ROYAL ASTRONOMICAL SOCIETY OF CANADA • VICTORIA CENTRE

SkyNews

http://victoria.rasc.ca/

September 2005 Number 266

This Month

Dr. Brenda Matthews

A Long and Grinding Road: The Phenomenon of Debris Disks around Main Sequence Stars

During the last phases of a star's formation, remnant solid material may agglomerate to form planetesimals in orbit within a disk around the parent star. Over time, due to forces of drag or the formation of large bodies (planets!), the planetesimals undergo collisions, returning them from larger bodies back to their previous micron scales of cosmic dust. These dusty "debris" disks are once again observable because the small dust grains both emit radiation at submillimetre wavelengths and scatter optical and infrared light from the star. Discovered unexpectedly in 1983 around Vega, debris disks are now sought using telescopes over a large range of wavelength; the presence of a debris disk can be a harbinger of planet formation around very young stars. I will present a history of this young research field, including images of disks detected around the lowest mass stars and optical images from the Hubble Telescope.

Brenda received her PhD from McMaster University in 2001 and was a BIMA Postdoc at UC Berkeley from 2001 to 2004. She is currently Plaskett Fellow at Herzberg Institute of Astrophysics, Victoria

My background is primary in short wavelength radio astronomy (submm/mm). My research focuses on star formation, particularly the role of magnetic fields in support of molecular clouds and protostars, and the kinematics and chemistry of protostars. In addition, I am involved in the search for debris disks, remnants of star formation which can be signposts of planet formation around young stars. I was involved in the first discoveries of debris disks around the low mass M stars.

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Star Party Thanks

Thanks to everyone who worked to pull the RASCALs Star Party together!

Our VP Bruno Quennville and Rich Willis gave us major efforts to ensure all the events happened and all the details were taken care of. They had lots of support from many others, including: our Treasurer David Griffiths, our President Scott Mair, and Frank Ogonoski from the CVSF, among others.

A special thank you to the Robilliards and Island Eyepiece (and their suppliers) for all the generous gifts we gave away as door prizes. Victoria Centre, Richly Maintained Services and JoeTourist InfoSystems also donated prizes.

The numbers aren't all in, but it looks like our Star Party finances are in the black. For those who are interested, our Treasurer will give an accounting for the Star Party at our upcoming meeting on September 14.

I had lots of fun, and some excellent observing on Friday night, so from a personal viewpoint the Star Party was a success! Hopefully you also had a good time at our Fifth Annual RASCALs Star Party.

Keep checking the website for updates to the Star Party web page. I have already posted some photos of the events, however if you have some photos which you think others would be interested in viewing, please send them to me.

Cheers, Joe Carr

On the Cover!

My trip to Mt Kobau was excellent. Here is a photo of Venus and the Moon taken from on board BC Ferries Queen of something or other. No mosquitoes, just seagulls and an Orca pod passing by ...

Photo by Brian Robiliiard

Address Change? Information Incorrect?

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The deadline for the next issue of Skynews is

September 25 2005

Get your Skynews early and in colour.

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

Chopping My Telescope

I'd been thinking for a while that I'd like to turn my telescope into a "chopper". At the Astronomy Café at Bruno's place, I'd asked if anyone else had done it and found out that another astronomer had tried it, with good results. However, it has to be done right.

Here's what had happened. I'd bought a JMI Crayford Focuser from Island Eyepiece for my old Meade 8" SCT. It was so silky smooth that I decided that I wanted to use it on my refractor as well. However, the focuser adds 3" to the back focus, which caused some of my eyepieces to not reach focus. That was it. It was time to take my trusty SkyWatcher refractor to the "chop shop".

So I unscrewed the expensive bit (the front lens) and took the rest to Altech Machining & Repairs at 509 Hillside Avenue. They were really busy (this is a good thing!), but told me I could have it back in about a week.

Than came the phone call that I didn't want to get. "Hi, this is a message for Dave Bennett. We shortened the tube, but now there's a problem. Can you drop by the shop?" With visions of scrap metal (and more dollars to Brian) in my head, I drove over first thing in the morning.

The machinist came out with my tube and said, "Here's the problem. The focusing mechanism won't go back on the tube." It seems the focusing rack tube was a larger diameter than the inside of the first baffle and the whole assembly was just sitting on that baffle. I started asking him about chucking the tube back in the lathe and expanding the baffle, when he said, "No, we don't need to do that. Here, watch". Then he proceeded to push the baffle down the tube! When he did that, of course it exposed the aluminum of the tube and he was concerned that the lack of anti-reflective paint would affect the telescope. Whew; is that all? I can put black paint inside the tube! So he pushed the baffle down just past the maximum point of the focuser and I got my refractor back. Total charge: $70.00 to get an absolutely guaranteed square cut which looked like it could have been done at the factory.

