

ON THE HORIZON

Where you find amateur astronomers in New Brunswick

Event Horizon

There is always something astronomical to see and do in New Brunswick. Why don't you come and join us!

April

16th RASC-NB Meeting, UNB Forestry & Geology Building, Room 203, Fredericton

- **Business Meeting @ 11:00 am**
- **General Meeting @ 1:00 pm**

May

7th Saint John Astronomy Club Meeting, Rockwood Park Interpretation Centre, Saint John @ 7:00 pm

9th - 15th **International Astronomy Week**

10th William Brydone Jack Astronomy Club Meeting, UNB Forestry & Geology Building, Room 203, Fredericton @ 7:00 pm

14th **Astronomy Day in New Brunswick**

19th - 23rd RASC Annual General Assembly, London, Ontario

28th RASC-NB Meeting, Rockwood Park Interpretation Centre, Saint John @ 1:00 pm

June

4th Saint John Astronomy Club Meeting, Rockwood Park Interpretation Centre, Saint John @ 7:00 pm

14th William Brydone Jack Astronomy Club Meeting, UNB Forestry & Geology Building, Room 203, Fredericton @ 7:00 pm

18th RASC-NB Meeting, Moncton High School, Room 3036, Moncton

- **Business Meeting @ 11:00 am**
- **General Meeting @ 1:00 pm**

Presidential Expressions

by June MacDonald

Welcome to a new year of astronomical opportunities and challenges! There were many things last year to celebrate and get excited about. Rosetta's rendezvous with a comet, New Horizons journey to Pluto and beyond, and right on our doorstep, the RASC GA in Halifax, amongst others.

If you woke up Jan. 1st and saw pink flamingos looking down at you, you know you weren't at a star party the night before. So get upright and brush yourself off, now it's time to look ahead to exciting opportunities and challenges for this year. There's always something to which we can look forward.

For example, I'm sure many of you got out to get a glimpse of comet Catalina this January. Another treat this year will be the transit of Mercury in May, Mars at its closest approach in May, since 2005, Saturn's rings at 26° all year, and of course, a year wouldn't be complete without a "Super Moon" (Nov.) & a "Mini Moon" (Apr.). Many people are preparing this year, for a trip to see the total solar eclipse that's sweeping from coast to coast in the U.S.A. Apr. 17, 2017. And this is besides the usual meteor showers, planet conjunctions, comets, ISS, iridium flares, star clusters and just looking up at the great, beautiful and mysterious expanse above us. Well, this will be a busy year! I sound like a tourist brochure, but it is exciting. For myself, I'm hoping to actually use my telescope this year and see what I'm talking about.

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President's Message (continued)

Our Centre again also has an opportunity this year, to make an impact on people's lives by sharing the wonders of the night sky and the Sun. There are so many people out there yet, who don't have the chance to see the beauty and mystery of the cosmos. They don't know that the Earth is not an "island". They don't understand how events that happen "out there" can have an effect on our "pale blue dot". Many have never seen the Moon up close, seen the face of the Sun or even more than a few stars. They don't know we're losing our dark skies. It's up to us to help them discover all this and more. To show them what they're missing & what will be missed if our skies everywhere become permanently lit by light pollution. We need to share the skies and astronomy with them. As a member of RASC N.B., we each can do our part to enlighten those who don't even know they're missing out. Come out to star parties, go to/help at observing events, help at presentations or exhibit activities, come to meetings to support what we do. If we don't do it, who will?

We are a small Centre, but we have accomplished much. To quote Curt Nason: *"We are the little Centre that does."*
In 2016, let's get out there and "git 'er done!" We'll have fun while doing it. ☺

Observing Report

Submitted by Ted Dunphy

"Crater T. Mayer showed a very bright rim tonight on the terminator, not far from Copernicus. Farther south along the terminator crater Wurzelbauer held captive in its court a "noble jester". (I think my imagination is getting the best of me) 17 February, 2016.



Kouchibouquac Spring Star Fest Kouchibouquac National Park June 10 – 12, 2016

You are invited to join us at our first Star Party of the year at Kouchibouquac National Park.

