PeGASus

Newsletter of the

Royal Astronomical Society of Canada: Prince George Centre

Published: January to May & September to November. www/rasc.ca/princegeorge

January 2008

Our pursuits are out of this world.
Our activities are astronomical.
Our aim is the sky.

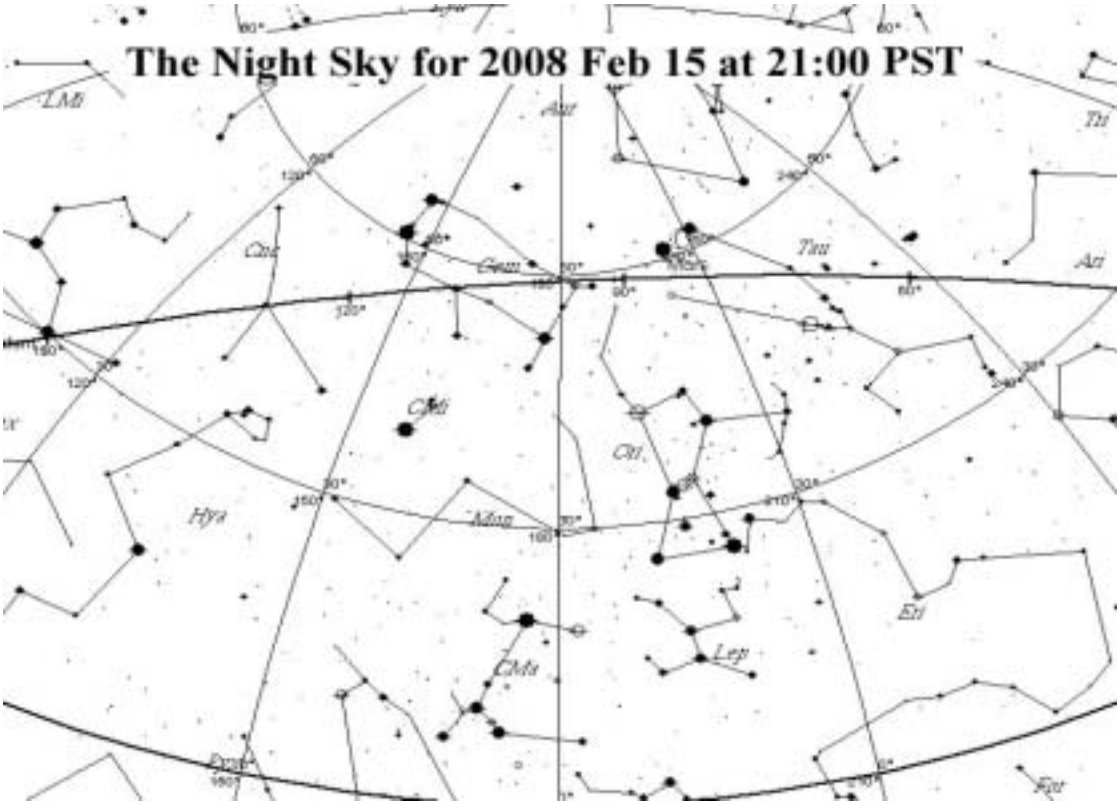
PeGASus

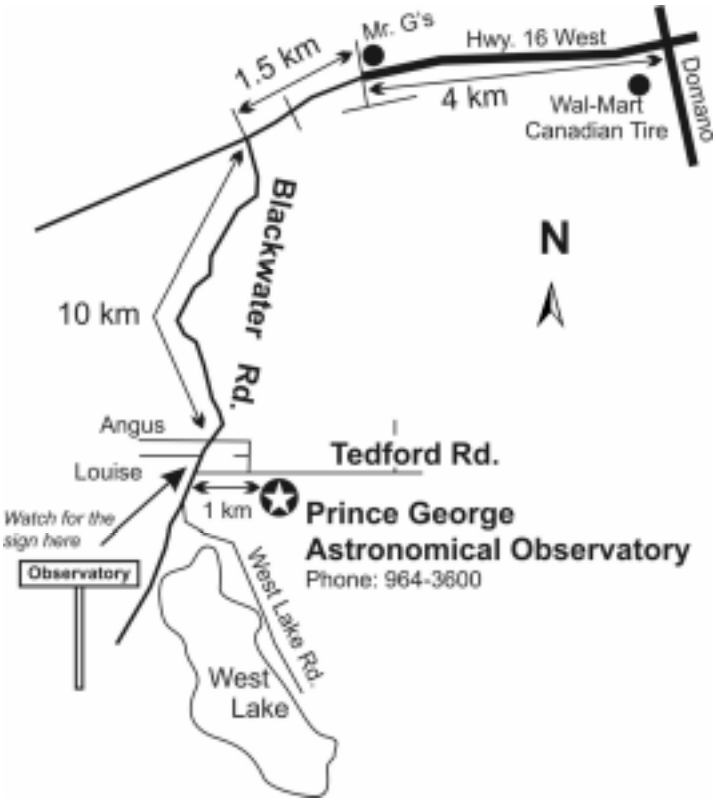
Newsletter of the

The Prince George Astronomical Society

In Issue # 164

The RASC: Prince George Centre meets next,
Saturday January 26, 7:30pm
at the Observatory for the 1st NOVA Class and a Social Evening





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RASCPG
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Contributions to the newsletter are welcome.

Deadline for the next issue is
February 12, 2007

PeGASus Editor
Brian Battersby
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Coming Events

To Volunteer to help run an event please contact Brian Battersby.
brianbattersby73@yahoo.ca
Phone: 561-8138 (day) 612-4623 (evening)

Date	*Event*	*Time*	*Place*	*Volunteers*
Jan. 26	NOVA Class 1: How to Observe	7:00 pm	Observatory	Brian B
Jan. 26	Social Meeting	7:30 pm	Observatory	Gil S
Feb. 9	NOVA Class 2: Motions of Sky	7:00 pm	Observatory	Wayne S
Feb. 13	BUSINESS MEETING	7:30 pm	Arctic Manufacturing, Hart Hwy. *all members welcome!*	
Feb. 23	NOVA Class 3: Maps, Position, Bright	7:00 pm	Observatory	Bob N
Feb. 23	Social Meeting	7:30 pm	Observatory	Gil S
Mar 8	Spring Recreation Market	9:30 am	Pine Centre Mall—finish at 6:00 pm	
Mar 9	Spring Recreation Market	9:30 am	Pine Centre Mall—finish at 6:00 pm	

