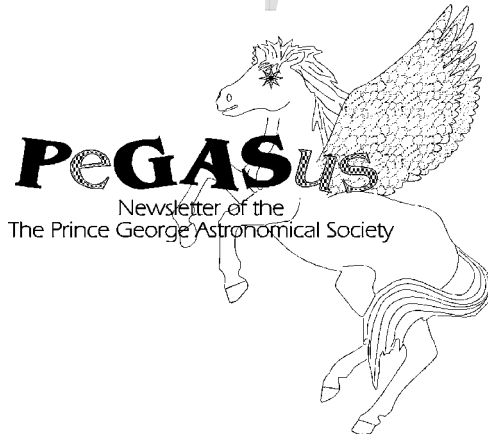


PeGASus
 Newsletter of the
 Royal Astronomical Society of Canada
 Prince George Centre

February 2007



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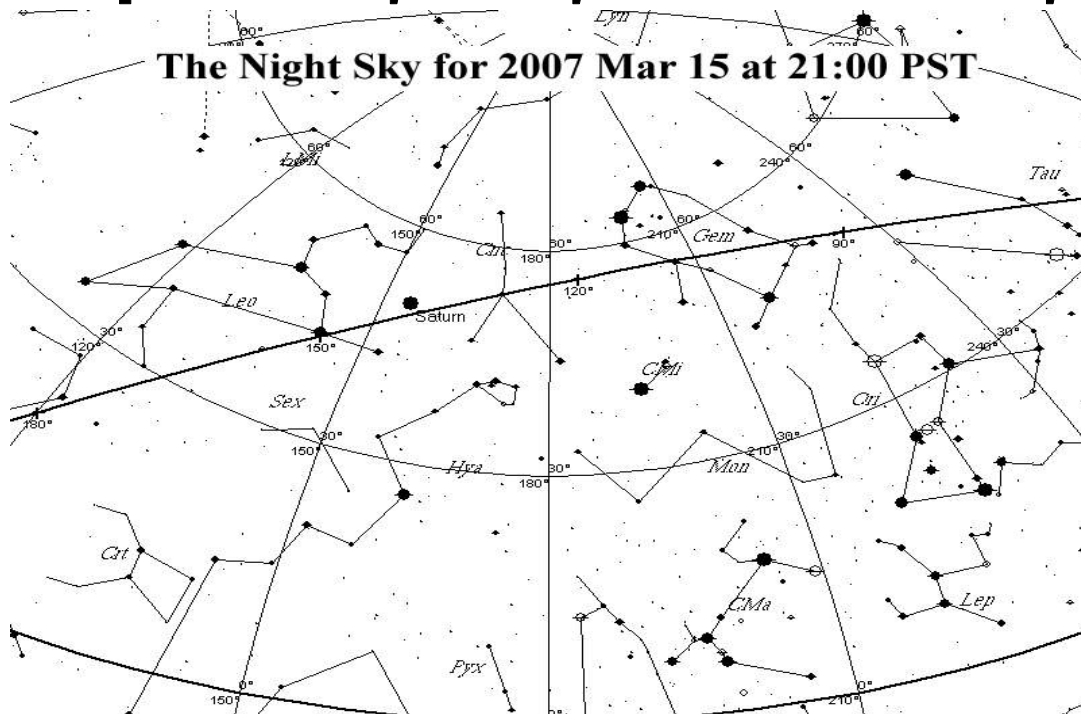
Our pursuits are out of this world.
 Our activities are astronomical.
 Our aim is the sky.

