

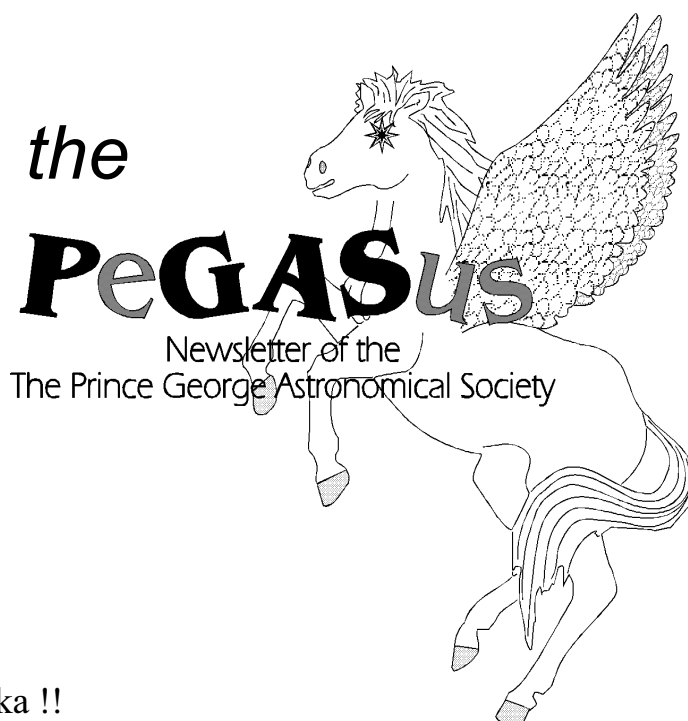
Royal Astronomical Society of Canada Prince George Centre

The RASC-PG meets next at 7:30 pm
Wednesday, September 25
at the Observatory
(directions on page 2)

September 2002

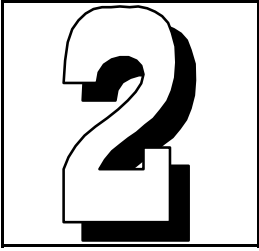
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Also This Month

- ☆ *Page 11* Hats off to Maurice Sluka !!
Maurice has taken on light abatement director, and has done a fine job.
His report is on page 11
- Page 12* Elections are to be held September 25th
We have included a list of elected, as well as appointed positions, and associated duties.
You may be interested in one of these positions.



the PeGASus
 is published monthly by the
Royal Astronomical Society Canada
Prince George Centre

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

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Contributions to the newsletter
 are welcome.

