

Nova Notes

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



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Summer Vibes Edition

Highlights

MAY / JUNE 2022

VOL 53 NO 3



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& SCO INFORMATION

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Cover Photos:

Main Photo:

Solar Prominences on SW limb
25 May 2022
by **David Hoskin**

Thumbnails (l-r):

St. Croix Observatory
drawing by
Mary Lou Whitehorne

Sh2-174, the Valentine Rose
nebula, imaged in HOO for the
nebula and RGB for the stars.
Total exp.9h48m by **Kathy Walker**

Halifax Centre Logo

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From the Editor

Who can believe that summer is almost upon us?

May 31st was the first day of “Trees Fully Leafed” Time (Nipniku’s [nib-nee-goos] in Mi’kmaw.) It surely describes the sight outside my window, here in New Jersey, as I sit and write this.

I wanted this edition to have an anticipation of summer - that same feeling we had as children when school was winding down and the whole summer had so much potential for adventure and discovery.

Many thanks to David Hoskin for his “hot” photo of the sun setting the tone on the cover, and Dave Chapman, John Read and Jason Dain for taking us on their travels with them. If you’re looking to relax by the pool or on the beach, take a look at the beautiful photos in our Members’ Universe, meet the centre’s newest member, Jeremy Kuzub, pick up John Read’s latest book, reviewed by Rob Fanning, or bask in the warmth of Paul Heath’s poem about “*Our Star.*”

While member meetings will be on hiatus for the upcoming months, I look forward to keeping in touch and following your travels and adventures, as well as seeing the universe through your lenses!

Star parties are returning and the BBQ is being fired up at SCO!

Regrettably, Rob and I will not be able to attend Nova East this year, as we had intended, but look forward to seeing many photos of all the smiling faces and hearing about all the good times!

On a personal note, it was such an honour to be asked to design the logo for this year’s Nova East. I set out to capture the joy of “coming together again” (under the stars.)



My concept: A young (happy) moon joins our own star, the sun which will also be the subject of viewing at Nova East this year!

If the last two years have taught me anything, it emphasized that we never do know where life will bring us, and that joy can be found in the most unexpected places.

I wish you all a wonderful summer, lots of clear skies, safe travels, and may you all find much joy!

With continued gratitude,

Lisa

Meeting Dates for 2022

- **September 10, 2022 (Labour Day = Sept 5)**
- **October 1, 2022 (Thanksgiving = Oct 10)**
- **November 5, 2022:** Marcin Sawicki, SMU (NIRISS – Near InfraRed Imager & Slitless Spectograph)
- **December 3, 2022 +AGM**

In lieu of a face-to-face meeting, we will now be hosting Members' Meetings using Zoom. You do not require a Zoom account to join in but you are required to register for this webinar. The webinar is limited to 100 registrants - first come, first served. The panelists' presentations are being recorded and will become accessible via a link on YouTube. For more information, please visit <https://halifax.rasc.ca/index.php/activities/rasc-events>

More to come regarding the 2022 schedule!

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 washroom 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.



St. Croix Observatory drawing by Mary Lou Whitehorne

Halifax RASC Board of Directors, 2022

Elected

President (Also Appointed: National Council Representative; Chair, Governance Committee)	Judy Black
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Vice-President	Patrick Kelly
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Secretary (Also Appointed: Chair, Nominating Committee)	Peter Hurley
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Treasurer	Gregg Dill
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Director	Tim Doucette
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Director	Matthew Dyer
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Director (Also Appointed: Observing / EPO Chair)	David Hoskin
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Director	Kathy Walker
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Director	Jaime Whynot
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Appointed

Honorary President	Mary Lou Whitehorne
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Auditor (2021-2022)	Dave Lane
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Dark-Sky Preserve Committee, Co-Chair	Peter Hurley
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Dark-Sky Preserve Committee, Co-Chair	Tony Schellinck
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Librarian	Jerry Black
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Nova Notes, Editor	Lisa Ann Fanning
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Nova Notes, Copy Editor	John McPhee
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St. Croix Observatory, Manager	John Liddard
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Nova East Star Party

SAVE THE DATE FOR 2022!

August 26-28, 2022

(New Moon August 27 @ 5:17 AM)



A Message from the President

Summer is here and with it comes the promise of warmer weather, rekindling friendships in person, and viewing the night skies together. There is also the hope of starting and/or completing one or more the RASC Observing Programs, or just getting out to view favourite targets and perhaps our Sun.

Our Board works to ensure the RASC Halifax Centre continues to exist, to function, and to keep our members engaged - despite the world-wide pandemic situation - and, as Bob Dylan sang, "...the times they are a-changin' ". The pandemic is waning and the joy of gathering is waxing.

The first 'official' gathering took place at the St. Croix Observatory (SCO) on June 5 for the annual SCO spring clean-up. Many thanks to the members who joined the work party. In alphabetical order, Roy & Gertrude Bishop, Jerry Black, David Hoskin, Peter Hurley, Dave Lane, Al Murphy, Dave Robertson and Bob Russell spent the day with wash buckets, trimmers, and chain saws. Yes, we worked but there was also a lot of fun!

In this issue of *Nova Notes*, you will also read about the BBQ on June 10, celebrating the observatory's 25th Anniversary of its official opening. We had the pleasure of meeting John Woods and Harden Wile, two key personnel from Scotia Investments Limited, who accepted the framed appreciation gift from the Centre. Much laughter, and all agreed how wonderful it was to "see" each other again.

After considering SCO's history, I decided to read older editions of our newsletter. This is where much of the history of our Centre was found, discovering the who's who in our Centre and in the Society, and reading the science-based articles written by members that were interlaced occasionally with some humorous pieces - and there were crossword puzzles! Doing this reminded me of the suggestion to include reprints of some of those amazing pieces. You can look forward to walking back in time in subsequent editions, being amused, being informed, and stretching your imaginations.

If you haven't already registered, consider joining us at Smileys Provincial Park for the [Nova East Star Party](#) on the nights of August 26-28. Information is available on the Nova East website. Lots to enjoy. Come join us for the inaugural *Sherman Williams Walk* in which Jason Dain will lead a birding session through the Park trails.

And don't forget August 19-21 is the [Kejimikujik Dark-Sky Weekend](#). Peter Hurley and Tony Schellinck are working with the Kejimikujik National Park staff; additional information will be forthcoming.

In closing, I request that members mark September 23, 2023, on their calendars. It will be the **Annual SCO BBQ** for all members and their guests who are welcomed to bring their scopes, their binoculars, and most definitely their wonder of the night skies. To paraphrase Mary Lou Whitehorne, our Honorary President: "...join us at the observatory again to view the wonders of the universe through the eyepieces of some very fine telescopes. There's nothing quite like a little trip through space-time to engage the mind and thrill the intellect!"

Judy

***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.

St. Croix Observatory (SCO) – The Road to Recognition

Recognition. A special notice or attention

by Roy Bishop and Judy Black

On Friday, June 10, 2022, at the barbecue at SCO, the RASC Halifax Centre formally *recognized* the 25th anniversary of SCO's official opening on June 21, 1997. After welcoming everyone to the barbecue, Judy Black, President, turned the floor over to Roy Bishop who provided a brief summary of the history of SCO and the contributions made by members and especially by Scotia Investments Limited.

A search for an observatory site began in 1993, the same year the Halifax Centre hosted its third national RASC General Assembly. A committee was struck to look at sites north of Chester, but by the autumn of 1994 a site at Courthouse Hill in Gore was being considered. After dark on October 28 that year Centre President Dave Lane, Roy Bishop, Shawna Mitchell, and Clint Shannon visited the Gore site where they encountered a stiff wind, car lights on the road approaching from the North, and a high southern horizon affected by the light dome of Sackville, Halifax and Dartmouth. The second member of this intrepid group proposed that, on the return that night, they should look at a woods road connecting two hydroelectric plants at St. Croix. (The road, two dams, and two hydroelectric generators were constructed in the depth of the Depression, between 1933 and 1938.) Here, only 50 km northwest of Halifax via a four-lane highway, they found no wind, no lights, no traffic, and a low southern horizon with no light pollution. The light dome of Sackville, Halifax and Dartmouth was low in the Southeast behind trees, and the light dome from Windsor was similarly hidden low in the Northwest. Like Gore, the site was inland away from the coast, therefore had a low chance of fog. Unlike Gore, it was in a slight hollow giving the area considerable protection from wind.

By June 1995 a picturesque, small peninsula surrounded by water on three sides was selected as the best observatory site. Although located in a forest, there were no trees to worry about toward the crucial southern half of the meridian as trees do not grow in water. *Recognition* of an ideal observing site!

“All” that was left to do was to obtain permission of the owners of the private hydroelectric complex to lease the site for an affordable annual fee, undertake a survey of the site, cut down and remove most of the forest on the peninsula, draw up plans for an observatory and a warm room, obtain building permits from the Municipality of West Hants, raise funds for the building materials, prepare a driveway and a parking lot, construct the buildings, and obtain insurance on the property! It is remarkable that, within the next two years, the RASC Halifax Centre, an unincorporated group of random individuals who had nothing in common but a desire to experience the universe, accomplished those tasks.

