NOVA

NEWSLETTER OF THE VANCOUVER CENTRE RASC

VOLUME 2005 ISSUE 4 JULY/AUGUST 2005

Looking Ahead

Remember, you are always welcome to attend meetings of Council, held on the first Tuesday of every month at 7:30pm in the G.S.O.

July 12: Members' Night.

Aug. 9: TBA

Next Issue Deadline

Material for the September Nova should submitted by Monday, Sept. 5, 2005. Please send submissions to:

Gordon Farrell
(gfarrell@shaw.ca)

The Chris Graham Robotic Telescope: Calling All Interested Parties

by Craig Breckenridge

By now you should be aware that Vancouver Centre has embarked on a new adventure that involves a remotely collected observatory that is funded by our benefactor, Chris Graham. The 'robotic' telescope (which has been ordered) will be a 20" Ritchey Chretien that will be mounted on a Paramount ME equatorial head. The telescope will be housed in an automated dome located in New Mexico.

One of the main features of this telescope is that it will be operated remotely from Vancouver! Just think of those southern skies far from any light pollution with the latest in imaging equipment at hand!

In order to operate the telescope and to manage the various projects and data analysis, we will set up three Committees that will be managed by the RASCVC but may include members of UBC, BCIT, The HR MacMillan Space Centre and others. The RASCVC will maintain full control of the telescope's operation with the exception of time set aside for Chris' own use.

The three Committees are: **The Telescope Operations Committee, The Telescope Operators** and **The Data Analyzers**. Each of these groups will be discussed loosely below, but the final organization of them should come from within the groups themselves. A member is welcome to sit on as many committees as they wish and to take part in as much of the operations as they desire.

The Telescope Operations Committee will oversee the daily operation of the telescope. By this we do not

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It is All a Question of Geometry

by Marc Verschueren

Let no one untutored in Geometry enter here

This appears on the title page of Copernicus' fundamental book, *The Revolutionibus*, which contains his proposal for a heliocentric universe. Geometry has always been my most favourite mathematical subject. It goes back to my days at high school. It has the beauty of the drawings combined with the rigorous logic of the theorems. It is one of the most perfect expressions of the human mind. I still remember the 9-point circle of Euler, or that 2 parallel lines are a special case of an ellipse.

I was never very far from astronomy. Circles were perfect orbits so the astronomy of Ptolemeus was based on this prejudice. The orbits of the planets had to be described by a combination of these perfect orbits. That this was not so was the triumph of Kepler—planets described ellipses around the Sun. The degenerate ellipse as two parallel straight lines fits into this picture; If an object attracting another by gravitation is infinitely far away, the orbit will indeed be a straight line, at least in Eucledian geometry. The same, of course, is true for an object falling to the centre of a spherical planet. If you drop an object on the floor it follows a straight line, as long as you give it no lateral velocity.

Why did I start thinking about all this again? I read a comment in a book: Look at a light bulb in a room; it has about the same angular size as the moon in the night sky. How could anybody possibly walk on the moon if it is so small? This is a question of geometry. We have to take the perspective into account. If the moon is far enough away it will look that small to us. This is trivial to us, but it is not really trivial. There is a big assumption being made here. How do we really know that the moon is so far away? Some nice lady asks you in the coffee shop, "You, stargazer. How do you know how far away the moon is?" The old Greeks already had an answer for this, not very exact, but close enough. They used the size of the shadow of the earth during a lunar eclipse and the duration of the transit of the shadow across the moon. The combination of these two elements can give the distance between the moon and the earth, if you know the diameter of the earth. And that they did.

It has always interested me how people became aware of the fact that we live in very large space, the universe. Before Copernicus, many philosophers were of the opinion that the heavenly bodies were just above the clouds somewhere. But Copernicus realized that if the earth indeed moved around the sun that this would create a parallax effect for the stars. We should see them move in a yearly motion with respect to the Sun. In the days of Copernicus, no such parallax was observable. Copernicus correctly concluded from this that the stars had to be very much farther away than the Sun. It took a long time, 'til the 19th century, before this parallax was actually measured.

I love geometry, and astronomy is part of my life now. The connection between the two is no accident. Before Einstein, we always thought that the universe was a space filled with matter. Now we know that the matter in the universe defines the characteristic properties of space. Space and matter appear both in the fundamental Einstein equation—they are not really separate items.

