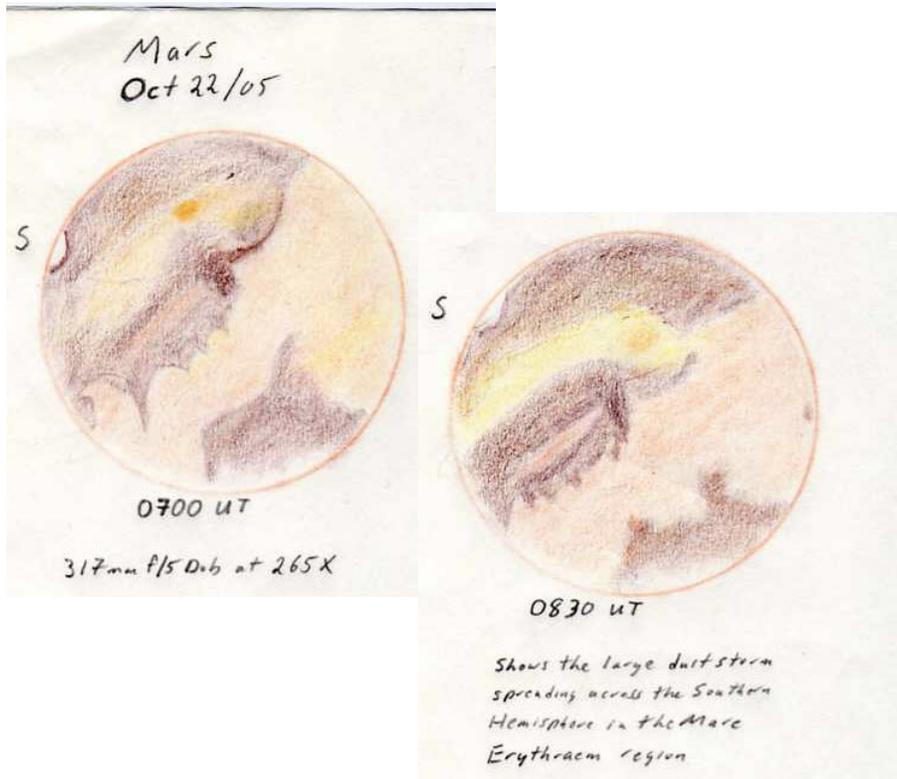


# SRfnews



<http://victoria.rasc.ca/>

*This Month*

**Peter Jedicke**

**Neutrinos and Astronomy**

In 2001, the Sudbury Neutrino Observatory announced the solution of the solar neutrino problem. Peter Jedicke has been interested in these elusive particles and had the opportunity to visit SNO. This talk will provide a general introduction to neutrinos, the history of the solar neutrino problem and other aspects of neutrinos in astronomy.

No neutrinos will be harmed in the making of this talk.

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*On the Cover!*

I did these two sketches just after midnight and 0130 (so Oct. 22 0700 UT and 0830 UT respectively). I was using my f/5 12.5" Dob, usually at 265x with my new 6mm Radian. The elongated light area spanning the Southern Hemisphere is a large dust storm that has been growing over the week. When I viewed it Monday evening it was much smaller. It covers Solis Lacus and extends to the preceeding limb across Mare Erthraeum. I noticed that much of the darker Southern Hemisphere was muted by a light haze.

I'm still struggling with my scanner to tone down how it scans my sketches. Imagine it not so harsh. I did take it into Photo Shop but I'm not totally pleased with it so I'm showing the original scan.

*Bill Weir*

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*Contact Us On-Line*

**Web Site:** <http://victoria.rasc.ca>

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## ROYAL ASTRONOMICAL SOCIETY OF CANADA • VICTORIA CENTRE

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### *Upcoming Meetings*

December 14	Pal Virag, RASC Victoria Centre Audio-Video Presentation on Mars <i>Note:</i> Elliot Building Lecture Room 167
January 11	TBA
February 8	Dr. David Anderson, NRC-HIA Galaxy Structures, ground layered optics and new instrumentation developments
June	Member's Night



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### *Address Change? Information Incorrect?*

Telephone: (416) 924-7973 (toll-free at (888) 924-RASC in Canada)  
Fax: (416) 924-2911  
E-Mail: [mempub@rasc.ca](mailto:mempub@rasc.ca) Website: [www.rasc.ca](http://www.rasc.ca)  
Postal Mail: RASC, 136 Dupont Street, Toronto, ON M5R 1V2, Canada  
General enquiries: [nationaloffice@rasc.ca](mailto:nationaloffice@rasc.ca)

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The deadline for the next issue of *Skynews* is

**November 23 2005**

Get your *Skynews* early and in colour.