The schedule of events is listed below. For those that do not care for the tenting experience, the Park has offered one or two O'Tentik structures (one for ladies, one for men) if needed, at no charge for two nights (June 10 and 11). The O'Tentik is a semi-permanent rigid tent structure that will sleep 4-6 people comfortably. It is possible that each tent will have 4 – 6 bunks supplied with mattresses so all that will be required for each person is to bring their own blankets/sleeping bag, pillow etc. We will have updates posted soon on our social media sources. Please remember that accommodations in an O'Tentik are on a first come first served basis. There will be four free tent sites (nights of June 10 and June 11) available as well near the main observing area and we are allowed one or two tents on each tent site.



If you plan to join us at the Star Party please contact one of the Star Party/Events (SPE) Committee members at the bottom of the schedule below no later than June 07 and let us know what kind of accommodations you would like (O'Tentik, or your own tent/trailer), how many people will be in your party, and what nights you plan to stay in the park. Also if you are available to assist with any of the outreach activities (public observing, telescope clinic, astrophotography clinic, etc), please let one of the SPE Committee members know.

Hope to see YOU ALL there.

Clear Skies,
Adrien Bordage
☽



Callanders Beach, Kouchibouquac National Park

Contact the RASC-NB Centre Star Party and Events Committee members for more information:

- Adrien Bordage, Chair (abordage@rogers.com) , Ph 506-343-5760 (Cell)
- Emma MacPhee (emmamacphee@yahoo.ca)
- Paul Owen (pacificpaul@msn.com)
- June MacDonald, Ex-Officio (junie@nbnet.nb.ca)

Kouchibouquac Spring Star Fest Schedule**Friday, June 10**

11:00am – 04:00pm

- Solar observing @ Astronomer's Campsite - weather dependant.

09:00pm – 10:00pm

- "What's Up" Slide Show @ the Amphitheatre.

10:00pm – Midnight

- Night Sky Observing with the Stargazers @ Astronomers Campsite - weather dependant.

Saturday, June 11

11:00am – 04:00pm

- Solar Observing @ Astronomer's Campsite - weather dependant.

12:00pm – 04:00pm

- Telescope Clinic / Astrophotography Clinic @ Astronomers Campsite.

09:00pm – 10:00pm

- "What's Up" Slide Show @ the Amphitheatre.

10:00pm – Midnight

- Night Sky Observing with the Stargazers @ Astronomers Campsite - weather dependant.

Sunday, June 12

10:00am – 12:00pm

- Solar Observing @ Astronomers Campsite - weather dependant.

Telescope Clinic

Do you have a telescope and want to learn how to use it? Bring your telescope to our clinic and let our experienced members assist in showing you how to use your scope.

We can also collimate onsite (mirror and lens alignment) most telescopes that need it, and as well we can do minor repairs onsite. These services are provided at no charge. Please be sure to bring all parts of your telescope (tube, mount, eyepieces, finderscope, etc) if you have them.

Astrophotography Clinic

Have you ever wanted to try and take pictures of the night sky, the moon, planets etc, but were unsure how? Bring along your camera and learn the basics from our experienced astrophotographers and take an astrophoto using your very own camera.

International Astroimaging Collaboration

by Francois Theriault

I recently was contacted by a fellow astrophotographer from Sweden. He had imaged the horsehead nebula, as did I and he wanted to share some of my data to "enhance" his image. So I sent him my data and the results are spectacular!

Here is a link to the final image: <http://tinyurl.com/jfxva46>

This is a Swedish - Canadian collaboration. Göran Nilsson contacted me a couple of days ago wanting to cooperate on an image we both imaged. I had added some Ha data to my image taken with a newtonian. Göran noted that my data would complement his image nicely by adding contrast and luminance to the horsehead. He was absolutely right!



While I cannot take credit for the processing or the colour image, I am thrilled with the resulting image.

Göran's data was collected by an ES 127ED apo refractor with a TS 0.79 reducer giving at FL 750mm and a Canon 60Da (10 x 300" at ISO 1600). My data was collected by an Antares 200mm Newtonian (FL 1000 mm) and a SBIG ST8300M (Baader Ha filter, 11 x 300").

