

SKYNEWS



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NEXT MEETING

Wednesday Mar 9th 2016
At 7:30 PM
Room A104
Bob Wright Centre
University of Victoria
3800 Finnerty Road

www.victoria.rasc.ca

On the Cover

Evening at the UVic Telescope

by *John McDonald*

On Friday, December 11th 2015 clear skies prevailed and ten Victoria RASCals gathered under the dome of UVic's superb 32 Inch Cassegrain reflecting telescope. The great light gathering power of the scope made the open clusters sparkle like the Crown Jewels. About 10 open clusters were viewed. Thanks to UVic for allowing the Victoria Centre to use their scope and also thanks go to Sherry Buttnor, John, McDonald, and Chris Purse for arranging the program, operating the scope and hosting the evening. The next UVic observing session is scheduled for February 12th at 7:30PM. All members are welcome.

Presidents Report

by *Sherry Buttnor*

Writer's block! Gosh...I've been wracking my (admittedly tiny) brain for days, trying to come up with a positive message. I was hoping to report that we had good crowds at Cattle Point, a great turnout at the UVic observatory, great times at the VCO, that Comet Catalina looked amazing...but I only recall all the crummy weather and cancelled observing sessions lately. I can't remember such a dismal period as this last few weeks. Even my cats have their paws crossed for better weather; they know mommy's getting grumpy!

Still lots to look forward to, though! Have a look:

Hobby Show: Feb 6, 7, 8 at Westshore Town Centre mall.

Monthly meeting: Feb 10

UVic observing: Feb 12. We will be visiting Orion and the area.

And longer term: **International Astronomy Day (May 14th)** is also confirmed as the start of our Summer Saturdays at the Dominion Astrophysical Observatory. Still lots of details to work out, but the dates this year are:

May 14, 21, 28. June 4, 11. July 2, 9, 16, 23, 30. August 6, 13, 20.

I know I can count on our faithful volunteers to bring telescopes for parking lot duty, but we also need:

- two or three people to train in, and operate the indoor planetarium (it's fun!)

- one or two people to train on, and operate the Plaskett telescope as a backup to Dave Balam.

- two or three people to give talks in the Plaskett dome.

Please contact me asap if you're interested in any of these cool opportunities!

In other news: I've started an email list for the total solar eclipse in August 2017. At January's meeting and at Astro Cafe, an interest sheet was passed around, and enough interest was shown to make it feasible to put together some sort of expedition to central Oregon for Victoria Centre members. If you missed the interest sheet but want to join in, please email me at: popokinui@shaw.ca

See page 4 for more eclipse information.

I may make a Facebook group for this purpose as well, so stay tuned.

For our February monthly meeting on the 10th, we are excited to have Sebastien Lavoie as our guest speaker:

How to Build a Universe

Don't miss it!

Clear (hopefully) skies!

Sherry.

February Meeting Speaker

Sebastien Lavoie: *How to Build a Universe.*

Our representation of the Universe has evolved throughout the ages. From the first men to Ptolemy, we have always tried to understand the skies. Modern astronomers have access to tools that their ancestors did not even dream of. This led to multiple big and small revolutions in our understanding of the Universe in the last centuries. We retrace some of these moments that shaped our knowledge of the Universe.

Bio: Sebastien Lavoie is a second year PhD student at the University of Victoria. Prior to that he obtained his MSc in Quebec City. He studies the evolution of massive galaxies in clusters.

Scheduled Speakers 2016

Mar 8: James DiFrancesco, *The Secret Sits: What's in Our Galactic Centre?*

Apr 13: Dr. Helen Kirk, *Watching the birth of stars with the James Clerk Maxwell Telescope and Herschel Space Observatory.*



ASTRONOMY CAFE



Our weekly **Astronomy Cafe** is an excellent, informal, way to meet us. New comers are especially encouraged. Bring your coffee mug and join the chat! <http://victoria.rasc.ca/events/astro-cafe/>

Fairfield Community Centre

1330 Fairfield Rd. Victoria.

7:30pm - 10pm

Contact: Chris Purse for further details
vp2@victoria.rasc.ca



Email Lists

Observer / CU Volunteers / Members

Contact Chris Purse to subscribe
vp2@victoria.rasc.ca



New Observers Group

Hosted by Sid Sidhu - 1642 Davies Road, Highlands. Call 250.391-0540 for information and directions.



