

skynews



on the cover

Mount Tolmie: Sunset and Sundogs

by Malcolm Scrimger

March 12, 2009. Mt Tolmie, Victoria, BC

It's always nice to keep a camera with you as you never know what you may come across. The view was unforgettable, so I wanted to capture it for all to enjoy.

Malcolm

this month

Peering through Nature's telescope – Gravitational Lensing as a window into the distant universe

**Dr. Karun Thanjavur, Sessional Lecturer at
UVIC**

April 8th, 2009, 7:30 PM, Elliott Lecture Theatre, Rm 060, UVic

Abstract: Gravitational "bending" of light is one of the many unintuitive phenomena predicted by Einstein's theory of Relativistic Gravity, which have since been unambiguously borne out by observations. Since the first confirmation of a gravitational lens in 1979 -nearly 45 years after it was proposed- the catalog of confirmed lenses now runs to a few hundreds. With advances in the instrumentation available at the modern 8m class telescopes, the magnification boost provided by this Nature's telescope is now being harnessed to probe physical processes in the high redshift universe with a level of detail that would otherwise be extremely challenging. My presentation aims to pictorially describe gravitational lensing, trace its history as an observational tool and present two applications and related results drawn from my own thesis research.



Bio: Developing innovative uses for gravitational lensing as an observational tool was the focus of my recently completed dissertation entitled Cosmic Applications of Gravitational Lens Assisted Spectroscopy (GLAS) (UVic, Oct. 08), For this work, I use integral field and multi-object spectroscopy of gravitational lenses to understand processes governing star formation and associated feedback mechanisms in galaxies at redshift beyond one

as well as to map the assembly of mass on the scale of galaxy groups. These explorations of the distant universe come after a full career as a mechanical engineer, specializing in control systems and robotics, and so this opportunity to combine cutting-edge telescope technology with one of Nature's many wonders has been an enriching experience. During the current academic semester, I am teaching General Relativity and Cosmology at UVic, which is providing me with an additional opportunity to share these fascinating areas with my group of senior students.

contact us on-line

Web Site www.victoria.rasc.ca
New Members newmembers@victoria.rasc.ca
General Inquiries info@victoria.rasc.ca

observers group

RASC Victoria Centre and the NRC have signed a License to Use Land Agreement which gives members of Victoria Centre expanded access to NRC property on Observatory Hill.

If you are a member in good standing of Victoria Centre RASC, consider yourself an "active observer", and wish to take advantage of this opportunity, please send an email to the 1st or 2nd Vice President. More information on this program see: <http://victoria.rasc.ca>

Upcoming events

April 8 - 7:30 PM, Elliott Lecture Theatre, Rm 060, UVic. **RASC monthly meeting lecture -Gravitational Lensing** - Mr. Karoun Thanjavur, Graduate Student, Dept. of Astronomy and Physics, UVic

April 7, 14, 21, 28 - 9:30pm to 10:30pm, **Night Sky Viewing (IMax IYA Galileo Lecture Series)**

April 19 - Noon - 2 pm, **Gonzales Hill Regional Park. Sunday, Sun Day**
 The Gonzales Observatory was designed to look at only one star – the sun! Join us as we use modern telescopes to look at the sun while exploring the history of this unique Victoria landmark. Meet at the observatory at the end of Denison Road, off Beach Drive

April 25 - 11:00 am, **Centennial Square (Solar Observing)**

April 28 - May 2 - **RBCM - 100 Hours Side Walk Astronomy Marathon**

May 2, 10 am - 4 pm - **Centre of the Universe - Astronomy Day**

May 13 - 7:30pm - Elliott Lecture Theatre, Rm 060, UVic. **RASC monthly meeting lecture - Active Galactic Nucleii** - Ms Emily Down, Visiting Astronomer, NRC HIA

May 30, 10am to 4pm, **Beeveree, Camp Barnard**, display and observing

June (dates to be determined) - **A Short History of Night** a performance by Theatre Inconnu - theatrically charts the beginnings of modern science through the dramatization of two of the Renaissance's most colourful figures: Danish astronomer Tycho Brahe and geometrician/mystic Johannes Kepler. <http://www.theatreinconnu.com/>

June 1, 11:00am to 11:00pm, **Fairfield Community Centre**, Displays and observing

June 6 & 7, **Oak Bay Tea Party**, Displays and observing

June 11, to September 10, 8:30pm to 10:30pm, **Butchart Gardens**

June 21, 11am–2 pm - Beaver Beach, Elk/Beaver Lake Regional Park. **Celebrating Solstice**, Meet at the Nature Centre at Beaver Beach.