For an up to date list of the Volunteer Schedule visit our website in the MEMBERS AREA
www.rasc.ca/princegeorge

Editorial

by Brian Battersby

Astronomy has been one of the farthest things from my mind this month. Instead I have been focused on the latest addition to my family. Andromeda Bernice Battersby was born on January 1, 2008 at 10:30 pm. She weighed in at 7lbs 9 oz.

Andromeda is my second child, so I shouldn't be surprised, but I still can not get over how much of my time she is taking up and all she does right now is sleep, eat and poop!

In all seriousness what I find most fascinating is thinking about how she grew. She started out as little blob of cells and somehow grew into a perfect little baby with all the usual human bits….fingers, toes, eyes, ears, brain. She is made up of the same basic building blocks as stars, nebulae, planets, and every other thing that we can find in our universe and yet she lives, breaths and thinks. How can science possibly account for that? It is both amazing and humbling.

Brian Battersby

News Flashes

The Spring Recreation Market will be held at Pine Centre Mall from 9:30 am to 6:00 pm on both Saturday, March 8 and Sunday, March 9.

The RASC Prince George Centre takes this opportunity to raise public awareness about our organization and facility. If you are interested in helping to man the Observatory booth during these times, please contact me. It is not a prerequisite that you know a lot about our group, the questions are usually general in nature, and most people who visit the booth just want to know when we're open and where the observatory is located. The brochure we hand out has all that information.