Minas Basin Pulp & Power, now better known as Minas Energy, both subsidiaries of Scotia Investments Limited of Bedford, became our landlords in June 1995. *Recognition* of a great partnership beginning!

Throughout the summer and autumn of 1995, beginning with a site survey, Centre members brought chain saws and cleared much of the forest on the peninsula, making room for a driveway, parking lot, and a south-facing observing area.



Cake with Blair MacDonald's photo

The next spring Comet Hyakutake passed by Earth. Several days prior, clouds had allowed the comet to sneak up on observers in Nova Scotia, but on the night of 1996 March 24/25 when Hyakutake was closest to Earth, the clouds parted leaving a transparent sky. From the Halifax area that evening the comet was mostly obscured by light pollution, and the 6-day Moon in the sky did not help. Moonset was just after midnight, so some Centre members made a midnight drive to St. Croix. When they tumbled out of their cars and looked up, the expletives were not fit to print. Directly overhead was the sight of a lifetime. With the core of Hyakutake's coma resembling a blue-green, negative-one-magnitude welder's arc, the coma itself larger than the full Moon, and an ion tail spanning more than 40 degrees, the comet sprawled through the zenith from north of the Big Dipper southward into Virgo. The Atlas of Great Comets (Ronald Stoyan, Cambridge University Press, 2015) describes Hyakutake that night: "The almost ominous impression resembled the broadsheets of former centuries: so mighty may the phenomenon of a comet appear."

The next day Dave Chapman, then President of the Halifax Centre, emailed all he could reach with the plea: "Get outta the city, you owe it to yourself!" *Recognition* of the value of SCO as a dark observing site!

During the spring, summer, and autumn of 1996, more trees were removed, a roll-off roof observatory and a warm room designed, building permits obtained, foundations excavated, concrete poured, walls and roofs constructed, rails installed on which to roll the roof of the observatory, vinyl siding applied, and solar cells mounted to charge batteries for 12 V power, leading up to the official opening of St. Croix Observatory on 1997 June 21 at 13:18 ADT, the day of the summer solstice, and the moment that year when the Sun was highest in the sky over SCO.



Roy Bishop shares this photo showing SCO on its "picturesque, small peninsula surrounded by water on three sides" he took from a Cessna 182.

During the past quarter century notable observations have been recorded at SCO. A photo of the head of Comet Hyakutake taken by Dave Lane from St. Croix near 3 a.m. on 1996 March 25 when Hyakutake was closest to Earth (0.102 au) graces the cover of the RASC's 1997 Observer's Handbook. Another was a spectacular Leonid fireball photographed on 2001 November 18 by Barry Burgess of the Halifax Centre. Barry's photo appears on the cover of the 2003 Observer's Handbook. Remarkably, a year later, on 2002 November 19 another Leonid meteor, not nearly as spectacular but still rated as a fireball, was photographed at SCO again by Barry Burgess. What made Barry's 2002 photo particularly special was not realized until several weeks later: Michael Boschat had photographed the same meteor from Halifax! Analysis of the parallax evident in the two photos led to the publication of two papers in the RASC Journal, in the June 2003 and April 2005 editions. In brief, the analysis showed that the length of the meteor's trail of light was about 43 km, it began at an altitude of 123 km and ended in a burst of light at an altitude of 84 km, 252 km from SCO over the Gulf of Maine, about 40 km south of Yarmouth. Another photo, of the spiral galaxy M33 taken at SCO by Blair MacDonald, appears on the cover of the 2015 Observer's Handbook.

In 2019 the power line from the upper hydroelectric generator near St. Croix was re-routed to make it more accessible for maintenance, fortuitously bringing it beside the road passing by the driveway into SCO. That led to a significant upgrade to SCO in 2021: connection to 240/120 V, 200 A service thanks to the generosity, expertise and manpower provided by Scotia Investments Limited and a fund-raising campaign by the Halifax Centre to cover the cost of time and materials. SCO is still on solar power ("green" watts) but it is now generated by rainwater spinning a turbine two kilometres upstream from SCO.

At the 25th anniversary barbecue, Roy Bishop particularly noted the contributions of two individuals present that evening. First was John Woods, VP of Energy Development at Minas Energy, who noted that no sooner had the power lines been strung up along the road than Roy Bishop came calling to inquire about electrification of the Observatory. The second was Harden Wile, Jamie Carmichael's successor as Hydro Manager, responsible for the hydro generator in the Village of St. Croix and the one in the larger of the two dams a few kilometres up the road from SCO. Without these two men and a few other key individuals in Scotia Investments, SCO would not be here. *Recognition* of the continuing support from Scotia Investments Limited!



Judy Black with John Woods and Harden Wile

The main event of the evening of the 2022 June 10 twenty-fifth anniversary barbecue was the acknowledgement of the past and ongoing support from Scotia Investments Limited for helping to make SCO what it is today. Thirty-five members and guests gathered at St. Croix Observatory for the first time in over two years, a hiatus caused by the Covid-19 pandemic. Young and old alike (ages 7 to 94) enjoyed the sun, the pleasant temperature, the light breeze that kept off the flies, the camaraderie, and good food, including a special 25th anniversary cake!

Thank you to John Woods and Harden Wile for contributing to the fun and for accepting our token of recognition for the support over the years. Thank you to Chris Young for assisting with the food planning and acquisition, 'chef' John Liddard, Blair MacDonald for the incredible photo taken at SCO for the gift of recognition to Scotia Investments Limited, Mary Lou Whitehorne for her work in acquiring the framed edition of the gift, and to all in attendance for their helping hands in set-up and take-down.

It was wonderful to be together for the first time in so long, to catch up with what's new since we last met, and to recognize the friendships that make our Centre so special. Come visit SCO soon! We would love to hear your voices in the dark.

A closing summary:

With the support of Scotia Investments Limited, the creation of SCO in the mid-1990s was accomplished by several dozen members of the Halifax Centre. Their contributions were many and varied, ranging from moral support and financial contributions to felling trees with chain saws, spreading tonnes of gravel with shovels and rakes, designing a roll-off roof observatory and a warm room, and swinging a hammer. However, three people should be singled out for their dedication and guidance during those years, the Centre presidents: Pat Kelly (1992-93), Dave Lane (1994-95), and Dave Chapman (1996-97). All three were present at the 25th anniversary celebration on 2022 June 10.



Panorama of Members & Guests with SCO's Warm Room, Storage Room and the southern Horizon

Here are the links to additional information regarding the history of the [RASC Halifax Centre](#) and the [St. Croix Observatory](#). Also, the [25th Anniversary celebrations](#) and more photos can now be found on our website.

Observatory is open! The gang is here!



L to R: Harden Wile, Claire Wile, Roy Bishop, Darlene and John Woods



Post-Presentation: Harden Wile, Roy Bishop, John Woods



SCO Manager John Liddard managing the BBQ



Honorary President Mary Lou Whitehorne cutting a piece of special cake for Gertrude Bishop. (Permission not required for Mary Lou cutting into the tree line)



Dave Chapman & Oliver Read:
"The Moon! I see it!"



Look closely and you'll see asteroid 144907Whitehorne
enjoying the view from the south side of the SCO buildings,
just prior to the BBQ 😊
Photo courtesy of Mary Lou Whitehorne



Moon at St. Croix Observatory

“Kejimkujik” Added To Minor Planet 497593

By David Chapman

On June 13, 2022, the International Astronomical Union added the name Kejimkujik to minor planet (asteroid) 497593.

Here's the citation:

(497593) Kejimkujik = 2006 JU69

Discovery: 2006-05-01 / P. A. Wiegert / Mauna Kea / 568

“Kejimkujik National Park and National Historic Site is an area of natural beauty and historical significance in Nova Scotia, Canada. The indigenous Mi'kmaq people consider Kejimkujik to be a sacred ancestral place. The Royal Astronomical Society of Canada declared Kejimkujik to be a Dark Sky Preserve in 2010.”



Kejimkujik Lake at Night, David Chapman, 2017

The nomination was suggested by David Chapman (RASC), Cathy LeBlanc (Acadia First Nation), Roy Bishop (RASC), James Hesser (RASC), and Peter Jedicke (RASC), and submitted to the IAU by the discoverer Prof. Paul Wiegert (University of Western Ontario).

Minor planet Kejimkujik is an irregular 2 km rocky object in the asteroid belt between the orbits of Mars and Jupiter. Currently appearing in the constellation Pisces, it is only observable in professional telescopes.

Here is the link to its orbital elements and other data: https://ssd.jpl.nasa.gov/tools/sbdb_lookup.html#/?sstr=497593

Here is the link to the formal announcement: <https://www.wgsbn-iau.org/files/Bulletins/latest.pdf>

Fiona Morris to present at the 2022 GA

Halifax Centre's very own, Fiona Morris will be presenting at the 2022 RASC General Assembly (GA) taking place from June 24-27.

Program details below:

My Astrophotography Journey, Fiona Morris

Fiona Morris will be talking about her personal experience as an astrophotographer. She will talk about what inspired her to do astrophotography as well as the gear she has been using over the years and why she chose that gear. She will also discuss her photo process, astrophotography involvement, and her struggles as a young astrophotographer. She hopes to inspire people to take pictures of the night sky, regardless of their age.

