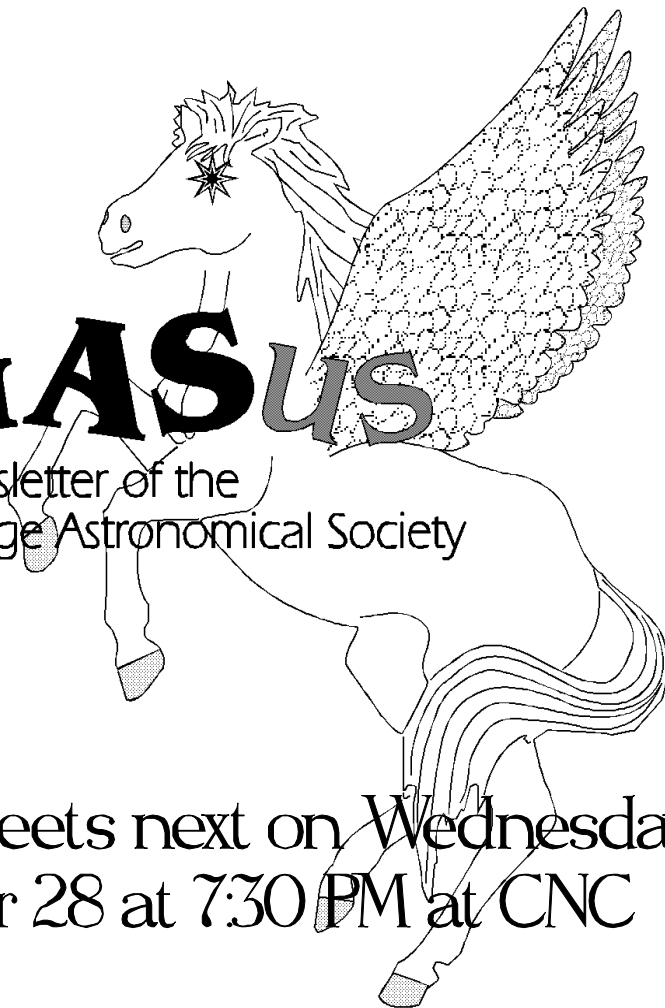


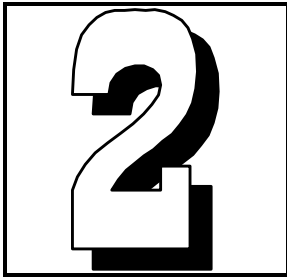
the  
**PeGASus**  
Newsletter of the  
The Prince George Astronomical Society



The PGAS meets next on Wednesday  
September 28 at 7:30 PM at CNC

**INSIDE :**

Editorial	3
Monthly Meetings	4
Electronic News	5
MKSP Report	10
In The Sky	12
Messier Hunt, Anyone?	14
Membership Form	15

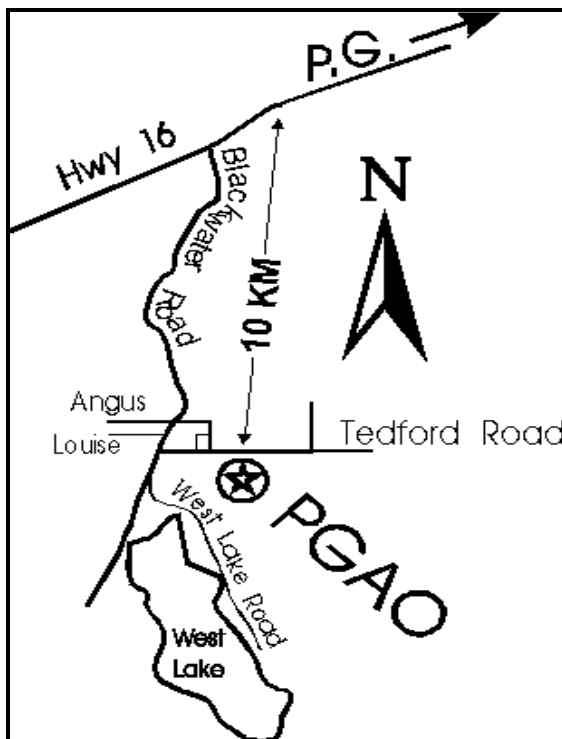


### ***The PeGASus***

is published monthly by the Prince George Astronomical Society. Contributions to the newsletter are welcome.

