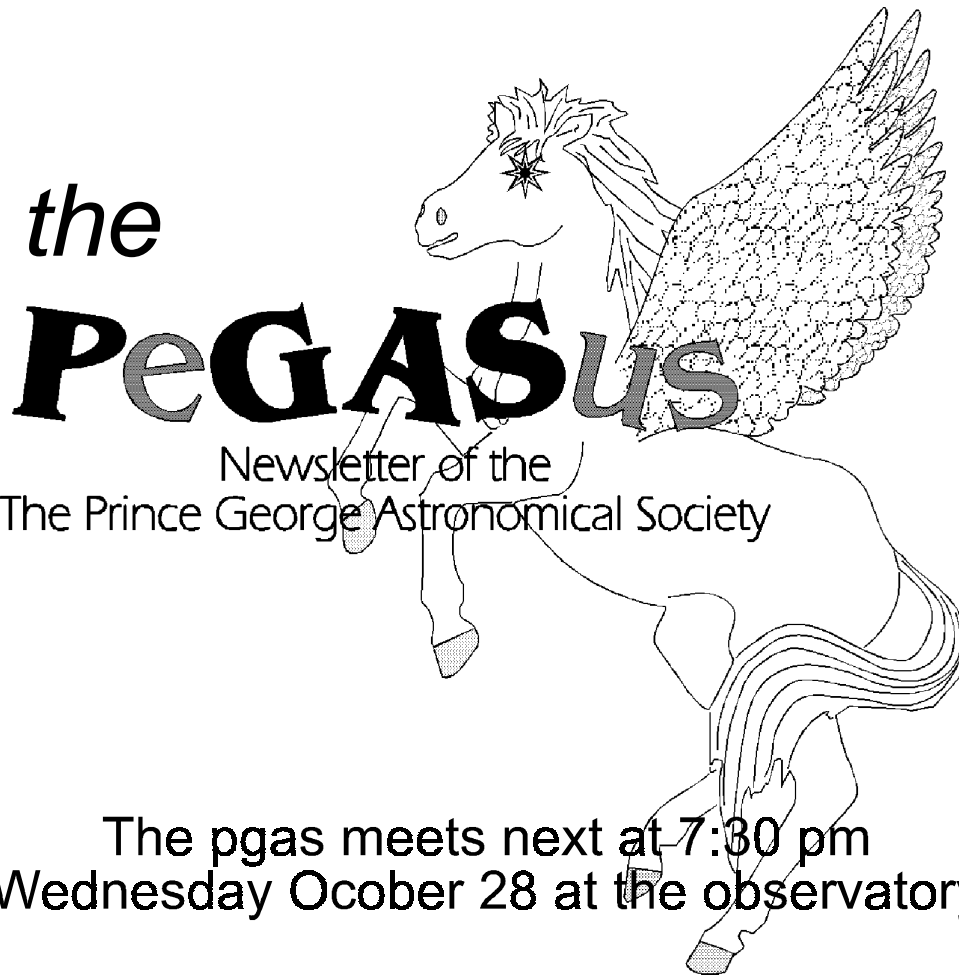
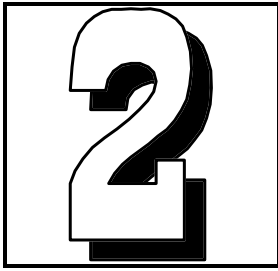


1998 OCTOBER ISSUE #88



INSIDE :

PGAS Executive	2
Editorial	3
Coming Events	4
The Night Sky	4
You Know You're a DSO When	6
Members Photo's	7
Sky Map	8
At The Eyepiece	10
Home Research	12
A Word From The Observing Director	14
At The Library	14
PGAS Contributors	15



