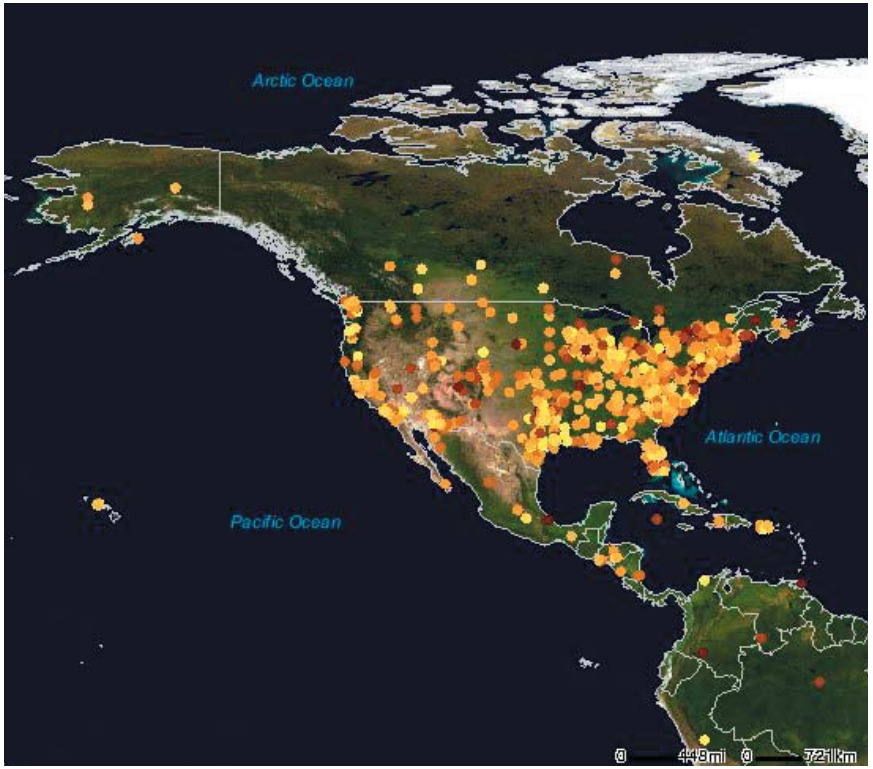
Skynews



this month

Dr. W. John McDonald

Full Circle – The Physics and Astronomy Connection

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

Physics, the study of our natural world grew out of astronomy and especially the work of Kepler, Galileo and Newton which showed how we could describe and understand planetary motion. In the last century, relativity and quantum physics revolutionized the way we view the matter that we, the planets and our universe, are composed of as well as the strangely formed space we inhabit. Currently, Physics and Astronomy are reuniting in the age old attempt to uncover the origins of the universe and its remarkable evolution.

My talk will be an attempt at a plain language explanation of the central advances in physics of the last century, relativity and the quantum. I will use these advances to show how the particles of which the material world is composed interact, and how understanding those interactions helps to explain the origins and evolution of the universe

John McDonald holds a B.Sc. in Engineering Physics (1959) and an M. Sc. (1961) from the University of Saskatchewan, and a PhD from the University of Ottawa (1964). He was a faculty member at the University of Alberta from 1965 to 2001 and Chairman of the Department of Physics (1976 to 1980), Dean of the Faculty of Science (1981 to 1991), Vice President (Academic) (1991 to1994) and Acting President (1994). Currently he is a Fellow of the Institute of Physics (UK), Professor Emeritus at the University of Alberta and Adjunct Professor at the UVic.

John's research was in nuclear and particle physics and he is the author or co-author of 250 published scientific papers. He contributed to the development of the Tile Endcap for OPAL detector at the CERN Laboratory in Geneva and played a major role in the ALTA project to study of ultra high-energy cosmic rays.