**Deadline for the next
 issue is**

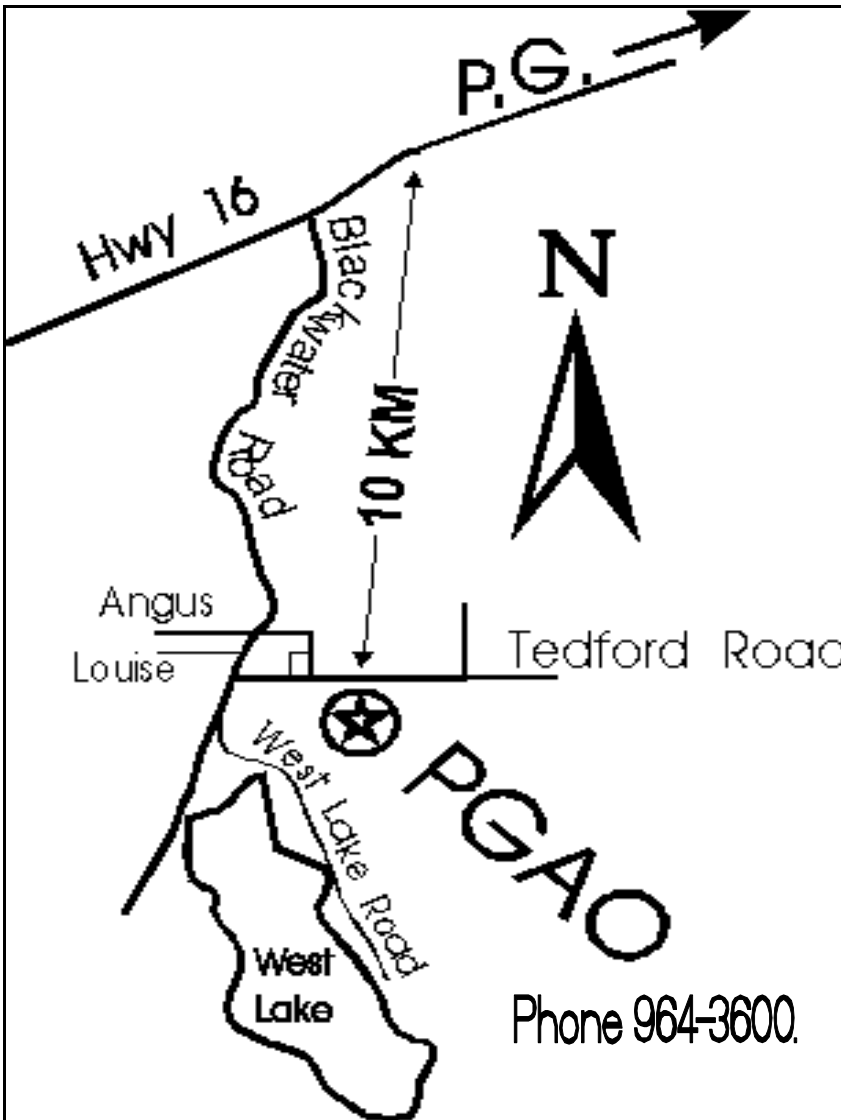
October 18

PeGASus Editor
Gil Self

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you can renew your membership at
www.rasc.ca/princegeorge



EDITORIAL

By Gil Self

Page 3

It has been some time since I have written this column; the middle of May, to be exact. I hope everyone has had a good summer.

I was down to The Smithsonian, they have some great astronomy exhibits, including the parts that were removed from the Hubble during the last servicing mission, and the



spare mirror.

Our blink comparator is exactly the same as the one they have on display—maybe we should get it out of the basement.

Definitely worth a visit if

you if you get chance. !!!

The observatory has been in full swing since the beginning of August. Open house and member's night every weekend. We also decided to remain open through November., so there are still a few slots open on the schedule, for key holders to host these events.

Al Whitman visited us on September 4th. I think Al enjoyed his visit to his 'old stomping ground' as much as we enjoyed listening to him speak. For those members unsure about aligning ourselves with the RASC. I think the guest speakers we have brought in, has made it worth the move, not even counting all the other benefits. What do you think? Let me know.

PSSST don't tell anyone! No one knows yet. Don't tell anyone I said anything. But we are going to be announcing

very soon, something we have never tried before—

———— A Photo competition. It should be lots of fun. Now if you're anything like me and every picture you have taken for the last twenty years has had one or more of your kids in it, we have to get busy and start taking some astrophotos.

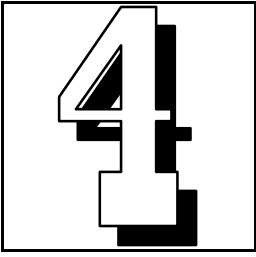
More soon!

As you have noticed I am trying out a new format for our newsletter. This layout should be easier to read and provide us with more space to print your articles.

It has been a very long time since we made any changes to Pegasus, the original design by Orla Aaquist has always been a trademark of this publication and has been virtually the same for more than ten years. I hope Orla likes what I have done with it.

Clear Skies

Gil



COMING EVENTS

Sept. 25, 7:30 pm – General Meeting @ the Observatory (map on page 2 of this newsletter)
Oct. 16, 7:30 pm – Executive Meeting @ Gil's Office (#30 – 1839 1st Ave, enter around back)
Oct. 30, 7:30 pm – General Meeting @ the Observatory

OPEN HOUSES – every Friday night, rain or shine, until the end of November

MEMBER'S NIGHTS – every Saturday evening until the end of November. Selected ones are rain or shine – check the website Events Calendar for current details.

Look for additions and/ or updates to the coming events on our website under the Events Calendar heading.
www.rasc.ca/princegeorge

THE NIGHT SKY FOR OCTOBER 2002

by Bob Nelson, PhD

Hi Folks,

G-day all. Although Lois and I very much enjoyed our trip to the southern hemisphere, it's good to be back home (although with the crappy weather of the last week, we wonder just a little). I am now retired (yeah!!!) So that will mean that, except for other things that rise up now and then, I'll be able to devote myself full time to astronomy. I have my backyard observatory, with which I can do largely automatic CCD observations of eclipsing binaries from the comfort of my basement den and all its amenities (3 computers, not including the one in the roll-off roof observatory, a fast internet

connection, TV, radio, food ...). Life is tough. That is why you haven't seen me out at the club observatory too much this year! So far I have obtained 12 accurate times of minima since I got back and some filtered photometry of QX Cas, a 6.00-day Algol near contact eclipsing binary that I am collaborating with others on.