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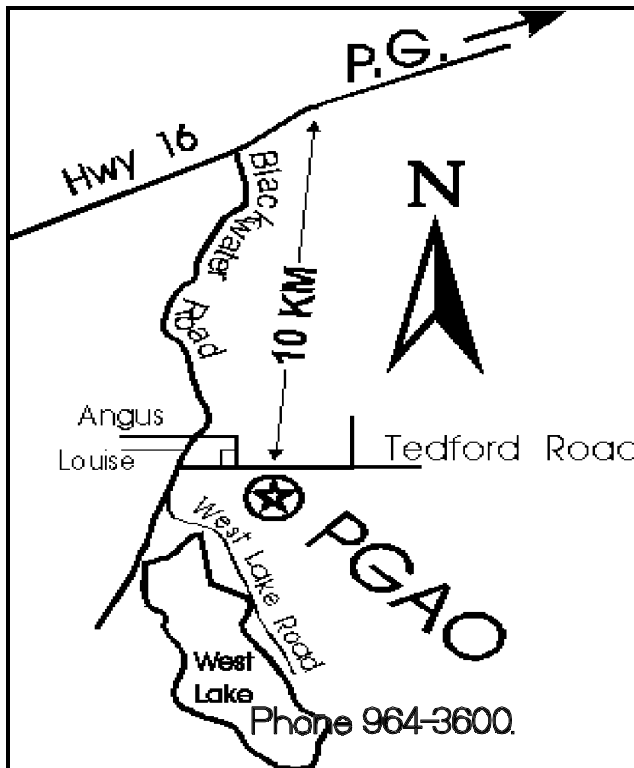
Our pursuits are out of this world.
Our activities are astronomical.
Our aim is the sky.

Contributions to the newsletter are
welcome.

Deadline for the next issue is

Nov 13

Send correspondence to
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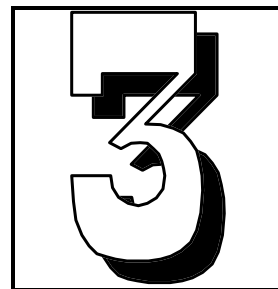
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Editorial

By Gil Self



Since October 30th marks the end of our 1988 public observing I think we should all give ourselves a large pat on the back. The public service side of our club is the part that is most visible. If we are given any kind of media exposure, chances are it is because someone who visited an open house or on a tour night had a good experience at our observatory. These visits are our opportunity to make a good name for ourselves in the community. In the past few years we have received a lot of very good “press”, and I think we should all be very proud of our reputation.

But (there is always a “but” isn’t there) after a lot of tours and a lot of visitors and an awful lot of questions your not quite as bright and lively as you could be. What we need is more people willing to be a host at the observatory. It really only requires a basic background and a lot of interest. I remember a night that Steve Senger came out to help with a school tour. Steve was still fairly new to the club but he agreed to come and help out. Steve has always had a keen interest and an unmatched enthusiasm. But what he is particularly interested in is Black Holes..... While answering questions Steve got of on a tangent on Black Holes. I say tangent but that isn’t really right because in fact he was spot on, that is exactly what people come out to hear. New ideas, the latest information and to share our enthusiasm in science. I saw a group of people who quite enjoyed the visit to the observatory and probably told somebody else about the evening. We could use your help.

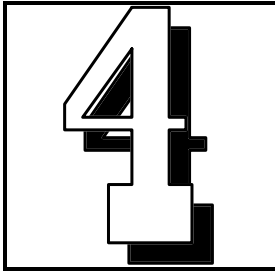
You might have noticed a new article in the last two issues. Yvonne Whebell from the Prince George Library is going to keep use up to date on new books in the Prince George Library, check it out (no pun intended) and thank-you Yvonne.

We are going to try something new at the meeting for a while and see how it is received. Starting this month the regular meeting segment called the Constellation Of The Month, will be announced here. We hope that everyone will bring something to add to the discussion of this months constellation. If you have any photos or background on the lore or information on the deep sky objects please bring anything you have. No one will be giving a talk on the constellation, rather we will all be contributing to the talk.

The meeting on October 28 th is the annual general meeting , this is the one meeting each year that “has” to happen so that we can maintain our status as a society. We run the once a year elections at this meeting (so do come we need your vote).

