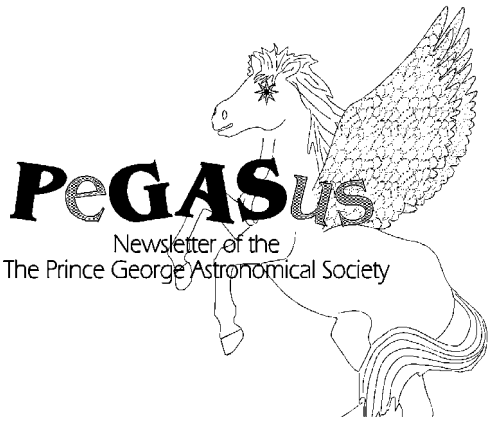
PeGASus
Newsletter of the
Royal Astronomical Society of Canada
Prince George Centre

September 2006

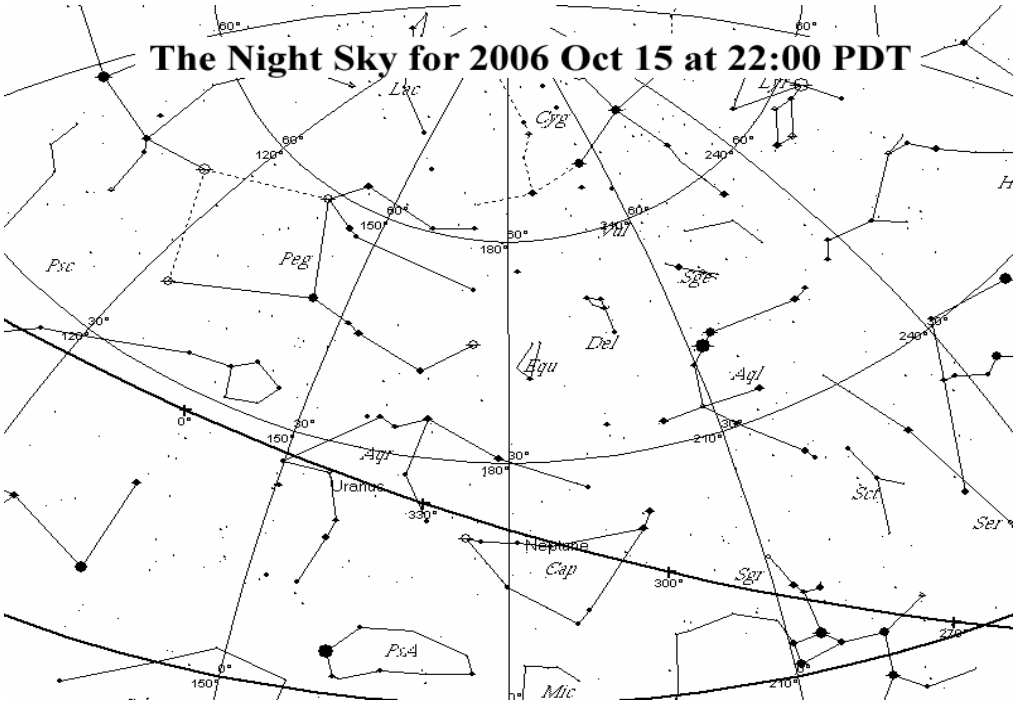
Our pursuits are out of this world.
Our activities are astronomical.
Our aim is the sky.

