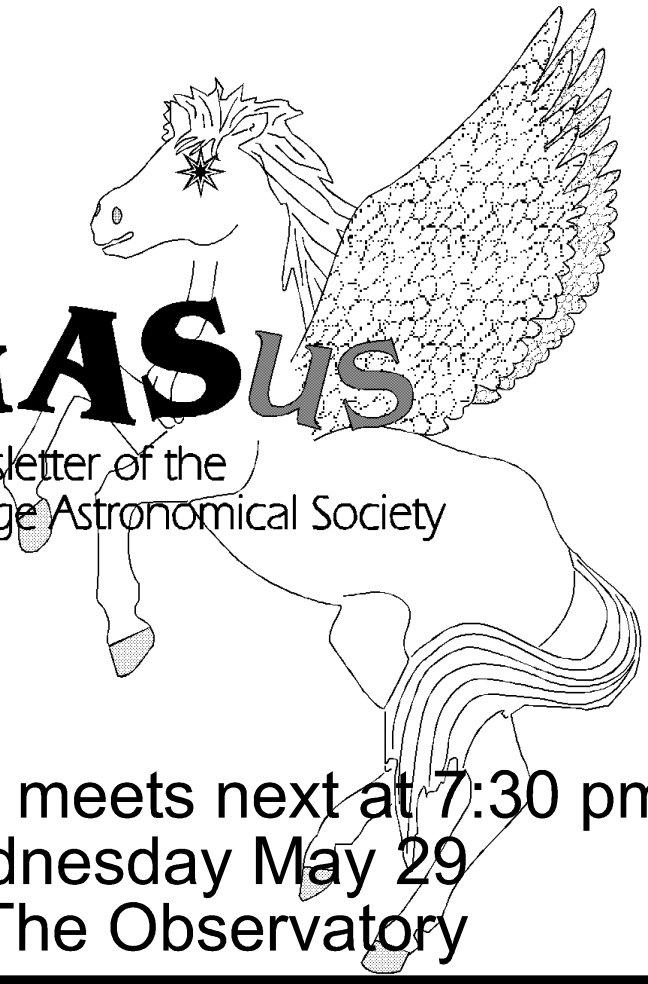
MAY 2002 ISSUE #121



# *the* PeGASus

Newsletter of the
The Prince George Astronomical Society

## The PGAS meets next at 7:30 pm Wednesday May 29 at The Observatory

## INSIDE :

***the PeGASus*** is published monthly by the *Prince George Astronomical Society*.

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***

# *August 16*

Send correspondence to
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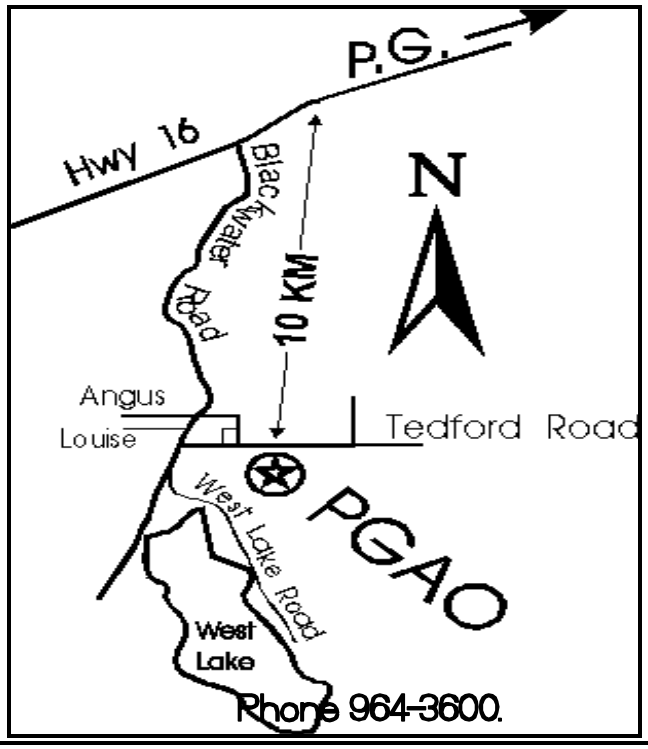
7365 Tedford Road
Prince George B.C. V2N 6S2
or
**gil-pg@shaw.ca**
phone:964-3600

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**Executive, 2001/2002**

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***PeGASus Editor***
*Gil Self*

You can renew your membership at http://www.pgweb.com/~astronomical/

# Editorial

By Gil Self / Glen Harris

Our spring observing season is rapidly drawing to a close. We have welcomed several hundred guests to the observatory and I think very likely ignited an interest in astronomy in many.

