Cover image - Flame and Horsehead Nebulas, *by Sylvie Grandit*

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 January 2nd - saw the first public night for the year held at the Briars. Conditions were mild, a little windy to start with, and quickly cleared to about 2% cloud on the horizon, which prevented initially observing the 98.5% waxing Moon in the daylight.

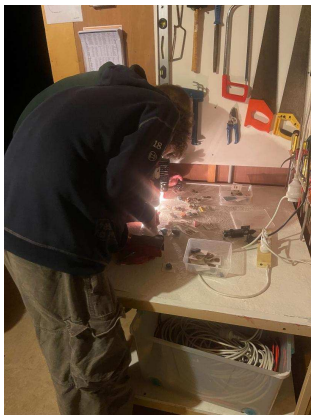
The 81 visitors, including I think probably a very keen visiting family from Japan, heard Trevor Hand give his night sky talk in the auditorium, complete with solar system models, balls of string and the weighty Aussie the meteorite. Then it was outdoors for an unhindered view of the Moon, Jupiter, Saturn which was getting a bit low in the west, and plenty of other night sky objects visible in the Moonlight.

Other members helping and present on the night included Greg Walton, Mark Stephens, Simon Hamm, Fred Crump, Sylvie Grandit, John Goodall, Chris Kostokanellis, Peter Skilton, Jamie Pole, Adrian Boschetti, Sarah Galloway, Peter McConnachie, Ben Claringbold, Pam & Peter Halsall, Leigh Hornsby and Mike Smith who arrived in noteworthy style by mountain bike. Although not in the attendance book, there were also Karo Hohlweg and her two keen teens seen, and someone sounding remarkably like Anne and Geoff Danne were operating one telescope on the upper slab and showing off the Orion Nebula to a long line of interested folk.

Ben Claringbold had his drone airborne much of the evening, and it was amazingly stable with the crosswind early in the evening, automatically stabilising itself so you couldn't detect the motion in what the camera was sending back. After dark the drone was put into Close Encounters of the Third Kind flying saucer mode (key appropriate Steven Spielberg music), with strange lights and a conical white tractor beam irradiating the ground beneath it for a diameter of perhaps 8 metres. Shown in the picture is Sylvie Grandit about to be beamed up for some alien experimentation. Fortunately they let her go, so she'll be back for more at tomorrow night's public night as well. Mark Stephens also volunteered, but I heard he had less luck getting off the ground. *Regards, Peter Skilton*

Public Viewing Night January 3rd - As we get into stride for the New Year, January 3rd saw our second public night held at the Briars, and it was cloudy this time, in stark contrast to the one held the evening before.

So, the 76 visitors moved inside to hear Guido Tack give the talk. Following this, the skies remained stubbornly under cloud, so return passes were issued and tours of the facilities were conducted. Despite the lack of night sky objects to be seen, some of the visitors remained in discussions and looking through the microscopes well into the evening.



At the beginning of the evening in twilight, the cloudy skies did have some larger thin patches but, alas, it was still far to bright to see anything through them initially. While everyone was indoors, John Goodall reported being able to find Canopus during aligning a telescope, but the win was short-lived, and it was solid 100% cloud for the rest of the evening. Even the Full Moon couldn't penetrate it.

Other members helping and present on the night included Sylvie Grandit welcoming new arrivals, Greg Walton who'd done a great cleaning job before these public nights, Mark Stephens, Simon Hamm, Chris Kostokanellis, Adrian Boschetti, Ben Claringbold, Mark Iscaro, Peter Skilton, Nerida Langcake, Piper Grierson, David Rolfe, Jamie Pole, and Karo Hohlweg with Juno Jones, Barney & friend Oscar who were all keen Physics students eager to see the facilities and ask lots of questions. The photo was snapped by Karo and shows the microscope in action in the warm room.

During the evening the observers were in turn observed by a mob of 3 sizeable kangaroos just beyond the members' entrance gate on the other side of the track. They appeared to have been disturbed by a couple of other people who were walking around the lower paddocks, and were certainly curious to see what we were all doing on the MPAS site looking back at them. Ben Claringbold had his drone airborne in a jiffy, as he went to have a closer look and do a muster dog effort on the two walkers. They were possibly gardeners on genuine Briars business there. *Regards, Peter Skilton*

Public Viewing Night January 10th - The third public night this year was planned for Friday, January 9th at the Briars, and had been fully booked out for months. However, a day of Extreme fire risk (borderline Catastrophic fire risk), plus a total fire ban and very high temperatures and wind, had been declared for the region the day before, so we took the rare step of cancelling the evening and rescheduling for the 10th instead.

This inevitably meant that some visitors would be unlikely to be able to come at a later date if they were only temporary Summer tourists who happened to be in the region only for a short while. As it turned out, 52 attended on the Saturday, so just under half either couldn't come at a later public night, or had rescheduled to a subsequent one at the Briars.

For those who attended, the evening began with Trevor Hand giving his night sky talk indoors in air-conditioned comfort, complete with Solar System models and meteorite. Then it was outdoors to view the night sky.

While the Friday evening would have been quite unpleasant in the mid-30s Celsius at least, with wind and likely smoke from the Otways fire, the Saturday was a completely pleasant contrast, with it being very cool after Sunset, no wind, a few mozzies, and only the foolhardy or forgetful wearing shorts and t-shirt. The Sun appeared quite orange-red while driving to the Briars prior to setting, due to high level smoke in the air. Significant white ash and red dust had rained down along the Bayside suburbs during the day from across the Bay, however, at the Briars the skies remained surprisingly clear for viewing, with Saturn, Jupiter, Orion nebula and other deep sky objects on view. There was about 5% cloud around the horizon, but it didn't interfere and there were visitors looking through telescopes until well after 10 pm.

Other members helping and present on the Saturday included Ally Midwood, Sylvie Grandit welcoming the visitors with the ipad, Phil Peters, Greg Walton, Simon Hamm, Guido Tack, Peter Skilton, Kathryn Hand, John Goodall, Ben Claringbold, Peter McConnachie, Nerida Langcake, Leigh Hornsby, Jamie Pole and Dave Rolfe.

At the next public night we're anticipating a visitor from a public observatory in Calgary, Canada, where no doubt very cold conditions are prevailing at the moment, and a visit to a Victorian Summer might come as a bit of shock to the system. *Regards, Peter Skilton*

Public Viewing Night January 16th - saw 83 visitors in attendance. The talk indoors was given by Guido Tack, before the group moved outdoors. The skies were initially quite cloudy during twilight, however, they cleared to about only 5% coverage by the time the talk finished, enabling good usage of the telescopes for the rest of the evening.

Amongst the audience we had a visiting family from California, another from the UK, and a Canadian volunteer astronomer from Rothney Astrophysical Observatory, operated by the University of Calgary. Their facility is similar in size and scope to what we have at the Briars, and they also do lots of public nights and talks, though their audience is often twice the size of ours, with car parking access not an issue in Calgary and it being relatively near to the main population centre.

There was a bright pass overhead of the Chinese space station, Tiangong, that was seen by everyone in the southern sky, with ringed Saturn just visible as it set early in the west, and Jupiter presented its usual majestic self in a north-easterly direction. I think the highlight for the Canadian visitor was seeing (and photographing on his phone) the legendary Southern Cross and Pointers by eye, the Jewel Box, and also 47 Tucanae. While these were relatively low in the sky, the clouds had dissipated and the trees weren't too obstructive. He was surprised at how small Crux was, expecting something handspans across.

As it happened, there was a wonderful auroral display at the Briars on the very next evening, visible by eye, but unfortunately we weren't able to contact him in time to see it. At Calgary, being much closer to the North Pole than we are to the South Pole, green auroras are easily seen by eye at the darker times of year. However, at that moment the maximum temperature in Calgary was 5 degrees C below zero, and the minimum was about -20C, so it makes for somewhat speedy auroral viewing in person.

Other members present and helping on the public night included Jamie Pole, Mark Stephens, Greg Walton, Julie McErlain, Simon Hamm, Phil Peters, Sylvie Grandit, Leigh Hornsby, John Goodall, Peter Skilton, Chris Kostokanellis, Ben Claringbold, Ally Midwood, Greg Markowsky, Dave & Jamie Rolfe and Abby Nichols, plus a couple of members who forgot to sign the attendance book next to the counter.

Regards, Peter Skilton

Society Meeting January 21st - The main topic was about "The First Astronomers", presented by Assoc. Prof. Duane Hamacher, School of Physics, University of Melbourne.

There was no Astrophotographic Challenge this month. Guido Tack then presented Sky for the Month.
Member, Ian Barry, shared the recent release of Sydney and Melbourne Observatory stamps and medallion by Australia Post.

A science video then followed explaining what Apollo 18, 19 and 20 would have been if their budget hadn't been cut after their Saturn V rockets were already built. Closure showed the phases and libration (i.e. wobbles) of the Moon in our skies for every hour in 2026, from the NASA SVS, and is set to the audio of "Unexplored Moon" by Miguel Johnson, courtesy of the No Copyright Music channel.

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 *Regards, Peter Skilton*

Members Night BBQ, Working Bee January 24th - Cancelled due to total fire ban.

Cosmology meeting January 31st - went ahead at 1:45pm as usual.

Public Viewing Night February 6th - February's regular public night went ahead under clear skies last Friday, and saw 81 visitors in attendance at the Briars, including a lifelong amateur astronomer from El Salvador, if I recall the country correctly, who has recently moved to the region.

The talk indoors was given by Trevor Hand, freshly back from another cruise, before everyone moved outside to look at the night sky with no clouds.

Saturn was visible for a short while from some of the lower slab telescopes, while Jupiter was prominent, and there were scores of naked eye satellites across the evening, and not all Starlink ones, given their trajectories. The brightest was a magnitude -3.8 trek overhead by the International Space Station about 9:40pm and, with it being 7 minutes in the sky this time, made it easily visible for everyone to see. It had a fainter second pass overhead just over 90 minutes later, but everyone had left by then.

Members helping and present included Ally Midwood, Sylvie Grandit, John Goodall, Simon Hamm, Julie McErlain, Peter Skilton, Phil Peters, Chris Kostokanellis, Stuart Lees, Wayne Redpath, Leigh & Marlene Hornsby, Aaron & Ethan Yuen, Ben Claringbold, Fred Crump, Mark Stephens, Manfred Berger, Jamie Pole, Greg Walton, Paul Albers, Anne & Geoff Danne, and a couple of transients who didn't sign the member attendance book.

Regards, Peter Skilton

MPAS attended the Frankston Waterfront Festival on Saturday February 7th - It's an annual festival held at the Frankston Foreshore Reserve, near the Frankston pier. This year the festival was expected to have 40,000 people in attendance, and it certainly felt that way on the day, with strong crowds all day long. Bump in was at 10:30 am, and it was a long day, with bump out being at 10:30 pm.

Frankston put on a great show, with live music, fireworks, food trucks, performers, a Market, and many community oriented displays and stalls. We set up the MPAS marquee in an area removed from the busiest part of the festival. This meant we had more room to set up our telescopes. 3 Solar scopes, a 90mm Refractor and 200mm Dobsonian were set up for viewing and demonstrating, as well as a display of meteorites, Microscopes and puzzles. The MPAS crew were kept very busy during the event. A constant stream of people of all ages dropped in to have a look through the scopes and check out what we do.

We had clear blue skies all day long, perfect for solar viewing. The sun was quite active, with several sunspots on display, and quite a few interesting prominences for the people to look at. Later in the evening, Jupiter came into view. Queues started forming once again behind the telescopes, with the passing crowds eager to get a glimpse. Io, Ganymede and Callisto were on display, while Europa was hiding behind the gas giant.

The day was a great success. We spoke to well over 1000 people by my estimate, promoting MPAS and Astronomy, our viewing nights and other events. Members who assisted were Greg Walton, Pia Pedersen, Mark Stephens, Trevor Hand, Manfred Berger, Phil Peters, Ally Raymond, Nerida Langcake, David Rolfe, Ben Claringbold, Sylvie Grandit, Peter Skilton and Chris Kostokanellis, and Tim Patston also came along to assist and speak to the public about Indigenous Astronomy.

A big thank you for all your hard work to all who assisted. *Clear skies, Chris Kostokanellis*

Had a great time at the Frankston Waterfront Festival yesterday, doing our bit to promote MPAS! Here are some photos at right! *By Phil Peters*

Arriving at 10:30pm we unpacked the ute. As parking is limited, Pia took the ute back home. Sylvie, Ben, Phil, Chris, Mark, Manfred, and myself assembled the marquee and set up tables, displays, telescopes. 12 pm the public started to arrive, while I went off to find lunch before it got too busy.

While I was only there for the last third of the event, what I saw was a very lively event, and we weren't set up at the busiest locations (thankfully)!
Also present for a long while were Ally Midwood and her son, Lewis, and a smiling Louise Berger who was kept busy nimbly handing out MPAS leaflets to passers-by who couldn't walk fast enough. Many other members just dropped by casually to say hello, while taking in the full scope of the festival's activities.

For those oldies who've been in MPAS since the days of when we were first moving to the Briars, we had past Secretary, Sally Zetter and her current family, and also past Committee member, Tony Hales (who hosted John Dobson of Dobsonian telescope fame many years ago in Frankston), drop by for a chin wag and catch up on who from the pioneering crowd was still around. We instantly recognised each other despite many years passing and a few more grey hairs and kilograms appearing. As they've now returned to the region, I suspect we'll see them visit the Briars in the near future to find out more of what became of the Society and some of its elders.

Jupiter was the prominent evening object on show over the festival lighting, and we conveniently had a very bright International Space Station at magnitude -3.2, come over about a quarter of an hour before the fireworks, passing close to Jupiter.

Preparing for, attending, and packing away these festivals is always a lot of hidden work behind the scenes, but they are always appreciated by the public, and are thoroughly rewarding for members in many ways. You just never know who you might have inspired from that interaction.

Plus you're guaranteed a really good sleep that night! *Regards, Peter Skilton*

Indigenous Astronomy Talk and Public Viewing Night February 13th - Seen 68 public in attendance, but it felt like there was a lot more due to the large number of new members present, all eager to help out and learn about astronomy or find out how the telescopes work. The entertaining and informative talk was given by Tim Patston. This was the first of 5 for this year. Before the talk we got a quick look at Saturn and Jupiter in the twilight. After the talk the sky was not quiet dark enough to see deep sky objects through the telescopes. So all telescopes were on Jupiter and it didn't disappoint. Slowly as the sky darkened we sent the telescopes Orion Nebula, Pin cushion cluster, 47 Tuc NGC104 globular cluster, Tarantula Nebula, the Jewel Box open cluster and Omega Centauri globular cluster. We had many very enthusiastic members of the public, that did not want to go home, making it a late night.

Members helping and present included Jamie Pole, Sylvie Grandit, Ally Midwood, Simon Hamm, Phil Peters, John Goodall, Leigh Hornsby, Guido Tack, Ben Claringbold, Trevor Hand, Greg Walton and Nerida Langcake. Could have been a few others who didn't sign the attendance book. *Regards Greg Walton*

Trivia & Cranbourne Lions Concert Band February 14th - Luckily we had clear skies, with 120 in attendance. The Cranbourne Lions Concert Band played while MPAS members made hamburgers and sausages in bread. MC Dave Rolfe did the trivia and lots of raffle tickets were sold. About half an hour after sunset the public started queuing at the telescopes. Early on we looked at Saturn and Jupiter as they could be seen during twilight. Once the sky had darkened we moving on to the usual deep sky objects. Orion Nebula, Pin cushion cluster, 47 Tuc globular cluster, Tarantula Nebula and the Jewel Box.

Big thanks to all the MPAS and CLCB members worked behind the scenes setting up telescopes, instruments, chairs, tables, cooking and cleaning up afterwards, to bring about this very successful night. *Regards Greg Walton*

Society Meeting February 18th - At Wednesday's MPAS gathering at the Briars, 8pm, we have Eden White talk about the latest profound changes to early stars and galaxies reported by the James Webb Space Telescope, including re-ionisation in the early stages of formation of the Universe. Then the photographic challenge presented by Chris Kostokanellis, and Guido Tack presented Sky For The Month. Short educational videos were shown about clouds on Earth, and what lies inside the Moon's craters at its South Pole, then showed the Polaris Dawn mission that, amongst other things, sent 4 astronauts into Earth's Van Allen radiation belt.

Should any member wish to give a regular segment (or even a one-off) in each of these monthly meetings, simply contact me well beforehand to have it added to the agenda. It can either be in-person on the night, or sent to me as a pre-recorded video file from your smartphone or webcam of any format. *Regards, Peter Skilton*

Members Night BBQ, Working Bee February 21st - As we haven't had much rain lately, the grass didn't need cutting. But there is always plenty of other jobs to do. Some members arrived early to remove the dead tree near the nursery fence, before members parked cars. We removed the dead tree on the northern boundary fence, trimmed the patch of trees in the centre and shortened the trees behind the observatory. We also removed 2 tree stumps that could damage the ride on mower. Wiped down the telescopes, swept floor and removed cobwebs from the observatory and clubroom.

