

# NOVA

NEWSLETTER OF THE VANCOUVER CENTRE RASC | VOLUME 2010 ISSUE 2 | MARCH/APRIL 2010

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## Looking Ahead

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

**Mar. 11:** Members' Night.

**Apr. 8:** Dr. Mark Halpern of UBC presents the first results from the Atacama Cosmological Telescope.

## Next Issue Deadline

Material for the May Nova should be submitted by Monday, May 3, 2010. Please send submissions to:

Gordon Farrell (gfarrell@shaw.ca)

Title image: Jason Rickerby

## An Amateur Astronomer's Winter Vacation Detour

by Alan Jones

I had the good fortune to enjoy Owens Valley, California on day three of our trip via Grass Valley, a two week road trip south in early



A VLBA dish in the Sierra Nevada Mountains

February this year. In the final hours before leaving, I packed my homemade 12-inch Dobsonian telescope in so well that my wife asked at one point, "Aren't you going to bring your scope?" I answered: "It's already packed." Telescopes are an important part of road trips around the new moon.

Our first night observing was in

then east around Lake Tahoe and down the east side of the Sierra Nevada Mountains opposite Yosemite. Near the end of a beautiful day, I spotted a radio telescope across the valley to the east. We investigated and found a nice spot for the night for visual observing. How nice it is observing not standing in snow in

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The use of the green laser pointer has become a topic of discussion for amateur astronomers at almost any dark sky observing location. Many

laser pointer by criminals and vandals does have the potential for serious consequences, the proper use of them has been proven

inspiring, and safe EPO, it encourages its members to follow the following guidelines for the use of GLPs:



This image demonstrates the visual effects of a 5-mW green laser pointer

1. Ensure that GLPs are operated only by designated, responsible adults, preferably RASC members who are familiar with the potential hazards of laser light;

2. Take special care not to shine GLPs in the direction of any person, vehicle, aircraft, or wildlife;

3. Avoid using a GLP near an airport or airport runway

large star parties are tending to have an outright ban on their use.

Transport Canada uses the terminology directed bright light (DBL) for any light sources that are hazardous to pilots and threaten passenger safety. National regulations for the use of this equipment is posted on their website along with a possible \$100,000 maximum fine under the Aeronautics Act, imprisonment of up to five years, or both penalties.

<http://www.tcc.ca/civilaviation/aerodromeairnav/standards/ais/directed-bright-light/menu.htm>

Although the misuse of a green

indispensable for education and public outreach (EPO).

The use of the green laser pointer is a current topic that the RASC National council are working proactively at resolving. RASC-Vancouver Centre has adopted the National policy on green laser pointer usage at the February council meeting and we urge you to review National's website for all information on this topic.

<http://www.rasc.ca/education/other/glpuse.shtml>

From the National policy:

"In keeping with the RASC's commitment to informative,

approach;

4. Use the minimum power to do the job: if a 5 mW laser is bright enough, why use a stronger one?

5. Be aware that distraction and distress can be experienced by anyone illuminated by green laser light, even if the level is well below that which would cause physiological damage.

By following these guidelines (which are simply common sense), RASC members will reduce the chance of an unfortunate incident involving GLPs, and will demonstrate due diligence while leading public astronomical activities." \*

## President's Message

It is my great pleasure to act as substitute columnist for our President, Ron Jerome who, as I write this message, is wrapping up a delightful trip to Central and South America with his wife Anne, with a final ten-day foray to Ecuador.

This turns out to be an opportune time to make my first contribution to NOVA, for I have an exciting bit of news to report!

I am thrilled to announce that Simon Fraser University has approved a project to build an Astronomical Teaching Observatory and Science Outreach Centre. After careful study, the university has designated a wonderful site, on the North end of the Burnaby campus (adjacent to the Diamond Alumni Centre, for those of you who are familiar with the campus). Concept drawings for the facility, as well as a detailed cost study, have been produced. A private donor has already come forward with \$2M in support of the total project cost of approximately \$4M. However, we still need to raise the other half; ) ...