The summer season of course represents our opportunity to repair renew and modify our equipment. We have many projects which at this point we haven't made a definite timeline for completion, if you will be able to pitch in during July please let us know.

There is a need to create the following positions/committees at the September 2002 general meeting for the ongoing operation and improvement of the club. If you feel you have the skills, or would like to develop the skills to function in one of these positions, please give it some consideration over the summer.

- **National RASC Council Representative.** This director would be the liaison between the local centre and the National Council. This position will require some travelling.

- **Observing Director.** This person would be responsible for the booking of tours and lectures, in addition to organizing public viewing sessions and ensuring that these activities along with open house and member's nights were adequately staffed.

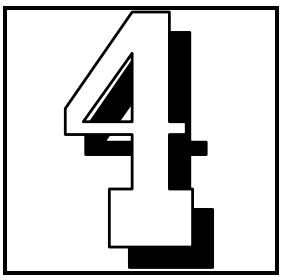
- **Technical Director.** Responsibilities would include telescope maintenance, the implementation of equipment and software upgrades, and administration of the computer network.

- **Librarian.** Responsible for the upkeep, acquisition, and organization of printed and electronic media, slides, etc. relating to club interests.

- **Building Director.** Responsible for the upkeep of the building and grounds, and implementation of improvements to the facility.

- **Light Pollution Abatement Director.** This position would involve educating the public and government bodies in how to eliminate or reduce light pollution.

*Have a good summer*
*Clear Skies*
*Gil*



# *Coming Events*

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

**PGAS Meets next May 29 th**
**7:30 pm at The Observatory**

## YEAR END BBQ
**Saturday, May 25, 2002**
**Bring a Salad or Dessert and whatever you want cooked**
**7:00 pm**

The Night Sky for June 2002
by Bob Nelson, PhD

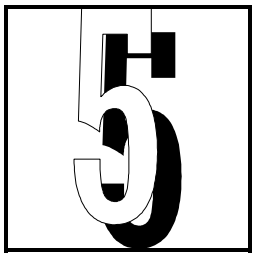
Hi Folks,

Again, as I write this, I am happily ensconced in the warm room of the Optical Craftsmen 24" telescope at Mount John University Observatory near Lake Tekapo, New Zealand munching a sandwich while the images keep rolling in. It's about 3:00 AM at the moment and I have to be here until around 6:30 when it starts to get light. The observing shift is therefore 12 hours long and it is difficult to get enough sleep (I usually get up around 4 PM and need to cook dinner, prepare for the next night's observing and hope that I get to the dome on time). However, while the camera is working, I have full access to the internet, can write to my friends, and can do other work. It's exhilarating to plot the data on a spreadsheet and display the whole light curve (plotted by phase – that is fraction of the orbit, from 0 to 1).

Right now, I'm working on TU Muscae, a giant orbiting system of two hot (spectral type O8, surface temperature 40,000 K) and massive stars (each is 25 solar masses) having an orbital period of 1.39 days. The system has been well studied, of course, but Dirk Terrell, at the University of Colorado suggested that I do the star, as it has not been observed photometrically for over 25 years. Gradually, I am building up the light curve in spite of the usual difficulties with clouds; however, tonight the skies are great and I am really getting some really good data. Once in a while I wander outside to look at the sky with the Southern Cross and milky way overhead, and count myself to be fortunate to be here.

Last month I babbled on about WY Horolgium and how it seems to be something of a mystery system. I've pretty well ruled out it being a RR Lyrae (giant pulsating) star since it's far too red. I still have to do some more calculations or reading.

