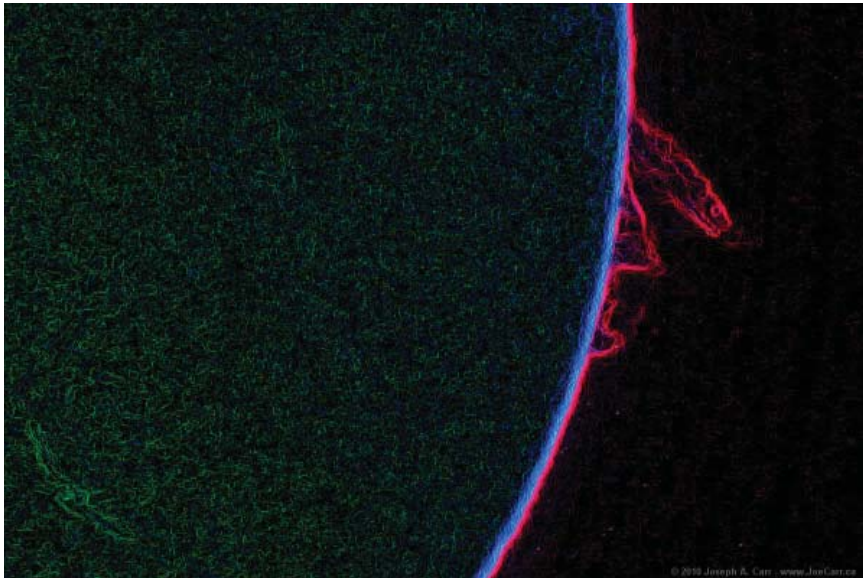


skynews



schedule of events

Galaxy Bulge Formation: Observational Perspectives

Dr. Lauren MacArthur, HIA - Post Doc

April 14, 7:30 PM, Elliott Lecture Theatre, Rm 060, UVic

Understanding the formation and evolution of disk galaxies, in particular the formation of their spheroidal (or bulge) components, remains a challenge from both the theoretical and observational perspectives. Originally thought to form early times (high-redshift) through violent and rapid processes, similar to pure spheroidal (or elliptical) galaxies, recent observations have challenged these views suggesting ongoing formation, possibly related to the presence of the surrounding spiral disk. From the observational point of view, formation histories of galaxy bulges can be probed locally (fossil record) using detailed observations of bulge structure and stellar content, and directly (formation in situ) using observations as a function of look-back time (redshift). In this talk, I will present results from both perspectives and discuss them in the context of currently favored bulge formation scenarios.



Bio: After completing a BSc in physics at the University of Guelph, Lauren spent 5 years at the University of British Columbia completing her MSc and PhD in astronomy, both under the supervision of Prof. Stephane Courteau (now at Queen's University in Kingston, Ontario). Lauren then went to Caltech in Pasadena, California for a 3-year postdoc position with Prof. Richard Ellis. She is now a postdoc at UVic/HIA working with Dr. Laura Ferrarese and the Next Generation Virgo Cluster Survey team.

April 24, 10 am to 4 pm - **Astronomy Day**, Swan Lake Nature Sanctuary, 3873 Swan Lake Road. Night Sky Viewing at Cattle Point, 7 pm - 11 pm.

May 12, **7:30 PM, Elliott Lecture Theatre, Rm 060, UVic - New Star Formation** - Scott Schnee, HIA- Plaskett Fellow

on the cover

Solar Prominences in Ha

by Joe Carr

March 19, 2010 3:27pm PDT
Victoria, BC, Canada

There were multiple solar prominences visible on the Sun this afternoon, however a series of three in one group stood out as particularly spectacular. Reports from the previous day told of a single huge arching prominence at this same location on the solar disk.

Exposure: 1/4 second at ISO 800
Bandpass: <0.55 A

Equipment: Canon 7D dSLR a-focal through a 2.5x Powermate & Lunt LS60THa + LS50FHa solar telescope mounted on an HEQ5 tracking mount.

Processing: ACDSee Pro 3 - Sobel edge detection; aggressive contrast stretch, crop.

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>

Venus is Geologically Alive!?

For the first time, scientists have detected clear signs of recent lava flows on the surface of Venus.