I am looking forward to future cooperations of this type. ♀

Technical Card

RA center: 85.212 degrees
 DEC center: -1.944 degrees
 Pixel scale: 1.999 arcsec/pixel
 Orientation: 119.467 degrees
 Field radius: 0.985 degrees

Location: Genesis Observatory,
 Moncton, New Brunswick, Canada

Education and Outreach Committee Report

Submitted by Curt Nason

As of the end of November RASC NB had reported 101 outreach events in 2015, reaching at least 100 for the third consecutive year. Nearly 7000 people have attended the events, which is more than 50% greater than the average of the previous three years. There are a few events since the summer that have not been reported through the Society Web site yet, so it is safe to say this has been our most successful for outreach in our 15 years as a RASC Centre. Centre membership is also at an all-time high, not coincidentally I suspect.

Just over half of the events this year have been for solar and night observing, and just over half of those were solo events by Chris Curwin. Observing and exhibitions accounted approximately equally for nearly 80% of the people, with the big hitters being the exhibitions at the Canada Wide Science Fair in Fredericton and Amazeatorium in Saint John, and observing events for the September lunar eclipse and the five star parties. Although exhibitions (we attended 11 this year) produce large numbers of visitors, they do not have the "Wow Factor" of observing the Moon in a telescope or the educational impact of presentations and school visits. All astronomy outreach, regardless of age or numbers, is important and rewarding. Thank you to all members who have contributed to our outreach success this year and in previous years. ☺

NEW / NOUVEAU
BRUNSWICK
RASC / SRAC

Did You Know?

by June MacDonald

1. The black hole at the center of our galaxy, Sgr A* (pronounced Sag A-star) is a small eater? It swallows only a small fraction one/ 1000th - of an Earth mass every year, blowing the rest of the gas around it, back out into the galaxy.
2. G2, the "mystery cloud" that has been approaching the black hole Sgr A* in our galaxy for over a decade, which astronomers & scientists expected to collide explosively with our black hole, has emerged from around Sgr A* apparently and almost completely unscathed – just a small gas tail pulled away.
3. There is a deep canyon or series of fractures on Pluto's moon Charon, which is 2 times deeper than the Grand Canyon & at a length of at least 1600 km, 4 times as long. Scientists can't get the full length because it stretches across into the far side of Charon.
4. The Philae lander (landed on comet 67 P Churyumov-Gerasimenko in Nov. 2014) is now kaput according to the European Space Agency (ESA) on Feb. 12 this year. Last heard from in July 9, 2015, no signal has been received, so communications from Earth have been stopped – although "listening channels" will remain open, in case a miracle occurs. Rosetta continues to orbit the comet & after a series of close fly-bys in May 2016, its future will be to join Philae on the comet's surface in Sept. this year.
5. The Juno spacecraft sent to study Jupiter, will arrive at the gas giant July 4 of this year. Scientists hope to discover, amongst many other things, what exactly makes up the core of Jupiter.
6. Astronomers from Cal Tech announced the existence of a new planet- "Planet Nine" way past the orbit of Pluto. However, a NASA spokesperson said it is too early to make a definite decision on that, as it is only an early prediction, based on modelling from limited observations. For now, while an exciting possibility, it's still hypothetical.
7. Uranus & Venus are the only 2 planets which rotate in the opposite direction compared to the other planets in our Solar System. So the Sun rises in the west & sets in the east.
8. Voyager 2 is the only spacecraft to have visited Uranus. It collected all its information on the planet in only 6 hours. You can pack nearly 30 Earths inside Uranus.
9. During the 2014 Sochi Olympics, on the anniversary day of the Chelyabinsk meteor event, 10 athletes who won gold that day, were also awarded with a medal festooned with meteorite fragments.
10. Asteroid Day is June 30. Asteroid Day is a global awareness movement which had its beginnings when Dr. Brian May collaborated with Grigorij Richters, a director of an asteroid impact movie, previewed at Starmus 2014. This led to the launch of Asteroid Day, June 2015, supported by the B612 organisation and astronomers & scientists around the world.
11. The B612 foundation is a non-governmental, non-profit organisation which works toward developing a plan to protect Earth from asteroid impacts & acts as a resource, educational & advisory body to world governments & the public. Members include astronomers, physicists, scientists, astronauts, business people & regular people like you & me.
12. Voyager Spacecrafts are celebrating 39 years in space this year. Launched in 1977, Voyager 1 is now in interstellar space & Voyager 2 is in the Heliosheath. They are still sending back data to Earth.
13. The "family portrait" of our Solar System taken by Voyager 1 turns 26 this year. Voyager turned around to take a last photo of the planets before continuing into its journey to interstellar space. The photo contains Venus, Earth, Jupiter, Saturn, Uranus & Neptune. Mercury was blocked by the Sun, Mars had to little sunlight & Pluto was too dim. ♂

