

# Nova Notes

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

PO Box 31011, Halifax, Nova Scotia, Canada B3K 5T9 [www.halifax.rasc.ca](http://www.halifax.rasc.ca) [halifax@rasc.ca](mailto:halifax@rasc.ca)



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### Cover Photos:

#### Main Photo:

The Heart Nebula, IC 1805; 6 hours and 20 min. exposure; Drizzle integration; Exposure 26\*300 sec + 25 \* 600 sec; ISO 800; Nikon Z7 [8856 x 5504] + Skywatcher Esprit 120mm Refractor Filter Radian Triad Ultra Quad-Band Narrowband Filter Lower Sackville, Nova Scotia. Processed in PixInsight and Lightroom by **Jerry Black**

#### Thumbnails (L-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

When I first saw Jerry Black’s Heart Nebula photo, I knew it had to be our cover photo for the February edition. More and more of us are feeling like the world needs more reminders of love and of our place in the universe. His photo captures all of the above.

We have been treated to some nice, spring-like weather here and there (and in between the cold and clouds.) Before we know it, we will be walking among daffodils and tulips by day and looking up at the spring constellations at night.

I’ve had so much fun asking folks to contribute to another centre collaboration, this time for Comet C/2022 E3 (ZTF). By NEOWISE standards, the comet was not as exciting, but presented a good enough challenge. I really enjoyed showcasing the progression of the comet from January - February, through the different lenses of our talented members!

Unfortunately, some sad news also came our way recently with the loss of Terence Dickinson who left behind a legacy of passion for sharing the night sky with so many. The tributes and stories that I received in my inbox speak volumes of who he was, not just as an astronomer or author, but as a person who cared about others. We need more people in the world like him.

Finally, this has been on my mind for some time. I want to extend a heart-felt THANK YOU to those who bring the centre closer to those of us “from away.” Thank you to the “AV squad” who brings meetings to those of us who can’t physically get to St. Mary’s for meetings. Thank you Dave Lane, Bob Russell and Jerry Black. And many thanks to Tiffany Fields for keeping our day-to-day communications via the server up and running. So much goes into keeping centre members connected and everything running smoothly. I, especially, appreciate that you can keep me feeling like I’m right there with you all, even from almost 1,500 kms away, and I know there are others who share that same appreciation!

With continued gratitude,



LISA

## Upcoming Meeting Dates

- March 4
- April 1
- May 6
- June 3
- September 9
- October 14
- November 4
- 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.

The meeting are recorded and become accessible shortly thereafter on our Halifax RASC YouTube channel. 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 out-lets, 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](mailto: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, 2023

Elected	
President	John Nangreaves
Vice-President	Patrick Kelly
Secretary	Peter Hurley
Treasurer	TBD
Director	Judy Black
Director	Gregg Dill
Director	Matthew Dyer
Director	David Hoskin
Director	Tony McGrath
Director	Kathy Walker
Appointed	
Honorary President	Mary Lou Whitehorne
Auditor (2022-2023)	Dave Lane
Communications Committee, Chair	Patrick Kelly
Dark-Sky Preserve Committee, Co-Chair	Peter Hurley
Dark-Sky Preserve Committee, Co-Chair	Tony Schellinck
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

## Nova East Star Party

SAVE THE DATE FOR 2023!

**August 18-20, 2023**

(New Moon August 16)



# A Message from the President

Who? Me? My inaugural message From the President... still hard to believe that's me! Not entirely sure how that happened; the details are clear to me, the reasoning less so. Being nominated was an honour, becoming President of this particular Centre truly the highest praise one could receive, and I thank you all for the honour.

Out of the pan. Little did I know at the time the National Centre was on fire with a mission of change. Seats had changed, times had changed, the world had changed, even the demographics of the membership had changed, and RASC has to change with it. Into this I jumped, both feet, not only having to learn the system in place, but also all the ins and outs of all things RASC so we can improve the member experience for 2023 and beyond.

There were many furious emails, spreadsheets, documents, messages, meetings, and general catching up on the organization to be researched. Many member services and benefits to be reviewed, committees to ensure they are all maintained, dozens upon dozens of other volunteers to meet, and what needs to be done when. Daunting! Fortunately, Judy has a firm grasp on the subject, and laid a clear path straight to what needs to be done and when for me. Her help and guidance saved me from drowning in an ocean of digital documentation. Change is necessary for all organizations to stay relevant, and it's so important we effect change to keep up with the times, and continually improve the member experience. Not a simple task, but certainly a most important one.

If all the research and briefings over the past couple of months have taught me anything, it's what a truly exceptional Centre we have. We have an extremely supportive and active member base, with talents and skills aplenty. No subject without an expert in our midst, no question goes unanswered, and few centres are so lucky. Fortunately for all of us, we also have a fabulous board who take care of business effectively and efficiently. They manage the day-to-day and meeting-to-meeting operations seamlessly, and deserve many thanks. They certainly make my job here easier.

For me, it's all about the membership and giving you all the opportunities and resources you deserve. So how can I help?

Clear Skies!  
John Nangreaves  
President

Email the Centre Executive:  
[president@halifax.rasc.ca](mailto: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.

# Good Grief!

## Observing in Less than Stellar Conditions

By Judy Black

While enjoying my morning coffee on January 12, I read two articles in the February 2023 edition of *Astronomy* magazine – one by Bob Berman on page 12 made me chuckle and the second by Stephen James O'Meara on page 52 elicited an “ah-ha, so that’s what I saw!”

The curse of continuous cloudy skies disappeared on the previous evening, perhaps fleetingly, but nonetheless it was a clear, cloudless night. With my list of Messier objects to observe and to sketch, I stood beside our 10” Meade SCT that Jerry generously set up for me to view Cygnus’ brightest stars shining over western rooftops, Jupiter shining brightly in the south, and the Winter Circle with Mars and the Pleiades clearly visible in the east. At my disposal were 40 mm, 25 mm, 15 mm, and 10mm eyepieces and I was also going to try my Christmas gift - a Svbonny 3mm - 8mm zoom eyepiece. My 10x42 image-stabilized binoculars were at the ready.

Bob Berman’s article explained how even backyard astronomers go through the five stages of grief when seeing is not the greatest. Seeing and transparency last evening were rated as average (and perceived as less than average); I experienced the stages just as he described. The session in question began at 6:45 PM AST and it wasn’t until I read his article that I could put it all into perspective.

### **Stage 1: Denial**

Because I knew where to look, I found M31 using my 10x42 IS binoculars before beginning to look for M31, M32 and M110 with the Meade SCT. I used the go-to function and found the non-descript M31 smudge. There was no denying that M31’s characteristic features (bright centre, elliptical appearance) were being denied by the urban light dome, the sky conditions, the equipment used, or perhaps my watering eyes that required frequent drying. I could not make the stars in the FOV appear as pinpoints; they were fuzzy dots at best and mini donuts at worst throughout this session. I thought, “Okay, I know bad seeing is common so let’s look for another object. Maybe this was an exception.” Denial.

### **Stage 2: Anger**

By changing an eyepiece or viewing the object again later in the session when sky conditions change, the possibility of observing the object in question usually improves – not this time. Again, the go-to function was used to “find” M110 (a small fuzzy). I was greatly disappointed in the lack of detail and the lack of definition of the stars, despite several attempts at focusing. Forget about finding M32 in that fuzzy non-entity. Andromeda, et.al., was a bust! The failure to observe these objects in the detail I wanted caused a bit of upset, anger to say the least. Adding to this, my headlamp’s battery died (special size of battery I didn’t have in stock), and I discovered my SQM’s battery was also dead. Bah, humbug.

### **Stage 3: Bargaining**

In his article, Bob Berman stated, “You turn to the next stage: bargaining! Okay, but with whom?” A really good question given the sky gods seemingly weren’t cooperating so no sense appealing to them. I didn’t want to feel like I hadn’t tried, and Jerry was trying to help diagnose why I couldn’t “see” things. The decision was to bargain with myself. Bargain with myself? Who else was there? Try different targets, try different eyepieces, and keep my dry-eye syndrome at bay. My bargain was that if I succeeded in observing and sketching one target, I would go indoors to enjoy a hot chocolate.

### **Stage 4: Depression**

How does one win a bargain with oneself? First, get gloves to keep fingers warmer (it was windless but -10° Celsius). Second, look for something the conditions would allow observing. Jupiter and its

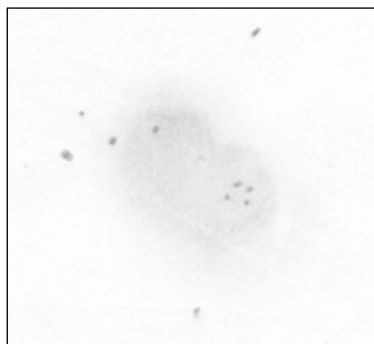
moons maybe? I started with the 40 mm eyepiece, then used the 25mm; Jerry could see the planet's striping with both eyepieces albeit variable in moments of good seeing whereas it totally escaped me. This is the point where I considered giving up. What was the point in staying outside? Couldn't see anything. Nothing worked. Bah, humbug.

I chuckled the next morning when reading Berman's words: "...you suddenly realize what astronomers have known for 413 years: Wiggly, depression-inducing seeing is so widespread, you have no choice in the matter. A smile creeps across your face, the expression common to observers through the centuries. Finally you know its name and cause."

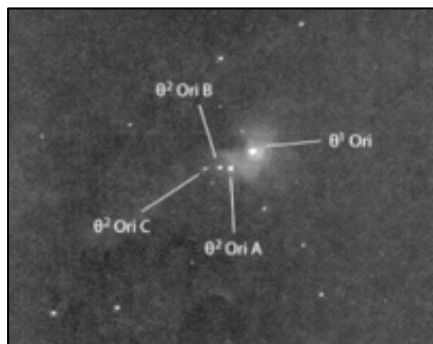
### **Stage 5: Acceptance**

... Acceptance, and the *relative* calm that ensues. It is what it is. Accept that conditions are poor and just play – and that's just what I did. I couldn't get Jupiter's moons completely focused but at least this time they were just fuzzies and not donuts – Io on one side with Europa, Ganymede and Callisto on the other. I tried my 10mm eyepiece after failure to see Jupiter's stripes with the 40mm and 25 mm. After staring through the eyepiece for several seconds, I was able to vaguely discern the stripes in variable moments of good seeing and they were almost perfectly aligned with the line of the Galilean moons. Success? Maybe. Having experienced this "success", I slewed to view the Pleiades, saw Mars as a small red featureless spot centred in my FOV, and then turned my scope to Orion's M42. I sketched what I saw, assuming it was M42 and other stars and nebula in close proximity.

Now, let's come back to my morning coffee and reading the February 2023 edition of *Astronomy*. Stephen James O'Meara, in his article entitled "*The Theta Orionis challenge*", challenged us to split Theta<sup>1</sup> Orionis and Theta<sup>2</sup> Orionis without optical aids. It's an interesting read but what especially caught my attention was the photo in his article. It was the mirror image of what I saw in my scope and what I had sketched!



© Judy Black



From *Astronomy* (February 2023, p5)

Ah-ha, so that's what I saw! Four stars with one looking elongated (that I initially attributed to the frustrations experienced earlier), 3 bright-ish stars in a line with a fourth less bright forming an equilateral triangle with the two further out, and two stars (one above and one below the quadrilateral). The nebula surrounding it was heart shaped with the quadrilateral side more nebulous than the part covering the first star.

### **Success!**

What I learned from this session is that we as astronomers eventually do succeed when we keep going out into the dark and cold, despite all the grief it gives us while out there. We go back night after night (skies allowing) to observe that special object, to perchance sketch its details or to capture it digitally. It's a process, one we go through alone or with like-minded others – and there's always acceptance (at some level) of what we see and how well we see it. Don't we all go through these stages at some point in our observing careers and doesn't the memory of it stay with us – success or not?

# Terry Dickinson 1943 - 2023

Mary Lou Whitehorne FRASC  
Honorary President  
Halifax Centre RASC

Canada's astronomy community has lost a giant. Terence "Terry" Dickinson was remarkably gifted. A brilliant meteor witnessed at the age of five started his life-long passion for the stars and the universe. Self-taught in astronomy, he became Canada's best astronomy author, communicator, and popularizer. Among the many astronomy books he wrote, *Nightwatch* was an international best seller. From the first print run of the first edition, it became, and remained, the best ever guide to amateur astronomy for anybody wanting to get into the hobby.

His astronomy books can be found on the shelves of almost every amateur astronomer in the country, myself included. Not just his books, but his newspaper columns, speaking engagements, and radio appearances, inspired thousands to go out under the stars and look up. Terry was passionate about sharing his love for, and knowledge of, the night sky and everything it encompasses.