The observations reveal that volcanoes on Venus appeared to erupt between a few hundred years to 2.5 million years ago. This suggests the planet may still be geologically active, making Venus one of the few worlds in our solar system that has been volcanically active within the last 3 million years.

The evidence comes from the European Space Agency's Venus Express mission, which has been in orbit around the planet since April 2006. The science results were laid over topographic data from NASA's Magellan spacecraft. Magellan radar-mapped 98 percent of the surface and collected high-resolution gravity data while orbiting Venus from 1990 to 1994.

Scientists see compositional differences compared to the surrounding landscape in three volcanic regions. Relatively young lava flows have been identified by the way they emit infrared radiation. These observations suggest Venus is still capable of volcanic eruptions. The findings appear in the April 8 edition of the journal Science.

"The geological history of Venus has long been a mystery," said Sue Smrekar, a scientist at NASA's Jet Propulsion Laboratory in Pasadena, Calif., and lead author of the paper describing the work. "Previous spacecraft gave us hints of volcanic activity, but we didn't know how long ago that occurred. Now we have strong evidence right at the surface for recent eruptions."

The volcanic provinces, or hotspots, on which Smrekar and her team focused are geologically similar to Hawaii. Scientists previously detected plumes of hot rising material deep under Venus' surface. Those plumes are thought to have produced significant volcanic eruptions. Other data from the planet suggest that volatile gases commonly spewed from volcanoes were breaking down in its atmosphere. The rate of volcanism will help scientists determine how the interior of the planet works and how gases emitted during eruptions affect climate.

Something is smoothing Venus' surface, because the planet has only about 1,000 craters, a relatively small amount compared to other bodies

in our solar system. Scientists think it may be the result of volcanic activity and want to know if it happens quickly or slowly. The Venus Express results suggest a gradual sequence of smaller volcanic eruptions as opposed to a cataclysmic volcanic episode that resurfaces the entire planet with lava.

Smrekar and her team also discovered that several volcanic features in the regions they studied show evidence of minerals found in recent lava flows. These mineral processes correspond to the youngest volcanic flows in each region, giving scientists additional support for the idea they formed during recent volcanic activity. On Earth, lava flows react rapidly with oxygen and other elements in the atmosphere when they erupt to the surface. On Venus, the process is similar, although it is more intense and changes the outer layer more substantially.

Scientists call Venus Earth's sister planet because of similarities in size, mass, density and volume. Scientists deduce that both planets shared a common origin, forming at the same time about 4.5 billion years ago. Venus also is the planet on which the runaway greenhouse effect was discovered. The planet is cloaked in a much less friendly atmosphere than that found on Earth. It is composed chiefly of carbon dioxide, which generates a surface temperature hot enough to melt lead, and a surface pressure 90 times greater than that on Earth.

The small group of worlds in our solar system known to be volcanically active today includes Earth and Jupiter's moon Io. Crater counts on Mars also have suggested recent lava flows. Scientists are studying evidence of another kind of active volcanism that involves ice-spewing volcanoes on other moons in our solar system.

NASA sponsored Smrekar's research. The European Space Agency built and manages Venus Express. JPL is managed for NASA by the California Institute of Technology in Pasadena.

To view the spacecraft data and images, visit: <http://www.nasa.gov/topics/solarsystem/features/pia13001.html>

April 2010

Light Pollution Abatement (LPA) is our focus this year and it appears that we are far from alone in our attempts to tackle this very difficult issue. The May issue of Sky and Telescope has the theme "Bring Back the Night" and asks the question "can reverse light pollution". Kelly Beatty has a thoughtful article that gives some reasons for at least cautious optimism that a new mindset and new technology may help. If it is to succeed it needs the committed help of amateur astronomers and other nature lovers all over the world. If you are interested in helping consider joining the LPA group. Just send me a message indicating your area of interest.



On another potentially thorny topic, you may know that our parent body has raised our fees for RASC membership by \$3 this year and will be raising it another \$3 in 2011. I thought about the issue a lot over the last month and both Chris Gainor, our National Representative and I listened carefully to comments of our Victoria Centre members. Most accepted that it probably had to happen but worried about the impact on membership. That got me thinking about what we get for our fees. Apart from the obvious benefits that you know about, membership in an organization that is an important part of the astronomy scene in Canada, getting annual copies of the Observers Guide, and 6 issues of Sky News magazine each year are some tangible benefits.