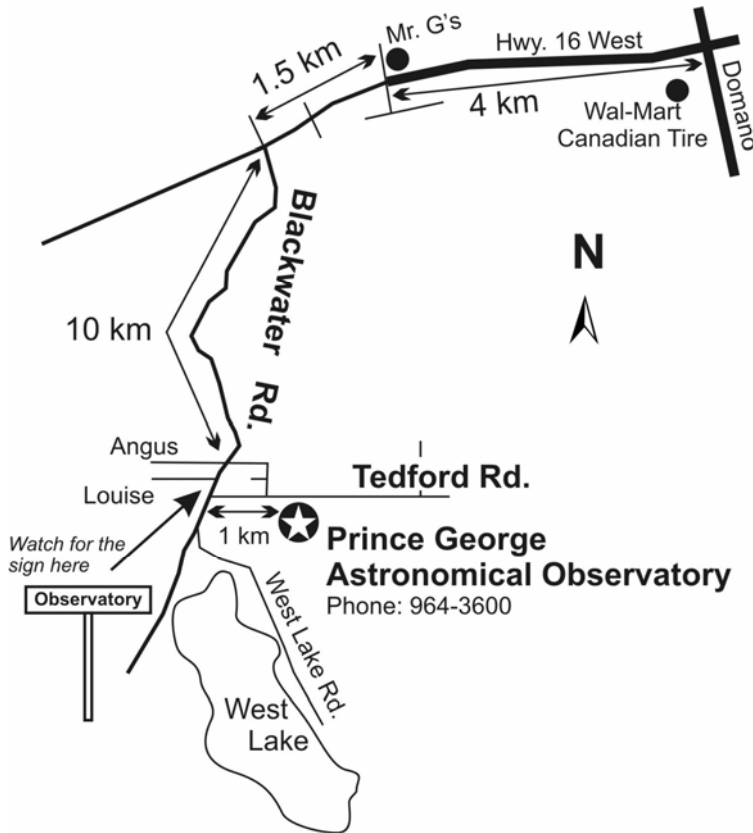
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The RASC-PG meets next,

7:30pm Wednesday February 27th, at The Observatory





Contributions to the newsletter are welcome.

Deadline for the next issue is

March 16 2007

PeGASus Editor

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Prince George B.C.
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General Meeting 7:30 pm February 27th
 At The Observatory

Regularly scheduled Open House and Members nights
 Every Friday and Saturday evening
 Starting again in March

RASCPG
 Executive, 2006/2007

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Brian Battersby

You Just Might Be An Astronomer If,

Blair Stunder

- you own a flashlight that shines [red light](#)
- you have ever said, "[Oh, be a fine girl, kiss me.](#)"
- you can easily tell the difference between a [meteor](#), an [airplane](#), and a [satellite](#)
- you think it's only natural to see the sun set when you wake up and rise just before you go to bed
- you actually know the latitude of your home town, your college, and any other place you've been to more than twice
- you bring a clipboard and red light with you on EVERY vacation
- you snicker when someone complains about getting "only" six hours of sleep the night before
- you know which [moon](#) in the Solar System resembles the Death Star
- your family is tired of watching "[Contact](#)" over and over
- you can see the Milky Way despite the light pollution of your home town
- your favorite pastime when visiting beautiful spots in the countryside is measuring your [Naked Eye Limiting Magnitude](#)
- you actually know how to measure your [Naked Eye Limiting Magnitude](#)
- you've ever planned a trip to the moon to improve the "seeing"
- you've ever considered blowing up the moon to reduce [the light in the sky](#) from the full moon
- you've ever wondered how much you'd be fined if you blew out all of the [streetlights on your street](#) so you could see the stars better
- you [pronounce](#) "[Maria](#)" with the emphasis on the first syllable
- you consider a compliment to be the [fourth variable star](#) discovered in Gemini
- you've ever called 1,000 years "very quick"
- you [pronounce](#) "[Messier](#)" with a French accent
- the phrase "onion skin" makes you think of a type II supernova
- you can [pronounce](#) [Chandrasekhar](#), [Chicxulub](#), [Schwarzschild](#), and [Hyakutake](#)
- you wonder why no one else is awake at three in the morning
- someone calls you a "[wimp](#)" and you wonder what dark matter has to do with anything
- you've lost the ability to enjoy a beautiful sunset because you're too busy wondering if the clouds will clear
- you think a "macho man" is a man who lives on [Massive Compact Halo Objects](#)
- you can predict the weather based on your observing schedule
- you think that the curvature of space-time is easier to understand than gravity waves
- you snicker when someone complains about getting "only" four hours of sleep the night before
- when someone casually wonders aloud how many planets out there might be able to support life you immediately think of the [Drake equation](#)
- you consider anything except for hydrogen and helium a "[metal](#)"
- you think the purpose of life is to study the sky
- you know the difference between a comet and an asteroid
- you've ever wondered what would happen if you detonated a nuclear bomb on Jupiter
- you missed the sunset because you were taking flats
- if North is drawn at the top of the page, you expect to see East on the left and West on the right
- the last "[dirty snowball](#)" you saw was beautiful
- you can convert from [AUs](#) to [Angstroms](#)
- you consider an insult to be the [fourth variable star](#) discovered in Ophiuchus
- you know what [APOD](#) stands for