***Deadline for the October issue is Friday, October 14***

Send correspondence to  
The PGAS  
3330 - 22nd Avenue  
Prince George, B.C. V2N 1P8  
or  
[Aaquist@cnc.bc.ca](mailto:Aaquist@cnc.bc.ca)



## Prince George Astronomical Society Executive, 1993/4

President

Orla Aaquist 562-2131/964-9626

Vice President

Bob Nelson 562-2131/563-6928

Secretary

Jon Bowen 563-9869

Treasurer

David Sundberg 562-5774/6655

Members at Large

Ted Biech 562-2131/564-2838

Matthew Burke 563-2162

### **Nominated Positions**

*Technical Director*

Bob Nelson

*Observing Director*

Jon Bowen

*Promotional Director*

Orla Aaquist

*PeGASus Editor*

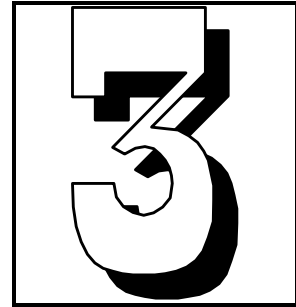
Shannon Austman

*Librarian*

We need one!

The observatory phone number is 964-3600. This is a party line, so if it rings busy, it does not imply that someone is at the observatory

# Editorial

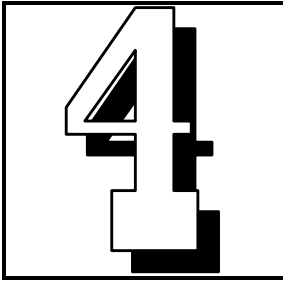


It has been a long summer and many important events occurred which I am sure that you are all dying to hear about. The Electronic News section informs us that the Perseid's were very active this year, and I now wish that I had stayed up until dawn (like Alan and Jennifer Whitman) to watch the show instead of going home to bed at 1 AM, as did the rest of the PGAO gang. About 50 people came to the observatory on the night of the Perseids, but there were no diehard meteor watchers among them. I was supposed to be watching the Perseid's from Mt. Kobau; unfortunately, that trip got cancelled because Shannon and I just completed a 4 light year journey to Winnipeg-Calgary-Edmonton, and there was no desire on anyone's part to add another 2 light-years to the distance; we used the forest fires as an excuse. The OK SKIES reports that the MKSP was great (I have included Ken Hewitt-White's MKSP report from the OK SKIES in this issue).

Then, of course, there was the Shoemaker-Levi comet crash into Jupiter between July 16 to 22. Most of the news about this event is in the Electronic News section (thanks to Dr. Bob for faithfully sending me these updates over the entire summer), and Alan Whitman also reports seeing the black spots through his telescope in his *'In The Sky'* report. Jon Bowen and Gill Self made a video recording Jupiter through the club's 24 inch, and they claim to have detected one of the black spots from the impact. They will show portions of the video at the upcoming meeting. Also, I acquired a few GIF images of the collision event through internet during my visit to The University of Calgary.

## **ALSO**

**It is time to think about renewing your membership the the PGAS. A membership application/renewal form will be included in the next few newsletters to remind you of our annual fee. Please support the club by paying your dues on time.**



# Monthly Meetings

*by Orla Aaquist*

The next meeting of the PGAS will be held at the **CNC** on Wednesday, September 28th at 7:30 PM. At this meeting, Jon and Gil will show portions of the video they took at the observatory of the Shoemaker-Levi collision with Jupiter, and they will describe how to hook a video camera up to the telescope. I will show few computer images of this collision which I pulled off INTERNET during my visit to The University of Calgary. Hopefully, someone will have read the recent Sky & Telescope summary of the collision so that we can have an enlightening discussion of this 'event-of-the-century'. Al Whitman will bringing some slides of this summer's annular solar eclipse, and, if time permits, I will present the results of some research on Planetary Nebulae which I am involved with at the University of Calgary.

There was no regular meetings during July and August, and we had a barbecue at the observatory on June 25 in place of our regular June meeting (June 29). About 25 members, family and friends showed up the this BBQ. The event was successful enough to inspire us to hold another BBQ on Wednesday, August 31; a few more people turned up for this event. Unfortunately, both evenings were cloudy, so most people left after food and discussions were over. At the June BBQ, it was sunny when we first arrived at the observatory, but dark clouds were moving in from the west threatening to obscure the sun. I had the bright idea to bring out the C8 and the H-alpha filter so that we could look at the sun. No sooner had I mounted the H-alpha filter than it began to rain.

