

Cover Image, Comet Panstarrs over Mornington Boat Harbour 2mar2013, by G Walton



SCORPIUS

THE JOURNAL OF THE
MORNINGTON PENINSULA ASTRONOMICAL SOCIETY INC.

Volume XXII, No 5 (September /October)

The Mornington Peninsula Astronomical Society (formerly the Astronomical Society of Frankston) was founded in 1969 with the aim of fostering the study and understanding of Astronomy by amateurs and promoting the hobby of amateur Astronomy to the general community at all levels.

The Society holds a focused general meeting each month for the exchange of ideas and information. Regular public and private observing nights are arranged to observe currently available celestial objects and phenomena. In addition, the society encourages the services of its members for educational presentations and observing nights for schools and community groups.

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S CORPIUS The journal of the Mornington Peninsula Astronomical Society

Newsletter Disclaimer

The Scorpius Newsletter is published online, once every two months for its membership, by the Mornington Peninsula Astronomical Society, for Educational Purposes Only. As a newsletter, this publication presents news spanning a spectrum of activities, reports, and publications in order to keep society members abreast of a variety of events and views pertaining to astronomy. While prudent, reasonable effort has been utilized to verify factual statements made by authors, inclusion in this newsletter does not constitute or imply official MPAS endorsement. All materials (except previously published material, where credited) are subject to copyright protection © 2013, Mornington Peninsula Astronomical Society

September / 2013

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
1 Fathers Day Jupiter & Moon 4deg	2	3	4	5 New Moon	6 Public Night 8pm Venus & Spica 3.5	7
8	9	10	11 ASV Meeting	12	13 First Quarter	14
15	16	17	18 Society Meeting 8pm Venus & Saturn 1.6	19 Full Moon	20	21 Members Night BBQ 6pm
22	23	24	25 Planning Meeting 8pm Mercury & Spica 0.8	26	27 Last Quarter	28 Astronomy class 1pm
29	30					

Monthly Events & High Lights. Watch out for Auroras - Red Days indicates School Holidays
 Public nights 6th, 8pm start - AC Astronomy class on 28th March @ the Briars 1:00 pm by Peter Lowe
 Society Meeting at 8pm on 18th @ the Peninsula School - Members Night BBQ 6pm at the Briars 21st
Evening - 6th Venus & Spica 1.6 deg apart - 18th Venus & Saturn 3.5 deg apart - 25th Mercury & Spica 0.8 deg apart
This year Border Stargaze has been Cancelled

October / 2013

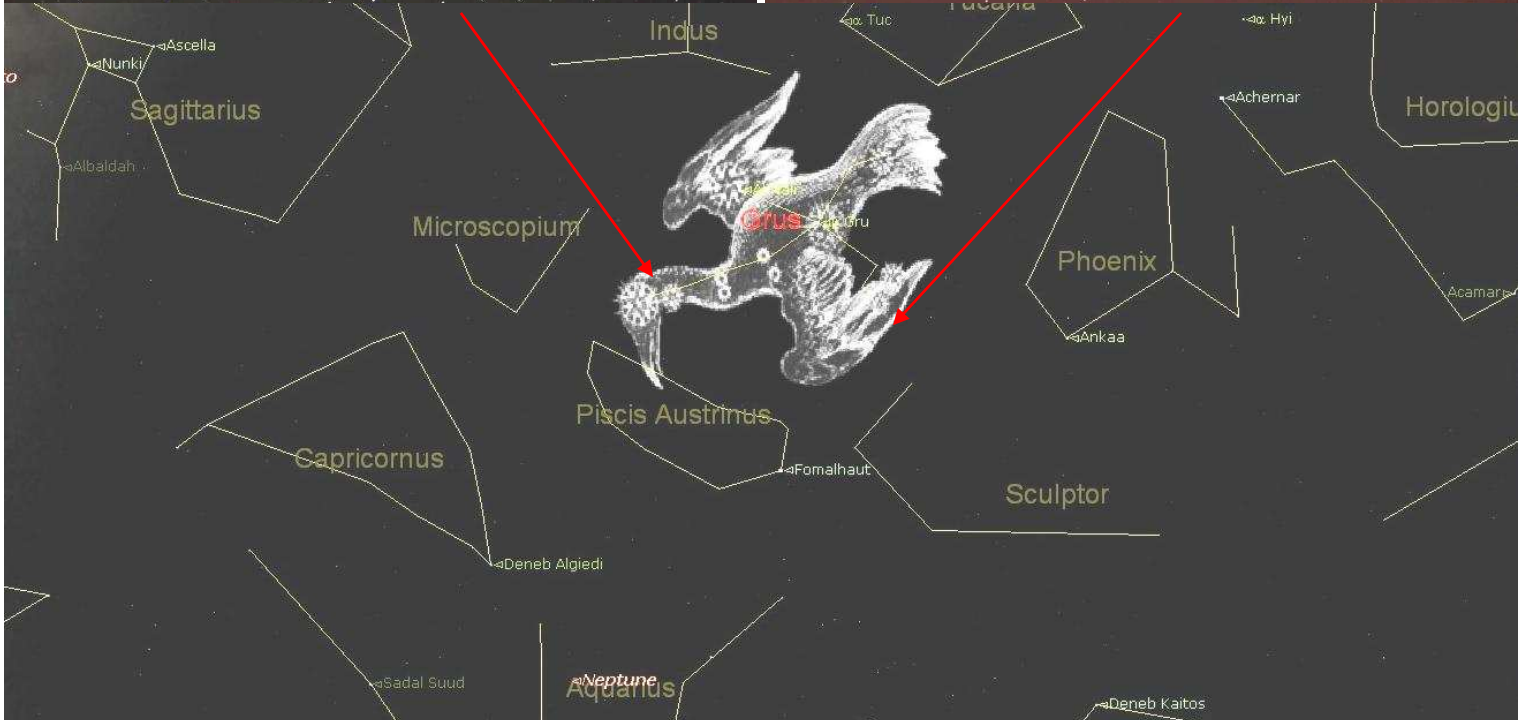
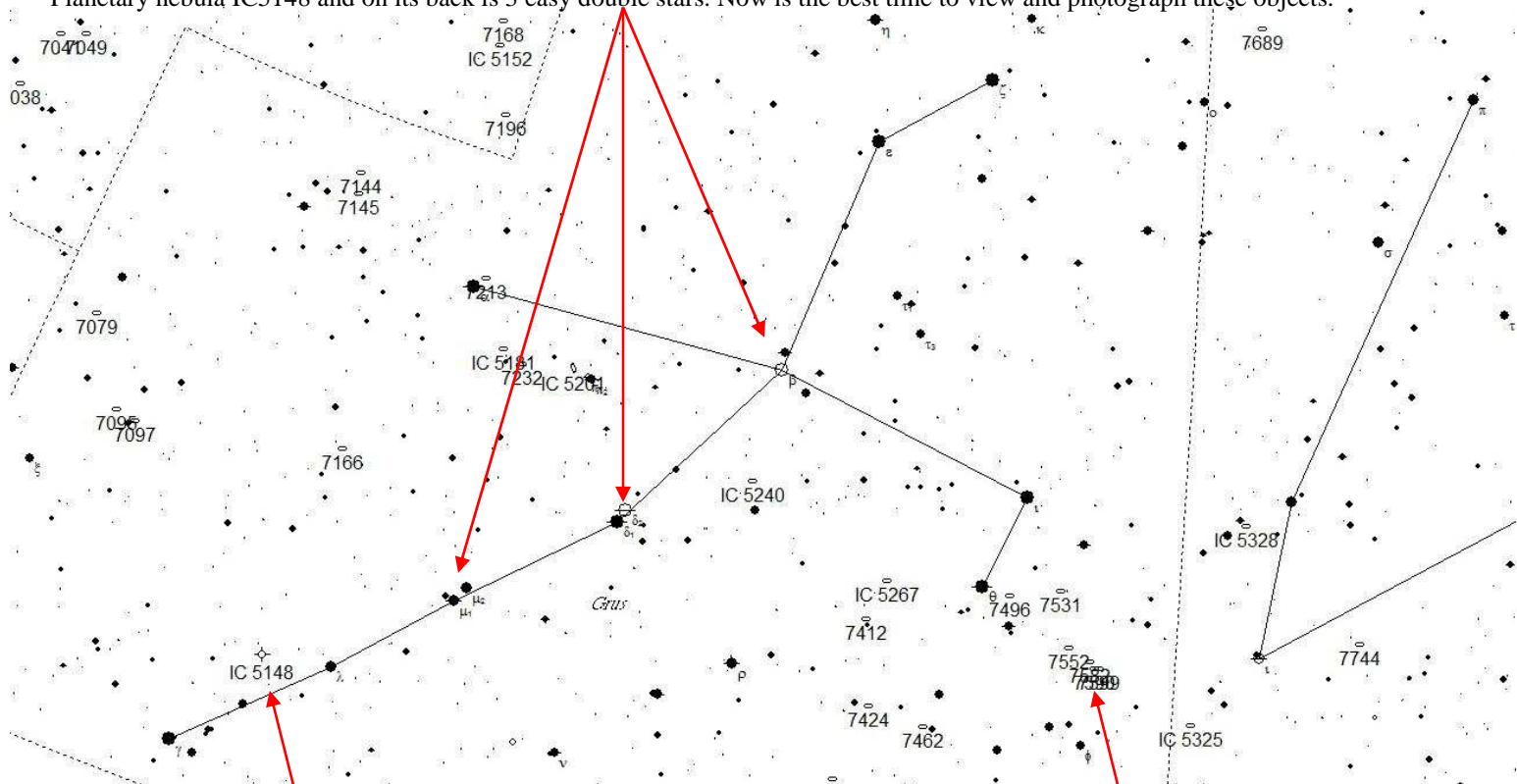
Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
		1 Mars 6deg below the Moon 5am	2	3	4 Public Night 8pm	5 New Moon
6 Day light saving begins	7 Mercury & Saturn below the new Moon	8 Venus 5deg above the Moon	9 ASV Meeting	10	11	12 First Quarter
13	14	15	16 Society Meeting 8pm Mars & Regulus 1.0	17 Venus & Antares 1.6	18	19 Full Moon Members Night BBQ 6pm
20	21	22	23 Committee meeting 8pm	24	25	26 Astronomy class 1pm Jupiter below Moon
27 Last Quarter	28	29	30 Mars 5deg below the Moon 4am	31 Halloween		

Monthly Events & High Lights. - Watch out for Auroras Day light saving begins on the 6th
 Public nights 4th 8pm start - Society Meeting at 8pm on 16th @ the Peninsula School
 Members Night BBQ 6pm at the Briars 19th
 AC Astronomy class on 26th March @ the Briars 1:00 pm by Peter Lowe
Evening - 7th Mercury & Saturn below the new Moon - 16th Mars & Regulus 1.0 - Venus & Antares 1.6
Dawn - 1st Mars 6deg below the Moon 5am - 26th Jupiter 4deg below the Moon 5am - 30th Mar 5 deg below Moon 4am

Note this years the Members night BBQ's will be the first Saturday after the Society Meeting.
 Also General Meetings will be called Society Meetings under the new regulations.