As the sun was shining we opened the small dome and set up the solar telescope, so members could view the Sun with Ha filter. There were many prominences on the side, which looked like a patch of broccoli. We also fitted a white light filter to the 100mm refractor.

By then the food was ready. I must say a big thank-you to all the members who brought food and cakes. Cooked and cleaned up afterwards.

During dinner, Dave Rolfe demonstrated his remote observatory in central Victoria. On the big screen we watched the roof opening and telescope springing to life. All operated from the Briars.

Once the sky started to darken. Sylvie helped a new member get his smart scope working. Isaac did some imaging from the small dome. Mark Stephens also had his Seestar imaging. We had the Big Blue refractor and Sky Venture running, which never disappoint. The telescopes in the observatory were also running till 11:30 pm. A very pleasant evening under the stars. *Regards Greg Walton*

Rye Beach Probus Viewing Night February 24th - saw 38 visitors from Rye Beach Probus Club visit the Briars for an astronomy event. The talk indoors was given by Katherine McCoy and Peter Skilton and went for about 90 minutes, with the weather prediction being for cleared skies in time for the International Space Station going ahead. Alas, the cloud prediction was woefully incorrect, and the skies remained clouded over throughout the evening. The visitors then were shown the observatory facilities instead.

Other members present and ready to trot with telescopes, included John Goodall, Mark Stephens, Greg Walton, Fred Crump, Sylvie Grandit, Adrian Boschetti, Jamie Pole and Chris Kostokanellis. I think I saw Pamela and Richard Kammerhoffer listening to the talk in the back row, and there might have been others I didn't see. Members are reminded to sign the attendance book when onsite, with it being on, or adjacent to, the glass reception counter.

It was a successful, child-free event, with lots of new facts learned by the visitors, even though the sky wasn't conducive to observing. And we were able to show a short video that wasn't the black hole one that school groups seem always to choose with fascination. Nevertheless, we didn't get off entirely scot free, as the Probus Club did ask about black holes later. *Regards, Peter Skilton*

School Viewing Night February 26th - A group of 56 Year 8 students, plus 6 teachers, from St. Mary's College in St.Kilda were staying on camp at the Briars and we were the evening entertainment on their second, and final, night of the camp. This was the second time we've encountered this school, after a memorable first encounter last year, so we must have passed the test the first time.

The talk indoors was given by Katherine McCoy and Peter Skilton. Year 8s being Year 8s, the group had heaps of questions this year and were at times quite noisy when a topic was really gross enough to hit the spot. For example, about the origin of the water drunk on the International Space Station, or the gruesome demise of astronauts falling feet first into a black hole, or being penetrated on the lunar surface by a hypersonic micrometeorite, or what happens to the human body when exposed to the charged solar wind without the protection of Earth's magnetic field.

The talk finished so as to move outside and, under a cloudless sky, witness the International Space Station pass silently from the southwestern sky across to the northeastern sky, and reaching a bright magnitude -3.6. Jupiter, of course, was on full display to the north, as well as the usual deep sky objects at this time of year. The group then briefly moved back indoors for some further black hole discussions, and offering thanks to all our members, before retiring back to their cabins.

Other members helping and on telescopes included Adrian Boschetti, Sylvie Grandit, Jamie Pole, Simon Hamm, Greg Walton, Phil Peters, Ben Claringbold and Chris Kostokanellis.

One of the teachers came up to me at the end of the evening, apparently quite incredulous, and said he'd noticed one of the boys who never seems to engage with any talk on any subject at school, had been very engaged throughout our talk, and he even asked questions! Just goes to show, you never know what impact our nights might have on developing brains of the future. *Regards, Peter Skilton*

The premier convention/conference of amateur astronomers for Australia and New Zealand is called NACAA and is run every 2 years, hosted by a different Society each time. MPAS has hosted it twice in the past in Frankston.

This year it's being held for the first time in Tamworth, NSW, by the Tamworth Regional Astronomy Club (TRAC) over Easter, from Good Friday 3rd April, to Easter Sunday 5th April, with an optional trans-Tasman occultation workshop on Monday 6th April.

It is suitable for advanced to beginner amateur astronomers and is a wonderful chance to meet some of the most well-known amateurs in the Aus/NZ region, and learn what is going on behind the scenes. It's not an outdoors star party in a field, but rather is an indoors conference of talks and workshops on a diverse range of subjects.

The observing facilities at TRAC are impressive, with an extremely large instrument that does active work in collaboration with professional astronomers.

To attend part of most of the time, or dial in remotely, you need to register in the next couple of weeks latest:

www.nacaa.org.au/2026/register

The programme of talks is now up on the website, together with accommodation details and other info.

www.nacaa.org.au/2026/program

If you're going, I've registered and I'll meet you there

If you're driving up, then the Parkes Radio Telescope and the huge Temora Aviation Museum are on the way there.

Regards, Peter Skilton

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

OBSERVATORY UPDATE

By Greg Walton

We have purchased another EQ8 GoTo mount for the observatory. It's second hand and looks to be in fair condition. We are now looking for a second hand 14 inch Meade or Celestron Cassegrain telescope to put on this mount. Over the last month I have built a pier for this mount.
See image far right

We have installed a new glass cabinet on the wall in the observatory, which should make it much easier to find eyepieces at night.

The top shelf is for eyepieces, while the lower shelf is for Barlow's, filters, extension tubes, laser collimation tool and spare hand-controller.

The lower cabinet now only houses astrophotography adaptors and cameras.

See image at right

Astronomy 2026

We announced last year that Astronomy 2025 was Quasar Publishing's final annual almanac after 35 years of producing these books. Well…we couldn't help ourselves, there is now a digital 2026 edition available on our website. As a gift to all of our loyal supporters over the past 35 years this is a free download.
The PDF edition contains somewhat less of our regular information; there are no feature articles, no outer planet satellite data and no minor planet or comet information. There are only one or two sky views per month, and some other areas have reduced coverage. You will have to go through our shopping cart to instigate a download, but it is FREE.

https://quasarastronomy.com.au/downloads/

In addition, if anyone is missing any of our books from 1991 to 2025 they are now all available as PDF versions on our website as a free download.

https://quasarastronomy.com.au/downloads-historical/

2026 TIMETABLE OF PUBLIC EVENTS

MARCH
Wednesday 4th, 7:30pm Parkdale Secondary College, 150 Yr7 pupils at the school in Warren Road, Mordialloc East.
Friday 6th, 8pm Briars. Public stargazing night. Speaker to be arranged. 90 anticipated.
Wednesday 11th, 7:30pm Briars. Strathaird Primary School, 58 year 6 pupils. Speaker: Katherine McCoy & Peter Skilton.
GSP = Gippsland Star Party 13th - 16th March @ Echo Bend, Glenaladale - https://www.trybooking.com/events/landing/1105822
Friday 20-21st, Inverloch Equinox Festival stargazing. Public, all day collaboration with LVAS and tourist body.
Saturday 21st, 4pm Briars. Telescope Learning Day, BBQ & Buy/Sell/Swap (public & members). Speakers various. 90 anticipated. Speaker Katherine McCoy & Peter Skilton.

APRIL
Friday 3rd, 8pm Briars. Public stargazing night. Speaker to be arranged. 90 anticipated.
Saturday 4th, 7pm Briars. Shire moon performance & moon gazing 1 of 2. Lunar speaker: Manfred Berger. 100 x 5-12yr olds planned. Being confirmed. Briars will handle bookings.
Friday 10th, 8pm Briars. Public Indigenous Astronomy stargazing. Speaker Tim Patston. 3 booked, 90 planned.
Saturday 25th, 9-4pm Briars. Calisthenic Dancing Girls on camp. 60, >18yo. No talk, but stargazing after dark.
Sunday 26th, 9-4pm Briars. Calisthenic Dancing Girls on camp. 60, >18yo. Neither talk nor telescopes needed today.

MAY
Friday 1st, 8pm Briars. Public stargazing night. Speaker to be arranged. 90 anticipated.
Saturday 2nd, 5pm Briars. Gregorios Lodge Freemason families. 30 anticipated. Speaker: Chris Kostokanellis. Date is changed.
Friday 29th, 8pm Briars. Scout, Cubs & Guides. Speaker to be arranged. 90 anticipated.

JUNE
Friday 5th, 8pm Briars. Public stargazing. Speaker Trevor Hand. 90 anticipated. 90 anticipated.
Friday 12th, 8pm Briars. Public Indigenous Astronomy stargazing. Speaker Tim Patston. 90 planned.
Wednesday 24th, 7pm Briars. Red Hill Scouts, combined units of all ages. 100 anticipated. Speaker Peter Skilton.

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

Ashubabu Thadi and family
Amy Tang and Vincent Yang
Samantha Blair
Michael Warhurst
Kate Luttick and family
Lubomir Cajka and family
Ian and Pam Pridgeon

Barry Thompson
Peter Szikla
Stuart Lees
Suzanne Mason
Andrew and Cate Marshall
Michael Gonsalvez & family
Sofia and Taras Itingof

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 March / 2026

Red Days indicate School Holidays

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
1	2 Ca shadow 12:12am S Eu transit 9:02pm S Eu shadow 11:07pm S Eu transit 11:50pm F	3 **Full Moon** **Lunar eclipse** Eu shadow 1:56am F	4 Parkdale Secondary College	5 Ga shadow 8:55pm S Io transit 9:32pm S Io shadow 10:37pm S Io transit 11:47pm F	6 **Public night 8pm** Ga shadow 12:18am F Io shadow 12:52am F	7
8	9 Eu transit 11:28pm S	10 **Moon at 404,384km** Eu shadow 1:42am S	11 **Last Quarter** Strathaird Primary School	12 Ga transit 8:17pm S Io transit 11:24pm S Ga transit 11:29pm F	GSP 13 Io shadow 12:32am S Ga shadow 12:54am S	GSP 14 1:45pm Cosmology Io transit 8:05pm F Io shadow 9:16pm F
GSP 15	16	17	18 **Society Meeting 8pm** Mercury above Moon Mars right of Moon	19 **New Moon**	20 Inverloch Equinox Festival stargazing	21 **TLD 4pm** **BBQ 6pm** **Equinox**
22 **Moon at 366,857km**	23	24	25	26 **First Quarter**	27 Eu shadow 8:12pm S Eu transit 8:30pm F Eu shadow 11:00pm F	28 Io transit 9:37pm S Io shadow 10:53pm S Io transit 11:51pm F
29	30 Io shadow 7:35pm F	31	**18th** Ca shadow 10:23pm F			**21st** Io transit 7:45pm S Io shadow 8:56pm S Io transit 9:58pm F Io shadow 11:12pm F

Events

Public nights - 8pm to 10pm on the 6th @ The Briars
GSP = **Gippsland Star Party** 13th - 16th March @ Echo Bend, Glenaladale (Booking required)
Society Meeting - 8pm to 10pm on the 18th @ The Briars (Public & members)
TLD = Telescope Learning day, BBQ & Buy/Sell/Swap - 4pm on the 21st @ The Briars (public & members)
Cosmology group meeting - 1:45pm to 4pm on the 14th @ The Briars

Jupiter Moon code
Io = Io
Eu = Europa
Ga = Ganymede
Ca = Callisto
S = start
F = finish

CALENDAR April / 2026

Red Days indicate School Holidays

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
			1	2 **Full Moon**	3 **Public night 8pm** Eu shadow 10:47pm S	4 Shire moon performance & moon gazing
5 **Day Light Savings Ends**	6 Io shadow 7:15pm S Io transit 8:15pm F Io shadow 9:31pm F	7 **Moon at 404,970km**	8	9	10 **Indigenous Astronomy 8pm** **Last Quarter**	11
12	13 Io shadow 9:12pm S Io transit 10:11pm F Io shadow 11:27pm F	14	15 **Society Meeting 8pm**	16 **Mercury, Neptune, Mars and Saturn right of dawn Moon**	17 **New Moon** Ga shadow 8:57pm S	18 **Working Bee 4pm** **BBQ 6pm** Cosmology 1:45pm
19 **Moon at 361,630km**	20	21 Scorpius Deadline	22 **Lyrids meteor shower**	23	24 **First Quarter** **pi-Puppids meteor shower**	25 Calisthenic Dancing Girls
26 Calisthenic Dancing Girls	27	28	29	30	**10th** Ga shadow 8:19pm F	

Events

Southern Comets website - http://members.westnet.com.au/mmatti/sc.htm
Public night - 8pm to 10pm on the 3rd @ The Briars
Indigenous Astronomy Public night - 8pm to 10pm on the 10th @ The Briars
Society Meeting - 8pm to 10pm on the 15th @ The Briars (Public & members)
Cosmology group meeting - 1:45pm to 4pm, **Working bee** - 4pm, **Members night BBQ** - 6pm on the 18th @ The Briars
Watch your emails, as on any clear nights the Observatory may be opened for members-only viewing.

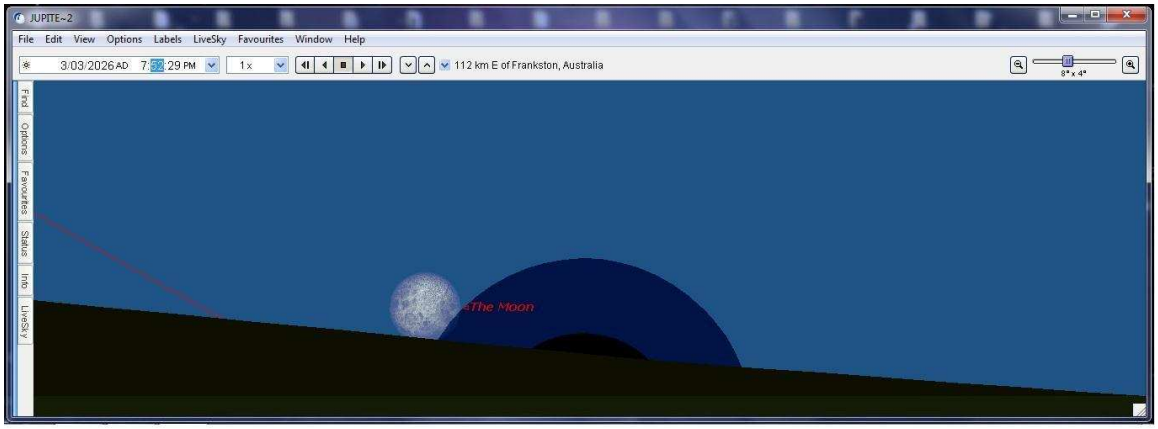
THE BRIARS SKY

By Greg Walton

Mornington Peninsula Astronomical Society

Lunar eclipse on 3rd March starts just before the Moon rises at 7:52pm.

