, and archiving variable star observations made largely by amateur astronomers.
15. (organization) Oldest existing space advocacy organization in the world to support and promote astronautics and space exploration.
17. (celestial object) Observed in distant galaxies with a duration of less than 2 seconds, they are the most energetic and luminous electromagnetic events since the Big Bang.
18. (organization) RASC Victoria Centre has a long association with this observatory now designated as national historic site.
20. (organization) The intergovernmental organization of 22 European countries dedicated to the exploration of space.
24. (organization) NASA's first space flight center, a NASA institution.
25. (astrophysics terminology) Based on its French name, it is a weighted average of the time kept by over 450 atomic clocks in over 80 national laboratories worldwide and is the basis for UTC.
26. (telescope) Largest single dish radio submillimetre telescope operated at Mauna Kea Observatory to study the Solar System, interstellar gas and dust and distant galaxies.
27. (telescope) A large scale physics experiment and observatory designed to detect gravitational waves.
28. (celestial object) A hypothetical subatomic particle that may comprise most of the dark matter in the universe.
29. (astrophysics terminology) The area of space below an altitude of 2,000 km where all crewed space stations to date have flown.
31. (instrumentation) The angle between any light captured at the horizontal, and any light captured at the edge of an eyepiece.
32. (organization) Largest general astronomy education society in the world founded in San Francisco in 1889.
39. (astrophysics terminology) An observed event (such as a flash of light) on the surface of the Moon.
41. (organization) An organization that seeks to preserve and protect the nighttime environment and our heritage of dark skies through quality outdoor lighting.
43. (instrumentation) An instrument on the Mars Global Surveyor to determine the composition of gases, liquids, and solids.
44. (organization) Canada's national space agency with the mandate to promote the peaceful use and development of space, to advance the knowledge of space through science, and to ensure that space science and technology provide social and economic benefits for Canadians.
45. (terminology) An astronomy term comparable to geographic latitude, projected into the celestial stratosphere.
47. (telescope) Boeing 747SP aircraft modified to carry a 2.7-meter (106-inch) reflecting telescope, flying above 99 percent of Earth's infrared-blocking atmosphere.
48. (spacecraft) Chris Hadfield sang a famous David Bowie song from here.
49. (astrophysics terminology) The primary time standard by which the world regulates clocks and time.
51. (telescope) The telescope near the summit of Mauna Kea mountain co-funded by Canada, France and Hawaii.
53. (instrumentation) A camera and a spectrograph on the JWST that observes mid to long infrared radiation from 5 to 28 microns.
56. (organization) National body formed in 1890 to support the UK's amateur astronomers; seen as counterpart to the Royal Astronomical Society.
57. (organization) non-profit international student organization whose purpose is to drive space advocacy of space exploration and development through educational and engineering projects.
58. (celestial object) The object that forms when a neutron star merges with a red giant.
59. (celestial object) An asteroid or comet with an orbit making close approaches to the Earth that could cause significant damage in the event of an impact.
60. (telescope) Space telescope launched into low Earth orbit in 1990 and remains in use.
63. (measurement) The distance between the Earth and the Sun.



May 11, 2024 RASC Halifax Centre Meeting:

(35 attendees) To watch a replay of the meeting, please visit: <https://www.youtube.com/watch?v=YLvvA63Lsak> on the RASC Halifax YouTube Channel.

Welcome - David Hoskin

RASC Halifax Director, Observing / EPO Chair and program emcee David Hoskin welcomed everyone to the monthly meeting, shared the Indigenous Land Acknowledgement and read the Centre's inclusivity and diversity statement.

David Hoskin - Photo Montage

David presented photographs and sketches from Centre members from the months of March and April from members Jerry Black, Michael Boschat, Barry Burgess, Jason Dain, Jeff Donaldson, Lisa Ann Fanning, Paul Gray, David Hoskin, Blair MacDonald, John McPhee, Fabian Pittman, Vincent Vallee, and Mary Lou Whitehorne.

Special Presentation: Members' eclipse stories

Judy and Jerry Black presented their adventures and road trip to the Texas Wine Collective in Fredericksburg, TX and a rather unfortunate encounter with clouds.

