May 10, 2024 Aurora

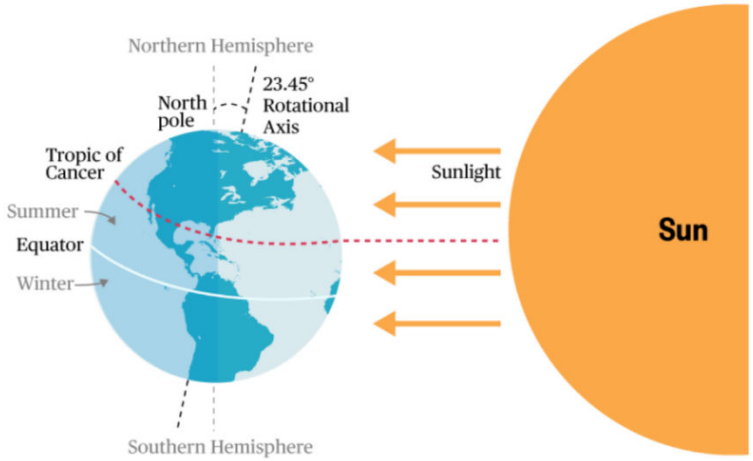
A once in 20-year apparition of the Sun at maximum as coronal mass ejections hit the Earth's atmosphere.

I have observed Aurora Borealis several times over the years, but my experience this evening is an absolute standout! We were treated to an aurora vortex doing a magical dance directly above us, with brilliant red, pink and magenta colours - something I've never seen in aurora before. I was so happy that I brought my fisheye lens, since this display covered the whole sky. We were in a dark urban setting fringing on rural here on Southern Vancouver Island, BC, Canada. *Joe Carr*

Sumer Is Icumen In – on June 20.

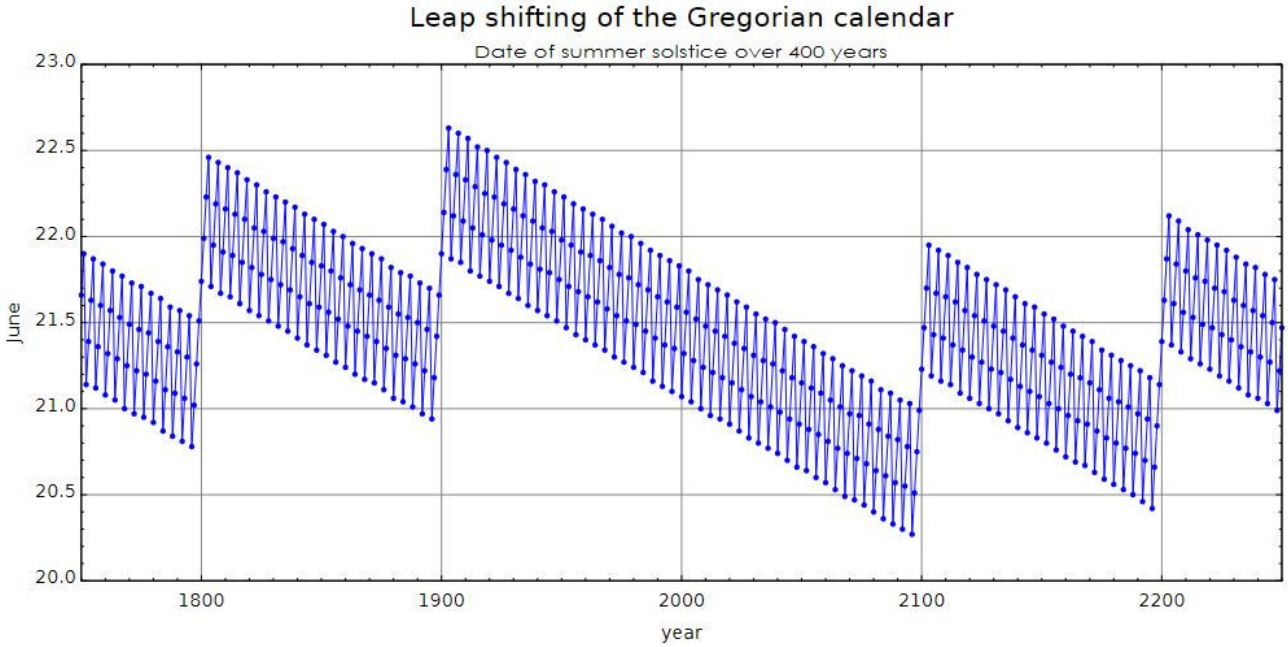
Normally, people will tell you that the first day of summer is June 21. But if you check on page 109 of your 2024 RASC Observer's Handbook, you will see that the Summer Solstice will happen on June 20 at 20:51 UT = 13:51 PDT. What's going on?