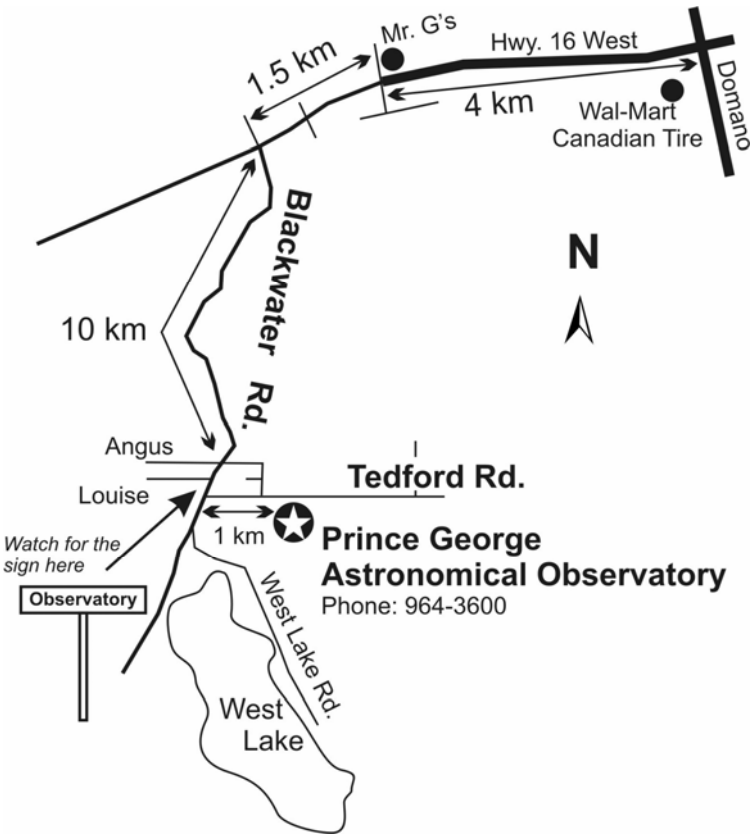
In Issue # 153



the PeGASus
is published monthly by the
Royal Astronomical Society Canada
Prince George Centre
www.rasc.ca/princegeorge

The RASC-PG meets next, 8:00pm Wednesday Sept. 27 at The Observatory





Contributions to the newsletter are welcome.

Deadline for the next issue is

October 14

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WHAT'S OUT THERE?

Fae Collins Mooney

The Pleasures of Perseides Past

It was my Dad who made me aware of the "August meteor shower" when I was very young. A few evenings ago, when I reminded him that "tonight is the night Perseids peak", he confessed to me that, at the age of 92, he had never actually observed them.

I never got to see them myself until I was in my early teens. The event marked summer's end for me, my sister, and my cousin. It was the night of the bonfire by the lake shoreat Grandma's ,where we spent our summers. And now that we were old enough we were allowed to spread our sleeping bags beneath the stars and talk all night, watching....watching..for a silvery slash --

Starting when my two sons were very young, each year, on the night of the Perseids.I promised to wake them in the middle of the night. They eagerly jumped from their beds and into warm clothes by the light of a red night light. Hot chocolate already made, the three of us ventured out into the night, crawled into waiting sleeping bags and looked up into the black expanse and whispered about galaxies far, far away, and maybe someday to boldly go where we have only imagined while watching streaks of stardust illuminate the night...

In recent years my husband joined me on my annual celebration of summer's end, instead of Grandma's beach or a dark backyard, we sought out remote clearings in the area around Terrace.

One black moonless night, together, in the middle of a clearing, we watched in silence - punctuated by occasional exclamations of "did you see that one!?". The sky was vivid black that night and alive with activity - but there was something strange. "Do you notice anything odd?" I asked my husband. "What do you mean?" he replied. The sky seems to be flickering." We watched in silence. "There! Did you see that?" "Yeah", he said.

"There it is again!" We watched this phenomenon for quite some time - it was like something from a sci-fi movie. The sky was flickering, and we could come up with no explanation for it.

The next day we learned that there had been a vicious thunder storm during the night in the Stewart area north of us. We were seeing lightning flashes being reflected off a very thin haze above us.

These nights I watch the meteor shower with my impetuous little pooch who cares nothing about celestial events but is content to join me as long as I remember to keep rubbing her tummy...A few hours alone under the cosmos provide opportunity for introspection and quiet contemplation.

And so again it is summer's end - my first in Prince George. At 2 a.m. on the night of the Perseids I was looking out the window to see if the sky was clear (A habit developed from years of living on the west coast); golden Capella shone brightly high in the north-east. Looking up, I thought of Dad's confession and remembered special nights like this one down through the many years since Grandma's beach.....

The Night Sky for October 2006

by Bob Nelson, PhD

Hi Folks,
As I write this, I am at the Dominion Astrophysical Observatory (DAO) near Victoria on the seventh night of my two-week observing run. So far, I have had three clear nights and two short partial nights. Tonight is cloudy. That's par for the course, I believe, and I am happy that I have found six 'live ones' to study (and two of these are almost finished). As most of you know, I study eclipsing binary star systems. (These are systems of two or more stars – usually two – that are in orbit around the common centre of mass. If the inclination is high enough (i.e., close enough to 90 degrees – 0 degrees is flat with the plane of the sky) then we see a dip in the light intensity as one star passes in front of the other.)