Glen Harris

RASC Prince George Centre Secretary

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The Prince George Centre would like to officially welcome the following new additions to the Royal Astronomical Society of Canada.

Ken Bush, Rusty Hoff

Davild Maloney, Rhonda Nelson

Alanna Siemens

RASC eNews

Announcements

Society Seeks National Treasurer

Looking for a rewarding challenge? The position of national treasurer is presently vacant. The Society is seeking a new treasurer to complete the remaining two and a half years of the treasurer's three-year term, ending in mid-2010. The position of treasurer is one of leadership and influence. The successful candidate will play a pivotal role in determining future direction and success of the RASC.

Jan 5, 2008, 21:34

Announcements

February Journal has gone to print - PDFs now on-line

Hey folks, the February Journal is now on-line, with lots of exciting new articles and colour on four (count 'em) (4) pages!

Jan 19, 2008, 00:22

National Council

Society Grows 5.1% in 2007

The Royal Astronomical Society of Canada's membership stood at 4,347 as of December 31, 2007. This is a 5.1% increase from the same time in 2006.

Jan 14, 2008, 20:35

Northern Skies

The Sky This Month - January 2008

As Canada is clutched in winter's icy grip, Orion proudly stands tall along with its wealth of sights.

Jan 4, 2008, 11:14

Across the RASC

Observatory Park Announces Study Start-up

The Observatory Park Working Group of the Society's Toronto Centre has announced that it has started work on a study to develop a plan for the sustained operation of the David Dunlap Observatory.

Jan 2, 2008, 15:51

NASA Science News

for January 21, 2008

Last week's historic flyby of Mercury by NASA's MESSENGER spacecraft gathered 500 megabytes of data and more than a thousand high-resolution photos covering nearly six million square miles of previously unseen terrain. "Discoveries are at hand," say members of the mission science team. Read today's story for a hint of things to come.

FULL STORY at
http://science.nasa.gov/headlines/
y2008/21jan_mercuryflyby.htm?list876994
Check out our RSS feed at http://science.nasa.gov/rss.xml!

The Night Sky for December 2007

by Bob Nelson, PhD

Hi Folks,

I wrote this column New Year's Day because, on January 3rd, my wife and I will have left for Kauai (and lots of hiking, snorkelling, and diving, I hope). We plan to be back about January 24th when perhaps the worst of the winter weather will be over (I know, life is tough!).

Anyway, after I get back, I plan to put my full efforts into getting the hardware for the big telescope finished (that means getting both worms properly mounted together with the new drive motors). Another task will be to work on a proposal to the executive for the new controller unit and, once decided upon, to order the unit. (This unit – which has its own on-board computer -- makes the connection between the observatory computer running a planetarium program such as Starry Night or The Sky.) I have no idea how long a task this will be, but the idea is to do the work without removing any present scope functionality. When we are ready, we can make the switch (without, of course, burning any bridges).

If all goes well, we should have before long a fully-modern telescope with sufficiently good pointing accuracy to put a target object (selected by a planetarium program on the observatory computer) into the field of view every time. This is something we all want.

That's the plan.

Anyway, here is what is going on in the sky this month:

MERCURY is an evening object until February 4, when it is *technically* both an evening and a morning object (it reaches inferior conjunction on February 6). Seriously, though, it is so close to the horizon that it is almost impossible to detect the tiny planet at these times, owing to its proximity with the Sun (and the glare thereof). By February 29th, however, it rises about 50 minutes ahead of the Sun and lies some 6° above the SE sky at sunrise. Then, it's a 7" disk, a tad more than half illuminated, and of magnitude 0.2 -- but poorly placed for northern observers. It's definitely a challenge object!

VENUS, is a morning object all month. At mid-month, it rises about an hour before the Sun, and at sunrise, lies some 6.5° above the SE horizon (to the right of Mercury). Then, it's a 12" gibbous blob, 88% illuminated, and of magnitude -4.0. Easy pickings!

MARS, in Taurus until March 4th [National Hikers' Day ;-)], is an evening object this month, setting at mid-month at about 05:00 (PST). Then, it's a 10" disk -- almost full -- of magnitude -0.2.

