

Vol. 18 Issue 1

Winter 2017

H O R I Z O N

LA SOCIÉTÉ ROYALE D'ASTRONOMIE DU CANADA
New Brunswick Centre du Nouveau-Brunswick
THE ROYAL ASTRONOMICAL SOCIETY OF CANADA



The Jellyfish Nebula: IC 443 in Gemini Imaged by François Thériault



December 19 - 31, 2016 (4 nights)
Ha = 36 x 10 minutes 1x1 bin. Hydrogen Alpha for luminosity.
Ha = 12 x 10 minutes, 2x2 bin. Hydrogen Alpha for colour.
OIII = 11 x 10 minutes, 2x2 bin for colour.
SII = 12 x 10 minutes, 2x2 bin for colour

The colours were mixed for a more "true to life" colour combination by mixing the different filters:
Red = Ha + 20% SII
Green = OIII
Blue = Ha + 8% Ha
Luminance = Ha + 7% OIII + 11% SII

Scope: Astrotech AT72ED 430mm f/6 with field flattener.
Imaging camera: SBIG STF-8300M with motorized filter wheel.

EVENT HORIZON
Astronomy in New Brunswick

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Education-Outreach: Curt Nason
Star Party-Events: Adrien Bordage
Newsletter Editor: Curt Nason
Web Site: Emile Cormier
Equipment: Chris Weadick
Library: Ted Dunphy
Fundy Upgrade: Emma MacPhee

NB Astronomy Clubs
Réunion / Meetings

SRAC/RASC Centre du NB Centre
When: March 18, 2017 13:00
Where: Moncton High School

When: May 13, 2017 13:00
Where: UNB Fredericton
<http://www.nb.rasc.ca/>

William Brydone-Jack Astronomy Club (Fredericton)

When: Second Tuesday of the month
Where: Fredericton, UNB Campus
2 Bailey Drive, Room 203
www.frederictonastronomy.ca

Saint John Astronomy Club

When: First Saturday of the month
Where: Rockwood Park Interpretation Centre.
www.sjastronomy.ca

Astronomy - Astronomie Moncton

When: First Quarter Moon weekend
Where: Moncton HS Observatory
www.astronomymoncton.org

Find us on...

FACEBOOK

<https://www.facebook.com/RASC.NB>

TWITTER

<https://twitter.com/rascnb>

Star Parties 2017

Kouchibouguac National Park
June 2 - 4

COW Mactaquac Provincial Park
July 28 - 30

Mount Carleton Provincial Park
August 11 - 13

Fundy National Park
September 15 - 17

Kouchibouguac Fall Star Gaze
September 22 - 24

Capturing the Northern Lights

by Tom Raithby

Visions of the Northern Lights (Aurora Borealis) have long captivated the imagination. Descriptions in the works of Robert Service, Jack London and others have painted a very romantic picture. With a few tips I hope you will be ready to go out and capture a bit of that picture yourself!



First – I live in southern New Brunswick, just outside of Saint John. Although it's about half way between the North Pole and the equator (this is not a Northern community), it is much closer to the magnetic North Pole, and that's very important for the Northern Lights. It is possible to photograph the Northern Lights in southern NB!

Where would a person begin? You will need a camera, and newer versions of cameras usually have better performance in low light. A full frame sensor is often better, but not critical. If your camera is the type to have interchangeable lenses, you will need a lens. I would recommend a wide-angle lens to begin – something smaller than 24 mm if possible. You will also need a tripod so your camera can hold very still during your night time photos.

There are a couple challenges shooting photos at night. To begin with, it will be dark. It's very helpful to scout locations in the daytime, searching for a spot that has a good view of the northern horizon, preferably away from bright lights. My favorite spots look across lakes, so the distant hills aren't so high and so I can capture reflections. You will need lights of course. I would recommend a headlamp and a regular flashlight as a backup.