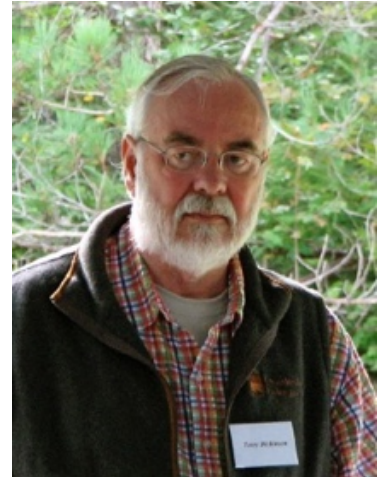
Many of us in the RASC across Canada have had the pleasure of meeting Terry and spending time with him, and know him to have been a true gentleman, who was always interested in the people around him. He was anything but aloof! Warm, friendly, informative, with an easy smile and a quiet laugh, he was always eager to engage with like-minded people.

Terry was the recipient of a number of prestigious awards for his work in astronomy: the Royal Canadian

Institute's Sandford Fleming Medal for outstanding contributions to science communication, the New York Academy of Sciences Book of the Year Award, and the Astronomical Society of the Pacific's Klumpke-Roberts Award. He was a member of the Order of Canada, and held honorary doctorates from Queen's and Trent universities. Asteroid 5272 Dickinson was named in his honour.

His wife, Susan Dickinson, wrote in his obituary, "Although he was physically tethered to this planet, his mind soared among the stars, and the time he spent gazing skyward from a dark country site brought him peace and serenity. Now he's at one with the universe that enchanted him for a lifetime."

Terry was unique and without peer. He will be greatly missed by everyone that knew him.



Terry at Nova East in 2008, when he was our guest speaker. Credit unknown

*"Honour Terry for how he enriched your life.*

*There will be no memorial service. His ashes will be scattered under a dark country sky.*

*Arrangements entrusted in Wartman Funeral Home, Napanee, Ontario. If desired donations in memory of Terry to your local Humane Society or to a charity of choice in lieu of flowers would be appreciated.*

*Condolences may be forwarded online through [wartmanfuneralhomes.com](https://www.wartmanfuneralhomes.com)"*

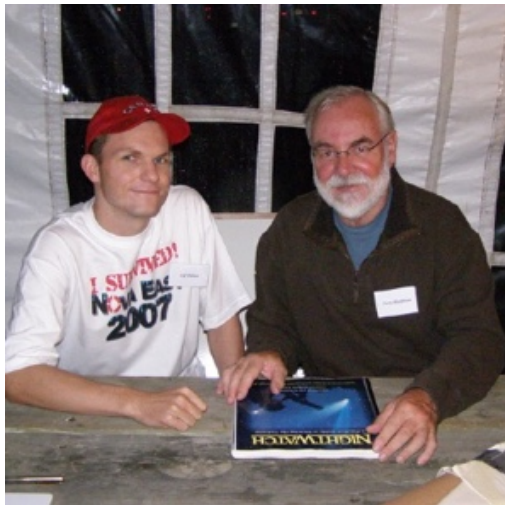
*- Susan Dickinson (excerpted from Terry's obituary)*

<https://www.wartmanfuneralhomes.com/memorials/reginald-dickinson/5131548/index.php>

# Halifax Centre Members' Memories of Terry Dickinson

## Memories from Nova East 2008

Courtesy of David Chapman



"I wore NightWatch out when I started and often mentioned in my old column. Terry graciously emailed me: "Thanks so much for once again 'flogging" NightWatch in your Herald column, despite my Scrooge-like refusal to offer you a cut on the royalties!" He'll be missed"  
- John McPhee

"I'm sad. A highlight in my life was seeing him at Nova East and having him sign my copy of his book "Nightwatch". It is now well worn."  
- Karen Hamblin

"I corresponded with him a few times on astronomy items... always replied and even joked a few times, never did meet him in person though." RIP Terry...  
- Michael Boschat



# Halifax Centre Members' Memories of Terry Dickinson

## Memories from the 2015 GA



Credit: **Paul Evans via Pat Kelly**



Northcott Lecture 2015-07-04  
Credit: **Paul Evans via Pat Kelly**



Credit: **Blair MacDonald via Pat Kelly**



Credit: **Blair MacDonald via Pat Kelly**



“2016 June 21, when I had the great honour to present the RASC President's Award to the late Terence Dickinson. Here, I read the citation in which we presented the award to Terry at the RASC London General Assembly.

We received news yesterday that Terry had passed away after many years battling Parkinson's disease.

Terry was a fine educator, author, presenter, and writer. He wrote several books, some in collaboration with his friend of many years, Alan Dyer. Terry was also the co-founder and original editor of SkyNews, Canada's premier astronomy magazine.

This is a good place to start when looking for Terry's many book titles [https://en.wikipedia.org/wiki/Terence\\_Dickinson](https://en.wikipedia.org/wiki/Terence_Dickinson) He will be missed.”  
- James Edgar, FRASC UE

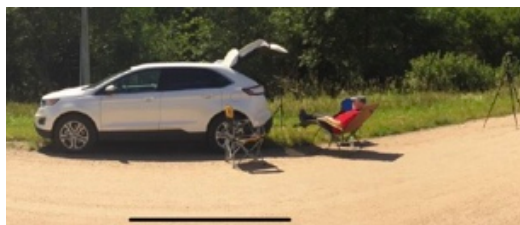
# Halifax Centre Members' Memories of Terry Dickinson

"I briefly met Terry in my campsite at Starfest in Ontario many years ago. After we'd been talking a while about many astro-events we had witnessed, my wife brought out popcorn. One story surprised us both.

The first week of September, 1966, was my first week away from home at college. I live in the Pittsburgh, PA area and Case Institute of Technology, as it was known then, is in Cleveland, OH. It had been hot all week and the dorms had no air conditioning. So, even though a mixer was scheduled Friday night, most of us were out in the Commons, cooling down. Not too long after dark, a bright meteor flew by. It was a bolide for sure and was by far the brightest I've ever seen. As it went behind a large building, I ran around its side so I could continue watching. Our campus was 5 miles from downtown Cleveland but I could clearly see the blocks of granite, etc. that the sky scrapers were made of. The meteor brightly illuminated everything in a milky green light. I later found that my grandfather and one of my uncles saw the same meteor near Pittsburgh, PA and that it broke up over Michigan. When I told Terry that story, he was astounded. He had seen the exact same one from his apartment in downtown Toronto with the CURTAINS CLOSED! He said the meteor was later estimated to be about the size of a car."  
- Terry Trees

## Memories from the 2017 Eclipse

Photo credits: John Read



(Front) Terry Dickinson, (Back L-R) Dave Chapman, TIm Doucette, Quinn Smith, Mo Sandland, John Read and Greg Merrick

John shares: Terence "behind my rental car (he hopped in with me, and we led a race to get in front of the clouds,) I think Dave Chapman was following in another vehicle. We ended up racing through cornfields, and stopped when we saw another group of eclipse chasers. While the rest of us set up cameras, he just took it all in."

"Rest in Peace Terence Dickinson. You were one of the most prolific astronomers of our time, an inspiration to me and so many others."  
- John Read

# Halifax Centre Members' Memories of Terry Dickinson

## David Chapman's Memories

### 1. Early 1990s—RASC Halifax Talk

Terry Dickinson spoke to a large audience at Dalhousie University on the topic "Naturalists of the Night Sky." As usual, it was inspirational, but the part I recall was Terry showing a light pollution map of Eastern Canada—he pointed to a dark area in southwest Nova Scotia and said "i don't know what is here, but it's a black hole in the light pollution." I knew, because I had camped there many times and enjoyed the dark skies—Kejimkujik National Park. In 1985, RASC Halifax even had a Camping Observing Weekend there (forerunner of Nova East). Less than 20 years later, Kejimkujik Dark Sky Preserve was declared by the RASC.

### 2. February 1998—Curaçao Total Solar Eclipse

Terry and I both observed the solar eclipse from Curaçao, but we were in different groups, so we did not talk much. When the eclipse was over, he surprised me by asking "I'd like you to write a few words about your impressions of the eclipse, to be included with those of others in sidebars to an upcoming article in SkyNews." Of course I agreed, and happily sent in my contribution. When the May/June 1998 issue came out, i eagerly opened to the article, and was disappointed that I could not find my "sidebar." However, when I started to read the main article, the words seemed familiar—because they were mine! Terry had used my contribution as the main article and my name was under the title!

### 3. August 2008—Nova East star party

Terry was the special guest and keynote speaker, plus he hung out with us all weekend and was fun to be with. He even took part (as an observer) in the astro auction run by Quinn Smith and John Liddard. Usually very quiet, Terry let out a huge belly laugh when Quinn announced the bids open for the "rectal eyepiece." Quinn will never live this down!

### 4. August 2017—Nebraska Total Solar Eclipse

This is my most recent and most poignant memory. Terry was among the large group of RASCals that gathered in Grand Island, Nebraska. Having retired as SkyNews editor the previous year, his health had visibly deteriorated, and he was being assisted by his friend Greg Merrick. Quiet at the best of times, Terry was VERY quiet at this event. The group was deliberating during the partial phase of the eclipse—should we stay in the campground and risk the approaching clouds spoiling our view, or should we head west as far as we could? Terry spoke: "We should go—NOW." We went! Terry and I ended up in a small group of 6 on a gravel road through corn fields outside of Cairo, NE. The eclipse was amazing. After it was over, Terry spoke again "that was a PERFECT eclipse!" That was the last time I saw him, but a perfect moment for me.

Be sure to visit page 21 for Paul Heath's poetic tribute "Last Page Has Turned"

# Moonscapes: Mare Nectaris

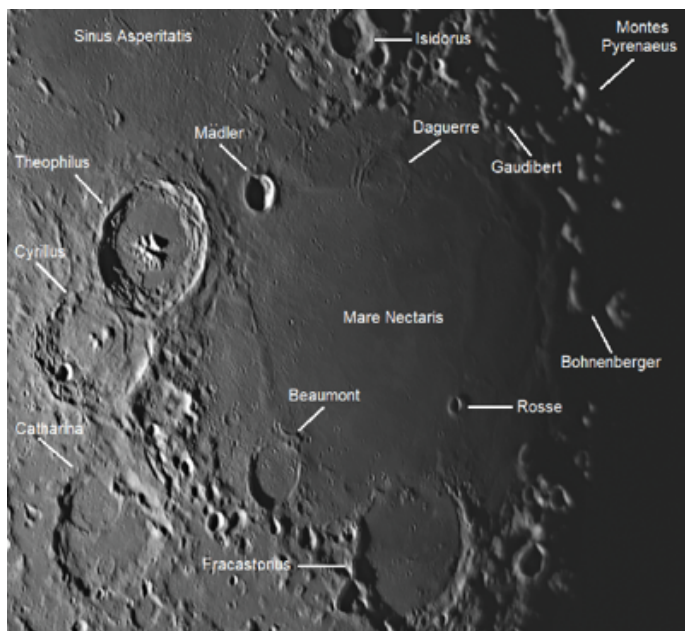
By David Hoskin



Observation of lunar maria (seas)/basins and their associated craters are an important part of the RASC *Explore the Universe* program. The ancient lava beds that comprise the maria (singular is mare) are large, dark features that are easily seen with the unaided eye. Indeed, maria cover a large part of the Moon's near side, and were landing sites for the 20<sup>th</sup> century Apollo missions.

Mare Nectaris (Sea of Nectar – the circled area in the image of the first-quarter Moon) is one of the smallest lunar mare, covering 101,000 square kilometres with a diameter of about 360 kilometres. The 700-kilometre-wide basin in which Mare Nectaris resides was formed by an asteroid impact nearly 4 billion years ago. Like Mare Orientale on the

far side of the Moon, Mare Nectaris is part of a multi-ring basin. Rupes Altai (indicated by the arrow) is an almost 500-kilometre-long fault feature that was formed by the impact. It is 15 kilometres wide in some places. Rupes Altai defines the outer ring and southwestern boundary of the wider Nectaris basin. Sinus Asperitatis (Bay of Asperity) joins northern Mare Nectaris with southern Mare Tranquillitatis. Montes Pyrenaeus borders the eastern edge of the mare while the south is bordered by mountains and the ancient crater Fracastorius. The western flank of Mare Nectaris is delineated by three large craters, Theophilus, Cyrillus, and Catharina. The centre of the mare is the site of a mass concentration (mascon), which is a concentration of dense material beneath the lunar surface that causes a local increase in gravitational pull. Days five and 18 of the lunar cycle, when the whole of the basin is illuminated, are the best times to observe Mare Nectaris.



The close-up image of Mare Nectaris shown above was captured on day 19 of the lunar cycle, at which time the eastern side of the mare is partially in shadow. Two wide wrinkle ridges are visible in Mare Nectaris. One runs north from 53-kilometre-wide Beaumont crater to the eastern side of Theophilus crater. The other lies to the west of 34-kilometre-wide Bohnenberger crater. The lava plain of Mare Nectaris is pockmarked with numerous craterlets. Ghost craters, which are ancient craters that have been almost entirely buried by lava flows, are a notable feature of the north part of Mare Nectaris. Daguerre and the unnamed crater to its north-west are the largest of these ghost craters. A faint line of ejecta can be seen to run from Mädler crater through Daguerre. To the south, Beaumont and the much larger Fracastorius (124-kilometre-wide) are ancient craters whose walls were breached by the Mare Nectaris lava flow, allowing lava to flood these craters. Interestingly, the surviving wall of Fracastorius contains a number of small craters, the largest of which are embedded in the western wall.

