Cover image - The Ant Eater Nebula in Corona Australis NGC6729 C68
By Chris Kostokanellis

SCORPIUS

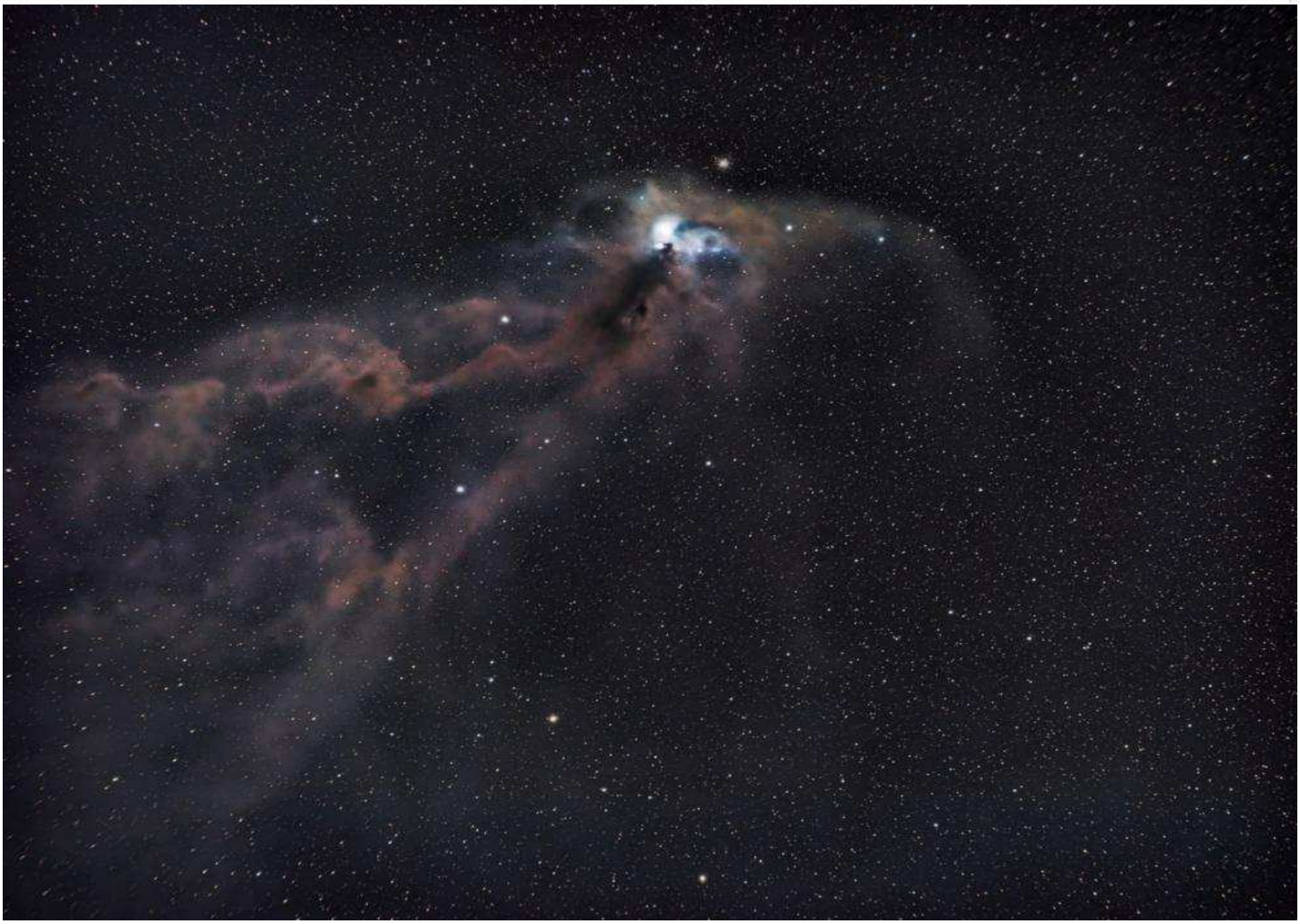
THE JOURNAL OF THE
MORNINGTON PENINSULA ASTRONOMICAL SOCIETY INC.

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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 September 3rd - The public night held at the Briars on September 4th, saw 69 in attendance on a cool, yet clear, evening. Viewing with telescopes was done up-front while Venus was still visible and ahead of predicted cloud, then the group moved indoors to hear Trevor Hand's talk about meteorites. Following the talk and questions, the clouds had closed in, but the merchandise counter was kept busy with bumper sales ahead of Father's Day, especially of meteorites.

Other members present and helping on the night included Steve Wilkins, Adrian Boschetti, Greg Walton, Sylvie Grandit, Simon Hamm, John Goodall, Peter Skilton, Atul Bhattarai, Chris Kostokanellis, Mark Stephens, Ben Claringbold, Greg & Isaac Markowski and Jamie Pole. *Regards Peter Skilton*

Special Meeting on Red Sprites September 6th, 3pm - We had a visiting international speaker, Peter McLeish, partly sponsored by the Canadian Embassy, who has been touring Australia and New Zealand. He gave us a talk about Red Sprites, and initially trained in the sciences, then changed tack to get his Masters in Arts in Canada.

For a long period, they were considered in the same category as UFOs by many, and with much scepticism of observer reports. Nowadays, they are known to be an atmospheric phenomenon associated with thunderstorms, but which took over 100 years until they were captured visually, including from the International Space Station, as they are difficult to film and photograph.

The 100-Year Hunt For Red Sprites. A Science-Art Collaboration. Geophysical Institute, University of Alaska. Free public talk and film screening exploring the discovery of Red Sprites — rare, spectacular flashes of light above thunderstorms — through science, art, and film. Presented by Peter McLeish on tour across Australia and New Zealand. Canadian Artist • filmmaker • researcher • lecturer.

Unfortunately, we were not permitted to record this talk, so you had to be in the audience to hear it at the time. *Regards, Peter Skilton*

School viewing night September 7th - September 7th saw 23 Year 5/6 pupils and teachers from Our Lady of Help Christian School at the Education Camp next door, and then came next door for a stargazing evening after dinner concluded. They were on their first day of camp and the physical nature of their day's activities was quite apparent on the students.

While the sky was clear of clouds, telescope viewing proceeded up-front, followed by the talk indoors being given by Katherine McCoy and Peter Skilton. While there were questions asked, including the predictable Black Holes ones, the number of questions was somewhat reduced. The evening had finished by 8:30pm, with the well-fed and tired students marched by their teachers next door to bed.

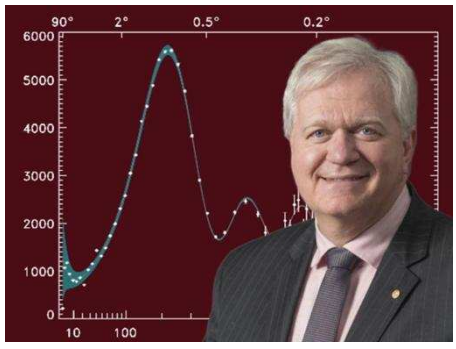
Other members helping run the night smoothly included Sylvie Grandit, Mark Stephens, Fred Crump, Ben Claringbold, Adrian Boschetti, Greg Walton and Chris Kostokanellis. *Regards, Peter Skilton*

Observatory open nights 10th, 11th and 12th September - We had 3 clear nights in a row, with a great turn out of members. All the telescopes in the observatory and Sirius dome were heavily used, with many members getting many great images through the telescopes. It was also good to see members figuring out how things work for them selves, which is the best way to learn. Big thanks to Anne for the home made Anzac biscuits, they were great appreciated.

On the Friday 11th many members setup their smart scopes. It always surprises me that these little telescopes can product such good images.

I stay till midnight on all 3 nights and imaged many planetary nebulas. Helix nebula NGC7293, Dumbbell M27, Saturn nebula NGC7009, Grus planetary IC5148, Skull NGC246, faint ring nebula NGC6337 and Spiral NGC 5189 near Crux. *See imagers in Mo Pho*

I'm sorry I couldn't get around to talking to everyone on the night. *Regards Greg Walton*



Society Meeting September 16th - 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 "The Universe from Beginning to End", by Prof. Brian Schmidt, Australian Astrophysicist and past Vice-Chancellor at ANU and Nobel Prize winner in Physics, delivered at IUCAA in India.

This public talk looks at the evidence for the expansion of the Universe that led to the Nobel Prize being awarded to 3 scientists.

Chris Kostokanellis presented the Astrophotographic challenge for the month, and Guido Tack presented Sky for the Month in absentia.

Closure showed the very roundabout journey of the European and Japanese probes onboard the BepiColombo craft to Mercury, employing 9 planetary slingshot gravitational assists to go from Earth to Mercury using ion thrusters rather than conventional chemical rockets. Insertion into the 2 crafts' final orbits about Mercury will happen in November, with the science mission underway the month after.

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

Mt. Martha Probus viewing night September 17th - Mount Martha Valley Probus club had 19 members visit the observatory last night and were lucky enough to have cloud-free skies throughout the evening. Given they are local, it was surprising to note this was their first visit to us, and most weren't even aware of our existence previously.

Outside observing of Venus and the Moon was done up-front, as both were getting quite low in the West, then everyone moved indoors to the warm to hear Peter Skilton give the talk and answer plenty of questions. They then went outside again to see Saturn, its rings and Titan once their elevation was sufficient. Feedback from the night was that they found it super-interesting and exciting.

Members helping with the instruments and with the evening, included new member Atul Bhattarai, Sylvie Grandit, Greg Walton, Chris Kostokanellis, John Goodall, Adrian Boschetti, Fred Crump and Mark Stephens, some of whom stayed on afterwards to photograph Saturn for the next AstroMoPho challenge. *Regards, Peter Skilton*

Working bee & members Night BBQ September 18th - Arrived at 4pm to found members already mowing and whipper-snipping. Members also started washing both dome observatories which were covered in black sooty mould, which took a bit of scrubbing to clean. Someone in the past, had splashed paint on the outside of the toilet building, so Adrian had a go at cleaning it up.

Then we set about replacing the shroud on the large truss tube Dobsonian (Sky Drover) as it was looking very shabby after 27 years of uses. The new material is black rip-stop which is shiny on one side and slightly fluffy mat finish on the other, which goes on the inside of the shroud as it stops any reflected light from entering the telescope. Making the shroud, meant dismantling the telescope. First, we had to till the telescope forward and wedge a bit of wood under the rocker box. Then we could remove the upper cage and remove the old shroud. Then we had to dismantle the shroud, which involved drilling out 20 pop rivets, and cutting along the seems so we had a template. Then we cut and joint the new material so it was large enough to make the shroud. Then we cut to shape and sew the edges together to make a tubular shape. Then we sewed the edge over to accommodate a rope which keeps the shroud tight against the telescope. We tested the fit and it was good. Next, we had to attach the shroud to the aluminium frame, which meant replacing the pop rivets.

One of the other small jobs was adding an extra clamping screw at 90 degrees to the focuser draw tube on the 11 inch Celestron in the main observatory. We drill a 4.3 hole and tap a 5mm thread. I found one clamping screw is not enough to hold a 2 inch diagonal secure.

The usual jobs of dusting the telescopes, cleaning the cameras, mopping floors and general cleaning was done before the BBQ got underway. Chris setup a spit and Jamie, Mark fired up the BBQ. I seen the ladies preparing a mountain of goodies in the kitchen.

After the BBQ we had a visit from Dwarflab who talked about there new smart telescope. We then showed them around the observatory.

Was good to see so many members in attendance. A big thanks to all the members helping out. The forecast was for clean skies, but by 9:30pm the clouds were still hanging around, so we packed up and went home. *Regards Greg Walton*







Public Viewing Night October 2nd - Despite 100% cloud cover, 53 people still managed to make the trip to MPAS for our October PVN.
Physics Masters student, Danial Othman from Melbourne University, gave a brief talk to the crowd about a light pollution monitoring project he is working on. Light pollution is an increasing concern for our health, the environment and its effects on nocturnal animals such as some insects, birds, bats, and Amateur Astronomers.



By John Cleverdon

Danial asked the crowd to consider recording their observations in a citizen science project designed to compare the observed effects of light pollution on the night sky by people, with the measurements taken by equipment such as SQM meters.

Trevor Hand then gave an updated talk on exoplanets, after which several people made their way to the observatory to have a look at the scopes, including a family with 2 young budding Astronomers looking to upgrade their Telescope. I'm sure we'll see them again at the upcoming Telescope Learning Day.

Members who were present and assisting on the night were Atul Bhattarai, Mark Stephens, Sylvie Grandit, John Goodall, Fred Crump, Adrian Boschetti, Chris Kostokanellis, Kieran Allen, Ben Claringbold, John Cleverdon, and of course Trevor Hand.
Please remember to sign the attendance book when you come to MPAS events.

If you'd like to contribute to the Citizen Science project for measuring light pollution, go to the web site https://globeatnight.org/ , and under the section "Can you find Grus?" click "Report" to record your observation of the Grus constellation and how it appears in your sky.

Regards Chris Kostokanellis

Astrophotography Workshop October 3rd - Our annual Astrophotography Workshop took place on Saturday 3rd October. It was the culmination of months of planning, lining up presenters, vendors, and sponsors for door prizes. Speakers were polishing up their presentations up to the last minute, which as we all know is the most productive minute before a deadline.

The day started off with heavy rain, and it persisted at some level during the entire day. Anthony Burns from Camera House Frankston arrived, and the plan to set him up the MPAS marquee was abandoned. Tables were set up inside the auditorium instead. Anthony prepared a nice display of several cameras, lenses and Smart telescopes from manufacturers like DWARF, SeeStar, Vaonis and others. Michael from Celestron was also there with a Celestron Origin, and Daniel Gangur from the Facebook group "Nightscape Photographers Australia" was also on hand giving advice on lenses, techniques and equipment.



Anthony from camera house with his display

All 59 ticketed attendees eventually arrived and took their seats, and Jamie Pole started off proceedings with his introduction to DSLR nightscape photography, followed by Guido Tack who spoke of the types of objects and phenomena there are to photograph.

Barb Wallace from Aurora Hunters Victoria generously gave a very entertaining presentation on Aurora photography, and Greg Walton gave his talk on how to do timelapse photography. Chris Kostokanellis gave an introduction to Smart Telescopes and showed some of the features of the DWARF Mini door prize, generously donated by DWARF LAB, and followed that up with a presentation on tracked astrophotography. Nik Axaris demonstrated Astro Wizard, a simplified free program for processing astrophotography images, and Diego Colonnello spoke of the benefits and challenges of remote imaging from dark sky sites.

After the talks, the door prizes were drawn, and five lucky ticket holders received large format print vouchers from Camera House. However, the golden ticket holder and winner of the Dwarf Mini was MPAS member Shreya Ramesh.
Congratulations Shreya.



Soon after Dave Rolfe arrived with a car load of pizzas which were enthusiastically devoured by the crowd. Learning is hungry work!! 100% cloud cover persisted, crushing any chance of a practical imaging session, but there was much chatter in the room amongst the crowd and the various speakers and vendors.