Anyway, here is what is happening in YOUR skies next month:



**PLANETARY ROUNDUP**

**MERCURY** reaches inferior conjunction on about July 21. It's a morning object in the early part of July (rising over an hour before sunrise) and an evening object at the end of the month (setting about one half hour after sunset). Because of the shallow angle that the ecliptic makes with the horizon at this time of the year, both sightings will be difficult or impossible because the Sun is only a few degrees below the horizon when you'd try to find the elusive planet. It(s a 9.2( disk of magnitude 1.1 if you'd like to have a go at it.

**VENUS** sets at mid month at about 11 PM. It(s a 13.9( disk of magnitude -3.9 and should be easy viewing.

**MARS**, in Gemini all month, sets at mid month at about 9:45 PM. It(s a 32( disk of magnitude -1.8. Earthy is leaving the red planet behind for another synodic year.

**JUPITER**, in Gemini all year, sets at mid month at about 10:15 PM. It(s a 16.5 ( disk of magnitude 0.0. Still a fine sight.

**SATURN**, in Taurus until the end of August, is lost in the glare of the Sun this month.

**URANUS**, in Capricornus all month, rises at mid month at about midnight. As usual, it(s a 3.6( disk at about magnitude 5.7.

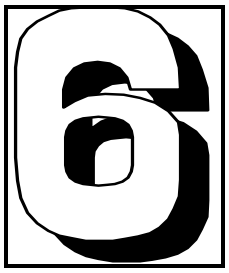
**NEPTUNE**, in Capricornus all year, rises at mid month at about 11:15 PM. As usual, it(s a 2.3( disk at about magnitude 8.0. Wait until the fall for easier viewing.

**PLUTO**, in Ophiuchus all year, rises just before sunset and is up all night. As usual, it(s a 0.1( disk at magnitude 13.8

**Summer Solstice** (for northern observers) occurs on June 21 at 13:24 UT

**CONSTELLATIONS** to look for in June (at midnight, PDT) are Corona Borealis, Hercules, Serpens Caput, Scorpius, and Ophiuchus.

In **Corona Borealis**, there are no Messier objects; but there are two interesting stars that I talked about last year: Alpha Corona Borealis (CrB), a 17 day eclipsing binary of the Algol type and R Coronae Borealis (R CrB) which is the prototype of a small but distinctive class of variable stars. There is also the Corona Borealis Galaxy Cluster. Located at the southwest corner (lower left) of the constellation, it contains more than 400 galaxies, all concentrated in an area less than the Moon's area (a disk 0.5 degree wide). Most are elliptical galaxies - to be expected in a rich cluster - but most are dimmer than about 16.5 mags, so you won(t see them in the



average eyepiece. Maybe our 24" would give you a glimpse on a dark, clear night, but a better bet is to take a CCD image (which is child(s play on our telescope!). The distance to the cluster is around 1 to 1.3 billion light years.

**Hercules** ((The Son of Zeus)) contains, of course, the famous Hercules (globular) cluster M13, one of the three finest globulars in the sky. Hercules also includes M92, another globular lying some 35,000 light years distant, discovered by Bode in 1777 and Messier, independently in 1781. Let(s compare the two clusters giving M13 first, followed by M92. Overall visual magnitude (6.4, 9.3), angular size (12.9', 5.9'), distance (21,000, 35,000 light years), diameter (79, 60 light years), total luminosity (250,000, 50,000 solar units), age (10 billion years, (slightly less(). So if you are keeping score, M13 wins by a lot - it's bigger and brighter not only because it's 1/3 closer but also because it contains many more stars. Both are, of course dwarfed by Omega Centauri (which I'll try to image with a CCD camera).

**Libra** ((The Balance)) contains no Messier objects. It does, however, lie far from the Milky Way and contains many galaxies plus the globular cluster NGC 5897, a large and loosely-structured cluster.

**Serpens Caput** and **Serpens Cauda** ((The Serpent(). Caput, the western half, lies off the Milky Way and contains the spectacular globular M5 (the fifth brightest, after Omega Centauri, 47 Tuc, M22 in Sgr and M13 in Her) lying some 26,000 light years from us. It(s one of the oldest objects around, dated at 13 billion years and must have formed very early in the history of the universe.