The most striking feature of Mare Nectaris is without doubt the linked trio of impact craters - Theophilus, Cyrillus, and Catharina. Theophilus and Cyrillus are examples of complex craters that are characterized by one or more central peaks and terraced sidewalls. Theophilus is the northernmost member of the trio. The floor of 104-kilometre-wide Theophilus is dominated by the three main peaks of the central mountain complex, reaching a height of 1400 metres. The inner wall of Theophilus is broad and terraced. The crater rim is 1200 metres higher than the surrounding landscape. Cyrillus, which lies to the south of Theophilus, is a slightly smaller (98-kilometre-wide) and older crater with a less sharply defined rim. However, it too has three central peaks. Catharina is the same size as Theophilus but is the oldest of the trio, as indicated by its heavily eroded appearance. The northern part of Catharina contains a 55-kilometre-wide crater, Catharina P, which opens the main crater to the 40 kilometres of striated landscape that links Catharina to Cyrillus.

Binoculars will reveal the major features of Mare Nectaris. However, a small telescope is recommended for more detailed views of the mare that will fascinate and delight the observer.

## **Sources**

*A Guide to the Moon's Mare Nectaris* by Pete Lawrence, BBC Sky at Night Magazine

*Geologic Processes on the Moon/Cratering on the Moon*, Lunarpedia.org

*Mare Nectaris* - Wikipedia, en.wikipedia.org

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

# Members Commemorate Comet ZTF

When the call went out to Halifax Centre members for photos of Comet C/2022 E3 (ZTF), the results did not disappoint. Thank you to all the photographers who contributed to this memorialization of progress of the comet, especially considering there were many cloudy nights.

“C/2022 E3 (ZTF) is a long-period comet from the Oort cloud that was discovered by the Zwicky Transient Facility (ZTF) on 2 March 2022. The comet has a bright green glow around its nucleus, due to the effect of sunlight on diatomic carbon and cyanogen.”

“The comet reached its perihelion on 12 January 2023, at a distance of 1.11 AU (166 million km; 103 million mi), and the closest approach to Earth was on 1 February 2023, at a distance of 0.28 AU (42 million km; 26 million mi). The comet reached magnitude 5 and was visible with the naked eye under moonless dark skies.” Source: Wikipedia



# Comet C/2022 E3 (ZTF) (con't)



Jerry Black  
Comet E3 (ZTF) being photobombed  
January 28, 2023  
Lower Sackville, NS



Lisa Ann Fanning  
January 30, 2023  
Morganville, NJ USA



Jerry Black  
February 1, 2023 8:43 pm  
Lower Sackville, NS



David Hoskin  
February 7, 2023  
Halifax, NS



David Hoskin  
Comet C/2022 E3 (ZTF) with Mars  
February 12, 2023  
Halifax, NS

# Member News

## Jason Dain places third in international contest

Halifax Centre's very own **Jason Dain** placed third in the 2022 Optolong Deep Space Astrophotography contest. His stunning image of WR134 was chosen out of an astonishing 670 international entries.



**“The 3rd Prize -- Photo No. 276      DeepSky+WR134+Jason Dain+Canada**

Category of competition: Deep Sky

Your name and your country: Jason Dain, Canada

Imaging title and target: WR134 and surrounding area

Equipment used and the technical card:

Integration time: 27 hrs Hydrogen, Oxygen and RGB stars (narrowband gain 200, broadband gain 120)

Telescope: Skywatcher Esprit 120 ED APO

Imaging Camera: ZWO ASI 294MM Pro

Guiding: Starfield 50mm guide scope with ZWO ASI290MM guide camera

Filter: Optolong Ha, Oiii (7/6.5nm) and RGB filters

Mount: Skywatcher EQ6R-ProCalibration: Flats and flat darks

Hardware Control: ASIAIR Pro, Pegasus Power Box, ZWO EAF and EFWProcessing:

The selected images were pre-processed and processed using Pixinsight.

Imaging date and place: Stillwater Lake, NS, Canada - July 26, 2022 (final night of imaging)

Briefly describe your photo story, digital processing methods employed (if any):

This image of WR134 is the first from my new Skywatcher Esprit 120 telescope. I spent 27 hours capturing data and almost that many processing the image to get it the way I wanted. I have had a couple of telescopes with a similar focal length to the Esprit 120 but none have met my expectations for quality or results. I'm happy to say that this scope is a keeper and that I'm super happy with the results so far. **Credit: <https://optolong.com/cms/document/detail/id/216.html>**



# Member News

## Hoskin Photo Named to *EarthSky's* top 2022

David Hoskin's photo of C/2017 K2 (PanSTARRS) taken on June 25, 2022 was named one of *EarthSky's* top photos of 2022!



View at [EarthSky Community Photos](#). | David Hoskin in Halifax, Nova Scotia, Canada, took this image on June 25, 2022. David wrote: "Last night I captured this image of comet C/2017 K2 (PanSTARRS) during the short period of time between darkness and the comet passing behind trees in my backyard."

## Reads Receive JLG Distinction

Jennifer and John Read's book, *50 Animals that have been to Space* was celebrated as a part of the Junior Library Guild Gold Standard Selection.



## Mi'kmaw Moons Book Receives More Press

### MI'KMAW MOONS

*Mi'kmaw Moons: The Seasons in Mi'kma'ki* (Formac Publishing) takes young readers on a one-year journey. Authors Cathy LeBlanc and David Chapman tell stories of the moon in Mi'kmaw culture. Each story is illustrated with a colour painting by artist Loretta Gould.

For thousands of years, the Mi'kmaq have closely observed the cycles of the moon and the stars to track the passage of time. Each full moon in an annual cycle was named in relation to a seasonal event, such as tomcod spawning or birds laying eggs.

For the past decade, Mi'kmaw elders and knowledge keepers shared information on the traditional night sky calendar with the authors. In the book, LeBlanc relays this knowledge in stories told to her young relative named Holly.

"By observing the Moon's changing appearance at night, the Mi'kmaq kept track of the months. The Mi'kmaq organized months that lasted the same time as the Moon's cycle. Months based on the Moon are called "lunar" months," the authors write.

"The Mi'kmaw names for the lunar months describe the sights, sounds, and seasonal changes found in Mi'kma'ki during that lunar month. The names Berry Ripening Time and Frogs Croaking Time tell you a lot about what happens in Mi'kma'ki during those lunar months."

This article along with a photo of the front cover of the LeBlanc-Chapman book was published in the December 10 edition of the Chronicle Herald's *The Book Shelf* by Allison Lawlor.

## Chapman comet photo appears in EarthSky article

David Chapman's photo of C/2022 E3 (ZTF) taken on September 14, 2022 using the BGO / St. Mary's University robotic telescope was featured in *EarthSky's* comet compilation feature on January 31, 2023.



View at EarthSky Community Photos. | David Chapman in Halifax, Nova Scotia, Canada, took this image on September 14, 2022. David wrote: "Comet C/2022 E3. This comet is currently in *Corona Borealis* and will get brighter into the new year. I enjoy following comets and asteroids using the free public robotic telescope at Saint Mary's University. The photos are exposed under the user's direction, automatically processed and made available for download." Thank you, David!

## Hoskin comet photo appears on CTV News

David Hoskin's photo of C/2022 E3 ZTF was featured on the CTV news on February 10, along with an explanation of its appearance for the first time in 50,000 years plus won't be back for millions more, if ever.



## Deep Sky Eye featured on Wild Nova Scotia



## Congratulations Observer

Congratulations to **Jason Dain** on achieving his [Astro-imager Deep-Sky Certificate](#).



View Jason's portfolio here:

<https://rascastroimaging.zenfolio.com/p929352227>

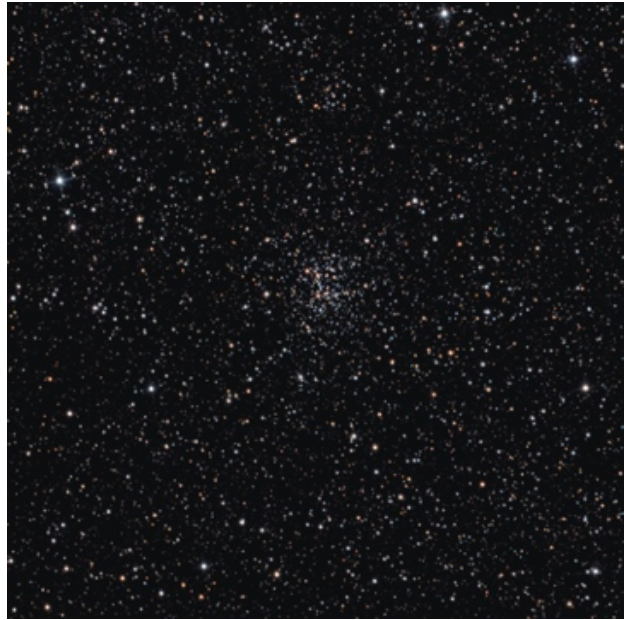
Last fall Deep Sky Eye took part in the filming of an episode of Wild Nova Scotia. Explore the dark sky with Tim Doucette from the Deep Sky Eye experience.

Photo: Deep Sky Eye Observatory Facebook Page

# Members' Universe: David Hoskin's Universe



NGC 2420 open cluster January 11, 2023 by **David Hoskin**



NGC 2194 open cluster January 11, 2023 by **David Hoskin**



Waxing gibbous Moon February 1, 2023  
by **David Hoskin**

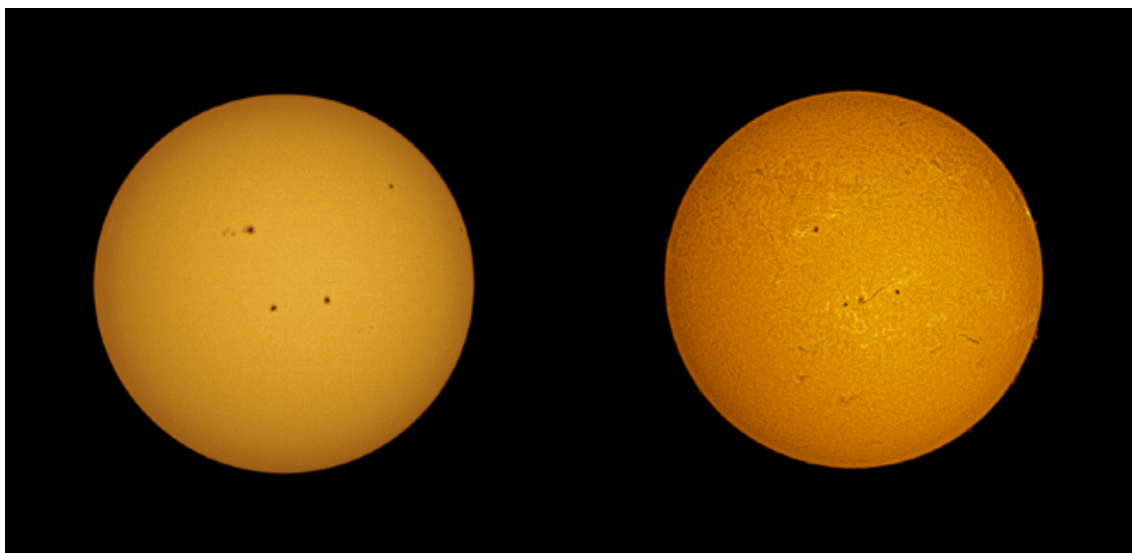


Messier 3 globular cluster February 2, 2023  
by **David Hoskin**

# Members' Universe: David Hoskin's Universe



Messier 44 Praesepe open cluster February 12, 2023 by **David Hoskin**



Sun white light vs hydrogen alpha February 15, 2023 by **David Hoskin**

# Members' Universe

## Food for the Soul: The Poetry of Paul Heath

### ***TOSS HIGH AN EYE***

Within a hand,  
Crafted thoughtful with care,  
An Eye to see, natures tug  
'tween land and sea.

Within a hand,  
With purpose planned,  
An Eye to show, mans careless touch,  
Upon, the land and sea.

Toss high, this thoughtful Eye,  
To seek the health of 'OUR'? land and sea,  
To show mans thoughtless twist  
Of natures hand upon 'HER', Land and Sea.

Then in the vastness of the sky,  
Perchance we'll stretch up  
Our hand held Eye,  
and toss it far into the void,  
To seek the wonders, in limitless space  
To futures hopes,  
Perchance, a distant Star.

Then held within futures hands,  
and Crafted thoughtful, with care,  
A hand held Eye, will be tossed high  
To seek and find,  
The start to all, the glittering wonders  
That fill Our Minds.