In addition to those mentioned above, thanks also to Sylvie Grandit, Ben Claringbold, and John Cleverdon for their help on the day, and to all the other members who supported the event by your attendance and assistance, making it another successful Astrophotography Workshop.

By Chris Kostokanellis. - Photos taken by Greg Walton and John Cleverdon.

Right - Congratulations Shreya on winning the Dwarf mini



Jamie talking about equipment and camera settings



Guido on the night sky



Chris talking about stacking images



Barbra Wallace on aurora photography



Chris talked about Smart scopes



Greg mesmerized the crowd with his time-lapses



Pizza o'clock



Nik showed everyone how its done

University viewing night October 7th - We had about 30 students from Monash University Society for Physics, Astronomy and Mathematics (aka SPAM). Guido Tack did a brief talk before everyone went down to the main observatory. The university also sent along a media group to document the night with photos and video. The students were a bit sharper than the usual groups, asking lots of question and testing our brains. Lucky we had clear skies on the night. Venus, Mercury and Saturn didn't disappoint, with many getting great images of the planets with there mobile phones. One student asked if he could get some photos through the telescopes. We said, yes. Then quickly found the correct adaptors and attached his camera. We showed him how to get focus with the live view. Then we moved the telescope to around 10 different object which he photographed. Chris also demonstrated the Seestar on the top viewing pad. While Guido used the 18 inch Dobsonian. Helping out on the night - Chris Kostokanellis, Ben Claringbold, Atul Bhattari, Greg Walton and Guido Tack.

Regards Greg Walton

Indigenous Astronomy Public Viewing Night October 9th - Cloudy skies hardly deterred anybody from turning up to our October Indigenous PVN. Despite 100% cloud cover, 56 ticket holders and a number of MPAS members turned up to listen to Tim Patston talk on Indigenous Astronomy.



Tim keeps his talk current with respect to what we see in the sky during the time of the PVN, as many of the crowd are repeat visitors, having come to several Indigenous PVNs. Tim mentioned, amongst other things, Saturn, Venus and Corona Australis and their link to a meteor crater, Goss's Bluff, called Tnorala by the Western Arrente people, near Alice Springs.

Amongst the visitors were a group of enthusiastic young people, there to celebrate their friend's birthday with a night under the stars. Although there were no stars out on Friday, they decided this was part 1 of a 2 part celebration, with part 2 to be conducted at MPAS on a clear night when viewing will be possible. They had many questions and spent quite a while keeping Greg busy with questions in the Observatory, and spent much time gathered around the Merchandise counter shopping for MPAS souvenirs, and asking questions about the DWARF Mini, and Astrophotography.



I managed to offload a number of the bags the DWARF Lab left us during their visit, which were quickly snapped up as soon as they came out. There are still several of these if any members wish to pick one up next time you're at MPAS.

MPAS members assisting on the night were Julie McErlain, Victor Sekulov, Ben Claringbold, Atul Bhattari, Greg Walton, John Goodall and Chris Kostokanellis.

Regards Chris Kostokanellis.

Cosmology meeting October 10th - went ahead at 1:30pm as usual at the Briars.

School viewing night October 14th - Approximately 55 grade 3 students and teachers from Yarra Valley Grammar made their way across the car park from the camp where they were staying, to our observatory, to hear Katherine McCoy deliver a talk on Astronomy assisted by Chris Kostokanellis.

No time was wasted getting the talk under way. The kids had a long day and the teachers were concerned they may not have the staying power to last the evening. There were many questions during the talk, mostly from one particular budding junior Astronomer sitting in the front row who wanted to know where the aliens were, and if we could live on Venus. At the end of the talk, a quick survey of the children was done to see how many were feeling tired after a long day, prompting most of them to raise their hand. However, the fatigue seemed to disappear as soon as the group swarmed the observatory. Not a single cloud was in the sky allowing for clear views of the Moon, Saturn, M6 – The Butterfly cluster, and NGC 104 – 47 Tucanae for the re-energised youngsters and their teachers. By 9PM, the teachers assembled the children and they made their way back to camp.

Members who were assisting on the night were Katherine McCoy, Fred Crump, Greg Walton, Sylvie Grandit, Adrian Boschetti and Chris Kostokanellis. *Regards Chris Kostokanellis*

Society Meeting October 21st - The main topic was a public documentary about "The Untold Story of the James Webb Space Telescope", released last year by the NASA Goddard Space Flight Centre, covering from the mission's inception, engineering build and through to launch and deployment. One of the scientists featured in the video, was Dr. John Mather, who has been with the project since it began, and was co-recipient of the 2006 Nobel Prize in Physics for the discovery of the black body nature of the cosmic microwave background radiation with the COBE mission.



Chris Kostokanellis presented the Astrophotographic challenge for the month, and Guido Tack presented Sky for the Month in absentia.

Closure showed a simulation of the mega tsunami from the Chicxulub asteroid impact crater that contributed to the demise of the larger dinosaurs 66 million years ago.

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 October 23rd - cancelled due to no bookings.

Telescope Learning Day & BBQ October 24th - Members arrived early to take care of a few cleaning jobs before the public arrive with their telescopes. The forecast was for 100% cloud with rain, and this time they were right, so there would be no chance of seeing anything astronomical objects in the night sky. We set up a few different telescopes in the corner, for Guido to use in his presentation, which kicked off from 4:20pm. Around 5pm Chris arrived with the sausages and we fired up the BBQ. Guido's talk finished at 5:30pm, then question time went for half an hour. Then we packed up the chairs to make room for the public to set up their telescopes. By then the sausages were done.

After everyone had a sausage of two, the public started setting up their telescopes with the help of members. Some of the telescopes were brand new, straight out of the box. For the newbie it can be a bit confusing where all these nuts and bolts go. We soon had the telescopes assembled, then lucky the rain had stopped and we were able to move the telescopes outside. This meant we could at least point the telescopes at the distant horizon, so the public could see that their telescopes actually worked. Then we set about aligning the finder scopes. But as usual we found the finder scopes were loose in their housings. This meant removing the finder scope and building up the diameter with black electrical tape, till there wasn't any rattle. Once the finder scopes were aligned, we made sure the owners knew how to do this for themselves. Then we demonstrated how to balance the equatorial mounts and what the numbered dials actually do. We also demonstrated how to align the optics using a laser collimator.


By Chris Kostokanellis

I think everyone was happy with what they learnt. Then it was time to pack up all the telescopes, which was just in time as a thunderstorm moved in from the north west and then the heavens opened.

A big thank-you to all who helped out on the day.

Regards Greg Walton



Thanks Greg, I have to add to this I went around and checked in with participants and I can honestly say lot of them well all really excited and boasted how they had their questions met and couldn't wait for a clear night I also think we may get a few new members out of this thanks to all volunteers it actually went really well considering the clouds and rain there was definitely a good vibe I didn't sense anybody leaving disappointed.

Cheers Sylvie Grandit

Vale - Kerrie Brackenridge



We have just been informed of the sad news that Rod Brackenridge's wife, Kerrie, passed away today after a battle with cancer.

Many members will know Rod as a local accomplished telescope maker, living not far from the Briars.

The Brackenridge's have been family members of MPAS since 2003, and would come to events in the past with their children, David and Sarah, who are now all grown up. We've also seen David a few times in recent years at viewing nights with the local Scout Venturers' group he led.

Our heartfelt condolences go out to Rod and his family in this most difficult of times.

From the stars we come, to the stars we go. Peter Skilton

TIMETABLE OF PUBLIC EVENTS

2026

NOVEMBER

Wednesday 4th, 8pm Briars. St. Michael's Grammar on camp, 35 Year 3 pupils. Speaker Katherine McCoy & Peter Skilton.
Friday 6th, 8pm Briars. Public stargazing. Speaker TBD. 105 booked.
Saturday 14th. 2pm Briars. Cosmology Discovery Day (public). Speakers various. 12 booked, 100 planned. Members are free.
Bookings www.trybooking.com/DNKOW
Friday 20th, 8pm, Billanook Primary School at the school, 270 Sheffield Road, Montrose. 200 Year 3-4 pupils and parents.
Speaker Katherine McCoy & Peter Skilton.
Friday 27th, 8pm Briars. Public Indigenous stargazing. Speaker Tim Patston. 0 booked, 100 planned.

DECEMBER

Friday 4th, 8pm Briars. Public stargazing. Speaker Manfred Berger. 105 booked.
Saturday 5th, 6:30pm Briars. BBQ & Christmas Astro Concert with South. Pen. Concert Band. Public & members.
MC Peter Skilton & Barry Fletcher. Bookings open. 6 booked, 85 planned.

2027

JANUARY

Saturday 2nd, 8pm Briars. Public stargazing. Speaker Trevor Hand. 100 planned.
Friday 8th 8pm Briars. Public stargazing. Speaker TBD. 100 planned. Bookings not yet open.
Saturday 9th, 8pm Briars. Public stargazing. Speaker TBD. 100 planned. Bookings not yet open.
Friday 15th, 8pm Briars. Public stargazing. Speaker Manfred Berger. 100 planned. Bookings not open.
Friday 22nd, 8pm Briars. Public Indigenous stargazing. Speaker Tim Patston. Being confirmed.

FEBUARY

Friday 5th,8pm Briars. Public stargazing. Speaker TBD. 100 planned. Bookings not yet open.

MARCH

Friday 5th, 8pm Briars. Public stargazing. Speaker TBD. 100 planned. Bookings not yet open.

Curious about the cosmos? We're inviting everyone in the area to join us on Saturday 14 November. Please arrive between 1:45 and 2:00 pm. Bring a family member or friend who might enjoy exploring the wonders of the universe with us—we'd love to welcome them!

Our first special Cosmology event at MPAS is a welcoming introduction to the subject, a chance to meet fellow astronomy and cosmology enthusiasts, and a lovely way to share your interest with someone new.

14th Nov – Public Cosmology Meeting – Members and public welcome. You must book (MPAS members are free.)

Warm Regards Eden.

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

Atul Bhattarai
Liz Bailey
Stephanie Ryan
Alex Prygodicz
Kumodya Don & family
Jocelyn Watson
Pree Sharma & family

Sandi Terry
Jon Fee
Jaimie Duffy
Alexander Knox & family
Graeme Wagener
Marco Munafo & family

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 November / 2026

Red Days indicate School Holidays

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
1 **VicSouth**	2 **Last Quarter** **VicSouth**	3 Cup Day **Mars left of the Moon** **Jupiter right of Moon**	4 **St. Michael's Grammar on camp**	5	6 **Public night 8pm**	7
8	9 **New Moon**	10	11 **Remembrance Day**	12 **Northern Taurids Meteor shower**	13	14 **Cosmology Discovery 1:45pm** **Moon at 405,619km**
15	16 **First Quarter**	17 **Leonids Meteor shower**	18 **Society Meeting 8pm**	19	20 **Billanook Primary School at Montrose**	21 **Working Bee 4pm BBQ 6pm**
22 **Full Moon**	23	24	25	26 **Moon at 359,347km** **Uranus at opposition**	27 **Indigenous Astronomy 8pm**	28
29	30					

Events

Public nights - 8pm to 10pm on the 6th @ The Briars (Public & members)
Society Meeting - 8pm to 10pm on the 18th @ The Briars (Public & members)
Cosmology Discovery Day - 1:45pm to 4pm on the 14th @ The Briars (Public & members)
Working Bee - 4pm, **Members night BBQ** - 6pm on the 21st @ The Briars (members only)
Public Indigenous stargazing - 8pm to 10pm on the 27th @ The Briars (Public & members)
Watch your emails, as on any clear nights the Observatory may be opened for members-only viewing.

CALENDAR December / 2026

Red Days indicate School Holidays

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
This month - Neptune rises 3pm Uranus rises 8pm Mars rises 1:40am	Saturn rises 3:15pm Jupiter rises 1:30am Venus rises 4am	1 **Mars near the Moon** **Jupiter near the Moon**	2 **Last Quarter**	3	4 **Public night 8pm**	5 **SPCB Xmas Concert 6:30pm**
6	7	8	9 **New Moon**	10	11 **Moon at 406,419km**	12 **Members Xmas Dinner**
13 **Geminids Meteor shower**	14	15	16 **First Quarter**	17	18	19 **Moon at 404,643km**
20	21	22 **Summer solstice**	23 **Full Moon**	24 **Scorpius Deadline** **Moon at 356,650km**	25 **Xmas Day**	26 **Boxing Day**
27	28 **Boxing Day Holiday**	29	30	31 **New Years Eve**		

Events

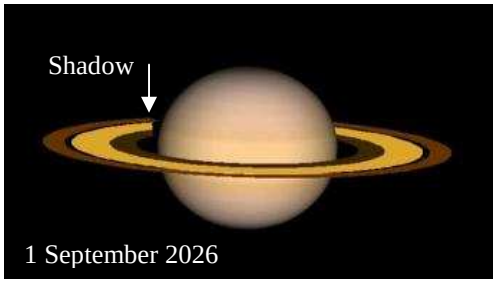
Southern Comets website - http://members.westnet.com.au/mmatti/sc.htm
Public night - 8pm to 10pm on the 4th @ The Briars (Public & members)
SPCB - Southern Peninsula Concert Band & fund-raising BBQ - 6:30pm on the 5th @ The Briars (Public & members)
Xmas party - 6pm on the 12th @ The Briars (members only)
Watch your emails, as on any clear nights the Observatory may be opened for members-only viewing.

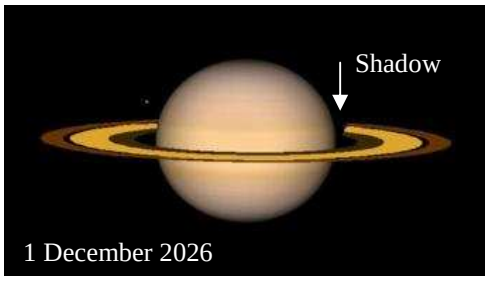
THE BRIARS SKY

By Greg Walton

Mornington Peninsula Astronomical Society

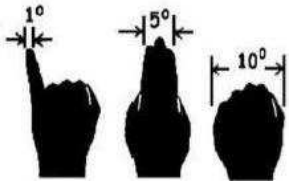
In December 2026
Neptune rises 3pm, Saturn rises 3:15pm, Uranus rises 8pm, Jupiter rises 1:30am, Mars rises 1:40am and Venus rises 4am.



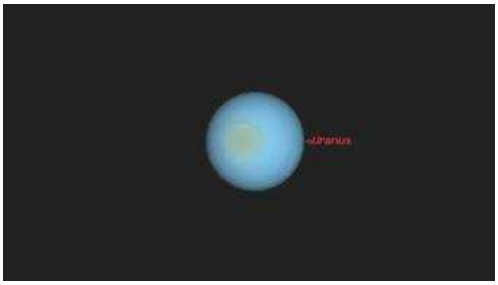


Saturn is now rising long before sunset in December, so is high in the sky by the time it gets dark. At 9pm Saturn is at is highest point in the sky which is dead north. And as we knew the higher Saturn is the better the viewing will be. Pretty much any telescope will produce a good image of Saturn. As Saturn has now past opposition the shadow on the rings will have now shifted to the opposite side.