Tell Joe Carr ([vp2@victoria.rasc.ca](mailto:vp2@victoria.rasc.ca)) that you want to get *Skynews* on  
line and we won't mail you a copy

## ROYAL ASTRONOMICAL SOCIETY OF CANADA • VICTORIA CENTRE

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### *Centre of the Universe*

The skies may be cloudy, but astronomy fun continues at the Centre of the Universe! Check out our November events!

Winter is upon us, and the CU is switching to its winter hours. From now until March 31, 2006, the Centre's regular hours will be 10 am to 4:30 pm, Tuesday through Saturday. We will be closed on Sundays and Mondays.

The Centre can open earlier on Tuesday through Friday mornings for school programs. Please inquire when you book your trip.

#### **Christmas is coming...**

Less than 2 months until Christmas! Don't forget the Centre of the Universe as you're planning your holiday season...

#### **Holiday Star Party in November**

Join us on Saturday, November 26 for our annual Holiday Star Party! We'll have a presentation on "History, Astronomy and the Star of Bethlehem", holiday crafts for the kids, suggestions for what to buy the astronomy fans on your list, and a sale in the gift shop. We'll also hold all our regular Star Party events, like planetarium shows, telescope tours and a chance to observe the skies (weather permitting). Festivities run from 7:00 to 11:00 pm—don't miss out on this fun evening!

#### **New Astronomy Gift Ideas**

Do your Christmas shopping at the Centre gift shop! We've just received a big shipment of new books and toys. Highlights include Mars books for kids and adults, two beautiful coffee table books, the new RASC Observers Handbook, the new 2006 Astronomy calendar, lots of cool kid's books and activities (in English and French!), Solar System umbrellas, and lots and lots of glow-in-the-dark stuff! The gift shop is open during regular Centre hours, and closes a half-hour before the Centre closes.

#### **Season's Pass Sale**

To celebrate the holiday season, we're offering a sale on our season's passes. From now until December 23, if you buy one season's pass at full price, you'll receive a second of equal or lesser value for half price! Season's passes get you free into Centre events for one full year from date of purchase—this includes all our popular summer Star Parties. It's a great deal!

Season's pass rates are:

Adults:	\$25+GST
Seniors (65 or older):	\$21+GST
Students (13-18):	\$21+GST
Youth (4-12):	\$15+GST
Families:	\$65+GST
(2 adults and 3 children under 18)	

*(Continued on page 5)*

## ROYAL ASTRONOMICAL SOCIETY OF CANADA • VICTORIA CENTRE

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*(Centre of the Universe Continued from page 4)*

### **Book your Christmas Party at the Centre of the Universe!**

The Centre of the Universe could be exclusively yours for the evening! Enjoy an elegant sit-down dinner in the Black Hole Theatre, canapés under the Milky Way, or take in the best views of Victoria and the cosmos from our observation deck. Your group could also tour the constellations in our SunDome Planetarium, pick up a 50,000 year old meteorite, be entertained by the Asteroid Collision Blues or the Backpacker's Guide to the Universe, or compete in a Deep Space Challenge. For more information on evening functions, including rates and availability, please call the Centre at 363-8262.

### **Astro 101**

Our Astro 101 course has proved so popular, we're going to offer it through the winter! In just one afternoon, this course will:

- introduce you to basic astronomy vocabulary
- give you a sense of the sizes and distances involved in astronomy
- familiarize you with telescopes and binoculars
- teach you how to use basic observing tools like planispheres and Starry Night
- help you find the constellations and deep sky objects of the season
- show you how to learn more

You'll also have the chance to go for dinner with one of HIA's astronomers, and participate in an evening star party.

Astro 101 will run most Saturday afternoons from 2 to 5 pm. Dinner with an astronomer will follow, and you will receive a coupon for admission to any of our winter Star Parties. The course fee is \$30+ GST, which does not include dinner. Please register in advance by phoning the Centre at 363-8262.

