



December 2013 - Volume 8, Number 12

David Garner, Editor

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

A PDF version of the *Bulletin* is available [here](#).

A Web-based version of the *Bulletin* is available [here](#).

➤ Editor's Notebook

by David Garner

December's Sky

Keep an eye on Venus as it attains its greatest brightness with a magnitude of -4.9 on December 6th. Jupiter rises in the early evening and will be approaching opposition as we move into the new year. The full Moon of December 17 will appear at its smallest size for 2013 as it gets close to apogee. Don't forget to check out Gary Boyle's [Northern Skies](#) for complete details.

➤ News @ RASC.ca

Last chance to Nominate! Deadline for RASC National Awards is December 31

by [Mary Lou Whitehorne](#), Past President RASC, Awards Committee Chair

This is a final reminder that nominations for the 2014 awards are due by 2013 December 31. Summary information below. More detail, including eligibility and nomination requirements for each award can be found at www.rasc.ca/awards. Click on the links to individual awards for full information. Not sure how to write a nomination? There are many examples of successful nominations on the awards pages of the Web site. Think about the contributions of those hard working RASC members you know and who you believe qualify, and nominate them for an award.

Now is the time! Nominations are due on 2013 December 31.

The RASC sponsors several annual national awards that recognize achievement or service by our members. These awards include:

- The **Chant Medal** is awarded, not more than once a year, to an amateur astronomer resident in Canada on the basis of the value of the work carried out in astronomy and closely allied fields, for original investigation, and specifically not for services to the Society, worthy though these may be.
- The **Ken Chilton Prize** is awarded annually to an amateur astronomer resident in Canada, in recognition of a significant piece of astronomical work carried out or published recently.

- The **Qilak Award for Astronomy Outreach and Communication** recognizes 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.
- The **Service Award** is given to members in recognition of outstanding service, rendered over an extended period of time, where such service has had a major impact on the work of the Society and/or of a Centre of the Society.
- The **Simon Newcomb Award** is intended to encourage members to write on the topic of astronomy for the Society or the general public, and to recognize the best published works through an annual award.

The deadline for nominations is 2013 December 31. Send your letters of nomination or questions about the awards program to me at mlwhitehorne@hfx.eastlink.ca

Vote for the Top Ten (Canadian) Astronomy Stories of 2013

by [Roland Dechesne](#), Chair, Membership and Development Committee

Over the past year, the study of Canadian skies and the physical Universe once again provided us with many newsworthy stories. We want you to look back over an extraordinarily busy and exciting 2013 and decide which stories were merely newsworthy and which ones are fundamentally important to us as Canadian astronomers.

You can tell us what you think of the stories on this list by voting via email to [Roland Dechesne](#) and if your favourite 2013 story is not our short list, feel free to write it in. The deadline for voting is Thursday, 2014 January 2, 23:59 PST.

As an incentive for voting, 3 participants, drawn at random, will each receive a copy of the excellent "Skyways Astronomy Handbook for Teachers" (ou, en francais, "Explorons l'astronomie") by Mary Lou Whitehorne. Congratulations to last year's winners, Laurie Mersereau, Elaine Pelletier and Daniel Loas.

You have 10 votes that may be used in a flexible fashion. For example, you may choose to give 1 vote to each story you think makes your top ten. But what if you can't really decide that there are 10 stories you think are important? You then may give more votes, to a maximum of 5, to a single story that you believe is far more important than others, with your next most significant story only receiving a maximum of 4 votes, leaving you with just 1 vote for your 3rd place story. You cannot give 2 stories 5 votes each. Perhaps you like 8 stories, you can choose to double-up the votes on your top 2 stories or give 3 votes to your single most favourite on your list. How you choose to vote is up to you, but please do vote!

I would like to acknowledge the assistance of Larry McNish, Ron Macnaughton and Colin Haig in compiling these stories. 2012's list is on the web here:

http://calgary.rasc.ca/2012_top_ten.htm

Here is this year's short list in random order; please use the item # as it will help in tallying your votes:

