

Cover image: Moon imaged with 6 inch Saxon F8 Newtonian on EQ3 mount, camera with Samsung Galaxy S8 Mobile phone. *By Nerida Langcake*



SCORPIUS

THE JOURNAL OF THE
MORNINGTON PENINSULA ASTRONOMICAL SOCIETY INC.

Reg No: A268 ABN: 34569548751 ISSN: 1445-7032

Volume XXVII, No. 3 (May / June) 2018

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 service of its members for on-site or off-site educational presentations and observing nights for schools and community groups.



MPAS - <https://www.facebook.com/mpas0/>

MPAS Members - <https://www.facebook.com/groups/MPAS1/>

Scorpius MPAS - <https://www.facebook.com/Scorpius-MPAS-1694951307446763/>

Mornington Peninsula Astronomical Society



SOCIETY NEWS

By Greg Walton



Public Night March 2nd - Another full house with 136 from the public & 12 members on site. Trevor Hand talked on the extra solar planets in the big shed, while Peter Lowe gave a more basic talk of the solar system in the eco house. It was all a bit cramped with all chairs taken. Outside we had a dramatic red cloudy sky sunset, but luckily the clouds cleared away by the time the public came out to look through the telescopes. It was good to see many of the new members willing to man the telescopes. Everyone got to see many deep sky objects even through we had a full Moon. Few stayed on to look at the planets as they did not rise till past midnight.



Photo by Greg Walton

Society Meeting at the Briars March 21st - saw 26 members in attendance. Peter Lowe chaired the meeting and talked about "Thermodynamic Evolution of the Universe". He also talked about the upcoming MPAS events and NACAA, which was to be hosted by the Ballarat Astronomical Society over Easter this year. Greg Walton did sky for the month and showed member's images & videos; also showed photos of the MPAS 40 years ago. Afterwards, members chatted over coffee. There was no viewing on the night; the meeting finishing up at 10:30pm. *Greg Walton*



Solar Day March 24th was cancelled due to forecasted heavy rain. The rain did stop at 4pm

and the sun came out for less than a minute. A small group of members arrived early to cut back the trees on the east boundary near the observatory, in preparation for viewing the evening planets over winter.



Members BBQ Saturday March 24th did go ahead as usual - and saw about 20+ members in attendance. Pia set up the tables with an Easter theme. After the BBQ we opened the observatory and looked at some of the brighter deep sky objects NGC104, M42, NGC3532 & Eta Carinae; but the clouds soon foiled us so we called it quits at about 11:00 pm. *Greg Walton*



Parkdale Secondary School 27th March - It was an almost completely overcast evening at Parkdale Secondary School last night for the 200 Year-7 pupils assembled, with the Moon struggling to be seen through the cloud early in the evening, before totally disappearing from view. Conditions were mild, with no mosquitoes, so it was pleasant outside. Peter Lowe gave a planets talk inside with the meteorite, while outside forlornly on the adjacent park ground with their telescopes were Nerida Langcake, Joanna Shepherd, Peter Skilton, Alex Cherney, Jamie Pole and Greg Walton. Instrument tracking was easily achieved of the street lights and pole bolts in the vicinity, giving a wonderful view of cobwebs and bugs inside globes. The kids were able to learn something about how the instruments worked and could peer down the barrel to see the mysterious inner workings of each. Alex's cannon had its shroud removed, Nerida's 6 inch Newtonian was seeing its first light away from home, and Joanna's Australian Geographic Cassegrain was in such a sturdy Bunning's box that it probably could have been used as a seat. The evening finished just after 9:30pm, with many planes landing and taking off from Moorabbin Airport throughout the time there. Regards, *Peter Skilton*

Below - Photos of students holding a meteorite



Public Night April 6th - Once again we had a full house. The night started under heavy cloud with little chance of seeing anything. But as soon as the talk started in the big shed the sky cracked open. So we decided to bring the public out to look through the telescopes, members having to run quickly to setup the scopes. Jupiter sat close to the eastern horizon and looked like a shimmering blob. We had long queues at the scopes waiting to see the Orion Nebula, the large globular clusters Omega Centauri and Jewel Box, the bright double star Alpha Centauri and the Eta Carinae nebula. After 1/2 hour we took the public back inside for the talk. We were very lucky that the sky stayed clear. After the talk many stayed on till 11pm taking in excellent views of Jupiter showing its cloud belts in great detail. Also we were very grateful that we had many new members helping out, as some of the regulars had other commitments. A big thanks to all who helped out on the night. VP Greg Walton



NGC3372 Briars 8" Newton CC1 CG5 Pentax K30 58x30sec iso6400 By Greg Walton MPAS 7Apr18

Society Meeting at the Briars April 18th - saw 25 members in attendance. Peter Lowe chaired the meeting. Dave Rolfe spoke about the successful grant application and what equipment MPAS will be purchasing, see next page. Then Peter Lowe talked on William Herschel, an amazing 18th century amateur best known for discovering the planet Uranus, however he was much, much more. His work on double stars laid the groundwork for measuring stellar parallax. He systematically measured the distribution of stars across the sky and he was the first person to measure the shape of the Milky Way galaxy even though the idea of galaxies had not yet been conceived. He discovered two moons of Uranus, measured the rotation of Mars, discovered the Martian polar caps and was the first to measure the rotation of Jupiter's moons showing that their rotation period was the same as their orbital period. He discovered infrared radiation while exploring the solar spectrum and much more. All this was done using his own instruments he made himself and his other family members. His telescopes were capable of achieving 2000x magnification when the rest of the world barely pushed past 200. Then Greg Walton did sky for the month and showed photos from his trip to Tasmania to pick up Big Blue 8 inch refractor telescope, the same telescope which was previously enjoyed by members and the public on the monthly PVNs. See Page 14 for the full story. Members later chatted over coffee.

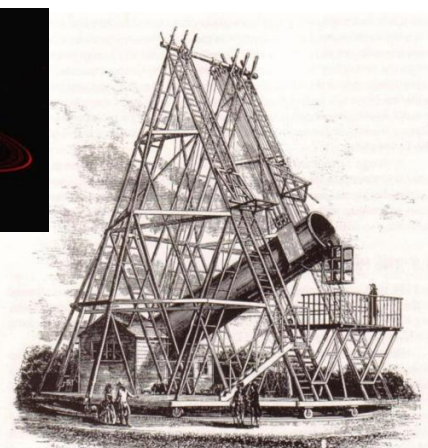


Fig. 1.4 Although not a Dobsonian, William Herschel's giant 40-foot reflector rode in an all-azimuth mounting, as modern Dobsonians do. When he completed it in 1787, Herschel's 48-inch aperture telescope was the largest in the world.

Members BBQ Saturday April 21st - saw about 25 plus members in attendance. A small group of members arrived at 3pm to reassemble the Big Blue refractor. First we bolted the 3 angle frame legs to the central pier which had an old wooden post to absorb vibrations. Next we bolted in the 3 bracing bars which stop the legs from wobbling around. Then Dave and Jamie lifted the EQ mount on to the pier while I fitted the bolts. Then Dave and Jamie bolted the aluminium cradle on top of the mount. Then we wheeled it outside to sand and paint, while Dave rewired the motor, as I had hurriedly cut the wire when we picked it up from Tasmania. Then 4 of us lifted the tube into place and locked it in. It would have been a shame if we had dropped it after its long journey from across the sea. We balanced the scope with the large counter weight, fitted the dew heater and eyepiece, adjusted the finder scope, and plugged the power cable in. By then the sky was starting to darken and we found the Moon in a hole in the clouds. Dave had the first look then I had the second look, Dave said, "it still works". Yes, the view was marvellous, all worth the effort. We are all glad to see this great scope back at the Briars. Now that the sausages were cooked it was time for food. After, I did a quick presentation on Sky Map software. Other jobs done on the day: Jamie, Anders & Heath started wiring up the new sound system, while John Cleverdon remapped the MPAS Briars site. Thanks to all who helped out on the day.



21/04/2018 18:39



21/04/2018 19:24

Morningson Peninsula Shire Community Support Grant



Hi all,
Just an update on our successful council grant and what is being done behind the scene at the moment on the project.

Grant Short Summary (What it was for)

Provision of an outdoor presentation area, to conduct public astronomy talks "Under the Stars", is a supplement to both the Briars Summer Program and the society's ongoing annual public activities. Talks consist of lectures, stargazing and live video presentations from a telescopic camera. Concurrent telescopic viewing is conducted from the Briars Astronomical Observatory together with simultaneous indoor presentations.

Project Outcomes (What we will do)

The Briars Astronomy Centre is located inside The Briars Park, Mt Martha. During the summer period, weekly outdoor astronomy talks and telescopic screenings allow a large audience to enjoy live stargazing activities. Monthly presentations occur throughout the year but additional events are staged during the summer period.

- 1) The presentations will be conducted on a pre-existing concrete platform with attached power. Chairs are to be provided by the society.
- 2) A mobile outdoor-screen (weather proof) will be constructed for projection purposes.
- 3) A suitable video projector will be obtained. Ancillary computer equipment is to be supplied by the society. A suitable portable projector stand with built-in AV and sound equipment will be provided by the society.
- 4) A low-cost, low-light astronomical camera will be fitted to one of the society's astronomical telescopes allowing live viewing via image projection. This aspect depends upon sky and weather conditions.
- 5) When sky conditions are unusable appropriate "Sky Tour" talks will be provided.

