

# SKYNEWS



## IN THIS ISSUE

Presidents Report  
Stellar Distance Atlas  
In the Arms of the Milky Way  
Nudge Nudge: Give Lists a Try  
In Memorium  
Upcoming Speakers

## M81 Bode's Galaxy by Dan Posey

## NEXT MEETING

**Next Monthly Meeting**  
Wednesday December 12th  
7:30 PM in Room 116  
Engineering and Computer  
Science Building

[www.victoria.rasc.ca](http://www.victoria.rasc.ca)

## President's Report

by Chris Purse



As my term as centre president draws to a close, I thought I would look back at some of the noteworthy events from the past 2 years.

- Centre member Brenda Stuart provided the illustrations for the new edition of the RASC publication *Explore the Universe Guide*.
- We had longer seasons of the Summer Star Parties at the DAO in both 2017 and 2018. These started with Astronomy Day at the Royal BC Museum. The star parties continued to be well attended.
- Centre member Terry Ryals volunteered his carpentry skills to build a security cabinet so we could install our new monitor in the portable where we hold Astro Café.
- Victoria High School proposed and launched an Astronomy 11 course.
- In partnership with Parks Canada, observing evenings were held at Fort Rodd Hill and Gulf Islands National Park.
- Members who had remained in Victoria hosted public eclipse viewing for the solar eclipse on August 21, 2017. Many members travelled to the US to see the total eclipse.
- The centre purchased a new telescope for the VCO and sold the surplus equipment.
- In 2018, RASC celebrated its sesquicentennial with a number of special events, a commemorative Royal Canadian Mint coin, and a pair of commemorative stamps issued by Canada Post.
- Centre members Lauri Roche and Jim Hesser organized and coordinated a national contest in honour of the sesquicentennial called *Imagining the Skies*.
- The centenary of the Plaskett Telescope was celebrated on May 3, 2018 with the National Historic Site plaque unveiled.
- RASC members were invited to attend sessions at the Canadian Astronomical Society annual meeting held in Victoria during May 2018.

- Centre member Chris Gainor was elected National President at the 2018 General Assembly.
- Centre members David Lee, John McDonald, and Jim Hesser assisted with a second concert of the music of William Herschel. The event in November 2018 was supported by a grant from the RASC special projects fund.
- David Lee and Dan Posey offered a workshop on PixInsight to a group of astrophotography enthusiasts.
- Astro Café continues to be well attended and our monitor is well used.
- Centre members continue to volunteer countless hours for the schools program, Vancouver Island Regional Science Fair, and other outreach events.

I have enjoyed my term as president. It has been my honour to serve the centre and I thank all our members for their contributions. It has been a great experience to work with such an enthusiastic group of people and I look forward to my next role as past president.

A reminder that this month's meeting is our Annual General Meeting that will take place on Saturday, November 17 at the Cedar Hill Golf Club with doors opening at 6 p.m. The evening starts with a dinner so if you have not booked a seat please do so by Sunday, November 11. The meal costs \$40 and is a buffet with a pre-selected entrée. The entrée choices are chicken, salmon, steak, or vegetarian ravioli. If you wish to attend, send me your entrée selection at [president@victoria.rasc.ca](mailto:president@victoria.rasc.ca). Please see the website for more information. If you cannot attend the dinner, the speaker and meeting portion are open to everyone at no charge.

Due to exams at the University, our monthly meeting on **Wednesday, December 12 will be held in the Engineering and Computer Science building room 116**. This is near the room where the June 2018 meeting was held.

A final note and a concern. Our centre is not alone in having issues finding members willing to put their names forward for the leadership positions. We rely on a group of members to coordinate activities, make decisions, and keep the centre running in accordance with the relevant regulations. Despite a membership over 270, nominations have not been forthcoming for the incoming centre executive and this is a major problem. The centre cannot run without the council members. If we do not have leaders the centre is not viable and we really must question if we can continue to exist. That would be a sad occurrence after a history of 104 years. So, this is a final appeal before the AGM. We do need some more nominees for people to lead the centre.

## AGM Meeting Presentation: *Formation of Planets around Stars: What We Know and What We Still Need to Learn* by Dr. Doug Johnstone

**Saturday November 17th, 2018 ~ 7:30 PM  
After AGM Banquet at Cedar Hill Golf Course, 1400 Derby Road**

Over the last few decades we have uncovered a great deal about the formation of stars. We have also undertaken an extensive census of planets and planetary systems around other stars. We are confident that the typical young star begins life surrounded by a gaseous yet dusty orbiting disk of material and that this circumstellar disk is the birth site of planetary systems. Nevertheless, it is still almost impossible to witness the formation of planets and instead we must settle for indirect circumstantial evidence of the planet formation process when comparing observations against theoretical ideals and numerical simulations. For this reason, astronomers have been developing ever more powerful telescopes and instruments to peer deeply into the cloudy environs of star formation and uncover planets in formation. I will discuss some recent observations that suggest planets may form during the earliest stages of star formation. I will also describe planned and anticipated (space) telescopes that will provide new ways of searching for planets in formation.

