

# skynews



*this month*

## **Dr. James Graham**

### **Planetary Debris Disk Observations with the Keck and Hubble Telescopes**

**October 10, 7:30 PM, Elliott Lecture Theatre, Rm 060, UVic**

In our own solar system primitive bodies, such as comets and asteroids release trails of debris, seeding interplanetary space with tiny dust grains. Born within the plane of the solar system, trillions of dust grains form a tenuous, flattened cloud called a circumstellar disk. If gravity were the only force acting on these grains they would orbit the Sun forever.

Various small but persistent influences, including radiation pressure from Sun light and drag forces, either cause grains to spiral inward to the Sun or blow them out to interstellar space. However, this zodiacal dust is persistent because asteroids and comets continue to replenish the disk with fresh debris. From our perspective on Earth, this dust is visible as the faint band of zodiacal light or the “false dawn”. This is sunlight reflected from transitory dust in the plane of the solar system.

About 15% of nearby solar-type stars are now known to have similar dusty disks that are assumed to be similarly replenished by the disruption larger bodies. I will discuss recent imaging of these exoplanetary debris disks with Hubble and the Keck telescopes, and their implications for the formation of planets.



**Bio.** James R. Graham is a professor of astronomy at the University of California, Berkeley, where he is project scientist for the Gemini Planet Imager project---an “extreme” adaptive optics system designed to allow direct detection of exoplanets. Previously, Graham was a senior research fellow at the California Institute of Technology, Pasadena. His PhD is from Imperial College, University of London. Graham is currently on sabbatical leave from Berkeley at HIA/DAO in Victoria.

*on the cover*

## **Joe Carr**

### **M1 Crab Nebula**

**September 9 & 10, 2007**

**Observatory Hill, Victoria, BC**

Using my Hutech modified Canon XTi mounted prime focus on my Meade LX200R operating at f/10, I finally succeeded in imaging this faint object. I managed to tease out some detail from Ha emission line, showing the clouds of super heated gas flying away from this supernova. Further work on this object will have to wait until I can acquire more images.

#### **Details:**

Telescope: Meade LX200R 8" operating at f/10 mounted Alt/Az

Hutech modified Canon XTi mounted at prime focus

Exposures: 37 images at 60 sec

ISO 800, Custom white balance

Processing:

ImagesPlus: digital development of Canon Raw to FITS, dark, flat & bias frames applied. Luminance derived from daylight colour balanced red channel to reveal more detail. RGB colour derived from Custom colour balanced image to portray a more natural resultant colour.

Very aggressive Digital Development, Richardson Lucy filter, star size reduction, and conversion of final image to 48 bit TIFF for further processing.

Corel PhotoPaint X3: midtone stretch, saturation increase, convert to 24 bit RGB, image size reduction, crop and spot image, and conversion to jpg.

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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** - nationaloffice@rasc.ca

*President's Report*

## **President's Message October, 2007**

### **Observatory Project**

Victoria Centre members have been very generous with their donations to the Observatory Project - we are over 80% of the way to our \$10,000 fundraising target. Thank you to everyone who has been so generous with their support!



The funds raised this year are to be used to pay for our share of the observatory infrastructure: part of the cost of the Skyshed not covered by NRC's \$5,000 contribution building the pier - both the concrete base and the steel pier itself wiring installation for hydro, telephone and Internet service

I am pleased to report that this milestone project for for Victoria Centre is going very well. The concrete pier is in place, NRC is currently working on installing the wiring conduit, and Victoria Centre Council has approved purchase of a Skyshed for the site. We are on time and on budget.

You can still contribute to the Observatory Project. Please send your cheques to our Treasurer:

RASC Victoria Centre  
c/o David Griffiths  
333 - 1900 Mayfair Drive  
Victoria, BC V8P 1P9

Make cheques payable to "RASC Victoria Centre" Tax receipts will be issued for all donations. Please refer to the Observatory Project.web page for further background information about this project.

### **Observing**

Our members who observe visually, sketch, and take photographs were rewarded with some wonderful observing conditions over the summer. Observing reports posted to our RASCVic Email List were frequent as our active observers shared their enthusiasm with their fellow members.