Project Costs

Like most grants, the grant is only for a proportion of the project cost, in our case about 70%.

The project was estimated to cost	\$4,800.
The grant was for	\$3,500.

Project Walkthrough

We have committed to live streaming videos from a telescope in the Peter Lowe observatory to potentially 2 simultaneous public talks. This is known as video astronomy and has been used for over 10 years and is usually streamed live over the internet. It should be noted that this is not the same as 'long exposure' astrophotography (as seen in glossy magazines) that can take 5 minutes to several hours to produce a single image. These images seen are actually live!

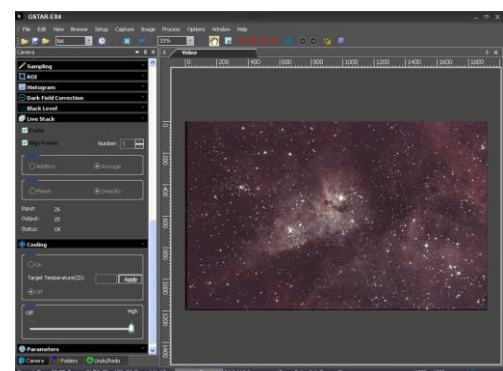
We will stream our live video feed via a WIFI network to the two projectors (the existing screen in the Don Leggett building and a new outside screen). In the future when internet is available, the technology will be capable of additionally joining the '[night sky network](#)', a platform where astronomers (and the public) can share their images with the world.



Examples of video astronomy images.

Camera Selection

We have reviewed a few cameras: ZTO, Mallincam but have selected the GStar-EX4 camera. This is because it is locally available from Brisbane and has a proven use in video astronomy. This camera also additionally can be used for stacking images and producing long exposure images.

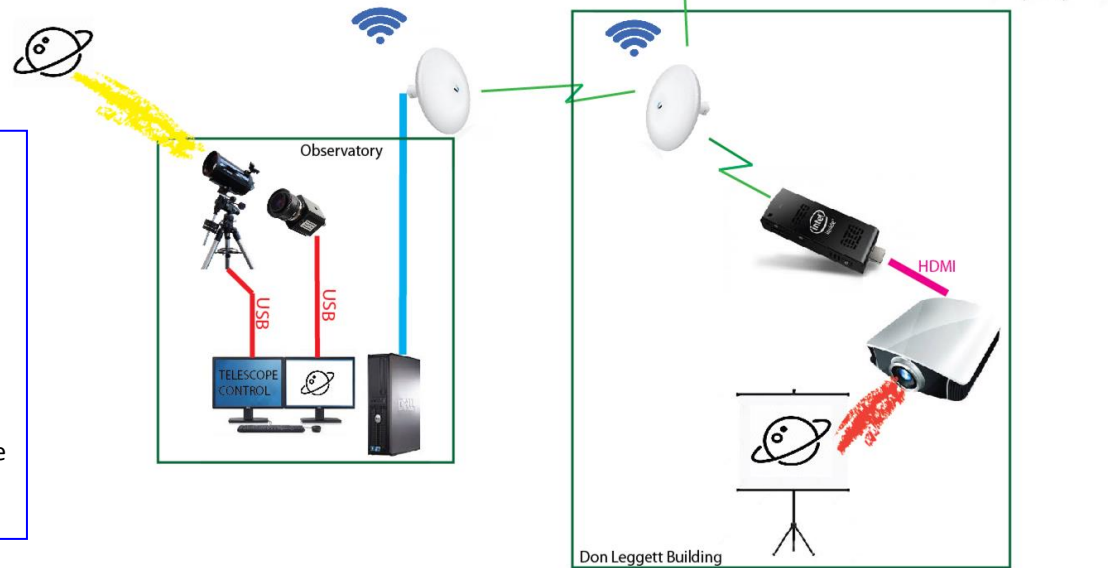


Network & IT Requirements

The images from the camera (and telescope position control) are all connected via USB back to the PC in the observatory warm room. This will be the controlling PC for the system. An additional monitor will be added to this PC to display the video stream, leaving the first monitor for telescope positional control. The image of this second monitor will be 'mirrored' to the projectors.

Wifi Links

Two Ubiquiti WIFI links will be installed and bridged between the Peter Lowe observatory and the Don Leggett building. These will have speeds of greater than 300Mbps and will be able to transmit the video stream to multiple devices easily. These devices have been donated to the society.



Stick PC's

The video that is mirrored from the observatory needs to be re-built to an image the projector can display from its HDMI input port. We will use an [Intel Stick PC](#) for this.

Projector

As agreed an identical projector to the one mounted in the Don Leggett building should be purchased. This has the advantage of matching resolutions, sharing remotes and replacement globes.

Sound Equipment

Previous presentation feedback from the outside has always told us audio is the problem, both from the presenter and from video files.

What we have proposed for the outside presenter is an [Amplified Speaker](#), [Head Worn Microphone & Wireless System](#) and a [Mixer – Laptop / Microphone](#)



The indoor presenter would also benefit from this. So we are purchasing a second head worn microphone, wireless system and Mixer. The Don Leggett building already has an audio system, so no PA is required.

Outdoor Screen

The option I was looking at is a fabric projection screen. They are cut and sewn using a special stretch fabric material that is fire retardant, machine washable and pack away into a small bag. A metal frame needs to be made to mount the screen and it can sit in a fixed base making it a safe option if the wind comes up. The screen will be stored inside when not in use. It is 3m wide.

This is a brief overview, for more information, contact a committee member. Regards, *Dave Rolfe*.

Fiona Murray

It is always sad when we lose one of our own but the loss of Fiona Murray is particularly sad. If there is one thing I would say about Fiona it is that she was the ideal member. She was a regular at our public viewing nights long before deciding she join the society to help enrich her children's educational experiences. Her first move was to obtain a small Celestron telescope and her first lesson was learning how to replace the batteries after which she became a regular demonstrator at viewing nights. In time her sons were giving school talks on meteorites, and space. Fiona soon joined the committee and volunteered in the role of librarian. Her trademark at general meetings was video recording all the guest speaker talks.

Our society is a volunteer organisation and its lifeblood is member participation. Members who don't participate miss out on all the fun the society offers. Participation is fun. Fiona was one of our most participative members. There was never a school night, viewing night, public night, general meeting, astrocamp or just monthly BBQ at which Fiona's white van was not there. She was always happy to lend a helping hand and although her life was tragically cut short she lived it with absolute enthusiasm. As an active committee member she ran the society library and maintained the general consumable supplies at the Briars Astronomy Centre.

Outside the society she was a devoted, loving mother who worked tirelessly for her children. I for one am happy to have counted her as a friend. She will be sorely missed.



Pearl cutting her birthday cake at MPAS

President. *Peter Lowe*



Pearl at 2010 MPAS Xmas party



Fiona had been on committee for 9 years before having to step back this year, and was a regular at viewing nights and an active librarian for the society when her health was better. I recall her background was in microbiology and she worked in a lab at one stage. *Peter Skilton*

It made me sad to hear Fiona had passed away after a brief battle with cancer, we spent many nights under the stars with Fiona at the Briars and the ASV's dark sky site at Heathcote, Fiona also travelled to many of the star party around Victoria usually with Pearl or at least one of her 5 children. Fiona was very happy that her oldest son and girl friend were soon to have there first child, sadly Fiona missed out on becoming a grandmother. Fiona used her DSLR camera to image lunar eclipses and did some astrophotography using one of my telescopes. Fiona was always at the Briars joining in with all the MPAS activities and will be sadly missed. *Greg Walton*



NGC5139 Briars ED80 EQ5H Pentax 1st 30sec 1600iso By Fiona Murray MPAS 22may10



Eta Carina ED80 EQ5H Pentax 1st 7x30sec 3200iso By Fiona Murray MPAS 22may10 edit



Fiona's son Anthony, Pearl and her mother at right



MPAS members please consider a position on committee, as we have much work to be done over the next year, leading up to the MPAS 50th year celebrations & Vastroc.

MPAS - Society AGM

The AGM is in July each year.

Current Committee

- President:** Peter Lowe (Acting)
- Vice President:** Greg Walton
- Secretary:** Peter Skilton
- Treasurer:** Jamie Pole
- General Committee:** Tony Nightingale, Stewart Gangell, Fred Crump, Heath Lewis, Anders Hamilton, & Dave Rolfe

Life Members are automatically committee members

AGM Invitation

18th July 2018 at 8PM
 The MPAS Briars site
 Don Leggett Astronomy Centre
 Nepean Hwy, Mt Martha
 (Melways ref. 151/E1)

Agenda

1. Apologies
2. Confirm Minutes of previous AGM
3. President's Report
4. Treasurer's Report
5. Election of Incoming Committee
6. Special Business (none notified)
7. Other Thanks
8. Close of AGM.

We hope to get more members on committee.

If you feel you would like to get involved in the society business or have a particular skill you think would be useful to the society as a whole please give some thought to becoming an Office Bearer or committee member.

The Annual General Meeting will be held on Wednesday 18th of July, 2018. In this edition of Scorpius there is a 'Committee Election Form' that can be used for the submission of nominations for the next committee. This can be posted to MPAS, PO Box 596, Frankston 3199. Alternatively nominations can also be submitted electronically to welcome@mpas.asn.au, stating which position on the committee you would like to nominate for.

