

Vol. 26 Issue 1

Winter 2025

# 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



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*The Andromeda shot is a stack of 28 one-minute pics from a RedCat 51 mm scope attached to my Canon R6 tracking on a Skywatcher star adventurer. This was taken from my backyard on Feb 19 at 9:06 pm .  
(See page 2 for information on the Moon shot and more lunar delights.*

SRAC/RASC Centre du NB Centre  
Inc.

<https://rascnb.ca>

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

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Library: Ted Dunphy  
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## Centre News

### Business Meetings

March 15 (tentative)

### Centre Meetings

March 18

April 15

May 20

### Star Parties 2025

Kouchibouguac June 20-21

Mount Carleton August 1-2

Fundy: August 22-23

Kouchibouguac: September 13-14

## Ted's Toon



## Lunar Bites

by Paul Owen



The Moon images are of the Snow Moon rise from Saint John (February 12). The crane shot was from Reversing Falls lookout, the steeple (page 1) of the Cathedral viewed from the Hilyard Place parking lot, and the Moon over the high-rise is from the Merchant Marine location just under Harbour Passage. It was an amazing moonrise to catch as I was wanting to do this for a while.



## Martian Lands on the Moon

by Yolanda Kippers

The ephemeris predicted this mission long ago. It was duly noted in the Observer's Handbook and green-flagged on the RASC Calendar. It was written about in the local newspaper. Anyone paying attention would know that something special was going to happen on the evening of January 13, 2025. A shady encounter of Mars with the Moon. A real cover-up. A thriller not to be missed.

Interested sky watchers made their plans and watched local weather forecasts. As the date approached, they remained cautiously optimistic. The preceding days had been mostly overcast but there was hope of some clearing in the early evening of the 13<sup>th</sup>. Worryingly, it looked like the clouds would return at the critical time. But let's not get clouded with negative thinking.

By late afternoon skies were mostly clear; by 8 pm things remained very promising. I could see the rising full Moon from my office window. I bundled myself up, picked up my binos and observing kit (tarp, blanket, padded seat and neck support) and prepared to head down to the river for a suitable, comfortable observing spot. In that short period of time, clouds had accumulated and a beautiful corona had surrounded the Moon. Not wanting to give up, but not wanting to get needlessly cold by the river, I decided to temporarily set up on my front step.

This took a bit of doing. After making sure

that Mars was indeed visible and still a safe distance from the Moon, I positioned myself so that a spindly maple trunk blocked the light from the streetlight at the corner. This sweet-spot position was not a sweet-spot for my body. Was I comfortable? No, not really, but I was sheltered and I had a decent view. It was -7C and there was no wind. In the end, there was no need to go down to the river.

I settled in to watch and observe. The Moon with her corona appeared to be wedged in the bifurcation of a tree trunk and its first limb. Eventually, she broke free and started rolling up that limb, and a while later the Martian was seen trailing behind. He was quite red from exertion or maybe excitement. Slowly, they crept upwards, occasionally passing through a patch of clear sky. Further to my right, I caught occasional glimpses of Sirius, Aldebaran and Betelgeuse, but Castor and Pollux remained hidden.

Finally, the Moon reached the tippy-ends of the maple tree and shook herself free. The Martian clung on for a bit longer. He appeared pale, a little yellow perhaps, as if afraid to take that final plunge. Maybe he had a change of heart about the whole affair. Ominously, there were now more clouds and no visible stars. Having no other option, the Martian also jumped free of the branches. The corona was gone and replaced by a swirling mass of cloud. This pin-wheel-like structure shrouded the Moon and completely engulfed the Martian. Kidnapped by a spaceship? But in less than a minute the Moon and the Martian were free again

as the spaceship blew apart and disintegrated into space junk. The Martian appeared to be hastening toward the Moon as if afraid of being left alone or missing his destination.

As they continued on their way, I looked for familiar lunar landmarks. For the most part, I could make out the maria and the more prominent craters; sometimes, only translucent light and, rarely, a brief glimpse of the finer lunar details. Gradually, the distance between the two adventurers continued to narrow and it looked like the Martian was going to touch down in the area just south of the Ocean of Storms. Presciently and ominously, dark storm clouds were gathering. The Martian looked very pale. And small. Would he be able to land safely before the storm hit? It was nip and tuck.