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Editor Wanted

I can't even remember how many years I've produced this newsletter! Now it's time for me to take a break—even if for just a year or two.

The editorship is a wonderful opportunity to pull together all that interests you with this hobby and gives you the opportunity to learn more about your friends and colleagues in the RASC.

Interested? Give me a call and I'll give you more information.

Sandy

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I've had it out now a couple of times since the fix, and the new focuser works great. Also, I've been able to put Barlows in (in place of the Crayford) and all my eye-pieces come to focus. So I recommend (a) getting a JMI Crayford Focuser, and (b) chopping your telescope. Skull and crossbones and/or rude pictures on the tube, however, are at your own discretion.

Dave Bennett

Losmandy Mount Review

This summer I made a change to my astrophotography toolkit. Supporting the optical train is just as important as your investment in optics. So after 10 years of service, my trusty yet quirky Super Polaris mount is taking a backseat to my shiny new and also quirky Losmandy GM8.

I also needed to support an autoguider and this was another key reason I changed mounts. I have yet to use the autoguider and will continue to use manual guiding for the time being since I actually don't find it necessary at this point (my exposures are under 5 minutes).

The few times that I've had my new mount out it has performed beautifully—though it does look over-scaled for the diminutive Pronto. The old astrophotography adage does ring true though: over-scaled is better for photography. I'm just sitting at 50% capacity even with piggybacked cameras. This is perfect and still portable. And, the setup time is about the same or faster as my old Super Polaris.

I was at first skeptical about the folding tripod but have since been thankful I didn't go for the larger and heavier G11 legs.

The dual axis drive corrector comes with lunar and solar speeds which I have already used and found very useful. The clutches are quite unique and make using the mount more like using a Dobsonian. Instead of locking clutches you adjust the tension on the RA and DEC collars to your liking. Once I've found the ideal tension I find I don't need to change it as long as I've balanced; I just point at the object, let go and the mount starts tracking.

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The Losmandy Forum on the internet outlines what to expect with your purchase. I knew from the comments that I wasn't getting a perfect mount but was getting a very serviceable one at a reasonable price.

The one complaint I do have is the availability of parts. The company that produces the mount also builds equipment for the motion picture industry so it has divided interest in its production lines.

I'm hoping to spend some time in the coming months with objects fainter than those I'm accustomed to documenting. The 30 second guy is becoming the 4 minute guy— light pollution permitting.

David Lee

Fast Moving Object

On July 11, Ed Majden identified a 'Fast Moving Object' (FMO) from images captured by Kit Peak's FMO Project. On July 12, the Minor Planet Centre gave the object he discovered the designation '2005 NX55. Ed prepared the following report as a reply to one of our members:

I didn't see the asteroid with my own scope. I download and scan CCD images taken with a 0.9 meter telescope on Kit Peak operated by the FMO Project. Each dump of images can be about 112 CCD scans, more or less, in real time.

They tried to computerize the process but the software did not work well so they started the FMO Project and recruited volunteers to help. There are up to 40 or so volunteers so you only get to review a handful of images each time before they are grabbed up. You scan the images and select suspect trails for a blink. Then you decide if the Kit Peak observers should have a look at the trail. If you think they should, you resubmit it. Most turn out to be cosmic ray tracks or edge on galaxies etc. I am getting better at identifying these so the observers are not overworked by my re-submissions.

Downloads come down every 1-1/2 to 2 hours starting about 11 pm local time (in the summer) as long as the Moon isn't full. Us poor West Coasters in the Pacific Time Zone get to stay up all night looking at the images. The lucky guys in Europe are better located as they get to review the images in the morning.

A candidate trail, when verified by the on duty observer, is sent to Brian Marsden at the Minor Planet Centre. He gives it a preliminary designation and then sends a telegram to participating observatories for confirmation. (My first asteroid was verified by an observatory in the Ukraine!) It is given a "one-nighter designation". When verified by another observatory, it is given another designation. A permanent orbit has to be determined before the asteroid is given a perma-

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nent number—this may take some time, years in fact. My first one, 2004 MV2, needs orbital refinement and that probably won't happen until 2009 when it is back in the Earth's vicinity again. If they in fact verify a good orbit, you may be able to name it. I hope to name my first one after John Hodges because he introduced me to this fine hobby. I found my first one just after 200 images but as of this writing, I have scanned 2557 downloads.