- you missed the sunrise because you were taking flats
- you catch yourself saying things like, "You do realize that the coefficient of friction decreases exponentially as you step over the foul line, don't you?" while doing simple activities, such as bowling
- after such a statement, someone had to explain to you why all your friends looked at you as though you could no longer speak English
- words such as "[retrograde](#)", "[logarithmic](#)", "[exponential](#)", and "[elliptical](#)" are part of your everyday vocabulary
- you can draw an H-R diagram from memory
- you know what an [H-R diagram](#) is
- you've ever said that you're [made of stardust](#)
- the phrase "a mere billion years" is not a contradiction in terms
- you consider dressing up as [Carl Sagan](#) for Halloween
- you can spell Chandrasekhar, Chicxulub, Schwarzschild, and Hyakutake
- you attend the local planetarium religiously
- you know more than the person giving the planetarium show
- you're actually jealous when you hear someone complain about getting "only" two hours of sleep the night before
- you can refer to [WINOs](#), [MaCHOs](#), [WIMPs](#), [TOEs](#), and [GUTs](#) with a straight face
- you don't know why you *wouldn't* refer to [WINOs](#), [MaCHOs](#), [WIMPs](#), [TOEs](#), and [GUTs](#) with a straight face
- you've ever called [11 kilometers per second](#) "very slow"
- you know who [Hertzsprung](#) and [Russel](#) are
- you can spell Hertzsprung
- you've created countless [mnemonics](#) for the Harvard Spectral Class sequence even though you know the order backwards and forwards
- you stay up until three in the morning on a cloudy night, because you actually saw a star at 11:00
- you think in acronyms
- you've ever convinced yourself that you could see the rings of [Saturn](#) naked-eye
- you know all of the different stages of sleep deprivation
- you know the entire [Greek alphabet](#) even though you've never had one class in Greek
- you have a personal vendetta against the weatherman
- you put on your application to [JPL](#) that you know how to use units correctly -- and that you can convert from cgs to SI
- you "know" that [Mount Olympus](#) is on [Mars](#)
- "pc" means neither "politically correct" nor "personal computer" to you -- it means [parsec](#), of course
- you know when the next [meteor shower](#) is
- you think that -1 is bigger than 6 (it's brighter, anyway)
- you know why you'd *want* to spell or [pronounce Chandrasekhar](#), [Chicxulub](#), [Schwarzschild](#), or [Hyakutake](#)
- you know the difference between a [meteor, a meteoroid, and a meteorite](#)
- you have your own meteorite
- you are envious when someone says they got ANY sleep during the weeks of [August 11](#), [November 17](#) or [December 13](#)
- you know what is special about each of those three weeks
- you plan your whole yearly calendar around those three weeks