This course requires no previous astronomy background, and is most appropriate for adult learners. Any interested students under the age of 18 are asked to contact the Centre to discuss their enrolment.

### **The Sky This Month: November 2005**

(All times and dates local to Victoria, BC)

November 5	Moon 3° south of Venus at dusk
November 7	Moon at first quarter
November 9	Mercury 2° northeast of Antares (SW after dark)
November 14	Moon 3° west of Mars
November 15	Full "Beaver" Moon (4:57 pm PST)
November 17	Leonid meteor shower peaks before dawn
November 23	Last quarter moon
November 29	Crescent moon 6° east of Jupiter (eastern sky at dawn)

*(Continued on page 6)*

## ROYAL ASTRONOMICAL SOCIETY OF CANADA • VICTORIA CENTRE

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*(Centre of the Universe Continued from page 5)*

Every November we experience a historically spectacular meteor shower called the Leonids. The Leonids, named after the constellation Leo from which they appear to radiate, occur when the Earth passes through debris left behind by comet Temple-Tuttle—a comet that flies by Earth every 33 years. As the debris comes through our atmosphere it burns up due to friction, creating what we refer to as “shooting stars”.

In 2001, citizens of Earth were treated to an amazing meteor storm with approximately 5000 meteors per hour. Sadly, at the peak this year on November 17, don't expect to see more than about 18 per hour—there's a bright moon this time, and Earth is passing through a weak dust trail. Nonetheless, there is still a chance to see “shooting stars”, so if the skies are clear, go outside, look way, way up, and find some meteors.

The “Great Square” of Pegasus, a true fall constellation, sits high in the eastern sky after 9 pm. Attached to the far left-hand star of the square you may see the constellation Andromeda, which looks like a banana or a canoe in the sky. Look just above Andromeda the constellation to find a fuzzy patch in the sky marking the location of the Andromeda galaxy. Andromeda is our closest galaxy neighbour, sometimes referred to as our sister galaxy, having the same number of stars and being of similar size to our Milky Way. Galaxies, star clusters and nebulae are referred to as deep sky objects and usually can only be seen with binoculars or telescopes. The Andromeda Galaxy is about 2 million light years away making it one of the most distant objects that we are able to see with our unaided eyes.

The winter constellations are rising earlier and earlier each night as we trudge on through the fall. Orion the Hunter, one of the most well known constellations, sits low in east after 10 pm. Orion is best recognized by the three stars that make up his belt. He looks like a giant hourglass in the sky. Above and slightly to the right or south look for the sideways “V” that makes up the nose of Taurus the Bull. Above and to the right or south of Taurus you will find a little cluster of stars called the Pleiades (also known as the Seven Sisters—or Subaru, in Japanese! Check out the logo for Subaru vehicles!)

There are at least three of the five visible planets in the sky for the month of November. In the early evenings, just after sunset, you might notice Venus to the west. Venus is the brightest of the planets in the sky and is around for a few hours before it dips down below the horizon. Mars is the next most visible planet rising in the eastern sky after about 5:30 pm. It is climbing higher in the sky every night and will be gradually dimming as Earth speeds away from the Red Planet on our way around the sun. Saturn is visible in the eastern sky after 11 pm these days and looks like a fairly bright, pale yellow star. It is located beneath the two brightest stars in the constellation Gemini.

*(Continued on page 7)*

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## ROYAL ASTRONOMICAL SOCIETY OF CANADA • VICTORIA CENTRE

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*(Centre of the Universe Continued from page 6)*

The Full Beaver Moon occurs at 4:57 pm PST on November 15. This moon is named after the time of year in which the Algonquin people set beaver traps before the lakes froze to ensure a good supply of furs for the cold winter. The Saanich people have two moons for November; the first being Weselánew, the moon of the shaker leaves, the second being Sjelcasen, the moon of putting your paddle away in the bush. Weselánew is the moon for October and November when the leaves begin to fall and the Earth begins to cool down. This moon traditionally signified a time when the people moved to the winter villages as the seas became more dangerous with the onset of winter storms. The people would hunt elk but only after the first snowfall since it was easier to track the wounded in the snow. Sjelcasen is the moon for November and December and traditionally signified the time for the people to honour the paddle for carrying them safely all season long. Most of the food was already gathered by this time and most energy was spent making blankets, clothing, ropes, twine, baskets and cradles as well as fixing fishing gear for the next fishing season.