Neptune is just 6 degrees to the left of Saturn, which is about the width of 4 fingers. At 8th magnitude Neptune can't be seen to the naked-eye and even in the telescope running a 100 times magnification, Neptune can be easily missed. At first glance Neptune could be mistaken for a star. But with a close look, you will see that one of the stars is a bluish green. This is Neptune and by increasing the magnification to 150 times, you can see the round disc shape of the planet. With a larger telescope, see if you can find Neptune's brightest moon Triton. Neptune size is only 2.3 arc second.



Uranus is now rising at 8pm and is high enough in the sky to view by the time it gets truly dark. Uranus comes to opposition on the 26th December and will be at its largest. At 5.6 magnitude Uranus is almost visible to the naked-eye and easily spotted in binoculars. Uranus is almost exactly halfway between Pleiades M45 and Hyades cluster both are in Taurus. In the telescope Uranus is easy to spot and immediately you will notice its disc and blue-green colour. The south pole is tilted towards Earth but being a gas giant it will go unnoticed. Uranus is almost twice the diameter of Neptune at 3.8 arc second.



Jupiter rises 1:30am in the eastern morning sky. You will need to wait till 4am to get a half decent view. Viewed through the telescope Jupiter is ten times larger than Uranus at 39 arc second. If you are lucky, you could see the great red spot which hasn't been very red at all lately, often just a darker gray oval. Or you could see a tiny black spot slowly crossing the face of Jupiter. This would be one of Jupiter's moons casting a shadow on the surface of Jupiter.

If you think it could be difficult finding Jupiter. On the 1st of December at 4am the Moon will be just to the left of Jupiter and you get a bonus, as Mars will be directly below the Moon. *See right*



Mars rises at 1:40am in December in the eastern morning sky. Mars is still a long way from opposition, so is only 8 arc second in diameter, which is about 1/4 the diameter of Jupiter.

The Mars is closest to Jupiter around the 16th of November with a separation 1 1/2 degrees. *See right*

ASTRO NEWS

By Nerida Langcake

Mornington Peninsula Astronomical Society

Meet Roover - The Australian-made rover that will go to the Moon with NASA.

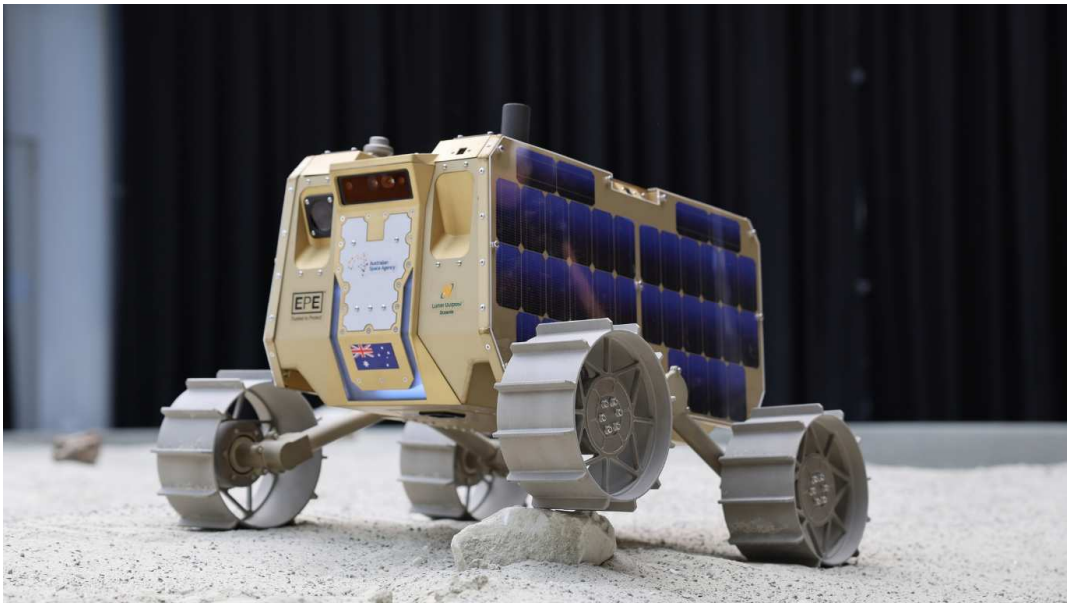
The Australian Space Agency, in partnership with NASA, is working with Australia's space industry to design and build an Aussie-made rover that will go to the Moon.

Intuitive Machines will land Roo-ver on the Moon's South Pole region in 2030 as part of a NASA Commercial Lunar Payload Services (CLPS) mission.

The Aussie-made rover will support global space science and exploration goals. It will also demonstrate Australian innovations on the Moon.

Roo-ver facts

- The Australian public chose the name of our history-making rover after a competition that saw more than 8,000 entries.
- Roo-ver is expected to weigh around 20 kilograms. It will be roughly the size of a suitcase that you check in at the airport.
- NASA has entrusted the Australian lunar rover with key research objectives, including to collect new data about the surface of the Moon to support international space science and exploration goals.
- Roo-ver will be supercharged with an integrated NASA payload – an analysis instrument intended to demonstrate technology for scientific and exploration purposes. In time, Roo-ver's explorations will help global efforts to establish possible sustainable human presence in space.
- ELO2 is the industry consortium that will design and develop the fully realised rover for its mission to the Moon. ELO2 is made up of start-ups, SMEs, major resources companies, universities and other research partners.
- Australia is a world-leader in remote operations and autonomous systems on Earth. Much of that experience comes from our resources sector. This expertise is extremely valuable for international missions.
- Intuitive Machines will land Roo-ver on the Moon's South Pole region in 2030 as part of a NASA Commercial Lunar Payload Services (CLPS) mission.
- Roo-ver is expected to operate for up to 14 Earth days. That's only about half of one Moon day.
- The rover is still being developed but below is an image of the latest model.



YOUR ASTRO QUESTIONS

Do open star clusters contain black holes?

Maybe we should first learn something about open star clusters. *See right, Pleiades M45 at 444 Light-years.*



An open cluster is a group of stars which are in close proximity. Usually numbering between 12 and 1,000 stars.

Open clusters are formed from a cloud of gas which is made up of mostly hydrogen atoms. Under the attractive force of gravity, the cloud of gas comes together and eventually will form a new star. If the cloud of gas is large enough, it will produce many stars forming an open cluster.

What keeps the cluster together?

It's been long thought, that the mutual force of gravity keeps the star together. And the larger stars kept the smaller stars nearby.

But we must remember that most open cluster reside in the plane of our Milky way galaxy. And as our galaxy is turning, these open cluster are moving around the galaxy. In other words, most open cluster are orbiting the massive black hole in the centre of the Milky way galaxy. This movement around the massive black hole helps keep the open cluster together and the speed of these open clusters is between 200 and 400 kilometres per second. A bit like if you through a hand full of stones, all the stones travel in the same direction and at the same speed.

When we look at an open cluster through a telescope. To us it looks as though the stars are close to each other. But in reality, the stars are far apart and the gravitation attraction between them would be unmeasurably small.

On the list below, we can see the smaller open cluster are at a great distance.

Open cluster - Distance in light years - Closest to more distant

Open cluster	Distances	Size in degs	Mag	Common name	Constellation
Caldwell 41	153	5	0.5	Hyades - Mel 25	**Taurus**
Messier 45	444	1 1/2	1.2	Pleiades	**Taurus**
IC2602	486	1	2	Southern Pleiades	**Carina**
Messier 44	600	1 1/2	3	Beehive	**Cancer**
Messier 7	980	1	3	Ptolemy's	**Scorpius**
NGC 3532	1,300	1	3	Pin cushion - Wishing well	**Carina**
NGC 2516	1,300	1/2	4	Southern Beehive	**Carina**
Messier 47	1,600	1/2	4.4		**Puppis**
Messier 6	1,600	1/3	4.2	Butterfly	**Scorpius**
Messier 67	2,700	1/2	7	Sun like stars	**Cancer**
NGC 2477	4,000	1/2	5.8	Caldwell 71	**Puppis**
Messier 46	5,400	1/3	6	Contains NGC2438 planetary	**Puppis**
NGC 3766	5,500	1/5	5.3	Pearl cluster	**Centaurus**
NGC 6231	5,600	1/6	2.6	Northern Jewel Box - Table	**Scorpius**
Messier 11	6,200	1/4	5.8	Wild Dusk	**Scutum**
NGC 4755	6,400	1/10	4.2	Jewel Box	**Crux**
NGC 3293	8,000	1/10	4.7	Gem cluster	**Carina**
NGC 3572	9,000	1/10	6.6		**Carina**
Messier 24	12,000	2	4	Star cloud	**Sagittarius**
NGC 6124	18,000	1/2	5.8		**Scorpius**

Back to our first question - Do open star clusters contain black holes?

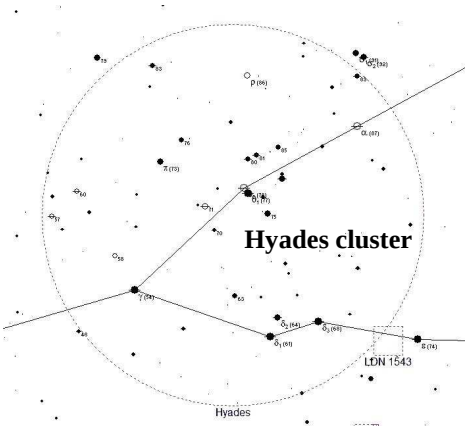
We also need to know about the life cycle of the stars.
We know that the largest stars have a very short life of around one million years, usually ending as a small black hole.
So you would think that some of these black holes would still be hanging around in open star clusters.

The gravitational attraction between the small black holes would still be unmeasurably small at great distance.
If two black holes have a simular mass. As they come together, they would cancel out there direct of moment.
This newly merged larger black hole should come in an almost dead stop.
This would mean that the black hole could still be inside the open cluster.

Could a small black hole moving through space take a tightly bound open cluster with it?
Probably not as gravitation attraction between them would still be unmeasurably small.

Our sun was once part of an open cluster but was kicked out by a much larger star or small black hole. So maybe we have already had a close encounter with a black hole.

M67 - We're did our Sun come from? https://share.google/kDETR3cZOuLsJDxYi



Black holes are extremely hard to detect.

Astronomers think our best chance of finding a black hole in an open cluster, lays with the Hyades cluster in Taurus. Which is the closest open cluster to us at 153 light-years. But looking at the stars in this cluster, we notice that the stars have drifted far apart, making it very unlikely that any stars are been affected by a black hole.

How can astronomers find a black holes in open star cluster?

Because we can't see black holes, we need to look for something that is being affected by the black hole.
We need to look for stars that are doing the wrong thing.

1. Star that wobbles. A companion star that is orbiting a black hole.
2. A star that briefly brightens up because a black hole has passed in front of it.
3. A fast moving star has probably had an interaction with a black hole.
4. Four stars in close proximity with the same chemical make up, is probably the same star affected by the black hole. This is called Gravitational lensing.
5. Star that is being torn apart by a black hole. Which is actually very rarely.

Who is searching for black holes in star cluster?

Black Hole Hunters – A citizen science search for black hole self-lensing.

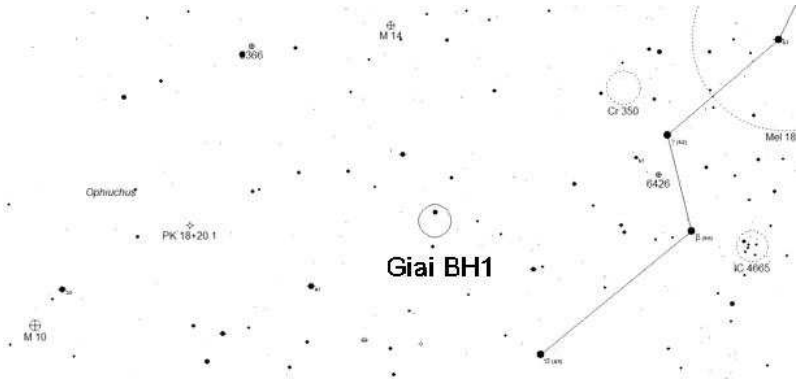
https://ras.ac.uk/news-and-press/news/black-hole-hunters-citizen-science-search-black-hole-self-lensing

Members of the public can join the search by visiting the Black Hole Hunters project site. All you need to do is look at a few simple graphs of how the brightness of stars changed and let the team know if any look like the types of changes they're looking for.

The Hipparcos satellite was launched back in 1989 by the European Space Agency. Its prime mission was to map the position of all nearby stars, some 118,200 stars, every 6 months. Then with computer software calculate the speed and direction the stars are moving in. Also to find any stars that maybe wobbling, which could to the sign that a black hole is nearby. Hipparcos satellite hasn't found any black holes.

The Gaia satellite was launched in 2013, mapped the position of 2 billion stars over a much longer timeline with greater precision. Gaia data has led directly to the discovery 3 black holes, such as Gaia BH1, which is the closest known black hole to Earth at 1,600 light years and has a mass equal to 10 Suns. The black hole can't be seen by any space or earth based telescopes. Gaia BH1 was detected by noticing that its companion star wobbled over time. The binary system consisting of a G-type main-sequence star and a stellar-mass black hole and it located in the constellation Ophiuchus, almost between Messier 10 and Messier 14. Gaia BH1 it not in an open cluster.

If you wish to point your telescope in the direction of Gaia BH1, the coordinates are RA 17h 28m 41sec Dec -0 34' 51.52". *See map*
Gaia BH1 companion stars are magnitude 13.77, which is only slightly brighter then Proxima centaur or Pluto. You would need a 14 inch telescope to view or 8 inch telescope to image.



And getting back to our first question,
Do open star clusters contain black holes?

Most likely, but we lack the means to find them.

By Greg Walton

James Webb video on finding black holes.
https://youtu.be/2ZchRTuzeiA?si=1SV2d5pNnkauUkse

EXOPLANET EXTRAVAGANZA *Peter Lavelle*

Getting away from it all

What's the most out-of-the-way place in the universe?
The emptiest region of space we know of is the Boötes Void, a volume about 700 million light years away and roughly 330 million light years across. To put that in perspective, it is about 7,000 times as far away as the diameter of the Milky Way galaxy, and about 3,300 times as wide. It's big.
The Boötes Void is a sparsely filled volume in the Cosmic Web, the immensely long network of filaments composed of dark matter, galaxies, and thin gas that stretches across the universe as far as we can see.
The name might be considered slightly ironic, as Boötes the Herdsman in Greek mythology had at least his cattle for company. Of course, the constellation Boötes was named long before we knew about the Void.
The Void is enormously further away than the stars, such as Arcturus, which make up the constellation, and which are within the Milky Way galaxy. It just happens to be in the same direction.
The Boötes Void contains just around 60 galaxies rather than the 2,000 that might be expected on average for a similar volume.
A galaxy deep in the Boötes Void called MCG+01-02-015 is about 100 million light years from its nearest neighbour and is currently the most isolated known galaxy.
So the 'loneliest' place in the universe might arguably be on a **rogue planet**, cast out from galaxy MCG+01-02-015.

