



NOVA

NEWSLETTER OF THE VANCOUVER CENTRE RASC

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MAY/JUNE 2003

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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.

May 13: Dr. Steven Brahm of SFU on Devon Is. as a training ground for Mars exploration; making an Earth-Mars Internet.

June 9: Dr. Brett Gladman of UBC: "The Formation of the Outer Solar System"

July 15: TBD

Next Issue Deadline

Material for the July Nova should be submitted by Monday, July 7, 2003. Please send submissions to:

Gordon Farrell
(gfarrell@shaw.ca)

Nothing is Stable

by Marc Verschueren

It always amuses me when some concerned person writes that we live in such changing times. One is usually talking about politics or technology or science, or even morals and bad habits. Times never were "Not changing." Science in general, technology and astronomy may change somewhat faster today than in times past because there are now more people involved and they communicate much better. More resources are used. Our society is wealthier. There is also an exponential effect in the development of our knowledge. The more we know, the more we can discover and learn. But there never were unchanging times.

When one talks about these changing times, one seems to refer to change as something disconcerting; something to be avoided; something undesirable. It is silently suggested that it may be better if things were more stable. We astronomers know all about change. Change is the essence of our lives, the world around us, the universe we observe; we only observe stability when we consider only a short period of time. Every phenomenon has a characteristic time for changes to become

significant, and if the observation time is short compared to this, it is not surprising that nothing seems to change very much. And there are always some effects that are periodic. This periodicity definitely creates a reassuring impression of stability. This is also very misleading. It is all an illusion.

We recently heard about the first results of the WMAP space probe. It measures certain aspects of the cosmic microwave background radiation. These measurements confirm in an impressive way the characteristics of our evolving universe. It confirms the age and the rate of expansion, among other things such as the existence of dark matter. This is a universe in full glorious change. The evolution as seen by us is an essential part of its being. If it were unchanging it would not exist. When we talk about CMB, we are looking at the very old history of the universe. The CMB last scattered from the matter content of the universe a short while after what we know as the Big Bang. That was a universe that certainly was not the same as it is today.

The present structure of the CMB is the result of fluctuations of

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Michael Ovenden Lecture: Brother Guy Consolmagno

15th Annual Michael Ovenden Lecture Presents Vatican Astronomer Brother Guy Consolmagno “God, Astronomy & The Search for Elegance”

The H.R. MacMillan Space Centre with the Catholic Archdiocese of Vancouver proudly present for the 15th Annual Michael Ovenden Lecture, Brother Guy Consolmagno of the Vatican Observatory and his talk on *God, Astronomy & The Search for Elegance*. This event takes place on Thursday, May 15th at 7:00 PM in the H.R. MacMillan Planetarium. Admission is by donation.

Brother Guy Consolmagno SJ (author of *Brother Astronomer, Turn Left at Orion*, etc.) was born in Detroit, Michigan, has his undergraduate and masters' degrees from MIT, and a Ph. D. in Planetary Science from the University of Arizona. He worked

at Harvard and MIT, served in the US Peace Corps (Kenya), and taught at Lafayette College, Pennsylvania, before entering the Jesuits in 1989. At the Vatican Observatory since 1993, his research explores connections between meteorites, asteroids, and the evolution of small solar system bodies, observing Kuiper Belt comets with the Vatican's 1.8 meter telescope in Arizona, and curating the Vatican Meteorite Collection. Dr. Consolmagno's work has taken him, literally, around the world. In 1996, he spent six weeks collecting meteorites with a team on the blue ice regions of East Antarctica; in 2000, the nomenclature committee of the International Astronomical Union named an asteroid 4597 Consolmagno in recognition of his work.

The popular science/religion talk that Brother Guy Consolmagno plans to discuss is entitled *God, Astronomy, and the*

Search for Elegance. “It is a misuse of science to try to “prove” (or disprove) the existence of God, just as it is a mistake to try to use religious tenets as arguments for or against scientific theories. But science and religion nonetheless have an important point of convergence, in the human being whose faith is incarnate in Science's physical universe, and whose judgment and curiosity are strongly affected by philosophical and religious world-views. If one has faith in a Good, Creator God, then this will affect both why you do science, and the way that you do it. By looking at a series of beautiful astronomical images, we will examine both the why and the way, seeing how scientists draw inferences, create theories, and then test them. In this way we will see how scientific theories are judged both by new data and by an esthetic sense of the elegant.”