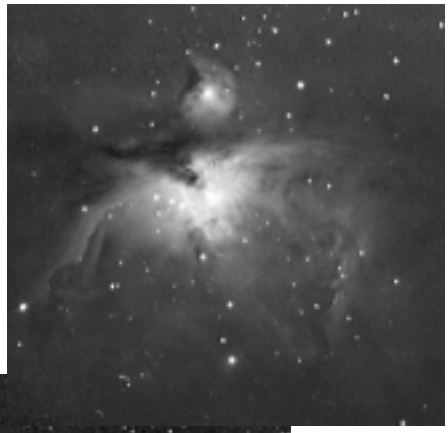
**Cauda,** the eastern half, lies essentially on the Milky Way but is not part of the luminous band owing to the large amount of intervening dust. It contains M16, the famous (Eagle Nebula( (with its EGGs). M16 lies some 8000 light years away in the great Sagittarius arm of the Galaxy.

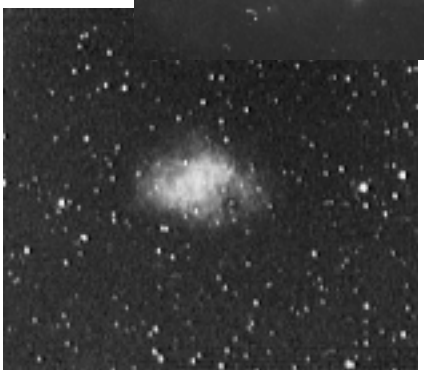
**Ophiuchus** ((The Holder of the Serpent) -- and separating the two halves) contains numerous globular clusters -- Messiers 9, 10, 12, 14, 19, 62 and 107 -- too many to discuss! The southern part of the constellation lies in the rich portion of the Milky Way (see below).

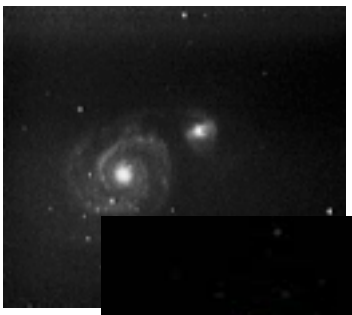
**Scorpius** ((The Scorpion)) contains numerous globular clusters: M80, about 4 degrees northwest of Antares (Alpha Scorpii), M4, just one degree west of Antares, M62, about 7 degrees southeast of Antares, and M6, near the tail of the beast (which will be very low in our northern skies) plus other NGC globulars.

