



**40 YEARS!**

**1981-2021**

**RASC**  
**SUDBURY**  
**CENTRE**

*Up Above, The Heavens Await*



## **RASC SUDBURY CENTRE NEWSLETTER | Friday Dec 3rd, 2021**

[www.sudburyastronomyclub.com](http://www.sudburyastronomyclub.com)

Facebook: [www.facebook.com/groups/RASCsudbury/](https://www.facebook.com/groups/RASCsudbury/)

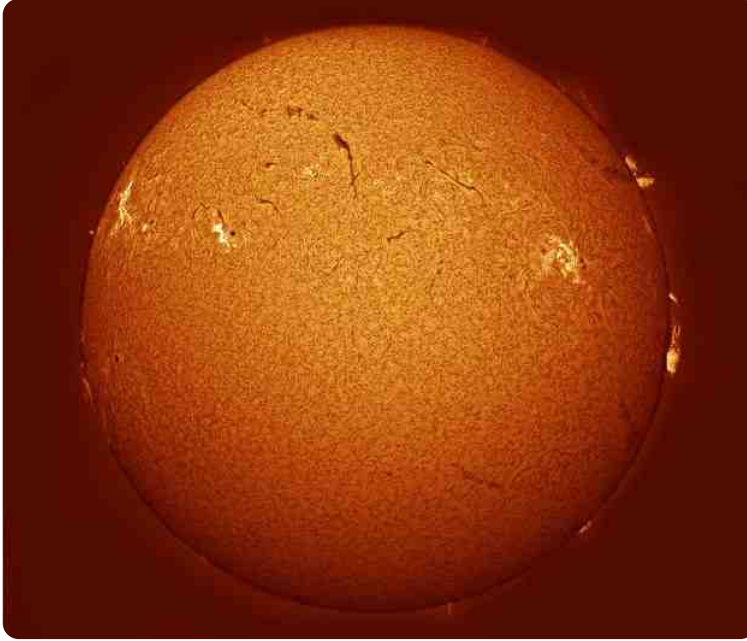


### **Meeting Agenda, 7:00PM**

1. Sudbury RASC President Address – Alan Ward
2. David's Astronomical Adventures - David Pianosi & Alan Ward (15 min)
3. Show & Tell (10 min)
4. Break (10 min)
5. Introduction to Solar Astronomy: H-Alpha, Part 3 of 3 - Brian Colville (45 min)
6. What's Up Doc?
7. Closing Comments/News/Open Forum/Starlight Lounge

## **This Evening's Presentations:**

**David Pianosi (Belleville Astronomy Club) & Brian Colville (South Simcoe Amateur Astronomers)**



**David Pianosi will join us from Belleville recounting his passion for astronomy chronicled from his childhood spanning over 50 years! Alan will add a Sudbury connection to David's story.**

**Also in tonight's program will be returning champ Brian Colville with part 3 of his talks on Solar Astronomy, this time**

**extolling on us the virtues of Hydrogen-Alpha filters and equipment.**

**-==Join us!==-**

**Friday Dec 3rd @ 7PM**

## Editor's Voice

Happy Holidays to everyone! We hope you all have a safe and Covid-Free holiday! There is no member profile this month, but it will return in January.

**Please Note:** Any submissions should be sent no later than two weeks before the meeting date.

- Patrick Dodson

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## Centre News

This Space reserved for news directly impacting the Sudbury Centre, whether it be membership renewal notices.

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### **The Club's EQ8 by Luc Comtois, Observatory Coordinator**

The club's EQ8 will be removed from the observatory for retro fitting. All the screws nuts and bolts that are rusting will all be replaced with stainless steel hardware and will remain in storage at my place for the winter. The executive is aware of this and all in favour.