The definition of the summer solstice is the point in time that the line between the centre of the earth and the centre of the sun touches the Tropic of Cancer, that is its most northerly point.



That day, the time from sunrise to sunset is the longest of the year (in the northern hemisphere). It also is the day that the sun is highest at noon, meaning there is less atmosphere in the way to absorb the light before it hits the ground, leading to more of that glorious solar heating. Of course, there is also the downside that the night is the shortest of the year, leading to serious difficulties for stargazing.

The earth dependably travels around the sun in about 365¼ days. The Romans set up the Julian calendar that is the basis of our current calendar, with the feature that there is an extra day added every 4th year. If we didn't have that leap year, the date of the summer solstice would drift a day every 4 years. But even so, there is an extra 9 minutes per year that "extra day every four years" fails to capture. By the 16th century, the calendar had drifted such that the summer solstice had crept to July! 9 minutes x 1600 years = 14400 minutes = 10 days.



So in the year 1582, they skipped 10 days and made the new rule: "Every year that is exactly divisible by four is a leap year, except for years that are exactly divisible by 100, but these centurial years are leap years if they are exactly divisible by 400." The effect is that the solstices and equinoxes keep to approximately the same date

every year. Note however that by skipping the leap year in 1900, the summer solstice drifted a day such that it hovered between June 22 and June 21. The solstice is getting earlier and earlier as the decades pass. Since the year 2000 was leap year, we have continued moving earlier, 9 minutes a year, so that the summer solstice now takes place on June 21 or June 20. By the time we get to the end of this century, we'll hardly ever see summer start on June 21.

When our grandchildren are old, will people normally tell you that the first day of summer is June 20?

Randy Enkin

The Victoria Centre Observatory.

Reg Dunkley and David Lee

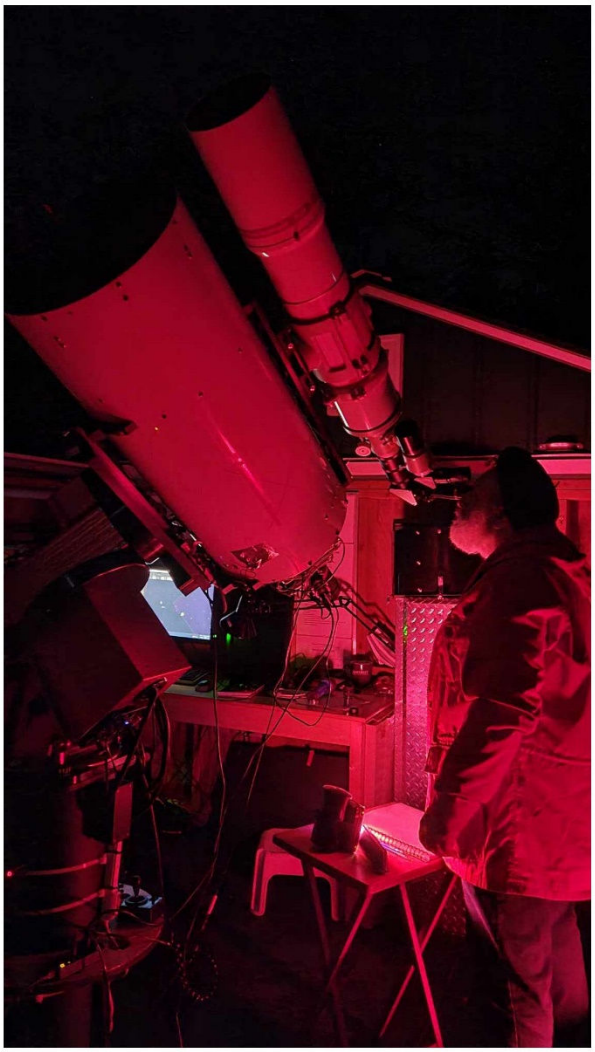
Many Victoria Centre RASCals do not have a usable backyard, the funds, or the technical capacity to set up their own observatory to explore the night sky. That is why the Victoria Centre Observatory (VCO) was established on Observatory Hill in 2008. The Victoria Centre is not alone. Every RASC Centre in Western Canada has their own dedicated site complete with a dome or roll-off roof and observing pad that promotes visual observing, astrophotography and fellowship with other RASCals. Access to such a facility is a substantial membership benefit.

NRC kindly licensed specific areas of Observatory Hill for use by the Victoria Centre for Amateur Astronomy. This license is renewed every five years and allows a limited number of Members in Charge (MIC) to access the site. When MIC's host a session they may invite members of the Victoria Centre who are on the Active Observers List to join them. NRC is informed of these observing sessions in advance via email.