First an exoplanet forms:
Exoplanets commonly form in the rings of gas, ice and dust left over when the central part of the cloud has collapsed under its own gravity to trigger thermonuclear fusion and give birth to one or more stars.
Radiation and stellar wind from the new star blast outward in waves through the remaining cloud, making some regions become a little denser than others.
Some grains of dust and ice bump into each other and stick together by **electrostatic attraction**. This is similar to rubbing a ballon against your hair or clothes, then using it to attract and pick up tiny pieces of paper.
Gravity continues the work of making grains attract each other in passing, slowly forming bigger lumps called planetesimals. These in turn attract each other, sometimes collide, and stick together to begin forming protoplanets. Eventually a planet builds up.
As it gets more massive and the pressure inside increases, so the temperature increases to the point where the inner core may become molten (as can be calculated using the **Clausius-Clapeyron relation**).
Heavier materials (e.g. iron) will sink to the core. Lighter materials (e.g. silicates, water, or nitrogen) will form the upper layers of the new exoplanet as mantle, crust, ocean, or atmosphere.
When it has gathered enough mass (from about 400 km diameter upwards, depending on the mix of materials), its own gravity will pull it into an almost spherical shape. It will bulge outwards slightly at the equator depending on how fast it is spinning.

Then maybe it becomes a rogue planet:
Many exoplanets will end up orbiting the central star or stars in their system of birth.
Some, such as a small exoplanet passing very close in its orbit to a much bigger one, may have its path deflected so that it ends up moving out of the system altogether. Its elliptical (closed path) orbit gets bent by the gravity of the larger body into a hyperbola (open path) which will never loop back. This is the **ejection mechanism** of rogue planet formation.
This can also happen if the exoplanet gets too near one of the central stars in the system, as per the three-body problem.
The exoplanet then becomes a **rogue planet**, also known rather less colourfully as a free-floating planet (FFP), or isolated planetary-mass object (iPMO).
A rogue planet may also form directly in a nebula where stars are forming, but not in orbit around any of the stars. This is the **cloud-collapse** mechanism of rogue planet formation.

Can a rogue planet be expelled from its original galaxy?
It needs a high velocity to escape the gravitational pull of a galaxy.
As an example, in our region of the Milky Way the galactic escape velocity is around 550 km/s.
The Sun is orbiting the Milky Way at 220 km/s and takes getting on for 250 million years to complete one orbit.
To reach galactic escape velocity it would generally require an exoplanet to make a near slingshot pass of a black hole, or else two galaxies merging and disrupting each other's stars and exoplanets.

Can rogue planets form outside a galaxy in the first place?
Stars can form even between galaxies in the very rarified intergalactic medium (IGM), although this is thought to be quite rare.
In theory exoplanets should be able to form there as well.
We have not yet been detected any extra-galactic exoplanets because, if they exist, they are rare, dark, and very far away.

What types of rogue planet exist?
Rogue planets cover the full range of sizes from very small sub-Terrestrials, through all types, to brown dwarfs.

Are rogue planets always completely alone?
No. The James Webb Space Telescope (JWST) has identified roughly 40 pairs of Jupiter-mass binary objects (JuMBOs) in the star-forming Orion Nebula. These are rogue planets wandering in pairs, orbiting around their common centre of mass.

How many rogue planets are there?
Some theories of planet formation suggest there may be even more rogue planets than star-bound exoplanets (see below).

How can we detect rogue planets if they are nowhere near a star?
Most methods of detection of an exoplanet rely on it being near enough to its star to have some kind of tiny but measurable effect on the star's brightness or motion.
Rogue planets are nowhere near a star, but two methods have been used to find them:

Detection method	Description	Notes
Gravitational microlensing.	The rogue planet's gravity acts like a magnifying glass, bending and focusing the light from a background star far beyond it. When the planet drifts perfectly into our line of sight with the star, the distant star temporarily spikes in brightness, and the light makes a pattern. The pattern may form an Einstein ring or cross, as predicted by Einstein in 1936, following on from his General Theory of Relativity (1915). He thought it unlikely one would ever be observed, given how faint this would be, but now we have the technology to detect them. From the specific patterns made by the starlight flaring, the mass of the rogue planet can be roughly calculated.	The Optical Gravitational Lensing Experiment (OGLE) based at Las Campanas Observatory, Chile detected the first Earth-mass rogue planet OGLE-2016-BLG-1928 and others by this method. The Korea Microlensing Telescope Network (KMTNet) and Microlensing Observations in Astrophysics (MOA) (based in New Zealand) have also detected rogue planets. The space-based Hubble Space Telescope (HST) and JWST have also found some.
Direct infrared imaging.	For younger rogue planets (only a few million years old) their heat emission can be detected by the most sensitive space-based telescopes.	HST and JWST have found rogue planets by the direct infrared imaging method. The recently launched Nancy Grace Roman Space Telescope (NGRST) is designed specifically to do so, among other things.

What would it be like on a rogue planet?
It would be permanently dark, with never a sunrise for billions of years.
No nearby planet would ever cross the sky, unless it is one of a mutually orbiting pair.
If the exoplanet has a solid surface and a clear atmosphere, or none, there would be a magnificent view of the starry sky, or perhaps just faint smudges of distant galaxies, if the rogue planet is extra-galactic.

Would it be desperately cold on a rogue planet?
Being far from the warmth of any star, it might be expected to be intensely cold, only a few degrees above absolute zero (-273 °C), but this may not always be the case.
A small rocky world would likely be frigid, but anything with a mass from a mini-Neptune upwards would generate its own internal heat for billions of years, arising from the gravitational compression of its own gasses.
Eventually even these would cool down, as the heat radiated away to space and the core solidified, then the atmosphere, one layer of frozen gas after another, depending on their individual freezing points.
Last to freeze solid would be hydrogen at around -259 °C.
Helium would become a liquid at around -269 °C, and a superfluid with zero viscosity (resistance to flow) at around -271 °C.
The last two layers would then be hydrogen ice covered with liquid helium.

Can a rogue planet have moons?
The moons of exoplanets are called, with impressive consistency, **exomoons.**
A rogue planet might have exomoons orbiting it, which would probably only be visible as slowly moving, even darker holes in the dark sky, occluding the background stars.
We have not yet absolutely confirmed the existence of any exomoons, although there are a few candidates.
Those around a rogue planet would be incredibly hard to detect.
Their orbits could potentially be fairly elliptical, disturbed into that shape by the gravitational slingshot that ejected the exoplanet from its original stellar system.
Future telescopes such as the Extremely Large Telescope (ELT) in Chile (scheduled 2029) and the NGRST (launched 30/08/2026) may be able to find and confirm the existence of exomoons, at least for those around exoplanets orbiting a relatively near star.

Any chance of life on a rogue planet?
The prospects are very poor, considering the temperature is likely to be not much above absolute zero, unless it is a large gaseous world, which presents a different set of challenges.

Any chance of life on a rogue planet's exomoons?
A rogue planet might have exomoons orbiting it, which could be icy on the surface but tidally warmed by having an elliptical orbit around the planet or gravitational pull on each other in passing.
This could lead to an exomoon having an ocean of liquid water under a thick icy shell.
It is believed this is the case for some of the moons of Jupiter (e.g. Europa) and Saturn (e.g. Enceladus).
Where there is liquid water there is at least a chance that life as we know it might somehow have arisen from chemistry (or arrived from elsewhere via a comet or meteor). Once a cell has formed it might feed on the brew of chemicals leaching out from hydrothermal vents on the ocean floor. On Earth many **archaea** live by this process of chemosynthesis, absorbing chemicals like sulphur and methane as 'food'.
Archaea, like bacteria, are single-celled organisms and are members of the domain from which all multi-cellular life evolved.
It has been estimated that simple microbial life could persist for up to several billion years on an exomoon in such an underwater scenario.
A thick atmosphere, which a large exomoon might be able to hold on to, would help to keep the heat in, so delaying the cooling process.
Eventually the ocean would freeze completely and the organisms, which had never experienced anything but darkness, would be doomed.

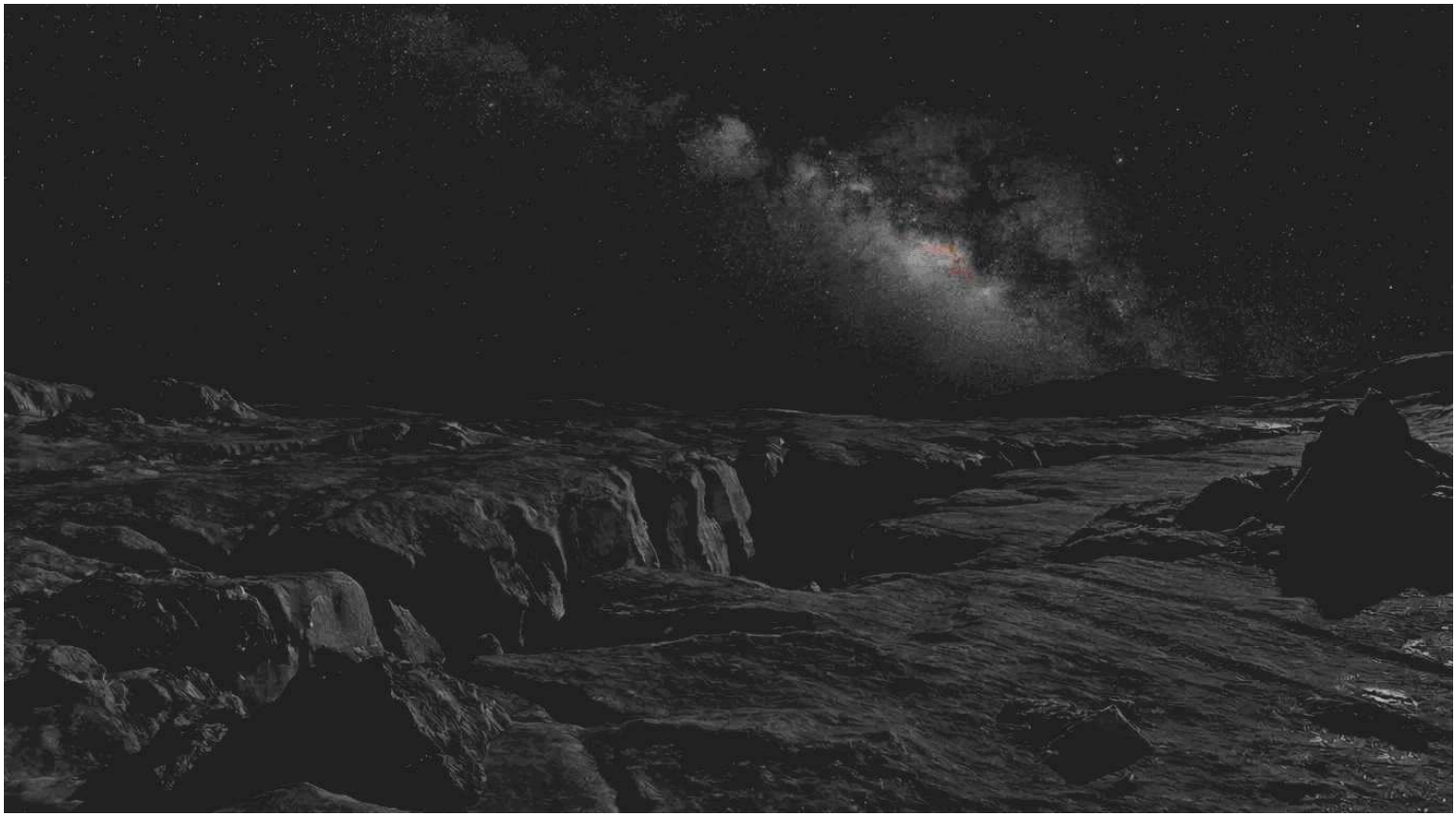
Any chance of a rogue planet heading our way?
The odds of a rogue planet passing through the outer Solar System in the next 1,000 years are estimated to be 1 in a billion.
The odds of a rogue planet passing through the inner Solar System, where it is more likely to cause some damage to Earth by impact, a near miss, or diverting other objects such as asteroids to hit Earth, in the next 1,000 years are estimated to be 1 in a trillion.
Nothing to lose sleep over just yet. Planets are small and space is colossal.
However, not to get too complacent, a simulation has suggested that the current orbits of the giant planets could be explained by a large Jovian exoplanet with 8 times the mass of Jupiter passing through the Solar System in its early days, over 4 billion years ago, almost as close in as the orbit of Mars.

How many exoplanets are there?
Confirmed as of September 2026: 6,360
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, according to current theories, is expanding 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 (rogue planet) example: OGLE-2016-BLG-1928**:**

Name	OGLE-2016-BLG-1928
Confirmed discovery	2020.
Discovered by	Optical Gravitational Lensing Experiment (OGLE) based at Las Campanas Observatory, Chile by P. Mroz et al.
Detection method	Gravitational microlensing (see above).
Distance from Earth	10,000 light years, in the constellation Sagittarius.
Star type	N/A
Average distance from star	N/A
Estimated age	Unknown.
Orbital period around star	N/A.
Length of day	N/A.
Type	Terrestrial.
Estimated radius	0.7 (Earth = 1).
Estimated mass	0.3 (Earth = 1).
Estimated atmosphere	Any atmosphere would be frozen out on the surface.
Estimated surface temperature	-270 °C. This is the temperature of empty space. It is the Cosmic Microwave Background (CMB) temperature, the afterglow of the Big Bang.
Habitability	Not habitable.
Notes	1. The microlensing event that led to the discovery lasted just 41 minutes. 2. The main objective of OGLE was to detect microlensing caused by clumps of dark matter. The detection of rogue planets is a secondary bonus.

Artist's impression of rogue exoplanet OGLE-2016-BLG-1928:



Created via Google Gemini.

Recent exoplanet news:
The first atmosphere of a Super Earth exoplanet in the habitable zone of its star has been detected.
The star LHS 1140 is about 48 light years away and is a red dwarf.
The exoplanet **LHS 1140 b** is about 1.5 times Earth's diameter and 5.5 times its mass.
Its orbit around the star is at a distance of about 0.09 AU and it takes about 24 days, which puts it in the habitable zone where liquid water might exist.
Helium has been detected escaping from its atmosphere.
The atmosphere was detected by a team from Harvard University using data from the ground-based Magellan Clay telescope located at the Las Campanas Observatory in Chile's Atacama Desert.
By comparison with other exoplanets, such an atmosphere might also contain nitrogen and provide the temperature and pressure to allow an ocean of water to exist on the surface.

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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

COSMOLOGY

By Eden White

Mornington Peninsula Astronomical Society

Hello to all thinkers of science,



Rethinking the Mystery of Gravity

Ref: Prof. Janna Levin, Barnard College, New York, USA (27/06/26)

GRAVITY—one of the greatest unsolved mysteries in physics—continues to evade scientists at the quantum level. But what exactly does this mean?

FOR AS LONG AS I CAN REMEMBER, gravity has been taught as the fourth fundamental force of nature. However, Albert Einstein revolutionized our understanding by proposing that gravity is not really a force in the traditional scientific sense. Instead, he showed that mass and energy warp the fabric of space-time, causing objects to move along these curves. The more massive an object, the greater the curvature of space-time and the stronger its apparent gravitational attraction.