Currently, John is enjoying retirement in Victoria. He continues to study and enjoy physics, especially its connection with cosmology, and he serves on the Research Council of the Canadian Institute for Advanced Research. Recreational activities including flying, model building and cross country skiing have been an important part of his life and he is now having a great time learning to observe and photograph the sky.

on the cover

Globe at Night

Can You See the Stars? Join the World-Wide Hunt for Stars, March 8 - 21, 2007

Join thousands of other students, families and citizen-scientists hunting for stars during March 8 - 21, 2007. Take part in this international event to observe the nighttime sky and learn more about light pollution around the world.

For more information visit: http://www.globe.gov/globeatnight/

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coming up

Dr. Julio Navarro, UVic, Department of Astronomy
Subject: TBA
April 11, 7:30 PM, Elliott Lecture Theatre, Rm 060, UVic

Dr. Navarro's research interests are centered on the formation and evolution of galaxy systems within the overall cosmological context.

Russ Robb, UVic, Department of Astronomy
Subject: TBA
May 9, 7:30 PM, Elliott Lecture Theatre, Rm 060, UVic

Extrasolar planets, high precision photometry, variable stars and robotic telescopes are Russ's primary research interests.

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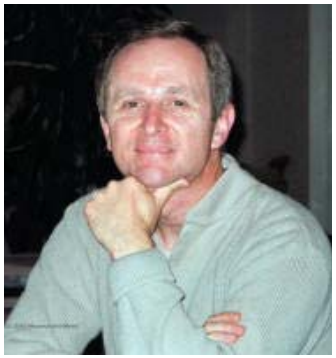
contact us on-line

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

President's Report

President's Message February, 2007



By the time you read this, our new roll-off roof observatory will be ordered. As mentioned in last month's President's Message, this building will be for our exclusive use at the old 16" site on Observatory Hill, and the observatory will be paid for by the National Research Council. This presents some exciting possibilities for our members, and it will certainly enhance our use of the Hill in future, irrespective of what equipment we decide will be housed in our new observatory.

A few months ago Victoria Centre applied to the BC Gaming Commission for funds to purchase a new 16" goto telescope. The proposal stated that this scope would be used to offer public outreach through online access. Unfortunately, BCGC turned down our proposal, although we are appealing the ruling. In the mean time, we will need to raise the funds from our members to make this happen. It would obviously be desirable to install this new scope in our new observatory atop Observatory Hill, and hopefully some of you will be generous with your donations. We are currently re-examining what equipment would work best in the observatory, so if you have any feedback to give us on this subject, please contact our VPs or myself.

Although observing opportunities have been sparse since last November, lets all look forward to better spring weather! We also have two events to look forward to:

International Astronomy Day - April 21, 2007 - Please contact Sandy Barta to volunteer your time for this important outreach event. Scott Mair is coordinating this event for us this year, so please contact him if you have any bright ideas you wish to see happen at this year's Astronomy Day. http://victoria.rasc.ca/events/AstroDay/Default.htm

RASCALS Star Parties - August 24-26, 2007, to be held at the Victoria Fish and Game Association property on the Malahat. You can

contact myself or the VPs about volunteering to help setup or teardown, or just to help out during this camp and observe event at this dark site.
http://victoria.rasc.ca/events/StarParty/Default.htm

I always look forward to both events, since it is such a good opportunity to see our members doing what they do best - showing their enthusiasm for astronomy. Please plan to attend these events.

As always, please feel free to contact any of the Victoria Centre Council if you have any feedback to give us.

Joe Carr

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job jar

Victoria Centre Council has established a **Job Jar**, where we will have clearly-defined volunteer jobs that need to be done for Victoria Centre. If you are a member and wish to volunteer for one of these jobs, please contact the Council member indicated below.

RASCALS Star Party Coordinator Coordination of the 2007 RASCALS Star Party being held Aug 24-26. Time commitment; 3-5 hrs/month and 3 days during event. Contact Sid Sidhu or Joe Carr for more details.

Monthly Meeting Coffee Maker Set-up the Centre's coffee maker in the 4th floor lounge (UVic Physics and Astronomy) and make coffee. Time commitment: 1 hour/month. For more information contact Sid Sidhu.

