BULLETIN
The Royal Astronomical Society of Canada

December 2016 - Volume 11, Number 12

We welcome your comments on the ***Bulletin***. Email them to the Editor, David Garner at **bulletin@rasc.ca**

News @ RASC.ca

News from the Society Office

by **Randy Attwood**, RASC Executive Director

Give the Gift of an RASC Membership this Christmas!

Why not give the gift of astronomy this Christmas? A membership to The Royal Astronomical Society of Canada (RASC) is the *perfect gift for the holidays* for the astronomy enthusiast in your orbit! **To arrange your special gift please contact the RASC National Office: mempub@rasc.ca**

****NEW* Explore the Universe Holiday Gift ****

Score this amazing **RASC Holiday Gift pack**: Our brand new *Explore the Universe Guide*, *Observer's Calendar* 2017, RASC Toque, RASC Colour Sticker. **Price: $34.95 (Over $50 value!) Makes an amazing gift for a budding astronomer, or treat yourself!**

Available until Friday, December 16

Give the gift of SkyNews this Christmas

RASC members will be receiving emails suggesting that we give SkyNews subscriptions for Christmas. Individual subscriptions can be purchased for only $17! A perfect gift for family, friends and other Milky Way inhabitants! Give the Sun, the Moon, the Planets and the Stars – six times a year! And help to support the Society's magazine – SkyNews!

SkyNews
The Canadian Magazine of Astronomy & Stargazing

RASC Holiday Donation Campaign 2016

The RASC will be holding a donation campaign for the holiday season in December. **Please donate to support the Society.** If you have already donated this year, **thank you** for supporting astronomy outreach and the RASC! Look out for our email coming soon…!

RASC General Assembly 2017

Don't forget to reserve a room for the exciting General Assembly coming up in 2017 in our nation's capitol! Please go to **http://www.rasc.ca/ga2017** to check out the highlights for this upcoming year in Ottawa and reserve your room as they are booking up fast!

Holiday Office Hours

The Society Office will be closed from Friday, December 23 to Tuesday, 2017 January 3. The staff and Board members wish all RASC members a Merry Christmas, Happy Holidays and Clear Skies for 2017!

Awards Deadline

by **James Edgar**, Past President RASC

The deadline for the RASC's National Awards Program—2016 December 31—is rapidly approaching.

Here is an outline of the awards and their criteria:

CHANT MEDAL The Chant Medal is awarded based on a significant body of work of lasting value to the astronomical community and is named after C.A. Chant, a noted astronomer at the University of Toronto who helped to found the David Dunlap Observatory there.

KEN CHILTON PRIZE Established in memory of Ken Chilton, this prize is awarded for a specific piece of astronomical research or work carried out or published recently.

SERVICE AWARD The Service Award, established in 1959, is awarded to RASC members who have made significant contributions at the National and/or the Centre levels.

SIMON NEWCOMB AWARD The Simon Newcomb Award was established in1979 for excellence in astronomical writing by an RASC member.

QILAK AWARD Established in 2011, this award is intended to recognize individual Canadian residents or teams of residents who have made an outstanding contribution during a particular time period either to the public understanding and appreciation of astronomy in Canada or to informal astronomy education in Canada and to promote such activities among the members of the sponsoring organizations.

FELLOWSHIP AWARD Established in 2013, this award is given to recognize long-term commitment to the Society.

Nominations for awards should be sent to the Awards Committee at **awards20000@rasc.ca**.

For more information on the awards nominations, see **www.rasc.ca/rasc-awards**.

2017 General Assembly – Ottawa, June 29 to July 3

by **Brian McCullough** and **Tim Cole**, 2017 GA Committee, Ottawa Centre

For information regarding the 2017 GA, check out our website:
http://ottawa.rasc.ca/content/2017-general-assembly-ottawa.

You'll find the highlights, bios of the major speakers, promo video, and extensive information on accommodations.

We also have a promotional video:
https://www.youtube.com/watch?v=q9WSHYjIDA4&feature=youtu.be

Important announcement regarding accommodations.