EINSTEIN ONCE FAMOUSLY SAID, “Gravity holds the universe together.” He also humorously remarked, “Love defies the laws of gravity.” Today, many physicists no longer regard gravity as a conventional force in the same way as electromagnetism or the nuclear forces. Instead, gravity appears to emerge from the geometry of space-time itself and hence, the reason why the Standard Model has not yet been completed.

THOUSANDS OF QUANTUM PHYSICISTS are now attempting to quantize gravity — that is, to describe gravity using the laws of quantum mechanics. One proposed solution is the graviton, a hypothetical elementary particle that would carry the gravitational interaction, much like the photon carries the electromagnetic force. Despite decades of searching, no graviton has ever been detected.

MORE RECENTLY, PROFESSOR JANNA LEVIN (Left) of Barnard College—well known for her book Your Black Hole Survival Guide—has explored an even more intriguing possibility. Her work considers whether gravity is truly a fundamental feature of nature, or whether it is an emergent property arising from the strange world of quantum mechanics.

SO, LET’S BREAK THIS DOWN FURTHER. Levin suggests that gravity and even space-time itself may not be fundamental ingredients of reality. Instead, they could emerge from the complex network of quantum entanglement linking the universe together. I must admit that idea certainly stretches the imagination.

THIS NEW LINE OF RESEARCH also suggests that gravitational fields may allow matter to become quantum entangled—even if gravity itself is not fundamentally a quantum force. This concept has been explored by physicists who are challenging long-held assumptions about quantum fields and the relationship between quantum mechanics and classical gravity.

ASTRONOMERS SEE GRAVITY IN ACTION EVERY DAY. We observe planets orbiting stars, stars orbiting the centers of galaxies, and black holes influencing everything around them through their immense gravitational pull. Yet despite gravity governing the motion of the largest structures in the universe, scientists have still not identified its most fundamental quantum description or the particle, if one exists, that gives rise to it.

SOME SCIENCE COMMENTATORS argue that solving the mystery of gravity will require an entirely new way of thinking. Perhaps the next great breakthrough will come not from refining Einstein’s theory, but from looking at the universe from a completely different perspective. If only Einstein were still with us to continue the remarkable journey he began over a century ago.

I hope you enjoyed this brief update on one of the greatest mysteries in modern physics.

Warm regards, Eden White

Gravity?

Let me tell you a story, yes just a story.

Imagine a different way of thinking about gravity.

Imagine that gravity is not an attracting force.

Imagine gravity behaving more like a liquid. If you jump into a river, the river will drag you along.

Imagine you are held down on the surface of the Earth, by this flow of gravity into the earth.
The larger the planet the faster the river flows and the more you are held down on the surface of the planet.

As the flow of gravity passes through mass it exerts the force of motion against it.
The faster the flow of gravity the greater the motion force exerted against it.

Now imagine gravity flowing into every atom.

So where does the gravity go once it gets to the atom?

Imagine that gravity is being consumed by all atoms.

Imagine gravity is powering the spin of the atom.

Now imagine that gravity is a fuel, that powers everything.

Then imagine that gravity is everywhere and its under pressure.

The whole universe is bathing in a sea of gravity.

When gravity flow through space it takes everything with it.

This is why gravity can be felt over infinity large distances.

As the earth moves through space, it wants to travel in a straight line.
Imagine the flow of gravity into the sun, curving the path of the earth around the sun.

As the sun moves through space, it also wants to travel in a straight line.
Imagine the flow of gravity into the black hole at the centre of Milky way galaxy, which also curves the path of the sun around the black hole at the centre of the Milky way galaxy.

We are told the whole universe is expanding.

Maybe this sea of gravity is expanding taking everything with it.

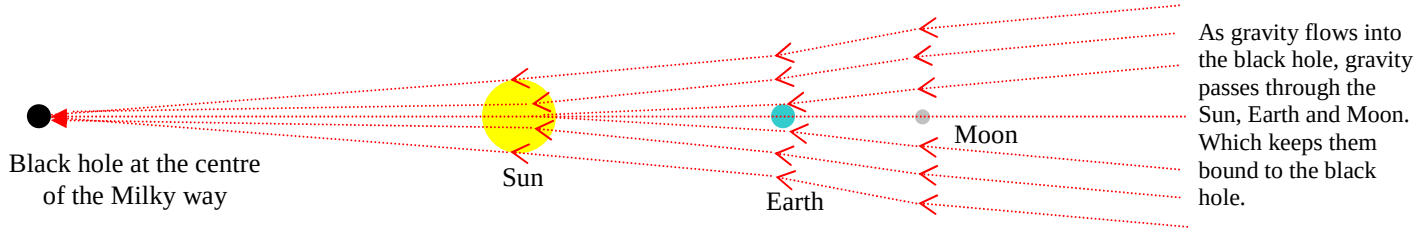
Maybe this sea of gravity is much larger than the universe?

The whole universe could be travelling along on a river of gravity.

Remember it's only a story.

Engineers don't believe in perpetual motion machines. Everything needs a fuel source.

Story by the simple minded engineer, Greg Walton



ASTROPHOTOGRAPHY TIPS

Mornington Peninsula Astronomical Society

The society has purchased new Canon and Nikon "T" rings.



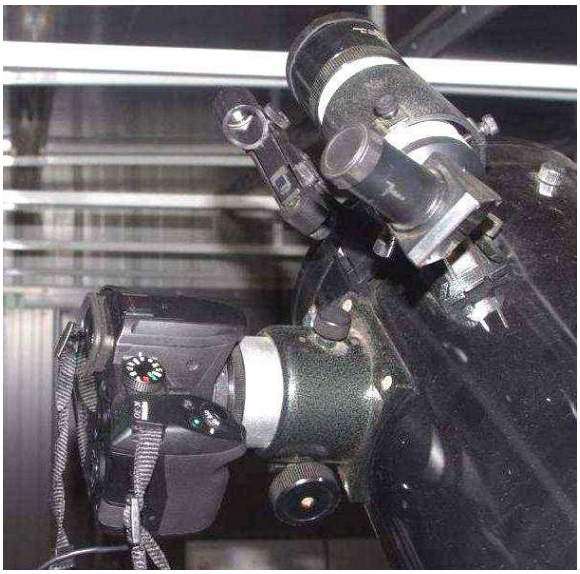
A "T" ring provides the connection between the DSLR camera and the telescope. Basically, you remove the lens from your camera and attach the "T" ring. These "T" rings come in 2 different sizes. Stand "T" ring has a 42mm diameter internal x .75 pitch thread. Where the full frame "T" ring has a 48mm diameter internal x .75 pitch thread.

The stand "T" ring connects to 1 1/4" or 2" diameter which fits were the eyepiece goes. Were the full frame "T" ring connects to a special lens, and that lens fits where the eyepiece goes or thread directly to the focuser tube.

These lenses have very different jobs, it all depends on the type of telescope.

Newtonian telescopes require a coma corrector lens. If you have ever looked through a Newtonian telescope and noticed that the stars at the edge of the field of view are not round and can be seagull in shape, this is coma. The shorter the F ratio of the telescope, the worse the coma becomes. Most coma correctors are made for telescopes with a F ratio of between 4 to 5. A downside of a coma corrector is that it increases the focal length by 15%. Also, coma correctors vary in price from $300 to $700, the more expensive coma correctors are guaranteed quality and from my experience work exceptional well. The older cheaper coma correctors are a bit hit and miss. The coma corrector that the society owns is the cheaper newer type variety and works exceptional well with the societies 200mm Newtonian and connects with the larger 48mm thread. The coma corrector also moves the focal plan farther outside the focuser, making it possible for the camera to achieve focus. Good news is that the societies 200mm Newtonian comes into focus with or without the coma corrector lens. A Barlow lens will also remove coma but doubles the focal length.





DSLR with "T" ring, Coma corrector on 8" Newtonian

Doublet type refractor telescopes sometimes require a field flattener. Most refractor telescopes have a long focal length with a f ratio of between 7 to 12. Because of the longer focal length, coma is less of a problem. The problem with refractor telescopes is the field of view is slightly fish eyed. Not something we can't notice when looking through the eyepiece of the telescope. It's only noticeable when you try to join 2 images side by side and you find the stars don't match up. A plus side of the field flattener, is it makes the telescope focal length shorter by 15% or times by 0.85. A downside is that field flatteners are expensive around $750, which can be more than the cost of the telescope. The field flatteners also require the larger 48mm diameter thread "T" ring. To fit the field flatteners, you need to remove everything from the focuser draw tube except the locking ring. Then you can just thread on the field flattener, then thread on your 48mm "T" ring, then attach your camera. Good news is, that the society has this type of field flattener and is fits the 100mm refractor in the small dome. I have tested this telescope with the field flattener and it works remarkable well.



DSLR with "T" ring, field flattener on 80mm refractor

Triplet type refractor telescopes don't suffer from coma or flatness distortions, so don't need any corrective lens. All you need to do, is remove the eyepiece and diagonal from the telescope. Then attach a 42mm "T" ring with a 2" nose to your camera and fit the camera to the telescope. If the camera doesn't come into focus, you will need to add in a short extension tube. Good news is, that the society has this type of triplet 127mm telescope and the 42mm "T" ring with a 2" nose and extension tube.



DSLR with "T" ring, spacer on 127mm refractor

Cassegrain telescopes don't suffer from coma or flatness distortions, so don't need any corrective lens. Modern Cassegrain telescopes have the coma corrector built in. This is the flat glass plate at the front of the telescope which also holds the secondary mirror. This glass plate may look flat, but it has a complex curve which slightly changes the light path towards the primary mirror.

When fitting a DSLR camera, all you need to do, is remove the eyepiece and diagonal from the telescope. Then attach a 42mm "T" ring with a 2" nose to your camera and fit the camera to the telescope. If the camera doesn't come into focus with the secondary focuser, you will need to adjust the focus with the prime focusing knob at the back of the telescope. Please make sure you don't turn the mirror locking knob, as this could damage the internal mechanism.


DSLR with "T" ring, spacer, Telecompressor on Meade 350mm

The society has 3 of this type of telescope. The largest being the 350mm Meade which has a focal length of 3500mm. The other 2 telescopes are 280mm Celestron with a focal length of 2800mm.



2 inch

You have probably noticed that these telescopes have much longer focal lengths than the Newtonian or refractor telescopes. In fact, around 3 times longer. And if you have done any astrophotography, you would know, that its way more difficult imaging with long focal length telescopes. The solution is to use a focal reductor or Telecompressor, which works in the opposite way to a Barlow.

This focal reducer or Telecompressor lens thread on to the 48mm "T" ring and slides straight into the 2 inch focuser. Focal reducers come in a few sizes, 0.7 and 0.5 are the most common. When attached to the 350mm Meade, a 0.7 reducer will shorten the focal length to 2450mm and the 280mm Celestron will shorten to 1960mm. These are much more user friendly focal lengths.

Good news is that the society own a 0.7 Telecompressor and it comes with 2 spacers, the shorter spacer it for DSLR with a cropped 2/3 sensor and the longer spacer is for a full frame DSLR. I have used this focal reducer many times and it always produces excellent results.

Ha Solar telescopes usually have a short focal length and when connected to a DSLR product a smaller than desirable image. With the right adaptors we can connect a Barlow lens directly to a 42mm "T" ring. This is a very neat and tidy solution and doubles the image size. I have found that my 40mm PST Ha Solar telescopes will not come into focus unless I use this Barlow lens and "T" ring configuration. *See image at right*


1 1/4 inch

Imaging the Planets with a DSLR camera connected to a telescope, will produce a very small image of the planets, due to the large sensor size. Most astrophotographers will add in a Barlow lens and spacers. I have found the more common smaller 1 1/4" diameter Barlow lens are not quiet up to the job. A better option is a 2 inch Barlow, which can carry the weight of the DSLR camera. But this always looks ungainly, as you can often end up with a collect of adaptors 300mm in length, hanging off the telescope. Which can also put a lot of strain on the focuser. *See image on next page*



1 1/4 inch 2.5 times Barlow


DSLR with "T" ring, 1 1/4 inch 2.5 times Barlow on 12" Newtonian

Helpful hints - Before you go adding all your adaptors, Barlow and camera to the telescope. Its best to just fit the camera to the telescope and get a good focus on the planet using the live view on the camera, also making sure the planet is to the centre of the screen before you take a few images. Then add your 2 times Barlow and re focus the planet making sure the planet is still the centre of the screen before you take more images. Then to make the image of the planet even larger, you can add a spacer tube between the camera and Barlow. The longer the spacer the greater the magnification. Roughly speaking, if you double the length of your Barlow, you double the magnification. And by adding in more spacers, you can get four or Five time the magnification. But its best to only add one spacer at a time, then re-focus, making sure the planet is still in the centre of the screen. It's very easy to lose the planet and focus, meaning you will need to remove a spacer and start again. Also, if the seeing conditions are less than perfect, you'll need to find the limit of magnification you can achieve on the night.



2 inch 2 X Barlow with 3 spacers, "T" ring with DSLR on 12" Newtonian

Once you are happy with the size of the planet. You will need to play around with the iso and exposure time. And once you have found you cannot improve the image anymore, then take another 20 images using these settings. It's always best to take too many images, as when you upload them to your computer, you will see that there all different and one will stand out better then all the rest. This is because there are many variables, seeing conditions, wild, human error and tracking errors.



Inverse square law - Please note, that every time you double the magnification, you will need to increase the exposure time by 4 times or increase the iso setting.

Another trick often used when imaging the planets, is to place an aperture mask over the front of the telescope. This reduces the amount of light getting to the camera and usually produces a sharper image, especially in times of poor seeing conditions. Always place the hole at the bottom as heat rises. Also good for viewing or imaging the moon. The society has aperture masks to suit most of the larger telescopes. *See right*

When imaging the planets a better option it to use a Tele-convertor which is made to suit your camera. These Tele-convertors come as a 2 times or 3 times magnification and can be picked up second-hand fairly cheap, as people buy them thinking this is something that they need, but never use it. Over the years I have bought many Tele-convertors and sometimes stack 3 Tele-convertors together. The ideal focal length for imaging the planets with a DSLR camera is 12 metres or longer. Using the societies 350mm Meade with a 3 times Tele-convertor produces a focal length of 10.5 metres which is almost good enough. Using the Meade with the 2 & 3-times Tele-convertors double stacked produces a focal length of 21 metres which give a better result.





The best way to get to grips with these Lens and "T" rings. Is to come along to one or all of the MPAS observatory open nights. And one of the experienced members will help you get started.

By Greg Walton

Lake Nillahcootie Star Camp, 10th to 12th September.

Nillahcootie Astro Camp is a Stargazing and Astrophotography camp held at Nillahcootie Camp, on lake Nillahcootie, just 23km north of Mansfield. The camp is organised by Andrew Campbell, Paul Fitzgerald and Steve Fleming, and is usually held twice a year around March and September. Apart from the spectacular Bortle 2 dark sky location, the other highlight of the event is Steve's slow cooked smoked Pork and Brisket dinner that he puts on for participants.