Cattle Point observing in Victoria's own Urban Dark Sky Park:

<http://victoria.rasc.ca/events/rascals-cattle-point/>

March 4th at 7:00 pm



Victoria Centre Observatory: Every Saturday Evening

Open to those on **the Active Observers list only**

Weather permitting. Use extreme caution while driving on Observatory Hill. We're now into the season of black ice and slippery conditions, so take care.

Membership Report - February 2016

Total membership is currently **217**. There are 13 members in the grace period which means their membership has expired in the past 2 months. Please contact Chris Purse (membership@victoria.rasc.ca) if you would like to check the status of your membership.

A Total Solar Eclipse Near You is Coming Soon!

Eclipse enthusiasts travel all over the globe to witness the fleeting moments of a total eclipse of the Sun. Has this bazaar behaviour puzzled you? In just 18 months you will have a chance to find out the source of this fascination first hand. On August 21, 2017 a total Solar eclipse will be visible from Oregon. On a global scale this is almost next door. A group of Victoria RASCals are in the initial stages of planning an eclipse trip to Oregon. Joe Carr has assembled some valuable information on this eclipse including details about the location, weather and observing tips. Also included are links to several key websites. Click here to learn more: <http://victoria.rasc.ca/solar-eclipse-2017/>

National Representative's Report

by *Lauri Roche*

I wanted to update our Victoria Centre's members of various activities and information that is available from the National RASC.

Membership: A very good overview of all of the benefits of being an RASC member is at http://rasc.ca/system/files/NewMemberKit%202015-16_JSE.pdf It outlines all the publications you receive, the member bonuses for car rentals, hotels and insurance coverage, and information about Awards, Observer's Programs and Committees.

RASC Tours: After a successful trip to astronomy and space exploration sites in southern California last November, the RASC is planning a five-day trip to Arizona from September 27th to October 2nd, 2016 to visit the following amazing astronomy sites: Kitt Peak National Observatory, Mount Lemmon SkyCenter, Lowell Observatory, Arizona Meteor Crater, with sightseeing in Sedona and Canyon de Chelly. If you are interested and want more information please contact Executive Director Randy Attwood at the National Office (416-924-7973) or execdir@rasc.ca

2017 Eclipse Bulletin: A new guide to the 2017 Total Solar Eclipse is available through our eStore. Written by Fred Espenak and Winnipeg Centre member Jay Anderson, this is an

excellent preview to this special event. On Monday, August 21 2017, a total eclipse of the Sun will be visible from the contiguous United States for the first time since 1979. The track of the Moon's umbral shadow begins in the Pacific Ocean and crosses from west to east through Oregon and Idaho all the way through to South Carolina. ***The Eclipse Bulletin*** is the ultimate guide to this highly anticipated event. Pricing: \$34.99 + shipping and taxes https://secure.rasc.ca/rasc/RASC/Store/Store_CURRPUB.aspx?Category=CURRPUB

Save the Date for AstroCATS and the 2016 RASC General Assembly!

Canada's astronomy event of the year is coming to beautiful London, Ontario, from May 19-23, 2016, the Victoria Day weekend. Plan now to take in this outstanding event which brings together *AstroCATS* (the Canadian Astronomy Telescope Show) and the *2016 General Assembly* of the Royal Astronomical Society of Canada under one roof at Fanshawe College. Highlights include a visit to the Hume Cronyn Memorial Observatory, a barbecue at the Fingal Observing Site, the Helen Hogg Memorial Lecture and the gala banquet on Sunday evening. I think there might be an east vs west golf game in there somewhere as well.

Please contact me if you have any questions about the RASC National Society.
nationalrep@victoria.rasc.ca

The VCO Astro Planner

By *Reg Dunkley*

The Victoria Centre Observatory Astro Planner for February and March are located on page 7. The main purpose of these charts is to find at a glance ***Moon Free Periods***. It amalgamates the times of Astronomical Twilight, Moon Rise and Moon Set and is valid for the location of the VCO. The **time in PST** is located on the left axis. Please note that although the time zone actually changes to PDT on Sunday March 13th, 2016 the **March chart remains on PST** to avoid a graphical train wreck. The right axis relates the percentage of Moon that is illuminated for each day and it corresponds to the black sine wave curve on the chart.