So, today I am even more fascinated by geometry than when I was young, looking at circles an ellipses. ✸

President's Message

The May 2005 GA in Kelowna was well organized and well attended. Speakers ran the gamut from the science of Jaymie Matthews to the "art" of David Levy. The field trips included a winery tour as well as a visit to the Dominion Radio Astrophysical Observatory. The National Council meetings and the AGM were punctuated with the politics of finance as the RASC struggles with the challenges of providing member services while trying to regain its financial footing. The upshot of all the machinations was the "near" adoption of a plan to make the Journal primarily an online publication. Implementation is contentious but it is the one idea that, in a single stroke, would have the most impact on the Society's financial problems. The only disappointment is the long and tortuous route required to bring the benefits to fruition. Meanwhile, a $5.00 increase in membership fees buys a little time.

While the GA was in full swing, Norman Song represented the RASC and Vancouver Centre as a judge at the Canada-Wide Science

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About RASC

The Vancouver Centre, RASC meets at 7:30 PM in the auditorium of the H.R. MacMillan Space Centre at 1100 Chestnut St., Vancouver, on the second Tuesday of every month. Guests are always welcome. In addition, the Centre has an observing site where star parties are regularly scheduled.

Membership is currently $55.00 per year ($31.25 for persons under 21 years of age) and can be obtained by writing to the Treasurer at the address below. 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 on page 5.

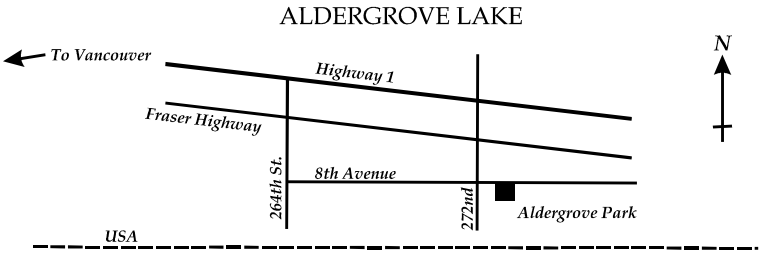
Advertising

Nova encourages free use of its classified ads for members with items for sale or swap. Notify the editor if you wish your ad to run in more than one issue.

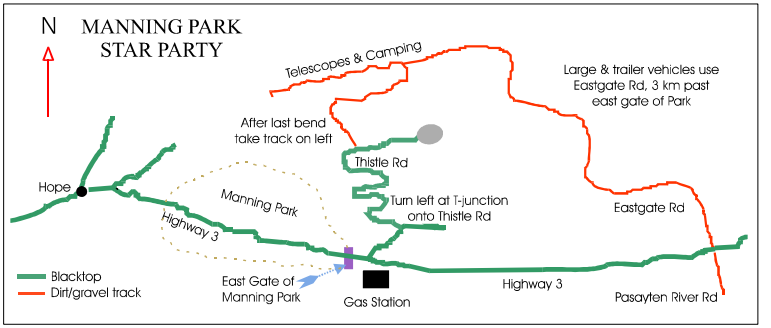
Commerical Rates

1/4 Page: $15.00 per issue
1/2 Page: $25.00 per issue
Full Page: $40.00 per issue
Rates are for camera-ready, or electronic files. Payment, by cheque, must accompany ad material. Make cheque payable to: RASC Vancouver Centre.

