Skynews

Royal Astronomical Society of Canada ✦ Victoria Centre

on the cover

December 27, Victoria Centre Observatory

by Bruno Quenneville

I ventured to the hill to have a peek-see at the conditions, et voila ! Ice packed road and snow drifts abound. Took a minute to hike in to the site to have a closer look. All is fine and our Observatory is buried in snow ! Pretty site none the less...

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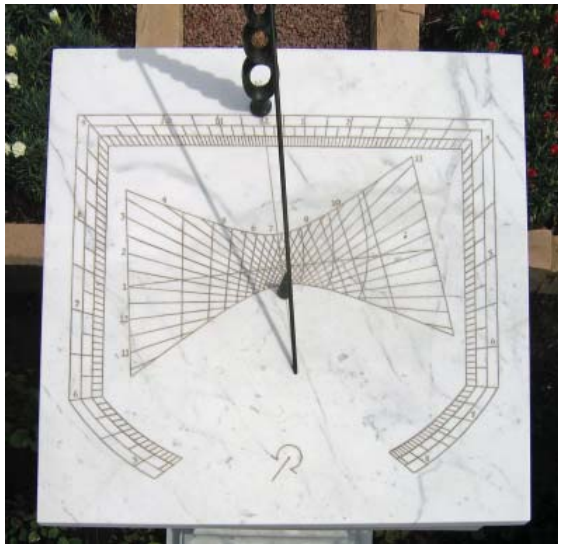
this month

Timelines
by Roger Bailey

January 14th, 2009, 7:30 PM, Elliott Lecture Theatre, Rm 060, UVic

The sun is the essence of time. The daily rotation and annual orbit of the earth determine our hours, day, seasons and year. A sundial provides a true measure of time using a shadow to track the relative motion of the earth and sun. Sundials were the first instruments developed by man to measure and understand the universe. In the presentation “Timelines”, Roger Bailey outlines how our concept and measurement of time evolved through the use of sundials. Different cultures used different concepts of

time and carved different timelines on their sundials. Many examples from around the world will be presented. One example is the dial that Roger recently designed for the Missouri Botanical Garden. This Ottoman sundial uses two gnomons to tell time in four different systems: normal hours based on 12 noon, Babylonian hours based on sunrise, Italian hours based on sunset and Moslem prayer times.



Bio: Roger Bailey (www.walkingshadow.info) is amazed by how much you can learn from the shadow of a stick. His curiosity about sundial time has guided personal explorations in astronomy, mathematics, history, religion, anthropology, art, and crafts. Roger is interested in sharing this interest in sundials and strongly supports the North American Sundial Society in appreciating sundials in modern society. Roger has been an active member of NASS since 1995 and Secretary since 2002.

Like most engineers, Roger likes to design and build things. His working career as a Chemical Engineer was devoted to research and development of diverse energy technologies including hydrogen isotope extraction and oil sands processing. This research typically involved long development time horizons, large budgets and teamwork management. Designing and building houses and sundials has provided more immediate and personal satisfaction.

Roger Bailey graduated with an honours BASc in 1966 from Queen's University and is a semi-retired Professional Engineer. As the principal of Walking Shadow Designs, Roger is now offering consulting services on energy technologies and sundial design.

His interests are indicated by membership in the North American Sundial Society, the Royal Astronomical Society of Canada, and various hiking groups.

Astrobabble

Fireball Over Alberta

by Li-Ann Skibo

An extremely bright fireball flashed across the sky over western Canada just after sunset on November 20, 2008. The fireball broke up as it fell into Earth's atmosphere in a series of explosive sonic booms that are estimated to be the equivalent of 300 tons of dynamite. The size and energy of the fireball was determined from infrasound recordings, low frequency sound produced by explosions that can travel thousands of kilometers. Witnesses also reported hearing hissing and crackling noises. The fireball, also referred to as a bolide, is thought to be a 10-ton asteroid the size of a desk with a speed of entry of 14 kilometers (8.7 miles) per second.