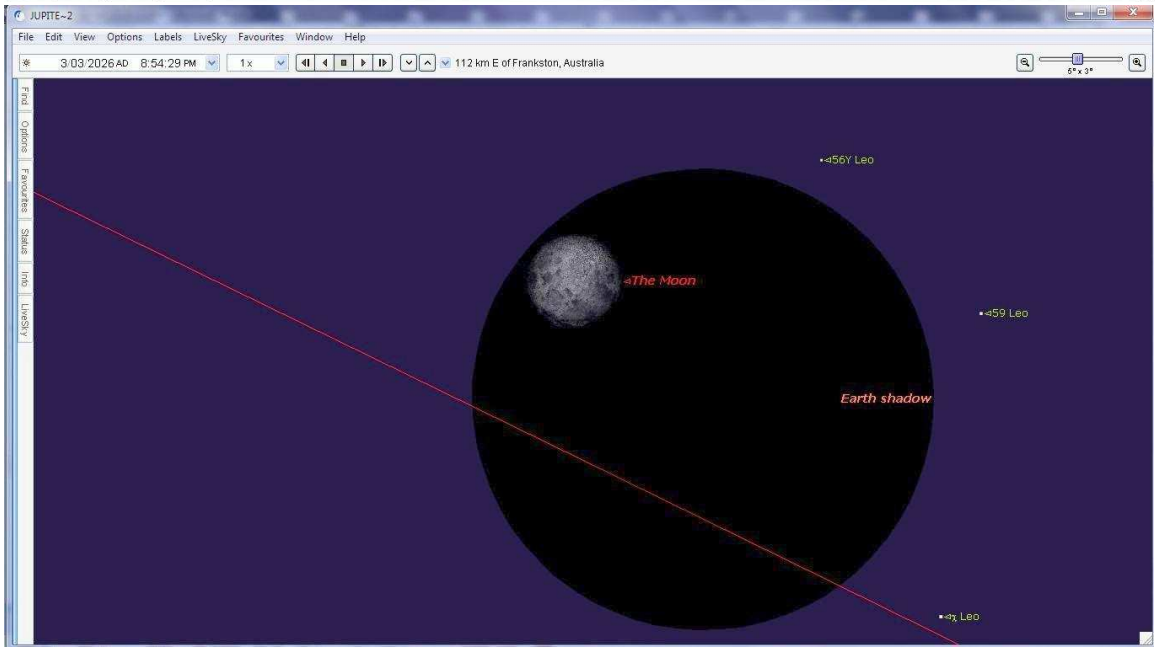
This is when the penumbral or Earth's outer shadow starts to cross the Moon and is usually barely noticeable. *See right*



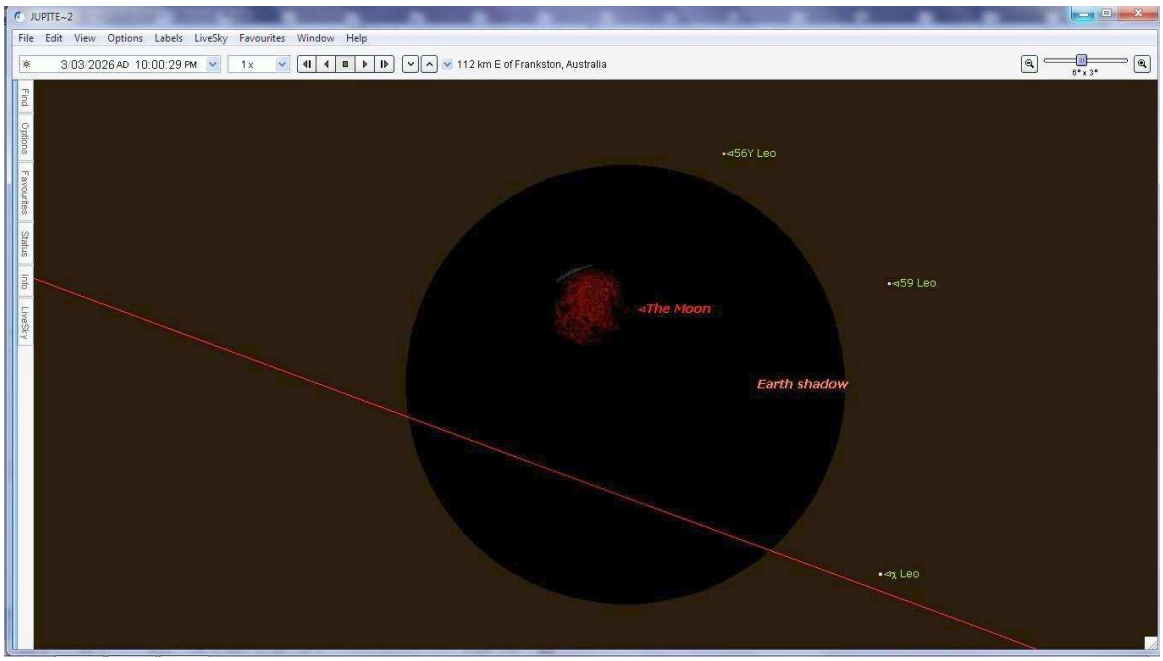
All images produced on Starry Night software.

At 8:54pm the Earth's inner shadow will start to cross the face of the Moon.

This is the point at which you will start to see a small piece nicked out of the bottom right side of the Moon. *See right*



By 10pm the Earth's inner shadow will have completely covered the face of the Moon, turning it a burnt orange to red colour. And the Moon will stay this colour for a hour. *See below right*



At this time, one of the things worth looking at is the stars around the Moon. Normally we cannot see the stars as the Moon is too bright. If you are lucky you might see the Moon moving in front of the background stars.

At 11:05pm the Earth's inner shadow will start to uncover the face of the Moon. At first a thin bright edge will start to appear on the top left and then slowly getting bigger.

And if you have had enough of the Moon. At 11:07pm a Europa shadow transit should be starting on Jupiter.

At 12:15am the Earth's inner shadow will have finished crossing the Moon and to most it will be all over. The Earth's outer shadow will take another hour to complete its crossing, but as I said earlier, this will be barely visible.

Jupiter rises much earlier now.
Most of the planets are static with very little happening. Jupiter on the other hand has cloud belts and the Great Red Spot which crosses every night, because of Jupiter's fast rotational speed of 10 hour.

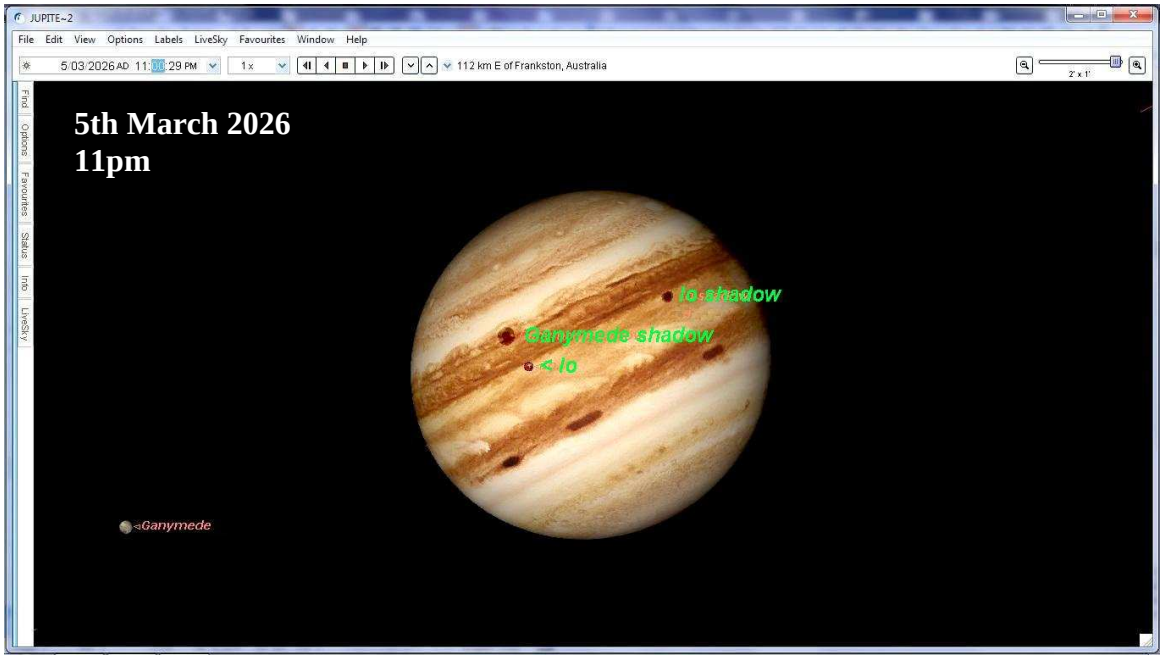
Also over the next 2 months, there're many opportunities to see shadow transits.

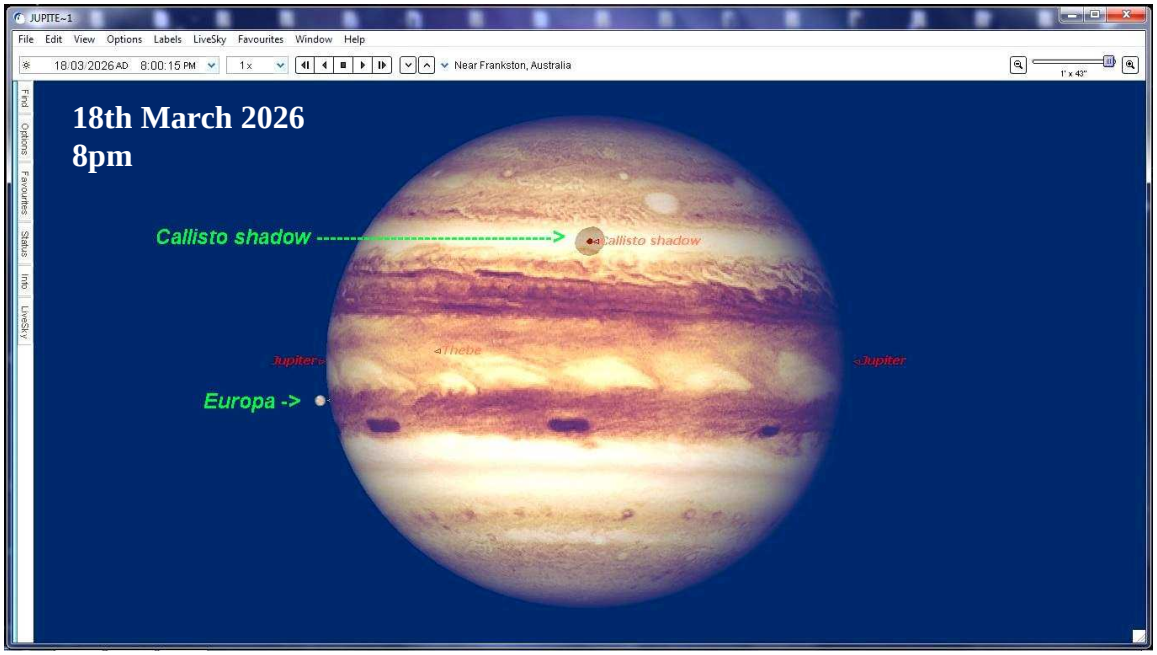
These occur when Jupiter's moons cross in front of Jupiter. As we sit between the Sun and Jupiter, the moons cast shadows on the surface of Jupiter.

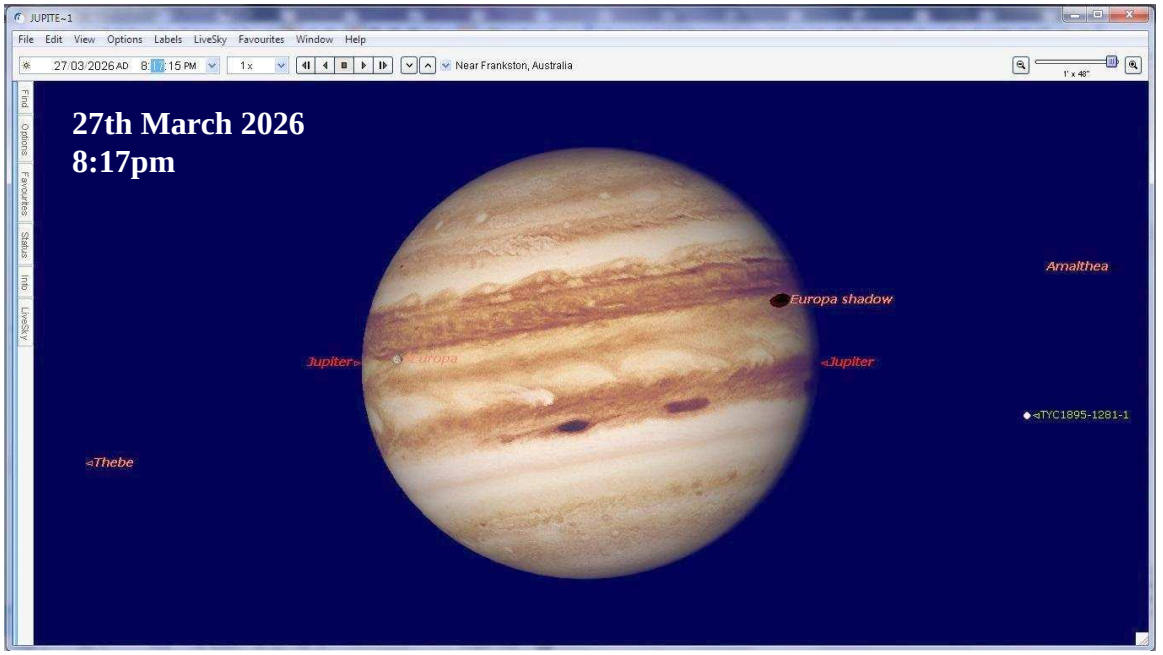
Usually only once a year we get the chance to see 2 shadow transits occurring at the same time. This will happen on the 5th of March around 11pm. Ganymede shadow transit starts at 9pm while Io starts at 10:37pm. Io orbits Jupiter much faster then Ganymede, meaning Io shadow will almost catch up the Ganymede's shadow. Both shadow transits end after midnight. *See top image*

Just after twilight around 8pm on the 18th of March, you will see Europa emerging from behind Jupiter. If seeing conditions allow, at the same time you should see Callisto shadow transit. *See centre image*

Just after twilight at 8:17pm on the 18th of March. You will see Europa's shadow transit starting its journey across the face of Jupiter. Interestingly the shadow will change its shape as it crosses. *See bottom image*







All image produced on Starry night software

ASTRO NEWS

By Nerida Langcake

Mornington Peninsula Astronomical Society

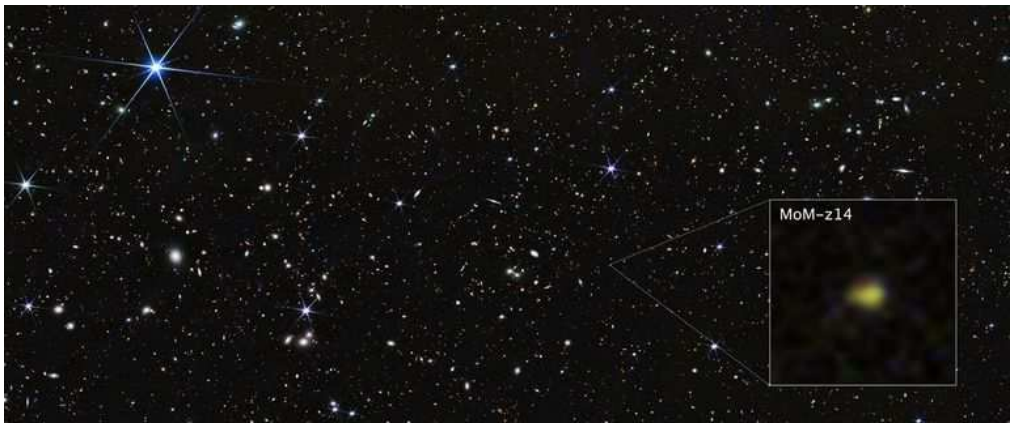
Galaxy MoM-z14 confirmed as most distant object ever seen

Astronomers have confirmed that the galaxy MoM-z14 is the most distant object yet measured. This galaxy's light has been traveling to us for 13.53 billion years, meaning we see MoM-z14 as it appeared just 280 million years after the Big Bang. And, thanks to the universe's expansion, the galaxy is currently 33.8 billion light-years away.

An anomaly from the universe's infancy, MoM-z14 isn't at all what astronomers expected to find when they peered into the deepest depths of space. It's one of a group of extremely ancient but oddly well-developed galaxies imaged by the James Webb Space Telescope (JWST). They appear to be up to 13.5 billion years old and are far more complex than cosmological theory says they should be. That's why there have been doubts over whether the galaxies are truly that old. Have gravitational distortions been giving us a false picture?
To answer the question, astronomers designed and ran the "Mirage or Miracle" (MoM) survey. A group of dozens of international researchers used JWST's spectroscopic instruments – tools that measure the chemical signatures hidden in light – to confirm that the light coming from MoM-z14 has, indeed, travelled for 13.53 billion years. That means MoM-z14 is about 97.8% as old as the universe.

Is Galaxy MoM-z14 normal or unique?

The earliest galaxies imaged by JWST are more developed than theories predicted. Plus, there are too many of them. The newly published research sought, firstly, to discover if objects like MoM-z14 are actually as distant as they appear. Secondly, researchers wanted to find out if their unexpected structures are peculiar or commonplace. Lead author Rohan Naidu of MIT's Kavli Institute for Astrophysics and Space Research said, "With JWST, we are able to see farther than humans ever have before, and it looks nothing like what we predicted, which is both challenging and exciting".



Spotted by NASA's James Webb Space Telescope, the galaxy MoM-z14 is currently the farthest galaxy ever detected. We see MoM-z14 as it appeared in the distant past, only 280 million years after the universe began in the Big Bang. Its light has traveled through space for more than 13 billion years. Image via NASA/ ESA/ CSA/ STScI/ Rohan Naidu (MIT)/ Joseph DePasquale (STScI).

Before JWST began observation, cosmological theory predicted there would be only a few developed galaxies so soon after the Big Bang. Instead, initial imagery revealed about 100 times more such objects than expected, including the galaxy MoM-z14. Data from JWST's spectrographic camera allowed researchers to confirm whether these objects were as old as they appear, said Pascal Oesch of the University of Geneva, co-principal investigator of the survey. "We can estimate the distance of galaxies from images, but it's really important to follow up and confirm with more detailed spectroscopy so that we know exactly what we are seeing, and when".