At this time you yearly club membership fees are due.

G.S.



Coming Events

If you are involved with any astronomical or otherwise scientific activity on behalf of the PGAS, please list the activity here.

October 28 —annual general meeting at the PGO

The Night Sky for November '98

by Bob Nelson, PhD
Hi Folks,

By the time you read this, Lois and I have probably returned to Prince George for a breather (unless we just simply can't drag ourselves back from Europe). Maybe I'll even join you at the observatory!!! As far as I can tell, this is what's happening this month

(Unless otherwise noted, all events are for the 15th of the month.)

PLANET ROUNDUP

MERCURY, an evening object in November, sets about 20 minutes after the Sun but this is an unfavourable apparition (see last month's PeGASus for an explanation).

VENUS is lost in the glare of the Sun.

MARS, in Leo (until the 15th when it passes into Virgo), rises at about 2 A.M. and is in the south at dawn. It's a 4.9" disk of magnitude 1.5. It is occulted by the Moon on Friday the 13th (we're not superstitious are we? :-)) at about 6 AM, visible in western N. America.

JUPITER, in Aquarius, is low in the southeast at sunset and sets around 1:30 A.M. It's a 44.1" disk of magnitude -2.6.

SATURN, in Pisces, rises around sunset and is up all night. It's a 19.7" disk of magnitude -0.2.

URANUS, in Capricornus, is low in the south at sunset and sets around 9:30 P.M. (PST). It's a 3.5" disk of magnitude 5.8.

NEPTUNE, in Sagittarius the 14th until it moves into Capricornus, rises at about 12:30 PM and sets at about 8:45 PM. As usual, it's a 2.3" disk at about magnitude 8.0.

PLUTO, in Ophiuchus, rises at about 8 AM and sets at about 6 PM. As usual, it's a 0.1" disk at magnitude 13.8.

Watch out for the Leonid meteor shower on the 17th. [It's not going to hit you or anything -- it's a good thing to observe. :-)]



CONSTELLATIONS to look for in November (at 9:00 PM, PST) are Sculptor, Western Cetus, Pisces and Andromeda.

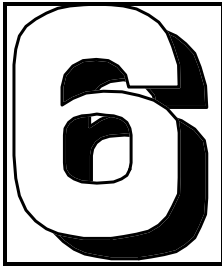
Sculptor (Scl, "The Sculptor's Tools"), another southern constellation at the limit of our visibility here in Prince George lies out of the Milky Way. It contains a few faint galaxies, a faint globular, NGC 288 and, near the latter, the south galactic pole.

Western Cetus (Cet, "The Sea Monster"), contains a number of galaxies, including M77 which is a bright and compact spiral galaxy, contains three distinct sets of spiral arms and lies about 60 million light years distant. According to Burnham, this and NGC 4594 in Virgo (The "Sombrero") were the first two systems in which very large redshifts were discovered, leading to the discovery of the expanding universe.

Pisces (Psc, "The Fishes"), lies on the Zodiac. It contains M74, a large spiral galaxy, first observed by Mechain in September 1780. According to Burnham, it is one of the faintest and most elusive of the Messier objects and requires a dark sky and suitable eyepiece. It lies about 30 million light years distant; the 9' apparent diameter corresponds to a linear diameter of 80,000 light years. (This makes it smaller and less luminous than our own galaxy.)

Andromeda (And, "The Princess of Ethiopia"), is probably familiar to most of us; it contains the "Great Andromeda Galaxy" M31 along with its satellite ellipticals, M32 and NGC 205 (a.k.a. M110 -- but not really on Messier's list). According to Burnham (and the references therein), M31 has been known at least as far back as 905 AD; it was known as "The Little Cloud" and appeared on star charts long before the discovery of the telescope in 1609. Simon Marius is usually credited with the first telescopic observation in 1611 or 1612. Early observers thought the "nebula" consisted of glowing gases but long photographic exposures early in this century revealed it to be a vast star system. Edwin Hubble, observing Cepheid variables with the 100" Mt Wilson telescope, established the distance as around 90,000 light years, well out of this galaxy. Later, corrected calculations in 1953 extended the distance out to 2.2 million light years. We now know that M31, along with M33 and our galaxy, are the three largest members of the "Local Group", gravitationally bound and holding numerous smaller galaxies, including the Large and Small Magellanic Clouds. Needless to say, M31 has been the subject of many studies by professionals using the largest telescopes and is also a fine object for amateur study and photography.