Ahh!! Just in time and right on schedule, at 10:35 pm, the Martian made a safe landing. One last flicker and the Martian was gone... and heavy clouds covered the Moon.

While the Martian was going about his lunar explorations, I went in for a hot drink and to warm up my observing kit. I wondered what overland route he would be taking, which mountains, craters and maria he would cross; but of course, he would do none of this. He would be exploring the far side of the Moon, the part Earthlings never see. Despite the dark clouds, I hoped to see this mission completed. Fifty minutes later I was back outside. This time, because the Moon was higher in the sky and not having to worry about the streetlight, I could lie back on my step and make myself comfortable. The wind had picked up, however, and the

**This was submitted on February 17 for the RASC Annual Report. There is time for corrections so please let me know or any errors or omissions. (Curt Nason)**

**Year Established:** 2000

**Membership (end 2024):** 77

**Assets:** RASC NB has access to a Coronado PST, Herschel wedge, several astronomy books and a projector for Centre members.

**Partnerships:** Centre members are committed to annual public star parties (weather permitting) at the three RASC Dark Sky Preserves in New Brunswick; Kouchibouguac National Park (late spring and autumn), Mount Carleton Provincial Park and Fundy National Park; as well as two public observing events at the RASC Urban Star Park (Irving Nature Park) in Saint John. Partnerships were formed with several municipalities, libraries and museums in relation to the total solar eclipse which covered the central half of the province. In addition, member David Hunter partnered with the University of New Brunswick Engineering students and faculty in designing the payload for a balloon launch to record the total solar eclipse: <https://eclipseplus.ca/About/Team/>

**Outreach:** Centre volunteers participated in 186 outreach events during 2024, with an estimated volunteer time of more than 2300

clouds were scudding across the Moon from right to left.

The Moon, observed through cloud and binos, was still a bright white orb. Some of the maria were reasonably visible. The surface appeared rough but details were lost. Still a pretty sight. I watched and waited, wondering when and where Mars would reappear. Would I be able to see it through the clouds? At least I was comfortable.

Something about the Moon's face looked familiar. There were two eyes – the left eye was in crisis, but the right eye had a serene look to it. There was a nose that could hardly be described as fecund, but it was prominent. Below those features was a mouth set with determination. This guy was going somewhere. Headed west. But, why did he look so familiar? Suddenly a cloud scudded past and the face disappeared...and then it was back. No! It wasn't the Man in the Moon.

It was Frosty without his hat! And without his body! He was sliding, face down, down a hill at great speed. His two eyes were looking forward, his nose and mouth, set to the west. His face was snow-pocked. No pipe! Another cloud...Pschew...and his face was covered with snow. He was racing. My binos created wonderful moguls. He hit some hard bumps. Pschew...More snow in his face. He raced and bounced, even made a few turns, down that bumpy hill. Swoosh...Pschew... More snow...Pschew...He was having a grand time!

But where was Mars? His scheduled reappearance was getting past due. Pschew...

Swoosh...It was hard to see. Bounce. Was that a little speck? Pschew...Impossible to tell! There are no rewinds. There! Again? Bounce! Well, maybe? Pschew...Could be? - steady now – Pschew...Now! Almost definitely and then ... for sure! Pschew...Mars, now a definite tiny white speck, in and out of that spray of snow, had pulled away from its pal. He was definitely there, on Frosty's left, sliding down that bumpy, snowy hill. Those two were having fun!

Now I know why they were making such an effort to get through the trees. Mars wasn't going on a space mission to explore the far side of the Moon. They were off for some winter fun. The pinwheel? That wasn't some sort of fancy spacecraft, but a splendid spray, as they dropped their sleds in the soft, powdery snow. Like most kids, Mars had left his red jacket behind. He'll go back for it later. And just like Earthlings, it took them a lot longer to make the climb, than to race down.

Pschew...I left them to their fun.