2018 AGM Committee Position Nomination - (Leave blank if not applicable)

I
 would like to nominate for the position of (circle)

- PRESIDENT
- VICE PRESIDENT
- SECRETARY
- TREASURER
- GENERAL COMMITTEE

for the Mornington Peninsula Astronomical Society committee of 2018/2019.

Seconded By

..... Dated/...../ 2018

Both the nominee and the seconder need to be financial members of MPAS at the time of the AGM. Nominations must reach the Secretary by the 12th July 2018.

New Members Welcome

Nerida Langcake, Stuart, Piper, Jamie & Ashley Grierson

Berger	Lynette
Ewin	Chris
Biddle	Tischa-Leah
Timmermans	Phoebe
Shepherd	Joanna
Litchen	Paul
Castillo	Pedro
Baxter	Honor
Coward	Grant
Trayling	Gwen
Rea	Philip



PUBLIC NIGHT THANK-YOU



Recent public viewing nights and school viewing nights have continued 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.



Scorpius editing team.

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

Send them to: **Greg Walton**
gwmupas@gmail.com

MPAS SUBSCRIPTIONS 2018

Each ticking over of the New Year also means that Society fees are due to be paid. The committee has worked hard to ensure that 2018 fees are still the same as the previous many years' prices. So to assist the society in maintaining the facilities and services we provide and share, we appreciate your prompt payment for each and every year ahead.

As a reminder, the following structure of the 2018 fees is:

SOCIETY FEES

Subscriptions can be paid in a number of ways:

- Cash payments to a committee member
- Send a cheque, made out to "Mornington Peninsula Astronomical Society", to 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.

Click on the link for further information - https://drive.google.com/file/d/0ByvkkxzZG19g_NXZ4cWxHbERTdEE/view?usp=sharing

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

You can now renew your membership online. See link below. Click on Members then JOIN NOW at the bottom of the page. Then just fill in your detail on Try-booking.
<http://www.mpas.asn.au/members.html>



- Full Member \$50
- Pensioner \$45
- Family \$65
- Family Pensioner \$60

CALENDAR		May / 2018					Red Days indicate School Holidays
Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	
		1	2 Jupiter Europa 7:06 pm shadow transit 6:45 pm	3 Jupiter next to star Nu (v) Librae	4 Public Night 8pm Saturn right of the Moon	5 MPAS Observatory open to members	
6 Mars above Moon Jupiter Io 6:30 pm & shadow transit 6:26 pm	7	8 Last Quarter	9 ASV Meeting Jupiter Europa 9:20 pm shadow transit 9:20 pm Jupiter at opposition	10 SPSP	11 SPSP	12 SPSP MPAS Observatory open to members Jupiter Io 1:50 am & shadow transit 1:52 am	
13 SPSP Jupiter Io 8:18 pm & shadow transit 8:20 pm Mother's Day	14 Mercury left of thin crescent Moon Dawn	15 New Moon	16 Society Meeting 8pm	17 Venus right of thin crescent Moon evening Jupiter Europa 11:38 pm & shadow transit 11:52 pm	18 SCAG 8pm Scout Cubs Viewing night	19 Members Night BBQ 6pm	
20 Jupiter Europa 10 pm & shadow transit 10.15 pm	21	22 First Quarter	23	24	25 NOTE - SCAG has been moved to the 18th	26 MPAS observatory open to members	
27 Jupiter right of Moon Jupiter Io 11.43 pm shadow transit 11:59 pm	28 Jupiter Ganymede 5:18 pm & shadow transit 7:00 pm	29	30 Full Moon	31 Saturn right of Moon			

Monthly Events

Note - Jupiter is at Opposition on 9th.



Public nights - 8pm start on the 4th @ the Briars

Society Meeting - 8pm to 10pm on the 16th @ the Briars

Members Night BBQ - 6pm on the 19th @ the Briars. Also talk on Astronomy Software & Photography

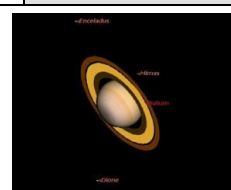
Watch for Jupiter Moons shadow transits this month & June

SPSP 2018 - South Pacific Star Party- Ilford NSW 10th - 13th May

CALENDAR		June / 2018					Red Days indicate School Holidays
Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	
Next month Mars is at Opposition on the 27th July					1 Public Night 8pm Saturn above of the Moon	2 Moon at 405,317km	
You should already be observing Mars!!!!							
3 Mars right of the Moon Jupiter Europa 5:18 pm shadow transit 6:30 pm	4	5	6	7 Last Quarter Jupiter 9pm Moon all together right of Jupiter	8	9	
10 Jupiter Europa 7:30 pm shadow transit 9:04 pm	11 Queen's Birthday	12 Jupiter Ganymede 1am & shadow transit 4am Jupiter Io 9:41 pm & shadow transit 10:30 pm	13 ASV Meeting	14 New Moon Astro classes 8pm	15 Moon at 359,503km	16 Venus right of the Moon	
17 Jupiter Europa 10 pm shadow transit 11:37 pm	18	19 Jupiter Io 11:34 pm & 20th shadow transit 12:23 pm	20 First Quarter Society Meeting 8pm Venus close in M44	21 Jupiter Io 6:00 pm & shadow transit 6:53 pm	22	23 Members Night BBQ 6pm Jupiter right of the Moon	
24	25 Jupiter Europa 12:20 am shadow transit 2:20 am	26	27 Saturn at Opposition Scorpius Deadline	28 Full Moon Saturn above of the Moon Jupiter Io 7:48 pm & shadow transit 8:46 pm	29	30 Mars right of the Moon Moon at 406,067km	

Monthly Events

Note - Saturn is at Opposition on 27th.



Public nights - 8pm start on the 1st @ the Briars

Society Meeting - 8pm to 10pm on the 20th @ the Briars

Members Night BBQ - 6pm on the 23rd @ the Briars

Peter Lowe's famous Winter Series, Part 1 - Thursday 14th June, 8pm

**Please... we need helpers to keep the MPAS Observatory open to members on all Saturday nights.
If you can help, contact Greg Walton on 0415172503 or email - gwmpas@gmail.com**

THE BRIARS SKY

By Greg Walton



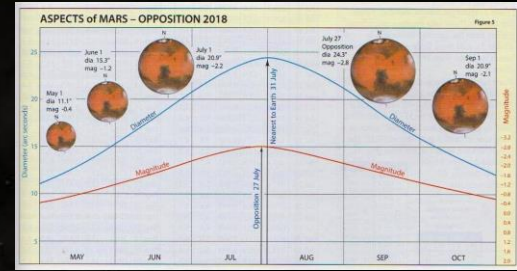
The planets are now back in the evening sky.

♃ **Jupiter 8pm**

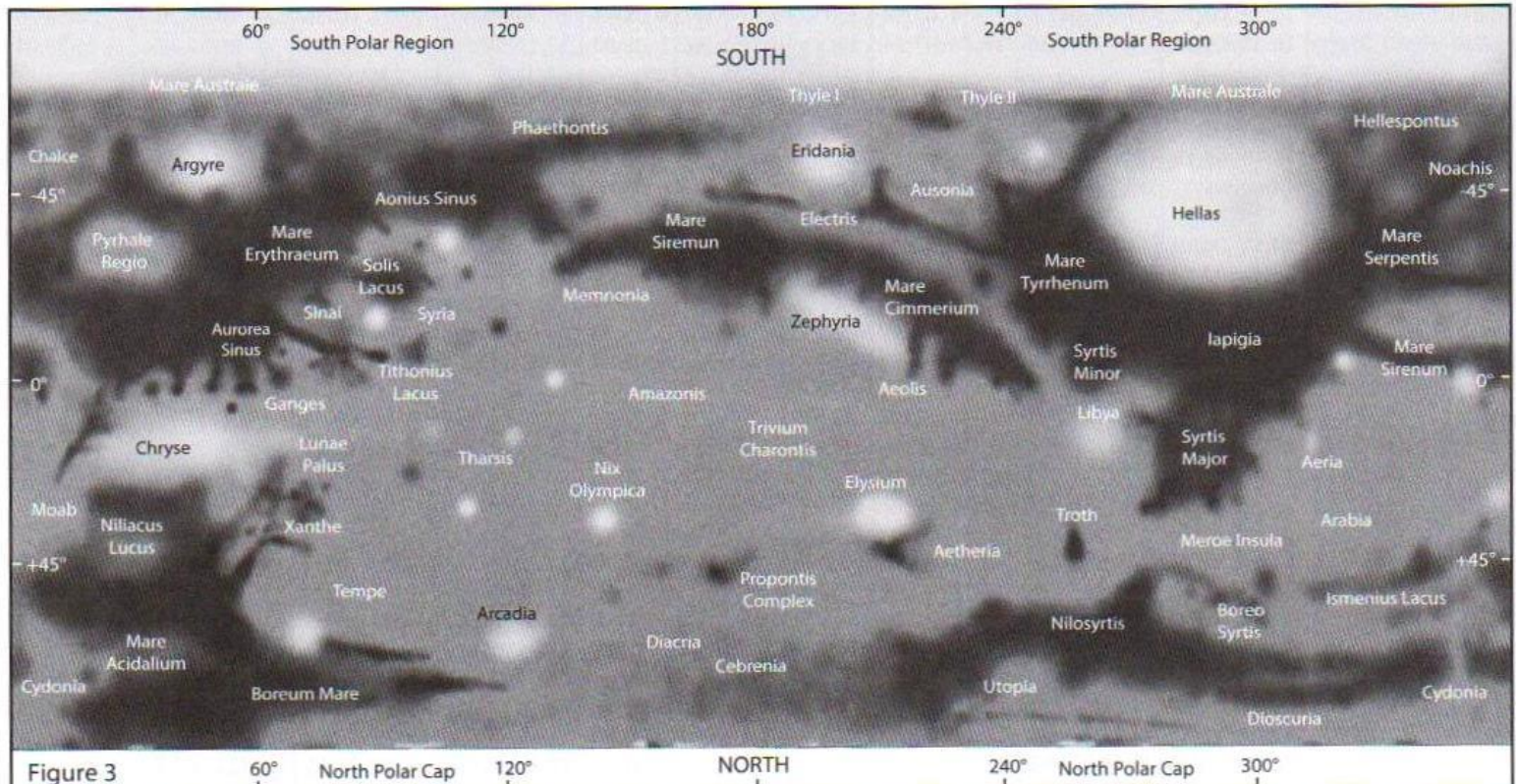
Jupiter is the first planet rising in the east. Shining brightly it's hard to miss, Jupiter is now at opposition and at this time its 4 largest moons, pass across it's face every few days casting shadows as they go - easily seen in just about any telescope. See list of times on calendar above.