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address change? information incorrect

Contact the National Office

Telephone - 416.924.7973 or toll-free in Canada 888.924.RASC
Fax - 416.924.2911
Email - nationaloffice@rasc.ca
Post - RASC, 136 Dupont Street, Toronto, ON M5R 1V2
General enquiries - natonaloffice@rasc.ca

NASA Spacecraft Gets Boost From Jupiter For Pluto Encounter

by Science Daily

NASA Spacecraft Gets Boost From Jupiter For Pluto Encounter
Science Daily — NASA's New Horizons spacecraft successfully completed a flyby of Jupiter early this morning (Feb. 28), using the massive planet's gravity to pick up speed for its 3-billion mile voyage to Pluto and the unexplored Kuiper Belt region beyond.

Although the main mission of New Horizons is to explore the Pluto system and the Kuiper Belt of icy, rocky objects, the spacecraft will first fly by the solar system's largest planet, Jupiter, early 2007 -- just a little over a year after launch. In this artist's rendering, New Horizons soars past Jupiter as the volcanic moon Io passes between the spacecraft and planet. (Credit: Johns Hopkins University Applied Physics Laboratory/ Southwest Research Institute (JHUAPL/SwRI))

"We're on our way to Pluto," said New Horizons Mission Operations Manager Alice Bowman of Johns Hopkins University Applied Physics Laboratory (APL), Laurel, Md. "The swingby was a success; the spacecraft is on course and performed just as we expected." New Horizons came within 1.4 million miles of Jupiter at 12:43 a.m. EST, placing the spacecraft on target to reach the Pluto system in July 2015. During closest approach, the spacecraft could not communicate with Earth, but gathered science data on the giant planet, its moons and atmosphere. At 11:55 a.m. EST mission operators at APL established contact through NASA's Deep Space Network and confirmed New Horizons' health and status.
The fastest spacecraft ever launched, New Horizons is gaining nearly 9,000 mph from Jupiter's gravity - accelerating to more than 52,000

mph. The spacecraft has covered approximately 500 million miles since its launch in January 2006 and reached Jupiter faster than seven previous spacecraft to visit the solar system's largest planet. New Horizons raced through a target just 500 miles across, the equivalent of a skeet shooter in Washington hitting a target in Baltimore on the first try. New Horizons has been running through an intense six-month long systems check that will include more than 700 science observations of the Jupiter system by the end of June. More than half of those observations are taking place this week, including scans of Jupiter's turbulent atmosphere, measurements of its magnetic cocoon, surveys of its delicate rings, maps of the composition and topography of the large moons Io, Europa, Ganymede and Callisto, and a detailed look at volcanic activity on Io.

"We designed the entire Jupiter encounter to be a tough test for the mission team and our spacecraft, and we're passing the test," says New Horizons Principal Investigator Alan Stern from the Southwest Research Institute in Boulder, Colo. "We're not only learning what we can expect from the spacecraft when we visit Pluto in eight years, we're already getting some stunning science results at Jupiter - and there's more to come."

While much of the close-in science data will be sent back to Earth during the coming weeks, the team also downloaded a sampling of images to verify New Horizons' performance.

The outbound leg of New Horizons' journey includes the first-ever trip down the long "tail" of Jupiter's magnetosphere, a wide stream of charged particles that extends more than 100 million miles beyond the planet. Amateur backyard telescopes, the giant Keck telescope in Hawaii, NASA's Hubble Space Telescope and Chandra X-Ray Observatory and other ground and space-based telescopes are turning to Jupiter as New Horizons flies by, ready to provide global context to the close-up data New Horizons gathers.

New Horizons is the first mission in NASA's New Frontiers Program of medium-class spacecraft exploration projects. The Applied Physics Laboratory, Laurel, Md., manages the mission for NASA's Science Mission Directorate, Washington. The mission team also includes NASA's Goddard Space Flight Center, Greenbelt, Md.; NASA's Jet Propulsion Laboratory, Pasadena, Calif.; the U.S. Department of Energy, Washington; Southwest Research Institute, Boulder, Colo.; and several corporations and university partners.