### ***Last Page Has Turned***

#### ***Ode to Terence Dickinson***

by Paul Heath



His Last Page has been turned,  
The Accolades upon the wall,  
A small measure of His hearts directed pen.  
A voice he gave to us, its legacy we Must not let fall,  
For Enlightenment was his skill,  
Of Wonders we have sought in darkened skies.

His Last Page is turned,  
Yet within our glistening tear drops,  
Memories of chasing the Sun's hidden glorious Soul,  
And learned talks upon glass filled open fields,  
And meetings that made us rush to his tomes,  
To plan OUR journeys into darkened skies.

His Last Page has turned.  
Yet no longer tethered to the Earth,  
Does he journey now, to his namesakes island in the sky?  
Perhaps to linger one turn about our Star,  
Until his journey, stretches out so far  
He will touch the wonders within the darkened Sky,  
That his heart, has led so many to aspire.

His Last Page,  
He has left for all,  
To fill with wonder, enthusiasm and delight,  
For Us to pen, the joy  
Of a dark and glittering Star lit night.

The Last Page has been turned,  
Another story is closed.  
Yet somehow, his story grows and grows.  
Each page that's turned, each page he penned,  
His story lingers, within the memory of his words.

The Last Page is turned,  
But the next, a blank page, a canvas unwritten on  
Yet full of wonder.  
Wonder left for all, with enthusiasm, with joy  
Of discoveries still to be made.

The Last Page has turned,  
Yet his quiet, generous voice still speaks,  
His words in tomes, we hold cherished in our hands,  
Our First encouragement, so many found,  
To seek the darkened skies treasured gems,  
Expounded on, by his descriptive pen.

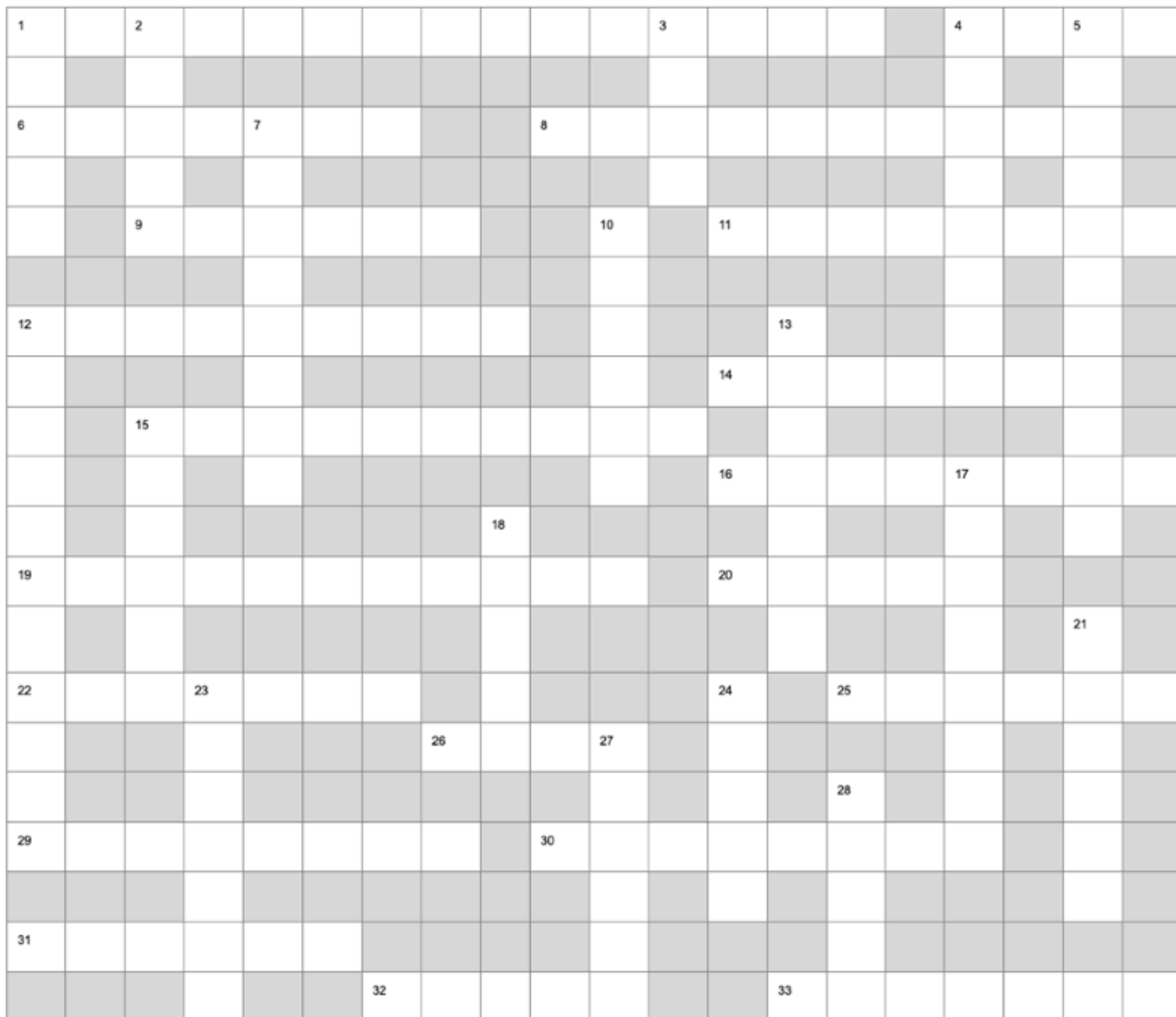
# PUZZLE CORNER – *Features on the Moon*

(See next page for clues)

## Astro Cross Words

By Laureen Burgoyne & Norman Scrimger  
Reprinted from *Nova Notes* 1982, Vol 13(3)

**Astro Cross Words** became a regular feature in *Nova Notes*. Five puzzles were provided to members over the course of a year's editions. Each puzzle had a common astronomical theme. This, the third one published, is *Features of the Moon*. Laureen Burgoyne and Norman Scrimger, the creators of the puzzle series, noted that "all the answers to this puzzle can be found in Norton's Star Atlas. Several other books having a map of the Moon also list these lunar features." Good luck to everyone! Answers will be in the next edition of *Nova Notes* (no cheating by those with access to previous *Nova Notes* editions).



**Across**

- 1) Important craters on this "smooth" section include Cauchy, Arago and Maskelyne
- 4) Forms an equilateral triangle with Julius Caesar and Arago
- 6) Famous explorer's crater near Cook
- 8) The "Monarch of the Moon" in Oceanus Procellarum
- 9) Small ring with a central peak between Messala and Zeno
- 11) Small bright crater near the Rhiphaean Mountains
- 12) Near Exodus, "\_\_\_\_\_ The Great"
- 14) This crater of divisions divides the Alps from the Caucasus Mountains
- 15) 90 mile walled plain south of Herschel
- 16) 28 mile crater with a large central peak; north of Ptolemaeus
- 19) This crater 60 miles across borders on crater Mitchell
- 20) Forms a pair with Mason, not far from Bürg
- 22) Largest of the walled plains, well known by lunar observers, south of Tycho
- 25) Largest crater on the Mare Serenitatis
- 26) This explorer's crater lies near Colombo
- 29) Twin of Briggs; southwest of Schiaparelli
- 30) 30 mile crater with broad walls south of Anaxagoras
- 31) Its smaller companion is Hind
- 32) 32 mile crater close to Schiller
- 33) Smaller than nearby Franklin

**Down**

- 1) Centre of the greatest ray system on the Moon
- 2) Larger and older of the two neighbouring strong men
- 3) Great ski spot on Earth, but lousy on the Moon
- 4) Smaller companion of Grimaldi
- 5) Irregular enclosure north of Tycho; diameter about 60 miles
- 7) Twin of Campanus on the edge of Palus Epidemiarum
- 10) Prominent 20 mile crater east of Campanus
- 12) Brightest and youngest formation on the Moon
- 13) Crater with a prominent central peak touching Isidorus
- 15) A low-walled incomplete ring northwest of Davy
- 17) Small but prominent crater close to Schickard
- 18) 60 mile crater noted for the darkness of its floor
- 21) 25 mile crater close to Altai Scarp
- 23) 30 mile concentric crater on the border of Mare Humorum
- 24) Distinct crater lying on Mare Tranquillitatis
- 27) 22 mile crater having a prominent ray system
- 28) Sometimes regarded as Kepler's twin

Answers to Last Edition's Puzzle

R	A	S	A	L	H	A	G	U	E					M	I	R	A	C	H
U			D	A							G	E	I	O					
C	A	P	H		D	C		A	V	I	O	R	G	R					
H			A	C	A	M	A	R		E	A	E	C						
B			R	R	S				U	N	U	K	A	L	H	A	I		
A	N	K	A	A			T			A			K	R					
H	O					O	D	I	P	H	D	A	E	O					
	A	C	R	U	X	R							N	L					
H	H						V	I	N	D	E	M	I	A	T	R	I	X	
A	A		N					U				I	A						
M	E	B	S	U	T	A			N			R	E	G	U	L	U	S	
A				S					K	A		R							
L			Z	A	U	R	A	K	I	A			U						
				K				E			L		L	E	S	A	T	H	
			A		C	H	O	R	T	S									
A	W	H					R			C	E	N	I	F					
T	A				W	A				H		I			V				
R	A	S	A	L	G	E	T	H	I		D	A	B	I	H			E	
I	A										I		A		G				
A	L	T	A	I	R						M	E	N	K	A	L	I	N	A

# January 10, 2023 RASC Halifax Centre Meeting:

(46 attendees)

To watch a replay of the meeting, please visit: <https://www.youtube.com/watch?v=d9BLEyUbdXI> on the RASC Halifax YouTube Channel.

## Welcome - Judy Black

RASC Halifax Director and program emcee 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.

## Announcements:

Reminder: November/ December Nova Notes is online. Deadline for the upcoming edition is February 18, 2023.

Dave Chapman was onsite with copies to his new book M'kmaw Moons available for sale.

The Astroimaging contest 2022 was cancelled - the deadline for the 2023 contest is November 11, 2023.

2023 RASC Service Awards extended Deadline January 31, 2023.

Copies of the 2023 RASC Observer's Calendar are available for sale \$25. Payment can be made by e-transfer or cheque.

Dates to Remember: visit the website for upcoming meeting dates, Kejimikujic Dark Sky Weekend will be held Aug 11-13 and Nova East will be held August 18-20, 2023.

## David Hoskin - Photo Montage

David presented photographs and sketches from Centre members Jerry Black, Michael Boschat, Dave Chapman, Art Cole, Jason Dain, Tim Doucette, Lisa Ann Fanning, Paul Gray, David Hoskin, Blair MacDonald, and Kathy Walker.

## (Our First Youth Day)

### Halifax Centre Mini- Keynotes:

## Halifax Centre's Silas Eastwood (Grade 10): Here to LEO and Back - The Promise and Perils of CubeSats

"With the advent of the CubeSat, a standardized small satellite specification, and the availability of inexpensive commercial off the shelf components, it is now possible for small organizations with limited budgets to engage in space research that was previously considered impossible. However, failure rates among university-led CubeSat programs is high and many of the failures could have been avoided with sufficient pre-launch testing. Traditional space simulators are often too expensive or ill-suited for CubeSat testing. SMARTEN addresses the shortcomings of existing space simulators while providing an environment designed specifically for testing CubeSats. The system was evaluated to determine whether the design criteria were satisfied and further used to demonstrate performance with two real world applications.

By providing small organizations an easily accessible solution to the problem of insufficient pre-launch testing, SMARTEN can help enhance mission success and support continued exploration of space and our understanding of the universe." For more, visit: <https://projectboard.world/ysc/project/smarten-simulated-microgravity-and-reduced-friction-test-environment-for-nanosatellites>



Grade 11 student and multi-year Canada-wide Science Fair winner Silas Eastwood (Halifax). Photo by David Chapman



### **Victoria Centre's Nathan Hellner-Mestelman (Grade 11) - Our Place in the Cosmos**

"We go about our daily lives with the perception that the Earth is everything there is. In this full-on big-picture presentation, we leave the Earth in the dust and consider the mind-boggling scale of the universe on the grandest levels. In both space and time, the cosmos is ridiculously enormous. In this presentation, we'll unveil the true magnitude of the universe, its unimaginable size, its future timeline, and where we find ourselves on this mote of dust floating through it. The future of the universe is a mysterious timeline, full of mind bending weirdness. Similarly, the size of the objects out there are equally hard to grasp. While this presentation certainly can't let us grasp the scale of the cosmos any better, it'll instill a different view of where we really are in the universe."



Grade 10 student Nathan Heller-Mestelman (Victoria) prepared to blow our minds! Photo by David Chapman

### **Paul Heath - Food for the Soul - Toss High an Eye**

Paul presented his latest poem, *Toss High an Eye*, which can be read on page 21 of this edition of Nova Notes. His poem was inspired to recognize the talks given by today's youth day guests.