It isn't easy finding a real FMO. Some have scanned 3000 plus images and as yet have not found one. It is pretty much a matter of luck! Good fun however especially on cloudy nights!

I'm the only Canadian to find one so far. See: http://fmo.lpl.arizona.edu/FMO_home/news.cfm Click on "Discoveries" for a list of successful finds.

Cheers, Ed Majden

Observing Chair

I just finished this observing chair in the workshop at my new apartment using all my new tools. The seat can be adjusted very high or very low. There is a foot rest that acts as a step to get up to the seat when it is in its highest position. Both have a very positive locking that will not drop down when bumped. I copied the idea from Jim Fly's "Cats Perch" but having no plans, the task became an interpretation of his chair.

Guy

Upcoming Meetings

October 12	Dr. James Di Francesco, NRC-HIA ALMA Project and star formations
November 19	Dinner Meeting – Gorge Vale Golf Club *to be confirmed*
December 14	Pal Virag, RASC Victoria Centre Audio-Video Presentation on Mars *Note*: 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

Welcome

On August 10, the Society's National Office welcomed Jo Taylor, who is now our Membership & Publications Clerk. Her email address is: mempub@rasc.ca

Not only will Jo handle the multitude of orders and membership renewals, she will also help our Executive Secretary, Bonnie Bird, respond to general inquiries at national office. Jo's nominal schedule will be Monday, Wednesdays and Thursdays. Be sure to say hi when you call the national office next!

Clear skies, Peter Jedicke, National President

For Sale

- Barely use C5 and Astro Master controls. Includes:
  - 6x30 finder scope
  - 1.25", 25mm Plossl eyepiece; 10mm Vixen LV; Celstron 2x Barlow
  - Heavy-duty wedge with bubble level and clock drive
- Russian 20x60 Bresser Optik Saturn binoculars in perfect condition.
- Tripod suitable for binoculars.

For more info contact Claire

email: crainville@pacificcoast.net

The C5 deserves to be used in skies less light-polluted than the skies Claire struggles with from her James Bay balcony.

Claire would like the sale of the binoculars to benefit the Under Five Children's Clinic: http://www.lifelinemalawi.com/

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

or by telephone at (250) 727-9509

THANK YOU!

Software and Atlases

Terry Trees posted the following information to the RASC National email list:

Here are a couple of free star atlases you can download from the Internet and print out. Then maybe make notes on them for observing projects, etc. Keeps your expensive ones out of the dew.

http://www.cloudynights.com/item.php?item_id1052

http://www.asahi-net.or.jp/~zs3t-tk/atlas/atlas.htm

Please visit the AAI website at www.asterism.org then click "Other Links" "Data and Reference Sites". I have compiled a whole menu of astronomy software. Note particularly Bill Arnett's site; the link for it is listed as "Planetarium Software".

Ray Shapp, AAI Webmaster

Moving a Mountain of a Dish

Your first reaction: “That’s impossible!”

How on earth could someone simply *pick up* one of NASA’s giant Deep Space Network (DSN) antennas—a colossal steel dish 12 stories high and 112 feet across that weighs more than 800,000 pounds—move it about 80 yards, and delicately set it down again?

Yet that's exactly what NASA engineers recently did.

One of the DSN dishes near Madrid, Spain, needed to be moved to a new pad. And it had to be done gingerly; the dish is a sensitive scientific instrument full of delicate electronics. Banging it around would not do.“

It was a heck of a challenge,” says Benjamin Saldua, the structural engineer at JPL who was in charge of the move. “But thanks to some very careful planning, we pulled it off without a problem!”

The Deep Space Network enables NASA to communicate with probes exploring the solar system. Because Earth is constantly rotating, a single antenna on the ground can communicate with a probe for only part of the day, when the probe is overhead. By placing large dishes at three locations around the planet—Madrid, California, and Australia—NASA can maintain contact with spacecraft around the clock.

To move the Madrid dish, NASA called in a company from the Netherlands named Mammoet, which specializes in moving massive objects. (Mammoet is the Dutch word for “mammoth.”)

On a clear day (bad weather might blow the dish over!), they began to slowly lift the dish. Hydraulic jacks at all four corners gradually raised the entire dish to a height of about 4.5 feet. Then Mammoet engineers positioned specialized crawlers under each corner. Each crawler looks like a mix between a flatbed trailer and a centipede: a flat, load-bearing surface supported by 24 wheels on 12 independently rotating axes, giving each crawler a maximum load of 194 tons!