This SFU project was discussed at the March meeting of the RASC-VC council, and I am grateful to council for expressing its very strong support of the project. The SFU Teaching Observatory and Science Outreach Centre would be available to the RASC-VC for meeting space and use of the observatory, and SFU would in turn benefit from the energy and expertise of RASC-VC volunteers to support the facility's programs. Indeed, SFU and RASC-VC have already

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## 2010 Vancouver Centre Officers

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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 Thursday of every month. Guests are always welcome. In addition, the Centre has an observing site where star parties are regularly scheduled.

Membership is currently \$70.00 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 on page 5.

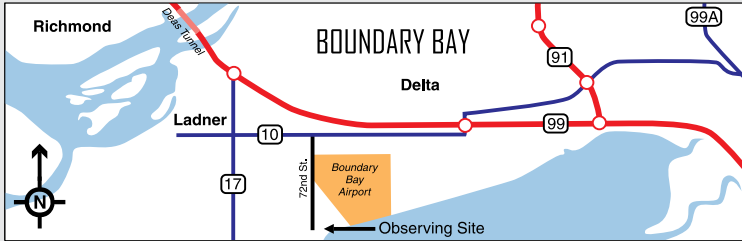
## Advertising

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.

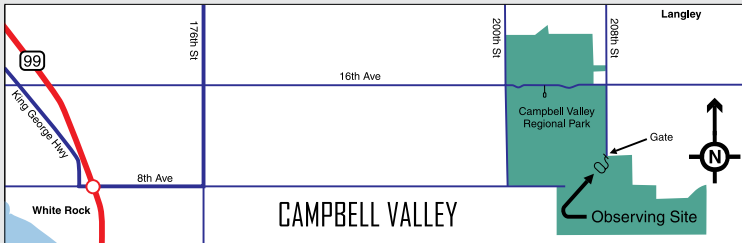
## Commerical Rates

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

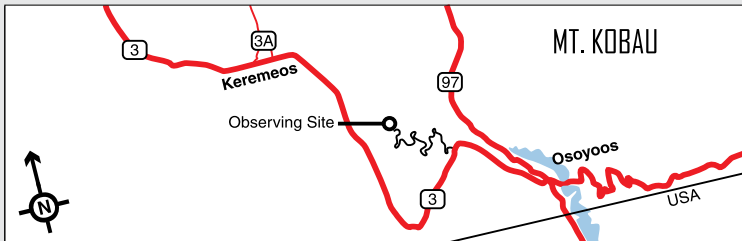
# OBSERVING SITES



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



Our alternate observing site. Contact Bruce MacDonald (604-882-3820) to see if this site is in use.



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

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forged a very strong partnership, which has been invaluable to SFU's growing public astronomy outreach program, called "Starry Nights @ SFU" (more on that below!).

The Observatory will support astronomy courses for both science and non-science majors, and will of course be used for evening star parties for the public. The Science Outreach Centre will provide space and support for both astronomy and general science workshops for elementary, middle and high school

students visiting SFU during the daytime from nearby schools. SFU currently hosts over 3,000 grade-school age kids every year at daytime science workshops in astronomy, physics, chemistry, and biology, thanks to the dedicated volunteer work of many SFU faculty, staff, and students, and a number of RASC-VC members who have been volunteering at both the astronomy workshops and evening star parties. With a focus on community involvement and outreach, the SFU Teaching Observatory and Science Outreach Centre will

become a destination of interest to the public and provide a vital link between the university and regional communities.

If you would like to make a donation towards this project, know of individuals or companies that might be interested in supporting it, or have any questions about the project, please do not hesitate contact me ([trottier@sfu.ca](mailto:trottier@sfu.ca)), or Ms. Anna du Bois, Science Advancement Officer ([ada52@sfu.ca](mailto:ada52@sfu.ca)). A brochure with information on the observatory can

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## For Sale

*Editor's Note:* The classified ad in the Jan/Feb 2010 issue for a Maksutov scope and Losmandy mount was missing the name and contact info of the seller. If interested in those items, please contact:

Seamus  
1-250-539-0636

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"Astronomy" magazines for sale, in very good condition, Jan. 1978 to Nov. 2002  
\$100.