Fiona's program is scheduled for Saturday afternoon at 5PM ADST, but check here for schedule changes <https://rascga2022.ca/events/>.

REACH
in · out · up

RASC
General
Assembly
2022

JUNE
24-27
2022

ARE YOU READY FOR A STELLAR EXPERIENCE? Join a community of astronomy lovers for The Royal Astronomical Society of Canada's 2022 General Assembly.

This year's GA will keep you entertained with a radical four-day program. Coordinator of the Institute for Research on Exoplanets (iREx) at Université de Montréal and friend to RASC Nathalie Ouellette will present the Helen Sawyer Hogg Lecture.

Don't miss out on engaging speakers, social events, youth activities, citizen science, astrophotography, cross-Canada observing and more.

So REACH IN, REACH OUT AND REACH UP with RASC and have an awesome astronomical experience.

TICKETS

Students:	\$15
RASC Members:	\$20
General:	\$25

For more information and to register, visit **RASC GA 2022.CA**. The website will launch in Mid April. Tickets go on sale May 18th, 2022.

This event is 100% virtual. Zoom links will be provided.

Be sure to get your tickets at <https://rascga2022.ca>

Looking up in Cuba

By David Chapman

Anyone who is seriously interested in amateur astronomy should aspire to literally “expand their horizons” by travelling to other latitudes to see parts of the sky not viewable from home. Ideally, this would be a trip to the Southern Hemisphere (for us in the Northern Hemisphere). If that is not in the cards, even a trip to Central America or the Caribbean might suffice. As always, seek a location away from light pollution. You can travel light: take binoculars, or a small refractor on a light mount and tripod. Astrophotos can be taken with a digital camera on a good, fast lens on a tripod. A tracking mount always helps. For this photo, I travelled to the South coast of Cuba to a remote spot near Santiago de Cuba (I still had to dodge the glare of lights, but the sky itself was naturally dark). I created this image with a Canon SL1 camera with a Canon 300 mm lens on an iOptron tracking mount. I used the polar alignment scope of the mount to achieve precise polar alignment, and was able to collect 10 frames of two minute exposures that I stacked in PhotoShop (my first attempt at stacking). The subject is the stunning Eta Carinae Nebula (NGC 3372) in the constellation Carina, with the open cluster NGC 3532 to the left. At a declination of -60° , this view is well below the horizon from home, but appears a respectable 10° above the horizon when it culminates at a latitude of $+20^\circ$. Apart from the nebula itself, there are several other dark sky objects in the vicinity, which you can verify with a good star atlas.



Photo Essay: A Visit to Biosphere 2, Arizona, USA For the Analog Astronaut Conference May 6-8, 2022

By John A. Read



Apparently, it's 180 degrees (f) on the glass, and the trees don't mind too much. Extra fans are needed to prevent pockets of CO₂ from forming.



Desert biome



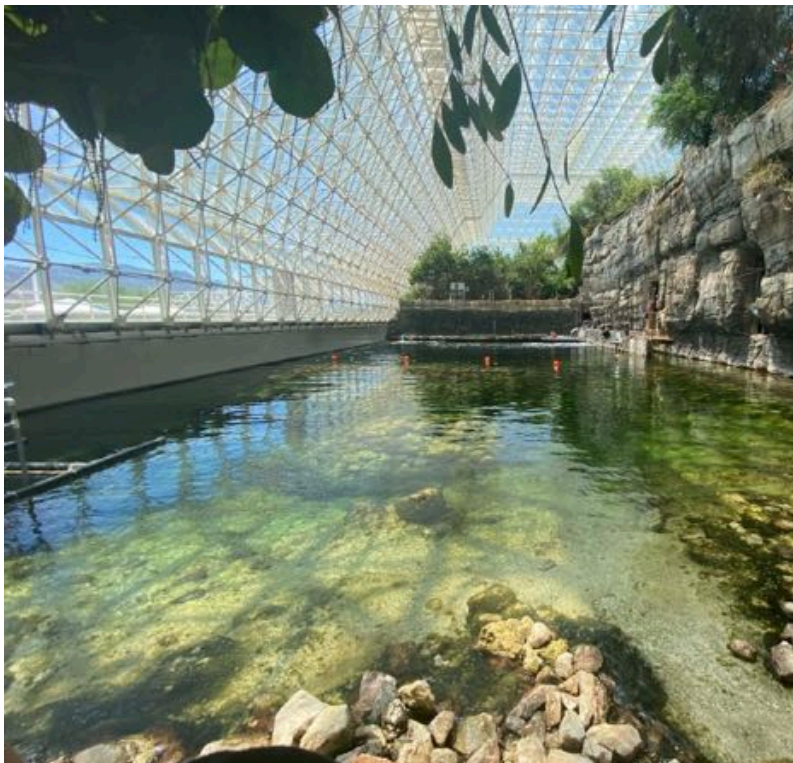
Scorpion under a blacklight.



Self-explanatory



All the trees are connected by fibre optics. Isotopes can be added to their water to study how the water flows within the plants and monitors in real time.



Ocean science lab.



Growing baby coral.



Mars/Moon Analog habitat (under construction)



Inside the habitat.



Hydroponics are the way to go now. Soil is out.



This is the lung that pressurizes the Biosphere. The biosphere is pressurized by the concrete weight suspended by a rubber bladder.



Showing off the Borp analog spacesuit (one of the only suits with a no-fog visor).



Moon!

Night one stargazing, comparing live view from the ASlair to Dr. Proctor's eVscope.



Hey, it's the book I helped with!
(Special thanks to these awesome volunteers!)

Pictured: Dr. Sian Proctor and volunteers with a copy of *Space2inspire: The Art of Inspiration*



With Dr. Sian Proctor - Shooting a few thank you videos for Unistellar and Tim Russ for providing the electronically enhanced telescope. Was an amazing outreach tool as the telescope projects the images to EVERYONE's smartphones in real time.

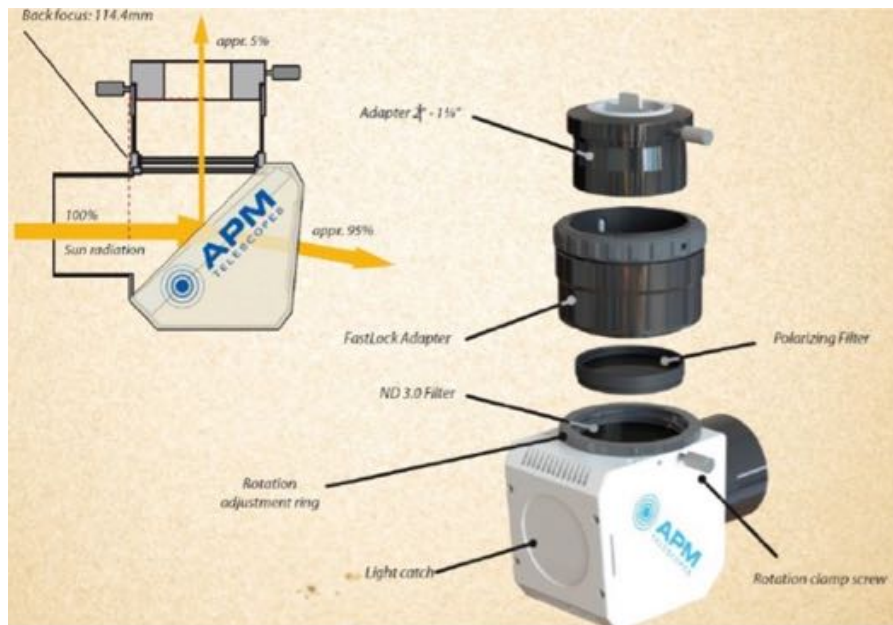
APM Herschel Wedge Equipment Review

By David Hoskin

Over the past year I have devoted a significant portion of my free time to observing and imaging our closest star, using both a white light solar safety filter and dedicated hydrogen alpha solar telescope. Details of the Sun's photosphere such as faculae, convection cells and sunspot structure are best seen in broadband light. Until recently, for photosphere observations and imaging, I relied upon a front-mounted solar filter constructed of Baader AstroSolar safety film that was paired with either a 102mm f/6.5 or 102mm f/9.8 achromatic refractor. In my experience, Baader AstroSolar safety film is superior to other products such as Celestron's Solar Safe Mylar film for solar observing and imaging. However, I found myself wanting more contrast and sharpness in my images of the Sun's photosphere. The solution was to purchase a Herschel Wedge, named after Sir John Herschel who developed the solar wedge in the mid-19th century. The diagonal housing of the Herschel Wedge is mounted at the rear of a refractor's optical tube, after the objective and before the eyepiece or camera. The optically-flat, uncoated glass of the solar wedge reflects about 4.5% of the Sun's broadband light towards the eyepiece. A neutral density filter is used to further attenuate the light by a factor of at least 1,000 before it reaches the eyepiece.