I start each photo shoot with similar settings, and adjust to get what I am looking for. In the case of the Northern Lights, I use these settings:

ISO: 3200
Wide aperture: f/4 – f/2.8
Shutter speed: 15 seconds

Achieving focus is often challenging at night. Although there are several methods, I have had good success by putting the camera in a 'live-view' mode so the image is live on the



screen. On my Canon cameras there is a small magnifying glass symbol that I press, which zooms in on the image. Using manual focus, I rock focus back and forth until things look sharpest; stars or other distant light sources are as close to pinpoint as possible.

To take the photos I use a remote or the self-timer on the camera so I avoid any camera shake from my hands pressing the shutter button. An intervalometer will remotely press the shutter release on a schedule you program. Some cameras include an intervalometer built-in, but my Canon requires an external one. It is not a deal breaker – I get them on Amazon.ca for about \$30.

As you progress through night photography, take time to learn from your experiences. I kept notes at first, including what settings and lenses I had good success with. A checklist is super-helpful at times to remember settings and such.

How do you know when to look for the Northern Lights? I subscribe to the Geomagnetic Forecast from NOAA. It provides a 3-day forecast of the Kp Index. I don't understand all the details, but a Kp5 means I should be checking my email for alerts. A Kp6 means aurora are very possible and my gear should be ready. A Kp7 means I should be out taking awesome photos of aurora!

Here is a link to one of my aurora time lapses from October 2015.
<https://www.youtube.com/watch?v=8Uuz-GKSC80>

Following are some resources I have found especially helpful:

ClearDarkSky: <http://cleardarksky.com/c/SntJhnNMBkey.html?1>

Windfinder: http://www.windfinder.com/forecast/gardner_s_creek

Environment Canada: https://weather.gc.ca/city/pages/nb-23_metric_e.html

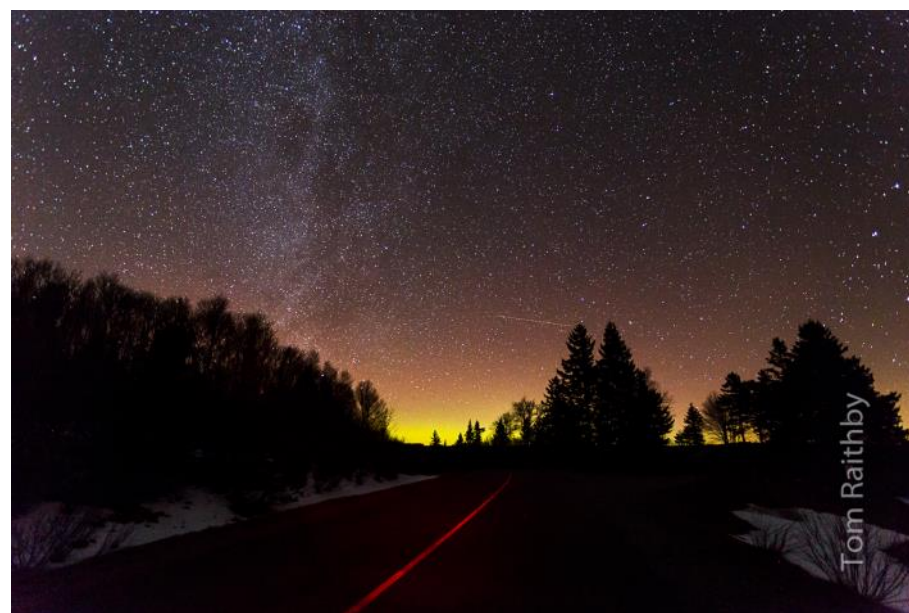
Fisheries & Oceans: <http://tides.gc.ca/eng/station?sid=65>

<http://www.aurora-service.org/aurora-forecast/>

<http://www.swpc.noaa.gov/>

I also highly recommend Google Earth, The Photographer's Ephemeris and Stellarium.

Southern New Brunswick is pretty far south to see the Northern Lights. But it happens, and you can catch your own image of the lights that inspired so many stories!