*Mars reappearance (Stellarium)*

hours. This matches the mean number of Centre outreach events over the past ten years (range 114 to 248). The total includes 101 presentations, 33 school talks, 31 observing events, 15 youth group visits and 6 booth events. An estimated 12,300 people attended in-person events, of which 6800 were youth. Note that we include online talks to a known audience in this statistic, the majority of which are school presentations. Another 12,300 people tuned in to live-feed events online, most of which were through the Sunday Night Astronomy Show over Facebook and YouTube.

**Centre Executive:**

President: Curt Nason

Vice Presidents: June MacDonald, David Hunter

Treasurer: Yolanda Kippers

Secretary: Emma MacPhee

Councillors: Jeff Leger, Alan Legere, Yves St. Germain, François Thériault

**Highlights:** The total solar eclipse of April 8, 2024 marked the first time in 11 centuries that the Moon's umbra crossed the central part of New Brunswick, and we won the weather lottery with clear skies and relatively warm temperatures. The maximum length of totality was 3 minutes, 21 seconds. In the months prior to the eclipse members gave more than three dozen presentations on viewing the eclipse to various organizations and municipalities, and the Centre purchased and distributed 2000 eclipse glasses. In Miramichi members participated in a three-day exhibition with a trade show and observing, and the city hosted 3000 visitors to view the eclipse. Florenceville-Bristol in northwestern

NB featured a presentation by Chris Hadfield and the balloon launch to photograph and record the eclipse. The streets of downtown Fredericton were opened to more than 6000 residents and visitors for eclipse viewing, where some members had set up filtered telescopes for safe observing. Unappealing weather forecasts in normally clear-sky areas of the USA prompted a large number of eclipse chasers to alter plans and proceed to New Brunswick. In December the Centre was contacted by BBC Sky at Night Magazine about being featured in their *Society in Focus* section. A 200-word article was submitted and accepted for their April 2025 issue.

**Challenges:** Retaining membership in times of fee increases has been a challenge but numbers appear to be steady following a 30% drop from a pre-pandemic high of approximately 110. As with many clubs, we have experienced a lack of interest among members in attending meetings and volunteering for office. This has always been a challenge, but the core of actively-participating members is aging.

**Looking Forward:** We plan to have hybrid meetings in partnership with local astronomy clubs, which hold separate meetings and include Centre members among their core group. Such clubs are often feeders for RASC membership. RASC NB is now incorporated with charitable status. A fundraising committee is being established to determine short-term and long-term goals. Also, steps are being taken to revive a light pollution abatement committee. As always, astronomy outreach remains the focus of our Centre.

**RASC NB in BBC Sky at Night**

**(To appear in the April 2025 issue)**

The New Brunswick Centre of the Royal Astronomical Society of Canada (RASC NB) began with approximately 30 members in 2000. The current membership is within the mean of 65-75, with a high of 110 a decade ago. We have nine meetings annually, which used to be shared among the three largest population centres in our province of 850,000 until the pandemic necessitated online meetings. Although we have no infrastructure, we have a Coronado PST, Herschel wedge and other items for members' usage.

Astronomy outreach has been the focus of RASC NB since its inception and particularly since the International Year of Astronomy in 2009. Four weekend and several single-night star parties are held annually at provincial, national and local parks, featuring public talks, solar observing and evening observing. Between 2009 and 2011, RASC Dark-Sky Preserve status was awarded to three parks, and Urban Star Park status to another. Centre members have been active in giving presentations and observing events for many schools, youth and other groups.

For the past five years some members have presented the Sunday Night Astronomy Show via the "Astronomy by the Bay" Facebook and YouTube media, drawing viewers worldwide. Between 2012 and 2024 we recorded 2135 outreach events, reaching 100,000 people and another 400,000 online.

## What's Up for Spring by Curt Nason

The highlights for the months of March through May will be a total lunar eclipse overnight and a deep partial solar eclipse at sunrise, both occurring in March.

**The Sun** reaches the Vernal Equinox at 06:01 on March 20. The level of solar activity is at or near its peak and will possibly have a double peak. On March 29 the Sun rises after 07:00 in maximum partial eclipse, with the Moon obscuring more than 80% of the upper part of the Sun. The eclipse ends about an hour later.