### **David Hoskin (EPO/Observing Chair) - What's up for Jan. 2023**

David reviewed highlights of the January sky. Days are getting longer! (At last!!) He highlighted the sun, solar activity, the Moon, 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. Additionally, Comet C/2020 V2 (ZTF) was highlighted. Each month, you can find David's presentations on the homepage at <http://halifax.rasc.ca>

### **Judy Black - Christmas Goodies - Why There is a Concrete Sky?**

The floor was open for members to discuss what they received for Christmas

David Hoskin purchased a few books:

The Fully Illustrated History of the Moon & 100 Things to See in the Night Sky by Dean Regas - which highlights various things in the night sky and stories behind

Judy Black received a Svbony eyepiece with 3-8x zoom as a gift from her very generous husband Jerry. She is looking forward to trying it out once the sky clears up.

### **A Word from the President**

John Nangreaves thanked the audience on his nomination as Centre President.

Thanks went to Dave Lane, Jerry Black and Bob Russell for making the Hybrid meeting possible.

# February 4, 2023 RASC Halifax Centre Meeting:

(30 total (includes 3 non-members for the AGM)) To watch a replay of the meeting, please visit: <https://www.youtube.com/watch?v=S8wHKIF0VAA> on the RASC Halifax YouTube Channel.

## Welcome - Judy Black

RASC Halifax Director and program emcee 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.

## David Hoskin - Photo Montage

This month, there were a number of images of Comet ZTF from members. David presented photographs and sketches from Centre members including a composite by Roy Bishop & Michael Boschat showing the impact of light pollution on viewing the comet, a sketch by Judy Black, Photos by Jerry Black, Michael Boschat, Barry Burgess, sketches and photos by Dave Chapman, Lisa Ann Fanning, Paul Gray, David Hoskin, Pat Kelly, Blair MacDonald and Brian Smith.

## Special Guests - Our Solar System:

### Gary Welch - Gravity's Way: Shredding Galaxies on a Laptop

Honorary President, Mary Lou Whitehorne introduced her first Astronomy prof, SMU Astronomy Professor Emeritus's talk will show what can happen when a retired astronomy prof decides to scratch a long-festering itch. Milestones along his search for relief will blaze across the screen, including Python animations of star clusters tiny and large, and of galaxies both isolated and crashing. Projects for the future - dreams and just plain madness - might be mentioned if time allows.



SMU Astronomy  
Professor Emeritus and  
Honorary President,  
Mary Lou Whitehorne

### Pat Kelly - The Sun is not an average star. The Earth is not an average planet

Halifax Centre's very own Vice-President, Pat Kelly gave his presentation "*The Sun is not an average star. The Earth is not an average planet*" "Stars and their planets form at the same time, from large clouds of gas and dust. The vast majority of stars are smaller, cooler, and less luminous than the Sun. Over 5000 exoplanets have been found so far; very few have properties similar to those of the Earth. Most people agree you need a carbon-based chemistry acting in liquid water for life to begin. Therefore, life on other planets (if it exists!) is expected to be found in the Goldilocks Zone around their stars, the distance at which a planet can have liquid water at its surface. This criterion alone rules out a lot of planets from having "life as we know it". As it turns out, there are places in our own solar system with a lot more liquid water than Earth, so life may be a lot closer than we think!"

## **Paul Heath - Food for the Soul - Last Page Has Turned**

Paul presented his wonderfully emotional poem dedicated to Terence Dickinson *Last Page Has Turned*, which can be read on page 21 of this edition of Nova Notes. Paul also shared his memories of interactions with Terence.

## **David Hoskin (EPO/Observing Chair) - What's up in February Skies?**

David started with a few outreach announcements: One member, Jeff Donaldson was asked to lead a session on February 25, weather permitting. Jeff welcomes any help. Contact Jeff directly or through David if you are able to assist.

Also, the Discovery Centre has asked RASC Halifax to join for Astronomy Day on April 29. Help is needed at the booth, or for a (weather permitting) viewing session. Contact David or Peter Hurley if you are able to assist.

David reviewed highlights of the February sky. Sunset is getting later! He highlighted the sun, solar activity, the Moon, 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. Additionally, Comet C/2020 V2 (ZTF) and the possibility of Zodiacal Light was highlighted. Each month, you can find David's presentations on the homepage at <http://halifax.rasc.ca>

## **News from the Board presented by Pat Kelly**

Elections were held during the Annual General Election. Positions listed below:



<b>Elected</b>	<b>Appointed</b>
President: John Nangreaves	Honorary President: Mary Lea Whitehorse
Vice-President: Patrick Kelly	Auditor, 2022-2023: David Lane
Secretary: Peter Hurley	Dark-Sky Preserve Committee Co-Chairs: Tony Schellack Peter Hurley
Treasurer: Jaime Whynot	Educations and Public Outreach Chair: David Hoskin
Directors:	Governance Committee Chair: Judy Black
Judy Black	Librarian: Jerry Black
Gregg Dill	National Council Representative: Judy Black
Matthew Dyer	Nominating Committee Chair: Peter Hurley
David Hoskin	Nova East Planning Committee Chair: Chris Young
Tony McGrath	Nova Notes Team:
Kathy Walker	Lisa Ann Fanning (Editor)
	John McPhee (Copy Editor)
	Observing Chair: David Hoskin
	St Cross Observatory Manager: John Lobbard

Nova Notes deadline is February 18

Photos and anecdotes are welcome to memorialize Terence Dickinson, also for comet ZTF.

Astroimaging Contest submissions are due by November 11, 2023 at midnight AT.

Calendars are also available for sale for \$25

Centre Stars:

Dave Chapman's photo of the comet taken by SMU was featured in EarthSky

Thanks to Dave Lane and Tiffany Fields for getting the listserv servers back in order!!

Jason Dain placed third in Optolong's Deep Sky Astrophotography Contest (out of 670 entries!)

Upcoming meeting dates and upcoming events were highlighted (see page 3 for listings)

The meeting closed with remarks and many thanks by President John Nangreaves as well as addressing recent news (and rumours) from National.

**The following pages include the Centre's Annual reports for 2022.**  
*Note: draft minutes of the centre's GA were published in the previous edition.*

## 2022 Annual Report: Dark-Sky Preserve Committee

Tony Schellinck and Peter Hurley served as co-chairs of the RASC Halifax Centre Dark-Sky Preserve Committee in 2022. Activities involved interacting with Kejimkujik Park staff, preparing for a lighting audit of the Park, planning and delivery of the annual Dark-Sky weekend, and reviewing activities within the Park that might impact the DSP designation.

### Lighting Audit activities

No lighting audit of the Park was conducted in 2020 or 2021 because the front-country campgrounds were closed in 2020 due to construction of new washrooms, and restrictions associated with COVID-19 in 2021. In preparation for a lighting audit in 2022, Tony and Peter reviewed the original proposal for the Dark-Sky Designation for Kejimkujik National Park and subsequent audit reports and held several meetings with Colleen Anderson (acting Product Development Officer). They set up a lighting pre-audit of the Park to better familiarize themselves with lighting in the Park. On the evening of June 22, 2022, Tony and Peter met Colleen and Marilyse Theriault-Comeau (Kejimkujik Ambassador/Product Development Assistant) who shepherded them to all the sites for the informal lighting audit. They visited Kedge Beach, Meadow Beach, Merrymakedge, Eel Weir and Jake's Landing. The next day, they met with Jonathan Sheppard (Park Superintendent), Sophie Borcoman (Visitor Experience Manager II) and Colleen Anderson to go over their findings, review the original DSP application, and agree to next steps. Unfortunately, due to personal time constraints, Tony and Peter were unable to complete a lighting audit in the fall before the Park closed for the season. They plan to complete a lighting audit in 2023.

### Dark-Sky Pop-up Events

Ashley Moffat (Interpreter Officer/Coordinator III) came up with the idea to have observing pop-up events put on by RASC members at Kejimkujik. Tony and David Hoskin volunteered to mount up to three pop-up events over the season on a trial basis. In the end we had two dark-sky pop-up events. The first one was on Sunday, July 17th with about 30 attendees. However, the clouds came in at 9:45pm. Tony and David quickly adapted and went to Plan B which was a presentation at the nearby shelter on observing the summer night sky with binoculars.

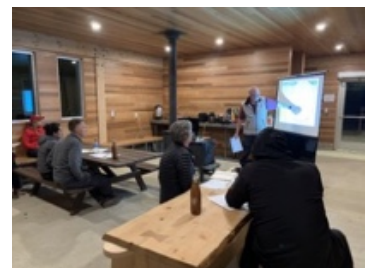
They tried again on Wednesday, July 20th as all indications were for clear skies. It was a great success with 40 people showing up. Under clear skies, they introduced participants to using binoculars to see objects in the night sky, followed by finding 12 deep sky objects (DSOs) with binoculars. Attendees also saw many of these objects on a computer screen at David's telescope station. Eight people became Ace Amateur Astronomers. Based on lessons learned, there are plans to try something similar in 2023.

### Moth Wall

Kejimkujik was invited to join other National Parks in Atlantic Canada in cooperating with a Natural Resources Canada initiative to put Moth Walls in Parks to monitor moth populations and educate the public about moths. We reviewed the proposal and provided input to the Park on possible impacts to the DSP designation.

### Media/Interpreter Presentation

We were invited to participate in an evening media presentation at the Park on June 21<sup>st</sup>. Tony and David attended with Tony presenting a slide show *Take a Journey on any Clear Spring Night*, as well as introducing them to the Ace Amateur Astronomer program. They then proceeded to the Sky Circle where David Hoskins had set up his telescope. We were supposed to use the binoculars to find the DSOs identified in Tony's presentation, but the sky clouded over. Instead David presented photos he had taken using his system the previous night and the attendees were well entertained/informed about viewing the night sky and the DSOs.



Tony Schellinck presenting to the media/interpreters. Photo by Colleen Anderson.

## **Binocular Rental Kit Assessment**

On May 16<sup>th</sup>, Tony Schellinck and Colleen Anderson spent a couple of hours testing the binoculars in the Park binocular rental kits as well as reviewing the materials included in the kits to aid the renters in successfully using the binoculars to view objects in the night sky.

## **Provision of Outreach Materials**

We assisted Colleen in obtaining RASC Outreach materials from RASC National Office for the Park and for the Friends of Keji group.

## **Maintenance of Park telescope**

The Park telescope had not been used in their programs for a number of years. Dave Chapman and Chris Young offered to service the telescope. Upon examination, they determined that the telescope required cleaning, collimation and repair or replacement of several parts. They took the telescope home to complete this service to have the telescope ready for the 2023 season.

## **Outreach report for the August 19 – 21 2022 Dark Sky Weekend at Kejimikujik National Park and National Historic Site.**

### **Friday, August 19**

9:00 pm – 9:30 pm (Sky Circle in Jeremy's Bay Campground): Parks Canada Interpreters presented the Mi'kmaw sky story "Muin and the Seven Bird Hunters".

9:30 pm – 10:00 pm: Tour of the Night Sky by Chris Young.

10:00 pm – midnight: John Read, Jerry Black, Judy Black, Wayne Mansfield and David Hoskin were in the field with telescopes (viewing via monitors). Tony Schellinck was at the binocular table with assistance from Daphne Themelis, Ilias Hurley, and Niko Hurley. Dave Chapman and Chris Young answered questions in the Sky Circle.

### **Saturday, August 20**

1:00 pm – 4:00 pm (Merrymakedge Beach): solar telescope observing (via a monitor) with Wayne Mansfield, David Hoskin and John Read. Information booth crewed by Peter Hurley. Telescopes and binoculars set up at the Merrymakedge Beach Canteen with Jerry Black, Judy Black, Dave Chapman, Keegan Oickle, and Tony Schellinck in attendance.

4:00 pm – 4:45 pm (Sky Circle field): "Walk the Solar System" with David Hoskin.

9:30 pm – 10:00 pm (Sky Circle): Dave Chapman's Tour of the Night Sky.

10:00 pm – midnight: Telescope & binocular observing. Same people supported as on Friday night.

### **Sunday, August 21**

1:00 pm – 4:00 pm (Merrymakedge Beach): solar telescope observing (via a monitor) with Wayne Mansfield, David Hoskin and John Read. Information booth crewed by Peter Hurley and Judy Black. Telescopes and binoculars set up at the Merrymakedge Beach Canteen with Jerry Black, Dave Chapman, and Tony Schellinck in attendance.

4:00 pm – 4:45 pm (Sky Circle field): "Walk the Solar System" with David Hoskin.

9:30 pm – 10:00 pm (Sky Circle): Dave Chapman followed by Chris Young told stories and gave tours of the Night Sky.

10:00 pm – midnight: David Hoskin and Jerry Black set up telescopes in the field. Judy Black and Tony Schellinck crewed the binocular table. Dave Chapman and Chris Young answered questions in the Sky Circle.

The Deep Sky Tour with Binoculars (Binocular Table) was popular. We did three binocular tours on Friday and Saturday with approximately 80 people participating. Those nights the sky was amazingly clear (SQM 21.45 and 21.51) and each group identified 14-15 deep sky objects during their tours. On Sunday night, approximately 50 people attended two tours. Unfortunately, the transparency that night was poor and eventually clouds came in so the participants in each group identified eight to nine objects (still enough to qualify as Ace Amateur Astronomers).