Our new Zenfolio RASC Victoria Centre Astrophoto Galleries is full of the rewards from our photographic activities over the last few months: 127 photos and sketches have been posted by our members since July! Our members have produced superb photographs of astronomical objects, some of which are quite difficult photographic subjects. Congratulations to all observers - it was a wonderful summer for astronomy, even though we were tired at times!

### Star Parties

Some of our members traveled to Star Parties being held across North America during the summer. There were also two very well attended star parties held right here on southern Vancouver Island: the Island Star Party and the 7th Annual RASCALS Star Party. I found both to be very enjoyable, and we had some good weather for each of them.

### Awards and the AGM

Our Annual General Meeting for Victoria Centre is coming up on November 17, 2007. We always present awards. Some awards are more formal than others:

#### Newton Ball Award - a service award

#### Ernie Pfannenschmidt Annual Award for Amateur Telescope Making

Nominees will be considered at our upcoming October 17th Council meeting, so if you have someone who you feel is deserving of this recognition, please contact a member of Victoria Centre Council.

### *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>

### *Astrophotography*

#### Charles Banville

#### The Heart and Soul Nebulae - IC 1805 and IC 1848

September 8 and 10, 2007

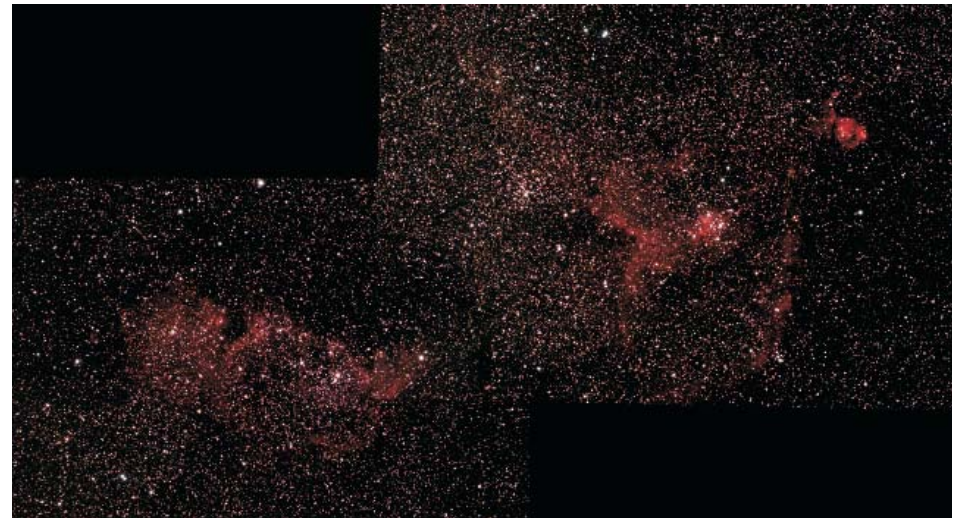
Constellation: Cassiopeia

Location: DAO, old 16" site.

Optics: Borg 77EDII at f/4.3

Camera: Canon 20Da on Kenko SkyMemo.

My first attempt at creating a mosaic. My two images were merged manually using Photoshop.



#### Bill Weir

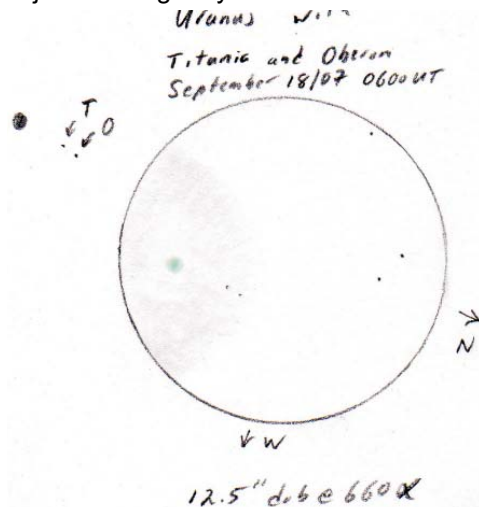
#### Uranus with Titania and Oberon

On September 12th Alan Whitman put forth the challenge as to whether a moderate sized telescope would be able to see any of the Moons of Uranus. Seeing as he deemed a 12.5" scope moderate in size a little voice in my head said, "sign me up". Here is my tale. The night of Monday September 17th was so much fun. With Sunday having done nothing but rain and it looking like grey autumn had begun, the CSC for Monday showed promise of clear skies and that promise came through. Looking at the S&T applet for Uranus' moons placement, it also gave the thumbs up. <http://www.skyandtelescope.com/observing/objects/planets/3310476.html#>. Finally after looking at the position of the jet stream, I could see that all of my little duckies were in a row. A few days earlier on the 13th, similar conditions