*Eclipse sunrise in Saint John March 29*

**Moon** New Moon dates are March 29 (of course), April 27, and May 27. Around 01:00 on March 15 the Moon enters Earth's subtle penumbral shadow, but it will probably be half an hour before you notice it. First contact with the umbral shadow occurs at 02:09 and the Moon is totally eclipsed for 66 minutes beginning at 03:26. Fourth contact is at 05:48 as astronomical twilight begins, followed by the receding penumbra

**Mercury** is in its best evening apparition as March begins, reaching greatest elongation on the 8<sup>th</sup> and inferior conjunction on the 24<sup>th</sup>. It reaches greatest elongation in the morning sky on April 18, and it is at superior conjunction on May 30.

**Venus** begins moving sunward as March begins and it is at inferior conjunction March 23. Since it is north of the ecliptic, a challenge is to see it with binoculars around the equinox when it is about 5° above the western horizon after sunset and rising in the east nearly 40 minutes before sunrise the next day. It is at its brightest on April 27 and remains bright but fairly low for the rest of the spring.

**Mars** is seen best in the first week of this period, after which its apparent diameter drops below 10". Imagers will still be able to capture some detail for a while. It continues to fade and shrink but passes near the Beehive cluster on May 4 and enters Leo in late May.

**Jupiter** remains in the evening sky but by the end of May it is setting 70 minutes after sunset. We see a double shadow transit of

Ganymede and Europa from 19:37 to 21:08 on March 4, and from 23:42 to 01:48 on March 11/12. Also on March 11 Europa begins to transit at 20:40, ten minutes before Ganymede ends a transit.



*Europa & Ganymede shadows  
March 4 at 20:30*

**Saturn** is in solar conjunction on March 12, and the rings are edge-on just nine days later so we will not be able to see them. When it appears in the morning sky in April the south side of the rings are narrowly visible. Saturn crosses into Pisces in early May.

**Uranus** is in solar conjunction May 17.

**Neptune** is in solar conjunction March 20.

**Comets** No bright comets are expected unless 29P/Schwassmann-Wachsmann 1 has an exceptional outburst or if we have a surprise guest from the Oort Cloud.

**Meteor Showers** The Lyrids peak on April 22 and the Eta Aquariids peak on May 6.

**Zodiacal Light** might be seen in a dark western sky 90 - 60 minutes after sunset during the last two weeks of March.

## 19 Most Popular Double Stars

by Len Larkin

The title may sound like hype for a YouTube video or a soul-searching need to find the “best” double stars, but it's none of that. It came out of my obsession for lists. I wanted to experience the variety of doubles by viewing targets from three lists: the RASC Double Star Observing Program (110), the Astronomical League Double Star Program (100), and a custom one I made from the two sections in the Observer's Handbook (164 systems). So a bit of math suggests there are 374 systems to observe in the course of doing this. But these lists come from different sources and duplication is inevitable, leaving 266 unique double star systems to observe after the dust settles.

Anyway, the curious thing is that I found 19 star systems that appear in all three lists and wondered, why these? And almost all of them are in William Herschel's compiled list of Double Stars (1784) and Captain Smyth's Bedford Catalog (1844), suggesting their enduring popularity!

There's a couple of others that I thought should be there but aren't – more on that later. But now, is there anything in common about these?

### 1. Colours

Some of these stars have colour so here's a chance to compare your colour descriptions against some historical observers. Here are the most vivid stars from the list of 19.

**Eta Per** – Herschel saw the pair as red/blue, and both William Smyth and I gave colours of orange/smalt blue. OK, I wasn't the one who used the word smalt! (Spectral types are M3/B9).

**32 Eri** – This got logged as reddish/blue by Herschel and me while Smyth (a naval captain) artistically ID'ed the pair as topaz yellow/sea green. (Spectral types G8/A2).

**24 Com** – Herschel logged it as whitish/bluish and Smyth, ever the flamboyant one, saw it as brilliant colours of orange/emerald tint. (Spectral type K2).

