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

April 2006

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

In Issue # 151

the PeGASus
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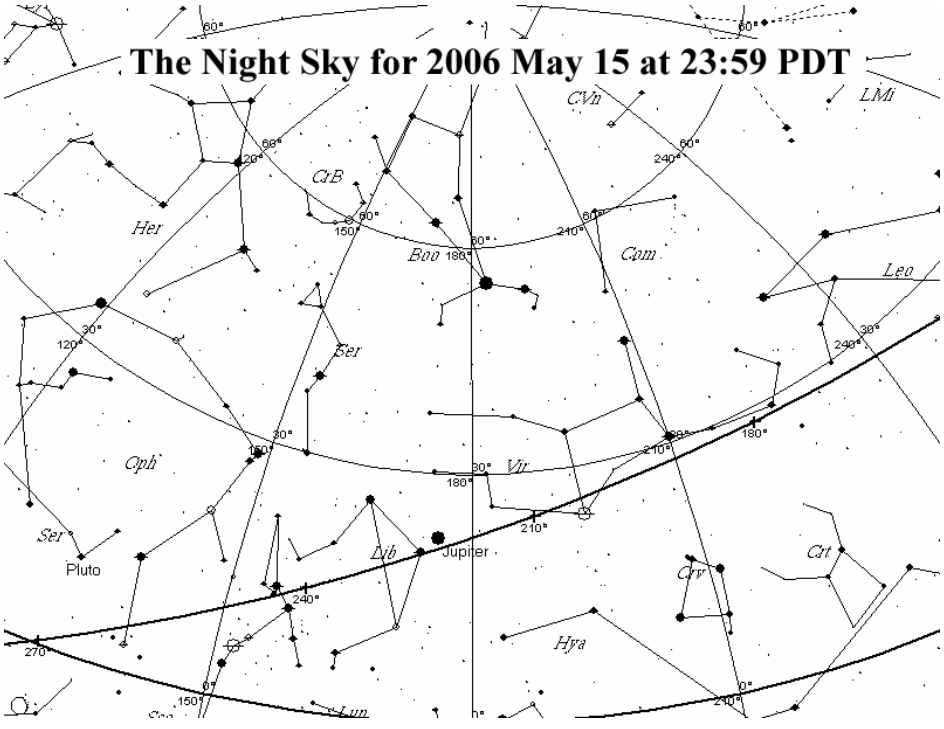
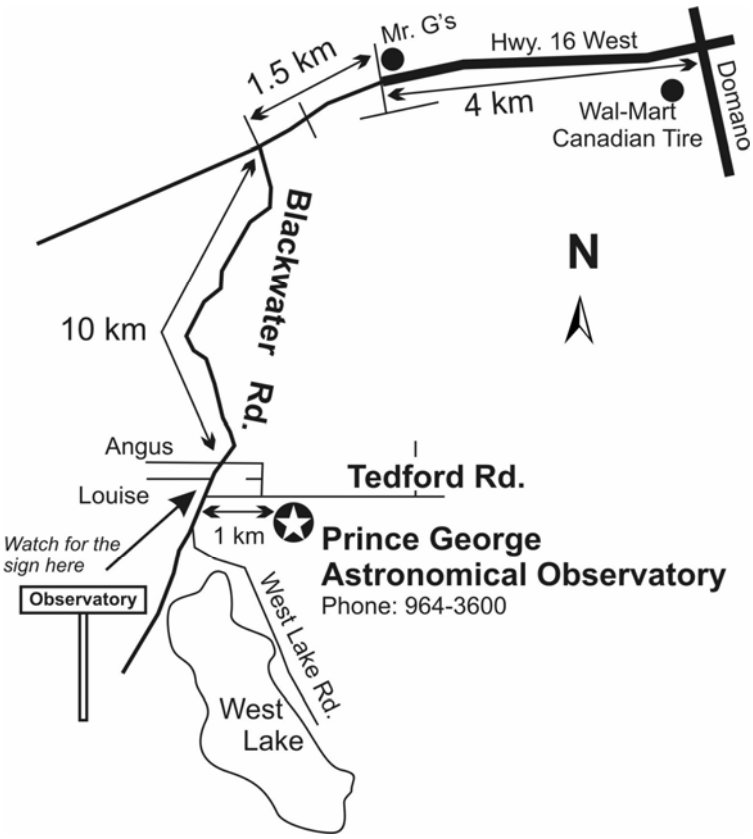
The RASC-PG meets next, 8:00pm Wednesday April 26 at The Observatory





Contributions to the newsletter are welcome.