Sky for the months September we look over head to Grus Produced on Sky Map & Starry Night by Greg Walton

Grus is one of the few constellation which looks like its name the Crane, it has 24 Galaxies of 12 magnitude or brighter, at the end of the left wing you will find one of my favourite groups of galaxies the Grus Quartet NGC7590, also near the neck is a interesting Ring Planetary nebula IC5148 and on its back is 3 easy double stars. Now is the best time to view and photograph these objects.



SOCIETY NEWS

By Greg Walton

Aurora photo by
Russell Cockman

June Society meeting seen a good turn out of about 30 members, Peter Lowe (President) gave a short round up on Vastroc. Then guest speaker Dr Russell Cockman talked about his journey as an Astrophotographer and gave many helpful tips, he also impressed us all with a fantastic display of his work including Aurora, Nebula and Galaxies, then chatted with us over coffee.

June Member Night BBQ seen a good turn out of about 30 members, even though the weather was very cool. Clear skies meant that many set up there telescopes to do some astrophotography, under an almost full Moon. Thank you Peter Lowe (President) for buying in all the food. Thanks Guys for help with the cooking and thanks Girls for set up the food and the cleaning up after wards.

July, It was quite a chilly night at the Briars last night for the public, but we nevertheless had 32 people turn up, mostly families with teens I recall, plus numerous members. Lots of tea in particular was consumed, causing us to run out. Now that must mean it was cool. The skies were clear and dark until the closing part of the evening around 10:13pm when clouds converged. Great views were had of Saturn, despite wind buffeting. Peter Lowe gave an extended talk inside, while outside braving the conditions were Peter, Chris and Cassandra Skilton, Greg Walton, Bob Heale, Simon Hamm, John and Marj Cleverdon, Jamie Pole, Helmuth and his sister and Peter and Kendra Elias. It's possible there were others I've forgotten if they forgot to sign the observatory log (hint, hint). One family had returned with teens in tow after remembering me speak when we used to be down at the Visitor Centre instead, so a return visit after many years. Either it was a fond memory at the time, or a particularly scary one and it's taken them this long to recover! Cheers, Peter

July Society meeting seen a good turn out of about 30 members, Greg Walton did sky for the month and showed time lapse videos of the night sky at LMDSS. Then Peter Lowe (President) gave a informative talk about space travel technologies over the past fifty years, then we chatted over biscuits and coffee.

July working bee took place before the Member Night BBQ, even though the weather was cold and wet. Special thanks to Tony for an over due washing of the floor in the big shed, Mark for fixing the fence, filling in large holes next to the path and washing BBQ grease off the floor, Ian for cleaning the fridge and washing tables, Big Dave for replacing the safety signs, while I dusted off telescopes and knocked down cob-webs. The Member Night BBQ seen a good turn out of about 20 members, the Moon pecked out of the clouds from time to time. Thank you Peter Lowe (President) for buying in all the food. Thanks Guys for help with the cooking and thanks Girls for set up the food and the cleaning up after wards.

August public night seen a small turn out of about 15 members of the public. Hi All. Well it was dark, bitterly cold, windy but surprisingly clear skies. The public viewing night last night saw Trevor giving a new talk on planetary orbits. I now know why it's cold in winter!! Greg and John Cleverdon manned some scopes outside looking at Saturn and a few deep sky objects. Unfortunately the seeing was a bit off making Saturn look like a Galilean blob at high mags but everyone seemed happy at lower mags. Thanks to those members who braved the elements Peter Skilton, Greg, John, Fiona, Stewart, Simon and of course Trevor. A successful but cold night. Cheers Peter L



This year MPAS will again be at VicSouth, so join us.

VicSouth Desert Star Party 2013

Friday 1 November to Monday 4 November 2013

For further information regarding Accommodation and Meals,
Please contact the team at the Lodge on
(03) 53915232 during business hours.

Little Desert Nature Lodge
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PUBLIC NIGHT THANK-YOU

Recent public viewing nights and school viewing nights have continue to be very well received by the attendees. It is no coincidence that this is due to the efforts put in by the members that help out at these events. To everyone that has helped out over the past months, a very big thank-you goes to you all. Your efforts are very much appreciated, and are being very well received.

2013 SUBSCRIPTIONS DUE

The ticking over of the New Year also means that society fees are now due to be paid. The society has worked hard to ensure that 2013 fees are still the same as last years prices. So to assist the society in maintaining the facilities and service we provide, we appreciate your prompt payment for the 2013-year ahead.

As a reminder, the following structure of the fees are:

\$50 – Full Member
\$45 – Pensioner Member
\$65 – Family Membership
\$60 – Family Pensioner Membership

SOCIETY FEES

Subscriptions can be paid in a number of ways:

- Direct Cash payments to a committee member
- Send a cheque or mail order to the society mail box MPAS. P O Box 596, Frankston 3199
- Make a direct electronic payment into the society working bank account.

The account details are BSB 033-272 Account 162207. Remember to add your name and details to the transfer so we can identify the payment in the bank records.

If you have any concerns please talk to a committee member.

New
Members
Wanted

A word from the Scorpius editing team.

Members please write a story about your astronomy experiences and add some pictures.

Send them to:
Brett Bajada
Peter Lowe
Greg Walton

gwmpas@gmail.com

ASTRO NEWS

By Peter Lowe

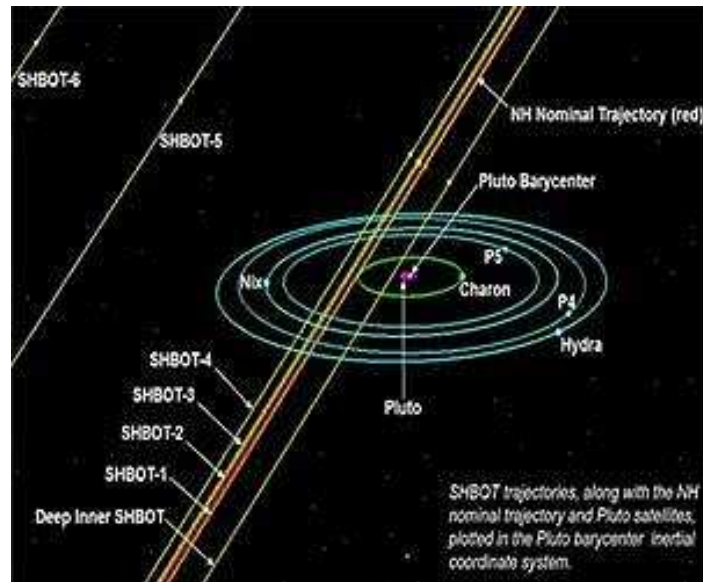
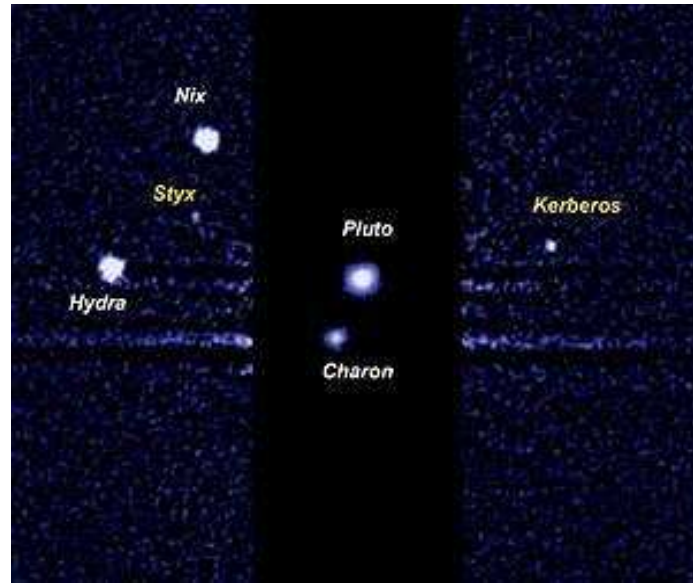
Pluto and Beyond

Pluto's two smallest known moons, previously referred to as "P4" and "P5," have been formally named. P4 has been named Kerberos, after the three-headed dog of Greek mythology and P5 has been named Styx, after the mythological river that separates the world of the living from the realm of the dead. Both were first seen in lengthy exposures of the Pluto system obtained by the Hubble Space Telescope. Kerberos was discovered in 2011 and Styx in 2012. The images were obtained in support of NASA's New Horizons mission, which will fly past Pluto in July 2015.

New Horizons will provide up-close looks at Kerberos, Styx and their companion moons when it becomes the first spacecraft to fly through the Pluto system.

These additional moons forced a reappraisal of the New Horizons trajectory through the Pluto system.

Additional Hubble observations have not detected any other orbiting bodies but there could still be smaller hazardous objects trapped within the system. Pluto's largest moon Charon is believed to have cleared its orbit of dust and debris creating a pathway through the system. The approach is highly inclined to the system's satellite plane minimising the chances of a destructive mission ending impact. Five possible trajectories charted. As Horizons approaches Pluto close up photography should reveal any other unseen risk before the final trajectory is select. NASA estimates the chance of impact is about 1-in-300. New Horizons has been travelling for some 2,700 days and still has 700 days to go.