*continued on page 7*



prevailed but moisture in the air made the light scatter intolerable. The amount of glare around all bright objects forced me to pack up and head home early. Early in the evening, after driving kids to and from various activities I drove my 12.5" dob the few km down the road from my home to the Newton-Godin observatory, at Pearson College. It was actually a good night to go out there because it was the first night of the astronomy activity for the students. I set up my scope and left it there to cool and returned to driving around doing kid duty. By the time I had returned to the observatory around 2100hrs, it was dark enough to give the students the standard introductory constellation tour around the sky and to show them some introductory telescopic objects through my ED 80mm refractor and 12.5" truss dob. By around 2200hrs the time had come for me to settle into my quest. Uranus by then had become a faint naked eye object. To all who wanted, I show views of both Uranus and Neptune through my dob at 317X. I also showed them how they looked at around 100X through the little refractor to give them an idea of how small these planets actually appear. As I increased power step by step up to 390X using a 10mm eyepiece in a 2.5X Powermate I grew discouraged, as I could see nothing appearing in the glow of the planet. Finally I dropped my 9mm ploessl into the Powermate and with 440X, and averted vision, two faint dots close together appeared out of the mist in the correct orientation. Putting a 6mm Radian into the Powermate for 660X improved the situation even more. I was then able to hold the two dots with a steady direct gaze. My biggest problem was keeping those dots within the FOV. Luckily I was using a well-crafted scope and the movement was very smooth. The attached sketch represents my view at 660X. The grey cloud that I've drawn around the green orb of Uranus represents the glow of the planet. Moisture in the air made this observation rather difficult. I was quite surprised at how drained I was when I finished. The Sky and Telescope article mentions how these two moons have been glimpsed with as small aperture as 8 inches. I can only imagine their observing conditions were far better than what I was presented with. I just want to thank Alan for stimulating me into making this very worth while observation. Bill



*Centre of the universe*

**New Hours for October**

Now that we are moving into the fall, we can longer rely upon clear skies and warm nights. Currently, we are open to the public from Tuesdays to Thursdays at 1:00 p.m. to 4:30 p.m., with our Star Parties running from 3:00 p.m. to 11:00 p.m. The last of our weekend Star Parties will take place on Saturday, Oct. 13th, during National Science and Technology Week. After the 13th, the Star Parties will be replaced with daytime public hours. See the table below for a summary:

Oct. 1 – Oct. 13	Tues. – Thurs.: 1:00 p.m. to 4:30 p.m. Fri. – Sat.: 3:00 p.m. to 11:00 p.m.
Oct. 14 – Oct. 31	Tues. – Fri.: 1:00 p.m. to 4:30 p.m. Sat.: 10:00 a.m. to 4:30 p.m.

**Natural Resources Canada Science and Technology Week**

National Science and Technology Week will be taking place this year from Oct. 12th to Oct. 21st. Hosted by Natural Resources Canada, the week is designed to showcase how science and technology affects us on a daily basis. Government institutions across Canada will participate in organizing science-based activities for the general public. Here at the centre, we will be presenting some guest lecturers on Oct. 12th and 13th. Please keep an eye open for more news regarding this special event.

**Canada-France-Hawaii Telescope Calendars**

The 2008 CFHT (Canada-France-Hawaii Telescope) Calendar is currently on sale in our centre's gift shop for \$18.00. This calendar consists of vibrant deep-sky images taken from CFHT in Hawaii. Supplies are limited so get your copy soon.