Saturn now rises at 9pm. By 10pm you can start to enjoy its rings and moons. Saturn takes 29.5 years to circle the sun, so moves only slowly across the starry back ground.

Mars now rises at 10pm, so by 11pm you can start to see some surface features, Look for the polar caps; see Mars map below. A Mars day is 24.6 earth hours, which is similar to Earth's. If you look at Mars at the same time each night it will look the same as the day before. Mars takes 2.4 years to circle the sun, making it move quickly across the starry back ground. Over just a few nights you can see Mars changing its position relative to nearby stars, as it moves away from Saturn. Mars will reach opposition on the 27th July.



- ♃ Dschubba
- ♃ Antares
- ♃ Wei
- ♃ Sargas
- ♃ Shaula
- ♃ Girtab
- ♃ Han
- ♃ Sabik
- ♃ Kaus Australis
- ♃ Peacock Star
- ♃ Saturn 9pm
- ♃ Nunki
- ♃ Pluto
- ♃ Mars 10pm



Has Pluto Been Officially Reclassified as a Planet?

Ever since the controversial August 2006 decision by the International Astronomical Union (IAU) to downgrade Pluto to a dwarf planet, debate over the former planet's status has continued both in science and in pop culture. In late January 2018, drawing on this debate, rumours about Pluto's "reclassification" as a planet appeared on Facebook and Twitter. Most iterations linked back to an undated 2017 item published on the website Untold Universe, which reported:

"Today is a historic day-one that will bring joy to the hundreds of millions of Pluto lovers around the globe. The International Astronomical Union (IAU), the body that is responsible for naming and classifying objects in the cosmos, has just announced that Pluto has been reclassified as a major planet.

(...)

After years of deliberation, the IAU announced in a press release that they have reclassified the icy world; they upgraded Pluto back to its proper standing as a planet. "We simply underestimated the public's attachment to Pluto."

Although Untold Universe listed no source for the claim (which no other outlets reported), the text was taken nearly word-for-word from a 1st April 2017 article published by Futurism.com. Missing from the republished version were these important final words:

... Hopefully, the new class of planet will be created without a hitch, and Pluto will be added as the first member. It's only fair."

Say it with me now, "Yay!" ... **also, have a happy April Fool's.**

Futurism.com's link to the IAU's "press release" announcing Pluto's reclassification actually leads to the Google results for "April Fool's Day."

Now the myth has been debunked, let us go to the facts.

Pluto (minor-planet designation: **134340 Pluto**) is a dwarf planet in the Kuiper belt, a ring of bodies beyond Neptune. It was the first Kuiper belt object to be discovered. Pluto was discovered by Clyde Tombaugh in 1930 and was originally considered to be the ninth planet from the Sun. After 1992, its status as a planet was questioned following the discovery of several objects of similar size in the Kuiper belt. In 2005, Eris, a dwarf planet in the scattered disc which is 27% more massive than Pluto, was discovered. This led the International Astronomical Union (IAU) to define the term "planet" formally in 2006, during their 26th General Assembly. That definition excluded Pluto and reclassified it as a dwarf planet.

Pluto is the largest and second-most-massive known dwarf planet in the Solar System, and the ninth-largest and tenth-most-massive known object directly orbiting the Sun. It is the largest known trans-Neptunian object by volume but is less massive than Eris. Like other Kuiper belt objects, Pluto is primarily made of ice and rock and is relatively small - about one-sixth the mass of the Moon and one-third its volume.

Pluto has five known moons: Charon (the largest, with a diameter just over half that of Pluto), Styx, Nix, Kerberos, and Hydra. Pluto and Charon are sometimes considered a binary system because the barycenter of their orbits does not lie within either body

On July 14, 2015, the *New Horizons* spacecraft became the first spacecraft to fly by Pluto. During its brief flyby, *New Horizons* made detailed measurements and observations of Pluto and its moons. In September 2016, astronomers announced that the reddish-brown cap of the north pole of Charon is composed of tholins, organic macromolecules that may be ingredients for the emergence of life, and produced from methane, nitrogen and other gases released from the atmosphere of Pluto and transferred about 19,000 km (12,000 miles) to the orbiting moon.



Pluto 7,382,000,000km

Pluto 4,445,000,000km

Earth 150,000,000km & Sun

The difference between Pluto's maximum and minimum distances from the Sun is almost 20 times the mean distance from Earth to the Sun.

From 1992 onward, many bodies were discovered orbiting in the same volume as Pluto, showing that Pluto is part of a population of objects called the Kuiper belt. This made its official status as a planet controversial, with many questioning whether Pluto should be considered together with or separately from its surrounding population. Museum and planetarium directors occasionally created controversy by omitting Pluto from planetary models of the Solar System. The Hayden Planetarium reopened—in February 2000, after renovation—with a model of only eight planets, which made headlines almost a year later.

As objects increasingly closer in size to Pluto were discovered in the region, it was argued that Pluto should be reclassified as one of the Kuiper belt objects, just as Ceres, Pallas, Juno and Vesta lost their planet status after the discovery of many other asteroids. On July 29, 2005, astronomers at Caltech announced the discovery of a new trans-Neptunian object, Eris, which was substantially more massive than Pluto and the most massive object discovered in the Solar System since Triton in 1846. Its discoverers and the press initially called it the tenth planet, although there was no official consensus at the time on whether to call it a planet. Others in the astronomical community considered the discovery the strongest argument for reclassifying Pluto as a minor planet.

The debate came to a head in August 2006, with an IAU resolution that created an official definition for the term "planet". According to this resolution, there are three conditions for an object in the Solar System to be considered a planet:

1. The object must be in orbit around the Sun.
2. The object must be massive enough to be rounded by its own gravity. More specifically, its own gravity should pull it into a shape defined by hydrostatic equilibrium.
3. It must have cleared the neighbourhood around its orbit.

Pluto fails to meet the third condition. Its mass is substantially less than the combined mass of the other objects in its orbit: 0.07 times, in contrast to Earth, which is 1.7 million times the remaining mass in its orbit. The IAU further decided that bodies that, like Pluto, meet criteria 1 and 2, but do not meet criterion 3 would be called dwarf planets. In September 2006, the IAU included Pluto, and Eris and its moon Dysnomia, in their Minor Planet Catalogue, giving them the official minor planet designations "(134340) Pluto", "(136199) Eris", and "(136199) Eris I Dysnomia". Had Pluto been included upon its discovery in 1930, it would have likely been designated 1164, following 1163 Saga, which was discovered a month earlier.

How Pluto Got its Name

Pluto is the only world (so far) named by an 11-year-old girl. In 1930, Venetia Burney of Oxford, England, suggested to her grandfather that the new discovery be named after the Roman god of the underworld. He forwarded the name to the Lowell Observatory and it was selected.

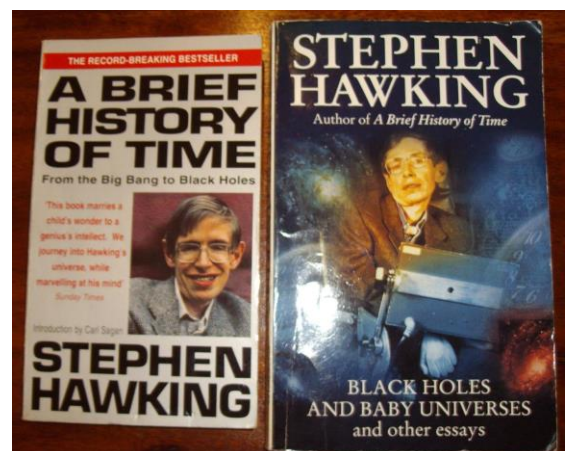
Picture of Venetia Burney

Pluto's moons are named for other mythological figures associated with the underworld. Charon is named for the river Styx boatman who ferries souls in the underworld (as well as honouring Sharon, the wife of discoverer James Christy); Nix is named for the mother of Charon, who is also the goddess of darkness and night; Hydra is named for the nine-headed serpent that guards the underworld; Kerberos is named after the three-headed dog of Greek mythology (and called Fluffy in the Harry Potter novels); and Styx is named for the mythological river that separates the world of the living from the realm of the dead.