Human Development and the Climate

Archaeological records suggest a correlation between periods of wetter weather and the earliest examples of human cultural and technological innovations. Anatomically modern humans, *Homo sapiens*, first made their appearance in Africa during the Middle Stone Age, which lasted from about 280,000 to 30,000 years ago. Fossil evidence of innovative spurts in human advancement occurred some 71,000 years ago and between 64,000 and 59,000 years ago. These innovations include the use of symbols, complex language, the manufacture of more complex stone tools and personal adornments with shell jewellery and engravings. The timing of these periods of innovation seem to coincide with abrupt climatic changes. While South Africa experienced wetter conditions, the sub-Saharan regions grew drier. These changing conditions are expected to drive changes in the way that early humans interacted suggesting that population growth fuelled increased culture complexity and human interactions over the region.

A study of the South African climate over the past 100,000 years using sedimentary cores shows changes on river discharges and rainfall that appear to correlate with the known innovation spurts. The study concludes such climate-driven pulses in southern Africa and more widely were probably fundamental to the origin of key elements of modern human behaviour in Africa and to the subsequent dispersal of *Homo sapiens* away from its ancestral homeland.

Weather on the Outer Planets Only Goes So Deep

The outer gas giant planets Uranus and Neptune have only been visited once in 1989 when Voyager flew by. Planetary scientists were surprised to see active weather as shown in the picture at left. In the middle is the Great Dark Spot, accompanied by bright, white clouds that undergo rapid changes in appearance. To the south of the Great Dark Spot is the bright feature that Voyager scientists nicknamed "Scooter." Still farther south is the feature called "Dark Spot 2," which has a bright core. As each feature moves eastward at a different velocity, they are rarely aligned this way. Wind velocities near the equator are westward, reaching 1300 km/h, while those at higher latitudes are eastward, peaking at 900 km/h.

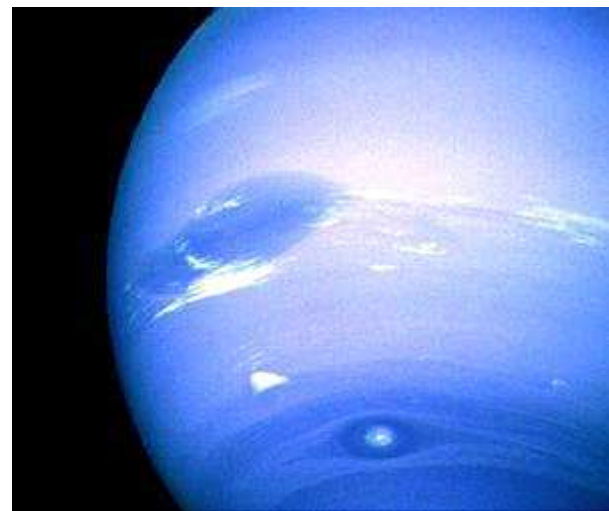
These high winds were a surprise and suggested they resulted from planetary rotation and extreme low temperatures.

Immense hurricane-like storms as large around as Earth and surrounded by fast-flowing jet streams can last for years and Both planets feature similar climates, despite the fact that Uranus is tipped on its side with the pole facing the sun during winter. The question is "Are these surface wind patterns?" or "Do these patterns arise from deep down in the planet?"

These storms represent re-distributions of mass in the atmosphere and affect the local gravitational field much like mountain ranges affect satellite orbits on Earth. Simulations of the likely wind patterns and the resultant gravitation effects suggest that the streams of gas observed in the atmosphere are limited to a "weather-layer" of no more than about 1000 km in depth, which makes up only a fraction of a percent of the mass of these planets. Below this layer the planet essentially rotates independently.

While these results arise from computer simulation, actual observations may be forthcoming when the next Jupiter probe Juno reaching Jupiter in 2016. It will provide very accurate measurements of the gravity field of this giant gaseous planet and using the same methods should allow astronomers to place constraints on the depth of the atmospheric dynamics of this planet.

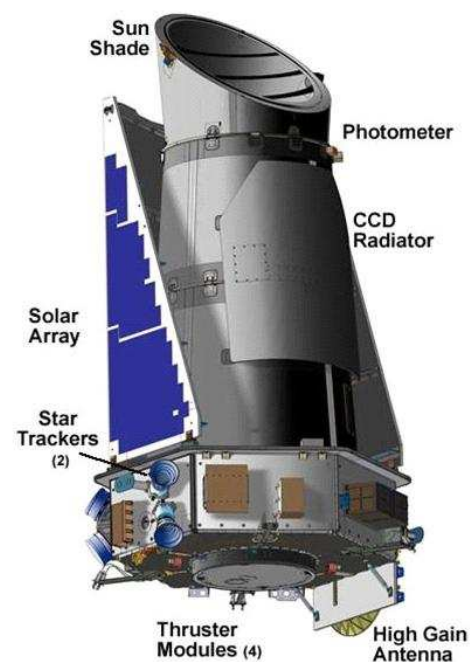
No further probes are planned to visit Uranus and Neptune and there are still many open questions regarding their formation and composition.



Kepler Approaches Its Mission End.

NASA's chief planet hunter the Kepler space probe is broken, perhaps terminally. The spacecraft was placed into a safe resting mode on May 15 following the failure of another reaction wheel. The reaction wheels are used to adjust the extreme pointing accuracy required when taking observational photographs. The craft needs at least three operational wheels and the failure of its No. 4 wheel leaves it with only two. NASA engineers are working on alternative star tracking methods but the high accuracies required seem unobtainable. The craft can be used for other secondary mission objectives but its primary object does not look good. The Mission Director is still hopeful however. Kepler has been a spectacular success since its launch in 2009. It has found more than 2,700 extra-solar planet candidates of which 134 planets have been confirmed. The craft is essentially a giant CCD camera on a precision mount. The camera has a 105 square degree field of view watches star fields for tiny brightness variations as planets transit the stellar disc.

Coincidentally the French space agency (CNES) has announced the retirement of the Convection, Rotation and planetary Transit (CoRoT) mission that was a forerunner instrument to the Kepler craft. Launch in 2006 CoRoT paved the way for Kepler in terms of space-based identification of transiting exoplanets and also the detection of acoustic oscillations in sun-like stars.



China Finishes Phase 1 of its Space Program.

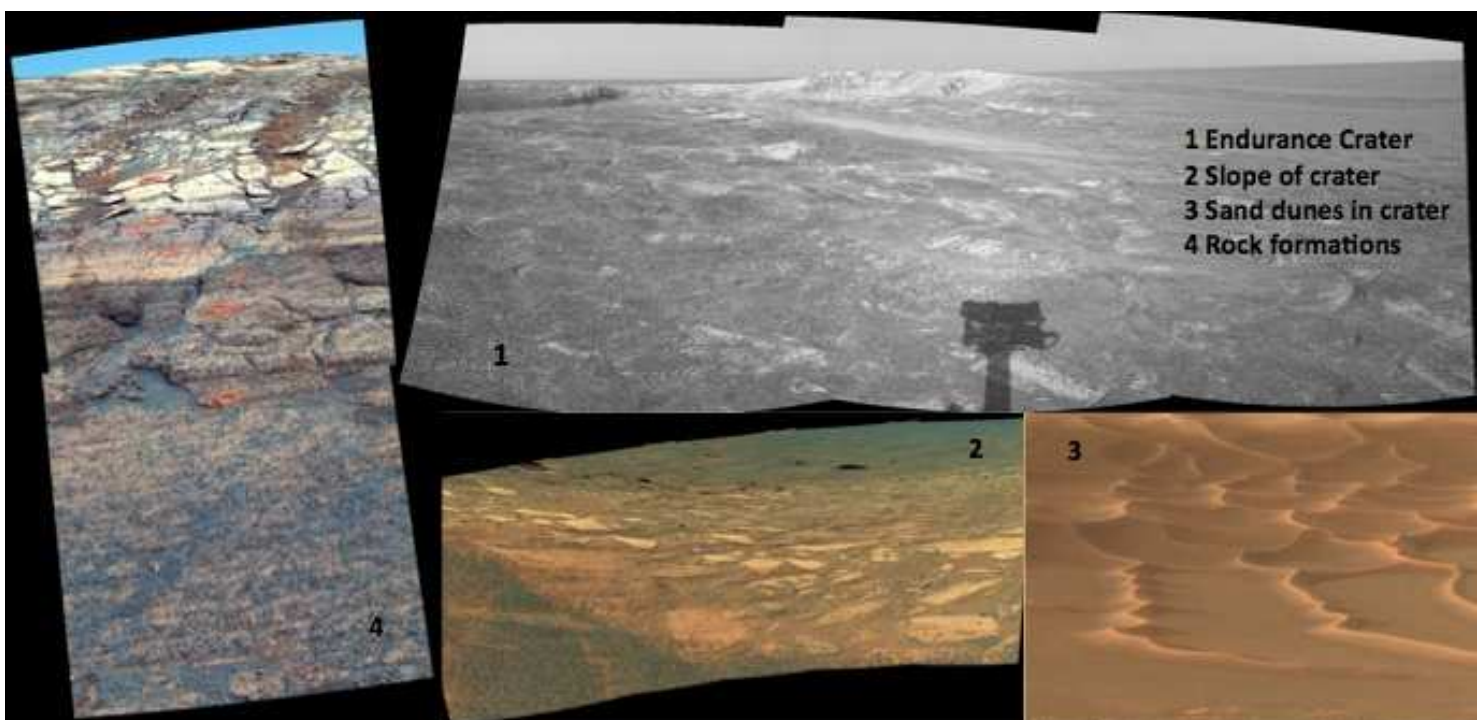
After 15 days in space the safe return of China's Shenzhou 10 spacecraft with its three-person crew completes all the planned crew activities using the Tiangong 1 space laboratory. Since its launch in 2011 three mission crews have visited Tiangong 1. The primary goals of the Tiangong 1 missions were learning to sustain crews in space and develop docking procedures. While still operating automatically the laboratory has basically run out of basic resources and is unlikely to be used again. Its ultimate fate is unknown but after further orbital manoeuvres it will most likely be destroyed in a controlled re-entry.