**Alpha Her** – Primary: red or orange, Secondary: blue or green or white. (Spectral type M5/G8).

**Gamma Del** – I saw them as orange/blue; Smyth saw yellow/emerald. How about you?

**Delta Cep** – Herschel: reddish/blue; Smyth: orange/blue. This star is the darling of the variable star world.

**Gam And (A-BC pair)** – This one is amazing! It displayed as reddish/sky-blue to Herschel and orange/emerald green according to Smyth. My observations in both 1982 and 2021 labelled the Primary as yellow-orange but with diffraction rings that were apple red! (Spectral types K3/B8).

### 2. Observable in small telescopes

I've observed half of these using 50 mm aperture (sometimes the best view). 100 mm gets them all.

### 3. Relatively bright, easy to locate

Most are 5<sup>th</sup> magnitude or brighter naked-eye stars, located near the celestial equator or farther north, and their familiar Latin Bayer labels are commonly found on star charts. All of this makes them more accessible and easier to find.

### 4. Orbital Motion

One thing this list is short on is systems with observable orbital motion. Only two are observer-friendly binaries: Zeta Cancri and Xi Scorpii. They have easier main doubles but also close 1" separation binaries; challenging but possible in 100-200 mm scopes. In fact, using my 100 mm scope I've observed/measured Zeta Cancri. Zeta will swing 30-50 degrees in position angle over the next 10 years! Get 'em while they're hot because both will get closer and more difficult in future.

Gamma Andromedae (BC pair) is very difficult even at it's best in 2045. The separation is only 0.5", unlike the easy 9" AB pair! Struve discovered this close pair in 1843. Smyth pushed eyes and optics (150 mm refractor) to the limit the following year. "On the 1<sup>st</sup> of May, the morning atmosphere was perfectly diaphanous, and I teased Gamma under various powers from 118 to 600 until I fairly saw that the companion was not round, but elongated, in a direction of NW to SE. It was so slightly oval, that, but for M. Struve's unexpected announcement, I must assuredly have overlooked it."

So which stars would I have expected to see on all lists?

***Xi Ursae Majoris*** – Binary, 4<sup>th</sup> mag pair, separation 2.4". This is the very first binary discovered by William Herschel when he found that the two stars orbited each other. It was also the first system to have its orbit determined (1828). In the four years I've been observing it, the secondary star has swung 10 degrees around the primary.

***Iota Cassiopeiae*** – Tight triple with colour (5<sup>th</sup>, 7<sup>th</sup>, 9<sup>th</sup> mags). The two brightest stars are a binary. This one can be challenging but a great view. Observers suggest 100x to 150x to see all three well.

***Beta Cygni*** – One of the most popular double stars for Northerners.

These three systems along with the rest can be found in the Observer's Handbook. You can also find the 19 in the resources below. I think the RASC Double Star Program is best. So, happy observing of these 19 accessible, colourful, interesting systems. Who knows? You might find the "best ever double star"!

#### Resources

William Smyth: [www.webbdeepsky.com/articles/rediscovering-the-bedford-catalogue](http://www.webbdeepsky.com/articles/rediscovering-the-bedford-catalogue)

William Herschel  
[www.handprint.com/ASTRO/herschel.html](http://www.handprint.com/ASTRO/herschel.html)

RASC Double Stars Observing Program  
[www.rasc.ca/double-stars](http://www.rasc.ca/double-stars)

Astronomical League Double Stars  
[www.astroleague.org/double-star-observing-program/](http://www.astroleague.org/double-star-observing-program/)

## The 19 Best Double Stars

<b>Eta Cas</b> (Achird)
<b>Gamma Ari</b> (Mesarthim)
<b>Gamma And</b> (Almach)
<b>Alpha UMi</b> (Polaris)
<b>Eta Per</b> (Miram)
<b>32 Eri</b>
<b>Beta Mon</b>
<b>Zeta Cnc</b> (Tegmine)
<b>24 Com</b>
<b>Alpha CVn</b> (Cor Caroli)
<b>Xi Sco</b>
<b>Sigma CrB</b>
<b>Alpha Her</b> (Rasalgethi)
<b>Psi Dra</b> (Dziban)
<b>Epsilon Lyr</b> ("Double Double")
<b>57 Aql</b>
<b>Beta Cap</b> (Dabih)
<b>Gamma Del</b>
<b>Delta Cep</b>