RASC-NB Annual General Assembly / Mount Allison Astronomy Weekend

November 6th - 8th, 2015
Mount Allison University, Sackville NB

Our Annual General Assembly was held this year in conjunction with the Mount Allison University Physics/Astronomy Department's Astronomy Weekend. The events were quite well attended with many current RASC-NB members and students of the University's Physics/Astronomy Department in attendance.

I am grateful for the assistance of all those who helped to organize the events and in particular I would like to thank RASC-NB members Laura Sponagle, and Emma MacPhee. We had one new RASC-NB member join "on the spot" at the GA meeting. Welcome to new member Cole Stuart.

We had three wonderful guest speakers give presentations at the theatre on Saturday afternoon on a wide variety of topics and we were grateful for their appearances.

Dr. Lovekin gave a presentation about her research on the structure and evolution of stars much more massive than the Sun, especially the effects of rapid rotation on these stars.

Tim Doucette talked about what he has been up to since moving back to NS, including the Observatory Project, the Starlight Foundation, and light pollution. Damien Lemay spoke about his work with various types of variable stars, his collaborative work with the AAVSO, and his recent construction of a new observatory.

Dr. Lovekin also gave a talk about the "Alien Star" at the Starry Sackville Talk on Friday evening.

As an appreciation for their talks all of the guest speakers received a very nice "Super Moon 2015 Eclipse" wall clock constructed by RASC-NB member Paul Owen. The picture montage on each of the clocks is one of Paul's own photos he took during the recent eclipse.



Damien Lemay receiving his Super Moon Clock.
Photo by Adrien Bordage

There were several people that showed up for the Telescope Clinic on Saturday morning, and also for the Astro Swap Shop/Buy Sell session afterwards. I was able to successfully "tweak" the collimation of one fellow's Celestron C6 SCT OTA and offer some advice to another couple that are considering purchasing their first "real" telescope.

There were approximately 23 RASC-NB members, and a few non-members, in attendance at the Business meeting on Saturday morning and we were able

to get through all of the business items on the agenda. Whew!



Thanks to

Emma for prodding me along whenever I veered off course!

After the business meeting many of us proceeded to the Cafeteria for a fine Buffet style lunch before going to the main speakers talks.

There were evening observing sessions planned for Friday night and Saturday night, and solar viewing sessions planned for Saturday morning and Sunday morning at the Mount Allison Gemini Twin Observatories. These observatories each house a C11 SCT telescope mounted on GEM mounts.

There were door prizes given out during the talks, three of which were Astronomy themed T-Shirts and the fourth was a Planet Glass Set.



Natasha Weadick with her new Planet Glass Set.
Photo by Adrien Bordage

The Telescope Raffle draws were made also. The winner of the Telescope Raffle ticket main prize was Lianne Hodgson from the Fredericton area. Her prize was a 70 mm F/7 Skywatcher Achromatic Refractor on an AZ3 Alt-Az mount, with an Ioptron I-phone adapter. Lianne says she can't wait to try it out on the moon.

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Annual General Assembly (continued)



Lianne Hodgson with her new telescope package.
Photo by Ted Dunphy

Winner of the secondary prize (a one year membership with RASC-NB Centre) was Tim Doucette, and the third prize (a \$50 gift certificate) went to Rosanna Armstrong (RASC-NB and SJAC member).

Again, thanks to all who attended and helped out.