Clear skies (from afar),
-Bob



You know you're a Deep Sky Observer when...

You consider the moon a major annoyance.

You consider Jupiter 'light pollution'.

You consider meteors 'light pollution'.

You consider the Milky Way 'light pollution'.

You pack Dry Ice around your head to reduce the "noise" from your retina and optic nerve.

You consider the H-II regions of distant galaxies as individual observing targets.

You spend most of your time looking at or for objects you can barely see.

Your favorite objects are objects you can barely see.

You enjoy looking at faint fuzzies with the smallest possible aperture.

You enjoy looking at faint fuzzies with the largest possible aperture.

You like to choose objects that are easier to imagine than to see.

You're not sure that anything in this solar system counts as Astronomy any more.

You could do a Messier Marathon from memory.

You view a major earthquake as an opportunity for a close-in dark-sky star party.

You are attending a major star party (guess which one), and you ask the organizers to turn down the Milky Way.

You believe M13 ruined your dark adaptation.

You welcome (and have even considered instigating) power cuts, but only if they occur on clear moonless nights.

You observe M42 at the end of the sessions because it DOES ruin dark adaptation!

Your choice of a new vehicle is determined by the size of your scope.

You challenge friends by saying .."Lets do something stupid" ..as you hunt for deep sky objects on a lazy, full-moon night because you are faint-photon starved.

You find auroras a complete annoyance because they ruin sky contrast and dark adaptation.

You can recite type and magnitude off the top of your head when asked "What is a NGC 1000?"

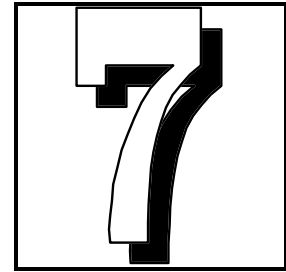
Your ideal site would require oxygen - or maybe a spaceship!

Your ideal vacation would be in Namibia, but...

Your ideal telescope would be immovable.

Instead of vitamins you take billberry pills.

