NOVA
NEWSLETTER OF THE VANCOUVER CENTRE RASC
VOLUME 2012 ISSUE 3 MAY JUNE 2012

Libra

by Bill Burnyeat

Libra is the scales and one of the zodiac signs. Its stars are faint and unremarkable although Beta, which seems a white star, is often labelled as greenish in the literature for no known reason. Oddly, it was labelled as brighter than it is today in the catalogue of the Greek astronomers. Since Libra is on the ecliptic, it entertains the Moon and planets from time to time and with Jupiter or Venus within it receives temporary compensation for a lack of its own bright objects. Libra might be called the Rodney Dangerfield of constellations. It "can't get no respect." In the early period, the stars that make up the scales were assigned to the nearby Scorpion and all the zodiac signs were animals, the "zoo" in the word is the familiar designation of nonhuman creatures. The scales were added, but only with envy from the neighbouring signs, for the Romans wished to scoop the stars and add them to Virgo, giving the lady the familiar robe carrying the scales of justice that are often portrayed in pompous courthouse statuary.

M5, which the author insists is rightfully in Libra

Libra is a problem. For us in the north its stars ride the meridian low in the early summer and, with very long days, lack of darkness prevents this constellation from displaying its wares. Also, Libra contains no first-magnitude star. In the Greek period, the astronomer Claudius Ptolemy felt sorry for Libra and called Beta the equal of Antares but nobody today is fooled by this, and the old explanation of stars changing

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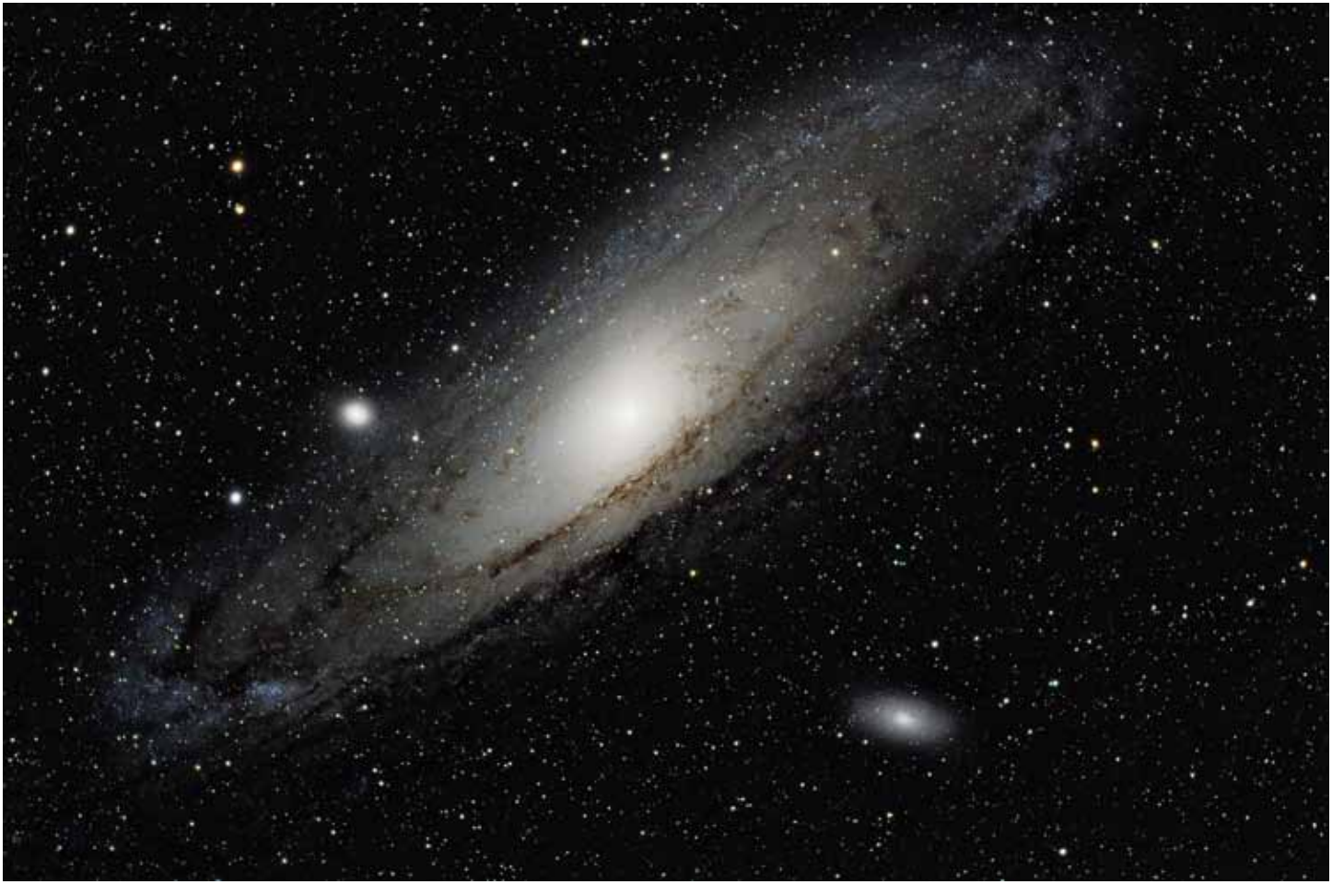
MAY 10 SFU
UBC Astronomer Ludovic Warebeke: New Maps of Dark Matter. See map on page 4 for room location.