Submitted by

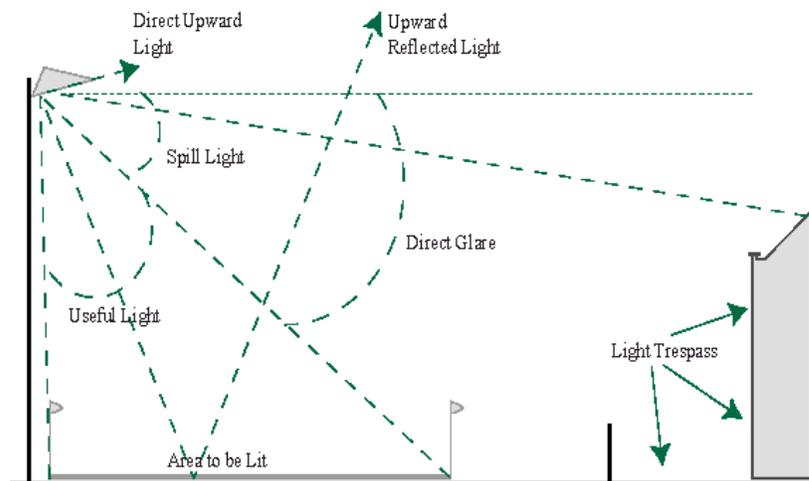
Adrien Bordage,
Star Party/Events Committee Chair

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Upward Reflected Light: an old problem renewed

Light Pollution Abatement

What is Upward Reflected Light? Light is waves of energy that tends to travel in straight lines most times and when light comes in contact with a surface some of it will be absorbed and the remainder will reflect up. This enables you to see what is on the ground ahead of you – be it a street light or a full moon the amount of reflected light can be excessive. The amount of light that is reflected depends on many factors regarding the type of ground surface, the contour of the surface, the type of light, the moisture or dust in the air, and etc. At times this reflection is extreme enough that it reflects up from the ground and can cause glare (light impacting your eyes) and can also reflect up into our night sky causing increase light dome or light pollution in our night sky.



Source: Institution of Lighting Engineers, Guidance notes for the reduction of light pollution, 2000

Upward Reflected Light is a part of light pollution that has had renewed focus with the recent decision of communities – mostly NBPower – replace the existing High Pressure Sodium (HPS) street lights with the new LED street lights (NBPower - <https://www.nbpower.com/en/about-us/news-media-centre/news/2015/led-streetlight-replacement-project-enters-third-year/>).

Winter observing brings us many perks to our hobby – viewing earlier in the evening, longer viewing sessions, steadier sky, no mosquitoes, Santa bringing astronomy gadgets, frozen lakes offering different observing locations, etc but one additional feature of the winter months is that fluffy white stuff – snow!

I am in the midst of some research that will focus on the relationship of snow and light pollution especially regarding the impact the new LED lighting verses the HPS lighting. I have proposed that the lighting and Upward Reflected Light is now a larger issue because of the colour and intensity of the light.

Snow is composed of small crystals of ice that absorb and refract light in different wave lengths - more on this later - but it is commonly accepted that the amount of reflected light on a flat surface of snow will reflect upwards of up to 90% of the source light (ie almost all the light coming from the fixture is now reflected into the sky!

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Light Pollution Abatement (continued)

LED lighting and winter months has a few different impacts on our hobby verses summer where the surface is gravel/dirt, grass, and trees which are not as reflective (usually around 5-10% - more details later). The Upward Reflected lighting issue is up to 9x as significant because of snow LED characteristics. When the internal structure of snow and ice crystals, the HPS reddish light usually gets ‘more trapped’ (various conditions to consider) where as white and blue light of LED lights are more able to reflect back off the snow up into the sky. This is compounded by the fact that LED lighting is very directional - meaning it does not spread out as much as cobra fixtures - so the intensity of the light on the ground would be significantly more than existing street lighting – more light reflected upwards into our night sky!

When I have completed more research on this scenario I will share it as a separate document but just wanted to provide some initial insight and consideration of a new intensity to an old problem that has come back to cause us to glare back at those street lights! Additionally NBPower has installed the proposed replacement for the “Dusk to dawn” (D2D) or “Yard Light” for me to do some evaluations on as well (replacing the neighbour’s D2D I had issues with previously) which will be included that in my future review.