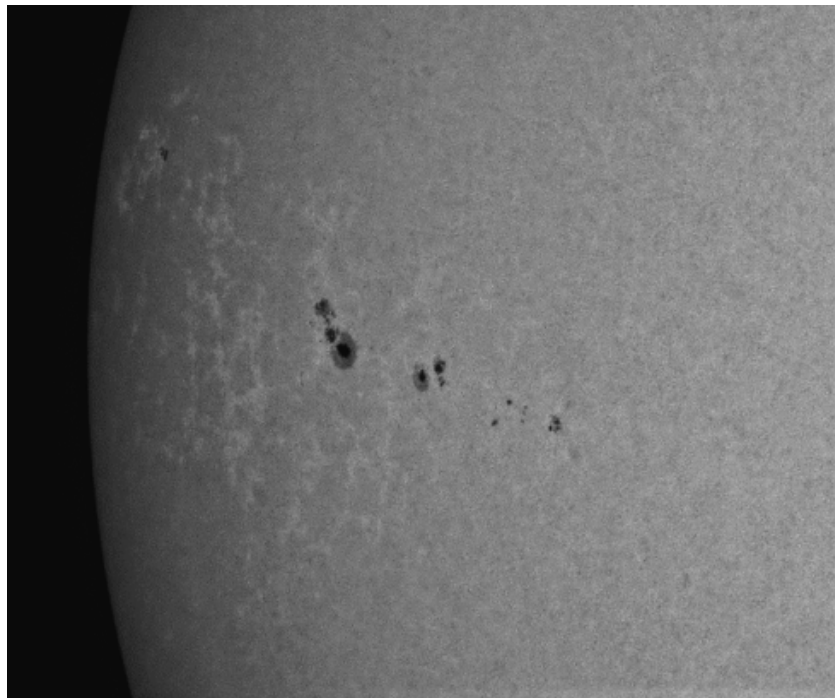


After some research, I decided on the 2" Herschel Wedge manufactured by APM Telescopes, which was available for \$435 (before taxes and shipping) from David Astro, located in Quebec. The APM 2" Herschel Wedge comes with a sturdy foam-lined transport case that has room for some additional accessories. The diagonal housing for the solar wedge, constructed of metal and ceramic, is a solid and surprisingly heavy piece of kit that sports a high quality flat white finish.



The APM Herschel Wedge uses a ceramic element behind the optical element to absorb the 95% of broadband light and heat energy that is not directed toward the eyepiece. This design functions well as the ceramic element remained cool to the touch after use for over an hour with either of my 102mm refractors. A ND 3.0 filter with 0.1% residual transmission and an adjustable polarizing filter are in the path of the remaining 5% of broadband light before it reaches the eyepiece, resulting in comfortable viewing. I also

used a UV/IR cut filter after the solar wedge and before the eyepiece or camera as an additional safety measure. The APM Herschel Wedge accommodates either a 2" eyepiece, which is secured by a twist lock mechanism, or a 1.25" eyepiece, which is placed in the included compression ring-fitted 2"-1.25" adapter.



In comparison to a front-mounted white light solar safety filter, the APM Herschel Wedge yielded visual and imaging results that were noticeably sharper and had more contrast when used with either of my 102mm achromatic refractors. This was true when using either a 32mm Plossl eyepiece or a monochrome ZWO or Player One camera for close-up or whole disk imaging, respectively. Faculae and convection cells were clearly visible and sunspot structure was seen in good detail. Is the APM Herschel Wedge worth the hefty price tag compared to a front-mounted white light solar safety filter? To be honest, probably not for occasional observing and imaging of the Sun's photosphere. However, I believe it to be a worthwhile purchase for the dedicated solar observer and imager, especially in light of the upcoming 2024 total solar eclipse.

New Member Profile:

Jeremy Kuzub on Aurora Chasing

Hi, my name is Jeremy Kuzub. I am relocating to Cow Bay, just south-east CFB Shearwater. I have been a member of RASC Ottawa for several years and look forward to being a part of RASC Halifax centre.

Aurora Chasing

My astronomical interest is the aurora. I grew up near Edmonton, Alberta, and much of that time was spent under the northern lights. They were just there - a part of the night sky when camping, or driving out in the country, or just when around a firepit in the backyard.

I only really appreciated how unique this opportunity had been when I relocated south to Ottawa for work, and since then I have made a point of becoming an amateur “aurora chaser”.

This involves quite a bit of travel - the aurora are most likely to be seen in the donut-shaped “auroral zones” that surround Earth’s geomagnetic poles. Places like Whitehorse, Dawson City, and Yellowknife are in this zone and aurora are more frequently visible, and often they appear directly overhead.

Probabilities

Seeing the aurora is a game of probabilities, and the game is tilted in the aurora chasers’ favour as the 11-year solar cycle heads towards its peak. This is happening now, as we exit the solar minimum of (approximately) 2019 and head towards a maximum in around late 2024.

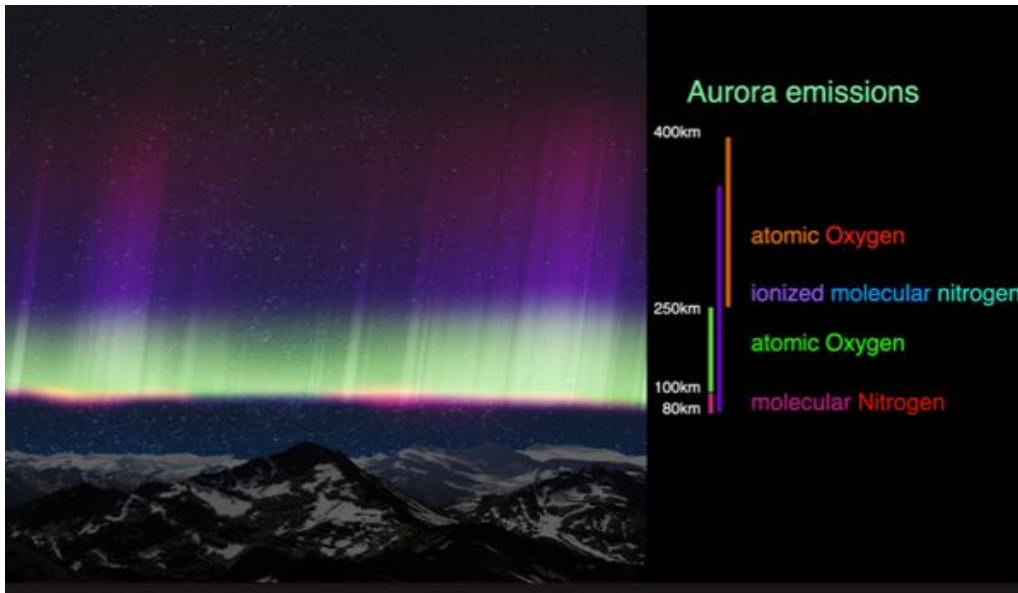
The solar cycle is based on the number of sunspots visible - more sunspots is an indication of a more chaotic solar magnetic field, which increases the probability that fast solar wind and coronal mass ejections send more dense and energetic plasma towards Earth. When this plasma interacts with Earth’s magnetic field, the auroral oval (The active area of aurora that tends to live mainly in the auroral zone) grows, increasing the probability that aurora borealis are visible further south.



Midnight Dome, Dawson City, Yukon, Sept 2021. Panoramic, Canon M50
Photo by **Jeremy Kuzub**

Aurora visible from Nova Scotia?

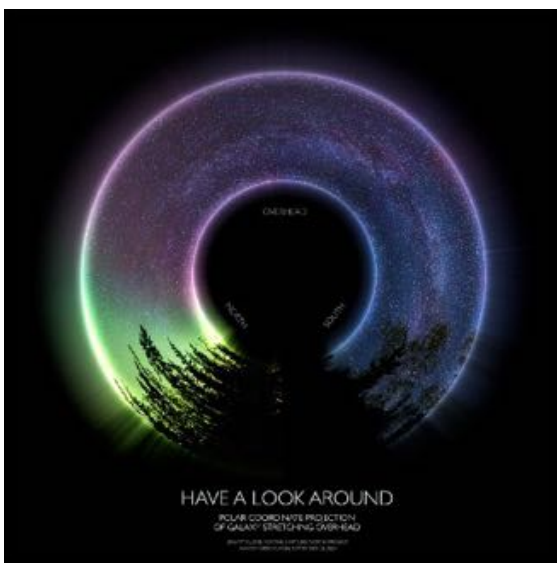
This is good news for Nova Scotians hoping to catch a glimpse of the aurora. They may appear on the northern horizon during times of high activity, “geomagnetic storms.” A 50mm or longer lens on a digital camera pointed to the northern horizon, set to expose for 30 seconds at about ISO1600 around midnight, may well see the red glow of upper atmospheric oxygen atoms - the topmost portion of the aurora.