July 1, 10:am to 4:00pm, **Memorial Park, Sidney Day**, displays and observing

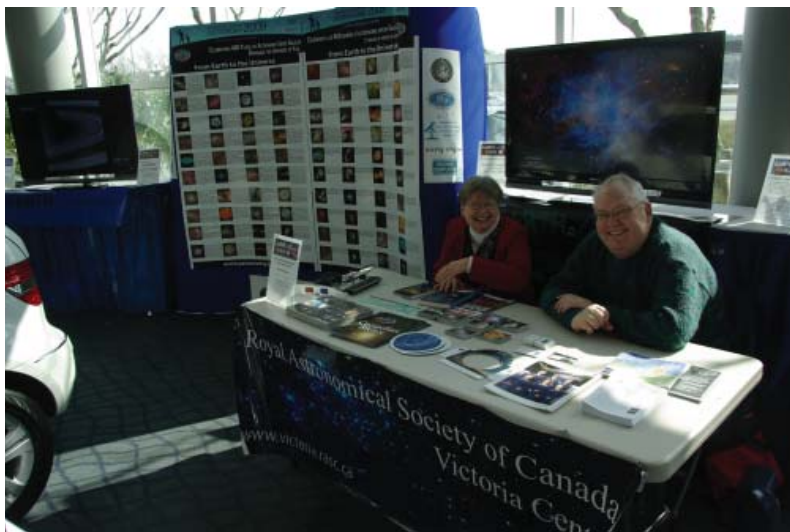
July 11 & 12, **Archie Browning Sports Centre, Buccaneer Days**, Displays and observing

July 25, time to be determined, **Luminara at Beacon Hill Park**

September 5 to 7, time to be determined, **Saanich Fair**, Stelly's X-Road, Saanichton

September 13, time to be determined, **Metchosin Day**, displays and observing

October 17 - Early Music Society of The Islands, Alex Gooden Hall, Victoria, B.C. - **GALILEO'S DAUGHTERS Perpetual Motion: Revolutions in 17th-Century Science & Music with Dava Sobel** – Author Dava Sobel eloquently narrates the story of coinciding revolutions in science and music in the 17th century, as breathtaking images of Earth and the heavens compliment the virtuoso singing and playing of soprano Sarah Pillow, her Baroque ensemble Galileo's Daughters, and lutenist Ronn McFarlane.



Chris and Lauri at the IYA display at the Victoria International Airport.

April 2009



March proved to be a mixed bag for weather but a great month for some welcome news. The British Columbia Gaming Commission has responded to our request to fund two programs with a grant of \$40,000. This will allow us to fully fund our outreach activities for the rest of the International Year of Astronomy and to finish making the Victoria Centre Observatory accessible on line. I can't be sure just which aspects of the grant application made the greatest difference but some key factors that likely put us over the top were the following:-

- A large contribution in volunteer time. BCGC counts volunteer time at a modest value of \$15/hr but even at that rate the total was impressive.
- The sustained effort in running an excellent and successful school program for many years.
- Substantial member's donations to the VCO.
- Support from local businesses through "in kind" contributions to the VCO.
- Space and financial support from the Dominion Astrophysical Observatory.
- A very well constructed grant application.

My thanks to Sid Sidhu and everyone in the Centre whose contributions led to this successful result.

Council will be considering plans for the use of the funds at its next meeting on April 1. As usual, the meeting will be open to any member who wishes to attend.

IYA activities are continuing and it seems that new opportunities pop up every week. Sid has recently signed an agreement with Butchart Gardens that will see us putting on night sky viewing there each Thursday in the summer. Check out the evolving schedule at <http://victoria.rasc.ca/events/iya2009/docs/IYA2009Victoria.pdf>

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Astronomy Day

SATURDAY, MAY 2

10 AM - 4 PM

CENTRE OF THE UNIVERSE

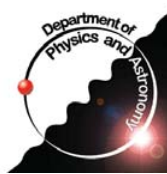
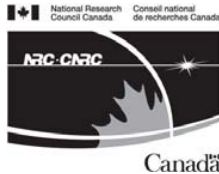
7 PM - 11 PM