**Note: You must be on the mailing list to receive the Zoom meeting invitation. The meeting links will not be posted in the newsletter. This is for security purposes. To request being on the mailing list, please contact us via our website.**

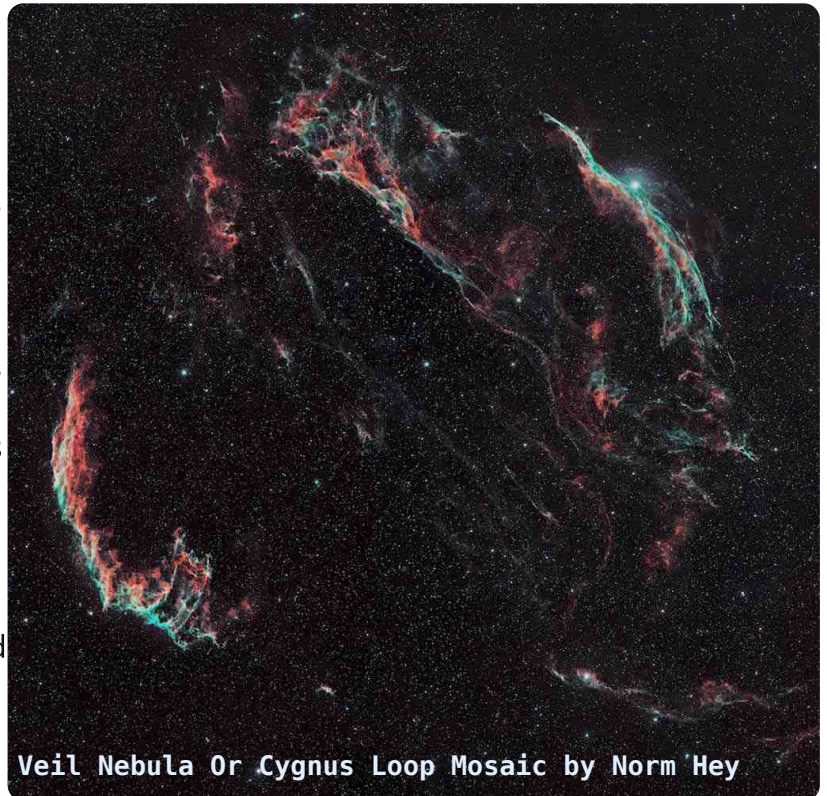
## Community Contributions

### The Cygnus Loop or Veil Nebula

by Norm Hey

One of the most dramatic sights in the night sky is the great nebula in Orion, number 42 in Charles Messier's famous catalogue. Easily visible in binoculars and even with the naked eye under dark skies, M42 is one of the closest birthplaces of stars in our galaxy to us.

Birth is a dramatic event in human lives and while there is clearly a dramatic result in a stellar birthing room, it takes a long time to unfold. Death can also be a dramatic event in human terms and in stellar evolution as well. Stellar death also takes a relatively long time to play out to its end. The dramatic and stupendous explosion of a supernova may take only a moment to trigger, but its effects play out for thousands and millions of years, as the ghostly remnants of old and new elements disperse through the galaxy, where they may ultimately recombine in yet another stellar birthplace to begin the cycle anew.



Veil Nebula Or Cygnus Loop Mosaic by Norm Hey

The Veil nebular complex, also known as the Cygnus Loop, is one such evolving ghost of a supernova that occurred an estimated 10 000 years ago, at about the same distance from us as the Orion nebula, about 1400 light years away. Unlike M42 however, the Veil Nebula is only visible from a dark sky site and only with optical aid which may or may not include special filters to accentuate the light from triply ionized oxygen atoms. This light glows a lovely teal colour at 500 nm or 5000 Angstroms, in the middle of the green and blue part of our visual spectrum. The other prominent light comes from ionized hydrogen, known as Hydrogen Alpha, radiating at approximately 656 nm, well into the red portion of the spectrum.

The Cygnus Loop is estimated to be approximately 100 light years in diameter and continues to expand. Its size and proximity to us means that it subtends an angle of approximately three degrees, or six times the width of the full Moon. To capture this image of nearly the entire loop with my equipment required a six panel mosaic. The acquisition of the images required took five separate sessions totaling many hours of exposures. However, the final image is only comprised of those images that were of adequate quality; the least exposed panel was just over 2 hours while the most useable data totaled just under 4 hours in another panel. The total processing time was probably almost equal to the time spent capturing the data! A shorter focal length instrument would make data acquisition much simpler and faster to achieve a similar result, but it certainly wouldn't offer the same challenges as creating this mosaic.