A group of enthusiastic RASCals began construction of the VCO roll-off shed in 2007 under the supervision of Bruno Quenneville. Many building materials were donated by generous Victoria merchants. Victoria Centre President Joe Carr opened the VCO in 2008. Following the advice of Bill Almond, the Victoria Centre invested most of their limited resources in a robust Paramount ME mount. This mount was attached to a substantial “Elephant Foot” concrete base. The excavation to “shovel handle” depth was achieved by two burley men: John McDonald and Sid Sidhu.

The plan was to upgrade the “starter scopes” when more funds became available. Since the 14 Inch Meade SCT had “mirror flop” issues and 5 Inch Televue refractor exhibited optical distortion it was decided to upgrade the scopes and, in the fall of 2017, a 16 Inch TPO RC open truss reflector was purchased from Californian vendor OPT. This scope was installed and configured with great care by Matt Watson and Dan Posey. In the fall of 2017 images taken with this scope were excellent. By the winter of 2018, however, the scope drifted out of collimation and despite heroic efforts by Matt, Dan and Les Disher, the scope could not be adequately realigned.

Despite Covid restrictions, NRC kindly allowed a few RASCals access to the VCO in June 2020 to remove the scope and return it to OPT for repair. OPT could not repair the scope but because Matt Watson wisely ordered a lifetime warranty the Victoria Centre received a Store Credit from OPT.



In the summer of 2020, John McDonald and Reg Dunkley purchased, at an attractive price, a used research grade Optical Guidance Systems 12.5 Inch RC f/9 reflector. Garry Sedun kindly delivered the scope from Arizona. Fine focus can be automatically achieved by shifting the position of the secondary mirror by a motor. This scope was installed on the VCO Paramount in October 2020 and after optical testing it was deemed as an adequate replacement for the TPO 16 Inch. John and Reg donated this scope to the VCO in January 2021.

The optical tube of this OGS telescope is very robust and has a plate to attach an additional telescope. In January 2021 the Victoria Centre acquired a pristine Takahashi TOA 130S Refractor from long time RASCal Mike Krempotic at well below market value. It was attached to the OGS 12.5 inch in February 2021. The Takahashi Refractor can be converted from visual use to DSLR astrophotography in less than a minute. The Paramount can quickly slew to objects using the Sky X software on the connected IBM computer.

The OPT store credit was used to purchase a state-of-the-art QHY 600 M cooled monochrome camera and associated electronic filter wheel. Astronomik LRGB Deep Sky Filters and Hydrogen Alpha, Oxygen iii and Sulphur ii 6nm narrowband filters were also acquired. Because it is complicated to robustly attach this camera, the OGS reflector is not available for visual use.

In 2019, the estate of Jan Janes donated his beautiful 20-inch Dobsonian f/5 reflector and a set of high-quality eyepieces to the Victoria Centre. Argo Navis setting

circles were recently attached to this scope and allow one to quickly find and visually savour thousands of interesting objects. There is also a nice 12-inch Antares Dobsonian reflector for those who are not comfortable scaling ladders. The VCO also has a pair Zero Gravity Chairs that make binocular viewing a joy.

Installing gear on the 20" Obsession with John McDonald, Garry Sedun and Miles Waite: Joe Carr

The VCO is located in a tranquil setting away from the bright city lights. It has all the equipment to allow you to explore the universe either visually or through a camera. It is a great place to savour the night sky in the fellowship of other RASCals. To join us all you need to do is sign up for the active observers list and reply when an MIC invites you to an observing session at the VCO. We hope to see you there!

NOTE: Our Members-In-Charge (MICs) will be monitoring the weather for promising star-gazing evenings. When it looks good and at least one of the MICs is available, they will announce a VCO opening on the RASCVIC-HILLOBS email list. Contact membership coordinator Chris Purse (membership@victoria.rasc.ca) if you wish to be added to the active observers list to receive these emails.

Members at all levels are encouraged to take up the opportunity! You can bring up your own equipment, but there is lots to do with the gear we have up there. There are always friends to help you find interesting sights to view.

Narrowband image of M27 taken with new equipment at the VCO. David Lee and Reg Dunkley

Member Profile of the Month: Sherry Buttnor

On a Saturday night in the early 1970's, Sherry Buttnor lined up for and finally arrived at the ladder leading up to the big eyepiece of the Plaskett telescope. She remembers the fog falling off the liquid nitrogen tubes up to the big spectrograph mounted behind the mirror. And she remembers the view through the telescope – the Ring Nebula – filling the eyepiece. Sherry says she was hooked from that moment.