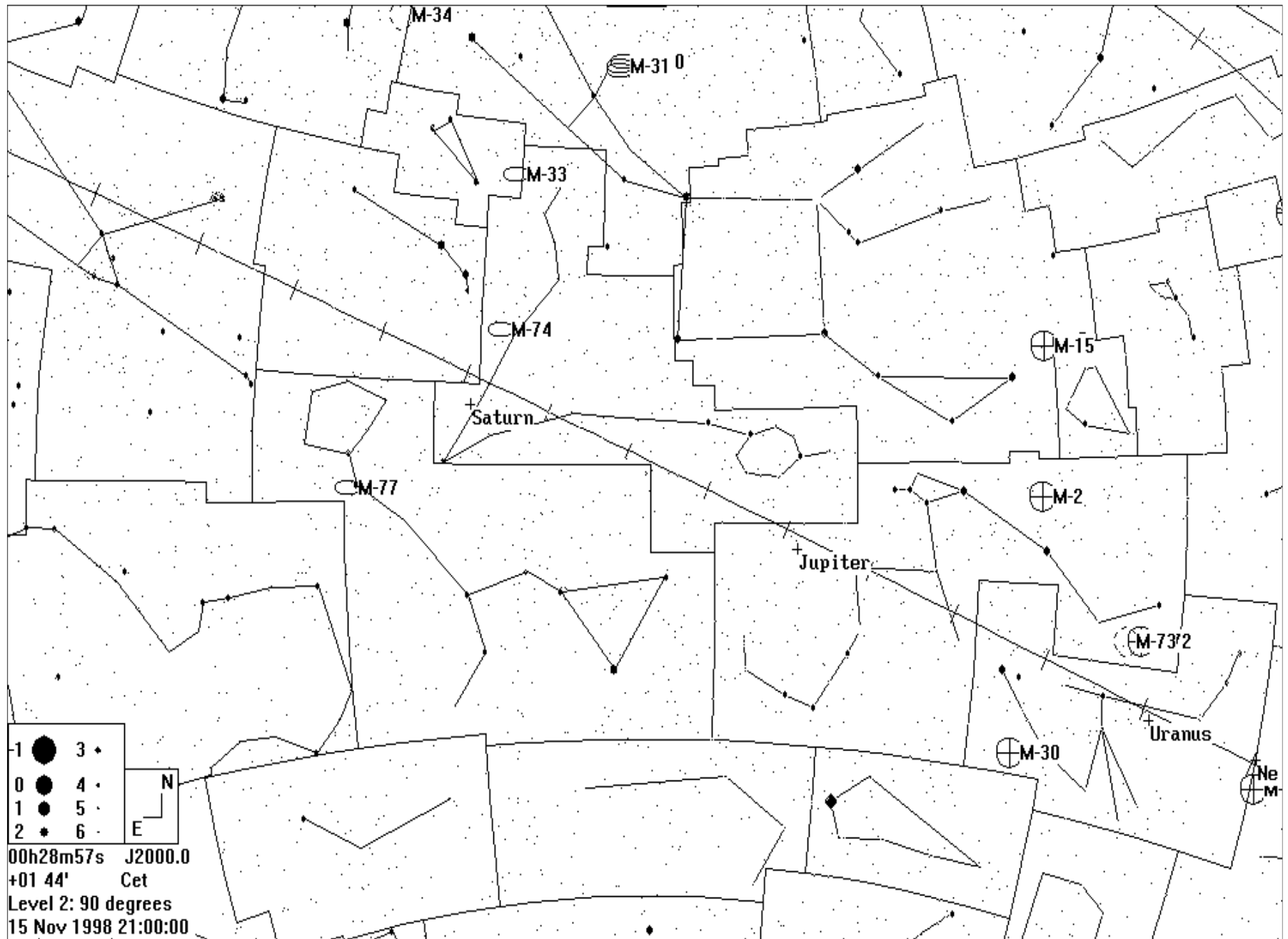
You actually know where to get billberry jam, and make a point of consum-



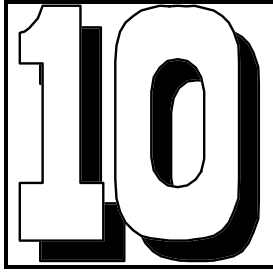
This very tricky photo was done by Steve Senger—please see Steve for exposure details.



This lovely image of the North American nebula was taken by Owen Salava on 1000asa Kodak Royal Gold. The exposure was 15 min. @ F/4, with a 200mm lens guided on the 24inch. He said it was inspired by a slide of the same area done by Rob Frith . Post processing by Steve Senger in his digital darkroom.



November 15 sky map courtesy of Dr. Bob Nelson



ing some prior to observing sessions

You'd rather observe than go on a hot date.

In preparation for another DSO bout, you carefully massage your eyes to make sure all your rods are discharged.

You pay \$3500 for a pupil enlargement operation even though you own a 1 meter light bucket.

While spot checking the collimation of your dob, you note that with concentration you can just begin to detect spiral structure in the dust coating your primary.

You take deep-sky pictures during a total eclipse of the moon.

You actually know how to USE setting circles.

You have NO use for setting circles. Star hopping to a 18th mag. smudge is a breeze.

You actually USE 'Uranometria', and can quote page numbers.

You frequently disagree with Burnhams, and have seriously considered publishing your OWN "observer's guide".

You see absolutely no value in using a Telrad.

Your principal finder scope is larger than 80mm.

You consider 15 minutes to be a 'quick' exposure.