The objects really are from an era 280 million years after the beginning of everything. And that's a discovery that prompts more exploration, said Jacob Shen, a postdoctoral researcher at MIT and a member of the research team: There is a growing chasm between theory and observation related to the early universe, which presents compelling questions to be explored going forward.

Expect more discoveries from the more distant past

The data JWST has already returned are showing that the nature of early stars isn't what we thought either. Stars in MoMz-14 appear to have more nitrogen than expected.
Since there shouldn't have been enough time to produce the amount of nitrogen seen in early stars, researchers are already reworking their theories on how it got there. They speculate there might have been enough dense gas to form nitrogen-generating supergiant stars very early.

EXOPLANET EXTRAVAGANZA

Peter Lavelle

Mornington Peninsula Astronomical Society

Introduction

What's an exoplanet anyway?

An exoplanet is any planet outside the Solar System.

By a couple of decades ago we had discovered nine planets, before Pluto was reclassified to the newly defined ranks of the dwarf planets in 2006. That left eight, from Mercury to Neptune. All of these are within our own Solar System.

Science fiction stories had long depicted countless other worlds out there in the great beyond, but in practice they were so far away and impossible to detect that they remained purely speculation.

It didn't seem likely, but perhaps our own Solar System was a freak that had somehow uniquely produced a set of planets, moons, asteroids, and comets from the left-overs after the Sun formed from the gravitational collapse of the original cloud of gas and dust.

There had been a few hints and false-positive discoveries of exoplanets before the first confirmed detection finally happened in 1992, pretty much due to advancing technology and a great deal of patience on the part of the astronomers looking for them.

Since then thousands of exoplanets have been confirmed and thousands more are currently candidates.

Most are found orbiting a star or stellar remnant such as a white dwarf. Some even orbit around two or three stars which are relatively close to each other.

Others, even harder to detect, are adrift in space and these are known as rogue planets or free-floating planets.

What and when was the first confirmed exoplanet?

The first confirmed pair of exoplanets were PSR B1257+12 c and PSR B1257+12 d, discovered in 1992 orbiting a pulsar PSR B1257+12 (named Lich). These have been given the slightly more lyrical names Poltergeist and Phobetor.

A pulsar is a rapidly rotating neutron star, left over as an incredibly dense remnant from when a massive star went supernova. They blast out intense beams of electromagnetic radiation from their magnetic poles as they rotate (see more below).

It was an unlikely environment to find planets as these would have probably been destroyed by the gargantuan supernova explosion that left behind the pulsar, but there they were.

It's possible they are not original planets of the system, but formed from the cloud of debris (gas and dust) left after the supernova.

These exoplanets were originally named PSR B1257+12 B and PSR B1257+12 C, until the naming convention changed.

How are exoplanets named?

They are named by the International Astronomical Union.

They are usually named after the star they orbit, followed by a lower case letter starting with b, in order of discovery. For instance, Proxima Centauri b was the first exoplanet discovered orbiting the star Proxima Centauri.

It's a bit more complicated than that and we will discuss this in a future issue.

Some exoplanets, like Poltergeist, have been given more pronounceable additional names.

Rogue planets are named based on the survey they were found in.

For example, PSO J318.5−22 Is a rogue planet discovered by the Pan-STARRS survey.

How many exoplanets are there?

Confirmed as at December 2025: 6,061

Estimated in the Milky Way galaxy: 1×10^{12} (1 trillion).

Estimated in the visible universe: 1×10^{24} (1 septillion).

The visible universe extends out to about 46 billion light years. At that distance the universe is expanding away from us at the speed of light so we cannot see anything beyond that.

If the universe is actually infinite then the number of exoplanets would be infinite.

How are exoplanets detected?

Stars emit visible light and a broad spectrum of other electromagnetic radiation, created by thermonuclear fusion in the star's core.

Planets merely reflect the small fraction of the light that hits them from the star they orbit.

Since a star is millions of times brighter than its exoplanets, and they are relatively close together and a very long way away from us, we cannot see exoplanets through ordinary telescopes.

It's something like looking from Earth for a firefly right next to a powerful searchlight pointed at us from the Moon. I don't think we should ever actually try that experiment as it wouldn't be all that healthy for the firefly.

Exoplanets can be detected by many methods which we will discuss in depth in future issues.

Is there life on any exoplanet?

We don't know yet: always a great answer in science.

Of the 6000+ confirmed so far, only a handful stand out as possible 'somewhat Earth-like' candidates.

Many factors affect a planet's habitability. These include:

- It needs an atmosphere.
- It may need to be rocky, although there's a chance for life floating in the clouds.
- For our type of carbon-and-water-based life it may need to be at the right average distance from its star to allow liquid water in its atmosphere, on its surface or below a shell of ice.

Given that many simple organic molecules found in living organisms on Earth have also been found in meteors, asteroids and comets in our own Solar System, and the sheer stupendous number of exoplanets, there is room for optimism.

What's a pulsar (the thing that exoplanet Poltergeist orbits)?

The name was derived from 'pulsating star'.

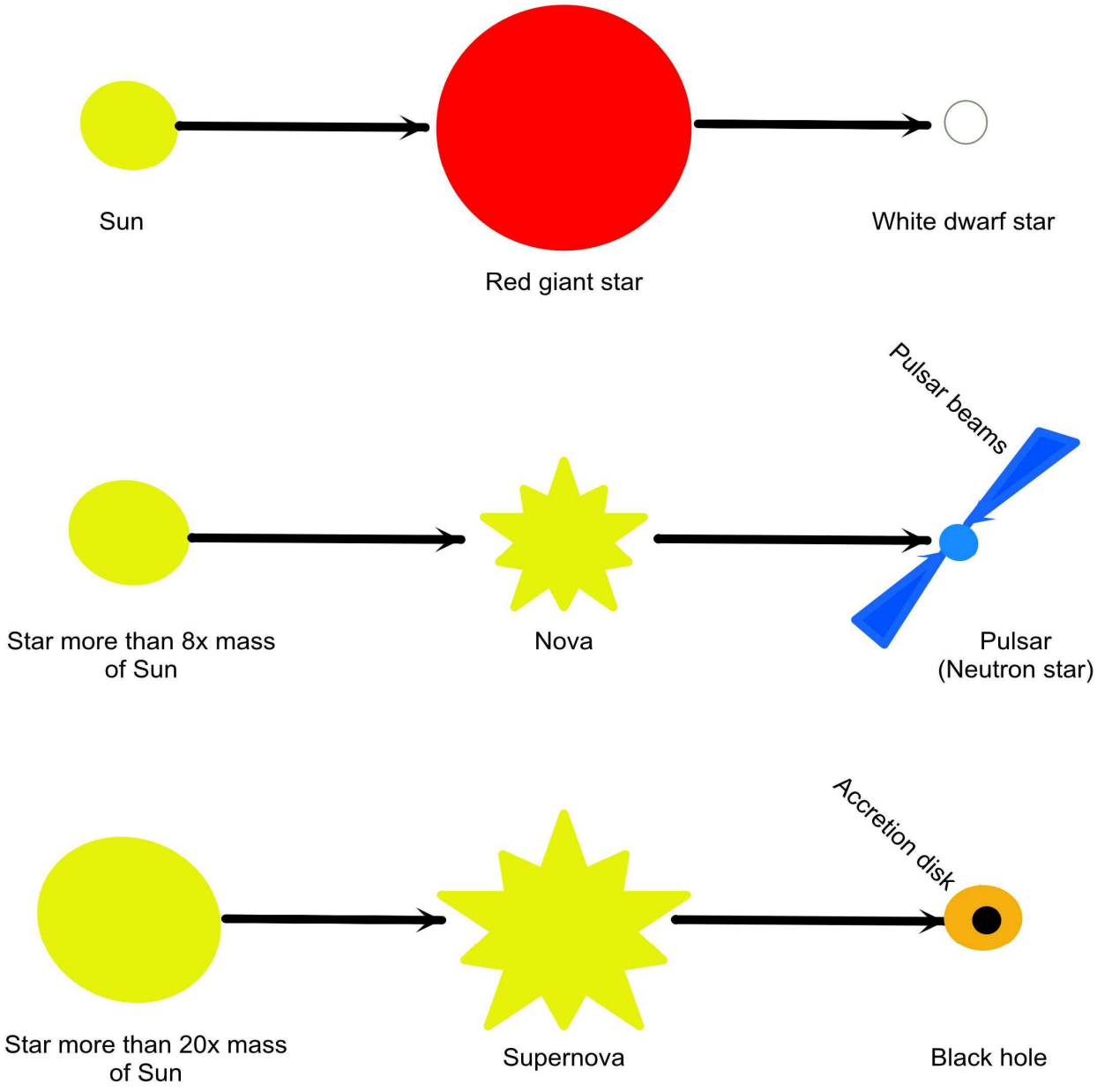
It's a neutron star about 20 km diameter packing in more than the mass of the Sun, which is about 1.4 million km in diameter.

All stars eventually run out of the hydrogen that is being converted to helium in their cores by nuclear fusion. When this happens the star starts fusing heavier elements from helium up. It swells up to a red giant before slowly shrinking again, or blasts its outer layers away in a nova or supernova explosion. What is left behind is a very small remnant packing in a very large mass. Exactly what happens depends on what the mass of the star was to start with.

The diagram below is a very simplified depiction. We will discuss this more in a later issue.
The final remnants are much smaller in scale than depicted here.

A white dwarf and neutron star are actually bluish-white when they first form because they are intensely hot.

A black hole would usually have an accretion disk of gas and dust orbiting it and slowly falling in. This produces a bright glow of radiation even though the black hole itself is completely black.



Exoplanet example: PSR B1257+12c (Poltergeist) **:**

Name	PSR B1257+12 c, Poltergeist, previously PSR B1257+12 B.
Confirmed discovery	1992. This was the joint first confirmed exoplanet.
Discovered by	Aleksander Wolszczan, Dale Frail.
Detection method	Pulsar timing. As the planet orbits the pulsar it very slightly makes the pulsar's position relative to Earth wobble, which can be detected as a tiny regular fluctuation in the timing interval of the radio emissions from the pulsar beams that reach Earth.
Distance from Earth	2,300 light years.
Star type	Pulsar: Very fast-rotating neutron star, emitting beams at radio wavelengths from its magnetic poles which sweep across Earth's direction.
Average distance from star	0.36 AU (Earth from Sun = 1 AU).
Estimated age	1 to 3 billion years (Earth = 4.54 billion years).
Orbital period around star	66 days (Earth = 1 year).
Length of day	Unknown.
Type	Rocky, Super-Earth.
Estimated radius	1.9 (Earth = 1).
Estimated mass	4.3 (Earth = 1).
Estimated atmosphere	Possibly thick, but unknown.
Estimated surface temperature	−100 °C.
Habitability	Extremely unlikely due to radiation from the pulsar.
Notes	1. The orbits of PSR B1257+12 c and the smaller PSR B1257+12 d perturb each other slightly as the planets orbit close together. 2. There is a third, much smaller, exoplanet PSR B1257+12 b (Draugr) in the system. 3. The neutron star PSR B1257+12 has a mass about 1.4 times that of the Sun, packed into a radius of about 10km. It rotates 160 times per second.

Artist's depiction of exoplanets PSR B1257+12 c and d with pulsar PSR B1257+12:

References:

https://science.nasa.gov/exoplanets/
https://en.wikipedia.org/wiki/Exoplanet
https://www.iau.org/
https://www.spacedaily.com/Exo_Worlds.html

ASTROPHOTOGRAPHY

By Greg Walton

Mornington Peninsula Astronomical Society

Deep Sky Stacker software

What is stacking? Before the time of digital photography, professional astronomers used large format film cameras to take multiple photographs of the same star cluster, nebula or galaxy. As film has variations in its quality, this means no two pieces of film are the same, making every photograph slightly different. Professional astronomers found that with care, they could accurately stack the negatives on top of each other, making sure they align perfectly. Then by placing the whole stack of negatives in a photographic enlarger, and by producing the finished photograph from the entire stack, this would produce a much improved photograph, as the good areas on the negative would overwhelm the bad areas. At the time only professional astronomers used this stacking process. David Malin was an expert in this technique, producing some of the best deep sky photographs in the world.

Now in the digital age, just about anyone can stack multiple images using free software. The process of stacking is done for a different reason, as the digital camera sensor faults would occur in the same areas every time, meaning very little improvement would be seen. But there are other variations that can affect a photograph, such as heat rising from the optics and surrounding structures and temperature changes through out the night. The direction of the wind and upper atmospheric disturbances are constantly changing. The colour and brightness levels of the sky are also constantly changing. The tracking of the telescope mount also has variations. All these variations mean each time a photograph is taken, it would have slight differences from all the others.

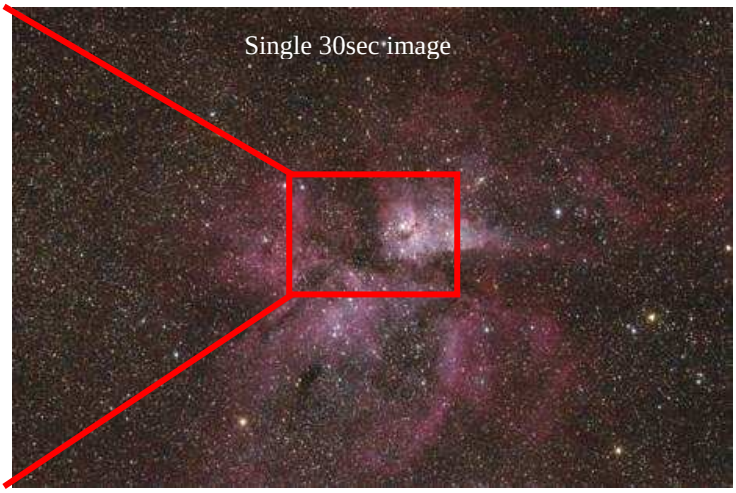
By stacking all your photographs, you should achieve a much better photograph.

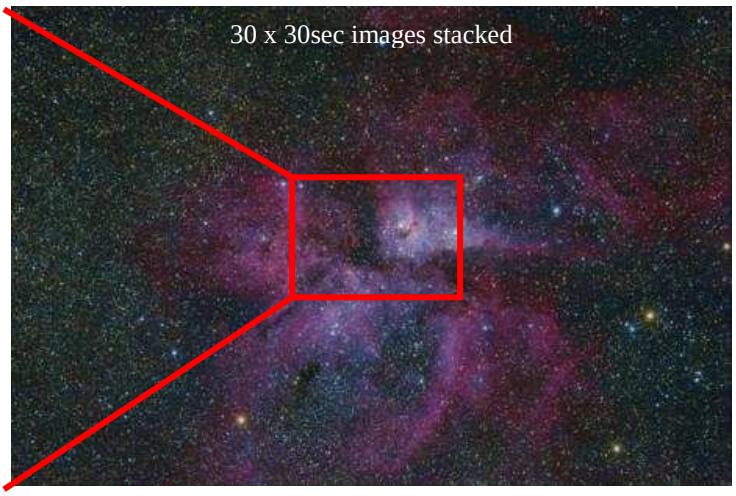
In astrophotography we usually take multiple photographs of the same object and merge them to make one excellent quality photograph. I found 30 photographs is sufficient, any more didn't seem to help much.

Below photographs on the right look very simular, the above one is a single photograph while the bottom one is 30 photographs stacked. When we zoom in we can see the bottom photograph is of a much better quality.

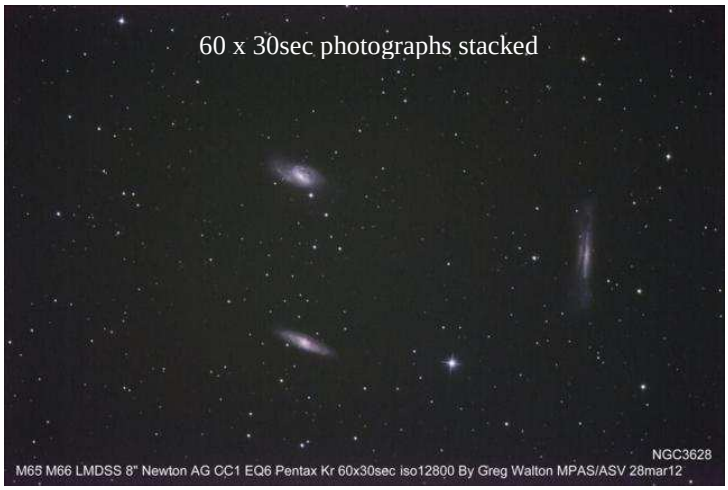
The top photograph is a single 30sec exposure at ISO12800, which looks grainy and the stars are larger.
The bottom photograph is 30 exposures at 30sec at ISO12800, which looks much smoother with smaller stars.

These photograph were taken with an 80mm refractor with field flattener and Pentax Kx DSLR on an EQ5H GoTo mount.