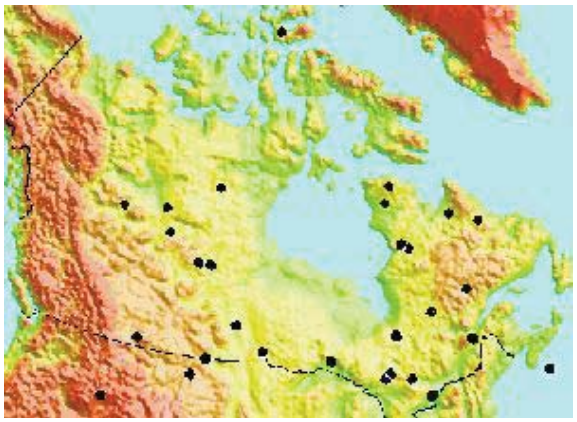
Possibly thousands of fragments are expected to have reached the ground over a 20 square kilometer area around Buzzard Coulee, along Battle River on the Alberta-Saskatchewan border. Dozens of meteorites from this event have already been found. Geologist Alan Hildebrand of the University of Calgary, and some graduate students found fist-sized fragments of black, dimpled rock. Amateur meteorite hunter Les Johnson found a head sized 13 kg (28 lb) fragment named the Big Kahuna.

Alan Hildebrand (right) and MSc student Ellen Milley were the first to recover pieces of the meteorite on farmland near the hamlet of Lone Rock, Sask.

Fireball video from surveillance cameras in the area as well as recovered fragments will be analyzed in the hope they hold clues to the formation of the Earth and Solar System.

More Meteor Lingo? A Fireball is a bright meteor with a luminosity which equals or exceeds that of the brightest planets. The term Bolide

is difficult to define. Geologists refer to a bolide as a very large impactor and astronomers describe a bolide as an exceptionally bright fireball that often explodes.



How often does this happen? This map from the Canadian Space Agency's Meteorites and Impacts Advisory Committee (MIAC) shows the locations of recognized meteorite impact structures in Canada. Of the 174 proven meteorite craters on Earth, 29 are in Canada. The best known is the Manicouagan crater in northern Quebec, created 214 million years ago by an asteroid with a diameter of probably 5 km. Although the frequency of impacts was far greater during the formation of the solar system, this event can be considered an extremely rare event.

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

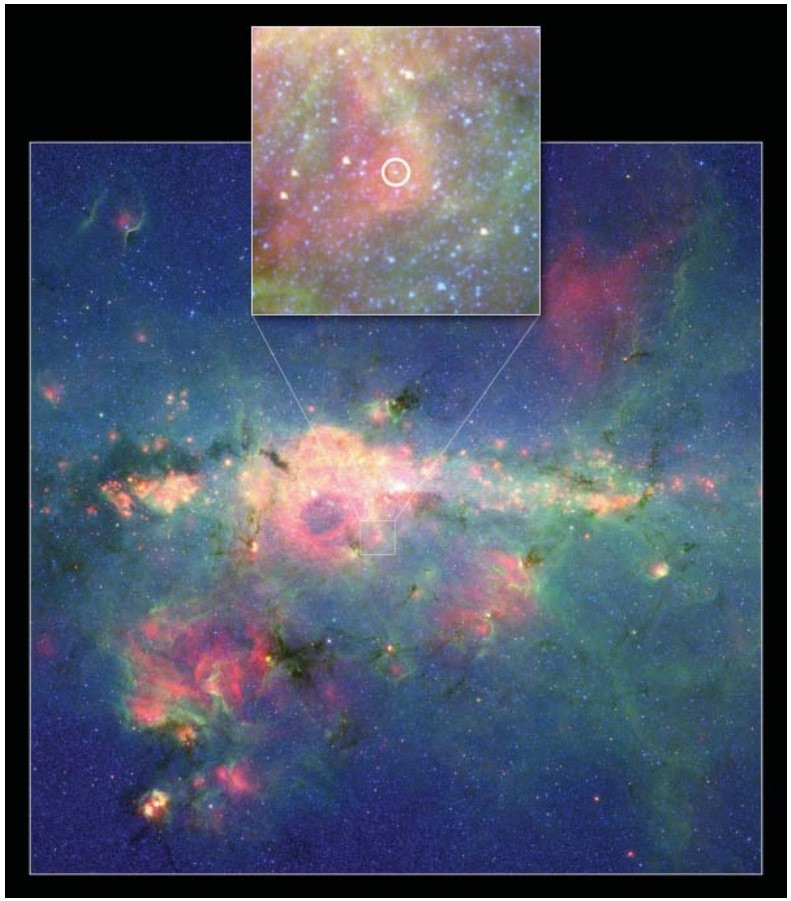
Royal Astronomical Society of Canada ✦ Victoria Centre

Superstar Hide and Seek

by Dr. Tony Phillips

It sounds like an impossible task: Take a star a hundred times larger in diameter and millions of times more luminous than the Sun and hide it in our own galaxy where the most powerful optical telescopes on Earth cannot find it.