## November 19th Lunar Eclipse

By Linda Pulliah

There are a few very important factors to consider prior to an eclipse: The Earthly location of the path, or shadowed view, depending on whether it is a lunar or solar eclipse. The date, and time of day, including details of sun rise+set as well as moon rise and set. Your choice of location for viewing the event is very important. Consider your equipment, viewing with or without telescopes, and related photography. Lastly, any eclipse becomes an elevated experience when shared with others.

Shortly after the annular eclipse in June 2021, Graham and Anne from [timeanddate.com](http://timeanddate.com) connected with the North Bay Astronomy Club, Science North and RASC-Sudbury, in hopes of having us commit to providing a live stream of November's lunar eclipse. A few weeks before the event Alan Ward and Linda Pulliah walked about the grounds of Dynamic Earth looking for the best location to set up viewing and streaming equipment. November in Northern Ontario is well known to provide chilly, unpredictable weather, plenty of precipitation, and blustery winds; so we needed a spot somewhat sheltered from wind but with a clear view of the ecliptic for that night. Nestled below the Big Nickel observing platform is an alcove that may be better known as the beginning of the walk through the pumpkin inferno. The smooth cement meant safe walking in low light conditions, and the team would have access to the building for shelter, electrical and internet hook ups. We considered ourselves very fortunate knowing the North Bay team were setting up at the waterfront, using tarps, hot spots, generators and power packs.

The local team consisted of Norm Hey, Colin Desrochiers, Linda Pulliah, and from Science North Olathe MacIntyre and Paul Balez. Olathe proved to be the tech wizard this time around, as providing a live stream takes patience and proficiency with the programs required. Graham and Anne had offered ample support prior to the event as multiple teams needed to work together. In total 8 locations were involved from Hawaii, San Francisco, New York and Northern Ontario; the hosts being in Norway at time and date headquarters. Around midnight, Mother Nature offered a mix of wind, rain and snow, but the forecast for the rest of the night held promise for breaks in the clouds. Familiar with the term 'sucker holes'? As tripods, telescopes, camera and computers were being set up, the precipitation ceased and we were given the first glimpses of the stunning full moon. Wind continued to be a major factor throughout the night; clouds dominated the sky. Somehow Mother Nature had decided the eclipsing moon was worthy of attention, giving occasional breaks in the clouds; including a spectacular view of the dark brick red 97% eclipsed moon @ 0400hrs.

It was a long night, very windy night, temperature sticking around -2C. Colin arrived



Photo by Former Club President Robert Pothier

first, setting up his gear around 2300hrs...including a partial shelter with a patio heater (hooray!!). Once the three sources for the live stream were all in place, it became tricky walking with so many cables and cords on the ground. The last of the equipment was being packed into vehicles around 0600hrs. Despite the cold wind and overnight hours, it was a really fine experience. There were some frustrations with choppy internet connections and questionable success in the feed to timeanddate; but overall spirits were good, with moments of shared joy whenever we glimpsed the eclipsing moon. It was wonderful to witness views from the other teams, as well as hearing comments from Graham and Anne throughout the process. This was not a typical outreach event, involving a large public crowd, but better described as one with a small talented team who dedicated themselves to witnessing and sharing a rare event.



Another succesful Eclipse event, thanks to both the North Bay Astronomy Club and Sudbury RASC Centre, Science North/Dynamic Earth and TimeandDate.com!