Members' BBQ on the Saturday before the last Wednesday of June (in place of the regular June meeting), and another on the last Wednesday of August will be tried again next year. We hope that this will become regular events for the PGAS. Along with a Christmas party in December, we will have a members' activity every month except July. Which reminds me, "Who is willing to host a Christmas party this year?" The Whitman's hosted last year's Christmas party.

The October meeting is our annual election of the executive. Please start thinking about who you want to sit on the executive, and if you are on the executive, if you want to stand for another term. Also, October is the traditional time for members to renew their membership. Please support the club by **PAYING YOUR ANNUAL DUES**.

# Electronic News



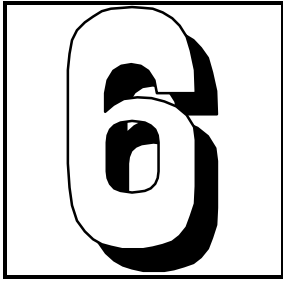
SkyNews comes to us over the electronic highway from Sky & Telescope Magazine by way of palmer@sfu.ca (Leigh Palmer at Simon Fraser University). This version has been severely edited for publication in this newsletter. For a full transcript, call the editor's office.

**July 22, 1994:** COMET IMPACTS OVER? The last known chunk of the comet, W, hit Jupiter around 4 a. m. Friday morning Eastern time (July 22). But smaller debris that was in the comet's southwestern tail will keep plowing into Jupiter for weeks. Moreover, after July 27th, this stuff will hit on the NEAR side in full view from Earth. Any good-size chunks might cause visible flares. The debris will grow sparser, and the pieces smaller, as days and weeks go by. Spot A is already fading, suggesting they may last only a few more days.

**August 6, 1994:** COMET SPOTS LINGER. The black spots on Jupiter caused by the impact of Comet Shoemaker-Levy 9 are enduring. Scientists continue to puzzle over why the spots are dark, and why spectrographs failed to detect water in the impact plumes. (**August 22 update:** Apparently, scientists who used the Kuiper Airborne Observatory to observe the comet's crash DID detect water in the hot fireballs of fragments G and K.)

NASA announced on August 3rd that a committee has been established to develop a plan to identify and catalog all comets and asteroids that might collide with Earth and cause significant damage.

**August 13, 1994:** PULSES OF PERSEIDS: Reports



reaching S&T from Europe and the eastern U. S. reveal no unusual activity; the zenithal hourly rates (ZHRs) varied between 50 to 100. But the show picked up farther west. Peter Brown (International Meteor Organization) says an outburst occurred over the western U.S. starting around 2:30 PDT. The ZHRs began climbing significantly, peaking near 300 per hour around 4:00 AM before falling "like a rock." Veteran meteor observer Anthony Cook of California says this was the strongest Perseid shower he has seen since 1980. At one point he saw a meteor per second for 10 seconds. There were many fireballs which ranged from magnitude 0 to -5.

**GALILEO SEES "THE CRASH":** Because of its position with respect to Jupiter, the spacecraft Galileo was able to see and monitor the comet's impact sites directly. One of the experiments aboard registered flashes from the impacts of H and L, and near-infrared data on the fireball from G is waiting to be played back. Mission scientists now have their first glimpses of Galileo's imaging data. The bolide phase of K's atmospheric entry lasted about 35 seconds and at one point became about 10% as bright as Jupiter itself. The full set of K-impact images should get beamed to Earth within a week.

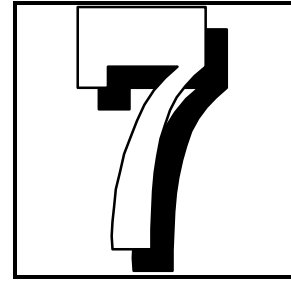
**SOLAR DOLDRUMS:** Casper Hossfield reports that solar activity continues to wallow in the summer doldrums.

**August 27, 1994: WHITE SPOT ON SATURN:** Observers at Pic du Midi and the U. S. Naval observatories report a low-contrast white spot on Saturn. The blemish is about 12 degrees long at situated at 65 degrees south latitude. The French astronomers first saw the spot on August 14th at a position of 305 degrees longitude. Astronomers at USNO's New Zealand station at Black Birch report that

it had moved to 277 degrees longitude by August 20th. Saturn rises just after sunset.