JUNE 14 SFU
Members' Night. See map on page 4 for room location.

JULY 12 BCIT
Astronomy for Beginners. See Meetup for room location.



M31 by Mark Eburne

Image taken through a Takahashi 106 ED scope using a QSI 583 camera. Three hours of data (luminance and RGB) guided with an SBIG ST-i/PHD/ED80.

President's Message

by Howard Trottier

With our 2012 road show of public lectures nearing the halfway point, this edition of NOVA hits the membership table at the Burnaby campus of Simon Fraser University on Thursday, May 10. SFU is hosting our May public lecture, which seems fitting since our speaker is from UBC ;). He is Dr. Ludovic Van Waerbeke, who is an Associate Professor in the UBC Department of Physics and Astronomy. Dr. Van Waerbeke's topic is as "big" as it gets: The Big-Bang, Dark Matter and Dark Energy: where do we stand?

This year's lecture series has amply demonstrated one of the great strengths of Vancouver Centre's programming: our A-list speaker series, which owes in large measure to the discerning taste and extensive contacts of your Speaker Coordinator, Barry Shanko. We at Vancouver Centre are generally an unassuming bunch, and our lecture format is deliberately informal and low-key, so it may be natural for a casual guest to assume that our lecture series is typical of what one might find at any "amateur" astronomy club. For just a moment, I'm going to drop the informality,

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About RASC

The RASC Vancouver Centre meets at 7:30 PM on the second Thursday of every month at various locations in Metro Vancouver (see page 1 for meeting locations and page 4 for maps). Guests are always welcome. In addition, the Centre has an observing site where star parties are regularly scheduled.

Membership is currently $73.00 per year ($41.00 for persons under 21 years of age) and can be obtained by writing to the Treasurer at the address on page 5. Annual membership includes the invaluable Observer's Handbook, six issues of the RASC Journal, and, of course, access to all of the club events and projects.

For more information regarding the Centre and its activities, please contact our P.R. Director.

NOVA, the newsletter of the Vancouver Centre, RASC, is published on odd-numbered months. Opinions expressed herein are not necessarily those of the Vancouver Centre.

Material on any aspect of astronomy should be e-mailed to the editor or mailed to the address below.

Remember, you are always welcome to attend meetings of Council, held on the first Thursday of every month at 7:30pm in room P8445.2 of the Physics wing of the Shrum Science Centre at SFU. Please contact a council member for directions.

2012 Vancouver Centre Officers

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Honourary President Dr. John Macdonald

Trustees Sally Baker & Ron Jerome

Library

The centre has a large library of books, magazines and old NOVAs for your enjoyment. Please take advantage of this club service and visit often to check out the new purchases. Suggestions for future library acquisitions are appreciated.

