Cover image - RCW 80 emission nebula in Centaurus, *by Nik Axaris*

SCORPIUS

THE JOURNAL OF THE
MORNINGTON PENINSULA ASTRONOMICAL SOCIETY INC.

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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

Public Viewing Night May 1st - Greg Walton arrived before 7 pm, turned on the red lights, filled the urns with clean water and topped up the sugar and tea jars. He opened the toilets and checked for Peeping Tom spiders, then opened the observatory and dragged out Big Blue and 18 inch Sky Venture and found Jupiter in both telescopes.

The observatory was then opened up, telescopes switched on and aligned just in time for the public, who were already arriving early. The forecast wasn't promising with clouds moving in, so we decided to do the viewing first before the talk which was the first one given by Chris Kostokanellis at a PVN. It wasn't easy rounding up the public for the talk, with many deciding to stay at the telescopes.

Public attendance for the evening was 85, including a few who turned up with return passes for the viewing only.

We did our best to entertain the public, but the full moon and the clouds restricted the viewing to the brightest star clusters, Jupiter and the moon. The Jewel Box, the Gem Cluster, the Pincushion, Alpha Centauri and NGC2516 open cluster were the main targets. Chris's talk was about the objects visible in the sky, with descriptions and information about popular visual targets, including the ones mentioned above.

By the time the talk finished, there was an ice ring around the Moon and many headed back to the telescopes. Karoline Hohlweg took over running the Meade so Greg could get the 11 inch Celestron in the dome running, and Leigh Hornsby ran Sky Drover. Dave Rolfe ran Big Blue, Mark Stephens ran Sky Venture, and Chris was on the 12 inch Dobsonian. So it ended up being a busy night that finished after 10 pm, despite the persistent almost 100% thin high altitude cloud cover.

Helping out in addition to those mentioned above were John Goodall, Jamie Pole, Simon "Le Bon" Hamm, Adrian Boschetti, Sylvie Grandit, Fred Crump, Ben Claringbold, Juno Jones, Barney Boudle, and Yvonne Hsu. Apologies if we missed anyone or got any names wrong. Please remember to sign the Members book when you attend MPAS events.

Regards, Greg Walton and Chris Kostokanellis

Freemasons Viewing Night May 2nd - On Saturday 2nd May, MPAS hosted Freemasons from the Eastern District Lodge and their Families. 32 in total attended the day. This was the 2nd MPAS visit for this Group, their previous being November 2025.
They bought their own food and drinks, and used our BBQ and kitchen for preparation. I arrived at 3 pm to open the auditorium, kitchen and BBQ. I then set up the H-alpha Solar Scope and the 100mm Refractor with a Solar filter in the David Girling Dome, which were providing some nice views of the Sun through the thin high altitude cloud cover. 2 sunspots and several solar prominences could be seen. The families began arriving around 3.30, and I helped them set up chairs and tables outside, and got the BBQ going for a feast to rival even our MPAS Members BBQs, though disappointingly, there were no desserts.

I spent the afternoon discussing various subjects with this terrific group of people, before we wandered into the auditorium where I gave them a presentation on the night sky and the objects we commonly observe. By this time, the cloud cover was thickening up, and night sky observing looked doubtful.

During the talk, there was particular focus on the Moon and the Apollo missions, as I will be giving a talk to another group of Freemasons in East Melbourne this coming Friday about the Artemis Program. Talk of the Moon even prompted a couple of the audience members to break into rendition of Rogers and Hart's "Blue Moon", which I may or may not have joined in on, microphone in hand.

The presentation meandered around many different topics, as the flow of questions was constant and varied from both the adults and children resulting in a fun and interactive talk.

We had dedicated spotters during the presentation doing regular checks to see if the Moon might make an appearance, but unfortunately 100% cloud cover prevailed, and there was no viewing to be had other than the Sun earlier in the day. So we finished the evening with a tour of the Observatory.

I then cleaned and packed up and made sure everything was locked and shut down, and was done for the evening around 9:30 pm.
This isn't the last we'll see of this group, and they are already planning their next MPAS visit after a thoroughly enjoyable day.

Regards, Chris Kostokanellis

Freemasons talk only May 9th - Last night, Friday 9th May, I visited the "Freemasons Melbourne" in East Melbourne to talk to 32 members of Gregorios Lodge about MPAS and about Lunar Exploration with particular focus on the Artemis program.

Their top secret location was obtained by a quick Google search, but the large Masonic symbol on the front of the building may also be a bit of a cryptic clue. ;-) This new building sits on the site of the old Dallas Brooks Centre, and is a beautifully appointed building with lots of Masonic symbolism and paraphernalia on display.

The talk was given in the Bar area where they had a projector set up for me to connect my laptop to for the presentation. Here, I and a few other non Masons in attendance waited while the Brothers conducted their lodge business in private. The 45-minute talk began at around 8 pm, and I covered what MPAS is and what we do, before moving on to my talk on Lunar Exploration. I spoke briefly about the Apollo program, followed by the Shuttle Program which provides much of the rocket technology for the Space Launch System (SLS), and on to covering the achievements of the Artemis missions, as well as the aims for Artemis III and IV. I also spoke about the Australian connection, which you can read a bit more about in an article written by Nerida Langcake in the current newsletter.
Some of the members present recalled the Apollo missions, and we spoke about their memories of them too.

For those interested in joining MPAS I told them that all they need to do is pay the joining and membership fee, and learn our secret handshake. They like secret handshakes.

The ages of the audience was varied. The youngest I'm guessing was around late 20's while the oldest was one of the members present who was celebrating his 96th Birthday! So there was cake and singing "Happy Birthday" too.
The presentation was followed by a catered supper of chicken, fish, and vegetables, as well as dessert. Conversation during the meal was constant about various space related topics including space junk, the Moon, black holes, multiverses and relativity. One member of the group had also studied Astronomy at Melbourne University about 20 years ago, but went on to work in another field.

There was also a raffle, and I won a bottle of Port which I'll bring along to the next BBQ to share with MPAS members.

No viewing was scheduled for the evening, so I was the only MPAS member present. The evening finished up around 11 pm. It was a truly enjoyable evening with this group, and the highlight for me was at the end of the night when I was presented with the "Stone of Triumph".

Regards Chris Kostokanellis


Kirsty Duffy

Society Meeting May 20th - The main topic was about "Neutrinos, the Universe and Everything", covering the basics of neutrino physics, their strange behaviour, and what the current research is doing in this area and what questions they are endeavouring to answer. The speaker, Kirsty Duffy, is a leading particle physicist, and she is actively involved in some of the most prestigious particle accelerators and detectors on Earth in the hunt for neutrino behaviour. This public talk was premiered at the University Oxford last week and in London yesterday.

Chris Kostokanellis presented the Astrophotographic Challenge around the Milky Way, including also some comet photos from the last month's, and Guido Tack presented Sky for the Month from historic Greenwich Observatory in London.

A science video then followed explaining where the hidden dimensions of our Universe are located, and how they may interact across universes via gravity, providing a possible route for experimental measurements of other universes.

Closure showed 6 weeks of Earth's aerosol emissions, based on ground and satellite data, showing trans-Atlantic dust storms in the Sahara, whipped up sprays from hurricanes and cyclones, sulphurous emissions at the time from volcanoes active in Hawaii and Italy, and massive vegetation burn-offs in South America and Africa. It also showed the minimal mixing between the atmosphere in the northern and southern hemispheres. Those who recall the original Hollywood movie, On The Beach, may remember after a global nuclear exchange, the last survivors from the spreading fallout were actually located in Frankston due to this mixing behaviour.

Most recent video on the channel: https://www.youtube.com/channel/UCm6XOkIcIflt4y0XRBXpXuw
or watch it on the MPAS site once it's refreshed for this month: https://www.mpas.asn.au/meeting-recordings/

Regards, Peter Skilton

Working bee & members Night BBQ May 23rd - Saturday's working bee was relaxed and easy, with a smaller than usual turnout, and an earlier sunset at this time of year. It was an overcast but dry day, with a top of 17 degrees. 18 members attended.


Andrew, Steve, Adrian and Geoff


Chris


Chris

I arrived early as usual to mow the members' car park, and was soon joined by Chris Kostokanellis and Adrian Boschetti. Chris jumped on the ride-on mower, and Adrian bravely took on the push mowing for those hard to get at places. It wasn't long before everyone else arrived, getting the kitchen ready, cleaning everything, and setting up the tables for dinner.

I did notice there was a bit of a distraction though, as one of our members had arrived in his Corvette C4 ZR-1. I found several members had disappeared in that direction, but they soon got back to work as I came over to see what all the fuss was about!

The grass was actually quite long for this time of year, and we all jumped in to rake it up. At one point I lost sight of Chris on the ride-on, but soon found him mowing down in our new quarter acre extension. In fact, as it was getting dark, we were thinking of sending out a search party to retrieve him! It's nice to see how big the new piece of land is, and I'm sure we'll get it fenced at some stage.


Adrian


Steve and Andrew

Adrian also managed to fix a troublesome bolt that is used to lock down the top in our new dome. He found the end needed some filing and made short work of it, even as it was getting dark outside.

Up in the kitchen, Anne Danne was getting things ready for dinner, and I jumped in to butter some bread to help. She started chopping up the onions, and the next thing I was crying! Anne brought a delicious corn and bacon cheesy hot dip she'd prepared, and, along with all the other treats members had brought, made for a great addition to dinner.


Ben, Mark and Andrew

Jamie Pole arrived with the usual shopping. Mark Stephens and Ben Claringbold fired up the BBQ. We all then settled in for a nice meal and a good yack. I was pleasantly surprised that we got so much done, with the sun setting earlier at this time of year, and the place looks great. Many thanks once again to all the members that chipped in (see photos). We'll be back again next month!

Warm regards, Phil Peters

Scout viewing night May 29th - cancelled due to no bookings

Cosmology meeting March 30th - went ahead at 1:45 pm as usual at the Briars.

Public Viewing Night June 5th - The June 5th public night at the Briars was fully booked, but saw only 71 actually attend. The evening started with full cloud cover, which probably had turned the pessimists away, but the clouds were in very wide bands and were moving.

The talk indoors was given by Manfred Berger. About halfway through the presentation, the group was taken outside as the sky totally cleared, enabling a good telescope view of objects in all directions. Then, after about half an hour, the next band of cloud came over, fully obscuring the view again. The visitors then went back indoors to hear the second half of the talk, or stayed around the telescopes asking further questions. All in all, it was a very successful night, and not too cold for this time of year.

Other members present and helping on the night included Greg Walton, Simon Hamm, Chris Kostokanellis, Fred Crump, Mark Stephens, Sylvie Grandit (who checked the visitors in near the carpark), Peter McConnachie, Peter Skilton, Adrian Boschetti, Ben Claringbold, Aaron & Ethan Yuen. *Regards, Peter Skilton*

Jewish Orthodox Viewing Night June 11th - The 11th June stargazing night went ahead successfully for 20 Year 10-12 students and teachers from a Jewish Orthodox girls' school in Ormond, staying next door on camp. This is the first time we've attempted delivering one of our nights to such a group with its unique cultural requirements.

They had a brisk march in line from the camp to the observatory site just in time for a 6:35pm pass of the International Space Station over in the northern sky. One of the students spotted it first in the sky, then Peter Skilton explained that tonight onboard were 7 astronauts/cosmonauts, comprising a French female, American female, 3 Russian males and 2 American males. One of the girls even asked how she could become an astronaut.

Conditions were clear, with threat of cloud later in the evening, so after the ISS passed, followed by numerous other satellites soon after, they were shown Venus and Jupiter close to conjunction and soon to set in the west, and in the east were Sagittarius and Scorpius (which they refer in English to as Scorpio). Venus was a gibbous shape, and Jupiter sported the 4 Galilean moons. Anne Danne and Katherine McCoy had telescopes on the upper slab, while Sylvie Grandit opened up the main observatory and then showed them lots of other fuzzy and twinkling delights, like the Jewel Box. Sylvie and Anne must have either barricaded them in the observatory, or been particularly engaging demonstrators, as no-one re-emerged for the next half hour, including the teachers.

When the girls eventually appeared, they moved indoors to hear Katherine McCoy very capably deliver a tweaked version of the solar system talk single-handedly, while dancing around a couple of tricky philosophical questions and swiftly handballing others back to the teachers for them to discuss later back at camp.

Feedback from the school was “Thank you for the experience last night. The girls really found it fascinating.”
They must have found it valuable, as they then booked another similar night for their junior girls at the Briars on August 31st.

The girls were nearly all wearing black puffer jackets, with one rebel in a beige one, and weren’t wearing headwear, except for one teacher who wore a Lepidoptera-attracting small hat.

Well, the back auditorium door was slightly ajar, and a large moth flew in during the talk. It proceeded to circle the room a couple of times before deciding to orbit that particular teacher’s head, and she very clearly wasn’t fond of insects! None of the girls seemed to be perturbed in the slightest. Sitting discreetly at the back of the auditorium was Peter Skilton, who wrangled the moth midair and escorted it outside. And Katherine didn’t miss a beat with her talking.

A big thank-you to Sylvie, Anne and Katherine for being available so the evening could go ahead as it was an interesting experiment.

Regards, Peter Skilton

Indigenous Astronomy Public Viewing Night June 12th - Another indigenous astronomy public night was held at the Briars on 12th June, with the talk given by visiting speaker, Tim Patston, again. Attendance was only 27 visitors this time, with about one third of bookings not showing, most likely due to it being winter and very overcast, and it not being uncommon for some to drive for well over an hour to come to the event.

After the talk, the sky was about 95% clouded, with even the clear patches having thin cloud and not lasting long. Consequently viewing through telescopes after the talk wasn’t feasible, but tours of the observatory were nevertheless then conducted and a raincheck card handed to the visitors.

Members helping on the night included Greg Walton, Chris Kostokanellis, Simon Hamm, Peter Skilton, Jamie Pole, John Goodall and Ben Claringbold. *Regards, Peter Skilton*

Society Meeting May 17th - For those of you who are not yet subscribed (it’s free) to the MPAS YouTube channel, the monthly meeting has been uploaded.

The main topic was about “Astronomy By Microscope”, by Prof. Monica Grady CBE from the Open University, UK, who was a leading scientist in the European Space Agency’s Rosetta mission that landed a probe on comet 67P/Churyumov-Gerasimenko. This public talk was delivered at The Royal Society, London.

Chris Kostokanellis presented the Astrophotography challenge for the month, and Guido Tack presented Sky for the Month upon his return from overseas.

A science video then followed about the smells of space by an astrobiologist and professional perfumer who has recreated them for outreach purposes.