- 1- Lowest solar maximum in many decades http://www.nytimes.com/2013/09/24/science/space/the-sun-that-did-not-roar.html?_r=0
- 2- Comet C/2011 L4 PanSTARRS dazzles astronomers <http://apod.nasa.gov/apod/ap130518.html>
- 3- The Great Russian Meteor of 2013 - explosion above Chelyabinsk, Siberia on Feb 15 while the world's telescope were pointed the other way for the close pass of asteroid 2012 DA14
- 4- City of Calgary passes comprehensive Light-Pollution Bylaw <http://metronews.ca/news/calgary/626166/calgary-light-pollution-bylaw-unanimously-approved/>
- 5- New Dark-Sky Preserves in Wood Buffalo National Park, Alberta and Northwest Territories and in North Frontenac Township, Ontario
- 6- Sequestration cuts back NSF and NASA funding in states
- 7- University of Calgary CASSIOPE space weather satellite launched <http://www.asc-csa.gc.ca/eng/satellites/cassiope.asp>
- 8- Canadian science instruments aboard ESA's 3-satellite SWARM mission <http://www.ucalgary.ca/utoday/issue/2013-11-22/university-calgary-technology-part-european-space-agency-mission-launched-space>
- 9- Canadian astronaut Chris Hadfield commands the ISS and becomes a social-media star
- 10- Mars rover Curiosity starts drilling into rocks - <http://www.sciencedaily.com/releases/2013/02/130225185603.htm>
- 11- RASC adopts new governance structure in order to comply with new government regulations
- 12- Cutbacks close the Centre of the Universe educational centre near Victoria, with news of a potential reopening pending <http://www.timescolonist.com/deal-near-for-limited-reopening-of-centre-of-the-universe-1.709120>
- 13- Triple planetary conjunction in May
- 14- Annular solar eclipse traverses Australia and Pacific Ocean in May 2013 <http://earthsky.org/astronomy-essentials/annular-eclipse-of-sun-on-may-10-2013>
- 15- Tiny Earth captured in Cassini's glorious image of Saturn http://www.slate.com/blogs/bad_astronomy/2013/11/12/saturn_incredible_mosaic_of_the_ringed_wonder.html
- 16- brightest gamma-ray burst ever <http://www.bbc.co.uk/news/science-environment-25041335>
- 18- NASA's *Kepler* Discovers hundreds of New Planet Candidates, suggesting that at Least 100 Billion Planets Populate the Galaxy <http://www.sciencedaily.com/releases/2013/01/130107143111.htm> and <http://www.sciencedaily.com/releases/2013/01/130103143422.htm>

- 19- Biggest Structure in Universe: Large Quasar Group Is 4 Billion Light-Years Across
<http://www.sciencedaily.com/releases/2013/01/130111092539.htm>
- 20- NASA's Van-Allen Probes Reveal a New Radiation Belt Around Earth
<http://www.sciencedaily.com/releases/2013/02/130228155430.htm>
- 21- Closest Star System to Earth Found in a Century
<http://www.sciencedaily.com/releases/2013/03/130311124052.htm>
- 22- Thirty-five years after launch, Voyager 1 appears to have exited the heliosphere,
<http://www.sciencedaily.com/releases/2013/03/130320134256.htm>
- 23- Best Map Ever Made of Universe's Oldest Light: *Planck* Mission Brings Universe Into Sharp Focus
<http://www.sciencedaily.com/releases/2013/03/130321084221.htm>
- 24- Canada government restricts science budgets to projects with more immediate "payback"
- 25- Astronomers Discover New Kind of Supernova <http://phys.org/news/2013-03-astronomers-kind-supernova.html>
- 26- Comet ISON tantalizes, then disappears and resurrects, phoenix-like, after close encounter with Sun
- 28- Search for Dark Matter: Experiment (on the ISS) Measures Antimatter Excess in Cosmic-Ray Flux
<http://www.sciencedaily.com/releases/2013/04/130403115313.htm>
- 29- NASA's Asteroid Initiative announced: Robotically Capture Small Near-Earth Asteroid and Explore It
<http://www.sciencedaily.com/releases/2013/04/130411113453.htm>
- 30- Ancient Supernova material found in Meteorites: Supernova May Have Been the One That Triggered the Formation of the Solar System <http://www.sciencedaily.com/releases/2013/04/130422111246.htm>
- 31- *Herschel* telescope bows out after successful mission <http://phys.org/news/2013-04-herschel-telescope-successful-mission.html>
- 32- 'Shockingly Bright' Burst of Gamma Rays from Dying Star in Distant Galaxy
<http://www.sciencedaily.com/releases/2013/05/130503151506.htm>
- 33- Moon and Earth Have Common Water Source
<http://www.sciencedaily.com/releases/2013/05/130509142054.htm>
- 34- Detection of the Cosmic Gamma-Ray Horizon: Measures All the Light in the Universe Since the Big Bang <http://www.sciencedaily.com/releases/2013/05/130524104644.htm>
- 35- Cosmic Glitch: Astronomers Discover New Phenomenon in Neutron Star
<http://www.sciencedaily.com/releases/2013/05/130529130522.htm>
- 36- *Kepler* spacecraft's breakdown changes NASA mission's course
<http://apod.nasa.gov/apod/ap130403.html>