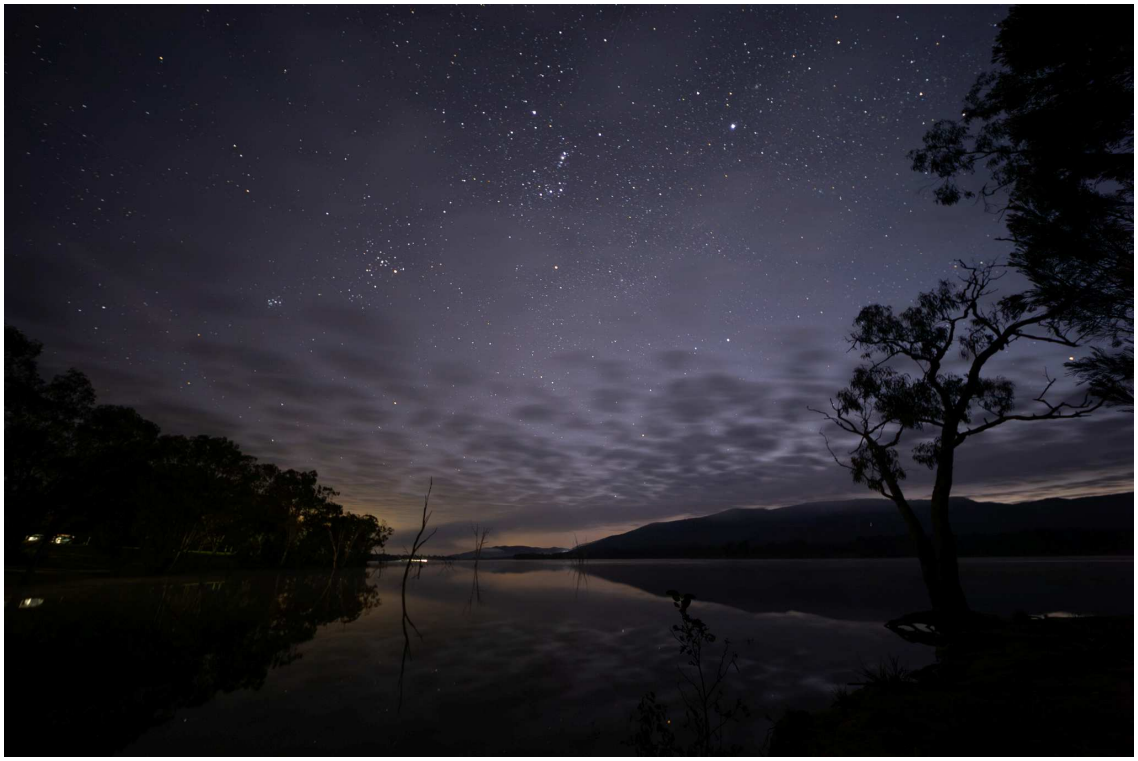
The camp has ample open fields for setting up Astrophotography rigs and visual scopes, and power is available on the fields so you don't need to worry about batteries. The nearby lake also allows for nice nightscape photography and timelapses.

Right -

Orion over Lake Nillahcootie.

Canon R6, Laowa 12mm f/2.8

By Chris Kostokanellis



The camp has caravan and tent spaces available for BYO accommodation, but there are also heated bunk rooms available to share. There were many more bunks than participants, so there was no need to fight with anyone over who got the top bunk. (Although everyone seemed to pick the bottom bunk).

The camp has a communal shower and toilet block with plenty of hot water, a large cool room for storage of your food, and a commercial kitchen with everything you need to prepare your breakfast, lunch and dinner. The large heated communal rumpus areas have plenty of space for lounging, tables and power for your laptop and devices.

MPAS members who attended the camp this year we me, Dave Rolfe and Jamie Pole. We had 2 clear nights on Friday and Saturday, and some of our images from the event are in this issue of the newsletter. The Veil Supernova Remnant was able to be imaged, skimming just above the tree line to the North, and is an object we aren't able to image from the Peninsula, but I managed to get some time on it.

I bought along my 80mm refractor with my ASI294 MC Pro camera and imaged NGC 6960, the Corona Australis Nebula, and NGC 1788 in Orion. I also had my Canon R6 MkII which I used with a Laowa 12mm lens for a North facing timelapse over lake Nillahcootie, as well as mounting it on my Skywatcher AZGTi tracker with a 24-240mm lens to capture Corona Australis, M42 and the Horsehead, and a wide field shot of M16.

This is a great event, with friendly, sociable and helpful people. It's the 2nd one I've attended and won't be the last.



Left – NGC 6960 – The Western Veil Nebula / The Witch's Broom.
ASI294 MC Pro, Sharpstar CF80 Triplet.

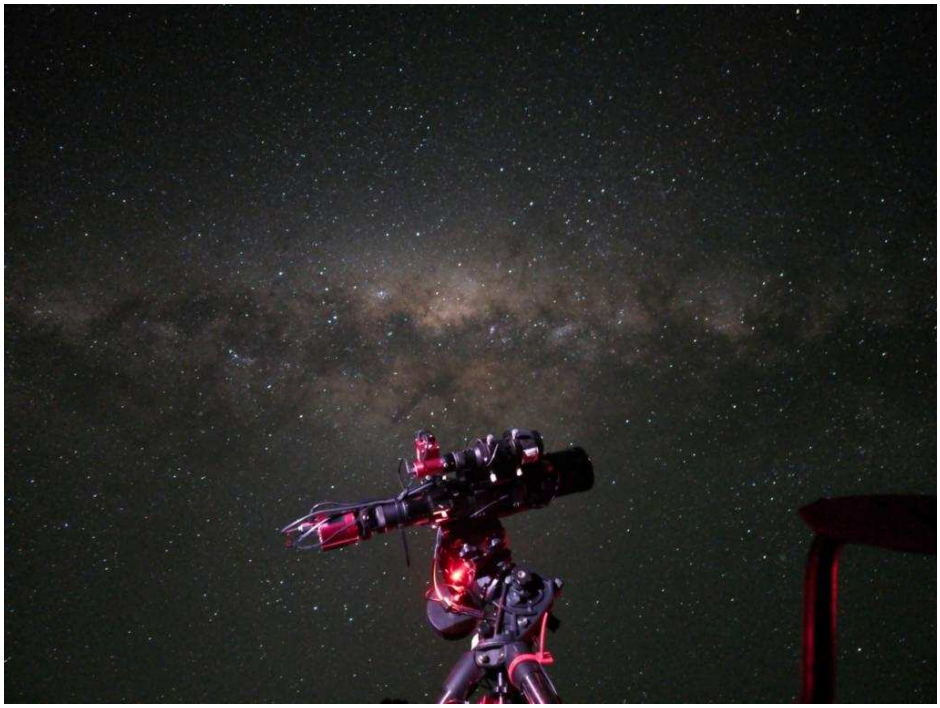
By Chris Kostokanellis

Right -

Centre of the Milky way imaged from Lake Nillahcootie Star Camp,
Victoria.

By Chris Kostokanellis





M42 and Barnard 33. In Orion, from Lake Nillahcootie Star Camp.

This is a stack of 122 x 30 sec exposures, ISO 6400, with my Canon R6 Mk II, and the 24-240mm lens at 240mm, f/6.3.

I had actually captured 473 frames, but most were unusable as the tracker wasn't tracking very well so the framing drifted later in the session, and the lens distortion was too great for the Stacking programs I use to deal with (according to my knowledge of them). So this is a cropped section of the full image.

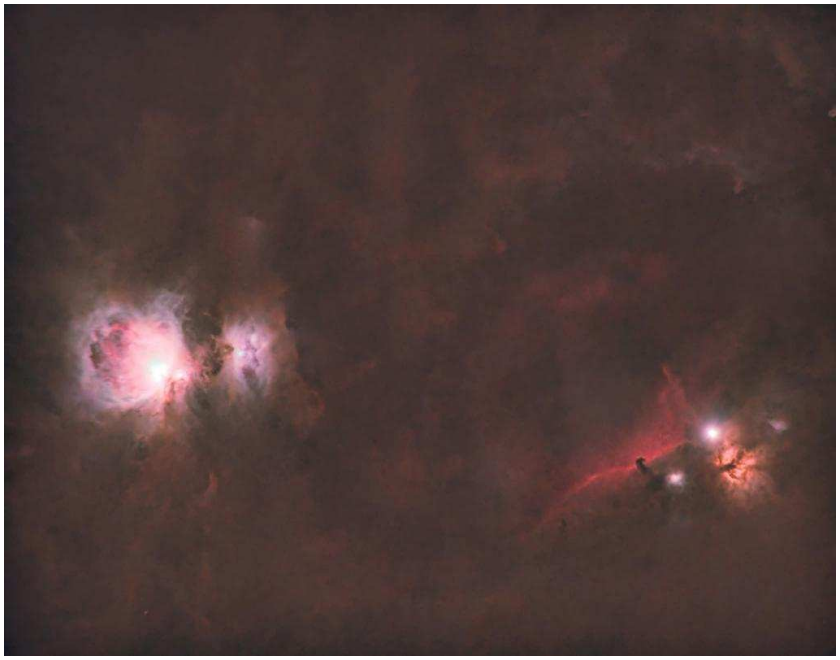
Still, lots of detail in the dust clouds as you can see in the extra stretched version of the starless image.

The unprocessed full frame stacked image (auto stretched) is also attached.

By Chris Kostokanellis







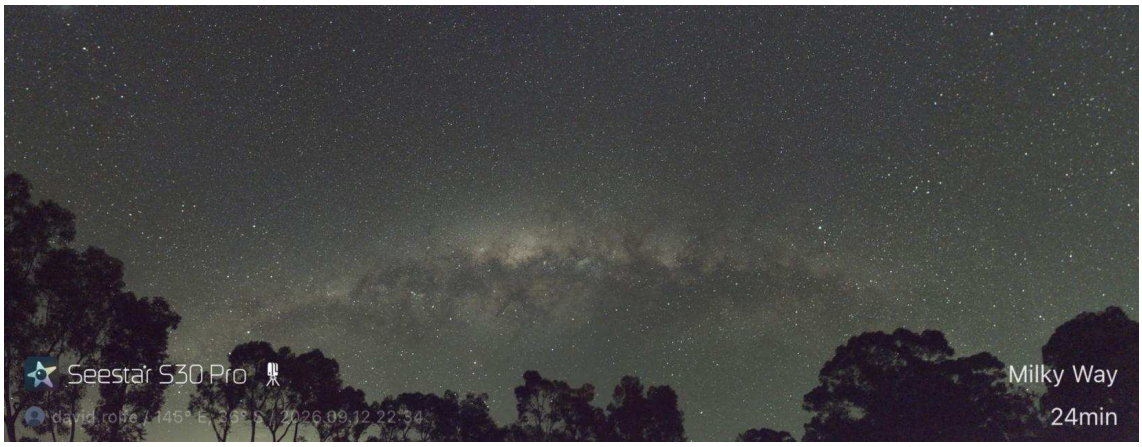
This page -

S30 Pro SeeStar Pics from me from the weekend @ Nillacoote Star Party.

In Alt/Az mode, details in watermark.

2 Cracking nights (Night 1 had a lot of dew later in the night).

By Dave Rolfe















MEMBERS GALLERY

Right -

Hamburger galaxy NGC5128

Hi Greg, Just wanted to say many thanks for your guidance.

I was able to stack some images together and have done some processing in Siril (first time using Siril) to get the following which I am quite happy with but am sure that it could be much improved.

Regards Colin Rock



Right -

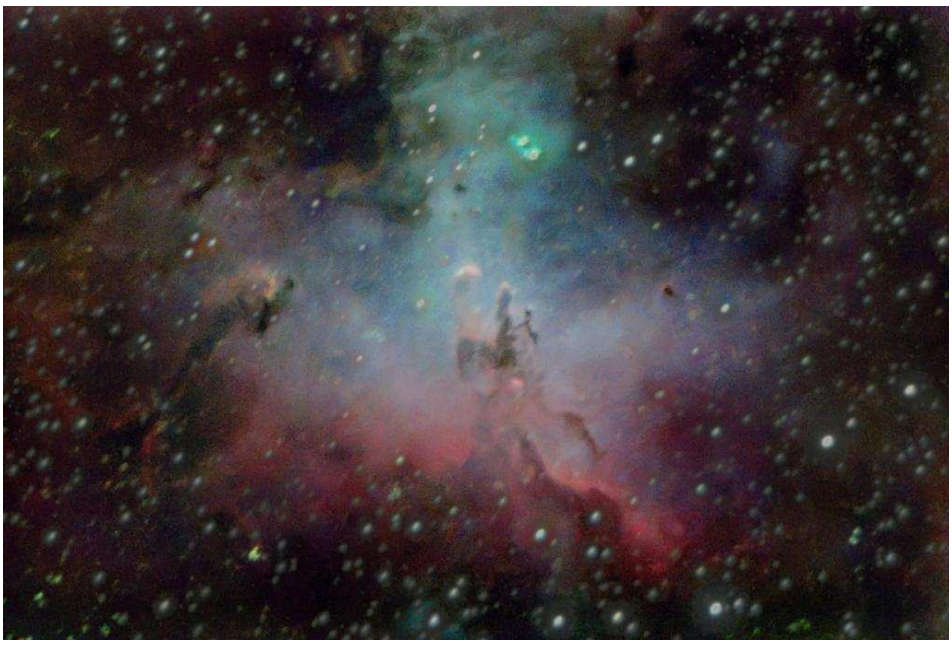
M16 imaged from the MPAS observatory on 8th October 26.

Telescope - 11 inch Celestron F10
Camera - Nikon DSLR

I tested 60s exposures for the first time at M16 however it did result in a little bit of star trailing. I'm still really happy with how it turned out considering this!!

Used a mix of software, mainly Registax, Siril and GIMP :)

By Maya Trcek



Right -

Trifid nebula M20
Captured last night in Rosebud

By Souren Harutyunan

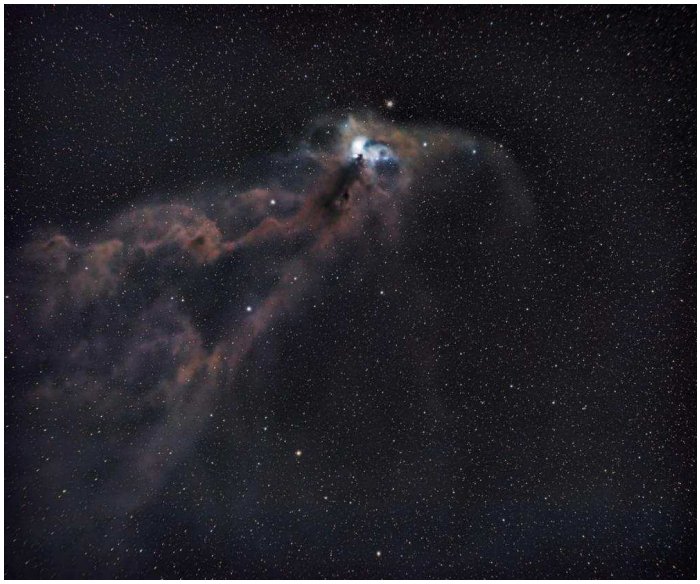


Right and cover image -

Corona Australis – The Southern Crown. Nebula NGC6729 C68

The combination of dark and reflection nebula is often called “The Ant Eater”
This is from Lake Nillahcootie Star Camp, captured with my Canon R6 and 24-240mm lens at 240mm.