**SUPERNOVA IN CANES VENATICI:**

And there's a new supernova to try for. William Wren discovered the supernova visually through the 36-inch telescope at McDonald Observatory on August 19th. Supernova 1994Y is located in NGC 5371, an 11th-magnitude galaxy in Canes Venatici at R.A. 13h 56m, +40.5 deg. The star, estimated to be 15th magnitude at discovery, is situated about 1/2 arc minute west and 1/4 arc minute north of the galaxy's nucleus.



**September 3, 1994: SUPERLUMINAL OBJECT:**

Researchers using the Very Large Array radio telescope in New Mexico have that a small object in our galaxy, first detected by the Granat spacecraft two years ago, is a powerful quasar shooting out material at 170,000 miles per second. Because of its angle with respect to Earth, the jet \*appears\* to be moving faster than light itself -- an illusion known as superluminal motion. Jets like these are well known in distant galaxies and quasars, but this one is only 40,000 light-years away. The report appears in the journal NATURE for September 1st.

S-L 9 SPOT UPDATE: The dark spots left behind on Jupiter by Comet Shoemaker-Levy 9 continue to evolve, say observers. The smallest ones, like those caused by fragments A and C, have disappeared. Larger features, like impact L and the K/W and D/G/S complexes, have expanded considerably but have not faded very much.

# Announcements

## The 1995 RASC OBSERVER'S CALENDAR

produced by the Vancouver Centre of the *Royal Astronomical Society of Canada* is for sale. The calendar features black-and-white astronomical photographs taken by members of the RASC and gives a considerable amount of astronomical data such as phases of the Moon, rising and setting times of the Moon and Sun, and times of other selected phenomena such as meteor showers, planetary elongations and oppositions, and eclipses.

A sample copy will be available at the next meeting of the PGAS. If we order 10 or more calendars, the cost will be \$5.35 per calendar (GST and shipping included).

## Science and Technology Week Booth

Once again I have arranged for the PGAS to participate in *Science and Technology Week* by volunteering us to set up a booth at Pine Centre Mall on Saturday and Sunday, October 22 & 23. We need volunteers to staff the booth. Contact Orla at 964-9626.

## PGAS Executive Meeting

The PGAS executive will meet on September 28 at 6:30, just prior to the monthly meeting.

## Staffing the Observatory

We are looking for members to help staff the observatory every Saturday night from dusk to about 11 pm for public viewing. Please call Jon Bowen or Orla Aaquist if you are interested. Of course, all PGAS members are welcome to come out also; bring your friends and neighbours.

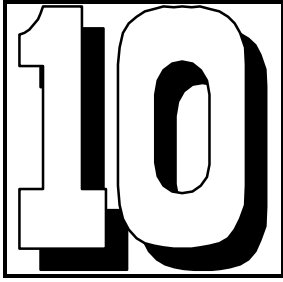
## CCD Astronomy Magazines

are now available to club members to read. This quarterly journal was purchased as part of the PeGASus Project funds, and we have the first two issues (Spring and Summer 1994). Contact Orla if you want to have a look at them, or come to the September meeting where they will be on display. Until we get organized at the observatory, Orla or Ted Biech will collect them.

## Messier Hunt, Anyone?

Are there any PGAS members who would like to participate in a Messier hunt using the 24" at the PGO? It would be a great way for members to get together on a regular basis at the observatory and learn how to use the telescope. Call Orla at 964-9626.





# MKSP REPORT

by Ken H-W

*(copied from OK SKIES September issue)*

This was a great Kobau year! It was warm the whole time, and we nailed three and a half clear nights out of a possible four.

It didn't look like it would be that way scant days earlier. Smoke from nearby forest fires clogged the air. As if that wasn't enough, a major low pressure system swooped on only three days before the star party. However, the rainstorms cleaned out the air in two days flat, then headed east.

Albertan amateurs, at first leery of driving into a fire zone, saw the cold low coming and decided the skies would improve behind it. They were right. The good forecast sent observers up the mountain in droves. Peter Kuzel processed 213 registrations - the highest total in years.