**Dr. Doug Johnstone** is an astronomer at the National Research Council's Herzberg Astronomy and Astrophysics Research Centre in Victoria, BC. From 2012-2014 Doug was the Associate Director of the James Clerk Maxwell Telescope, a 15-m telescope on Mauna Kea devoted to observations of the sky at sub-millimeter wavelengths. Doug's main research interests follow the formation of stars and planetary systems. He began his professional life as a theorist at the University of California, Berkeley, working on the evolution of circumstellar disks around young stars, back before extra-solar planet detections were common. He has spent time at the Canadian Institute for Theoretical Astrophysics, the University of Toronto, and the National Research Council of Canada. Today, Dr. Johnstone's research focuses on the formation and evolution of structure in molecular clouds, attempting to disentangle the physical processes through which a molecular cloud sheds into individual stars and planetary systems.



### ASTRONOMY CAFE



Our weekly **Astronomy Cafe** is an excellent, informal, way to meet us. New comers are especially encouraged. Click the link for location: <http://victoria.rasc.ca/events/astro-cafe/>  
Fairfield Community Centre - 1330  
Fairfield Rd. Victoria.  
**Every Monday at 7:30pm.**

Contact Reg for further details:  
[vp@victoria.rasc.ca](mailto:vp@victoria.rasc.ca)



### Email Lists

#### Observer / CU Volunteers / Members

Contact Chris Purse to subscribe  
[membership@victoria.rasc.ca](mailto:membership@victoria.rasc.ca)



### New Observers Group

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

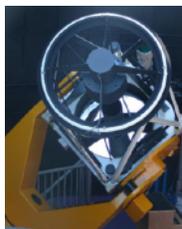


### Cattle Point observing in Victoria's own Urban Dark Sky Park.

Click the link for the date and time of the next scheduled session  
<http://victoria.rasc.ca/events/rascals-cattle-point/>



**Victoria Centre Observatory:  
Saturday Evenings**  
Open to those on the **Active Observers list only**  
Weather permitting.



**UVic 32 Inch Telescope**  
RASC Victoria Centre Sessions will resume in **November**.

### Membership Report October 2018

Total membership is currently **274**. There are 17 members in the grace period which means their membership has expired in the past 2 months. Please contact Chris Purse ([membership@victoria.rasc.ca](mailto:membership@victoria.rasc.ca)) if you would like to check the status of your membership.