- you'd be willing to make yourself 20 years older just to have been in the Arizona desert in the early morning of [November 17, 1966!](#)
- the most important event on [August 11, 1999](#) had nothing to do with the [moon and the Sun](#)
- your first reaction at seeing a fireball streak gloriously across the sky is to check your watch - or start counting
- your claim to fame is that you've met [Tom Bopp](#), or witnessed a [shuttle launch](#)
- when someone mentions Jodie Foster you think of Eleanor Arroway
- you know the difference between [pulsing](#) and [pulsating](#)
- you haven't seen the sun in a month
- you've ever entered into a debate about whether [Pluto](#) is a planet
- you can see [clouds](#) in the dark
- you have [RAMSDIS Online](#) as well as several local weather stations bookmarked on your home computer
- you wonder why [July 20th](#) isn't a national holiday
- you know how to pronounce [Arecibo](#)
- you can give the [mass of the sun](#), the [average distance between the Earth and the sun](#), the location of the [Earth-moon barycenter](#), the [mass of a Hydrogen atom](#), and the value of the [gravitational constant](#) off the top of your head
- you find yourself [crossing your "h"s](#) on a regular basis
- you can tell what [time](#) it is by looking at the sky -- but only at night
- you know the exact value of the [speed of light](#)
- you can quote the exact value of an [Astronomical Unit](#) from memory
- you can quote the distance of a parsec in Astronomical Units, from memory
- you can quote the distance of a light year in Astronomical Units, to four decimal places, from memory
- you've ever referred to a gigalightyear
- your friends take it as a given that you're tired
- you've ever decorated your room with a reproduction of your favorite portion of the night sky
- you have the URL for the [Astronomy Picture of the Day](#) memorized
- you know how to say "[armpit](#)" in Arabic
- you've ever convinced yourself that you can see the four [Galilean satellites](#) naked-eye
- you've ever debated whether [Charon](#) is a planet
- terms like "Gamma UMa", "Alpha Boo", and "[OU Oph](#)" make sense to you
- you use [Polaris](#) to find the Big Dipper
- you know Greek and Roman mythology
- you haven't slept in two weeks, but you stay up all night anyway because it is clear
- you know what [NASA](#) stands for
- you can give the nominative and genitive of all of the constellations
- -- even though you have no idea what a "[nominative](#)" or a "[genitive](#)" is
- you know the difference between a [constellation](#) and an [asterism](#)
- you can [pronounce Betelgeuse](#), [Uranus](#), [Charon](#), and [Cassiopeia](#) at least two different ways each
- someone calls you a "liar" and all you can think of is Orpheus and his harp
- you cancel a date because it is your night to observe
- ... and then it rains
- you can list the [four Galilean satellites](#) in order of size, distance from Jupiter, or likelihood of life

- the word "Messier" makes you think of galaxies, nebulae, and clusters
- you can [pronounce Bootes](#)
- you can point precisely to any first- or second-magnitude star, even though it is completely overcast
- you can point precisely to any first- or second-magnitude star, even if the star is below the horizon
- a well-meaning but ignorant friend has ever introduced you as an astrologer
- this same friend has ever asked how your study of cosmetology was going
- you've caught errors on this list (if so, please [let me know](#))
- your favorite part of the day is when you get to go to bed
- this list made sense to you
- you've ever made a list titled "You Might Be an Astronomer if..."

Blair...

WHAT'S OUT THERE

Far Out

by

Fae Collins Mooney

Contrary to Vulcan science directorates space travel is indeed possible – and we are capable of doing it!

Recent reports in Time magazine and Scientific American explain how time travel is possible – for humans, at least. It seems we humans are unique among Earth species in our ability to travel both to the past and to the future. And the time machine in which we travel already exists.

As explained in the January 29th issue of Time here's how we do it: "The human body moves forward in time at the rate of one second per second whether we like it or not. But the human mind" – which is our time machine – "can move through time in any direction and at any speed it chooses."

"Our talent for doing this is unparalleled in the animal kingdom," the article "Time Travel in the Brain" states. "We are a race of time travelers, unfettered by chronology and capable of visiting the future or revisiting the past whenever we wish."

Our neural time machine allows us to do more than even that – whatever we wish, whatever we dream or imagine, all of that becomes a place we can transport to, visit, experience... it's all accomplished in the same parts of the brain. And it is only when we move ourselves through time that our internal time machine comes alive.