Closure showed a decade of highlights of the orbiting NASA Swift Observatory that is used to detect gamma ray bursts, and then train its instruments on them while alerting other observatories to a new target of opportunity. Originally designed to last 2 years, it has continued to work for over 20 years but is predicted to crash to Earth sometime later this year. However, NASA has contracted a private company to launch an ion thruster module for attaching to Swift and boosting it to a higher orbit. Launch date from the underbelly of a special aircraft is likely to be overnight tonight, or tomorrow morning if all goes to plan.

If subscribed, you may be notified of this automatically by YouTube.

You can also watch it here by clicking on this link and going to the most recent video on the channel:
https://www.youtube.com/channel/UCm6XOkIcIflt4y0XRBXpXuw

or watch it on the MPAS site once it’s refreshed for this month: https://www.mpas.asn.au/meeting-recordings/

Regards, Peter Skilton

Scout viewing night June 18th - We had 56 scouts and some parents from the 1st and 2nd Mornington Scout groups visit the Briars last night for some stargazing. For the last 3 years, each time they’ve come they’ve been unlucky enough to be totally clouded out. However, this year was a case of 4th time lucky.

Although there was cloud earlier in the evening, when Venus and the crescent Moon were seen by most, it was enough interference to prevent Mercury and Jupiter from being seen low in the West. The group then moved indoors to hear Peter Skilton give the talk and answer questions. After that, it was back outside under clear skies to see everything else on offer that evening through the telescopes.

Other members helping run the night were Phil Peters, Sylvie Grandit, Adrian Boschetti, Greg Walton, Chris Kostokanellis and Ben Claringbold. *Regards, Peter Skilton*

Public winter lantern making and Viewing night June 19th - On Friday night we had the pleasure of joining our awesome neighbours, Jacqui and her team from the Eco Living Display Centre, in celebrating the Winter Solstice. Nearly 30 people attended.

Each year, people come to cook soup and make lanterns in the Eco Centre to mark the shortest day of the year. This year's theme was Stone Soup. Everyone brings a different vegetable to add to the pot, which is then cooked with a magic potion or two, and some focaccia to go with it. Nice lanterns are made by bringing an empty jar, decorating it, and putting a small light in the bottom (see photos). There was also a game of Duck Duck Goose outside which the kids loved.

After everyone had finished the lovely soup (I had heaps), Jacqui led them outside into the Eco Geodome, where they sat and heard the story about Stone Soup. The kids love hearing stories, and the atmosphere in the dome makes it even better, although I wonder if Jacqui had a spell or two up her sleeve.

From there, people came through the adjoining gate into Astro for some stargazing. We were lucky with the weather, managing to see Jupiter, Venus and the moon amongst other objects. Peter Skilton also did a brief presentation in our auditorium about the Winter Solstice, which was very popular.

People helping from MPAS were Peter, Greg Walton, Ben Claringbold, Ally and Lewis Midwood and myself. We all had a great time and look forward to next year! *Warm regards, Phil Peters*

Working bee & members Night BBQ June 20th - The MPAS working bee went ahead as usual, despite the bad weather forecast. Chris and I arrived early. Chris mowed the car parking area before mowing the new lease area in the adjacent paddock. Then Chris and John Cleverdon measured the land ahead of any future development.

I pruned back the height of the trees near the garden shed as these trees were starting to obstruct the view to the south. By then another members arrived to remove the branches and finish the mowing.

Then all work stopped outside as the rain started to fall. Jamie arrived with the supplies and members started preparing and cooking food. I cleaned the mirror in John's telescope while John removed the cobwebs from the tube. While John Goodall setup the tables. Chris setup the MPAS computer ahead of the talk/demonstrates. A few more members arrived for the Astrophotography group meeting.

We all sat down for dinner, chat and desert. Afterwards Chris Kostokanellis did an excellent job of demonstrating how to stack your images using Deep Sky Stacker. Then demonstrated how to adjust and fix problems with your stacked images using various software. Chris also answered many questions over the 2 hours session.

At the end of the night we sweep the floor and setup the chairs for the 3 school and scout viewing night next week.
A big thanks to everyone who helped out at the working bee and cleaned up afterwards. *Regards Greg Walton*

Well done to everyone who helped out for the working bee, and to John Cleverdon for his help with setting out the proposed Eastern Observatory. We managed to peg and string out the boundary, and also peg and string out a preliminary layout.
Just as we set up my laser and were preparing to measure some ground levels, the rain came through and we had to call it a day.

Thanks to those who attended the AP meeting. It was terrific to have a couple of our more experienced Astrophotographers (Domenic Lucarelli and Steven Mohr) present to offer their insights, as well as other members discussing the different software packages they use.

I'm happy to use the evenings of the members BBQs for AP discussion and demonstration if nothing else is scheduled for those evenings on an ongoing basis. Any members who are interested in learning or sharing their knowledge about Astrophotography should join the Groups.io Astrophotography group if you haven't already. *Regards, Chris Kostokanellis*

A big thanks to all involved – a reminder that we all contribute in different ways to produce a great result! To everybody that helped at the working bee, in and around the kitchen and BBQ, and sticking around to setup for the next event – a huge thanks!

To Chris – who ran a hugely informative session last night – well done! Some great details – fantastic to see the wealth of stuff that is freely available today compared to just a few years ago – amazing!

To those who missed out – I'm not sure if we can encourage Chris to do an encore performance at some stage – but certainly petition him here! *Great work everybody, Jamie pole*

School viewing night June 22nd - We had 70 visitors last night from the first cohort at the Briars from Patterson Lakes Primary School. This included kids from Kindergarten to Year 6, and some parents, so a wide range of attention spans. Each came down in their own family cars, with the school neither being on camp nor with any bus organised. This is the first time we've encountered this school and they were well behaved and really enjoyed the evening. Motivating that many families to come independently on a cold night in Winter, and from that far from the observatory, is saying something for the teachers' powers of persuasion.

Observing on telescopes was started up-front with skies being 90% cloud free, with some only low in the north, with a gibbous Venus and first quarter Moon immediately on show. One family that arrived an hour early, were able to catch the Chinese Space Station, Tiangong, pass overhead as seen from inside the roll-off roof observatory. It made a second passage around 7:30pm when in theory everyone could have seen it, however it was too low in the west-south-west, and so was hidden by the trees and buildings.

After half an hour, the group moved indoors to hear the talk by Katherine McCoy and Peter Skilton, where lots of questions were answered, before it was time to leave for home.

Other members helping on the night included Sylvie Grandit, Phil Peters, Mark Stephens, Adrian Boschetti, Chris Kostokanellis, Manfred Berger with societies SeeStar, Ben Claringbold, Greg Walton, Jamie Pole, Fred Crump and Anne Danne.

It was a chilly evening, with fog slowly rising in the valley to the east of the site. *Regards, Peter Skilton*

School viewing night June 23rd - We had 83 visitors last night from the second cohort at the Briars from Patterson Lakes Primary School. This again included kids from Kindergarten to Year 6, and some parents, who all attended via their own family cars. Unlike the night before, this time it was clouded over and drizzling all evening so telescope observing of even the Moon proved to be too optimistic in practice. And the fog didn't rise over the valley this time.

Indoors, the talk was given by Katherine McCoy and Peter Skilton, where lots of questions were answered especially by the younger kids, focusing on Black Holes, Theia impact, what to do when the Sun runs out of hydrogen, meteorites and what's inside the Earth. Tours of the facilities then ensued before the group departed for home.

Other members helping on the night included Sylvie Grandit, Anne Danne, Greg Walton, Fred Crump, Chris Kostokanellis, Adrian Boschetti, Mark Stephens, Ben Claringbold, Jamie Pole and Guido Tack. *Regards, Peter Skilton*

Scout viewing night June 24th - Wednesday evening saw 92 Red Hill, Balnarring, Mornington Sea and (I think it might have been) Mt.Eliza Scouts of all ages (including troop leaders) visit the Briars for some stargazing. Red Hill had managed to muster them from across the region in an attempt to fill the auditorium. And they came close to doing just that.

Sky conditions were about 50% clouded, with Venus and the Moon and other objects being viewed up-front on the evening, just in case the cloud thickened with time. Then, inside, the talk was given by Katherine McCoy and Peter Skilton, with scores of questions answered during the evening. Other members helping with the night included Greg Walton, Ben Claringbold, Sylvie Grandit, Adrian Boschetti, Chris Kostokanellis and Fred Crump. *Regards, Peter Skilton*

MEMBERS EXPERIENCES

Mornington Peninsula Astronomical Society

CATARACT SURGERY IMPROVED MY VISUAL ASTRONOMY.

It came to pass that cataracts affected both my eyes such that I couldn't see anything but blurs. First in one eye, and a year later in the other. Also, I have always had eyes with astigmatism, where the stars look as in drawings and depictions, with spikes coming out of them to look like……stars.

My eye surgeon, it transpired, turned out to be a member of the ASV and owns an 8" Dob - so he knew what I wanted.

The operations were fun, as I told the anaesthetist to go easy on the anaesthetic. Thus, I woke up in the middle of both operations. The first operation had my eye seeing lots of flowing reds, blues and yellows like I was in the middle of a Beatles' psychedelic song. The second was sedate greens flowing around.

I have always disliked my 10x70 Nikon, 7x50 Fujinon, 8x52 Minox and 9x63 Meade binoculars – even after I'd stuck correction lenses on them to try fix my astigmatism. I especially disliked the Minox pair because, unless I kept my eyes perfectly centred, I'd get some blackout at one or the other edge.

But now, they are all marvellous when I look through them up into the night sky. And no blackouts in the Minox pair – which I still do not understand. As result, I couldn't help it, I went and bought myself something I've been wanting for three decades – a pair of 11x80 binoculars – which are also as marvellous.

Similarly, all the two-inch 30mm, 40mm and 55mm eyepieces I have which I rarely used, now give me great images in my short tube f/5 to f/6.25 refractors. I had tried using eyeglasses with them, but they didn't correct the astigmatism as well as my operations did.

In conclusion, for anyone who winds up in a similar position to mine, cataract surgery is not something to be fearful of. Rather it's something to sort of look forward to. *Regards, Renato Alessio*

OBSERVATORY UPDATE

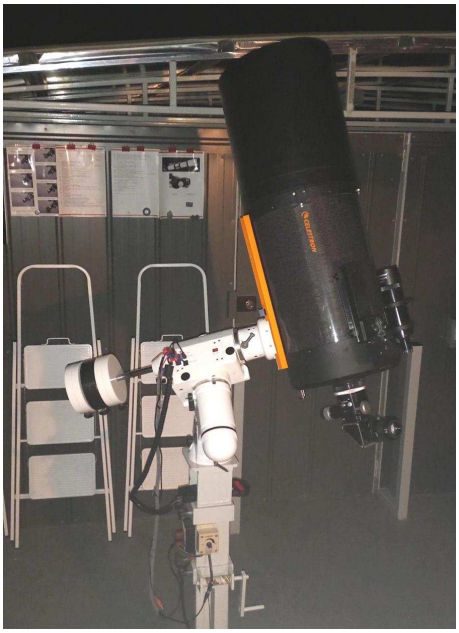
By Greg Walton

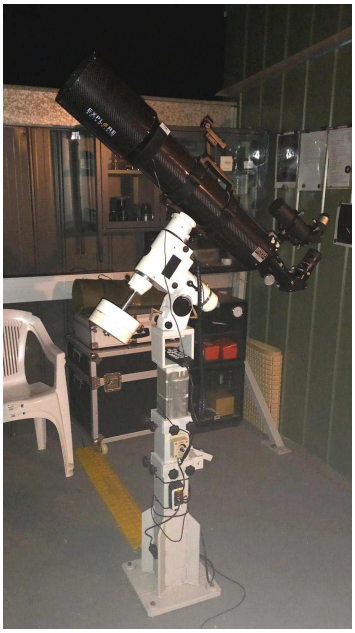
The Society was able in purchase a Celestron 11 inch C11 Cassegrain at a very reasonable cost. It came with a dew shield, Telrad finder, Williams focuser and quality 2 inch diagonal.

We have moved the 127mm refractor to the opposite corner in the observatory and luckily the pier already had the dew controller already installed.

Then we were able to fit the C11 to the EQ6 mount, which luckily had both small and larger 3" dovetail clamps. As the C11 is heavier, we needed to add one extra counter weight. Once we got the balance right, we luckily found it just cleared the rolling roof. We tested the EQ6 mount with the C11 and found no problems. Then we cleaned the outside and front corrector optic plate. As the sky was cloudy, we couldn't really check the view.

The following night the sky was clear and the view through the C11 was excellent. This telescope will be a great improvement over the 6 inch Maksutov which it replaces.





MPAS - Society AGM

The AGM is in July each year.

Current Committee

President: Peter Skilton
Vice President: Chris Kostokanellis
Secretary: Nerida Langcake
Treasurer: Jamie Pole
General Committee: Trevor Hand, Simon Hamm, Guido Tack, Phil Peters & Manfred Berger.

MPAS members please consider a position on committee, as we have much work to be done for the year ahead.

AGM Invitation
15th July 2026 at 8PM
The MPAS Briars site
Don Leggett Astronomy Centre
Nepean Hwy, Mt Martha
(Melway 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 (Constitution updates – details to follow)
7. Special thanks
8. Close of AGM.

Have you considered joining the MPAS 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, please give some thought to becoming a committee member. The Annual General Meeting will be held on Wednesday 15th of July, 2026. 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, 450 Nepean Hwy, Mt Martha 3934 or handed to the Secretary. Alternatively, nominations can also be submitted electronically to welcome@mpas.asn.au, stating which position on the committee you would like to nominate for. Please note that voting will occur if there are more nominations than positions available.

2026 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 2026/2027.
Seconded by …… …… Dated ……/……/ 2026

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 8th July 2026.

2026 TIMETABLE OF PUBLIC EVENTS

Mornington Peninsula Astronomical Society

JULY
Friday 3rd, 8pm Briars. Public stargazing. Speaker Guido Tack. 22 booked, 100 planned.
Monday 6th, 6:30pm Briars. Presbyterian Ladies College, 24 advanced senior students ahead of the International Olympiad of Astronomy & Astrophysics. Speaker Peter Skilton.
Monday 20th, 6:30pm Briars. Toorak College, 36 Yr7 girls, night 1 of 2. Speaker Katherine McCoy & Peter Skilton.
Tuesday 21st, 6:30pm Briars. Toorak College, 50 Yr7 girls, night 2 of 2. Speaker Katherine McCoy & Peter Skilton.
Friday 24th, 8pm Briars. Scouts, Cubs & Guides. Speaker Peter Skilton & Katherine McCoy. 0 Booked, 100 planned.