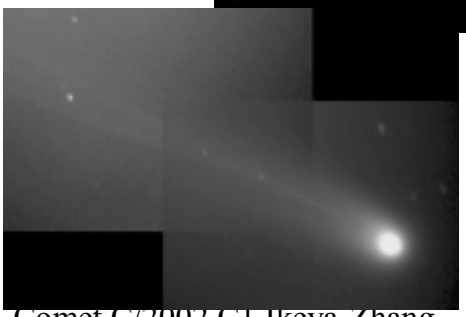
Clear skies,
-Bob

**These are all Surveillance video or webcam images** **See page 15 for web links**

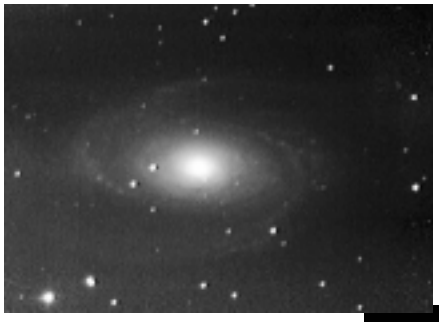



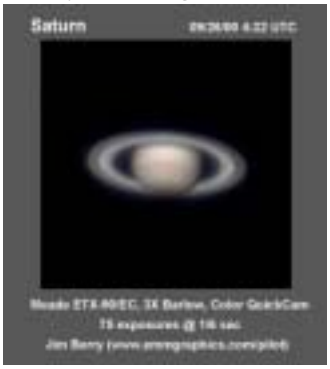




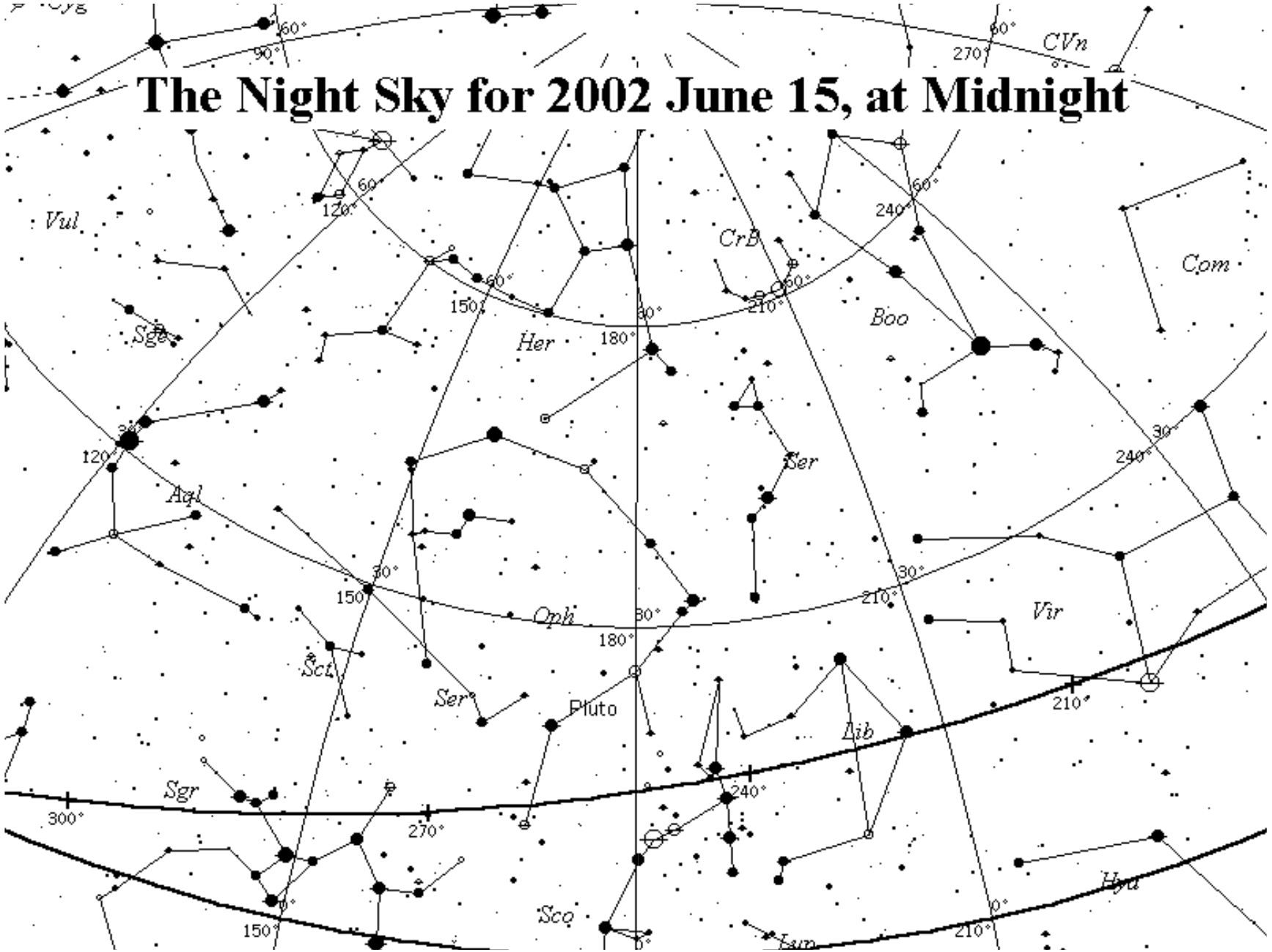


Comet C/2002 C1 Ikeya-Zhang



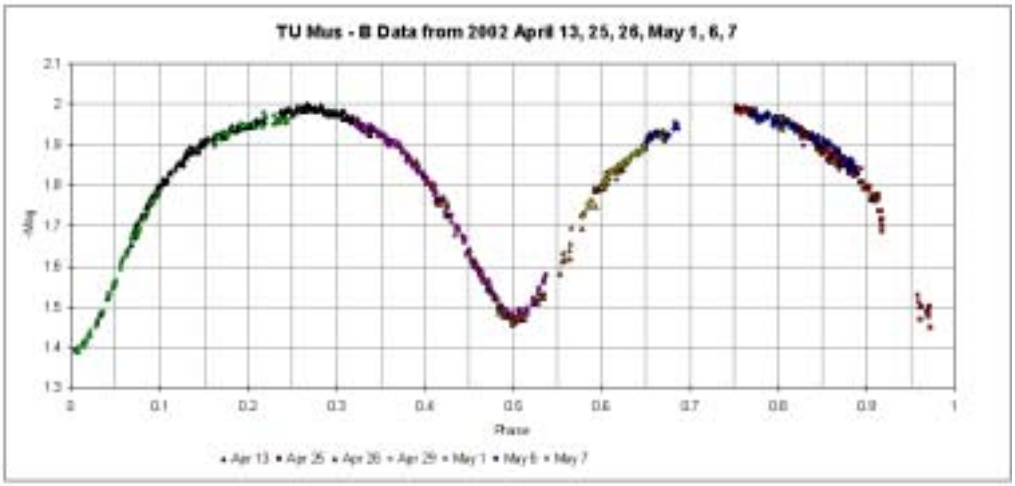


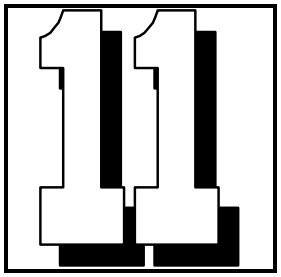

# The Night Sky for 2002 June 15, at Midnight



Here is an updated photo of Ikeya-Zhang above M13 that I took at midnight May 14, 2002. It is a 10 min. exposure on Kodak Max 400 with my Canon FTb and 200mm lens piggy backed on my LX 10. There are three satellite trails across the photo. Doug Wayland

Bob has sent us a light curve for TU Mus. This is still a work in progress and hopefully he will send updates when he can. Good detail.





## A Brief History of Astronomy In Canada

Quoted from the CAS WebPage

The Canadian Astronomical Society was founded in 1971, but its roots go back nearly a century before that. In nineteenth-century Canada, scientific societies were few and small, primarily devoted to natural history and geology. Physical scientists were few in number and uninterested in research. In 1882, Lord Lorne, when Governor-General, fostered the organization of the Royal Society of Canada, to bring together Canada's most eminent scientists. By the 1890s, the Royal Society's physical science section enrolled the few men involved in astronomy: C.H. McLeod of McGill and the astronomer-surveyors of the Department of the Interior, W.F. King, O.J. Klotz and E.G.D. Deville. During the same