The Tiangong 2 space laboratory is in construction and is expected to be larger and more sophisticated. Planned for launch around 2015 it represents the next stage in the development of a Chinese space station. The manned space station is expected to be built by 2020.



Mars Opportunity Sets Endurance Record

On July 7th the Mars Opportunity rover celebrates the 10th anniversary of its launch and more than 9 years exploring the Martian surface. Designed for a 3-month surface mission, this far exceeds all expectations. The rover is still fully operational and is currently en route to "Solander Point", a place on the rim of Endurance Crater. Having traversed a distance over 36 kms Opportunity recently set the all time record for mileage traverse on another planet. The Apollo 17 moon rover, which astronauts Gene Cernan and Harrison Schmitt drove for 35.74 km across the lunar surface in December 1972, had held the previous record. If Opportunity survives another year the rover might yet break the all-time extraterrestrial driving record set by Lunokhod 2, a Soviet robotic vehicle that travelled an estimated 42 km across the Moon in 1973.



Russian Meteorite Located in Urals Lake

A huge fragment of the meteorite that slammed into Russia's Urals region in February appears to have been located on the bottom of Chebarkul Lake in the Chelyabinsk Region. On the February 15, a massive meteor passed over the Urals city of Chelyabinsk, blowing out windows, damaging thousands of buildings and injuring 1,200 people. The meteor broke into approximately seven large fragments and one of them was believed to have fallen into Chebarkul Lake, forming a hole in the ice about eight meters in diameter. Eye witnesses reported seeing a meteorite falling into the lake sending a jet of water into the air. At the time exploration by divers failed to recover any meteorite fragments. Researchers from the Urals Federal University have conducted a radar survey of the bottom of the lake and measured the magnetic fields in the area. The radar survey revealed a small crater and magnetic field measurements suggest a meteorite fragment approximately 300kgs is lying buried in the lake sediment. Sonar scans in the area show an unidentified object measuring 6 metres in diameter at the lake bottom. Plans for possible recovery are being prepared.



Finally a Ray of Hope on Light Pollution

Those members who regularly observe at the Briars Astronomy Centre know that the slow but steady rise in light pollution from the surrounding cities and factories is a cause for concern. Over the last decade climate change has become a major politic issue and if you pardon the pun, political pressures are hotting up Reducing CO₂ emissions has been spruiked as the political panacea to this problem but governments are yet to seriously respond. Personally I have always thought that if the governments both federal and local were serious about of this issue then reducing the most obvious "advertisement" for energy wastage involved turning off the lights.

Nothing much has happened in Australia yet but there is still hope. The French government has just enacted a law requiring internal and external lights on unoccupied buildings including illuminated building facades and neon advertisements to be turned off between the hours of 1am and sunrise. The new law is expected to save around 2 terrawatts of energy equivalent to 770 million Euros per year (or 250,000 tons of CO₂). But of course the only exemption is the Eiffel Tower. Local mayors will be held legally accountable for enforcing the law and will receive additional local government funding as an incentive. Companies ignoring the law will be fined 600 Euros for a first offence and will have their power cut off for 24hrs on any subsequent offences. Now that's what I call serious government action. The new law came into force on July 1st. So far compliance has been slow but Hey, you have to start sometime. I only hope Australia is watching.

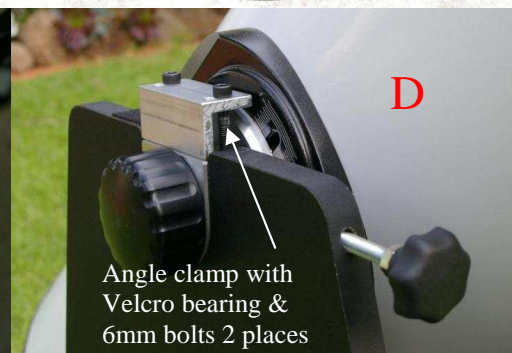
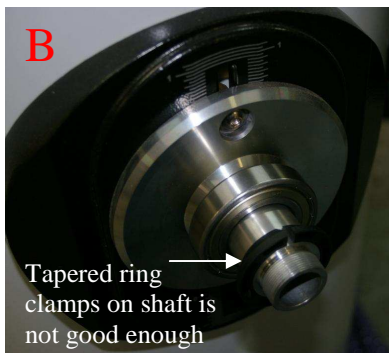


Field testing and Modifying my new GSO 12 inch Dobsonian, by Greg Walton

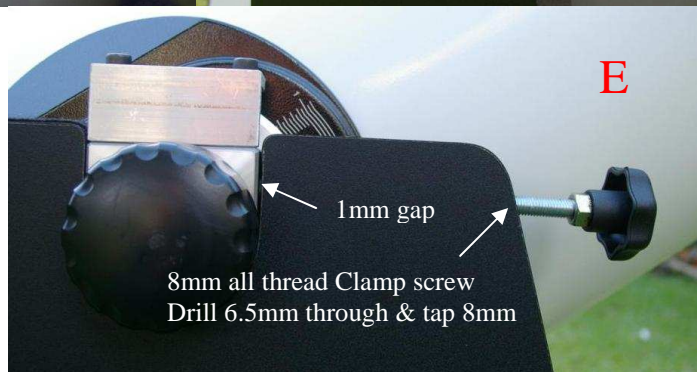
After I dismantled my first 12inch GSO Dobsonian to build a 12inch brief case scope, (see Scorpius #2 2012) I missed this scope as I did use it for astrophotography on my EQ6 so I decided to buy another. This new GSO Dobsonian came from Andrew communications Sydney for around \$900.00 which is very good value as it came with a 2" 2 speed focuser, 4 eyepieces a 2"-30mm & 3x1/4"-25, 9 & 6mm, it also come with a right angle 50mm finder scope and a 12v mirror cooling fan. Another thing I liked is the mirror cell is fitted with white locking knob and black adjusting knobs. The mount came as a flat pack which you assemble yourself, which all went together very easily, it was supplied with a lazy Susan thrust needle bearing which I removed and replaced with 3 Teflon pads like used on most Dobsonian, as it moved way too easy to be usable, especially at public night were most people tend to lean on the scope which moves it of its target. One day I will most likely add an aluminium plate for the Teflon to run on. (A)

The tube came preassembled excepted for the altitudes bearings, these were of a new type that I had not see before. They come with an adjustable mounting plates, so you can move the telescope tube back and forth to find the correct balance point, which I found very useful. The bearings come with a large knob to adjust the friction with a ball races in each side (B), it all looked very nice but just did not work. I found it did not

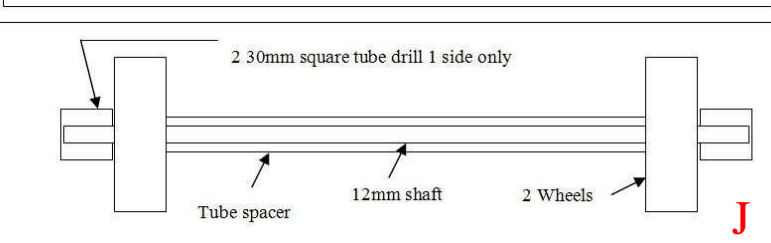
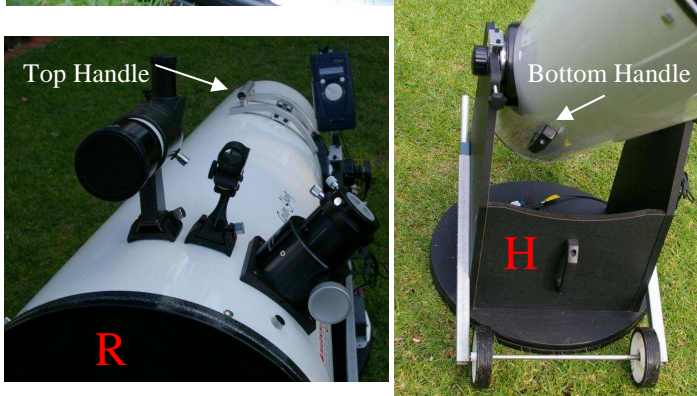
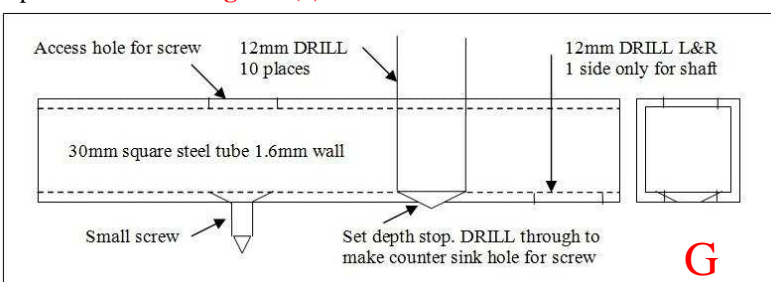
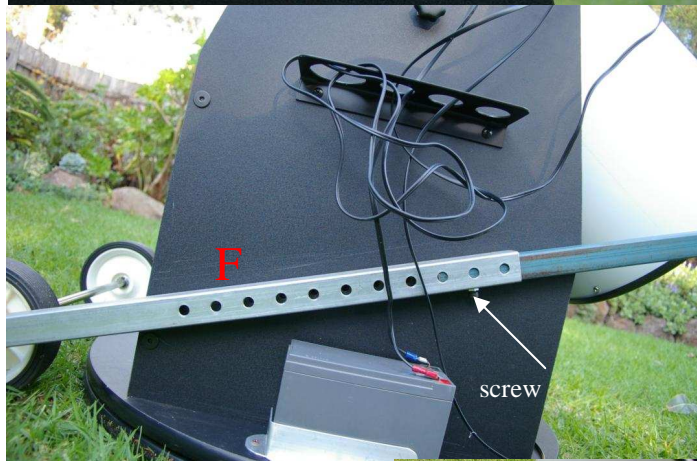
matter how tight you did up the knob, it was still way to easy to move. **For an 8 inch scope it may be just ok.** So I ended up drilling and taping 2x6mm thread in the top of the housing (C) and



making a clamp to apply extra friction to the bearing flange, (D) I stuck a piece of Velcro on the inside of the clamp as a bearing material, as aluminium on aluminium would weld. Also with this new type of bearing the outer housing drops in to a slot in the mount and is secured with a piece of felt on one side, this also did not work as it had 1mm clearance, meaning it just rocked back and forth making it useless. So I drill & taped 8mm holes through the craft wood mount and fitted 150mm long 8mm all thread with a knob to clamp the housing tight so it could not move. (E) **I must say here that optically the telescope is perfect,** the problems with the mount can be fixed be almost anybody. There is almost endless improvements and gadgets to be add to these telescopes. I fitted a red dot finder between the focuser and 50mm finder (R), I also added handles to both top & bottom of the telescope tube to make it easy to lift the tube on and off the mount. (H)