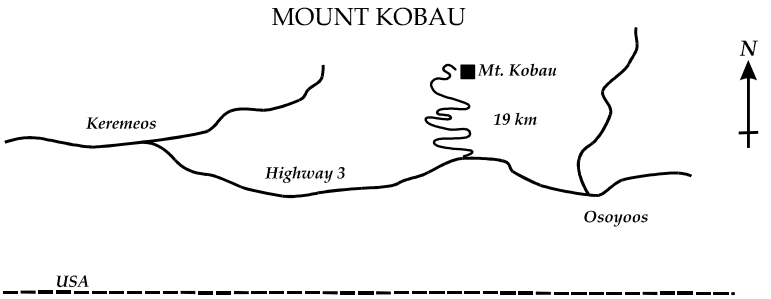
Observing Sites



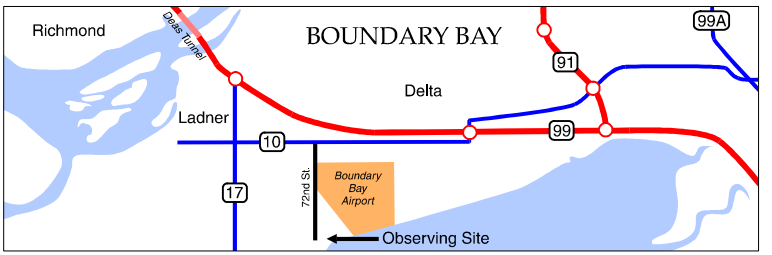
Dale McNabb Observatory in Aldergrove Lake Park (RASC Vancouver Centre's regular viewing site)
Contact Mike Penndelton (604-888-1505) or Howard Morgan (604-856-9186)



Site of the annual star party organized by the RASC Vancouver Centre



Site of the annual Mt. Kobau Star Party organized by the Mount Kobau Astronomical Society



Site of the regular Saturday night star party. On the dike at the foot of 72nd St.

FOR SALE

RASC MERCHANDISE

Available for purchase after meetings:

Calendars	$14.00
Golf Shirts	$30.00
Sweat Shirts	$30.00
Centenary Mugs	$ 7.00
Beginners' Guides	$15.00
Observers' Guides	$20.00
Cloth Crests	$11.00
Lapel Pins	$ 6.00
L.E.D. Flashlights	$22.00

ASTROCOMPUTING

SpaceBase™ (604-473-9358,59). Affiliated since 1992 with RASC Vancouver, our link to RASC Net, RASC Members only chat area. Future data distribution hub for CARO Project. Features include latest HST images, current world space news and astronomy programs.

LIBRARY

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

RASC-VC on the Internet

http://www.pcis.com/rascvan/ or
http://www.rasc.ca/vancouver

H.R. MACMILLAN SPACE CENTRE

The Pacific Space Centre Society is a non-profit organization which operates the H.R. MacMillan Space Centre and Gordon M. Southam Observatory. Annual Membership ($30 Individual, $80 Family) includes a newsletter, Discounts on Space Camps, special programs and lectures, Vancouver Museum Discounts, and free admission to the Space Centre. Admission to the Space Centre includes: Astronomy shows, Motion Simulator rides, multimedia shows in GroundStation Canada, and access to the Cosmic Courtyard Exhibit Gallery. For Membership information, call Mahi Jordao at 604-738-7827, local 237 for information. You can also reach them on the Internet at http://www.hrmacmillanspacecentre.com/

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 Phil Morris, Director of Telescopes in the meeting room of the GSO *after* the members meeting. All telescopes are to be picked up and returned at the GSO. 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 2 different telescopes per year and use what is left at the end of the meeting anytime. Phil can be reached at 604-734-8708.

Your greatest opportunity as a member of the R.A.S.C. 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.

Observing takes place at Boundary Bay on the dike at the south end of 72nd St. in Delta (see map on p. 4). We are there most clear Thursday/Friday nights. Contact Jason Rickerby at 604-502-8158.

RASC
1100 Chestnut Street
Vancouver, B.C.
V6J 3J9
604-738-2855

Upcoming Events

July
30 – Mt. Kobau Start Party begins

August
7 – Mt. Kobau Star Party ends
11 – Perseid Meteor Shower at Aldergrove Lake

October
8 or 9 – Sidewalk Astronomy

December
13 – AGM

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mean that they will be running the scope; they will be advising which projects to run and determining all proposed project's acceptance. This committee will be responsible to recommend approval of RASCVC-allocated scope time and ensure that accepted projects put forward by RASCVC members are run in due course. The committee organizes the collection of data through the use of qualified telescope operators and ensures that appropriate data, consistent with the project goals is collected each night. RASCVC scope use would require prior approval by RASCVC Executive Council. This Committee would also be setting the project priorities based on observing conditions required as well as merit of the project. The projects would then be organized by their combined requirements and each Telescope Operator would be instructed as to their particular priority. The Committee reserves the right to pre-empt the program for specific events of limited availability such as occultation timings or similar items.