AUGUST
Friday 7th, 8pm Briars. Public stargazing. Speaker Manfred Berger. 4 booked, 100 planned.
Tuesday 18th, 6:30pm Baden Powell Reserve, Frankston. Baden Powell Park Scouts. 70 all ages. Speaker K. McCoy & P. Skilton.
Friday 21st, 8pm Briars. Public Indigenous Astronomy stargazing. Speaker Tim Patston. 100 planned. 0 Bookings. Members free.

SEPTEMBER
Friday 4th, 8pm Briars. Public stargazing. Speaker Trevor Hand. 100 planned. Bookings not yet open.
Thursday 15th, 7pm Briars. Mt. Martha Probus Club, 30 anticipated. Speaker TBD.

OCTOBER
Friday 2nd, 8pm Briars. Public stargazing. Speaker Trevor Hand. 100 planned. Bookings not yet open.
Saturday 3rd, 12:30pm Briars. Astrophotography Workshop & BBQ. Speakers various. 90 planned. Bookings not yet open.
Friday 9th, 8pm Briars. Public Indigenous Astronomy stargazing. Speaker Tim Patston. 100 planned. 0 Booked. Members free.
Friday 23rd, 8pm Briars. Scouts, Cubs & Guides. Speaker Katherine McCoy & Peter Skilton. 0 booked, 100 planned.
Saturday 24th, 4pm Briars. Telescope Learning Day, BBQ & Buy/Sell/Swap (public & members). Speaker TBD. 0 booked, 100 planned.

To attend the school events and scout/girl guide events, these days you need to have a Working With Children check done first. It takes about a fortnight from the time you apply online to when you get the card in the mail. For volunteers it is free. It's essentially a check of police and justice records over the decades that sees if there might be anything in the past that would preclude participating in these sorts of outreach events involving kids. Once you receive your card, let the Secretary know your card number and expiry details as we are required as an organisation to record them.

https://www.workingwithchildren.vic.gov.au/ *Regards, Peter Skilton*

New Members Welcome

John Vrazas
Colin Rock
Junsheng He
Ross Stephens

MPAS SUBSCRIPTIONS 2026

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 2026 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 2026 fees is:

SOCIETY FEES

$50 – Full Member
$45 – Pensioner Member
$65 – Family Membership
$60 – Family Pensioner Membership
See more options on-line

Subscriptions can be paid in a number of ways:
- **On-line (preferred, see at right)**
- **Cash payments to a committee member**
- **Send a cheque, made out to "Mornington Peninsula Astronomical Society", to MPAS, The Briars, 450 Nepean Highway, Mount Martha VIC 3934 (The P.O. Box in Frankston is no longer used).**
- **Make a direct electronic payment into the society working bank account (state your name clearly).**

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.

JOIN NOW

You can renew your membership online using the link included in the annual mailout email, which is sent near the end of each year. Please ensure to renew before Feb 1. Any late renewals may be required to re-join as a new membership.

CALENDAR — July / 2026

Red Days indicate School Holidays

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
			1 Jupiter sets 6:30pm	2	3 Public night 8pm	4 Full Moon
5	6	7 Earth is at aphelion	8 Last Quarter	9	10	11 Cosmology 1:45pm
12	13 Moon at 359,112km	14 New Moon	15 Society Meeting AGM 8pm Aldebaran 5° from Mars	16	17 Venus above a thin crescent Moon	18 Working Bee 4pm BBQ 6pm
19	20 Saturn now rises before midnight	21 First Quarter	22	23	24 SCAG	25
26 Moon at 405,548km	27	28	29 Piscis Austrinids	30 Full Moon Southern delta-Aquarids	31 alpha-Capricornids	

Events

Public nights - 8pm to 10pm on the 3rd @ The Briars
Cosmology group meeting - 1:45pm to 4pm on the 11th @ The Briars
Society Meeting AGM - 8pm to 10pm on the 15th @ The Briars (Public & members)
Working Bee - 4pm, **Members night BBQ** - 6pm on the 18th @ The Briars
SCAG - Scout, Cubs & Guides - 8pm to 10pm on the 24th @ the Briars

CALENDAR — August / 2026

Red Days indicate School Holidays

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
30	31					1 Saturn rises 11pm
2	3	4	5	6 Last Quarter	7 Public night 8pm	NSW 8
NSW 9 Mars above a dawn thin crescent Moon	NSW 10 Moon at 363,284km	NSW 11	NSW 12 Perseids	NSW 13 New Moon	NSW 14 Public night 8pm	NSW 15
NSW 16 Venus right of a thin crescent Moon	17	18	19 Society Meeting 8pm	20 Scorpius Deadline First Quarter	21 Indigenous Astronomy 8pm	22 Cosmology 1:45pm Working Bee 4pm BBQ 6pm Moon at 404,642km
23	24	25	26	27	28 Full Moon	29

Events

Southern Comets website - http://members.westnet.com.au/mmatti/sc.htm

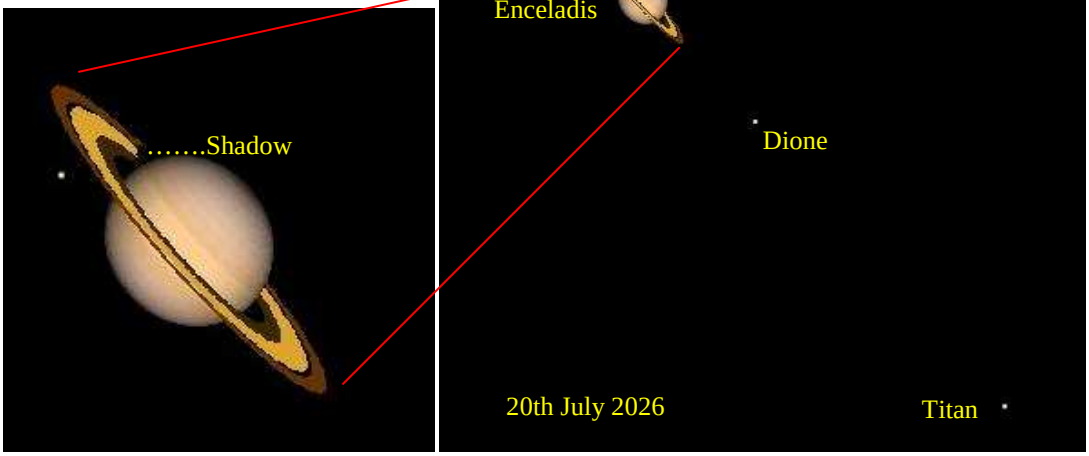
Public night - 8pm to 10pm on the 7th @ The Briars
Nation science week Public night - 8pm to 10pm on the 14th @ The Briars
Society Meeting - 8pm to 10pm on the 19th @ The Briars (Public & members)
Indigenous Astronomy Public night - 8pm to 10pm on the 21st @ The Briars
Cosmology group meeting - 1:45pm to 4pm, **Working bee** - 4pm, **Members night BBQ** - 6pm on the 22nd @ The Briars
Watch your emails, as on any clear nights the Observatory may be opened for members-only viewing.

THE BRIARS SKY

By Greg Walton

Viewing Saturn. It's easy to just use Google to find all the information about Saturn. But as amateur astronomers, what can we deduce from looking at Saturn with our modest telescopes?

From the 20th of July, Saturn rises before midnight. And if you look at Saturn through a telescope, you will notice that it looks a little different from how it has looked for the last 2 years.
Saturn's rings have started to tilt surprisingly quickly.



Also you will notice that the body of Saturn is casting a shadow on one side of the rings. This shadow will decrease as Saturn moves towards opposition on 4th October. (*Opposition is when an outer planet is at it closest point to Earth, opposite the Sun*).
Then the shadow will start to appear on the far side of the rings.

As Saturn tilts more, we can start to see detail in the rings. Mainly the Cassini Division which looks like a black line running around near the outer edge of the rings. This black line is a gap in the ring, which is believed to have been created by Saturn's moon Mimas. Mimas is that moon which looks like the death star from the movie Star Wars. The Cassini Division is wider than Earth's Moon, at 4,700 km. Also before Saturn's rings tilt more, we should be able to see a shadow of the rings cast on the body of Saturn.

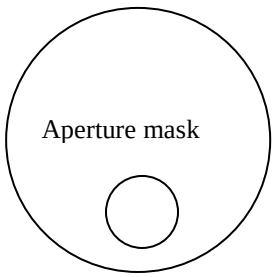
If you have a decent telescope, you should see up to 5 of Saturn's moons. Titan the largest moon and is usually seen as the most distant with the slowest orbit speed of 16 days. Titan is 5,100 kilometres in diameter, which is larger then Mercury at only 4,880 kilometres in diameter. The other 4 moons Rhea, Tethys, Enceladis, Dione are much closer to Saturn & seen as tiny pin pricks of light, on the limit of what we can see. The most recent number of confirmed moons is 274, most of which are captured asteroids. Many orbit within the rings, clearing a path around Saturn's rings, this giving the rings there grooved appearance.

Saturn turns once ever 11 hours. This fast spin means Saturn bulges at its equator. So much so that it width is 10 percent wider than its height. Equatorial diameters is 120,536 km, whereas the polar diameter is only 108,728 km. This oval shape can be seen in our telescopes.

Saturn is almost as large as Jupiter at 9.4 times the diameter of the Earth and about a hundred times heaver than Earth.

Average distance of Saturn is 1.43 billion kilometres from Earth and at that distance light takes 1 hour and 20 minutes to reach us. At its closest point to earth, light takes 67 minutes and from Saturn's most distant point light takes 2 hours 40 minutes.

Can we see any feature on the body of Saturn? Yes.



With a high quality telescope such as the Society's 14 inch Meade, we can see cloud belts at different latitudes and sometimes storms. High magnification is needed, 200 times or more in good seeing conditions. The 14 inch Meade has a focal length of 3,500mm and usually has a 35mm eyepiece fitted, which gives us only 100 times magnification, but it's a good starting point. By adding shorter eyepieces 25mm then a 20mm and then 14mm, we can get the best magnification for the seeing conditions. If the seeing conditions are less than average, then there is another trick we can use. We can stop the telescope down, meaning we can place an aperture mask over the front of the telescope with a 100mm hole in it that is off to one side. This hole needs to go to the bottom, as heat rises. This mask produces an f/35 ratio and is kept in the observatory.

We can also use coloured filters to increase the contrast and bring out details on the surface. *See list below*

Deep yellow #15 Saturn feature contrast
Light Green #56 Saturn cloud/surface detail
Deep Blue #38A Saturn rings/belts/clouds
Violet #47 Saturn ring structures
Yellow Green #11 Saturn Cassini Division
Medium Blue #80A Saturn belts/polar regions
Pale Blue #82A Saturn low-contrast features
Light Red #23A or #29 Saturn clouds

ASTRO NEWS

By Nerida Langcake

Mornington Peninsula Astronomical Society

Voyager 1 to reach 1 light-day from Earth on November 18

Voyager 1 is the most distant human-made object from Earth. It launched into space on September 5, 1977, and visited Jupiter and Saturn before heading out of the solar system. It officially crossed out of our solar system, passing the heliopause – the sphere of the sun's influence – back in 2012. And now, NASA said on June 17, 2026, that Voyager 1 will reach 1 light-day from Earth – or the distance it takes light to travel in 24 hours – at 12:16:07 a.m. CST (5:16:07pm in Melbourne) on November 18, 2026.

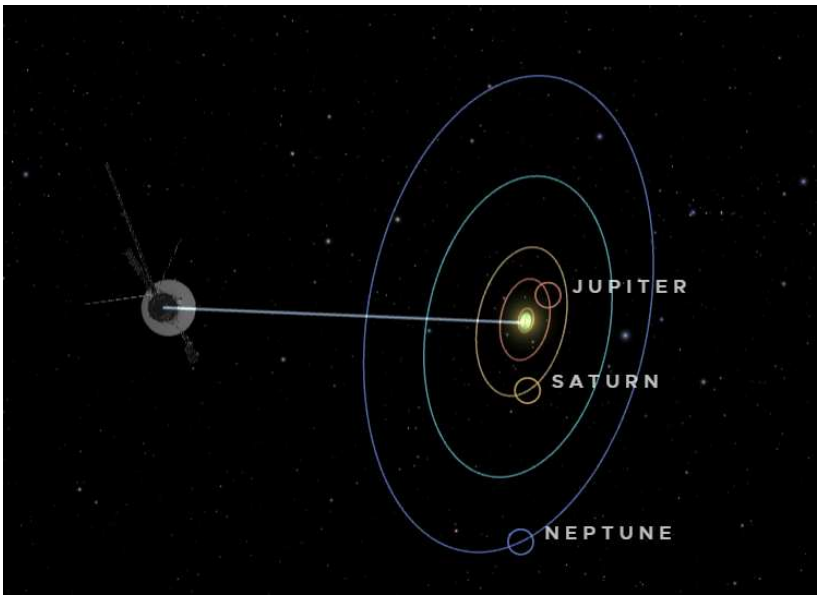
This historic milestone of 1 light-day is equal to about 25.9 billion kilometres, or 173.14 astronomical units (AU). As of right now, mid-June 2026, the Voyager 1 spacecraft is about 25.45 billion km away from Earth. So the spacecraft is travelling at a scorching pace: 128.7 thousand km per hour.

We've long known this milestone would come around the middle of November, 2026. But now, NASA has performed the complex calculations and announced an official time and date. Put it in the calendar!

What about Voyager 2?

And where is Voyager 2? You might know that Voyager 2 actually launched a few weeks before its sister craft. But while Voyager 1 only visited Jupiter and Saturn, Voyager 2 took a Grand Tour, visiting all the gas giant planets: Jupiter, Saturn, Uranus and Neptune. So it's not as far from Earth as Voyager 1.

But it's not too far behind, relatively speaking. Voyager 2 is about 2 billion miles closer to Earth than Voyager 1. It's also moving a bit slower, at 105.1 thousand km/h, so it can never catch up. Besides, Voyager 1 and 2 are not headed in the same direction anyway. Voyager 1 is headed "up" out of the solar plane, while Voyager 2 is headed "down." Voyager 1 is moving toward the direction of the constellation Ophiuchus. And Voyager 2 is headed in the direction of the constellation Andromeda.



Voyager 1 is now outside our solar system. On November 18, 2026, it will reach 1 light-day distant from Earth. Image via NASA/ JPL-Caltech.

Are the Voyager spacecraft still functioning?

Both Voyager spacecraft are still in communication with Earth, even though that process takes approximately a day for one-way messages. But most of the instruments on the Voyagers are no longer working. Over the years, NASA has turned off one system after another in order to save power. Just a couple months ago, in April 2026, NASA turned off the Low-Energy Charged Particle (LECP) instrument to save energy. This instrument was detecting electrons, ions and cosmic rays in the interstellar medium. But NASA could still turn it on at some point in the future for new measurements.

Both Voyager spacecraft carry golden records that are etched with images and sounds to represent life on Earth. The golden records were a largely symbolic gesture meant to represent Earth in the wider universe and with the off-chance that an alien civilization would one day find them and learn something of their origins.