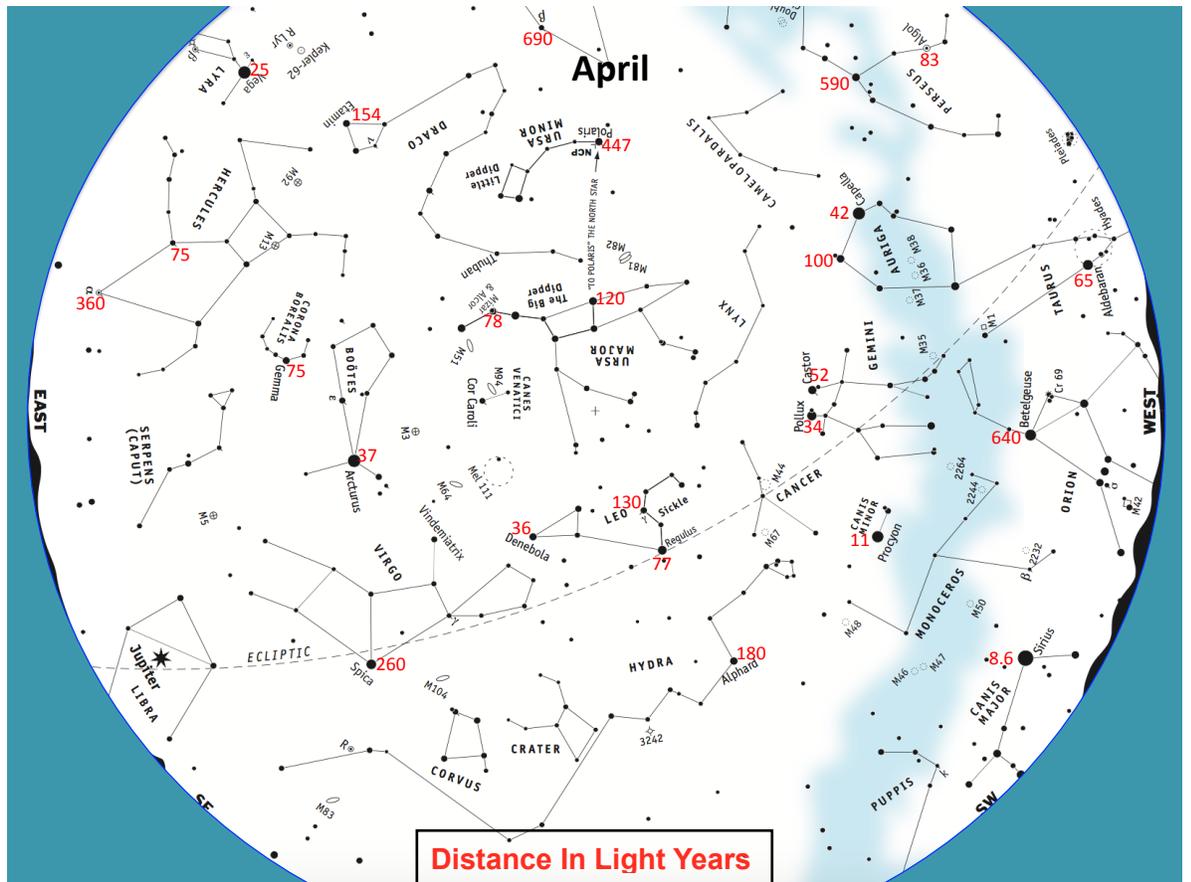
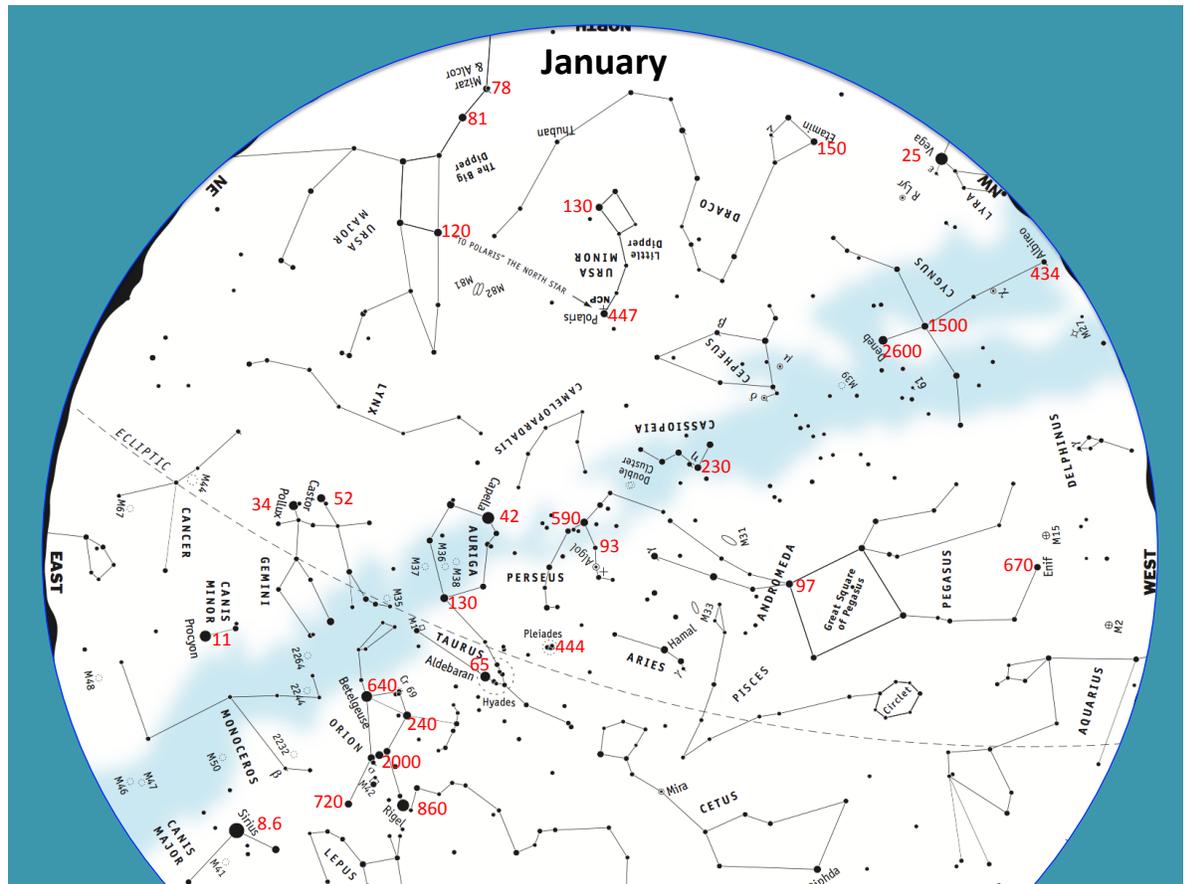
# A Stellar Distance Atlas

By Reg Dunkley

You could argue that constellations served as the original Netflix. They have conditioned generations to clump stars together into dramatic roles.

When one considers the distance to the stars however, different options for grouping our stellar neighbours emerge. Rather than thinking of the night sky as a celestial sphere it may be more appropriate to imagine it as a *celestial onion*.