By Chris Kostokanellis



Right -

Venus imaged through my 200mm F5 Newtonian with a 5 x Powermate Barlow.

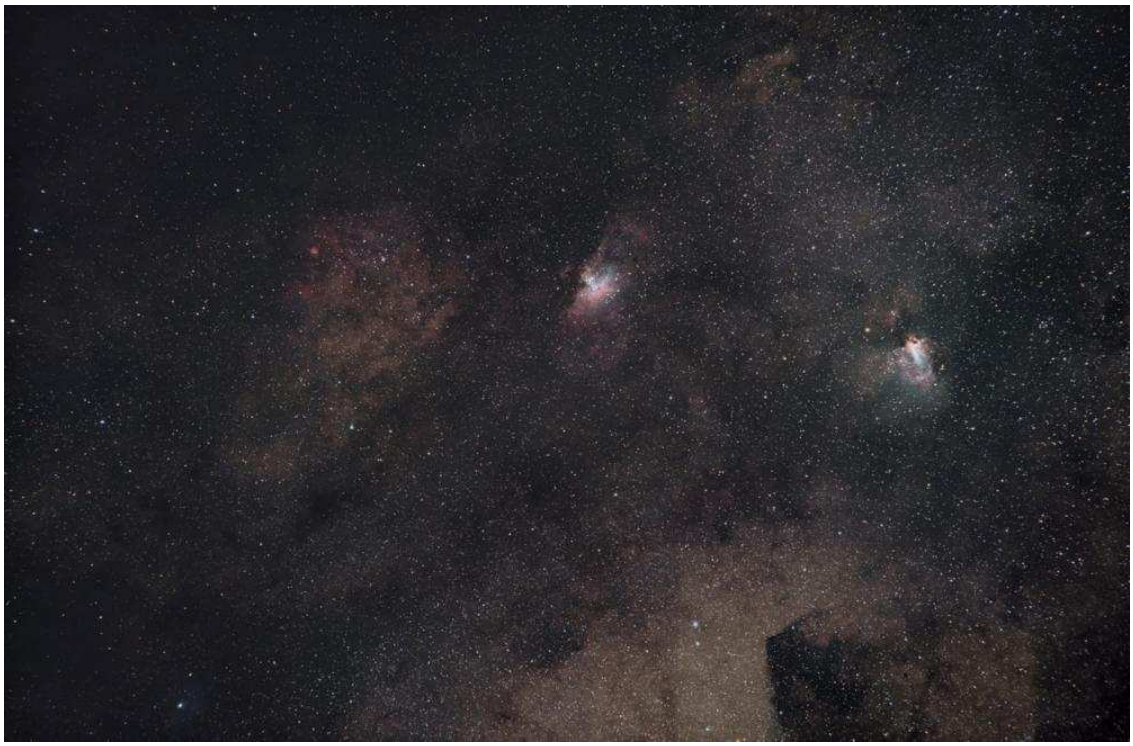
By Chris Kostokanellis



Right -

The Angry Head, The Pretty Face, and Omega nebula
M16
Swan nebula M17

By Chris Kostokanellis



Right -

Flame and Horse head Nebula NGC2024 & Barnard 33

ZWO 294mc pro

UV ircut Filter

TS 130 APO

Altair O.6 reducer

3 hours 120 second subs

This is a complete revision of the original I took a few years ago with the new updated Pixinsight and RC-Astro suite. The stars look way better the whole image has a deeper richer look and the horsehead itself fully zoomed reveals way more detail.

By Nik Axaris



Right -

CG4, the hand of God

Reprocess using Pixinsight's latest tools, the difference between this and previous efforts is like night and day.

13.7 hours of 900 second exposures taken over 3 nights a while ago.

TS-130 APO riccardi 0.75 reducer

Optolong L-ultimate filter

ZWO Asi 924mc Pro

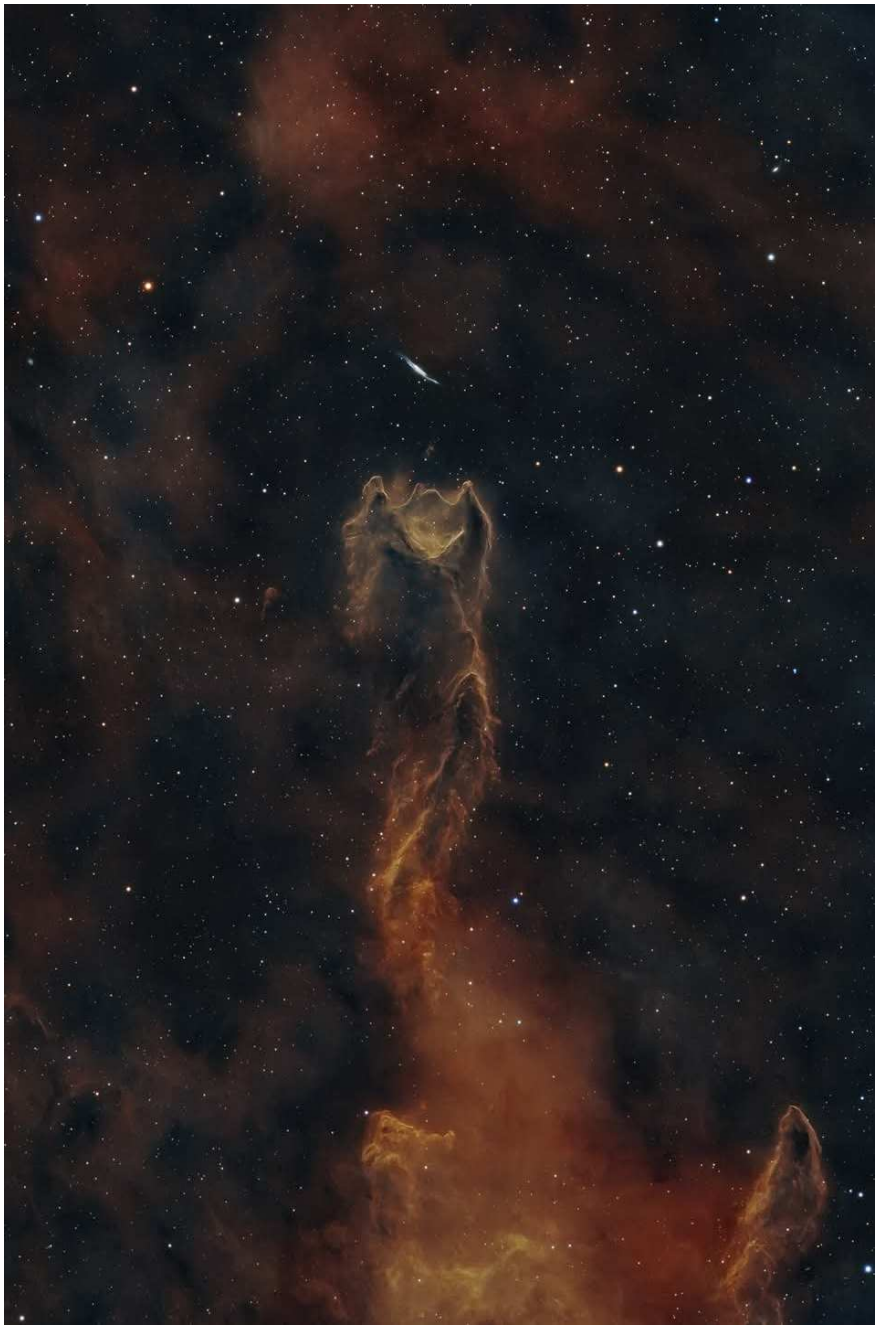
Stacked in Astropixel processor

Processed in Pixinsight using the latest versions or RC-Astro blur and noise exterminator

Optolong L-Pro 1 hour of 120 seconds exposures for the RGB stars

Finished off in Photoshop.

By Nik Axaris



Below - Corona Australis Nebula NGC6729 C68 and Globular cluster NGC6723

Playing around with stackwizard and Astrowizard this is excellent free software made by Lucomatico.
Works very well together and so simple to use. This is a stack of 178 images all taken with the 294mc Pro on my 130 APO.

By Nik Axaris



Far right - M17

Although there were scattered clouds rolling through the sky over Patterson Lakes last night and I couldn't get the length of exposure that I was hoping for to bring out the brightest of colours I still got 1 hour of 10 second exposures. This is M17 Nebula about 5000 light years away.

By Dennis Cooke

Right - M16

The sky was nice and clear over Patterson Lakes last night

By Dennis Cooke

Below 4 images-

M17, M6, M8 and NGC104

Imaged with the telescopes in the MPAS observatory.

By Atul Bhattarai













MO PHO CHALLENGE

Chris Kostokanellis

Mornington Peninsula Astronomical Society

Astro Mo Pho #34 – Planetary Nebulae.

The 34th Monthly Photo Challenge was to image Planetary Nebulae.
These are remnants of stars up to 8 times the mass of our sun, which have burned through their available nuclear fuel. Since they lack the gravity to continue to fuse heavier elements in their core, the core collapses into a very dense state known as a White Dwarf. The collapse causes the core to heat up dramatically, its intense heat and radiation pushing away the outer layers of the star to create the variety of colourful shapes and patterns we know as Planetary Nebulae.
Members who completed this challenge were Michael Barrow, Sylvie Grandit, Leigh Hornsby, Steve Lomax, Mark Stephens, Chris Kostokanellis, Dave Rolfe, Greg Walton, Maya Trcek and Dennis Cooke.

Planetary Nebulae summary is now available at the following link:
https://drive.google.com/file/d/1sGgp46bVX9mgm7ygsbgSUtfuMpBRe299/view?usp=sharing

Clear skies. Chris Kostokanellis

Below - Astro Mo Pho. - My latest attempt at the Helix Nebula NGC7293 from my back yard 4 hours of 20 second exposures.

Also imaged - The Bug nebula NGC6302 in Scorpius & The Spare Tyre nebula IC 5148 in Grus. *By Steve Lomax*







Right -

Astro Mo Pho challenge

A very splotchy C 63, The Helix Nebula NGC7293. 100% moon, 569 x 10sec exposures from my S50 Seestar.

Couldn't get a good removal of the gradient as the moon was so close and bright.

Processed in Siril with Naztronomy stacking, Syqon and Veralux scripts.

By Michael Barrow





Right -

Astro Mo Pho challenge. C63 (Helix nebula) NGC7293 imaged 03-09-26 with Dwarflab Mini. 206 x 15s using built in Astro filter. Processed in Stellar Studio. Still working out how to fly it.

By Leigh Hornsby



Right -

M27

Et voila, my attempt at the Dumbbell Nebula!

By Maya Trcek



Right -

Mo Pho.
Just 1 image for this month.
NGC 7293 – The Helix Nebula.

By Dennis Cooke



Right -

Astro Mo Pho.
NGC 7293 – The Helix Nebula.
First images from the Seestar.
Imaged from Nillacoote Star Party.

By Dave Rolfe

Right -

ASTRO MOPHO 31/08/2026

NGC 7293 HELIX PLANETARY NEBULAE

EQUIP: Skyrover 115, reducer /flattener .08 = 644 focal length, L extreme filter

41x 180 sec stacked in ASIAIR DSO only (2nd image)

By Sylvie Grandit



Right -

ASTRO MOPHO – Bug Planetary Nebula 40x180 sec
Stacked only not manipulated
Equip: Sky Rover 644 focal length (used flattener reducer)

By Sylvie Grandit

Below -

ASTROMOPHO – Southern ring planetary nebula NGC 6563
EQUIP: Skyrover 7 mc2600 mcpro

This thing is soooooo tiny

By Sylvie Grandit







Right -

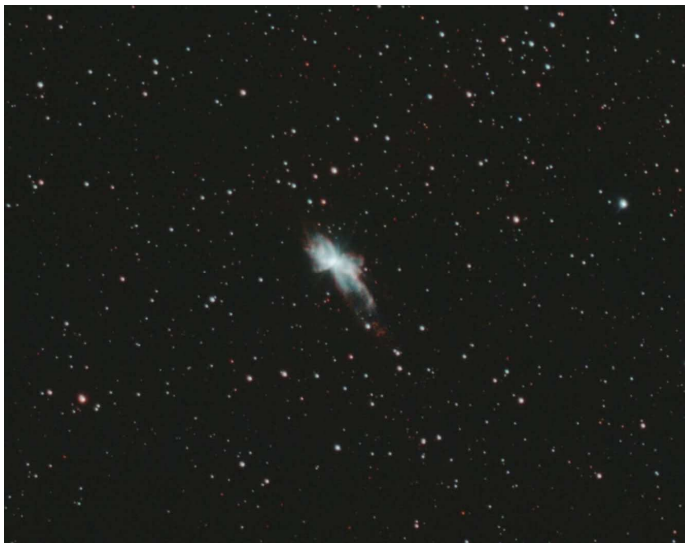
Astro Mo Pho. NGC 6302 – The Bug Nebula in Scorpius.
It is material that has been blown off a star around 5x the mass of our sun as it comes to the end of its life. The nebula is around 2 LY long.
This is a crop of the larger image.

Imaged on Sunday night with my 200mm Newtonian, Optolong L-Extreme Ha / OIII filter and ASI 294 MC Pro camera.

Stacked in ASTAP with lights, darks flats and dark flats and processed in Siril.

This is only 41 x 60 sec exposures.

By Chris Kostokanellis





Left -

Astro Mo Pho. NGC 7293 – The Helix Nebula.
A nearby (650 LY) planetary nebula in Aquarius.
This is seen in a telescope on a moonless night, and I've even spotted it in my 15x70 Binos from a dark sky site.

This is 20 x 300 sec exposures from 4/9/2026 from Seaford.
200mm Newtonian, Optolong L-Extreme Ha/OIII filter, Coma Corrector, ASI294 MC Pro.
Stacked in DSS with Lights, Darks, Flats and Dark Flats, and processed in Siril.