Astronomy - Astronomie Moncton Outreach Activity by Adrien Bordage

As one of the proud clubs under the umbrella of the RASC NB Centre, the Astronomy - Astronomie Moncton Club prides itself on its public outreach and awareness efforts.

Partnering with Moncton High School, teacher James Mosher has graciously allowed AAM members access to the MHS Observatory, which currently houses a Meade 12-inch LX200 GPS. Soon it is expected to house a Meade 12-inch RCX 400. This has allowed us to greatly expand our outreach by inviting the public monthly (typically at or near first quarter Moon) to view through the observatory telescope as well as through members' telescopes set up outside the observatory.

A big boost in getting the word out has been achieved by Emile Cormier, who set up the AAM Web site and Facebook page which are frequently visited by the public. Also, James Mosher had a banner link to the AAM Facebook page put on the Anglophone East District Web site. When the banner was put up there was a huge spike in interest amongst the public. Wow, the in-

terest is incredible! At our monthly public viewing session at the observatory on February 3 we had approximately 130 attend the event!



AAM members are doing other types of outreach, as well. Emma MacPhee is conducting a Beginners' Astronomy Course for Seniors in the Riverview area, James Mosher is keeping his school Astronomy Club student membership busy with various activities, and Yvon Hachey, Emile and I are involved with public viewing sessions.

We are getting several inquiries from various groups for astronomy presentations at the school. We have had a Girl Guides group, a Brownies group, and an Air Cadets group is booked. We also had a group of four adults that visited the observatory in the middle of January to celebrate the birthday of one of the adults.

An idea in the works is the possibility of a program for the students at MHS to grind, polish, and perhaps figure a 6-inch, 8-inch, or 10-inch mirror to build a school telescope. The mirror grinding process would likely be done during the lunch break on school days, where any student could drop in and grind for about five minutes. The benefit of this is that everyone is different in how they grind, so one person's inherent error induced onto the surface of the mirror would be corrected by the next person. The biggest hurdle so far is finding a mirror making kit. The other parts of the telescope could also be fashioned by hand (tube, alt-az (Dobsonian) mount). It is likely that the F ratio will be a bit longer than normal to make the instrument especially useful for solar system viewing and imaging.

Astronomy is "Looking Up" in the Moncton/Dieppe/Riverview area.

Orion Moonlighting as an Elvis Impersonator

by Curt Nason

The constellation of Orion the Hunter sparked my interest in astronomy when I was a tyke, and every winter the sight of it rekindles that youthful imagination. A hip-swivelling rock and roller also caught my attention in those years and I can easily picture Orion as The King of the night sky.

The most recognizable part of Orion is the angled line of three stars that makes his belt. Standard equipment for impersonators of latter day Elvis is a huge belt, which must be for decoration as it is usually worn with a one-piece jumpsuit. I like the coincidence that the top star of Orion's belt is on the celestial equator, a projection of the earth's middle into the sky.

Drawings of Orion in star maps show him with a club in his upraised right arm and a lion skin draped over his left as a shield. There are many pictures on the Internet of Elvis posing in his Vegas attire with his outstretched arms spreading a cape. With that in mind, what some people call the Running Man Nebula is located in Orion's

sword. Some see this interstellar cloud as a runner but to me it is Vegas Elvis, as if Orion-Elvis is carrying a photo of himself in his wallet. The "runner" is too faint to be seen with binoculars, but the stars immediately above and below it look very much like a jogger. Therefore, I have renamed this the Running Man Cluster.



**Do you see a running man in the
stars or in the nebula?**

If you give this area a look, be sure to check out the hazy stellar nursery called the Orion Nebula just below it. It is also called M42, being the 42nd entry in Charles Messier's 18th century catalogue of objects that resemble comets. The fact that Elvis died at age 42 is a coincidence, I suppose.