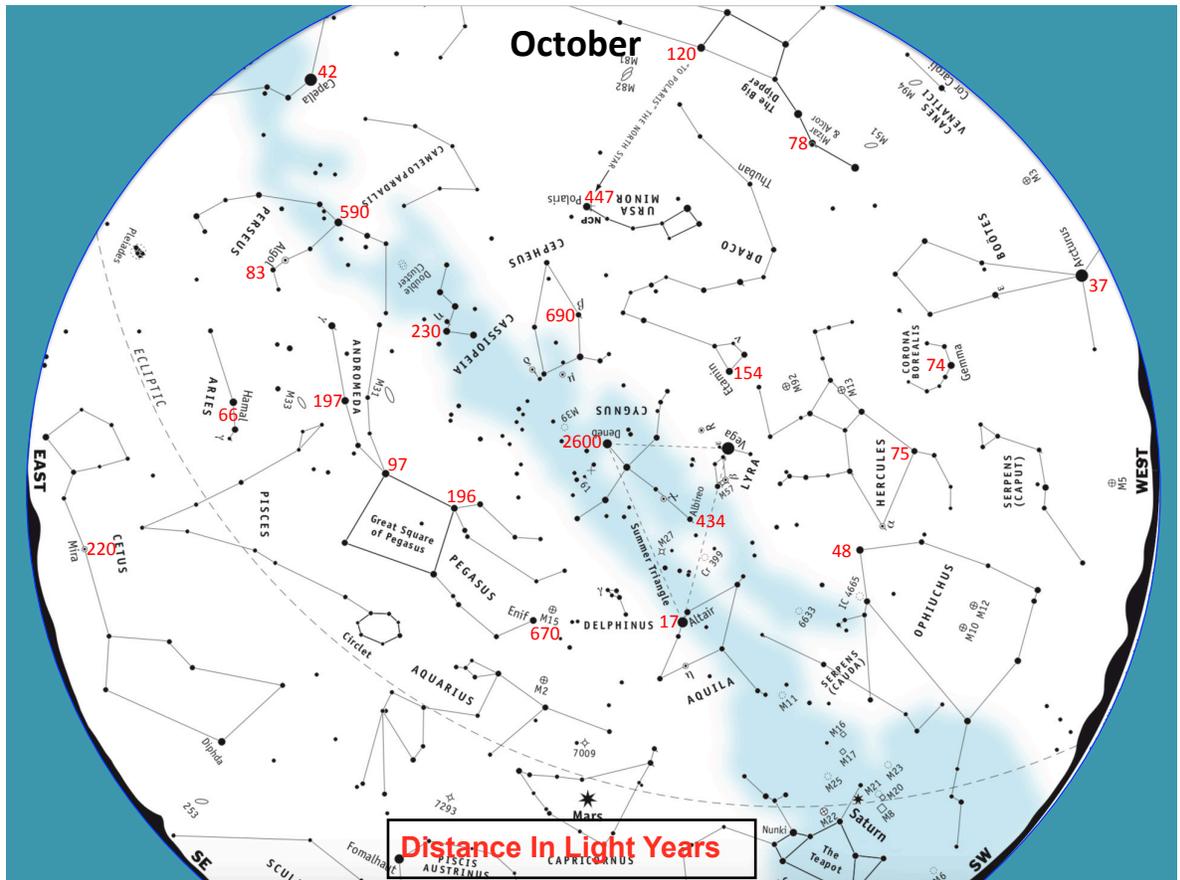
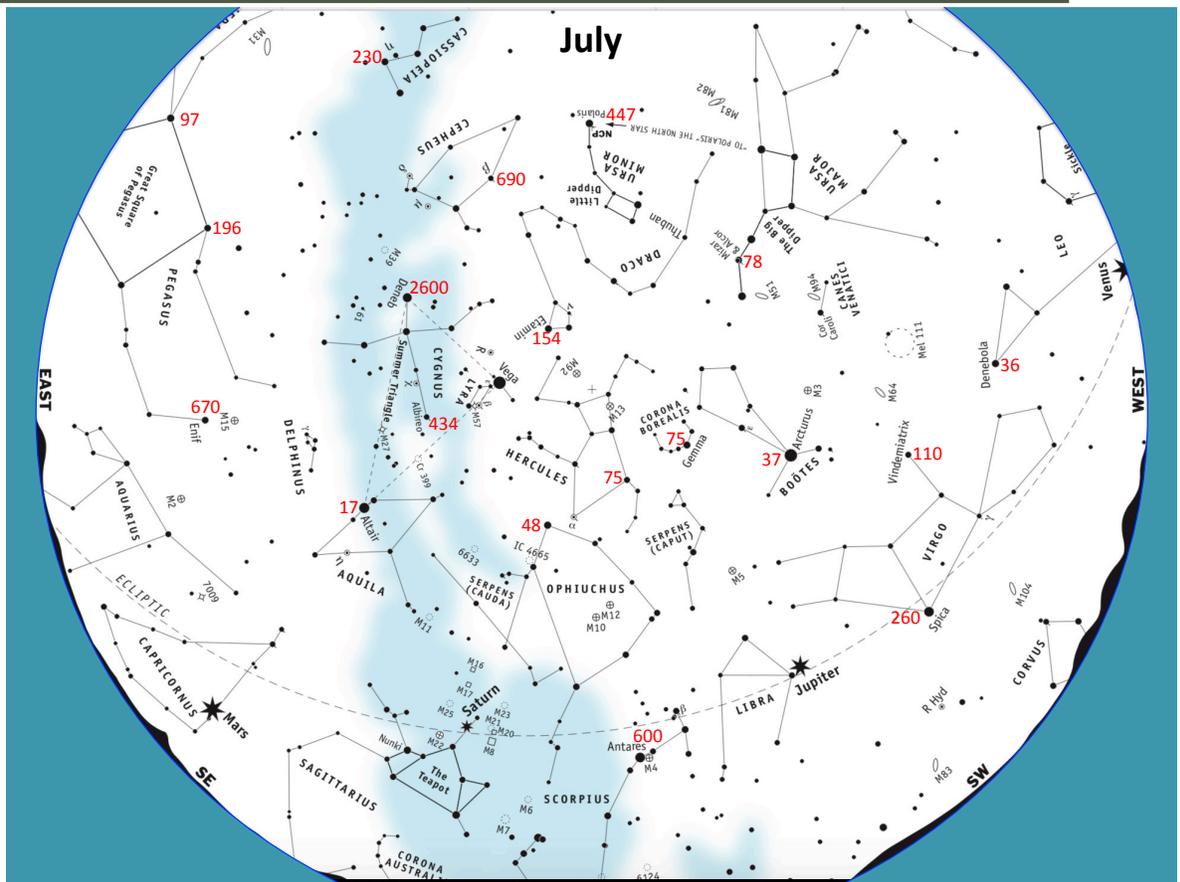
There are a number of wonderful 3D [diagrams](#) that display the nearest stars. The trouble with these depictions however is that familiar bright stars are lost in a crowd of much fainter objects. There is a simpler but more effective way to visualize our neighbours. On a typical night sky map I labelled prominent stars with their [distance](#) in light years. One