But it is not impossible. In fact, there could be dozens to hundreds of such stars hiding in the Milky Way right now. Furiously burning their inner stores of hydrogen, these hidden superstars are like ticking bombs poised to 'go supernova' at any moment, possibly unleashing powerful gamma-ray bursts. No wonder astronomers are hunting for them. Earlier this year, they found one.



"It's called the Peony nebula star," says Lidia Oskinova of Potsdam University in Germany. "It shines like 3.2 million suns and weighs in at about 90 solar masses."

The star lies behind a dense veil of dust near the center of the Milky Way galaxy. Starlight traveling through the dust is attenuated so much that the Peony star, at first glance, looks rather dim and ordinary. Oskinova's team set the record straight using NASA's Spitzer Space Telescope. Clouds of dust can hide a star from visible-light telescopes, but Spitzer is an infrared telescope able to penetrate the dusty gloom.

"Using data from Spitzer, along with infrared observations from the ESO's New Technology Telescope in Chile, we calculated the Peony star's true luminosity," she explains. "In the Milky Way galaxy, it is second only to another known superstar, Eta Carina, which shines like 4.7 million suns."

Oskinova believes this is just the tip of the iceberg. Theoretical models of star formation suggest that one Peony-type star is born in our galaxy every 10,000 years. Given that the lifetime of such a star is about one million years, there should be 100 of them in the Milky Way at any given moment.

Could that be a hundred deadly gamma-ray bursts waiting to happen? Oskinova is not worried.

"There's no threat to Earth," she believes. "Gamma-ray bursts produce tightly focused jets of radiation and we would be extremely unlucky to be in the way of one. Furthermore, there don't appear to be any supermassive stars within a thousand light years of our planet."

Nevertheless, the hunt continues. Mapping and studying supermassive stars will help researchers understand the inner workings of extreme star formation and, moreover, identify stars on the brink of supernova. One day, astronomers monitoring a Peony-type star could witness with their own eyes one of the biggest explosions since the Big Bang itself. Now that might be hard to hide.

Find out the latest news on discoveries using the Spitzer at www.spitzer.caltech.edu. Kids (of all ages) can read about "Lucy's Planet Hunt" using the Spitzer Space Telescope at spaceplace.nasa.gov/en/kids/spitzer/lucy.

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

Presidents Message

January 2009

This is a New Year with much promise as we usher in the International Year of Astronomy (IYA) in celebration of the achievements of the first "amateur" astronomer, Galileo Bonaiuti de' Galilei. You read that correctly, I am calling Galileo an amateur! I know that is not the way he is usually regarded but think about it. In May of 1609 he received a letter from a Paolo Sarpi telling him about a new technological gizmo that made it possible to see distant things. He must have been skeptical just as you or I would be but confirmation soon arrived from another correspondent. At this point he got very excited and set about to fashion a device of his own. Beginning to sound familiar? He even came up with some improvements along the way resulting in a technological marvel that we now call the Galilean telescope. Well aren't amateurs always are tinkering and making things better.

But why amateur? Galileo was a highly respected and accomplished professional in many areas including mathematics and physics and he had made many significant discoveries. Nevertheless, he was not a professional in astronomy when he made his first telescope or when he first pointed it at the sky. That soon changed. In about two months covering December, 1609 and January, 1610, he made more discoveries that changed the world than anyone has ever made before or since. Among the wonders he observed were moons that circled around Jupiter and not around the earth as stars were supposed to do, phases of Venus that were inconsistent with its presumed motion around the earth and mountains on the moon. Those mountains or craters kind of destroyed the prevailing notion that heavenly bodies were perfect spheres. As a result of these discoveries, and in particular for espousing the radical idea that we can best learn about nature by observing it, he is often referred to as the father of modern science. OK, at this point it makes sense to call him a professional. But he started out as an amateur.

What amazing and wonderful moments Galileo must have had in his

amateur period. For example, the moment when he saw that the Milky Way was not just a heavenly cloud but was actually composed of a vast array of stars or, the moment when he noticed that four small "stars" near Jupiter were actually circling it, and of course, the moment when he observed mountains or craters on the moon. These and his many other "Galileo Moments" have inspired the idea of providing members of the public with their personal "Galileo Moments" during IYA. It is a great idea and if you have not already done so, I invite you to join the many Victoria Centre members who have already volunteered to give "Galileo Moments" to the citizens of the Greater Victoria during 2009.