The aurora are a palette of emission lines from various charged atoms and molecules. The emissions furthest up in the atmosphere are often the ones seen first at more southern latitudes - reds and purples visible on the northern horizon. (author's illustration)

More to Explore

Canada has a central role in aurora research, which in turn has had a lot to tell us about the solar system, the sun, and solar systems in general as electromagnetic entities. You can learn more about Canada's aurora researchers and citizen scientists here: <https://www.cbc.ca/natureofthings/episodes/the-wonder-of-the-northern-lights>



Whitehorse, YT, August 2021, Panoramic, Canon M50 - Photo by **Jeremy Kuzub**



Midnight Dome, Dawson City, Yukon, Sept 2021, Fisheye lens of whole sky, Canon M100 - Photo by **Jeremy Kuzub**



Over Labrador en route to Iceland, October 2019,
Canon M50



Kluane Lake, Yukon, Sept 2019, Sony A7III

You can have a look at my past RASC presentations on aurora and aurora chasing here:
<https://ottawa.rasc.ca/presenters/jeremy-kuzub>

My website CaptureNorth.com with articles on aurora chasing, equipment, and history.

If any of you are interested in the aurora and aurora chasing, please feel free to reach out any time.

Jeremy Kuzub
jeremykuzub@gmail.com
<https://ottawa.rasc.ca/presenters/jeremy-kuzub>

Member Mentions

Images by **David Hoskin** were recently featured on ATV Live at 5 on May 26, 2022.

Visit the 12:46 minute mark on the link. [CTV News Atlantic at Five for Thursday, May 26, 2022 | CTV News](#)



The Ace Amateur Astronomer Program: An Enhanced Outreach Experience for Participants and RASC Members

RASC members interested in hosting an outreach event that includes both educational and motivational components should consider the Ace Amateur Astronomer Program (AAA). Developed by Tony Schellinck from the Halifax Centre and available on the RASC website, the AAA is designed such that RASC members enhance the experience and value of an evening of outreach. The program provides a sky tour and shows participants how to find Dark Sky Objects (DSOs) with binoculars. The participants have the opportunity to find and observe at least five DSOs in an evening. They go home with a record of the objects they found, a certificate declaring their status as an AAA, and a sense of accomplishment. In our experience participants will be motivated to learn more about the night sky and to enjoy observing with binoculars afterwards.



If you are interested in finding out more, the AAA outreach event program will be presented and demonstrated during the upcoming General Assembly. Tony can also be contacted for more details about the program or about using binoculars for outreach through the Halifax Centre.

[Check out The Ace Amateur Astronomer Program](#)

Member, **Tony Schellinck** was featured in the June 3, 2022 edition of *The RASC Bulletin* for his development of the Amateur Astronomer Program (AAA.)

Click here to review The Ace Amateur Astronomer Programme (AAA) Field Guide and Certificate Sheets for RASC Outreach Volunteers https://www.rasc.ca/sites/default/files/The_Ace_Amateur_Astronomer_Programme.pdf

Members' Universe

Kathy Walker continues to take beautiful photos of deep sky objects!



Abell 31: A planetary nebula, imaged in HOO
Photo by **Kathy Walker**
Total exposure time: 20h40m



M-5: A globular cluster, imaged in LRGB.
Photo by **Kathy Walker**
Total exposure time: 2h0m



OU 4: The Squid Nebula. The Squid is in Oiii, the background nebula is Ha, and the stars are RGB.
Photo by **Kathy Walker**
Total exposure time: 24h8m



Sh2-135: An emission nebula, imaged in HOO for the nebula and RGB for the stars.
Photo by **Kathy Walker**
Total exposure time: 5h55m

Do you have something you would like to share in an upcoming edition of *Nova Notes*?

Send your photos, poems, articles and other works to

novanoteseditor@halifax.rasc.ca



On May 25, 2022, **John Read** shares: "Record time setting up the imaging telescope last night (powered up and polar aligned within about 5 minutes). Snagged a 1 hour exposure of M51 from here in Halifax. This is at a focal length of about 600, with the 102mm refractor."



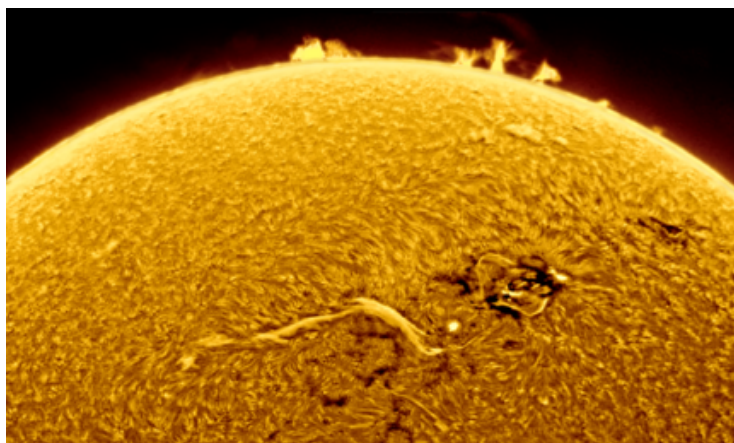
Lisa Ann Fanning captured the Total Lunar Eclipse on May 15, 2022

Multiple photos taken with Canon PowerShot SX70 HS - Composed in Bazaar

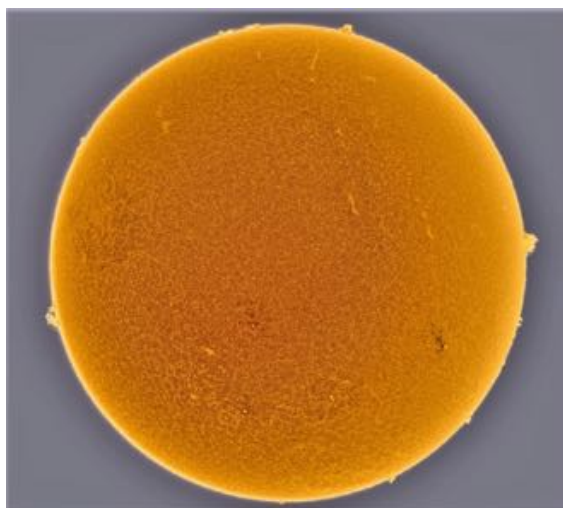


Moment of Totality - Total Lunar Eclipse on May 15, 2022 at 11:33 PM EDT taken with Canon PowerShot SX70 HS

David Hoskin wows us with wonders in the sky from all times of day!



AR3030 and AR3032 on 18 June 2022 by **David Hoskin**



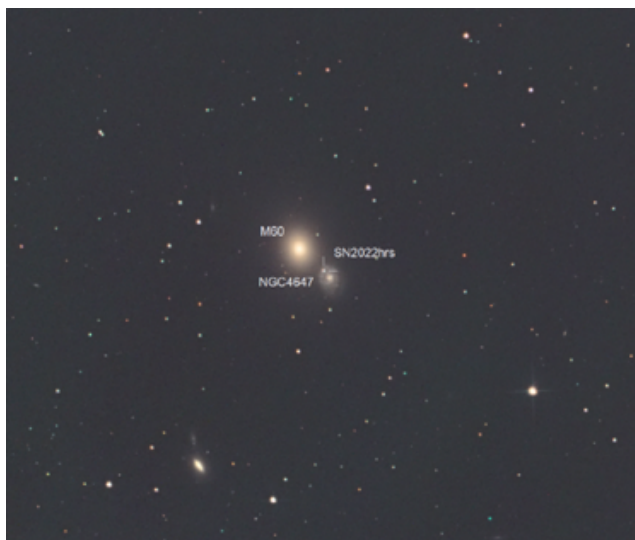
Solar disk 2 June 2022 by **David Hoskin**



NGC 4725 Barred Spiral Galaxy by **David Hoskin**



Crescent Moon, Mercury and M45 by **David Hoskin**

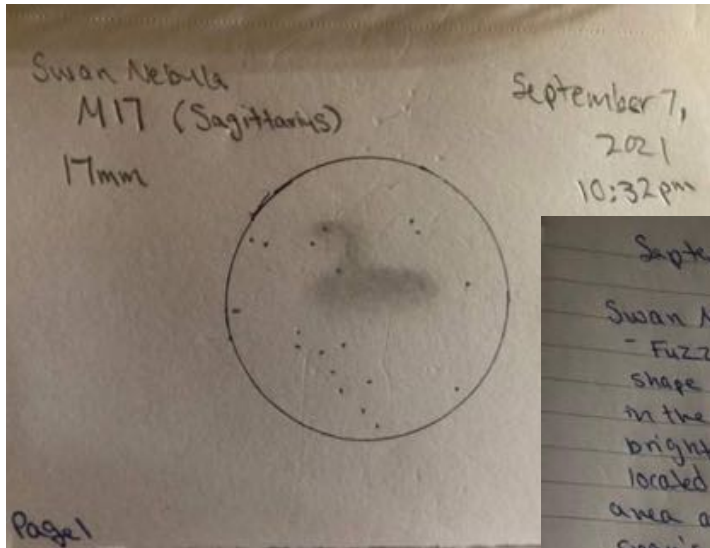


Messier 60 + SN2022hrs by **David Hoskin**



NGC 5053 Globular Star Cluster in Coma Berenices by **David Hoskin**

Jaime Whynot shares a sketch and field notes of Swan Nebula (M17) that she made back in September.



