

# SKYNEWS



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**Next Monthly Meeting**  
Wed September 12th 2018  
Room A104  
Bob Wright Centre  
UVic Campus

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

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## On the Cover

### CASCA 2018 At the DAO

*By Joe Carr*

On May 25th attendees of the Canadian Astronomical Society Conference CASCA 2018 posed in front of the Dome of the Plaskett Telescope for a sky shot. This is likely a first for SkyNews as Joe Carr used his Mavic drone to take this photo. There was high drama in the air as a squadron of four swallows dive-bombed the drone. CASCA members were captivated and fortunately Joe's drone experienced a happy landing.

## President's Report

*by Chris Purse*

This month, I am starting with thanks for contributions to our centre.

My first thanks go to the Astro Café hosting team, Reg Dunkley, Barbara Lane, Kurt Lane, and John McDonald. Their efforts to get the room set up, coordinate presentations, and keep us fed with coffee and cookies are appreciated. Attendance at Astro Café has remained high throughout the year and I attribute that to the work of this team. In addition, I would like to thank everyone who has presented at Astro Café this year. It is impressive to have our youngest member making presentations as well as a number of new members. Well done everyone and I look forward to the resumption of Astro Café on Monday, September 10.

Nelson Walker also deserves thanks for two contributions. Nelson has taken on the modernization of our centre by-laws required by amendments to the BC legislation that governs societies. He has worked tirelessly on this document and we will be distributing the draft to members for discussion and feedback soon. Our plan is to hold a vote on adopting the new by-laws at the monthly meeting on Wednesday, September 12. In addition, Nelson brought a number of his surplus items to sell at Astro Café on May 28. He donated the proceeds to the centre's public outreach fund. He had a great selection of gear

and sold most of it. Over \$400 was raised via his generosity. Thank you for those contributions, Nelson, they are greatly appreciated!

Another piece of good news is that the remaining items from the VCO have been sold. Thank you to the team members who worked on that project. I am sure the new owners will put that equipment to good use.

Later this year, we will be seeking nominations for positions on the council. Although that is some time in the future, I want to highlight this now as being on council is a great opportunity to become more involved in the centre and its operation. We rely on members who are willing to devote some of their time to the administration tasks. As you will see in the by-laws, there are some defined positions augmented by members who assist with specific tasks. The time commitment is not too onerous; the adage many hands make light work is true. In addition to the centre activities in which you normally participate, there are council meetings every second month, some duties specific to the role that need to be done on a regular basis, and occasional emails needing a response. I hope that some of members who have not previously served on council will consider it this year.

Finally, please remember that our June monthly meeting is in a different room. We will meet in the Engineering and Computer Science building room 124 for our Wednesday, June 13 meeting. As we do not have monthly meetings in July and August, our next monthly meeting will be on Wednesday, September 12.

Have an enjoyable summer!

Below: Our youngest member Nathan delivers a talk at Astro Cafe. Wyman Lee has captured great moments at the Cafe. See more of his photos at: <http://rascvic.zenfolio.com/astrocafe2018>





## June Meeting Presentation: The Mysterious Death of Galaxies

by Dr. Joanna Woo

Wednesday June 13th 2018 at 7:30 PM  
Room 124 Engineering and Computer  
Science Building

Galaxies are vast collections of stars that evolve over billions of years. From surveys of a hundreds of thousands of galaxies, we can see that they fall into roughly two categories: those that are alive and forming new stars, and those that are dead, or no longer forming new stars. Gas is the fuel for star formation, and there is plenty of it in the universe constantly falling into galaxies, so why have some galaxies simply stopped turning gas into stars? This cessation of star formation, called "quenching", is one of the biggest puzzles of galaxy evolution. Drawing upon my own research, I will give an overview of the different theories explaining the death of galaxies and what the observational evidence tells us.

**Dr. Joanna Woo** writes: I am an astrophysicist with a focus on galaxy evolution using a variety of cutting-edge observational and theoretical tools. While studying for a B.Sc. in Physics and Astronomy from UBC, I established and became the president of the UBC Astronomy Club which is still active to this day. I also held a part time job at the H. R. MacMillan Space Centre. Being the adventurous type, I decided to pursue graduate studies at the Hebrew University in Jerusalem, receiving my Ph.D. in 2014. Along with a rigorous physics education, I picked up two languages (Hebrew and Arabic). I then spent four years at the Institute for Astronomy of ETH Zurich, where, along with exciting research, I learned the basics of Swiss German. I am thrilled to be back in Canada where I am a postdoctoral researcher at UVic. (I am now trying to improve my French.)



### 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. NOTE:**  
**Astro Cafe will be closed June through August.** Contact: Reg  
Dunkley 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.

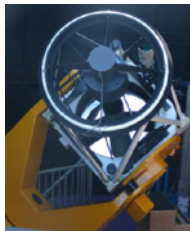


**Cattle Point observing in**  
Victoria's own Urban Dark Sky  
Park.

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



**Victoria Centre Observatory:**  
**Friday evenings shifting to**  
**Saturday evening on Sept 8th**  
*Open to those on the Active*  
**Observers list only**  
Weather permitting.