The Telescope Operators will be members of the RASCVC who are actually running the telescope. They will be deemed qualified to operate the CGRT after completing a training program on the proper procedures required for performing this function without damage to the equipment or software. These operators will be trained in the procedures involving all aspects of data collection that are available with the equipment provided on the telescope. The initial group of operators will include Chris Graham. The initial group of operators will develop the training procedure based on final software and hardware selections. Refresher courses and upgrades will be required over time and it is expected that the Operations Committee and the Telescope Operators will develop these programs as well. Operators will have the chance to train on the RASCVC's CAROp telescope in the UBC Research Forest as well as at a member's private home.

The Data Analyzers would be a group of members who are interested in processing and analysis of data that is collected by the scope operators. This will be the group that actually processes the pretty pictures as well as the scientific data collected and presents it in its required form. They will learn scripting and operation of several imaging packages as well as any others required (electronic blink comparison for example). This group would work closely with the Telescope Operations Committee with respect to data collected and processed on behalf of the RASCVC and with Chris Graham with respect to data collected and processed on his behalf. These members do not need to know how to operate the CGRT but would need strong computer skills or be willing to learn

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Fair—the annual national championships of the National Science Fair Program. Each year, approximately 25,000 young scientists in Grades 7 to 12 participate in nearly 100 Regions, showcasing their research and design achievements, and competing to represent their region at the Canada-Wide Science Fair. Of the initial 25,000 participants, 477 finalists, with 382 projects attended the 2005 Fair. The finalists were grouped in three categories: Junior (Grades 7/8), Intermediate (Grades 9/10) and Senior (Grades 11/12). Projects were judged in 6 scientific divisions: Biotechnology, Earth and Environmental Sciences, Engineering and Computing Sciences, Health Sciences, Life Sciences, and Physical and Mathematical Sciences. About 10% of all projects were in French. Astronomy projects were distributed across these categories depending on their area of emphasis. There were 72 different awards and scholarships with a total value of more than $300,000.

The Royal Astronomical Society of Canada sponsored three awards for "Excellence in Astronomy," one each in the Junior, Intermediate and Senior categories. The award was a $200 cash prize along with a certificate and a year's membership in the Society. Richmond, B.C. resident, Jennifer Loong, was the winner of the Senior Award for her "Oh-Dee: Orbit Determination." For determining the orbit of Asteroid (88) Thisbe, she wrote a computer program using IDL (Interactive Data Language), an array-oriented language for mathematical analyses. She used UCLA's 7-inch telescope and astrograph for the astrophotography required for her project. Her follow-up project will be to adapt her program to predict the orbit of comets. Jen's ambition is to become an astronaut and own an aerospace company. She has already discussed her work and aspirations with Canadian Astronaut Chris Hadfield. In the meantime, as a recipient of an annual RASC membership, she has been invited to participate in RASC Vancouver Centre activities. She would certainly be a welcome member of our Society. Meanwhile, Norman is contemplating a return to university to complete both his M.Sc. and Ph.D. in time for next year's event.

I noted in January how uncooperative the winter skies had been for observing. I am beginning to think that we are having a really long winter! Deep Impact has now come and gone and, except for remote access, we missed that one too. Nevertheless, for those who are still waiting patiently for the clouds to part, the RASC announced its newly completed Isabel Williamson Lunar Observing Program. While you may not care about collecting the certificate, the viewing challenges are there. A total of 150 objects are featured and there are three levels of investigation: Getting to Know the Moon, the Main Observing List and Libration Challenge Features. A distinct advantage of this target is that it does not require a really dark sky, so much of the observing may be accomplished from the comfort of your own neighbourhood.

Remember, the Observing Committee tries to meet every clear Saturday night at Boundary Bay. The plans are usually posted on the website but if you are interested a quick phone call or email will elicit details from most any of the Council members.

– Ron Jerome ✸

G.A. 2005 – Kelowna

by Doug Montgomery

This year's general assembly was held in Kelowna, B.C. and was well attended by all the British Columbia centres. From our centre there were 17 people in attendance.

There were 163 people there in total, so our group was well represented.