On the Internet

http://rasc-vancouver.com or
http://www.rasc.ca/vancouver
http://astronomy.meetup.com/131/

@RASCVancouver

Mailing Address

RASC Vancouver Centre
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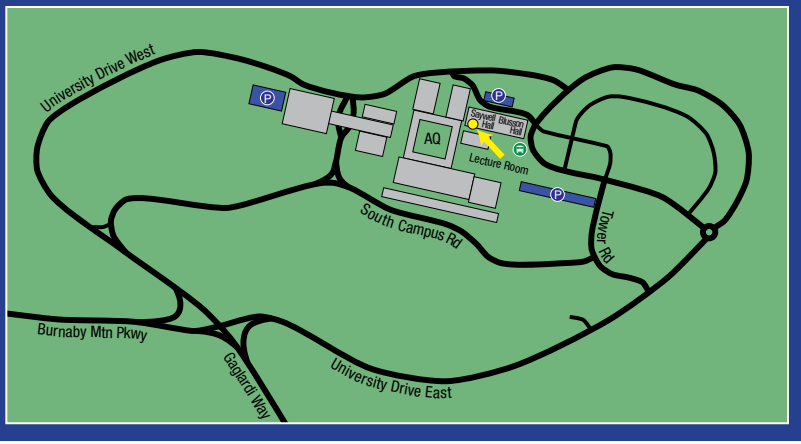
Maps to Meeting Sites



SFU

Our SFU meeting site is in room SWH10081 of Saywell Hall (indicated by the arrow on the map at left). Enter via Blusson Hall and walk west to Saywell Hall.

Pay parking is available at several lots located around campus (indicated as "P" on the map). The bus loop is just south of Blusson Hall.

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and boast: as a research scientist who has been a regular at "professional" lecture series around the globe, I can lend a broader perspective on the quality of Vancouver Centre's lecture series, and there is nothing "amateur" about it! The quality of our speakers, and the diversity of their topics, are consistently on a par with what one would find at a first-rate university's physics or astronomy department colloquium series, and you'd eventually bump into many of our speakers if you were regularly attending premiere international scientific conferences in physics and astronomy.

To wit, this year we've had another run of speakers of international standing from across Canada, as well as from south of the border, and the topics have been characteristically wide ranging: from one astronomer's very personal story of the search for ancient meteorites in Antarctica (courtesy of our January speaker, Dr. Ray Jayawardhana, Professor and Canada Research Council Chair, University of Toronto); to the history and sociology of astronomical doomsday scenarios, featuring this year's witless predictions of a world-wide transcendence or apocalypse—take your pick! (February's Dr. Ed Krupp, Director of the Griffith Observatory in Los Angeles); to a survey of the avalanche of data from the first-year of operations of the MESSENGER spacecraft at Mercury (March's Dr. Catherine Johnson, of UBC's Department of Earth and Ocean Sciences); followed by an account of a remarkable made-in-Vancouver initiative that has Canadian undergraduate students designing (and hopefully launching) their own micro-satellite missions (April's Larry Reeves, Founder and president of Geocentrix Technologies Ltd.); and on to this month's lecture, which will report on new, state-of-the-art astronomical observations that shed light (pun intended!) on what many consider to be among the greatest mysteries

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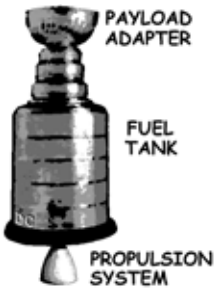

by Dan Collier

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brightness over the past few thousand years is something modern astrophysicists just won't buy. It's even worse. Libra has been the victim of a celestial theft. In older books the boundaries of Libra stretch north a bit and the wonderful Messier globular cluster M5 is within the scales. Then, they changed it all and gave M5 to Serpens. They gave away Libra's best object to a Snake. Well, they're not going to get away with it. So, for the purposes of this article I'm adding M5 to Libra. If somebody doesn't like it; that's just too bad.

M5 is one of the grandest of all deep-sky objects. This huge globular star cluster is one of the richest in the northern sky. M5 is clearly visible as a small disk in binoculars not far from a fifth-magnitude star in Serpens that is visible in finder scopes. It's located about 10 degrees due north of Beta Librae. The cluster is resolved into a swarm of stars even in a 60mm telescope and has a bright condensed nucleus with arms of stars that loop out irregularly from the middle. In this way, it is similar to M13 which also has star lines and loops across its bulk.

Mary Proctor described M5 as a "myriad of glistening points shimmering over a soft background of starry mist, illuminated as though by moonlight..." when she had the opportunity to view this cluster in the one-metre refractor at the Yerkes Observatory. Some of this magic can be recaptured in small telescopes. Showing M5 to the public in a big "Dob" never fails to draw gasps of astonishment as viewers peer into the eyepiece. It's truly a deep-sky wonder.