Deadline for the next issue is

May 19

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Coming Events

Open Houses run every Friday evening starting in March
Members Nights run every Saturday evening alternating with NOVA
Executive meeting 6:30 pm March 30
Followed by
PGAS General meeting 8:00pm at the observatory
Astronomy Day May 6th
At Books and Company

Editorial

Gil Self

I am so pleased to welcome Fae Mooney back as an active member, and to Prince George. Now that she resides in Prince George I look forward to her participation in our many activities. I'll let Fae introduce herself——

What's Out There

By Fae Colins Mooney

Hello everyone. My name is Fae and I'm new to Prince George – last fall I moved here from Terrace. However, I'm not new to the RASC. I've been a member of this society for more than twenty years – first, as an unattached member in Terrace for many years, and, more recently, as a member of the Prince George Centre (via long distance of course – until now).

Moving to Prince George I have traded my big back yard in Terrace, and the small patch of tree-bordered sky, for a tiny yard and a great big sky – with a southern exposure – and all though winter I have had the pleasure of stepping outside each evening and looking up at the celestial parade of stellar giants – Sirius, Rigel, Betelgeuse, and Capella, to name just a few favorites… with Mars and Saturn joining in. Spectacular!

Naked eye observing has always been my preferred way of viewing the night sky, picking out stead-fast old friends as they swing into sight each season. (Although, I must confess, since moving here I have con-templated ordering a pair of binoculars form Sky News…)

For me, it has always been sufficient to just gaze upon these jewels of the nighttime sky, and let my imagination carry me – out there… to the dog star Sirius and its Pup, a brilliant binary system so close to home, or bloated red Betelgeuse, approaching the end of its life, and I wonder, one night when I looked up – will I witness its demise?? Probably not, but it is fun to imagine.

I'm a freelance writer, amateur naturalist, sometime philosopher, dreamer and romancer of the stars.

A few years ago I wrote a column periodically for the RASC Journal called "Simple Pleasures"; I also wrote "Aurora's Serenade" for out newsletter PeGASus. Both columns were about naked eye observing.

With this new monthly column, what I hope to do is share with you "What's Out There". It could be a storey about brown dwarfs (definitely not naked eye viewing objects), or – fireballs! … or perhaps a book re-view, or speculations about life on other worlds (aliens' telescopes aimed at us?!), or some information di-gested from various' sources on things astronomical.

It could also be about what's out there at the observatory – what science we are doing? Is there a member doing meteor tracking, or radio astronomy? Is someone observing variable stars? Member interview are a possibility.

And what about the curious web surfer who is reading this newsletter on our website? Maybe there will be something of interest for you too.

It's a big universe out there, and I look forward to sharing it with all of you.

The Night Sky for May 2006

by Bob Nelson, PhD

Hi Folks,

Well, it's official: the robins have arrived and spring has arrived. Almost all the snow is gone from my yard and @#$%^ starlight wasting time starts at 02:00 tomorrow morning (sorry about the bad language). It does not look as if it is clearing tonight so there should be no ambiguity in my times. (In any case, the software records in UTC.) I DID just today discover a mistake in one of my published times of minima (AG Vir) way back in 1999 when I used the big telescope and our aging ST-6 camera. (The times were treated as standard time instead of daylight, hence the UT equivalent was one hour late. I shall have to add an erratum to my next publication.)

So let us enjoy the birds, the warmer temperatures, the longer hours of daylight and grit our teeth for the late night observing. (In any case, we more or less have to give up observing in the summer anyway.) The summer barbeque out at the observatory cannot be that long away!

Here is what is happening in the sky next month (all times are PDT):

MERCURY starts the month as a morning object, passes behind the Sun, and becomes an evening object by month's end. But don't bother looking for it (unless you are a masochist!). The next good apparition will be in June.

VENUS, a morning object all month, rises at mid-month at about 04:00, about an hour before sunrise when it's a 16" gibbous blob of magnitude -4.0. You can't miss is, if you are up then (which this writer will not be).

MARS, in Gemini until May 30, when it passes into Cancer, is an evening object all month. At mid-month, it lies about 34° above the western horizon at sunset and sets at 01:40. It's a 4.7" disk of magnitude 1.6 (rather small, eh?).

JUPITER, in Libra until December, is an evening object all month and reaches opposition on May 4. At mid-month, it lies 12° above the SE horizon at sunset and sets at about 05:00. It's a 45" disk of magnitude -2.5.

SATURN, in Cancer until August, is an evening object all month. At mid-month, it lies 42° degrees above the WSW horizon at sunset and sets 5 hours later (at about 02:00). It's an 18" disk of magnitude 0.3.