Neuroscientists refer to our time traveling as the brain's default mode, "which is to say that we spend more of our time away from the present than in it. People typically overestimate how often they are in the moment because they rarely take notice when they take leave."

Why did the human brain evolved with the capability to go wandering in time? "Perhaps it's because an experience is a terrible thing to waste," the article speculates. We stay in the here and now just long enough to address the present needs and then we're off again on another journey, visiting yesterday or envisioning tomorrow or perhaps to speculate on an alternate timeline...

I wonder what the Vulcans might say to that!

The Night Sky for March 2007

by Bob Nelson, PhD

Hi Folks,

As I write this, I am up to my eyeballs in work. Having been retired from work for almost five years now, I have immersed myself in my clubs. First of all, we have the mounting of the worm gear on the declination shaft, which will require a big crane (thanks, Blair). By the time you read this, all will have gone well, we hope. Then starts the task of mounting the servo gearmotors and running up the controller board (when we get it). I will be making (have made) an insert that will allow us to align the big telescope in the Newtonian mode in the usual manner (first visually, then by laser). That done, we will laser-align the 4-shooter. Lastly, we will align the Cassegrain secondary (also by laser).

I belong to other clubs! I am a member of the Caledonia Ramblers and am hard at work making maps for the new Prince George – Robson Valley Trail Guide. (I do this by first assembling a mosaic map from the Gov't of Canada web site, then by aligning and trimming it, and finally adding all the features. I also have some mapping software that assists.) I am a member of the Alpine Club of Canada – Prince George Centre. Again this year, I head up the Photo Contest Committee (all right, I am the only member); the awards presentation will take place May 11 at Books and Co. You are all welcome to attend.

And lastly, I have been working on the trip to France that Lois and I will be taking mid May to mid June. Life is tough as a retired person!!

Anyway, here is what is happening in the sky next month:

MERCURY is a morning object this month; however, it rises only a half hour before sunrise. According to the Observer's Handbook, it reaches greatest elongation west on March 22. However, is unfavourably placed for us northern observers owing to the inclination of the ecliptic. It's a tiny 7.9" disk at about magnitude 0.4.

VENUS, is a glorious (magnitude -4) evening object this month, setting about three hours after the Sun. However, it's still quite small (12-14" in diameter) and in only the gibbous phase. In June, it will be half illuminated, with the more interesting crescent phases to follow.

MARS, in Capricorn, is a morning object for now, rising about an hour before the sunrise. At sunrise, however, it's a paltry 6° above the SE horizon; wait until summer for this one! It's a 4.7" disk at about magnitude 1.2.

JUPITER, in Ophiuchus until late 2007, is a morning object this month, rising at mid-month at about 01:00 (PDT). It's a 38.3" disk at about magnitude -2.1.

SATURN, in Leo until 2009, is an evening object this month. On March 15 at sunset, it will lie some 31° above the ESE horizon. It will transit at 22:00 and set at 06:35 (PDT) and will therefore be well placed for observation. It's a 19" disk of magnitude 0.1.

URANUS is lost in the glare of the Sun this month.

NEPTUNE, in Capricornus until 2010, is a morning object this month, rising at mid-month about an hour before sunrise. Like Mars, however, it's only 6° above the SE horizon, so wait for better times for this one! As usual, it's a 2.3" disk at about magnitude 8.0.

There is a lunar eclipse on the evening of March 3 (PDT); however, it is almost all over by the time the Moon rises here – we see only the final penumbral stage (which is virtually undetectable without instruments). Likely, it will cloudy anyway.

Thanks to George II, starlight wasting time starts Sunday, March 11 at 02:00. BOO, HISS!!!

Spring Equinox occurs on March 20th at 17:07 PDT.

CONSTELLATIONS to look for in March (at 21:00 PST) are Pyxis, Puppis, Western Hydra, Cancer and Lynx.