John

IYA

by Sid Sidhu

By the time you read this report, some of you may have already participated by volunteering at the shopping malls on January 10th launch of IYA celebrations. Thanks to everyone. If you were unable to volunteer at this event, don't despair there will be many more opportunities for you to be a part of this exciting celebration.

Here are some key dates for you to mark in your black book.

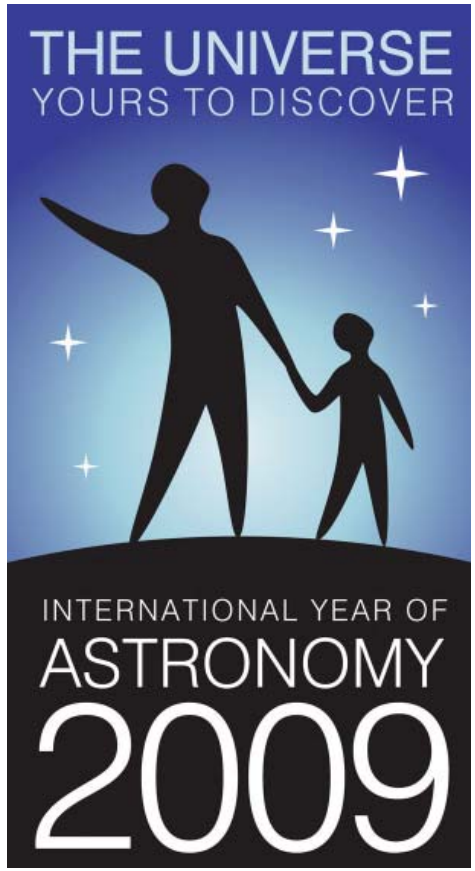
Jan -10	- Launch of IYA – Shopping Malls
Feb - 8	- UVic, Public Lecture (new science bldg) at 2:30
Feb -1 - 28th	- FETTU- Bay Centre
Feb -1/ Mar 30	- FETTU – Victoria International Airport.
Mar - 02	- First issue of IYA postal stamps - CU
Mar -16 to 28th	- Globe at Night – Cattle Point
Mar - 28	- Early Music Society event at Alix Goolden Hall
Mar- 28	- Earth Hour – world wide (switch off lights).
Apr -2 to 5th	- 100 hour around the clock, around the Glob.
Apr -25	- Earth Day – Centennial Square.
Apr -28/ May 2	-100 hour side walk marathon - RBCM
May - 2	- Astronomy Day at the CU
May - 30	- Annual Beaveree – Camp Barnard
Jun -1	- Telescope Demo/Viewing Party Fairfield Comm Centre.
Jun - 6-7th	- Oak Bay Tea Party
Jun -21	- Solstice Day celebrations – Beaver Lk.
Jul - 1	- Sidney Day – Memorial Park.

Jul -11 - 12th	- Bucanneer Days – Archie Browning Sports Centre.
Jul -19	- Sandfest Family Day - Gyro Park
Jul -25	- Luminara at Beacon Hill Park.
Sept -5 -7th	- Saanich Fair – Stelly's X-Road, Saanichton
Sept -13	- Metchosin Day – 4450 Happy Valley Rd.
Sept -28	- Telescope Demo/Viewing Party Fairfield Comm Centre.
Oct - 9 - 23rd	- Great Star Count.

Please remember to check the Centre's website for any updates to these events.

Soon we will be receiving a fixed number of IYA items from the RASC national office for distribution at IYA public events. To receive additional items, we are obliged to provide a count of public participation at these events. Please make sure every one of us keeps a reasonably accurate record of public attendance and forwarding this information to me.

RASC is partnering with the Féderation des astronoms amateurs du Québec (FAAQ), the Canadian Astronomical Society (CASCA), the Hertzberg Institute of Astrophysics (HIA), the Canadian Space Agency (CSA). At the present there are 135 countries taking part in celebrating the 400th anniversary of Galileo Galilei's first astronomical observation through a telescope.



To participate and reserve your time in any of the above activities, I encourage you to call/email, IYA volunteer coordinator Sherry Buttnor (250) 474-0554 (vp2@victoria.rasc.ca) or me at (250) 391-0450 (sid-sidhu@shaw.ca).

address change? information incorrect

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Members at Large
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this month

monday nights

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

Call John at 250.480.0928 for directions and information. New comers are especially welcome. Come and enjoy!

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 391-0540 for information and directions.

by email

Observer/CU Volunteers/ Members email lists
Contact Joe Carr to subscribe to these email lists for important, timely, member-related news.