For out-of-town GA delegates, the GA team has secured a block of two-bedroom suites at the Residence and Conference Centre Ottawa West.
The residence is located at the Algonquin College campus, adjacent to the GA meeting areas.

We have reserved a block of two-bedroom suites at the very attractive rate of $180 (plus tax) /*per double suite, per night*/. In order to secure this special rate, we had to guarantee a minimum booking of four nights on each double suite. Suites may be shared, of course.

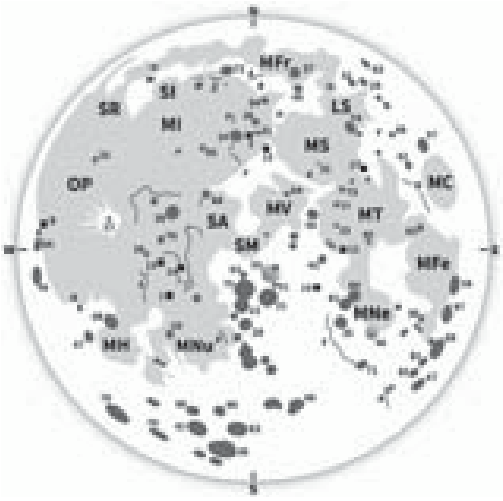
Please note that *RCC Ottawa West only accepts bookings for two-room suites, not individual rooms*. We regret the inconvenience, but we are asking delegates to please arrange their own suite mates, and have setup a bulletin board style Suite Mate Finder on our Ottawa Centre website. Each room in the suite can be locked, but the bathroom and kitchenette are shared spaces.

The suites will be held for us until 2016 December 15, after which they will be released and offered to the public. Demand for rooms in Ottawa is expected to exceed capacity over the Canada Day weekend next year.

General registration will be open in the coming months, but it is imperative that attendees book their accommodations through our web site as soon as possible. For more information, please go to the Ottawa Centre website at:
http://ottawa.rasc.ca/content/2017-general-assembly-ottawa

Explore the Moon – A New RASC Observing Program for Beginners

by **Dave Chapman**, RASC, Halifax Centre



This observing program (with certificate) bridges the gap between the introductory ***Explore the Universe Observing Program*** and the more challenging *Isabel Williamson Lunar Observing Program*. It is ideal for beginning observers who are just learning about telescopes and binoculars, by providing a hands-on observing experience on an easy object—the Moon. The telescope progam is based on the 94 lunar features listed and charted in the RASC *Observer's Handbook*, originally selected by Roy Bishop, who was Handbook editor for 19 years. There is also a binocular program consisting of a reduced set of 40 features. *Explore the Moon* was field-tested in 2012–2015 by several beginning observers in the RASC Halifax Centre, some of whom went on to complete other RASC observing programs. At this time, only English versions are available; we hope to offer both programs in French, in due course. We welcome feedback from observers!

Why Observe the Moon?

This may seem like a funny question. Many amateur astronomers, however, shun the Moon. It is true that moonlight interferes with the enjoyment of observing and photographing the "faint fuzzies," which are deep-sky objects. A better option is to remain calm and observe the Moon on those nights when it dominates the sky. Here's a list of benefits of lunar observing, particularly for beginning observers:

- It's easy to find!;
- You can observe from home, even in the city—no need to travel to a dark-sky site;
- The Moon is bright, offering plenty of detail, even in small telescopes or binoculars;
- Observing the Moon is ideal for learning how to operate your telescope and binoculars;
- Finding the principal features is not hard, so you can learn *observing skills*;
- It's our nearest celestial neighbour!

For more information, see **http://www.rasc.ca/observing/explore-the-moon-observing-certificate**.

News from the Yukon Astronomical Society

by **Anthony Gucciardo**, RASC, Yukon Centre, President

Not to be mistaken for Northern Lights, these bright colourful stripes are called Light Pillars. They form during cold weather when plate shaped crystals float horizontally close to the ground. These crystals reflect the light coming from any unshielded artificial light source (also known as light pollution) and make the light appear as if it was coming from the sky.