World renowned physicist Professor **Stephen Hawking** has sadly passed away on 14th March aged 76. <http://bit.ly/2FyloKg>

Stephen Hawking's ashes will be interred at Westminster Abbey, alongside those of Sir Isaac Newton and Charles Darwin.



A BRIEF HISTORY OF TIME Stephen Hawking's first book was a best seller. Some people bought the book thinking it was about Stephen's life, but it's about the universe. His publisher asked him not to put any maths in the book, for every formula your sales will half. The only formula in the book is $E=mc^2$. If he had not put this formula in the book he could have sold twice as many books. (!)

MPAS 40 YEARS AGO

By Greg Walton



THE FRANKSTON OBSERVATORY

1977 August The Journal

T.B. Tregaskis^A and P. Norman^A^AASV and Astronomical Society of Frankston

Over the last few months, an observatory housing the B.J. Smith 12 in telescope, has been built in the grounds of the State College of Victoria, on the corner of McMahons and Hastings Rds. Frankston. Three organizations have co-operated in this instance to bring the project to fruition. They are the Astronomical Society of Victoria, the Astronomical Society of Frankston, and the State College of Victoria, Frankston.

Some years ago, Mr. B.J. Smith of Hartwell, had no further use for his 12 in Newtonian reflector, which he had constructed in his back-yard many years earlier. The instrument had become overgrown with trees, and had not been used for a long time. He donated the telescope to the ASV, who in turn lent the instrument to the Astronomical Society of Frankston (ASF).

The ASF members rejuvenated the telescope and soon had it in reasonable working order, but until a permanent site was available for an observatory, the instrument was used in a number of locations, mainly in the back-yards

of members' homes. For a period the massive instrument was even mounted on a car trailer, and used as a portable telescope, but it was quickly realized that this was a most unsatisfactory arrangement; because of vibration problems, alignment, and difficulty with gaining access to the Newtonian eyepiece, which was at a considerable height above the trailer.

At least two other permanent sites were proposed, before the State College site was made available. Also, construction of an earlier fibre glass domed observatory had commenced a few years ago, using moulds made and used by Mr. A. LeMarquand for his own observatory dome. After many weeks of sticky and smelly work, about half of the dome was completed and was being stored in the back-yard of a member's home, when children playing in the dome set fire to and completely destroyed it.

Soon after this shattering event, Mr. Peter Norman, a member of both the ASV and the ASF and also a lecturer at the State College, proposed and became the main negotiator of the scheme to house the telescope at the State College site in Frankston.

In effect, the proposal was that the ASV would supply the instrument, the ASF members would install operate and maintain it and the State College would provide the site and building on the understanding that the telescope could be used by students for astronomical studies. It was an arrangement which appeared to benefit all concerned.

At the same time it was decided that a simple roll-off roof construction had a number of advantages over a dome, eg. ease of construction, saving of time, cost, easier access to different parts of the sky, better for instruction purposes, etc.

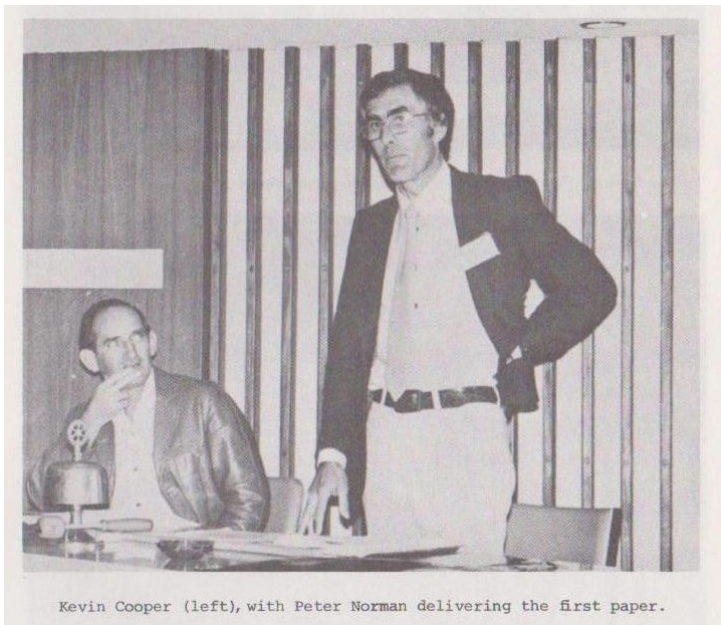
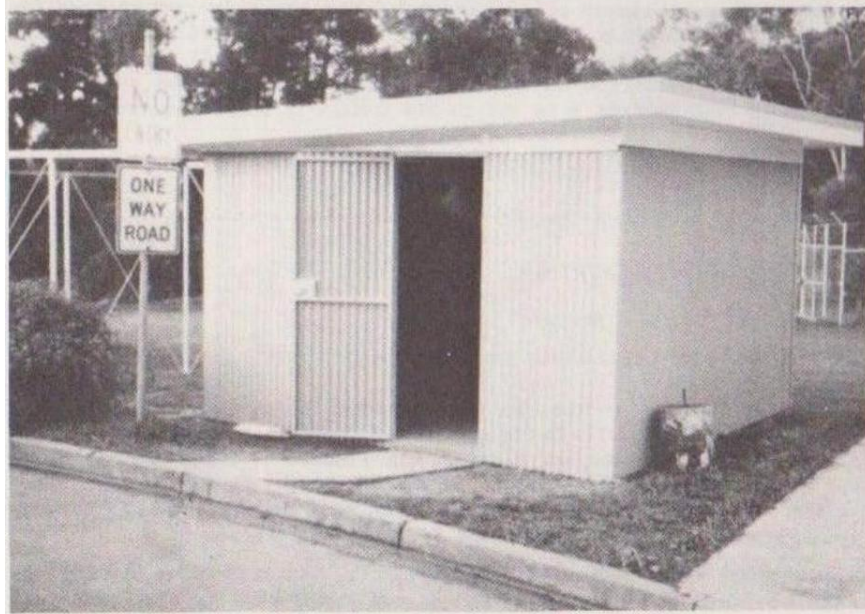
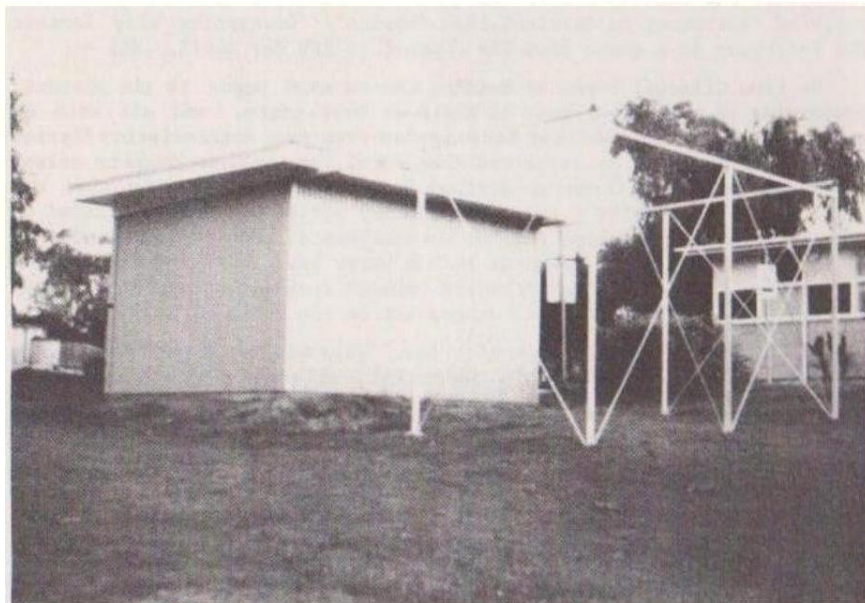
The telescope house is of a simple design based on a concrete floor of size 4 m x 4 m. The steel pipe (60 mm) frame gives a wall height of 2.2 m and is clad with corrugated iron. The roof is also of corrugated iron mounted on a timber frame. This is carried on six wheels which roll in two 63 mm x 88 mm angle iron rails. The roof 'tracks' well with the aid of four locating wheels. In the future it is hoped to floor and enclose the run-off frame for use as a photographic darkroom and also for use in solar experiments.

The main advantage of this telescope for the College students is for high magnification observations and astro-photography by Diploma 3 Astronomy Students. In addition Diploma 1 and 2 Science students are able to attend general observation evenings when this telescope is used in conjunction with a number of 10 cm reflectors. It is also contemplated that members of various interest groups in the community will be able to use these facilities in a similar manner.