MOON AND MARS BASES

Are Manned Bases Possible? *By Peter Lowe*

America and China want to send humans to the Moon and Mars and establishing permanent bases there. I can understand Mars from a scientific viewpoint but the Moon makes no sense other than full-blown political one-upmanship arrogance. Whichever, let's consider if this is even at all possible.

Firstly let's consider things from a biological angle. The Earth formed as a rocky planet around 4,600 millions years ago when the Sun was still juvenile. The Moon was formed around the same time. While it is not possible to say precisely when life formed we can say with certainty that it formed after the Earth had cooled sufficiently for liquid water to pool on the surface around 3,800 million years ago. We believe life processes or at least early biochemistry formed almost immediately. Thus life processes have been active on Earth for several billion years during which complex life has evolved. In recent times some 20 million years ago Hominins evolved including the first Australopithecus. In more recent times another ape group hominids developed which includes modern humans. They evolved in symbiotic relationships with all the other earthly life forms at the bottom few kilometres of the atmosphere including the oceans and surface geology. Organisms occupying this region inhabit every possible ecological niche leading to the bewildering array of life forms we see in nature today. This means all life (ALL LIFE) on Earth resides in a very thin surface layer roughly 50kms thick. This is a very small fishbowl in which to live and evolve. One of these hominid variants now wants to go to the Moon and Mars.

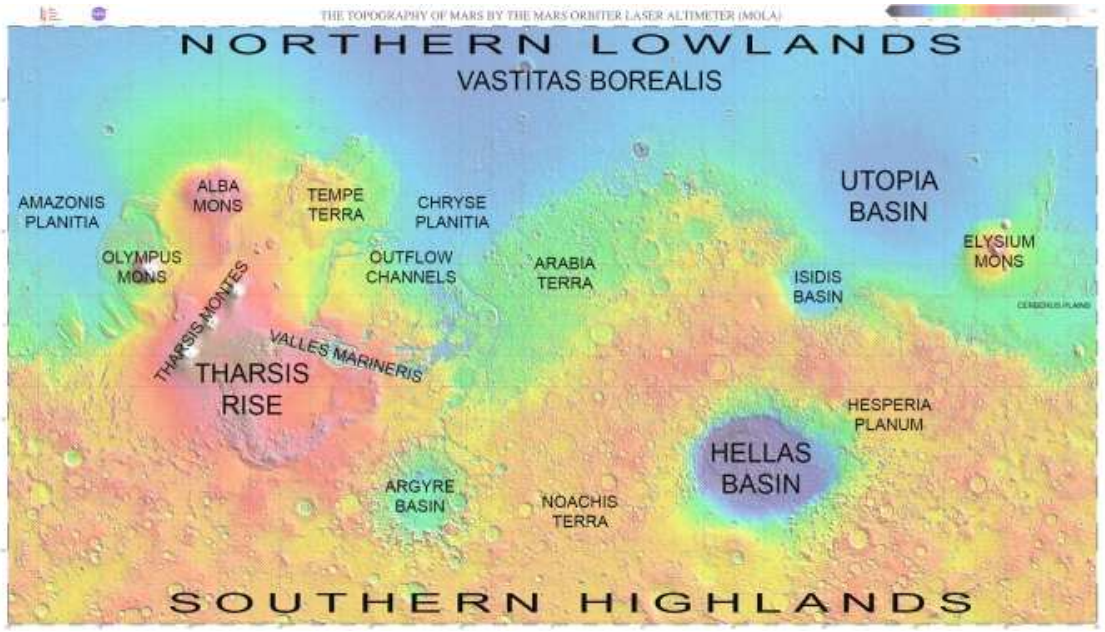
To go to these places you need technology. Space probes have visited and even landed on several planets while only a few humans have walked on the Moon. They didn't stay very long. Viruses however have survived on the Moon for several years. Experiments on the space station have found various other life forms capable of surviving in open space for weeks or even months. We even believe primitive life could travel between the planets as hitchhikers on meteoroids. Humans however are an entirely different matter.

To send humans anywhere you also need to send a piece of Earth's 50km thick biosphere with them in such a way that it is capable of sustaining their life processes indefinitely rather than the brief touch-and-go missions conducted so far. To stay permanently on the Moon or Mars you need a self-sustaining environment that meets all human biological needs. Self-sustaining means the environment processes at play are in equilibrium. Humans have had the technology to send people into near-Earth space since the late 1950s and we have been able to keep humans permanently in low Earth orbit. These space stations are essentially small, insulated tin cans containing temporary supplies such as air, water, food and energy to sustain life with regular re-supplies from Earth. Any waste is dumped back into the atmosphere and burnt up. To remain permanently without re-supplies you need a self-sustaining environment containing your intrepid humans and all the biological resources necessary to keep them alive. The space station astronauts are only alive because they get regular supplies launched to them. A similar system will be required for the Moon and a more extensive supply line for Mars. Experiments on Earth to develop closed self-sustaining environments have so far been single failures. Eventually the closed environments become toxic. The main problem is waste disposal. Left alone on Earth life evolves towards a finely balanced ecosystem, including supply and waste disposal systems. As conditions change so the system adapts naturally to maintain that balance. If the system gets out of balance then life dies. On Earth we have seen numerous mass extinction events that have decimated the existing balance but nature has been able to adapt over millions of years to the new environmental situation. For instance when an asteroid hit the Earth 65 million years ago it wiped life out on a vast scale and yet the remaining life forms were able to re-establish a new eco-balance. Trying to achieve a closed artificial self-sustaining environment is a major undertaking. It is unknown how much space/volume and area will be required. Plus it will require multi-factorial biological systems that are capable of processing local raw materials to provide the basic living components plus the natural waste management systems to maintain an ecological balance. So far this has been impossible on Earth and it will be even harder in space.

Even if we can solve these challenges there are other issues. In low Earth orbit you are still not yet in open space. Around the Earth there are several protective shells that shield us from the dangers present in open space. By open space I mean the interstellar space where the full effects of the Sun and influences from deep space exist. On the Earth the atmosphere is our biggest shield from the cosmic rays and solar radiation but this is only partly successful as anyone with sunburn can attest. The atmosphere also distributes the solar energy bombarding the Earth thereby maintaining liveable temperatures. This is not available on the Moon or Mars. The next shell is the Earth magnetic field; second strongest only to that of Jupiter. Earth has a magnetic field because the planet is massive enough to retain its formative heat sources to remain molten.

Churning currents of molten metal in its core create a strong magnetic field capable of deflecting the charged particles of solar winds and cosmic rays again only partly successful. The Moon and Mars do not have strong magnetic fields and thus don't provide any shielding. Astronauts on these planets would need to construct their bases at shielded locations. The space station is well inside our magnetic shield and the astronauts aboard are thus partially protected however even space station astronauts must occasionally shelter in a special room for protection against solar outbursts.

Finally lets consider the living environment on the Moon and Mars. Firstly the Moon is a barren rock floating weightlessly in Earth orbit. During its formative stages it was fully molten and as it cooled it was bombarded by other meteorite rocks so the surface has been totally cratered leaving the surface covered in essentially unconsolidated basaltic rock dust known a regolith. The Moon's mass is such that it cannot retain an atmosphere and any surface outgassing is quickly blown away by the solar wind. While the Moon still retains some internal heating it has cooled sufficiently so it is essentially a sold rock. It is debatable whether any significant geological processes have occurred since its formation and the Moon is considered only of scientific interest. Other than political rivalry, any exploration of the Moon is best done by robot or telepresencing. We certainly have the technology to create and supply a manned Moon base but a self-sustaining base is highly unlikely. Such a mission could only really serve as a flywheel to develop enabling technologies back here on Earth. Time will tell!



Mars however is much more complex. It's a planet with history. Mars is a rocky planet roughly half the size of the Earth. Several nations have sent probes to Mars that has now been fully explored from orbit and partially explored by rovers and landers on the surface. The evidence shows that Mars has a rich geological history including volcanism and extensive water oceans soon after its formation. As with the other rocky planets Mars formed by accretion and was initially fully molten. It is not massive enough to generate a planetary magnetic field although that may not have been the case in its formative period. Mars does not have any tectonic activity but the largest known volcanoes now dormant do exist on Mars. While yet to be confirmed it is theorised that at some point in its formation Mars was struck by a large asteroid forming the Hellas Basin and the resultant shockwave travelled through the planet pushing up the Tharsis volcanic Rise on the opposite side. These massive volcanoes would have outgases sufficient water and carbon dioxide to create a thick atmosphere. As on the Earth at some point Mars cooled sufficiently to allow liquid water to pool on the surface and the volcanoes released sufficient water to form an ocean. Like the Earth it is entirely possible that biological chemistry formed in this liquid water. So there is an intriguing possibility of life forming on Mars. Orbitally Mars is twice as far away from the Sun as the Earth hence solar energy is roughly a quarter of that experienced on Earth. At that distance Mars has basically frozen and without a magnetic field the atmosphere has either been blown away or has frozen out as water and CO_2 ice. Icecap studies suggest the former. Early Mars had an Earth-like atmosphere that has since long gone.

Living on Mars presents many challenges. As with the early Antarctic exploration people relied on supply line depots. Future Martians will need to rely on supply deliveries. Self-sustaining habitats require unknown technologies at present and proposals to "living off the land" are more fantasy than fact. How the exploration of Mars evolves is at this stage unknown but it is likely to involve large heavy engineering to construct and maintain the necessary interplanetary city. That is going to be very hard but I think it will be worth it.

EXOPLANET EXTRAVAGANZA *Peter Lavelle*

What's it *really* like on an exoplanet?

What types of exoplanets are out there?

Type	Description	Earth masses upper limit	Approx. confirmed count
Jovians (Gas Giants)	Gassy atmosphere (mostly hydrogen & helium) with a compressed metallic hydrogen layer and possibly a rocky inner core. Similar mass to Jupiter and Saturn, or much bigger. Because of the heat generated by the pressure the core may be at a temperature up to 50,000 °C.	4,000	1,000
Neptunes (Ice Giants)	Gassy atmosphere (mostly hydrogen, helium, water vapour, ammonia, methane) with an icy/slushy layer of water, ammonia, methane, and possibly a rocky inner core. Similar mass to Neptune and Uranus. Because of the heat generated by the pressure the core may be at a temperature up to 8,000 °C.	80	2,000
Mini-Neptunes	Similar composition to Neptune's but smaller. Because of the heat generated by the pressure the core may be at a temperature up to 5,000 °C. We don't have any of these in the Solar System.	20	1,000
Mega-Earths	Rocky with possible atmosphere and oceans. May have a molten/solid core. Similar mass range to Mini-Neptune's. We don't have any of these in the Solar System.	20	10
Super-Earths	Rocky with possible atmosphere and oceans. May have a molten/solid core. Between Earth and mini-Neptunes' in mass. We don't have any of these in the Solar System.	10	1,500
Terrestrial	Rocky with possible atmosphere and oceans. May have a molten/solid core. Like Earth, Venus, Mars, or smaller in mass. The smaller ones may also be called Sub-Earths.	1	1,000

Note: The above types have some degree of overlap in their mass ranges, and not all sources agree exactly on what the limits are.

Why are there lots of the big ones?

It's easier for us to spot the big ones because they cause more of an effect on what we can detect.
A large Gas Giant exoplanet orbiting close to its star will have a much more noticeable effect than a Terrestrial exoplanet further out.
Observed over a period of time there may be a tiny Doppler shift in the lines in the spectrum of the star as it moves a small distance towards or away from us. This is the Radial Velocity method of detection.
Alternatively an exoplanet may cause a tiny dimming of the light from the star as it passes in front, if its orbit happens to lie in a plane close to the line of sight we are observing from. This is the Transit method of detection.
There are other methods of detection and we will discuss them all in a future issue.
Our Solar System is rather untypical in that it doesn't have a Mini-Neptune, Super-Earth or Mega-Earth. Nor does it have any large planets close to the Sun.

Why do planets seem to be so much more massive when they are only twice the 'size' of another?

The 'size' is usually referring to the diameter (twice the radius).
The volume depends on the cube of the radius. Double the radius gives eight times the volume (2x2x2).
The mass depends on the volume and the mix of matter in the body.
For two planets, where one is twice the radius of the other and they are made of the same mixture of matter, the bigger one will have eight times the mass of the smaller one.

How big can an exoplanet be?

Up to about 13 times the mass of Jupiter (4,000 times the mass of Earth). Above that it would be a brown dwarf.
A brown dwarf is a 'failed star'. It is massive and hot internally from gravitational compression of all that mass, but not hot enough to ignite nuclear fusion of any hydrogen in its core. They emit mostly infrared (heat) radiation rather than visible light.
Above about 80 times the mass of Jupiter (25,000 times the mass of Earth), the temperature at the core would reach 3,000,000°C which would trigger hydrogen fusion and turn the body into a star.

How small can an exoplanet be?
The smallest confirmed exoplanet, **Kepler-37b**, is smaller than Mercury and only a little larger than our Moon. No doubt there are countless other smaller ones we have not detected yet.

Are exoplanets generally like those of similar mass in our Solar System?
Within their mass ranges they come in a wide variety of profiles. It depends on how hot the star is and how far from it the exoplanet is. Electromagnetic radiation reaching the exoplanet from the star falls off as the square of the distance to the exoplanet (the inverse square law). Light and heat are components of that radiation. An exoplanet twice as far away from the star as another will receive a quarter of the light and heat.
The temperature of the exoplanet also depends on whether it has an atmosphere or not, and whether it is tidally locked, with one side always facing the star. An atmosphere, depending on its chemical composition, reflects some of the visible light from the star and traps and spreads some of the heat around the world.

The weird and the wonderful:
There are many examples of exoplanets much closer to their star than anything in the Solar System. These may be scorching hot.
There are hot Gas Giants, and hot versions of all the other types.
There are almost certainly lava worlds: Super-Earths or Terrestrials so hot their surface is partly or wholly a sea of molten rock and metals. They may have a convection cycle with the atmosphere, like the rain cycle on Earth, so that it rains molten rock and metal.
There are probably ocean worlds. These would be Super-Earths or Mega-Earths, completely covered in a deep water ocean with no land surface. Some of these may also be steamy hot.
There may be ‘diamond worlds’, where a higher percentage of carbon than was incorporated in Earth’s makeup leads to a compressed shell of diamond deep underground or even on the surface. If hot enough it may rain diamonds.
Apart from all these exotic examples there are no doubt a multitude of worlds similar to those in the Solar System.
Then there are the rogue exoplanets, detached from any star and adrift in the cold and dark.

Artist’s impression of a lava exoplanet orbiting a red dwarf star:

Created via ChatGPT.