The star alpha (α), lower of the two main stars of the scales, is a wide double star of the type that can be enjoyed in very small binoculars or even in opera glasses.

39 Librae is called "very red" although its spectrum of K5 seems to point towards an orange colour. Each observer must decide this for themselves. This star is a double but its low altitude (it shares the same south declination, more or less, as Antares to the east) means horizon mists and bad seeing often fail to show the faint second star. If you can see both in a 150mm telescope, you may pat yourself on the back. This star is also labelled by the Greek letter upsilon (υ) on star maps.

Looking skyward as cool weather retreats and summer advances may suggest a kind of balance as the seasons momentarily pause and nature seems to be resetting itself. The scales seem a fitting sky sign for this and the notion of a balance here is ancient and traditional up to the time when such fancies were dropped as not productive of exact science. A parody of the balance and scales is found in the "Dream" of Joseph Addison and printed in the *Tatler* in the early 18th Century. He relates how going to bed one night he dreamed:

"Me thought I saw the same azure sky diversified with the same glorious luminaries which had entertained me a little before I fell asleep. I was looking very attentively on that sign in the heavens which is called by the name of the Balance, when, on a sudden, there appeared in it an extraordinary light, as if the sun should rise at midnight, By its increasing in breadth and lustre, I soon found that it approached towards the earth; and at length could discern something like a shadow hovering in the midst of a great glory, which, in a little time after, I distinctly perceived to be the figure of a Woman. I fancied at first, it might have been the angel, or intelligence that guided the

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Membership has its Privileges!

New members, did you know? The Vancouver Centre has 8 telescopes available for loan free of charge! We have telescopes ranging from 60mm to 10" diameter. For more information see the Director of Telescopes after the members meeting. The loaner period is for one month, to be returned after the next meeting. Telescopes are not allowed to circulate outside of these meetings. You can now reserve two different telescopes per year and use what is left at the end of the meeting anytime.

Your greatest opportunity as a member of the RASC is to take advantage of the company of other enthusiasts to increase your knowledge, enjoyment and skill in astronomy.

The best thing you can do to gain the most from your membership is to get active! Take in the club meetings; engage other members with questions; come out to observing sessions (also known as "star parties"), and, by all means, volunteer to take part in our many public events.

For the usual observing sites and times, visit our website at http://rasc-vancouver.com/observing-sites/ or contact the Observing Chair at observing.rascvancouver@gmail.com.

Upcoming Events

May
20 – Annular solar eclipse in sothern Oregon/northern California (partial in Vancouver)

June
5 – Transit of Venus
28 - July 2 – RASC GA in Edmonton

August
11 - 19 – Mt. Kobau Star Party

September
8 - 15 – Merritt Star Quest
22 – Paul Sykes Lecture (speaker TBA)

December
8 – AGM

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in modern science: the nature of the mysterious dark matter and dark energy, which together account for about 96% of the matter/energy content of the universe!

Now, Vancouver Centre is far more than "just" a first-rate speaker series, Barry is "only" one from among an extraordinary team on this year's council, and council is only a small slice through our remarkably able and talented membership. Since our guests and even many of our members don't know our councillors very well, if at all, we started a series of profiles of council members in the last edition of NOVA. We will continue with three or four profiles in the remaining editions of NOVA for 2012, to cover all of this year's council. Please think of them as representing the broad membership of Vancouver Centre, and to that end, I've asked council members to write a short profile of themselves, emphasizing why are they into astronomy, and what brought them to Vancouver Centre.

In the last edition of NOVA, we heard from three new council members, part of a new cohort that has taken a deep plunge into service: Deidre Sportack (Merchandise Chair), Oleg Mazurenko (Observing Chair), and Scott McGillvary (Public Relations Chair). In this edition we have four new profiles: Ciara Morgan-Feir, and Rohit Grover (Membership co-Chairs), Harvey Dueck (IT and Webmaster), and Jim Ronback (Councillor at large).

I hope you'll take a few minutes to read these profiles (if you missed the first set in the March/April edition, you can download past editions of NOVA from the Vancouver Centre website: http://rasc-vancouver.com), and the next time you see a council member you recognize, walk up, introduce yourself, and start a conversation!