However, there is more to observing than staring at a computer monitor (really, Bob?). And I hope, once I have the automatic features of my telescope refined (it has to put itself away when it rains), I will join you more often at our Tedford Road site.

One of the things brought

home to me recently is the need to display more of our work both on our website and to the public through our presentations. That means more piggy-back photos of the constellations (these are very easy to do), more deep-sky photos, more pretty CCD images of small objects (I can do three-colour imaging at home; we hope to add that feature at the club observatory before long), and more pictures of people doing things at our observatory. It can be enormously satisfying (and fun!!) to do good photography, and some of our members have already shone in this department. Stay tuned ...

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

MERCURY is an morning object all month for northern observers. On the 13th it reaches the greatest elongation (angular distance from the Sun) of some 18 degrees. On that date it rises at 2:17 AM, some 5+ hours before sunrise. Owing to the inclination of the ecliptic to the celestial equator, it's a favourable apparition for us northerners. It's a 6.5" disk of magnitude -0.7.

VENUS is lost in the glare of the Sun all month (for northern observers). It reaches inferior conjunction on the 31st.

MARS passes from Leo to Virgo on October 5, and is also a morning object. On the 15th, it rises a couple of hours before the Sun, but this improves by the end of the month when it rises 3 hours before sunrise (at about 6:20 AM PST). This is favourable for northern observers. It's a 3.7" disk of magnitude 1.8 then.

JUPITER, in Cancer all month, is a morning object;

at mid-month it rises at 1 AM (PDT) and is a magnificent 37" disk of magnitude -2.15. (This is not as spectacular as it gets - when it reaches opposition early next February it will grow to a full 46" in diameter.)

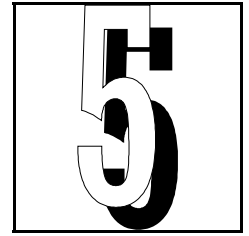
SATURN, in Orion until November, is an evening object, rising at mid-month at 9 PM, PDT. It's a 16" disk of magnitude -0.54. It will get larger until it reaches opposition on Dec 17.

URANUS, in Capricornus until January, is an evening object in October. At mid-month, it sets at about 2 AM PDT. Both it and Neptune are fading to the west as Earth races away from them in its orbit (sigh!). As usual, it's a 3.6@ disk at about magnitude 5.7.

NEPTUNE, in Capricornus until 2010, is an evening object this month when it sets at about 12:30 AM. As usual, it's a 2.3@ disk at about magnitude 8.0.

PLUTO, in Ophiuchus all year, is an early evening object, setting some 3.5 hours after sunset. At mid-month. As usual, it's a 0.1@ disk at

magnitude 13.8. Standard time returns on the last Sunday of the month (Oct. 27). Yeah!!!



CONSTELLATIONS to look for in October (at 9:00 PM, PDT) are Pisces Austrinus, Aquarius, Capricornus, Equuleus, Delphinus, Pegasus and Vulpecula.

Pisces Austrinus (PsA, The Southern Fish@), visible only on the extreme southern horizon here in Prince George and lying as it does off the Milky Way, contains only a few galaxies and no star clusters or nebulae. It does contain the well-known star Formalhaut the 18th brightest star in the night sky.

Aquarius (Aqr, The Water Bearer@), to the north of Cap, lies on the Zodiac and contains a number of variable stars. Messier objects include M2 (a nice globular cluster), M72 (an open cluster), and M73 (a mistake by Messier -- it's just 4 stars!). Other deep sky objects include NGC 7009 (a small bright planetary nebula) and NGC 7293 (the Helical Nebula@).



Capricornus

(Cap, AThe Sea Goat@),

lies on the Zodiac but it too lies out of the Milky Way (to the northwest of PsA) and contains only M30, a fine globular cluster. Of the brighter stars, Delta and Epsilon are both variable stars.