From Left to Right - Colin Durocher, Linda Pulliah, Olathe MacIntyre, Paul Balez, Norm Hey - Photo by Paul Balez

## RASC Education, Public Outreach & Observing News

### 2021 Event Calendar

<a href="#">STAR-PARTY</a>	<a href="#">LOCATION</a>	<a href="#">DATES</a>	<a href="#">STATUS</a>
Frozen Banana Star-Party	Mew Lake	May 6-9	Cancelled
New Moon in June	Grundy Lake PP/ Burwash	June 10-13	Cancelled*
Gateway to the Universe	Chapman's Field	July 8-11	Go-Ahead**
August Star-Party	Chapman's Field	Aug 5-8	Go-Ahead**
Half the Night	Halfway Lake Provincial Park	Aug 26-29	Tentatively On If Provincial Parks Open
Last Chance	Chapman's Field	Sept 2-5	Go-Ahead**

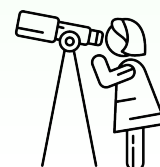
**\*Save the Date | \*\* Open to Astronomers Only, No Public Sessions**

### Updates

Regrettably, all star-parties are cancelled up til August due to COVID regulations, with a tentative Halfway Lake Starparty to happen, if the Provincial Parks are open by then. We ask you to Save the Date for New Moon in June, in the event that a small gathering happens at Burwash. Anyone wishing to participate in the Events at Chapman's Field **must** contact Bob & Lil Chapman ahead of time to insure that officially allowed numbers are not exceeded: **bobandlil14@gmail.com or 705-386-7087**

In other Star Party News, Science North would like to announce a series of Virtual Star-Parties. These Starparties will be held virtually on Facebook and Youtube, and will be held every Saturday until it is safe to meet in person. These are open to all members of the public.

Visit <https://www.sciencenorth.ca/planetarium#starparties> for more information.



## Outreach Update

by Linda Pulliah, Outreach Coordinator

### A Call for Volunteers!

"I am looking for local RASC members who would be willing to share in presentations/on line outreach work with the Sudbury Public Library. In time we hope, there will be regular events held at each of the libraries in the region, but for now we are restricting events to a virtual format. I have done a broad introduction to astronomy talk with them, which was very well received. My hope is to expand the presentation to include other members highlighting their scope of interest (no pun intended, really). These talks can be about 10 to 20 minutes. One session is currently planned for the evening of Tuesday Jan 11, 2022. The next one will likely be in March or April. If you are interested in joining these sessions, let me know." - Linda





## Looking Up: December 2021

By Stargazer Steve/Steve Dodson

### DECEMBER EVENING STARS OF THE EAST - Betelgeuse and Bellatrix

In December early evenings the "**Shoulders of Orion**" climb back into the Sky. Look **East** first thing after supper to welcome **Betelgeuse** and **Bellatrix** beginning their season of prominence.

By mid-evening **Rigel** will also clear the horizon to the right of **Orion's** first two luminaries. Notice the colour difference between orange-red **Betelgeuse**, and the dazzling blueish colour of **Rigel**.

Another reddish object is also starting its cycle of visibility, emerging from Morning Twilight - **The Planet Mars**, which has been hidden behind the glaring **Sun** for nearly 5 months. (It faded from the Evening Sky by the end of June 2021). The first excellent opportunity to welcome **Mars** back happens around **6:00 AM on Thursday Dec. 2**, when **Mars** will be close to the **Crescent Moon** in the **Southeast**.

The Second similar opportunity to see **Mars** comes on **early Friday Morning December 31 (New Year's Eve)**, when **Mars** again appears to the left of a **Crescent Moon** just before twilight brightens the **southeastern horizon**. The Star **Antares** completes an almost perfect equilateral triangle with the **Moon** and **Mars**. Binoculars will make the triangle more visible if twilight is too advanced.

In the early **evening of December 6**, the **Waxing Crescent Moon** hangs very close below the dazzling Planet **Venus**. Twenty-four hours later the **Crescent Moon** passes very close to **Saturn**, and on **Dec. 8** both Planets make a triangle with the **Moon**, **Jupiter** to the upper left, and **Saturn** to the right.

**Late Monday Night December 13** the **Geminid Meteors** peak, though the **Moon** interferes until **Moonset at 3:00 AM** early Tuesday Morning.



To see more, visit the club website or follow Steve on Twitter at **@StargazerSteveD** for daily updates.

## RASC Sudbury Centre Executive



**Alan Ward**  
President



**Ian Anttila**  
Vice-President



**Linda Pulliah**  
RASC Liaison/Outreach  
Coordinator



**Norm Hey**  
Secretary



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**Luc Comtois**  
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