For the latest news and images from the New Horizons mission, visit: http://www.nasa.gov/newhorizons

centre of the universe

Hello once again to all! I hope everyone survived the cold spell we had earlier this year and is looking forward to spring, which is fast approaching. With the weather getting warmer and the skies getting clearer there will be more opportunities to spend long nights watching the sky.

Extended Hours

Now that we are getting closer to the summer season, we have decided to extend our public hours. Since school is still in session we are working with school groups during the day but we will be open to the public from Tuesday to Friday, from 1 p.m. until 4:30 p.m. and on Saturday from 10 a.m. until 4:30 p.m. During that time you will be able to explore our exhibit gallery and participate in a Telescope Tour at 1:30 p.m., a Planetarium Show at 3:15 p.m. and as always, questions to any of our very knowledgeable staff are free!

Radio Astronomy with the Centre of the Universe?

For those of you who thought that the observatory in Victoria didn't do radio astronomy, try tuning into CFAX 1070 in Victoria and you might just hear one of our staff providing all kinds of astronomy advice and even answering some questions on the air approximately once a month.

The Sky This Month

March 3rd	Full Moon (3:17 p.m. PST)
March 11th	Last Quarter Moon (8:54 p.m. PST)
March 18th	New Moon (7:43 p.m. PDT)
March 20th	Spring Equinox (5:07 p.m. PDT)
March 25th	First Quarter Moon (11:16 a.m. PDT)
March 28th	Zodiacal Light just after evening twilight for next 2 weeks

Spring is finally here! The Vernal Equinox takes place on March 20th at 5:07 p.m. local time. Equinox literally means "equal night". During an equinox, the lengths of day and night are virtually the same, 12 hours. After the Spring Equinox, the sun will continue to rise higher and higher in the sky and our days will get longer and longer until we reach the summer solstice.

Saturn, one of the giants of our Solar System is still dominating March Skies. Saturn shines brightly high in the South with Leo the Lion trailing. If you don't mind staying up all night, you might be able to catch a first

glimpse of Jupiter very early in the morning. Both of these planets will look like bright yellow “stars” shining brightly in the sky. When searching for planets in the night sky, an easy way to tell the difference between them and stars is to look for the “stars” that don’t twinkle. In the case of Jupiter and Saturn, all you have to do is look for the brightest “stars” in the night sky.

To see something very mysterious and beautiful, head outside at the end of March about 30 minutes after the sun sets. Look for a glow in the sky in the shape of a triangle with the base near the horizon. This is the famous Zodiacal Light that many poets have described for centuries. This beautiful glow is caused by sunlight being reflected off space debris left over from the formation of the planets some 4.5 billion years ago. To view light mysterious glow, head to a dark site away from as many city lights as possible. For more information on the Zodiacal Light, visit http://www.space.com/spacewatch/zodiacal_light_021101.html.