Equuleus (Equ, AThe Little Horse@), a tiny constellation (the second smallest in the sky, after Crux) and contains NO deep sky objects at all. Delta Equulei, however, is a close visual binary. It was discovered by Otto Struve in 1852; it was for years, at period 5.7 years, the shortest known for any visual binary. Epsilon Equulei is also a close visual binary, discovered by F. Struve in 1835, and having a period of 101 years. The orbit is very tight - the maximum separation is 1.1" and the eccentricity is 0.70 (fairly highly elongated orbit). The estimated distance

is about 200 light years.

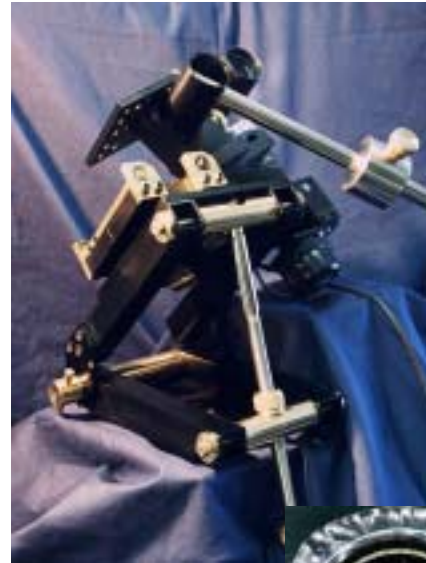
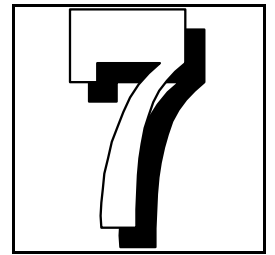
Delphinus (Del, AThe Porpoise@), to the northwest of Aqr, is a little constellation, containing only, for deep sky objects, two globular clusters: NGCs 6394 and 7006.

Pegasus (Peg, AThe Winged Horse@, AThe Great Square@ and our mascot), also lies off the Milky Way. It contains a few faint galaxies, an open cluster, and M15, a fine globular cluster. The latter was discovered by Maraldi in September of 1746 and rediscovered by Messier in 1764. According to Burnham, M15 is one of the richer and more compact globulars, remarkable for its bright core. The cluster contains a large number of RR Lyrae variable stars, all close to about magnitude 16. RR Lyrae stars are pulsating variable stars whose light curve resemble the famous Cepheid variables but are all of shorter periods,

less than one day. The stars have been found to be spectral type A to F (brighter and more massive than the Sun) and of Population II (older and having way smaller percentage of atoms heavier than helium than the Sun). Calibration of the absolute brightness of the light curves coupled with identification and measurement of similar light curves in nearby clusters of stars (like the Magellanic Clouds) yields independent distance estimates.

Vulpecula (Vul, AThe Fox), in the Milky Way just to the south of Cygnus (and the last constellation in the book), contains M27, the famous ADumbbell@ Nebula (disc'd by Messier in 1764 and lying close to 900 light years from us) -- it's a wonderful object worthy of close observation or photography.