What's Up In the Solar System

by Reg Dunkley

With so many space agencies now launching solar system probes it is a challenge to keep track of missions. This is particularly the case when the lag between launch time and arrival date is very long. Fortunately **Olaf Frohn** of the **Planetary Society** has developed an excellent graphical utility that shows the position and trajectory of active solar system probes on one page. A list of upcoming events is listed at the bottom of this graphic.

This graphic is updated every month and can be found at:

<http://www.planetary.org/multimedia/space-images/charts/whats-up-in-the-solar-system-frohn.html>

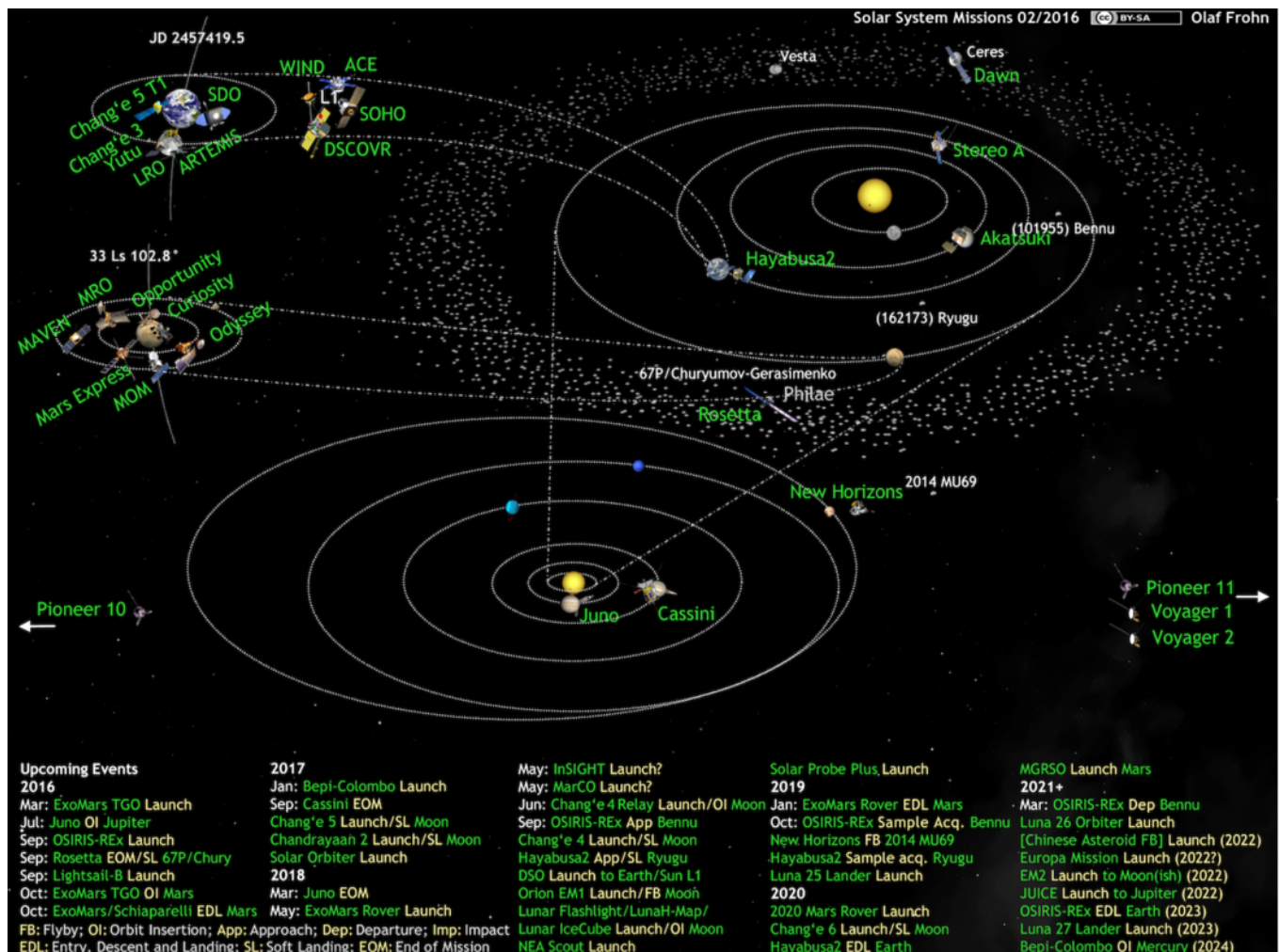
Previous charts for every month going back to 2010 are available on the above web page.