## Mauna Kea Summit Tour

By Don Kelly

A long-time bucket list of mine has been to see the telescope array on top of Mauna Kea on Big Island, Hawaii. I learned of this tour from fellow William Brydone Jack Astronomy Club member Detlef Rudolf. As I recall Detlef's account of his experience, he reached the 10,000 foot level Visitor Centre but was unable to continue the trip due to weather.

My wife Barb and I were visiting her sister Betty and her husband Harold in Waikoloa in January this year. We dropped in to a travel agency in Waikoloa to book a Mauna Kea tour. The first tour company's price was \$935 American. So we checked another company: \$475. So we checked a third company, Mauna Kea Summit Adventures: \$275. We took it. The moral of this story is, do not jump at the first offer. You are, after all, in a tourist environment.

Barb was to accompany me on the tour. However, due to an injury, she did not go but was replaced by her younger brother Bill. Bill was one of the original founders of WestJet and served as their Marketing Vice-president.

Here is a step-by-step summary of the tour. Bill and I were picked up at a nearby hotel by a small eight-seater bus. A young South Korean couple joined us. We were driven 30 minutes out of Waikoloa to a small parking lot alongside the main highway. We transferred to a slightly larger bus (a 10-seater)



where we were joined by four others who were heading to Mauna Kea. It was a long, twisty ride as we climbed from just above sea level to the 10,000 foot level. Here we stopped at the Visitor Centre to shop and a possible washroom break. I bought a T-shirt and three 3-D postcards of the Moon. A half hour later we were on a special four-wheel drive which continued with the ascent. The road ranged from crushed rock to pavement with a centre line.

Our bus stopped again to view a collection of radio telescopes. Five minutes later we were back on the bus and looking down on the top of the clouds. Donna, our driver and tour commentator, explained the brick-red rock hillsides. Basalt is black but contains iron and over the centuries the basalt rusts. All hill sides were now brick red.

Before long, we were on top of Mauna Kea (13,803 feet) with the array of telescopes. We did not have access to the telescopes although we could go up to each of them and knock on their door. Donna kept reiterating that Mauna Kea was the tallest mountain on the planet, exceeding its neighbour Mauna Loa by just over 100 feet. The claim of Mauna Kea being the tallest mountain is explained by the fact that the base of Mauna Kea begins on the floor of the Pacific Ocean, whereas Mt. Everest's base begins on the surface of the planet.

Bill and I had an interesting 'conflict' with the young South Korean girl. She offered me a hand warmer. It was essentially a cloth bean bag full of something similar to beans, only

this 'bean bag' was warm and stayed warm. It was cold on the top of Mauna Kea. The temperature ranged between 0 and 4 degrees. We said we could not accept the hand warmer (she had one and her partner had the other). She became very loud and vocal, insisting the hand warmer was ours and we were to accept it. After trying to reason with her and this young lady, we decided it was in everyone's best interest to graciously accept it with thanks. Bill and I passed it back and forth and it did help. Fortunately, there was no wind or breeze while we at the telescopes site.

The other 'good luck' story of our visit was the lack of snow at the summit. Many tours cannot reach the summit (telescopes) because snow may cover much of the upper 3,000 feet. Many tours are unable to get beyond the Visitor Centre. There was no snow on the summit during our tour; but during my walk around the Canada-France-Hawaii telescope I found a patch of snow 12" by 12", enough to make one or two snowballs.

We remained at the summit to observe the setting Sun. The red ball sat on the horizon and gradually disappeared below it. When that happened, a huge pink/red arc about 10-15 Sun-widths wide appeared on the horizon.