period, the Royal Astronomical Society of Canada - formed as an amateur club in Toronto in 1867 - emerged as the only astronomical organization in the country. With the establishment of the Dominion Observatory, which opened in 1905, a critical number of amateurs and professionals could form the RASC's second centre in Ottawa.

In 1899, the Astronomical and Astrophysical Society of America (later the American Astronomical Society) was established. McLeod was an early member, and C. A. Chant and J.S. Plaskett began attending AAS meetings from 1906 and 1907, respectively. Both would be prominent in the society. Plaskett, particularly, brought a number of his Dominion Observatory (and later Dominion Astrophysical Observatory) colleagues to the meetings. Until well into the 1950s, Canadians maintained a high profile in the AAS, holding offices and committee memberships, while presenting numerous papers at annual meetings. Several AAS meetings, beginning with Ottawa in 1911, were held in Canadian cities.

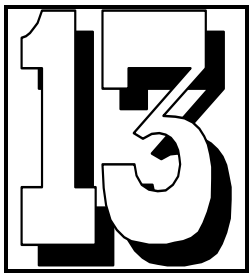
Until after World War II, the number of Canadian professional astronomers was still very small. The RASC provided professionals with an organizational outlet, in a way that the Royal Society never had. Professionals were always prominent at the national level and in the local centres. C.A. Chant, who trained most of the pre-war astronomers at Toronto, edited the RASC's Journal and Observers Handbook for decades. Indeed, the RASC was unique amongst national astronomical societies, bringing amateurs and professionals together under one roof.