The different colours in the picture labelled *Light Pillars* (Figure 1), come from the various colour temperatures of our street lights. The warm orange ones come from traditional high pressure sodium lamps whereas the bright white pillars come from new LED lamps and metal halide bulbs.

Figure 1 Light Pillars (Whitehorse, Yukon)

While the new LED technology saves energy, it also increases light pollution and health concerns if the colour temperature is not carefully selected - 3000K LEDs (warm yellow) are preferred over 4000K ones (bright white).

Currently, the **RASC: Yukon Centre - Yukon Astronomical Society** is studying levels of light pollution in the **City of Whitehorse, Yukon**. Our Light Pollution Abatement Program has succeeded in convincing our utility, ATCO Electric Yukon, in exceeding HSE regulatory requirements by installing new 3000K LED streetlights which are International Dark-Sky Association (IDA) approved. The Society is also scheduled to give formal presentations to the City Councils of Whitehorse and Haines Junction on the impacts of Light Pollution in early 2017.

Figure 2 Downtown Whitehorse

Asteroids with a Canadian Connection

by **Eric Briggs**, RASC, Toronto Centre

The following have been added to the list of asteroids with Canadian connections:

(130088) Grantcunningham = 1999 XQ3
Discovered 1999 Dec. 4 by the Catalina Sky Survey.
Grant Cunningham (b. 1959) specialized in lidar from Graduate School at York University through 25 years of involvement at Optech Incorporated where he is a Senior Scientist with a speciality in sensor calibration. He is the Optech technical lead for the OSIRIS-REx Laser Altimeter.
MPC 102257
Orbit type: Main Belt
http://rasc.ca/asteroids/130088

(130072) Ilincaignat = 1999 VL198
Discovered 1999 Nov. 3 by the Catalina Sky Survey.
Luminita Ilinca Ignat (b. 1968) is the Canadian Space Agency's Deputy Project Manager for the OSIRIS-REx Laser Altimeter. Prior to serving in this role, she was the CSA Deputy Project Manager for the James Webb Space Telescope Fine Guidance Sensor/Near InfraRed Imager and Slitless Spectrograph.
MPC 102257
Orbit type: Main Belt
http://rasc.ca/asteroids/130072

(130071) Claudebrunet = 1999 VD198
Discovered 1999 Nov. 3 by the Catalina Sky Survey.
Claude Brunet (b. 1956) is Flight Software manager at the Canadian Space Agency. He oversaw the development of the OSIRIS-REx Laser Altimeter instrument, of the Alpha Particle X-ray Spectrometer currently on MSL (member of the MSL Operation team), and of the Phoenix Meteorological Station instrument.
MPC 102257
Orbit type: Main Belt
http://rasc.ca/asteroids/130071

(130067) Marius-Phaneuf = 1999 VM194
Discovered 1999 Nov. 1 by the Catalina Sky Survey.
Rene-Pier Marius-Phaneuf (b. 1971) is a Senior Project Manager at the Canadian

Space Agency. He is responsible for the delivery of the OLA instrument to the OSIRIS-REx Mission. He has been involved in the Canadian contributions to Herschel (HIFI), the Mars Science Laboratory (APXS) and JWST (FGS-NIRISS).
MPC 102257
Orbit type: Main Belt
http://rasc.ca/asteroids/130067

(130066) Timhaltigin = 1999 VK193
Discovered 1999 Nov. 1 by the Catalina Sky Survey.
Timothy Haltigin (b. 1976) is the Senior Mission Scientist in Planetary Exploration at the Canadian Space Agency. He is actively involved in the preparatory
stages for a variety of planetary sample return missions, and currently is the Mission Manager for the OSIRIS-REx Laser Altimeter.
MPC 102257
Orbit type: Main Belt
http://rasc.ca/asteroids/130066

(130007) Frankteti = 1999 VC45
Discovered 1999 Nov. 4 by the Catalina Sky Survey.
Frank Teti (b. 1966) is the Program Manager for the development of the OSIRIS-REx Laser Altimeter. Prior to this, he was the Manager of Autonomous Robotics at MDA and focused on commercial and civilian missions for lunar exploration/exploitation and orbital debris removal.
MPC 102257
Orbit type: Main Belt
http://rasc.ca/asteroids/130007

(130006) Imranaslam = 1999 VB45
Discovered 1999 Nov. 4 by the Catalina Sky Survey.
Imran Aslam (b. 1977) is the electronics lead for the OSIRIS-REx Asteroid Sample Return Mission's Laser Altimeter at MDA. Prior to this, he was the Lead for the Mars Curiosity Rover's Alpha Particle X-ray Spectrometer, and Electronics Lead for the Metrology sensors on the Phoenix Mars Lander.