JUPITER, in Sagittarius until 2009 (Jan), is a very early morning object this month, rising at mid-month some two hours before the Sun. At sunrise, it lies almost 10° above the SSE horizon and is a 33" disk of magnitude -1.9. For the early folks.

SATURN, in Leo until 2009 (Sept), rises at mid-month at about 18:00 and transits at about 01:05 (PST). It reaches opposition on February 24th. Then, it's a 20" disk of magnitude 0.2.

URANUS, in Aquarius until 2009 (March), is a very early evening object this month. At mid-month, it lies some 16° above the SW horizon at sunset, dropping below the horizon itself some two hours later. As usual, it's a 3.6" disk at about magnitude 5.7.

NEPTUNE, in Capricornus until 2010 (March), is a difficult object this month. It starts out as evening object at month's start (when it is ..), but becomes by mid-month a morning object. (In between, it reaches conjunction on Feb 11.) As usual, it's a 2.3" disk at about magnitude 8.0.

CONSTELLATIONS to look for in February (at 21:00) are Eastern Eridanus, Taurus, Canis Major, Lepus, Monoceros, Orion, and Gemini.

Taurus (Tau, “The Bull”), contains The Hyades, the well-known V-shaped open cluster which represents the head of the bull. For astronomers, it’s the closest open cluster (after the Ursa Major Group), lying at about 40 parsecs (=130 light years) distant and probably containing several hundred members. It’s important because the distance is too great to be measured by normal stellar parallax, but can be determined by a method known as the “moving cluster method”. After that, its Hertzsprung-Russell (HR) or colour-magnitude diagram can then be used to determine the distance to clusters lying further away. This cluster is thus an important rung in the cosmic distance scale.

Taurus also contains M45, the Pleiades star cluster (the ‘Seven Sisters’) which lies about 3 times further away -- 126 pc (= 410 light years). On deep exposures, many of the stars exhibit circumstellar nebulosity which is the tip-off that these are young stars. Another attraction in Taurus is M1, the well-known Crab Nebula. The subject of much study, the Crab is thought to be the result of a star that exploded in 1054 (on July 4th, of all days!). It’s not too hard to find -- give it a try -- but the image is just an amorphous blob in the sky. Better images are obtained with a CCD camera (yeah!!).

Gemini (Gem, “The Twins”), is a well-known northern constellation that lies just to the east of Auriga. Just missing the Milky Way as it does, it lacks a lot of deep sky objects. (It does have open clusters M35, and NGCs 2158 and 2392 however.) Some of the stars are quite interesting. Alpha Geminorum, better known as Castor (one of the twins), lies about 45 light years from us and has a total luminosity of about 36 Suns. It is a multiple system: Castor A and B form a visual binary making an orbit of about 6 arcseconds in radius (corresponding to a real distance of about 90 astronomical units) and a period of about 400 years. There is a third star, Castor C, which orbits the other two at a distance of about 72". The fascinating thing about Castor is that each of the three stars (A, B, and C), as revealed by the spectrograph, is also a binary system.

Gemini also contains U Geminorum - discovered variable by J.R. Hind in 1855 - which is a typical example of a rare class of objects called “dwarf novae”. Normally quite faint at magnitude 14.9, every 17 days or so, it suddenly flares up to magnitude 8 or so staying at that brightness for a week or two. (Needless to say, these figures are averages; on occasion this system has gone 200 days between eruptions). Today we know that stars of this class (SS Cyg is another) consist of a white dwarf primary (the hotter star) with a red dwarf main sequence (cooler) secondary star. Now white dwarf stars are remnants of stars that have gone through the nova stage - exploding as they reach the end of their lives, settling down to an electron-degenerate compact object (sorry about that mouthful). What the term means is that it behaves like a giant atom, prevented from collapsing further by the laws of quantum mechanics. Anyway, there are rules for the mass and temperature of this object. Now usually, at a slow rate, mass spills over from the secondary to the primary star. Owing to rotation, this material does not fall to the white dwarf directly but enters a disk surrounding the latter. Periodically (and we are not sure what initiates the process), some of this material - which is mostly hydrogen - falls to the white dwarf, breaks the rules and ignites into a thermonuclear explosion. Much material is expelled in a large hot shell, and that is what produces the extra luminosity. The total light output increases by a factor of 100 or more in these outbursts. In a few weeks or months, the whole process repeats. Studies of these objects continue using the latest space telescopes. In order to coordinate these observations, NASA relies on the many amateur astronomers in the AAVSO (American Association of Variable Star Observers) to send the professional astronomers timely outburst notices.