After World War II, Canadian astronomy expanded slowly. Besides the two national optical observatories, the Dominion and Dominion Astrophysical Observatories, radio astronomy installations appeared in1960 with the DO's station, the Dominion Radio Astrophysical Observatory, and the National Research Council's Algonquin Radio Observatory. The NRC also supported research in laboratory astrophysics and meteor science. The University of Toronto's David Dunlap Observatory, which had opened in 1935 with the world's second-largest reflector, was the only significant university facility and the only centre for graduate studies in astronomy. In those days, Canadian astronomers were most likely to meet their colleagues at AAS meetings or at meetings of the Astronomical Society of the Pacific or the International Union of Radio Science (URSI).

George Ellery Hale, the founder of the Yerkes and Mount Wilson Observatories (and the father of the Mount Palomar Observatory), had an unwitting hand in the organization of Canadian astronomers. J.S. Plaskett was one of Hale's great admirers and when the latter formed the International Astronomical Union, Plaskett ensured that Canada was an early adhering nation. From the early 1920s, Canada, through the Dominion Observatory, was an active member, with its astronomers on several IAU commissions. Each adhering nation had a National Committee, though in practice, committee work was handled by the DO. When Carlyle Beals was Dominion Astronomer in the 1950s and 1960s, he envisioned a broader role for the Canadian National Committee (CNC). With government funding, CNC meetings began to attract more than just committee members: a prominent astronomer, often an American, would give an address, along with a few papers by Canadian astronomers. Not surprisingly, government astronomers were most likely to attend.

The RASC had grown larger, and was beginning to hold annual, national meetings of its own, but these meetings did not focus upon professional contributions like the AAS meetings. Many Canadian astronomers published in the pages of the RASC's Journal, but it was not the journal of record for most professionals. When the 1960s arrived, university programmes in science expanded rapidly, and astronomy groups and departments appeared across the country. University-based astronomers, particularly younger ones in smaller centres, did not have the financial means to attend CNC meetings regularly. The lack of regular contact and a forum for debate over future directions of Canadian astronomy were factors contributing to the cancellation of the Queen Elizabeth II telescope project in 1968. A further stimulus for organizing came when institutional players were reduced in number. In 1970, the federal government closed the Dominion Observatory and transferred its staff and facilities to the National Research Council (NRC).

The NRC had, for many years, formed Associate committees with members drawn from the Council's laboratories, industry and academia to focus upon specific research areas. With the consolidation of government astronomy, an Associate Committee for Astronomy was now created; it had, effectively, the same membership as the CNC. A sub-committee of this group, composed of Vic Hughes of Queen's University, Michael Ovenden of the University of British Columbia and Robert Roeder of the University of Toronto, proposed that a professional society should be formed. It estimated such a society might initially attract between 100 and 150 members (which, in the event, it did). At its meeting in Victoria in May 1971, the Associate Committee/CNC accepted this recommendation and elected a council of seven. Helen Hogg, of Toronto, was chosen the first president, with Peter Millman, of the NRC, as the inaugural secretary. This was considered the founding meeting. The first meeting followed at the University of Toronto that November.



During the early years, the Canadian Astronomical Society or CAS (its bilingual acronym CASCA came later) worked to build up its credibility amongst its own clientele. Early members realized the importance of informing and advising government on the profession's needs, but a mechanism for such advice emerged only later. CASCA had no official journal - though it reported its activities through the Journal of the Royal Astronomical Society of Canada - and informed its membership through a newsletter. Alan Batten, of the DAO, CASCA's second president, began issuing occasional leaflets. David DuPuy, at St Mary's, suggested a regular newsletter. Cassiopeia was thus established, with DuPuy and Jack Heard of the DDO as co-editors. Cassiopeia went through over 100 quarterly issues, named for the solstices and equinoxes, until it was replaced by an electronic version.

Before the Society formed, Canadian astronomers were very active in the AAS. Once CASCA grew in membership and complexity, Canadians put more of their energy into their own organization, though many still attend the American meetings. CASCA's organization and meeting format developed along lines familiar to AAS members. Paper sessions became larger and more formal, compared with the early CNC days. Plenary and poster sessions were introduced, along with a series of awards and a range of committees. Unlike its American counterpart, CASCA holds only one annual meeting, moving back and forth across Canada, though the Board of Directors (as the council came to be called after incorporation in 1983) met more often.