Of the 210 people who attended, approximately 95 took home the Ace Amateur Astronomer certificate of which, approximately 70 were signed by a RASC member. Those who wanted a signed certificate tended to be the younger attendees.

Using Electronically Assisted Astronomy (EAA) techniques to view objects in the night sky on a screen attached to a telescope proved to be popular. Those crewing the scopes reporting 70 – 100 people viewing at their stations each night.

Dave and Chris were kept busy much of the night answering questions and chatting with the curious attendees.

David Hoskin had enthusiastic groups of attendees at the solar walks on both Saturday and Sunday.

As has happened on previous DSW weekends, we had at least two days of clear night skies. We had an excellent turnout, so the Park's advertising was effective. We had enough RASC volunteers, equipment and supplies to provide a satisfying experience for the park visitors. The EAA telescopes were effective, and the field was not flooded with light as some feared.

The final attendance numbers tabulated with assistance from the Parks staff are listed below.

<b>Friday, August 19</b>	
Sky Circle	275
<b>Saturday, August 20</b>	
Astronomy Drop-in	100
Walk the Solar System	20
Sky Circle	308
<b>Sunday, August 21</b>	
Astronomy Drop-in	33
Walk the Solar System	5
Sky Circle	194
<b>Total</b>	<b>935</b>

We want to recognize the amazing work put in by Parks staff Colleen Anderson and Marilyse Theriault-Comeau in organising this event on behalf of Parks Canada. This involved months of preparation and planning, numerous meetings, and lots of emails to make this happen as smoothly as it did. Other Parks Canada staff assisted and cooperated in planning as well and we thank them for their efforts on our behalf.

Thank you to all the RASC volunteers who made this happen. Their names are mentioned above. We hope you enjoyed this weekend event and will consider participating again next year.

Respectfully submitted,

Peter Hurley, DSP Committee Co-chair

Tony Schellinck, DSP Committee Co-chair

## 2022 Annual Report: President

This is a bittersweet moment in my third and last term as the “COVID” President. The challenges of the past 3 years have been addressed by the incredible team on the Board of Directors and its committees with input from our membership. Consequently, RASC Halifax Centre is continuing to thrive and grow.

In 2022, Nova Notes is again one of the best Centre newsletters in the RASC. A special thanks to Lisa Ann Fanning as Editor and John McPhee as Copy Editor for their fantastic work over the past year. Many thanks also go to those who submitted articles and amazing photos in the past year.

Outreach and observing events at the Halifax Centre again were at a minimum to begin the year but picked up mid-year consequent to lifted restrictions. Congratulations and thank you to members who stepped up at events once the restrictions allowed for groups to gather. Thanks to David Hoskin who held the dual role of *Observing Chair* and *Chair, Education & Public Outreach (EPO)*. I would also like to thank all the volunteers on our Board and its committees, and to our members who volunteered for our outreach and observing events.

Nova East was cancelled in 2021 but that was not the case in 2022. 2022 Nova East was a great success. I give much credit to my fellow teammates on the Nova East Planning Committee (NEPC). There was lots of fun and laughter, and ample time for observing (when the skies allowed).

In fall 2020, members approved going forward with an electrical upgrade at SCO. Thanks to John Liddard, SCO Manager, who oversaw the upgrade, maintained the grounds, and identified needed repairs. The Centre also thanks Minas Energy and K-Line Construction for their generous offers, expertise, and time to make the upgrade come to fruition.

Our Centre continued using Zoom for Centre meetings and was used when conducting our first ever hybrid in-person/Zoom meeting in November. We will continue with the hybrid format into 2023.

Using Zoom was recognized to have advantages:

- RASC Halifax Centre members from anywhere in the province could participate.
- Board and committee members outside Metro could be recruited for active participation because travel to meetings was not required.
- RASC members from across Canada and the USA's Eastern seaboard could also be involved.
- Recruitment for Board and committee members outside the Metro area was easier when travel not required; consequently, we have Board members from Yarmouth to Truro to Hall's Harbour.

This was the fourth year we have been meeting on the first Saturday afternoon at 1 pm of each month except July and August. The Astro-Chat session where members were welcomed to stay online for an informal, non-recorded session remained at the end of each meeting up to October.

Gregg Dill will be stepping down from his role as Treasurer where he served for the past five years. Paul Heath stepped down as EPO Chair earlier in the year; we give him a special thank you for his numerous years of dedicated service in outreach to the general public and especially to the youth in our province. Many thanks to these dedicated members for their expertise and time spent on RASC Halifax endeavours. They aren't gone from the Centre and I'm sure they will remain engaged in the coming year.

Here is the list of the amazing 2022 RASC Halifax Centre team whose efforts made the past year possible.

<p><b>Board of Directors</b></p> <ul style="list-style-type: none"> <li>• President: Judy Black</li> <li>• Vice-President: Patrick Kelly</li> <li>• Secretary: Peter Hurley</li> <li>• Treasurer: Gregg Dill</li> </ul>	<ul style="list-style-type: none"> <li>• Directors: <ul style="list-style-type: none"> <li>◦ Tim Doucette, Matthew Dyer, Paul Heath, David Hoskin, Kathy Walker, Jaime Whynot</li> </ul> </li> </ul>
<p><b>Appointed Positions</b></p> <ul style="list-style-type: none"> <li>• Honorary President: Mary Lou Whitehorne</li> <li>• Editor, Nova Notes: Lisa Ann Fanning</li> <li>• Copy Editor, Nova Notes: John McPhee</li> <li>• Governance Committee Chair: Judy Black</li> </ul>	<ul style="list-style-type: none"> <li>• Librarian: Jerry Black</li> <li>• National Council Representative: Judy Black</li> <li>• Observing Chair: David Hoskin</li> <li>• Education &amp; Public Outreach (EPO) Chair: Paul Heath / David Hoskin</li> <li>• SCO Manager: John Liddard</li> </ul>
<p><b>Auditor</b> David Lane</p>	<p><b>Nominating Committee</b> Peter Hurley (Chair), Chris Young, Judy Black (ex officio)</p>
<p><b>Governance Review Committee</b> Judy Black (Chair), Patrick Kelly, Gregg Dill</p>	<p><b>SCO Fund Development Committee</b> Blair MacDonald (Chair), Matthew Dyer, Gregg Dill, Judy Black (ex officio)</p>
<p><b>Dark-Sky Preserve Committee</b></p> <ul style="list-style-type: none"> <li>• Co-Chairs: Peter Hurley, Tony Schellinck</li> <li>• Members: Paul Gray, Melody Hamilton, Dave Chapman, Chris Young</li> </ul>	<p><b>Website Maintenance &amp; Updates</b> SMU: Dave Lane, Tiffany Fields RASC &amp; Nova East: Judy &amp; Jerry Black</p>
<p><b>Halifax Centre Astroimaging Contest</b> Adjudicators: Blair MacDonald, Tim Doucette, Jason Dain</p>	<p><b>Nova East Planning Committee (NEPC)</b> Judy Black (Chair), Greg Dill, Lisa Ann Fanning, Paul Gray, Melody Hamilton, Patrick Kelly, Tony McGrath, Jaime Whynot, Chris Young</p>

We have an incredible Centre for which we should all be proud. A sincere thank you to the Board of Directors and Committee members, appointed positions, members at large, and the numerous volunteers at our events (for the Centre, at Kejimikujik National Park, and at InOMN and the Discovery Centre). You've all done an amazing job and, as the Centre's President, I couldn't be prouder.

It has been an honour to serve our members over the past three pandemic years and I hope to continue the service through other roles. I will introduce myself differently but don't forget to look up, starting at your feet. The skies are open.

Respectfully submitted,

Judy Black, President  
RASC, Halifax Centre



## 2022 Annual Report: Vice-President

Once again, Judy was very active as president, not leaving much for me to do. The main things I worked on were updating policies as part of the Governance Committee.

As usual, it was a lot of fun working with the Board again this year.

Respectfully submitted,

Patrick Kelly  
Vice-President, RASC Halifax Centre

## 2022 Annual Report: Secretary

Another year of COVID. The Board continued to meet using Zoom as a virtual online platform on the Tuesday before the Members meeting.

Board meetings were held January through June, and September to November. Members meetings were also virtual using Zoom on the first Saturday of the month. Our first hybrid meeting, on November 5, 2022, in-person at St. Mary's University and using Zoom online simultaneously, was a success. The Annual General meeting will also be a hybrid meeting.

Both the Nova East Star Party at Smileys Provincial Park and the Kejimikujik Dark Sky Weekend were held this year, but there were some restrictions because of continued health concerns.

A BBQ was held at St. Croix Observatory on June 10, 2022 to celebrate the 25th anniversary of the opening of SCO and the annual BBQ was also held on September 24, 2022.

The membership of the Centre as of November 2022 totaled 171, down slightly from 180 last year.

Regular.	114
Family	26
Youth	10
Life	21

Respectfully submitted,

Peter Hurley, Secretary  
RASC Halifax Centre.

## 2022 Annual Report: Observing Committee

David Hoskin became Chair of the Observing Committee at the start of 2022. Committee members include Dave Chapman (Past Chair), Melody Hamilton, and Stephen Payne. Melody Hamilton is also a member of the Society-wide RASC Observing Committee, and have been active in that domain, reviewing applications and guiding policy. Stephen Payne organizes Planetarium events at Dalhousie University.

As a result of health concerns regarding the ongoing COVID-19 pandemic, public observing events offered by RASC Halifax Centre were limited to the Kejimikujik Dark Sky Weekend and the Nova East Star Party (both reported on elsewhere). Neither of these events offered eyepiece observing to the public. The Kejimikujik Dark Sky Weekend employed the technique of electronically assisted astronomy to allow members of the public to safely observe various celestial objects on laptop and tablet screens. Public participation at the Nova East Star Party was limited to a Sky Tour and Lore presentation by Chris Young, as well as binocular observing of deep sky objects organized and hosted by Tony Schellinck.

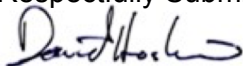
Activity at the Halifax Centre's St. Croix Observatory was low, despite the site being open (with appropriate health precautions) to Halifax Centre members. The exception was the Fall SCO BBQ held on October 22. Clear and transparent moonless skies provided an outstanding observing experience to BBQ attendees.

David Hoskin prepared and presented What's Up at monthly member's meetings to highlight observing opportunities for the coming month. Lisa Ann Fanning helmed the October presentation. What's Up presentations for 2022 are also available on the Halifax Centre's YouTube Channel and the Halifax Centre's website.

The following Observing Certificates were earned and awarded (congratulations to all!):

1. *Explore the Universe* – Rob Fanning
2. *Explore the Moon (Telescope)* – Elsie Ferguson

Respectfully Submitted,



David Hoskin  
Observing Committee Chair  
RASC, Halifax Centre

## 2022 Annual Report: Education and Public Outreach

Outreach events experienced something of a resurgence in 2022 following the relaxation of COVID-19 restrictions.

The August Dark-Sky Weekend (DSW) at Kejimikujik National Park was a great success again this year, even though COVID-19 restrictions prevented eyepiece observing by the public. Over the 3 nights there were 777 registrants for Sky Circle events that included sky tour and sky lore presentations by Dave Chapman and Chris Young, guided binocular tours with Tony Schellinck, and electronically assisted astronomy (EAA) that allowed registrants to view several celestial objects on tablet and laptop screens.

The Astronomy Drop-in sessions on Saturday and Sunday at Merrymakedge Beach engaged with a total of 133 interested individuals while Walk the Solar System was attended by 15 people. We had 12 volunteers from the Halifax Centre who assisted with program delivery over the DSW.

In February, Dave Chapman led an astronomy program for 17 Beavers and 5 leaders.

In May, David Hoskin used his solar telescope to give 10 Dalhousie University students views of the Sun.

In June, Dave Chapman spoke on astronomy and provided instruction on binocular observing to 25 people at The Deanery Project. David Hoskin gave an "Astronomy 101" presentation via Zoom to 12 individuals at River John Library. Tony Schellinck offered an Observing with Binoculars course at SCANS (Senior's College Association of Nova Scotia) to 10 students. At the end of the month Tony Schellinck and David Hoskin presented to 5 media individuals and 3 parks' staff at Kejimikujik National Park.

In July, David Hoskin and Wasu Fernando gave an "Astronomy 101" presentation to 30 campers and 3 staff members at Acadia University's Women in Science and Engineering Camp. EAA was used to provide views of the lunar surface. Later in the month Tony Schellinck and David Hoskin used binoculars and EAA to introduce astronomy to a total of 70 attendees at 2 "pop-up" events at Kejimikujik National Park. At the end of the month Tony Schellinck spoke on astronomy and gave a binocular tour of the night sky to 25 New Horizons registrants at the Seaside Recreation and Community Centre.