It is important to remind ourselves that some benefits are less visible but even more crucial for our Centre. For example, the insurance that National provides makes it possible for us to hold star parties and public events including the Saturday evenings at the CU. Also, without that insurance our IYA activities would have been severely curtailed. We would not have been able to hold events in public venues and finding a venue for a star party venue would be next to impossible.

So, all things considered, when you renew your membership think about the fact that we need a healthy National organization to function as successfully as we do. That may ease the pain a bit.

Deadly Planets

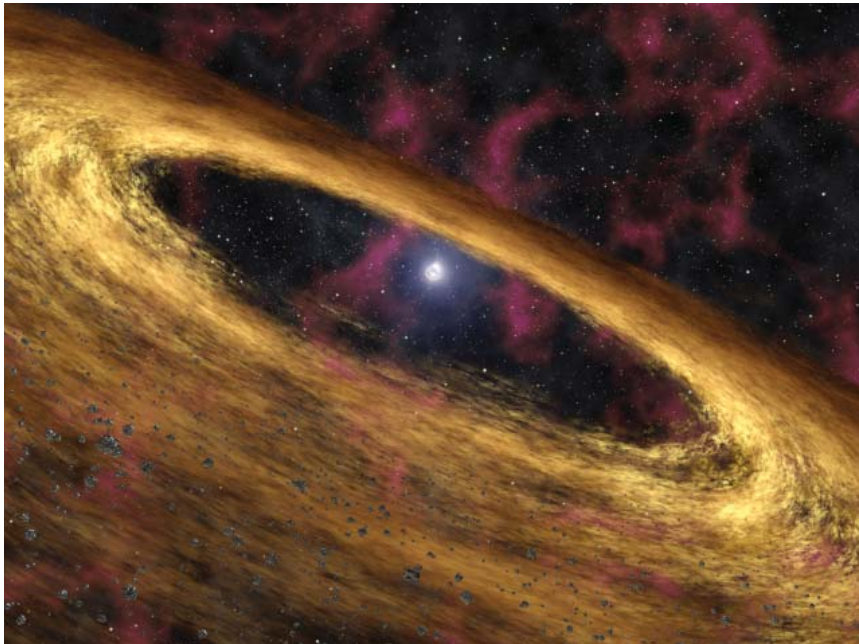
By Patrick L. Barry and Dr. Tony Phillips

About 900 light years from here is a rocky planet not much bigger than Earth. It goes around its star once every hundred days, a trifle fast, but not too different from a standard Earth-year. At least two and possibly three other planets circle the same star, forming a complete solar system.

Interested? Don't be. Going there would be the last thing you ever do.

The star is a pulsar, PSR 1257+12, the seething-hot core of a supernova that exploded millions of years ago. Its planets are bathed not in gentle, life-giving sunshine but instead a blistering torrent of X-rays and high-energy particles.

"It would be like trying to live next to Chernobyl," says Charles Beichman, a scientist at JPL and director of the Michelson Science Center at Caltech.



Artist's concept of a pulsar and surrounding disk of rubble called a "fallback" disk, out of which new planets could form.

Our own Sun emits small amounts of pulsar-like X-rays and high energy particles, but the amount of such radiation coming from a pulsar is "orders of magnitude more," he says. Even for a planet orbiting as far out as the Earth, this radiation could blow away the planet's atmosphere, and even vaporize sand right off the planet's surface.

Astronomer Alex Wolszczan discovered planets around PSR 1257+12 in the 1990s using Puerto Rico's giant Arecibo radio telescope. At first, no one believed worlds could form around pulsars—it was too bizarre. Supernovas were supposed to destroy planets, not create them. Where did these worlds come from?

NASA's Spitzer Space Telescope may have found the solution. In 2005, a group of astronomers led by Deepto Chakrabarty of MIT pointed the infrared telescope toward pulsar 4U 0142+61. Data revealed a disk of gas and dust surrounding the central star, probably wreckage from the supernova. It was just the sort of disk that could coalesce to form planets!