You see more DSOs on your laptop screen during an evenings' observing session than you do through the eyepiece.

You have seriously considered starting up your own anti-satellite lobby.

You have blackened the edges of your eyeglasses.

You are briefly taken aback by the brightness of a normal flashlight under "normal flashlight" circumstances (power outages, e.g.)

You think GM's Daytime Running Lights are some kind of evil alien scheme.

You can make ten trips lugging equipment back and forth across a cow pasture without stepping on a single cow pie, using only the illumination of that garishly bright Milky Way to guide you.

You wear red sunglasses all day in preparation for viewing that night.

You've been thinking that a 14th century black monk's hood is a pretty cool idea.

You wear an eye patch during the viewing session.

The dome light of your car is painted red.

You paint the LED's on your equipment with red fingernail polish so that they are dimmer.

You begin to realize that even the deepest red flash light is affecting your vision.

You remove the LED on your drive control panel, because THAT ruins your dark adaptation.

You keep thinking that if only the stars would go away, it might really get dark.

You keep a cross-index of stuff that you have looked at on 3x5 file cards organized by object catalog number, so you can easily find your logged observations of any specific object.

You have elective surgery to replace your eye's natural lenses with f/0.8, oil-spaced, apochromatic triplet objectives designed by Roland Christen.

You think about how to smash the nearby street light without getting caught.

You think about how much the penalty would be for smashing the nearby street lamp.

You're caught by the police climbing light poles at night trying to "unscrew" the bulbs.

You ask your neighbors over to star gaze, so they will know to turn out their porch lights.

You can talk with a red flashlight in your mouth.

You can understand somebody else talking with a red flashlight in THEIR mouth.

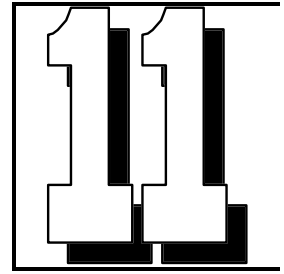
You believe bug repellent messes up your coatings, so you've become adept at slapping mosquitoes without moving your eyes or bumping the scope.

Every November you are terrified that the Leonids might storm and mess up your observations.

Your wife hires a skywriter to tell you to come home.

You have Kendrick dew heaters on your eyeglasses.

You insist that your optician put anti-reflection coatings on your contact lenses.



I am not sure who wrote this—or maybe they want to keep it a secret, but I thought there must be a line or two in here that applies to everyone of us.



Home Research

By Orla Aaquist
Keyano College, Fort McMurray
Orla.Aaquist@keyanoc.ab.ca

My VLA observing run last March was a success, and now I am going to reduce the data at home. We have home care, home making, home schooling, home business, and now we have home research.

I retrieved my data via FTP the week following my March observing run and stored it safely away on a hard drive at the Space Astronomy Laboratory at the University of Calgary. Eight hours of data awaited my analysis, which I planned to tackle during my summer vacation. Summer, however, never lasts as long as I anticipate. In fact, as I write this, summer is over and data reduction has yet to occur. Another project distracted me.

The 'other' project began from an innocent remark by Dr. Sun Kwok while preparing my observing run. He mentioned that someone had managed to install AIPS on a PC. AIPS is the Astronomical Image Processing System, which is the software generally used to process VLA data. Sun thought I might want to try to install it on my home computer. After purchasing a new computer in May, the seed took root, and I discovered Linux (Unix for PC's). After installing Linux seven times, installing AIPS just as many, replacing my video card, reading a very thick book on Linux, and reading the latest AIPS Cookbook, I was finally ready to start my data reduction $\frac{1}{4}$ and the fall term.

Now, every other weekend I boot up my Linux partition, start AIPS, sift through my data, examine my old images, and think strange thoughts. Then, suddenly, I realize, "God! I haven't prepared any lessons for Monday morning!" Weekends are just not long enough to start my research motor.