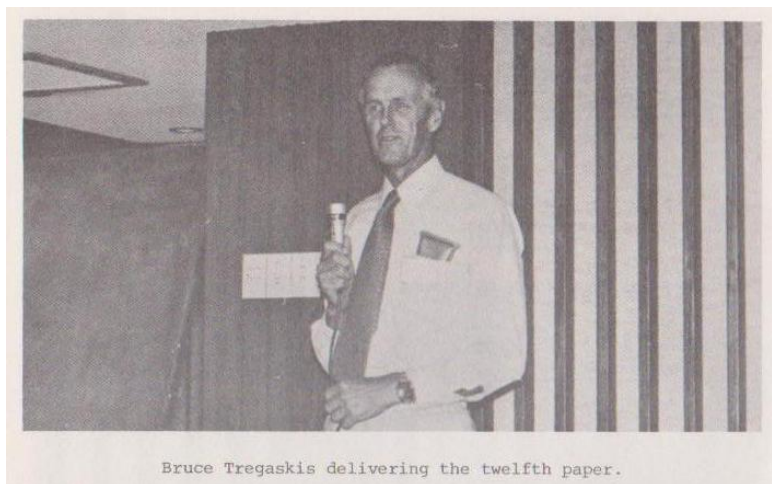
Meetings of the ASF are held on the fourth Wednesday of every month at 8 pm in a Science room at the State College of Frankston and visitors are very welcome. Usually about 15 people attend. Meetings are on a somewhat more informal basis than the ASV meetings but otherwise follow a similar format. After the meetings, if the sky is clear, the telescope is used. Other observing nights are also arranged.

Two views of the ASF Observatory.

Both photos by T.B. Tregaskis



Kevin Cooper (left), with Peter Norman delivering the first paper.



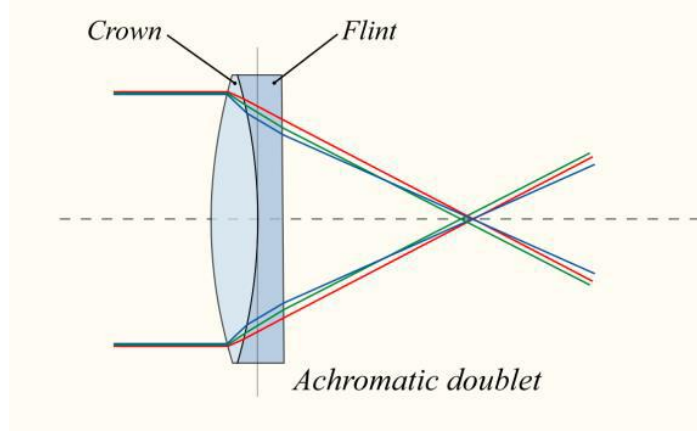
Bruce Tregaskis delivering the twelfth paper.

Only took 10 years to get the first observatory up and running, than almost 50 years for the second observatory. Hopefully the next observatory will not take as long.

The second coming of 'Big Blue' *by David Rolfe*

Those members that have been in the society for about 5 years or longer would remember 'Big Blue' being kept in the lower shed at MPAS. Here is its story to date.

Big Blue is an 8" Oil Spaced Doublet f/12 Achromatic refractor that was built by Barry Adcock (ASV). Big Blue used crown & flint elements of glass from Newport glass in the US.



Achromatic Design Big & 'Little Blue' at the Briars

The telescope was originally built for Andrew Matiukevitch, who at the time lived in NSW. Andrew had some health issues (diabetes) and sold most of his astronomy equipment, including some of his Unitron collection. I purchased big blue (it was white then) from him and in March 2009 my Grey Nomad parents collected it in their caravan on their way back home to Victoria. It travelled in the hallway of the van for about a week and was sworn at regularly. Andrew had this telescope installed on a heavy duty Meade DS 16 motorised mount on a rickety wooden/ metal tripod that did not survive transport to my place.



Original Ad (Ice in Space Classifieds) – Unitron clamped to main OTA

When I got it home I cleaned it up and decided to shorten the tube by about 15mm to better suit both visual and photographic requirements. Andrew had not used it for a while, so the focuser also needed a lot of loving (and grease) to get nice and smooth again.



Above: At home test.

Right: Original Mount (No cross braces in legs)

After cleaning it and taking the optics around to Barry to check I painted the tube with a metallic blue and put several layers of clear coat on it. I also replaced the damaged wooden platform on the mount with a lightweight anodised aluminium frame, CNC machined to fit the tube and mount. I also had to replace the main brass gear in the DS16 mount as it did not drive. Andrew never had it tracking while he had it.

When at Barry's place for optical inspection, we were shown the method to collimate the tube. It involved using a nosepiece with a clear back and centre mounted LED. While looking down the tube (from behind the LED) you should be able to centre the reflected image of the LED while looking from any spot.

The 'device' is shown below, kindly manufactured by Greg Walton precision engineering.



Greg's Collimation Device

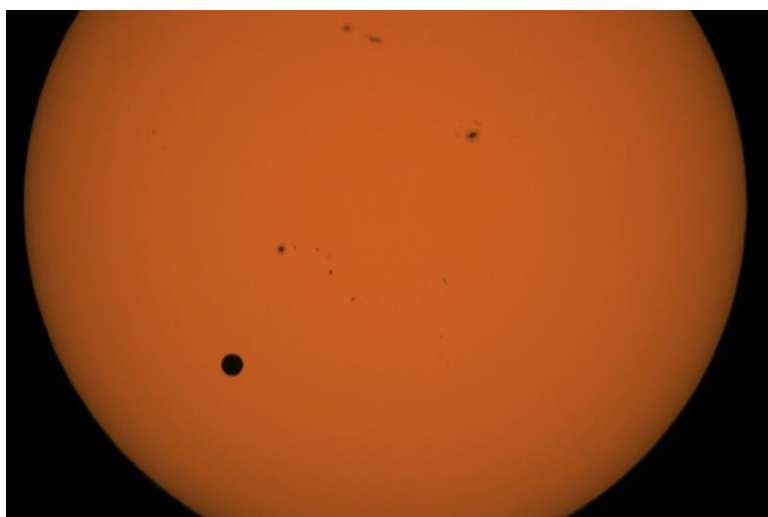
There was a dew shield and controller added next to the motor drive as well. The telescope was now finished and eventually stored at MPAS where I (and a few other members) used it. It was very popular on Public viewing nights due to its size and resemblance to the stereotypical telescope of old. Big Blue is really good at planetary objects due to its long focal length (2.4m), however the instrument does suffer (like most uncoated achromatic refractors) with a pink halo around bright objects. This was mitigated by adding a minus violet filter to the diagonal however.



After Tripod Braces and 'Tube Ring' Frame

As this telescope was 8" (Same as my VC200L) I could share my Thousand Oaks full aperture solar filter. The picture below was with Big Blue during the June 2012 Venus transit from the Briars.

In May 2014 Andrew had made a partial recovery and contacted me again about re-acquiring the telescope. Out of all the things he sold during his move to Tasmania due to bad health, he told me selling this was his greatest regret. Eventually, Andrew (and Barbara – Andrew's Wife) agreed on a price with a caveat that on his passing or failing health the telescope will be returned.



Andrew passed away last year (2017) and with my current situation I was not wanting it back for personal use (too big). I therefore took use of my option and worked out an arrangement with Barbara to donate it to MPAS. As part of the arrangement MPAS had to pick it up from Tasmania and in good faith help Barbara value and sell Andrew's remaining astronomical equipment. Greg & Pia gladly volunteered by travelling to Tasmania, representing and funded by MPAS, to do all of this. Thanks again Greg & Pia.

In the next month or so, Big Blue should be operational at the Briars again.

The next step for this telescope would be an Argo Navis to replace the northern hemisphere setting circles.

Regards, Dave.

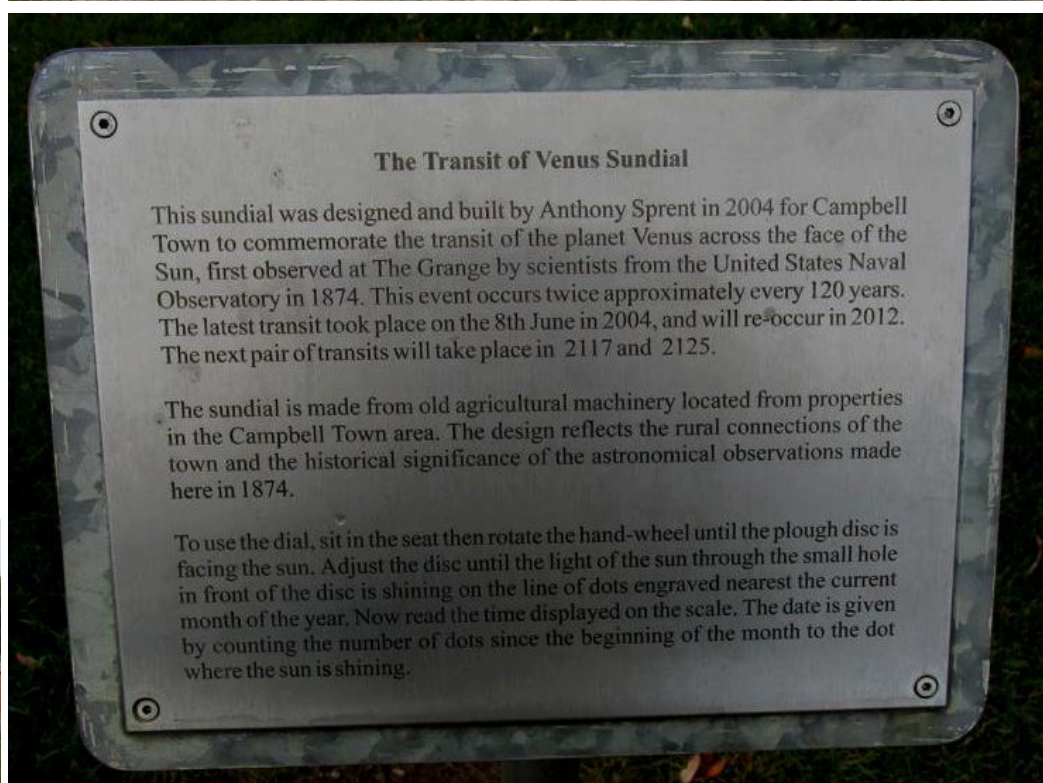
Tasmania here we come *by Greg Walton*

6pm Tuesday 10th April we drove to Port Melbourne to meet the Spirit of Tasmania. We were asked, do you have any weapons, guns, explosives, gas bottles, animals or fruit? No!! Open the bonnet of the car. We opened the back of the car which was totally empty. OK, now you can drive straight on to the Spirit of Tasmania 2. We parked the ute, grabbed our coats and went upstairs to have dinner and wine in the restaurant, while Spirit set off across the bay bound for Tasmania. Luckily the sea was flat for the whole crossing. After dinner we went up to the top bar and listened to a live singer. At 10pm we went to one of the 2 cinemas to watch Black Panther.