MPC 102257
Orbit type: Main Belt
http://rasc.ca/asteroids/130006

(129988) Camerondickinson = 1999 VH4
Discovered 1999 Nov. 1 by the Catalina Sky Survey.
Cameron S. Dickinson (b. 1974) is the Technical Lead for the OSIRIS-REx Laser Altimeter. Previously, Cameron was the Operations Lead for the Phoenix Mars Lander Meteorological Station.
MPC 102257
Orbit type: Main Belt
http://rasc.ca/asteroids/129988

(129985) Jimfreemantle = 1999 UP51
Discovered 1999 Oct. 31 by the Catalina Sky Survey.
Jim Freemantle (b. 1958) is the Project Manager for the OLA Science Team on the OSIRIS-REx Asteroid Sample Return Mission. He was also the Project Manager for the Canadian MET Sensor on board the Phoenix Mars Lander. He has had a long career using remote sensing to monitor environmental change.
MPC 102256
Orbit type: Main Belt
http://rasc.ca/asteroids/129985

(129980) Catherinejohnson = 1999 UN42
Discovered 1999 Oct. 28 by the Catalina Sky Survey.
Catherine Johnson (b. 1967) is a planetary geophysicist and a Co-Investigator for the OSIRIS-REx Asteroid Sample Return Mission and for the InSight mission to Mars. She was a Participating Scientist on the MESSENGER mission to Mercury and is a Fellow of the American Geophysical Union.
MPC 102256
Orbit type: Main Belt
http://rasc.ca/asteroids/129980

(22421) Jamesedgar = 1995 XC5
Discovered 1995 Dec. 14 by Spacewatch at Kitt Peak.
James Somerville Edgar (b. 1946) spent 40 years as a Locomotive Engineer and rail Supervisor. He became President of the Royal Astronomical Society of Canada in 2014. Name suggested by R. and P. Jedicke.
MPC 102253/4
Orbit type: Main Belt
http://rasc.ca/asteroids/22421

Great Image!

by **Brian McGaffney**, RASC, Kingston Centre

NGC 6960, The west arm of the Veil Nebula

Thousands of years ago a new light would have suddenly have appeared in the night sky and faded after a few weeks. Today we know this light was from a supernova, and record the expanding debris cloud as the Veil Nebula, a supernova remnant. This part of the Veil is the Western Strip.

Acquisition time for this image was about 4 hour's total. Equipment: CCD G4 16000EC, Guided, with Orion SSAG, ME Mount and a modified 300 MM Astrograph at F4.9.

Thank You to our Sponsors!

by **Julia Neeser**, RASC Marketing Coordinator

The Royal Astronomical Society of Canada has a unique partnership with our friends in the astronomy industry. We are offering companies the distinction of becoming a charter sponsor of the RASC, Canada's pre-eminent amateur astronomy organization. This offer is available only to those industry leaders who recognize the value in being associated with the amateur astronomy community. **http://www.rasc.ca/rasc-sponsors**.

What's New in the Sky

Members are encouraged to check out the **Northern Skies** section of the RASC website. Thanks to Gary Boyle for keeping us all in the know. Julia Neeser creates "The Solar System" monthly with data from James Edgar's "Skies" newspaper articles at **www.rasc.ca/observing**.

The Royal Astronomical Society of Canada
203 – 4920 Dundas St W, Toronto ON M9A 1B7 CANADA
Tel: (416) 924-7973
Member Service: nationaloffice@rasc.ca
Visit Us at: www.rasc.ca

The *Bulletin* of the Royal Astronomical Society of Canada
is a benefit of membership in the Society.