Telescopic wheel barrow type handles making it much easier to move the scope around. (F) I used 30mm square tube for the outer and 25mm square tube for inner handle. The outer tube I drilled 11 holes almost through to mount the 30mm square tube on each side of the mount. **See diagram (G)** I also cut a slot on the under side with a bolt in the handle to stop it from sliding out. On the 30mm tube I drilled a 12mm hole on one side only for the shaft that holds the wheels and spacer tube. **See diagram (J)**



Fitting Argo Navis to my new GSO 12 inch Dobsonian, by Greg Walton

I fitted an Argo Navis computer to my new 12 inch Dobsonian, a very helpful gadget for finding most objects in the sky. I feel they are a little expensive at around \$1,000 for the control box, cables & 2 encoders, when you can buy a go to mount for about the same money or the Orion XT12g GOTO 12 inch Dobsonian for \$1999.00 at Bintel. When powering the Argo Navis with 4xAA batteries I found it did not make it through the night when cold, I have noticed most power the Argo Navis with 12v car battery via the jack on the top of the control box, but this means you have more cables to watch out for, also the jack on the Argo Navis has a bigger centre pin than all of my other mounts and accessories, this meant I had to make up a special cable for it with recommended 0.3amp fuse. I made a small bracket out of aluminium angle to snugly hold a small 12v gel-cell battery on the base of the mount, which seems to work well. (F)

Most find fitting the encoders is the hard part, there are some kits available, this is only for the more experienced handy person. I had to re machine the aluminium altitude bearing on a lathe. Connecting the wires it straight forward one cable end has a white mark on it, this connects to the ENCLINE encoder with the white dot. I have had problems with the cables falling off the encoders, so you will need to make them secure. The eyepiece bracket on the side of the mount is a good place to hold the excess wires from the Argo Navis, (F) I have never like the idea of placing the eyepieces in this bracket as they would dew up making them useless. Is the ENCLINE Encoder on the back or front? I have only one Argo Navis control box and 2 Dobsonian's both with there own Argo Navis Encoders, so I made sure I put the encoder on the same sides of the rocker box on each telescope, this meant I do not need to change the - sign to a + sign and vice verse every time I use a different telescope. (+ sign front as in photo on right & - sign if the encoder is on the back) I then made a fancy bracket to mount the Argo control box cradle so it would be facing the eyepiece, as this is were I would be operating the telescope from. I seem to get the cables around the wrong way every time, so I made labels.



I found the instruction book a bit long at 228 pages, I thought it would be nice if it could be stream lined to 2 pages for Dobsonian users. I found if I have not used the Argo Navis for a while, all has been forgotten and need to go back to the manual. The Argo Navis manual has a lot of features I will never use, so by removing these, I can make it easier for me to setup. It comes as a PDF on a CD, but not everybody wants to take there laptop out on to the observing field. I have seen people battling with a printed copy and getting very frustrated. So I have tried to fix this by making my own 2 page setup instructions, then print it on both sides of one sheet of A4 and then laminating it for out door use, see next 2 pages. **I must say once I got it working the pointing accuracy was spot on.**



Initial set up for Argo Navis on a Dobsonian, by Greg Walton

Action in Black Font, Display in RED Font, Notes in Blue Font

1. First time setup - Note do not need to attach encoders, stay warm inside.
2. Switch on **ARGO NAVIS INITIALIZING** then **MODE FIX ALT REF**
3. Turn Dial **MODE SETUP** Press ENTER **SETUP ALIGN PICK**
4. Turn Dial **SETUP MOUNT** Press ENTER
5. Turn Dial **ALTAZ/DOBSONIAN** Press ENTER
6. **SAVING** then **SETUP MOUNT**
7. Turn Dial **SETUP DATE/TIME** Press ENTER
8. Turn Dial **TIMEZONE=+10.00** Press ENTER Set to +10.00 Melbourne
9. **DATE=23 APR 2006** Set correct Date
TIME=15 : 30 : 45 Set correct Time
10. Press ENTER **SAVING** then **INITIALIZING....** **SETUP DATE/TIME**
11. Turn Dial **SETUP LOCATION** Press ENTER
12. Turn Dial **MAWSON BASE** 10 set able Locations to choose from
13. Press ENTER **MAWSON BASE** Flashing change to **HOME**
14. Turn Dial then Press ENTER Till all Letter are changed
15. **HOME** Press ENTER three times
16. **LAT=67 : 35 : 59 S**
17. **LONG=062 : 53 : 00 W**
18. Turn Dial then Press ENTER Till all digits are changed
19. **LAT=37 : 48 : 00 S** Home LAT Latitude
LONG=145 : 08 : 00 E Home LONG Longitude
20. Press ENTER
21. **HOME** Flashing
22. Turn Dial **PARIS, FRANCE** 10 set able Locations to choose from
23. Press ENTER **PARIS, FRANCE** Flashing change to **BRIARS**
24. Turn Dial then Press ENTER Till all Letter are changed
25. Press ENTER three times
26. **LAT=48 : 50 : 14 N**
LONG=002 : 20 : 14 E
27. Turn Dial then Press ENTER Till all digits are changed
28. **LAT=38 : 16 : 23 S** Briars LAT Latitude
LONG=145 : 02 : 03 E Briars LONG Longitude
29. Press ENTER **BRIARS** Flashing
30. Turn Dial To next set able Location & repeat steps 21- 30 or continue
31. Press EXIT **SETUP LOCATION**
32. Turn Dial **SETUP ALT STEPS**
33. Press ENTER **ALT = + 0010000** + sign encoder on back
34. Turn Dial **ALT = - 0010000** - sign encoder on front
35. Press ENTER 7 times **SAVING** then **SETUP ALT STEPS**
36. Turn Dial **SETUP AZ STEPS** Press ENTER
37. Press ENTER **AZ = + 0010000** + sign for Northern Hemisphere
38. Turn Dial **AZ = - 0010000** - sign for Southern Hemisphere
39. Press ENTER 7 times **SAVING** then **SETUP AZ STEPS**
40. Turn Dial **SETUP REFRACTION** Press ENTER
41. **REFRACTION=OFF** Flashing OFF - ON
42. Turn Dial **REFRACTION=ON** Press ENTER
43. **SETUP REFRACTION**
44. Turn Dial **SETUP BRIGHTNESS** Press ENTER
45. **BRIGHTNESS= 50%** Flashing 30% - 100%
46. Turn Dial **BRIGHTNESS= 40%** Press ENTER
47. **SETUP BRIGHTNESS**
48. Turn Dial **SETUP LCD HEATER** Press ENTER
49. **LCD HEATER=AUTO** Flashing AUTO - ON - OFF
50. Turn Dial **LCD HEATER=OFF** Press ENTER OFF using AA batteries
51. **SETUP LCD HEATER**
52. Press EXIT **MODE SETUP** Switch off

The 'M' character will be flashing indicating that the cursor is at that location. Turn the **DIAL** anti-clockwise until the letter 'H' appears, then press **ENTER** to advance to the next letter, which is an 'A'. Turn the **DIAL** in either direction to make it an '0', press **ENTER**, and so on until you have spelt out the word 'HOME'. Continue to erase the rest of the characters in the old MAWSON BASE name by turning them into SPACES. The SPACE character is found just after the letter 'Z' if you are turning the **DIAL** clockwise. When you have erased the last character, press **ENTER** three times until the display shows this

LAT=67 : 35 : 59 S
LONG=062 : 53 : 00 W

Edit it as you did the latitude, replacing the fields with values appropriate to your observing location. Longitude is displayed in terms of degrees:minutes:seconds or degrees.decimal degrees either East or West of Greenwich. Change the first colon character ':' to a decimal point '.' If the latitude is available to you is in degrees.decimal degrees format. Change the 'W' to an 'E' depending upon whether your location is East or West of the Greenwich Meridian. For example, if you live in the United States or Canada, your location will be West of Greenwich so you will enter a 'W'. If you live in Australia, for example, your location will be East of Greenwich so you will enter an 'E'.

When you have edited the last longitude field, press **ENTER**. The display will then show

HOME

where the word HOME will be flashing. Press **EXIT** to set HOME as your observing location. The display will briefly show -

SAVING

and then the words -

INITIALIZING

Using the **DIAL** and **ENTER** button, edit the latitude fields to values appropriate for your observing location. Latitude is displayed in terms of degrees:minutes:seconds or degrees.decimal degrees either North or South of the Earth's equator. Change the first colon character ':' to a decimal point '.' if the latitude available to you is in degrees.decimal degrees format. Change the 'S' to an 'N' depending upon whether your location is in the Northern or Southern Hemisphere.