At midnight we found our recliner chairs and fell asleep. At 5:30am the captain said, it's time to wake up and the restaurant is open for breakfast as the Spirit will be docking soon. At 7am we were driving off the ship heading for Hobart. We stopped at Campbell Town for a bit to eat and wandered around the town finding an antique shop and park with an interesting looking sundial made from old farm machinery parts. The plaque was to commemorate a group of American scientists' stay at the Grange in the town to view the transit of Venus in 1874. The Grange is the building in the photo at right. The scientists did their viewing in the grounds at the rear of the property.

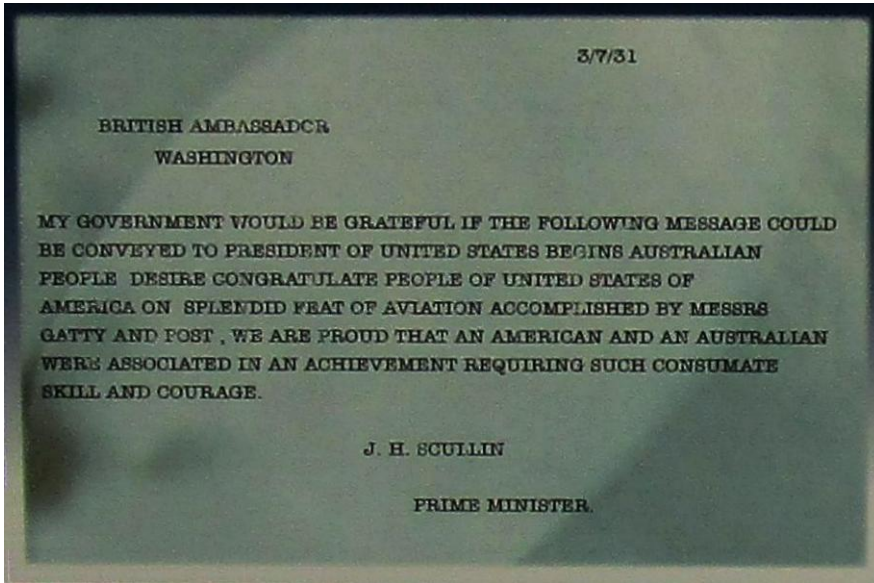
The instruction on how the sundial works is on the plaque below, we did not test it as the sun was hiding in the clouds.

Also in the town was a row of wooden sculptures cut from pine trees. As you can see in the photo below, I was pointing out the transit of Venus expedition in my MPAS top.



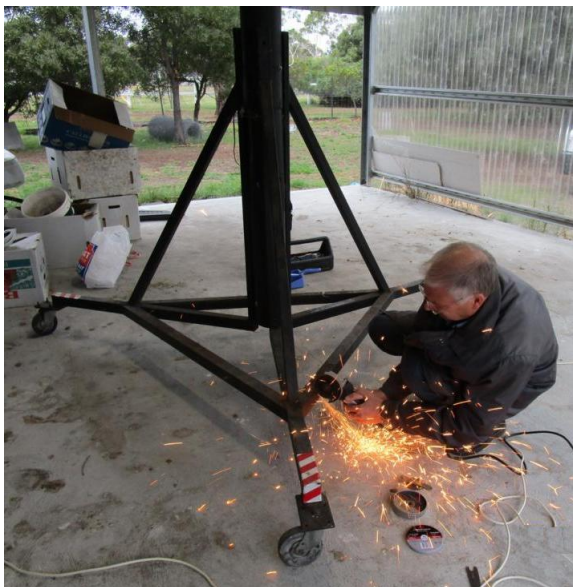
Who would have thought someone from Tassie would be the first to complete this journey.

One of the other sculptures in the park was to commemorate a resident from the town **Harold Gatty** who navigated the first plane to circumnavigate our planet in 1931.



Back on the road to Hobart we encountered considerable road works, slowing our journey, arriving at our room in Hobart about 4pm. We then drove down to Huonville to see the wooden boat shop and found a beach side coffee shop and community library called "The Rocket" made from a plastic water tank.

The next morning we had arranged to meet Barbara to pick up Big Blue, Barbara showed us Andrew's collection of telescopes and apologized about the state they were in. Pia & I quickly sprung into action, cutting up Big Blue's tripod frame so we could fit it in the old ute. We had arranged to sell Andrew's telescopes for Barbara, but did not realize there were so many. 6 hours later Pia & I had finally managed to dismantle and pack everything in the car. After we decided to drive the south peninsula, which took a bit over an hour to get to the end of the road, taking in the sights along the way. Took us about 2 hours to get back to our room avoiding all the wild life that kept crossing the road in front of us.



Full Load in the back of the ute.



Last day in Tassie, we set off from Hobart to Devonport.

We noticed that old ute was not so sprightly on the hills, due to all the weight in the back. We even had a stack of counter weights on the front floor passenger side and telescope mounts behind the seat. We left one 60mm Unitron telescope behind in memory of Andrew. That could have been the scope that broke the camel's back. (See right)

We stopped at all the small towns we missed on our way to Hobart 2 days earlier, always on the look out for junk shops. Most of these towns were filled with cute small stone cottages. Oatlands had an old stone wind mill which is still working today.



We did find an antique shop where we picked up an old brass leather-bound telescope for \$80. The trouble with some of these old looking brass telescopes is that they are reproduction, but this one is the real deal and the view though it is good. Missing is front lens cap, but one day I will find something that fits. See below.



Also found a cardboard telescope with instructions, made by Union Manufacturing & Agency Co. 299 Elizabeth Street, Melbourne, C1 Which I bought for \$20. It's missing the front lens but I found a lens. See below.

Eventually we arrived at our cabin in Devonport as it was getting dark. We were due to drive on to the ship at 7am in the morning for the day crossing back to Melbourne. We heard strong winds and rain throughout the night and thought this would not be a good crossing. The alarm sounded at 6am; we decided not to have breakfast and drove to the boat where we sat beside **OFF THIS PLANET**, a mobile planetarium, before we drove onto The Boat.

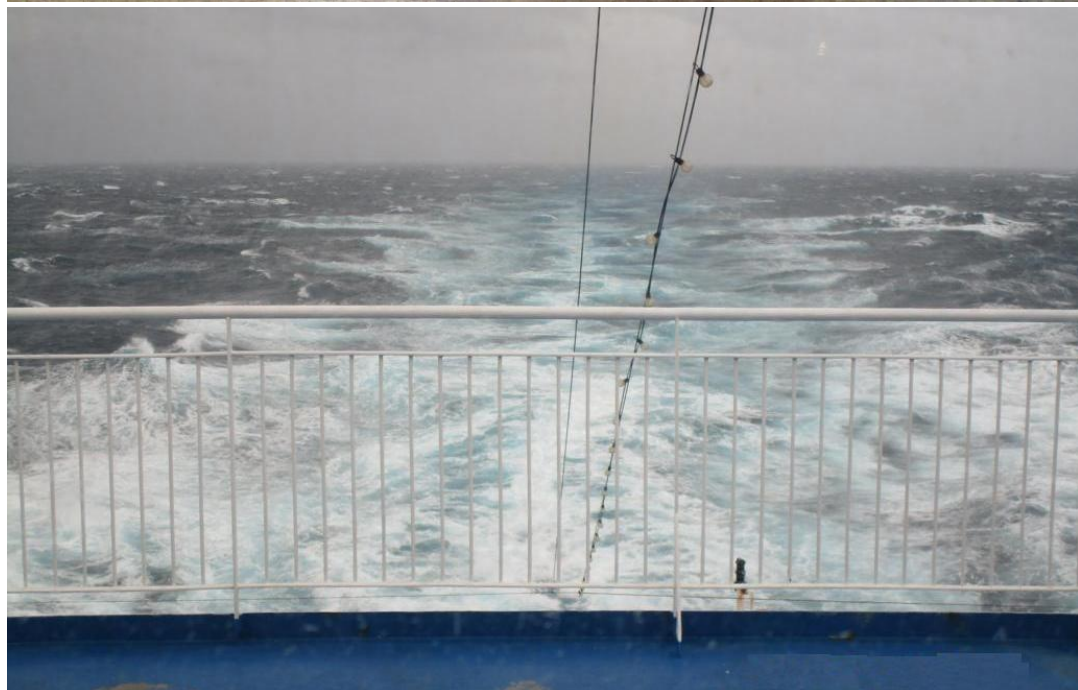


UNION MANUFACTURING & AGENCY CO.,
299 Elizabeth Street, Melbourne, C.1.