During a period of retrenchment, the National Research Council terminated its associate committees, including that of astronomy. The Canadian National Committee of the IAU, however, remained intimately associated with CASCA; the Board acts as the CNC. CASCA's early hopes of providing advice to government bore fruit with the organization of an Advisory Committee to the Herzberg Institute of Astrophysics, NRC's astronomy division. The culmination of CASCA's sounding of the profession to set priorities can be seen in its recent participation in the work of the Long-Range Planning Panel.

## The Queen Elizabeth II Observatory Project
## Quoted from the MKSP website

**The Rise and Fall of the Mt. Kobau Observatory Project**

There was a time when Canada stood alone at the summit of astronomical technology. In May 1918, the Dominion Astrophysical Observatory’s newly-completed 72" reflector inherited the title of World’s Largest Telescope. It was a remarkable achievement for our young country, but her glory proved short-lived. Bumped to second place just six months later by the American 100" Hooker Reflector, Canada began a slow slide from preeminence. Within two generations, Canadian telescopes were out of the top ten.

Canada's astronomers eagerly sought approval for an instrument that would assist them, once again, to the leading edge of astronomical investigation.Appropriately, it was the director of the Dominion Astrophysical Observatory who commissioned a survey of potential domestic sites for a world-class telescope. Climatological and atmospheric tests pinpointed several excellent prospects: dark, accessible locations favored with a large proportion of clear nights, transparent skies, and fine seeing. From the short list, an obscure 1890-metre peak in British Columbia's semi-arid southern interior emerged as the leading contender. On October 28, 1964, Prime Minister Lester Pearson, made it official: Mt. Kobau was to be the site of Canada's new National Observatory.The centrepiece of the planned Kobau complex was a 12-storey dome housing a telescope with a 157" diameter mirror. The instrument would be the second largest on the planet, surpassed only by California's famous Hale Reflector on Palomar Mountain. Kobau's giant eye was dubbed the Queen Elizabeth II Telescope, commemorating Her Majesty's 1964 visit to Canada. Support buildings, dormitories, several smaller telescopes, and a futuristic visitor's centre (complete with planetarium and museum) rounded out plans for the mountain-top community. Mt. Kobau seemed destined to take its place among the major observatories of the world.But as Corning's giant fused-silica mirror blank cooled and crews blasted a road to the Mt. Kobau summit, dissension split Canadian astronomers. As good as the Kobau site was, it could not match developing locations at exotic sites in the tropics. If Canada acted quickly, she could join European and American astronomers with a foothold in the Chilean Andes. On the other hand, starting from scratch in distant South America would be costly, and difficult to justify with the Kobau project well underway. Besides, was it not crucial to build Canada's observatory at a domestic site for maximum access by her own aspiring graduate students?With astronomers unable to provide united direction, politicians pulled the plug. The Mt. Kobau Observatory project was canceled as part of federal spending cutbacks, on August 29, 1968.

Kobau's supporters among Canadian astronomers tried for years to resurrect a scaled-back project, to no avail. The lone active instrument on the mountain, a 16" telescope originally erected for site-testing, was removed in 1981. The giant mirror for the QEII telescope sat unfinished and unused for two decades. Sold at last around 1986, it is believed to have been melted and recycled.Today, amateur observers from across North America – and beyond – keep the mountain's astronomical heritage alive. For one week each summer, young and old gather amid firs and sagebrush at the site of the proposed observatory to explore the wonders of Kobau's dark, calm skies.

- Jim Failes

Don't forget!

**Mt. Kobau Star Party will be from dusk August 3 to dawn August 11, 2002**

http://pages.sprint.ca/todd/files/software.html
*Great software site and many other links —wow*

http://www.bigfattail.com/mallastro/index.html
*Web cams—I'm going to do this*

http://www.astrabio.demon.co.uk/QCUIAG/
Everything you need

## *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 |
| Xerox Canada | 1,300 |
| 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 |
| 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.*