Her parents got her a 50-mm refractor from Sears, and she used it almost daily in the '70s and '80's. In 1983 she bought a 4-inch Schmidt-Cassegrain telescope, and then in 1984 she ground her own 8-inch mirror and built a Dobsonian telescope. She still uses it today – 40 years later!

Astronomy was Sherry's main hobby after high school, and several years later she decided that going to college for optical school would lead to a relevant career.

As a training optician, one day in 1987, Frank Younger from the Dominion Astrophysical Observatory came in to be fitted for glasses. Sherry told him she was an amateur astronomer, and Frank invited her to volunteer as a "DAO Skyguide" to help the Saturday-night public viewings up on Observatory Hill. They trained her to run the 16-inch telescope that currently sits in the dome next to the Centre of the Universe. Back in 1987, it was in a dome on the pad now occupied by our Victoria Centre Observatory. Sherry feels very possessive about that telescope and continues to be its main operator at public viewings.

One night in March 1989, Sherry was observing in Colwood with her 8-inch Dobsonian. Something crazy was happening; the whole field of view went red! It took her a while to figure out that this was a huge aurora display. Later, it became clear that the solar storm caused a major blackout across Quebec. That event started Sherry's fascination with aurora. She joined an internet chatboard, and she keeps current on solar activity. She generously posts bulletins of potential events on her facebook page. Here's what she posted this May 10, preparing me and many others for a wonderful night of observing:

> "UPDATE: GET READY, NORTH AMERICA.
> The current extreme geomagnetic/aurora storm has reached G5 levels, and conditions at this point look

very favourable for strong auroras over N.America, especially over eastern regions right after nightfall local time. Potentially, aurora could be strong enough to be visible in the southern US states. In southern Canada, auroras may be seen directly overhead and to the south.
THIS IS AN EXTREME EVENT, HAPPENING RIGHT NOW, and hopefully will continue for several more hours. GET OUT, FIND AS DARK, OPEN AREA AS POSSIBLE AS SOON AS IT IS DARK IN YOUR LOCATION.
Monitor my updates, Spaceweather.com, Spaceweather Canada, or your favourite app out under the sky.
THIS IS ONLY THE FIRST OF POTENTIALLY SIX CMEs, so there is much more to come.
Good luck and stay tuned!"

In the 1990's, Sherry became an observing buddy with Jack Newton. She still has Jack's original electronic camera, an ST4 CCD. Through Jack, Sherry found out about the RASC Victoria Centre, which she joined in 2008. She was the Outreach coordinator during the 2009 International Year of Astronomy, and was VP2 for several years. Sherry was President of our club from 2012-2014.

Thank-you, Sherry, for being such a great member of our community!

Randy Enkin

Sherry's homebuilt 8" f/6 reflector features a rotating and sliding tube so it was always in perfect balance and the eyepiece could be rotated to the most comfortable position. Wow!

Naked Eye Observing

Nathan Hellner-Mestelman

President's Message

The month of May opened with all of us still talking about the total solar eclipse on April 8, an event that we all assumed would go down as the singular celestial highlight of this year.

As the one-month anniversary of the eclipse arrived, we started to hear a lot of chatter about a sunspot group on our Sun that was so big it could be plainly seen with those eclipse glasses we had left over from April 8. Unusually, no magnification was required to see them.

That sunspot group was part of a series of solar storms that included solar flares and coronal mass ejections that were headed toward Earth. Events such as these are becoming more common as the Sun reaches the peak of its 11-year cycle next year.

On Friday May 10, the word was out that we could expect major auroral displays all around Canada and well into the United States. By then, photos began to appear of the sunspots and flares, including images by our own David Lee.

I've seen many alerts for auroral activities and have usually been disappointed for a variety of reasons, but at least on this day, the skies were clear. I took out my eclipse glasses and solar telescope that afternoon

and observed the great sunspot group, which by then was moving close to the limb of the Sun.

Once darkness had arrived late that evening, I went outside my home in Sidney. Even before I got to a nearby park, it was clear that there was an auroral display the likes of which I have never seen on the west coast, where I have spent most of my adult life.

I grew up in Edmonton and as a youngster I was the aurora coordinator for the Edmonton Centre. During that time we feasted on fairly regular and sometimes spectacular displays. Aside from occasional visits back to Alberta and a memorable trip to Yukon six years ago, I've rarely seen the Northern Lights since I moved to the coast.

The May 10-11 display was not the brightest display I've ever seen, but unlike every other display I've seen from the coast, it covered the entire sky and included corona patterns. Along with many other members of the Victoria centre and many local friends who aren't involved in our hobby, I got some good photos that night.