September 7th, 2021 10:32 pm
 Swan Nebula (or Omega Nebula) - M17 - Sagittarius
 - Fuzzy object, but can see distinct swan shape, perfectly upright like its swimming in the sky. The body of the swan is slightly brighter than the neck. Two brighter stars located within nebula. One is around the neck area and second looks like it could be the swan's eye. (17mm Sirius Plossl)
 Observing Conditions/Notes:
 Clear, decent seeing, cooler than previous nights around 15°C. A bit windy and it picked up towards end of session. Observed other objects closer to the western horizon like Antares and M22. Not easy on the back to observe and sketch lower objects. Used new stool or new back.

She also shared some of her wonderful lunar photos of the 83.8% waxing gibbous Moon from June 10, 2022. She adds, "finally had a decent clear night for a longer observing session."



Equipment:
 Sky-watcher 200p 8 inch dob
 17mm plossl / 2x Barlow
 Celestron NexYZ
 iPhone 8

In keeping with our travel theme, **Jason Dain** shares his photos and captions from under Swedish skies from his recent travels there. Incredible skies with the sun setting around 11PM and rising around 2AM. He shares “The sun was still relatively high as I am at 64 degrees north latitude. For reference, Yellowknife in the Northwest Territories is at 62 degrees latitude.”



He writes: “I took this photo at 9p Central Europe time.” “Official sunset here last night was 11:02 pm. Umea, Sweden. June 13, 2022.” Photo by **Jason Dain**



“The view of the central train station in Umea at 11:30 pm on June 15, 2022.” Photo by **Jason Dain**



“On my way to Lyksele at 1230 am. The sky is starting to brighten up a bit now with sunrise at 2am.” Photo by **Jason Dain**



“Thunderstorm coming over Bay of Bothnia Sweden”
Photo by **Jason Dain**



Dave Chapman requested this photo from Ralph, the robotic telescope at SMU and writes:

“Currently, the brightest comet in the sky is C/2017 K2 (PANSTARRS). This image was taken May 24, 2022 by Ralph, the robotic telescope at SMU. You can see the nucleus of the comet, its coma (head) and a bit of a stubby tail at 1 o'clock. The frame is a little smaller than the full Moon.

NOTE: The comet will be well-placed for observing through the summer.”



Blair MacDonald created this photo of M101 (Pinwheel Galaxy) RA 14:03.2 Dec 54:21 on June 2, 2022 Exposure time was 40 minutes (4 X 10 minutes) in bright urban Bortle 7 skies

Equipment: Zwo ASI2600MC-Pro and Canon 60 Da and Prime focus of a SkyWatcher Esprit 120 f/7 APO refractor with a focal length of 840 mm

He shares: “This image was captured using Sequence Generator Pro. A variety of layer based processing was used to enhance the image after an initial arcsinh stretch... For RASC members looking for more details, tune in to my next Imager's Corner column in the RASC Journal. After the article is published I'll fill in the details here.”

(at http://www.nightanddayastrophotography.com/gallery/ZwoUrbanUnfilteredM101.html?fbclid=IwAR1365NyEw0JU7iPKU7sDWYt8WHd14fxW_v596AA_BSkVR7UWLTS4r2n5jo&fs=e&s=c)

Food for the Soul: The Poetry of Paul Heath

OUR STAR

Our Star is lost to night,
Hidden by the glittering tapestry above,
Yet each dawn She returns,
Dimming the tapestry, until
Only her children's candles gleam upon the sky.
Her blazing smile opens the world about us
And we rise, to greet Her on a new day.

In spring She climbs the sky,
Her smile warms the air, thaws the chilled ground,
Life reaches for her soft glowing beams
Days lengthen in her warm embrace.
Though often hidden by moisture laden cloaks
Her energies, surround, invigorates life.

Higher She climbs in summer
Bathing our world in lengthening warmth,
Shortening the time of glittering tapestries.
We languish beneath Her deep embrace
Thinking not of what may come.
Her lengthened light, entices joyous playfulness.

Her energies dim in fall
She slides lower on the sky,
Yet Her children, in heroic effort
Stretch Her light upon the night,
As we gather the fruits of Her warming labours.
Life rushes, anticipation of the coming chill.
Winter sees Her strength wain,
Yet Her child in brave hope
Covers himself in a glistening blanket of white
Reflecting Her dimmed light up, in hopes
To warm the air.
She, low upon the skies, gathers Her strength again.

But long nights have not taken her thoughts from us,
Often glowing curtains sweep the glittering tapestry
With bright hues, spikes and pulses,
Her thoughts of us dance upon the skies,
Amazement fills our eyes.
We know She is alive, and warmth
Her warmth, Her light, will lift again upon the sky.

~ Paul Heath

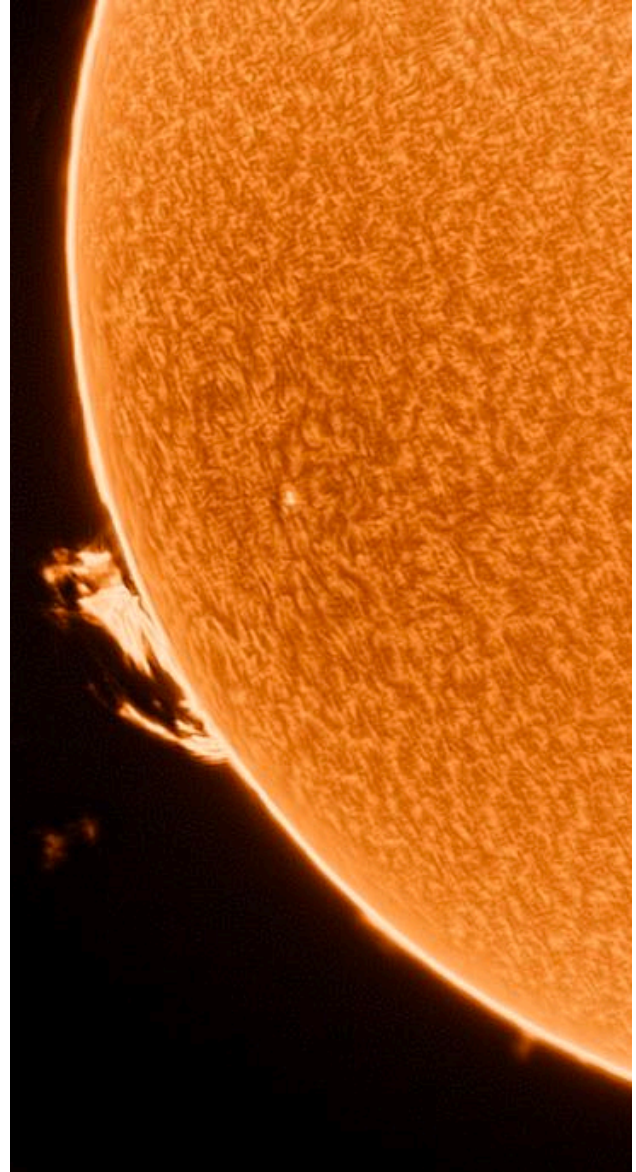


Photo courtesy of Jason Dain

Book Review

Learn to Stargaze for Kids: A Constellation Focused Approach

John A Read (Author), Ford Rasmussen (Illustrator)
Stellar Publishing

Review by Rob Fanning



John A. Read's latest book, Learn to Stargaze for KIDS (of all ages), is a visual masterpiece and easy read. This "big" kid couldn't put this book down as soon as I opened it!

Read starts the book off with chapters on how to become a stargazer, definitions of what's in the night sky, and learning the constellations, which is the centrepiece of the book. He also breaks down the constellations into seasons, with easy to use colour-coded tabs.

The striking artwork (by Ford Rasmussen) for each constellation is enhanced by tips on finding them, and facts pertaining to which bright stars, double-stars, nebulas, asterisms, and/or star clusters that are part of the constellations. An addition which I absolutely love is the mention of other cultures, in addition to the "traditional" names. For example, the stars of the Northern Cross (the body of the Swan, or Cygnus), represent a bow and arrow in Mongolian tradition, and represent a Salamander for the Native Dakota tribe. Each constellation also has a small observation checklist at the bottom of the page, a great way to track one's progress, as well as to help with obtaining certificates from various astronomy clubs.

Read closes out the book with intriguing and informative chapters on astronomical events (complete with a calendar of meteor shower dates), a planet by planet tour of the solar system, a chapter on exploring the Moon, and the basics of how to use binoculars and a telescope.



Graphics from <https://www.amazon.ca/Learn-Stargaze-Kids-Constellation-Approach/dp/1777451779>

Rob's Recommendation: Highly recommend. This is my new favourite book from a long list of successful books from this author. 5 stars! ★★★★★

A Look Back: *How Awkward!*

By Judy Black

It has often been noted that the archive of our illustrious newsletter is a good source of information that bears repeating. In looking through previous editions, I noted several articles providing insights into observing and astronomical science, not to mention several instances at astronomical humour.

Consequently, I asked the Editor about republishing *Nova Notes* articles from years past (my choice, unless other members make suggestions) and she agreed. Hope you enjoy this trip down memory lane and at times learn something new.

In the September-October 1977 Vol 8 No 5 edition, a humorous article by long-time member Larry Coldwell struck me as being appropriate for the first instalment of *A Look Back*. Life member Larry hails from the Valley, has been a RASC member since 1982, taught at West Kings High School, and worked at the Nova Scotia International Student Program.