Clear skies to all,
Bob Nelson



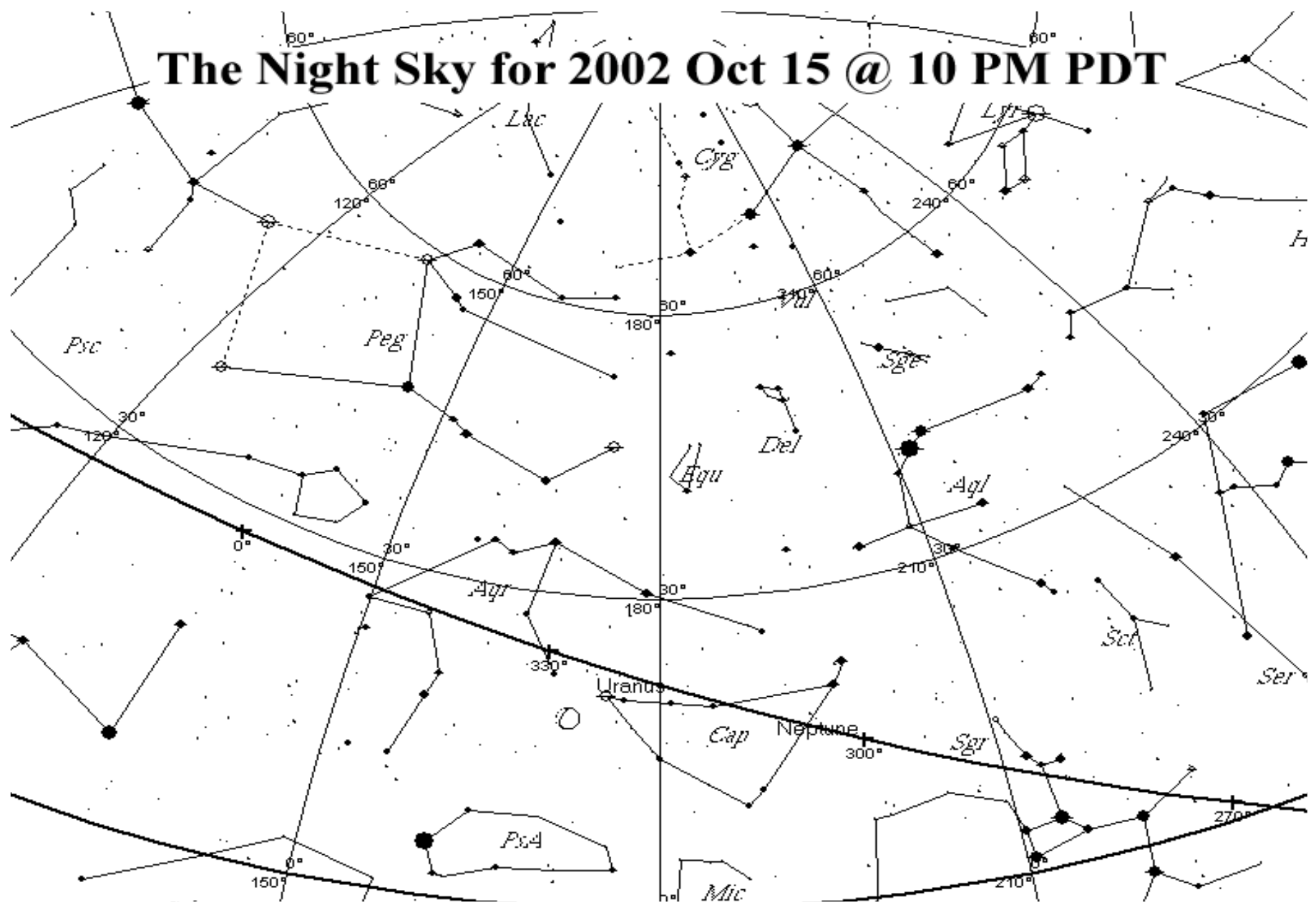
Mt Kobau was a big success For Evan
Congratulations from all
of us.



All photos by Evan Williams



The Night Sky for 2002 Oct 15 @ 10 PM PDT

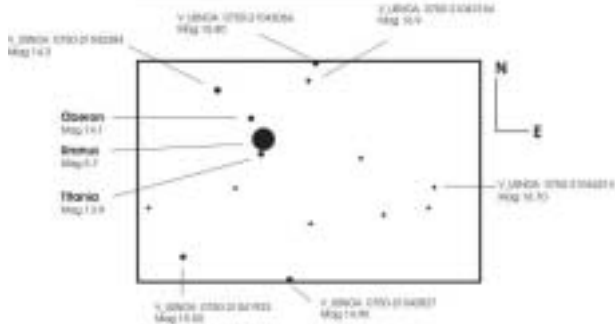


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URANIUS
August 17, 2002



SBIG ST6
5 Sec Exposure
1:07 AM PDT



SBIG ST6
15 Sec Exposure
1:14 AM PDT



Sun (above) and Uranus (left) photos by Brian Battersby



A photo I took May 14 from the road in front of the observatory. Tri-pod, Canon FTb, 200mm, f4, 1 sec. . I took several from 1/2 to 5 sec., all showed earth shine.

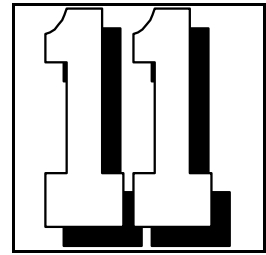
Doug Wayland



Astronomy at the mall

Light Pollution Abatement Status Report

by Maurice Sluka



Our Light Pollution Abatement program is progressing and its future looks bright (pardon the pun). We are currently advancing on a number of fronts, draft city by-law, local electrical engineering firms, the rezoning of the property next to the observatory, and educating effective lighting.