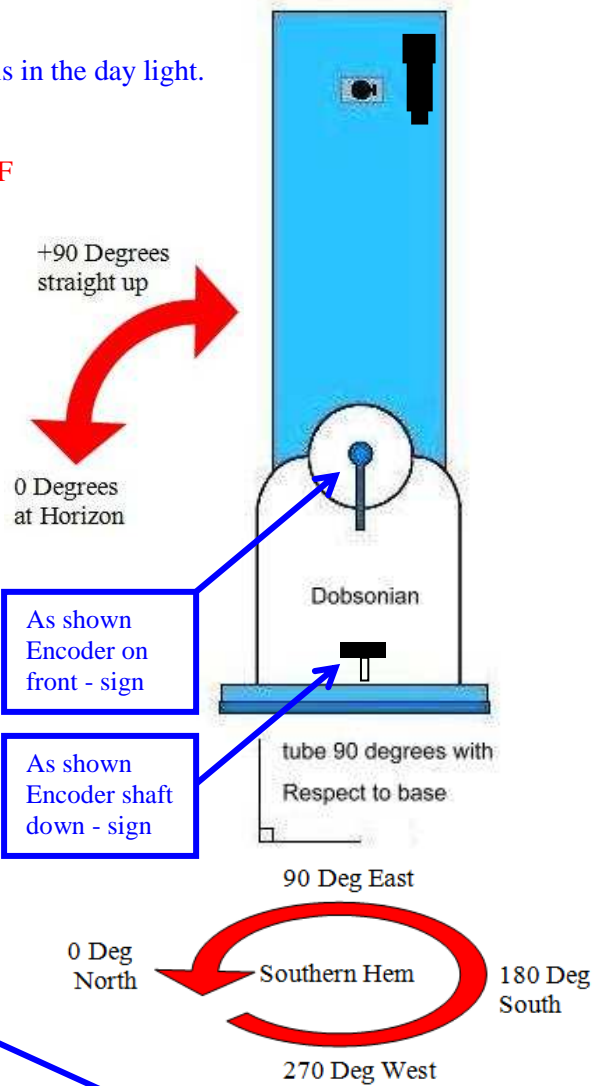
After editing the North/South field, pressing **ENTER** again will allow you to begin editing the longitude on the bottom line of the display.

Depends on which way the encodes have been installed. Southern Hemisphere
Shaft up +sign
Shaft down -sign
with a Belt +sign
See Test encodes

Test Encoders for Argo Navis on a Dobsonian Southern Hemisphere

Action in Black Font, Display in RED Font, (Notes in Blue Font)

1. Test encoders - Note you need to attach both encoders first, can do this in the day light.
2. Point the Telescope tube to the North then
3. Point the Telescope tube straight up. See left
4. Switch on **ARGO NAVIS INITIALIZING** then **MODE FIX ALT REF**
5. Turn Dial **MODE ENCODE**
6. Press ENTER
7. **AZ / ALT ENC ANGLE**
000.00° +090.00°
8. Test **ALT ENCLINED ANGLE** encoder
When the telescope is pointing straight up the display should show **ALT ENC ANGLE**
+090.00
Move the telescope, to the horizon the display should move to **ALT ENC ANGLE**
000.00
9. Test **AZ encoder for Southern Hemisphere**
Move the telescope, pointing to the North the display should show **AZ**
000.00 ° or 360.00 °
Move the telescope, pointing to the East the display should show **AZ**
090.00 °
Move the telescope, pointing to the South the display should show **AZ**
180.00 °
Move the telescope, pointing to the West the display should show **AZ**
270.00 °
10. Switch off (If this is wrong you will need to change the +-sign)



STAR ALIGN for Argo Navis on a Dobsonian

Action in Black Font, Display in GREEN Font, (Notes in Blue Font)

1. STAR ALIGN - Note you need to attach encoders first
2. Point the Telescope tube straight up. See left top
3. Switch on **ARGO NAVIS INITIALIZING** then **MODE FIX ALT REF**
4. Press ENTER
5. **ALT REF = +090.000**
AUTO ADJUST ON
6. Press ENTER **OK** Flashes on briefly
7. Press EXIT
8. Turn Dial **MODE ALIGN STAR**
9. Press ENTER **ALIGN ACHERNAR**
10. Turn Dial **ALIGN ACRUX** One of 35 stars
11. Centre ACRUX in the eyepiece
12. Press ENTER
13. **ALIGN ACRUX**
WARP= +0 . 00 (1) Flashes on briefly
14. Turn Dial **ALIGN ANTARES** One of 35 stars
15. Centre ANTARES in the eyepiece
16. Press ENTER
17. **ALIGN ANTARES**
WARP= -0 . 00 (A) Flashes on briefly
18. Press EXIT **MODE ALIGN STAR**
20. Turn Dial
21. **MODE CATALOG**
22. Press ENTER
23. **BRIGHT STAR**
24. Turn Dial **NGC** or Log type
25. Press ENTER then Turn Dial
26. Till all digits are changed
27. **NGC 5139**
28. Press ENTER
29. **NGC 5139**
GUIDE 53 26▼
30. Move scope
31. **NGC 5139**
GUIDE 0 0▼0
32. look in the eyepiece
33. Press EXIT
34. **MODE CATALOG**
35. Press ENTER
36. Go back to step 24. or
37. Switch off

You need to learn the alignment stars buy a planisphere

Changing direction
Switch on **ARGO NAVIS INITIALIZING** then **MODE FIX ALT REF**
Turn Dial **MODE SETUP**
Press ENTER **SETUP ALIGN PICK**
Turn Dial **SETUP ALT STEPS**
or **SETUP AZ STEPS**
Press ENTER
Changing +-sign
Press ENTER 7 times
Saving...
then **SETUP AZ STEPS**
Switch off
Go Back to step 1.

Remove AA Batteries if not in use for longer than 1 week. ➤ If the direction arrows point the wrong way, see **SETUP GIUDE MODE** page 106 argoman. **STAR ALIGN** is in green font because red is invisible with a red torch.

Astrophotography with a GSO 12 inch Dobsonian on EQ6, by Greg Walton

Time to tested out my new GSO F5 12inch Dobsonian mounted on my EQ6 which is rated at 17kg, but this scope weights 20kg which would need 5 balance weights at 5kg making a total load of 45kgs. So I made an extension shaft 150mm long, this meant I could move the balance weights further out from the centre balance point and only need 3 weights. Rather than buy large mounting rings, I mounted the dovetail plate hard against the metal tube, this brought the telescope closer to the mount further reducing the load. See below



Combined dowel tail mount and lifting handle, is attached to the telescope in line with the focuser, this means the camera is positioned in front of the Ra bearing further reducing the load and also makes the mount move smoothly. The fitted an extra handle on the opposite side to make it easier to lift the telescope on to the EQ6 mount, see above. Because the telescope has been turn up side down from the Dobsonian position, the culmination will be out. With this Newtonian its an easy job to culmination, just loosen the white knobs and adjust with the black knobs then re tighten the white knobs. I found this telescope is never far off, just a slight touch does it. With most Newtonians on equatorial mounts you really need to re culmination the telescope every time you moves to a new position. I have been lucky with this telescope that the culmination does not change much as it moves around the sky.



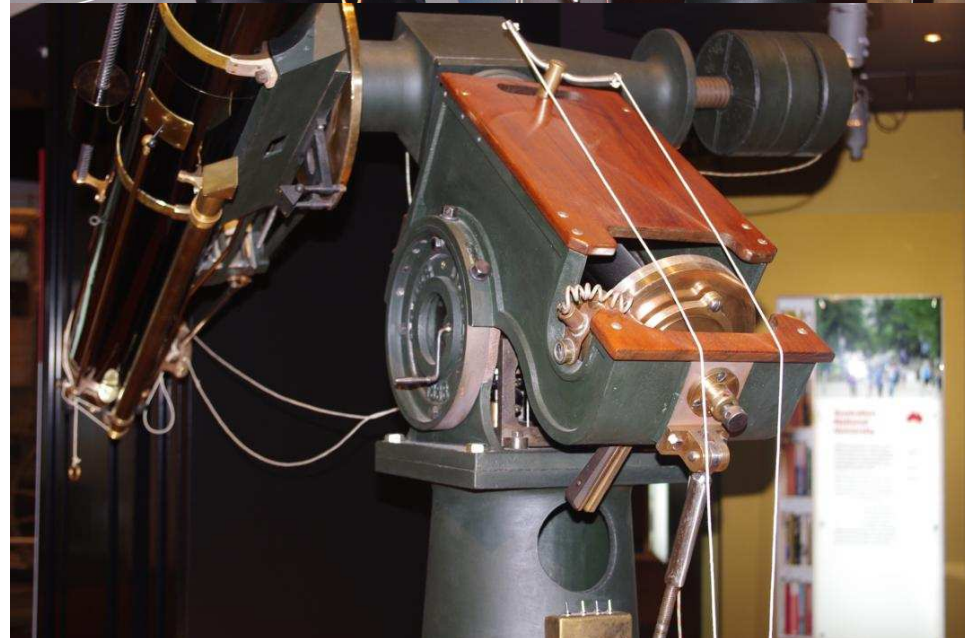
The telescope takes the most beautiful imagers. I use a Televue type 1 coma corrector with my Pentax Kr, the camera on its own will not work, as this is a visual telescope and its focuser does not have enough in travel too focus on the sky. The biggest problem with this telescope is that it is easily affected by the wind, the only way I can get around this problem is to use another smaller telescope instead. Dew is another problem I tried a dew shield but this acted like a sail in the wind, so I use a hair drying instead. I spend a little extra time doing the polar alignment, get this right means I have no needed to use a guide scope. Most of the time I only do 30x30 second exposures at iso12800. and stack them with Deep Sky Stacker, See image at right.
Yes I am very happy with this telescope.