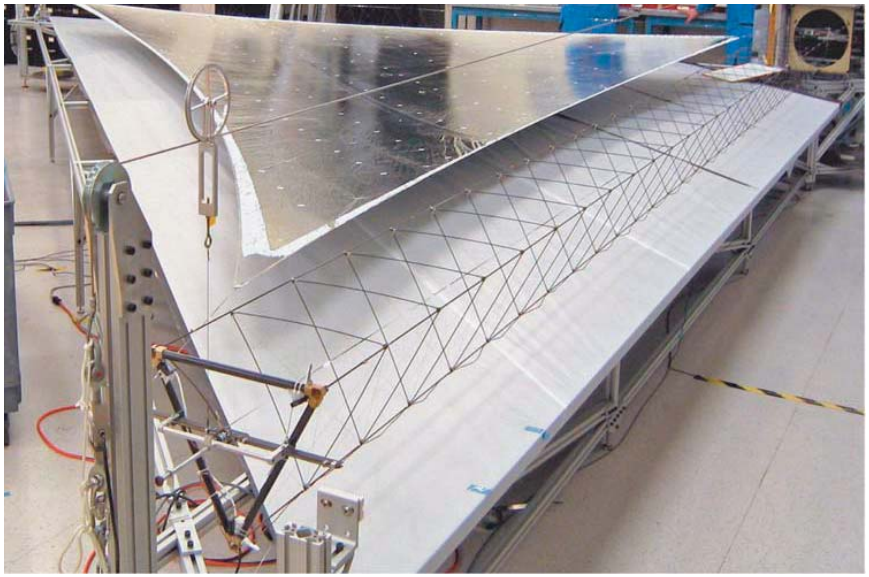
Even Solar Sails Need a Mast

by Patrick L. Barry

Like the explorers of centuries past who set sail for new lands, humans may someday sail across deep space to visit other stars. Only it won’t be wind pushing their sails, but the slight pressure of sunlight.

Solar sails, as they’re called, hold great promise for providing propulsion in space without the need for heavy propellant. But building a solar sail will be hard; to make the most of sunlight’s tiny push, the sail must be as large as several football fields, yet weigh next to nothing. Creating a super-lightweight material for the sail itself is tricky enough, but how do you build a “mast” for that sail that’s equally light and strong?

Enter SAILMAST, a program to build and test-fly a mast light enough for future solar sails. With support from NASA’s In-Space Propulsion Program to mature the technology and perform ground demonstrator tests, SAILMAST’s engineers were ready to produce a truss suitable for validation in space that’s 40 meters long, yet weighs only 1.4 kilograms!



SAILMAST is the thin triangular truss in front of the picture. It is attached to a section of a silver foil solar sail section shown here in a laboratory test. The mast in the picture is 2m (6 ft) long. The Space Technology 8 mission will test the SAILMAST, which is 20 times longer.

In spite of its light weight, this truss is surprisingly rigid. "It's a revelation when people come in and actually play with one of the demo versions—it's like, whoa, this is really strong!" says Michael McEachen, principal investigator for SAILMAST at ATK Space Systems in Goleta, California.

SAILMAST will fly aboard NASA's Space Technology 8 (ST8) mission, scheduled to launch in February 2009. The mission is part of NASA's New Millennium Program, which flight tests cutting-edge technologies so that they can be used reliably for future space exploration. While actually flying to nearby stars is probably decades away, solar sails may come in handy close to home. Engineers are eyeing this technology for "solar sentinels," spacecraft that orbit the Sun to provide early warning of solar flares.

Once in space, ST8 will slowly deploy SAILMAST by uncoiling it. The truss consists of three very thin, 40-meter-long rods connected by short cross-members. The engineers used high-strength graphite for these structural members so that they could make them very thin and light.

The key question is how straight SAILMAST will be after it deploys in space. The smaller the curve of the mast the more load it can support. "That's really why we need to fly it in space, to see how straight it is when it's floating weightlessly," McEachen says. It's an important step toward building a sail for the space-mariners of the future.

Find out more about SAILMAST at nmp.nasa.gov/st8. Kids can visit spaceplace.nasa.gov/en/kids/st8/sailmast to see how SAILMAST is like a Slinky® toy in space.

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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

RASC victoria council

President/Website Editor/Email Lists
Joe Carr
president@victoria.rasc.ca

First Vice President/ Telescopes / Schools
Sid Sidhu
vp@victoria.rasc.ca

Second Vice President
John McDonald
vp2@victoria.rasc.ca

Treasurer
David Griffiths
treasurer@victoria.rasc.ca

Secretary and Recorder
Li-Ann Skibo
secretary@victoria.rasc.ca

Librarian
Charles Banville
librarian@victoria.rasc.ca

Skynew Editor/ Past President
Scott Mair
scottmair@gmail.com

National Representative
David Lee
nationalrep@victoria.rasc.ca

Members at Large
Bill Almond, Dave Bennett, Jim Hesser, Ed Maxfield, Blaire Pellatt, Colin Scarfe, Chris Gainor, Norm Willey

New Member Liaison
Sandy Barta
newmembers@victoria.rasc.ca

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.