With its hourglass shape and bright stars, Orion is the most eye-catching and recognizable of the 88 official constellations. Staring at it on a clear winter night is like looking at a box of jewels, especially when upper atmospheric winds enhance star twinkling, and Elvis was fond of jewellery. The three belt stars glitter like diamonds, orange Betelgeuse to the upper left of the belt is seen as a garnet, and Rigel to the lower right is a sparkling sapphire. The belt stars point eastward to the brightest diamond in the sky, Sirius, in the constellation Canis Major the Big Dog, or perhaps it ain't nothing but a hound dog.

Elvis kept many animals at Graceland, including cattle, but he was particularly fond of dogs and horses. Another canine constellation, Canis Minor the Little Dog, is marked by the bright star Procyon to the upper left of Orion. The sky between the dogs is filled by the faint constellation of Monoceros the Unicorn. If such a critter existed, Elvis would have owned one. To the right of Orion we see Taurus the Bull, and below him is Lepus the Hare, whose hind feet are often regarded as a good luck charm.

The Running Man Nebula, or Vegas Elvis as I see it, is composed of three sections of cloud that are listed in the New General Catalogue as NGC 1973, 1975 and 1977. I suppose it is also just a coincidence that 1977 is the year Elvis was returned to sender.



**He might have left the building but
he is still a Giant among the Stars**



Bringing an Old Scope Back to Life

By Mike Powell

Do you have an old optical tube with a few scratch marks, or the odd paint chip that is making it show its age? Or maybe the paint is just starting to fade and it doesn't have the "New Scope Look" that you liked when you first purchased it?

Well, there is a solution! It's called Vinyl Wrap. It comes in every colour of the rainbow, or it can be a photograph of your favourite night sky object. It is the new way to customize your car and I thought it would be a cool way to customize a telescope.

Vinyl Wrap can be purchased on e-Bay or at your local sign shop, and it is very easy to apply. All you need is the roll of Vinyl wrap, a credit or debit card, a heat gun or blow dryer, and a razor blade.

Without getting into an explanation of the whole process, check the Internet. There are lots of examples of Vinyl Wrap to be found for wrapping cars, and the same process can be adapted to wrapping your telescope. It's simple and easy.

Best part is, if you make a mistake, you can just peel it off and try again. If you want to bring that old scope back to life: "Don't be shy, give it a try!"



Before

After



**Request from RASC NB
Equipment Manager
by Chris Weadick**

One of the many benefits of your RASC membership includes access to our loaner equipment at no cost to members. See a brief description of current equipment on our website at:

<http://nb.rasc.ca/equipment.html>

If there is a piece of equipment you think we should consider for our Centre, please contact me at:

equipment@nb.rasc.ca.

To request equipment please use the sign-out form on the Web site so it is easier to track equipment. If you are transitioning a piece of equipment please also use the form or email me to confirm what piece of equipment is being transferred and to which RASC NB member.

The most popular requested item has been the SQM meters but I believe it is because of the current projects.

We have not added to the Equipment Library for a couple of years; is there something that our Centre members would benefit from? There has been

interest in camera mounts at the previous few meetings, perhaps something like an external screen for public outreach viewing, or a camera to try out your luck?

Projected view for public outreach; Revolution Imager Video Observing Package:

<http://www.skyandtelescope.com/astronomy-equipment/revolution-imager-video-observing-package/>



ZW Optical's New ASI 224MC-Cool Camera:

<http://www.skyandtelescope.com/astronomy-equipment/zw-optical-new-asi-224mc-cool-camera/>



Or how about a mount for time lapse imaging?

<http://www.skynews.ca/review-allview-mount/>



Give us your ideas and why you would recommend a product for consideration. RASC NB is your Centre - it will be as good as you make it.