There were a lot of contentious issues at this meeting, including a five dollar fee increase and the centre/national fee split. The fee increase was passed and the centre split was not.

The most contentious issue turned out to be the fate of the Journal. On the Friday, at the main national council meeting, this proved to be the longest debated issue with lots of emotion from several of the delegates. This issue and the centre split spilled over to the G.A. on Sunday. There will be a special meeting held by teleconference to decide what to do about the cost of the Journal. SkyNews and the Journal will no longer be bundled together so that should help with the lateness issues. We also have a new editor for the Journal; I welcome Jay Anderson from Winnipeg and wish him good luck. I would also like to thank Wayne Barkhouse for the great job he has done for the last five years.

Smile for the cameras, everyone!

Council approved the sustaining membership; this allows you to make a donation to National for the Special Projects Fund. This will double the fee and give a tax receipt for the additional amount. The centres can then apply for the funds for different projects that they might have. As your National Reps, we are asking everyone that can afford to do this to please participate in this project.

Our Observing Committee came up with the Isabel Williamson Lunar Observing Program. This is a certificate program divided into two types of observations: required observations and challenge observations. We have a copy in the Library, donated by Pomponia Martinez, if anyone wants to check it out. It can also be purchased from National office. Thanks to Christopher Fleming and his committee.

All in all it was a very good trip, and a good time was had by all. We were well looked after by the Okanogan Centre and I would like to thank all the people that worked so hard to make it a nice trip. Next year the G.A. is in Ottawa, quite a trip for just a long weekend, but I still recommend attending a G.A. if you can. They are lots of fun, once you get out of the meeting room. Any questions you may have you can ask me or Jason or anyone on council—seven of us were at this G.A. ✸

The Vancouver Contingent

More G.A. Photos

Past Presidents of the RASC (above) and the Great Pyramid of Kelowna (left)

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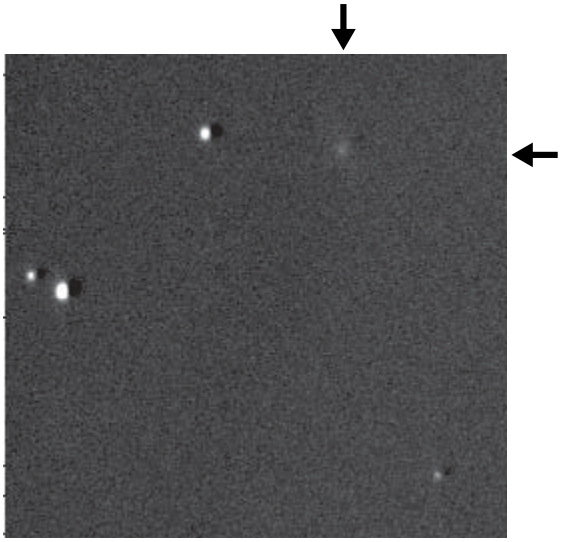
them.

We anticipate that before we are ready to split into these committees, it will make sense for a group of us to work together to get the scope up and running smoothly, gain experience in using it and determine the best procedures for the various types of activities.

We are now in the organizing stage and are asking any members who are interested to contact myself or one of the Executive to become involved. We will be holding a meeting the week of July 18th to 22nd and will contact those who respond to us. This is the ground floor for getting on this ride so hop on! ✸

Craig Breckenridge
Observing Committee Chair
Education Committee Chair
craig.breckenridge@shaw.ca.



Tempel-1
Dan Collier

GSO 6-inch f/15 refractor

Cookbook camera

2-minute exposure with dark subtract. Flat-fielded using a second exposure with shifted field. Water cooling in operation.

Taken: June 20, 2005, approx 11:30 PM PDT

Comet's estimated 2000.0 position: 13h 16m 58s -04° 25' 40"

Stars in the field:

BD-03 3440
A.K.A. GSC 4961-01326, TYC 4961-01326-1, PPM 705821)
RA: 13h 16m 33.90s Dec: -04°23'43.50" (Epoch 2000)
Magnitudes Bt: 11.849, Vt: 10.981

TYC-4961 00987-1
RA: 13h 16m 45.5s Dec: -04°26'10" (Epoch 2000)
Magnitudes Bt: 12.6, Vt: 11.9

Third star unidentified