How many exoplanets are there?
Confirmed as at May 2026: 6,286
Estimated in the Milky Way galaxy: 1 x 10^{12} (1 trillion).
Estimated in the visible universe: 1 x 10^{24} (1 septillion).
The visible universe extends out to about 46 billion light years. At that distance the universe, according to current theories, is expanding away from us at the speed of light so we cannot see anything beyond that.
If the universe is actually infinite in size then the number of exoplanets would be infinite.

Exoplanet example: Kepler-37b**:**

Name	Kepler-37b
Confirmed discovery	2013. This is the smallest confirmed exoplanet.
Discovered by	Kepler space telescope survey.
Detection method	Transit. Every time the orbiting exoplanet passes in front of the star the light from the star reaching Earth is dimmed by a tiny fraction.
Distance from Earth	209 light years.
Star type	Yellow G-type main sequence. About 80% mass of the Sun and a little cooler.
Average distance from star	0.1 AU (Earth from Sun = 1 AU).
Estimated age	The star is estimated to be around 6 billion years old so the exoplanet is probably just a little less. Older than the Solar System.
Orbital period around star	11 days (Earth = 1 year).
Length of day	Probably tidally locked. In that case one side would always face the star and the other would be permanently dark.
Type	Rocky, Sub-Earth.
Estimated radius	0.31 (Earth = 1).
Estimated mass	0.03 (Earth = 1). This is very approximate and depends on what mix of materials the exoplanet is made of.
Estimated atmosphere	Likely none.
Estimated surface temperature	Average 425°C, based on heat from the star and its distance. If the planet is tidally locked, the side facing the star would be permanently bright and hotter. The side facing away would be permanently dark and colder.
Habitability	Not habitable because of the temperature and lack of atmosphere.
Notes	1. There are at least two other confirmed exoplanets, Kepler-37c (sub-Earth) and Kepler-37d (Super-Earth), further out from the star. 2. There may be another exoplanet, Kepler-37e, further out still from the star. 3. All of these exoplanets are closer to the star than Mercury is to the Sun.

References:
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https://www.planetary.org/articles/the-different-kinds-of-exoplanets-you-meet-in-the-milky-way

Call for articles.

Members please write a story about your astronomy experiences, subject of interest, tips and tricks, how you got into astronomy, and also please add some pictures.

Send them to the editor: Greg Walton gwmpas@gmail.com

PRODUCT REVIEW

By Greg Walton

Pegasus Smarteye, what is it?

Digital eyepiece, image intensifier, camera or Gimmick?

Firstly, it's an eyepiece where the image improves over time.

Secondly, it's not an image intensifier where the image is only green.

Thirdly, it's a colour camera, but not like an astro-camera or DSLR which captures a series of images. It works more like a Seestar where the images are stacked internally in real time. What you see in the eyepiece is what you get on the SD card. The Smarteye either connects to your computer with a "C" mount cable, Wi-Fi or saves the image to a micro SD card.

Fourthly, is it a gimmick? Yes, but a very well thought out and at over $3,000 dollars, it's a very expensive gimmick. But if you had to purchase a telescope large enough to get the same view as the Smarteye, you would need to sell your house and all your possessions. Now, you are probably thinking that the cost doesn't seem that bad after all. The Smarteye is full of the latest technology, including Wi-Fi, on-screen menu operated with the mouse knob on the side and SkySafari. So I think, it's less of a gimmick now.

Drawbacks. What happens when it goes wrong? It becomes an expensive paperweight. It's not like an optical eyepiece which if cared for will last forever and hold its value. Most likely someone will make a cheaper copy with improved features, making the Smarteye obsolete. The size of the sensor is much smaller then a DSLR camera's. This has the effect of magnifying the image by 3 times, which means the Smarteye is better suited for shorter telescopes with a focal length between 600mm to 1000mm. Looking through the Smarteye, at first I found the view a little confusing with a bit of flaring from the stars. But once I got the focusing right and my eye in the sweet spot, the view was surprisingly good. The stars were larger and brighter than in optical eyepieces due to the magnification. There is room for improvement in terms of the view, the stars are not pin sharp as you would find in a high end optical eyepiece.

Positives. Most newcomers to astronomy think they will see a colourful nebula in their newly purchased telescope and when they don't, they get disheartened and give up. The Smarteye goes part of the way in remedying this. Also making the Smarteye the best eyepiece for the general public viewing nights. With most optical eyepieces you do get some distortion of the stars at the edge of the field of view. The Smarteye did have some distortion but no more then in optical eyepieces.

How does it work? Like an ordinary eyepiece, it just slides into the 2 inch focuser on any telescope. The catch, very important, is that the telescope needs to be attached to a mount that tracks, preferable an equatorial mount which is polar aligned.

Next you need to get the Smarteye in focus like an optical eyepiece. Then you need to adjust the dioptric focus, the small blue knob near the eye cup. This works in the same way as the viewfinder on a DSLR camera, which brings the internal screen into focus. And then you may need to return to the focuser on the telescope.

Light doesn't go through the Smarteye like an optical eyepiece. Light is collected by the sensor in the base of the Smarteye and converted into an electrical signal, which is stored on an internal computer chip and SD card. From there the electronic signal is sent to the screen behind the eyepiece lens. The internal screen is large enough to give you the felling that you are looking through an expensive wide field eyepiece such as a Nagler with 82 degrees field of view. Please note the Smarteye works best with F7 telescopes.

My thoughts. The Smarteye worked surprisingly well, I could see the colours in the Orion Nebula. This would have a big wow factor on the public viewing nights. Anyone getting into astrophotography could get almost instant results without spending many hours on the computer trying to stack and adjust images. But the sensor is less then half the size of a DSLR camera's, you wouldn't get the same quality as DSLR. I think we will see more of these in the future and they will become common place at star party and public viewing nights. Before you click on the buy now button, you should download the manual. See links to reviews & manual below.

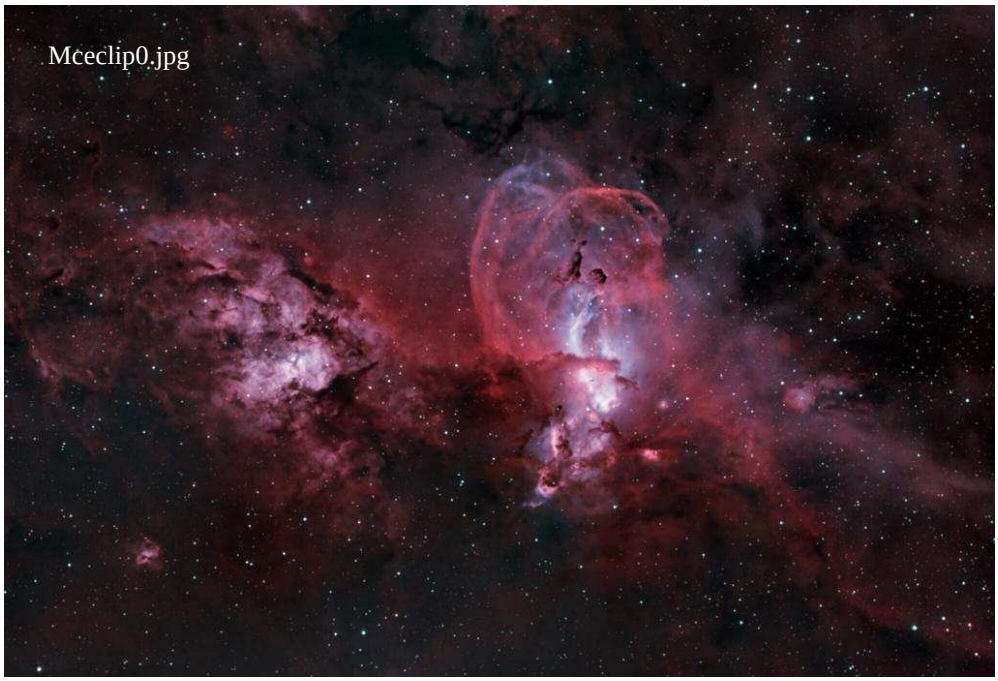
Reviews on YouTube video links - https://youtu.be/UAQMcWpjVQk?si=JDWz1ysgE5oKVp60 Reviews on YouTube video links - https://youtu.be/cDdizxS8LHU?si=Rae0SeEo09tKNP0w Reviews on Facebook video - https://www.facebook.com/share/1Cz8VuyNrT/	Links to manual - https://smarteyepiece.com/pages/quick-start-guide https://www.teleskop-express.de/media/pdf/SmartEye_Manual.pdf

ASTROPHOTOGRAPHY

By Chris Kostokanellis

I recently imaged NGC 3579 – Statue of Liberty Nebula, with my 200mm Newtonian and the Optolong L-Extreme Ha OIII filter. The stacked and processed image is on right.

Mceclip0.jpg



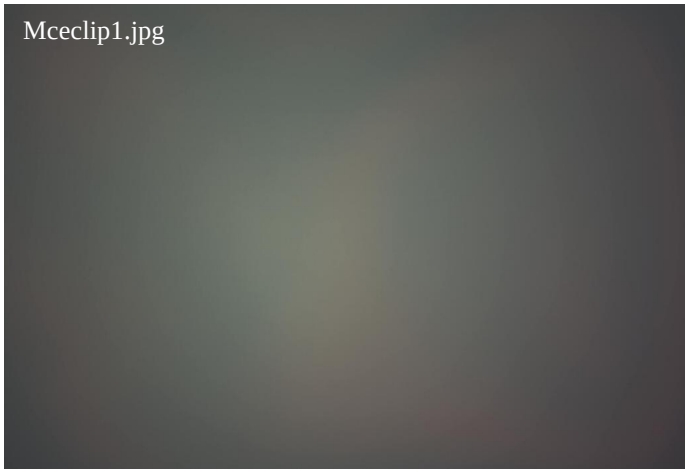
The problem I've had when imaging with this scope is taking flat frames, and the L-Extreme NEEDS flat frames due to a pattern that appears through the filter, and shows up in the stretched image.

(See Flat image, right) Mceclip1.jpg

I have a Flats light I use with my refractor and camera lenses, but it doesn't fit this scope, and I've never had much luck with t-shirt flats, so I tried using a computer monitor with a white screen.

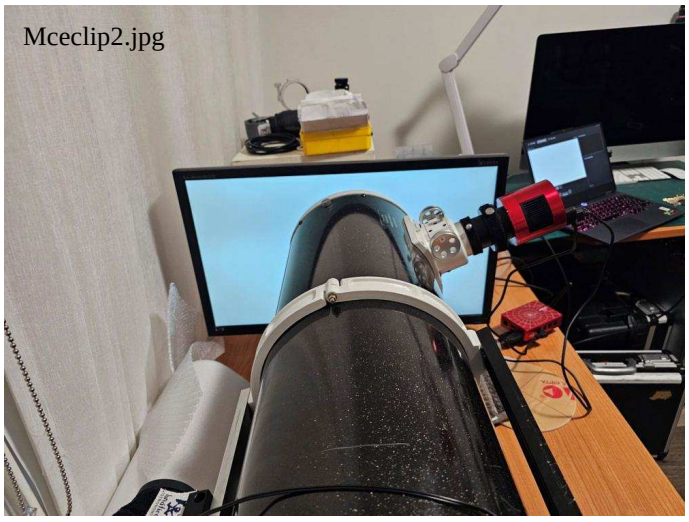
Mceclip2.jpg

I adjusted the screen brightness until I got the right Histogram values for the exposure time I wanted (approx 25,000 ADU for a 5sec exposure).
I cover the scope and make the room dark when I take the flats so there is no unwanted light leaking into the image train.
The result was a pretty good Master Flat frame.



Flat frames should be taken without any changes to your imaging train. Focus, filter and camera rotation should all be the same, as should gain/ISO and Sensor temperature if relevant.

Imaging info:
200mm Newtonian with coma corrector
Optolong L-Extreme Filter
ASI 294 MC Pro
ASIAir
AZEQ6
200mm guide scope and ASI120MM Mini guide cam.



I took 61 x 5 min subs, and culled it to 52 due to some being blurred.

My workflow in for this image was (All in Siril using free scripts):
Stacked in Siril with Lights, Darks, Flats and Dark Flats using the Ha OIII Extraction script.
Recombined the Ha and OIII images as HOO.
Crop image perimeter**
Background extraction using the Siril background extraction tool.
Star extraction using SyQon Starless Sript.
Starless image process.
Histogram stretch using the VeraLux Hypermetric Stretch Script. (Simple automated Histogram stretching script).
Some manual colour adjustments to the individual histogram colours and a bit of Saturation stretch to my liking.
SyQon Prism Denoising of stretched image and save the starless image.
Starmask.
NO STRETCHING!
Adjust colours using the histogram tools as the L-Exteme tends to make the stars too green.
SyQon Prism denoising.
Save Starless image.
Starless and Starmask recombination using Vera Lux Star Composer.

Any questions, feedback and suggestions are welcome. *Clear skies. Chris Kostokanellis.*

MEMBERS GALLERY

Right -

Comet C 2025 R3 (PanSTARRS) passing M42, The Orion Nebula.

The green colour comes from ionised diatomic carbon and cyanogen in the gases emitted from the comets vaporising ice.

I imaged this on Monday evening at the Briars from the west-facing field just before the turn off to the members entrance to MPAS, allowing me to image it until it set on the horizon.

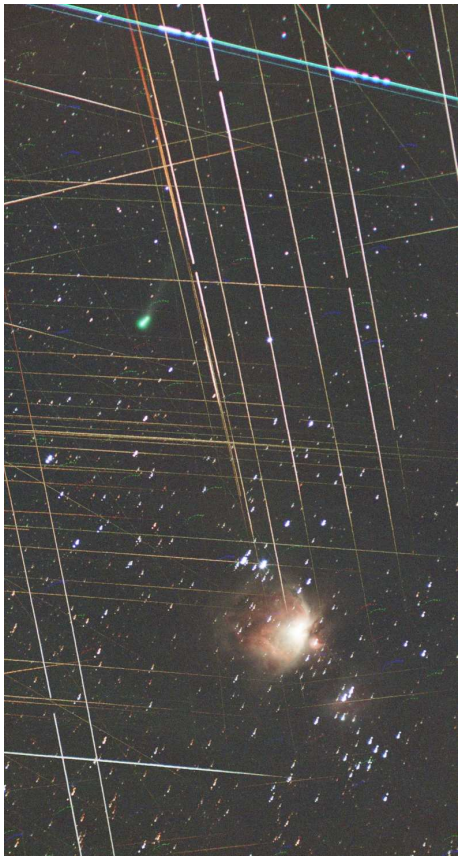
Imaged with a Nikon 75-200mm lens at 155mm and f/5.5, my ASI 294MC Pro with my Antila Triband Filter on my Skywatcher AZGTi.