*Clear skies and happy stargazing! Stasia and Margaret*

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## WANTED!

By the Victoria Observing Site Selection Committee

## LAND!

Do you have a half acre of useless (rocky?) land with

- ☆ no lights
- ☆ road access, and
- ☆ low horizon all the way around?

Do you know someone who does, and who would be willing to sell or lease the area to RASC-Victoria?

If so, please contact Dave Bennett, Site Selection Chair, at [dgbennett@shaw.ca](mailto:dgbennett@shaw.ca)

or by telephone at (250) 727-9509

*THANK YOU!*



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### ***A Wrinkle in Space-Time***

When a massive star reaches the end of its life, it can explode into a supernova rivaling the brilliance of an entire galaxy. What's left of the star fades in weeks, but its outer layers expand through space as a turbulent cloud of gases. Astronomers see beautiful remnants from past supernovas all around the sky, one of the most famous being the Crab Nebula in Taurus.

When a star throws off nine-tenths of its mass in a supernova, however, it also throws off nine-tenths of its gravitational field.

Astronomers see the light from supernovas. Can they also somehow sense the sudden and dramatic change in the exploding star's *gravitational field*?

Yes, they believe they can. According to Einstein's general theory of relativity, changes in the star's gravitational field should propagate outward, just like light—indeed, at the speed of light.

Those propagating changes would be a gravitational wave.

Einstein said what we feel as a gravitational field arises from the fact that huge masses curve space and time. The more massive an object, the more it bends the three dimensions of space and the fourth dimension of time. And if a massive object's gravitational field changes suddenly—say, when a star explodes—it should kink or wrinkle the very geometry of space-time. Moreover, that wrinkle should propagate outward like ripples radiating outward in a pond from a thrown stone.

The frequency and timing of gravitational waves should reveal what's happening deep inside a supernova, in contrast to light, which is radiated from the surface. Thus, gravitational waves allow astronomers to peer inside the universe's most violent events—like doctors peer at patients' internal organs using CAT scans. The technique is not limited to supernovas: colliding neutron stars, black holes and other exotic objects may be revealed, too.

NASA and the European Space Agency are now building prototype equipment for the first space experiment to measure gravitational waves: the Laser Interferometer Space Antenna, or LISA.

LISA will look for patterns of compression and stretching in space-time that signal the passage of a gravitational wave. Three small spacecraft will fly in a triangular formation behind the Earth, each beaming a laser at the other two, con-

*(Continued on page 9)*

*(Continued from page 8)*

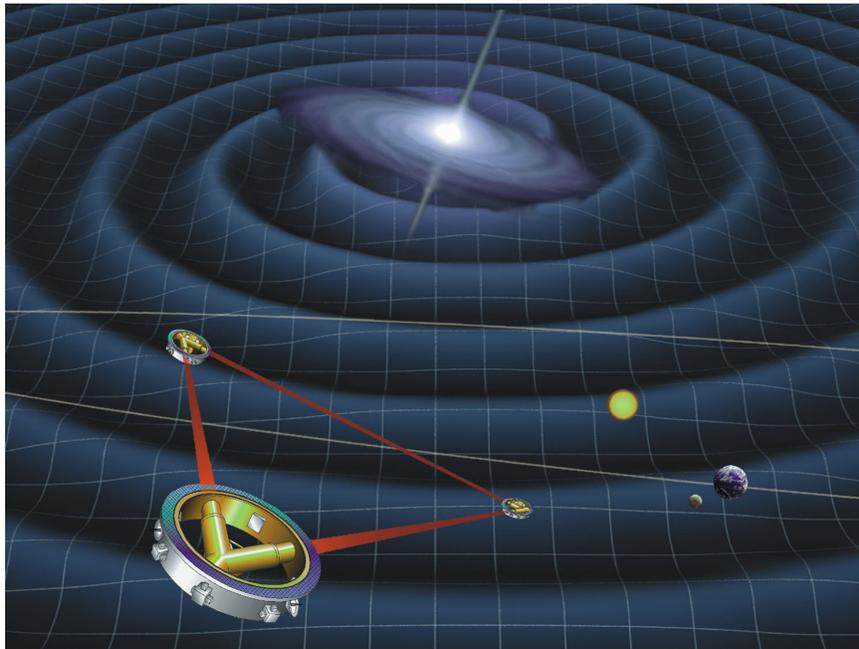
tinuously measuring their mutual separation. Although the three 'craft will be 5 million kilometers apart, they will monitor their separation to one *billionth* of a centimeter, smaller than an atom's diameter, which is the kind of precision needed to sense these elusive waves.