Scattered amid the sagebrush was a fascinating array of telescopes. At the top end were the usual monster Dobbies. John Casino of Olympia, Washington anchored proceedings with his behemoth 36". And the MacMillan Planetarium set up its 25" for guided tours of the galaxy. But most people had fun with just their own backyard scopes and binoculars.

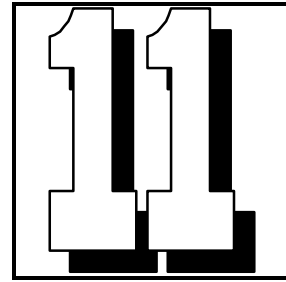
Among the ATM contest winners was Vancouverite Craig McCaw, who has been observing from Kobau since the mid-1970's. Craig has a 17.5" Dobsonian of early design. But he's put it on a Poncet mount for photography, and this year he added a CCD camera of his own construction. While the Poncet nudged his ancient Dobby along, Craig could be heard tapping commands into his laptop computer. For this interesting marriage of low and high tech, Craig nabbed the Most Innovative Design award in the telescope competition.

In the photography contest, Murray Paulson of Edmonton piggybacked a great 28mm Milky Way shot in which he caught a bright Perseid bursting through Cygnus. The next day, Murray rattled his way down the Kobau road into Osoyoos, got the film printed at a one-hour photo place, then hung the shot in the AES trailer. It won him a prize.

This year's door prize ceremony had an interesting twist. The two biggest items went to OAS'ers Laurence Seton (7x50 binoculars) and Joel Tilson (Telrad finder). Joel's prize had been donated by OAS stalwart and Galactic Traveller, Ron Bell!

The MKSP puts a lower emphasis on guest speakers than

many regional star parties, but we again had a worthwhile lineup of presentations. Lee Johnson of Vancouver spoke on star-testing scopes. Raj Gupta explained his meticulous and remarkable gas-hypered tech. pan astro-photography. And Alan Dyer capped things off with two spectacular slide shows - one featuring southern deep sky wonders shot from Las Campanas Observatory in Chile.



The Red Light Grill, in its second year of operation, was again a boon to those who may be experts in astronomy but are inept in gastronomy. A big tip of the Kobau hat goes to our OAS volunteers - too numerous to mention here - who staffed the grill, often during dark hours when they had better things to do. Special thanks are due to Jim Failes and Sophie Taylor, who did much of the pre-planning and execution, and to Jeff Trebel who again arranged for bulk food orders.

There were the usual tense moments at this year's MKSP. One fellow lost his keys and had to have his car towed down the mountain. Ron Scherer lost his kids but we found them again, thanks to Jim Horton's walkie-talkie system which allowed quick cross-mountain communication. Alan Dyer's moment of trauma came at 1 AM when he found the gate to the trailer locked - while his camera was shooting a time exposure on the room. Walkie-talkies solved that problem too. Ron Bell was incredulous when he saw a camper flick a cigarette into the tinder-dry brush. Ron pounced on the smouldering butt - and wanted to kick the owner's!

Oh well ... all in a day's work.

Next year's MKSP will go on August 23-27, with New Moon falling on the 26th. See you there!

*(Ken Hewitt-White is the Editor of the OK Skies, the newsletter of the Okanagan Astronomical Society. Their newsletter is published monthly, and is sent to the PGAS through a newsletter exchange. The PGAS editor apologizes for any typographical errors or omissions which may have occurred while retyping this article.)*



# The Night Sky

*by Alan Whitman*

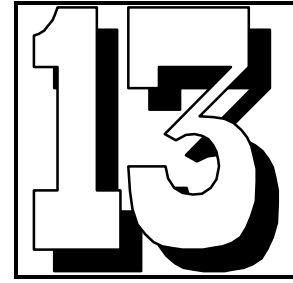
First Venus, then Jupiter slides lower and lower in the evening twilight and disappears. Both reappear in the November dawn. Saturn offers the best planetary observing at the observatory. It is up most of the night, having passed opposition September 1st. Mars lines up with the bright stars Castor and Pollex on the mornings of September 29<sup>th</sup> and 30<sup>th</sup> and equals Pollux in brightness at magnitude 1.1. Mars will become as bright as Saturn by late October.

What a summer! First the annular solar eclipse, then the comet crash, and finally a far above average Perseid meteor shower.