✱



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President's Message

Astronomy Day has come and gone. We had wonderful weather, a good turnout by the public and excellent support from our members. My thanks to everyone who helped in organizing, publicizing, handling the merchandizing and door prizes, rebuilding our display collection, providing a special NOVA edition, running the GMSO telescope, organizing the handouts, providing audiovisual support, bringing out telescopes and those people who were here, there and everywhere helping out. I would also like to thank all of the speakers for providing entertaining and informative talks. In particular, thanks go to Peter Newbury and Eric Dunn for giving their time. Everything seemed to go fairly smoothly, and there was even a "100 Royal Years" cake-cutting ceremony where I was able to perform in front of a Shaw Cable camera and slice into a wonderful cake that I am not allowed to eat! Special thanks go to Pomponia for supplying all that great food for the volunteers in addition to all the work she did organizing this event and to Norman for all his efforts publicizing it; especially the early morning radio interviews.

More events are coming up soon. On May 15, the H. R. MacMillan Space Centre is sponsoring the 15th Annual Michael Ovenden Lecture, with Brother Guy Consolmagno of the

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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 \$51.00 per year (\$26.00 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, mailed to the address on page 5, or uploaded to SpaceBase™ at 604-473-9358, 59.

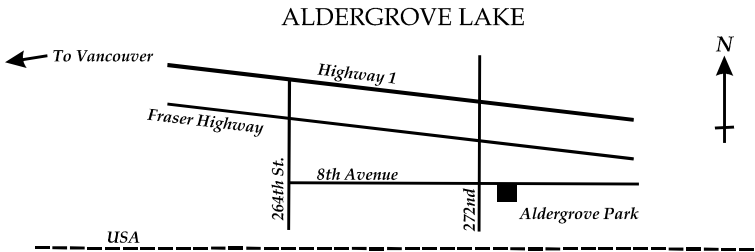
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Nova encourages free use of its classified ads for members with items for sale or swap. Notify the editor if you wish your ad to run in more than one issue.

Commerical Rates

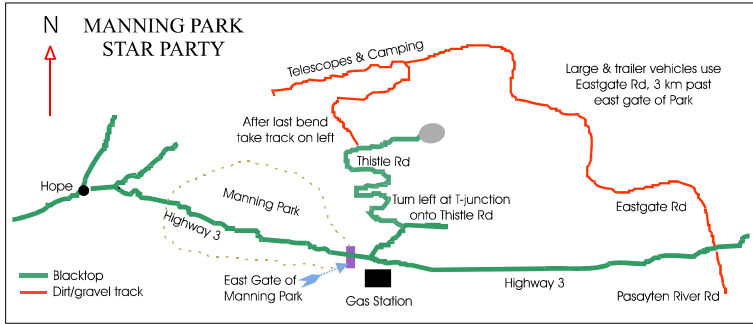
1/2 Page: \$25.00 per issue
Full Page: \$40.00 per issue
Rates are for camera-ready, or electronic files. Payment, by cheque, must accompany ad material. Make cheque payable to: RASC Vancouver Centre.

Observing Sites

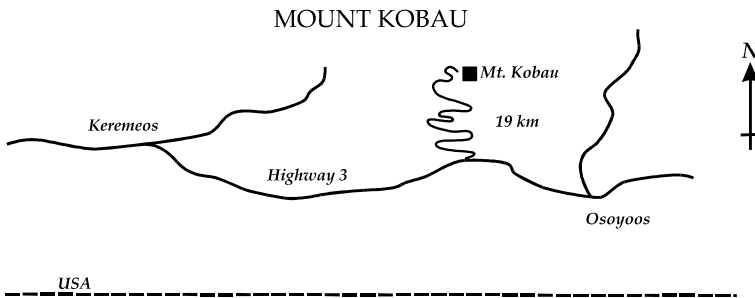


Dale McNabb Observatory in Aldergrove Lake Park (RASC Vancouver Centre's regular viewing site)

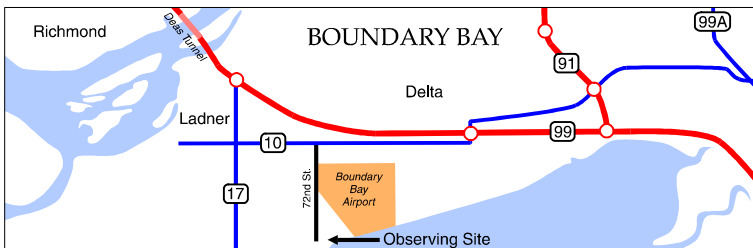
Contact Mike Penndelton (604-888-1505) or Howard Morgan (604-856-9186)



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 Thursday night star party. On the dike at the foot of 72nd St.

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Vatican Observatory. On the same evening, there is a total lunar eclipse and some of us will meet at Spanish Banks to try and get a view of the already totally-eclipsed Moon rising above the eastern horizon. The partial eclipse begins at 7:03pm, and the total eclipse starts at 8:14pm and ends at 9:07pm PDT. The Moon rises at 8:42pm and unfortunately sunset is about 8:45pm so twilight will probably interfere a bit and the eclipse-viewing window will be short.