Phone Keith Eisler at  
604-539-8690

## LIBRARY

The centre has a large library of books, magazines and old NOVAS for your enjoyment at the GMSO. 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://rasc-vancouver/> or  
<http://www.rasc.ca/vancouver>

Details of upcoming meetings and events can be found at our Meetup group at:  
<http://astronomy.meetup.com/131/>

## 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 Bob Parry, Director of Telescopes in the meeting room of the GMSO after the members meeting. All telescopes are to be picked up and returned at the GMSO. 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. Bob can be reached at 604-215-8844.

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 Friday/Saturday nights. Contact Jason Rickerby at 604-502-8158.

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

## March

12 – AOMO Messier Marathon (7pm to dawn).

13 – Messier Marathon at Aldergrove Lake (8pm to dawn). See map on p. 4.

27 – Night Quest in Pacific Spirit Park (7pm to 10pm).

## April

19-25 – International Astronomy Week I

## August

7-15 – Mt. Kobau Star Party

12 – Perseid meteor shower

21 – Starry Night at Deas Park (7pm to 10 pm).

## September

4-11 – Merritt Star Quest

## October

11-17 – International Astronomy Week II

## December

9 – AGM

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the middle of the winter. The session was shortened by clouds and then sucker holes. It was about 4 degrees C with a light wind. I was amazed to realize that our observing sites in BC

together to make one large telescope with a maximum separation of 8600 km. Each antenna location records signals against its own hydrogen maser atomic clock (accurate to one second in one million years). The

from a distant galaxy. The telescope array is also able to measure the continental drifts of the tectonic plates as the antenna positions shift relative to each other. Learning about the radio telescope made a very nice start to day four of our vacation. That area is also home to the oldest known living trees; ancient pines.

Our trip continued to Palm Springs and Los Angeles for visiting and relaxing. So when is the next opportunity to set up and observe? Browsing the Internet for the nearest dark sky possibility and negotiating for more star time on the holiday agenda, I found an ally in my brother-in-law interested in learning more about the night sky. We discovered that Borrego Springs is the second “Dark Sky Community” awarded by the International Dark Sky Association. It seemed like this was almost too good to be true. We left the 30 degree C days of sunshine to head for the desert of Borrego hopeful for dark skies. Well, it turns out it is a little ‘too good to be true.’ I suppose I shouldn’t be too surprised but I was, especially after reading all the hype to find sky darkness disappointing compared to our local viewing in Manning, Kobau

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The Hale Telescope dome at Mt. Palomar Observatory

are far darker than a location on the east side of the Sierras pretty much in the middle of nowhere.

The next morning, we investigated the radio telescope site to learn the antenna is one of ten disks in a “Very Long Baseline Array” of telescopes situated around the world from Hawaii to the Virgin Islands. The 25-meter diameter antennas are used

recorded signals are correlated such that the array can resolve distant objects with the equivalency of ‘seeing’ a football on the surface of the moon. The array was completed in 1993 and has contributed to accurately measuring distances to other galaxies and to pulsars within our galaxy and it has even made a 16-month movie of superfast subatomic particles shot

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be also downloaded from the “Starry Nights @ SFU” website: <http://www.sfu.ca/starrynights>.

I'd also like to take this opportunity to report on a very successful effort at SFU in connection with the 2009 International Year of Astronomy (IYA). SFU hosted over 3,500 guests for the 2009 IYA, at a wide variety of public events throughout the year, giving our visitors many opportunities to experience many different kinds of Galileo Moments!

A major effort was hosting over 2,150 grade-school age kids at daytime astronomy workshops, accompanied by about 300 parents, guardians, and teachers, from about 70 schools and community groups, including many home-schooled families, and several scout and guide groups. SFU also hosted over 1,000 guests (mostly young families) at evening star parties.