Vancouver Centre council members lead by the example of their especially deep commitment, but we can't do it alone: we need your help, both financially, through membership and donations, and by participation, as a volunteer at one or more of our many events.

If you are not already a member—what are you waiting for?! You can join on-line through the National RASC web site, at http://rasc.ca/ — be sure to specify Vancouver Centre for your local affiliation—or drop by our membership table at any of our lectures and events. To volunteer, contact your masterful Events Coordinator, Suzanna Nagy, at events.rascvancouver@gmail.com.

In other news, we held a very successful series of public outreach events since the last edition of NOVA appeared. Two events stand out for their broad reach: on Saturday, March 24, we participated in Metro Vancouver Parks' annual "Night Quest" in Pacific Spirit Regional Park; and on Saturday, April 28 we put on an ambitious two-part program for International Astronomy Day, spending the afternoon at the Space Centre, and the evening at SFU's Burnaby campus. We had over 500 guests at each of these two functions!

There was only one downside to these events: at the start of the evening lecture at SFU on Astronomy Day, Suzanna, the engine that powers our public outreach program, fell heavily on her arm when she missed a step coming out of a row at the auditorium. Suzanna saw her arm twist backwards, and heard a snap: she had broken her forearm in two places. Suzanna remained calm, steeling herself against the shock and pain while waiting for SFU security and first-aid to arrive on scene, and then as Doug Montgomery (a former long-serving council member) drove her to Burnaby Hospital. Fortunately, an orthopaedic surgeon very quickly attended to Suzanna, and she was admitted for surgery, which took place the following day. Fortunately, she is doing well and returns to work

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next week. She is one tough cookie! I hope you'll express your appreciation for all her hard work when you spot her at our next event.

Speaking of which, RASC Vancouver will mount a major public outreach effort for the transit of Venus on Tuesday, June 5. We'll be at two locations, the H.R. MacMillan Space Centre and at Burnaby Mountain Park. We will be handing out free eclipse glasses, which provide a safe and pleasing way to view the transit, and we will also have a variety of specialized solar telescopes, equipped with proper filters. Also, look for us to try again for an observing night on the last Saturday of the month.

As always, look for detailed information on all of our activities on our Meetup social networking site:

http://www.meetup.com/astronomy-131/

and follow us with real-time updates on Twitter: @RASCVancouver.

In the meantime, I hope that you will:

"Keep Looking Up!" (*) ✸

Howard Trottier
President, RASC–Van
Professor of Physics, SFU

(*) Jack Horkheimer, the greatest of Star Gazers.

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constellation from which it descended; but, upon a nearer view, I saw about her, all the emblems with which the goddess of justice is usually described. Her countenance was unspeakably awful and majestic, but exquisitely beautiful to those whose eyes were strong enough to behold it; her smiles transported with rapture, her frowns terrified to despair. She held in her hand a mirror, endowed with the same qualities as that which the painters put into the hand of truth."

He goes on to describe the goddess, armed with the mirror of truth, righting wrongs and placing people in a true scale of merit. The penniless writer of genius is boosted in status while the publishers, grammarians and university seers are cast into misery. So, there is more to the constellations than just isolated points of light.

One final note on Libra is it will soon sport one additional object. Saturn will arrive at the west gate of the scales this December and spend all of 2013 and 2014 within Libra. Now is a great opportunity to get more familiar with the sky down here. ✸

Observing Report

by Oleg Mazurenko

Dear Astronomy lovers. Following are the highlights of the monthly report for April 2012.

Mars, Saturn and Venus are in good position for observing.

AOMO collimation is complete—not perfect, but much better. The next goal is to get sharp images of the stars before the warm weather arrives (if ever).

With the warmer weather comes solar observing season. Safety first! The proper solar filters must always be put on when observing the Sun.

20 May – Annular solar eclipse in northern California and Nevada. The eclipse will be partial in Vancouver. Times for Vancouver: C1: 16:58; Max: 18:15 (80%) C4: 19:23.

26 May – Boundary Bay observing night (Scott will be on site). This is normally held at the foot of 72nd St. in Delta (Boundary Bay) but we are exploring the possibility of a new location at Boundary Bay Regional Park. Check the website and Twitter for updates closer to the date.