Next, don't forget that what is usually our 'largest-audience' event; the Fraser River Festival is coming up on June 1, at the Deas Island Regional Park. We need lots of telescopes with solar filters and willing volunteers to help with the children's projects.

Finally, the GA2003 is approaching fast and Craig still needs all of the volunteers that he can get. The next GA2003 meeting is on May 24, so please join him to help make this a fitting celebration of the R.A.S.C.'s 100th Royal birthday and one which Vancouver Centre is proud to host. To all members who have not yet signed up to attend the GA, this is an event that you should not miss. It is a terrific experience, right in your own backyard and at an amazingly low cost, particularly if you become a volunteer.

Bill Ronald *

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. Provides a file uploading facility for submitting articles and imagery to Nova.

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.

RASCVC on the Internet

<http://members.shaw.ca/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, \$65 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 lobby 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 the Dale McNabb Observatory in the Aldergrove Lake Park, located in Langley, on 8th Avenue, just east of 272nd Street. We are there most clear nights. Contact Mike Pennedlton at 604-888-1505 or Howard Morgan at 604-856-9186.

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

Upcoming Events

May

15 – Total Lunar Eclipse at 8:42pm (moonrise). Observing at Spanish Banks.

June

1 – Fraser River Festival
26 – 2003 General Assembly begins

July

1 – 2003 General Assembly ends
25-26 – Manning Star Party & Manning Outreach
26 – Mt. Kobau Star Party begins

August

2 – Manning Star Party ends
12 – Perseid meteor shower; observing at Aldergrove Lake
TBD – Mars Week

September

26-27 – Merritt Star Party

October

17-18 – Sidewalk Astronomy 2

December

9 – AGM

2003 RASC Vancouver Centre Council



Back row (left to right): Norman Song, Phil Morris, Bob Parry, Craig Breckenridge, Doug Montgomery, Ron Jerome, Gordon Farrell, Marc Verscheuren.

Front row: Pomponia Martinez, William Fearon, Bill Ronald, Nicole van den Elzen, Dan Collier.

Absent: Barry Shanko, Jason Rickerby, Greg Price.

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the fields that made up the universe in its very early stages. These same fluctuations are the cause of variations in the density of matter, and this allowed stars and galaxies to form—and clusters of galaxies and walls of galaxies. If everything was spread out evenly, no clustering of matter would take place. These small perturbations, formed billions of years ago, evolved in to what we see today. This change created the universe. If there was no change, there would be no universe like ours now. The fluctuations causing the structure in the CMB and the distribution of the galaxies and matter in general are related to one another. Basically they are the same. This has indeed been confirmed recently. The Anglo-Australian Telescope has measured a very large number of redshifts of galaxies—more than 250,000. This has allowed astronomers to make an extensive map of how galaxies are distributed in the universe. It turns out that the characteristics of the

fluctuations that cause the structure of the CMB are consistent with those of the redshift survey. That is very impressive since the two measurement techniques are very independent. We can now be fairly certain of the age of the universe, its expansion rate, the amount of dark matter, etc.—all based on how things changed from then to now.

And yet the heavens look so stable to us. In ancient China, a change in the heavens—such as a comet or a nova—was reason enough to change the ruling dynasty. Apart from the daily rotations of the sky, and the sun and the planets changing their positions during the year, not much is happening. When I first learned about the ellipses of Kepler, that created in my then-young mind a very satisfactory, pleasing picture. Something you could rely on. You could calculate orbits and I can observe these orbits with a simple telescope. But also here stability is an illusion. The orbits of Saturn and Jupiter we observe with such pleasure this time

of the year are not as stable as they look to us and to the astronomers who first calculated them. The short time of our observation creates this illusion again. It is very hard to calculate orbits by hand over long periods, but computers can make calculations covering periods of millions of years and it turns out that these orbits are not necessarily stable. And the periodicity is also misleading because the elements of the periodicity, such as periods and eccentricity, can vary over time. The motion of the planets could become chaotic according to Newton's gravity applied to a system containing many planets. Whether the solar system will become chaotic before the sun becomes unstable is still an open question. The solar system seems to have a strong resilience against going wildly chaotic. That pleases most of us.

The universe, and all that lives and moves in it, were born and have changed forever since. ★

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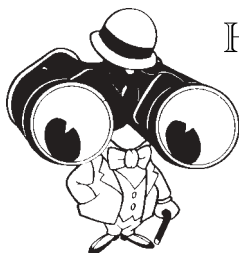


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