Auroral photos filled social media and traditional media in the days that followed. We heard that large numbers of Victorians crowded places such as Cattle Point and Island View Beach to enjoy the aurora.

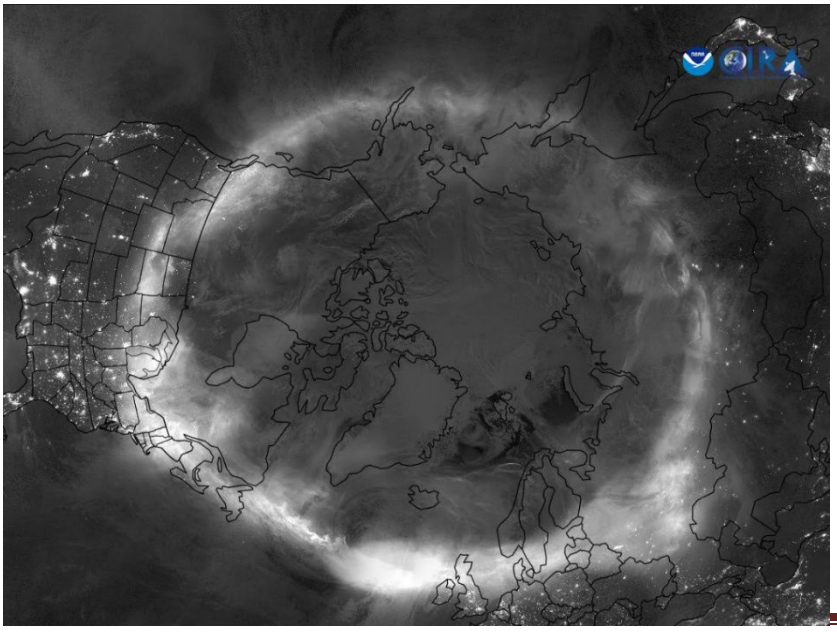
The display that night was not unprecedented for Victoria, however. David Lee reports having seen a similar display from here 20 years ago, probably in association with the Halloween solar storms of 2003.

In any case, 2024 is not even half over and we've already enjoyed two major celestial events that we will remember for years to come, both featuring our own Sun.

Barely a week after the aurorae lit up our skies, we in the Victoria Centre put on another highly successful International Astronomy Day at the Royal BC Museum and the Centre of the Universe at the Dominion Astrophysical Observatory.

Our volunteer team led by Randy Enkin worked with the RBCM, the Friends of the DAO, Science Venture and others to put on one of our best attended Astronomy Days ever. Even the weather defied unpromising forecasts to come through. Congratulations and thanks to everyone who helped on May 18!

Chris Gainor, President@Victoria.RASC.ca



Visible Infrared Imaging Radiometer Suite (VIIRS) image from 10 to 11 may 2024, Aurora Borealis under North Pole. VIIRS images are mosaics created from satellite photos. (NASA image).

June Astro-Events

June 1	Beaveree! 50th anniversary of Beaver Scouts in Canada. Camp Barnard in Sooke, 10:00-16:00 Saturday Star Party at the Centre of the Universe, 19:30 PDT
June 4	RASC Victoria Centre Council Meeting, 19:30 PDT
June 5	John C. Adams, who predicted the existence of Neptune, born 1819
June 6	New Moon, 05:37 PDT
June 8	Giovanni Domenico Cassini, famous for studies of Saturn's rings, born 1625
June 10	Eugene Parker, solar astronomer, born 1927
June 13	First Quarter Moon, 22:18 PDT
June 15	Saturday Star Party at the Centre of the Universe, 19:30 PDT
June 19	Erastosthenes measured Earth's size, 240 BCE
June 20	Summer Solstice, 13:51 PDT
June 21	Full Moon, 18:07 PDT
June 22	Royal Greenwich Observatory founded, 1675
June 24	Carolyn Shoemaker, asteroid hunter, born 1929
June 26	Charles Messier, comet hunter, born 1730
June 27	Saturn 0.1°S of Moon (occultation in Australia and New Zealand)
June 28	Last Quarter Moon, 14:53 PDT
June 30	Jean Dominique Cassini, 4th generation of French astronomers, born 1748 Meteor flattens a large area in Tunguska, Siberia, 1908

Important Upcoming Events

All Saturdays, July and August	Saturday Star Party at the Centre of the Universe, 19:30 PDT
Fri. Aug. 9 to Sun. Aug. 11	Vancouver Island Star Party St. Stephen's Church, Saanichton
Sat.Aug.31 to Mon. Sep. 2	Saanich Fair

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