Before I became too imbedded in the term, I did manage to scan the data for major problems. It looked good, so I was inspired to plunge in and edit out obvious bad data. My plan was to do a trial run through the data and hope that the unused knowledge and techniques would re-emerge from the recesses of my brain. After all, it had been 10 years since I last used the software.

Reading through the Cookbook, I read the warning, "Often when switching source position, the initial scans have slightly high or low flux levels and should be edited out." Imaging my data, I noticed many narrow high and low peaks just before and after each source observation. So, of course, I began to edit out these offending peaks. After two days of clipping, I discovered a program that would do it automatically. "I'll use it next time" I thought calmly.

Then began the calibration process. This involves checking the phases and amplitudes of the so-called 'phase calibrators'. The phase calibrators are point sources near the target object, and their purpose is to make sure that you know what a point source looks like through the instrument. You see, because of atmospheric turbulence, sources become distorted, but if you know what a point source looks like, you can correct for the distortion. Neat, eh! Strange thing was, though, I couldn't find any of my phase calibrators.

Do you know how it feels when you suddenly remember that you were supposed to be at an important meeting two days ago? There is no recovery. You can't get there from your current space-time coordinates. The event lies outside your light cone. You quickly look around for a rotating wormhole, but find none.

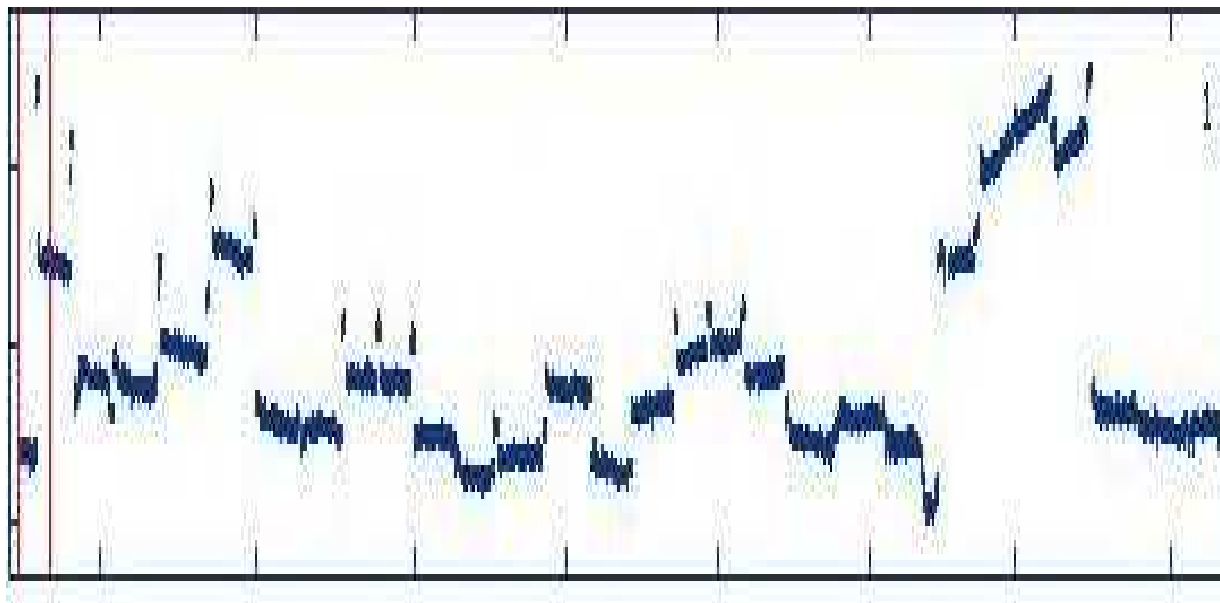


A sinking feeling washed over me. Had I forgotten to observe the phase calibrators? The feeling of pure desperation lasted for almost 5 seconds before I realized that I had just spent the last two days painstakingly flagging the calibrators as bad data. As quickly as it arrived, the feeling of desperation was replaced by a wave of pure relief. I unflagged the calibrators and went to bed. My sleep was surprisingly sound that night.