At the DAO, I take spectra that enable me to obtain radial velocities (i.e., in the line of sight) that are caused by the relativistic Doppler effect. If I get a set of full radial velocity curves and also the light curves, I will be able to solve for all the system parameters (mass ratio, inclination, temperatures, stellar radii and orbit size. This solution is of value to astronomers studying stellar evolution. Phew! Someday, I'll have to give a talk on this (as I have done in the past).

In the meantime, here is what is happening in the sky this month: (By the way, you will notice that I have dropped Pluto, as befits its new status – no longer one of the major planets.) All times – unless otherwise stated – are Pacific Daylight Time (PDT) and use the 24-hour clock.

PLANETARY ROUNDUP:

MERCURY is an evening object all month. For most of the month, it sets about 23 minutes after sunset. Why is this so? Well, around Oct 15, Mercury reaches its greatest eastern elongation (24.8 degrees) from the Sun and is therefore at its stationary point. At the latter time, all planets are moving slowest – in its apparent motion – relative to the Sun. Hence the setting times (relative to the Sun) are about the same. At mid-month it is a 6.6" disk of magnitude 0.0. At that time, it will be 64% illuminated (gibbous phase). However, this will be an unfavourable apparition for us northern observers, owing to the obliquity of the ecliptic (tilt of the Earth's axis) and also to the inclination of Mercury's orbit to the ecliptic. Have a go if you like a challenge.

VENUS, a morning object, is basically not visible this month.

MARS, in Virgo until November, is lost in the glare of the Sun this month.

JUPITER, in Libra until December, is an evening object – but just barely, setting as it does at mid-month an hour after sunset. It's a 31.6" disk of magnitude -1.7 (it reaches 45" at opposition next June). The timeless Galilean moons will continue to dazzle us, I predict, for some time. Check out the Observer's Handbook for moon events (like shadow transits, etc.).

SATURN, in Leo until 2009 (Sept), is a morning object all month, rising at mid-month at about 01:40). It's a 17" disk of magnitude 0.6; at the present time, its north pole is tilted away from us at 13 degrees. As usual, numerous moons are visible, buzzing around the big planet (so to speak). It is a nice challenge to see how many can be seen with a small scope or with the 24". Of course, with a good CCD camera, we could image every moon shown in the planetarium programs such as Guide 8 or The Sky, and also make movies of their motions.

URANUS, in Aquarius until 2009 (March), is an evening object all month, setting at mid-month at about 04:00. As usual, it's a 3.6" disk at about magnitude 5.7.

NEPTUNE, in Capricornus until 2010 (March), is an evening object all month, setting at mid-month at about 01:30. As usual, it's a 2.3" disk at about magnitude 8.0.

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

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 (= Alpha PsA = Al Rischa, "The Cord"), the 18th brightest star in the night sky. It is a fine binary star, discovered by William Herschel in 1779. The galaxies visible are NGC 7172 and 7154 but these are very, very close to the horizon when on the meridian and represent challenge objects from here.

Capricornus (Cap, "The Sea Goat"), lies on the Zodiac but 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. Delta is an eclipsing binary of the Algol type (fully detached, with flat regions in the light curve between eclipses); its period of 1.023 days makes it hard to study. Epsilon is a variable of the Gamma Cassiopeia variety. These are young stars that are rapid rotators; in fact, they are rotating so fast that the star's gravity is only just strong enough to retain the stellar material. With instabilities, material gets ejected every once in a while, resulting in irregular light variations and emission lines in the spectra.

Aquarius (Aqr, "The Water Bearer"), to the north of Cap, lies on the Zodiac and contains a number of variable stars but no deep sky objects (!) -- at least as listed in Norton's Star Atlas.

Delphinus (Del, "The Porpoise"), to the northwest of Aqr, is another boring little constellation, containing only two globulars, NGGs 6394 and 7006.

Vulpecula (Vul, "The Fox), in the Milky Way just to the south of Cygnus (and the last constellation in the book), contains M27, the famous "Dumbbell" 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 CCD photography (just wait til we have colour filters available).

Equuleus (Equ, "The 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 many years at period 5.7 years, the shortest known for any visible binary. According to Burnham, the system has made 19 revolutions in the last 112 years. It is, however (as you might expect) a difficult close binary, never separated by more than 0.35 arcseconds.

Pegasus (Peg, "The Winged Horse", "The 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.

Good luck to all,
Bob Nelson