#### UVic 32 Inch Telescope

RASC Victoria Centre Sessions  
have ended for Summer but will  
resume in October.

#### Membership Report June 2018

Total membership is currently **278**. There are 34 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.

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## The Past, Present and Future of Canadian Astronomy

**By Reg Dunkley**

In the third week of May, the Canadian Astronomical Society assembled at the Empress Hotel for CASCA 2018. Over 310 attended this conference of professional astronomers. CASCA kindly invited members of RASC and Friends of the DAO to attend for a very reasonable fee. This was an wonderful opportunity for amateur astronomers to obtain an upclose view of the professional Canadian astronomical community in action. 23 members of RASC attended the five day conference. We were made to feel most welcome and provided with at table and display area in a prominent location at the entrance to the conference. During that period 103 presentations were delivered and 102 posters were displayed. It is not possible in a few pages to describe events and talks as they unfolded. Instead I will mention some highlights and take the pulse of the community as they reflect on the past, engage in present activities and prepare for future challenges.

### The Past

Since CASCA 2018 coincided with the Plaskett Centennial many presentations had an historical focus. Peter Broughton, author *Northern Star*, a new biography of John Stanley Plaskett delivered a most interesting presentation about this remarkable Canadian astronomer. Dr. Dennis Crabtree, Director of the DAO, then highlighted the many accomplishments of the DAO in the first 100 years. Particular attention was given to the major contribution that Plaskett and Pearce made in measuring dynamic properties of the Milky Way. Dr. Alan Batten put this achievement in context by describing the state of astronomical knowledge in 1918. Dr. Ray Carlberg of U of Toronto discussed the contributions of C. A. Chant and the role the U of T played nurturing the career of Plaskett and early Canadian astronomy. Meanwhile I was shocked to learn that what I considered to be the “new” Canadian French Hawaiian Telescope (CFHT) will soon turn 40 and was also worthy of a retrospective. Dr. Greg Fahlman, Director General of NRC Herzberg described the many innovations that has made the CHFT an exceptionally successful telescope.

Like most RASCals, optical astronomy is my home turf and I was not aware of the rich history of Canadian radio astronomy. Dr. Tim Robishaw of the Dominion Radio Astrophysical Observatory changed all that. He gave a fascinating overview of the facilities, innovations and achievements of the Canadian radio astronomy community. He also stimulated the appetite to learn more about a field that provides great insight into the astrophysical processes at work in the Universe.

### The Present

A majority of the delegates attending CASCA 2018 were young, energetic and enthusiastic grad students and post docs. In order to master their increasingly specialized field of study they had to scale a vast mountain of accumulated astronomical knowledge. Most also had to learn astro-statistics and acquire skills in data manipulation with computer languages such as Python. Such an accomplishment requires great devotion, discipline, energy and tenacity. Many also displayed extraordinary communication skills. For instance 2018 Plaskett Medal recipient Gwen Eadie even made Bayesian statistics appetizing by illustrating how they can be employed to estimate the likelihood of extracting a blue M&M from the bag! So it would appear that there is a very promising group of Canadians to lead astronomy into the future. In order to identify the hottest topics I surveyed the poster session categories and developed the following table:

Poster Session Categories	Number of Posters
Facilities	6
Instrumentation	13
Education Public Outreach	3
Cosmology	5
Galaxies	24
Exoplanets	10
Solar System	3
InterStellarMedium	7
Star Formation	9
Stars	14
Compact Objects Pulsars FRB's	8

This table reveals that galactic astronomy is receiving significant attention. Many of these studies also involved massive black holes. A large number of posters focused on stars and stellar formation while exoplanet studies were

also very popular. Numerical simulations, performed on powerful computers, were applied to many diverse topics ranging from the study of stellar interiors to galactic collisions. A number of exotic instruments with bazaar acronyms have been developed for the large optical scopes. When these devices together with the Atacama Large Millimetre Array (ALMA) are focused on stars they can study debris disks and exoplanets in orbit around stars. When directed toward the centre of the Milky Way they can track stars whizzing around a massive black hole. These amazing capabilities have only become available within the past decade.

Within the past year the innovative radio telescope CHIME, located in our own back yard near Penticton, has gone operational and it is actually working! It was initially designed with a relatively coarse resolution to study the expansion history of the Universe. Ingenious radio astronomers, however, have employed a process called beam folding to obtain a much higher resolution. This will enable astronomers to monitor pulsars and puzzling transient objects called fast radio bursts (FRB).

To make the most of the great volume of data acquired from all these astronomical instruments, secure storage and easy access is a priority. Canada has taken a leadership role in this area with the formation of the Canadian Astronomical Data Centre (CADC). Dr. David Schade described lessons learned over the 32 years since it began its mission. Data management will become even more critical in the future when more powerful scopes become operational. An closely related field called Astro-Informatics has developed and a number in interesting presentations on that emerging field were also delivered.