Below - M65 & M66 these photographs were taken with 8" Newtonian AG with a coma corrector and Pentax Kr on EQ6 GoTo mount. We can see a marked improvement in the right hand stacked photograph.



Helpful hints for Deep Sky Stacker.

Most important, is that you need good images in start with.

Focusing is very important. The stars need to be as small as possible. If the stars are too large, Deep Sky Stacker will have trouble recognizing the stars and the stacking process will fail. Remember to lock the focuser.

High ISO settings (25600) can make the stars too large and then Deep Sky Stacker will have trouble recognizing the stars and the stacking process can fail. Also high ISO settings (25600) can make too much noise and Deep Sky Stacker will have trouble recognizing the stars from noise. If Deep Sky Stacker has failed to stack the high ISO images, you will need to darken all the images by the same amount say 50% before stacking or re-image the object again at a lower ISO setting, say 6400.

Other reason stars can be too large or not round, which makes Deep Sky Stacker fail.

As telescopes cool down, the length gets shorter. Check the focus after the first hour or your whole night's work could be for nothing.

I like to image objects that are directly overhead, as these produce the smallest stars.

Dew can fall into the telescope more easily when pointing straight up. A dew heater or hair drier will be needed.

Cables getting snagged are common and telescope mounts sinking into soft ground can put the polar alignment out.

Usually the first and last images have out-of-shape stars, caused by backlash in gears or touching the camera to start the continuous mode. Also winds will shake the telescope making the stars drawing lines on the image, you will need to seek and delete these images. I have found the bigger the scope the more images you will need to delete. Use a smaller telescope on windy nights.

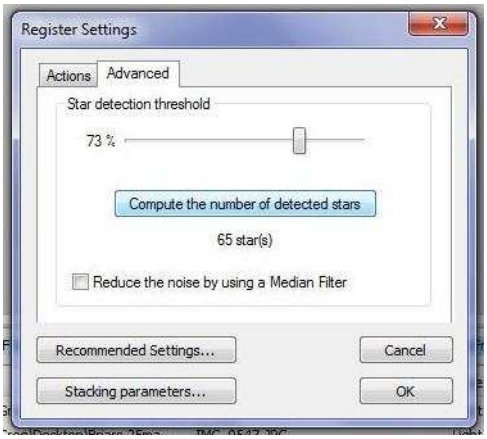
Most astrophotography is done on equatorial mounted telescopes. Images taken with Azimuth type mounted telescopes with tracking can be stacked, if batches of images are kept to a minimum, say 20 and the overall run time is no longer then 20 minutes. Most of the time Deep Sky Stacker will work; only sometimes I have found that Deep Sky Stacker will produce double stars in the corners of the image.

How many images do I need? - Star cluster 20 images. Nebulas 20 to 50 images. Galaxies 30 to 100 images.

To run Deep Sky Stacker, you need a computer with a large memory space and fast processor.

Even then sometime Deep Sky Stacker will fail because my computer doesn't have enough memory space.

Register settings - Advanced - Move the slide to 75% - Click on Compute number of stars. You should have between 25 to 150 stars. *See right*



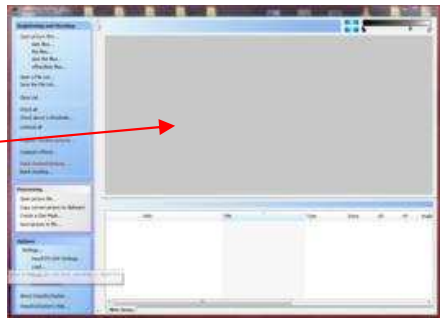
You can split your images into 2 or 3 groups of 20 images and then stack each group, then stack the finished images.

Staking images of different iso settings usually can be done. Start with a small number of images and increases until DSS fails.

The number of pixels a camera has, over the last few years has doubled or tripled.
All this extra data can over load Deep Sky Stacker. In this case I have found its best to resize the images by 50% to get Deep Sky Stacker to work.

Using Deep Sky Stacker to Stack Jpegs.

1 Make a folder with the name of the location and the date, e.g. MPAS 20 Jan 2026
2 Make folders with the names of each of the objects in the order that they were taken, 1 M10, 2 M11, 3 NGC2070, etc.
3 Do this when you are taking the photos, you may not remember the next day what you have imaged.
4 Copy the photos from your SD card into the separate folders starting with folder number 1
5 Now that all the photos have been copied into their folders,
you will need to open each folder and check each photo.
6 Make sure that the stars are small and round. Delete all the spoilt photos.



7 Click on Deep Sky Stacker (DSS)
8 Select all the photos from the first folder.
9 Drag and drop them into the large empty blue panel on DSS.
10 A box will appear asking: Add Files as Light frames. Click on OK
11 Check that all the boxes in front of the files are ticked. ☑
12 Click on Stack checked pictures… in red.
13 A box will appear saying Stacking steps. Click on Recommended Settings.
14 The settings that are already set are shown in green.
15 You can change them or click on OK. This will return you to the previous panel. See screen shot next page.
16 Then click on OK. And the stacking will commence.
17 This will take some time: 20 shots will take 20 minutes, 70 shots can take 2 hours.
18 The more stars the longer it will take. Time can be reduced by changing the setting.
19 First it will register the images and then it will stack the images.

20 Once your stacked image appears, you will need to adjust the settings in the lower panel.
There are 2 ways to go about this. Starting at step 21 or the more complicated step 24.

21 Click on RGB/K Levels.
22 Click on Linked settings box.
23 Slide all the colour pointers along to achieve the corrected brightness. Go to 30

24 Click on RGB/K Levels. See screen shots on following page 20.
25 First slide the colour pointers along so all colour curves are on top of each other in the centre.
26 Click on Luminance.
27 Slide all pointers all the way to the left then all the numbers should be zero.
28 The black line should start in the bottom left corner and go straight to the top right corner.
29 Click on Apply. Your finished image should appear to darken with more contrast.

30 Click on Save Picture to File…. in Black.
31 Save As panel will appear. Find your folder and give your finished picture a name. Click on Save.
32 You can change the settings and resave many different versions.
33 Note if you are not happy with the result you can change the recommended settings and stack again. Step 12.

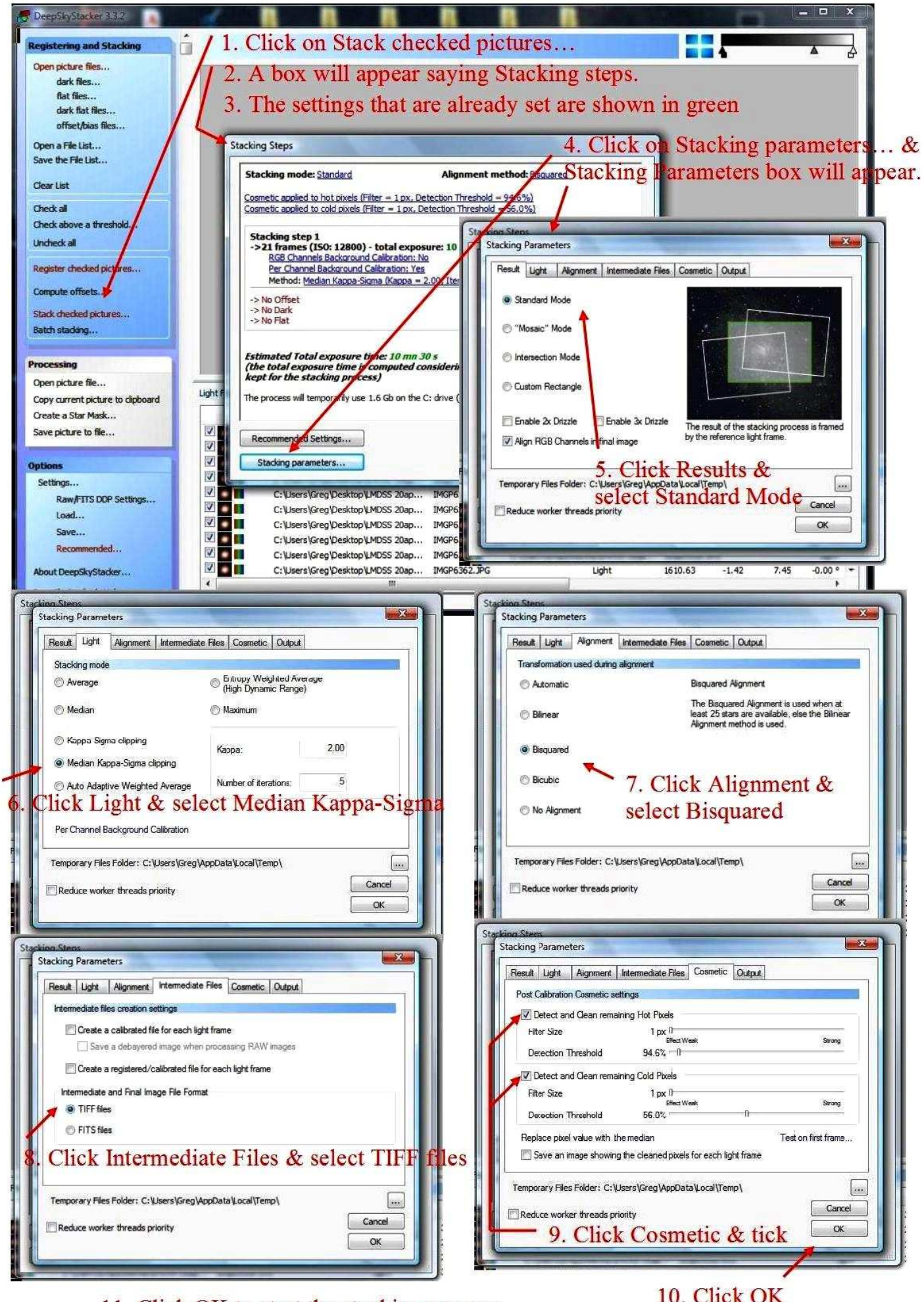
34 Find your finished picture and drag & drop on Windows Paint, Photoshop or other photo editing software.
35 Click on Save As. You can re-save your pictures as a JPEG by changing the Save As type.
36 Now you can open your picture with any software or device.

37 Open your stacked picture with Photoshop and adjust colour balance, brighten for nebulas.
38 You can defocus your picture to remove a grainy looking background without spoiling the stars.
39 Adjust gamma to change the amount of colour then adjust contrast, to no more than 20.
40 Then adjust brightness.
41 Add some writing about the object, location, telescope, camera, your name and date, e.g.
M8 @ MPAS 8" Newton CC1 on EQ6 Pentax Kr 20x30sec ISO 12800 By Greg Walton 20 Jan 2026

42 It's easy to get carried away and over adjust the finished picture. Know when to stop!!!
43 Click on Finish then Click on Save, then show it to your friends.

44 There are many different photo editing software apps and even more ways to edit your pictures.
45 Best to find what works for you, good luck.

How to change the stacking settings.



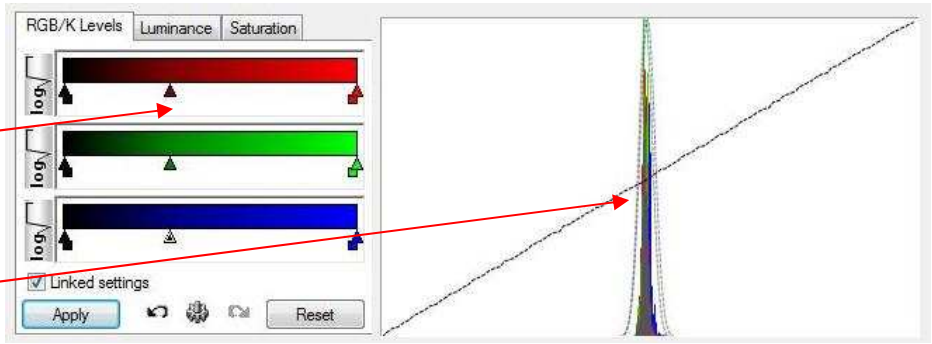
Editing your stacked images before saving them with DSS.

Now once you have successfully stacked all your images, you will notice the finished image looks washed out.

For nebulas and star clusters:

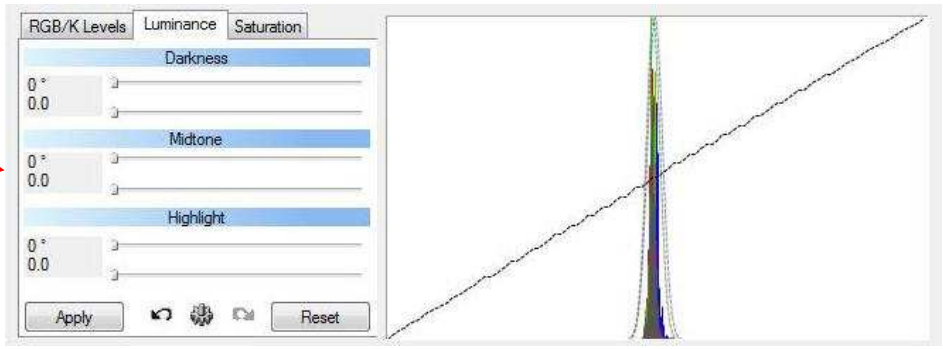
Move all RGB/K levels until all colours are in the centre of the right pane.

All colours now should be on top of each other.

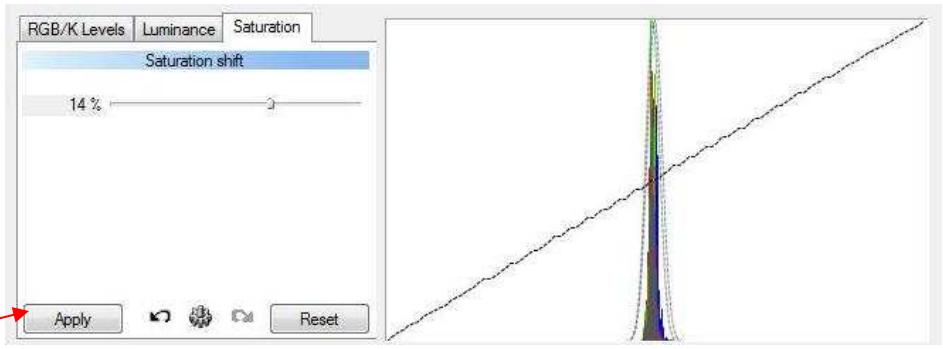


Move all the luminance levels all the way to the left or set at zero.

There should be a black line from the bottom left corner to the top right hand corner of the right pane.



You can also adjust the saturation level which increases or decreases the amount of colour in the image, this only works on images that have colours, like nebulas. I find a maximum of +14% usually works best.

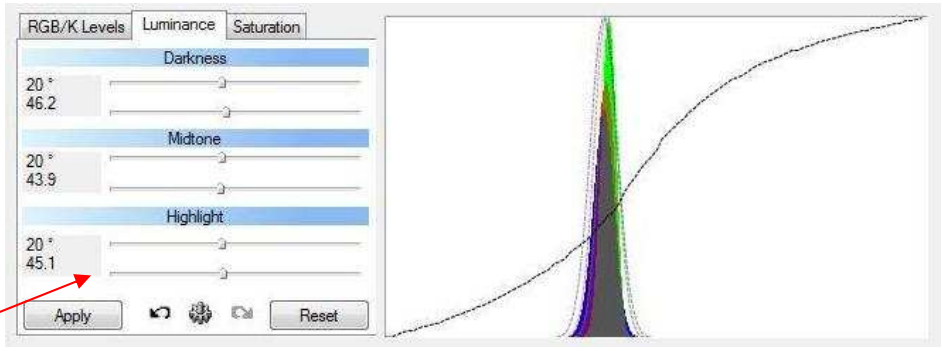


Then click Apply, this will take a moment.
Then save the adjusted image to the same folder as the original group of images.

For galaxies, I found it's best to set all the Luminance to 20deg 45 to retain the outer structure.

Then again save the adjusted image to the same folder as the original group of images.

I have found, if you only adjust this slide you get a fast result.



Before you close DSS you may wish to make more adjustments to the levels and save them in the same folder but with a different name. Best to make more adjustments and save them all, once you close DSS it is hard work to make more. You can always delete all the adjusted images that are not up to the standard you require.

Find your finished picture and drag & drop on: Windows Paint, Gimp, Photo shop or other photo editing software.
Click on Save As. You can re-save your pictures as a JPEG by changing the Save As type. Click Save.
Now you can open your picture with any software or device.

This article is an updated version 20th Feb 2026
Regards Greg Walton

MEMBERS GALLERY

Right -

20 hours of the Dolphin Head Nebula SH2-308. Taken over time about 20 hours in of 300and 600 second images.