We boarded our respective four-wheel drives and started back down the mountain. However, we soon stopped at a dark sky site for our evening star party. Our driver Donna conducted the observing session for the next 63 minutes. She named every constellation

observable, pointing out each star by name with her green laser pointer. One time after showing and naming every major star in Orion, she moved to Taurus. I didn't know if I should mention to her and the others that she had missed Iota Orionis. But, in true Donna fashion, she came back to Orion and pointed out Iota Orionis under M42. She was enthusiastic and very competent. We saw one satellite, one meteor, and two planes.

We returned to our respective buses and continued down the mountain, but there was one more stop. This time it was to witness an active volcanic eruption. I believe it was approximately a kilometre from us. Pitch dark except for the red-orange lava bubbling away from a flank vent on the side of Mauna Kea. Back in the buses and down the mountain, past the Visitor Centre, past the wardens who were monitoring our departure and finally back to the highway parking lot. Bill and I had a pleasant surprise. We had a white electric limousine waiting to take us back to Waikoloa. The ride was completely soundless. No engine sound. No tires on the highway sound.

I took 106 photographs of the trip. Eventually, I have narrowed it down to 95 for presentations.

Would I do the Mauna Kea observatories tour again? Absolutely! Would I recommend the trip to others? Definitely!

## Outreach Reporting

Curt Nason

The RASC developed a database for keeping track of outreach events for the International Year of Astronomy in 2009. The goal for that year was for one million Canadians to have a “Galileo Moment” such as Galileo likely experienced when he first turned his *perspicillum* (later re-named the telescope) to the sky. Since New Brunswick made up 2.3% the country’s population we set a goal of 23,000.

The national total from the RASC, CASCA (Canadian Astronomical Society -Société canadienne d’astronomie) and the FAAQ (La Fédération des astronomes amateurs du Québec) was around two million, double the goal). Our NB goal was achieved with most of the Galileo Moments arising from visitors to a meteorite display at the old Moncton Museum.

Outreach reporting continued after 2009 with the Beyond IYA program. In 2012 I began maintaining a spreadsheet of every event we reported to RASC National, the annual results of which for the past ten years are shown on this page.

The RASC changed the reporting process in December 2022 to make it easier for Centres to report events. Monthly spreadsheets are generated and accessed via a URL, rather than having to log in to the RASC website. A guide for using the reporting sheets follows on the next two pages.

## RASC NB Outreach Events and Handouts

Year	# of Events	People At Events	Live Feed	Youth	Star Finders English	Star Finders French	Moon Guides English	Moon Guides French	Volunteer Hours
2015	114	7262			2106	244	2568	156	
2016	219	9498			1984	115	2290	87	988
2017	248	9951	8441		2276	162	2262	131	1937
2018	187	7289	37,922	>1300	1788	170	1635	79	1355
2019	240	7036	46,675	2997	1320	216	1520	213	1950
2020	171	1859	161,688	954	817	22	636	125	1079
2021	131	731	60,240	565	108	0	46	0	1160
2022	173	12,952	63,122	10,192	586	60	472	106	1809
2023	168	23,419	9787	20,612	556	223	452	110	1789
2024	186	12,362	12,304	6805	352	92	506	87	2331

## Types of Outreach Events

Year	Presenta-tion	Night Observing	Day Ob-serving	Youth Group	School Talks	Exhibi-tion	Observ./ Planet’m
2015	22	33	23	7	15	13	1
2016	31	55	39	19	54	11	10
2017	61	89	22	19	50	6	1
2018	50	80	13	18	20	5	1
2019	73	94	10	22	36	5	0
2020	86	43	5	8	29	0	0
2021	65	48	6	1	11	0	0
2022	72	52	6	4	34	4	0
2023	60	13	8	14	69	4	0
2024	101	23	8	15	33	6	0

## Reporting Outreach Events

Public outreach events should be reported through the Centre spreadsheet to have Centre activities recognized. Also, reporting the use of Star Finders, Cherche-Etoiles, Moon Gazers' Guides, and Guides d'Observation Lunaire provides information that allows us to obtain more of these handouts for the cost of shipping only. If you have difficulty submitting a report you can send the required information to the Centre Outreach Coordinator who will make the submission for you.