This was 50 x 60 sec exposures.

Focus was a bit off, but still turned out OK.

Stacked in DSS using Comet Stacking mode, and processed in Siril.

By Chris Kosterkanellis



Right -

Comet C/2025 R3 PanSTARRS.

Single 30 sec image taken 11/5/26 from my backyard with a 150mm Newtonian, HEQ5 Pro and ASI585MC Air.
No processing.

By Leigh Hornsby

Right -

Comet C/2025 R3 PanSTARRS with M42

By Andrew Nelsen

Right -

Comet C/2025 R3 PanSTARRS.

By Amy Tang

Right -

My attempt at PanSTARRS!

Stacked a couple images in Siril and edited just off Google Photos.

Telescope was the 127mm refractor in the MPAS observatory.

Camera was Nikon DSLR

By Maya Trcek

Right -

Our son, William Jennings, wanted to share this with the group.

C-2025 R3 PanSTARRS comet imaged using the Seestar S50 in Alt/Az mode, 8 mins of 10sec frames.

William had full control of the iPad. He changed the mount from EQ to Alt/Az, found the comet through the SkyAtlas and set it going. He got a pesky satellite right through the centre half way through, so I taught him how to use the Deep Sky Stack feature in the app and he did the rest. Cropped and de-noise, very slight adjustments till he was happy.

Bortle 4 from our driveway in Rosebud.

By Michelle Sykes

Above -

Comet C/2025 R3 PanSTARRS, imaged with 135mm lens on Pentax K30 on tripod from Bonbeach on 10th May 2026.

By Greg Walton

Right -

Comet C/2025 R3 PanSTARRS, imaged with 200mm Newtonian and Pentax K30 in the MPAS observatory 11th May 2026.

By Greg Walton

Right -

Comet C/2025 R3 PanSTARRS, imaged with 350mm Meade and Pentax K30 in the MPAS observatory 11th May 2026.

By Greg Walton

Right & Cover image -

RCW80 - This is the final completed image (right).

RCW 80 is an emission nebula visible in the southern constellation of Centaurus.

It appears as an extensive and diffuse cloud located in the southern part of the constellation, immersed in the rich star fields of the southern Milky Way at a short angular distance from the open cluster NGC 5281.

This was not an easy image to image and process as it took many many attempts to make it work. It is extremely faint and needs many many hours of integration. Hence its rarity in imaging.

This was taken with the TS-Optics 130 APO.
Filters: Optolong L-Ultimate 202 × 300s
Askar D2 S2O3 155 x 300s
29.75 hours in total
Camera: ZWO 294mc Pro
Stacked with Astro Pixel Processor
Processed in Pixinsight and Photoshop. Also added RGB stars using the Optolong L-Quad.

By Nik Axaris

Below -

First light with the SvBony sv545 scope. It's an absolute beauty and pairs up perfectly with the ZWOASI 585mm. I loaded it up with the EFW CAA and filterwheel on the Juwei17 mount using the ZWO ASIAIR to run the whole show.

Prawn Nebula in SHO using Scorpio SHO 3nm filters. Stacked and drizzled in Astropixel processor and processed in pixinsight and Photoshop. Only 5 and a bit hours so far. 22 5-minute subs per filter.

By Nik Axaris

Right -

Omega Centauri.

Imaged last night under a bright, 80% illuminated moon. 30th April 2026.

I used the Antila Triband filter which helped.

34 x 2 min frames.
200mm Newtonian with coma corrector
ASI294 MC Pro.

I used Starnet++ Star removal and processed the star mask only, leaving a clean image.

By Chris Kostokanellis

Right -

Mosaic taken from my driveway of NGC6188 Dragons of Ara and also known as the Firebird Nebula.

Consists of 180 x 10sec pictures to complete the mosaic with my Seestar.

This can be included in Astro Mo Pho as the stars are part of the Milky way

By Mark Stephens

Left -

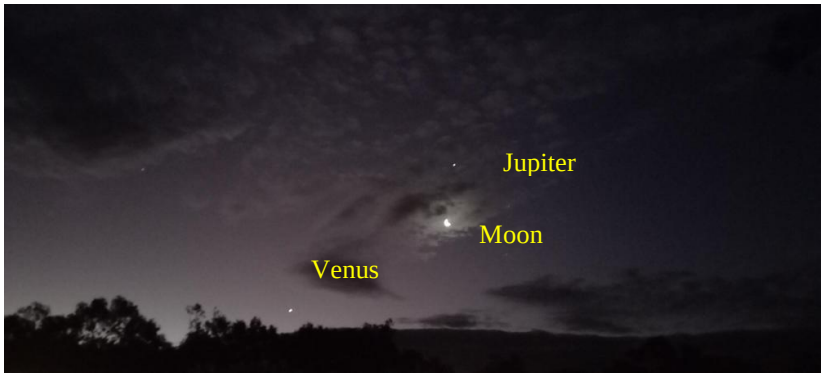
Two pictures taken tonight with my Seestar from the Briars observatory. I warmed up with Omega Centauri (globular cluster or galaxy core remnant, take your pick) and then onto an Astro Mo Pho mosaic of the Milky way. The star is Acrux and the darker area is part of the Coalsack Nebula. Taken on 18th April 2026.

By Mark Stephens

Below -

Venus, Jupiter and the Moon. Image taken with my mobile phone from Urana NSW.

By Greg Walton



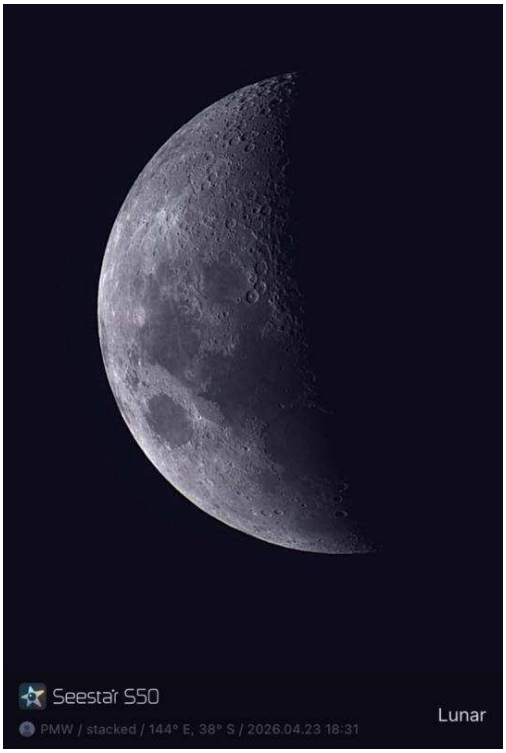
Below - These images were taken by my son, William (8yr). He's so proud of them and wanted to share with the group.

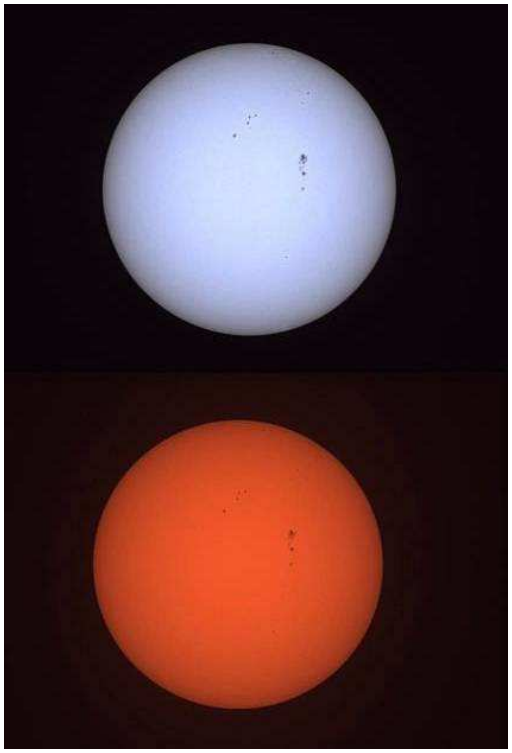
His first opportunity to target the Moon and Orion nebula (thanks to the earlier sunset and darker skies before bedtime).
All taken using the Seestar S50, all capturing and edits by him in the Seestar app.

Moon - stacked 5 min video
Orion - 15mins (10sec exposures)
Sun - 2 x stacked 2 min videos, one with the Seestar provided filter and one with a Baader filter

The Moon and Orion nebula were imaged two nights ago (23/04), the sun was imaged today (25/04). From our driveway in Rosebud.

Michelle Sykes





Right -

NGC 6334 Cat's Paw Nebula
Finally a good clear night!

8th June 2026

190 mins of 10sec exposures on the Seestar S50 from Rosebud.

By Michelle Sykes

Far Right -

Whirlpool Galaxy M83

I thought that I would compare same shots from the Briars on Saturday night (clear dark sky) and home in Patterson Lakes last night (some whispy cloud). Quite a difference.

By Dennis Cooke

Right -

Galaxy C83 NGC 4945 imaged with Seestar.

It was a nice clear night over Lake Colac on Monday, a good spot to camp overnight.

By Dennis Cooke

Right -

IC 4605. The Blue Angel Nebula. Imaged 14/6/2026 from my backyard.
This is a closer look with my 80mm refractor after it showed up in my wider image of Antares I posted previously for Astro Mo Pho.
The yellow glowing nebula on the top right is the Antares Nebula, with Antares being just outside the field of view in that corner. The Blue Angel is obvious on the right side, and the dark nebulae of the Ophiuchi Cloud Complex dominate the centre and lower regions of the image.
Another interesting capture here is (481) Emita, a 116km diameter Asteroid, currently around 2.14 AU from Earth. It's the elongated streak in the bottom left quadrant of the image, and this is its motion captured between 8.20 pm and 3.07 am. I noticed it in my stack and identified it using the Sky Safari app.
The image is the best 70 x 5 min exposures for the night using my 80mm refractor with 0.8 flattener / reducer (400mm FL), Antila Triband filter, and ASI294 MC Pro on my AZEQ6, controlled by my ASIAir.

By Chris Kostokanellis

MO PHO CHALLENGE

Chris Kostokanellis

Mornington Peninsula Astronomical Society

The April-May Astro Mo Pho Challenge is imaging the Milky Way.
This is a wide field challenge, aiming to capture larger sections of the Milky Way.

Currently, a large section of the Milky Way is visible after 11pm, from Sagittarius in the east, spanning through Scorpius, Crux, Carina, Canis Major and even Monoceros in the west early in the evening.

This was a No Telescope challenge, but members could use whatever other equipment they have, be it a Smart phone, All Sky camera, hub cap camera, to capture the whole sky, or a longer focal length lens to capture a smaller section of the Milky Way using a tracking mount. Mosaics and stitch ups are a good way to capture the Milky Way too.
Members who completed this challenge were:
Fred Prata, Sylvie Grandit, Mark Stephens, Greg Walton, Chris Kostokanellis
The summary video can be seen here, and includes members' images of comet C/2025 R3 PanSTARRS:
https://drive.google.com/file/d/1WrX9OeLGEwgAyrvO7JH1XPI1TeNR9CNL/view?usp=drive_link *Clear skies, Chris Kostokanellis*

Right - This is my attempt to stitch together and process the 4 frames of the Milky Way I shot at the Briars on 20th April.
This was the visible part of the Milky Way at the time, spanning from Scorpius rising in the east, to Canis Major setting in the west, and the Carina Nebula in the middle. *by Chris Kostokanellis*

Imaged with my 10-20mm Sigma lens at 17mm, Antila Triband filter, ASI294 MC Pro, and my AZGTi Mount.
Each panel was 60 x 60 sec frames.
Stacked in Deep Sky Stacker, stitched together in Photoshop and processed in Siril.
Hi Res image is here: https://telescopius.com/pictures/view/272896/wide_field/milky-way-scorpion-to-the-big-dog/by-christo74

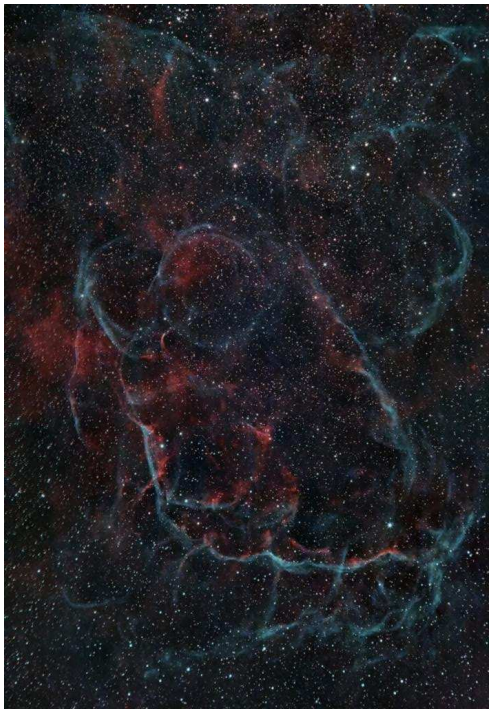
Right -

I also got 40 minutes worth on the Vela SNR on Monday night at the Briars.
This is also with the Nikon lens at 155mm.

By Chris Kostokanellis

Once you see it, you can't un-see it.

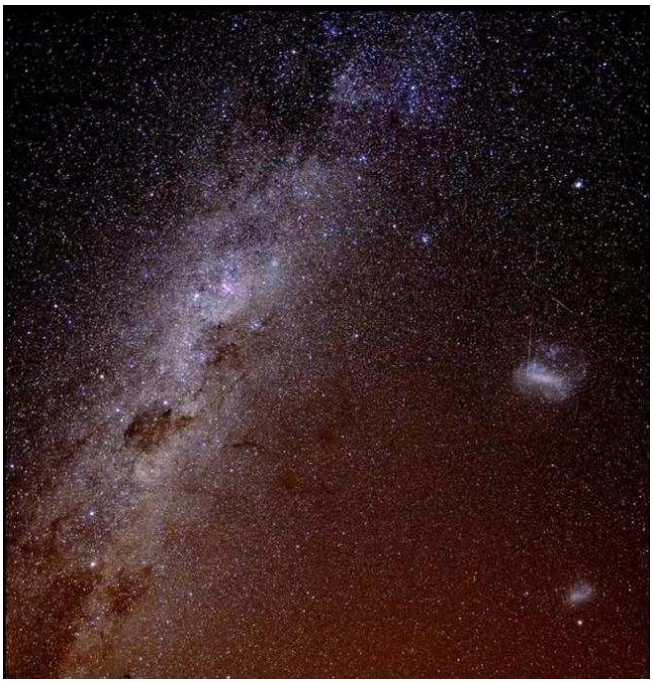
The Homer Simpson nebula.