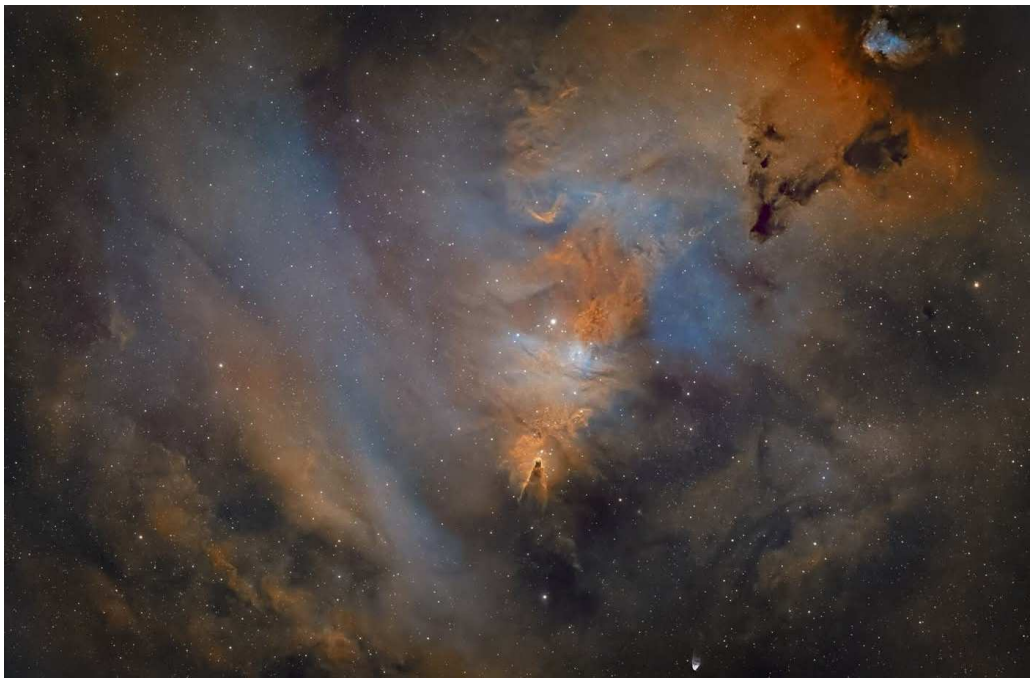
Equipment used: Askar FRA300 pro, Optolong L-Ultimate, ZWO 294mc Pro, ZWO asiair, Skywatcher Neq6 Pro

By Nik Axaris

Right -

My first attempt at mono imaging
First light
ZWO585mm Pro with the asiair
Juwei 17 mount
Scorpio 3nm SHO 36mm filters
ZWO 36mm filter wheel.
Askar fra300 Pro
Cone nebula only 3 hours in total each filter 300 seconds by 15
With more acquisition I Hope to improve on this.
Any tips with using the 585? Ie what would be perfect exposure as I feel the stars were a little overexposed at 5 minutes.
No darks or flats were used or required which I find astonishing so far.
Usual astropixel processor stacking etc and pixinsight/photoshop processing

By Nik Axaris



Right -

Cone nebula, wider field
Scope Askar FRA300
Juwei17 harmonic mount
Camera was the zwo294mc pro ASIAIR.
1.8hours of 600sec subs in total using the Optolong L-Ultimate and 2 hours of 300sec subs using the Askar D2 SO filter. SHO.
All channels were separated in Astropixel processor. Then The rest in pixinsight and Photoshop.
Camera was the zwo294mc pro ASIAIR.

By Nik Axaris

Right -

RCW 58 is a faint emission nebula in the constellation Carina, formed from material shed by the massive Wolf–Rayet star WR 40 at its centre. Powerful stellar winds have pushed this gas into a thin, filamentary shell that glows mainly in hydrogen and oxygen.

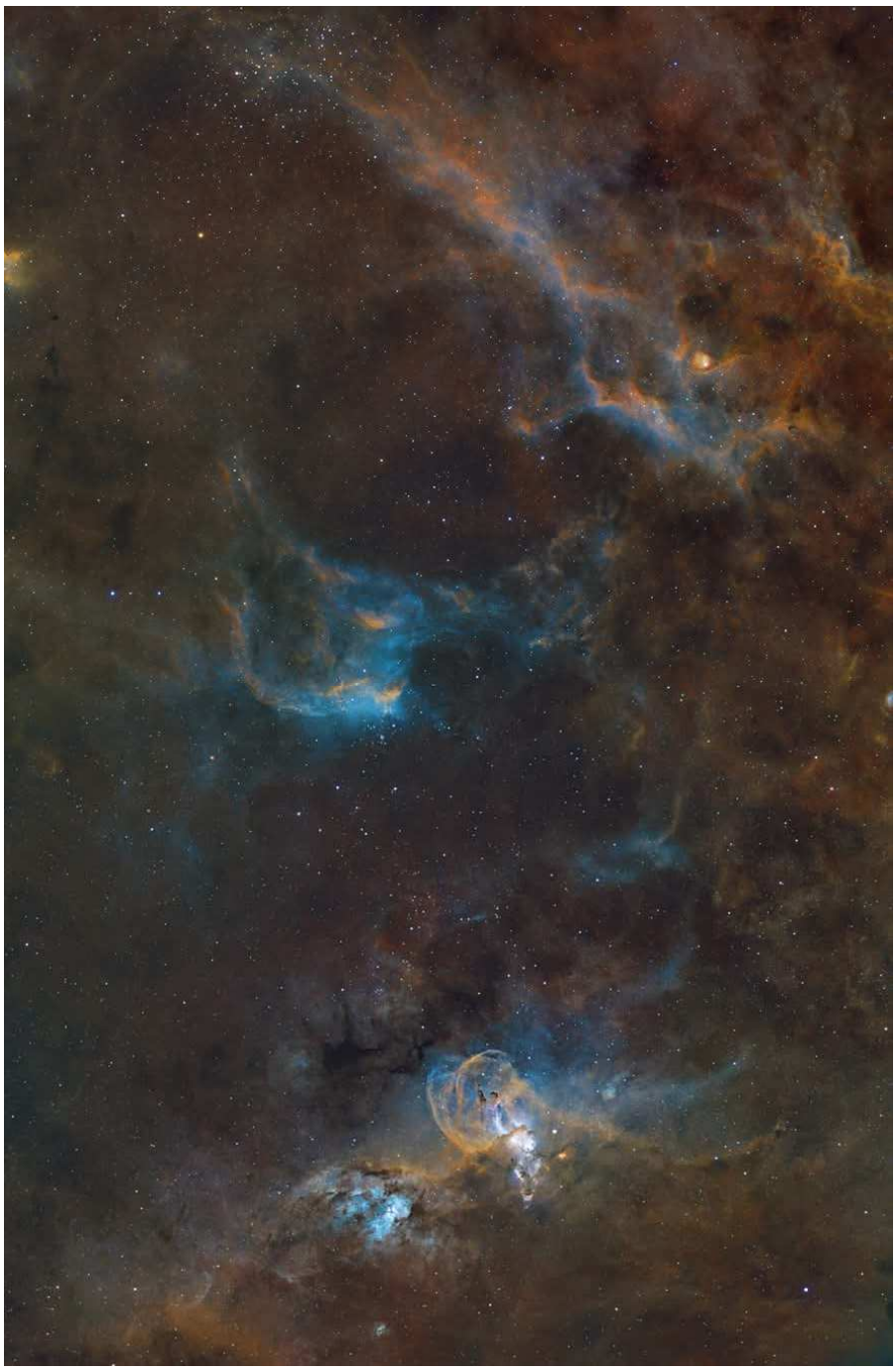
This is an ongoing project as I try and eke out as much of the weak oxygen signal.
Scope: Ts-optics 130APO Photoline
Camera ZWO 585mm pro
Filters Scorpio H and O 3nm 36mm
Scorpio rgb for the stars
ASIAIR
Mounts Skywatcher NEQ6
Juwei 17

Taken over 2 nights and counting:
4.5 hours in Oxygen (300secs each)
4 hours Hydrogen (300secs each)
25 mins rgb (30 secs each)
Total 8.5 hours

By Nik Axaris

Right -

Statue of Liberty area and surrounds near the Carina Nebula incorporating the Southern Tadpoles and NGC 3532 star cluster. Taken with my Askar FRA300



ZWO 294mc Pro

Optolong L-Quad Enhance for the RGB stars, Optolong L-Ultimate and Askar D2 S2O3 filter for the narrowband.

Juwei17 mount now that I've worked out the best settings it's a real workhorse getting regularly 0.4-0.5 Guiding

35 x60 secs with the quad

2.25 hours of 300 second subs with the L-Ultimate

2 hours of 300 seconds in SO2 with the Askar D2

So a total of 4.7 hours

I plan on more tonight before the big heat tomorrow.

Stacked in Astropixel processor, Processed in pixinsight and photoshop. Not sure about the orientation but I think this really shows well.

By Nik Axaris

Below - Pencil Nebula and surrounds including OED1
The NilAdh Bubble (bottom left area)
This area is rich in Ha and Oiii and is a small part of the Vela supernova region in the Southern constellation of Vela
Total integration time of 13.5 hours of 300 and 600 second subs
Over 3 nights using the:
ASIAIR ZWO 294mc Pro camera
Optolong L-Ultimate filter
Juwei 17 mount
Askar Fra300 Pro scope
Stacked and extracted in Astropixel Processor
Processed in Pixinsight and Photoshop

By Nik Axaris

Below - The Pleiades (7 sisters) taken from the Briars with my Seestar S50.
This is a mosaic of 318 photos showing the main stars, surrounded by the blue nebula that made them.

One I've wanted for a while, IC434 Horse head nebula with the flame nebula taken with my Seestar S50 from the Briars.

M42 Orion Nebula taken with my Seestar S50, *By Mark Stephens*

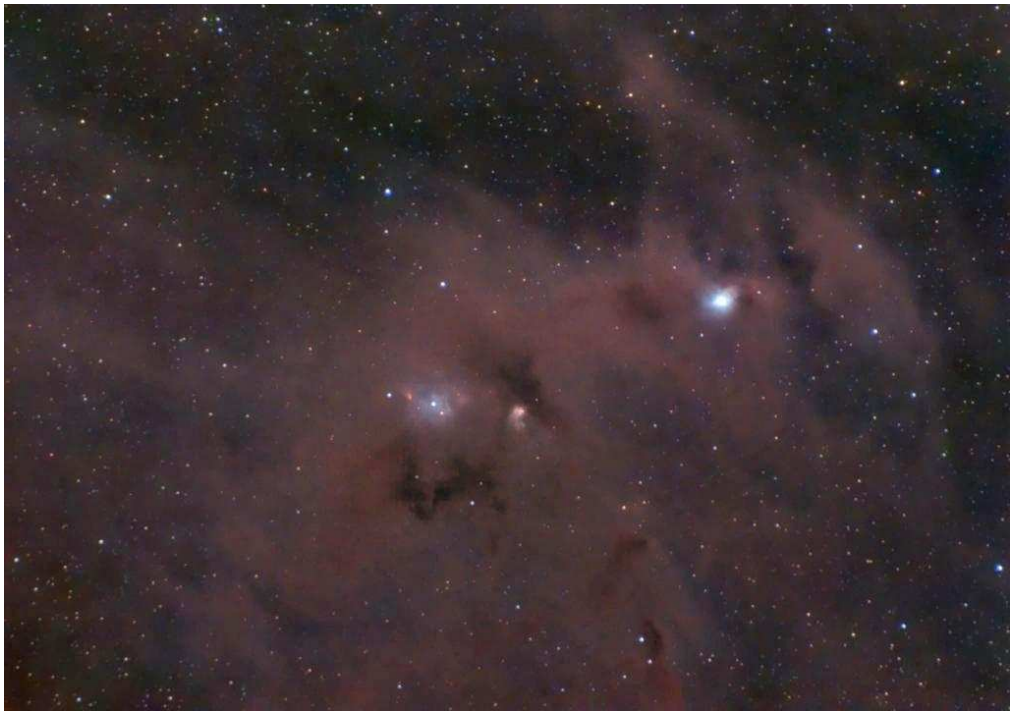
Right -

Chamaeleon molecular cloud.
Located near the Southern celestial pole (Dec -77 Degrees), it's a nearby star-forming region around 500 LY from us.

I imaged this on Sunday night from Walhalla with a stock Canon 75-300mm lens set at 300mm. Antila Tri band filter to dull the moonlight, and ASI 294 MC Pro on my AZGTi Mount.

160 x 2 min exposures, stacked with Darks, Flats, and Dark Flats in DSS, and processed in Siril.

By Chris Kostokanellis



Right -

IC 2177 – The Seagull Nebula.

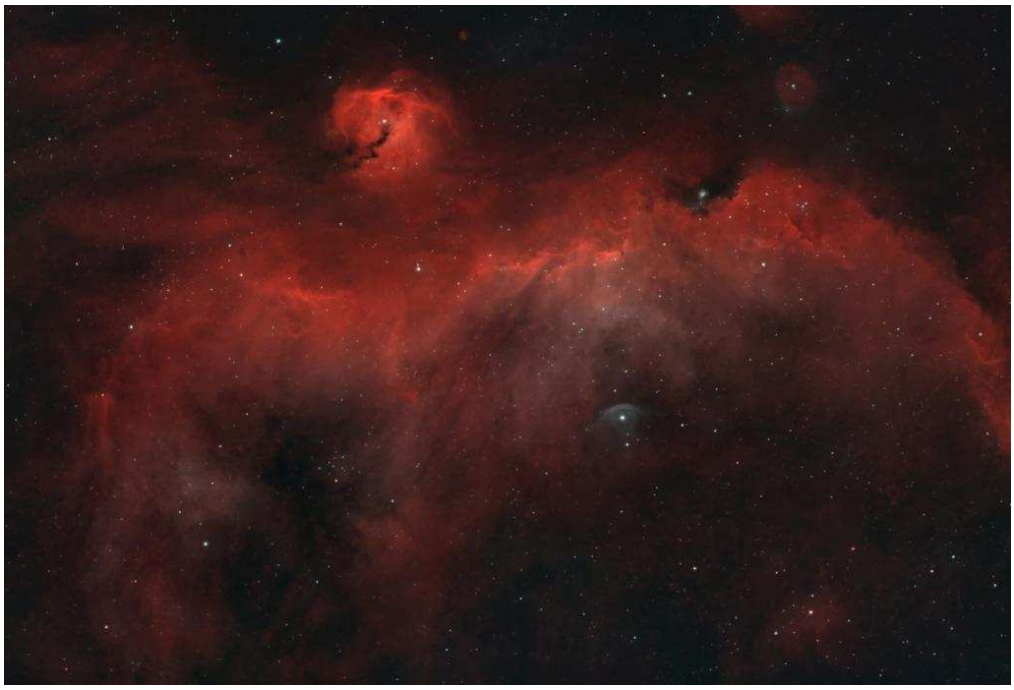
First time on this target for me; I got around 60 x 5 min stackable frames (5 h rs) on the 16th December, and got around to processing it last night while recovering from the Christmas Feast.

Captured with my 80mm refractor, Optolong L-Extreme filter, and ASI 294 MC Pro.

Processed in Siril using the VeraLux Hypermetric Stretch.

Clear Skies.