26 May – Grazing occultation of 5.1m star κ Cancri by the Moon (33% illumination) at 22:45 PDT. Occultation path runs through Nanaimo & north of Seattle. It will be possible to observe the star's close fly-by at Boundary Bay.

4 Jun – Partial lunar eclipse in the early morning. The eclipse starts around 03:00 PDT, max around 04:03 PDT (38%). Eclipse ends at 05:07 PDT.

5 Jun – Venus Transit:

We will continue testing our solar observation equipment. We have the capacity to record video with the Equinox-80 and LXD75 mount. We will be imaging the Sun at noon on every clear Sunday in May in preparation for the transit.

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Council Bios

Rohit Grover, Membership Co-Chair

Hello! My name is Rohit Grover and I am one of the Membership chairs of the Royal Astronomical Society in Vancouver (RASC). Astronomy was and still is a big part in my life. It all started at the age of fourteen while I was in high school in Abu Dhabi. On a clear night with my friends, my eyes were attracted to two bright 'stars' in the night sky. I was deep into a conversation so did not pay much attention. After coming home I finally decided that I must know what I saw earlier. The moment I got on the internet and what I saw just completely amazed me. It still does, as a matter of fact. It was Venus and Jupiter. Two of the brightest object (at that time in the night sky) were actually planets. How cool was that?! As I progressed in high school, I fell deeper into astronomy. I was at the point where I was teaching my father about planets and stars.

After completing high school, I moved to Vancouver to pursue my degree in Economics. During my first two years, I was pre-occupied with my part-time job and school so never had other interests. However, I still had a love for astronomy which meant I was constantly watching documentaries and movies related to my favourite hobby. In September 2010, instead of me finding Astronomy, it found me. It all started with taking an introductory course in astronomy offered at Simon Fraser University by Dr. Howard Trottier. In short, the course renewed my love for astronomy. Moreover, Dr. Trottier encouraged it as well! Within no time, I found myself being more interested in the course rather studying for my other subjects. (We can blame our Dear President for that!). After having more conversations with Howard, I was introduced to RASC–Vancouver.

My interest in astronomy is more than just normal observing sessions. My final goal is to do astrophotography. From the start, I always found deep-sky images the best part of astronomy. Hopefully with time this will happen.

Now, I am a member of council. Time has passed so quickly that sometimes I am surprised being on council. The reason why I am on council is to bring a younger audience and introduce them to astronomy. It is in my mind that there is a lack of outreach in Vancouver. Students nowadays are finding it hard to find themselves, or even find a purpose in life. My purpose on council is to show the younger audience why it is "cool" to be an amateur astronomer. By having the help of council and even the members of RASC, this can be accomplished. I urge every member to spread the message and show other people why it is "cool" to be an astronomer.

Harvey Dueck, Webmaster

When I was 10 years old, I took a copy of Heinlein's *Rocket Ship Galileo* out of the library. After that, I read all the science fiction stories I could find, which naturally led to an interest in space travel, space in general and life on other planets. I like reading about cosmology and wondering about the history of the universe. Somehow that never translated to an interest in actually looking at the stars until the fall of 2004, when I went on a kayaking

trip in the Queen Charlotte Islands. The view of the Milky Way overhead at night was so spectacular, it made me wonder what I could see if I had my own telescope. Since then, I have been trying to find out.

I started observing from my front yard. The next summer, I went to the Mount Kobau Star Party, where I met many friendly and knowledgeable people who taught me a lot about the night sky. Some of those people were RASC council members. I joined the RASC and started attending meetings. After a couple of years, I decided to help out on council as a way to pay forward the help I'd been given.

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I admire the astrophotographers. I admire even more those amateurs who manage to do scientific work. So far, I've only done visual observing for my own amusement. I'm slowly learning the sky. It has been nearly eight years now and I certainly haven't run out of new things to see.

Jim Ronback, Councillor

Being a contented and retired System Safety engineer and an old fart, I'm interested in how we and some other species survive on this tiny blue speck of a planet, called Earth, our home revolving around our tiny star called the Sun.

I have enjoyed a varied and interesting engineering career since graduating in 1962 from the University of Waterloo Co-op program with five other electrical engineers in their first class of engineers.