Right -

Seestar S50 Mosaic
Acrux and Coalsack Nebula

By Mark Stephens



Right -

Shot at Nombi, near Coonabarabran, NSW
Bortle 1-2 skies

Micro 4/3 OM1 with a 9mm Leica lens.
ISO 800, f/1.8, 40s exposure untracked.
Minor enhancements in Photoshop.

By Fred Prata

Right -

Shot at Nombi, near Coonabarabran, NSW
Bortle 1-2 skies

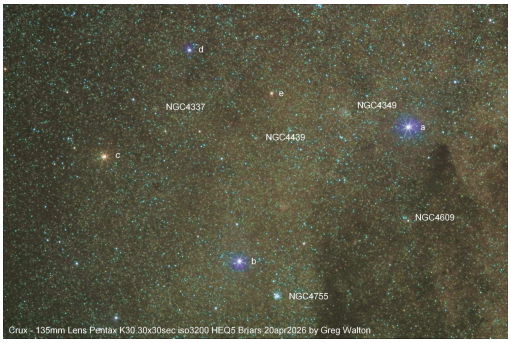
Micro 4/3 OM1 with a 9mm Leica lens.
ISO 800, f/1.8, 40s exposure untracked.
Minor enhancements in Photoshop.

By Fred Prata

Right - Southern Cross.

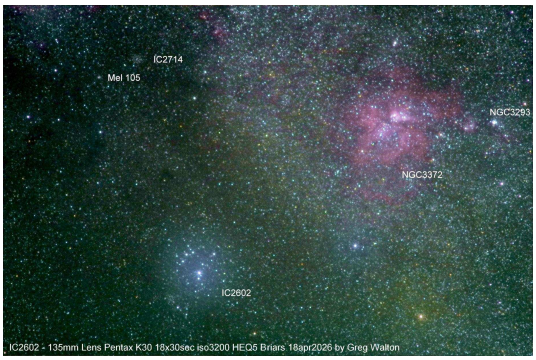
Taken with the 135mm Lens with Pentax K30, piggy backed on the 100mm telescope on HEQ5 mount in the small dome MPAS observatory on the 20th April 2026. I have named some of the objects within and around the Southern Cross.

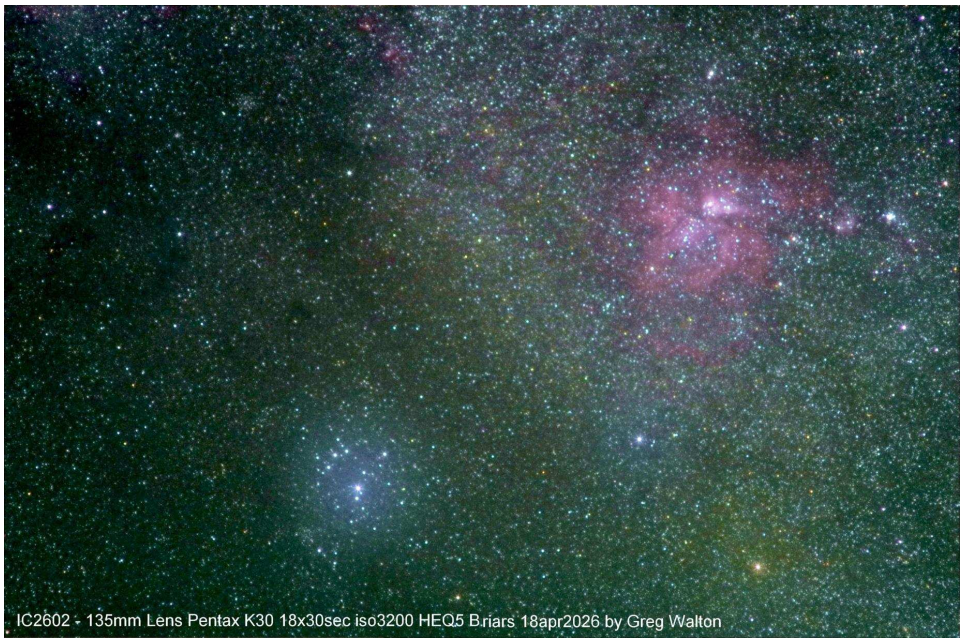
By Greg Walton



Right - Carina Nebula NGC3372 and the Southern Pleiades IC2602 imaged with 135mm Lens iso3200 18x30sec. Interestingly I spotted a couple of open clusters which I didn't remember seeing in the telescope. IC2714 which appears to have a ring of stars around it and Mel 105 which is a small tight group.

By Greg Walton

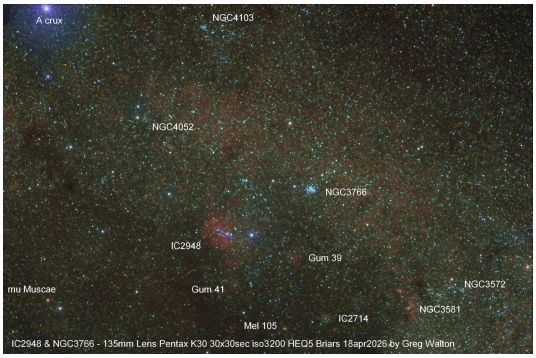




Right -

Acrux top left and the Running Chicken IC2948 in the centre. I have named some other objects. I can see the 2 clusters Mel 105 & IC2714 at the bottom of this image.
Imaged with 135mm Lens on Pentax K30

By Greg Walton



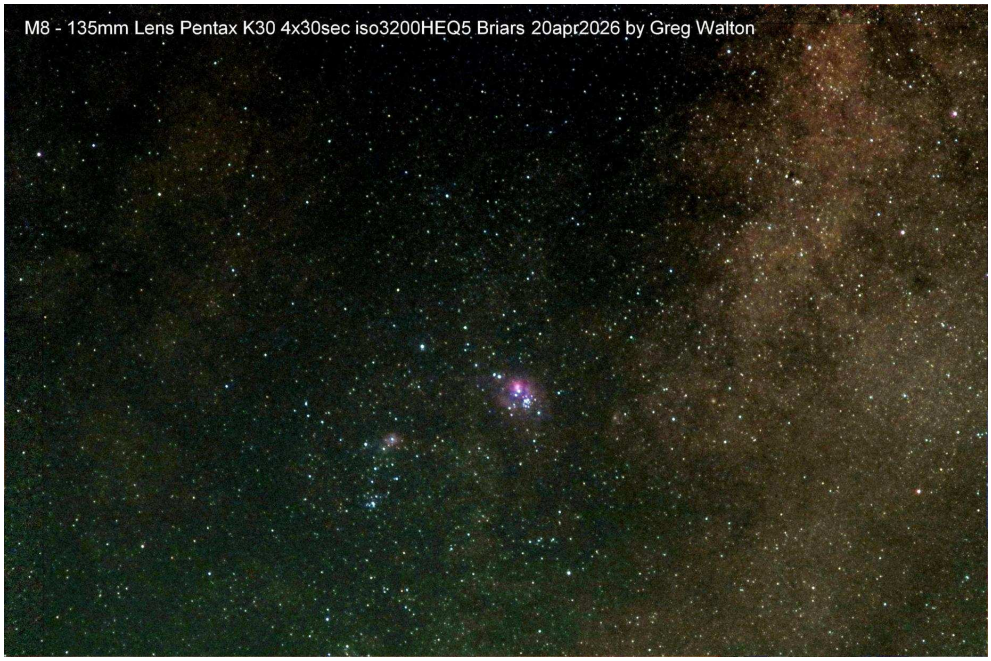
Mo Pho challenge

On this page, 3 more images I took on the 18th April at the Briars. Taken with the 135mm Lens with Pentax K30, piggy backed on the 150mm telescope on HEQ5 mount in the MPAS observatory.

By Greg Walton

Top -

Lagoon nebula - M8



Centre -

Pin Cushion NGC3532

Carina Nebula, NGC3372

In this image the focus was a little bit off, as the stars have a slight red colour.

Bottom -

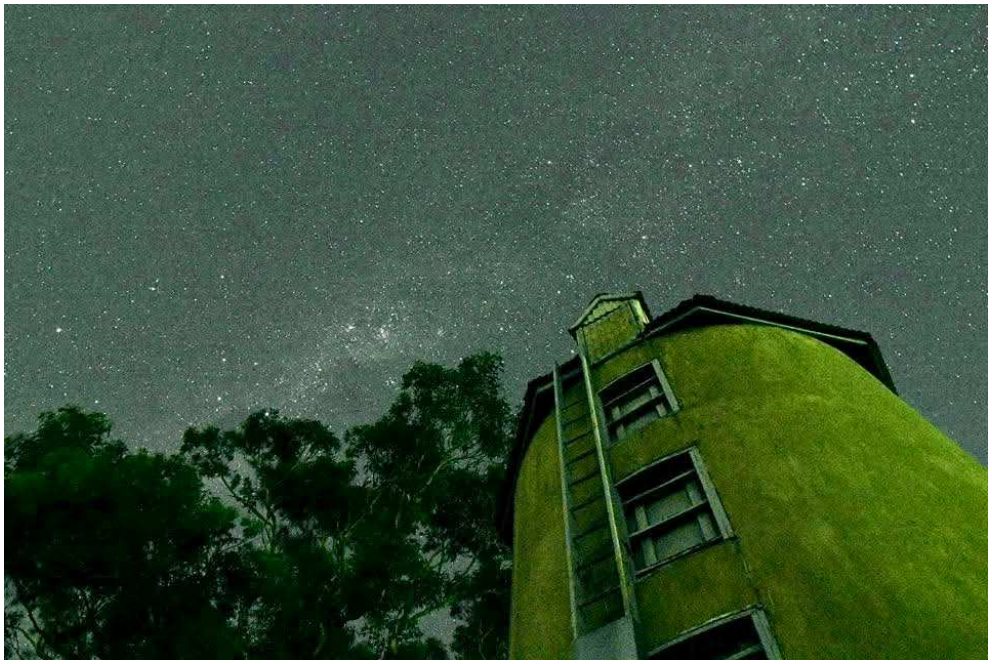
Hamburger Galaxy NGC5128

Omega Centauri NGC5139

Right -

Just a bit of fun last night. The Briars silo, taken with my DSLR D5500, SAMYANG 14mm lens on a tripod, on 20th April 2026.

By Sylvie Grandit



Silo or Chicory kilns?

Chicory kilns (often mistaken for silos) are historic brick towers uniquely dotting Victoria's coastal regions like Phillip Island and French Island. Operating from the 1870s to the 1980s, these structures dried chicory roots to be used as coffee substitutes and additives. *From Wikipedia*

Right -

The Milky Way with the weathervane on top of the shipping container at the MPAS site.

Taken with my DSLR D5500 , SAMYANG 14mm lens on a tripod, on 20th April 2026.

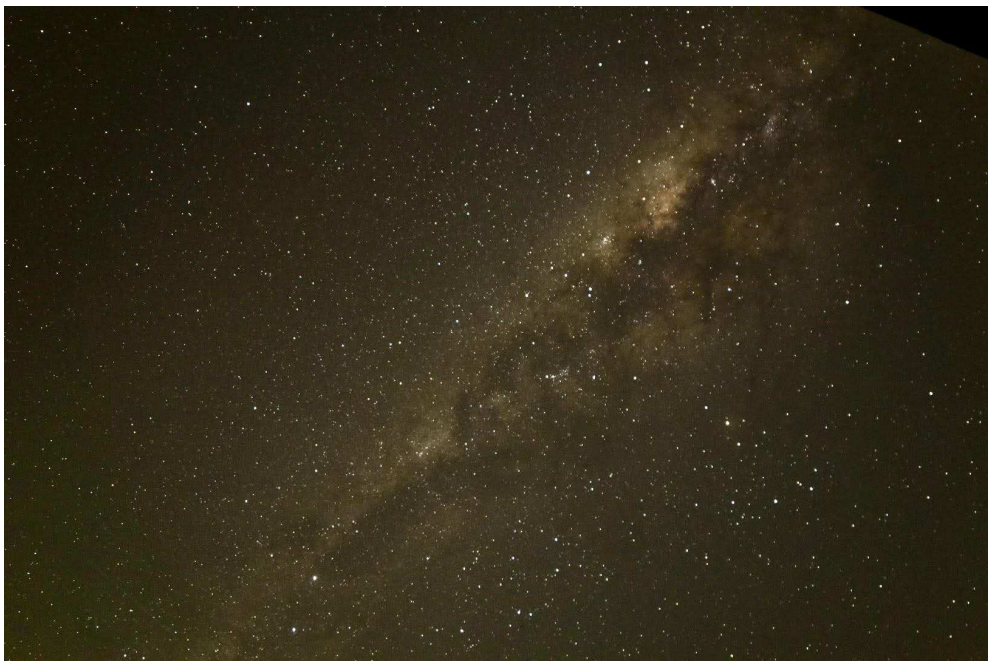
By Sylvie Grandit

Right -

Looooove early mornings on my balcony – DSLR D5500 , SAMYANG 14mm lens 30 sec ISO 800 f2.8 slightly enhanced with iPad)

23rd April 2026

By Sylvie Grandit



The May-June Astro Mo Pho Challenge is imaging Antares.

Images for this challenge needed to include Antares, and could be imaged with any equipment and focal length that members wished. This is a very colourful part of the night sky, with a globular cluster, open clusters, and dark, reflection and emission nebulae.
With limited opportunities for imaging during this period due to poor weather, members put in a terrific effort to get some amazing images of this beautiful part of the winter sky.
Members who completed this challenge were:
Amy Tang, Chris Kostokanellis, Fred Prata, Greg Walton, Kelly Clitheroe, Mark Stephens, Michael Barrow, Michelle Sykes, Neville Drake, Nik Axaris, and Sylvie Grandit
The summary video can be seen here:

https://drive.google.com/file/d/1PSJAbTSieotdMH3jH3UNXKrGqbHqTMRS/view?usp=drive_link

Our current challenge which will run for 2 months, is imaging the constellation Sagittarius, and objects within it.

Clear Skies. Chris Kostokanellis

Right -

Rho Ophiuchi Antares region.

Taken with the 294MCc Pro and a Sigma 110-300 lens.

Something different hence the spikes.

By Nik Axaris

Right -

Scorpius in the Rho Ophiuchi cloud complex.

Below the heart of Scorpion Antares you can see M4 the Spider Globular Cluster, NGC 6144 globular cluster, IC 4603 a blue reflection nebula.

Taken with ZWO2600MC Pro with Redcat51 – 50x180 lights.

Note I will attempt to do some editing in PI at this stage lights darks flats and bias frames have been stacked only in DSO in the ASIAIR

By Sylvie Grandit

Astro Mo Pho. Antares.

On Monday evening, 10th June, about a dozen MPAS members gathered at the observatory after Greg announced he'd be opening up. Many of us were imaging Antares for the Mo Pho challenge, and this is my result from the evening's efforts.

It was great to see so many members at the Briars.