Pia & I decided to sit at the back of the ship, as the captain announced that we'd be encountering 6-metre waves today. Great!! When Spirit smashed through the waves the whole ship shuddered & the glasses in the bar went flying. After that, Spirit had to slow down, meaning we were 2 hours late. Pia & I didn't move from our seats till we passed though Port Phillip Heads, when we thought it was safe to have dinner.

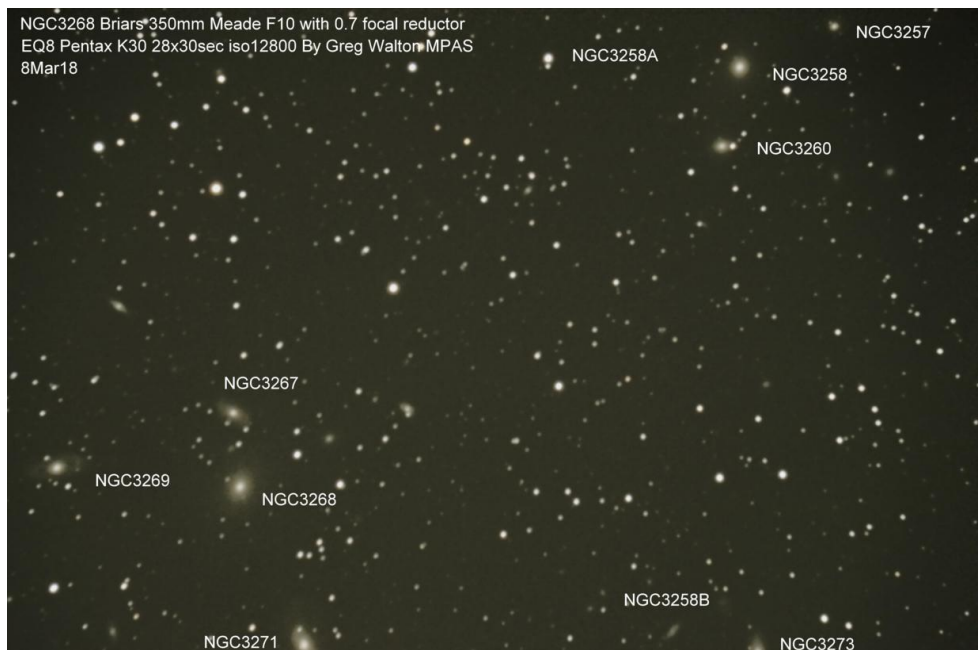
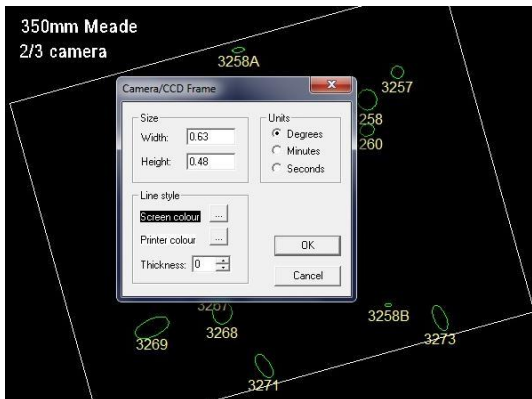
We did not drive off Spirit till after 9pm, as the roads were blocked by cars wanting to drive on to Spirit. Most likely they had been waiting for 4 hours. Good to be home safe. Greg & Pia



MPAS Gallery

I imaged this group of galaxies with the MPAS 350mm Meade telescope. Then used it to work out the field size for a 2/3 sensor DSLR Pentax camera. *Greg Walton*

Turned out to be only 0.63 x 0.48 degrees.



Above - Cats Paw nebula NGC6334 taken with the 350mm Meade, by *Greg Walton*



Moon imaged with 6 inch Saxon F8 Newtonian on EQ3 mount, camera with Samsung Galaxy S8 Mobile phone. By *Nerida Langcake*

Below - Horsehead Nebula, by Steve Mohr
 Located in the constellation of Orion, is one of the jewels of our night sky – the Horsehead nebula. Taken with a Planewave CDK 12.5, SBIG STXL11k, on a AP900 mount. 8.75hours of data from luminance, red, green, blue, and hydrogen alpha filters.



Above M78 - By *Steve Mohr* Instrument: Planewave CDK 12.5 | Focal Ratio: F8
 Camera: STL-11002 + AOX | Mount: AP900GTO
 Camera Sensitivity: Lum + Ha: Bin 1x1, RGB: Bin 2x2
 Exposure: Lum: 22 x 900 sec [5.5hrs], Ha: 10 x 1200 [3.3hrs], RGB: 450sec x 22 each [8.25hrs]
 Viewing Location: Central Victoria, Australia. Observatory: ScopeDome 3m
 Date: Nov 2017- Feb 2018

SOCIETY INFORMATION



Peter Lowe



Greg Walton



Peter Skilton



Jamie Pole



Tony Nightingale



Stewart Gangell



Anders Hamilton



Heath Lewis



Fred Crump



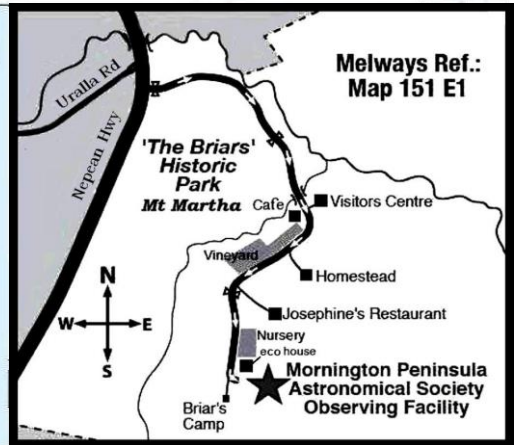
Dave Rolfe

OFFICE BEARERS OF THE MORNINGTON PENINSULA ASTRONOMICAL SOCIETY

President: Peter Lowe **Secretary & Phone Contact:** Peter Skilton
Vice President: Greg Walton **Treasurer:** Jamie Pole
Committee: Tony Nightingale, Stewart Gangell, Fred Crump, Heath Lewis, Anders Hamilton & Dave Rolfe **Web master:** Dave Rolfe
Scorpius editor: Greg Walton **Librarian:** Fred Crump

SOCIETY MEETINGS

Meeting Venue: MPAS Astronomy Centre
 The Briars, Nepean Hwy, Mt Martha
 (Melways ref. 151/E1)
Society meetings: Don Leggett Astronomy Centre
 8pm on the third Wednesday of the month
 (except December)
 (See map at right & Below)
Please Note - 2018 Society meetings will be at the Briars.
For addition details:
 Internet: www.mpas.asn.au
 email: welcome@mpas.asn.au
Phone: 0419 253 252
Mail: PO Box 596, Frankston 3199, Victoria, Australia



LIBRARY

The Society also has books & videos for loan from it's library, made available on most public & members nights at The Briars site, contact Fiona Murray or Fred Crump

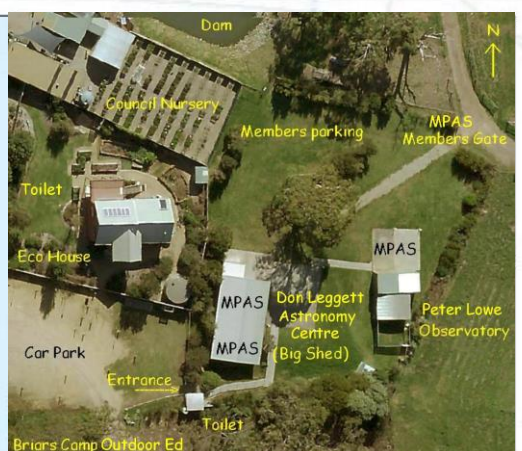
E-SCORPIUS NEWSGROUP

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 & events information as well as being able to join in discussions & ask questions with other members. To join, to go: www.groups.yahoo.com/e-scorpius and sign up to Yahoo groups - you are required to sign up to Yahoo groups to join E-Scorpius. Once you have signed up at Yahoo groups, email welcome@mpas.asn.au say that you want to join E-Scorpius & you will be added to the E-Scorpius list.

facebook MPAS - <https://www.facebook.com/mpas0/> / MPAS members - <https://www.facebook.com/groups/MPAS1/>

VIEWING NIGHTS - MEMBERS ONLY

Viewing Night - 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 9776 2074 or 0415172503 if they need help getting to The Briars site. Upon arrival at the site, remember to sign the attendance book in the observatory building.
For addition details:
 Internet: www.mpas.asn.au
 email: welcome@mpas.asn.au
Phone: 0419 253 252
Mail: PO Box 596, Frankston 3199, Victoria, Australia



Members please write a story about your astronomy experiences and add some pictures. Send them to the editor: Greg Walton gwpmpas@gmail.com
MPAS Scorpius on face book - <https://www.facebook.com/Scorpius-MPAS-1694951307446763/>

SCORPIUS 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 © 2018. Mornington Peninsula Astronomical Society