LISA is slated for launch around 2015.

To learn more about LISA, go to <http://lisa.jpl.nasa.gov>.

Kids can learn about LISA and do a gravitational wave interactive crossword at: <http://spaceplace.nasa.gov/en/kids/lisaxword/lisaxword.shtml>.

*By Trudy E. Bell*



LISA's three spacecraft will be positioned at the corners of a triangle 5 million kilometers on a side and will be able to detect gravitational wave induced changes in their separation distance of as little as one billionth of a centimeter

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

*For Sale*

**Celestar 8 Telescope and Tripod**

In showroom condition, almost like new, including:  
Stock Celestron 25mm "SMA" 1 ¼ " eyepiece, Celestron 45° Erect Image Diagonal – 1 ¼" Model #94112-A eyepiece corrector, and a Telrad finder.

Celestron 2X Barlow Ultima SV Series eyepiece Model #93506, Meade Series 4000 13.8mm Super Wide Angle (1.25" O.D.) #07185-1, Celestron T-Adapter-SC #93633-A, Adaptor Ring Pentax-K

Jim Nicholls  
[jim@newcompass.com](mailto:jim@newcompass.com)  
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## ROYAL ASTRONOMICAL SOCIETY OF CANADA • VICTORIA CENTRE

### RASC Victoria Council

### This Month

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Members at Large:  
Bill Almond, Jim Hesser,  
Ed Maxfield, Frank  
Ogonoski, Blaire Pellatt,  
Colin Scarfe, Rich Willis

New Members Liaison:  
Sandy Barta



### *Astronomy Cafe*

At Bruno Quenneville's  
2019 Casa Marcia Crescent,  
Victoria, BC.  
Call 477-2257 for more information or  
directions.  
Newcomers are especially welcome.  
Come and enjoy!

### *Astro Imaging*

**Third Wednesday of the month**

**if it's clear at  
Bill Almond's**

354 Benhomer Drive  
478-6718

**Call Bill to confirm**  
478-6718

Nov 25

### *New Observer's Group* **At Sid Sidhu's:**

1642 Davies Road (off Millstream  
Lake Road) at 8:00 PM.  
Call 391-0540 for more information or  
directions

Wednesday  
December 14

### *December Meeting*

7:30 pm  
Elliott 060  
UVic

**Yes,** We post important,  
timely, member-related  
news to our email list.

Online information about the RASCVic  
and Skynews email lists:  
<http://victoria.rasc.ca/>  
click on: 'Members Only'

*Web Page of the Month*

The screenshot shows a Mozilla browser window titled "Peter Jedicke - Mozilla". The address bar is empty. The page content includes a "Welcome to" message, a title "Peter Jedicke's Home Page", a small circular logo, and an "E-MAIL" section with the address "pjedicke AT fanshawec.ca" and a note for students. Below this is a section "You Can Get There From Here." with two columns of links: Courses, About me, Astronomy, Writing, Other interests, Google, FanshaweOnline, IMDB, Hockey, and Translate. The main content is under the heading "2. About me." and contains a bulleted list of biographical details, including birth in Wiesbaden, Germany, education in Niagara Falls, Ontario, Canada, graduation from the University of Western Ontario, marriage to Dianne, and faculty position at Fanshawe College. It also features three side-by-side images of a star field with a specific dot highlighted, and a caption for Asteroid 5899 Jedicke. The list continues with mentions of editing Scientific American's "The Big Idea" and "The Scientific American Book of the Cosmos" with David H. Levy, and philosophical thoughts on the individual. The final section is "3. Astronomy-related links." with a bullet point about his role as national president of the Royal Astronomical Society of Canada from 1994 to 2000.

<http://gs.fanshawec.ca/pjedicke/>

The scoop on our National President PLUS lots of good information ...