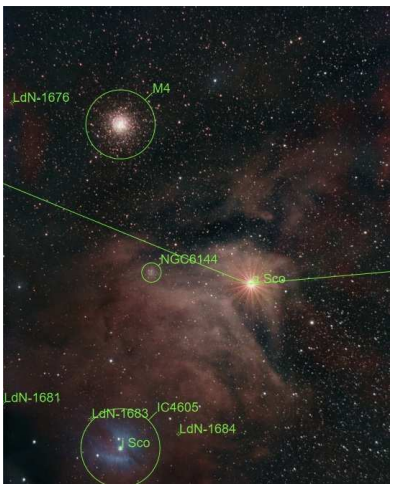
My capture is the result of 130 x 1-minute exposures with an old Nikon 300mm lens at f/5.5, an Antila Triband RGB filter and my ASI294MC Pro on an AZGTi mount, controlled by my ASIAir.

Stacked in DSS and processed in Siril. Annotated using Siril.

The field of view is about 3.5 x 2.5 degrees.
The prominent features α Sco - Antares.
The Antares Nebula. A reflection nebula illuminated by Antares.
Globular Cluster M4, and the smaller globular NGC6144. The Blue Angel reflection nebula - IC 4605 around ι Sco.

The diffraction spikes around Antares and the other bright stars are caused by the Iris in the lens.

Clear skies! Chris Kostokanellis



Right -

Astro Mo Pho submission of Antares with globular cluster (M4) above. There is also a smaller globular cluster (NGC6144) below M4. Imaged with my Seestar.

By Mark Stephens

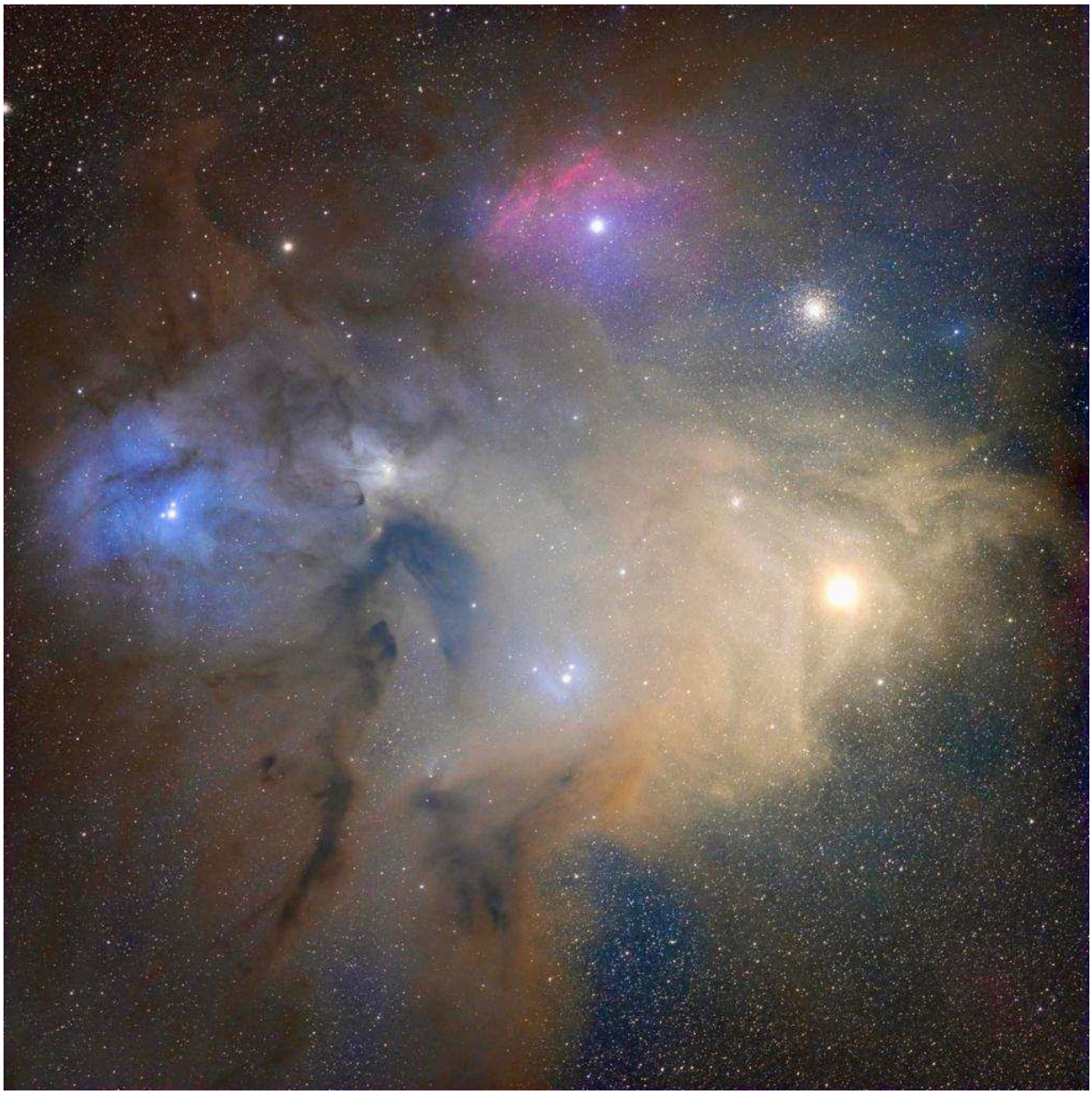
Right -

Astro Mo Pho. Antares featuring the Rho Ophiuchi cloud complex.

Samyang 135mm lens with 533MC camera. About 5 hours of imaging at 180s subs.

Downtown Clifton Springs.

By Kelly Clitheroe



Right -

I like the cool tone of your photo, Chris!

Here's my version of Antares:
44 x 300seconds
(Yeah, I stayed there to 3 am...)
on SQA85 with a L-Pro filter, and 294MC Pro.

The spikes on the bright stars are not expected, I'm still trying to figure out what causes them…

Antares on the right, M4 at the top half and σ Sco to the left. I didn't realise this zone of sky is so colourful…

While I was waiting, I also captured the Moon (also orange/red!) rising from the horizon.

By Amy Tang

Antares M4 NGC6144 - imaged with 200mm Newtonian F5 EQ6 Canon 60D 20x30sec ISO3200 Briars 8-Jun-2026 by Greg Walton

Antares - 135mm Lens Pentax K30 30x30sec ISO1600 HEQ5 Briars 8-Jun-2026 by Greg Walton

Right -

Antares.

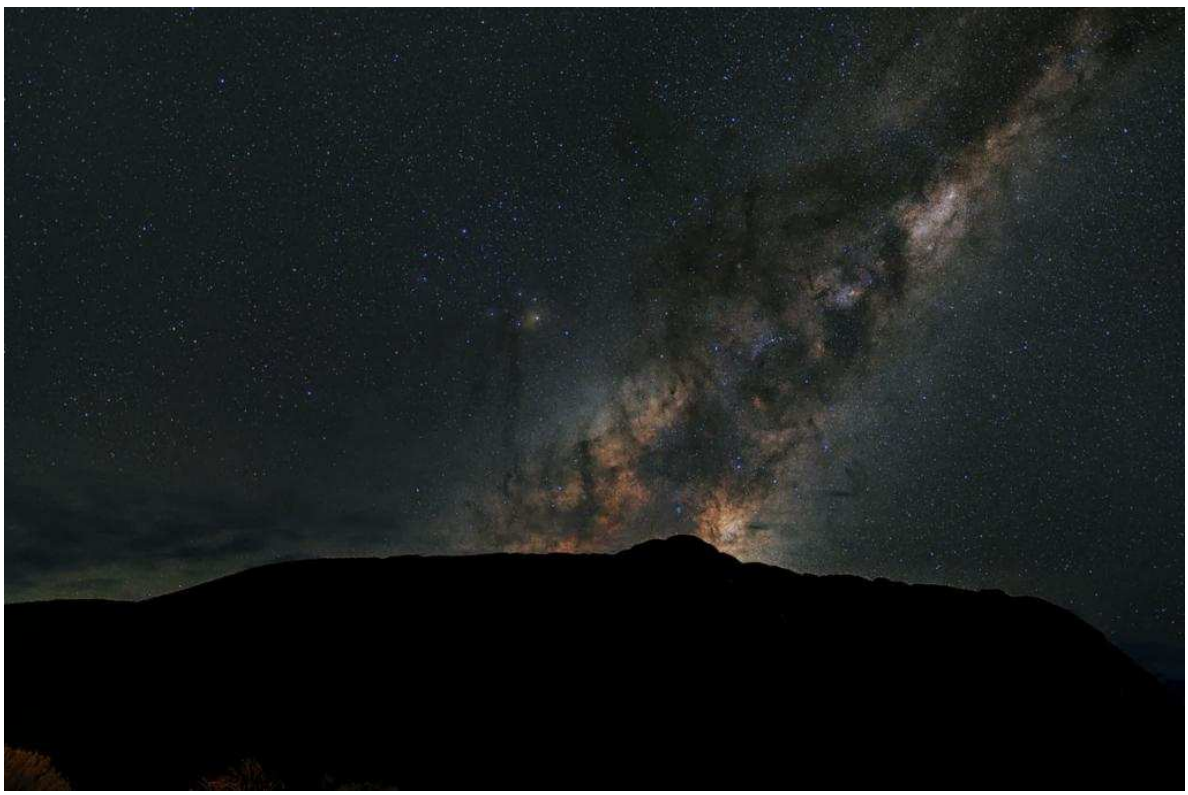
Finally got clear skies and me being available. Couldn't get the Seestar out or do any tracking and stacking. So you get the whole constellation.

This is a single 13 second exposure, 16mm lens on an Apsc camera.

I do ask for extra credits because the shape in the foreground is Uluṟu! Clear Skies to all.

Edit: finally got edit the astro part. Siril, syqon, veralux.

By Michael Barrow



Right -

M4 and Antares
Vespera 2 Mosaic
640 10 second subs
Terrible IPhone editing
Box Hill Spa Deck observatory, no filter

By Neville S Drake

Right -

Astro Mo Pho submission. Antares along with M4 and NGC 6144. And HD 148760 underneath Antares.

Seestar S50 in EQ mode
Stacked and edit in the app
147mins of 10sec subs
Bortle 4 – Rosebud

By Michelle Sykes

Right -

Astro Mo Pho submission.
105mm lens
ZWO Camera
About 1 hour of 30 sec OSC exposures
Antares, M4, and the Rho Ophiuchi nebula can be seen.

By Fred Prata

Astro Mo Pho Challenge #32 – Antares.

Summary and new target. Sagittarius. June – August.

The area around Antares is probably the most colourful part of the night sky. It features a combination of Reflection, Emission and Dark Nebulae, and includes the well known and often imaged Rho Ophiuchi Cloud Complex. Even a small telescope will only capture a portion of the region, and it is best imaged with a 135mm lens or shorter.

MPAS members did a terrific job of capturing Antares and the surrounding area.

The summary video is in the link below:

https://drive.google.com/file/d/1PSJAbTSieotdMH3jH3UNXKrGqbHqTMRS/view?usp=drive_link

Our next challenge is the constellation Sagittarius – The Archer.

It is often depicted as a Centaur drawing a bow, and includes the commonly recognised asterism of "The Teapot", with the spout of the teapot pointing towards the galactic centre and Sgr A*.

This is once again an open challenge for any equipment and focal length, and will run for 2 months until the August Member meeting.

Clear skies, Chris Kostokanellis

If you wish to have a try at astrophotography or the Mo Pho challenge and don't know where to start or don't have a DSLR camera,

you can just come to one of the members nights or observatory open nights and we will help you get started.

What to bring:

Your DSLR if you own one. (Best if you know how your camera works and the battery is fully charged)

Empty or new SD card. (We do have some spare DSLR cameras for members to use temporarily.)

Warm clothing.

Regards Greg Walton

SOCIETY INFORMATION


Peter Skilton


Chris Kostokanellis


Nerida Langcake

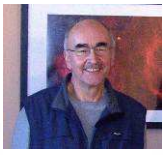

Jamie Pole


Trevor Hand


Guido Tack


Simon Hamm


Phil Peters


Manfred Berger


Greg Walton

OFFICE BEARERS OF THE MORNINGTON PENINSULA ASTRONOMICAL SOCIETY

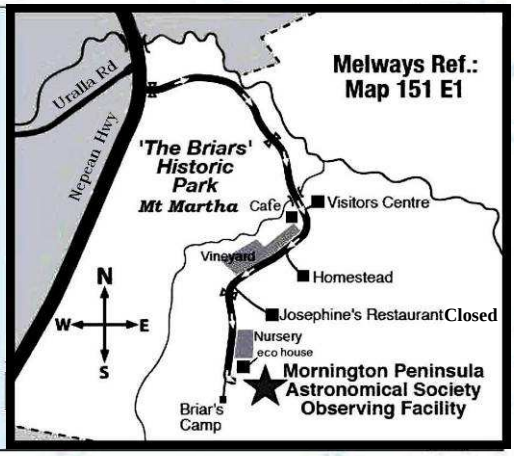
President: Peter Skilton
Vice President: Chris Kostokanellis
Committee: Trevor Hand, Guido Tack, Simon Hamm, Phil Peters and Manfred Berger
Secretary: Nerida Langcake
Treasurer: Jamie Pole
Web master: Guido Tack
Scorpius editor: Greg Walton
Site manager: Phil Peters

SOCIETY MEETINGS

Meeting Venue: MPAS Astronomy Centre
The Briars, 450 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)

For addition details:
Internet: www.mpas.asn.au
email: welcome@mpas.asn.au

Phone: 0419 253 252
Mail: Mornington Peninsula Astronomical Society
450 Nepean Hwy, Mount Martha, Victoria, 3934



LIBRARY


Fred Crump

The Society also has books & videos for loan from its library, made available on most public & members nights at The Briars site. Contact Fred Crump - Librarian

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, email welcome@mpas.asn.au say that you want to join E-Scorpius & you will be added to the E-Scorpius list.

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

VIEWING NIGHTS - MEMBERS ONLY

Members only Viewing Nights - any night at The Briars, 450 Nepean Hwy, Mt Martha. Members visiting The Briars for the first time must contact Greg Walton on 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 additional details:
Internet: www.mpas.asn.au
email: welcome@mpas.asn.au

Phone: 0419 253 252
Mail: Mornington Peninsula Astronomical Society
450 Nepean Hwy, Mount Martha, Victoria, 3934

Members please write a story about your astronomy experiences and add some pictures.
Send them to the editor: Greg Walton gwmpas@gmail.com
MPAS newsletters online - https://drive.google.com/folderview?id=0ByvkxzZGI9g_SUNmZVhkZTFGWTA

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