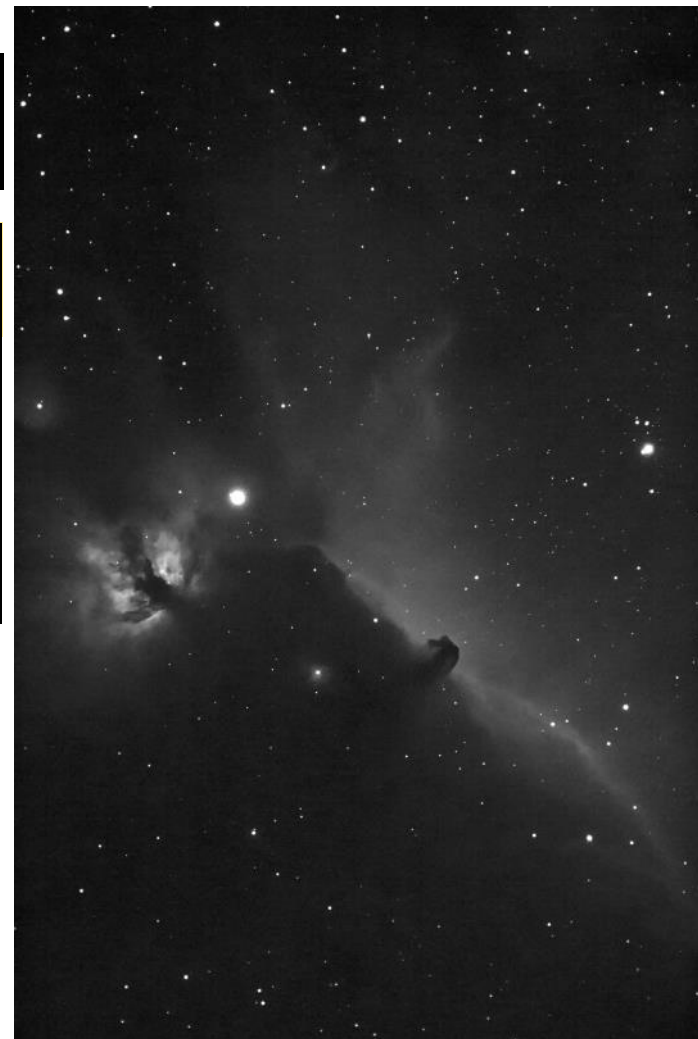
I will be sending out a survey in the next week or so seeking some feedback about our current offering of equipment for our members, ideas for accessories for our current equipment, ideas for new equipment, and your feedback regarding how we can serve our members better for an improved RASC NB experience!

RASC NB Education & Outreach Update for 2017

Year	Events	People	Star Finders English	Star Finders French	Moon Guides English	Moon Guides French	Get Started in Astronomy	Volunteer Hours
2012	75	4658	2188	229	1852	137		
2013	102	4119	1602	8	1513	120		
2014	104	4843	1716	241	1378	199		
2015	114	7262	2106	244	2568	156	819	
2016	219	9498	1984	115	2290	87	514	988
2017	36	1324	533	0	441	0	85	236

Types of Outreach Events

Year	Presenta- tion	Night Observing	Day Ob- serving	Youth Group	School Talks	Exhibi- tion	Observ./ Planet'm
2012	12	24	2	12	17	8	0
2013	24	24	3	12	32	7	0
2014	23	21	20	17	12	8	3
2015	22	33	23	7	15	13	1
2016	31	55	39	19	54	11	10
2017	6	10	1	9	9	2	1



Horsehead Nebula

by Paul Owen

Orion 110 ED doublet, modified Canon T3i with 12nm Ha filter. Mounted on an HEQ5, guiding with PHD. One 6 minute sub, processed in Photoshop, converted to monochrome.

Puzzle 'n Pics

Astro★Anagram

The answer is one astronomical word formed by rearranging the letters of the other word. Each clue word is a hint for one of the anagrams.

Example clue "Star BBQ". Answer "ASTRO ROAST"

CLUE... **Dwarf Chick**

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Can you solve this puzzle created by Ted "Devious" Dunphy?

The first correct answer emailed to
editor@nb.rasc.ca

wins a beer from the Editor.

(Ted is ineligible. Not enough Schooner for both of us.)



NGC 1499: California Nebula
by François Thériault



NGC 2244: Rosette Nebula
by François Thériault