ROYAL ASTRONOMICAL SOCIETY OF CANADA • VICTORIA CENTRE

SkyNews

http://victoria.rasc.ca/

October 2005 Number 267 Page 1

This Month

James Di Francesco

Imaging Cosmic Origins: The Atacama Large Millimetre Array

Although the universe is filled with stars and galaxies, these objects sit within cold, dark, seemingly empty spaces that cannot be seen with the naked eye. The cold interstellar dust and gas within these spaces, however, can emit faintly at high-frequency radio wavelengths; observing this form of light gives us direct probes into the mechanics of star and galaxy origins. Though tremendous progress has been made in recent years toward detecting these faint, interstellar glows, telescope sensitivity and detail resolution have always been fundamental limitations. The Atacama Large Millimetre Array (ALMA), a powerful, new, multinational observatory under construction on the high plateau of northern Chile, will make a significant impact on modern astrophysics by allowing extremely sensitive observations of exquisite detail.

As an array of up to 64 high frequency radio antennas, each 12 m in diameter and combined electronically to form a single super-telescope, ALMA will have up to 100x the sensitivity of current telescopes and will be able to discern details at levels exceeding the capability of the Hubble Space Telescope. Indeed, ALMA has been considered the highest priority for a new ground-based observatory. Canada has partnered with the U.S., Europe, Japan and Chile, to begin building ALMA. Major hardware contributions have been or are being developed at the National Research Council's Herzberg Institute of Astrophysics, and important software development has occurred at the University of Calgary through the Canadian Foundation for Innovation. This public presentation will expand on the search for cosmic origins, the scientific basis for building this incredible instrument, and highlight its current status and future.

Contact Us On-Line

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General Enquiries:

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Annual Meeting and Dinner

Saturday, November 19, 2005
Gorge Vale Golf Club
1005 Craigflower Road, Victoria, BC
No-host bar opens 6:15 pm
Dinner 7:00 pm
Speaker Peter Jedicke (National RASC President) 8:30 pm
Business meeting 9:30 pm
Cost $30.00 per person (inclusive)

Please note: Payment is only required for the meal; there is no charge if you only attend the speaker's presentation and the business meeting

Purchase tickets (cash or cheque) by mail or at the October General Meeting, or order by phone or email with payment at the door.

Let Dave Griffiths know by Monday, November 17 so he can reserve you a spot.

PHONE: (250) 595-7494

EMAIL: treasurer@victoria.rasc.ca

MAIL: RASC Treasurer, c/o 333-1900 Mayfair Drive, Victoria, BC, V8P 1P9

2005 RASC Calendars now available at $13.00 each (cash only)

Address Change? Information Incorrect?

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Fax: (416) 924-2911
E-Mail: mempub@rasc.ca Website: www.rasc.ca
Postal Mail: RASC, 136 Dupont Street, Toronto, ON M5R 1V2, Canada
General enquiries: nationaloffice@rasc.ca

The deadline for the next issue of SkyNews is

October 23 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

2004 Annual Meeting and Dinner

MENU

Artisan Breads and Rolls with Island Butter

Cold Platters

Seasonal Vegetables and Dip
Assorted Deli Meats
Traditional and Imported Cheeses
Relish Trays

Salads

Seasonal Greens, Red Baby Bliss Potato Salad, Traditional Caesar, Greek Salad

Hot Carved

Top Round of Beef with Au Jus
Choice of Roasted Potatoes or Rice Pilaf
Seasonal Vegetables

Hot Entree

Vegetarian Lasagna

Chef's Choice Desserts and Pastries

Coffee, Tea

BUSINESS AGENDA: 9:30 pm

Presidents Report
Treasurer's Report
Secretary's Annual Report
Newton-Ball Award
Ernie Pfannenschmidt Annual Award for Amateur Telescope Making
RASC Victoria Centre Awards for Astrophotography
Elections of new Council Executive
Door Prizes

Redesigned Dob

I have just finished rebuilding my 16" Dob.

Why you ask?

Disassembled for moving, the telescope was all too large to fit in my small car—and when I assembled it, it was too tall and I needed a ladder to get to the eyepiece when it pointed to the zenith.

I decided to try building a low profile telescope with a smaller but very strong secondary cage that would hold my 90mm finder scope and heavy eyepieces securely. I wanted the scope to have a shallow mirror box and a very low rocker box so I could reach the eyepiece with a stepping stool instead of a ladder (sparing with my bad knees).