As part of its daytime workshop

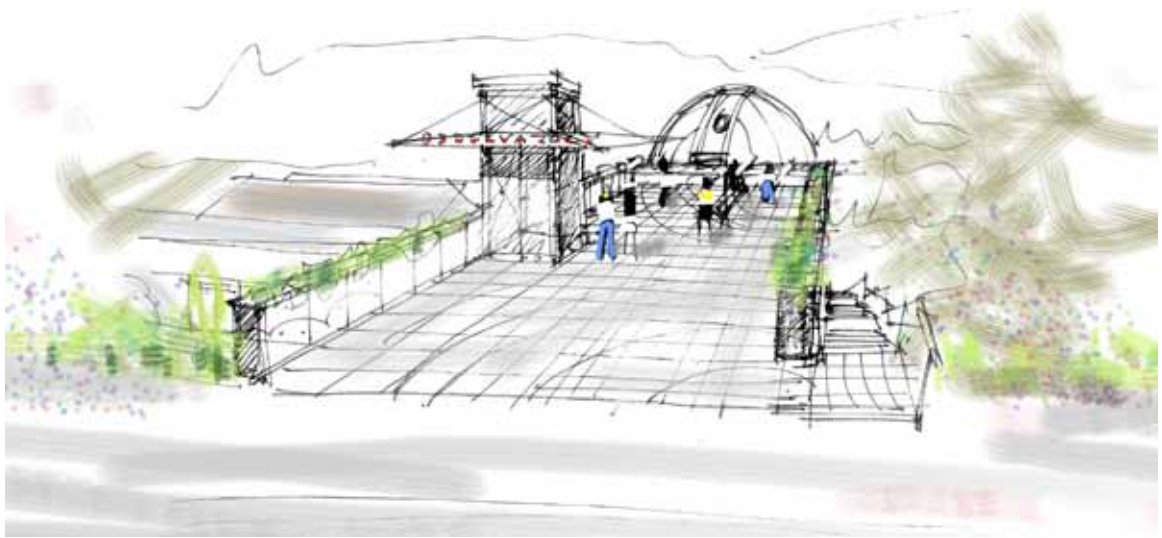
program, SFU and its funding partners (including generous support by RASC-VC) donated a free “Galileo Moment” starter telescope to each group that attended a workshop. The telescope has a 60mm objective, and comes with a tripod and two Kellner eyepieces. Any family whose children attended an astronomy workshop, and which then attended four SFU star parties, also received a free “Galileo Moment” scope! By the end of the IYA, 85 telescopes had been donated, with more than 25 of these going to individual families. RASC-VC not only provided financial support, but also considerable technical advice, and many hours of volunteer time, all of which were essential to the success of SFU's IYA effort. I would also like to single out the SFU Student Astronomy Club for special mention, many of whose 400 members have been exceptionally

dedicated to astronomy outreach activities (these days you can be sure to find some of these keen SFU students at most RASC-VC monthly members' meetings).

SFU's astronomy outreach programs are continuing at a steady pace in 2010, with many hundreds of grade-school age kids expected to attend workshops before the end of the current school year, and many hundreds of guests to be hosted at evening star parties.

In closing, as a member of both SFU and the RASC-VC, I am doubly excited at the prospect of building the SFU Teaching Observatory and Science Outreach Centre, which is sure to greatly enhance the teaching and outreach activities of both organizations. ✨

Howard Trottier  
Vice-President, RASC-VC  
Professor of Physics, SFU



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and Merritt. The effort to reduce light pollution was evident and it was very nice to see that Borrego was not a light polluting eye sore. There is hope for us to preserve our rural skies if we can convince enough people that it makes a difference. It was nice to enjoy the sky difference in latitude and as a bonus we were observing in light clothing in the middle of winter.

The next day we visited Mount Palomar. One of the information boards there reads, "light pollution is blinding Palomar." Ironic that it was selected as a dark site compared to the Wilson observatory to the north of L.A. The 200-inch Hale telescope is still the largest single mirror telescope and it is still very active. Recently it has added adaptive optics. The scale of the building is massive as is its horseshoe equatorial mount and together they have the effect of making a 200-inch mirror look small! The dome weighs 100

tons, is 41 metres tall and 47 metres in diameter. Its dimensions are similar to the Roman Colosseum.