But it is not all doom and glare... or doom and gloom – most of us know of dark(er) sky areas where we can go observing – it is more of an urban sky glow and back yard astronomy issue so pack up your scope and go observing! It is Canada’s greatest natural resource... the night sky.. and it belongs to YOU so protect it and take advantage of the wonders out in our night sky!

Submitted by
Chris Weadick,
Light Pollution
1/2

Our New Astro Gear

Orion SteadyPix Universal Smartphone adapter (#5337)

Not posted on our website yet, my to-do not Marc’s so send the hate-mail my way but this latest addition to our lending library is from our longtime friend and astronomer “Roger from Rogersville”... no correlation. Many thanks Roger for this great addition to our FREE lending library of astro-goodies! Members are able to borrow - at no cost - any of our RASC-NB equipment for the duration between meetings so please take advantage of the opportunity! The only time when the equipment is not available for loan is the summer months when the equipment is reserved for the Star Party Committee of course.

The Orion SteadyPix comes in a couple of flavours, the one we have is the version model number #5337. The cheapest new one I found and the best description was at Canadian Telescopes <http://www.canadiantelescopes.com/orion-steadypix-universal-smartphone-telescope-photo-mount-5337.html>).

During the eclipse of September 27th eclipse we participated with various astronomy groups in Fredericton area and we had over 500 participants and in my ‘near decade’ of being at RASC I have never taken a picture through my Celestron 6” scope – that night I stopped counting at 200 photos taken through the eye piece. If you are considering doing outreach events it is recommended by many of the volunteers that a couple of these adapters would be helpful (especially if there were two available – one being used and the next person setting up their phone in the bracket). There were mixed success at free handed image capture of trying to get the phone 100% perpendicular to the eye piece and various smartphones or phablets (phone/tablet). Having this device at least removes the alignment and steadiness issues as much as possible.

Careful in the description it says “now anyone can” – some conditions apply. If you have an adapter that seems to work best for you please let me know so we can have reviews of various models (even heard of a “maker model” we can maybe reproduce at \$6-10 per unit). I am considering the request of one or two per region depending what is available from other members.

Some of the adapters also state they are for iPhone only or they come with a dedicated eye piece and you cannot use your own so if you have recommendations please let me know. The one Roger donated to the Centre is Universal and you can use your own eye pieces.

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Universal Smartphone Adapter (continued)

One of the benefits of being a member of RASC and being part of our Centre is the access to our book and equipment lending libraries – it is YOUR equipment so please take advantage of the opportunity to borrow before you buy or if you just want to try something out for interest sake. You can submit a request using the website request link and I will confirm when the item is available. I will have the site updated this weekend for the new equipment. The link is at <http://nb.rasc.ca/equipment.html> or the surfing method of going to nb.rasc.ca then <library> then <Equipment Library>. If you have a recommendation of another piece of equipment we should consider investing in, please contact me directly at chris.weadick@gmail.com.

Submitted by

Chris Weadick,
Equipment Chair
☿

Plan to Attend

RASC GA2016 / AstroCATS
London, Ontario
May 19-23, 2016

The RASC General Assembly and the AstroCATS Canadian Astronomy & Telescope Show are coming together like two wonderful spiral galaxies. Our logo will appear on posters and t-shirts, and even as a tiny icon on your browser tab. There won't quite be billions of stars and all that dark matter and gas, but at least you won't have to wait 500 million years to see how they come together. Registration is open, so clear your cache and update your credit card balance.



Astronomy Day

May 14, 2016

Astronomy Day is a grass roots movement designed to share the joy of astronomy with the general population - "Bringing Astronomy to the People." On Astronomy Day, thousands of people who have never looked through a telescope will have an opportunity to see first-hand what has so many amateur and professional astronomers all excited. Astronomy clubs, science museums, observatories, universities, planetariums, laboratories, libraries, and nature centers host special events and activities to acquaint their population with local astronomical resources and facilities. Many of these events are located at non-astronomical sites; shopping malls, parks, urban centers—truly Bringing Astronomy to the People. It is an astronomical PR event that helps highlight ways the general public can get involved with astronomy - or at least get some of their questions about astronomy answered. Astronomy Week encompasses Astronomy Day starting on the previous Monday and ending on the following Sunday.