of the nicest and cleanest star charts can be obtained from [skymaps.com](http://skymaps.com). My natural bias assumes the brightest stars are closer. Inspection of the maps, however reveals surprises. For instance Vega in Lyra, at 25 light years, is ten times closer than Spica in Virgo and one hundred times closer than Deneb in Cygnus! Meanwhile Sirius, the brightest night time star is 100 times closer than Rigel in Orion.

It was interesting to note that Arcturus in Bootes, Denebola in Leo and Pollux in Gemini are all ~35 light years away. Polaris, Alberio and the Pleiades are all about 440 light years away. So it may be more appropriate to group stars in the same *layer of the onion* rather than associate them with a character in a *celestial soap opera*.

No doubt new data and proper motions from [GAIA](http://gaia.europa.eu) will further refine our vision of the local neighbourhood. In the meantime give these charts a try when you next venture out to enjoy the night sky.



Distance In Light Years

## In the Arms of the Milky Way

By Reg Dunkley

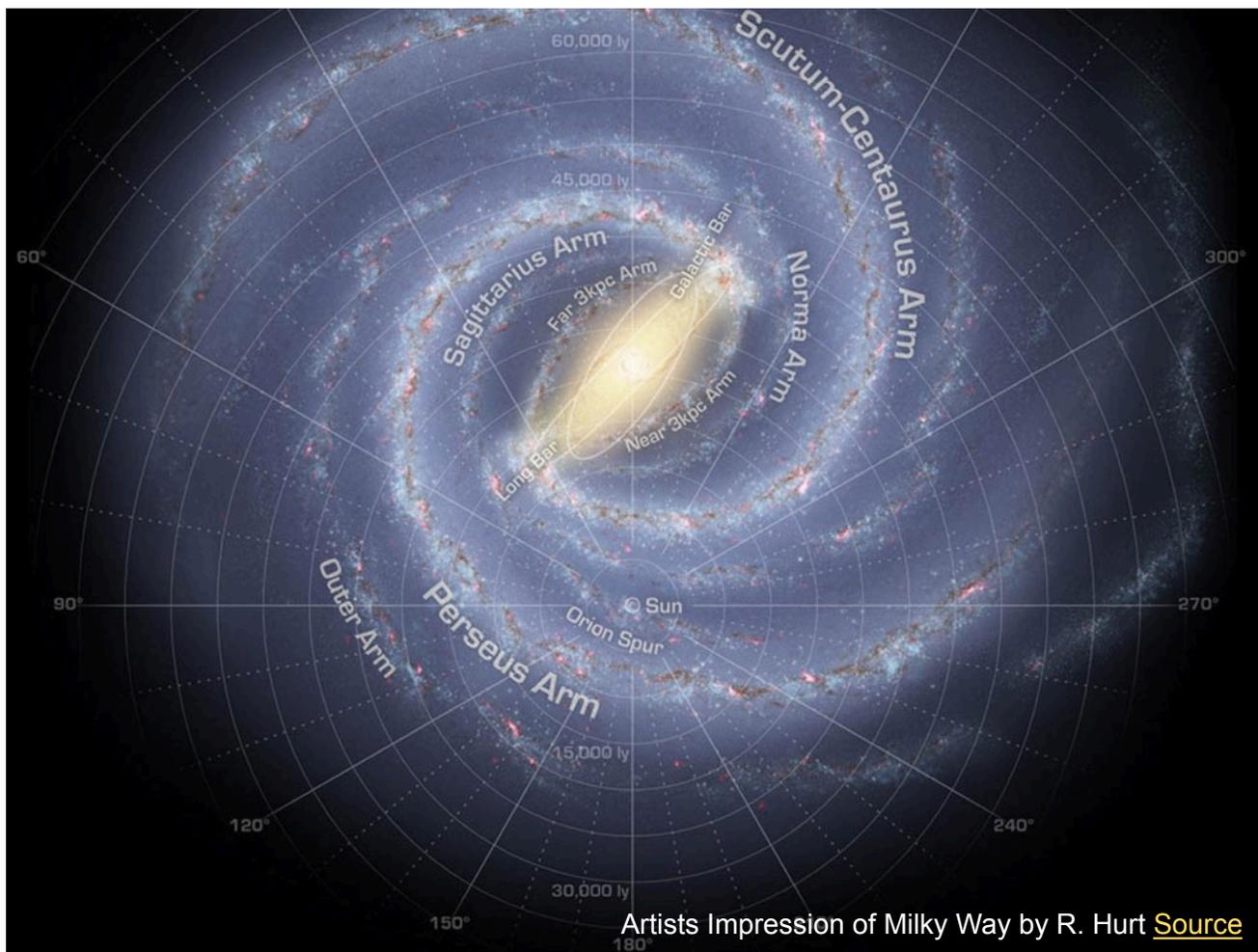
When I unveiled the *Stellar Distance Atlas* at Astro Cafe last Spring I was asked if any of the bright stars were in the adjacent spiral arm of the Milky Way. It was a great question but it stumped me at the time. It did however inspire a quest to learn more about the Milky Way and its spiral nature.

When I study Dan Posey's cover image of Bode's Galaxy I am mesmerized by the beautiful symmetry of the spiral arms. But when I gaze up at the Milky Way I cannot discern the slightest hint of a spiral. Even determining the location of the Sun within our Galaxy is daunting but Dr. J.S. Plaskett embraced the challenge. Equipped with freshly derived galactic equations by Jan Oort, Plaskett and Dr. J. Pearce embarked on a lengthy program of measuring radial velocities of luminous OB stars with the new 72 inch reflector at the DAO. In 1935 they estimated that the Sun was 32,000

light years from the galactic centre, quite close to the current value of 28,000 light years. They also determined that the Sun orbits the galactic centre every 228 million years.

Interstellar dust and gas obscures much of the galactic plane but radio telescopes can penetrate this barrier. Beginning in the 1950's this tool was used to measure radial velocities of atomic hydrogen and carbon monoxide to detect spiral arms. Results were ambiguous and monitoring variations of signals from pulsars was more successful. More recent observations at near infrared frequencies from ground based surveys (2MASS) and the Spitzer Space Telescope have been an improvement and a bar has been detected at the centre of the Galaxy which extends about a third of the way to the Sun.

While there are a variety of opinions it is generally agreed that there are two major spiral arms extending from the central bar called the Perseus and Scutum-Centaurus Arms. There are also two narrower arms called the