Pyxis ("the compass on the Argonaut's ship") is visible on the extreme south at 9:30 PM on the 15th. It's just at the edge of the Milky Way but contains little of interest (no open clusters, etc.).

Puppis ("the stern on the Argonaut's ship") is just to the northwest of Pyxis. Straddling the Milky Way, it contains numerous goodies including open clusters M46, M47, M93, NGC 2477 and others. M46 (at 7 deg south, and therefore visible in P.G.) is a rich open cluster, about 1/2 degree in diameter containing around 150 stars between magnitude 8 and 13 lying about 500 light years away. It also contains the planetary nebula NGC 2438 about 7' north of the cluster centre. Recent radial velocity measurements (spectra which show motion along the line of sight - towards or away from the Earth) show that the nebula and cluster are moving apart and are therefore not linked. The nebula should be a good target for CCD imaging.

Hydra ("the Sea Serpent" - not to be confused with Hydrus, a small boring constellation) extends all the way up to declination +5°. The western part contains M48, another fine open cluster.

Cancer ("the Crab") is more familiar to us northerners, lying as it does between Gemini and Leo. It contains the famous "Praesepe" or "Beehive" Cluster, M44 and M67, a rich old cluster. It also contains Zeta Cancri, a remarkable multiple star system. The dual nature was discovered by Mayer, in 1756. It was therefore listed as a double star until 1781 when Sir William Herscell discovered a third component. The closer pair, A & B, form a binary system separated by 0.6 to 1.2" and with a period of about 60 years, while the third component, Zeta C, revolves at 5.8" with a period of about 1150 years! Needless to say, the orbital elements of the outer orbit are very uncertain! But wait, there's more. By careful measurements of Zeta C's positions, it is deduced that it is orbited by an unseen companion with a period of about 18 years. Some astronomers even believe that there may be a fifth star. Analysis of the motions reveals that all four stars are a little under the Sun's mass and lie about 70 light years distant. The stars are regrettably a little too close for any observations by our group.

Lynx ("the Lynx" -- gee!) lies to the north of Cancer, out of the Milky Way and contains only NGC 2419, the famous "Intergalactic Wanderer", the most distant of the globular clusters. It was discovered in 1788 by William Herschel (and rediscovered by his son John in 1833), observed by Lord Rosse in 1861, and finally classified as a globular in 1922 when photos were taken by the 42" reflector at Lowell Observatory. The distance was determined by observing 31 RR Lyrae stars in the cluster; it's some 182,000 light years (55,800 pc) from us (and 210,000 light years = 64,400 pc) from the galactic centre. This distance is comparable to that of the Magellanic Clouds and suggests that this cluster indeed is intergalactic. Let's get a CCD image of it!!!