As deadly as pulsar planets are, they might also be hauntingly beautiful. The vaporized matter rising from the planets' surfaces could be ionized by the incoming radiation, creating colorful auroras across the sky. And though the pulsar would only appear as a tiny dot in the sky (the pulsar itself is only 20-40 km across), it would be enshrouded in a hazy glow of light emitted by radiation particles as they curve in the pulsar's strong magnetic field.

Wasted beauty? Maybe. Beichman points out the positive: "It's an awful place to try and form planets, but if you can do it there, you can do it anywhere."

Find more news and images from Spitzer at <http://www.spitzer.caltech.edu/> . In addition, The Space Place Web site features several games related to Spitzer and infrared astronomy, as well as a storybook about a girl who dreamed of finding another Earth. Go to <http://tiny.cc/lucy208>.

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

Astronomy Day

SATURDAY, APRIL 24

10 AM - 4 PM

SWAN LAKE NATURE SANCTUARY

3873 SWAN LAKE ROAD

- ASK AN ASTRONOMER BOOTH
- TELESCOPE VIEWING
- SOLAR OBSERVING
- TELESCOPES MAKING
- ASTRO KID ACTIVITIES
- TOUR THE SOLAR SYSTEM
- WALK AMONG THE PLANETS

7 PM - 11 PM

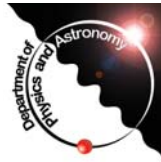
STARGAZING WEATHER PERMITTING

CATTLE POINT

OAK BAY

Presented by
 Royal Astronomical Society of Canada - Victoria Centre,
 Swan Lake Christmas Hill Nature Sanctuary

For more information:
 250.479.0211
victoria.rasc.ca



In memorium

Sandy Clark

November 1, 1941 March 6, 2010 Self-taught artist, muralist, sculptor, teacher, boat-builder, sailor; Sandy Clark's creativity, outrageous humour and determination inspired and endeared her to all those who knew her.

Well-known for her murals in Chemainus, BC, Sandy's paintings in oils, watercolours and acrylics captured the mood of her subjects in a magical way, whether they be seascapes, landscapes, portraits or imaginative renderings of the cosmos.



This is a painting about time. Taking time to step off our planet's surface and leave behind the base line linear perspective of conventional art - then enter a visual realm where the only reference point is the time signature of the last photon to touch ones eye.

Reading from right to left - the ancestral profile "the viewer" creates an irregular vertical column a "time twister" and uses it to justify the concept that (for her) all of time is happening at one moment.

The rest of this space-scape is simply the fun of playing with the "maybe-ness" of some of the dazzling visual occurrences that the universe and ones imagination create.

Sandy loved sailing the island waters. She designed and built her own sailboat, and later undertook the building of a sleek powerboat. Faced with the relentless progression of Parkinson's disease, Sandy's courage and spunk could not be defeated.

In her 50's, Sandy unleashed her intelligence, curiosity and remaining energy into the study of astronomy. Her hand-made telescopes earned awards from local star-gazing clubs.

Sandy passed away peacefully at the Chemainus Health Care Centre with family and friends by her side. She was predeceased by her parents, Tom and Irene, and by her brother, Tom. She is survived by brothers Edward and Joseph, her cousins, and by a host of close friends. Special thanks go to the wonderful staff at the Chemainus Health Care Centre and to friend Marilyn Baines for their unfailing care of Sandy.

A celebration of Sandy's life will be held at a later date. Donations to The Parkinson's Society may be made in Sandy's memory.

RASC victoria council

*this month
monday nights*

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Bill Almond, Sandy Barta, Dave Bennett, Jim Hesser, David Lee, Steve Pacholk, Colin Scarfe,

Astronomy Cafe

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

Call Geoff at 250.592-2264 for directions and information. New comers are especially welcome. Come and enjoy!

**ASTRONOMY
CAFÉ**



second wednesday of the month

Monthly Meeting

7:30 PM, Elliott Lecture Theatre,
Rm 061, UVic.

as sky and interest dictate

New Observers Group

Hosted by Sid Sidhu.
1642 Davies Road, Highlands.
Call 250.391-0540 for information and directions.

**Observer/CU Volunteers/
Members email lists**

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