The impacts of Comet Shoemaker-Levi on Jupiter had been played up so much in advance that it sounded like another case of an event being super-hyped. In the month before the impact, the forecasts became more cautious. We were advised to learn the small white spots on the edge of Jupiter's South Polar Region well so that we would have a chance of spotting an interloper. This seemed beyond hope from our northern location since Jupiter was already rather low at July sunset.

Then came the news on July 18<sup>th</sup> that the biggest cometary fragment, fragment G, had produced a fireball momentarily brighter than Jupiter! Uh oh! Out came my 8" and fragment G's black impact site was immediately visible as it crossed the SE limb. I called everyone I knew who owned a telescope and was in town. Fragment G's spot has been widely described as the most prominent spot ever seen on Jupiter; no argument here. I observed at home, but understand from John and Matthew that the turnout of club members at the observatory over the next few nights was the greatest for any observing session. I saw seven cometary impact sites in the four consecutive evenings from the 18<sup>th</sup> through the 21<sup>st</sup>, as we were favoured with excellent weather. The best night was July 21<sup>st</sup> when four impact sites were visible on the disk simultaneously, with the overshadowed Great Red Spot also visible for comparison. (The images of some of the impact sites look a

lot like the "Great Black Spot' on Neptune that Voyager observed as if flew by. There are a lot more comets near Neptune than near Jupiter ...).

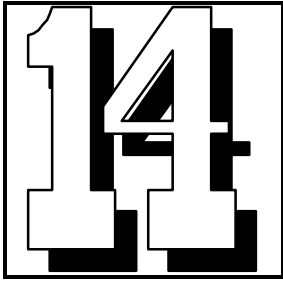


The Perseids didn't produce the "storm" of several hundred meteors per hour briefly seen in Japan in 1991 and 1992 and Europe in 1993.

But between 3 and 4 AM August 12th various observers on Mount Kobau saw over 100 meteors. This was definitely the best Perseid shower I've seen personally in a third of a century of watching. The problem with meteor viewing is that one does it late at night lying down, wrapped in a warm sleeping bag. Jennifer saw the dawn maximum that others reported; your reporter can only say that every time his eyes flickered back open after 3 AM, there seemed to be a meteor or two before he rapidly drifted off again!

Several times there were two parallel meteors close together in the sky or one following seconds after the first, on the same path. Coincidence of two meteoroids orbiting together?

This astronomical summer didn't fail The Mount Kobau Party either, although only days beforehand it looked like the forest fires which resulted from too much warmth and sunshine would shut it down. On the Friday before the event, a major 5000 acre fire raged immediately south of the mountain and threatened to race up it. Albertan Alister Ling reported that the smoke was so bad on Saturday night that the Hercules Keystone was barely visible. But, Sunday and Monday it poured and drenched the fires. Again this year we enjoyed the superbly transparent skies which make M. Kobau the best observing site in Canada.



# Messier Hunt, Anyone?

*by Orla Aaquist*

In the late 1700's Charles Messier compiled a list of deep-sky objects to aid prospective comet-hunters distinguish between comets, which are big and fuzzy objects, and nebulae, which are also big and fuzzy objects, the difference being that comets move relative to the background stars from day-to-day whereas the nebulae do not. Messier's Catalogue provides a selection of the brightest and best deep-sky wonders north of declination 35 degrees south. The objects are a mixture of open clusters, globular clusters, planetary nebulae, emission nebulae, reflection nebulae, supernova remnants, and galaxies, with some being spectacular showpieces. In all, 110 objects are listed in the catalogue. One version of it is printed in the annual publication, *Observer's Handbook*, of which there are several copies (of past years, anyway) at the observatory.

In the *Observer's Handbook* version of the Messier Catalogue, the objects are listed by season for the *early evening observers* (that's us), grouping the objects within their respective constellations in order to help plan a sequence of an evening's observing and to help novice observers (that's us) learn which Messiers belong to the various constellations.

There will be no problem finding most of the Messier objects at the PGO since Messier himself used reflecting telescopes equivalent in diameter to a modern 10 cm reflector.

An easy introduction of new members to astronomy and the PGO could be a Messier Hunt guided by the expertise of some of our more seasoned PGAS members. Any takers? Call Orla at 964-9626.