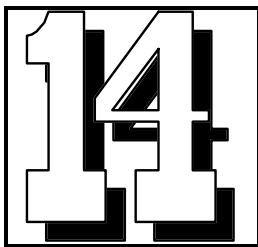
It doesn't bother me to start over. As a graduate student, I must have started my thesis at least 10 times. Now, as a teacher, I start over every year. But, why do I tinker with research when I have full-time job that I love and that does not require me to do research. Some people spend their entire life doing it. I do it in my basement office late at night with a cat on my lap. I find it exhilarating and satisfying and I don't care what the neighbours think. My friends think me strange that I would consider it a vacation to work on data reduction. They could be right.

O.A.

Often when switching source position, the initial scans have slightly high or low flux levels and should be edited out. Note all the little blips?



Orla writes a semi-regular column "The Light Side of Research" for the Journal of the Royal Astronomical Society of Canada (JRASC). The present article will appear in the December issue of JRASC. Thanks Orla GS



A word from the Observing Director

By the time you read this newsletter our public observing program for 1998 will almost be finished. This year we helped out the Fraser Fort George Regional Museum with their space camp for young boys and girls. Thanks to the museum for the free advertizing in their "Museum Mirror". October is always a busy month with different clubs visiting us before we close in November, and this year is no exception, every Friday night we were giving tours mainly to girl guides so they could get their astronomer badge. I would like to thank everyone who came out to run the open houses and the museum program .

I really enjoyed Rob Firth's talk at the last meeting. He had lots of good idea's to make observing more enjoyable. His photo's were superb. I find one of the most difficult things to do is focusing the camera at prime focus when taking astrophoto's. I usually use the split image method with the two holes cut in a circle of cardboard or thin plywood that fits over the open end of the telescope and as you focus the two images they will become one image. When you get that one image this means your camera should be in focus. although when I get my photo's back the focus could have been better. The other trick I tried was to focus the camera with the back open and no film in place and I used a blank microscope slide with frosted celophane tape on one side placed it over the back of the camera and focused on the celophane tape. Many years ago I remember Bob Nelson using a razor blade this way to get an accurate focus. Although I'm a little worried to get my eye to close to the blade maybe Bob could show us how this is done at one of the meetings.

Clear Skies Brian Potts

NEW BOOKS AT THE PUBLIC LIBRARY

Yvonne Whebell

PLUTO AND CHARON: ICE WORLDS ON THE RAGGED EDGE OF THE SOLAR SYSTEM.

Alan Stern and Jacqueline Mitton.

Published by John Wiley & Sons, Inc.

The story of the discovery of Pluto in 1930 and the subsequent exploration of this mysterious planet and its unusual relationship with Charon, discovered in 1978, is told in a very engaging narrative style by a member of NASA's planetary research program and an English astronomer who has written numerous books.

CALENDAR: HUMANITY'S EPIC STRUGGLE TO DETERMINE A TRUE AND ACCURATE YEAR.

David Ewing Duncan.

From scratches on an eagle bone 13,000 years ago to the atomic clocks of today, the author chronicles mankind's efforts to measure time. There are interesting descriptions of conditions, cultures and events that took place along the way.

NIGHT HAS A THOUSAND EYES: A NAKED-EYE GUIDE TO THE SKY, ITS SCIENCE, AND LORE.

Arthur Upgren. Plenum Press.

A book to help one appreciate the sky as we can see it unaided by telescopes, the author discusses everything from stellar magnitudes to folktales about the stars.

Interesting stuff to reflect upon as we gaze upward on a dark night.

Y.W.

In the coming year, there are a great number of things to be done around the observatory to both improve it for the use of the members and to present a great face to the community. Donations of time and materials in the coming year will be highly appreciated as we work as a society to improve the capabilities of the equipment, and increase the comfort and usability of the building overall.



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
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
Xerox Canada	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.

**Support
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Science**
Join the PGAS



The P.G.A.S Would like to thank
BISQUE SOFTWARE
for their donation of
THE SKY (Level 4 software)
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