A brief history of the telescope starts with Edwin Hale's vision for a large telescope for research and a six million dollar grant in 1928 from the Rockefeller-funded International Education Foundation. The observatory would be run by the newly formed Cal Tech. Hale bought land from ranchers at 5600 feet, 100 miles south of Pasadena. After failed attempts to make a mirror with fused



The Mirror Cell of the 200-inch Hale Telescope

quartz, Hale approached Corning who cast a Pyrex mirror blank on a second try in 1936. It took 11 years to grind and polish the primary and another 2 years of refining and aligning the telescope to become fully operational in 1949. While we visited the telescope, technicians were servicing the mirror cell supports. It was truly amazing to experience a telescope of such a scale and contemplate the design and building challenges faced and overcome. It was time to bring the little Dobsonian home. ✨



Although there was a lack of crystallized precipitation for the Olympics, we have had clear access to the observatory. There have been regular training sessions since the beginning

like to thank Masoud once again for the work he did to put on the TWAN Exhibit at UBC last January.

I did manage to get an image of Mars just after opposition. The

observatory equipment. They have been able to take advantage of clear nights when I have not been able to get out. With an increase in telescope operators, there will also be an in-



of the year and a few opportunities to do some observing when the liquid precipitation permitted.

On one of those occasions when we have been able to get some observing in, Masoud Rafiei made it out and got some images through the lens of his SLR camera. Messier objects M 38, M 36 and M 37 are visible in his image of Auriga. He has also taken some great images of the observatory that I will share with you on future reports. I would

north polar cap is visible as is the prominent land mass Syrtis Major. Although the image is not particularly good, it has provided valuable information on imaging solar system objects. With the approaching opposition of Saturn, I hope our imaging skills will be capable of getting better images even if the planet is nine times further away.

Maple Ridge locals Mark Eburne and Leigh Cummings have continued learning the operation of the

crease in the use of our observatory so please inquire if you would like to help out.

I am hoping for some clear weather again and I am planning a Messier Marathon Observing Session at our observatory on Saturday, March 13th from 7:00 pm until dawn for any members interested in spending a night under the stars. ✨



Mars 2010-02-22

JOMO-RASC Van



Vectorial Elevation with Quarter Moon  
Gordon Farrell

## Investment Opportunity : Merritt Astronomical Research Station : M.A.R.S

### What is the M.A.R.S facility ?



This *proposed* facility is an investment opportunity for anyone who would like to become part owner of a newly built 4 bedroom cabin situated on 36 acres of nature's wilderness 28 kms south of Merritt, BC. The plans for the site include the construction of several concrete pads for users of telescopes and astroimaging equipment.



Three new annual star parties that *will not interfere with the current Mt. Kobau, and Merritt Star Quest star party dates* will be offered at the M.A.R.S facility in *May, July and September*. Each star party will offer space for up to 20 attendees.

A fee will be charged to attend, and to book one of the 4 bedrooms within the cabin for the week. Members of all local,



provincial and country-wide astronomy clubs will be offered discounts to use the facility or to attend the annual star parties. The site will also be used to introduce school children to the science of astronomy, and to offer lectures within the cabin on various topics in astronomy, mirror making, telescope design and ccd astro-imaging.

When the weather spoils there will still be plenty to learn and do within the cozy wood stove heated cabin.

The 36 acre parcel is filled with wildlife of all sorts, plus some very interesting geology.

The site will primarily be offered as an astro-tourism business , and bed and breakfast for astro-buffs of

worldwide origin. A web site will be developed to market the concept to prospective clientele once the site ownership is secure.

Research at the M.A.R.S site will be widely varied, including the search and discovery of; *supernovae, near earth asteroids ( NEO's), and comets*. The extremely dark skies at this site will be very favourable for ccd astrophotography.

The investment will require up to **5** persons willing to contribute an *equal* amount of investment capital in order to acquire ownership of the cabin and the encompassing 36 acre parcel. If you are interested in this investment opportunity, or would like to contribute to the construction of the Merritt Astronomical Research Station, please call James Black 604-465-4602

Proud To Serve Vancouver's Astronomical Community



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