The Awkwardness of Imposition

By Larry Coldwell, Magamagapseck Peninsula

Star gazing can be a real pain in the neck! This is justifiably dictated by the nature of man's physical morphology. A lot can be said for telescope designs and supports; however, there is little mention concerning the uncouth and seemingly ridiculous postures they impose upon the novice or serious observer.

Living in a province where an observer can remain starbound or fogbound for hours, optical observation time may accumulate sporadically. An intuitive feeling often compels the observer to take full advantage of clear nights with the impending notion, though partially incorrect, that others will never occur again. These long hours spent under the rotating star dome are intellectually stimulating, and most enjoyable. However, this practice can lead to numerous physical discomforts: aching back, stiff neck, rubbery legs, and that old worn-out feeling. These are the all-familiar star-struck symptoms of a well-spent night.

As can be expected with the large diversity in telescope mounting designs, each one has its own unique set of awkward or impossible positions. Depending on the type of telescope you own, and your physical agility or stamina, you will fit into one of three categories or any combination thereof that I have arbitrarily chosen.

The first series of positions are entitled "neck-knee" effect or nec-nee for short. This phenomenon is caused most frequently by refractors pointed vertically to the zenith in search of those hard-to-see objects, which abide only in this tranquil region. The observer must therefore uncannily position himself or herself in a humble praying position beneath the eyepiece. To the average bystander, this posture may give the appearance of religious dedication – but we know better.

The second series of positions are entitled the "tip-toe" effect and occurs most frequently at social gatherings. How often have you literally reached for the stars in an effort to see them? Astronomers are an odd lot of people, rarely of uniform height, or size for that matter. The "curled" effect is part and parcel of this same phenomenon, caused by those low-to-see-through eyepieces and is very distressing for those with a modest waistline. Altazimuth and equatorially mounted reflectors comprise the largest offenders of this category.

The third and final series of positions I have labelled the “**ballerina**” effect, for lack of an appropriate scientific name to describe these most colourless mosaics of human contortions. Tripods, German equatorial, pillar and claw, and English yoke mounts are the real culprits with this phenomenon. If your apparatus fits into one of these classes, you will know that many bodily configurations are humanly possible, but few are graceful as this title might suggest. A good display of physical dexterity on shifting positions, right ascension or azimuth and altitude among celestial objects is a product of many years of practice and should not be observed lightly.

In closing, I would like to suggest a solution, a relief, or a new hope for those physical distresses which proceed to hamper the following days’ productivity. By sacrificing a little magnification, resolving and light gathering power, I have discovered that a good pair of binoculars (7x35 mm or 10x50 mm) while prostrate on a comfortable horizontal surface is pure luxury! Yes, there is that compelling feeling to see objects, bigger, brighter, and closer, but isn’t this an illusion? Physical discomfort id not! (Participaction is going to love me for this!) When it comes to stargazing, the object is up and lying down is actually a comfortable and practical way to enjoy one’s hobby... the way I see it.



P.S.
Lying down is actually less conspicuous and will draw fewer obscene phone calls or remarks from inquisitive neighbours.

As the owner of a go-to 10” Meade SCT and a push-to 6” Dob, I can fully appreciate the situations Larry describes above while sitting under “the rotating star dome.” I am sure many members can relate as well. Stay tuned for the next instalment of *A Look Back*. It will definitely have you puzzled!

May 7, 2022 RASC Halifax Centre Meeting:

(23 attendees)

To watch a replay of the meeting, please visit:

<https://www.youtube.com/watch?v=DRQtidGtKeY> on the RASC Halifax YouTube Channel.

(click on noted [time](#) to launch specific segments)

President’s Remarks

Welcome - Judy Black

0:00

RASC Halifax President Judy Black welcomed everyone to the monthly meeting, explained the benefits of membership and reviewed the agenda. She acknowledged the Indigenous lands in which the meeting was held and read the Centre’s inclusivity and diversity statement.

Recent Solar Activity Highlights - David Hoskin

5:38

David Hoskin highlights activity on the sun for the month of April. Solar Cycle 25 is just getting started, and there has been much activity. He gave an overview of the structure of the sun, sunspots, chromosphere features, solar flares, different types of solar events, He walked through some of the daily highlights from the month of April 2022.

What's in a Name? Comet Edition - Dave Chapman

39:27

Due to technical issues by the presenter, this segment was rescheduled to 51:31

Food for the Soul - Paul Heath

45:51

Request for outreach resources for an event on July 11 at Fox Harbour Beach 9 PM ADT for a "high end" group of about 60 people - contact Paul Heath if you are available to help. At least 6 telescopes

Paul presented his latest poem, Our Star which can be read on page 29 of this edition of Nova Notes.

What's in a Name? Comet Edition - part two - Dave Chapman

51:31

Dave Chapman shared how comets are named, and some stories about famous comets and how they were discovered, and named. C/1996 B2 (Hyakutake) was used as a case study. Dave also talks about the first identified periodic comet, 1P/Halley. He also highlights Canadian comets.

For a list of upcoming returning comets, please see The Observer's Handbook (page 264) and an article by David Levy can be found on page 265.

A highly anticipated recent Comet was scheduled to make a bright appearance in the sky, however it was recently discovered to have fallen apart, and will now be reclassified as "D" (deceased)

What's Up for May? with David Hoskin

1:21:45

David reviewed highlights of the May sky. He highlighted the "Galaxy Rich" south-to-west portion of the sky for viewing.

He highlighted the sun, solar activity, the Moon, the Total Lunar Eclipse on May 15-16 as well as targets needed to check off for Explore the Universe, and when they can be viewed. He also highlighted planetary positions for May, spring constellations, stars (including double and multiple) and Spring deep sky objects. Each month, you can find David's presentations on the homepage at <http://halifax.rasc.ca>

The Planets in May

- Mercury** -rapidly fading into evening twilight
-nice photo-op with M45 on May 2 *challenge*
- Venus** -brilliant dawn sky object (mag. -4.1)
-close conjunction with waning crescent Moon on May 27
- Mars** -prominent (mag. 0.8) in pre-dawn sky
-close conjunction with Neptune early morning May 18
-close conjunction with Jupiter early morning May 29
- Jupiter** -very bright (mag. -2.2) in pre-dawn sky
-close conjunction with Mars on May 29 *challenge*
- Saturn** -easily visible in the pre-dawn sky (mag. 0.8)
-close to last quarter Moon on May 22
- Uranus** -conjunction with the Sun on May 5 so difficult to see for most of May
-near waning crescent Moon in pre-dawn sky on May 28
- Neptune** -moves from Aquarius into Pisces in the pre-dawn sky
-close conjunction with Mars on May 18 *challenge*

7

Judy Black - News from the Board

1:43:00

Governance is in place to provide guidance on interaction. A copy of governance can be found on the website. At the May 3 board meeting, a revision was made to G8: Astroimaging Contest Criteria with minor edits.

A new policy was created G12: Policy regarding expulsion from RASC Halifax Centre membership.

SCO COVID-related restrictions have been lifted. Visitors to SCO are encouraged to continue wearing masks, to distance when appropriate and to get vaccinated.

Currently, the gates are locked due to an incident on the same road as SCO. If you are planning on visiting SCO, please post to the list that you will be attending and contact John Liddard at scomanager@halifax.rasc.ca to ensure access.

SCO spring cleaning is planned for May 28 and volunteers are needed! Rain date is Sunday, May 29.

For the past 2 1/2 years, COVID has prevented in-person meetings, and meeting the new members and getting to know what they are interested in. Volunteers are needed, and new members are also encouraged to provide feedback on how we can make the centre better.

Halifax Centre Stars

Jason Dain's photo of the recent Aurora was NASA's Astronomy Photo of the Day (APOD), CBC Nova Scotia updated their cover photo on April 7, 2022 using Jason's photo, and on April 8, Suzy Hansen, MLA Halifax Needham gave him honorable mention and recognition for his work.

David Chapman is releasing a new book - Mi'kmaw Moons Through the Seasons with Cathy Jean LeBlanc. The book will be available on September 2, 2022, and can be preordered through Formac Lorimer Books.

March/ April edition of Nova Notes is posted online and the deadline for the next edition is June 18, 2022. Reminder print option is no longer available.

A review of 2022 event dates:

Note: A committee has been formed to explore the use of a hybrid meeting format for future use.

RASC News -

Chris Vaughan and Samantha Jewett host Messier Minutes every other Tuesday on The Insider's Guide to the Galaxy.

May 2 to 8, 2022, RASC's Weekly Newsletter includes information on "Shooting for the Moon" A Virtual Star Party hosted by RASC Montreal.

The General Assembly is scheduled for June 24-27. Tickets will be on sale May 18 for this virtual event.

Starting on May 7, the Creation Station will be launched for youth ages 5 - 17. Visit rasc.ca/creationstation for more info.

Members are encouraged to review the membership dashboard, and your member information, reviewing for accuracy and options for subscriptions.

Judy reviewed how to become a member, the benefits of membership and that financial assistance is available.

After thanking everyone for attending, the meeting was adjourned.