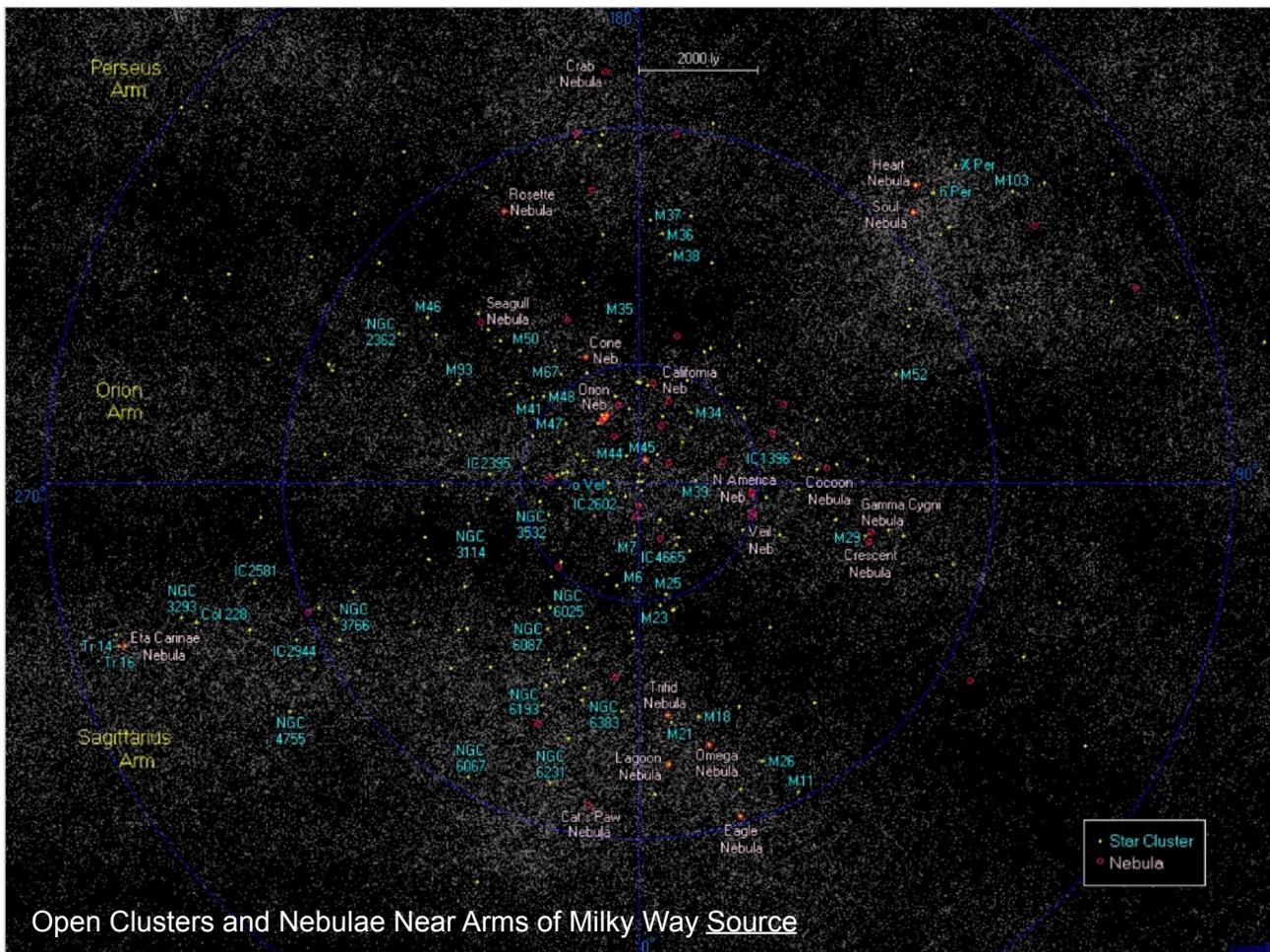
Artists Impression of Milky Way by R. Hurt [Source](#)

Sagittarius and the Norma/Outer Arms. The Sun is located between the Sagittarius and Perseus Arms within a smaller “armlet” called the Orion Spur that is about 3500 light years wide. The nearest OB star cluster in the Perseus is 6000 light years away so there is no familiar bright star in the adjacent spiral arms. The diagram below displays the location of a number of well known nearby open clusters and nebulae that inhabit the Perseus and Sagittarius Arms.

So the spiral structure of the Milky Way is more involved than the two arm “grand design” of Bode’s Galaxy. The nature of spiral arms are much more complex than one would expect. Rather than a physical line of material that is wound around the galactic nucleus the arms may consist of a “density wave” through which stars and gas flow. It sounds to me like a stellar Colwood Crawl where matter merges and converges fostering star growth. It is a field of active research and a recent overview of spiral structures can be found [here](#). Jacques Vallee of NRC Herzberg recently published an [overview](#) on the spiral arms of the Milky Way.

**In Memorium: Phil Teece** died on Oct. 23 2018  
 Phil was an active member of the Victoria Centre during the 1970’s and 1980’s. He co-authored two astronomy books with Jack Newton and in 1988 received the Ken Chilton award for his publications. Phil’s contributions are appreciated by the Victoria Centre.

**Upcoming Speakers**  
 -Wednesday December 12th 2018  
 Dr. Chris Gainor President of RASC  
 -Wednesday January 9th 2019  
 Dr. Ruobing Dong  
 -Wednesday February 13th 2019  
 To be determined  
 -Wednesday March 13th 2019  
 Dr. JJ Kavelaars New Horizon’s Rendezvous with MU69  
 -Wednesday April 13th 2019  
 Dr Karun Thanjuvar Machine Learning and the Big Data Tsunami  
 -Wednesday May 8th 2019  
 Michel Michaud Pleiades Update



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## Nudge Nudge (Nag Nag) Give Lists a Try by Bill Weir

To those who attended Victoria Centre's star party this past September you might remember a nice discussion Friday evening around the idea of making lists. Making observing/imaging **lists can help keep one from stagnating** by observing the same handful of objects over and over again. If you aren't sure where to start then the RASC has a number of observing certificate programs that are essentially ready made lists.