Clear skies,
-Bob

PG DATA CRUNCHERS

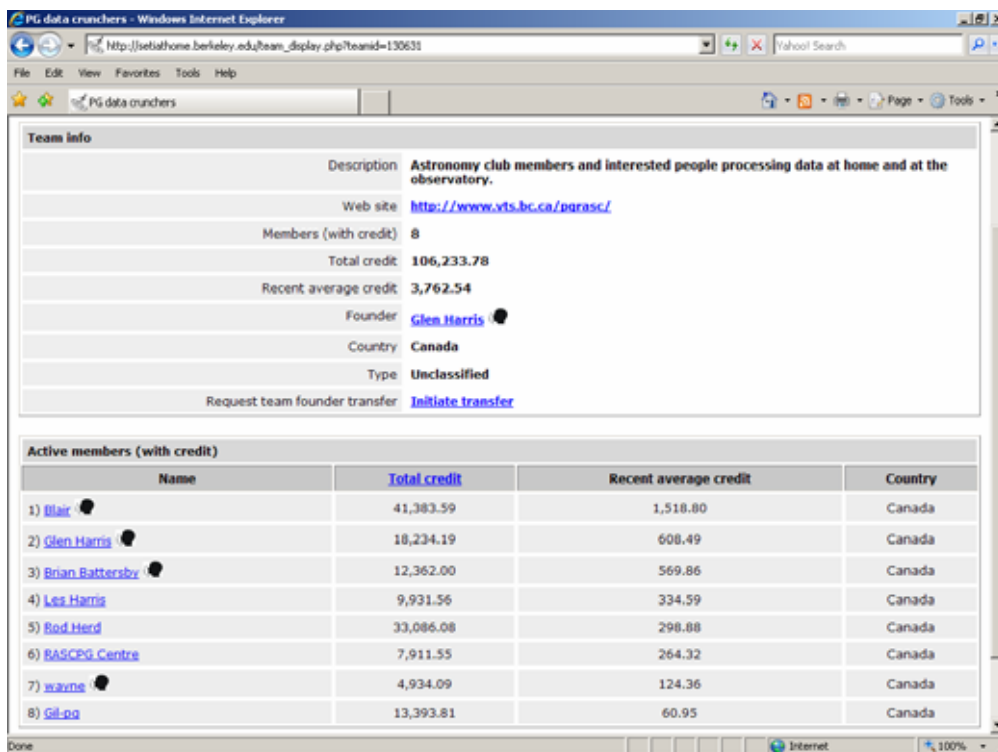
The PG Data Crunchers is a BOINC team created by Glen Harris in January 2007. The team downloads data from various “projects”, analysis's them on their home computer utilizing the CPU's idle time, and uploads them back to the originating scientists for further study. There are currently eight members signed up with “45 computers online with 5 more pending”. We recently broke the 100,000 data unit processed mark.

On February 17 we were “ranked 10,051 of 46,820 in total teams in Total Credits and ranked 591 of 46,820 in Recent Average Credits.” Which is “pretty good considering there's a lot of “countries” with a lot of members on their teams.”

The members are currently crunching data for several projects including: SETI@Home—search for extraterrestrial life, Einstein@Home—searching for pulsars and Rosetta@Home—searching for a cure for cancer, HIV, etc.

To learn more about BOINC projects or to download the software and join the PG Data Crunchers team visit <http://boinc.berkeley.edu/>

Submitted by Brian Battersby



The screenshot shows a web browser window titled "PG data crunchers - Windows Internet Explorer". The address bar shows the URL "http://setiathome.berkeley.edu/team_display.php?teamid=130631". The page content includes a "Teams info" section and a table of "Active members (with credit)".

Teams info	
Description	Astronomy club members and interested people processing data at home and at the observatory.
Web site	http://www.vts.bc.ca/parasc/
Members (with credit)	8
Total credit	106,233.78
Recent average credit	3,762.54
Founder	Glen Harris
Country	Canada
Type	Unclassified
Request team founder transfer	Initiate transfer

Active members (with credit)			
Name	Total credit	Recent average credit	Country
1) Blair	41,383.59	1,518.80	Canada
2) Glen Harris	18,234.19	608.49	Canada
3) Brian Battersby	12,362.00	569.86	Canada
4) Les Harris	9,931.56	334.59	Canada
5) Rod Herd	33,086.08	298.88	Canada
6) RASCPG Centre	7,911.55	264.32	Canada
7) warne	4,934.09	124.36	Canada
8) Gil-pg	13,393.81	60.95	Canada

GET READY FOR 2007 EXTREMES!

The first full moon of 2007 – January 2/3 – was the highest full moon until 2024.

In May, Venus will hover straight up for observers in the southern parts of the US. This will happen at 4 pm with a -4 magnitude making it visible in the afternoon sky.

In November the Moon with its oval orbit will be at its greatest separation with the Earth until 2020 with a distance of 406,700 km.

Add Jupiter emerging from the Sun's glare in December.

The Sun is at a sunspot minimum as well from the SOHO people.

Then for a day starting on the 2007 winter solstice, Earth, the Sun, Jupiter and Trifid Nebula all form a straight line – might have to fire up the shortwave radio that day and point the antenna towards M20.

Bring on 2007!

- submitted by Blair Stunder