For a list of previous solar system probes try the following link:

https://en.wikipedia.org/wiki/List_of_Solar_System_probes

For a list of active solar system probes try this link:

https://en.wikipedia.org/wiki/List_of_active_Solar_System_probes



Beyond Pluto

by Reg Dunkley

When the New Horizons Spacecraft whizzed by Pluto last July, I had mixed feelings. On one hand I was very grateful to live through an exciting era when planetary probes reached every major body in the Solar System for the first time. Upon each arrival, our knowledge of the planet was profoundly improved in an instant. And Pluto continues to amaze us as high resolution imagery trickles in from afar.

On the other hand there was the feeling that this was the end of the line. We had exhausted our supply of planets and reached a void. Next stop, Alpha Centauri! This empty back yard of the Solar System, however, is turning out to be a more interesting place than anticipated.

There is a zone of minor planets extending beyond Pluto called the Kuiper Belt. This region did not capture my imagination until I learned that New Horizons had altered course for a rendezvous with **2014 MU69**. This faint Kuiper Belt object has an apparent magnitude of 26 and a diameter of less than 45 km. It was detected by the Hubble Space Telescope while conducting a dedicated search for a additional New Horizons targets. The **flyby** will occur over 43 astronomical units from the Sun on **January 1st 2019**. It sounds like a good time to book Pluto's restaurant for another RASCal party!

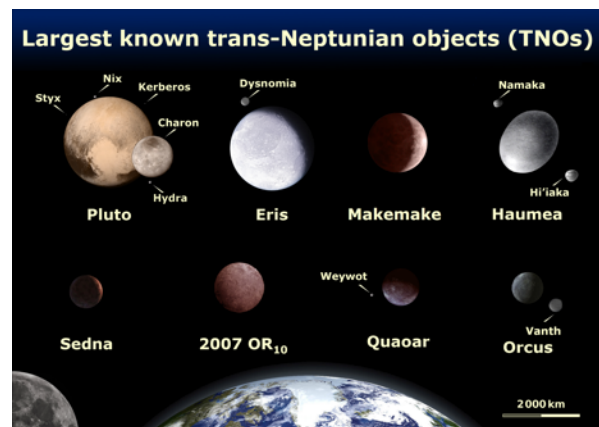
Clyde Tombaugh discovered Pluto in 1930. 62 years elapsed before a more distant Solar System object (1992 QB1) was found. Since then advances in digital imagery analysis greatly facilitated the discovery of these very faint objects. There are now over 1700 known objects with a semi major axis greater than Neptune's. These minor planets are referred to as **Trans Neptunian Objects** or TNO's.

Many TNO's are in orbital resonance with Neptune. For instance in the time it takes Neptune to orbit the Sun three times, Pluto and a number of other bodies orbit the Sun twice. This group are referred to as Plutinos and illustrate that Pluto lacked the gravitational heft to clear it's neighbourhood of bodies. For this reason, **Pluto** was downgraded to a **dwarf planet** in 2006 by the IAU.