Mary Lou Whitehorne presented her adventures, "The Ladies Expedition" (the women outnumbered the men 7-2) from Atlantic Canada (Prince Edward Island.) She described the process the group went through to select their site. She described how Roy Bishop made the clouds disappear using an umbrella and projected the progression of the sun using a disco ball and a projector telescope!

Gary Weber shared photos from his adventure to Richibucto, NB. He described the good humour and totality that his group enjoyed, complete with tin foil hats.

Matt Dyer decided the Friday before the eclipse that he would venture to Miramichi, NB. He employed the knowledge shared by David Hoskin at a past Nova East to build solar filters for his equipment. He also had the opportunity to do some outreach and came prepared with materials for sharing.

Blair MacDonald described the fourth Solar Eclipse he has been “under” and second he viewed. His first two were obscured by adults pulling the curtains shut just in case the sunlight from the eclipse could damage young eyes. In 1994, he enjoyed an annular eclipse at St Mary’s and describes a hilarious experience running up many flights of stairs to change a videotape that someone from the CBC had already changed for him.

In 2024, Blair and a group of friends went to Ted Dunphy’s backyard in New Brunswick. It was a snowy trek at times. He described the equipment he brought and the party that emerged. Post eclipse, he scoured his photos to find that he captured a photo of the Sun-grazing comet. He also shared some of Paul Gray’s photos and described a wonderful experience with friends.

David Chapman described his experience at Doaktown, NB. This was his fourth Total Eclipse experience. He participated in Stéphane Picard’s Eclipse Experience along with some other members from Halifax Centre. Another highlight of the eclipse was Stéphane’s proposal to his now fiancé during the second diamond ring! He too described how the experience was enhanced by sharing the experience with good friends.

David Hoskin had three possible locations to choose from, and ended up in Rogersville NB for his first total eclipse. He described his setup, the snow, seeing the pinhole effect through the trees and he described how he created a time lapse video using the Dwarf 2. He also shared some wonderful photos, including prominences and the corona at totality.

At 2:40 PM ADT, the meeting was paused for a short break and allowed in-person guests the opportunity to see the collection of telescopes that were assembled for “show and tell.”

The meeting reconvened at 2:58 PM ADT

Nova East 2024: Blomidon Edition - Update by Chris Young

Nova East will be held Friday August 9 - Sunday August 11, 2024

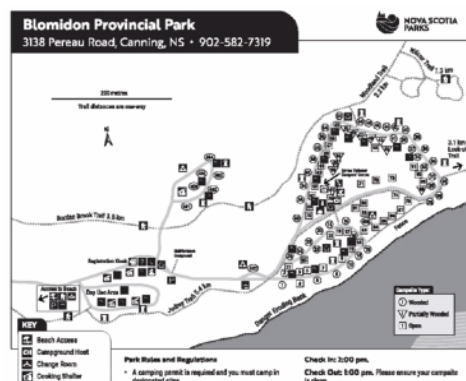
Given the fact that Smileys Provincial Park and Campground is supposed to be reopened in August, but with limited facilities, the organizing team has decided to relocate the event to Blomidon Provincial Park and Campground.

The size of the field is comparable to Smileys, and like Smileys, we will have use of the shelter and there are washrooms / showers.

A notice will be posted on the website soon with details.

RASC Awards Announcement by David Chapman

David re-announced that the Qilak award has been awarded to Tony Schellinck. The original announcement was made at the RASC General Assembly (GA.)



(continued on next page)

“Established in 2011, this award is intended to recognize individual Canadian residents, or teams of residents, who have made an outstanding contribution, during a particular time period, either to the public understanding and appreciation of astronomy in Canada, or to informal astronomy education in Canada, and to promote such activities among the members of the sponsoring organizations.”

A copy of the nomination write-up can be found here: <https://rasc.ca/sites/default/files/Qilak-2023-Schellinck.pdf>. The Halifax Centre has had 2 members win Qilak awards of the 13 that have been awarded.

News from the Board with Tony McGrath

Surveyed the membership for goals and objectives and a plan will now be implemented. The plan will be sent via email - Please provide feedback on the plan.

Outreach opportunity: Astronomy Day at Discovery Centre 18 May 2024

On 18 May we will be participating in an astronomy-themed day at the Discovery Centre, starting at 9 a.m. and ending at 2 p.m. Weather permitting, at 9 p.m. we will set up telescopes on the boardwalk behind the Discovery Centre for public viewing of the Moon and some star clusters.