By Chris Kostokanellis

Right -

Astro Mo Pho. NGC 7009 – The Saturn Nebula – Aquarius.
Overexposed but with some nice diffraction spikes.
11 x 5min subs with the Ha OIII filter and my 200mm Newtonian.
Cropped image

By Chris Kostokanellis





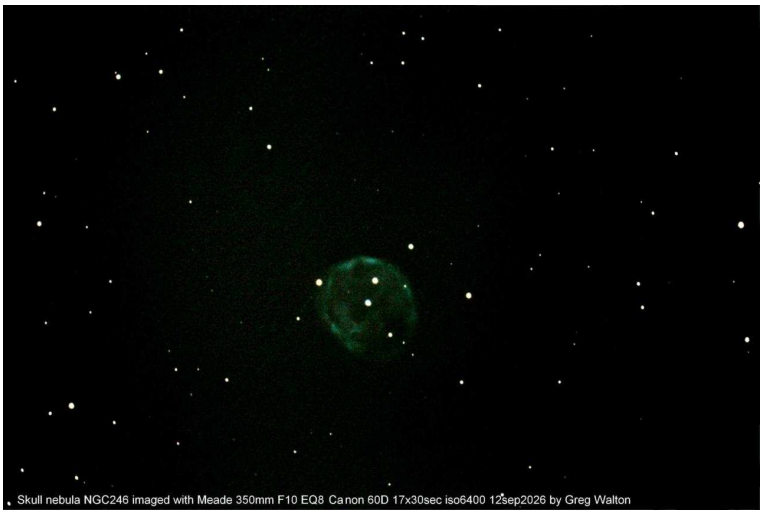
Left -

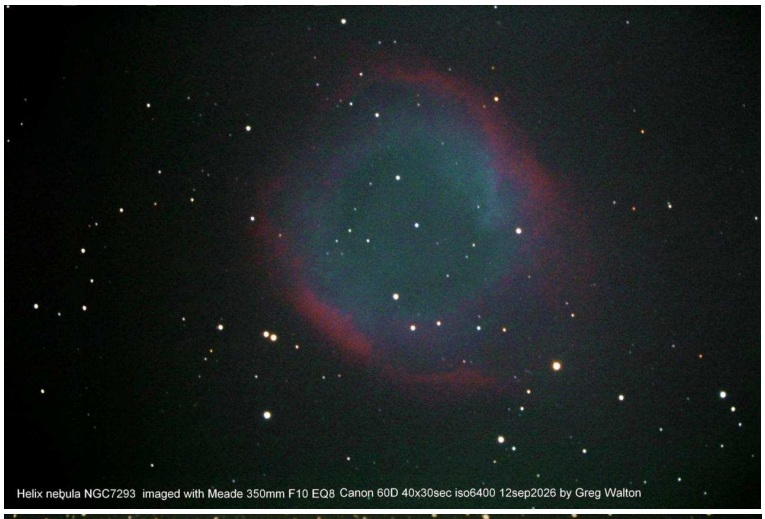
Astro Mo Pho. NGC 6537 – The Red Spider – Sagittarius.
Only 1 single 5 minute exposure with the Ha OIII filter and the 200mm Newt, as the rest were not useable. Cropped image

Definitely an interesting one worth revisiting.

By Chris Kostokanellis

On this page - Collection of planetary nebulas imaged from the MPAS Briars observatory, *by Greg Walton*


Skull nebula NGC246 imaged with Meade 350mm F10 EQ8 Canon 60D 17x30sec iso6400 12sep2026 by Greg Walton


Helix nebula NGC7293 imaged with Meade 350mm F10 EQ8 Canon 60D 40x30sec iso6400 12sep2026 by Greg Walton


Saturn nebula NGC7009 imaged with Meade 350mm F10 EQ8 Canon 60D 1x30sec iso6400 12sep2026 by Greg Walton


Spiral nebula NGC5189 imaged with Meade 350mm F10 EQ8 Canon 60D 18x30sec iso6400 12sep2026 by Greg Walton


Bug NGC6302 imaged with Celestron 280mm F10 EQ6 Pentax K30 28x30sec iso6400 12Sep2026 by Greg Walton


M27 imaged with Celestron 280mm F10 EQ6 Canon 60D 7x30 sec iso6400 11Sep2026 by Greg Walton


IC5148 imaged with 200mm Newtonian F5 EQ6 Canon 60D 12 x30sec iso6400 Briars 10sep26 by Greg Walton


NGC6337 imaged with Celestron 280mm F10 EQ6 Pentax K3018x30sec iso12800 12Sep2026 by Greg Walton

Astro Mo Pho #35 – Saturn: Lord of the Rings.

The ringed planet was at opposition on 4th October, and members were tasked with capturing a photo of it for this challenge. Opposition is the point in an objects orbit when it is in the direct opposite direct of the sun. It is highest in the sky at midnight, and is at its closest approach to Earth, meaning it is at is largest apparent size. In this case, Saturn appeared to be 45.9 Seconds of an arc across including its rings. If this sounds small, it's because it is! It's about the same angular size as Tycho crater on the moon. Looking at Sylvie's uncropped photo of it, we see how small it appears in a field of view that would normally be filled by a full moon.
Imaging planets requires long focal lengths for magnification, and large aperture for capturing detail, but most important is good seeing! No matter how big your telescope or how much magnification you have, if the atmosphere isn't calm and stable, all you end up with is a magnified blob.
Well done to Sylvie Grandit, Greg Walton, Atul Bhattarai, Maya Trcek and Chris Kostokanellis for completing this challenge.



Right -

Saturn imaged on 17th September from the Briars.

I used the 350mm Meade and 2 and 3 times Tele-converters with my 15 year old Pentax K30.

This setup produced a focal length of 21 metres. Even then I have cropped the image by 50%

Camera settings where iso 800 ½ second single shot.

By Greg Walton

Right -



ASTRO Mo Pho - Saturn

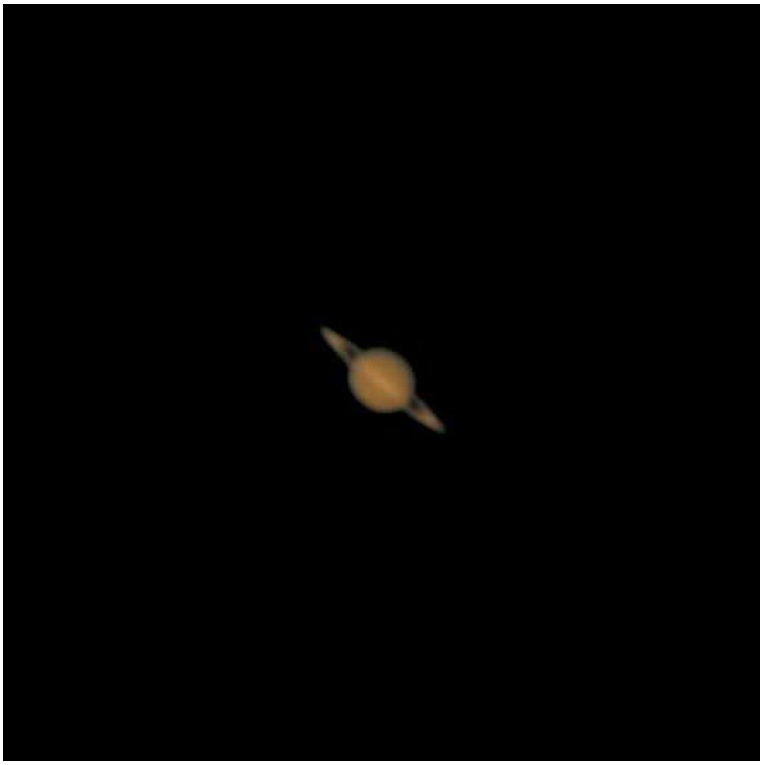
This is as good as it's going to get.

Video stack in the ASIAIR

EQUIPMENT
Skyrover 115 triplet.

By Sylvie Grandit

Right -



Helloooo here's my final attempts at Saturn on the 8th October.

MPAS main observatory.

Telescope - 11 inch Celestron F10 with 4 times Barlow lens.

Camera - Nikon DSLR

By Maya Trcek

Right -

Astro Mo Pho. Saturn - Finally got my Saturn capture for this challenge.

This was on the 11” Celestron in the observatory, and my ASI 294 MC Pro camera.

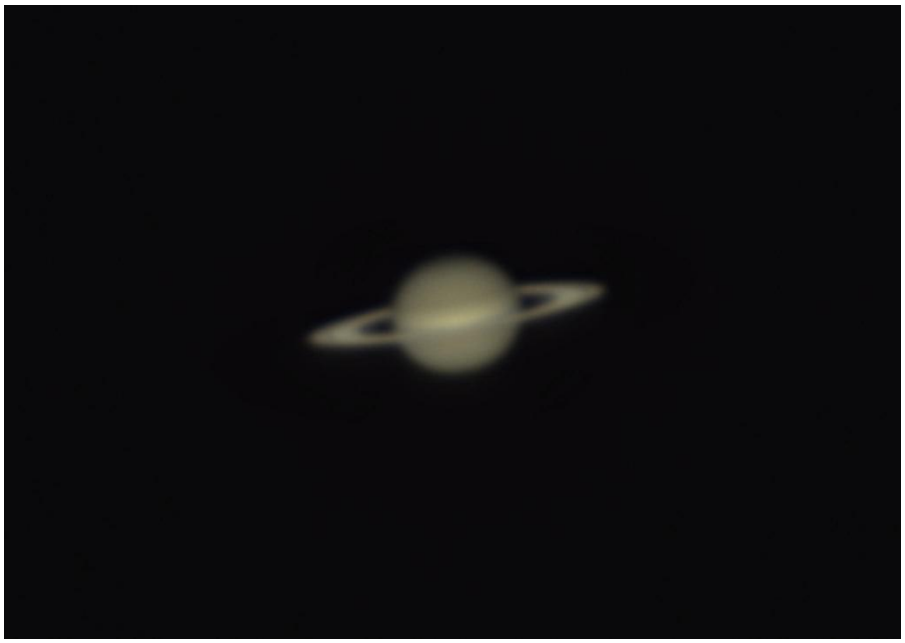
I tried a few different configurations. A 5x Powermate, a 2x Barlow, and straight through. Conditions were good to start off, but the wind picked up when I started imaging and the seeing got worse.

The 2x Barlow seemed to give the best results as it was the best compromise between magnification and faster exposures.

Capture:
Exposure: 15ms, Gain: 404, Capture Area: 1024 x 768, Frame count: 10,169

Processing: Autostakkert: best 10%, 1.5x Drizzle. Siril: Wavelet sharpening, colour adjustment, brightening.

By Chris Kostokanellis



Right -

Saturn, from the back yard on Saturday night 17th October.

By Chris Kostokanellis



Right -

Saturn.

MPAS main observatory.

Telescope - 14 inch Meade F10 with 5 times Barlow lens.

Camera - Canon 1300D DSLR

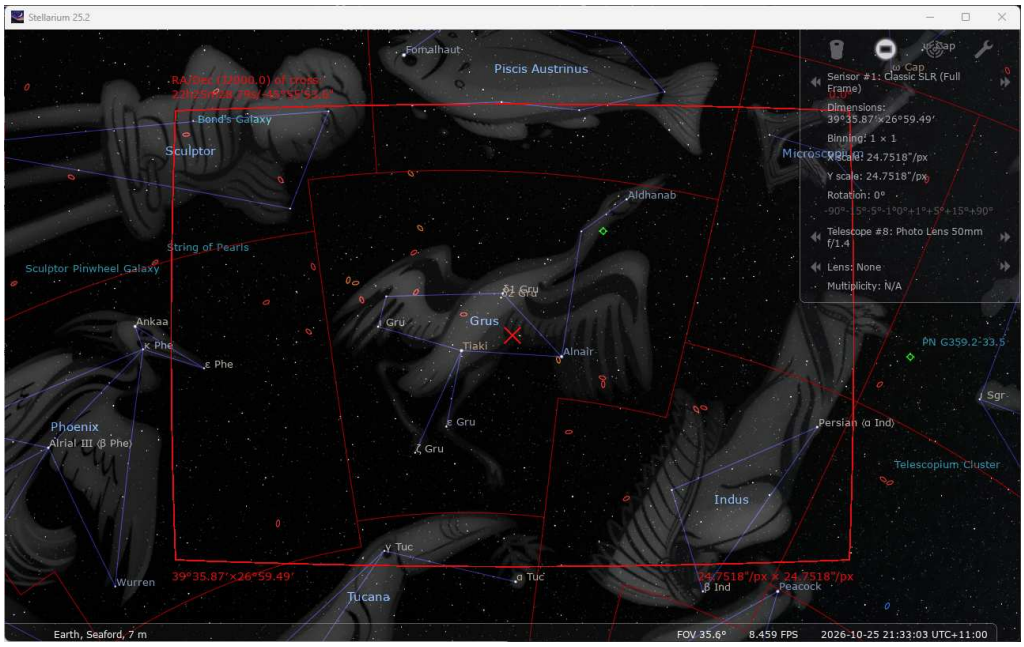
The best shot form many.

By Atul Bhattarai



Mo Pho Challenge #36 October – November: The Grus Constellation.

Our current Photo Challenge is imaging the Grus constellation, and objects within it. Grus – The Crane, is currently high in the sky, and can be easily seen by facing south, and shifting your gaze up towards Zenith at around 9:30 PM. It is nicely framed by a 50mm lens on a full frame camera, as you can see in this screenshot from Stellarium.



Key targets within Grus include the Grus Quartet (NGC 7599, 7590, 7582 and 7552) a group of 4 galaxies captured within the field of view of the MPAS 127mm Refractor, NGC 7424 – a Grand Design spiral galaxy, and Planetary Nebula IC 5148 – The Spare Tyre.

Grus is also the subject of a Citizen Science project to gauge the effects of light pollution. If you wish to participate, visit globeatnight.org, click “Report” under “Can You Find Grus” to record your observation.
Observations must be made at a time when there is no moon in the sky.
For the purpose of the challenge, try and get a photo where the exposure matches what you see visually.

Clear skies, Chris Kostokanellis

Below - Grus Quartet NGC7590, NGC7599 and NGC7582 imaged with the telescopes in the MPAS observatory. *By Atul Bhattarai*

The missing galaxy from the quartet is NGC7552 which is 1/2 a degree closer to the centre of the Grus constellation and look a bit like a tadpole. There are other galaxies near by NGC7496 and NGC7531 which are also worth a look.



SOCIETY INFORMATION


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Chris Kostokanellis


Nerida Langcake


Jamie Pole


Trevor Hand


Guido Tack


Simon Hamm


Ben Claringbold


Sylvie Grandit


Greg Walton

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President: Peter Skilton
Vice President: Chris Kostokanellis
Committee: Trevor Hand, Guido Tack
Simon Hamm, Ben Claringbold
and Sylvie Grandit

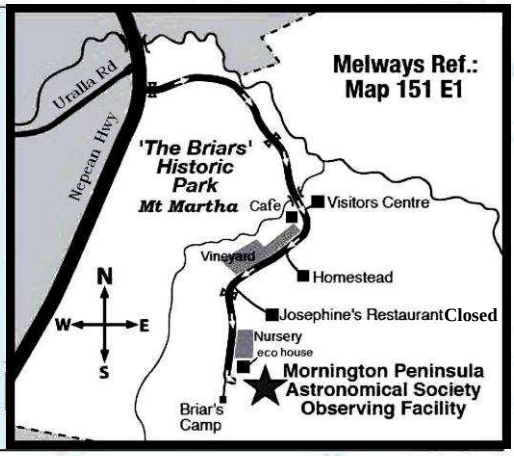
Secretary: Nerida Langcake
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Web master: Guido Tack
Scorpius editor: Greg Walton
Site manager: Greg Walton

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)

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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.

facebook
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:
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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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