This design requires a rocker with a large radius—in this case, 34" with the centre of gravity at 17" (the centre of gravity is a virtual point from the bottom of the rocker—the lower it is, the more stable the telescope is).

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On the Cover!

This is another wide field shot. I was trying to aim where I thought the North American Nebula was but could not see it immediately in the image. However, after stacking 6 shots and a lot of processing it appeared. I continue to be inspired by the workshop that David and Joe did at the star party and am spending a lot of time having fun with processing

Location:	Backyard in Fairfield
Camera:	Pentax ist DS
Lens:	200 mm Pentax f2.5
Exposure:	6 shots at f4, 30sec, ISO 400

Stacked and processed in Photoshop

Photo by John McDonald

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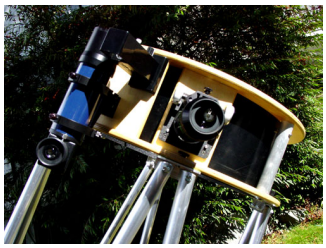
The telescope is much lighter than the old and does not require a ramp and handle with wheels to load. I think it is more practical and I think will become one of my favorite telescopes. I took great care with the construction—my best so far.

Guy Walton



Sunspot

Here are my latest shots of "Super" Sunspot #798. It is also "first light" with my PST and I must say :"I'm in Love Again!"

H-Alpha View "First Light" !

Coronado PST

14mm Kelner eyepiece

Eyepiece projection, HP635 (2.1mp) camera

White light filtered view:

Megrez 80mmF/6

Nagler 16mm(Type2)

Eyepiece projection "handheld"

#56 Green filter

Camera HP635 (2.1mp) autofocus& exposure

Clearly, Blaire Pellatt

Observing Chair

M31, Andromeda Galaxy & M32, M110 - Oct 3, 2005 10:30 pm, taken at our Astronomy Café. This is about as deep as I've managed to image M31. Using a variety of images taken with ISO 800 and 1600 is a well-known technique to tease out more detail near the core of this galaxy, while still showing detail in the outer reaches as well.

Details:

Canon Digital Rebel 300D, 400mm telephoto lens with IDAS LPS filter, piggy-backed on the LX-90 operating with normal tracking in alt-az mode.

Exposures of 60 s and 90 s, f/6.3, ISO800 & 1600, 5 out of 14 images stacked, contrast stretched, noise reduced, rotated and cropped, spotted, and colour balance adjusted.

Next steps:

I should be using the Meade DSI imager to auto-guide my LX-90. This will allow me to extend my exposure times and it should also eliminate the high image rejection rate due to the LX-90's poor tracking. If I also use dark frames in my image processing, this will improve image quality considerably. The new IDAS LPS light pollution reducing filter worked very well to subtract out the light pollution we were experiencing from UVic's stadium. The IDAS LPS will also allow me to avoid sky glow problems for extended exposure times, even from darker sites than Astronomy Café offers.

Cheers, Joe Carr

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!

Upcoming Meetings

November 19	Dinner Meeting – Gorge Vale Golf Club Peter Jedicke, National RASC President Neutrinos and Astronomy
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

Where No Spacecraft Has Gone Before

In 1977, Voyager 1 left our planet. Its mission: to visit Jupiter and Saturn and to study their moons. The flybys were an enormous success. Voyager 1 discovered active volcanoes on Io, found evidence for submerged oceans on Europa, and photographed dark rings around Jupiter itself. Later, the spacecraft buzzed Saturn's moon Titan—alerting astronomers that it was a very strange place indeed!—and flew behind Saturn's rings, seeing what was hidden from Earth.

Beyond Saturn, Neptune and Uranus beckoned, but Voyager 1's planet-tour ended there. Saturn's gravity seized Voyager 1 and slingshot it into deep space. Voyager 1 was heading for the stars—just as NASA had planned.

Now, in 2005, the spacecraft is nine billion miles (96 astronomical units) from the Sun, and it has entered a strange region of space no ship has ever visited before.

"We call this region 'the heliosheath.' It's where the solar wind piles up against the interstellar medium at the outer edge of our solar system," says Ed Stone, project scientist for the Voyager mission at the Jet Propulsion Laboratory.

Out in the Milky Way, where Voyager 1 is trying to go, the "empty space" between stars is not really empty. It's filled with clouds of gas and dust. The wind from the Sun blows a gigantic bubble in this cloudy "interstellar medium." All nine planets from Mercury to Pluto fit comfortably inside. The heliosheath is, essentially, the bubble's skin.