President's Remarks

June 2022 RASC Halifax Centre Meeting:

(37 attendees)

To watch a replay of the meeting, please visit:

https://www.youtube.com/watch?v=xE_A4ysCqKA on the RASC Halifax YouTube Channel.
(click on noted **time** to launch specific segments)

Welcome - Judy Black

0:00

RASC Halifax President Judy Black welcomed everyone to the monthly meeting, explained the benefits of membership and reviewed the agenda. She acknowledged the Indigenous lands in which the meeting was held and read the Centre's inclusivity and diversity statement.

Special Guests

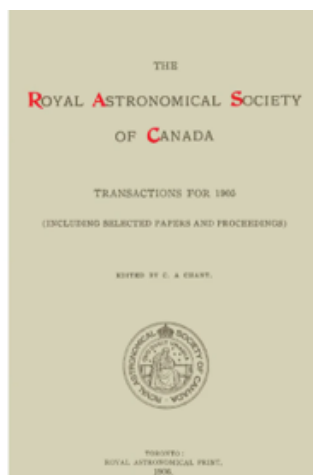
Peter Jedicke - Where Urania has led me. A personal history of the RASC

2:12

Past President, Peter Jedicke of the London Centre provided a comprehensive overview of the history of the RASC. He shared lots of facts and plenty of humorous anecdotes.

Founding of the Society

- First phase: Founded in Toronto 1868-12-01 as The Toronto Astronomical Club
- 1884: The Astronomical and Physical Society of Toronto
- interaction beyond local was by postal correspondence
- Second phase: 1903 granted royal charter as RASC
- 1906-12-20: first "section" formed in Ottawa
- little autonomy; governance by National Council
- eventually Centres were represented on NC
- rented office in downtown Toronto until 1956; house on College Street was purchased
- Eva M Budd was staff member 1912-1948
- Observer's Handbook included with membership
- Society library and artifacts available for loan
- resistance to younger generation



Student Engagement Remote Telescopes & Astronomical Data - Karim Jaffer

46:22

RASC Montreal Public Events and Outreach coordinator and Prof Karim Jaffer (John Abbott College) gave an overview of student engagement using remote telescopes and leveraging members of the RASC Montreal Centre as mentors. He provided examples of all the ways students have participated in a varying array of projects and how it has sparked some of his students to pursue further education and involvement in the field, as well as become active members of the RASC.

MAJOR PROJECT

- Groups pursue a project on a topic in Astronomy, move beyond the class & lab content
 - Individual interest areas can be accommodated (Initial 3 questions)
- Peer & Instructor Evaluation
 - Oral Presentation on Process
 - Final Project Poster Session
- **Mentoring** via RASC Montreal

Activities:

- Building a radio telescope
- Measuring topology of the Moon
- Use of digital cameras in astronomy
- Making an optical telescope
- Cratering and the Martian surface
- Tidal forces
- Spectral analysis of astronomical object(s)
- Capturing and analyzing Cosmic Rays
- Exploration of astronomical databases
- Space Colony / Station Design
- Orbital Mechanics
- Searching for exoplanets
- Historical topics / Space Race
- Plus many others

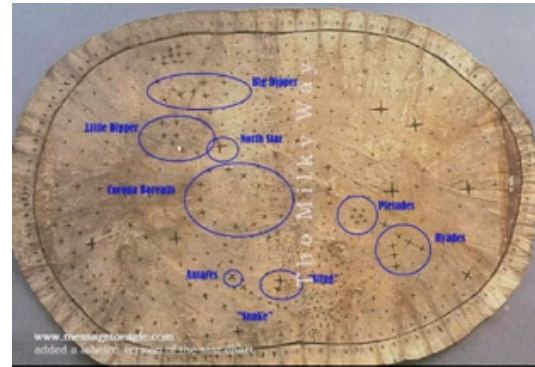
JOHN ABBOTT COLLEGE



Sky Lore 2022 with Chris Young

1:53:27

Chris Young continues his series on Sky Lore, sharing stories from indigenous peoples of North America in the region of Lake Superior, Ohio and Illinois, Kansas and Nebraska and Utah.



What's Up in the June Sky with David Hoskin

2:26:08

David opened sharing that the lunar eclipse of May was clouded out in most of Nova Scotia. David reviewed highlights of the June sky.

Days are getting much longer and as of June 1, there was less than four hours of darkness, and decreasing until the summer solstice which occurs June 21 at 6:14 AM AT.

Current solar activity shows some sunspots that are currently rotating out of sight, and new active areas are rotating into view.

Moon: First Quarter June 7, Full Moon June 14 ("Trees Fully Leafed" Moon), Last Quarter June 21
Lunar X will be visible during the daytime on June 6, and Straight Wall visible on June 7

He reviewed upcoming conjunctions with Venus (on June 26) and Mercury (June 27)
The new moon ("Birds Shedding Feathers") is June 29

He also discusses targets needed to check off for Explore the Universe, and when they can be viewed. He also highlighted planetary positions for June, summer constellations, noctilucent clouds (the highest clouds in the Earth's atmosphere), stars (including double and multiple) and deep sky objects.

The Planets in June

- Mercury -visible in morning sky starting June 10 (mag. +0.5)
-greatest elongation (23°) west of the Sun on June 16
-conjunction with waning crescent Moon on June 27
- Venus -brilliant pre-dawn sky object (mag. -4.0) challenge
-close conjunction with waning crescent Moon on June 26
- Mars -prominent (mag. +0.7) in pre-dawn sky
-conjunction with thick crescent Moon on June 22
- Jupiter -very bright (mag. -2.4) in pre-dawn sky
-begins June near Mars
-conjunction with last quarter Moon on June 21
- Saturn -visible in the pre-dawn sky (mag. +0.6)
-begins retrograde loop on June 5, rising after midnight starting June 15
- Uranus -elongation from the Sun increases throughout June (mag. +5.8)
-near much brighter Venus in pre-dawn sky on June 11
- Neptune -located in Pisces in the pre-dawn sky (mag. +7.3)



All the planets will be visible on June 24. Be sure to be up about 40 minutes before sunrise. (Uranus and Neptune require optics)

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

Judy Black - News from the Board

2:45:43

SCO is now open - As of March 21, all COVID-related restrictions have been lifted. Visitors to SCO are encouraged to continue wearing masks, to distance when appropriate and to get vaccinated.

Currently, the gates are locked on the road to SCO. If you are planning on visiting SCO, please post to the list that you will be attending and contact John Liddard at scomanager@halifax.rasc.ca to ensure access.

Halifax Centre Stars

David Hoskin's solar video was featured on "Live at Five"

Tony Schellinck was recognized for his creation of the Ace Amateur Programme

For detail, see page 22.

March/ April edition of Nova Notes is posted online and the deadline for the next edition is June 18, 2022. Reminder print option is no longer available.

A review of 2022 event dates:

Note: A committee has been formed to explore the use of a hybrid meeting format for future use.

Heads Up! 2022 Meeting Dates & Events

Members' Meetings are usually held on the first Saturday of the month, unless it falls on a holiday weekend.

2022 Dates
June 4
September 10
October 1
November 5
December 3 (+ AGM)

Special Events
Mark your Calendar!

Friday, June 10: SCO 25th Anniversary BBQ
Rain date: Saturday, June 11

August 19 – 21: Kejimikujik Dark-Sky Weekend

August 26 – 28: Nova East Star Party

Friday, September 23: Annual SCO BBQ
Rain Date: Saturday, September 24

Review of your astronomy gear?
Read a good book?
Want to share observing strategies?
An "oh, WOW!" moment?

zoom

2022

SCO spring cleaning is planned for Sunday, June 5 and volunteers are needed! Bring bug and tick repellent and sunscreen.

The Nova East website is live! Visit <http://novaeast.rasc.ca> for a schedule of events and to register!

The Sherman Williams Walk has been added to Nova East in memory of Sherman. Jason Dain will be leading the walk at this year's Nova East.

For the past 2 1/2 years, COVID has prevented in-person meetings, and meeting the new members and getting to know what they are interested in. Volunteers are needed, and new members are also encouraged to provide feedback on how we can make the centre better.

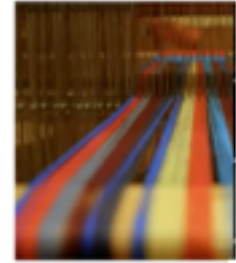
Volunteer roles are available for Education & Public Outreach (EPO), St. Croix Observatory (SCO), Dark-Sky Weekend (DSW) & Nova East Star Party, Meetings (hosts, presenters, etc.), Board of Directors, Task Teams, Subcommittees and more!

The nominating committee will be looking for candidates to run for Centre President this fall, as Judy Black's term will reach its limit.

We Need You!

Why?

RASC Halifax Centre is OF, FOR and BY their members.
Our Centre is what WE THE MEMBERS make of it.



- Be part of the Team! It's fun and rewarding!
- Your participation & input are needed. Be in the know!
- Get to know each other / Meet new people
- Prevent volunteer burnout / More hands make light work
- Learn new skills – observing, sketching, imaging & image processing, equipment setup/repair,....
- Mentorship (Be one. Find one.)

After thanking everyone for attending, the meeting was adjourned.

Have a great summer! See you in September!