In August, Jerry Black, Michael Boschat, David Hoskin, and Peter Hurley manned the RASC display for a Saturday astronomy-themed event at the Discovery Centre and engaged with about 140 attendees. Later in the month David Hoskin led an astronomy program and "walked the solar system" with 22 campers and 6 adult staff at the Musquodobit Harbour Day Camp. Nova East at the end of August saw 38 members of the public attend Chris Young's Sky Tour and Lore on Friday and Saturday night. Tony Schellinck's binocular table attracted 16 members of the public for binocular tours of the sky over the 2 nights. Walk the Solar System had about 15 attendees.

In October, David Hoskin gave a presentation on the Sun and Moon to 480 students at Five Bridges Junior High School. Wayne Mansfield and Jaime Whynot hosted a public observing event at Privateer Park in Liverpool that was attended by 16 people. Later in October, Peter Hurley and David Hoskin staffed the RASC display during Saturday morning at the Discovery Centre's Ask an Expert event and engaged with about 38 attendees. David Hoskin used EAA to show Saturn and other Celestial objects to 2 children and 5 adults at River John.

The upcoming year promises to be at least as active as 2022 for public outreach.

Respectfully Submitted,



David Hoskin  
Education and Public Outreach Chair  
RASC, Halifax Centre

## **2022 Annual Report: *Nova Notes***

To date four issues of *Nova Notes* have been published, with the fifth and final issue for 2022 to be published at the end of December (content deadline is December 10, 2022).

*Nova Notes*' editorial staff consists of Lisa Ann Fanning (editor) and John McPhee (copy editor). Additional review is provided by Judy Black. Jerry Black assists with posting to the Halifax Centre website. Once posted, editions are promoted with a Member Announcement (via email), and announcements on the RASC Facebook page and Listserv. Current editions are also displayed at each monthly meeting as well as an update on upcoming deadlines for content by President, Judy Black.

### Edition Sizes:

- Nov/Dec 2021 (Vol 52 No 5) issue was 33 pages total
- Jan/Feb 2022 (Vol 53 No 1) issue was 42 pages total
- March/April 2022 (Vol 53 No 2) issue was 38 pages total
- May/June 2022 (Vol 53 No 3) issue was 38 pages total
- September/October 2022 (Vol 53 No 4) issue was 28 pages total

Regular features include:

- *From the Editor* (Lisa Ann Fanning)
- *A Message from the President* (Judy Black)
- Halifax Centre Information page
- *Food for the Soul* (poetry by Paul Heath)
- Member Mentions (Members being featured in other media)
- *Members' Universe* (a new feature with member news and submitted work)
- Member's Meetings reports

Main cover photos were provided by: Jaime Whynot, Blair MacDonald, David Hoskin, Kathy Walker. Contributors of articles, photos and sketches include Roy Bishop, Jerry Black, Judy Black, David Chapman, Jason Dain, Tarek El Wazzi, Paul Heath (Poetry), David Hoskin, Lisa Ann Fanning, Rob Fanning, Bruce Hamilton, Jeremy Kuzub, Blair MacDonald, Tony McGrath, John A. Read, Kathy Walker, Jaime Whynot.

The 2021 AGM Minutes and Auditor's reports appeared in the Jan/Feb 2022 edition.

The March / April edition was themed "Messier and More!" with focus on the Messier Catalog in time for the Messier Marathon weekends.

The May / June edition was themed "Summer Vibes Edition" with focus on the Sun, as well as travel and (at the time) upcoming summer events. It also featured "A Look Back" (an article that appeared in the September- October 1977 Volume 8 No 5 edition - "The Awkwardness of Imposition")

The September/October 2022 edition had a wonderful look back on events of the summer "Together Again Under the Stars" (a nod to the theme of the 2022 Nova East event theme. It focused on Kejimikujik Dark Sky Weekend and Nova East. It also contained many fun photos of members participating in these events. In the spirit of "A Look Back," we added the feature "Puzzle Corner" - a reprint of a crossword puzzle which appeared in a 1982 edition of *Nova Notes* Vol 13(1) focused on The Constellations.

Updates were also provided around the easing of COVID guidelines during the COVID-19 pandemic, as related to gathering places such as SCO.

Once again, we extend our sincerest thanks to the many folks who help make *Nova Notes* a success!

Respectfully Submitted,  
Lisa Ann Fanning with John McPhee  
*Nova Notes, RASC, Halifax Centre*

## 2022 Annual Report: Governance Committee

I would like to thank my fellow members on the Governance Committee, Patrick Kelly and Gregg Dill, for the work accomplished in the past year.

No changes to the Bylaw #1 nor the Objectives were recommended.

With the recommendations from the Committee, the Board of Directors approved the following additions to the RASC Halifax Centre policies and guidelines found on the RASC Halifax website.

- a) **B2: Terms of Reference – Ordinary Committees of RASC Halifax Centre** – (Adopted October 19 2018, Revised, November 1, 2022) **Regarding Nova East Planning Committee:** Changes to made to appointment timeframe for the Chair and members, and for use of social media.

- b) **Policy G6: Procedures Regarding Nominations, Elections & Appointments** – (Adopted October 19, 2018; Revised February 1, 2022) The process for nominations, elections and appointments were clarified as it differed from Bylaw #1.
- c) **Policy G12: Policy Regarding Expulsion from RASC Halifax Centre Membership** – (Adopted May 3, 2022) It was determined by the Governance Committee that inclusion of how to expel a member from the Centre in Policy G11 was too complicated and that it should be dealt with in a separate policy.
- d) **PD6: Position Description (appointed) National Representative** – (Adopted November 17, 2017; Revised September 27, 2022) It was changed to reflect the method of appointment as stated in Bylaw #1.
- e) **Clarification of the RASC Liability Insurance** – (Adopted March 2022) Clarification of the RASC insurance coverage from the RASC National Office regarding who should request it and when, and what/who was/wasn't covered with the insurance.

### **SCO Usage Review Task Team**

Thank you to Kathy Walker and David Hoskin who remained as members of the SCO Usage Review Task Team and provided insight as to what, if any, revisions should be made as provincial COVID-19 restrictions changed.

Following recommendations from them, the Board of Directors approved the following for informing the members and posting on our website.

- a) **Guidelines Regarding the Use of the St. Croix Observatory (SCO)** – (Adopted March 1, 2022) Revisions to Phase 5 Guidelines were approved based on changes to the status of COVID and the provincial requirements.
- b) **St. Croix Observatory (SCO) Introduction & Guidelines for Use** – (Revised May 2022) Minor wording changes were made to bring information in the trifold in line with the current COVID restrictions and with New Minas Energy and SCO security measures.

Respectfully Submitted,  
Judy Black, Governance Committee Chair  
RASC, Halifax Centre

## **2022 Annual Report: Library**

Some of the recommendations from the previous 2018-2019 Library report have been acted upon at least partially:

- Dispose of outdated media such as VHS, cassette tapes, CDs, and DVDs.
- Donate all duplicate books.
- Review each title for relevance (there are several titles that are outdated to the point of inaccuracy).

Without in-person meetings, the library remained largely inactive except for the acceptance of some books received via donation.

In 2020 the contents of the library holdings bookkeeping were migrated to the Joomla3 BookLibrary extension to provide access to the library holdings on the Halifax RASC (Joomla3) website. This system worked but was not used by the librarian at that time to record lending.

After a hardware failure of the hosting machine at SMU and subsequent software updates in mid 2022, the BookLibrary portion of the website is not functioning for user perusal. The backend data base of holdings and the lending/reporting administration portion remains functional.

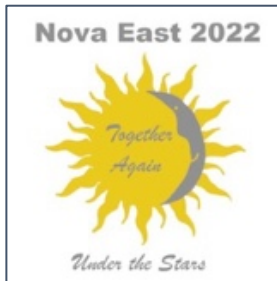
### **Recommendation:**

The Halifax RASC and Nova East websites are both housed at SMU and based on the open-source Joomla3 content management software. This software is at end-of-life and must be migrated to Joomla4 to continue to receive security updates. During this process, the BookLibrary software should be upgraded to be compatible with Joomla4 to return the system to a functioning state.

Respectively submitted,  
Jerry Black, Centre Librarian  
RASC, Halifax Centre

## 2020 Annual Report: Nova East Star Party

***Together Again Under the Stars*** was the theme of our star party held at Smiley's Provincial Park during the weekend of August 26 – August 28. This was the 35th Nova East.



Many thanks to Lisa Ann Fanning for the 2022 logo design printed on the Nova East t-shirt, and to Gregg Dill for arranging the printing of the t-shirts at Pro Design Cresting Ltd. in Truro. The shirt featured the logo which reminded us we were ***together again*** in-person for the first time since the COVID pandemic began. We were ***under the stars*** - not just those adorning the night skies but also our own Sun.

### **2022 NE Planning Committee (NEPC):**

Members included Judy Black (Chair), Gregg Dill (Treasurer), Melody Hamilton (Registrar), Lisa Ann Fanning, Chris Young, Jaime Whynot, Tony McGrath, Patrick Kelly, and Paul Gray. There were three face-to-face meetings – three planning meetings held March 21, April 11, and May 9 plus the wrap-up meeting held October 24, 2022. The success of Nova East 2022 was because of the dedication, imagination and work done by each of the members during the planning and implementation phases of this event.

### **Weather:**

Daytime weather was wonderfully sunny and warm for members to mingle. Thank you to volunteers who set up the campsite markers – Chris Young, Connor Gray, Paul Gray, and Jerry Black.

The nighttime skies were not always the best, with occasional to full cloud cover dampening spirits. Some members were comparing their views of Saturn and its 5 moons. The cloud cover made for more time for the 28 attendees to get reacquainted. Much laughter was heard across the observing field. It was noted that for the first time there was a group of women congregating to observe and to share stories.

### **Registration Desk:**

Melody Hamilton led the registration planning process and managed the registration desk at Nova East. Thank you to Liz Greenough for registration desk assistance and for again being an excellent bell ringer.

It is with great regret that we announce the retirement of our long-time Registrar, Melody Hamilton. Melody has been a key player in the success of Nova East. She will be missed by her fellow members on the NEPC and by those she welcomed at Nova East. We will see her at next year's event, just in a different capacity.

### **Speakers:**

***Talk: Observing and Recording Double Stars*** – Melody Hamilton

***Talk: "Oh Wow" and Special Observing Moments*** – Members in attendance, led by Judy Black

### **Workshops:**

***Solar Observing with Binoculars*** – David Hoskin

***How to Clean the Mirrors of your Newtonian Reflector*** – David Chapman

### **Family Activity:**

***Walk the Solar System*** – David Hoskin

***Sherman Williams Walk – Birding at Smileys*** – Jason Dain. Many thanks to Jason for this the first year of the walk held in memory of long-time RASC member and naturalist Sherman Williams. Seventeen members walked along the trails where Jason identified trees and the birds with their distinctive calls. He has promised to return next year.

### Field Observing Presentations:

There were three field presentations on Friday and Saturday evenings that were open to registrants and Smiley's Provincial Park campers alike:

- Chris Young – Sky Tour and Lore
- Tony Schellinck – Binocular table / Ace Astronomer Program

### Telescope Medics:

For a third year, "Telescope Medics" provided one-on-one assistance to telescope users with setting up their telescope and troubleshooting problems. Although their services were not required this year, many thanks to volunteers Jerry Black, Dave Chapman, and David Hoskin.

### Door Prizes:

Chris Young acquired numerous Door Prizes that delighted all of the 22 lucky prize winners that included two youths. Prizes were purchased from Amazon, Sky & Telescope and the RASC, plus three donations. A budget of \$600.00 was allotted; only \$425.15 was expensed.

### Other Highlights:

The **Astro Breakfast** was organized by Judy Black. The Saturday and Sunday morning breakfast came with coffee, juice, muffins, donuts and fresh whole fruit. The **Astronomer's Lounge** was organized this year by Judy Black. Individual servings of cookies, chips, and pop and hot chocolate were provided to those needing some repast in the observing session. The **Potluck BBQ** was not organized this year due to COVID-19 concerns.

**Special recognition** was given by the RASC Observing Committee member Melody Hamilton to those RASC Halifax Centre members who were presented with RASC certificates and awards since the previous Nova East in 2019 – 10 in 2020 and 9 in 2021.

### Task Chart:

The Task Chart acted as a guide for the 2022 Nova East Planning Committee and provided the timeline for planning the event. This document was used throughout the planning process and revised as required.

### Financial Statement:

Nova East 2022 Income Statement			
	Revenue	Expense	delta
Observers Lounge	\$0.00	\$104.38	-\$104.38
Camping	\$580.00	\$214.05	\$365.95
Miscellaneous		\$272.23	-\$272.23
Registration	\$1,280.00		\$1,280.00
T Shirts	\$375.00	\$190.48	\$184.52
Solar workshop	\$100.00	\$98.97	\$1.03
Prizes		\$425.15	-\$425.15
Donations	\$42.88		\$42.88
Flea market	\$180.00		\$180.00
Refunds		\$40.00	-\$40.00
<b>Total</b>	<b>\$2,557.88</b>	<b>\$1,345.26</b>	<b>\$1,212.62</b>
<b>Profit</b>	<b>\$1,212.62</b>		

### Date of 2023 Nova East:

As approved by the Board of Directors at a prior meeting and is now included in the 2023 RASC Calendar, Nova East 2023 will be held the nights of August 18-20. The New Moon is on August 16.