"The heliosheath is different from any other place we've been," says Stone. Near the Sun, the solar wind moves at a million miles per hour. At the heliosheath, the solar wind slows eventually to a dead stop. The slowing wind becomes denser, more turbulent, and its magnetic field—a remnant of the sun's own magnetism—grows stronger.

So far from Earth, this turbulent magnetic gas is curiously important to human life. "The heliosheath is a shield against galactic cosmic rays," explains Stone. Subatomic particles blasted in our direction by distant supernovas and black holes are deflected by the heliosheath, protecting the inner solar system from much deadly radiation.

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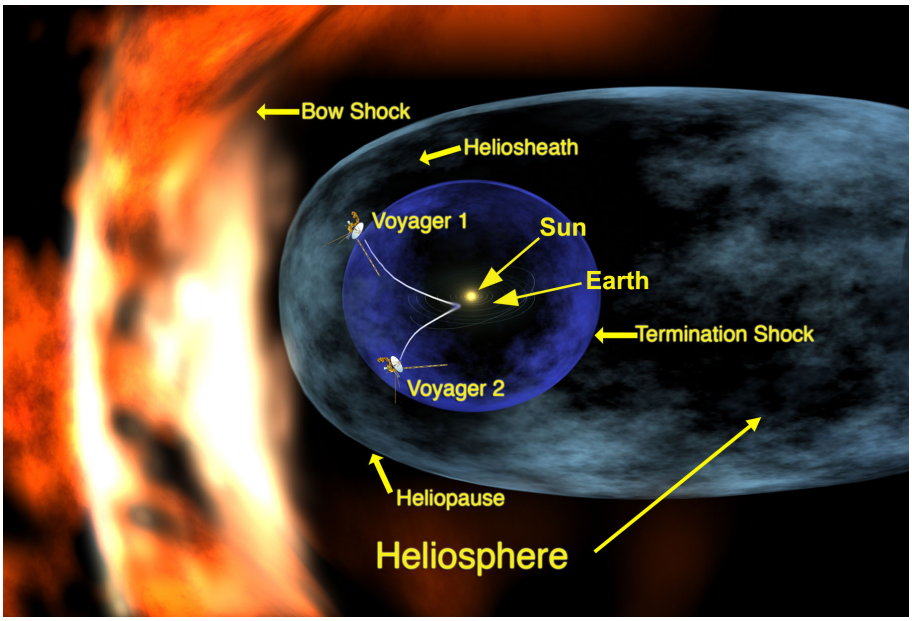
Voyager 1 is exploring this shield for the first time. “We’ll remain inside the heliosheath for 8 to 10 years,” predicts Stone, “then we’ll break through, finally reaching interstellar space.”

What’s out there? Stay tuned…

For more about the twin Voyager spacecraft, visit voyager.jpl.nasa.gov. Kids can learn about Voyager 1 and 2 and their grand tour of the outer planets at spaceplace.nasa.gov/en/kids/vgr_fact3.shtml .



Voyager 1, after 28 years of travel, has reached the heliosheath of our solar system

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

Fall hours starting in October

Fall has officially arrived, so, that means we've got Star Parties for you Friday and Saturday nights but not on Sunday! If you're a regular Sunday night Star Partier, we invite you to join us on Friday or Saturday night instead.

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

- Daily 10:00 am to 6:00 pm
- Friday and Saturday night Star Parties 7:00 to 11:00 pm

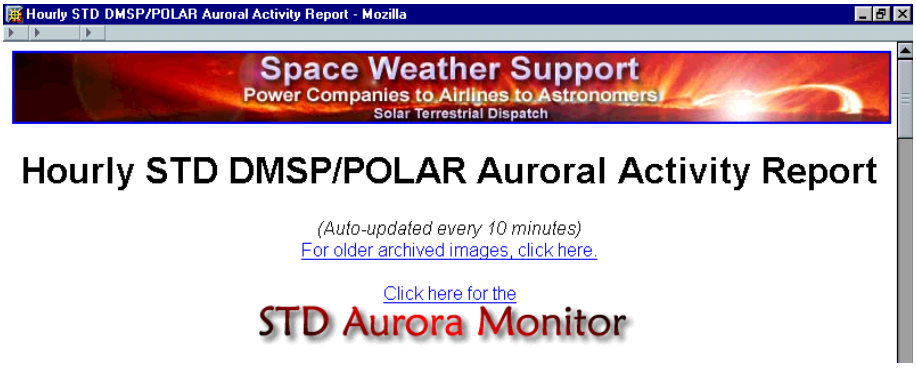
Birthday Parties

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!