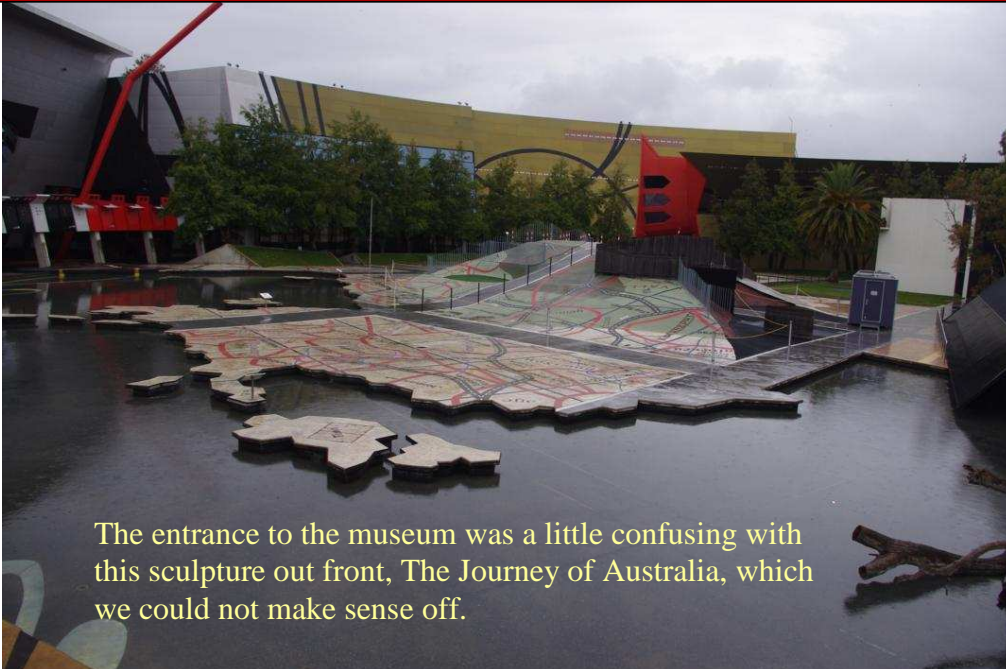


M83 LMDSS 12" Newton CC1 EQ6 Pentax Kr 55x30sec iso12800 By Greg Walton MPAS/ASV 10apr13

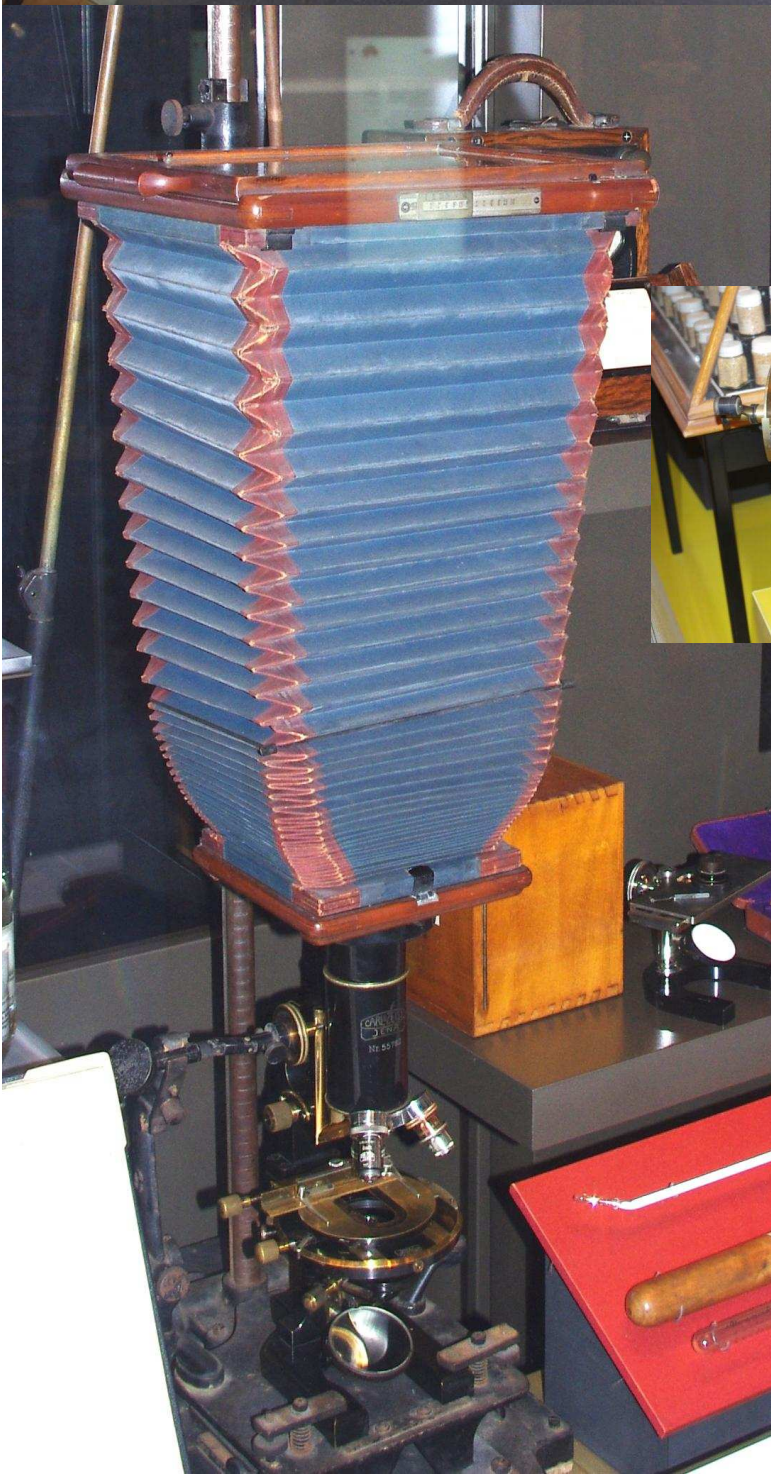
MPAS seek out Telescopes at the Canberra Museum, *by Greg Walton*

Big Dave, Kevin Rossitter and myself looked over the Canberra Museum a few months ago, to seek out any telescopes that may be there and we hit pay dirt when we came across the beautiful 1883 Grubb Dublin 6inch refractor telescope. It was a shame it was trapped in side this museum when it should be in an observatory under the stars, we all would have liked to look through it. Around the eyepiece was an impressive array of control knob and its clock drive was powered by a counter weight in the central pier. There were other telescopes and microscope there on display, one photographic microscope impressed me greatly. (see next page)





The entrance to the museum was a little confusing with this sculpture out front, The Journey of Australia, which we could not make sense off.



Museum entrance (Top left)

Old explorers telescopes (right)

Mineral microscope (centre)

Photographic microscope (left)

Other microscope (below right)



MPAS get 3 honourable mentions at Malin Awards

Congratulations to Alex Cherney picking up 2 honourable mentions in the wide field section.

Also Congratulations to Steve Mohr picking up a honourable mentions in the Deep Sky section.

Also congratulations to the overall winner Martin Pugh, for his beautiful image of NGC3718

This year the quality of the images was very high and after looking through all the entrants images. I found it hard to pick a favourite, they are all excellent. It's truly amazing how the amateurs today are producing images equal to the professionals.

You can see all entrants images at Google - David Malin Awards 2013



Solar System (Wide-Field) section honorable mention Alex Cherney for "Like a Diamond in the Sky". Photo: Alex Cherney



Deep Sky section honorable mention Steven Mohr for "Midnight Blue". Photo: Steven Mohr



Wide Field section honorable mention Alex Cherney for "Early Morning Parade". Photo: Alex Cherney



Overall and Deep Sky winner Martin Pugh for NGC3718. Photo: Martin Pugh



© John Sarkissian

All of the 2013 "David Malin Awards" Winners.

(L-R): Rakibul Hasan Syed, Peter Ward, Lynette Ward, Lachlan Mabbutt, Alex Cherney, Brooke Beniston, Steven Mohr, Dr Malin, Martin Pugh, Stefan Buda, Troy Casswell, Noeleen Lowndes, Phil Hart, Ken Creek (for his son Neil), Erik Monteith, Greg Gibbs, Ross Giakoumatos, Kevin Diletti and Aaron Zajonc.

Not Present: Julie Fletcher, Michael Bolenski, Grahame Kelaheer, Paul Haese, Greg Bradley and James McHugh.



People and Sky section winner Neil Creek, with Phil Hart, for "Night Sky Photo Course Group Shoot". Photo: Neil Creek



Wide Field section winner Greg Gibbs for "Lookout". Photo: Greg Gibbs



People and Sky section honorable mention Troy Casswell for "A Song to the Heavens". Photo: Troy Casswell

Sunspots bring green glow to night skies

By Keith Platt

PAUL Albers looks far beyond the Earth for his weather reports when planning a photographic shoot.

The peak of two years spent trying to capture the perfect image of the Aurora Australis was realised at Balnarring Beach late last month.

As an astrophotographer, Mr Albers chooses his shooting nights after checking sunspot activity and solar winds.

At 9pm on Saturday 29 June, the heavenly weather conditions combined with Balnarring's clear skies to give him the opportunity to record the aurora's tell-tale green glow.

"The real trick with imaging aurorae is to know when one is going to appear," Mr Albers, a member of Mornington Peninsula Astronomical Society, said.

Using the internet, he was able to track the 11-year peak of sunspot activity and knew the chance of seeing the Aurora Australis was most likely within the next two days.

"Sunspot activity is important because it contributes towards solar eruptions, which astronomers call solar flares and coronal mass ejections," Mr Albers said. "When the sun has one of these eruptions, it sends charged particles to the Earth.

"The solar wind is full of these charged particles and can hit a part of the Earth's atmosphere known as the magnetosphere. The magnetosphere protects the Earth from these violent storms, which have the potential to interfere with global communications.

"The magnetosphere has two layers,

called Van Allen Belts, which are usually weakest at the North and South poles.

"The charged particles leak into our atmosphere at the poles and charge elements within it like hydrogen, oxygen and nitrogen.

"Because an element tends to return to its balanced state, a photon is released during the process. This is why we see the colours and the magic light show of the aurora."

Mr Albers was ready for the 29 June light show because of an M class flare on the sun two days previously.

A "keen astrophotographer" for more than four years, he usually focuses on "deep sky objects" such as galaxies, nebulae, open and globular clusters.

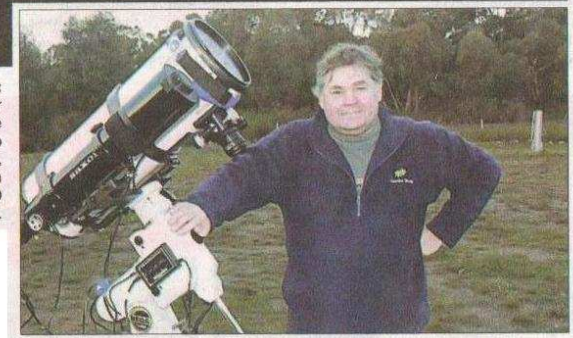
For the technically minded, his images are made through telescopes with a Pentax KX digital camera. For the Balnarring Beach shots, he used a Samyang 14mm wide-angle lens at f2.8 on a tripod. The ISO was 3200 for a 30-second RAW exposure.

"Astrophotography doesn't need to be complex and you will be surprised at the images a simple camera on a tripod can achieve," Mr Albers said. Some of his earlier images have been used by

Channel 10 news and for the ABC weather, and he has given lectures about auroras during National Science Week and at astrological club meetings.