38-Partial phases of rare annular-total eclipse seen from Canada and Canadian observers travel to centre line in November 2013 <http://www.skyandtelescope.com/observing/highlights/Novembers-Hybrid-Solar-Eclipse-First-Reports-230454151.html>

39- launch of Canadian *NEOSSAT* <http://www.asc-csa.gc.ca/eng/satellites/neossat/>

40- Construction begins on Canada's largest radio telescope <http://phys.org/news/2013-01-canada-largest-radio-telescope.html>

41- Atacama ALMA fully operational

42 - 10-year-old Nathan Gray, youngest discoverer of a supernova, keeps it 'in the family'
<http://www.universetoday.com/105963/10-year-old-boy-discovers-a-600-million-year-old-supernova/>

Asteroids with a Canadian Connection

by [Eric Briggs](#), Toronto Centre

A few new asteroids have been named to the List of Asteroids with Canadian Connections:

(198450) Scattolin

<http://www.rasc.ca/content/asteroid-198450>

Patrice Scattolin (b. 1965) is one of the foremost amateur observers in Canada. With Laurie Williams, daughters Clara and Sophie, and son Marc, the Scattolin family has worked tirelessly to motivate people to enjoy the sky. Clara's "Star Trek Observing List" is a groundbreaking effort to bridge the sky with science fiction.

(273987) Gregwade

<http://www.rasc.ca/content/asteroid-273987>

Gregg Wade (b. 1971) is a Canadian astrophysicist recognized as a leading expert in the study of magnetic fields in medium and high-mass early-type stars. He is a professor of physics at the Royal Military College (Kingston) and adjunct professor of physics at Queens University.

(362793) Suetolson <http://www.rasc.ca/content/asteroid-362793>

Suzanne G.M.R. Tolson (1959-2013) was a human resources specialist at National Research Council Canada, both in Ottawa and at the Herzberg Institute of Astrophysics in Victoria. She helped create a strong, productive scientific, technical and administrative staff to support scientific and engineering expertise.

These are listed on the Web site, www.rasc.ca/canadian-asteroids.

Observer's Calendar 2014

by [Deborah Thompson](#), Executive Director

This year's calendar is a hot-ticket item. Limited quantities left. Don't miss out. Contact the Society office to order yours today at 416-924-7973 or email [Deborah Thompson](#)

Vintage RASC T- Shirts – Limited Run

Just in time for the upcoming holiday season, we are pleased to announce the new vintage RASC t-shirts are now available to order.

The t-shirts will be available in navy blue and black from size small to x-large.

Please [contact the Society](#) office to place your order.

Sizes available while quantities last



RASC News

by [James Edgar](#), RASC, National Secretary

The Board of Directors accepted a report from the Awards and Nominating Committees, and, through a motion at the Board meeting on Saturday, November 23, agreed to implement a new award called "Fellow of the Royal Astronomical Society of Canada." Awardees will be entitled to use the letters FRASC as post-nominal letters. The Awards Committee will be putting out a call for nominations in the new year, with the first awards expected at the Victoria GA in June. More information will soon be placed on the Society Awards Web page.

A page has been created on the Members-Only part of the RASC Web site where minutes from the Board of Directors meetings are posted. Access the page at <http://www.rasc.ca/bod-meeting-minutes>

Unplanned Naked Eye Observation of Ganymede and Callisto

by [Chris Purton](#), Okanagan Centre

Serendipity is nothing new to astronomy, and it certainly contributed to a remarkable naked-eye observation of Jovian satellites on November 12. This occurred while I was car pooling home from an Okanagan Centre RASC meeting in Kelowna with three other club members, Dave Whalley, Alan Whitman and Dave Gamble. During a stop in Summerland to change cars I noted, through a clear gap between clouds, a star very close to brilliant Jupiter. It was an interesting sight, but questionable as they were so close, and none of the other three could confirm the observation. However, I saw the same thing with each eye independently, and estimated separation of the pair to be very roughly 5' (by imagining a silhouette of the Moon overlaying the pair) with the star in the 8 o'clock position relative to Jupiter.

The following day I consulted Jupiter's ephemeris but the only naked-eye star nearby at the time was 3.5 mag. delta Geminorum about 2 degrees to the west, many times further away than the object I'd glimpsed. But then Dave Gamble, who had checked the configuration of the Galilean moons, alerted me to the fact that Callisto had had a reasonable eastern elongation at the time which would have put it close to the 8 o'clock position. A naked-eye observation of 5.8 mag. Callisto so close to Jupiter struck me as unlikely, but after checking the satellite configurations in the Observer's Handbook and finding Callisto-Jupiter separation to be roughly the same as my visual estimate, the idea was elevated to an intriguing possibility.