Draft City Bylaw

We submitted a draft city light pollution by-law last spring. Included with the draft bylaw was a large amount of background information for suggested lighting fixtures, example bylaws from Canada and the USA, and articles dealing with light issues. The draft bylaw is a combination of current by-laws that are enacted. The draft was finalized with the help of Mr. Lane Logan P. Eng. of NRS Engineering. The draft was designed to promote energy efficiency, effective lighting, and safety for drivers and pedestrians, and the City is reviewing the draft and has yet to comment on it. We plan to try to make the light pollution an issue in the municipal elections.

First Small Victory

The first victory on reducing light pollution is the street lighting at the new 'Westgate Development'. The new street lighting will all be full – cutoff fixtures. Our timing has helped to bring attention to this issue. The current trend toward energy efficiency, more effective lights that are 'sky friendly', has helped. To see full – cutoff light fixtures in use see the new twined 'John Hart Bridge', is good example. Shielded streetlights can be seen the Prince George airport. This gives us hope for a more friendly sky for all of Prince George to appreciate.

Rezoned Property Next To The Observatory

We did succeed in getting a covenant on the property and the ability to comment on the development, with respect to outdoor lighting. The design for the development has not been completed, as of yet.

Promoting Effective Lighting

When most people see full-cutoff lighting they may think it looks dimmer than

before, but it is the reduced glare from the lights that is no longer shining into their eyes.

With the increased efficiency of the full – cutoff light fixture over the many of old type (that can loose up to 40-50% light to the sky) the power required to illuminate the ground (where is needed) can be reduced. The power required would reduce electrical loads and expenses for the city, which would benefit the city and its citizens. Effective lighting also includes aiming and or shielding of lights to shine on a designated area. There are also many types of light bulbs that supply same level of light for different power consumption. Photocells can also be used to reduce power consumption (savings over year to year can be substantial), rather than burning all night, and increases security by drawing attention to activity.

MS.



DUTIES OF THE EXECUTIVE DIRECTORS

In addition to attending as many Executive Meetings and General Meetings as possible throughout the year the executive members are responsible for the duties of their positions listed below. Note: being responsible does not necessarily mean doing everything yourself. "The directors may delegate any, but not all, of their powers to committees consisting of such director or directors as they think fit." *

Items marked with an "*" are quoted directly from our constitution.

PRESIDENT

- * The President shall preside at all meetings of the Society and of the directors. *
- * The president is the chief executive officer of the Society and shall supervise the other officers in the execution of their duties. *
- * Create meeting agendas
- * Overview committees (if any)
- * Ensure everything gets done throughout the year
- * Help prepare government society documents

VICE-PRESIDENT

- * The vice-president shall carry out the duties of the president during his absence.
- * Help prepare government society documents

SECRETARY

- * Conduct the correspondence of the Society, *
 - * Issue notices of meetings of the Society and directors, *
 - * Keep minutes of all meetings of the Society and directors, *
 - * Have custody of all records and documents of the Society except those required to be kept by the treasurer, *
 - * Have custody of the common seal of the Society, *
 - * Maintain the register of members. *
-
- * Distribute General Meeting Minutes to all members
 - * Distribute Executive Meeting Minutes to the Executive members
 - * Prepare a yearly report on the clubs activities for the RASCJournal (see the RASC manual for details)
 - * Help prepare government society documents

TREASURER

- * Keep such financial records, including books of account, as are necessary to comply with the Societies Act, and *
- * Render financial statements to the directors, members and others * Prepare a yearly report of clubs finances for the RASCJournal.
- * Issue charity tax receipts as necessary and according to government guidelines.
- * Help prepare government society documents



MEMBERS-AT-LARGE

- * Sit on Committees
- * Be available to help the other executive members

PAST PRESIDENT

- * Provide guidance to the new Executive Directors

NATIONAL COUNCIL REPRESENTATIVE

- * See RASC Manual for a complete description
- * In a nut shell: “It is the responsibility of Centre Representatives to National Council to inform member of their Centre of the activities, discussions and decisions of NC.”
- * Should be able to attend National Council meetings. This means travel.

DUTIES OF THE DIRECTORS

In addition to attending as many Executive Meetings and General Meetings as possible throughout the year the directors are responsible for the duties of their positions listed below. Note: being responsible does not necessarily mean doing everything yourself. “The directors may delegate any, but not all, of their powers to committees consisting of such director or directors as they think fit.” *

NEWSLETTER EDITOR

- * Collect articles from members to provide local content for the PeGASus.
- * Ensure newsletter is printed and distributed to the members at least one week prior to the next meeting.