URANUS, in Aquarius until 2009 (March), is a morning object all month. At mid-month it rises at about 03:00. As usual, it's a 3.4" disk at about magnitude 5.9.

NEPTUNE, in Capricornus until 2010 (March), is also a morning object all month. At mid-month it rises at about 02:00. As usual, it's a 2.2" disk at about magnitude 8.0.

PLUTO, in Serpens until September, rises at mid-month at about 22:40 and therefore could be reasonably seen after midnight if you know where to look (use Guide 8 – yeah!). As usual, it's a 0.1" disk at magnitude 13.8

CONSTELLATIONS to look for in May (at 23:00) are Eastern Hydra, Corvus, Virgo, Coma Berenices, Bootes and Canes Venetici.

Corvus ("The Crow") is the small lectern-shaped constellation southeast of Leo (the top two stars point up and left towards Spica to the northeast). It contains NGC 4782, a galaxy located halfway towards Spica and NGC 4361, a planetary nebula inside the figure. Messier 104 is just over the north boundary in Virgo. It also contains NGC 4038 - the "Ring-Tail Galaxy" about 3.7° WSW from Gamma Corvi. "Follow the top two pointer stars for

about the same distance down and to the right.) According to Burnham's Celestial Handbook, it's sometimes regarded as a gravitationally interacting (or actually colliding) pair of galaxies. (Today, I think there's no doubt that they are colliding galaxies.) Deep images (available on the internet – try Google image search) show a kidney- shaped object with two curved tails extending north and south. Radial velocity measurements show that the system lies about 90 million light years distant, giving it a diameter of 100,000 light years and total luminosity of 20 billion suns. There is also another galaxy (NGC 4027) lying 0.7 degrees away that is almost certainly gravitationally linked. This should be an easy target, next time you are out at the observatory.

Hydra ("The Sea Serpent") is a sprawling constellation running from 8 hours to 15 hours right ascension and from -35 to +5 degrees declination. In this month's region of interest, there is globular cluster M68, lying 3.8 degrees southeast of Beta Corvi (the star at the lower left corner of Corvus), and several galaxies, M83, NGCs 5061, 3923, and 3821. M83 is a large spiral galaxy discovered by Lacille in 1752; it is one of the brightest galaxies in the southern sky, with two strongly swirling arms, in a reversed 'S' (there is also a third arm). The distance appears to be well-determined – about 10 million light years. M83 appears to have had a remarkable number of supernovae in the last 100 years (1923, 1950, 1957, 1968 and I don't know after that, because Burnham's – my principal reference – is dated 1978). We are told that the average production rate is about one per 300 years for a given galaxy. It also contains NGC 5694, one of the more remote globular clusters that are still part of our galaxy. It lies at the eastern end of the "tail". It was discovered by Sir William Herschel in 1784, recognized as a globular by Clyde Tombaugh and friend at Lowell Observatory in 1932.

Virgo ("The Virgin") and Coma Berenices ("Bernice's Hair"), lying to the east of Leo, are the regions of the sky rich in galaxies. Virgo contains 11 Messier objects, all galaxies and many NGC objects too numerous to mention. These are part of the giant Virgo cluster of galaxies lying some 20 megapasecs (65 million light years) from Earth and is some 500 million light years in diameter. It contains some 1000 galaxies and shines with the light of 10^14 suns. It is thought that the local group (containing the Milky Way Galaxy, M31, M33 and others) may be falling towards the Vigo Cluster. Nearby in the sky, but much more distant is the even larger Coma cluster which lies some 150 megaparsecs (500 million light years) away. It contains some 10,000 galaxies and shines with the light of 10^15 suns. There is a similar cluster in Corona Borealis, about 700 million years distant.

Also in western Coma Berenices lie the globular clusters M53 and NGC 5053, about 1 degree apart. In Canes Venatici, about 15 degrees to the northeast, lies M3, one of the three finest globular clusters in the northern sky, (the others are M13 and M5). Discovered by Messier in 1764, it glows with the apparent magnitude of a 6th magnitude star and lies about 35,000 light years distant.