The clincher came when Alan Whitman investigated further and found that at the time of the observation Callisto and Ganymede were only 48 arcseconds apart, too close for resolution with normal unaided eyes. He figured their joint magnitude to be about 4.4, noted they were 6 and 5.2 arcminutes respectively from the planet, and estimated their position "on the clock face as 7:20", all tying in nicely with what I'd seen. His conclusion was that I "had convincingly spotted the two most distant Galilean satellites as an unresolved single object when they were best positioned for doing so, and importantly, with no foreknowledge of their position."

Astronomical serendipity. It really was delightful . . . with the additional feature of being backed up by two of Canada's top observers who could help in figuring out what I'd seen. Many thanks to them.



Positions of Ganymede and Callisto relative to Jupiter at 2310 PST, November 12. The two apparently bright stars near the satellites are 12th magnitude. Prepared by Dave Gamble, using Guide 8.

Chris Purton is a retired DRAO radio astronomer, and six decade member of RASC.

Viewing Resumes at the Centre of the Universe

by [Chris Gainor](#), RASC, 2nd Vice-President

Efforts to save the Centre of the Universe (CU) educational centre at the Dominion Astrophysical Observatory near Victoria appear to have borne fruit with a meeting that brought together officials from the National Research Council of Canada (NRC) with the RASC Victoria Centre and other groups from the community.

Victoria Centre members have a long tradition of public outreach on the observatory grounds, bringing their telescopes to show astronomical objects to visitors, usually on Saturday nights in the warmer months, with members of the public also getting a glimpse of the research work going on at the two-metre Plaskett Telescope.

The CU, which includes an interactive museum and a small planetarium, opened in 2001, and skilled staff ran educational programs for both adults and children. RASC members continued their volunteer outreach in evening programs.

The CU closed in August after the NRC decided to end programming there because of budget restraints that no longer made it possible for them to continue to subsidize the operation of the CU. The decision proved to be very controversial in Victoria and led to the circulation of two petitions that obtained many signatures.

At the November meeting organized by local provincial politician Lana Popham and attended by NRC

vice-president Dan Wayner, RASC Victoria members including Centre president Nelson Walker, and about 30 other people, the Victoria Centre agreed to resume its Saturday evening sky viewing if the NRC makes the Plaskett Telescope available for tours and continues to provide security on the site.

The University of Victoria, which provides science programs to school-age students through its Science Venture program, is also in discussions with the NRC to pick up programming at the CU aimed at children.

Walker called the meeting a “qualified success” and expressed hope that public viewing could resume next spring. The meeting set up two committees – one to help get programs up and running in the coming months and another to develop longer term and more ambitious programs for the CU.

Correction to Observer's Handbook

by [Dave Chapman](#), Observer's Handbook Editor

Mea culpa. Any previous Handbook editor will tell you it seems impossible to produce an annual Handbook that is error-free, and I will say the same; however, this year I am personally responsible for a real doozy: In “The Sky, Month by Month,” on p. 99, the listing for January Events has the wrong diagram for the appearance of Jupiter’s Moons! All reported Handbook errors can be found at the URL www.rasc.ca/2014-edition-updates

Clear skies!

Gift of Membership

by [Deborah Thompson](#), Executive Director

Membership to The Royal Astronomical Society of Canada (RASC) makes a wonderful gift, one that can be enjoyed year-round.

A Gift of Membership can be purchased by calling by the Society office at 416-924-7973 or 888-924-7272 (toll-free in Canada),

9 a.m. – 4:30 p.m. Monday-Friday.

A special package to notify your recipient(s) will be sent, at no additional charge.

Donate to The Royal Astronomical Society of Canada

by [Deborah Thompson](#), Executive Director

The Royal Astronomical Society of Canada has a long tradition of encouraging people to lookup and explore the night sky. For 145 years the Society has developed educational and outreach programs

dedicated to the advancement of astronomy.

Without the ongoing and generous support from the RASC community none of this would be possible.

3 easy ways to Donate!

1. Donate [online](#);
2. Call the Society Office at 416-924-7973 or 888-924-7272 (toll free in Canada);
3. Donate by mail. Cheques can be made to The Royal Astronomical Society of Canada and mailed to

4920 Dundas Street, Suite 203, Toronto ON, M9A 1B7

Tax Receipts will be issued for donations over \$25.00.

Registered Charity Number: 11912 6282 RR0001

What's New in the Sky

Members are encouraged to check out the [Northern Skies](#) section of the RASC Web site. Thanks to **Gary Boyle** for keeping us all in the know.



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