OBSERVING DIRECTOR

- * Book times for the members to use the 24” scope to do special projects
- * Book group tours
- * Ensure there are sufficient members at each tour to adequately give the tour.

PROMOTIONAL DIRECTOR

- * Distribute posters, brochures and newsletters to the library, etc.
- * Be a contact person for the media
- * Ensure calls on the answering machine are returned by the appropriate person
- * Promote our Special Events throughout the community.

LIBRARIAN

- * Responsible for building and maintaining the clubs resource materials.
- * Ensure members have access to the materials.
- * Ensure materials loaned are returned.

BUILDING DIRECTOR

- * Keep the observatory, classroom and grounds in good repair and free from hazards.

TECHNICAL DIRECTOR

- * Keep the clubs equipment in good working order, including but not limited to: all telescopes, telescope equipment and computer equipment.

LIGHT POLLUTION ABATEMENT DIRECTOR

- * Promote the Societies position on light pollution
- * Raise awareness of light pollution as an issue that needs addressing in the community

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OCTOBER STAR HOP IN PEGASUS

Pegasus is yet another character constellation taken from the legends of Perseus. Pegasus was the winged horse that Perseus rode back from slaying Medusa to rescue the princess Andromeda from the sea monster Cetus.

Thanks to a large central box asterism Pegasus is an easy constellation to find during the autumn months when it is high overhead in the late evening sky.

Spanning an area of sky measuring $45^\circ \times 35^\circ$ Pegasus is one of the largest constellations visible in the northern hemisphere.

Hop #1: Pi Pegasus – Double Star.

This extremely widely separated optical pair is suitable for binoculars and rich field telescopes. The component stars are magnitude 4.2 and 5.5 with a hefty separation of 600" (arc seconds) and a position angle of 270° . The brighter star (Pi 2) is spectral class F, a little hotter than our star. Pi 2 is a G class star making it pretty close to the same temperature as the Sun.

To find it start at Beta Peg, the top right corner of the box, then move northwest to Eta Peg (mag 2.9) and following the same line another 8° you will come to mag 4.2 Pi Pegasi. As a challenge try observing this pair naked eye. They are only a little closer together than Alcor & Mizar so it should be possible.

Hop #2: NGC 7331 – Spiral Galaxy.