One engineer took the master joystick and steered the whole package in its slow crawl to the new pad, never exceeding the glacial speed of 3 feet per minute. The four crawlers automatically stayed aligned with each other, and their independently suspended wheels compensated for unevenness in the ground. Placement on the new pad had to be perfect, and the alignment was tested with

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a laser. To position the dish, believe it or not, Mammoet engineers simply followed a length of string tied to the pad's center pivot where the dish was gently lowered.

It worked. So much for "impossible."

Find out more about the DSN at http://deepspace.jpl.nasa.gov/dsn/ . Kids can learn about the amazing DSN antennas and make their own "Super Sound Cone" at The Space Place, http://spaceplace.nasa.gov/en/kids/tmodact.shtml.

by Patrick L. Barry

Giant Deep Space Network antenna in Madrid is moved using four 12-axle, 24-wheel crawlers.

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

Centre of the Universe

Welcome to September, everyone! I don't know why we start the new year in January – September always feels more like the month of new beginnings! We've got a good mix of new programs and old favourites lined up for you in September – read on to find out more…

Summer hours in September

Summer may be over, but summer hours continue at the Centre! Until the end of September, we will be open from 1:00 pm – 11:00 pm, seven days a week. Our star parties also continue, daily from 7:00 – 11:00 pm. It's getting dark earlier and earlier – perfect for letting your kids stargaze without staying up too late!

Every week has a different theme. September's programs are:

- September 12 to 18 Greek Week
- September 19 to 25 The Search for Extraterrestrial Intelligence
- September 26 to October 1 Heavens of the Pharaohs

New Astronomy Course: Astro 101

New this year, the Centre is proud to present Astro 101, a one-day introduction to astronomy. 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 the regular evening star party.

Astro 101 will run on every Saturday afternoon from 2 to 5 pm. Dinner with an astronomer and the evening star party will follow.

The course fee is $30+GST, which includes afternoon instruction and evening admission, but 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.

Fall Astronomy Course: Stars

Our seasonal night courses are starting again! We'll begin the year with "Stars"—a look at how stars form, how they die, and what they do in the meantime. This 9 hour course is perfect for the adult learner who's interested in astronomy and already knows the basics. Those who would like a more general introduction to astronomy are encouraged to check out Astro 101, above.

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"Stars" will run Wednesdays, October 5, 12 and 19, from 7 to 10 pm each night. This course is most appropriate for adult learners; any interested students under the age of 18 are asked to contact the Centre to discuss their enrolment. Registration is $79+GST for Centre of the Universe season's pass holders, and $89+GST for all others. For more information or to register, please call (250) 363-8262.

Birthday Parties

Do you have a budding young astronomer at home? Celebrate their birthday with a party at the Centre of the Universe! We offer two birthday party packages – both the Stellar and the Galactic Birthday Party include admission for 10 children and two adults, a private multimedia program and craft for the group, an hour of auditorium time for snacks or gift unwrapping, and the chance to join in a public telescope tour and planetarium show. The Galactic package also includes decorations, goody bags, a present for the birthday child and a half hour of games organized by our staff.

Stellar Birthday Parties are $100+GST. Galactic Birthday Parties are $160+GST. Additional guests can be added for $5+GST per child, or $9+GST per adult. To book your party, phone the Centre today!

The Sky This Month: September, 2005

(All times and dates local to Victoria, BC)

September 17	Full Harvest Moon (7:01 pm PDT)
September 21	Moon forms triangle with Mars and Pleiades at dawn
September 24	Last quarter Moon (11:41 pm PDT)
September 28	Crescent moon 5° northeast of Saturn at dawn

September 22 at 3:23 pm PDT marks the Autumnal Equinox. The term Equinox literally means "equal night", where day and night are of equal length. After this day, the sun will sink increasingly lower in the sky and our days will get progressively shorter until we reach the winter solstice, or the shortest day of the year (December 21st).

As summer comes to an end, head outside around 9 pm to see the highlights of the summer sky, including the "Summer Triangle" high in the South. The bright orange star simmering in the West is Arcturus, part of the constellation Bootes. Bootes looks similar to an ice-cream cone or a kite, although he is supposed to represent a herdsmen of ancient Greek times. Short days make for long nights and better opportunity to view the night sky without staying out late!

Look for the fall constellations low in the east as the summer constellations set for the season. Just above the horizon, look for a giant square of bright stars. This is the body of Pegasus, the flying horse, and is referred to as "the great square of Pegasus". The far left-hand star of the "square" of Pegasus also belongs to the constellation Andromeda. Andromeda, the beautiful daughter of

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Cassiopeia, may look like half of a kayak. If you are having trouble finding Andromeda, look to her mother for guidance. Cassiopeia is the giant "W" in the Northeast and sits overhead of her daughter.