Clear skies,
-Bob

March 29, 2006 Total Solar Eclipse Trip to Side, Turkey
In conjunction with the Calgary RASC.
By Steve and Lynn Capling (members PGRASC , Williams Lake)

E-240 (Time to eclipse) March 19, 2006, Lynn and I are heading to Vancouver to fly to Izmir, Turkey to join the Calgary RASC 2006 Solar Eclipse Tour group. Lynn has a goal of experiencing a solar eclipse in person. I am looking forward to the history and seeing Omega Centauri (and the eclipse). It soon becomes apparent that we are amongst the few novices who have never experienced a total solar eclipse. We join a group of 60 in Izmir, on the south-west Aegean Sea coast of Turkey. The group is an eclectic mix of astronomers, history buffs and eclipse chasers. Don Hladiuk and Glen Hawley are the official astronomy leaders. What is this 'Umbral Fever' we hear being discussed in quiet tones amongst several group members? As novice eclipse watchers, we remain unaware of how intensely eclipse watching grips people. Some of the group members have seen well over a dozen eclipses! We tour many ancient and profoundly moving ruins: Theatres that seated 20,000 people, exquisitely carved marble columns, cities with populations in the hundreds of thousands, running water, libraries, many hundreds of pictures later we are still awed by the presence of ancient ruins that are seemingly everywhere one goes in Turkey. While the visits to Turkey's ancient ruins were rewarding, there was no mistaking the core groups focus of March 29th, Eclipse Day (Like the guy sitting ahead of us who randomly – and at odd times – states the time to eclipse in E minus so many hours). Small groups would gather (frequently) and quietly review weather forecasts from the numerous web sites and links with other groups on the ground in Turkey. A number of people had laptops with them. The hot topic each evening was where the best place to pick up wireless connections was. Every morning the topic was 'clearly' what is the weather doing?

One of my goals was to view M83, 49 and Omega Centauri. Each night the sky seemed promising but there is a murky soup along the horizon to the south and I return to bed disappointed once again (I have been up every night at 2-3 to check the skies). At Pamullakae we have the potential for a dark sky and high altitude viewing. The sky started out clear and dark but there was an alarming bright glow to the south. It seems that the local attraction, which is an amazing natural hot spring and deposit of white calcium, reflects the towns' lights very well indeed. Sighhhh…. By mid-night the sky clouds over and the dawn is dull and fog/cloud shrouded. March 25th - Today we are obviously under a large weather system bringing rain and cool temps. The group is restless when the topic of weather comes up.

E-72 March 27th. We head south towards the Mediterranean to our viewing location at Side near Manavgat – about 60 km east of Antalya. The hotel is right on the Mediterranean coast; a beautiful location that also looks promising for me to pick up a view of Omega Centauri. The weather indicates that eclipse day should be clear but is sandwiched between two large weather systems.

E-41 Monday evening, March 27th, the group gathers in the hotel meeting room to view some eclipse information, discuss weather and make final preparations in case the clouds close in and we have to chase the shadow. We are told there will be a dry run the next afternoon so everyone can check out their set-ups, get their final plans in place and review final timing issues. No, I'm not kidding. There will be a dress rehearsal/dry run of the eclipse event tomorrow afternoon at 3. Did I mention how serious some of these folks are?

E-29 Tuesday morning. After consulting the web sites, (and weighing the input from many, many sites- are those chicken entrails I see beside the laptop??) Don and the 'weather group' upgrade the forecast to cautiously optimistic. The planning continues – the bus drivers and guides are told very seriously that they must be on standby if we need to move. The group is told – "If we have to leave, a time will be set – if you are not on the bus you WILL be left behind." The tour to nearby ruins is frequently interspersed with the latest weather conditions and most of the group clearly wants to return to the hotel to start the set-up process.

E-11 Tuesday 2:30 p.m. We find ourselves out on the lawn, selecting our turf for set-up and viewing. We have brought along a PST H-alpha solar scope. A number of people are very interested in looking for prominences that might give us a heads up for determining first contact. Generally, the people with solar filters get to call out first contact as the moon intersects the Suns arc. With the H-a solar scope we can see prominences and may be able to get a more accurate first contact call. After an hour or so of fiddling with equipment, Don announces the dry run will start in 10 minutes. He goes through the whole routine starting at ten minutes until second contact (Totality), the gradual darkening of the sky, Venus appearing, shadow bands on the ground, the shadow approaching from the southwest, Bailey's beads, the diamond ring, second contact, 'Filters Off', -then a very detailed 3minutes and 40 seconds of what people are going to do –taking pictures, refocusing at totality, watching for the corona, then 'Filters On'. There are a number of questions about timing of various events and what we might see.

E-17 Tuesday evening. The group meets to hear the latest weather reports and review final plans. Alan Whitman, the senior meteorologist, joins us for a few minutes to give an official forecast. Clear skies are indicated. The weather rating is upgraded to optimistic. The excitement is palpable.

E-7 Wednesday, March 29th. Eclipse morning dawns clear and warm $\pm$ 15 C. Are we excited yet??

E-5 Set-up is progressing well. We are viewing through the PST H-alpha scope and observe a prominence that looks promising for first contact.