STARGAZING

- ASK AN ASTRONOMER BOOTH
- TELESCOPE VIEWING
- SOLAR OBSERVING
- TELESCOPES MAKING
- ASTRO KID ACTIVITIES
- TOUR THE SOLAR SYSTEM
- WALK AMONG THE PLANETS
- TOUR THE HISTORIC PLASKET TELESCOPE
- FREE ADMISSION TO THE CENTRE OF THE UNIVERSE

Presented by

Royal Astronomical Society of Canada - Victoria Centre, Centre of the Universe, and CRD - Parks



CENTRE OF THE
UNIVERSE



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L'UNIVERS



Making a difference...together

Apollo Upgrade

The flight computer onboard the Lunar Excursion Module, which landed on the Moon during the Apollo program, had a whopping 4 kilobytes of RAM and a 74-kilobyte “hard drive.” In places, the craft’s outer skin was as thin as two sheets of aluminum foil.

It worked well enough for Apollo. Back then, astronauts needed to stay on the Moon for only a few days at a time. But when NASA once again sends people to the Moon starting around 2020, the plan will be much more ambitious—and the hardware is going to need a major upgrade.

“Doing all the things we want to do using systems from Apollo would be very risky and perhaps not even possible,” says Frank Peri, director of NASA’s Exploration Technology Development Program.



The Chariot Lunar Truck is one idea for a vehicle equal to the lunar terrain. Each of the six wheels pivot in any direction, and two turrets allow the astronauts to rotate 360°.

So the program is designing new, more capable hardware and software to meet the demands of NASA’s plan to return humans to the moon. Instead of staying for just a few days, astronauts will be living on the Moon’s surface for months on end. Protecting astronauts from harsh radiation at the Moon’s surface for such a long time will require much better radiation shielding than just a few layers of foil. And rather than relying on food and water brought from Earth and jettisoning urine and other wastes, new life support systems will be needed that can recycle as much water as possible, scrub carbon dioxide from the air without depending on disposable filters, and perhaps grow a steady supply of food—far more than Apollo life-support systems could handle.

Next-generation lunar explorers will perform a much wider variety of scientific research, so they’ll need vehicles that can carry them farther across the lunar surface. ETPD is building a new lunar rover that outclasses the Apollo-era moon buggy by carrying two astronauts in a pressurized cabin. “This vehicle is like our SUV for the Moon,” Peri says.

The Exploration Technology Development Program is also designing robots to help astronauts maintain their lunar outpost and perform science reconnaissance. Making the robots smart enough to take simple verbal orders from the astronauts and carry out their tasks semi-autonomously requires vastly more powerful computer brains than those on Apollo; four kilobytes of RAM just won’t cut it.

The list goes on: New rockets to carry a larger lunar lander, spacesuits that can cope with abrasive moon dust, techniques for converting lunar soil into building materials or breathable oxygen.

NASA’s ambitions for the Moon have been upgraded. By tapping into 21st century technology, this program will ensure that astronauts have the tools they need to turn those ambitions into reality.

Learn more about the Exploration Technology Development Program at www.nasa.gov/directorates/esmd/aboutesmd/acd/technology_dev.html. Kids can build their own Moon habitat at spaceplace.nasa.gov/en/kids/exploration/habitat.

This article was provided by the Jet Propulsion Laboratory, California Institute of Technology, under a contract with the National Aeronautics and Space Administration.

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A special event in March was the first ever Victoria Centre Messier Marathon. As I write this the forecast for March 28 is iffy but on Wednesday, March 25 a practice session on the hill proved to be very successful. Thanks to Nelson Walker and Bruno Quenneville for organizing the event and Joe Carr for providing a warm RV for use of the participants.

address change? information incorrect

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*this month
monday nights*

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Astronomy Cafe

Fairfield Community Centre,
1330 Fairfield, Victoria
Mondays 7:30-11pm

Call Geoff at (250) 592-2264
for directions and information.
Newcomers are especially
welcome. Come and enjoy!

**ASTRONOMY
CAFÉ**



second wednesday of the month

Monthly Meeting

7:30 PM, Elliott Lecture Theatre,
Rm 060, UVic.

as sky and interest dictate

New Observers Group

Hosted by Sid Sidhu.
1642 Davies Road, Highlands.
Call (259) 391-0540 for
information and directions.

by email

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Members email lists**

Contact Joe Carr to subscribe to
these email lists for important,
timely, member-related news.