By Chris Kostokanellis

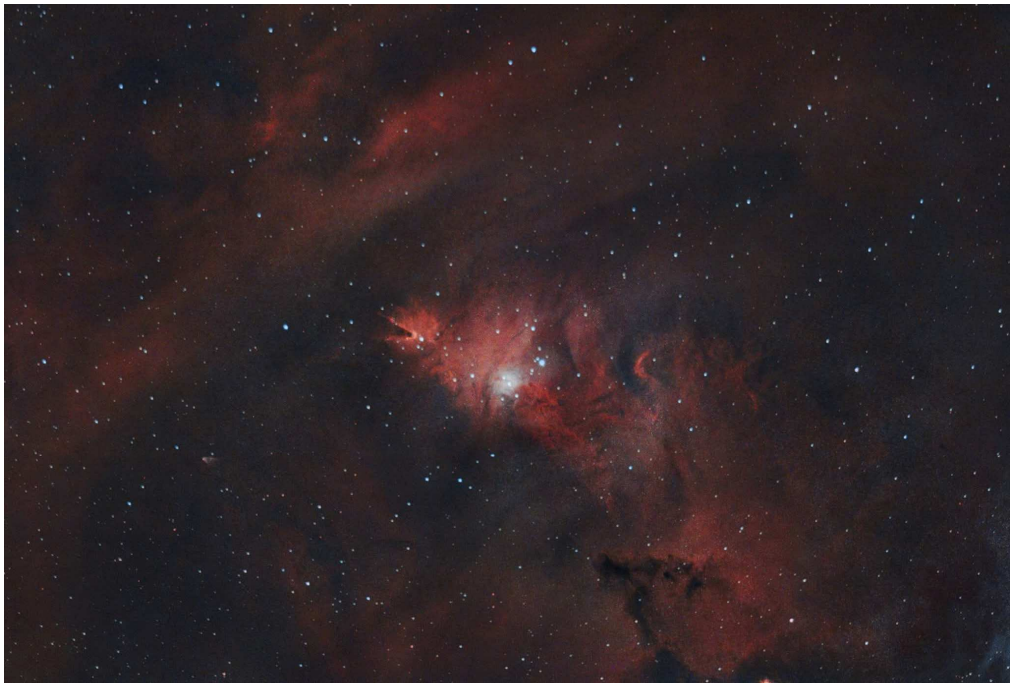


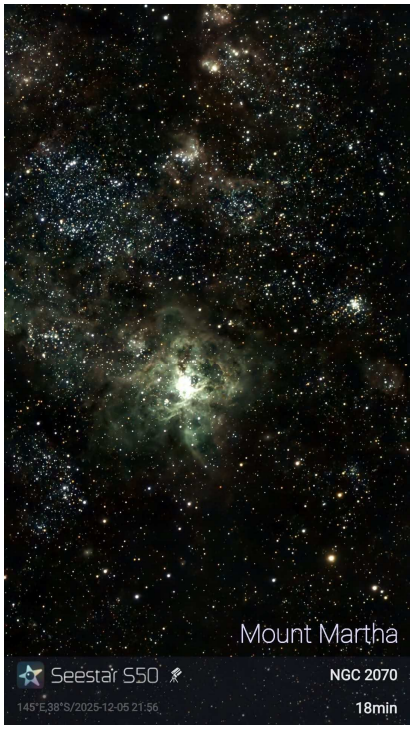
Right -

NGC 2264, The Christmas Tree Cluster.
I imaged this with a 300mm lens I purchased 2nd hand, and my ASI294 MC Pro, using the Optolong L-Extreme dual band filter.
This is 128 minutes of exposure time on Friday night.
Stacked in DSS and Processed in Siril.
I shot this at f4, but the stars are misshaped, although not too bad for a sub $300 lens. Next time I'll stop it, shoot at f5.6 (1 stop) which will improve them.

The small comet shaped object in the bottom left quadrant is NGC2261, Hubble Variable Nebula.

Clear skies. Chris Kostokanellis





Right -

The nights are getting warmer now in Melbourne and better for some night sky viewing. Attached is an image taken last night with my Seestar S50 of NGC2070 the Tarantula Nebula, it's just 18 minutes of 20 second exposures and taken at Mount Martha on the Mornington Peninsula. The Tarantula Nebula is a massive star-forming region located in the Large Magellanic Cloud 160 thousand light years from Earth and it's 931 light years across.

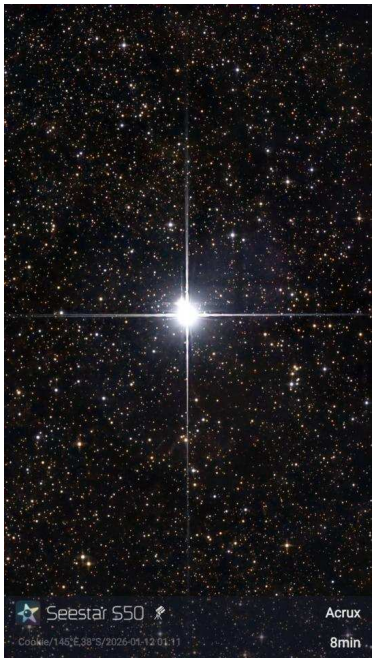
By Dennis Cooke

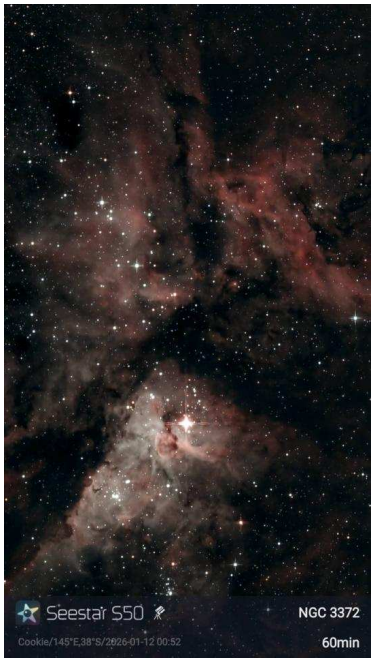
Below -

On a beautiful clear night in Melbourne Australia like last night one can't help but look up at the starry sky in wonder. Even a small telescope brings innumerable objects into view, and it never ceases to amaze me, here are some images from last night in my backyard in Patterson Lakes.

Imaged with SeeStar S50

By Dennis Cooke





Right -

Last night I set up on plan for a longer session, I thought I'd set up framing mosaic properly but it didn't work....doh! I de-noised and saved after about 40 minutes and then again when it was finished at 140 minutes, the settings are the same but the difference between the two is quite striking. What do you think?

By Dennis Cooke

Right -

Spiral Galaxy NGC1672 taken remotely from Starview Farm.

4 Hours each LRGB frames.

Also about a dozen smaller galaxies in frame.

This is about ½ the apparent size of galaxy M83, so trying the longer F/9 focal length out of the VC200L.

By Dave Rolfe

Below -

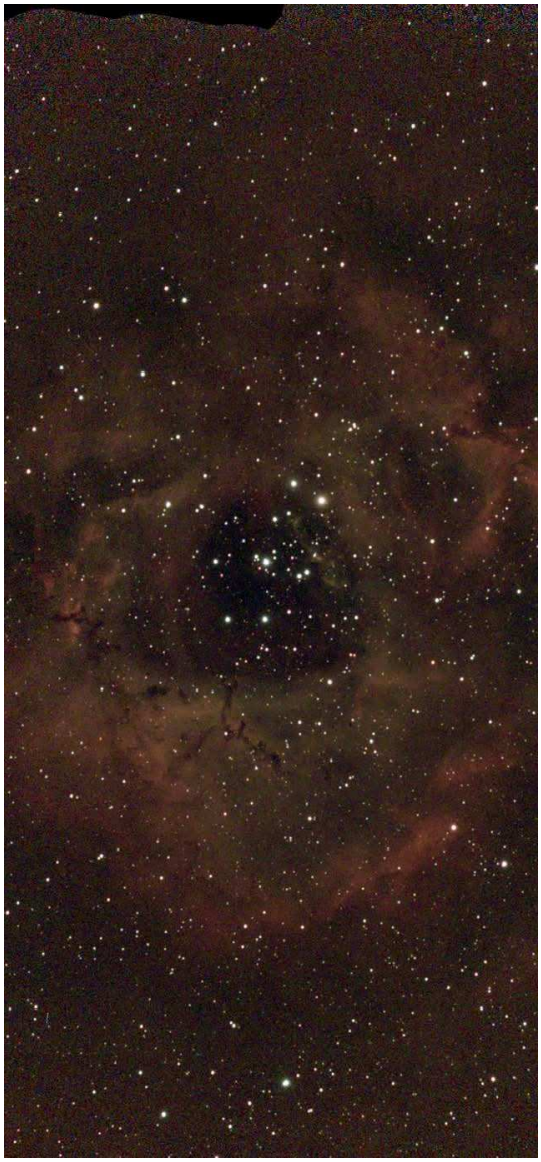
Thor's Helmet Nebula (NGC2359). 2nd Automated Image from the Starview Farm project.
14 hours of LRGB data from 5 different sessions.

By Dave Rolfe

Right -

Rosette Nebula taken from the Briars with my Seestar, on the night of the February members night BBQ.

By Mark Stephens



Below - cover image

Flame and horse head nebulas

Imaged with Seestar S50 from the Briars

By Sylvie Grandit

Left -

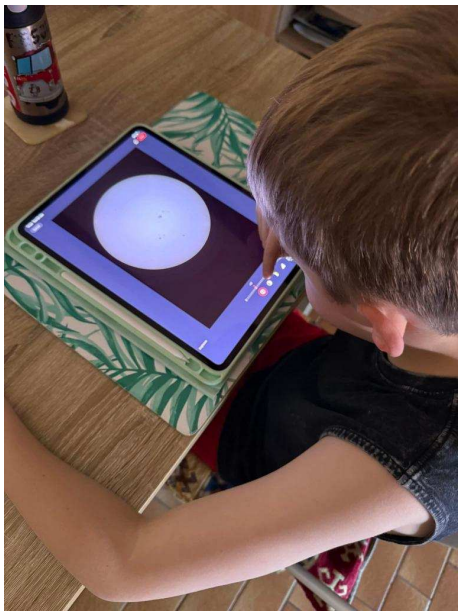
The planet Jupiter from Friday night 6th Feb. Jupiter is now rising in the east after sunset in the constellation of Gemini. It's just past opposition from the Sun, so now is the best time to go outside and take a look!

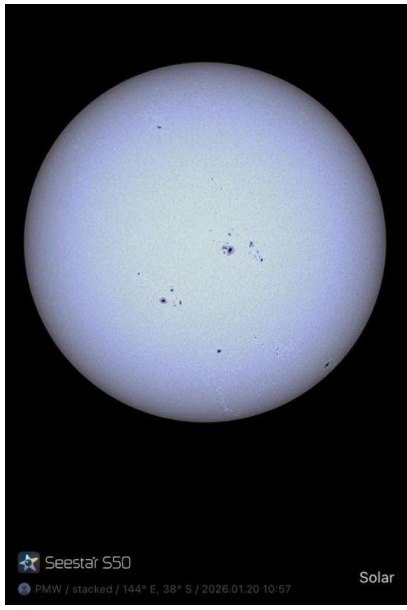
By Dominic Lucarelli

Right -

My son, William Jennings, wanted me to share this with you all. He’s very proud of himself with this one. I helped him set up, level and compass calibrate the Seestar s50 and he did the rest. This is a 2 min stacked video of the sun with a Baader filter. Stacking and editing all in the Seestar app until he was happy with the results.

By Michelle Sykes





MEMBERS AURORA IMAGES

We had about 10 members at the Briars on the 20th January. We opened the observatory and set up the telescopes. Looked at Jupiter. Then the aurora took off, with bright pillars reaching up high into the night sky. Most of us already had cameras running. We set up a row of chairs and sat back and enjoyed the show. On the next page you will see 2 images taken from the Briars site with my 10mm fish eye lens.

It was good to see so many members out there getting great images of The Aurora. I have tried to include most of the members' images here.

Regards Greg Walton

Right -

I finally got a look at last night's all sky shots via the larger computer screen. I have posted one here that is a good example of the extent of the sky covered by auroral glow, from 10:56pm AEDT. 1600 ISO 15 seconds.

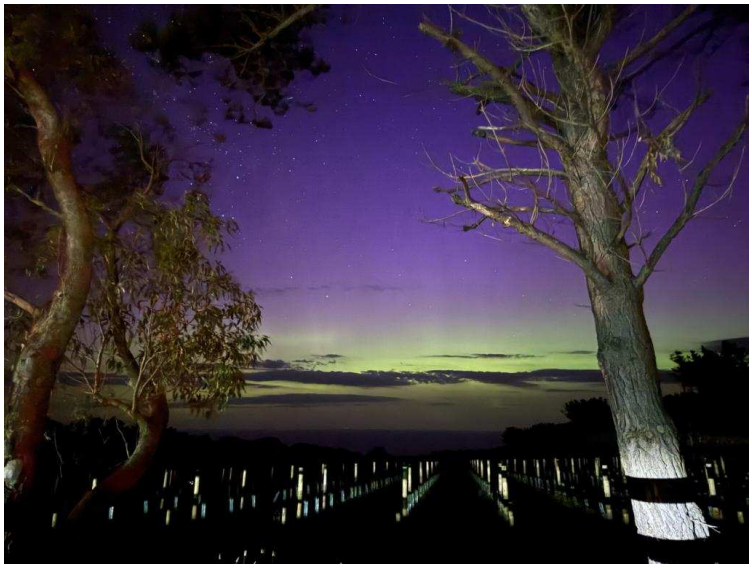
Hubcap all sky image.
South is at the bottom of the image.

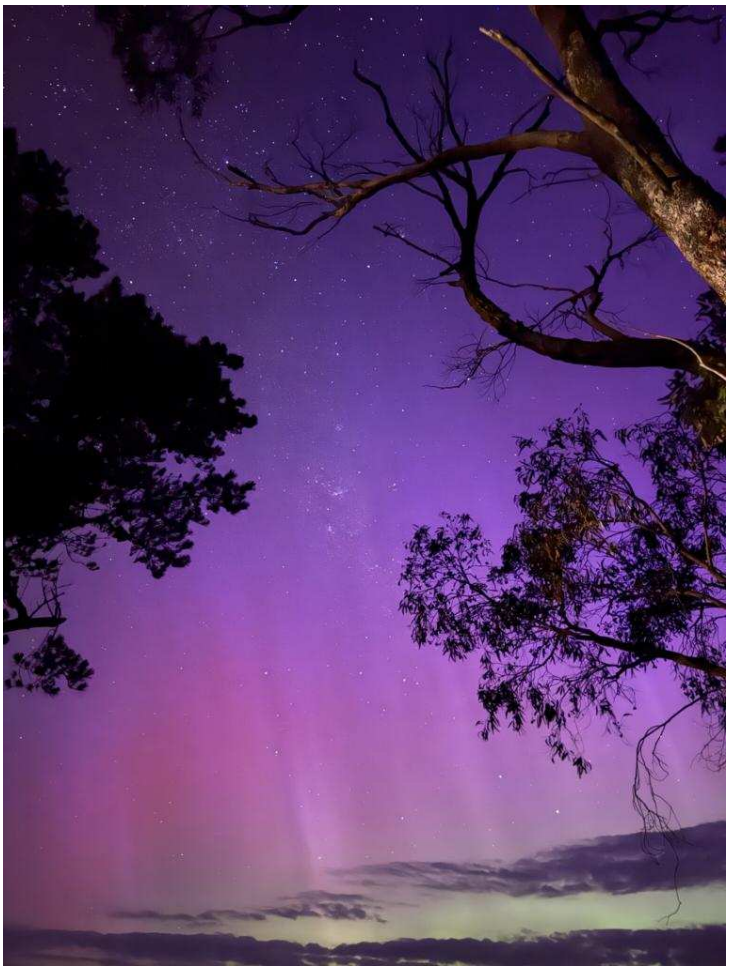
By Phil Holt

Below & right -

I was near Flinders Blowhole last night. ;)

By Amy Tany





On this page - 2 aurora images taken in front of the MPAS observatory. Looking south with Ben's drone above the upper slab.
Pentax K-x DSLR with 10mm Sigma lens, which almost captures 180 degrees field of view.
Camera setting - ISO 3200 at 15 seconds exposure continuous shot mode, white balance set to cloud. *Greg Walton*

Right -

I haven't downloaded the DSLR ones yet, but this is from the iPhone (back beaches on the peninsula)

Apparently someone fell off a cliff at Cape Schanck or something and police and fire closed off the road, leading to absolute chaos according to a colleague.

By Andrew Nilsson

Below -

Aurora australis hand held and straight off my phone unedited with naked eye beams. Samsung Note20 Ultra

By Nerida Langcake

Below - I was at Bridgewater Bay, ocean side of Blairgowrie. *By Kim Hodgetts*

Above - Aurora at MPAS, was an amazing sight with beams of light easily visible to the naked eye. This is using my Canon 700D.
Below - This one is from late in the evening, 10:58 PM when it had mostly died down, but still had some interesting colours.
By Chris Kostokanellis

Right -

Photos from Stony Point and my backyard iPhone night mode 10second exposure

By Anne Collson

Right -

Some of the better quality photos from last night, considering how windy it was I'm pretty impressed the drone was able to do this. Also a fun video from the other week of some of our wildlife visitors

By Ben Claringbold

Right -

Ok, lots of pictures from last night. Here is what I thought was my best from the Pentax K1.

By David Rolfe

Right & Below -

I completely fluked seeing the aurora. Was just stargazing and then noticed it.

These 3 photos from by back and front yards in Mount Martha.
Taken with Samsung smart phone. I was thrilled!

By Jacqui Duffee

Below 4 images -

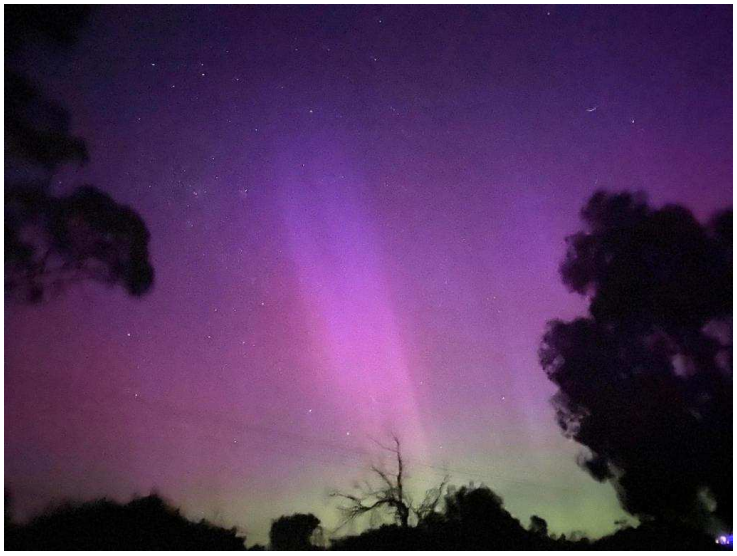
My first selfie with an aurora at Gunnamatta surf beach.