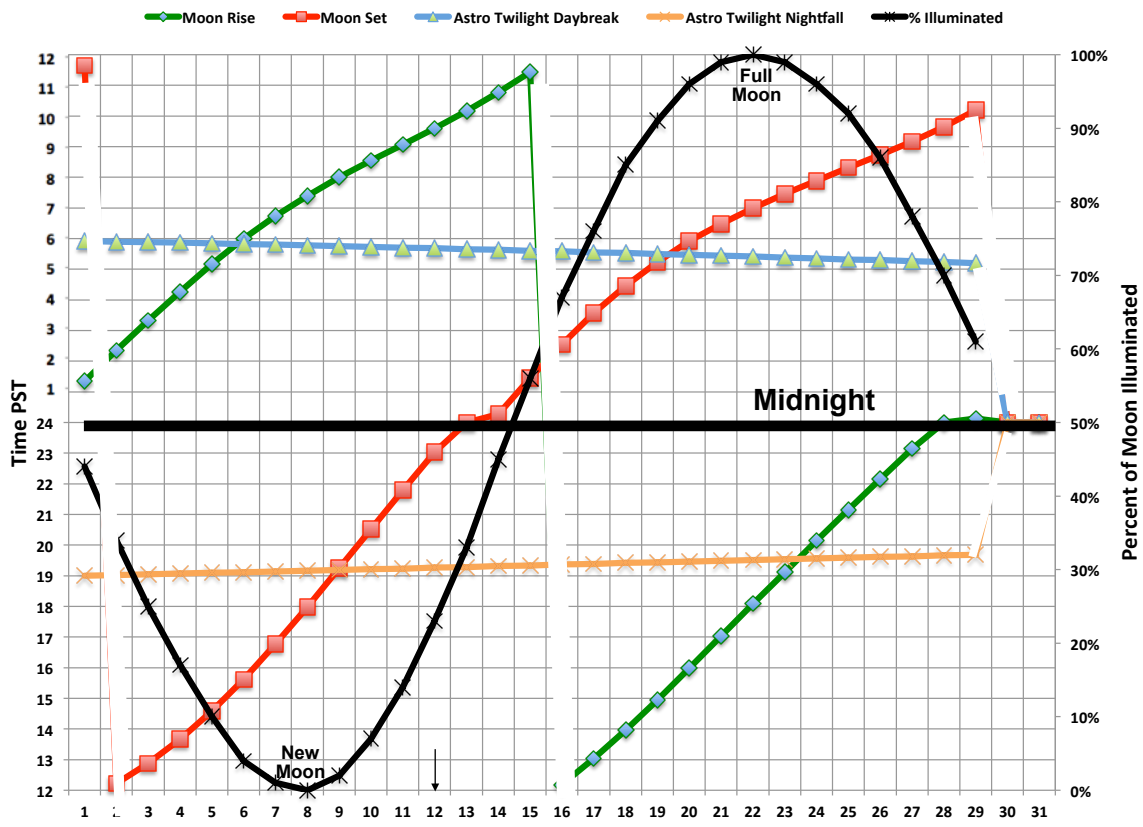
Of particular interest are 12 known **Extreme TNO's** whose semi major axis exceeds 150 AU. At their closest approach to the Sun (perihelion) they lie beyond the orbit and gravitational influence of Neptune (30 AU). The orbital planes of six of these ETNO's are very similar in orientation. The direction of their semi major axes (argument of perihelion) are also in close agreement. In a [paper](#) published last month Konstantin Batygin and Michael E. Brown estimated the joint probability that this agreement occurred randomly was 0.007%.

So what caused this extraordinary agreement? Batygin and Brown propose that a distant planet, ranging somewhere between the size of Earth and Neptune was able to "shepherd" these objects by gravitationally sculpting their orbits over time. To test this theory they conducted numerous orbital modelling experiments. They added to their Solar System model a distant planet with 10 times the mass of the Earth, a semi-major axis of 700 AU, an eccentricity of 0.6 and an inclination of 30 degrees. They also distributed an additional 400 TNO's to the model and computed the orbital positions for 4 billion years. Many of the TNO's were ejected by gravitational interaction but a stable configuration evolved where the perihelion of some of the TNO's was on the opposite side of the Sun from the perihelion of the shepherding giant planet.

These results suggest that a **Giant Planet Nine** may lurk in the outer fringes of the Solar System. This possibility together with all the recently detected TNO's illustrate that we are not at the end of the line after all. There are plenty of fresh targets in the Solar System.