If you are interested in participating during the day and/or evening, please contact Peter Hurley <secretary@halifax.rasc.ca> or David Hoskin <outreach@halifax.rasc.ca>.

David Hoskin (EPO/Observing Chair) - What's up for May, 2024

David reviewed highlights of the May sky. Days are getting longer. By the end of the month, sunset will be 9 p.m. and sunrise 5:30, so by the end of the month, there will be a short window of darkness.

He highlighted the sun, solar activity, the Moon, Planetary placement and targets needed to check off for Explore the Universe, and when they can be viewed.

He also highlighted planetary positions, constellations, stars (including double and multiple) and deep sky objects.

Each month, you can find David's presentations on the homepage at <http://halifax.rasc.ca>

The meeting concluded at 3:28 p.m. ADT.

June 1, 2024 RASC Halifax Centre Meeting:

(32 total) To watch a replay of the meeting, please visit: <https://www.youtube.com/watch?v=R4fZ17fdF7o> on the RASC Halifax YouTube Channel.

Welcome - David Hoskin

RASC Halifax Director, Observing / EPO Chair and program emcee David Hoskin welcomed everyone to the monthly meeting, reminded everyone that this is the last meeting before the fall and shared the Indigenous Land Acknowledgement and read the Centre's inclusivity and diversity statement.

The astroimaging contest deadline is in November (check the website for details.)

There are three adjudicated categories: Wide Field, Solar System and Deep Sky.

Additionally, there is a People's Choice Award. Any RASC Halifax Centre member or any person residing in Nova Scotia are eligible to enter.

David Hoskin - Photo Montage

David presented photographs and sketches from Centre members from the month of May from members Jerry Black, Michael Boschat, Barry Burgess, Jason Dain, Jeff Donaldson, Lisa Ann Fanning, Paul Gray, David Hoskin, Karen Hamblin, John McPhee, Gaurav Singh, Vincent Vallee and Kathy Walker.

Special Presentation: Tiffany Fields **What it's like to be a BGO Astronomy Technician**

Tiffany related her background and experiences as an astronomy technician at Burke Gaffney Observatory at St. Mary's University in Halifax.

She acknowledged the role Dave Lane played in the success of the observatory as well as her personal success. She described the capabilities of the observatory, and especially Ralph, the robotic telescope, and the many hats she wears at the observatory.



Tiffany Fields talking about one of her many roles as BGO Astronomy Technician.
Photo by Dave Chapman

Special Presentation: Blair MacDonald Astrophotographer's Skies- The Evolution of a Hobby



Blair MacDonald talks about the evolution Astrophotography.
Photo by Dave Chapman

Long-time centre member has been an accomplished astrophotographer for over 30 years. He talked about the evolution of the hobby, from its beginnings with film cameras through its evolution to digital. He explained how autoguiding and some of the (at the time) newer technologies have also made a big difference in the hobby. He walked us through his own equipment journey and talked about how he has taken his amazing images and even an exciting discovery.

Outreach opportunity in Berwick

A camp in Berwick has asked for a stargazing session July 27, 2024. David Hoskin will bring some telescopes and help with outreach. Anyone looking to help out can email David.

News from the Board with Tony McGrath

If anyone is looking to achieve their next observing certificate, please reach out to Tony McGrath with any interest. The centre is looking to determine how they can assist members in achieving their observing certificates.

National AGM meeting is coming up in June. Members are encouraged to attend. Look for an email or check out the National website for how to register. Registration is free.

A copy of the centre plan has been emailed to members. Please review it and feel free to submit any comments or questions.

David Hoskin (EPO/Observing Chair) - What's up for June, 2024

David reviewed highlights of the June sky. This is the least favourite month for astronomers with over 15 hours of sunlight. The summer solstice will occur June 20 at 5:50 p.m.

The Sun is active once again with a huge sunspot group (the same one that created the May 10 aurora) coming around. It may result in yet another aurora event. He highlighted the Sun, solar activity, the Moon, planetary placement and targets needed to check off for Explore the Universe, and when they can be viewed. He also highlighted planetary positions, constellations, stars (including double and multiple) and deep sky objects.

Each month, you can find David's presentations on the homepage at <http://halifax.rasc.ca>

The meeting concluded at 3:22 p.m. ADT.