Fast forward – the excitement is definitely building – no clouds! – people are milling around the grounds checking the solar filter folks; asking if any prominences look promising for first contact.

T-1.25 A few minutes left until First Contact. Lynn sees a shape approaching and expects the prominence to start disappearing. Yes! That's it! The person next to us with a Solarmax 40 scope calls out first contact amid much excitement and cheering.

The next hour passes with people viewing the increasing shape of the moon blocking out the sun; making crescent shapes from pinholes and observing the changes as the sunlight dims. Without the solar film or H-alpha filters not much is obvious until about 20 to 15 minutes before second contact. The wind starts picking up; the light undergoes a change that seems to make things look clearer and sharper. The gradual dimming of light is quite different from anything I've experienced. It's like dusk except the dusk happens from above and sunset colours surround us. At about E-20 seconds things start happening really fast. There is a definite focused keenness in the air. Idle chatter dies down and then Don calls out 'See the shadow bands', then 'See the shadow approaching!'. After that, pandemonium reigns. The shadow bands are called out; Bailey's beads are

seen; the thin crescent of sun as viewed through the PST is amazing – seeing the various moon mountain peaks outlined as the moon comes into total blockage of the sun; the final blast of sunlight comes through a valley and then 'FILTERS OFF!!' rings out and the crowd went wild – cheering and exclamations of wonderment abound. (http://www.xintyan.com/turkey06/turkey06.htm for some pictures and **Closer view of eclipse from HD video camera** for the wide angle video – make sure your sound is on! Credit: Mike Mah). The next 3 minutes and 40 seconds flash by. The corona viewed through your eyes is a thing of utmost beauty. None of the pictures I've seen do it justice. It was truly amazing to see!

10 seconds left in totality and as the moon moves into third contact the diamond ring effect is seen - an amazing flash of light! The call 'Filters On!' signals the end of totality. People looked for the shadow bands, watched as the shadow passed to the north and amidst the cheering and celebrating the sky quickly grew brighter. The temperature had dropped noticeably during the lead up to totality. Thoughts of a celebratory dip in the Mediterranean faded as the sweaters stayed on. Small flocks of sparrows acted like it was daybreak. Champagne corks popped amidst the excited chatter of who had what photos, equipment glitches and viewing successes. We continued to watch the moon's passage until after fourth contact. Lynn wanted to carefully observe what the moon looked like right after fourth contact as the moon moved away from the edge of the sun. Our first total eclipse is successful. So, was it worth it? Most definitely yes. If you ever have an opportunity to view a total solar eclipse in person – do so. There's no other show like it on earth!!

P.S. - Note that Umbral Fever is quite catching and can be very hard on the pocketbook…….

Pictures:

1a – Lynn with Turkey pinhole sign. Each pinhole shows crescent shape of sun.

1b – Close-up of pinhole.

2 – Lynn at the PST.

3 – Sunset glow and Venus - Credit – Mike Mah.

4 – Eclipse Montage Credit – Gord Rife.

4 – Corona - Credit – Mike Mah.

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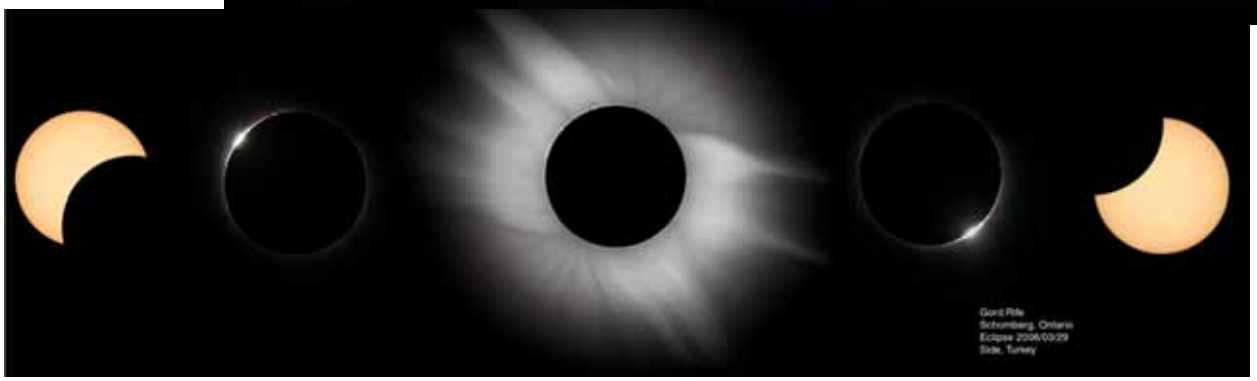

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