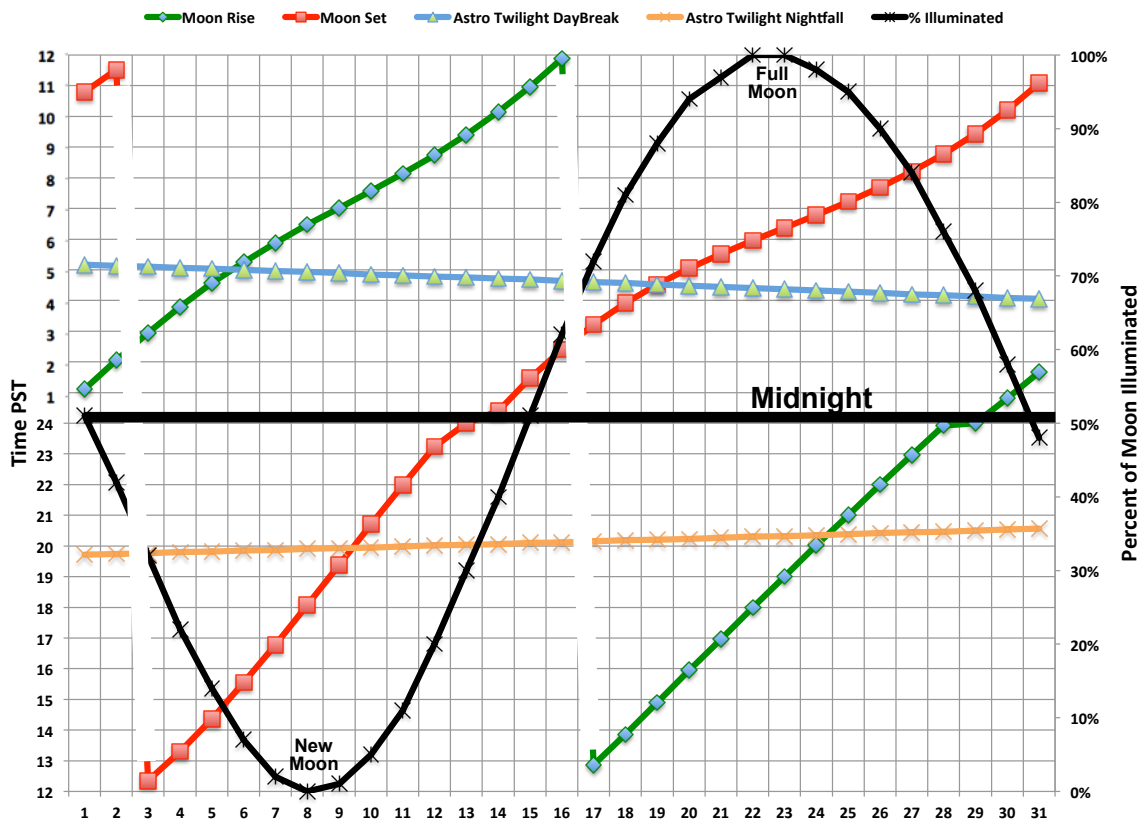


Victoria Centre Observatory Astro Planner - February 2016



NOTE: The Zone Immediately ABOVE The RED Curve is MOON FREE

Victoria Centre Observatory Astro Planner - March 2016



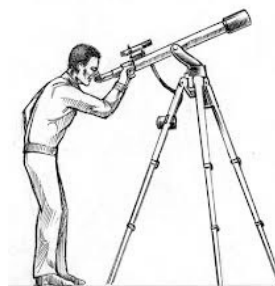
RASC Victoria Centre Council 2015 / 2016

POSITION	NAME	E-Mail
Past President:	Nelson Walker	pastpres@victoria.rasc.ca
President	Sherry Buttnor	president@victoria.rasc.ca
First Vice President	Michel Michaud	vp@victoria.rasc.ca
Second Vice President	Chris Purse	vp2@victoria.rasc.ca
Treasurer	Bruce Lane	treasurer@victoria.rasc.ca
Secretary	Leslie Welsh	secretary@victoria.rasc.ca
Librarian	Michel Michaud	librarian@victoria.rasc.ca
Technical Comm Chair / E-Mail	Matt Watson	admin@victoria.rasc.ca
Skynews Editor	Reg Dunkley	editor@victoria.rasc.ca
Media Relations		media@victoria.rasc.ca
Telescopes / School programs	Sid Sidhu	telescopes@victoria.rasc.ca
National Representative	Lauri Roche	nationalrep@victoria.rasc.ca
Light Pollution Abatement	Dave Robinson	lighting@victoria.rasc.ca
Membership Coordinator	Chris Purse	membership@victoria.rasc.ca
Observing Chairperson	Michel Michaud / Jim Stillburn	obschair@victoria.rasc.ca
Website Content	Joe Carr	web@victoria.rasc.ca
NRC Liaison	Dr. James Hesser	james.Hesser@nrc-cnrc.gc.ca
NRC Liaison	James di Francesco	
UVic Liaison	Alex Schmid	
Member at Large	David Lee	

Online Resources

Magazines

[SkyNews](#) Our National RASC Newsletter
[Sky & Telescope](#) Magazine
[Astronomy](#) Magazine
[Astronomy Now](#) Astronomy in the UK
[Amateur Astronomy](#) Magazine
[Astrophotography](#) Magazine



Borrowing Telescopes

The centre has telescopes for new and seasoned observers that members can use. Contact Sid Sidhu from the email list above.