"The most common question I am asked when people look at my images is 'Do you actually see the colour represented in the image with the naked eye?' The simple answer is no. The eye doesn't have the same colour sensitivity as a standard DSLR camera.

"There have been times when I have witnessed intense aurorae."



Stargazer:

Astrophotographer Paul Albers with the telescope he uses to photograph night skies, such as the Aurora Australis, top, on 29 June.



Above - A man of many talents Paul Albers catching a wave and washing his telescope at the same time.

Right - Paul Albers at Gate crater on Mars, making some adjustment to Curiosity. Looks like he is just calling NASA back to see if the problem is fixed or maybe ordering a pizza, while waiting for the sun to set. The surf board is proof that there is water on Mars.



Some of the art work sent to MPAS by students from Frankston Primary school in Davey, Street, after our visit.

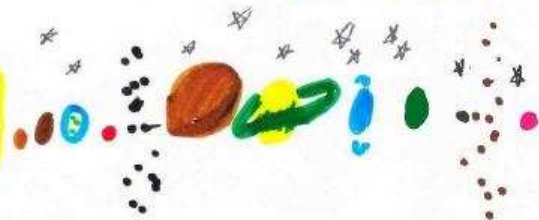
Dear: Peter

Davey Street

Frankston

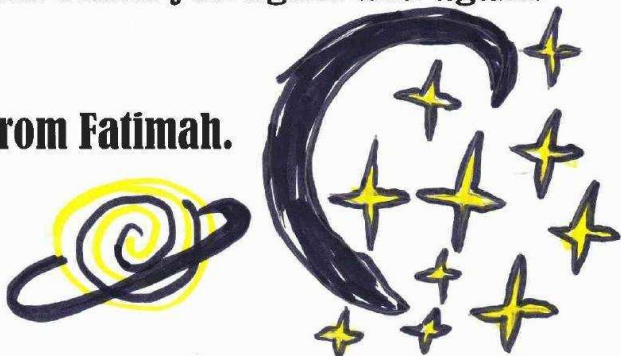
I want to thank you for coming to our school and presenting a space program for all the 3/4s and parents. My mum and dad had fun looking through the telescope so we really appreciate you coming to our school.

From: Dave



I saw Saturn is like this big  and thank you again and again.

From Fatimah.



Big Dave's Gallery

Hi All,
Well, the silent achiever "BIG DAVE" snagged a place in the Open category awards at the SPSP [see this months edition of Australian Sky & Telescope]! Well done Davo!



Nepune



Davey Street

Frankston

3/4w



Dear Peter,

I want to thank you for coming to our school and doing the space event. My dad really likes how Saturn is so tiny. I really appreciate you spending your time to teach us about space I really liked that night.

Thank you so much

From Jamie

3/4w

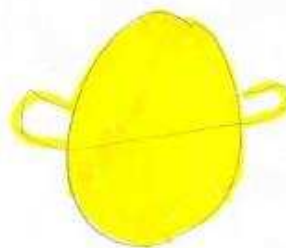
MARS



Uranus



Pluto



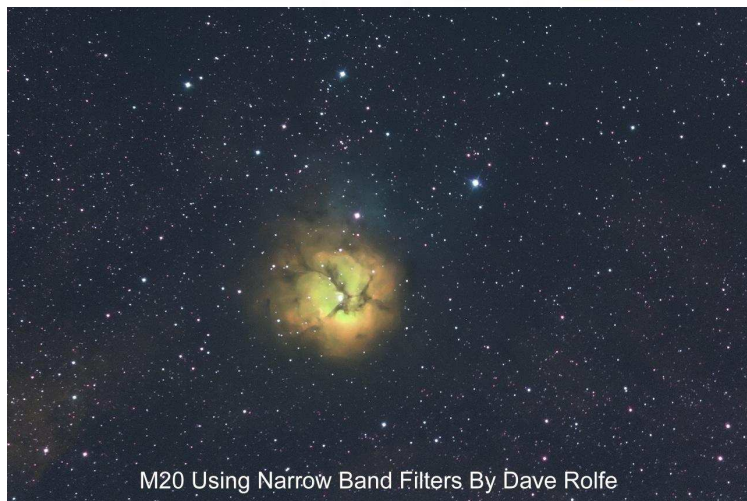
Mercury



VENUS



Jupiter



M20 Using Narrow Band Filters By Dave Rolfe

OPEN CATEGORY THIRD PLACE

AURORA AUSTRALIS

David Rolfe
Observers at last year's VicSouth Star Party in Victoria were able to witness an aurora.
DETAILS: Taken with a Pentax K5 DSLR camera. Exposure time was 25 seconds.





John Cleverdon's Gallery



Dark Horse SPSP Vixen Polarie 50mm F1.7 lens Pentax Kx 40x30sec iso3200 by Greg Walton 10may2013

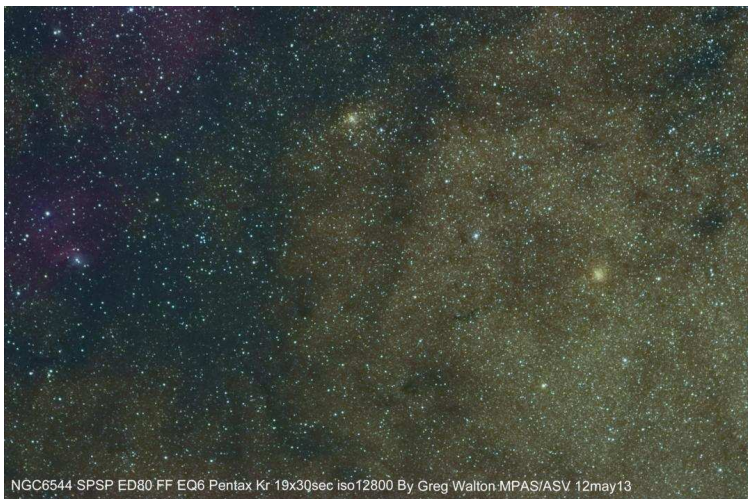
Greg Walton's Gallery



NGC5128 LMDSS 12" Newton CC1 EQ6 Pentax K*29x30sec iso12800 By Greg Walton MPAS/ASV 10apr13



M4 Antares SPSP ED80 FF EQ6 Pentax Kr 22x30sec iso12800 By Greg Walton MPAS/ASV 9may13



NGC6544 SPSP ED80 FF EQ6 Pentax Kr 19x30sec iso12800 By Greg Walton MPAS/ASV 12may13



NGC3581 SPSP ED80 FF EQ6 Pentax Kr 36x30sec iso12800 By Greg Walton MPAS/ASV 12may13

SOCIETY INFORMATION



Peter Lowe



Dave Rolfe



Peter Skilton



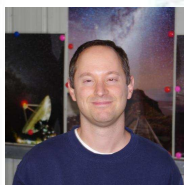
Jamie Pole



Trevor Hand



Ian Sullivan



Simon Hamm



Greg Walton - Please send your articles & photos to gwpas@gmail.com

OFFICE BEARERS OF THE MORNINGTON PENINSULA ASTRONOMICAL SOCIETY

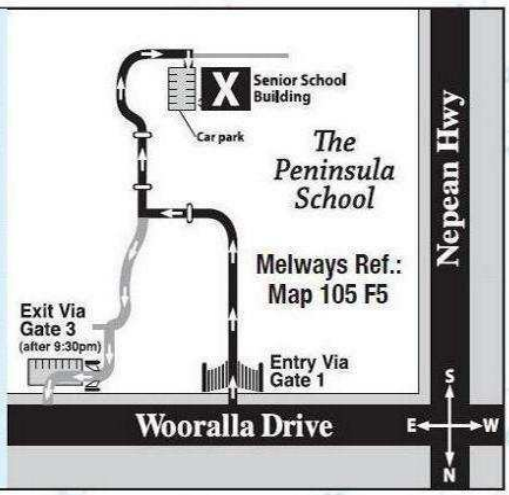
President: Peter Lowe
Vice President: David Rolfe,
Committee: Ian Sullivan, Trevor Hand, Simon Hamm
 Fiona Murray, Greg Walton.
Phone Contact: Peter Skilton - 0419 253 252

Secretary: Peter Skilton
Treasurer: Jamie Pole
Web Master: Steven Mohr
Scorpius Editor: Greg Walton
Library: Fiona Murray

SOCIETY MEETINGS

Meeting Venue: The Peninsula School, Wooralla Drive, Mt. Eliza, (Melways ref. 105/F5) in the Senior School at 8pm, on the 3rd Wednesday of each month (except December).
 Entry is via the main gates or Gate 3, off Wooralla Drive.
 Exit is via Gate 3 Only after 9:30pm (see map).

For additional details:
Internet: <http://www.mpas.asn.au>
email: welcome@mpas.asn.au
Phone: 0419 253 252
Mail: P.O. Box 596, Frankston 3199, Victoria, Australia.



LIBRARY

The Society also has books and videos for loan from it's library, made available on most members nights at The Briars site, contact Fiona Murray.

E-SCORPIUS NEWSGROUP

M.P.A.S. main line of communication is the online newsgroup called E-Scorpius. Here you will be kept up to date with the latest M.P.A.S. news and event information as well as being able to join in discussions and ask questions with other members.

To join, go to: <http://groups.com/group/e-scorpius> and sign up to Yahoo groups - You require to sign up to Yahoo groups to join E-Scorpius. Once you have signed up at Yahoo groups, email welcome@mpas.asn.au saying that you want to join E-Scorpius and you will be added to the E-Scorpius list.

VIEWING NIGHTS - MEMBERS ONLY

Any night, at The Briars, Nepean Hwy, Mt. Martha, starting at dusk.
 Members visiting The Briars for the first time must contact Greg Walton on either 9773 0098 or 0415 172 503 if they need help in getting to the site. Upon arrival at the site, remember to sign the attendance book in the observatory building.

For additional details:
Internet: <http://www.mpas.asn.au>
email: welcome@mpas.asn.au
Phone: 0419 253 252
Mail: P.O. Box 596, Frankston 3199, Victoria, Australia.