**The Sky This Month**

October 1	Mars rises in the east at 10:35 p.m. Venus rises in the east at 3:29 a.m.
October 3	Last quarter moon
October 10	New moon
October 19	First quarter moon
October 25	Full moon near the constellation of Pegasus
October 27	Moon near Pleiades
October 31	Halloween



*Rasc calendars*

2008 RASC Observers Calendars are now available of only \$15 (it's \$22 if you order it from the national website). You can purchase your calendar at our Monthly meetings and by contacting David Griffiths at treasurer@victoria.rasc.ca

*Nominations*

This years 2007 Annual Dinner and General Meeting is tentatively schedule for Sat. Nov. 17 at the Gorge Vale Golf Club. This announcement is to serve " as formal notice " of our early November elections, positions in Council include: Secretary, Treasurer and possibly various others. All individuals seeking nomination and wishing to serve are ask to contact Past-President Scott Mair or former Past President David Lee for further details.

*AGM*

**Victoria Centre RASC- AGM and Dinner Meeting**

**Saturday, November 17, 2006  
Gorge Vale Golf Club, 1005 Craigflower Road, Victoria**

The cost will be \$30.00 per person (Those who wish to attend the Business Meeting, ONLY, can do so - FREE ! )  
Purchase tickets (by cash or cheque) either by mail or at the October regular meeting, or order by phone or email - with payment at the door. Let David Griffiths know by Monday, October 29th, so he can reserve you a spot. Please EMAIL: treasurer@victoria.rasc.ca

*contact us on-line*

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

*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.

**Library Book Seller** Description Victoria Centre Library has periodicals and books that are surplus to our needs, and Council has asked the Librarian to sell items that are appropriate for the marketplace. A member who has an account with an online auction service such as: eBay, Astromart, Astronomy Buy & Sell Canada, or other auction services

Skills: knows how to use a digital camera, has some experience selling things online.

Commitment: 2 hrs/mo. Contact Charles Banville for more information.

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*coming up*

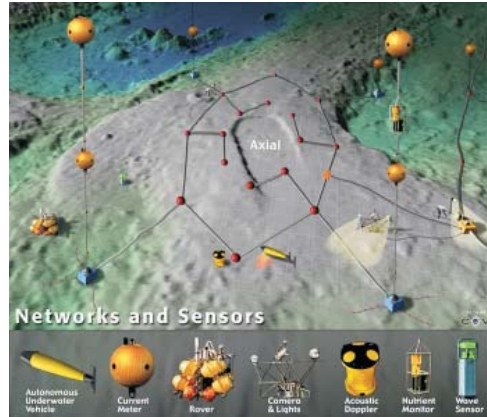
**Dr. Brian Bornhold**

**Project Neptune**

**November 17, Gorge Vale Golf Club.**

In 2007 and 2008, NEPTUNE Canada will be installing an 800 km long regional cabled ocean observatory across the northern Juan de Fuca tectonic plate. Across the network, high resolution seismic information will elucidate tectonic processes such as earthquakes and strain, and a tsunami system will allow determination of open ocean tsunami amplitude, propagation direction, and speed.

At Endeavour Ridge, complex interactions among volcanic, tectonic, hydrothermal and biological processes will be quantified where new volcanic seafloor is created. On the abyssal plain, ODP borehole monitoring systems will track realtime changes in crustal temperature and pressure, particularly as they relate to events such as earthquakes, hydrothermal convection or regional plate strain at this mid-plate site. Experiments around Barkley Canyon will allow quantification of changes in biological and chemical activity associated with nutrient and sediment transport around the shelf/slope break and through the canyon to the deep sea.



Various experiments will monitor changes in their distribution, depth, structure, properties and venting, particularly related to earthquakes, slope failures and regional plate motions. At inshore Folger Passage, near the entrance to Barkley Sound, understanding controls on biological productivity will help evaluate the effects that marine processes have on fish and marine mammals. NEPTUNE Canada will transform our understanding of biological, chemical, physical, and geological processes across an entire tectonic plate, from the shelf to the deep sea. Real-time continuous monitoring and archiving allows scientists to capture the temporal nature and characteristics of these natural processes in a way never before possible.

*RASC victoria council*

*this month*

*monday nights*

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**New Member Liaison**

Sandy Barta  
newmembers@victoria.rasc.ca

**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!

**ASTRONOMY  
CAFÉ**



*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.