To report an outreach event, access the New Brunswick Centre Event spreadsheet:

<https://docs.google.com/spreadsheets/d/1t0bx-pV5Bc2syfjp9ZPQepMvmtBF0NOR1vAak-1P-Js/edit?pli=1&qid=814432803#gid=814432803>

This Info page provides information on using the spreadsheet, which is reproduced here with further information. Next, use the arrow keys at the bottom right of the spreadsheet to access the year and month applicable to your event. The Column Headings are: Event Name, Event Date, Event Category, Event Attendee Type, Location, Total Participants, Did you advertise with RASC National?, Portion of Participants that are Youth, Event Co-Hosts (Optional), Volunteers, Total Volunteer Hours, RASC Resources Used, Additional Comments/Notes.

**Event Name:** Invent one, if necessary, making reference to the group, activity or location.

**Event Date:** Use the format yyyy-mm-dd. (Note that the Date Picker might not work,) If the event is for more than one day record it as a single event with multiple days, such as for star parties Enter the start and end dates. For regularly occurring events such as Centre meetings, please record them as individual events (one line for each instance).

**Event Category:** Click on the menu icon at the right edge of the cell and select the most appropriate category (speaker/presentation, centre meeting, star party/observing, school visit, booth event, youth group visit). Do not make one up. Clarification may be entered in the Additional Comments/Notes cell.

**Note 1:** For consistency with previous Centre reports of star parties, you can make a separate entry for presentations, solar observing and night observing. For solar observing, clarify that in the Comments cell.

**Note 2:** School visits apply only to events during regular school hours. Example: For an evening observing session at a school select star party/observation.

**Note 3:** If more than one event of the same type occurs, Example: three presentations during a school visit, note the number of events (3) in the Comments cell.

**Event Attendee Type:** This is intended to distinguish between inreach and outreach (the menu choices are member only, or open to public). For our purpose, you can ignore the menu and enter a specific group (school grade, youth group, seniors, etc. if you didn't include it in the Event Name).

**Location:** Examples: school, park, city, building or combination.

**Total Participants:** Enter the total number of people (public and Centre members) at the event, excluding those who are there as volunteers or organizers. If it is not possible to get an exact count, make a reasonable estimate. At times you can estimate by knowing how many Star Finders, for example, were distributed. If multiple activities of the same type are being reported, enter the total number of participants from all the activities, even if some participated in more than one activity. Example: For a weekend star party, enter the total number of people over both night sessions, even if they attended both nights.

**Did you advertise with RASC National?:** Normally we don't advertise through RASC National. If you did then click on the box. Otherwise, leave the cell blank

**Portion of Participants that are Youth:** Enter the number of people at the event, included in the Total Participants, who appeared to be under the age of 21.

**Event Co-Hosts (Optional):** Enter an organization that co-hosted the event and has financial interest through insurance or donations. Otherwise, leave it blank.

**Volunteers:** Enter the number of people, Centre members or not, assisting with or organizing the event.

**Total Volunteer Hours:** Record the total hours for all volunteers/organizers, including time for preparation, travel and performing the event.

**RASC Resources Used:** Record the total number of Star Finders, Cherches-Eoiles, Moon Gazers' Guides, and Guides d'Observation Lunaire that were distributed. If the exact number of each is not known, make a reasonable estimate. Include any other RASC National resources such as brochures, the Zoom account or registration systems. Use one cell for each event to record resources and the amount you used, separating each resource with a comma. Example: 5 – Star Finders Eng, 5 - Moon Gazer Eng, Mempub Zoom account.

**Additional Comments/Notes:** Give a brief description of the activities performed, the number of activities in the same category if more than one, etc. It is helpful to include your name in case the Centre Outreach Coordinator needs clarification on an entry.

The Centre Outreach Coordinator will use the information in the monthly event spreadsheet to update the continuing Centre database, which was started in 2012. This information is summarized in Centre reports, the annual Centre report to RASC National, and for reports concerning charitable status of RASC NB Inc.

At the end of each month, RASC National will download our outreach data for that month directly from the sheet. For that reason, please try to record the event as soon as possible.