Since recently being added to the National Observing Committee I've decided to address the dearth of applications for observing certificates/pins by members of the Victoria Centre. The last certificate and pin handed out to a member of the Victoria Centre was in 2014. Perhaps some of you are quietly pursuing one of the many available from the shadows. If this is you then ignore the rest of my nagging.

Since rejoining the centre I have noticed a great number of names I'm not familiar with who also seem to express a great deal of enthusiasm. I also sense many are new to the hobby on the whole. To you I place special notice in that the RASC has a nicely rounded certificate program to help the beginner learn their way around several aspects of astronomy. It is called **Explore the Universe**. <https://www.rasc.ca/explore-universe> No one from the Victoria Centre has currently received this certificate so perhaps you could be the first.

For those who want to hone their skills a little more there is the **Messier Catalogue**. <https://www.rasc.ca/messier-objects> Tracking down the "not a comet" objects was how I first started developing my observing skill even before joining the RASC. This was back when I knew no one else who did astronomy and it was just me and my little 6 inch Dobsonian telescope. The Messier catalogue seemed ready made to give me something to focus on. Then I joined the RASC and saw you could get a certificate for completing the list. So when I finished I submitted my application and was presented with my certificate. I thought everyone did this but it turned out I was wrong.

For those wishing to expand their observing beyond the Messiers there is the **Finest NGC Objects**, a list compiled by Alan Dyer. <https://www.rasc.ca/finest-ngc-objects> There is also a rather eclectic mix of observing targets compiled by David Levy called **Deep Sky Gems**. <https://www.rasc.ca/deep-sky-gems> If you choose and complete this list you would

join an exclusive group as there are only three people who have been awarded this certificate since its inception.

If you really want to take on a real challenge I can suggest the **Deep Sky Challenge** <https://www.rasc.ca/deep-sky-challenge> but it's not for the faint of heart and will test your skills. On the other hand many of the objects on the list can be observed with modest equipment. You will though need a large scope for many but access to one is possible though several members of the centre or the VCO.

For those wanting to really get to know our closest solar system neighbour there are two programs. First there is **Explore the Moon** for the beginner. <https://www.rasc.ca/observing/explore-the-moon-observing-certificate> Then to step it up a bit there is the Isabel Williamson Lunar Observing Program. <https://www.rasc.ca/isabel-williamson-lunar-observing-program> While I'm sure that I've seen all of the Lunar features on this list I haven't officially so it's where I plan on focusing my own attention in the near future.

Not wanting to leave out those who observe with sensors there is an **Astro Imagers Certificate**. <https://www.rasc.ca/astro-imaging-certificate> To be honest I'm not really sure what it entails but what I do know is that there are quite a few members of the Victoria Centre who image. Alas I see no Victoria Centre member names on the list of recipients. Tsk, tsk. Perhaps this program could tie into all this buzz I hear about PixInsight.

Finally there is useful comet, asteroid and variable star observing information to be found in the observing drop down on the RASC National home page. I've also noticed a unique **Galileo Observing Challenge** in the Astro Sketchers section. <https://www.rasc.ca/galileo-observing-challenge> It looks like it could be fun to take on.

If you don't feel motivated to carry out an observing project on your own then perhaps find someone else in the centre with a similar interest and work the program together.

Not that anyone is keeping count (ok maybe just a bit) but currently there is only one person who has all of the observing pins. There it is, my gentle plea to stop looking at the same objects over and over but push forward.

I promise you that you will improve your observing skills and you will win swag at the same time.

# RASC Victoria Centre Council 2017 / 2018

POSITION	NAME	E-Mail
Past President:	Sherry Buttnor	<a href="mailto:pastpres@victoria.rasc.ca">pastpres@victoria.rasc.ca</a>
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First Vice President	Reg Dunkley	<a href="mailto:vp@victoria.rasc.ca">vp@victoria.rasc.ca</a>
Second Vice President	Deb Crawford	<a href="mailto:vp2@victoria.rasc.ca">vp2@victoria.rasc.ca</a>
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School Outreach	Laurie Roche / Sid Sidhu	
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Observing Chairperson	Jim Stillburn	<a href="mailto:obschair@victoria.rasc.ca">obschair@victoria.rasc.ca</a>
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Astro Cafe	John McDonald	
NRC Liaison	James di Francesco	
Nat RASC Anniversary Wrkg Group	Dr. James Hesser	<a href="mailto:james.Hesser@nrc-cnrc.gc.ca">james.Hesser@nrc-cnrc.gc.ca</a>
FDAO Liaison	Laurie Roche	
UVic Liaison	Alex Schmid	
Observing	David Lee	
	Li-Anne Skibo	
	Dan Posey	

## 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.