Although there were only three education and public outreach posters there were dedicated sessions devoted to that activity as well as special programs for both elementary school and high school teachers. Laurie Roche was involved with the delivery of the elementary program. Bob McDonald of Quirks and quarks fame also delivered a very entertaining session for the general public called *"What if everything that we know is wrong?"*

## The Future

The future actually arrived early with the gravity wave detection of the neutron star collision GW170817. Canadian, Dr. Kipp Cannon, Dunlap Prize recipient, made key contributions to data analysis techniques in the search for transients in astronomy that led directly to the discovery of this event as well as the optical afterglow. It ushered in the era of "multi messenger" astronomy. Dr. Michael Landry, Head of the Hanford LIGO Laboratory, provided an overview of this gravity wave telescope and described how these extremely sensitive instruments are being refined.

There are a number of large optical telescopes in the planning or construction phase in which Canada is involved. It is making a major contribution to the Thirty Metre Telescope (TMT). The adaptive optics are under development in Victoria and the telescope enclosure will be built by Dynamic Structures of Port Coquitlam. It will be placed either on Mauna Kea or on the Canary Island La Palma. There is also a proposal to upgrade CFHT to the Maunakea Spectroscopic Explorer (MSE). It would consist of an 11.25 m telescope that will be optimized to obtain 3000 spectra simultaneously by using robot positioned fibre optics. The large aperture and a 1.5 degree wide field of view would make it well suited to conduct spectroscopic surveys.



Photo by Chris Gainor



Canada has tentatively agreed to contribute 6% funding to the Square Kilometre Array which would be the world's largest radio telescope. It would consist of a series of mid to high frequency dishes in South Africa and a low frequency array in Western Australia. The antenna collecting area would total 1 square kilometre. It would produce a staggering data volume that rivals the daily throughput of Google and so data management is a major challenge.

Canada has made important contributions to The James Webb Space Telescope (JWST) including the fine guidance sensor and a slit-less spectrograph. Dr. John Hutchings of the DAO has been involved in this project for decades. It is scheduled to launch in 2020. Dr. Pat Cote is the lead project scientist for a proposed 1 metre Canadian space telescope called CASTOR that is optimized in the UV and optical range. It would complement the JWST which observes the IR portion of the spectrum.

### Collaboration

Another theme emerged during the course of the conference. Outgoing CASCA President Dr. Bob Abraham delivered an entertaining and thoughtful presentation and encouraged the Canadian astronomical community to pursue a strategy of collaboration. He said we are too small to go it alone with big projects and the ability to collaborate is a Canadian strength.

This model as served us well with the extremely successful CFHT and has expanded to other facilities. Canada's contribution of 14% to the Gemini S and N telescopes included the adaptive optics and the enclosure. Canadian contributions in radio astronomy include a powerful correlator to the recent upgrade of the Jansky Very Large Array in New Mexico and 64 sensitive 3 mm band receivers for the ALMA dishes. It is interesting to note that Canadians are currently providing leadership roles at these major world class facilities. NRC Herzberg's Dr. Laura Ferrarese is the acting director of Gemini while Dr. Sean Dougherty, recently from the DRAO near Penticton, has just commenced a five year term as Director of ALMA.

Near the end of the Conference, Elder Dr. Barney Williams, of Tla-o-qui-aht First Nations,

delivered a powerful and moving talk to the assembly. He served on the Truth and Reconciliation Commission and has often acted as a bridge between two cultures to ensure that mutual understanding is achieved for First Nations and European people. His message resonated both with the theme of collaboration and with issues involving the construction of the TMT on Mauna Kea. He received a standing ovation.

Several weeks have passed since CASCA 2018 ended but I am still digesting the great volume of information that was presented. My main impression was that the Canadian Astronomical Community is vibrant, successful and as was said on several occasions "punching well above it's weight."



Photo by Chris Gainor

Outgoing President Dr. Bob Abraham addresses CASCA



Photo by Chris Gainor

The Excellent exhibit *DAO: The First 100 Years* will remain at the Royal BC Museum until June 30th. Be sure to see it!

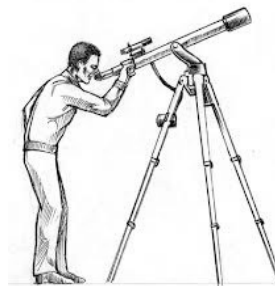
## RASC Victoria Centre Council 2017 / 2018

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First Vice President	Reg Dunkley	<a href="mailto:vp@victoria.rasc.ca">vp@victoria.rasc.ca</a>
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School Outreach	Laurie Roche / Sid Sidhu	
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Light Pollution Abatement	Dave Robinson	<a href="mailto:lighting@victoria.rasc.ca">lighting@victoria.rasc.ca</a>
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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.