Clear skies,
-Bob

Dec. 23, 2007 Lunar Occultation of Mars

by Doug Wayland

We had a good window to observe the Mars occultation on Sunday night. John Ascah and Gerhard Bierman joined me out at the observatory. We all had some nice views of the moon approaching Mars and disappearing right close to the predicted time of 17:42 PST for PG area. Mars reappeared at 18:18. We did not measure the time exactly. I had a film camera attached to my LX10 and had my ETX90 set up for visual. The views in the ETX were beautiful. Gerhard had his Edmunds Astroscan set up and John had his Televue 85. I took some photos, but while trying to get Mars bright enough to see, I badly overexposed the moon. I was rushed changing eyepieces for a close up of Mars disappearing, so did not get the focus as sharp as I would have liked, but caught the moment anyway. See the photos below.

John and I also tried to catch the occultation of the star HIP 2811 in Cetus by the asteroid 1665 Gaby, which was supposed to be visible from near here at about 19:07 PST. I had the mag 8 star centered in my LX 10, but it failed to blink off, so the path of occultation missed us. It was likely a little to the south as I suspected by the chart I printed from Steve Preston's World Wide Prediction Site. Oh well worth a try anyway.

A joyous season to all and Happy New Year,

Doug Wayland

17:29

17:42

18:22

18:34

Want to join the RASC Prince George Centre?
Fill out the form below and mail it in to the address at the top of the form.
Existing members can use this form to renew as well!

THE ROYAL ASTRONOMICAL SOCIETY OF CANADA

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136 Dupont Street, Toronto, ON M5R 1V2 Canada
Tel: 416-924-7973 Fax: 416-924-2911 Email: membership@rasc.ca
Website: http://www.rasc.ca/ E-store: http://www.store.rasc.ca/

FORM UPDATED: 2008 JAN 07

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(PLEASE PRINT IN FULL)

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CITY: _____ PROV: ____

POSTAL CODE _____

TELEPHONE: (___) _____

EMAIL: _____

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CENTRE SURCHARGES $_____

SUB-TOTAL $_____

eJOURNAL INCLUDED

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TO: ▫ RASC NATIONAL
▫ CENTRE _____

TOTAL PAID $_____

▫ My cheque/money order is enclosed
(PLEASE MAKE PAYABLE TO RASC)

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▫ VISA ▫MASTERCARD
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MEMBERSHIP INCLUDES: OBSERVER'S HANDBOOK
6 ISSUES OF RASC eJOURNAL / 6 ISSUES OF SKYNEWS

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YOUTH MEMBERS MUST NOT HAVE REACHED THEIR 21ST BIRTHDAY AT THE TIME OF PAYMENT.

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- ▫ YOUTH $36.75
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Please choose one affiliation:

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	Sarnia		
	Saskatoon	10.00	
	Thunder Bay		
	Toronto (see note below)		
	Vancouver	3.00	
	Victoria	2.00	2.00
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	Winnipeg		
	Unattached		

Surcharges support Centre activities. Please contact the Centres for details.
http://www.rasc.ca/member/2006contactlist.pdf

* APPLICATIONS FOR THE RASC TORONTO CENTRE ARE PROCESSED LOCALLY.
Please visit http://toronto.rasc.ca/content/membership.shtml for details.

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Royal Astronomical Society of Canada
Prince George Centre

AKA the ***Prince George Astronomical Society***

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