**MEMBERSHIP APPLICATION**

***Prince George Astronomical Society***

College of New Caledonia  
3330 - 22nd Avenue  
Prince George, B.C.  
V2N 1P8

Names: \_\_\_\_\_  
\_\_\_\_\_

Address: \_\_\_\_\_

Postal Code: \_\_\_\_\_

Phone # : \_\_\_\_\_ (    )

home                      work                      local  
Type of membership (check one)

Youth(\$10.00)

Regular(\$20.00)

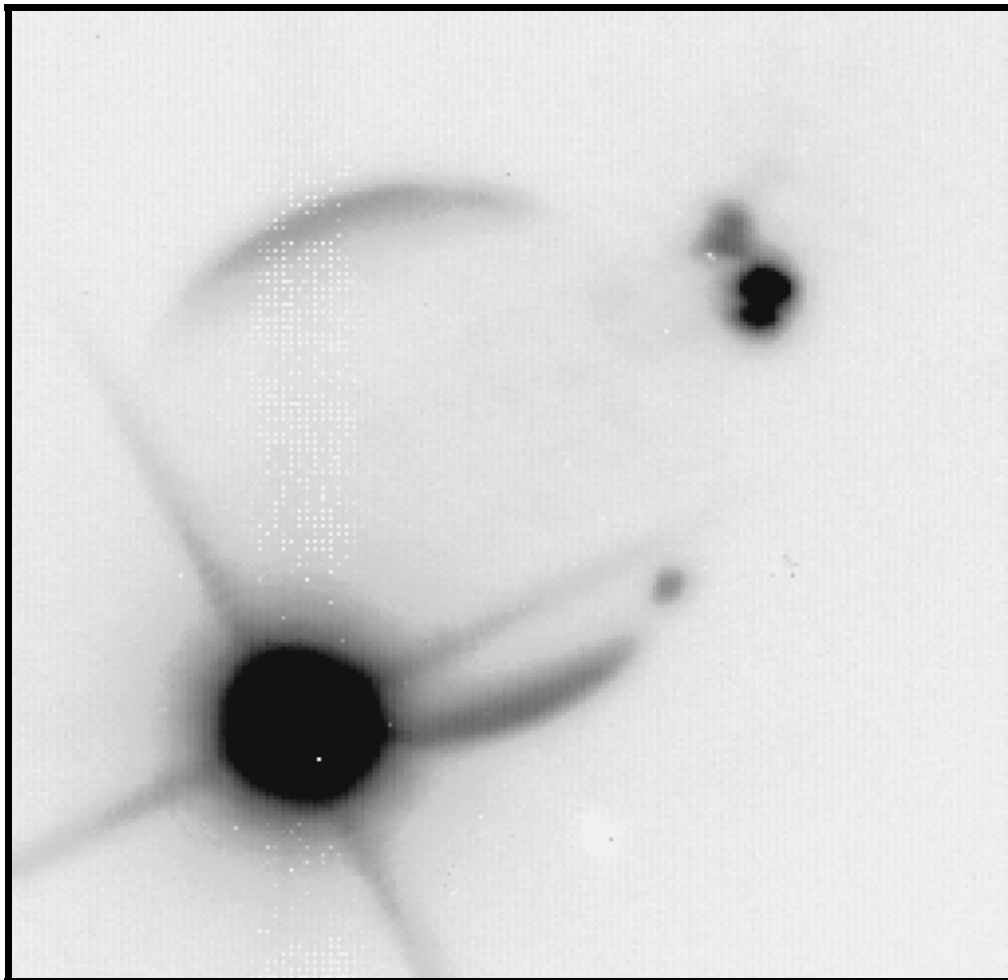
Family(\$30.00)

Please list the names of all members of your family

Do you have any special skills or knowledge that may be helpful to the club?

\_\_\_\_\_

# The Image Gallery



## **MSSSO Image of Fragment G Impact**

This image of Shoemaker-Levi's collision with Jupiter was obtained on the Australian National University 2.3 m telescope at *Mount Stromlo and Siding Spring Observatory* near Coonabarabran, Australia, using the CASPIR near-infrared array camera. North is up and east to the left. The intense impact flash from fragment G in the lower left portion of the image was recorded at 2.34 microns at UT 07:46:17. It is estimated that the saturated image was very roughly -2 to -5 mag at 2.34 microns, based solely on the intensity of the diffraction spikes and our experience with the camera. The bright spot at the upper right portion of the image is Jupiter's moon Io.