By Steve Gercovich

Right -

Aurora imaged from Mornington

By Sylvie Grandit



Left -

Aurora taken from the Briars

By Mark Stephens

Members' aurora time-lapse

Aurora time-lapse, 20th January, https://youtu.be/QHVxSmw3N7E *by Souren Harutyunan*

Aurora time-lapse, from the Briars 20th January, https://youtu.be/56L0wZ7XdsA *by Greg Walton*

My time-lapse from the Briars last night, https://vimeo.com/1156606891 *by Jamie Pole*

Time-lapse of the aurora, https://vimeo.com/1156804899 *by Chris Kostokanellis*

Peninsula Camera House - It is our 50th year anniversary and to celebrate we are throwing a photo and video expo.

Supported by our fantastic suppliers such as Canon, Nikon, OM Systems, Sony, Panasonic, DJI, Nisi, Leofoto, Summit, Tamron, TTArtisan, Atomos, Peak Design, Laowa, Madmod, Wanda, Lowepro, Firefly, Sigma, Manfrotto, Hypershell, Ricoch, Pentax, and more!

FREE ENTRY

Friday 20th March & Saturday 21st March 2026

10am-5pm

Door prizes, workshops, talks, special discounts – heaps of ways to celebrate and learn. Timetable for workshops/talks will be released closer to event, be sure to follow our page for updates.

VIP passes are available for $25 – this gives you early access at 9am on your selected day and first opportunity to book workshops and talks.

Find on Facebook - https://www.facebook.com/share/1DVa7ETtRs/

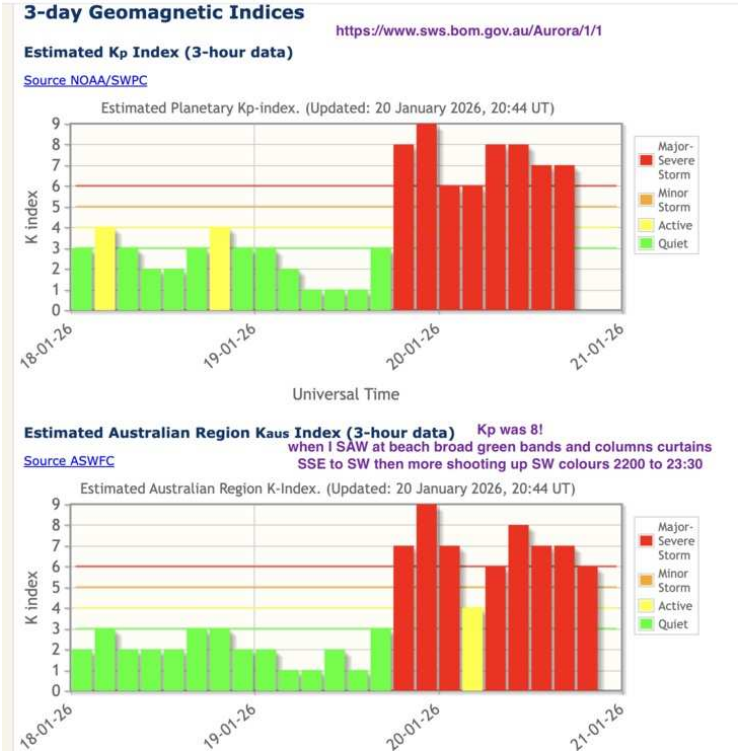
I have found Peninsula Camera House always very helpful. *Regards Greg Walton*

Reporting, I saw it from the beach near the end of Warrigal Rd, broad green with columns up to near overhead then curtains, SSE to SW. Then stronger and lasting columns with more colours SW. Paler than what general published images show.

Saw it at long tortuous last with own eyes, as preferred, from a dark spot with some low cliff shielding suburban and road lights. Had a jacket as a light shield like photographers used to use. Had sight glasses for clearest vision. Stayed away from people with lit up phones.

Used to drive to Flinders Blowhole Track at a mere whiff of news about Kp 4-5. Last night it was 8. E-I-G-H-T.
(Said to the air OMG OMG. Look Look columns curtains. I'm seeing it for real. It's happening. This is real. OMG. Eyes popped out for the whole hour.)

Sky never the same again,
by Sky Murphy



Hi Greg, Attached 2 files, plus info below, both as significant memento and useful information since some members asked. For your consideration to perhaps include in Scorpius?

Personally even the "AS FAR EQUATORWARD AS LOW ALTITUDES" stood out.

Hope you're doing great. Sky

SUBJ: ASWFC AURORA ALERT LOW LATITUDES
ISSUED AT 1123 UT ON 20 Jan 2026
FROM THE AUSTRALIAN SPACE WEATHER FORECASTING CENTRE

SEVERE GEOMAGNETIC STORM IN PROGRESS. AURORA MAY BE OBSERVED DURING LOCAL NIGHT TIME HOURS IN GOOD OBSERVING CONDITIONS AT REGIONS AS FAR EQUATORWARD AS LOW LATITUDES.

Follow the progress of this event on the ASWFC web site
On the Space Weather Status Panel,
https://www.sws.bom.gov.au/Space_Weather

Previous reports are archived under
http://listserver.ips.gov.au/pipermail/ips-aurora-alert/

More information about ASWFC Aurora Alerts can be found under
Our mailing list by following the links,
https://www.sws.bom.gov.au/Products_and_Services/4/1

This alert is not subject to forecaster validation. It is
Automatically issued from autoscaled data which may produce
A false alarm on rare occasions.

Australian Space Weather Forecasting Centre
Bureau of Meteorology
ASWFC@bom.gov.au
www.bom.gov.au | www.sws.bom.gov.au

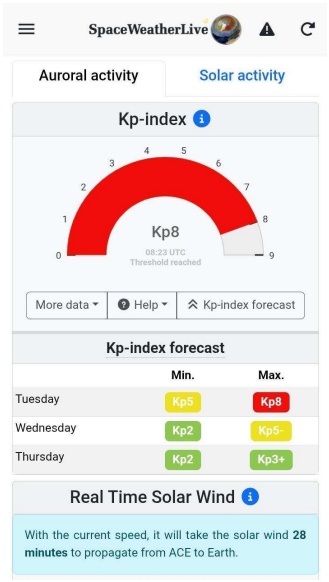
ips-aurora-alert mailing list
ips-aurora-alert@ips.gov.au
https://listserver.ips.gov.au/mailman/listinfo/ips-aurora-alert

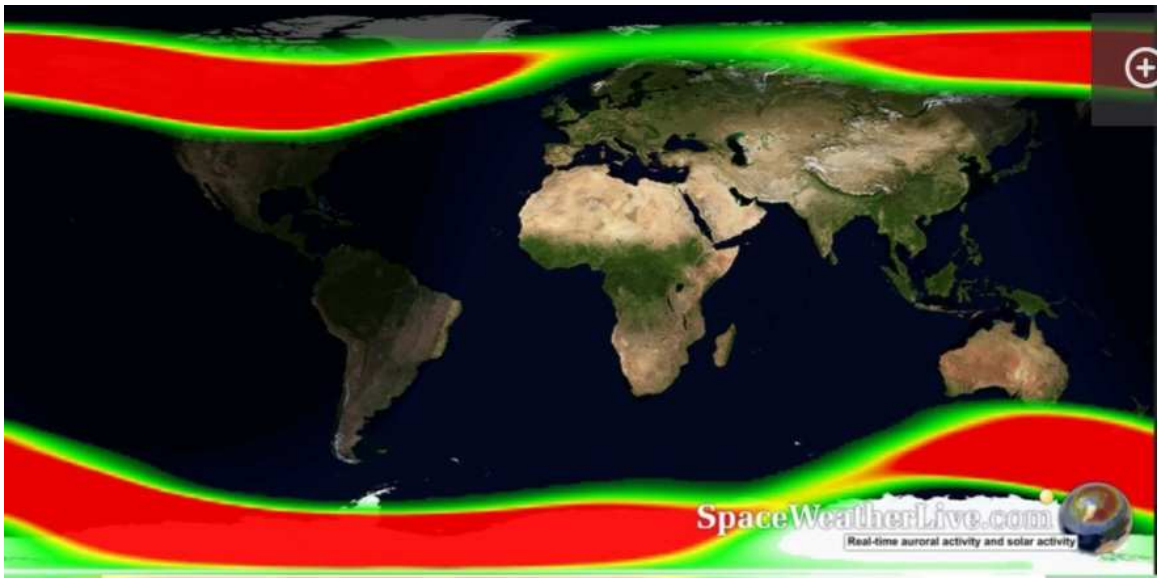
YOUR ASTRO QUESTIONS

How can I get email notifications of when an Aurora is going to happen? Is there a website that auto-generates emails or text when an Aurora will be visible in Victoria? How do you guys find out about these things? *Dominic Martello*

Aurora site Now sends alert for possible solar storms predicted in 3 days, then I normally just keep checking AU and USA's sites https://www.sws.bom.gov.au/Aurora and https://www.swpc.noaa.gov/products/planetary-k-index for latest updates on storm level, and people chasing Aurora will also post most recent locations and photos in Facebook groups. *Regards Amy Tang*

Hi Dominic, I like the Space Weather Live app. which also has a website, *Regards Greg Walton*





I'm interested in the colours of the aurora.

Most pictures posted here have a purple hue. My wife's phone and pocket camera showed purple. I had magenta. Greg, who uses a Pentax SLR like me, also had magenta. Where does the real colour lie? *Phil Holt*

Hi Phil, It depends somewhat on what colour balance is used (camera has chosen if on auto), I find Daylight is usually the most reasonable, and also how much processing is performed.

I have no idea what my phone has decided to choose or how to force it, but something to research… it's undoubtedly doing a lot of processing (stacking multiple exposures) and saturation tweaks.

The purple/magenta colours are from a combination of blue, red and green light from oxygen and nitrogen particles being excited so the exact mix will probably change from aurora to aurora and I guess viewing location.

I had a bit of a further read and play around with images from last night and May 2024. Seems I locked my camera on Daylight White Balance (4999K) since a while back. Last night's images look good at that or slightly lower in temperature.

May 2024 were shot on AWB and were at 3100K. Bumping that up to daylight makes the image grotesque, however that aurora was notable because the red was quite strong even to the naked eye.

Basically by adjusting the WB up in Kelvin you can accentuate the reds/purples and risk the greens going a bit yellow, or alternatively emphasise the green sacrificing the warmer colours by sending them blue-ish.

Online, people suggest anywhere between 3200K and 5000K depending on the moon and foreground, with more somewhere in the middle.

Artistic licence basically and shoot in RAW. If you want accurate to the human eye then maybe de-saturate everything, green a little less so. Haha. Not exactly what you see posted online.

Regards Andrew Nilsson

Hi Phil, I have all my astronomy cameras white balances set to cloud. I find this gives me the most natural and pleasing colours, no matter what ever I am imaging in the night sky. I have also noticed, while the images are still on the SD card in the Pentax. While previewing the images, I can change the white balance settings in the camera, which changes the colour of the images.

Regards Greg Walton

[Subedit: Re 'naked eye', please also explore what each person sees e.g. colour blindness. My 2 eyes see different images. Sky Murphy]

MO PHO CHALLENGE

Chris Kostokanellis

This month's Photo Challenge, the first for 2026, is imaging the Moon.

We have a Lunar Eclipse occurring on Tuesday 3rd March, starting as the moon rises at 7.48 PM, and going until 1.26 am, when the moon will clear the Penumbra.

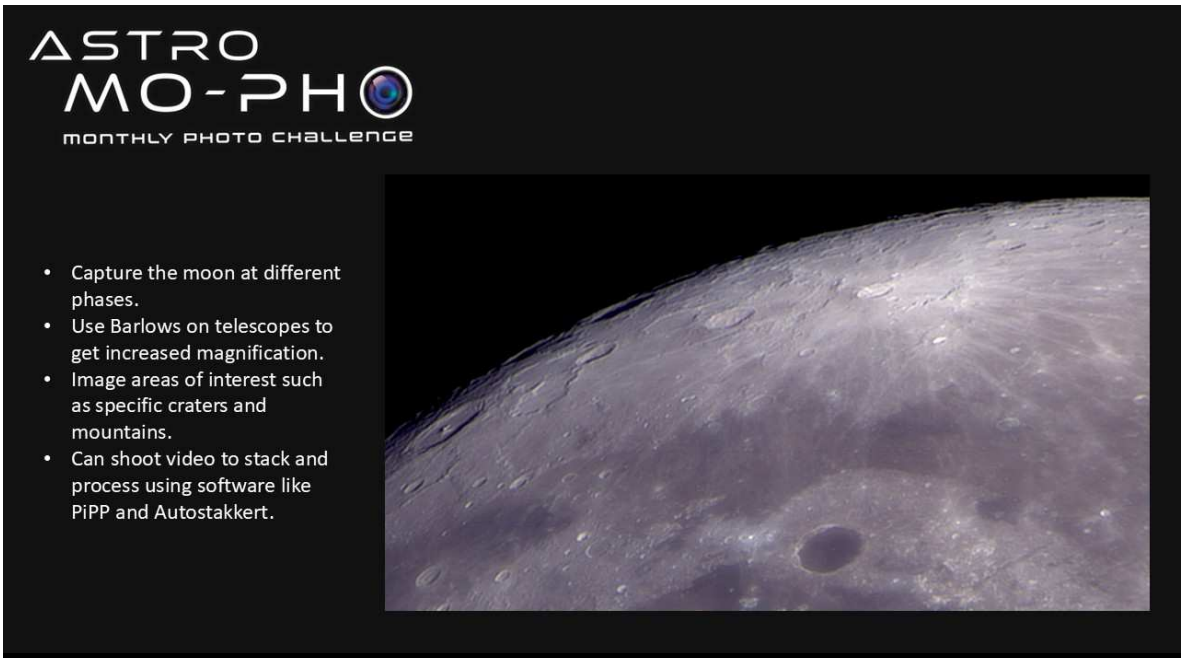
I will be at MPAS on the evening to image the eclipse, and all members wanting to do the same are welcome.

The Challenge is not only for the eclipse, but for the Moon at any time up to the next members meeting on Wed 18th March.

I'm hoping for a variety of photos at different focal lengths throughout the month, and highlighting specific features on the Moon, such as Apollo landing sites, craters, maria, and mountain ranges.

This year, there will be a clear winner for the Mo Pho challenge of the year. The winner will be by popular vote, and the winning image will be the cover shot for the 2027 MPAS Calendar. Obviously there will be a cut off around September, as we need to get the calendar designed and printed.

More details on this will follow. *Clear skies. Chris Kostokanellis.*



SOCIETY INFORMATION


Peter Skilton


Chris Kostokanellis


Nerida Langcake

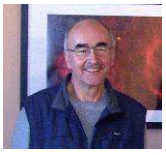

Jamie Pole


Trevor Hand


Guido Tack


Simon Hamm


Phil Peters


Manfred Berger


Greg Walton

OFFICE BEARERS OF THE MORNINGTON PENINSULA ASTRONOMICAL SOCIETY

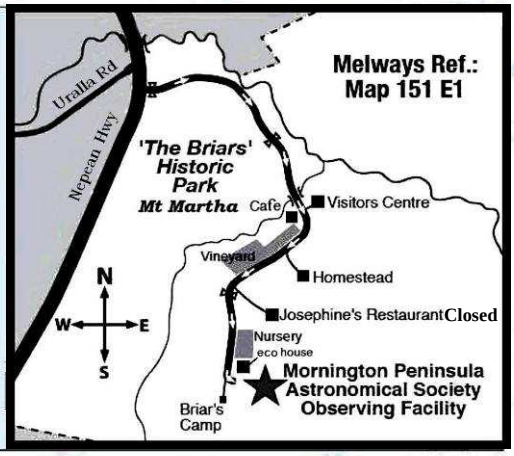
President: Peter Skilton
Vice President: Chris Kostokanellis
Committee: Trevor Hand, Guido Tack, Simon Hamm, Phil Peters and Manfred Berger
Secretary: Nerida Langcake
Treasurer: Jamie Pole
Web master: Guido Tack
Scorpius editor: Greg Walton
Site manager: Phil Peters

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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