Astronomy Day was born in California in 1973. Doug Berger, then president of the Astronomical Association of Northern California, decided that rather than try to entice people to travel long distances to visit observatory open houses, they would set up telescopes closer to where the people were - busy locations - urban locations like street corners, shopping malls, parks, etc.

His strategy paid off. Not only did Astronomy Day go over with a bang, not only did the public find out about the astronomy club, they found out about future observatory open houses. Since the public got a chance to look through a portable telescope, they were hooked. They wanted to see what went on at the bigger telescopes, so they turned out in droves at the next observatory open house.

Astronomy Day events take place at hundreds of sites across the United States. Internationally England, Canada, New Zealand, Finland, Sweden, the Philippines, Argentina, Malaysia, Iran, Ireland, New Guinea plus many other countries have hosted Astronomy Day activities. Each location plans and executes events that work best for their local area.

In New Brunswick, events are planned at the Rockwood Park Bark Park, Saint John and at the Brookside Mall, Fredericton. ☿

Looking for a Party?

Why not join us at one of our Star Parties! There are several opportunities throughout the summer to gaze under phenomenal New Brunswick skies and socialize with your fellow amateur astronomers.

- June 10-12**
 Kouchibouquac Spring Star Fest,
 Kouchibouquac National Park, NB
A Dark Sky Preserve!
- July 08-10**
 COW (Camping Observing
 Weekend) Star Party,
 Mactaquac Provincial Park, NB
The Best BBQ Ever!
- July 29-31**
 Mt. Carleton Star Party,
 Mt. Carleton Provincial Park, NB
The Darkest Skies in NB!
- September 2-4**
 Fundy Park Star Gaze,
 Fundy National Park, NB
All I can say is WOW!
- September 30 - Oct 2**
 Kouchibouquac Fall Star Fest,
 Kouchibouquac National Park, NB
They have O'Tentiks!

Where are the Darkest Skies in New Brunswick?

If you said at Mount Carleton Provincial Park, then you would be correct! Check out these images from this past summer's Mount Carleton Star Party.

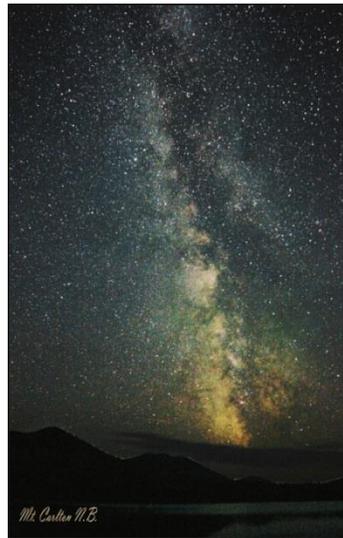


Photo by Paul Owen



Photo by Paul Owen



Photo by Adrien Bordage



Photo by Adrien Bordage



Photo by James Ayles

Where to Find Amateur Astronomers in New Brunswick

- In Saint John – The Saint John Astronomy Club
 - Contact: Curt Nason - nasonc@nbnet.nb.ca
 - Website: <http://www.sjastronomy.ca/index.html>
 - Meeting Location: Rockwood Park Interpretive Center, Rockwood Park
First Saturday of month @ 7:00 pm
- In Fredericton – William Brydone Jack (Fredericton Astronomy) Club
 - Contact: INFO@FrederictonAstronomy.ca
 - Website: <http://www.frederictonastronomy.ca/>
 - Meeting Location: UNB Geology & Earth Sciences (formerly Forestry) Building, 2 Bailey Drive, 2nd Floor, Room 203
Second Tuesday of month @ 7:00 pm
- The Royal Astronomical Society of Canada – New Brunswick Centre
 - Contact: June MacDonald - president@nb.rasc.ca
 - Website: <http://www.nb.rasc.ca/>
 - Facebook: <https://www.facebook.com/RASC.NB/>
 - Twitter: <https://twitter.com/RASCNB>