Respectfully Submitted,  
Judy Black, Chair  
2022 NE Planning Committee

## 2022 Annual Report: Manager, St. Croix Observatory

There's very little to report on SCO for 2022. We had two very successful BBQs in 2022. In June, we celebrated the 25<sup>th</sup> Anniversary of the official opening of the St Croix Observatory. In attendance were John Woods and Harden Wile from Scotia Investments Limited. They were presented with a framed gift expressing appreciation from the entire Centre. The annual SCO BBQ was finally held in October, delayed due to arrival of Hurricane Fiona in late September. The couple of weeks delay provided for a wonderful extended observing time that was enjoyed by all, including 5 members and guests that had never visited SCO before.

The electrical upgrades performed in early 2021 continue to be well received and appreciated. Everything has been working relatively well aside from a few little issues with the GFCI outlets in the roll off observatory due to moist air that can easily permeate the observatory. They have been replaced in the interim while we investigate a more permanent solution that is not susceptible to the damp exterior air.

We have experienced additional problems with the current propane furnace. It will require repairs by a qualified technician. We are currently obtaining estimates for the furnace repairs along with estimates to complete the electrical upgrades and now may be the proper time to install the electric heater.

Respectfully Submitted,

John Liddard  
SCO Manager  
RASC, Halifax Centre

## 2022 Annual Report: National Council

In June 2022, I was re-elected as Chair of the National Council (NC). Little did I know at the time that exciting times were ahead, to say the least.

National Council holds four meetings per year and in 2022 met four times – March 6, June 12, September 11, and the upcoming December 4. Because the June date was so close to the General Assembly (GA), members passed a motion to forego the GA meeting date. In collaboration with my fellow National Council Representatives, we have worked on the following projects in 2022:

- Removed requirement for Centre reports at NC meetings. It is now a standing item on the agenda should a Centre wish to have an item addressed consequent to submitting a report.
- *Centres Manual* was approved for posting to the RASC website. Subsequent edits will be made as needed.
- *Centres Manual* documents: *Preparation for EPO Activities* (for Centre Use) and *Becoming an EPO Volunteer*
- GLP training sessions: Transport Canada has of course been dealing with COVID and not meeting in person. However, RASC is still operating under a certificate, so we can continue. Centres are the local authorizing body. To use GLPs, it must be a Centre-approved event.
- Request for *Sky News* to include Centre affiliation of contributors
- Hybrid meeting best practices
- Position descriptions for Chair, Vice-Chair, and Council Recorder: On the December 2022 agenda for approval. The *National Council Terms of Reference* to be reviewed in the coming year.

Much activity has centred around redefining the role of the National Council within the RASC. The National Council and Board of Directors have worked to improve the working relationship between them. The RASC President (Robyn Foret then Charles Ennis), RASC Executive Director (Dr. Phil Groff) and other Board members have regularly attended meetings to provide guidance when needed and to update on Board activities for which they requested input. The GA Planning Committee (Chair: Randy Attwood) and the Eclipse 2024 Task Force (Chair: Randy Attwood) also provided regular reports. National Council members have requested NC and Centre input.

The increased RASC membership fees announcement at the RASC AGM was seen as a tipping point and created much discussion across all levels of the RASC. In mid-August, a 12-page *Open Letter to the RASC Board of Directors from the National Council* outlined the numerous concerns of the Centres and their membership. Consequently, I and co-signer Stephen Nourse (President, Ottawa Centre) were invited to attend the October 15th Board meeting. It was a very positive meeting where all in attendance agreed to work to improve communications at all levels of the RASC, to work collaboratively as a team, and to improve transparency (especially relating to the financial aspects).



Revisions to the RASC Finance Committee membership policy were made to include up to 3 Centre Treasurers. A call for volunteer Centre Treasurers to join the RASC Finance Committee was made by the RASC President. To date, two members have stepped forward.

Driven, the system adopted to keep track of memberships and other RASC activities, remains an area of great concern. Numerous revisions continue to be made; Phil Groff sends *Weekly BUG Reports* to apprise NC members and Presidents of revisions made by Driven and RASC staff, and RASC volunteers.

Respectfully submitted,

Judy Black  
Centre Representative, RASC Halifax Centre  
Chair, National Council

## RASC, Halifax Centre 2021-2022 Treasurer's Report

The fiscal year 2021-22 was the transition year living with COVID-19 and somewhat reduced activities. Membership remained stable. It was a successful year financially for the Halifax Centre. Halifax Centre achieved a surplus of \$1,944 before allowance of \$490 for depreciation and write-offs.

### Details of the 2022 Comparative Income Statement

Royal Astronomical Society of Canada, Halifax Centre Comparative Income Statement Years Ending September 30, 2021 and September 30, 2022			
	Years Ended September 30		Amount of Increase or (Decrease) during 2022
	2022	2021	
<b>Revenue</b>			
Membership Fees	\$4,003.58	\$3,027.24	\$976.34
Donations	\$857.88	\$306.83	\$551.05
Observatory Donations	\$240.00	\$9,090.00	(\$8,850.00)
Education & Outreach	\$50.00	\$0.00	\$50.00
Interest	\$2.25	\$237.36	(\$235.11)
Sales of Merchandise	\$525.00	\$550.00	(\$25.00)
Nova East (Net)	\$996.19	\$0.00	\$996.19
Nova Notes Print Subs	\$260.00	\$157.00	\$103.00
Miscellaneous	\$20.00	\$0.00	\$20.00
<b>Total Revenue</b>	<b>\$6,954.90</b>	<b>\$13,368.43</b>	<b>(\$6,413.53)</b>
<b>Expenses</b>			
Meetings	\$230.00	\$230.00	\$0.00
Newsletter	\$265.97	\$0.00	\$265.97
Depreciation and Write Offs	\$490.47	\$546.64	(\$56.17)
Equipment and Supplies	\$0.00	\$0.00	\$0.00
Purchase of Merchandise	\$453.47	\$0.00	\$453.47
Office Administration	\$444.69	\$297.41	\$147.28
Educational Activities	\$231.14	\$414.22	(\$183.08)
Insurance	\$1,706.00	\$1,687.00	\$19.00
Awards and Donations	\$0.00	\$50.00	(\$50.00)
National Office Processing	\$113.01	\$98.28	\$14.73
Operating Expenses - SCO	\$1,076.39	\$15,638.25	(\$14,561.86)
Miscellaneous	\$0.00	\$0.00	\$0.00
<b>Total Expenses</b>	<b>\$5,011.14</b>	<b>\$18,961.80</b>	<b>(\$13,950.66)</b>
<b>Operational Surplus (Deficit)</b>	<b>\$1,943.76</b>	<b>(\$5,593.37)</b>	<b>\$7,537.13</b>

### REVENUE:

**Membership Fees \$4,004:** Slightly higher than 2021 with 171 members including 19 life members. A payment from RASC National (\$591) to adjust for member fees that were increased by \$5 as of June 2021 and not previously transferred to Halifax Centre due to miscommunication at National office.

**Donations \$858:** Donations made by members when renewing their membership plus a \$400 donation by Dave Chapman from the sale he facilitated of a member's telescope.

**Interest \$2:** Interest on our bank account. No GIC investments matured in 2021-22.

**Sales of Merchandise \$525:** For the sale of calendars and Explore the Universe books.

**Nova Notes Subscriptions \$260:** For members subscribing to printed copies.

**Miscellaneous \$20:** Sale of t-shirt and SCO key.

### EXPENSES:

**Meetings \$230:** Annual Zoom subscription fee to hold members and board meetings as well as technical sessions offered by members.

**Depreciation and write-offs \$490:** Depreciation of observatory and library.

**Purchase of merchandise \$453:** Purchase and mailing 2022 calendars.

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**Office Administration \$445:** Post office box accounted for \$235. Also includes postage and RJSC renewal fees.

**Educational Activities (Outreach) \$231:** SkyNews magazines (\$96).

**Insurance \$1,706:** Insurance for SCO was about the same as 2021.

**Operating expenses - SCO \$1,076:** This includes the plaque recognizing the support of Timberland Holdings as well as the propane tank rental and taxes to West Hants Regional Municipality.

**Details of the 2022 Comparative Balance Sheet**

Royal Astronomical Society of Canada, Halifax Centre			
Comparative Balance Sheet			
Years Ending September 30, 2021 and September 30, 2022			
	Years Ended September 30		Amount of Increase or (Decrease)
	2022	2021	during 2022
<b>Assets</b>			
Cash	\$8,539.13	\$5,410.24	\$3,128.89
Investments	\$8,000.00	\$8,000.00	\$0.00
Accounts Receivable	\$240.38	\$0.00	\$240.38
Library Estimated	\$1,219.70	\$1,257.42	(\$37.72)
Observatory Equipment	\$10,198.42	\$10,513.68	(\$315.26)
Miscellaneous Estimated	\$0.00	\$137.40	(\$137.40)
<b>Total Assets</b>	<b>\$28,197.63</b>	<b>\$25,318.74</b>	<b>\$2,878.89</b>
<b>Liabilities</b>			
Accounts Payable	\$935.04	\$399.63	\$535.41
<b>Total Liabilities</b>	<b>\$935.04</b>	<b>\$399.63</b>	<b>\$535.41</b>
<b>Capital</b>			
Nova East Working Equity	\$5,000.00	\$4,899.93	\$100.07
Common Equity	\$22,262.59	\$20,019.18	\$2,243.41
<b>Total Capital</b>	<b>\$27,262.59</b>	<b>\$24,919.11</b>	<b>\$2,343.48</b>
<b>Total Liabilities and Capital</b>	<b>\$28,197.63</b>	<b>\$25,318.74</b>	<b>\$2,878.89</b>

**ASSETS:**

**Cash \$8,539:** This is the balance in our chequing account at year-end.

**Investments \$8,000:** This is now the value of the principle in our investments. We have two GICs that come due in 2024. Interest is counted at maturity.

**EQUITY:**

**Common Equity \$22,263:** Nova east working capital was returned to \$5,000.

I was pleased to serve as Treasurer for the past five years. Thank you to our auditor, Dave Lane, for ensuring the books were balanced at year-end.

Respectfully submitted,

*Gregg Dill*

Gregg Dill  
Treasurer, RASC – Halifax Centre

# Auditor's Report

To the members of the RASC Halifax Centre,

I have examined the financial records for the period October 1, 2021 to September 30, 2022. I also worked with the treasurer Gregg Dill to resolve any issues noticed before writing this letter. The Balance Sheet and Income Statement were prepared by me, starting with drafts prepared by Gregg.

I believe that the Balance Sheet presents an accurate account of the financial position of the Centre as of September 30, 2022 with the following notes:

- Recent practice of not recording accrued interest on GICs understates their present value.
- The asset "Miscellaneous Estimated" has been written off as no one knows what asset it related to.

I have also looked closely at the Income Statement (directly using the accounting software GNUCash) and spot-checked the substantiating records, bank statements, and receipts. Note that due to virtual operations over the past year or two, all records that I reviewed were electronic records.

I believe the Income Statement is an accurate representation of the Centre's net income for the fiscal year with the following notes:

- Membership fees include a one-time correction of about \$600 related to prior times.
- Membership fees are recorded in the month they are paid to the national RASC and do not consider the period that membership services are to be provided. The monthly reports provided by the RASC still have small non-material errors that make it difficult to properly split the monthly deposits into their component parts.
- Newsletter (Nova Notes) revenue and expenses are recorded when they occur (as such they are not amortized).

I do have a few recommendations, however:

1. Before the books are put to rest, print outs of all the revenue, expense, and balance sheet transactions (the Journal) from the accounting software should be included in the records binder. In addition, all electronic records (receipts, deposits, bank statements, etc.) should be consolidated onto a USB drive kept with the paper records.
2. The "Observatory Equipment" asset is presently depreciated at only 3% (declining balance method). This means equipment (most of which was not purchased new) remains on the books for a very long time. My recommendation is that next year the depreciation method be switched to 10% (straight line method), except those assets recorded at a one-dollar value.
3. There has been inconsistency in what is recorded as an expense vs. a depreciable asset. For example, some electrical work in 2012 was capitalized, but the recent (2020-21) major electrical upgrade (valued at about \$15,000) was expensed. The board should create a consistent policy for what is capitalized and what is not.
4. There are small discrepancies between the monthly reports provided by the RASC and the associated deposits that need to be resolved. In the meantime, I have a proposed work-around that will be more accurate. If I am appointed auditor again next year, I will communicate the details to the new treasurer.
5. The GNUCash accounting software should be fully used so that the year-end work is much easier to do and to audit. In recent years, many of the balance sheet accounts have not been updated and the "invoices" (and Account Receivable) and the "bills" (Accounts Payable) features were not used. For much of the year, this is fine, but near the beginning and ending of the fiscal year, this is problematic.

Clear skies,



David Lane