Since then, I've had many years of experience in system engineering, software engineering, safety and dependability assurance. At one time, I participated in the independent validation of the assembler code used in Darlington Nuclear Power Station Safety Shutdown System and developed hard real-time process control monitoring software for the Heavy Water Plant in Glace Bay. I've also worked in system safety assurance in a variety of other high-profile projects including the International Space Station and the Canadian Automated Air Traffic System (CAATS). A common denominator of these safety critical projects is the dominance of human factors and reliability as a contributor to the safety of technically complex activities in systems with embedded computers and humans in the control loops (e.g., air traffic control, robotics for manned space flight).

Since retiring in 2001, I've taken on some local environmental issues. This occurred after my daughter, Lisa, gave me an 8-inch Celestron telescope. I found out that there was a significant amount of light pollution around my home that prevented me from enjoying the splendour of the night skies, especially the Milky Way. Fortunately, I found a small sweet spot where the three streetlights around my home and the neighbours' security lights were partially blocked by mature trees and hedges. Much of the street lighting around my house shines directly into our windows and spills into the sky around us. It is all wasted energy. So I joined the Royal Astronomical Society of Canada in Vancouver and helped out with their national and local Light Pollution Abatement committee and lobbied the Delta Council on the severe light pollution issues arising from the local greenhouses that lit up the skies at night. We had partial

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success in getting them to turn off their lights at night. The night sky is still too bright around my home for deep sky viewing so sometimes I get my fix and go to the Mount Kobau Star Party in the Okanagan to see the Milky Way cast my shadow on a moonless clear night.

Ciara Morgan-Feir, Membership Co-Chair

My name is Ciara and I am one of this year's new councillors. Together with another councillor, Rohit Grover, I take care of RASC Van membership. I am the youngest member of the council, and a university student at SFU. In my first year physics class, it was broadcast that a professor needed volunteers for his astronomy workshops for young children. I decided that some volunteer work was just what I needed, so I went to a workshop. I found that it was incredibly fun not only to work with school-age children, but also to learn about astronomy. After a semester of helping with every astronomy outreach event I could get my hands on, I became the president of the SFU Astronomy Club, a position I have held for two years since then.

When I'm not busy with my schoolwork, you can find me teaching. I work part-time for a non-profit, undergraduate-run science outreach education program at SFU called Science AL!VE. We don't offer anything in astronomy yet but I think it's coming this summer! I also teach First Aid and Health Care Provider CPR to all ages. I spend a great deal of time working with other students to build community at SFU. A large part of this is recruiting prospective students.

So what do I do when I'm not working? If it's clear, I've been know to haul out my 8" Celestron and spend the night under the stars. I also love kickboxing and yoga, and I can often be found on weekends at the swimming pool. And I always make time for RASC meetings, of course! ✸

Discover the Universe – Online Workshops for Educators

Following the success of our pilot program last year, we are pleased to offer our astronomy workshops for informal educators in English and French in 2012. Our online workshops, which will run from May 14th to June 1st, will cover basic astronomy concepts, activities to learn the sky, tips on how to run astronomy activities and much more! Our goal is to help educators feel more confident sharing the wonders of the night sky with their audience.

To register and to find more information, please visit www.discovertheuniverse.ca. All our workshops are free!

Discover the Universe / À la découverte de l'Univers is a project originating from the Canadian activities during the International Year of Astronomy 2009. It is offered by the Royal Astronomical Society of Canada, the Canadian Astronomical Society and the Fédération des Astronomes Amateurs du Québec, with additional funding from NSERC-PromoScience. ✸

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First contact at 15:05:56 PDT (Alt 55) and lasts until sunset. C1 P = 41 degrees (contact position angle is measured counter-clockwise from equatorial north on the solar disk). We will test on the full Moon around 5 May and 4 June.

RASC Vancouver may have a representative in Hawaii for the transit observation.

Finally, continued building a guiding setup on Alt-Az mount. After some testing under the stars revealed issues, ran diagnostics on the driver using ASCOM utilities. Determined the issue to be ASCOM driver compatibility with the platform. Reviewing issues with driver developer's team at iOptron. ✸

Comet Garradd
by Oleg Mazurenko

Imaged: September 4, 2011 at Manning Park, BC, Canada.
Canon 350D camera with Equinox-80, ISO 1600 and exposure of 2 minutes.