Clear skies and happy stargazing! Stasia and Margaret

http://www.spacew.com/www/aurora.php



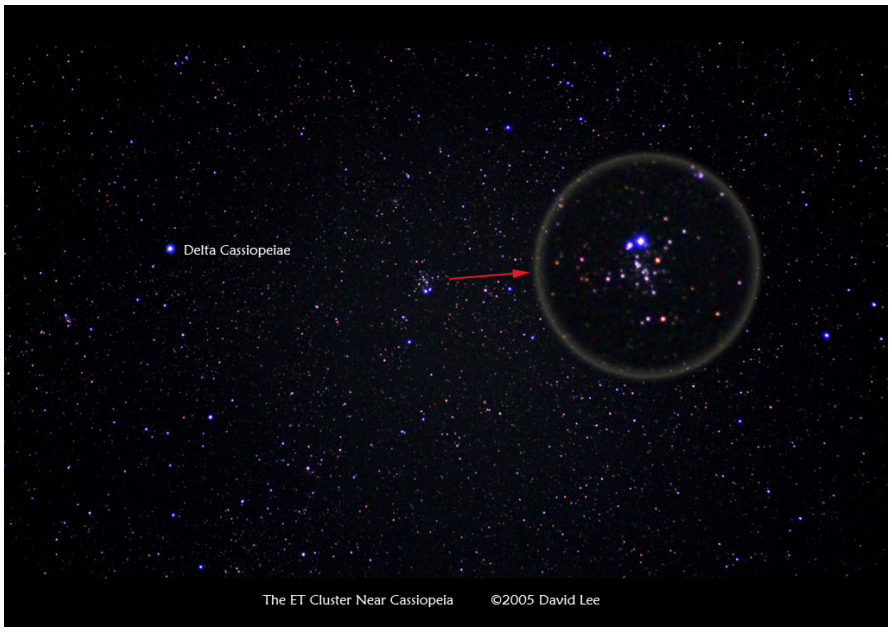
ET—call David...

Brenda's been asking for an image of this little creature near Cassiopeia.

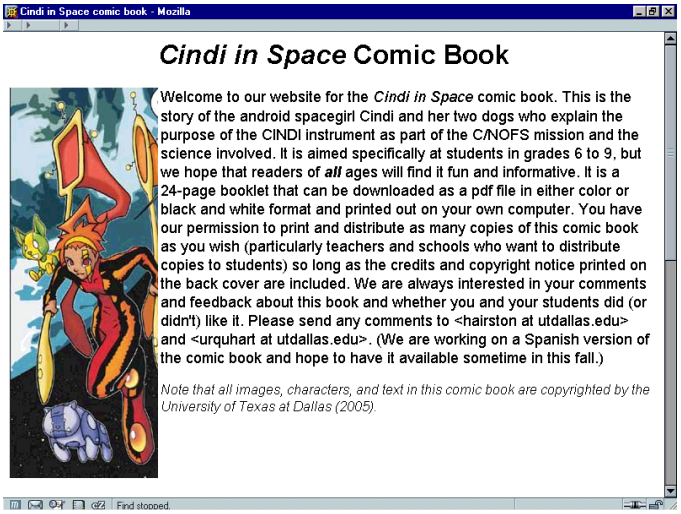
It wasn't a good night for it as the sky was quite hazy but I'm practicing.

ET is upside down in the sky so I turned him right side up for the inset. The cluster is also known as the Owl Cluster or NGC 457 though I prefer the ET interpretation.

David Lee



http://cindispace.utdallas.edu/education/cindi_comic.html



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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

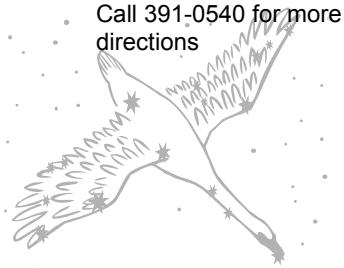
Call Bill to confirm
478-6718

Oct 21

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



Saturday
November 19

November Meeting

6:15 pm
Gorge Vale Golf Club

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

www.theweathernetwork.com/features/stargazing/

Lots of astro goodies ...