Mars will rise in the eastern sky in the beginning of September after 11 pm, rising earlier and earlier throughout the month. By the end of the month, Mars will be visible in the eastern sky after 9 pm. If you are an early riser, be sure to look east after 5 am to find Saturn the "Lord of the Rings".

The September full moon has traditionally been called the Harvest Moon. September is the time for harvesting crops and at the peak of the harvest farmers can work late into the night by the light of the moon. Corn, pumpkins and wild rice, main Native staples, are now being gathered for the coming of the winter. For the Saanich people the September moon is called Cenqolew, when the dog salmon return to the earth. This month marks the start of the Goldstream River salmon run.

Clear skies and happy stargazing! Stasia and Margaret

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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

This Month

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

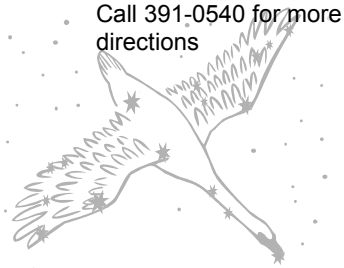
Call Bill to confirm the start date
478-6718

Sept 23

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
October 12

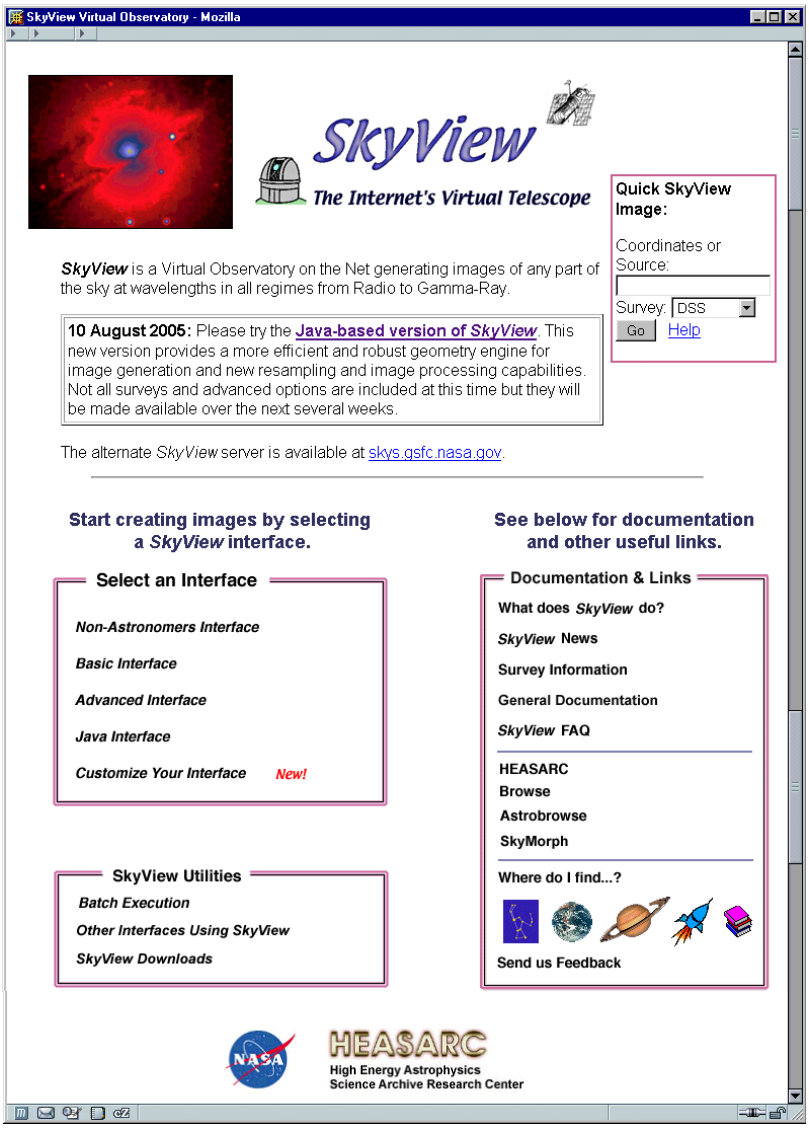
October Meeting

7:30 pm
Room 060, Elliott Building, 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



http://skyview.gsfc.nasa.gov/cgi-bin/titlepage.pl

For the merely curious to the hard-core observer ...