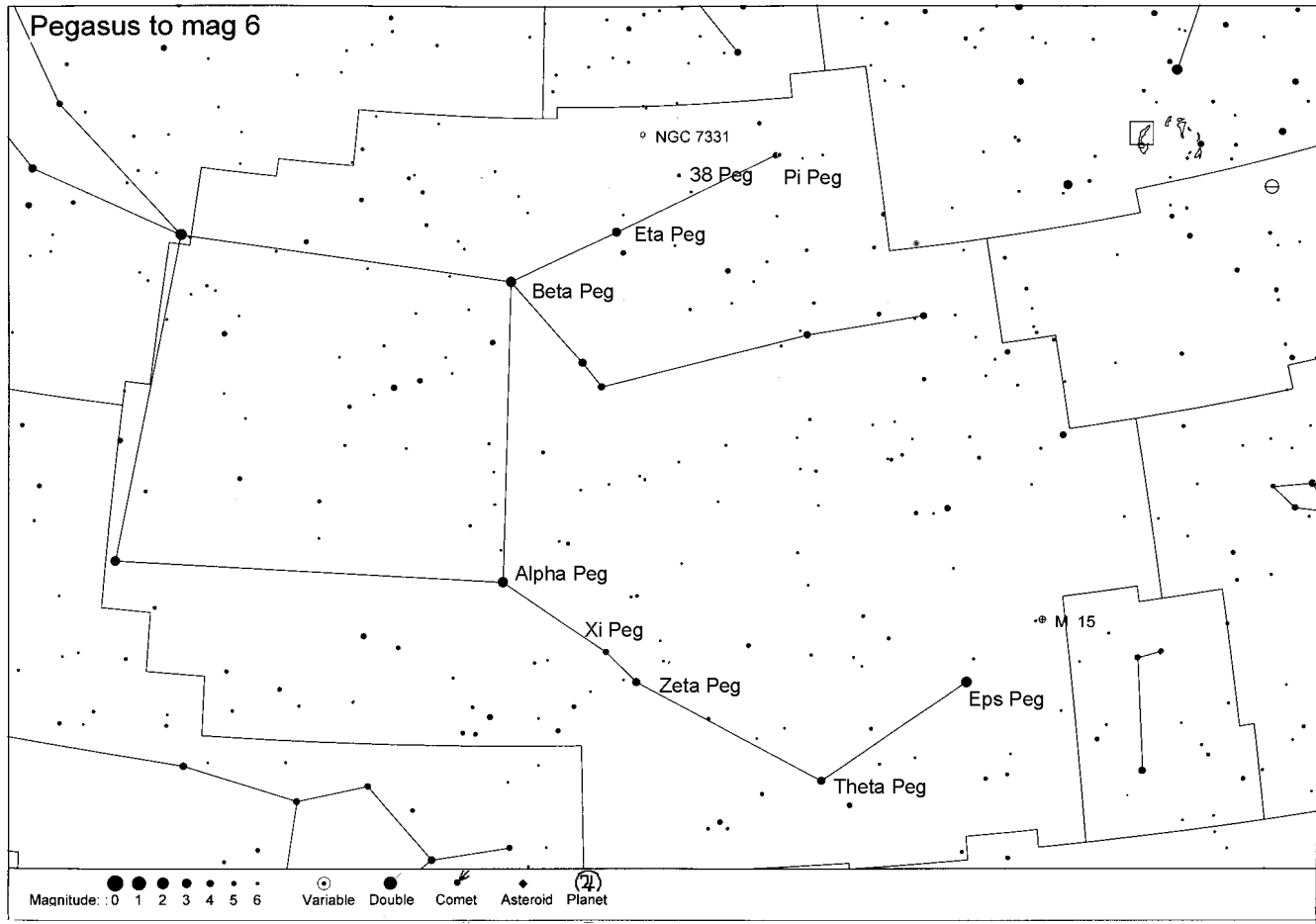
NGC 7331 is a fairly large, 10 x 4 arc minutes, bright spiral galaxy located almost due east of Pi Pegasus. It is on the RASC Finest N.G.C. Objects list. It shows nicely in our 24" scope revealing its spiral structure especially on the CCD camera. There are several smaller galaxies surrounding it that might be visible as well. Why not try bagging a CCD image of it on a Members Night? To locate it go back to Pi Pegasi then move east and slightly south 4° to 38 Pegasi (mag 5.5) from there move northeast about 2.5° to NGC 7331. It is magnitude 9.3 so it should be a faint haze in an 8x50 finder scope. The galaxy also forms a right an-

gle triangle with Eta Pegasi and Pi Pegasi so you could train your finder scope on the general area and see if you can find it that way; see the accompanying finder chart for positioning.

Hop #3: M15– Globular Cluster.

Globular Cluster M15 or NGC 7078 lies some 33,600 light years away. This massive swarm of stars is home to 9 pulsars, a planetary nebula and possibly a "Black Hole" at its core due to the observation of a collapsed central core. M15 is easy to find. Starting at Alpha Pegasi follow the constellation line through Xi, Zeta and Theta Pegasi; all are south and west of Alpha. Then turn north west to 2.3 magnitude Epsilon Pegasi. Simply extend the line made by connecting Theta and Epsilon another 4° to find M15. It should be easy to spot in an 8x50 finder scope. There is a 6th magnitude star on the east edge of it

Good viewing and good luck!,
Brian Battersby



PGAS CONTRIBUTORS

The PGAS would like to thank the following individuals, corporations and government agencies who, since 1991, have donated money, goods or services to the construction and operation of the Prince George Astronomical Observatory.

Ministry of Adv. Ed. Training and Tech.	\$25,000
BC Science Council	16,000
BC Lotteries	3,900
Helmar Kotsch (Acme Mas.)	1,932
Northwood Pulp and Timber	1,665
Electrical Services Ltd.	1,583
Royal Bank of Canada	1,500
Xerox Canada	1,300
Regional District of Fraser-Fort George	1,000
Prince George Rotary Club	1,000
The Pas Lumber Co	750
Rustad Broth & Co Ltd	750
Canfor Polar Division	744
Bisque Software	500
Canfor Clear Lake	500

The greatest contributors to the construction and operation of the observatory are from PGAS members who have generously contributed their time to this project. The value of their contribution surpasses all external contributions.

The PGAS is a non-profit organization dedicated to the advancement of astronomy and science in general in Prince George and the neighboring northern communities. Donations of money or materials to the society are greatly appreciated and tax deductible.